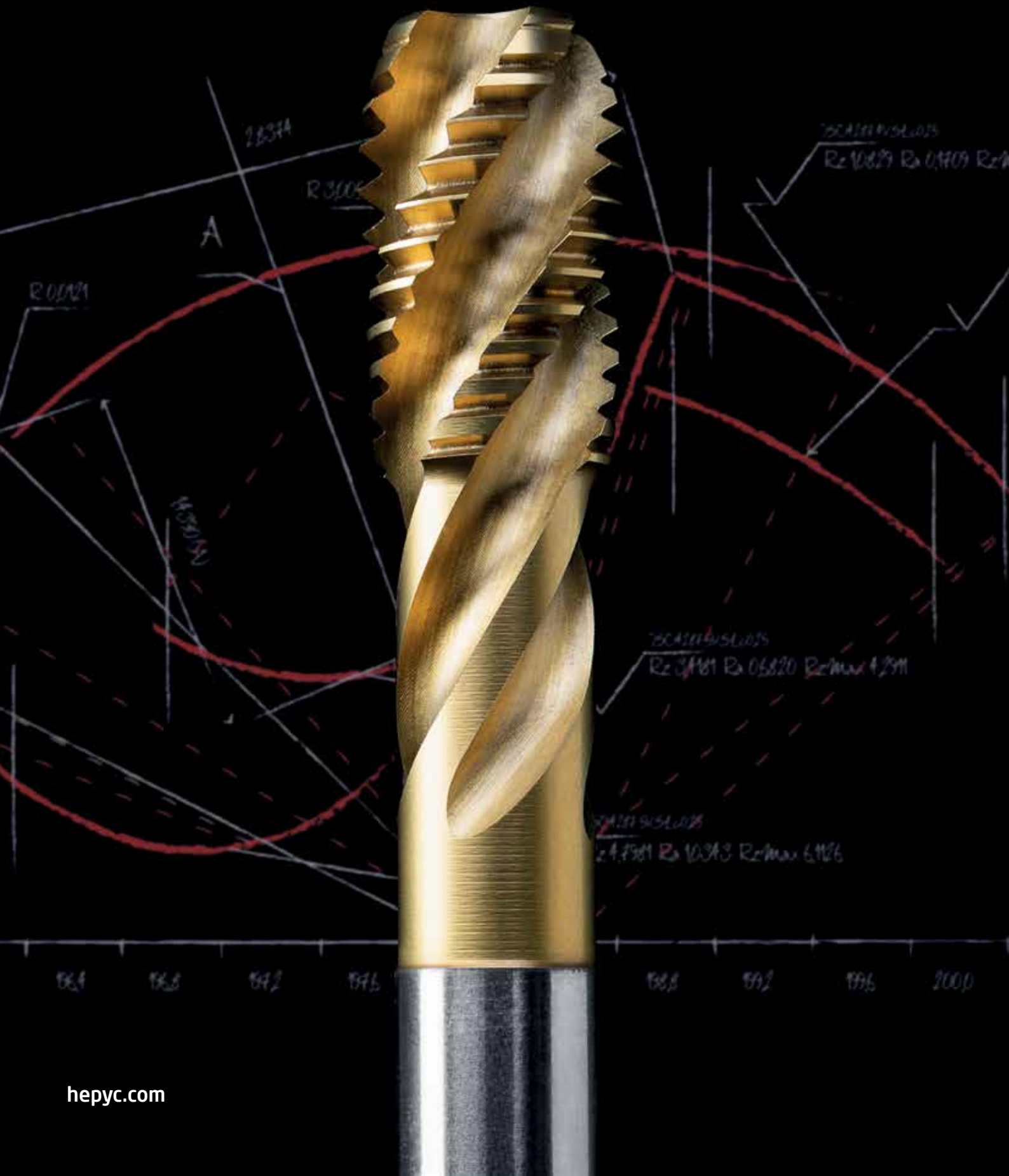
Hepyc CUTTING TOOL EXPERTS

>2020



hepyc.com

ÍNDICE ICONOS / SOMMAIRE DES ICONES / ICON INDEX

SERIE / SÉRIE / SERIE

- **Extra Larga** / Extra longue / Extra-long
- **Larga** / Longue / Longue
- **Corta** / Courte / Short
- **Extra corta** / Extra courte / Extra-short

AFILADO / AFFÛTAGE / SHARPENED

- **Convencional** / Normal / Conventional
- **Corrección de labios** / Correction de lèvres / Lip correction
- Split Point
- **Puntos soldadura** / Points de soudure / Welding points
- **Placa de carburo** / Plaquette carbure / Carbide sheet

ESPIRAL / SPIRALE / SPIRAL

- **Espiral a 8º** / Spirale à 8º / 8º Spiral
- **Espiral a 15º** / Spirale à 15º / 15º Spiral
- **Espiral a 18º** / Spirale à 18º / 18º Spiral
- **Espiral a 25º** / Spirale à 25º / 25º Spiral
- **Espiral a 30º** / Spirale à 30º / 30º Spiral
- **Espiral a 35º** / Spirale à 35º / 35º Spiral
- **Espiral a 40º** / Spirale à 40º / 40º Spiral
- **Espiral a 45º** / Spirale à 40º / 40º Spiral
- **Espiral S** / Spirale S / S Spiral
- **Giro a izquierdas** / Rotation à gauche / Anti-clockwise rotation

ASIENTO / VIS / SHOULDERED

- 90º
- 80º

CENTRADO / CENTRAGE / CENTRED

- 20º
- 60º
- 60º / 120º
- **Radial** / Radial / Radial

ÁNGULO DE LA PUNTA / ANGLE DE LA POINTE / TIP ANGLE

- **Punta a 90º** / Pointe à 90º / 90º Tip
- **Punta a 118º** / Pointe à 118º / 118º Tip
- **Punta a 135º** / Pointe à 135º / 135º Tip

MANGO / QUEUE / SHANK

- **Reducido** / Réduite / Small
- **Reforzado** / Renforcée / Reinforced
- **Delgado** / Fine / Thin

ENTRADA / ENTRÉE / ENTRY

- 3,5-5h
- 1,5-2h
- 6-8h
- **3,5-5h Entrada corregida** / Entrée corrigée / Corrected entry
- 2-3h

TOLERANCIA / TOLÉRANCE / TOLERANCE

- **Tolerancia 2A** / Tolérance 2A / 2A Tolerance
- **Tolerancia 2B** / Tolérance 2B / 2B Tolerance
- **Tolerancia 6H** / Tolérance 6H / 6H Tolerance
- **Tolerancia 6HX** / Tolérance 6HX / 6HX Tolerance
- **Tolerancia 6H+0,1** / Tolérance 6H+0,1 / 6H+0,1 Tolerance
- **Tolerancia 6G** / Tolérance 6G / 6G Tolerance

TIPO DE AGUJERO / TYPE DE TROU / TYPE OF HOLE

- **Pasante "gun"** / Débouchant "gun" / "Gun" bushing
- **Pasante** / Débouchant / Bushing
- **Ciego** / Borgne / Blind
- **Roscado por laminación** / Filetage par laminage / Threaded by lamination

OTROS / AUTRES / OTHERS

- **Taladro manual** / Perçage manuel / Manual drill
- **Asiento Allen** / Vis Allen / Allen setting
- **Conicidad 2%** / Conicité 2% / 2 % Taper
- **Micrograno K30** / Micrograin k30 / K30 Micrograin
- **Acero ASP** / Acier ASP / ASP Steel
- **Mango Hexagonal** / Queue Hexagonal / Hexagonale shank

TIPOS DE PUNTA / TYPES DE POINTE / TYPES OF TIPS

- **Radial** / Radiale / Radial
- **Normal** / Normale / Normal

LABIOS / LÈVRES / LIPS

- **Debaste** / Dégrossissage / Grinding
- **Debaste fino** / Dégrossissage fin / Fine grinding
- **Acabado** / Finition / Finishing

CORTES / DENTS / CUTS

- **1 corte** / 1 dent / 1 cut
- **2 cortes** / 2 dents / 2 cuts
- **3 cortes** / 3 dents / 3 cuts
- **4 cortes** / 4 dents / 4 cuts
- **Varios cortes** / Plusieurs dents / Various cuts

DENTADO / DENTURE / TEETH

- **Dentado aluminio** / Denture aluminium / Aluminium teeth
- **Dentado cruzado** / Denture croisée / Crossed teeth
- **Dentado diamond** / Denture diamond / Diamond teeth

Materia prima / Matière Première / Raw Material									
				Composición / Composition					
Nombre /Nom / Name		Nr.	HS	C	Cr	Mo	W	V	Co
HSS	M2	1.3343	6-5-2	0,9	4,2	5,0	6,4	1,8	-
HSSCO/HSSE (5%Co)	M35	1.3243	6-5-2-5	0,93	4,2	5,0	6,4	1,8	4,8
HSSE (8%Co)	M42	1.3247	2-9-1-8	1,08	3,8	9,4	1,5	1,2	8,0
HSSE-PM	ASP 2030		6-5-3-8	1,28	4,2	5,0	6,4	3,1	8,5
	ASP 2052		10-2-5-8	1,6	4,8	2,0	10,5	5,0	8,0
				WC	Co	Grain			
HM	ISO	K20-K40		90	10	0,5-0,8			

Tratamientos y Recubrimientos / Traitements et Revêtements/Traitements and Coating					
	Tipo/Type	Temp.Max.	HV	Coef. fricción	
VAP		300ºC	800	0,7	Vapotización / Vaporisation / Vaporization
TiN		500ºC	2500	0,5	Nitruro de Titanio / Nitrure de Titane / Titanium Nitride
TiN+	Multi	800ºC	3500	0,3	TiAlN + TiN
TiAlN	Multi	1000ºC	3500	0,5	Nitruro de Titanio Aluminio / Nitrure de Titane Aluminium / Titanium Aluminium Nitride
TiCN		400ºC	3300	0,5	Carbonitruro de Titanio / Carbonitrure de Titane / Titane Carbonitride
TiCN+	Multi	400ºC	3700	0,2	TiN + TiCN
AlCrN	Multi	1000ºC	3300	0,4	Nitruro de Cromo Aluminio / Nitrute de Crome Aluminium / Cromium Aluminium Nitride
AlCr	Multi	1000ºC	3300	0,4	Cromo Aluminio / Crome Aluminium / Cromium Aluminium
HL	Multi	800ºC	3000	0,15	TiAlN + WC/C

Materiales ISO / Matériaux ISO / ISO Marterials

		Material	Matières	Material	(N/mm2)	HB 30	HRC	Mat-Nr	DIN	AISI	UNE	Brand name
P ACEROS ACIERS STEELS	P.1	Aceros blandos fácil mecanización	Aciers de décolletage	Free-machining steels	<600	<175		1.0722	10SPb20	1108	10S20	
	P.2	Aceros de construcción	Aciers de construction	Construction steels	<800	<240		1.0503	C45	1045	F114	
	P.3	Aceros baja aleación y cementación	Aciers de bas alliage et cementés	Low alloyed and case hardening steels	<1000	<300	<30	1.7225	42CrMo4	4140	F-1252	
	P.4	Aceros aleados tratados o nitrurados	Aciers alliés traités et nitrurés	Alloyed heat-treatable and nitriding steels	<1200	<360	<38	1.8159	51CrV4	6150	51CrV4	
	P.5	Aceros tratados de alta aleación	Aciers traité du haute alliage	High alloyed hardened steels	<1400	<430	<44	1.8523	40CrMoV13-9			
M ACEROS INOX ACIERS INOX STAINLESS STEEL	M.1	Ferríticos y martensíticos	Ferritiques et mastensitiques	Ferritics and martensitics	<950	<285		1.4104	X14CrMoS17	430 F	F-3431	
	M.2	Austeníticos	Austénitiques	Austenitics	<950	<285		1.4301	X5CrNi18-10	304	F-3551	
	M.3	Austeníticos- ferríticos (Dúplex)	Austénitiques-ferritiques (Dúplex)	Austenitics-ferritics (Dúplex)	<1000	<300		1.4462	X2CrNiMoN22-5-3	2205		
	M.4	Austeníticos- ferríticos resistente a la calor (Super Dúplex)	Austénitiques-ferritiques résistants à la chaleur (Super Dúplex)	Heat resistant austenitics-ferritics (Super Dúplex)	<1200	<360	<38	1.4410	X2CrNiMoN25-7-4	2507		
K FUNDICIÓN FONTE CAST IRON	K.1	Fundición gris con grafito laminar (GJL)	Fontes à graphite lamellaire (GJL)	Cast iron with lamellar graphite (GJL)	<450	<130		0.6010	EN-GJL-100	A48-20 B	GG 10	
	K.2	Fundición gris con grafito vermicular (GJV)	Fontes à graphite vermiculaire (GJV)	Cast iron with vermicular graphite (GJV)	<500	<150			EN-GJV-400			GGV 400
	K.3	Fundición gris maleable (GTMW,GJMB)	Fontes à malleábles (GTMW,GJMB)	Malleable cast iron (GTMW,GJMB)	<800	<240		0.8045	EN-GJMW-450-7	MB 450-7	GTW 45	
	K.4.1	Fundición gris con grafito nodular (GJS)	Fontes à graphite sphéroïdal (GJS)	Cast iron with nodular graphite (GJS)	<700	<210		0.7040	EN-GJS-400-15	60-40-18	GGG 40	GGG 40
	K.4.2	Fundición gris tratada con grafito nodular (GJH,GJS-ADI)	Fontes traités à graphite sphéroidal (GJH,GJS-ADI)	Hardened cast iron with nodular graphite (GJS)	<1400	<430	<44		EN-GJS-1200-2			ADI 1200
N METALES NO FERROSOS MÉTAL NON FERREUX NON-FERREOUS METALS	N.1.1	Aluminio no aleado y aleaciones forjables	Aluminium non allié et alliages corroyés	Aluminium non alloyed and wrought alloys	<500	<150		3.2315	AlMgSi1		L-3451	ENAW-6082
	N.1.2	Fundición de aluminio Si <12%	Fontes d'aluminium à Si<12%	Cast aluminium alloys Si<12%	<350	<100		3.2581	G-AlSi12	A 413.2		ENAC-44200
	N.1.3	Fundición de aluminio Si >12%	Fontes d'aluminium à Si>12%	Cast aluminium alloys Si>12%	<450	<130			G-AlSi17Cu4Mg			ENAC-48100
	N.2.1	Cobre puro o poco aleado	Cuivre pur et faiblement allié	Pure and low alloyed cooper	<400	<120		2.0065	E-Cu58			Cu-ETP
	N.2.2	Aleaciones de cobre de viruta corta	Alliages de cuivre - copeau curt	Cooper alloys - short chipping	<400	<120		2.0402	CuZn40Pb2 (Ms58)	C38500		Ms58
	N.2.3	Aleaciones de cobre de viruta larga	Alliages de cuivre - copeau long	Cooper alloys - long chipping	<700	<210		2.0321	CuZn37 (Ms63)	C27200		Ms63
	N.2.4	Aleaciones de cobre de alta resistencia	Alliages de cuivre du haute résistance	High strength cooper alloys	<1000	<300						AMPCO 45
	N.3.1	Aleaciones de magnesio y zinc	Alliages de magnésium et zinc	Magnesium and zinc alloys	<500	<150			ZnAl4 (Z400)	AG40A		ZAMAK
	N.4.1	Termoplásticos	Termoplastiques	Termoplastiques	<50							PVC
	N.4.2	Duroplásticos	Duroplastiques	Hard plastics	<80							Baquelita
	N.4.3	Plásticos reforzados con fibras	Plastiques chargées en fibres	Fibre reinforced plastics	<200			GFK				GFK
S TITANIO Y SUPERALECIONES TITANIUM ET SUPERALLIAGES TITANIUM AND SUPERALLOYS	S.1.1	Aleaciones de níquel y hierro	Alliages de nickel et fer	Nickel and Iron alloys	<850	<255		2.4360	NiCu30Fe			Monel 400
	S.1.2	Aleaciones de níquel y hierro	Alliages de nickel et fer	Nickel and Iron alloys	<1400	<430	<44	2.4668	NiCr19FeNbMo			Inconel 718
	S.2.1	Titanio puro	Titane pur	Pure titanium	<700	<200		3.7025	Ti99.8			
	S.2.2	Aleaciones de titanio tipo α	Alliages de titane α type	Titanium alloys α type	<900	<270		3.7165	Ti-6Al-4V	R56400		T-A6V
	S.2.3	Aleaciones de titanio tipo ß	Alliages de titane ß type	Titanium alloys ß type	<1200	<360	<38		Ti-10V-2Fe-3AL			
H MATERIALES DUROS MATIÉRS DURS HARDENED STEELS	H.1	Aceros templados <50 HRc	Aciers traités <50 HRc	Hardened steel <50 HRc			<50					Hardox 500
	H.2	Aceros templados <55 HRc	Aciers traités <55 HRc	Hardened steel <55 HRc			<55					Hardox 550
	H.3	Aceros templados <60 HRc	Aciers traités <60 HRc	Hardened steel <60 HRc			<60					Hardox 600

INDICE / INDEX



Taladrado
Perçage
Drilling
Pag. 07-92

- Brocas Metal Duro / Brocas mango cilíndrico / Brocas mango cónico / Brocas bidiametrales y de centrar / Accesorios y Portabrocas
- Forets Carbure / Forets à queue cylindrique / Forets à queue conique / Forets bietagés et à centrer / Accessoires et Mandrins
- Hard Metal drill-bits / Straight shank drill-bits / Taper straight shank drill-bits / Two-diameter and centre drill-bits / Accessories and drill Chucks



Roscado
Taraudage
Threading
Pag. 93-276

- Machos de máquina / Machos de mano / Cojinetes / Insertos roscados / Calibres / Accesorios
- Tarauds machine / Tarauds à main / Filières /Filets rapportés / Calibres / Accessoires
- Machine taps / Hand taps / Dies / Wire thread inserts / Gauges / Accessories



Escariado
Alésage
Reaming
Pag. 277-294

- Escariadores de mano / Escariadores de máquina / Escariadores extensibles
- Alésoirs à main / Alésoirs machine / Alésoirs extensibles
- Hand reamers / Machine reamers / Extendable reamers



Avellanado
Chanfreinage
Counterboring
Pag. 295-324

- Brocas avellanadoras y escalonadas / Avellanadores
- Fraises coniques et étagées / Fraises à trou et à chanfreiner
- Counterbore and step drill-bits / Countersink cutters



Fresado
Fraisage
Milling
Pag. 325-416

- Fresas Metal Duro / Fresas frontales HSSE / Fresas con agujero HSSE / Fresas especiales HSSE / Fresas frontales HSSE-PM / Fresas rotativas HM / Fresas huecas
- Fraises Carbure / Fraises HSSE / Fraises à trou HSSE / Fraises HSSE spéciales / Fraises HSSE-PM / Fraises rotatives HM / Fraises à trou
- Hard Metal mills / HSSE mills / HSSE mills with hole / HSSE special mills / HSSE-PM mills / HM Rotary mills / Hole saws



Sierras
Scies
Saws
Pag. 417-429

- Sierras de cinta / Sierras circulares / Sierras de máquina
- Scies à ruban / Scies circulaires / Scies pour machine
- Saws Band saw blades / Circular saws / Machine saw blades



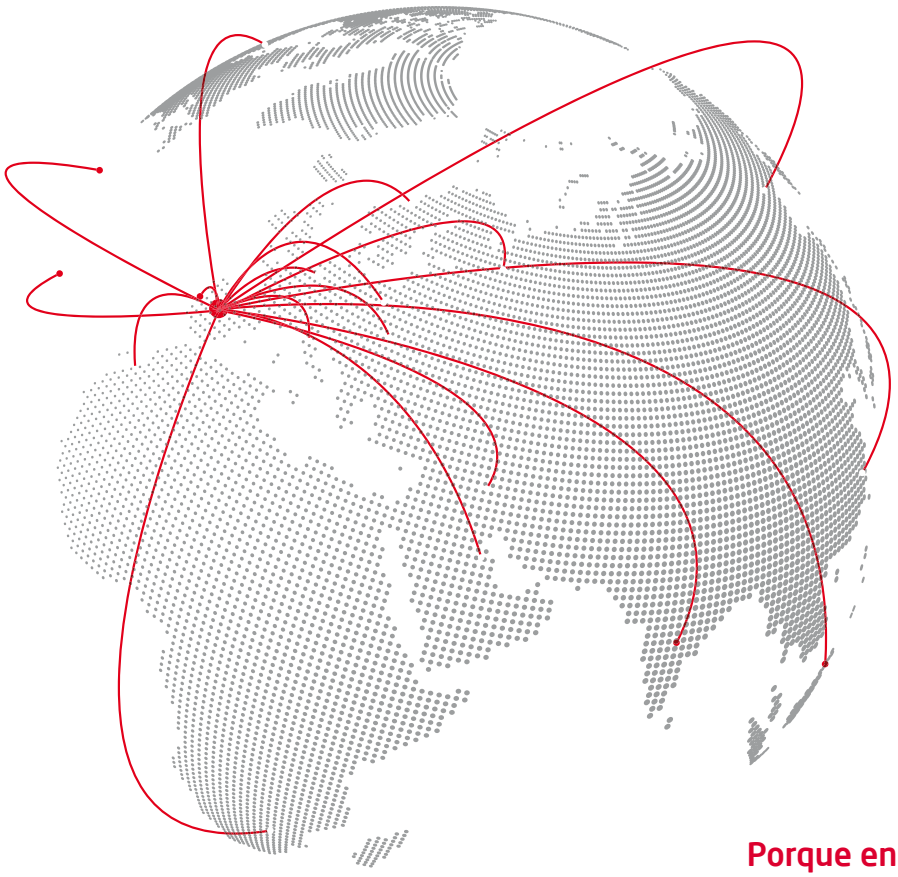
Totem / Display
Pag. 430-440

- Totem / Display
- Totem / Display
- Totem / Display

Hepyc CUTTING TOOL EXPERTS

Porque somos expertos en herramienta de corte desde hace más de 70 años

Y hoy somos una industria 4.0 con presencia en los sectores más innovadores de la producción gracias a inversiones millonarias, robotización, crecimiento continuado en gama y mercados internacionales.





Porque en menos de 24 horas estamos allí

Hepyc es una empresa orientada al cliente. Con entregas en cualquier parte del mundo en cuestión de horas y un departamento de asistencia exclusivamente orientado a solventar dudas, dar apoyo técnico, formación... a nuestros clientes.



- Líderes nacionales en herramienta de roscado. Presentes en más de 30 países.
- Hepyc, leaders nationaux en outils de filetage. Présents dans plus de 30 pays.
- Hepyc, national leaders in threading tools. With a presence in over 30 countries.

Parce que nous sommes experts en outils de coupe depuis plus de 70 ans

Nous sommes aujourd'hui une industrie 4.0 présente sur les secteurs les plus innovants de la production grâce à des investissements qui se chiffrent en millions, la robotisation, l'expansion continue de la gamme et les marchés internationaux.

Because we have been experts in cutting tools for over 70 years

And right now we are a 4.0 industry with a presence in the most innovative sectors of production thanks to heavy investment, robotization, ongoing product range growth and international markets.



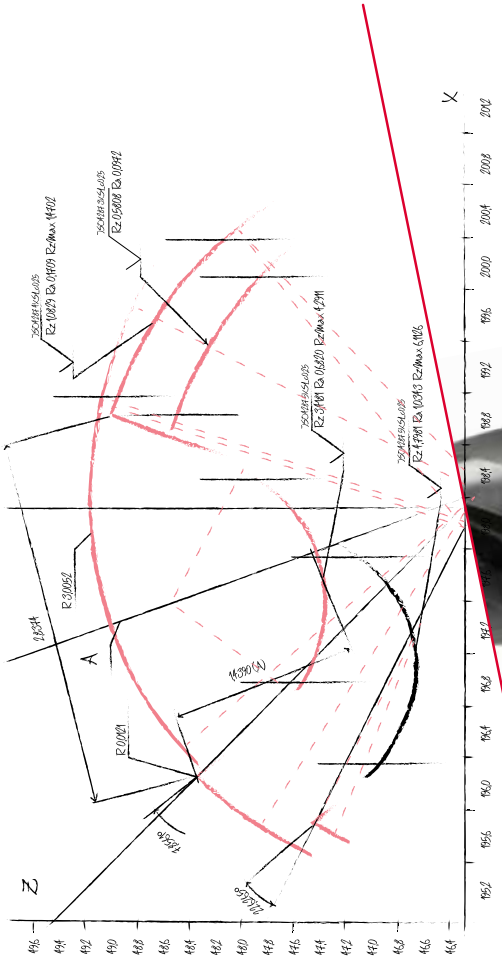
Parce que nous sommes chez vous en moins de 24 heures

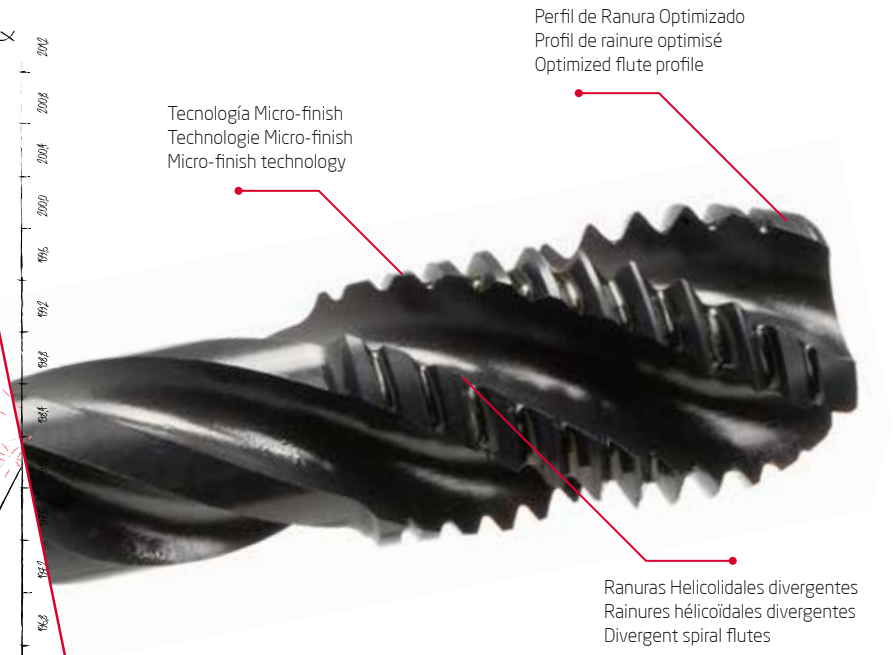
Chez Hepyc, le service du client est notre maître mot. Nous livrons partout dans le monde en quelques heures et nous mettons à votre disposition notre service d'assistance exclusivement conçu pour répondre aux questions de nos clients et leur apporter un support technique et la formation nécessaire.

Because we arrive in less than 24 hours

Hepyc is a company geared towards its customers. With deliveries in any part of the world within a matter of hours, and a support department exclusively geared towards dealing with our customers' queries, and providing them with technical support, training, etc.

HUNIX / UNIVERSAL THREADING TAP / by Hepyc





Simplifica tareas, ahorra problemas

Hunix es la nueva gama de machos de roscar universal de Hepyc. Una innovación, de desarrollo propio, que ha dado como resultado una herramienta capaz de mecanizar por si sola hasta el 77% de los materiales.

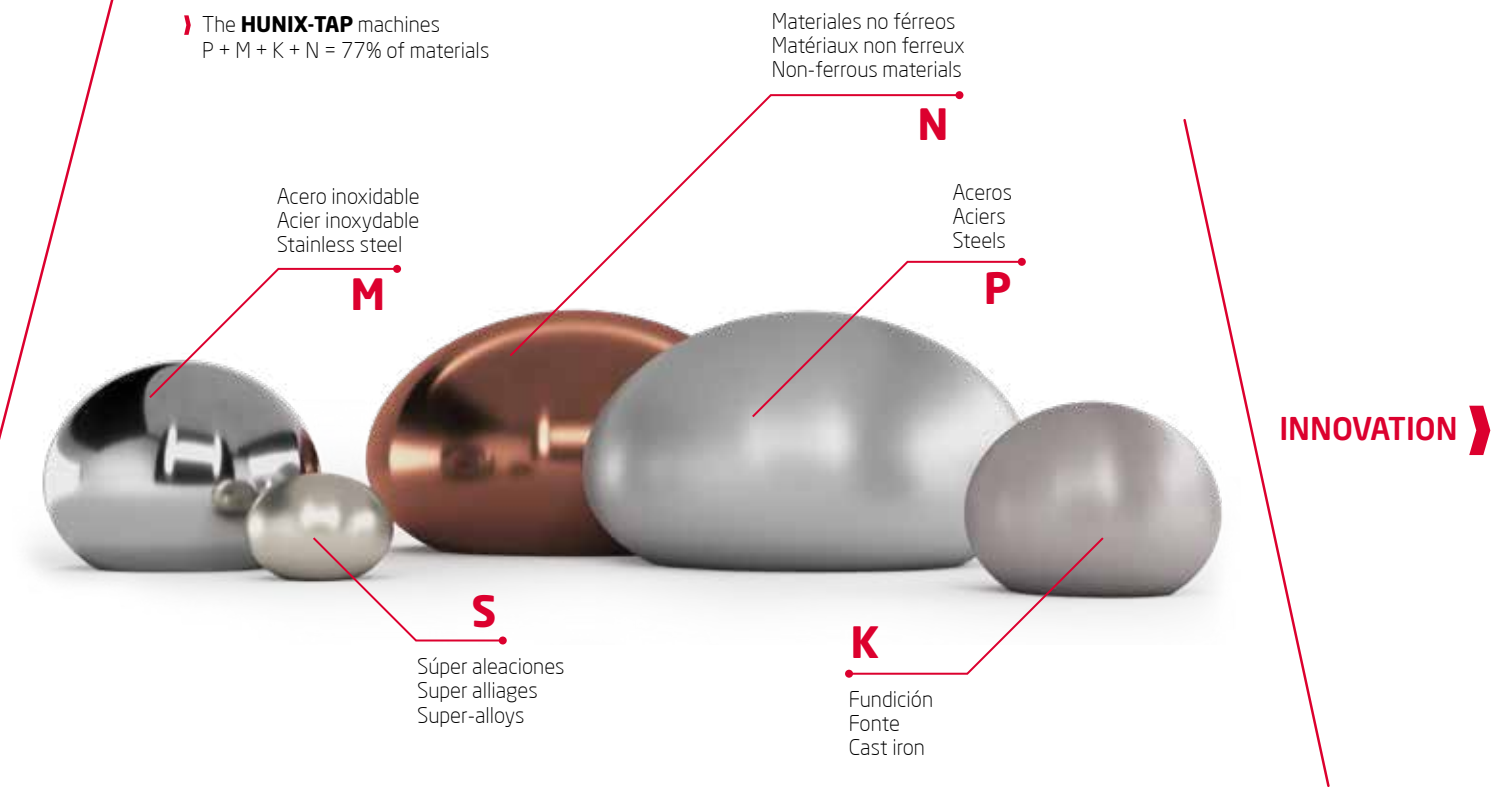
¿Imaginas lo que supone para un distribuidor reducir sus referencias aumentando la calidad? ¿Y la optimización del proceso de mecanizado de una industria? Disminución de tiempos, reducción de incidencias, simplificación de stock... ¡menos problemas! ¡más eficiencia! Además, gracias a nuestro exclusivo diseño y fabricación, conseguimos hasta 2 veces más de vida útil y mejora en el mecanizado.

HUNIX / VAP



VAP / **Básico para una mejor Lubricación**
La base d'une meilleure lubrification
Basic for better lubrication

- **HUNIX-TAP** puede mecanizar
  P + M + K + N= 77% de los materiales
- **HUNIX-TAP** peut usiner
  P + M + K + N = 77% des matériaux
- The **HUNIX-TAP** machines
  P + M + K + N = 77% of materials



INNOVATION

Simplifie les tâches, évite les problèmes

Hunix est la nouvelle gamme filetages universels de Hepyc. Une innovation, développée en interne qui a donné naissance à un outil capable d'usiner seul jusqu'à 77% des matériaux.
Pouvez-vous imaginer ce que cela signifie pour un distributeur de réduire ses références en augmentant la qualité ? Et qu'en est-il de l'optimisation du processus d'usinage dans une industrie ? Réduction des temps, réduction des incidents, simplification du stock... moins de problèmes ! plus d'efficacité ! De plus, grâce à notre conception et à notre fabrication exclusives, nous obtenons jusqu'à 2 fois plus de durée de vie utile et d'amélioration de l'usinage.

Simplify tasks, save on problems

Hunix is the new Hepyc range of universal tap screws. A proprietary innovation that has resulted in a tool capable of machining up to 77% of materials by itself.
Can you imagine what it means for a distributor to reduce his references while increasing quality? And the optimization of the machining process of an industry? Decrease in production times, reduction of incidents, stock simplification... less problems! More efficiency! Moreover, thanks to our exclusive design and manufacturing, we achieve over a useful life over 2 times longer and machining improvements.

HUNIX / TIN+



TIN+ **Tratamiento Bicapa**
Traitement à deux couches
Two-layer coating



Taladrado
Perçage
Drilling

ÍNDICE
SOMMAIRE / INDEX

Pág.

Brocas Metal Duro / Forets Carbure / Hard Metal Drill-bits

1175	HM-MD	DIN 6537 S	TIALN		3XD	P M K S	24
1176	HM-MD	DIN 6537 S	TIALN		3XD	P M K S H	25
1177	HM-MD	DIN 6537 L	TIALN		5XD	P M K S H	26
1178	HM-MD	DIN 6537 EL	TIALN		8XD	P M K S H	27
NEW 1184	HM-MD		TIALN		12XD	P M K S	27
1182	HM-MD		TIN		1XD	H	28
1120	HM-MD	DIN 6539			2XD	P M K N S	29
1109	HM-MD	DIN 338N			4XD	P M K N S	30

Brocas con mango cilíndrico cortas / Forets à queue cylindrique courtes / Short straight shank drill-bits (DIN 338)

1101	HSS	DIN338N				P K N	31
1101/1	HSS	DIN338N				P K N	33
1104	HSS	DIN338N				P K N	33
1104/9	HSS	ANSI				P K N	34
1501	HSS					P K N	34
1158	HSS	DIN338NSP				P K N	35
1158/9	HSS	DIN338NSP				P K N	36
1108	HSS	DIN338NSP	TIN			P K N	37
1103	HSS	DIN338H				N	38
1105	HSSCO	DIN 338N				P K N	39

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Brocas con mango cilíndrico cortas / Forets à queue cylindrique courtes / Short straight shank drill-bits (DIN 338)

1105/9	HSSCO	DIN 338N				P K N 40
1161	HSSCO	DIN338N	TIALN			P K N 41
1107	HSSCO	DIN338N				P K N 41
1107/9	HSSCO	ANSI				P K N 42
NEW 1187	HSSCO	DIN338W				P M N S 43
1106	HSSCO	DIN338W				M N S 44
1162	HSSCO	DIN338W	TIALN			M N S 45
1159	HSSCO	DIN338S				P N 46
1160	HSSCO	DIN338S	TIALN			P N 47
1110	WIDIA	DIN338N				P K N 48

Brocas con mango cilíndrico largas / Forets à queue cylindrique longues / Long straight shank drill-bits (DIN 340)

1112	HSS	DIN 340 N				P K N 49
1113	HSSCO	DIN 340 N				P K N 50
1114	HSSCO	DIN 340 S				P N 51
1164	HSSCO	DIN 340 S	TIALN			P N 52

Brocas con mango cilíndrico extra largas / Forets à queue cylindrique extra longues / Extra-long straight shank drill-bits (DIN 1869)

1115	HSS	DIN 1869 N				P K N 53
1165	HSSCO	DIN 1869 S				P N 54

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Brocas con mango cilíndrico extra cortas / Forets à queue cylindrique extra-courtes / Extra-short straight shank drill-bits (DIN 1897)

1116	HSS	DIN 1897 N				P K N 55
1117	HSS	DIN 1897 N				P K N 56
1118	HSSCO	DIN 1897 N				P K N 56
1166	HSSCO	DIN 1897 S				P N 57
1167	HSSCO	DIN 1897 S	TIALN			P N 58

Brocas con mango cónico / Forets à queue conique / Taper straight shank drill-bits

1121	HSS	DIN 345 N				P K N 59
1121/9	HSS	DIN 345 N				P K N 61
1123	WIDIA	DIN 345 N				P K 62
1122	HSSCO	DIN 345 N				P K N 63
1181	HSSCO					P S H 64
1125	HSS	DIN 341 N				P K N 65
1126	HSS	DIN 1870 N				P K N 66
1139	HSS	DIN 343				P K N 67

Brocas bidiametrales / Forets biétagés / Two-diameter drill-bits

1127	HSS	DIN 8376				P K N 68
1128	HSS	DIN 8374				P K N 68
1129	HSS	DIN 8377				P K N 69
1130	HSS	DIN 8375				P K N 69

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Brocas bidiametrales / Forets biétagés / Two-diameter drill-bits

	1152	HSS	DIN 8378			P K N	70
	1153	HSS	DIN 8379			P K N	70
NEW	1191	HSSCO				P M K N S	71
NEW	1192	HSSCO				P M K N S	71

Brocas de centrar / Forets à centrer / Centre drill-bits

	1132	HSS	DIN 333 A			P K N	72
NEW	1188	HSS	DIN 333 A	TIN		P K N	72
NEW	1193	HM-MD	DIN 333 A			P M K N S H	73
	1133	HSS	DIN 333 A			P K N	73
	1135	HSS	DIN 333 R			P K N	74
	1137	HSS	DIN 333 B			P K N	74
	1138	HSSCO				P M K N S	75
	1155	HSSCO				P M K N S	75
NEW	1189	HSSCO		TIN		P M K N S	76
NEW	1190	HSSCO		TIN		P M K N S	76
	1179	HM-MD				P M K N S	77
	1180	HM-MD				P M K N S	77
NEW	1185	HM-MD		TIALN		P M K N S	78
NEW	1186	HM-MD		TIALN		P M K N S	78

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

								Pág.
	1119	HSSCO	DIN 1897N				P	79
NEW	1194	HSSCO	DIN 1897N	TIALN			P	79

Brocas fresa / Forets fraiseur / Mill drills

	5114	HSS					P N	80
	5115	HSS		TIN			P N	80

Accesorios / Accessoires / Accessories

	6110	**Espiga /** Queue à tenon / Bit shank						81
	6111	**Casquillo DIN 2185 /** Douille de réduction / Drill sleeve						81
	6114	**Contrapunto /** Contrepointe / Fixed centre						81
	6112	**Alargadera /** Adaptateur / Extension piece						82
	6113	**Expulsor /** Éjecteur / Ejector						82
	6115	**Punto giratorio /** Pointe tournante / Revolving lathe centre						83
	6101	HP1						83
	6120	HP1-CM						83
	6102	HP2						84
	6103	HP3						84
	6122	Afilador de Brocas / Affûteuses forets / Twist Drill Sharpener						85
	6123	Porta / Mandrins / Chuck						85
	6124	Muela / Meule / Wheel						85

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

Estuches / Coffrets / Sets			86
Expositores / Presentoirs / Displays	 		90

FORMULARIO BROCAS ESPECIALES
FICHE TECHNIQUE FORETS SPECIAUX / TECHNICAL ENQUIRY FOR SPECIAL DRILL BITS

Fecha / Date: .....

Empresa / Entreprise / Company: ..... Contacto / Contact: .....

Dirección / Adresse / Adress: ..... Población / Ville / Town: .....

Tel / Fax: ..... E-mail: .....

.....

TRABAJO A REALIZAR / TRAVAIL DEMANDE / REQUESTED WORK

Material / Matière / Material ..... Norma / Norme / Norm: .....

Dureza / Dureté / Hardness ..... HB ..... HRc Resistencia / Résistance / Resistance ..... N/mm^2

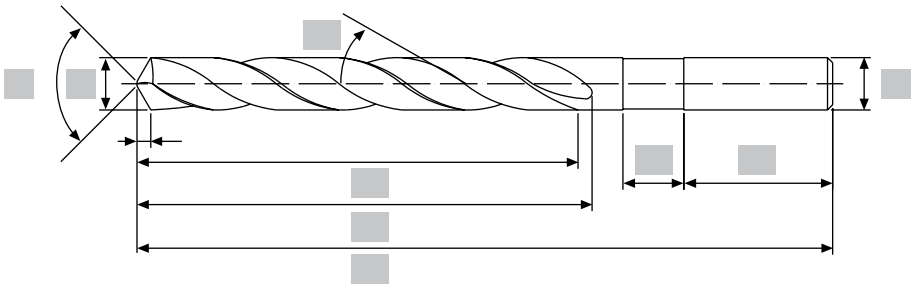
Tipo viruta: ☐ Corta ☐ Larga ☐ Polvo
Type copeau Courte Longue Poussière
Shaving Short Long Powder

Máquina / Machine ..... Refrigerante / Réfrigérant / Coolant .....

Posición / Position ☐ Horizontal ☐ Vertical ☐ V. Corte / V. Coupe / Cutting Speed ☐ V. avance / Avance / Feed

HERRAMIENTA / OUTIL / TOOL

Descripción / Description ..... Cantidad / Quantité / Quantity .....



Mango: ☐ Cilíndrico ☐ Weldon ☐ Cónico ☐ Rebajado
Queue: Cylindrique Weldon Conique Réduite
Shank: Straight Weldon Taper Reduced

Afilado: ☐ Convencional ☐ Corrección de labios ☐ Split Point ☐ Puntos soldadura ☐ Placa carburo
Affûtage: Normal Correction de lèvres Affûtage en croix Points de soudure plaquette carbure
Sharpened: Convencional Lip correction Split Point Welding points Carbide sheet

Material / Matière / Material: ☐ HSS ☐ HSSE ☐ HM ☐ HSS-HM

Superficie / Surface: ☐ Brillante / Brillant / Brilliant ☐ Negra / Noire / Black ☐ Recubrimiento / Revêtement / Coating

COMENTARIOS / COMMENTAIRES/ COMMENTS: .....

.....

.....

.....

Servicio de Herramienta Especial - Service Outils Spéciaux - Special Tools Service
Tel. (+34) 93 387 32 99 - Fax.(+ 34) 93 383 33 08 - especiales@hepycrf.com

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

Hepyc CUTTING TOOL EXPERTS

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.	1175	1176	1177	1178	1184	1182	1120	1109
Prof./ Prof./Depth	3xd	3xd	5xd	8xd	12xd	1Xd	2xd	4xd
Punta/Poin/Point	140°	140°	140°	140°	140°	120°	118°	118°
Refrig./Réfrig./Cooling	No	Si	Si	Si	Si	No	No	No
Mat.	HM	HM	HM	HM	HM	HM	HM	HM
Rec./Rev./Coat.	TIALN	TIALN	TIALN	TIALN	TIALN	TIN		
DIN	6537	6537	6537	6537	-	-	6539	338
Gama/Gamme/Range	3-20	3-20	3-20	3-16	3-16	M3-M12	2-13	2-10,20
Pag.	24	25	26	27	27	28	29	30

Mat.		Avance/Feed (mm/rpm) Ø2	Ø5	Ø10	Ø15	Ø20	Vc (m/min)							
P.1	<600	0,10-0,14	0,20-0,28	0,30-0,45	0,38-0,55	0,48-0,68	o 80-110	o 90-120	o 90-120	o 90-120	o 70-90		● 40-70	● 40-70
P.2	<800	0,08-0,12	0,16-0,24	0,25-0,38	0,32-0,48	0,40-0,60	● 40-80	● 50-90	● 50-90	● 50-90	● 40-80		● 30-60	● 30-60
P.3	<1000	0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50	● 35-75	● 40-85	● 40-85	● 40-85	● 35-55		● 25-50	● 25-50
P.4	<1200	0,04-0,08	0,08-0,16	0,12-0,26	0,15-0,32	0,18-0,40	● 30-50	● 35-55	● 35-55	● 35-55	● 30-50		● 20-40	● 20-40
P.5	<1400	0,03-0,06	0,06-0,12	0,08-0,20	0,10-0,25	0,12-0,30	● 25-40	● 30-45	● 30-45	● 30-45	● 25-40		o 15-25	o 15-25
M.1	<950	0,04-0,08	0,08-0,16	0,12-0,26	0,15-0,32	0,18-0,40	● 35-75	● 40-85	● 40-85	● 40-85	● 35-55		o 20-25	o 20-25
M.2		0,04-0,08	0,08-0,16	0,12-0,26	0,15-0,32	0,18-0,40	● 35-75	● 40-85	● 40-85	● 40-85	● 35-55		o 20-25	o 20-25
M.3	<1200	0,03-0,06	0,06-0,12	0,08-0,20	0,10-0,25	0,12-0,30		o 35-55	o 35-55	o 35-55				
M.4		0,03-0,06	0,06-0,12	0,08-0,20	0,10-0,25	0,12-0,30		o 30-45	o 30-45	o 30-45				
K.1	<500	0,08-0,12	0,16-0,24	0,25-0,38	0,32-0,48	0,40-0,60	● 100-130	● 120-150	● 120-150	● 120-150	● 90-120		● 50-70	● 50-70
K.2		0,08-0,12	0,16-0,24	0,25-0,38	0,32-0,48	0,40-0,60	o 60-80	o 70-90	o 70-90	o 70-90	o 60-80			
K.3	<800	0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50	● 80-110	● 90-120	● 90-120	● 90-120	● 70-90		● 40-50	● 40-50
K.4.1		0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50	o 70-90	o 80-110	o 80-110	o 80-110	o 60-80			
K.4.2	<1400	0,03-0,06	0,06-0,12	0,08-0,20	0,10-0,25	0,12-0,30	● 40-60	● 50-70	● 50-70	● 50-70	● 30-50			
N.1.1	Al	0,08-0,12	0,16-0,24	0,25-0,38	0,32-0,48	0,40-0,60							● 100-140	● 100-140
N.1.2		0,08-0,12	0,16-0,24	0,25-0,38	0,32-0,48	0,40-0,60							● 70-100	● 70-100
N.1.3		0,08-0,12	0,16-0,24	0,25-0,38	0,32-0,48	0,40-0,60							● 60-80	● 60-80
N.2.1	Cu	0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50							● 40-70	● 40-70
N.2.2		0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50							● 40-70	● 40-70
N.2.3		0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50							● 30-60	● 30-60
N.2.4		0,04-0,08	0,08-0,16	0,12-0,26	0,15-0,32	0,18-0,40							● 25-50	● 25-50
N.3.1	Mg/Zn	0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50							● 30-60	● 30-60
N.4.1	Plastic	0,06-0,10	0,12-0,20	0,20-0,32	0,25-0,40	0,30-0,50							● 40-70	● 40-70
N.4.2														
N.4.3														
S.1.1	Ni	0,03-0-05	0,05-0,08	0,08-0,12	0,12-0,16	0,16-0,20	o 20-25	● 25-30	● 25-30	● 25-30	● 20-25		o 10-15	o 10-15
S.1.2		0,03-0-05	0,05-0,08	0,08-0,12	0,12-0,16	0,16-0,20		o 20-25	o 20-25	o 20-25	o 15-20			
S.2.1	Ti	0,04-0,08	0,08-0,16	0,12-0,26	0,15-0,32	0,18-0,40	● 35-75	● 40-85	● 40-85	● 40-85			o 15-25	o 15-25
S.2.2		0,03-0-05	0,05-0,08	0,08-0,12	0,12-0,16	0,16-0,20	o 25-35	● 30-40	● 30-40	● 30-40			o 10-15	o 10-15
S.2.3		0,03-0-05	0,05-0,08	0,08-0,12	0,12-0,16	0,16-0,20	o 20-25	● 25-30	● 25-30	● 25-30				
H.1	50 HRC	0,03-0,06	0,06-0,12	0,08-0,20	0,10-0,25	0,12-0,30	o 25-35	● 30-40	● 30-40	● 30-40		● 25-30		
H.2	55 HRC	0,01-0,04	0,04-0,08	0,06-0,10	0,08-0,12	0,10-0,18	o 15-25	● 20-35	● 20-35	● 20-35		● 15-25		
H.3	60 HRC	0,01-0,04	0,04-0,08	0,06-0,10	0,08-0,12	0,10-0,18		o 15-25	o 15-25	o 15-25		● 10-15		

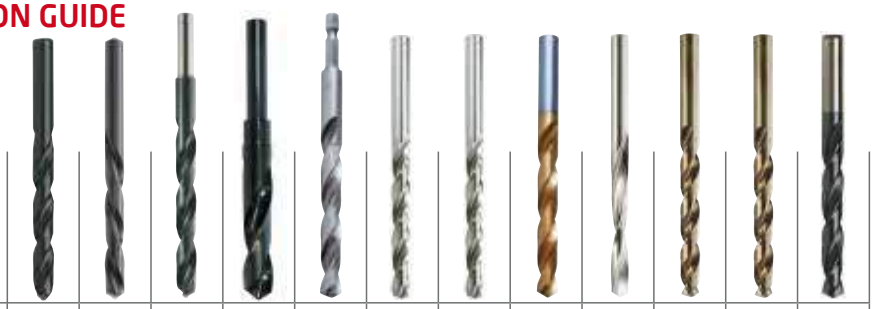
● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Superalliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

Hepyc CUTTING TOOL EXPERTS

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



	1101	1101/1	1104	1104/9	1501	1158	1158/9	1108	1103	1105	1105/9	1161
Ref./ Réf. / Ref.	1101	1101/1	1104	1104/9	1501	1158	1158/9	1108	1103	1105	1105/9	1161
DIN	338	338	338	ANSI	338	338	338	338	338	338	338	338
Punta/Poin/Point	118°	118°	118°	118°	118°	118°	118°	118°	118°	135°	135°	135°
Ejec./Exéc./Exec.	N	N	N	N	N	NSP	NSP	NSP	N	NSP	NSP	NSP
Hel./Hél./Spiral	30°	30°-LH	30°	30°	30°	30°	30°	30°	18°	30°	30°	30°
Mat.	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSSCO	HSSCO	HSSCO
Rec./Rev./Coat.								TIN				TIALN
Prof./ Prof./Depth	5xD	5xD	3xD	3xD	5xD	5xD	5xD	5xD	5xD	5xD	5xD	5xD
Gama/Gamme/Range	0,20-20	2-12	10-30	17/32-1"1/8	3-10	1-20	1/16-1/2	1-13	1-13	0,50-20	1/16-1/2	2-13
Pag.	31	33	33	34	34	35	36	37	38	39	40	41

Mat.		Avance/Feed (mm/rpm) Ø2	Ø5	Ø10	Ø15	Ø20	Vc (m/min) 1101	1101/1	1104	1104/9	1501	1158	1158/9	1108	1103	1105	1105/9	1161
P.1	<600	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 35-45		o 25-35	o 25-35	o 35-50
P.2	<800	0,02-0,06	0,08-0,12	0,12-0,30	0,18-0,40	0,22-0,46	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 20-40		● 15-30	● 15-30	● 25-45
P.3	<1000	0,02-0,03	0,05-0,07	0,12-0,18	0,18-0,24	0,22-0,28								● 15-30		● 12-20	● 12-20	● 18-30
P.4	<1200	0,01-0,04	0,04-0,09	0,09-0,18	0,12-0,28	0,14-0,33										● 6-16	● 6-16	● 10-25
P.5	<1400	0,01-0,04	0,04-0,09	0,09-0,18	0,12-0,28	0,14-0,33												
M.1	<950	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33										o 10-14	o 10-14	o 15-20
M.2		0,01-0,03	0,05-0,07	0,14-0,18	0,20-0,24	0,22-0,28										o 8-12	o 8-12	o 12-18
M.3	<1200																	
M.4																		
K.1	<500	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 35-40		● 25-30	● 25-30	● 38-45
K.2																		
K.3	<800	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46												
K.4.1		0,04-0,06	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 12-16	● 12-16	● 12-16	● 12-16	● 12-16	● 12-16	● 12-16	● 15-20		● 12-16	● 12-16	● 18-25
K.4.2	<1400	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33												
N.1.1	Al	0,03-0,05	0,08-0,12	0,18-0,24	0,25-0,32	0,30-0,37								o 75-90				
N.1.2		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	o 50-60	o 50-60	o 50-60	o 50-60	o 50-60	o 50-60	o 50-60	o 65-75		o 50-60	o 50-60	o 70-80
N.1.3		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33												
N.2.1	Cu	0,03-0,05	0,08-0,10	0,18-0,24	0,25-0,32	0,30-0,37									● 40-60			
N.2.2		0,03-0,05	0,08-0,10	0,18-0,24	0,25-0,32	0,30-0,37									o 25-60			
N.2.3		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 30-60	● 30-60	● 30-60	● 30-60	● 30-60	● 30-60	● 30-60	● 40-70		● 30-60	● 30-60	● 45-80
N.2.4																		
N.3.1	Mg/Zn	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33												
N.4.1	Plastic	0,03-0,04	0,06-0,07	0,12-0,13	0,16-0,17	0,25-0,26	o 20-25	o 20-25	o 20-25	o 30-35		o 20-25	o 20-25	o 20-25		o 20-25	o 20-25	o 30-35
N.4.2		0,03-0,04	0,06-0,07	0,12-0,13	0,16-0,17	0,25-0,26												
N.4.3																		
S.1.1	Ni	0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20												
S.1.2		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20												
S.2.1	Ti	0,01-0,03	0,04-0,06	0,08-0,10	0,10-0,14	0,16-0,20												
S.2.2		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20												
S.2.3		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20												
H.1	50 HRC	0,02-0,03	0,05-0,07	0,09-0,13	0,14-0,18	0,18-0,22												
H.2	55 HRC																	
H.3	60 HRC																	

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

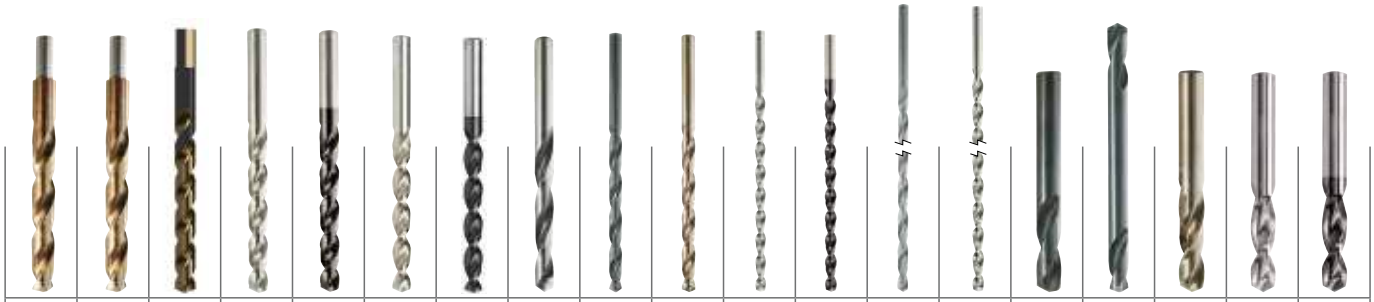
M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials



1107	1107/9	1187	1106	1162	1159	1160	1110	1112	1113	1114	1164	1115	1165	1116	1117	1118	1166	1167
338	ANSI	338	338	338	338	338	338	340	340	340	340	1869	1869	1897		1897	1897	1897
135°	135°	135°	135°	135°	135°	135°	118°	118°	135°	135°	135°	118°	135°	118°	118°	135°	135°	135°
NSP	NSP	W	W	W	TS	TS	N	N	NSP	TS	TS	N	TS	N	N	NSP	TS	TS
30°	30°	35°	35°	35°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°
HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSS WIDIA	HSS	HSSCO	HSSCO	HSSCO	HSS	HSSCO	HSS	HSS	HSSCO	HSSCO	HSSCO
				TIALN		TIALN					TIALN							TIALN
5xD	3xD	5xD	5xD	5xD	5xD	5xD	5xD	10xD	10xD	10xD	10xD	15-30xD	15-30xD	3xD	3xD	3xD	3xD	3xD
10-20	17/32-13/16	1-13	1-13	1-13	2-13	2-13	1,50-20	1-20	2-13	2-13	2-13	2-13	2-12	1-20	2-8	2-13	2-16	2-16
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	56	57	58
Vc (m/min)																		
o 25-35	o 25-35	● 35-40						● 25-35	o 25-35			● 25-35		● 25-35	● 25-35	o 25-35		
● 15-30	● 15-30	● 30-35			● 15-30	● 25-45	● 25-45	● 15-30	● 15-30	● 15-30	● 25-45	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 25-45
● 12-20	● 12-20				● 12-20	● 18-30	● 18-30		● 12-20	● 12-20	● 18-30		● 12-20			● 12-20	● 12-20	● 18-30
● 6-16	● 6-16				● 6-16	● 10-25	● 10-25		● 6-16	● 6-16	● 10-25					● 6-16	● 6-16	● 10-25
							o 6-9											
o 10-14	o 10-14	● 10-14	● 10-14	● 15-20	o 10-14	o 15-20			o 10-14	o 10-14	o 15-20		o 10-14			o 10-14	o 10-14	o 15-20
o 8-12	o 8-12	● 8-12	● 8-12	● 12-18	o 8-12	o 12-18			o 8-12	o 8-12	o 12-18		o 8-12			o 8-12	o 8-12	o 12-18
● 25-30	● 25-30							● 25-30	● 25-30			● 25-30		● 25-30	● 25-30	● 25-30		
							● 30-40											
● 12-16	● 12-16							● 12-16	● 12-16			● 12-16		● 12-16	● 12-16	● 12-16		
							● 15-20											
		o 60-80	o 60-80	o 85-100	o 60-80	o 85-100				o 60-80	o 85-100		o 60-80				o 60-80	o 85-100
o 50-60	o 50-60	o 50-60	o 50-60	o 75-90	o 50-60	o 75-90		o 50-60	o 50-60	o 50-60	o 75-90	o 50-60	o 50-60	o 50-60	o 50-60	o 50-60	o 50-60	o 75-90
		30-40	30-40	45-60	● 30-40	● 45-60				● 30-40	● 45-60		● 30-40				● 30-40	● 45-60
● 30-60	● 30-60	o 50-70	o 50-70					● 30-60	● 30-60			● 30-60		● 30-60	● 30-60	● 30-60		
		o 50-70	o 50-70	o 75-95	● 50-70	● 70-90				● 50-70	● 70-90		● 50-70				● 50-70	● 70-90
o 20-25	o 20-25						o 30-35	o 20-25	o 20-25			o 20-25		o 20-25	o 20-25	o 20-25		
		● 8-10	● 8-10	● 12-15														

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.	1121	1121/9	1122	1123	1181	1125	1126	1139
DIN	345	345	345	345		341	1870	343
Punta/Poin/Point	118°	118°	135°	118°	128°	118°	118°	120°
Ejec./Exéc./Exec.	N	N	NSP	N	N	N	N	N
Hel./Hél./Spiral	30°	30°	30°	30°	15°	30°	30°	30°
Mat.	HSS	HSS	HSSCO	HSS WIDIA	HSSCO	HSS	HSS	HSS
Rec./Rev./Coat.								
Prof./ Prof./Depth	5xD	5xD	5xD	5xD	3xD	8xD	10-15xD	5xD
Gama/Gamme/Range	5-80	1/2-2"	10-40	10-30	10-50	5-40	8-50	10-40
Pag.	59	61	62	63	64	65	66	67

Mat.		Avance/Feed (mm/rpm) Ø2	Ø5	Ø10	Ø15	Ø20	Vc (m/min)							
P.1	<600	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 25-35	● 25-35	● 25-35			● 25-35	● 25-35	● 25-35
P.2	<800	0,02-0,06	0,08-0,12	0,12-0,30	0,18-0,40	0,22-0,46	● 15-30	● 15-30	● 15-30	● 25-45		● 15-30	● 15-30	● 15-30
P.3	<1000	0,02-0,03	0,05-0,07	0,12-0,18	0,18-0,24	0,22-0,28			o 12-20	o 18-30				
P.4	<1200	0,01-0,04	0,04-0,09	0,09-0,18	0,12-0,28	0,14-0,33			o 6-16	o 10-25	o 8-10			
P.5	<1400	0,01-0,04	0,04-0,09	0,09-0,18	0,12-0,28	0,14-0,33				o 6-9	o 6-8			
M.1	<950	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33			o 8-12					o 8-12
M.2		0,01-0,03	0,05-0,07	0,14-0,18	0,20-0,24	0,22-0,28			o 10-14					o 10-14
M.3	<1200													
M.4														
K.1	<500	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 25-30	● 25-30	● 25-30			● 25-30	● 25-30	● 25-30
K.2														
K.3	<800	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46				o 30-40				
K.4.1		0,04-0,06	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 12-16	● 12-16	● 12-16			● 12-16	● 12-16	● 12-16
K.4.2	<1400	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33				o 15-20				
N.1.1	Al	0,03-0,05	0,08-0,12	0,18-0,24	0,25-0,32	0,30-0,37								
N.1.2		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	o 50-60	o 50-60	o 50-60			o 50-60	o 50-60	o 50-60
N.1.3		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33								
N.2.1	Cu	0,03-0,05	0,08-0,10	0,18-0,24	0,25-0,32	0,30-0,37								
N.2.2		0,03-0,05	0,08-0,10	0,18-0,24	0,25-0,32	0,30-0,37								
N.2.3		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 30-60	● 30-60	● 30-60			● 30-60	● 30-60	● 30-60
N.2.4														
N.3.1	Mg/Zn	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33								
N.4.1	Plastic	0,03-0,04	0,06-0,07	0,12-0,13	0,16-0,17	0,25-0,26	o 20-25	o 20-25	o 20-25	o 30-35		o 20-25	o 20-25	o 20-25
N.4.2		0,03-0,04	0,06-0,07	0,12-0,13	0,16-0,17	0,25-0,26			o 15-20					
N.4.3														
S.1.1	Ni	0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20					o 5-7			
S.1.2		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20					o 4-6			
S.2.1	Ti	0,01-0,03	0,04-0,06	0,08-0,10	0,10-0,14	0,16-0,20								
S.2.2		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20								
S.2.3		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20								
H.1	50 HRC	0,02-0,03	0,05-0,07	0,09-0,13	0,14-0,18	0,18-0,22					o 4-6			
H.2	55 HRC													
H.3	60 HRC													

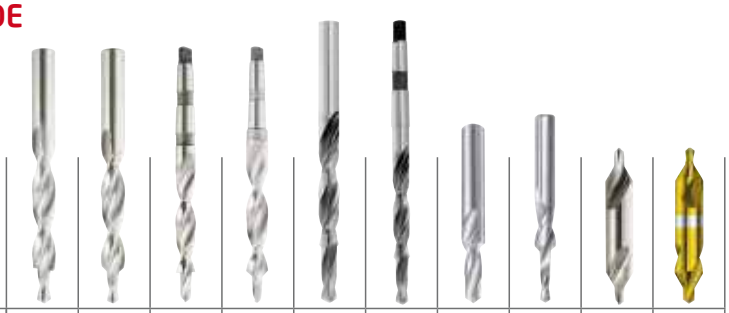
● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials



TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.	1127	1128	1129	1130	1152	1153	1191	1192	1132	1188
DIN	8376	8374	8377	8375	8378	8379			333	333
Punta/Poin/Point	180°	90°	180°	90°	90°	90°	90°	90°	60°	60°
Ejec./Exéc./Exec.									A	A
Hel./Hél./Spiral										
Mat.	HSS	HSS	HSS	HSS	HSS	HSS	HSSCo	HSSCo	HSS	HSS
Rec./Rev./Coat.										TiN
Prof./ Prof./Depth										
Gama/Gamme/Range	M3-M10	M3-M10	M8-M20	M5-M10	M3-M12	M8-M20	M3-M12	M4-M10	1-12,5	1-12
Pag.	68	68	69	69	70	70	71	71	72	72

Mat.		Avance/Feed (mm/rpm) HSS/HSSCo - HM=x2 Ø2	Ø5	Ø10	Ø15	Ø20	Vc (m/min)									
P.1	<600	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 35-40
P.2	<800	0,02-0,06	0,08-0,12	0,12-0,30	0,18-0,40	0,22-0,46	● 15-20	● 15-20	● 15-20	● 15-20	● 15-20	● 15-20	● 20-25	● 20-25	● 20-25	● 30-35
P.3	<1000	0,02-0,03	0,05-0,07	0,12-0,18	0,18-0,24	0,22-0,28	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 12-18	● 12-18	● 8-12	● 12-16
P.4	<1200	0,01-0,04	0,04-0,09	0,09-0,18	0,12-0,28	0,14-0,33							○ 4-8	○ 4-8		
P.5	<1400	0,01-0,04	0,04-0,09	0,09-0,18	0,12-0,28	0,14-0,33										
M.1	<950	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33							● 4-10	● 4-10		
M.2		0,01-0,03	0,05-0,07	0,14-0,18	0,20-0,24	0,22-0,28							● 4-10	● 4-10		
M.3	<1200	0,03-0,04	0,04-0,06	0,08-0,10	0,12-0,14	0,16-0,18										
M.4		0,02-0,03	0,03-0,05	0,06-0,08	0,10-0,12	0,14-0,16										
K.1	<500	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 20-25	● 20-25	● 20-25	● 30-35
K.2							● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35			● 20-25	● 30-35
K.3	<800	0,04-0,06	0,08-0,12	0,20-0,30	0,30-0,40	0,35-0,46	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	○ 10-15	○ 10-15	● 15-20	● 20-30
K.4.1		0,04-0,06	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	○ 10-15	○ 10-15	● 15-20	● 20-30
K.4.2	<1400	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	○ 14-18	○ 14-18	○ 14-18	○ 14-18	○ 14-18	○ 14-18				
N.1.1	Al	0,03-0,05	0,08-0,12	0,18-0,24	0,25-0,32	0,30-0,37							● 50-80	● 50-80		
N.1.2		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33							● 30-50	● 30-50		
N.1.3		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 15-30	● 15-30	● 15-20	● 20-30
N.2.1	Cu	0,03-0,05	0,08-0,10	0,18-0,24	0,25-0,32	0,30-0,37							● 25-35	● 25-35		
N.2.2		0,03-0,05	0,08-0,10	0,18-0,24	0,25-0,32	0,30-0,37	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 40-60	● 40-60	● 25-30	● 35-40
N.2.3		0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-50	● 30-50		
N.2.4																
N.3.1	Mg/Zn	0,02-0,04	0,05-0,09	0,18-0,21	0,20-0,28	0,25-0,33							● 60-90	● 60-90		
N.4.1	Plastic	0,03-0,04	0,06-0,07	0,12-0,13	0,16-0,17	0,25-0,26	○ 15-20	○ 15-20	○ 15-20	○ 15-20	○ 15-20	○ 20-25	● 35-70	● 35-70	○ 10-15	○ 10-15
N.4.2		0,03-0,04	0,06-0,07	0,12-0,13	0,16-0,17	0,25-0,26							● 12-24	● 12-24		
N.4.3																
S.1.1	Ni	0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20							○ 4-6	○ 4-6		
S.1.2		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20							○ 2-5	○ 2-5		
S.2.1	Ti	0,01-0,03	0,04-0,06	0,08-0,10	0,10-0,14	0,16-0,20							● 6-10	● 6-10		
S.2.2		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20							○ 4-6	○ 4-6		
S.2.3		0,01-0,03	0,03-0,05	0,06-0,10	0,10-0,14	0,16-0,20							○ 2-5	○ 2-5		
H.1	50 HRC	0,02-0,03	0,05-0,07	0,09-0,13	0,14-0,18	0,18-0,22										
H.2	55 HRC															
H.3	60 HRC															

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

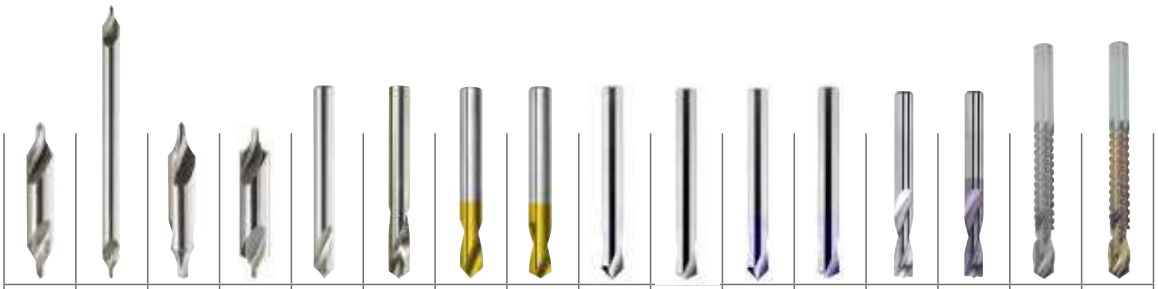
M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

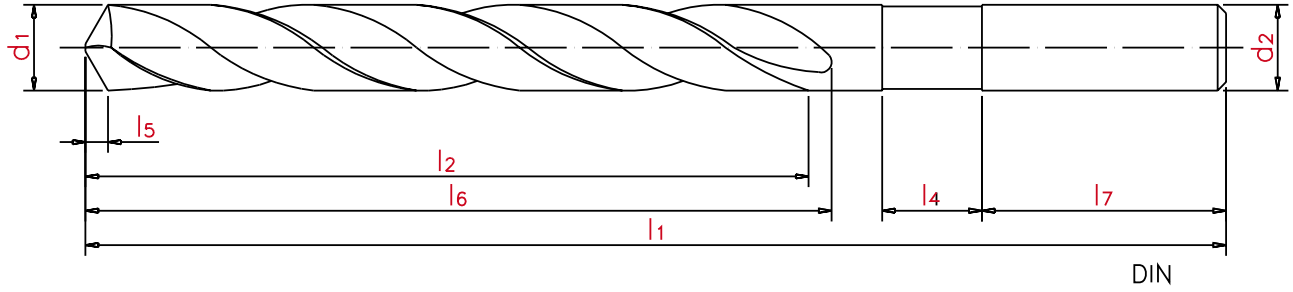
H Materiales Duros / Materiels Durs / Hard materials



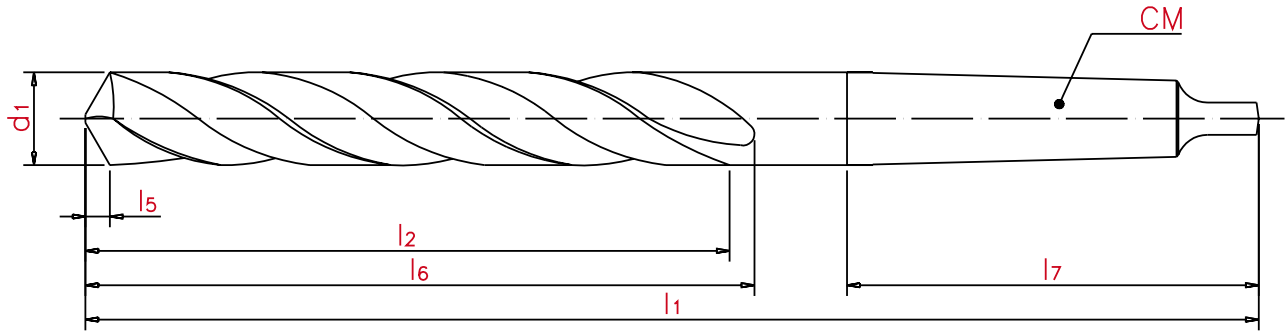
1193	1133	1135	1137	1138	1155	1189	1190	1179	1180	1185	1186	1119	1194	5114	5115
333	333	333	333	CNC	CNC	CNC	CNC	CNC	CNC	CNC	CNC	1897	1897		
60°	60°	Radial	60°	90°	120°	90°	120°	90°	120°	90°	120°	118°	118°	118°	118°
A	A	R	B												
												30°	30°		
HM	HSS	HSS	HSS	HSSCo	HSSCo	HSSCo	HSSCo	HM	HM	HM	HM	HSSCo	HSSCo	HSS	HSS
						TiN	TiN			TiAlN	TiAlN		TiAlN		TiN
1-6,30	1-5	1-12,5	1-6,30	3-20	3-20	3-20	3-20	6-12	6-12	6-12	6-12	6-10	6-10	6-8	6-8
73	73	74	74	75	75	76	76	77	77	78	78	79	79	80	80
Vc (m/min)															
o 55-60	● 20-30	● 20-30	● 20-30	● 20-30	● 20-30	● 35-40	● 35-40	● 60-80	● 60-80	● 80-100	● 80-100	o 25-30	o 35-40	● 20-25	● 25-35
o 45-60	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 30-35	● 30-35	● 55-70	● 55-70	● 70-90	● 70-90	o 20-25	o 30-35	● 10-15	● 15-20
● 40-55	● 8-12	● 8-12	● 8-12	● 8-12	● 8-12	● 12-16	● 12-16	● 40-55	● 40-55	● 55-75	● 55-75	● 12-18	● 16-20		
● 25-30				● 6-10	● 6-10	● 10-14	● 10-14	● 35-45	● 35-45	● 50-60	● 50-60	● 6-10	● 8-14		
● 20-25															
● 40-55				● 8-12	● 8-12	● 12-16	● 12-16	● 20-30	● 20-30	● 25-35	● 25-35				
● 40-55				● 6-10	● 6-10	● 10-14	● 10-14	● 15-20	● 15-20	● 20-25	● 20-25				
● 25-30															
● 25-30															
● 40-55	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 30-35	● 30-35	● 60-80	● 60-80	● 80-100	● 80-100				
● 40-55	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 30-35	● 30-35	● 60-80	● 60-80	● 80-100	● 80-100				
● 35-45	● 15-20	● 15-20	● 15-20	● 15-20	● 15-20	● 20-25	● 20-25	● 40-60	● 40-60	● 55-80	● 55-80				
● 35-45	● 15-20	● 15-20	● 15-20	● 15-20	● 15-20	● 20-25	● 20-25	● 40-60	● 40-60	● 55-80	● 55-80				
● 20-25															
● 110-130								● 120-160	● 120-160	● 160-200	● 160-200				
● 100-110								● 100-130	● 100-130	● 140-180	● 140-180				
● 80-100	● 15-20	● 15-20	● 15-20	● 15-20	● 15-20	● 20-25	● 20-25	● 70-90	● 70-90	● 100-120	● 100-120			● 15-20	● 20-25
o 40-55								o 60-80	o 60-80	o 80-100	o 80-100				
● 55-65	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 35-40	● 35-40	● 100-120	● 100-120	● 140-160	● 140-160				
● 45-55								● 80-100	● 80-100	● 110-140	● 110-140				
o 25-30															
● 100-110															
● 150-200	o 10-15	o 10-15	o 10-15	● 25-30	● 25-30	● 35-40	● 35-40	o 50-70	o 50-70	o 50-70	o 50-70			● 25-30	● 35-40
● 70-100															
● 20-30								o 10-20	o 10-20	o 15-20	o 15-20				
								o 8-12	o 8-12	o 12-16	o 12-16				
● 25-30				● 10-12	● 10-12	● 12-16	● 12-16	● 20-30	● 20-30	● 25-35	● 25-35				
o 25-25															
o 15-20															
● 15-20															
● 10-15															
o 4-6															

● Optima / Optimun ○ Alternativo / Alternative

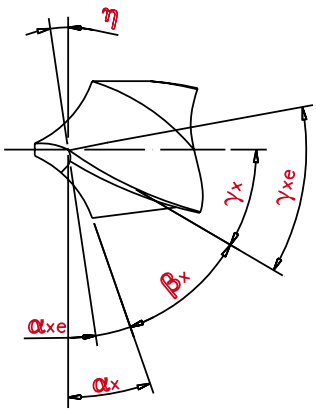
P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

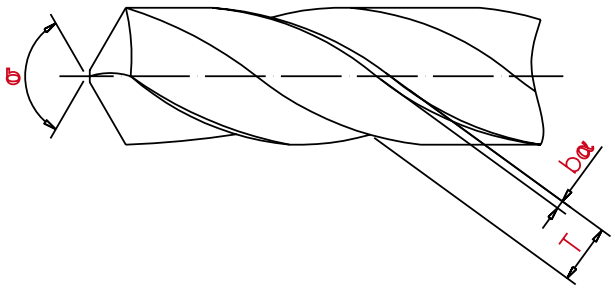

d1
d2
l5
l2
l6
l4
l7
l1

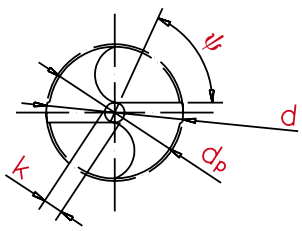
DIN

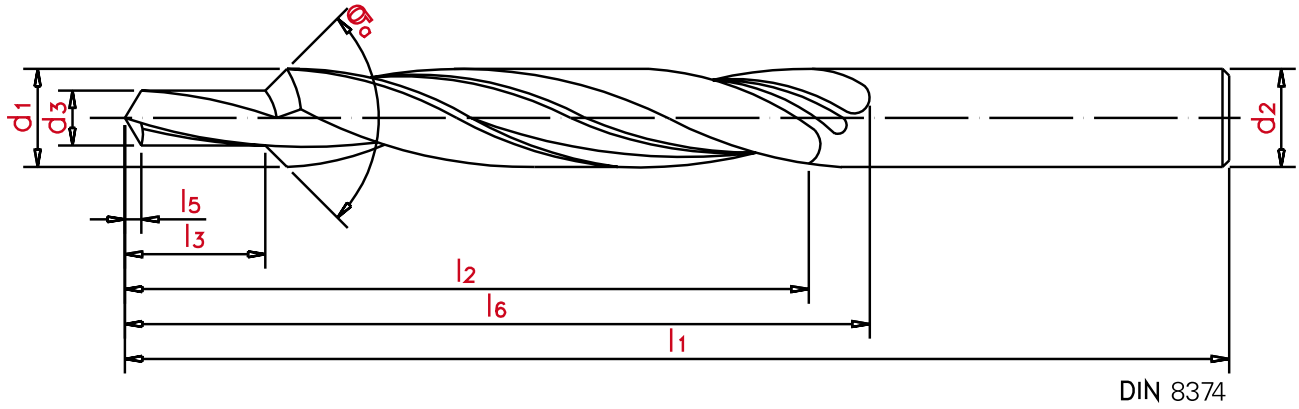

CM
d1
l5
l2
l6
l7
l1

DIN 345

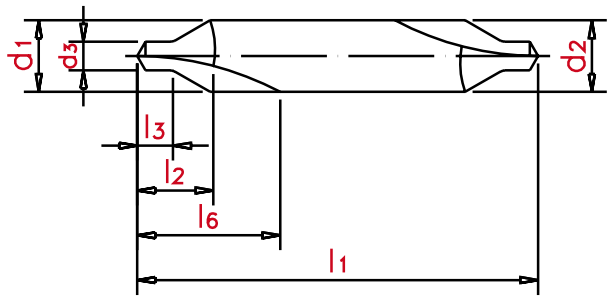

η
γx
γxe
βx
αxe
αx


b
bα
T


ψ
d
dp
K



DIN 8374



DIN 333–A

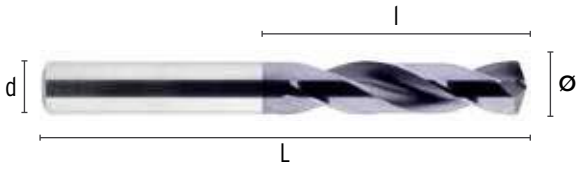
l1	**Longitud total** / Longueur totale / Total length
l2	**Longitud de corte** / Longueur de coupe / Length of cut
l3	**Longitud de corte del diámetro menor** / Longueur de coupe du plus petit diamètre / Length of cut of the smaller diametre
l7	**Longitud del mango-del cono** / Longueur de la queue du cône / Length of cone shank
l5	**Longitud de punta** / Longueur de pointe / Length of tip
l6	**Longitud de ranura** / Longueur de rainure / Length of groove
l4	**Diámetro de broca** / Diamètre de foret / Drill-bit diametre
d1	**Longitud de sangrado** / Longueur d'indentation / Bled length
d3	**Diámetro inicial** / Diamètre initial / Initial diametre
d2	**Diámetro de mango** / Diamètre de queue / Shank diametre
CM	**Tamaño del cono morse** / Taille du cône morse / Morse taper size
dp	**Diámetro posterior** / Diamètre postérieur / Rear diametre
bα	**Ancho de fase** / Largeur de phase / Phase width
T	**Ancho de alma** / Largeur d'âme / Core width
k	**Espesor del núcleo** / Épaisseur du noyau / Thickness of nucleus
σ	**Ángulo de la punta** / Angle de la pointe / Tip angle
σa	**Ángulo de avellanado** / Angle de chanfreinage / Countersink angle
ψ	**Ángulo de corte transversal** / Angle de coupe transversale / Transversal cut angle
γxe	**Ángulo de corte lateral efectivo** / Angle de coupe latérale effectif / Effective lateral cut angle
γx	**Ángulo de corte lateral** / Angle de coupe latérale / Lateral cut angle
αxe	**Ángulo de incidencia lateral efectivo** / Angle d'incidence latérale effectif / Effective lateral angle of incidence
αx	**Ángulo de incidencia lateral** / Angle d'incidence latérale / Lateral angle of incidence
βx	**Ángulo ortogonal de la herramienta** / Angle orthogonal de l'outil / Orthogonal angle of the tool
η	**Ángulo del sentido efectivo del corte** / Angle du sens effectif de la coupe / Effective direction of cut angle

1175 HM-MD DIN 6537 S

3XD | 140° | 30° | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●		●	●	●					○	●	○	○	
40-110	35-75	30-50	25-40	35-75		60-100	70-110	40-60					20-25	20-75	25-35	15-25	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø mm	d mm	€	L mm	l mm	
3,00	6,00	*34,00*	62,00	20,00	1
3,10	6,00	*34,00*	62,00	20,00	1
3,20	6,00	*34,00*	62,00	20,00	1
3,30	6,00	*34,00*	62,00	20,00	1
3,40	6,00	*34,00*	62,00	20,00	1
3,50	6,00	*34,00*	62,00	20,00	1
3,60	6,00	*34,00*	62,00	20,00	1
3,70	6,00	*34,00*	62,00	20,00	1
3,80	6,00	*34,00*	66,00	24,00	1
3,90	6,00	*34,00*	66,00	24,00	1
4,00	6,00	*34,00*	66,00	24,00	1
4,10	6,00	*34,00*	66,00	24,00	1
4,20	6,00	*34,00*	66,00	24,00	1
4,30	6,00	*34,00*	66,00	24,00	1
4,40	6,00	*34,00*	66,00	24,00	1
4,50	6,00	*34,00*	66,00	24,00	1
4,60	6,00	*34,00*	66,00	24,00	1
4,70	6,00	*34,00*	66,00	24,00	1
4,80	6,00	*34,00*	66,00	28,00	1
4,90	6,00	*34,00*	66,00	28,00	1
5,00	6,00	*34,00*	66,00	28,00	1
5,10	6,00	*34,00*	66,00	28,00	1
5,20	6,00	*34,00*	66,00	28,00	1
5,30	6,00	*34,00*	66,00	28,00	1
5,40	6,00	*34,00*	66,00	28,00	1
5,50	6,00	*34,00*	66,00	28,00	1
5,60	6,00	*34,00*	66,00	28,00	1
5,70	6,00	*34,00*	66,00	28,00	1
5,80	6,00	*34,00*	66,00	28,00	1
5,90	6,00	*34,00*	66,00	28,00	1
6,00	6,00	*34,00*	66,00	28,00	1
6,10	8,00	*46,13*	79,00	34,00	1
6,20	8,00	*46,13*	79,00	34,00	1
6,30	8,00	*46,13*	79,00	34,00	1
6,40	8,00	*46,13*	79,00	34,00	1
6,50	8,00	*46,13*	79,00	34,00	1
6,60	8,00	*46,13*	79,00	34,00	1
6,70	8,00	*46,13*	79,00	34,00	1
6,80	8,00	*46,13*	79,00	34,00	1
6,90	8,00	*46,13*	79,00	34,00	1
7,00	8,00	*46,13*	79,00	34,00	1
7,10	8,00	*46,13*	79,00	41,00	1
7,20	8,00	*46,13*	79,00	41,00	1
7,30	8,00	*46,13*	79,00	41,00	1
7,40	8,00	*46,13*	79,00	41,00	1
7,50	8,00	*46,13*	79,00	41,00	1
7,60	8,00	*46,13*	79,00	41,00	1
7,70	8,00	*46,13*	79,00	41,00	1
7,80	8,00	*46,13*	79,00	41,00	1
7,90	8,00	*46,13*	79,00	41,00	1
8,00	8,00	*46,13*	79,00	41,00	1
8,10	10,00	*61,44*	89,00	47,00	1
8,20	10,00	*61,44*	89,00	47,00	1
8,30	10,00	*61,44*	89,00	47,00	1
8,40	10,00	*61,44*	89,00	47,00	1
8,50	10,00	*61,44*	89,00	47,00	1
8,60	10,00	*61,44*	89,00	47,00	1
8,70	10,00	*61,44*	89,00	47,00	1
8,80	10,00	*61,44*	89,00	47,00	1
8,90	10,00	*61,44*	89,00	47,00	1
9,00	10,00	*61,44*	89,00	47,00	1
9,10	10,00	*61,44*	89,00	47,00	1
9,20	10,00	*61,44*	89,00	47,00	1
9,30	10,00	*61,44*	89,00	47,00	1
9,40	10,00	*61,44*	89,00	47,00	1
9,50	10,00	*61,44*	89,00	47,00	1
9,60	10,00	*61,44*	89,00	47,00	1
9,70	10,00	*61,44*	89,00	47,00	1
9,80	10,00	*61,44*	89,00	47,00	1
9,90	10,00	*61,44*	89,00	47,00	1
10,00	10,00	*61,44*	89,00	47,00	1
10,10	12,00	*92,69*	102,00	55,00	1
10,20	12,00	*92,69*	102,00	55,00	1
10,30	12,00	*92,69*	102,00	55,00	1
10,40	12,00	*92,69*	102,00	55,00	1
10,50	12,00	*92,69*	102,00	55,00	1
10,60	12,00	*92,69*	102,00	55,00	1
10,70	12,00	*92,69*	102,00	55,00	1
10,80	12,00	*92,69*	102,00	55,00	1
10,90	12,00	*92,69*	102,00	55,00	1
11,00	12,00	*92,69*	102,00	55,00	1
11,50	12,00	*92,69*	102,00	55,00	1
11,80	12,00	*92,69*	102,00	55,00	1
12,00	12,00	*92,69*	102,00	55,00	1
12,50	14,00	*122,81*	107,00	60,00	1
12,80	14,00	*122,81*	107,00	60,00	1
13,00	14,00	*122,81*	107,00	60,00	1
13,50	14,00	*122,81*	107,00	60,00	1
13,80	14,00	*122,81*	107,00	60,00	1
14,00	14,00	*122,81*	107,00	60,00	1
14,50	16,00	*155,19*	115,00	65,00	1
14,80	16,00	*155,19*	115,00	65,00	1
15,00	16,00	*155,19*	115,00	65,00	1
15,80	16,00	*155,19*	115,00	65,00	1
16,00	16,00	*155,19*	115,00	65,00	1
16,50	18,00	*212,63*	123,00	73,00	1
17,00	18,00	*212,63*	123,00	73,00	1
17,50	18,00	*212,63*	123,00	73,00	1
18,00	18,00	*212,63*	123,00	73,00	1
18,50	20,00	*270,06*	131,00	79,00	1
19,00	20,00	*270,06*	131,00	79,00	1
19,50	20,00	*270,06*	131,00	79,00	1
20,00	20,00	*270,06*	131,00	79,00	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1176 HM-MD DIN 6537 S

3XD | 140° | 30° | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	○	●	●	●					●	●	●	●	○
50-120	40-85	35-55	30-45	40-85	30-55	70-150	80-120	50-70					25-30	25-40	30-40	20-35	15-25

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø mm	d mm	€	L mm	l mm	
3,00	6,00	*54,25*	62,00	20,00	1
3,10	6,00	*54,25*	62,00	20,00	1
3,20	6,00	*54,25*	62,00	20,00	1
3,30	6,00	*54,25*	62,00	20,00	1
3,40	6,00	*54,25*	62,00	20,00	1
3,50	6,00	*54,25*	62,00	20,00	1
3,60	6,00	*54,25*	62,00	20,00	1
3,70	6,00	*54,25*	62,00	20,00	1
3,80	6,00	*54,25*	66,00	24,00	1
3,90	6,00	*54,25*	66,00	24,00	1
4,00	6,00	*58,63*	66,00	24,00	1
4,10	6,00	*58,63*	66,00	24,00	1
4,20	6,00	*58,63*	66,00	24,00	1
4,30	6,00	*58,63*	66,00	24,00	1
4,40	6,00	*58,63*	66,00	24,00	1
4,50	6,00	*58,63*	66,00	24,00	1
4,60	6,00	*58,63*	66,00	24,00	1
4,70	6,00	*58,63*	66,00	24,00	1
4,80	6,00	*58,63*	66,00	28,00	1
4,90	6,00	*58,63*	66,00	28,00	1
5,00	6,00	*58,63*	66,00	28,00	1
5,10	6,00	*58,63*	66,00	28,00	1
5,20	6,00	*58,63*	66,00	28,00	1
5,30	6,00	*58,63*	66,00	28,00	1
5,40	6,00	*58,63*	66,00	28,00	1
5,50	6,00	*58,63*	66,00	28,00	1
5,60	6,00	*58,63*	66,00	28,00	1
5,70	6,00	*58,63*	66,00	28,00	1
5,80	6,00	*58,63*	66,00	28,00	1
5,90	6,00	*58,63*	66,00	28,00	1
6,00	6,00	*58,63*	66,00	28,00	1
6,10	8,00	*70,50*	79,00	34,00	1
6,20	8,00	*70,50*	79,00	34,00	1
6,30	8,00	*70,50*	79,00	34,00	1
6,40	8,00	*70,50*	79,00	34,00	1
6,50	8,00	*70,50*	79,00	34,00	1
6,60	8,00	*70,50*	79,00	34,00	1
6,70	8,00	*70,50*	79,00	34,00	1
6,80	8,00	*70,50*	79,00	34,00	1
6,90	8,00	*70,50*	79,00	34,00	1
7,00	8,00	*70,50*	79,00	34,00	1
7,10	8,00	*70,50*	79,00	41,00	1
7,20	8,00	*70,50*	79,00	41,00	1
7,30	8,00	*70,50*	79,00	41,00	1
7,40	8,00	*70,50*	79,00	41,00	1
7,50	8,00	*70,50*	79,00	41,00	1
7,60	8,00	*70,50*	79,00	41,00	1
7,70	8,00	*70,50*	79,00	41,00	1
7,80	8,00	*70,50*	79,00	41,00	1
7,90	8,00	*70,50*	79,00	41,00	1

ø mm	d mm	€	L mm	l mm	
8,00	8,00	*70,50*	79,00	41,00	1
8,10	10,00	*88,44*	89,00	47,00	1
8,20	10,00	*88,44*	89,00	47,00	1
8,30	10,00	*88,44*	89,00	47,00	1
8,40	10,00	*88,44*	89,00	47,00	1
8,50	10,00	*88,44*	89,00	47,00	1
8,60	10,00	*88,44*	89,00	47,00	1
8,70	10,00	*88,44*	89,00	47,00	1
8,80	10,00	*88,44*	89,00	47,00	1
8,90	10,00	*88,44*	89,00	47,00	1
9,00	10,00	*88,44*	89,00	47,00	1
9,10	10,00	*88,44*	89,00	47,00	1
9,20	10,00	*88,44*	89,00	47,00	1
9,30	10,00	*88,44*	89,00	47,00	1
9,40	10,00	*88,44*	89,00	47,00	1
9,50	10,00	*88,44*	89,00	47,00	1
9,60	10,00	*88,44*	89,00	47,00	1
9,70	10,00	*88,44*	89,00	47,00	1
9,80	10,00	*88,44*	89,00	47,00	1
9,90	10,00	*88,44*	89,00	47,00	1
10,00	10,00	*88,44*	89,00	47,00	1
10,10	12,00	*125,00*	102,00	55,00	1
10,20	12,00	*125,00*	102,00	55,00	1
10,30	12,00	*125,00*	102,00	55,00	1
10,40	12,00	*125,00*	102,00	55,00	1
10,50	12,00	*125,00*	102,00	55,00	1
10,60	12,00	*125,00*	102,00	55,00	1
10,70	12,00	*125,00*	102,00	55,00	1
10,80	12,00	*125,00*	102,00	55,00	1
10,90	12,00	*125,00*	102,00	55,00	1
11,00	12,00	*125,00*	102,00	55,00	1
11,50	12,00	*125,00*	102,00	55,00	1
11,80	12,00	*125,00*	102,00	55,00	1
12,00	12,00	*125,00*	102,00	55,00	1
12,50	14,00	*158,56*	107,00	60,00	1
12,80	14,00	*158,56*	107,00	60,00	1
13,00	14,00	*158,56*	107,00	60,00	1
13,50	14,00	*158,56*	107,00	60,00	1
14,00	14,00	*158,56*	107,00	60,00	1
14,50	16,00	*197,19*	115,00	65,00	1
15,00	16,00	*197,19*	115,00	65,00	1
16,00	16,00	*197,19*	115,00	65,00	1
16,50	18,00	*314,56*	123,00	73,00	1
17,00	18,00	*314,56*	123,00	73,00	1
17,50	18,00	*314,56*	123,00	73,00	1
18,00	18,00	*314,56*	123,00	73,00	1
18,50	20,00	*341,56*	131,00	79,00	1
19,00	20,00	*341,56*	131,00	79,00	1
19,50	20,00	*341,56*	131,00	79,00	1
20,00	20,00	*341,56*	131,00	79,00	1

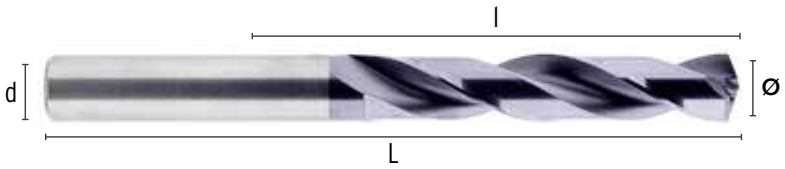
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1177 HM-MD DIN 6537 L

5XD | 140° | 30° | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	○	●	●	●					●	●	●	●	○
50-120	40-85	35-55	30-45	40-85	30-55	70-150	80-120	50-70					25-30	25-40	30-40	20-35	15-25

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø mm	d mm	€	L mm	l mm	
3,00	6,00	*62,44*	66,00	28,00	1
3,10	6,00	*62,44*	66,00	28,00	1
3,20	6,00	*62,44*	66,00	28,00	1
3,30	6,00	*62,44*	66,00	28,00	1
3,40	6,00	*62,44*	66,00	28,00	1
3,50	6,00	*62,44*	66,00	28,00	1
3,60	6,00	*62,44*	66,00	28,00	1
3,70	6,00	*62,44*	66,00	28,00	1
3,80	6,00	*62,44*	74,00	36,00	1
3,90	6,00	*62,44*	74,00	36,00	1
4,00	6,00	*66,38*	74,00	36,00	1
4,10	6,00	*66,38*	74,00	36,00	1
4,20	6,00	*66,38*	74,00	36,00	1
4,30	6,00	*66,38*	74,00	36,00	1
4,40	6,00	*66,38*	74,00	36,00	1
4,50	6,00	*66,38*	74,00	36,00	1
4,60	6,00	*66,38*	74,00	36,00	1
4,70	6,00	*66,38*	74,00	36,00	1
4,80	6,00	*66,38*	82,00	44,00	1
4,90	6,00	*66,38*	82,00	44,00	1
5,00	6,00	*66,38*	82,00	44,00	1
5,10	6,00	*66,38*	82,00	44,00	1
5,20	6,00	*66,38*	82,00	44,00	1
5,30	6,00	*66,38*	82,00	44,00	1
5,40	6,00	*66,38*	82,00	44,00	1
5,50	6,00	*66,38*	82,00	44,00	1
5,60	6,00	*66,38*	82,00	44,00	1
5,70	6,00	*66,38*	82,00	44,00	1
5,80	6,00	*66,38*	82,00	44,00	1
5,90	6,00	*66,38*	82,00	44,00	1
6,00	6,00	*66,38*	82,00	44,00	1
6,10	8,00	*74,19*	91,00	53,00	1
6,20	8,00	*74,19*	91,00	53,00	1
6,30	8,00	*74,19*	91,00	53,00	1
6,40	8,00	*74,19*	91,00	53,00	1
6,50	8,00	*74,19*	91,00	53,00	1
6,60	8,00	*74,19*	91,00	53,00	1
6,70	8,00	*74,19*	91,00	53,00	1
6,80	8,00	*74,19*	91,00	53,00	1
6,90	8,00	*74,19*	91,00	53,00	1
7,00	8,00	*74,19*	91,00	53,00	1
7,10	8,00	*74,19*	91,00	53,00	1
7,20	8,00	*74,19*	91,00	53,00	1
7,30	8,00	*74,19*	91,00	53,00	1
7,40	8,00	*74,19*	91,00	53,00	1
7,50	8,00	*74,19*	91,00	53,00	1
7,60	8,00	*74,19*	91,00	53,00	1
7,70	8,00	*74,19*	91,00	53,00	1
7,80	8,00	*74,19*	91,00	53,00	1
7,90	8,00	*74,19*	91,00	53,00	1
8,00	8,00	*74,19*	91,00	53,00	1
8,10	10,00	*93,06*	103,00	61,00	1

ø mm	d mm	€	L mm	l mm	
8,20	10,00	*93,06*	103,00	61,00	1
8,30	10,00	*93,06*	103,00	61,00	1
8,40	10,00	*93,06*	103,00	61,00	1
8,50	10,00	*93,06*	103,00	61,00	1
8,60	10,00	*93,06*	103,00	61,00	1
8,70	10,00	*93,06*	103,00	61,00	1
8,80	10,00	*93,06*	103,00	61,00	1
8,90	10,00	*93,06*	103,00	61,00	1
9,00	10,00	*93,06*	103,00	61,00	1
9,10	10,00	*93,06*	103,00	61,00	1
9,20	10,00	*93,06*	103,00	61,00	1
9,30	10,00	*93,06*	103,00	61,00	1
9,40	10,00	*93,06*	103,00	61,00	1
9,50	10,00	*93,06*	103,00	61,00	1
9,60	10,00	*93,06*	103,00	61,00	1
9,70	10,00	*93,06*	103,00	61,00	1
9,80	10,00	*93,06*	103,00	61,00	1
9,90	10,00	*93,06*	103,00	61,00	1
10,00	10,00	*93,06*	103,00	61,00	1
10,10	12,00	*131,81*	118,00	71,00	1
10,20	12,00	*131,81*	118,00	71,00	1
10,30	12,00	*131,81*	118,00	71,00	1
10,40	12,00	*131,81*	118,00	71,00	1
10,50	12,00	*131,81*	118,00	71,00	1
10,60	12,00	*131,81*	118,00	71,00	1
10,70	12,00	*131,81*	118,00	71,00	1
10,80	12,00	*131,81*	118,00	71,00	1
10,90	12,00	*131,81*	118,00	71,00	1
11,00	12,00	*131,81*	118,00	71,00	1
11,50	12,00	*131,81*	118,00	71,00	1
11,80	12,00	*131,81*	118,00	71,00	1
12,00	12,00	*131,81*	118,00	71,00	1
12,50	14,00	*176,13*	124,00	77,00	1
12,80	14,00	*176,13*	124,00	77,00	1
13,00	14,00	*176,13*	124,00	77,00	1
13,50	14,00	*176,13*	124,00	77,00	1
13,80	14,00	*176,13*	124,00	77,00	1
14,00	14,00	*176,13*	124,00	77,00	1
14,50	16,00	*219,06*	133,00	83,00	1
14,80	16,00	*219,06*	133,00	83,00	1
15,00	16,00	*219,06*	133,00	83,00	1
15,80	16,00	*219,06*	133,00	83,00	1
16,00	16,00	*219,06*	133,00	83,00	1
16,50	18,00	*349,31*	143,00	93,00	1
17,00	18,00	*349,31*	143,00	93,00	1
17,50	18,00	*349,31*	143,00	93,00	1
18,00	18,00	*349,31*	143,00	93,00	1
18,50	20,00	*379,88*	153,00	101,00	1
19,00	20,00	*379,88*	153,00	101,00	1
19,50	20,00	*379,88*	153,00	101,00	1
20,00	20,00	*379,88*	153,00	101,00	1

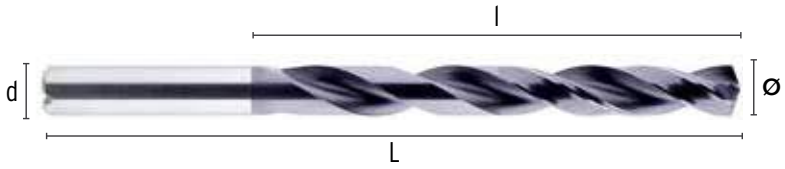
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1178 HM-MD DIN 6537 EL

8XD | 140° | 30° | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	○	●	●	●					●	●	●	●	○
50-120	40-85	35-55	30-45	40-85	30-55	70-150	80-120	50-70					25-30	25-40	30-40	20-35	15-25

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø mm	d mm	€	L mm	l mm	
3,00	6	*148,38*	70	30	1
3,30	6	*148,38*	70	30	1
3,50	6	*148,38*	70	30	1
3,70	6	*148,38*	70	30	1
4,00	6	*148,38*	75	37	1
4,20	6	*148,38*	75	37	1
4,50	6	*148,38*	75	37	1
4,70	6	*148,38*	75	37	1
5,00	6	*148,38*	90	50	1
5,50	6	*148,38*	90	50	1
6,00	6	*148,38*	90	50	1
6,50	8	*172,44*	106	66	1
6,80	8	*172,44*	106	66	1
7,00	8	*172,44*	106	66	1

ø mm	d mm	€	L mm	l mm	
7,50	8	*172,44*	106	66	1
8,00	8	*172,44*	106	66	1
8,50	10	*207,75*	131	87	1
9,00	10	*207,75*	131	87	1
9,50	10	*207,75*	131	87	1
10,00	10	*207,75*	131	87	1
10,20	12	*283,75*	155	106	1
10,50	12	*283,75*	155	106	1
11,00	12	*283,75*	155	106	1
12,00	12	*283,75*	155	106	1
13,00	14	*403,94*	182	133	1
14,00	14	*403,94*	182	133	1
15,00	16	*503,50*	204	152	1
16,00	16	*503,50*	204	152	1

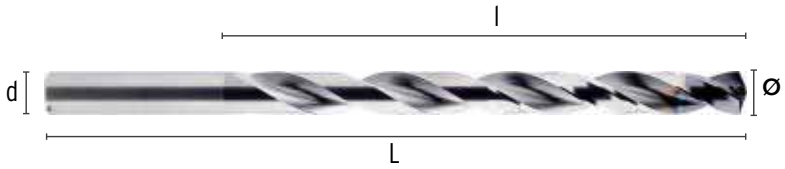
1184 HM-MD

12XD | 140° | 30° | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●		●	●	●					●				
40-90	35-55	30-50	25-40	35-55		60-120	60-90	30-50					15-25				

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



ø mm	d mm	€	L mm	l mm	
3,00	6	*199,31*	90	50	1
3,30	6	*199,31*	90	50	1
3,50	6	*199,31*	90	50	1
3,70	6	*199,31*	90	50	1
4,00	6	*199,31*	102	64	1
4,20	6	*199,31*	102	64	1
4,50	6	*199,31*	102	64	1
4,70	6	*199,31*	102	64	1
5,00	6	*199,31*	116	78	1
5,50	6	*199,31*	116	78	1
6,00	6	*199,31*	116	78	1
6,50	8	*245,69*	146	108	1
6,80	8	*245,69*	146	108	1
7,00	8	*245,69*	146	108	1

ø mm	d mm	€	L mm	l mm	
7,50	8	*245,69*	146	108	1
8,00	8	*245,69*	146	108	1
8,50	10	*309,75*	162	120	1
9,00	10	*309,75*	162	120	1
9,50	10	*309,75*	162	120	1
10,00	10	*309,75*	162	120	1
10,20	12	*411,00*	204	156	1
10,50	12	*411,00*	204	156	1
11,00	12	*411,00*	204	156	1
12,00	12	*411,00*	204	156	1
13,00	14	*509,19*	230	182	1
14,00	14	*509,19*	230	182	1
15,00	16	*720,56*	260	208	1
16,00	16	*720,56*	260	208	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1182 HM-MD

1XD | 120° | 0° | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
															● 25-30	● 15-25	● 10-15

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Sacar Machos rotos / Enlever Taraud cassés / ***Remove Broken Taps***

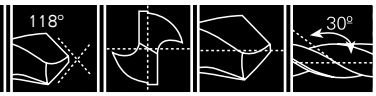
ø mm	M	€	L mm	l mm	d mm
2,5	M3	*82,38*	38	10	3
3,3	M4	*113,31*	46	14	4
4,2	M5	*127,53*	50	19	5
5	M6	*141,62*	50	23	6

ø mm	M	€	L mm	l mm	d mm
6,8	M8	*155,84*	60	23	8
8,5	M10	*198,28*	80	25	10
10,2	M12	*295,36*	80	35	12

P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

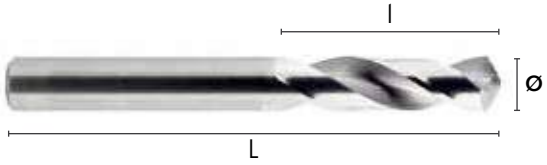
1120 HM-MD DIN 6539 N

2XD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●		●	●		●	●	●	●	○	○			
30-70	25-50	20-40	15-25	20-25		50-70	40-50		60-140	25-70	30-60	40-70	10-15	10-25			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



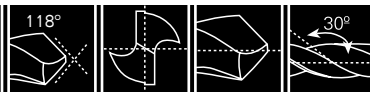
Ø mm	€	L mm	l mm	
2,00	*6,88*	38	12	1
2,10	*7,50*	38	12	1
2,20	*7,50*	40	13	1
2,30	*7,50*	40	13	1
2,40	*7,50*	43	14	1
2,50	*7,50*	43	14	1
2,60	*7,50*	43	14	1
2,70	*10,07*	46	16	1
2,80	*10,26*	46	16	1
2,90	*10,26*	46	16	1
3,00	*10,07*	46	16	1
3,10	*10,26*	49	18	1
3,20	*10,26*	49	18	1
3,30	*10,26*	49	18	1
3,40	*11,46*	52	20	1
3,50	*11,46*	52	20	1
3,60	*12,65*	52	20	1
3,70	*12,65*	52	20	1
3,80	*13,18*	52	20	1
3,90	*13,18*	55	22	1
4,00	*13,18*	55	22	1
4,10	*14,36*	55	22	1
4,20	*14,36*	55	22	1
4,30	*15,08*	58	24	1
4,40	*15,08*	58	24	1
4,50	*15,08*	58	24	1
4,60	*15,08*	58	24	1
4,70	*16,03*	58	24	1
4,80	*16,03*	62	26	1
4,90	*16,03*	62	26	1
5,00	*16,03*	62	26	1
5,10	*21,28*	62	26	1
5,20	*21,28*	62	26	1
5,30	*23,25*	62	26	1
5,40	*23,25*	66	28	1
5,50	*21,28*	66	28	1
5,60	*24,58*	66	28	1
5,70	*24,58*	66	28	1
5,80	*22,33*	66	28	1
5,90	*24,58*	66	28	1
6,00	*22,33*	66	28	1
6,10	*27,45*	70	31	1
6,20	*27,45*	70	31	1
6,30	*27,45*	70	31	1

Ø mm	€	L mm	l mm	
6,40	*27,45*	70	31	1
6,50	*27,45*	70	31	1
6,60	*33,22*	70	31	1
6,70	*33,22*	70	31	1
6,80	*33,22*	74	34	1
6,90	*33,22*	74	34	1
7,00	*32,08*	74	34	1
7,10	*39,04*	74	34	1
7,20	*39,04*	74	34	1
7,30	*39,04*	74	34	1
7,40	*39,04*	74	34	1
7,50	*39,04*	74	34	1
7,60	*47,83*	79	37	1
7,70	*47,83*	79	37	1
7,80	*47,83*	79	37	1
7,90	*47,83*	79	37	1
8,00	*43,48*	79	37	1
8,10	*54,98*	79	37	1
8,20	*54,98*	79	37	1
8,30	*54,98*	79	37	1
8,40	*54,98*	79	37	1
8,50	*54,98*	79	37	1
8,60	*58,37*	84	40	1
8,70	*58,37*	84	40	1
8,80	*58,37*	84	40	1
8,90	*58,37*	84	40	1
9,00	*56,23*	84	40	1
9,10	*56,23*	84	40	1
9,20	*57,90*	84	40	1
9,30	*57,90*	84	40	1
9,40	*57,90*	84	40	1
9,50	*61,90*	84	40	1
9,60	*61,90*	89	43	1
9,70	*61,90*	89	43	1
9,80	*61,90*	89	43	1
9,90	*61,90*	89	43	1
10,00	*78,08*	89	43	1
10,20	*79,61*	89	43	1
10,50	*94,07*	89	43	1
11,00	*100,65*	95	47	1
11,50	*107,25*	95	47	1
12,00	*107,25*	102	51	1
13,00	*160,70*	102	51	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

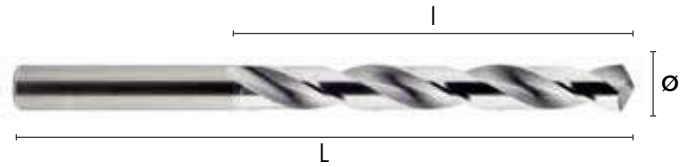
1109 HM-MD DIN 338 N

4XD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-70	● 25-50	● 20-40	● 15-25	● 20-25		● 50-70	● 40-50		● 60-140	● 25-70	● 30-60	● 40-70	○ 10-15	○ 10-25			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

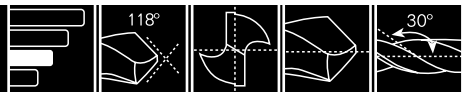


Ø mm	€	L mm	l mm	
2,00	*9,26*	49	24	1
2,10	*10,93*	49	24	1
2,20	*11,50*	53	27	1
2,30	*11,50*	53	27	1
2,40	*11,50*	57	30	1
2,50	*11,50*	57	30	1
2,60	*13,65*	57	30	1
2,70	*14,03*	61	33	1
2,80	*14,03*	61	33	1
2,90	*14,03*	61	33	1
3,00	*14,03*	61	33	1
3,10	*14,32*	65	36	1
3,20	*14,89*	65	36	1
3,30	*14,98*	65	36	1
3,40	*16,71*	70	39	1
3,50	*16,13*	70	39	1
3,60	*17,33*	70	39	1
3,70	*17,33*	70	39	1
3,80	*17,51*	75	43	1
3,90	*18,19*	75	43	1
4,00	*18,38*	75	43	1
4,10	*23,10*	75	43	1
4,20	*23,10*	75	43	1
4,30	*23,10*	80	47	1
4,40	*23,10*	80	47	1
4,50	*23,05*	80	47	1

Ø mm	€	L mm	l mm	
4,60	*27,11*	80	47	1
4,70	*27,11*	80	47	1
4,80	*27,11*	86	52	1
4,90	*27,11*	86	52	1
5,00	*27,11*	86	52	1
5,10	*33,26*	86	52	1
5,20	*33,26*	86	52	1
5,30	*33,26*	86	52	1
5,40	*33,26*	93	57	1
5,50	*33,26*	93	57	1
5,60	*35,75*	93	57	1
5,70	*35,75*	93	57	1
5,80	*35,75*	93	57	1
5,90	*35,75*	93	57	1
6,00	*35,75*	93	57	1
6,10	*45,00*	101	63	1
6,20	*45,00*	101	63	1
6,30	*45,00*	101	63	1
6,40	*45,00*	101	63	1
6,50	*45,00*	101	63	1
6,80	*55,99*	109	69	1
7,00	*55,99*	109	69	1
8,00	*77,23*	117	75	1
8,50	*88,63*	117	75	1
10,00	*143,27*	113	87	1
10,20	*143,27*	113	87	1

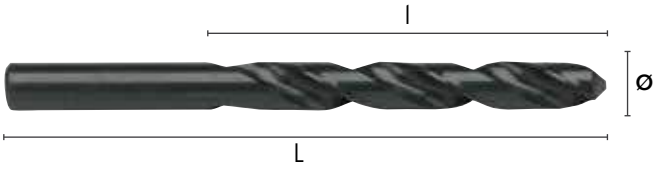
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1101 HSS DIN 338 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
0,20	*2,54*	19	2,50	10
0,25	*2,54*	19	3	10
0,30	*2,54*	19	3	10
0,35	*2,54*	19	3	10
0,40	*2,54*	20	5	10
0,45	*2,54*	22	6	10
0,50	*1,88*	22	6	10
0,55	*1,91*	24	7	10
0,60	*1,91*	24	7	10
0,65	*1,91*	26	8	10
0,70	*1,91*	28	9	10
0,75	*1,80*	28	9	10
0,80	*1,80*	30	10	10
0,85	*1,80*	30	10	10
0,90	*1,80*	32	11	10
0,95	*1,80*	32	11	10
1,00	*1,08*	34	12	10
1,05	*1,35*	34	12	10
1,10	*1,23*	36	14	10
1,15	*1,23*	36	14	10
1,20	*1,23*	38	16	10
1,25	*1,00*	38	16	10
1,30	*1,12*	38	16	10
1,35	*1,23*	40	18	10
1,40	*1,12*	40	18	10
1,45	*1,17*	40	18	10
1,50	*0,91*	40	18	10
1,55	*1,17*	43	20	10
1,60	*1,08*	43	20	10
1,65	*1,17*	43	20	10
1,70	*1,08*	43	20	10
1,75	*1,00*	46	22	10
1,80	*1,08*	46	22	10
1,85	*1,08*	46	22	10
1,90	*1,08*	46	22	10
1,95	*1,17*	49	24	10
2,00	*0,89*	49	24	10
2,05	*1,17*	49	24	10
2,10	*1,08*	49	24	10
2,15	*1,17*	53	27	10
2,20	*1,08*	53	27	10
2,25	*0,98*	53	27	10
2,30	*1,08*	53	27	10
2,35	*1,08*	53	27	10
2,40	*1,08*	57	30	10
2,45	*1,17*	57	30	10
2,50	*0,89*	57	30	10
2,55	*1,23*	57	30	10
2,60	*1,12*	57	30	10
2,65	*1,12*	57	30	10

Ø mm	€	L mm	l mm	
2,70	*1,12*	61	33	10
2,75	*1,00*	61	33	10
2,80	*1,12*	61	33	10
2,85	*1,23*	61	33	10
2,90	*1,12*	61	33	10
2,95	*1,23*	61	33	10
3,00	*0,78*	61	33	10
3,05	*1,30*	65	36	10
3,10	*1,11*	65	36	10
3,15	*1,30*	65	36	10
3,20	*1,11*	65	36	10
3,25	*0,98*	65	36	10
3,30	*1,18*	65	36	10
3,35	*1,30*	70	39	10
3,40	*1,18*	70	39	10
3,45	*1,30*	70	39	10
3,50	*0,98*	70	39	10
3,55	*1,45*	70	39	10
3,60	*1,30*	70	39	10
3,65	*1,45*	70	39	10
3,70	*1,30*	70	39	10
3,75	*1,19*	70	39	10
3,80	*1,30*	75	43	10
3,90	*1,30*	75	43	10
3,95	*1,44*	75	43	10
4,00	*1,01*	75	43	10
4,05	*1,55*	75	43	10
4,10	*1,41*	75	43	10
4,15	*1,55*	75	43	10
4,20	*1,41*	75	43	10
4,25	*1,30*	75	43	10
4,30	*1,54*	80	47	10
4,40	*1,54*	80	47	10
4,50	*1,30*	80	47	10
4,55	*1,91*	80	47	10
4,60	*1,74*	80	47	10
4,65	*1,91*	80	47	10
4,70	*1,74*	80	47	10
4,75	*1,60*	80	47	10
4,80	*1,74*	86	52	10
4,90	*1,74*	86	52	10
5,00	*1,28*	86	52	10
5,10	*1,93*	86	52	10
5,20	*2,13*	86	52	10
5,25	*1,63*	86	52	10
5,30	*1,93*	86	52	10
5,40	*1,93*	93	57	10
5,50	*1,63*	93	57	10
5,60	*2,23*	93	57	10
5,70	*2,23*	93	57	10

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

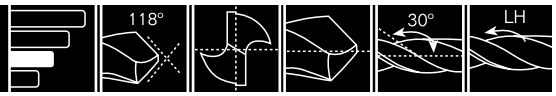
(continúa Ref.11010 / suite Réf.11010 / Ref.11010 cont'd)

Ø mm	€	L mm	l mm	
5,75	2,03	93	57	10
5,80	2,23	93	57	10
5,85	2,44	93	57	10
5,90	2,23	93	57	10
6,00	1,72	93	57	10
6,10	2,61	101	63	10
6,20	2,61	101	63	10
6,25	2,40	101	63	10
6,30	2,61	101	63	10
6,35	2,88	101	63	10
6,40	2,61	101	63	10
6,50	2,21	101	63	10
6,60	3,02	101	63	10
6,70	3,02	101	63	10
6,75	2,77	109	69	10
6,80	3,02	109	69	10
6,90	3,02	109	69	10
6,95	3,34	109	69	10
7,00	2,54	109	69	10
7,10	3,43	109	69	10
7,20	3,43	109	69	10
7,25	3,16	109	69	10
7,30	3,43	109	69	10
7,35	3,76	109	69	10
7,40	3,43	109	69	10
7,50	2,86	109	69	10
7,60	3,75	117	75	10
7,65	4,13	117	75	10
7,70	3,75	117	75	10
7,75	3,44	117	75	10
7,80	3,75	117	75	10
7,90	3,75	117	75	10
7,95	4,13	117	75	10
8,00	2,99	117	75	10
8,10	4,47	117	75	10
8,15	4,92	117	75	10
8,20	4,47	117	75	10
8,25	4,12	117	75	10
8,30	4,47	117	75	10
8,40	4,47	117	75	10
8,45	4,92	117	75	10
8,50	3,75	117	75	10
8,60	4,89	125	81	10
8,65	5,38	125	81	10
8,70	4,89	125	81	10
8,75	4,47	125	81	10
8,80	4,89	125	81	10
8,90	5,38	125	81	10
8,95	5,38	125	81	10
9,00	4,11	125	81	10
9,05	5,82	125	81	10
9,10	5,49	125	81	10
9,20	5,49	125	81	10
9,25	5,49	125	81	10
9,30	5,49	125	81	10
9,35	6,07	125	81	10
9,40	5,49	125	81	10
9,45	6,07	125	81	10
9,50	4,61	125	81	10
9,60	6,15	133	87	10
9,70	6,15	133	87	10
9,75	5,63	133	87	10
9,80	6,15	133	87	10
9,90	6,15	133	87	10
10,00	4,69	133	87	5

Ø mm	€	L mm	l mm	
10,10	6,92	133	87	5
10,20	6,92	133	87	5
10,25	6,37	133	87	5
10,30	6,92	133	87	5
10,40	6,92	133	87	5
10,50	5,79	133	87	5
10,60	7,73	133	87	5
10,70	7,73	142	94	5
10,75	7,09	142	94	5
10,80	7,73	142	94	5
10,90	7,73	142	94	5
11,00	6,43	142	94	5
11,10	8,59	142	94	5
11,20	8,59	142	94	5
11,25	7,89	142	94	5
11,30	8,59	142	94	5
11,40	8,59	142	94	5
11,50	7,13	142	94	5
11,60	9,04	142	94	5
11,70	9,04	142	94	5
11,75	8,30	142	94	5
11,80	9,04	142	94	5
11,90	9,04	151	101	5
12,00	7,56	151	101	5
12,10	10,19	151	101	5
12,20	10,19	151	101	5
12,25	9,32	151	101	5
12,30	10,19	151	101	5
12,40	10,19	151	101	5
12,50	8,46	151	101	5
12,60	11,12	151	101	5
12,70	11,12	151	101	5
12,75	10,19	151	101	5
12,80	11,12	151	101	5
12,90	11,12	151	101	5
13,00	9,30	151	101	5
13,25	12,97	160	108	4
13,50	11,80	160	108	4
13,75	14,04	160	108	4
14,00	12,76	160	108	4
14,25	16,00	169	114	4
14,50	14,55	169	114	4
14,75	18,30	169	114	4
15,00	16,63	169	114	4
15,25	22,06	178	120	1
15,50	20,07	178	120	1
15,75	22,06	178	120	1
16,00	20,07	178	120	1
16,25	28,53	184	125	1
16,50	25,91	184	125	1
16,75	28,53	184	125	1
17,00	25,91	184	125	1
17,25	31,74	191	130	1
17,50	28,86	191	130	1
17,75	31,74	191	130	1
18,00	28,86	191	130	1
18,25	35,42	198	135	1
18,50	32,20	198	135	1
18,75	35,42	198	135	1
19,00	32,20	198	135	1
19,25	42,46	205	140	1
19,50	38,61	205	140	1
19,75	42,45	205	140	1
20,00	38,61	205	140	1

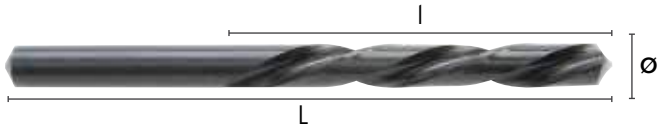
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1101/1 HSS DIN 338 N Izquierda / A gauche / Left hand



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

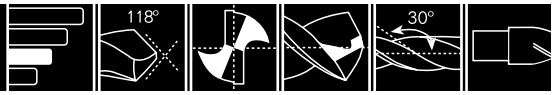
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
2,00	*4,31*	49	24	10
2,25	*4,76*	53	27	10
2,50	*4,31*	57	30	10
2,75	*4,92*	61	33	10
3,00	*3,84*	61	33	10
3,25	*4,80*	65	36	10
3,50	*4,80*	70	39	10
3,75	*5,92*	70	39	10
4,00	*4,95*	75	43	10
4,50	*6,30*	80	47	10
5,00	*6,26*	86	52	10
5,25	*7,97*	86	52	10
5,50	*7,97*	93	57	10

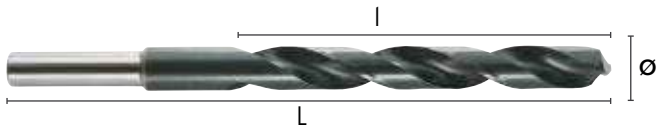
Ø mm	€	L mm	l mm	
6,00	*8,45*	93	57	10
6,50	*10,73*	101	63	10
7,00	*12,41*	109	69	10
7,50	*14,12*	109	69	10
8,00	*14,65*	117	75	10
8,50	*18,45*	117	75	10
9,00	*20,06*	125	81	10
9,50	*22,51*	125	81	10
10,00	*23,01*	133	87	5
10,50	*28,91*	133	87	5
11,00	*32,16*	142	94	5
11,50	*35,65*	142	94	5
12,00	*37,08*	151	101	5

1104 HSS DIN 338 N MR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
10,00	8	*7,99*	133	87	1
10,50	8	*9,18*	133	87	1
11,00	8	*9,18*	142	94	1
11,50	8	*10,26*	142	94	1
12,00	8	*10,26*	151	101	1
12,50	8	*11,32*	151	101	1
13,00	10	*12,48*	151	101	1
13,25	10	*15,91*	160	108	1
13,50	10	*15,91*	160	108	1
13,75	10	*17,29*	160	108	1
14,00	10	*15,91*	160	108	1
14,25	10	*19,94*	169	114	1
14,40	10	*19,65*	169	114	1
14,50	10	*19,58*	169	114	1
14,75	10	*28,07*	169	114	1
15,00	10	*19,58*	169	114	1
15,25	10	*25,95*	178	120	1
15,50	10	*23,18*	178	120	1

Ø mm	d mm	€	L mm	l mm	
15,75	10	*25,49*	178	120	1
16,00	12	*23,18*	178	120	1
16,25	12	*33,00*	184	125	1
16,40	12	*29,88*	184	125	1
16,50	12	*29,06*	184	125	1
16,75	12	*32,00*	184	125	1
17,00	12	*29,06*	184	125	1
17,25	12	*35,60*	191	130	1
17,50	12	*32,15*	191	130	1
17,75	12	*35,35*	191	130	1
18,00	12	*32,15*	191	130	1
18,25	12	*39,44*	198	135	1
18,50	12	*36,10*	198	135	1
18,60	12	*39,14*	198	135	1
18,75	12	*39,68*	198	135	1
19,00	12	*36,10*	198	135	1
19,25	12	*47,59*	205	140	1
19,50	12	*42,58*	205	140	1

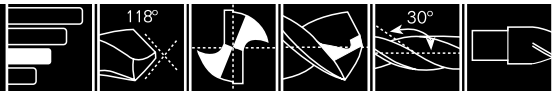
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

Ø mm	d mm	€	L mm	l mm	
19,75	12	*46,80*	205	149	1
20,00	13	*42,58*	205	140	1
20,50	13	*49,56*	212	145	1
20,60	13	*40,80*	212	145	1
21,00	13	*49,56*	212	145	1
21,50	13	*53,99*	219	150	1
22,00	13	*53,99*	219	150	1
22,50	13	*57,09*	226	155	1
22,60	13	*51,64*	226	155	1
23,00	13	*57,09*	226	155	1
23,50	13	*63,56*	226	155	1
24,00	13	*63,56*	233	160	1

Ø mm	d mm	€	L mm	l mm	
24,50	13	*64,45*	233	160	1
25,00	13	*64,45*	233	160	1
25,50	13	*83,69*	240	165	1
26,00	13	*83,69*	240	165	1
26,50	13	*90,35*	240	165	1
27,00	13	*90,35*	247	170	1
27,50	13	*91,71*	247	170	1
28,00	13	*91,71*	247	170	1
28,50	13	*113,99*	254	175	1
29,00	13	*113,99*	254	175	1
29,50	13	*118,94*	254	175	1
30,00	13	*118,94*	254	175	1

1104/9 HSS ANSI



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
17/32"	1/2"	*15,91*	152	76	1
9/16"	1/2"	*15,91*	152	76	1
19/32"	1/2"	*19,58*	152	76	1
5/8"	1/2"	*23,18*	152	76	1
21/32"	1/2"	*29,06*	152	76	1
11/16"	1/2"	*32,15*	152	76	1
23/32"	1/2"	*32,15*	152	76	1
3/4"	1/2"	*36,10*	152	76	1
25/32"	1/2"	*42,58*	152	76	1

Ø mm	d mm	€	L mm	l mm	
13/16"	1/2"	*40,80*	152	76	1
27/32"	1/2"	*49,56*	152	76	1
7/8"	1/2"	*54,00*	152	76	1
29/32"	1/2"	*57,09*	152	76	1
15/16"	1/2"	*63,56*	152	76	1
31/32"	1/2"	*64,45*	152	76	1
1"	1/2"	*64,45*	152	76	1
1-1/16"	1/2"	*90,35*	152	76	1
1-1/8"	1/2"	*113,99*	152	76	1

1501 HSS Hex.



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

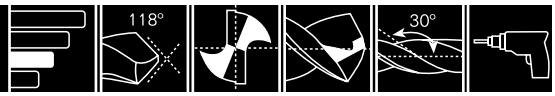


Ø mm	L mm	l mm	€	
3,00	61	33	*3,51*	1
4,00	75	43	*3,86*	1
5,00	86	52	*4,03*	1
6,00	93	57	*4,34*	1

Ø mm	L mm	l mm	€	
7,00	109	69	*4,47*	1
8,00	117	75	*4,72*	1
9,00	125	81	*4,78*	1
10,00	133	87	*6,02*	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1158 HSS DIN 338 NSP



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,00	*1,18*	34	12	10
1,10	*1,47*	36	14	10
1,20	*1,47*	38	16	10
1,30	*1,30*	38	16	10
1,40	*1,30*	40	18	10
1,50	*1,02*	40	18	10
1,60	*1,25*	43	20	10
1,70	*1,25*	43	20	10
1,80	*1,11*	46	22	10
1,90	*1,11*	46	22	10
2,00	*0,97*	49	24	10
2,10	*1,08*	49	24	10
2,20	*1,08*	53	27	10
2,25	*1,08*	53	27	10
2,30	*1,29*	53	27	10
2,40	*1,29*	57	30	10
2,50	*0,97*	57	30	10
2,60	*1,30*	57	30	10
2,70	*1,30*	61	33	10
2,75	*1,11*	61	33	10
2,80	*1,30*	61	33	10
2,90	*1,30*	61	33	10
3,00	*0,88*	61	33	10
3,10	*1,11*	65	36	10
3,20	*1,11*	65	36	10
3,25	*1,08*	65	36	10
3,30	*1,11*	65	36	10
3,40	*1,42*	70	39	10
3,50	*1,08*	70	39	10
3,60	*1,48*	70	39	10
3,70	*1,48*	70	39	10
3,75	*1,32*	70	39	10
3,80	*1,56*	75	43	10
3,90	*1,56*	75	43	10
4,00	*1,11*	75	43	10
4,10	*1,37*	75	43	10
4,20	*1,37*	75	43	10
4,25	*1,41*	75	43	10
4,30	*1,84*	80	47	10
4,40	*1,84*	80	47	10
4,50	*1,41*	80	47	10
4,60	*1,88*	80	47	10
4,70	*1,88*	80	47	10
4,75	*1,76*	80	47	10
4,80	*2,04*	86	52	10
4,90	*2,01*	86	52	10
5,00	*1,41*	86	52	10
5,10	*2,05*	86	52	10
5,20	*2,05*	86	52	10
5,25	*1,79*	86	52	10

Ø mm	€	L mm	l mm	
5,30	*2,58*	86	52	10
5,40	*2,58*	93	57	10
5,50	*1,79*	93	57	10
5,60	*2,71*	93	57	10
5,70	*2,71*	93	57	10
5,75	*2,25*	93	57	10
5,80	*2,58*	93	57	10
5,90	*2,58*	93	57	10
6,00	*1,91*	93	57	10
6,10	*2,96*	101	63	10
6,20	*2,96*	101	63	10
6,25	*2,67*	101	63	10
6,30	*3,13*	101	63	10
6,40	*3,18*	101	63	10
6,50	*2,42*	101	63	10
6,60	*3,91*	101	63	10
6,70	*3,91*	101	63	10
6,75	*3,06*	109	69	10
6,80	*2,95*	109	69	10
6,90	*4,32*	109	69	10
7,00	*2,80*	109	69	10
7,10	*4,59*	109	69	10
7,20	*4,59*	109	69	10
7,25	*3,50*	109	69	10
7,30	*4,59*	109	69	10
7,40	*4,59*	109	69	10
7,50	*3,18*	109	69	10
7,60	*5,39*	117	75	10
7,70	*5,39*	117	75	10
7,75	*3,82*	117	75	10
7,80	*5,46*	117	75	10
7,90	*5,46*	117	75	10
8,00	*3,29*	117	75	10
8,10	*5,54*	117	75	10
8,20	*5,54*	117	75	10
8,25	*4,55*	117	75	10
8,30	*5,81*	117	75	10
8,40	*5,81*	117	75	10
8,50	*4,16*	117	75	10
8,60	*7,30*	125	81	10
8,70	*7,30*	125	81	10
8,75	*4,95*	125	81	10
8,80	*7,34*	125	81	10
8,90	*7,34*	125	81	10
9,00	*4,54*	125	81	10
9,10	*7,36*	125	81	10
9,20	*7,36*	125	81	10
9,25	*6,08*	125	81	10
9,30	*6,86*	125	81	10
9,40	*6,86*	125	81	10

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

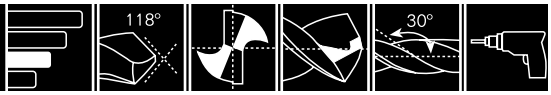
BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

(continúa Ref.1158 / suite Réf.1158 / Ref.1158 cont'd)

Ø mm	€	L mm	l mm	
9,50	*5,08*	125	81	10
9,60	*8,78*	133	87	10
9,70	*8,78*	133	87	10
9,75	*6,22*	133	87	10
9,80	*8,65*	133	87	10
9,90	*8,65*	133	87	10
10,00	*5,17*	133	87	5
10,50	*6,39*	133	87	5
11,00	*7,11*	142	94	5
11,50	*7,89*	142	94	5
12,00	*8,35*	151	101	5
12,50	*9,36*	151	101	5
13,00	*10,24*	151	101	5
13,50	*12,96*	151	101	4

Ø mm	€	L mm	l mm	
14,00	*14,04*	169	108	4
14,50	*16,00*	169	114	4
15,00	*18,28*	169	114	4
15,50	*22,05*	178	120	1
16,00	*22,05*	178	120	1
16,50	*28,48*	184	125	1
17,00	*28,48*	184	125	1
17,50	*31,73*	191	130	1
18,00	*31,73*	191	130	1
18,50	*35,41*	198	125	1
19,00	*35,41*	198	125	1
19,50	*42,43*	205	140	1
20,00	*42,43*	205	140	1

1158/9 HSS DIN 338 NSP



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

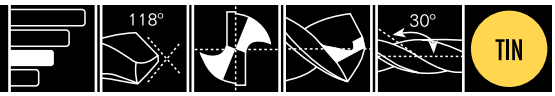


Ø mm	€	L mm	l mm	
1/16"	*1,02*	43	20	10
5/64"	*0,97*	49	24	10
3/32"	*0,97*	57	30	10
7/64"	*1,11*	61	33	10
1/8"	*0,88*	65	36	10
9/64"	*1,08*	70	39	10
5/32"	*1,11*	75	43	10
11/64"	*1,41*	80	47	10
3/16"	*1,41*	86	52	10
13/64"	*1,41*	86	52	10
7/32"	*1,79*	93	57	10
15/64"	*1,91*	93	57	10
1/4"	*2,42*	101	63	10
17/64"	*2,80*	109	69	10
9/32"	*2,80*	109	69	10

Ø mm	€	L mm	l mm	
19/64"	*3,18*	117	75	10
5/16"	*3,29*	117	75	10
21/64"	*4,16*	117	75	10
11/32"	*4,54*	125	81	10
23/64"	*4,54*	125	81	10
3/8"	*5,08*	133	87	10
25/64"	*5,17*	133	87	10
13/32"	*6,39*	133	87	5
27/64"	*6,71*	142	94	5
7/16"	*7,11*	142	94	5
29/64"	*7,89*	142	94	5
15/32"	*8,35*	151	101	5
31/64"	*9,36*	151	101	5
1/2"	*10,24*	151	101	5

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1108 HSS DIN 338 NSP



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-45	● 15-30					● 35-40	● 15-20		○ 65-90	● 40-70	○ 65-90	○ 25-35					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,00	*2,40*	34	12	10
1,10	*2,14*	36	14	10
1,20	*2,14*	38	16	10
1,30	*2,14*	38	16	10
1,40	*2,14*	40	18	10
1,50	*1,86*	40	18	10
1,60	*2,14*	43	20	10
1,70	*2,14*	43	20	10
1,80	*2,14*	46	22	10
1,90	*2,14*	46	22	10
2,00	*1,86*	49	24	10
2,10	*2,14*	49	24	10
2,20	*2,14*	53	27	10
2,25	*2,14*	53	27	10
2,30	*2,14*	53	27	10
2,40	*2,14*	57	30	10
2,50	*1,86*	57	30	10
2,60	*2,14*	57	30	10
2,70	*2,14*	61	33	10
2,75	*1,86*	61	33	10
2,80	*2,14*	61	33	10
2,90	*2,14*	61	33	10
3,00	*2,03*	61	33	10
3,10	*2,39*	65	36	10
3,20	*2,39*	65	36	10
3,25	*2,07*	65	36	10
3,30	*2,39*	65	36	10
3,40	*2,39*	70	39	10
3,50	*2,25*	70	39	10
3,60	*2,64*	70	39	10
3,70	*2,64*	70	39	10
3,75	*2,33*	70	39	10
3,80	*2,64*	75	43	10
3,90	*2,64*	75	43	10
4,00	*2,54*	75	43	10
4,10	*3,18*	75	43	10
4,20	*3,18*	75	43	10
4,25	*2,77*	75	43	10
4,30	*2,77*	80	47	10
4,40	*2,77*	80	47	10
4,50	*2,77*	80	47	10
4,60	*2,77*	80	47	10
4,70	*2,77*	80	47	10
4,75	*2,99*	80	47	10
4,80	*2,99*	86	52	10
4,90	*3,00*	86	52	10
5,00	*2,86*	86	52	10
5,10	*3,43*	86	52	10
5,20	*3,43*	86	52	10
5,25	*3,43*	86	52	10

Ø mm	€	L mm	l mm	
5,30	*3,43*	86	52	10
5,40	*3,43*	93	57	10
5,50	*3,43*	93	57	10
5,60	*3,79*	93	57	10
5,70	*3,79*	93	57	10
5,75	*3,79*	93	57	10
5,80	*3,79*	93	57	10
5,90	*3,79*	93	57	10
6,00	*3,79*	93	57	10
6,10	*4,66*	101	63	10
6,20	*4,66*	101	63	10
6,25	*4,66*	101	63	10
6,30	*4,66*	101	63	10
6,40	*4,66*	101	63	10
6,50	*4,66*	101	63	10
6,60	*5,39*	101	63	10
6,70	*5,39*	101	63	10
6,75	*5,41*	109	69	10
6,80	*6,23*	109	69	10
6,90	*6,23*	109	69	10
7,00	*6,23*	109	69	10
7,10	*6,23*	109	69	10
7,20	*6,23*	109	69	10
7,25	*6,75*	109	69	10
7,30	*6,75*	109	69	10
7,40	*6,75*	109	69	10
7,50	*6,75*	109	69	10
7,60	*7,05*	117	75	10
7,70	*7,05*	117	75	10
7,75	*7,05*	117	75	10
7,80	*7,11*	117	75	10
7,90	*7,11*	117	75	10
8,00	*7,11*	117	75	10
8,10	*8,22*	117	75	10
8,20	*8,22*	117	75	10
8,25	*8,22*	117	75	10
8,30	*8,22*	117	75	10
8,40	*8,22*	117	75	10
8,50	*8,22*	117	75	10
8,60	*8,96*	125	81	10
8,70	*8,96*	125	81	10
8,75	*8,97*	125	81	10
8,80	*8,96*	125	81	10
8,90	*8,96*	125	81	10
9,00	*8,97*	125	81	10
9,10	*10,12*	125	81	10
9,20	*10,12*	125	81	10
9,25	*10,11*	125	81	10
9,30	*10,12*	125	81	10
9,40	*10,12*	125	81	10

(continúa Ref.1108 / suite Réf.1108 / Ref.1108 cont'd)

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

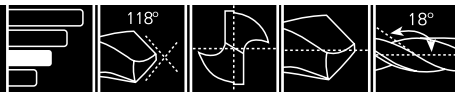
BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

(continúa Ref.1108 / suite Réf.1108 / Ref.1108 cont'd)

Ø mm	€	L mm	l mm	
9,50	*10,11*	125	81	10
9,60	*11,26*	133	87	10
9,75	*11,26*	133	87	10
9,80	*11,26*	133	87	10
9,90	*11,26*	133	87	10
10,00	*11,26*	133	87	5

Ø mm	€	L mm	l mm	
10,50	*13,01*	133	87	5
11,00	*14,55*	142	94	5
11,50	*16,15*	142	94	5
12,00	*18,55*	151	101	5
12,50	*19,60*	151	101	5
13,00	*21,40*	151	101	5

1103 HSS DIN 338 H



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
										● 25-60							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

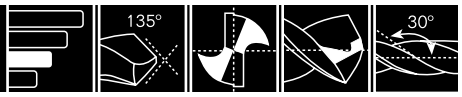


Ø mm	€	L mm	l mm	
1,00	*3,83*	34	12	1
1,25	*4,32*	38	16	1
1,50	*3,75*	40	18	1
1,75	*4,21*	46	22	1
2,00	*3,43*	49	24	1
2,25	*4,02*	53	27	1
2,50	*3,50*	57	30	1
2,75	*4,70*	61	33	1
3,00	*3,83*	61	33	1
3,25	*4,70*	65	36	1
3,50	*4,13*	70	39	1
3,75	*6,09*	70	39	1
4,00	*4,43*	75	43	1
4,25	*6,63*	75	43	1
4,50	*5,46*	80	47	1
4,75	*7,48*	80	47	1
5,00	*5,94*	86	52	1
5,25	*8,95*	86	52	1
5,50	*7,19*	93	57	1
5,75	*10,94*	93	57	1
6,00	*7,79*	93	57	1
6,25	*10,94*	101	63	1

Ø mm	€	L mm	l mm	
6,50	*8,68*	101	63	1
6,75	*13,18*	109	69	1
7,00	*9,17*	109	69	1
7,25	*17,40*	109	69	1
7,50	*10,78*	109	69	1
7,75	*20,13*	117	75	1
8,00	*11,49*	117	75	1
8,25	*21,50*	117	75	1
8,50	*13,31*	117	75	1
8,75	*22,51*	125	81	1
9,00	*13,98*	125	81	1
9,25	*29,01*	125	81	1
9,50	*16,36*	125	81	1
9,75	*32,10*	133	87	1
10,00	*17,09*	133	87	1
10,50	*20,48*	133	87	1
11,00	*22,87*	142	94	1
11,50	*27,65*	142	94	1
12,00	*29,81*	151	101	1
12,50	*33,79*	151	101	1
13,00	*36,17*	151	101	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1105 HSSCO DIN 338 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
0,50	*2,80*	22	6	10
0,60	*2,27*	24	7	10
0,70	*2,21*	28	9	10
0,75	*2,21*	28	9	10
0,80	*2,00*	30	10	10
0,90	*2,00*	32	11	10
1,00	*1,75*	34	12	10
1,10	*1,52*	36	14	10
1,20	*1,69*	38	16	10
1,25	*2,00*	38	16	10
1,30	*1,60*	38	16	10
1,40	*1,51*	40	18	10
1,50	*1,60*	40	18	10
1,60	*1,67*	43	20	10
1,70	*1,54*	43	20	10
1,75	*2,25*	46	22	10
1,80	*1,54*	46	22	10
1,90	*1,59*	46	22	10
2,00	*1,64*	49	24	10
2,10	*1,79*	49	24	10
2,20	*1,79*	53	27	10
2,25	*2,59*	53	27	10
2,30	*1,79*	53	27	10
2,40	*1,80*	57	30	10
2,50	*1,75*	57	30	10
2,60	*1,88*	57	30	10
2,70	*1,88*	61	33	10
2,75	*1,93*	61	33	10
2,80	*1,90*	61	33	10
2,90	*1,93*	61	33	10
3,00	*1,46*	61	33	10
3,10	*1,93*	65	36	10
3,20	*1,93*	65	36	10
3,25	*1,95*	65	36	10
3,30	*2,04*	65	36	10
3,40	*2,07*	70	39	10
3,50	*1,93*	70	39	10
3,60	*2,12*	70	39	10
3,70	*2,14*	70	39	10
3,75	*2,32*	70	39	10
3,80	*2,16*	75	43	10
3,90	*2,22*	75	43	10
4,00	*1,90*	75	43	10
4,10	*2,25*	75	43	10
4,20	*2,27*	75	43	10
4,25	*2,22*	75	43	10
4,30	*2,42*	80	47	10
4,40	*2,48*	80	47	10
4,50	*2,32*	80	47	10
4,60	*2,54*	80	47	10
4,70	*2,59*	80	47	10
4,75	*2,58*	80	47	10

Ø mm	€	L mm	l mm	
4,80	*2,67*	86	52	10
4,90	*2,69*	86	52	10
5,00	*2,22*	86	52	10
5,10	*2,72*	86	52	10
5,20	*2,73*	86	52	10
5,25	*2,78*	86	52	10
5,30	*2,78*	86	52	10
5,40	*3,21*	93	57	10
5,50	*3,51*	93	57	10
5,60	*3,51*	93	57	10
5,70	*3,51*	93	57	10
5,75	*3,51*	93	57	10
5,80	*3,51*	93	57	10
5,90	*3,51*	93	57	10
6,00	*3,00*	93	57	10
6,10	*3,90*	101	63	10
6,20	*3,93*	101	63	10
6,25	*3,93*	101	63	10
6,30	*3,93*	101	63	10
6,40	*4,23*	101	63	10
6,50	*3,90*	101	63	10
6,60	*4,23*	101	63	10
6,70	*4,23*	101	63	10
6,75	*4,55*	109	69	10
6,80	*4,55*	109	69	10
6,90	*4,55*	109	69	10
7,00	*4,11*	109	69	10
7,10	*5,55*	109	69	10
7,20	*5,55*	109	69	10
7,25	*5,55*	109	69	10
7,30	*5,55*	109	69	10
7,40	*5,55*	109	69	10
7,50	*4,37*	109	69	10
7,60	*6,73*	117	75	10
7,70	*6,73*	117	75	10
7,75	*6,73*	117	75	10
7,80	*6,73*	117	75	10
7,90	*6,73*	117	75	10
8,00	*5,46*	117	75	10
8,10	*6,73*	117	75	10
8,20	*6,73*	117	75	10
8,25	*6,45*	117	75	10
8,30	*6,73*	117	75	10
8,40	*6,73*	117	75	10
8,50	*5,36*	117	75	10
8,60	*7,89*	125	81	10
8,70	*7,89*	125	81	10
8,75	*8,20*	125	81	10
8,80	*8,20*	125	81	10
8,90	*8,20*	125	81	10
9,00	*6,78*	125	81	10
9,10	*8,78*	125	81	10

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

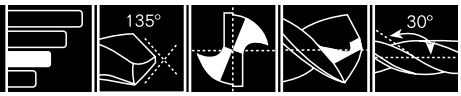
BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

(continúa Ref.1105 / suite Réf.1105 / Ref.1105 cont'd)

Ø mm	€	L mm	l mm	
9,20	8,78	125	81	10
9,25	9,05	125	81	10
9,30	9,67	125	81	10
9,40	9,67	125	81	10
9,50	8,56	125	81	10
9,60	10,83	133	87	10
9,70	11,09	133	87	10
9,75	10,68	133	87	10
9,80	11,10	133	87	10
9,90	11,10	133	87	10
10,00	8,56	133	87	5
10,10	14,04	133	87	5
10,20	14,04	133	87	5
10,25	14,04	133	87	5
10,30	14,04	133	87	5
10,40	14,04	133	87	5
10,50	11,41	133	87	5
10,60	16,33	133	87	5
10,70	16,33	142	94	5
10,75	16,33	142	94	5
10,80	16,33	142	94	5
10,90	16,33	142	94	5
11,00	12,56	142	94	5
11,10	19,14	142	94	5
11,20	19,14	142	94	5
11,25	19,14	142	94	5
11,30	19,14	142	94	5
11,40	19,14	142	94	5
11,50	16,10	142	94	5
11,60	20,58	142	94	5
11,70	20,58	142	94	5

Ø mm	€	L mm	l mm	
11,75	20,58	142	94	5
11,80	20,58	142	94	5
11,90	20,58	151	101	5
12,00	15,77	151	101	5
12,10	24,57	151	101	5
12,20	24,57	151	101	5
12,25	24,57	151	101	5
12,30	24,57	151	101	5
12,40	24,57	151	101	5
12,50	21,63	151	101	5
12,60	25,65	151	101	5
12,70	25,65	151	101	5
12,75	25,65	151	101	5
12,80	25,65	151	101	5
12,90	25,65	151	101	5
13,00	21,92	151	101	5
13,50	24,17	160	108	4
14,00	23,89	160	108	4
14,50	33,85	169	114	4
15,00	34,41	169	114	4
15,50	39,76	178	120	1
16,00	41,25	178	120	1
16,50	47,19	184	125	1
17,00	47,19	184	125	1
17,50	52,23	191	130	1
18,00	56,93	191	130	1
18,50	62,84	198	125	1
19,00	62,84	198	125	1
19,50	69,69	205	140	1
20,00	80,52	205	140	1

1105/9 HSSCO DIN 338 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

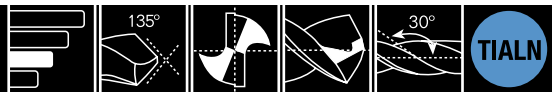


Ø mm	€	L mm	l mm	
1/16"	1,59	43	20	10
5/64"	1,64	49	24	10
3/32"	1,75	57	30	10
7/64"	1,93	61	33	10
1/8"	1,46	65	36	10
9/64"	1,93	70	39	10
5/32"	1,90	75	43	10
11/64"	2,32	80	47	10
3/16"	2,32	86	52	10
13/64"	2,22	86	52	10
7/32"	3,51	93	57	10
15/64"	3,00	93	57	10
1/4"	3,90	101	63	10
17/64"	4,55	109	69	10
9/32"	4,11	109	69	10

Ø mm	€	L mm	l mm	
19/64"	4,37	117	75	10
5/16"	5,46	117	75	10
21/64"	5,36	117	75	10
11/32"	8,20	125	81	10
23/64"	6,78	125	81	10
3/8"	8,56	133	87	10
25/64"	8,56	133	87	10
13/32"	11,41	133	87	5
27/64"	16,33	142	94	5
7/16"	12,56	142	94	5
29/64"	16,10	142	94	5
15/32"	15,77	151	101	5
31/64"	21,63	151	101	5
1/2"	21,92	151	101	5

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1161 HSSCO DIN 338 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-50	● 18-30	● 10-25		○ 12-20		● 38-45	● 18-25		○ 70-80	● 45-80		○ 30-35					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
2,00	*3,48*	49	24	1
2,50	*3,48*	57	30	1
3,00	*3,44*	61	33	1
3,10	*4,33*	65	36	1
3,25	*4,33*	65	36	1
3,30	*4,33*	65	36	1
3,40	*4,51*	70	39	1
3,50	*4,32*	70	39	1
4,00	*4,46*	75	43	1
4,10	*4,69*	75	43	1
4,20	*4,69*	75	43	1
4,25	*4,69*	75	43	1
4,30	*4,73*	80	47	1
4,50	*4,75*	80	47	1
5,00	*4,83*	86	52	1
5,10	*5,19*	86	52	1
5,25	*5,24*	86	52	1

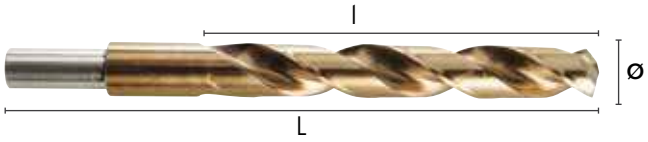
Ø mm	€	L mm	l mm	
5,50	*5,47*	93	57	1
6,00	*5,68*	93	57	1
6,50	*10,45*	101	63	1
7,00	*11,07*	109	69	1
7,50	*11,34*	109	69	1
8,00	*12,09*	117	75	1
8,50	*13,47*	117	75	1
9,00	*14,94*	125	81	1
9,50	*15,19*	125	81	1
10,00	*15,94*	133	87	1
10,50	*27,46*	133	87	1
11,00	*28,61*	142	94	1
11,50	*30,37*	142	94	1
12,00	*31,39*	151	101	1
12,50	*38,81*	151	101	1
13,00	*39,45*	151	101	1

1107 HSSCO DIN 338 MR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

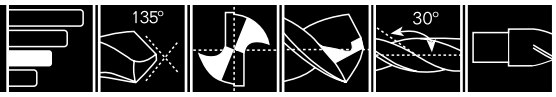


Ø mm	d mm	€	L mm	l mm	
10,00	8	*10,17*	133	87	1
10,50	8	*13,61*	133	87	1
11,00	8	*14,67*	142	94	1
11,50	8	*18,01*	142	94	1
12,00	8	*19,09*	151	101	1
12,50	8	*23,17*	151	101	1
13,00	10	*23,49*	151	101	1
13,50	10	*25,59*	160	108	1
14,00	10	*25,33*	160	108	1
14,50	10	*34,69*	169	114	1
15,00	10	*35,18*	169	114	1

Ø mm	d mm	€	L mm	l mm	
15,50	10	*40,19*	178	120	1
16,00	12	*41,62*	178	120	1
16,50	12	*47,18*	184	125	1
17,00	12	*47,18*	184	125	1
17,50	12	*51,91*	191	130	1
18,00	12	*56,31*	191	130	1
18,50	12	*61,90*	191	130	1
19,00	12	*61,90*	191	130	1
19,50	12	*68,31*	191	130	1
20,00	12	*78,47*	191	130	1

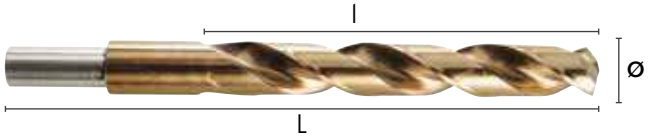
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1107/9 HSSCO ANSI



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
17/32"	1/2"	*25,59*	152	76	1
9/16"	1/2"	*25,33*	152	76	1
19/32"	1/2"	*35,18*	152	76	1
5/8"	1/2"	*41,62*	152	76	1
21/32"	1/2"	*47,18*	152	76	1

Ø mm	d mm	€	L mm	l mm	
11/16"	1/2"	*51,91*	152	76	1
23/32"	1/2"	*56,41*	152	76	1
3/4"	1/2"	*61,90*	152	76	1
25/32"	1/2"	*68,31*	152	76	1
13/16"	1/2"	*78,47*	152	76	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

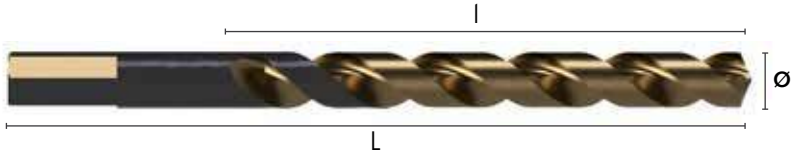
1187 HSSCO DIN 338W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40				● 8-14					○ 30-80	○ 50-70	○ 50-70			● 8-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW

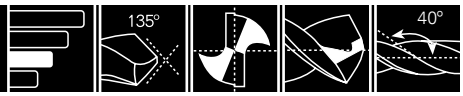


Ø mm	€	L mm	l mm	
1,00	*2,89*	34	12	10
1,25	*3,45*	38	16	10
1,50	*2,75*	40	18	10
1.75	*3,45*	46	22	10
2,00	*2,75*	49	24	10
2,25	*3,05*	53	27	10
2,50	*2,51*	57	30	10
2,75	*3,05*	61	33	10
3,00	*2,45*	61	33	10
3,20	*3,01*	65	36	10
3,25	*3,01*	65	36	10
3,30	*3,01*	65	36	10
3,50	*2,96*	70	39	10
3,75	*3,57*	70	39	10
4,00	*3,22*	75	43	10
4,20	*3,57*	75	43	10
4,25	*3,57*	75	43	10
4,50	*3,57*	80	47	10
4,75	*3,99*	80	47	10
5,00	*3,83*	86	52	10
5,20	*4,75*	86	52	10
5,25	*4,48*	86	52	10

Ø mm	€	L mm	l mm	
5,50	*4,85*	93	57	10
5,75	*5,42*	93	57	10
6,00	*5,16*	93	57	10
6,25	*5,93*	101	63	10
6,50	*6,04*	101	63	10
6,75	*7,07*	109	69	10
6,80	*7,05*	109	69	10
7,00	*6,58*	109	69	10
7,50	*7,00*	109	69	10
8,00	*8,19*	117	75	10
8,50	*8,55*	117	75	10
8,75	*13,13*	125	81	10
9,00	*10,89*	125	81	10
9,50	*11,26*	125	81	10
10,00	*12,43*	133	87	5
10,20	*16,76*	133	87	5
10,50	*16,76*	133	87	5
11,00	*18,51*	142	94	5
11,50	*21,29*	142	94	5
12,00	*22,83*	151	101	5
12,50	*25,41*	151	101	5
13,00	*25,79*	151	101	5

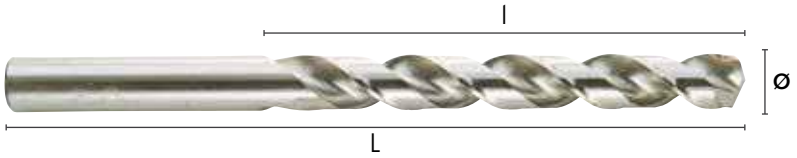
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1106 HSSCO DIN 338 W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
				● 8-14					○ 30-80	○ 50-70	○ 50-70			● 8-10			

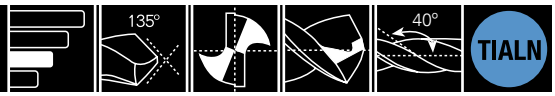
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,00	*2,95*	34	12	10
1,25	*3,49*	38	16	10
1,50	*2,81*	40	18	10
2,00	*2,81*	49	24	10
2,25	*3,40*	53	27	10
2,50	*2,80*	57	30	10
2,75	*4,35*	61	33	10
3,00	*3,11*	61	33	10
3,10	*3,38*	65	36	10
3,20	*3,38*	65	36	10
3,25	*3,44*	65	36	10
3,30	*4,31*	65	36	10
3,50	*3,38*	70	39	10
3,75	*3,99*	70	39	10
4,00	*3,83*	75	43	10
4,10	*4,78*	75	43	10
4,20	*4,78*	75	43	10
4,25	*4,44*	75	43	10
4,50	*4,44*	80	47	10
4,75	*4,41*	80	47	10
5,00	*4,67*	86	52	10
5,10	*5,94*	86	52	10
5,20	*5,31*	86	52	10

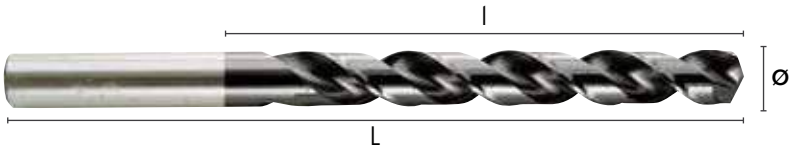
Ø mm	€	L mm	l mm	
5,25	*5,81*	86	52	10
5,50	*5,68*	93	57	10
5,75	*6,43*	93	57	10
6,00	*6,31*	93	57	10
6,25	*6,63*	101	63	10
6,50	*7,51*	101	63	10
6,75	*7,91*	109	69	10
7,00	*8,73*	109	69	10
7,25	*10,08*	109	69	10
7,50	*9,94*	109	69	10
8,00	*10,78*	117	75	10
8,25	*11,64*	117	75	10
8,50	*12,99*	117	75	10
9,00	*14,09*	125	81	10
9,50	*15,95*	125	81	10
10,00	*17,54*	133	87	5
10,25	*24,44*	133	87	5
10,50	*20,76*	133	87	5
11,00	*22,14*	142	94	5
11,50	*25,97*	142	94	5
12,00	*25,97*	151	101	5
12,50	*32,57*	151	101	5
13,00	*32,57*	151	101	5

1162 HSSCO DIN 338 W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
				● 12-20					○ 45-100		○ 75-95			● 12-15			

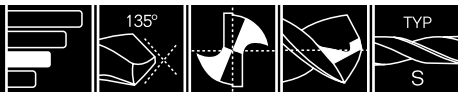
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,00	*5,61*	34	12	1
1,25	*6,65*	38	16	1
1,50	*5,34*	40	18	1
2,00	*5,34*	49	24	1
2,25	*6,47*	53	27	1
2,50	*5,32*	57	30	1
2,75	*8,28*	61	33	1
3,00	*5,93*	61	33	1
3,10	*6,44*	65	36	1
3,20	*6,44*	65	36	1
3,25	*6,55*	65	36	1
3,30	*8,17*	65	36	1
3,50	*6,45*	70	39	1
3,75	*7,61*	70	39	1
4,00	*7,30*	75	43	1
4,10	*9,07*	75	43	1
4,20	*9,07*	75	43	1
4,25	*8,47*	75	43	1
4,50	*8,47*	80	47	1
4,75	*8,39*	80	47	1
5,00	*8,89*	86	52	1
5,10	*11,31*	86	52	1
5,20	*10,11*	86	52	1

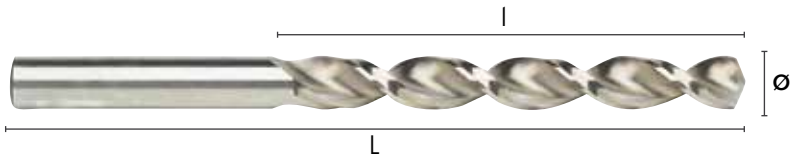
Ø mm	€	L mm	l mm	
5,25	*11,07*	86	52	1
5,50	*10,83*	93	57	1
5,75	*12,24*	93	57	1
6,00	*12,02*	93	57	1
6,25	*12,60*	101	63	1
6,50	*14,32*	101	63	1
6,75	*15,04*	109	69	1
7,00	*16,61*	109	69	1
7,25	*19,19*	109	69	1
7,50	*18,94*	109	69	1
8,00	*20,55*	117	75	1
8,25	*22,18*	117	75	1
8,50	*24,75*	117	75	1
9,00	*26,84*	125	81	1
9,50	*30,38*	125	81	1
10,00	*33,38*	133	87	1
10,25	*46,54*	133	87	1
10,50	*39,53*	133	87	1
11,00	*42,18*	142	94	1
11,50	*49,46*	142	94	1
12,00	*49,46*	151	101	1
12,50	*62,01*	151	101	1
13,00	*62,01*	151	101	1

1159 HSSCO DIN 338 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-20	● 6-16		○ 8-14					● 30-80		● 50-70						

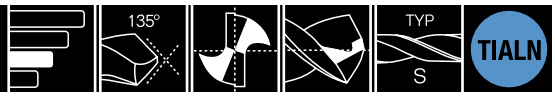
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
2,00	*3,76*	49	24	10
2,10	*3,61*	49	24	10
2,20	*3,61*	53	27	10
2,30	*3,61*	53	27	10
2,40	*3,61*	57	30	10
2,50	*3,76*	57	30	10
2,60	*3,89*	57	30	10
2,70	*3,89*	61	33	10
2,80	*4,11*	61	33	10
2,90	*4,11*	61	33	10
3,00	*4,11*	61	33	10
3,10	*4,19*	65	36	10
3,20	*4,19*	65	36	10
3,30	*4,19*	65	36	10
3,40	*4,19*	70	39	10
3,50	*4,68*	70	39	10
3,60	*4,58*	70	39	10
3,70	*4,58*	70	39	10
3,80	*5,29*	75	43	10
3,90	*5,29*	75	43	10
4,00	*5,12*	75	43	10
4,10	*5,29*	75	43	10
4,20	*5,29*	75	43	10
4,30	*5,41*	80	47	10
4,40	*5,41*	80	47	10
4,50	*5,46*	80	47	10
4,60	*5,83*	80	47	10
4,70	*5,83*	80	47	10
4,80	*6,01*	86	52	10
4,90	*6,01*	86	52	10
5,00	*5,78*	86	52	10
5,10	*6,53*	86	52	10
5,20	*6,83*	86	52	10
5,30	*6,83*	86	52	10
5,40	*6,83*	93	57	10
5,50	*7,74*	93	57	10
5,60	*8,17*	93	57	10
5,70	*9,10*	93	57	10
5,80	*8,17*	93	57	10
5,90	*8,17*	93	57	10

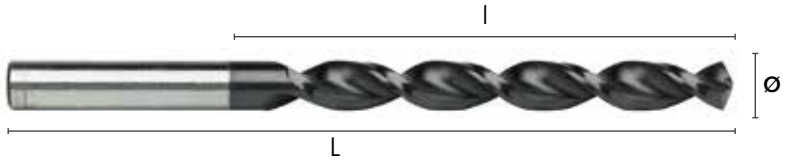
Ø mm	€	L mm	l mm	
6,00	*8,15*	93	57	10
6,10	*9,05*	101	63	10
6,20	*9,05*	101	63	10
6,30	*9,10*	101	63	10
6,40	*9,10*	101	63	10
6,50	*9,10*	101	63	10
6,60	*10,42*	101	63	10
6,70	*10,42*	101	63	10
6,80	*10,42*	109	69	10
6,90	*10,42*	109	69	10
7,00	*10,42*	109	69	10
7,10	*12,63*	109	69	10
7,20	*12,63*	109	69	10
7,30	*12,63*	109	69	10
7,40	*12,63*	109	69	10
7,50	*11,29*	109	69	10
7,60	*17,24*	117	75	10
7,70	*17,24*	117	75	10
7,80	*17,24*	117	75	10
7,90	*17,24*	117	75	10
8,00	*13,31*	117	75	10
8,10	*17,24*	117	75	10
8,20	*15,09*	117	75	10
8,30	*16,21*	117	75	10
8,40	*16,21*	117	75	10
8,50	*14,66*	117	75	10
8,60	*18,59*	125	81	10
8,70	*18,59*	125	81	10
8,80	*18,59*	125	81	10
8,90	*18,59*	125	81	10
9,00	*17,24*	125	81	10
9,50	*18,57*	125	81	10
9,80	*23,30*	133	87	10
10,00	*21,18*	133	87	5
10,50	*26,06*	133	87	5
11,00	*32,26*	142	94	5
11,50	*39,13*	142	94	5
12,00	*40,37*	151	101	5
12,50	*44,05*	151	101	5
13,00	*44,05*	151	101	5

1160 HSSCO DIN 338 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●		○					●		●						
25-45	18-30	10-25		12-20					45-100		70-90						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
2,00	5,27	49	24	1
2,10	5,07	49	24	1
2,20	5,07	53	27	1
2,30	5,07	53	27	1
2,40	5,07	57	30	1
2,50	5,27	57	30	1
2,60	5,43	57	30	1
2,70	5,43	61	33	1
2,80	5,75	61	33	1
2,90	5,75	61	33	1
3,00	5,75	61	33	1
3,10	5,88	65	36	1
3,20	5,88	65	36	1
3,30	5,88	65	36	1
3,40	5,88	70	39	1
3,50	6,54	70	39	1
3,60	6,42	70	39	1
3,70	6,42	70	39	1
3,80	7,41	75	43	1
3,90	7,41	75	43	1
4,00	7,16	75	43	1
4,10	7,41	75	43	1
4,20	7,41	75	43	1
4,30	7,57	80	47	1
4,40	7,66	80	47	1
4,50	7,66	80	47	1
4,60	8,16	80	47	1
4,70	8,16	80	47	1
4,80	8,42	86	52	1
4,90	8,42	86	52	1
5,00	8,08	86	52	1
5,10	9,14	86	52	1
5,20	9,58	86	52	1
5,30	9,58	86	52	1
5,40	9,58	93	57	1
5,50	10,84	93	57	1
5,60	11,46	93	57	1
5,70	12,73	93	57	1
5,80	11,46	93	57	1
5,90	11,46	93	57	1

Ø mm	€	L mm	l mm	
6,00	11,41	93	57	1
6,10	12,66	101	63	1
6,20	12,66	101	63	1
6,30	12,73	101	63	1
6,40	12,73	101	63	1
6,50	12,73	101	63	1
6,60	14,59	101	63	1
6,70	14,59	101	63	1
6,80	14,59	109	69	1
6,90	14,59	109	69	1
7,00	14,30	109	69	1
7,10	17,68	109	69	1
7,20	17,68	109	69	1
7,30	17,68	109	69	1
7,40	17,68	109	69	1
7,50	15,80	109	69	1
7,60	24,15	117	75	1
7,70	24,15	117	75	1
7,80	24,15	117	75	1
7,90	24,15	117	75	1
8,00	18,64	117	75	1
8,10	24,15	117	75	1
8,20	21,12	117	75	1
8,30	24,15	117	75	1
8,40	24,15	117	75	1
8,50	20,51	117	75	1
8,60	26,04	125	81	1
8,70	26,04	125	81	1
8,80	26,04	125	81	1
8,90	26,04	125	81	1
9,00	24,15	125	81	1
9,50	26,00	125	81	1
9,80	32,63	133	87	1
10,00	29,64	133	87	1
10,50	36,49	133	87	1
11,00	45,15	142	94	1
11,50	54,79	142	94	1
12,00	56,50	151	101	1
12,50	58,55	151	101	1
13,00	61,68	151	101	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

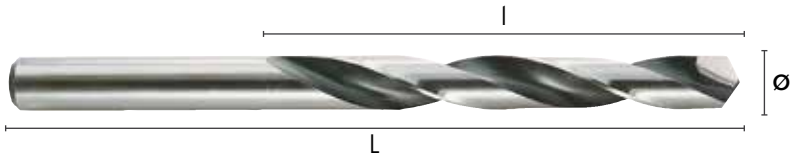
Hepyc CUTTING TOOL EXPERTS

1110 HSS DIN 338 N - WIDIA



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 18-30	● 10-25	○ 6-9				● 30-40	● 15-20				○ 30-35					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

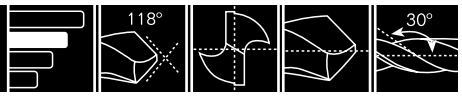


Ø mm	€	L mm	l mm	
1,50	*27,05*	40	18	1
2,00	*20,55*	49	24	1
2,50	*20,55*	57	30	1
3,00	*20,55*	61	33	1
3,50	*20,55*	70	39	1
4,00	*20,55*	75	43	1
4,50	*21,01*	80	47	1
5,00	*21,01*	86	52	1
5,50	*22,22*	93	57	1
6,00	*23,30*	93	57	1
6,50	*27,65*	101	63	1
7,00	*27,65*	109	69	1
7,50	*28,75*	109	69	1
8,00	*28,75*	117	75	1
8,50	*31,46*	117	75	1

Ø mm	€	L mm	l mm	
9,00	*31,46*	125	81	1
9,50	*34,39*	125	81	1
10,00	*34,39*	133	87	1
10,50	*44,32*	133	87	1
11,00	*44,32*	142	97	1
12,00	*51,00*	151	101	1
13,00	*60,93*	151	101	1
14,00	*71,00*	160	108	1
15,00	*80,86*	169	114	1
16,00	*93,10*	178	120	1
17,00	*101,93*	184	125	1
18,00	*109,75*	191	130	1
19,00	*136,30*	198	135	1
20,00	*155,16*	205	140	1

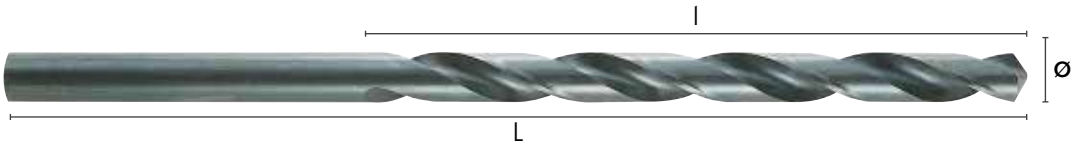
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1112 HSS DIN 340 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,00	*3,23*	56	33	10
1,10	*3,91*	60	37	10
1,20	*3,91*	65	41	10
1,25	*3,55*	65	41	10
1,30	*3,91*	65	41	10
1,40	*3,91*	70	45	10
1,50	*3,23*	70	45	10
1,60	*3,32*	76	50	10
1,70	*3,03*	76	50	10
1,75	*3,03*	80	53	10
1,80	*3,32*	80	53	10
1,90	*3,32*	80	53	10
2,00	*2,77*	85	56	10
2,10	*3,32*	85	56	10
2,20	*3,32*	85	56	10
2,25	*3,03*	90	59	10
2,30	*3,32*	90	59	10
2,40	*3,32*	95	62	10
2,50	*2,77*	95	62	10
2,60	*3,32*	100	66	10
2,70	*3,32*	100	66	10
2,75	*3,03*	100	66	10
2,80	*3,32*	100	66	10
2,90	*3,32*	100	66	10
3,00	*2,51*	100	66	10
3,10	*3,96*	106	69	10
3,20	*3,96*	106	69	10
3,25	*3,60*	106	69	10
3,30	*3,96*	106	69	10
3,40	*3,96*	112	73	10
3,50	*3,27*	112	73	10
3,60	*3,96*	112	73	10
3,70	*3,96*	112	73	10
3,75	*3,60*	112	73	10
3,80	*3,96*	119	78	10
3,90	*3,96*	119	78	10
4,00	*3,06*	119	78	10
4,10	*5,06*	119	78	10
4,20	*5,06*	119	78	10
4,25	*4,61*	119	78	10
4,30	*5,06*	126	82	10
4,40	*5,06*	126	82	10
4,50	*4,26*	126	82	10
4,60	*5,06*	126	82	10
4,70	*5,06*	126	82	10
4,75	*4,61*	126	82	10
4,80	*5,06*	132	87	10
4,90	*5,06*	132	87	10
5,00	*3,94*	132	87	10
5,10	*6,03*	132	87	10
5,20	*6,03*	132	87	10

Ø mm	€	L mm	l mm	
5,25	*5,48*	132	87	10
5,30	*6,03*	132	87	10
5,40	*6,03*	139	91	10
5,50	*4,95*	139	91	10
5,60	*6,03*	139	91	10
5,70	*6,03*	139	91	10
5,75	*5,48*	139	91	10
5,80	*6,03*	139	91	10
5,90	*6,03*	139	91	10
6,00	*4,85*	139	91	10
6,10	*7,65*	148	97	10
6,20	*7,65*	148	97	10
6,25	*6,95*	148	97	10
6,30	*7,65*	148	97	10
6,40	*8,34*	148	97	10
6,50	*6,33*	148	97	10
6,60	*7,65*	148	97	10
6,70	*7,65*	148	97	10
6,75	*6,95*	156	102	10
6,80	*8,84*	156	102	10
6,90	*8,84*	156	102	10
7,00	*6,33*	156	102	10
7,10	*9,35*	156	102	10
7,20	*9,35*	156	102	10
7,25	*8,52*	156	102	10
7,30	*9,35*	156	102	10
7,40	*9,35*	156	102	10
7,50	*7,73*	156	102	10
7,60	*9,35*	165	109	10
7,70	*9,35*	165	109	10
7,75	*8,52*	165	109	10
7,80	*9,35*	165	109	10
7,90	*9,35*	165	109	10
8,00	*7,73*	165	109	10
8,10	*11,53*	165	109	10
8,20	*11,53*	165	109	10
8,25	*10,48*	165	109	10
8,30	*11,53*	165	109	10
8,40	*11,53*	165	109	10
8,50	*9,51*	165	109	10
8,75	*10,48*	175	115	10
8,80	*11,53*	175	115	10
8,90	*12,02*	175	115	10
9,00	*9,51*	175	115	10
9,25	*12,18*	175	115	10
9,30	*13,43*	175	115	10
9,40	*13,43*	175	115	10
9,50	*11,11*	175	115	10
9,70	*13,43*	184	121	10
9,75	*12,18*	184	121	10
9,90	*13,43*	184	121	10

(continúa Ref.1112 / suite Réf.1112 / Ref.1112 cont'd)

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

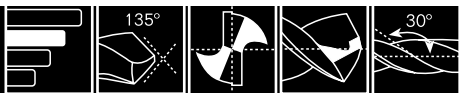
BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

(continúa Ref.1112 / suite Réf.1112 / Ref.1112 cont'd)

Ø mm	€	L mm	l mm	
10,00	*11,11*	184	121	5
10,25	*16,66*	184	121	5
10,30	*23,71*	184	121	5
10,40	*18,34*	184	121	5
10,50	*15,17*	184	121	5
10,75	*16,66*	195	128	5
11,00	*15,17*	195	128	5
11,10	*21,74*	195	128	5
11,20	*21,74*	195	128	5
11,25	*19,77*	195	128	5
11,50	*17,98*	195	128	5
11,75	*19,77*	195	128	5
12,00	*17,98*	205	134	5
12,25	*23,78*	205	134	5
12,50	*21,61*	205	134	5
12,75	*23,78*	205	134	5
13,00	*21,61*	205	134	5

Ø mm	€	L mm	l mm	
13,25	*29,70*	214	140	1
13,50	*27,00*	214	140	1
13,75	*29,70*	214	140	1
14,00	*27,00*	214	140	1
14,50	*30,08*	220	144	1
15,00	*30,08*	220	144	1
15,50	*32,87*	227	149	1
16,00	*32,87*	227	149	1
16,50	*45,11*	235	154	1
17,00	*45,11*	235	154	1
17,50	*49,77*	241	158	1
18,00	*49,77*	241	158	1
18,50	*56,68*	247	162	1
19,00	*56,68*	247	162	1
19,50	*61,26*	254	166	1
20,00	*61,26*	254	166	1

1113 HSSCO DIN 340 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

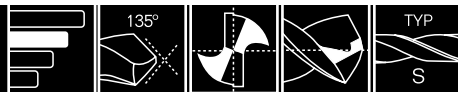


Ø mm	€	L mm	l mm	
2,00	*6,58*	85	56	10
2,50	*6,58*	95	62	10
3,00	*6,58*	100	66	10
3,25	*11,47*	106	69	10
3,50	*7,81*	112	73	10
3,75	*7,81*	112	73	10
4,00	*7,81*	119	78	10
4,25	*9,07*	119	78	10
4,50	*10,01*	126	82	10
4,75	*12,43*	126	82	10
5,00	*10,01*	132	87	10
5,25	*21,81*	132	87	10
5,50	*10,96*	139	91	10
5,75	*14,82*	139	91	10
6,00	*10,96*	139	91	10

Ø mm	€	L mm	l mm	
6,50	*13,91*	148	97	10
7,00	*15,12*	156	102	10
7,50	*18,51*	156	102	10
8,00	*17,00*	165	109	10
8,50	*21,01*	165	109	10
9,00	*21,01*	175	115	10
9,50	*24,45*	175	115	10
10,00	*32,95*	184	121	5
10,50	*41,48*	184	121	5
11,00	*43,05*	195	128	5
11,50	*55,83*	195	128	5
12,00	*46,25*	205	134	5
12,50	*59,01*	205	134	5
13,00	*59,01*	204	134	5

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1114 HSSCO DIN 340 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-20	● 6-16		○ 8-14					● 30-80		● 50-70						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
2,00	*9,10*	85	56	1
2,10	*8,45*	85	56	1
2,30	*8,78*	90	59	1
2,50	*9,10*	95	62	1
2,70	*9,26*	100	66	1
3,00	*9,44*	100	66	1
3,10	*10,84*	106	69	1
3,20	*10,84*	106	69	1
3,30	*10,84*	106	69	1
3,50	*10,50*	112	73	1
3,60	*11,45*	112	73	1
3,70	*11,72*	112	73	1
4,00	*10,42*	119	78	1
4,10	*13,47*	119	78	1
4,20	*13,47*	119	78	1
4,30	*15,14*	126	82	1
4,50	*12,06*	126	82	1
4,70	*14,98*	126	82	1
4,80	*15,67*	132	87	1
5,00	*12,97*	132	87	1
5,10	*16,29*	132	87	1
5,20	*16,26*	132	87	1
5,50	*15,03*	139	91	1

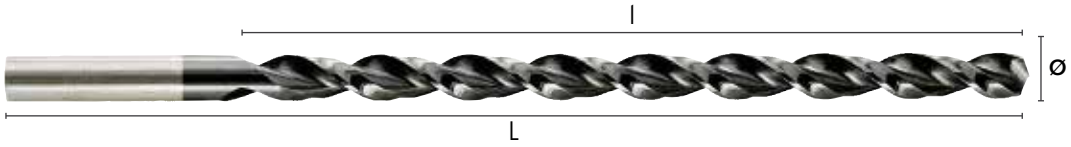
Ø mm	€	L mm	l mm	
5,60	*19,28*	139	91	1
5,80	*19,75*	139	91	1
6,00	*15,99*	139	91	1
6,20	*24,44*	148	97	1
6,50	*19,83*	148	97	1
6,80	*31,10*	156	102	1
7,00	*24,49*	156	102	1
7,20	*30,66*	156	102	1
7,50	*28,16*	156	102	1
8,00	*28,16*	165	109	1
8,20	*33,33*	165	109	1
8,50	*32,79*	165	109	1
8,80	*35,55*	175	115	1
9,00	*34,18*	175	115	1
9,50	*44,75*	175	115	1
9,80	*61,32*	184	121	1
10,00	*45,73*	184	121	1
10,50	*71,12*	184	121	1
11,00	*53,54*	195	128	1
11,50	*99,39*	195	128	1
12,00	*73,85*	195	128	1
13,00	*92,01*	195	128	1

1164 HSSCO DIN 340 S

TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 18-30	● 10-25		○ 12-20					● 45-100		● 70-90						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

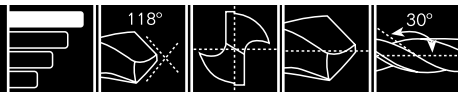


Ø mm	€	L mm	l mm	
2,00	*11,74*	85	56	1
2,10	*10,89*	85	56	1
2,30	*11,31*	90	59	1
2,50	*11,74*	95	62	1
2,70	*11,93*	100	66	1
3,00	*12,14*	100	66	1
3,10	*13,96*	106	69	1
3,20	*13,96*	106	69	1
3,30	*13,96*	106	69	1
3,50	*13,53*	112	73	1
3,60	*14,74*	112	73	1
3,70	*15,09*	112	73	1
4,00	*13,41*	119	78	1
4,10	*17,37*	119	78	1
4,20	*17,37*	119	78	1
4,30	*19,50*	126	82	1
4,50	*15,54*	126	82	1
4,70	*19,30*	126	82	1
4,80	*20,19*	132	87	1
5,00	*16,69*	132	87	1
5,10	*20,97*	132	87	1
5,20	*20,94*	132	87	1
5,50	*19,35*	139	91	1

Ø mm	€	L mm	l mm	
5,60	*24,86*	139	91	1
5,80	*25,43*	139	91	1
6,00	*20,60*	139	91	1
6,20	*31,48*	148	97	1
6,50	*25,54*	148	97	1
6,80	*40,07*	156	102	1
7,00	*31,53*	156	102	1
7,20	*39,49*	156	102	1
7,50	*36,27*	156	102	1
8,00	*36,27*	165	109	1
8,20	*42,93*	165	109	1
8,50	*42,22*	165	109	1
8,80	*45,80*	175	115	1
9,00	*44,01*	175	115	1
9,50	*57,65*	175	115	1
9,80	*78,98*	184	121	1
10,00	*58,90*	184	121	1
10,50	*91,60*	184	121	1
11,00	*68,96*	195	128	1
11,50	*128,03*	195	128	1
12,00	*95,12*	195	128	1
13,00	*118,51*	195	128	1

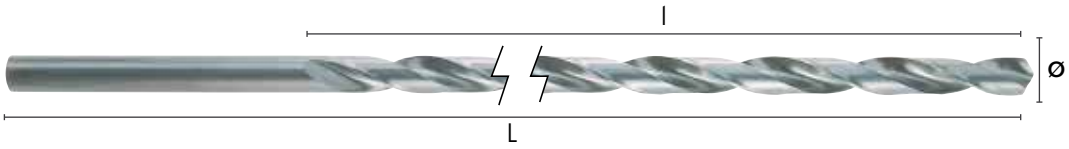
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1115 HSS DIN 1869 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

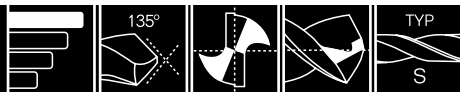


Ø mm	€	L mm	l mm	
2,00	*12,02*	125	85	1
2,50	*12,56*	140	95	1
3,00	*12,98*	150	100	1
3,00	*13,88*	190	130	1
3,50	*14,65*	165	115	1
3,50	*16,88*	210	145	1
3,50	*24,17*	265	180	1
4,00	*14,65*	175	120	1
4,00	*17,29*	220	150	1
4,00	*24,63*	280	190	1
4,50	*16,23*	185	125	1
4,50	*20,29*	235	160	1
4,50	*29,02*	295	200	1
5,00	*17,17*	195	135	1
5,00	*21,80*	245	170	1
5,00	*26,82*	315	210	1
5,50	*20,34*	205	140	1
5,50	*29,02*	260	180	1
5,50	*33,53*	330	235	1
6,00	*20,34*	205	140	1
6,00	*29,02*	260	180	1
6,00	*33,53*	330	225	1
6,50	*24,17*	215	150	1
6,50	*31,23*	275	190	1
6,50	*38,92*	350	235	1
7,00	*25,62*	225	155	1
7,00	*35,67*	290	210	1
7,00	*48,20*	370	250	1
7,50	*28,85*	225	155	1
7,50	*38,42*	290	200	1
7,50	*56,00*	370	250	1
8,00	*31,88*	240	165	1

Ø mm	€	L mm	l mm	
8,00	*44,13*	305	210	1
8,00	*57,47*	390	265	1
8,50	*43,37*	240	165	1
8,50	*59,10*	305	210	1
8,50	*81,28*	390	265	1
9,00	*41,36*	250	175	1
9,00	*54,61*	320	220	1
9,00	*80,17*	410	280	1
9,50	*48,69*	250	175	1
9,50	*66,93*	320	220	1
9,50	*90,16*	410	280	1
10,00	*48,06*	265	185	1
10,00	*62,86*	340	235	1
10,00	*87,35*	430	295	1
10,50	*91,59*	265	145	1
10,50	*99,26*	340	250	1
10,50	*105,57*	430	295	1
11,00	*60,85*	280	195	1
11,00	*89,12*	365	250	1
11,00	*104,34*	455	310	1
11,50	*85,29*	280	195	1
11,50	*114,50*	365	250	1
11,50	*118,30*	455	310	1
12,00	*80,35*	295	205	1
12,00	*100,55*	375	260	1
12,00	*122,83*	480	315	1
12,50	*99,26*	295	205	1
12,50	*111,15*	375	260	1
12,50	*134,93*	480	315	1
13,00	*99,26*	295	205	1
13,00	*114,52*	375	260	1
13,00	*136,21*	480	315	1

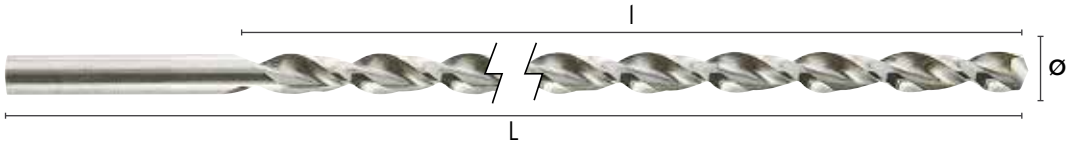
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1165 HSSCO DIN 1869 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-20			○ 8-14					● 30-80		● 50-70						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

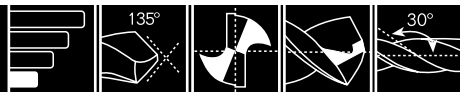


Ø mm	€	L mm	l mm	
2,00	*18,07*	125	85	1
2,50	*19,71*	140	95	1
3,00	*19,71*	150	100	1
3,00	*23,01*	190	130	1
3,00	*36,15*	240	160	1
3,50	*21,36*	165	115	1
3,50	*24,64*	210	145	1
3,50	*32,87*	265	180	1
4,00	*23,01*	175	120	1
4,00	*27,94*	220	150	1
4,00	*32,87*	180	190	1
4,50	*24,64*	185	125	1
4,50	*31,23*	235	160	1
4,50	*36,15*	295	200	1
5,00	*26,29*	195	135	1
5,00	*32,87*	245	170	1
5,00	*39,44*	315	210	1
5,50	*29,58*	205	140	1
5,50	*37,78*	260	180	1
5,50	*44,37*	330	225	1
6,00	*27,94*	205	140	1
6,00	*34,51*	260	180	1
6,00	*42,74*	330	225	1
6,50	*31,23*	215	150	1
6,50	*39,44*	275	190	1
6,50	*52,57*	350	235	1
7,00	*36,15*	225	155	1
7,00	*42,74*	290	200	1
7,00	*57,52*	370	250	1
7,50	*39,44*	225	155	1

Ø mm	€	L mm	l mm	
7,50	*47,65*	290	200	1
7,50	*62,44*	370	250	1
8,00	*44,37*	240	165	1
8,00	*52,57*	305	210	1
8,00	*75,60*	390	265	1
8,50	*46,01*	240	165	1
8,50	*55,86*	305	210	1
8,50	*78,88*	390	265	1
9,00	*54,22*	250	175	1
9,00	*65,73*	320	220	1
9,00	*92,03*	410	280	1
9,50	*55,86*	250	175	1
9,50	*65,73*	320	220	1
9,50	*96,96*	410	280	1
10,00	*62,44*	265	185	1
10,00	*87,09*	340	235	1
10,00	*106,80*	430	295	1
10,50	*65,73*	265	185	1
10,50	*92,03*	340	235	1
10,50	*110,10*	430	295	1
11,00	*72,29*	280	195	1
11,00	*100,23*	365	250	1
11,00	*123,24*	455	310	1
11,50	*82,16*	280	195	1
11,50	*113,38*	365	250	1
11,50	*138,03*	455	310	1
12,00	*90,37*	275	205	1
12,00	*123,24*	375	260	1
12,00	*152,82*	480	330	1

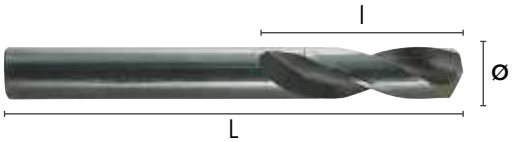
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1116 HSS DIN 1897 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

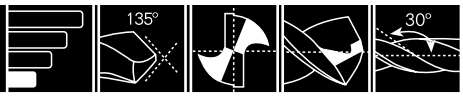


Ø mm	€	L mm	l mm	
1,00	*1,23*	26	6	10
1,10	*2,72*	28	7	10
1,20	*3,14*	30	8	10
1,25	*1,11*	30	8	10
1,30	*3,61*	30	8	10
1,40	*4,14*	32	9	10
1,50	*1,08*	32	9	10
1,60	*2,46*	34	10	10
1,70	*2,85*	34	10	10
1,75	*1,08*	36	11	10
1,80	*2,85*	36	11	10
1,90	*2,85*	36	11	10
2,00	*1,08*	38	12	10
2,10	*1,32*	38	12	10
2,20	*1,32*	40	13	10
2,25	*1,08*	40	13	10
2,30	*1,32*	40	13	10
2,40	*1,32*	43	14	10
2,50	*1,08*	43	14	10
2,60	*1,79*	43	14	10
2,70	*1,23*	46	16	10
2,75	*1,12*	46	16	10
2,80	*1,35*	46	16	10
2,90	*1,35*	46	16	10
3,00	*1,12*	46	16	10
3,10	*1,46*	49	18	10
3,20	*1,46*	49	18	10
3,25	*1,22*	49	18	10
3,30	*1,39*	49	18	10
3,40	*1,46*	52	20	10
3,50	*1,22*	52	20	10
3,60	*1,62*	52	20	10
3,70	*1,62*	52	20	10
3,75	*1,31*	52	20	10
3,80	*1,62*	55	22	10
3,90	*1,62*	55	22	10
4,00	*1,31*	55	22	10
4,10	*1,90*	55	22	10
4,20	*1,90*	55	22	10
4,25	*1,59*	55	22	10
4,30	*1,90*	58	24	10
4,40	*1,90*	58	24	10
4,50	*1,59*	58	24	10
4,60	*2,16*	58	24	10
4,70	*2,16*	58	24	10
4,75	*1,77*	58	24	10
4,80	*2,16*	62	26	10
4,90	*2,16*	62	26	10
5,00	*1,77*	62	26	10

Ø mm	€	L mm	l mm	
5,10	*2,38*	62	26	10
5,20	*2,38*	62	26	10
5,25	*1,95*	62	26	10
5,30	*2,39*	62	26	10
5,40	*2,39*	66	28	10
5,50	*1,95*	66	28	10
5,60	*2,58*	66	28	10
5,70	*3,87*	66	28	10
5,75	*2,24*	66	28	10
5,80	*2,58*	66	28	10
5,90	*2,72*	66	28	10
6,00	*2,24*	66	28	10
6,10	*3,22*	70	31	10
6,20	*3,22*	70	31	10
6,25	*2,67*	70	31	10
6,30	*3,22*	70	31	10
6,40	*3,22*	70	31	10
6,50	*2,67*	70	31	10
6,60	*3,74*	70	31	10
6,70	*3,74*	70	31	10
6,75	*3,08*	74	34	10
6,80	*3,74*	74	34	10
6,90	*3,74*	74	34	10
7,00	*3,08*	74	34	10
7,25	*3,49*	74	34	10
7,50	*3,49*	74	34	10
7,75	*3,83*	79	37	10
8,00	*3,83*	79	37	10
8,25	*4,58*	79	37	10
8,50	*4,58*	79	37	10
8,75	*5,06*	84	40	10
9,00	*5,00*	84	40	10
9,25	*5,32*	84	40	10
9,50	*5,59*	84	40	10
9,75	*6,25*	89	43	10
10,00	*6,25*	89	43	5
10,50	*7,02*	89	43	5
11,00	*7,84*	95	47	5
11,50	*8,72*	95	47	5
12,00	*9,19*	102	51	5
13,00	*11,31*	102	51	5
14,00	*15,57*	107	54	4
15,00	*20,28*	111	56	4
16,00	*24,44*	115	58	1
17,00	*28,73*	119	60	1
18,00	*32,00*	123	62	1
19,00	*35,67*	127	64	1
20,00	*42,77*	131	66	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1117 HSS DIN 1897 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

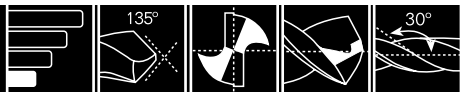
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
2,00	*2,35*	38	9	10
2,25	*2,35*	40	9	10
2,50	*2,35*	43	10	10
2,75	*2,35*	46	10	10
3,00	*2,04*	46	10	10
3,25	*2,04*	49	10	10
3,30	*2,04*	49	10	10
3,50	*2,27*	52	13	10
3,75	*2,60*	52	13	10
4,00	*2,34*	55	13	10
4,10	*2,52*	55	13	10
4,20	*2,52*	55	13	10

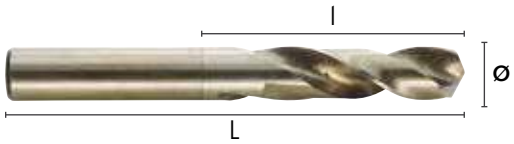
Ø mm	€	L mm	l mm	
4,25	*2,52*	55	13	10
4,50	*2,60*	58	13	10
4,75	*4,21*	58	13	10
4,80	*2,87*	58	13	10
5,00	*2,98*	62	13	10
5,25	*4,21*	62	13	10
5,50	*3,59*	66	16	10
5,75	*4,97*	66	16	10
6,00	*4,02*	66	16	10
7,00	*5,31*	74	19	10
8,00	*6,51*	79	19	10

1118 HSSCO DIN 1897 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

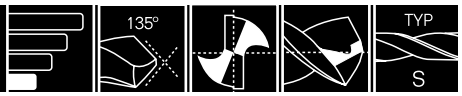


Ø mm	€	L mm	l mm	
2,00	*1,42*	38	12	10
2,20	*2,48*	40	13	10
2,25	*1,94*	40	13	10
2,50	*2,03*	43	14	10
2,70	*3,42*	46	16	10
2,75	*2,14*	46	16	10
3,00	*2,14*	46	16	10
3,20	*2,71*	49	18	10
3,25	*2,10*	49	18	10
3,30	*2,80*	49	18	10
3,50	*2,27*	52	20	10
3,75	*2,38*	52	20	10
4,00	*2,50*	55	22	10
4,10	*4,56*	55	22	10
4,20	*3,45*	55	22	10
4,25	*2,71*	55	22	10
4,50	*2,88*	58	24	10
4,75	*2,98*	58	24	10
4,90	*3,61*	62	26	10
5,00	*3,22*	62	26	10
5,10	*4,03*	62	26	10

Ø mm	€	L mm	l mm	
5,20	*3,92*	62	26	10
5,25	*3,07*	62	26	10
5,50	*3,36*	66	28	10
5,75	*3,48*	66	28	10
6,00	*3,62*	66	28	10
6,50	*4,14*	70	31	10
6,75	*7,07*	74	34	10
7,00	*4,64*	74	34	10
7,50	*5,89*	74	34	10
8,00	*6,54*	79	37	10
8,25	*8,33*	79	37	10
8,50	*7,07*	79	37	10
9,00	*7,84*	84	40	10
9,50	*8,46*	84	40	10
10,00	*9,39*	89	43	5
10,50	*14,12*	89	43	5
11,00	*13,04*	95	47	5
11,50	*14,63*	95	47	5
12,00	*17,96*	102	51	5
12,50	*18,84*	102	51	5
13,00	*24,62*	102	51	5

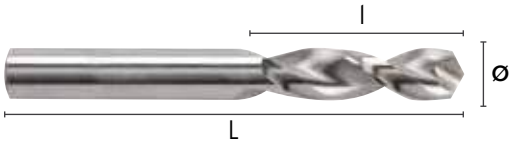
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1166 HSSCO DIN 1897 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-20	● 6-16							● 30-80		● 50-70						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



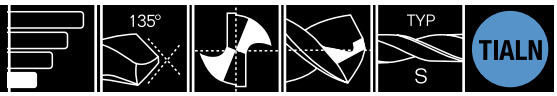
Ø mm	€	L mm	l mm	
2,00	*4,15*	38	12	10
2,50	*3,74*	43	14	10
2,80	*3,76*	46	16	10
3,00	*3,60*	46	16	10
3,10	*4,00*	49	18	10
3,20	*4,00*	49	18	10
3,30	*4,00*	49	18	10
3,40	*4,00*	52	20	10
3,50	*4,00*	52	20	10
3,60	*4,87*	52	20	10
3,70	*4,87*	52	20	10
3,80	*5,07*	55	22	10
3,90	*4,87*	55	22	10
4,00	*4,43*	55	22	10
4,10	*5,27*	55	22	10
4,20	*5,27*	55	22	10
4,30	*6,07*	58	24	10
4,40	*6,07*	58	24	10
4,50	*5,27*	58	24	10
4,60	*6,31*	58	24	10
4,70	*6,33*	58	24	10
4,80	*6,33*	62	26	10
4,90	*6,31*	62	26	10
5,00	*5,87*	62	26	10
5,10	*7,18*	62	26	10
5,20	*7,18*	62	26	10
5,30	*7,18*	62	26	10
5,40	*7,17*	66	28	10
5,50	*6,55*	66	28	10
5,60	*7,56*	66	28	10

Ø mm	€	L mm	l mm	
5,70	*7,87*	66	28	10
5,80	*7,56*	66	28	10
5,90	*7,56*	66	28	10
6,00	*7,46*	66	28	10
6,10	*9,59*	66	28	10
6,20	*9,56*	70	31	10
6,50	*8,92*	70	31	10
6,80	*12,43*	70	31	10
7,00	*10,22*	74	34	10
7,20	*12,96*	74	34	10
7,50	*13,19*	74	34	10
7,80	*13,19*	74	34	10
8,00	*12,85*	79	37	10
8,20	*11,35*	79	37	10
8,50	*15,24*	79	37	10
8,80	*22,30*	79	37	10
9,00	*16,62*	84	40	10
9,20	*18,73*	84	40	10
9,50	*18,73*	84	40	10
9,80	*20,81*	84	40	10
10,00	*20,81*	89	43	10
10,50	*22,63*	89	43	5
11,00	*25,94*	89	43	5
11,50	*28,81*	95	47	5
12,00	*30,36*	95	47	5
13,00	*37,40*	102	51	5
14,00	*48,20*	102	51	5
15,00	*53,37*	107	54	4
16,00	*61,97*	111	56	4

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

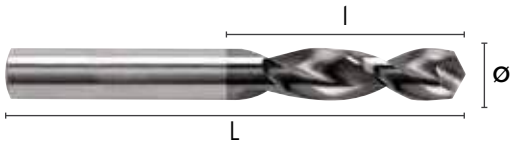
BROCAS CON MANGO CILÍNDRICO
FORETS À QUEUE CYLINDRIQUE / STRAIGHT SHANK DRILL-BITS

1167 HSSCO DIN 1897 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 18-30	● 10-25		○ 12-20					● 45-100		● 70-90						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

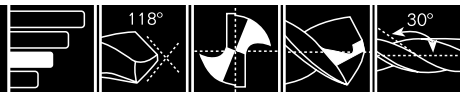


Ø mm	€	L mm	l mm	
2,00	*5,82*	38	12	1
2,50	*5,26*	43	14	1
2,80	*5,26*	46	16	1
3,00	*5,04*	46	16	1
3,10	*5,60*	49	18	1
3,20	*5,60*	49	18	1
3,30	*5,60*	49	18	1
3,40	*5,60*	52	20	1
3,50	*5,60*	52	20	1
3,60	*6,83*	52	20	1
3,70	*6,83*	52	20	1
3,80	*7,10*	55	22	1
3,90	*6,83*	55	22	1
4,00	*6,22*	55	22	1
4,10	*7,36*	55	22	1
4,20	*7,36*	55	22	1
4,30	*8,50*	58	24	1
4,40	*8,50*	58	24	1
4,50	*7,36*	58	24	1
4,60	*8,86*	58	24	1
4,70	*8,87*	58	24	1
4,80	*8,87*	62	26	1
4,90	*8,86*	62	26	1
5,00	*8,24*	62	26	1
5,10	*10,03*	62	26	1
5,20	*10,03*	62	26	1
5,30	*10,03*	62	26	1
5,40	*10,03*	66	28	1
5,50	*9,17*	66	28	1
5,60	*10,59*	66	28	1

Ø mm	€	L mm	l mm	
5,70	*11,01*	66	28	1
5,80	*10,59*	66	28	1
5,90	*10,59*	66	28	1
6,00	*10,44*	66	28	1
6,10	*13,41*	70	31	1
6,20	*13,40*	70	31	1
6,50	*12,46*	70	31	1
6,80	*17,40*	74	34	1
7,00	*14,32*	74	34	1
7,20	*18,16*	74	34	1
7,50	*18,47*	74	34	1
7,80	*18,48*	79	37	1
8,00	*17,99*	79	37	1
8,20	*15,90*	79	37	1
8,50	*21,33*	79	37	1
8,80	*31,21*	84	40	1
9,00	*23,27*	84	40	1
9,20	*26,22*	84	40	1
9,50	*26,22*	84	40	1
9,80	*29,13*	89	43	1
10,00	*29,13*	89	43	1
10,50	*31,68*	89	43	1
11,00	*36,32*	95	47	1
11,50	*40,33*	95	47	1
12,00	*42,53*	102	51	1
13,00	*52,36*	102	51	1
14,00	*67,47*	107	54	1
15,00	*74,70*	111	56	1
16,00	*86,77*	115	58	1

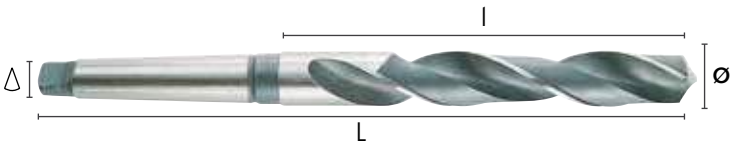
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1121 HSS DIN 345 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	€	L mm	l mm	
1	5,00	*18,12*	133	52	1
1	5,25	*20,87*	133	52	1
1	5,50	*18,12*	138	57	1
1	5,75	*20,87*	138	57	1
1	6,00	*18,12*	138	57	1
1	6,25	*23,77*	144	63	1
1	6,50	*20,64*	144	63	1
1	6,75	*23,77*	150	69	1
1	7,00	*20,64*	150	69	1
1	7,25	*25,52*	150	69	1
1	7,50	*22,20*	150	69	1
1	7,75	*25,52*	156	75	1
1	8,00	*22,20*	156	75	1
1	8,25	*29,95*	156	75	1
1	8,50	*20,03*	156	75	1
1	8,75	*29,95*	162	81	1
1	9,00	*20,03*	162	81	1
1	9,25	*30,94*	162	81	1
1	9,50	*19,78*	162	81	1
1	9,75	*30,94*	168	87	1
1	10,00	*19,78*	168	87	1
1	10,25	*31,58*	168	87	1
1	10,50	*21,12*	168	87	1
1	10,75	*31,58*	175	94	1
1	11,00	*21,12*	175	94	1
1	11,25	*33,26*	175	94	1
1	11,50	*22,26*	175	94	1
1	11,75	*33,26*	175	94	1
1	12,00	*22,26*	182	101	1
1	12,25	*37,05*	182	101	1
1	12,50	*24,77*	182	101	1
1	12,75	*37,05*	182	101	1
1	13,00	*24,77*	182	101	1
1	13,25	*40,73*	189	108	1
1	13,50	*27,24*	189	108	1
1	13,75	*40,73*	189	108	1
1	14,00	*27,24*	189	108	1
2	14,25	*44,07*	212	114	1
2	14,50	*29,49*	212	114	1
2	14,75	*44,07*	212	114	1
2	15,00	*29,49*	212	114	1
2	15,25	*45,66*	218	120	1
2	15,50	*30,51*	218	120	1
2	15,75	*45,66*	218	120	1
2	16,00	*30,51*	218	120	1
2	16,25	*51,61*	223	125	1
2	16,50	*34,52*	223	125	1
2	16,75	*51,61*	223	125	1
2	17,00	*34,52*	223	125	1
2	17,25	*57,14*	228	130	1
2	17,50	*38,20*	228	130	1

Δ	Ø mm	€	L mm	l mm	
2	17,75	*57,14*	228	130	1
2	18,00	*38,20*	228	130	1
2	18,25	*62,87*	233	135	1
2	18,50	*42,05*	233	135	1
2	18,75	*62,87*	233	135	1
2	19,00	*42,05*	233	135	1
2	19,25	*68,45*	238	140	1
2	19,50	*45,76*	238	140	1
2	19,75	*68,45*	238	140	1
2	20,00	*45,76*	238	140	1
2	20,25	*70,94*	243	145	1
2	20,50	*49,46*	243	145	1
2	20,75	*70,94*	243	145	1
2	21,00	*49,46*	243	145	1
2	21,25	*78,24*	248	150	1
2	21,50	*54,60*	248	150	1
2	21,75	*78,24*	248	150	1
2	22,00	*54,60*	248	150	1
2	22,25	*86,64*	248	150	1
2	22,50	*59,73*	253	155	1
2	22,75	*85,64*	253	155	1
2	23,00	*59,73*	253	155	1
3	23,25	*94,45*	276	155	1
3	23,50	*65,92*	276	155	1
3	23,75	*94,45*	281	160	1
3	24,00	*65,92*	281	160	1
3	24,25	*103,03*	281	160	1
3	24,50	*71,86*	281	160	1
3	24,75	*103,03*	281	160	1
3	25,00	*71,86*	281	160	1
3	25,25	*112,09*	286	165	1
3	25,50	*78,20*	286	165	1
3	25,75	*112,09*	286	165	1
3	26,00	*78,20*	286	165	1
3	26,25	*121,39*	286	165	1
3	26,50	*84,68*	286	165	1
3	26,75	*121,39*	291	170	1
3	27,00	*86,94*	291	170	1
3	27,25	*129,92*	291	170	1
3	27,50	*90,67*	291	170	1
3	27,75	*129,92*	291	170	1
3	28,00	*90,67*	291	170	1
3	28,25	*139,35*	296	175	1
3	28,50	*97,21*	296	175	1
3	28,75	*139,35*	296	175	1
3	29,00	*97,21*	296	175	1
3	29,25	*153,22*	296	175	1
3	29,50	*106,73*	296	175	1
3	29,75	*153,22*	296	175	1
3	30,00	*106,89*	296	175	1
3	30,25	*170,49*	301	180	1

(continúa Ref.1121 / suite Réf.1121 / Ref.1121 cont'd)

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

BROCAS CON MANGO CÓNICO
FORETS À QUEUE CONIQUE / TAPER SHANK DRILL-BITS

(continúa Ref.1121 / suite Réf.1121 / Ref.1121 cont'd)

△	Ø mm	€	L mm	l mm	
3	30,50	*148,26*	301	180	1
3	30,75	*170,49*	301	180	1
3	31,00	*118,97*	301	180	1
3	31,25	*180,57*	301	180	1
3	31,50	*148,34*	301	180	1
3	31,75	*180,57*	306	185	1
4	32,00	*125,97*	334	185	1
4	32,50	*179,30*	334	185	1
4	33,00	*143,86*	334	185	1
4	33,50	*194,96*	334	185	1
4	34,00	*156,47*	339	190	1
4	34,50	*213,08*	339	190	1
4	35,00	*171,00*	339	190	1
4	35,50	*228,65*	339	190	1
4	36,00	*183,41*	344	195	1
4	36,50	*241,02*	344	195	1
4	37,00	*193,37*	344	195	1
4	37,50	*253,52*	344	195	1
4	38,00	*203,44*	349	200	1
4	38,50	*270,33*	349	200	1
4	39,00	*216,93*	349	200	1
4	39,50	*285,48*	349	200	1
4	40,00	*229,06*	349	200	1
4	40,50	*300,14*	354	205	1
4	41,00	*240,83*	354	205	1
4	41,50	*318,53*	354	205	1
4	42,00	*255,55*	354	205	1
4	42,50	*334,05*	354	205	1
4	43,00	*268,04*	359	210	1
4	43,50	*349,77*	359	210	1
4	44,00	*280,61*	359	210	1
4	44,50	*365,17*	359	210	1
4	45,00	*291,43*	359	210	1
4	45,50	*380,61*	364	215	1
4	46,00	*305,36*	364	215	1
4	46,50	*396,10*	364	215	1
4	47,00	*317,84*	364	215	1
4	47,50	*409,42*	364	215	1
4	48,00	*328,50*	369	220	1
4	48,50	*425,13*	369	220	1
4	49,00	*341,11*	369	220	1
4	49,50	*440,61*	369	220	1

△	Ø mm	€	L mm	l mm	
4	50,00	*344,06*	369	220	1
5	51,00	*447,16*	412	225	1
5	52,00	*474,66*	412	225	1
5	53,00	*514,19*	412	225	1
5	54,00	*528,16*	417	230	1
5	55,00	*529,34*	417	230	1
5	56,00	*623,74*	417	230	1
5	57,00	*665,87*	422	235	1
5	58,00	*665,87*	422	235	1
5	59,00	*681,05*	422	235	1
5	60,00	*655,19*	422	235	1
5	61,00	*729,87*	427	240	1
5	62,00	*746,89*	427	240	1
5	63,00	*802,44*	427	240	1
5	64,00	*836,14*	432	245	1
5	65,00	*799,89*	432	245	1
5	66,00	*911,49*	432	245	1
5	67,00	*938,47*	432	245	1
5	68,00	*967,40*	437	250	1
5	69,00	*992,52*	437	250	1
5	70,00	*1.023,37*	437	250	1
5	71,00	*970,28*	437	250	1
5	72,00	*1.120,29*	442	255	1
5	73,00	*1.143,46*	442	255	1
5	74,00	*1.173,40*	442	255	1
5	75,00	*1.207,72*	442	255	1
5	76,00	*1.137,63*	447	260	1
6	77,00	*1.339,58*	514	260	1
6	78,00	*1.437,56*	514	260	1
6	79,00	*1.465,62*	514	260	1
6	80,00	*1.495,14*	514	260	1

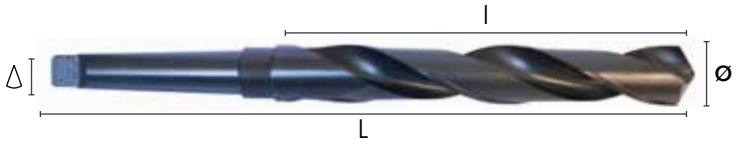
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1121/9 HSS DIN 345 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1/2"	*24,77*	182	101	1
33/64"	*24,77*	182	101	1
17/32"	*27,24*	189	108	1
35/64"	*27,24*	189	108	1
9/16"	*29,49*	212	114	1
37/64"	*44,07*	212	114	1
19/32"	*29,49*	218	120	1
39/64"	*30,51*	218	120	1
5/8"	*30,51*	218	120	1
41/64"	*51,61*	223	125	1
21/32"	*34,52*	223	125	1
43/64"	*34,52*	223	125	1
11/16"	*38,20*	228	130	1
45/64"	*38,20*	228	130	1
23/32"	*62,87*	233	135	1
47/64"	*42,05*	233	135	1
3/4"	*42,05*	238	140	1
49/64"	*45,76*	238	140	1
25/32"	*68,45*	238	140	1
51/64"	*45,76*	243	145	1
13/16"	*49,46*	243	145	1
53/64"	*49,46*	243	145	1
27/32"	*54,60*	248	150	1
55/64"	*78,24*	248	150	1
7/8"	*54,60*	248	150	1
57/64"	*59,73*	253	155	1

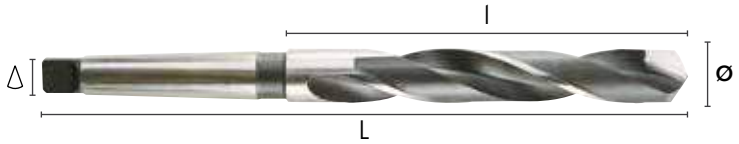
Ø mm	€	L mm	l mm	
29/32"	*59,73*	253	155	1
59/64"	*65,92*	276	155	1
15/16"	*129,92*	281	160	1
61/64"	*65,92*	281	160	1
31/32"	*54,60*	281	160	1
63/64"	*71,86*	286	160	1
1"	*79,40*	290	170	1
1-1/16"	*86,94*	291	170	1
1-1/8"	*97,21*	296	175	1
1-5/32"	*97,21*	296	175	1
1-3/16"	*106,89*	301	180	1
1-7/32"	*118,97*	301	180	1
1-1/4"	*180,57*	306	185	1
1-9/32"	*179,30*	334	185	1
1-5/16"	*143,86*	334	185	1
1-11/32"	*156,47*	339	190	1
1-3/8"	*171,00*	339	190	1
1-13/32"	*183,41*	344	195	1
1-7/16"	*241,02*	344	195	1
1-1/2"	*203,44*	349	200	1
1-9/16"	*229,06*	349	200	1
1-5/8"	*240,83*	354	205	1
1-11/16"	*268,04*	359	210	1
1-3/4"	*280,61*	359	210	1
2"	*344,06*	374	225	1

1123 HSS DIN 345 N - WIDIA



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 18-30	● 10-25	○ 6-9				● 30-40	● 15-20				○ 30-35					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

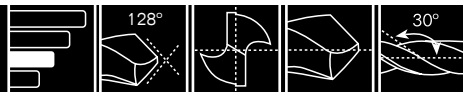


Δ	Ø mm	€	L mm	l mm	
1	10,00	*80,28*	168	87	1
1	11,00	*86,84*	175	94	1
1	12,00	*91,11*	182	101	1
1	13,00	*103,55*	182	101	1
1	14,00	*112,57*	189	108	1
1	14,50	*127,18*	212	114	1
2	15,00	*127,18*	212	114	1
2	15,50	*135,85*	218	120	1
2	16,00	*135,85*	218	120	1
2	16,50	*144,10*	223	125	1
2	17,00	*144,10*	223	125	1
2	17,50	*155,51*	228	130	1
2	18,00	*155,51*	228	130	1
2	18,50	*182,03*	233	135	1
2	19,00	*182,03*	233	135	1

Δ	Ø mm	€	L mm	l mm	
2	19,50	*204,58*	238	140	1
2	20,00	*204,04*	238	140	1
2	20,50	*207,56*	243	145	1
2	21,00	*207,56*	243	145	1
2	21,50	*226,58*	248	150	1
2	22,00	*226,58*	248	150	1
2	22,50	*246,35*	253	155	1
2	23,00	*246,35*	253	155	1
3	24,00	*270,73*	281	160	1
3	25,00	*277,19*	281	160	1
3	26,00	*311,61*	286	165	1
3	27,00	*332,27*	291	170	1
3	28,00	*367,95*	291	170	1
3	29,00	*391,69*	296	175	1
3	30,00	*416,76*	296	175	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1122 HSSCO DIN 345 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35	● 12-20	● 6-16		○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		● 15-25					

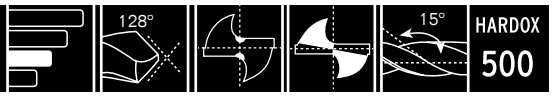
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	€	L mm	l mm	
1	10,00	*66,73*	168	87	1
1	10,50	*69,54*	168	87	1
1	11,00	*66,68*	175	94	1
1	11,50	*69,54*	175	94	1
1	12,00	*71,32*	182	101	1
1	12,50	*75,47*	182	101	1
1	13,00	*73,24*	182	101	1
1	13,50	*95,72*	189	108	1
1	14,00	*93,89*	189	108	1
2	14,50	*104,20*	212	114	1
2	15,00	*95,72*	212	114	1
2	15,50	*106,05*	218	120	1
2	16,00	*102,33*	218	120	1
2	16,50	*106,98*	223	125	1
2	17,00	*106,05*	223	125	1
2	17,50	*112,68*	228	130	1
2	18,00	*110,79*	228	130	1
2	18,50	*121,09*	233	135	1
2	19,00	*118,30*	233	135	1
2	19,50	*136,16*	238	140	1
2	20,00	*132,36*	238	140	1
2	20,50	*152,09*	243	145	1
2	21,00	*153,95*	243	145	1
2	21,50	*173,73*	248	150	1
2	22,00	*156,68*	248	150	1
2	22,50	*193,39*	253	155	1

Δ	Ø mm	€	L mm	l mm	
2	23,00	*182,22*	253	155	1
3	23,50	*193,39*	276	155	1
3	24,00	*195,26*	281	160	1
3	24,50	*208,45*	281	160	1
3	25,00	*206,25*	281	160	1
3	25,50	*255,45*	286	165	1
3	26,00	*242,07*	286	165	1
3	26,50	*268,50*	286	165	1
3	27,00	*268,50*	291	170	1
3	27,50	*321,07*	291	170	1
3	28,00	*297,05*	291	170	1
3	28,50	*328,61*	296	175	1
3	29,00	*303,66*	296	175	1
3	29,50	*336,14*	296	175	1
3	30,00	*310,10*	296	175	1
3	31,00	*310,09*	301	180	1
4	32,00	*355,34*	334	185	1
4	33,00	*405,85*	334	185	1
4	34,00	*482,25*	339	190	1
4	35,00	*482,25*	339	190	1
4	36,00	*517,45*	344	195	1
4	37,00	*534,81*	344	195	1
4	38,00	*595,70*	349	200	1
4	39,00	*611,84*	349	200	1
4	40,00	*646,16*	349	200	1

1181 HSSCO (8%)



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
		● 8-10	● 6-8										● 4-7		● 4-6		

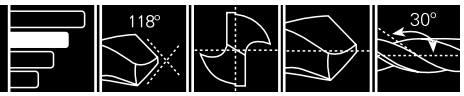
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	€	L mm	l mm	
2	10	*55,94*	190	90	1
2	11	*55,94*	190	90	1
2	12	*61,27*	190	90	1
2	13	*61,27*	190	90	1
2	14	*65,23*	190	90	1
2	15	*66,51*	190	90	1
2	16	*79,13*	190	90	1
2	17	*84,36*	190	90	1
2	18	*85,63*	190	90	1
3	19	*97,29*	225	105	1
3	20	*103,44*	225	105	1
3	21	*112,64*	225	105	1
3	22	*129,50*	225	105	1

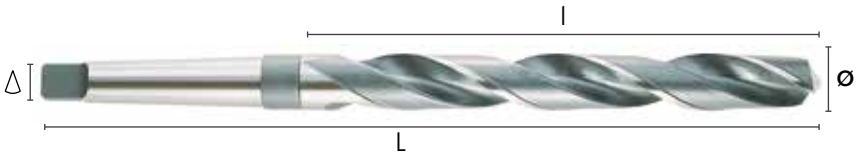
Δ	Ø mm	€	L mm	l mm	
3	24	*139,50*	225	105	1
3	25	*165,31*	225	105	1
3	26	*195,89*	225	105	1
4	27	*210,66*	265	120	1
4	28	*218,75*	265	120	1
4	30	*243,32*	265	120	1
4	32	*283,19*	265	120	1
4	35	*353,83*	265	120	1
4	36	*372,14*	265	120	1
4	40	*467,84*	265	120	1
4	45	*636,27*	265	120	1
5	50	*747,47*	340	150	1

1125 HSS DIN 341 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



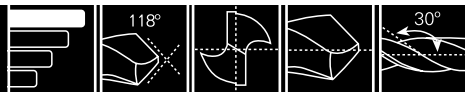
Δ	Ø mm	€	L mm	l mm	
1	*5,00	*25,25*	155	74	1
1	*5,50	*34,14*	161	80	1
1	*6,00	*26,94*	161	80	1
1	*6,50	*28,40*	167	86	1
1	*7,00	*30,02*	174	93	1
1	*7,50	*31,33*	174	93	1
1	8,00	*31,62*	181	100	1
1	8,50	*31,62*	181	100	1
1	9,00	*34,62*	188	107	1
1	9,50	*38,61*	188	107	1
1	10,00	*37,49*	197	116	1
1	10,50	*37,71*	197	116	1
1	11,00	*36,83*	206	125	1
1	11,50	*36,83*	206	125	1
1	12,00	*39,21*	215	134	1
1	12,50	*40,73*	215	134	1
1	13,00	*40,73*	215	134	1
1	13,50	*42,59*	223	142	1
1	14,00	*46,25*	223	142	1
1	14,50	*58,20*	245	147	1
2	15,00	*58,20*	245	147	1
2	15,50	*59,52*	251	153	1
2	16,00	*60,49*	251	153	1
2	16,50	*63,92*	257	159	1
2	17,00	*64,26*	257	159	1
2	17,50	*62,72*	263	165	1
2	18,00	*69,70*	263	165	1
2	18,50	*71,61*	269	171	1
2	19,00	*73,88*	269	171	1
2	19,50	*77,56*	275	177	1
2	20,00	*78,51*	275	177	1

Δ	Ø mm	€	L mm	l mm	
2	20,50	*90,00*	282	184	1
2	21,00	*87,24*	282	184	1
2	21,50	*106,20*	289	191	1
2	22,00	*101,36*	289	191	1
2	22,50	*110,47*	296	198	1
2	23,00	*105,29*	296	198	1
3	23,50	*131,00*	319	198	1
3	24,00	*129,02*	327	206	1
3	24,50	*137,01*	327	206	1
3	25,00	*131,31*	327	206	1
3	25,50	*155,70*	335	214	1
3	26,00	*146,94*	335	214	1
3	26,50	*160,60*	335	214	1
3	27,00	*156,36*	343	222	1
3	27,50	*189,18*	343	222	1
3	28,00	*171,77*	343	222	1
3	28,50	*224,72*	351	230	1
3	29,00	*183,47*	351	230	1
3	29,50	*224,72*	351	230	1
3	30,00	*206,76*	351	230	1
3	31,00	*237,05*	360	239	1
4	32,00	*245,77*	397	248	1
4	33,00	*274,94*	397	248	1
4	34,00	*320,09*	406	257	1
4	35,00	*316,93*	406	257	1
4	36,00	*367,11*	416	267	1
4	37,00	*381,42*	416	267	1
4	38,00	*408,53*	426	277	1
4	39,00	*414,89*	426	277	1
4	40,00	*448,72*	426	277	1

***(Hasta fin de existencias / Jusqu'à épuisement des stocks / While supplies last)**

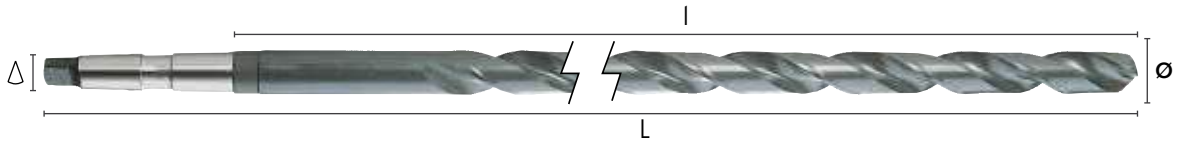
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1126 HSS DIN 1870 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35						● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	€	L mm	l mm	
1	8,00	*79,35*	265	165	1
1	8,00	*98,91*	330	210	1
1	8,50	*87,10*	265	165	1
1	8,50	*101,08*	330	210	1
1	9,00	*89,68*	275	175	1
1	9,00	*114,03*	345	220	1
1	9,50	*96,00*	275	175	1
1	9,50	*115,22*	345	220	1
1	10,00	*98,63*	285	185	1
1	10,00	*121,61*	360	235	1
1	10,50	*104,73*	285	185	1
1	10,50	*125,36*	360	235	1
1	11,00	*109,32*	300	195	1
1	11,00	*149,49*	375	250	1
1	11,50	*119,71*	300	195	1
1	11,50	*149,49*	375	250	1
1	12,00	*122,50*	310	205	1
1	12,00	*152,65*	395	260	1
1	12,50	*130,38*	310	205	1
1	12,50	*170,39*	395	260	1
1	13,00	*130,38*	310	205	1
1	13,00	*170,39*	395	260	1
1	13,50	*142,76*	325	220	1
1	13,50	*174,98*	410	275	1
1	14,00	*142,76*	325	220	1
1	14,00	*174,98*	410	275	1
2	14,50	*156,37*	340	220	1
2	14,50	*190,58*	425	275	1
2	15,00	*156,37*	340	220	1
2	15,00	*190,58*	425	275	1
2	15,50	*175,30*	355	230	1
2	15,50	*210,22*	445	295	1
2	16,00	*175,30*	355	230	1
2	16,00	*210,22*	445	295	1
2	16,50	*188,91*	355	230	1
2	16,50	*227,14*	445	295	1
2	17,00	*188,91*	355	230	1
2	17,00	*227,14*	445	295	1
2	17,50	*207,86*	370	245	1
2	17,50	*250,12*	465	310	1
2	18,00	*207,86*	370	245	1
2	18,00	*250,12*	465	310	1
2	18,50	*225,34*	370	245	1
2	18,50	*270,28*	465	310	1
2	19,00	*225,34*	370	245	1
2	19,00	*270,28*	465	310	1
2	19,50	*240,65*	385	260	1
2	19,50	*292,51*	490	325	1

Δ	Ø mm	€	L mm	l mm	
2	20,00	*240,65*	385	260	1
2	20,00	*292,51*	490	325	1
2	20,50	*272,56*	385	260	1
2	20,50	*327,30*	490	325	1
2	21,00	*272,56*	385	260	1
2	21,00	*327,30*	490	325	1
2	21,50	*290,65*	405	270	1
2	21,50	*351,28*	515	345	1
2	22,00	*290,65*	405	270	1
2	22,00	*351,28*	515	345	1
2	22,50	*331,25*	405	270	1
2	22,50	*396,51*	515	345	1
2	23,00	*331,25*	405	270	1
2	23,00	*396,51*	515	345	1
3	23,50	*363,95*	425	270	1
3	23,50	*441,29*	535	345	1
3	24,00	*363,95*	440	290	1
3	24,00	*441,29*	555	365	1
3	24,50	*377,18*	440	290	1
3	24,50	*465,09*	555	365	1
3	25,00	*377,18*	440	290	1
3	25,00	*465,09*	555	365	1
3	25,50	*389,85*	440	290	1
3	25,50	*513,75*	555	365	1
3	26,00	*389,85*	440	290	1
3	26,00	*513,75*	555	365	1
3	26,50	*399,22*	440	290	1
3	26,50	*530,09*	555	365	1
3	27,00	*399,22*	460	305	1
3	27,00	*530,09*	580	385	1
3	27,50	*425,90*	460	305	1
3	27,50	*573,46*	580	385	1
3	28,00	*425,90*	460	305	1
3	28,00	*573,46*	580	385	1
3	28,50	*441,29*	460	305	1
3	28,50	*632,74*	580	385	1
3	29,00	*441,29*	460	305	1
3	29,00	*632,74*	580	385	1
3	29,50	*456,89*	460	305	1
3	29,50	*637,95*	580	385	1
3	30,00	*456,89*	460	305	1
3	30,00	*637,95*	580	385	1
3	31,00	*512,15*	480	320	1
3	31,00	*680,17*	610	410	1
4	32,00	*535,50*	505	320	1
4	32,00	*713,62*	635	410	1
4	33,00	*583,51*	505	320	1
4	33,00	*790,04*	635	410	1

(continúa Ref.1126 / suite Réf.1126 / Ref.1126 cont'd)

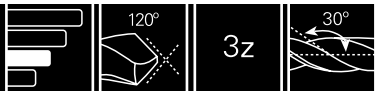
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

(continúa Ref.1126 / suite Réf.1126 / Ref.1126 cont'd)

△	Ø mm	€	L mm	l mm	
4	34,00	*632,71*	530	340	1
4	34,00	*820,45*	665	430	1
4	35,00	*651,67*	530	340	1
4	35,00	*890,82*	665	430	1
4	36,00	*703,07*	530	340	1
4	36,00	*935,43*	665	430	1
4	37,00	*720,81*	530	340	1
4	37,00	*1.039,38*	665	430	1
4	38,00	*786,32*	555	360	1
4	38,00	*1.100,63*	695	460	1
4	39,00	*819,51*	555	360	1
4	39,00	*1.153,14*	695	460	1

△	Ø mm	€	L mm	l mm	
4	40,00	*863,91*	555	360	1
4	40,00	*1.099,93*	695	460	1
4	41,00	*1.250,21*	695	460	1
4	42,00	*1.334,84*	695	460	1
4	43,00	*1.362,03*	735	490	1
4	44,00	*1.409,90*	735	490	1
4	45,00	*1.475,57*	735	490	1
4	46,00	*1.541,53*	735	490	1
4	47,00	*1.617,20*	735	490	1
4	48,00	*1.711,25*	765	510	1
4	49,00	*1.776,41*	765	510	1
4	50,00	*1.822,81*	765	510	1

1139 HSS DIN 343



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35				○ 8-14		● 25-30	● 12-16		○ 50-60	● 30-60		○ 20-25					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



△	Ø mm	d mm	€	L mm	l mm	
1	10,00	7,00	*71,77*	168	87	1
1	11,00	7,70	*74,33*	175	94	1
1	12,00	8,40	*76,92*	182	101	1
1	13,00	9,10	*80,39*	182	101	1
1	14,00	9,80	*85,07*	189	108	1
2	15,00	10,50	*91,49*	212	114	1
2	16,00	11,20	*97,40*	218	120	1
2	17,00	11,90	*106,51*	223	125	1
2	18,00	12,60	*115,42*	228	130	1
2	19,00	13,30	*137,83*	233	135	1
2	20,00	14,00	*139,24*	238	140	1
2	21,00	15,00	*149,48*	243	145	1
2	22,00	15,50	*163,57*	248	150	1

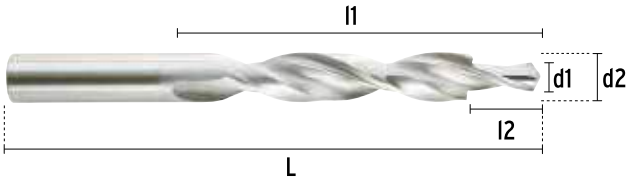
△	Ø mm	d mm	€	L mm	l mm	
2	23,00	16,00	*175,25*	253	155	1
3	24,00	17,00	*188,60*	281	160	1
3	25,00	17,50	*201,94*	281	160	1
3	26,00	18,00	*222,97*	286	165	1
3	27,00	19,00	*240,28*	291	170	1
3	28,00	19,50	*260,48*	291	170	1
3	30,00	21,00	*302,16*	296	175	1
4	32,00	22,00	*340,64*	334	185	1
4	34,00	24,00	*377,69*	339	190	1
4	35,00	25,00	*409,69*	339	190	1
4	36,00	25,50	*417,29*	344	195	1
4	38,00	26,50	*476,51*	349	200	1
4	40,00	28,00	*524,20*	349	210	1

1127 HSS DIN 8376

180°

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25	● 8-10					● 30-35	● 25-30	○ 14-18	● 20-25	● 30-35		○ 15-20					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-3	3,40	6,00	*62,69*	93	57	9	1
M-4	4,50	8,00	*65,73*	117	75	11	1
M-5	5,50	10,00	*78,14*	133	87	13	1

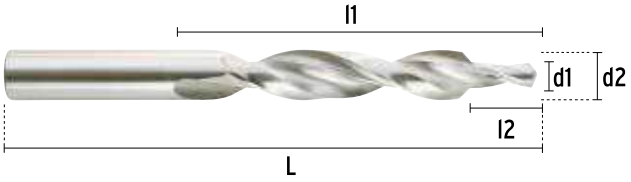
M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-6	6,60	11,00	*88,29*	142	94	15	1
M-8	9,00	15,00	*108,48*	169	114	19	1
M-10	11,00	18,00	*215,60*	191	130	23	1

1128 HSS DIN 8374

90°

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25	● 8-10					● 30-35	● 25-30	○ 14-18	● 20-25	● 30-35		○ 15-20					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-3	3,20	6,00	*73,15*	93	57	9	1
M-4	4,30	8,00	*76,70*	117	75	11	1
M-5	5,30	10,00	*91,18*	133	87	13	1

M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-6	6,40	11,50	*104,13*	142	94	15	1
M-8	8,40	15,00	*142,45*	169	114	19	1
M-10	10,50	19,00	*219,99*	198	130	23	1

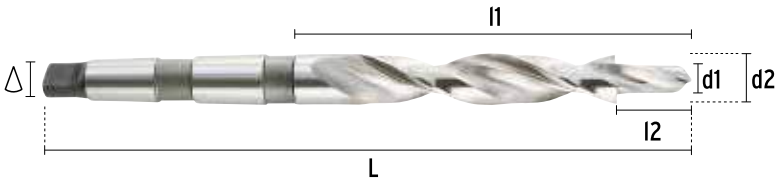
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1129 HSS DIN 8377

180°

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25	● 8-10					● 30-35	● 25-30	○ 14-18	● 20-25	● 30-35		○ 15-20					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



	M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
2	M-8	9,00	15,00	*162,26*	212	114	19	1
2	M-10	11,00	18,00	*182,89*	228	130	23	1
2	M-12	14,00	20,00	*204,60*	238	140	27	1
3	M-14	16,00	24,00	*290,15*	281	160	31	1

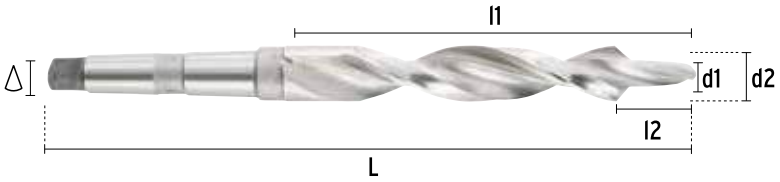
	M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
3	M-16	18,00	*26,00*	*413,71*	286	165	35	1
3	M-18	20,00	*30,00*	*462,63*	296	175	39	1
4	M-20	22,00	*33,00*	*521,76*	334	185	43	1

1130 HSS DIN 8375

90°

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25	● 8-10					● 30-35	● 25-30	○ 14-18	● 20-25	● 30-35		○ 15-20					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



	M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
1	M-5	5,50	11,00	*156,93*	175	94	13	1
1	M-6	6,60	13,00	*160,13*	182	101	15	1

	M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
2	M-8	9,00	17,20	*190,82*	228	130	19	1
2	M-10	11,00	21,50	*225,92*	248	150	23	1

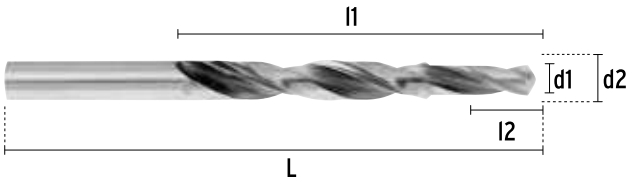
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1152 HSS DIN 8378



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25	● 8-10					● 30-35	● 25-30	○ 14-18	● 20-25	● 30-35		○ 15-20					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-3	2,50	3,40	*56,19*	70	39	8,80	1
M-4	3,30	4,50	*60,44*	80	47	11,40	1
M-5	4,20	5,50	*65,10*	93	57	13,60	1
M-6	5,00	6,60	*74,06*	101	63	16,50	1

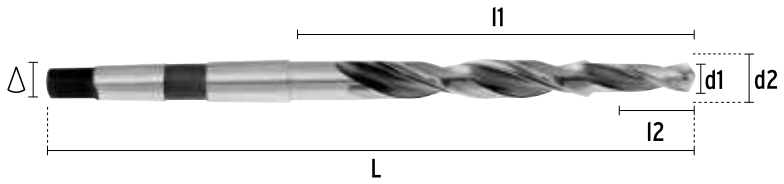
M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-8	6,80	9,00	*88,23*	125	81	21,00	1
M-10	8,50	11,00	*102,93*	142	94	25,50	1
M-12	10,20	13,50	*128,16*	160	108	30,00	1

1153 HSS DIN 8379



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25	● 8-10					● 30-35	● 25-30	○ 14-18	● 20-25	● 30-35		○ 15-20					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



	M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
1	M-8	6,80	9,00	*143,82*	162	81	21,00	1
1	M-10	8,50	11,00	*156,71*	175	94	25,50	1
1	M-12	10,20	13,50	*185,12*	189	108	30,00	1
2	M-14	12,00	15,50	*197,53*	218	120	34,50	1

	M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
2	M-16	14,00	17,50	*213,18*	228	130	38,50	1
2	M-18	15,50	20,00	*238,40*	238	140	43,50	1
2	M-20	17,50	22,00	*288,29*	248	150	47,50	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

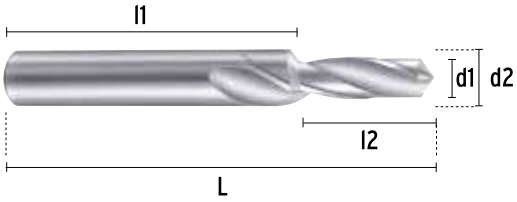
1191 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●		●	○		●	●	●	●	○	●			
20-30	12-18	4-8		4-10		20-25	10-15		15-80	25-60	60-90	12-70	2-6	2-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-3	2,50	3,40	*37,45*	52	20	8	1
M-4	3,30	4,50	*39,62*	58	24	11	1
M-5	4,20	5,50	*41,37*	66	28	13	1
M-6	5,00	6,60	*45,28*	70	31	16	1

M	d1 mm	d2 mm	€	L mm	l1 mm	l2 mm	
M-8	6,80	9,00	*60,95*	84	40	20	1
M-10	8,50	11,00	*81,85*	95	47	24	1
M-12	10,20	14,00	*111,47*	107	54	29	1

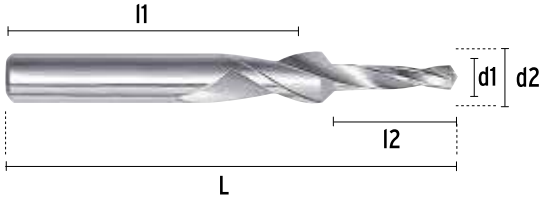
1192 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●		●	○		●	●	●	●	○	●			
20-30	12-18	4-8		4-10		20-25	10-15		15-80	25-60	60-90	12-70	2-6	2-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW

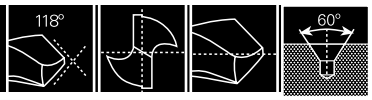


M	d1 mm	d2 mm	€	L mm	l2 mm	
M-4	4,30	8,60	*99,27*	110	30	1
M-4	5,30	10,40	*104,50*	110	30	1
M-6	6,40	12,40	*111,47*	110	30	1

M	d1 mm	d2 mm	€	L mm	l2 mm	
M-8	8,40	16,40	*148,03*	110	30	1
M-10	10,50	20,40	*179,38*	110	30	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

1132 HSS DIN 333 A



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 8-12					● 20-25	○ 15-20		● 15-20	● 25-30		○ 10-15					

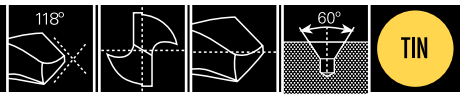
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



d1 mm	d2 mm	€	L mm	l mm	
1,00	*3,15*	*6,07*	31,50	1,60	1
1,25	*3,15*	*6,07*	33,50	1,90	1
1,25	*4,00*	*6,70*	35,50	1,90	1
1,60	*4,00*	*6,07*	37,50	2,40	1
1,60	*5,00*	*7,14*	40,00	2,40	1
2,00	*5,00*	*6,54*	42,00	2,90	1
2,00	*6,30*	*7,59*	45,00	2,90	1
2,50	*6,30*	*7,26*	47,00	3,60	1
2,50	*8,00*	*8,49*	50,00	3,60	1
3,15	*8,00*	*8,00*	52,00	4,40	1

d1 mm	d2 mm	€	L mm	l mm	
3,15	10,00	*9,40*	56,00	4,40	1
4,00	10,00	*10,91*	59,00	5,60	1
4,00	12,50	*12,88*	63,00	5,60	1
5,00	12,50	*18,28*	66,00	6,90	1
5,00	16,00	*31,12*	71,00	6,90	1
6,30	*16,00*	*26,11*	74,00	8,60	1
6,30	*20,00*	*40,17*	80,00	8,60	1
10,00	*25,00*	*78,73*	100,00	31,50	1
12,50	*31,50*	*187,87*	125,00	33,50	1

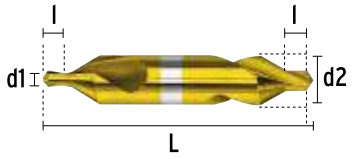
1188 HSS DIN 333 A



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40	● 12-16					● 30-35	○ 20-30		● 20-30	● 35-40		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW

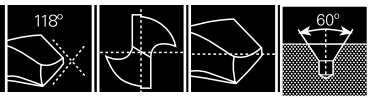


d1 mm	d2 mm	€	L mm	l mm	
1,00	3,15	*11,57*	31,50	1,60	1
1,25	3,15	*11,57*	33,50	1,90	1
1,60	4,00	*12,10*	37,50	2,40	1
2,00	5,00	*13,25*	42,00	2,90	1
2,50	6,30	*14,42*	47,00	3,60	1
3,15	8,00	*15,10*	52,00	4,40	1

d1 mm	d2 mm	€	L mm	l mm	
4,00	10,00	*21,00*	59,00	5,60	1
5,00	12,50	*26,88*	66,00	6,90	1
6,30	16,00	*28,73*	74,00	8,60	1
10,00	25,00	*86,76*	100,00	31,50	1
12,00	31,50	*206,66*	125,00	33,50	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1193 HM-MD DIN 333 A



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
○ 45-65	● 40-55	● 25-30	● 20-25	● 40-55	● 25-30	● 40-55	● 35-45	● 20-25	● 80-130	● 25-65	● 100-110	● 70-200	● 20-30	● 15-30	● 15-20	● 10-15	○ 4-6

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

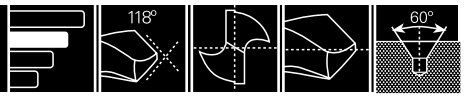
NEW



d1 mm	d2 mm	€	L mm	l mm	
1,00	3,15	*56,38*	31,50	1,60	1
1,25	3,15	*56,38*	33,50	1,90	1
1,60	4,00	*58,00*	37,50	2,40	1
2,00	5,00	*72,49*	42,00	2,90	1
2,50	6,30	*86,19*	47,00	3,60	1

d1 mm	d2 mm	€	L mm	l mm	
3,15	8,00	*104,71*	52,00	4,40	1
4,00	10,00	*139,35*	59,00	5,60	1
5,00	12,50	*235,21*	66,00	6,90	1
6,30	16,00	*372,14*	74,00	8,60	1

1133 HSS DIN 333 A



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 8-12					● 20-25	○ 15-20		● 15-20	● 25-30		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

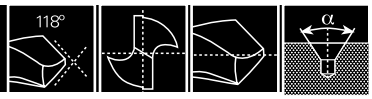


d1 mm	d2 mm	€	L mm	l mm	
1,00	4,00	*18,92*	60,00	1,30	1
1,50	5,00	*19,26*	60,00	2,00	1
2,00	6,00	*20,08*	80,00	2,50	1
2,50	8,00	*24,39*	80,00	3,10	1
3,00	8,00	*24,39*	80,00	3,90	1
1,00	4,00	*47,22*	120,00	1,30	1
1,50	5,00	*44,88*	120,00	2,00	1

d1 mm	d2 mm	€	L mm	l mm	
2,00	6,00	*44,88*	120,00	2,50	1
2,50	8,00	*51,96*	120,00	3,10	1
3,00	8,00	*51,96*	120,00	3,90	1
3,00	10,00	*59,01*	120,00	3,90	1
4,00	10,00	*59,01*	120,00	5,00	1
4,00	12,00	*70,42*	120,00	5,00	1
5,00	14,00	*84,58*	120,00	6,30	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1135 HSS DIN 333 R



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 8-12					● 20-25	○ 15-20		● 15-20	● 25-30		○ 10-15					

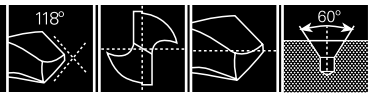
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



d1 mm	d2 mm	€	L mm	l mm	
1,00	3,15	*6,67*	31,50	3,00	1
1,25	3,15	*6,67*	33,50	3,35	1
1,25	4,00	*6,67*	35,50	3,75	1
1,60	4,00	*6,67*	35,50	4,25	1
1,60	5,00	*7,22*	40,00	4,75	1
2,00	5,00	*7,22*	40,00	5,30	1
2,00	6,30	*8,02*	45,00	6,00	1
2,50	6,30	*8,00*	45,00	6,70	1
2,50	8,00	*8,83*	50,00	7,50	1
3,15	8,00	*8,83*	50,00	8,50	1

d1 mm	d2 mm	€	L mm	l mm	
3,15	10,00	*11,50*	56,00	9,50	1
4,00	10,00	*11,50*	56,00	10,60	1
4,00	12,50	*19,20*	63,00	11,80	1
5,00	12,50	*19,23*	63,00	13,20	1
5,00	16,00	*27,32*	71,00	15,00	1
6,30	16,00	*27,51*	71,00	17,00	1
6,30	20,00	*49,01*	80,00	19,00	1
8,00	20,00	*51,53*	80,00	21,20	1
10,00	25,00	*82,81*	100,00	31,50	1
12,50	31,50	*197,58*	125,00	33,50	1

1137 HSS DIN 333 B



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 8-12					● 20-25	● 15-20		● 15-20	● 25-30		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



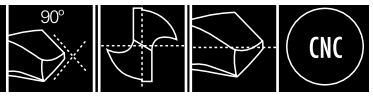
d1 mm	d2 mm	€	L mm	l mm	
1,00	4,00	11,01	35,50	1,60	1
1,25	5,00	11,01	40,00	1,90	1
1,60	6,30	11,01	45,00	2,40	1
2,00	8,00	11,01	50,00	2,90	1
2,50	10,00	12,64	56,00	3,60	1

d1 mm	d2 mm	€	L mm	l mm	
3,15	11,20	*14,49*	60,00	4,40	1
4,00	14,00	*22,27*	67,00	5,60	1
5,00	18,00	*31,05*	75,00	6,90	1
6,30	20,00	*45,32*	80,00	8,60	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

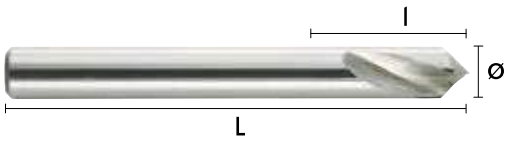
BROCAS BIDIAMETRALES Y DE CENTRAR
FORETS BIÉTAGÉS ET À CENTRER / TWO-DIAMETER AND CENTRE DRILL-BITS

1138 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 8-12	● 6-10		● 6-12		● 20-25	● 15-20		● 15-20	● 25-30		● 25-30		● 10-12			

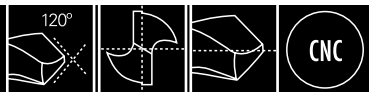
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
3,00	*22,31*	50,00	10,00	1
4,00	*22,31*	52,00	12,00	1
5,00	*25,15*	60,00	15,00	1
6,00	*25,15*	66,00	20,00	1
8,00	*28,42*	79,00	25,00	1

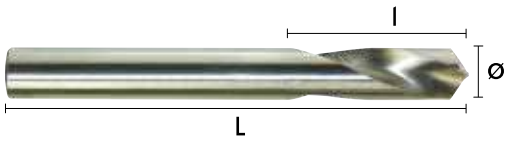
Ø mm	€	L mm	l mm	
10,00	*28,42*	89,00	25,00	1
12,00	*39,30*	102,00	30,00	1
16,00	*54,20*	115,00	35,00	1
20,00	*106,64*	131,00	40,00	1

1155 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 8-12	● 6-10		● 6-12		● 20-25	● 15-20		● 15-20	● 25-30		● 25-30		● 10-12			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

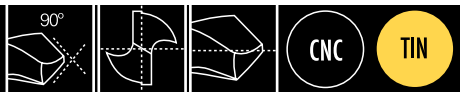


Ø mm	€	L mm	l mm	
3,00	*22,31*	46	12	1
4,00	*22,31*	55	12	1
5,00	*25,15*	62	14	1
6,00	*25,15*	66	16	1
8,00	*28,42*	79	21	1

Ø mm	€	L mm	l mm	
10,00	*28,42*	89	25	1
12,00	*39,30*	102	30	1
16,00	*54,20*	115	38	1
20,00	*106,64*	131	45	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

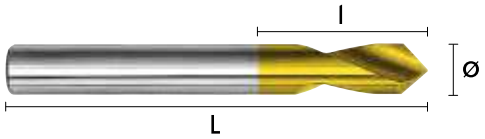
1189 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 12-16	● 10-14		● 6-12		● 30-35	● 20-25		● 20-25	● 35-40		● 35-40		● 12-16			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

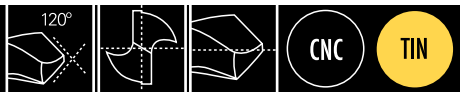
NEW



Ø mm	€	L mm	l mm	
3,00	*29,00*	50	10	1
4,00	*29,00*	52	12	1
5,00	*32,70*	60	15	1
6,00	*32,70*	66	20	1
8,00	*36,95*	79	25	1

Ø mm	€	L mm	l mm	
10,00	*36,95*	89	25	1
12,00	*51,09*	102	30	1
16,00	*70,46*	115	35	1
20,00	*138,63*	131	40	1

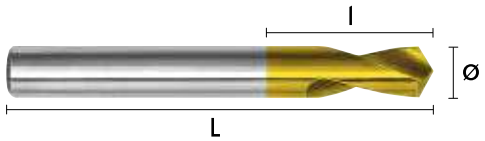
1190 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	● 12-16	● 10-14		● 6-12		● 30-35	● 20-25		● 20-25	● 35-40		● 35-40		● 12-16			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø mm	€	L mm	l mm	
3,00	*29,00*	46	12	1
4,00	*29,00*	55	12	1
5,00	*32,70*	62	14	1
6,00	*32,70*	66	16	1
8,00	*36,95*	79	21	1

Ø mm	€	L mm	l mm	
10,00	*36,95*	89	25	1
12,00	*51,09*	102	30	1
16,00	*70,46*	115	38	1
20,00	*138,63*	131	45	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1179 HM-MD 1XD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-80	● 40-55	● 35-45		● 15-30		● 60-80	● 40-60		● 70-160	● 60-120		○ 50-70	○ 8-20	● 20-30			

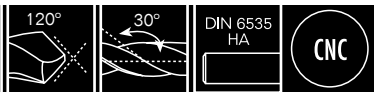
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø mm	d mm	€	L mm	l mm	
6,00	6	*24,63*	65	15	1
8,00	8	*42,42*	80	20	1

ø mm	d mm	€	L mm	l mm	
10,00	10	*61,17*	90	25	1
12,00	12	*85,83*	100	30	1

1180 HM-MD 1XD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-80	● 40-55	● 35-45		● 15-30		● 60-80	● 40-60		● 70-160	● 60-120		○ 50-70	○ 8-20	● 20-30			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø mm	d mm	€	L mm	l mm	
6,00	6	*24,63*	65	15	1
8,00	8	*42,42*	80	20	1

ø mm	d mm	€	L mm	l mm	
10,00	10	*61,17*	90	25	1
12,00	12	*85,83*	100	30	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

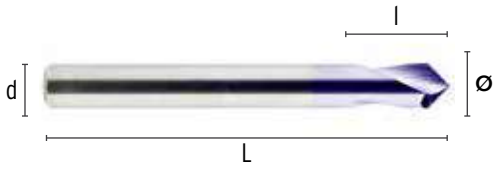
1185 HM-MD

1XD | 90° | 30° | DIN 6535 HA | CNC | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 70-100	● 55-75	● 50-60		● 20-35		● 80-100	● 55-80		● 100-200	● 80-160		○ 50-70	○ 12-20	● 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



ø mm	d mm	€	L mm	l mm	
6,00	6	*32,02*	65	15	1
8,00	8	*55,15*	80	20	1

ø mm	d mm	€	L mm	l mm	
10,00	10	*79,52*	90	25	1
12,00	12	*111,58*	100	30	1

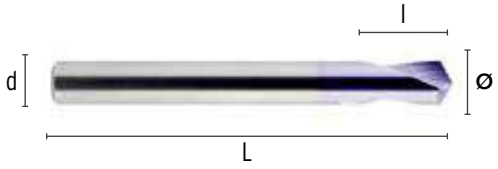
1186 HM-MD

1XD | 120° | 30° | DIN 6535 HA | CNC | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 70-100	● 55-75	● 50-60		● 20-35		● 80-100	● 55-80		● 100-200	● 80-160		○ 50-70	○ 12-20	● 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW

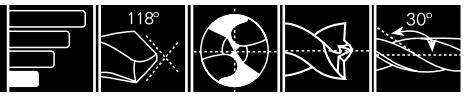


ø mm	d mm	€	L mm	l mm	
6,00	6	*32,02*	65	15	1
8,00	8	*55,15*	80	20	1

ø mm	d mm	€	L mm	l mm	
10,00	10	*79,52*	90	25	1
12,00	12	*111,58*	100	30	1

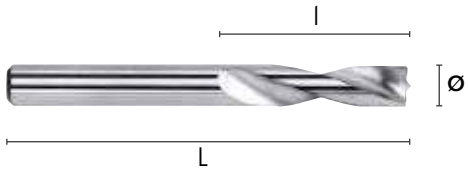
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

1119 HSSCO DIN 1897 N Soldadura / Soudure / Welding



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
○ 20-30	● 12-18	● 6-10															

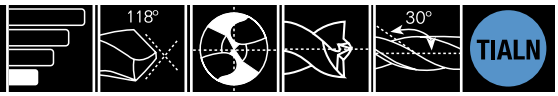
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
6,00	*12,85*	66	28	1
7,00	*14,16*	74	34	1

Ø mm	€	L mm	l mm	
8,00	*15,52*	79	37	1
10,00	*17,56*	89	43	1

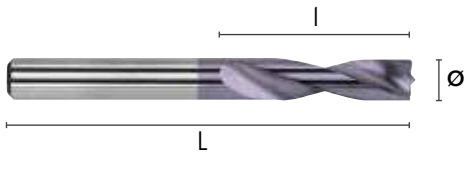
1194 HSSCO DIN 1897N Soldadura / Soudure / Welding



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
○ 30-40	● 16-20	● 8-14															

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW

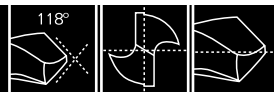


Ø mm	€	L mm	l mm	
6,00	*22,49*	66	28	1
7,00	*24,79*	74	34	1

Ø mm	€	L mm	l mm	
8,00	*27,16*	79	37	1
10,00	*30,72*	89	43	1

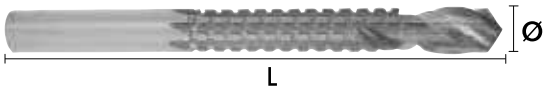
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

5114 HSS



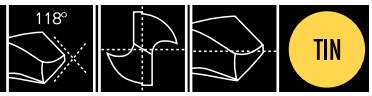
P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25									● 15-20	● 25-30		● 25-30					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	Z	
6,00	*16,70*	90	5	1
8,00	*22,84*	90	7	1

5115 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-35									● 20-25	● 35-40		● 35-40					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	Z	
6,00	*30,32*	90	5	1
8,00	*39,65*	90	7	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

6110 **Espiga /** Queue à tenon / Bit shank



	DIN 228	€	L mm	gr	
1	B-12	*9,89*	89	65	1
1	B-16	*9,89*	99	80	1
1	B-18	*9,89*	107	110	1
>2	B-12	*11,98*	106	140	1
2	B-16	*11,98*	112	160	1
2	B-18	*11,98*	119	185	1

	DIN 228	€	L mm	gr	
>3	B-16	*14,62*	134	305	1
3	B-18	*14,62*	140	330	1
>4	B-16	*20,94*	156	120	1
4	B-18	*22,58*	165	640	1
>5	B-16	*89,16*	221	1.570	1
5	B-18	*89,16*	221	1.590	1

6111 **Casquillo DIN 2185 /** Douille de réduction / Drill sleeve



	€	L mm	gr	
2 x 1	*24,11*	92	90	1
3 x 1	*29,77*	99	200	1
3 x 2	*29,77*	112	180	1
4 x 1	*41,64*	124	510	1
4 x 2	*39,14*	124	420	1
4 x 3	*39,14*	140	370	1
5 x 1	*69,06*	180	1.550	1

	€	L mm	gr	
5 x 2	*65,45*	156	1.200	1
5 x 3	*65,45*	156	1.150	1
5 x 4	*76,39*	171	1.023	1
6 x 3	*127,12*	230	3.800	1
6 x 4	*144,23*	230	3.390	1
6 x 5	*144,23*	230	2.700	1

6114 **Contrapunto /** Contrepointe / Fixed centre



	HSS €	HM €	
1	*14,94*	-	1
2	*19,90*	-	1
3	*30,91*	*74,68*	1

	HSS €	HM €	
4	*48,31*	*91,06*	1
5	*68,23*	*178,02*	1
6	*263,10*	-	1

6112 Alargadera / Adaptateur / Extension piece



Ext.	Int.	€	L mm	
1	1	*30,39*	145	1
1	2	*47,06*	160	1
2	1	*30,39*	160	1
2	2	*44,17*	175	1
2	3	*63,97*	196	1
3	1	*44,17*	175	1
3	2	*45,61*	194	1
3	3	*66,89*	215	1
3	4	*107,89*	240	1
4	1	*63,97*	200	1

Ext.	Int.	€	L mm	
4	2	*62,52*	215	1
4	3	*65,43*	240	1
4	4	*107,89*	265	1
4	5	*181,08*	300	1
5	1	*123,33*	232	1
5	2	*114,67*	247	1
5	3	*121,09*	268	1
5	4	*136,88*	300	1
5	5	*226,46*	335	1

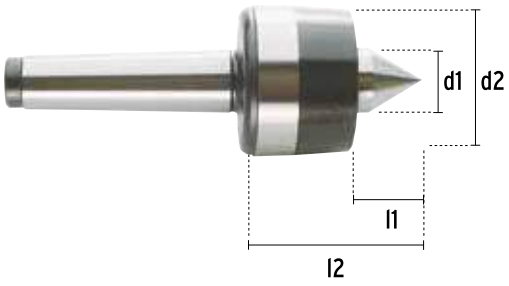
6113 Expulsor / Éjecteur / Ejector



	€	gr	
1 - 2	*12,88*	50	1
2 - 3	*15,24*	80	1
3 - 4	*20,10*	160	1

	€	gr	
4 - 5	*27,31*	350	1
5 - 6	*44,39*	690	1

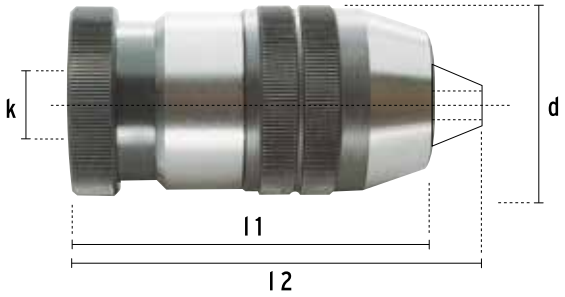
6115 Punto giratorio / Pointe tournante / Revolving lathe centre



	d1 mm	d2 mm	l1 mm	l2 mm	Kg	€	
1	12	32	18	42	180	*143,25*	1
2	16	40	23	46	400	*159,79*	1
3	24	45	27	53	600	*214,81*	1
4	24	59	36	65	1200	*254,58*	1
5	38	79	41	77	1500	*367,94*	1

6101 HP1

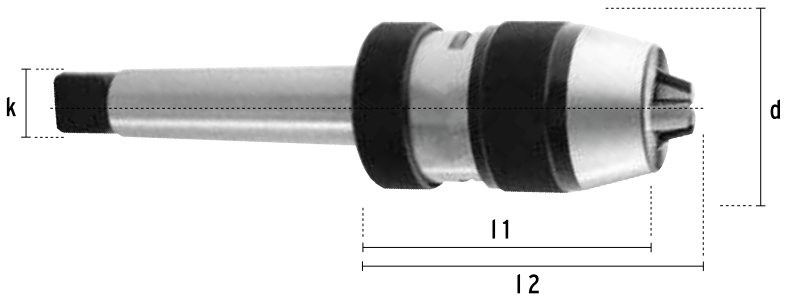
- **Componentes totalmente templados y rectificados.**
  Composants entièrement trempés et rectifiés.
  Fully tempered and rectified components.
- **Uso en taladros de precisión estacionarios, fresadoras.**
  Pour perçages de précision stationnaires, fraiseuses.
  For use with stationary precision drills, milling machines.
- **Excentricidad máxima 0,04 mm.**
  Excentricité maximum de 0,04 mm.
  Maximum eccentricity 0.04 mm.



Ø mm	d mm	k	Int.	€	l1 mm	l2 mm		Husillo Arbre Spindle €	Juego de garras Jeux de griffes Set of claws €
0,00 - 10,00	41	B16	1/2" - 20H	*171,74*	81	89	1	*29,38*	*39,85*
1,00 - 13,00	46	B16	1/2" - 20H	*188,56*	88	89	1	*31,55*	*42,76*
3,00 - 16,00	55	B16,B18	-	*213,00*	95	107	1	*31,55*	*44,19*

6120 HP1-CM

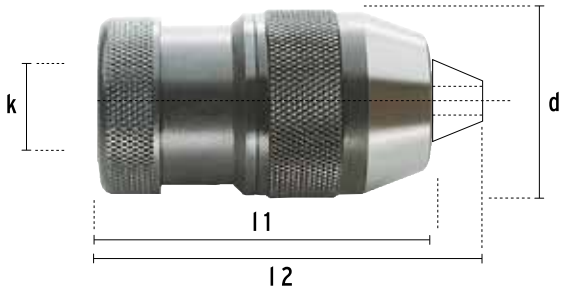
- **Portabrocas automático alta precisión con espiga integrada (Cono Morse)**
  Mandrin automatique de haute précision avec queue à tenon integrée (Cone Morse)
  High precision automatic drill chuck with bit shank (Taper Shank)



Ø mm	d mm	k	€	l1 mm	l2 mm		Husillo Arbre Spindle €	Juego de garras Jeux de griffes Set of claws €
0,00 - 10,00	43	CM2	*372,20*	73	82	1	*29,38*	*39,85*
1,00 - 13,00	48	CM2, CM3, CM4	*404,10*	80	92	1	*31,55*	*42,76*
3,00 - 16,00	54	CM2, CM3, CM4	*482,75*	85	96	1	*31,55*	*44,19*

6102 HP2

> **Componentes parcialmente templados y rectificados.**
Composants partiellement trempés et rectifiés.
Partially tempered and rectified components.
> **Uso industrial para taladros fijos y portátiles.**
Usage industriel pour perceuses fixes et portables.
For industrial use with fixed and portable drills.
> **Excentricidad máxima 0,20 mm.**
Excentricité maximum de 0,20 mm.
Maximum eccentricity 0.20 mm.



Ø mm	d mm	△	k Int.	€	l1 mm	l2 mm	▣	**Husillo** Arbre Spindle €	**Juego de garras** Jeux de griffes Set of claws €
0,00 - 10,00	39	B12	1/2" - 20H 3/8" - 24H	*94,06*	73	80	1	*19,85*	*39,66*
2,00 - 13,00	46	B16	1/2" - 20H 3/8" - 24H	*118,22*	87	95	1	*22,90*	*42,86*
3,00 - 16,00	51	B16,B18	5/8" - 16H 1/2" - 20H	*157,04*	102	115	1	*22,90*	*42,86*
5,00 - 20,00	56	B18	-	*207,03*	95	110	1	*28,04*	*50,41*

6103 HP3

> **Uso industrial para taladros fijos y portátiles.**
Usage industriel pour perceuses fixes et portables.
For industrial use with fixed and portable drills.
> **Excentricidad no garantizada.**
Excentricité non garantie.
Maximum not guaranteed.



Ø mm	d mm	△	k Int.	€	l1 mm	l2 mm	▣
1,00 - 10,00	35	B12*	1/2" - 20H, 3/8" - 24H*	*63,27*	65	72	1
1,50 - 13,00	40	B16	1/2" - 20H	*72,60*	83	91	1
3,00 - 16,00	53	B16,B18	1/2" - 20H, 5/8" - 24H*	*95,89*	96	109	1

***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

6122 **Afilador de Brocas** / Affûteuses forets / Twist Drill Sharpener

- **Para Brocas HSS, HSSE, HSS+TIN, HM**
  Pour Forets HSS, HSSE. HSS+TIN, HM
  For Drill-bits HSS. HSSE, HS+TIN, HM
- **Para ángulo normal afilado en cruz**
  Pour angle normal et affûtage en croix
  For normal angle and Splint point
- **Ángulo de punta de 118º**
  Angle de la point e 118º
  Point angle of 118º

Ø mm	€	
3 a 13	*159,34*	1



6123 **Porta** / Mandrins / Chuck

€	
9,65	1



6124 **Muela** / Meule / Wheel

€	
20,48	1



1171 Ø 1 a 10 X 0,5 mm

Ø mm	X mm		DIN
1 a 10	0,50	19	338

>HSS (1101)



>SPEED PLUS (1158)



>HSS CO (1105)



>HSS CO INOX (1106)



>HSS TIN (1108)



REF.	€
HSS	*46,83*
SPEED PLUS	*51,35*
HSS CO	*77,16*
HSS CO INOX	*158,38*
HSS TIN	*95,71*
VACIO/VIDE/EMPTY	*12,40*

1172 Ø 1 a 13 X 0,5 mm

Ø mm	X mm		DIN
1 a 13	0,50	25	338

>HSS (1101)



>SPEED PLUS (1158)



>HSS CO (1105)



>HSS CO INOX (1106)



>HSS TIN (1108)



REF.	€
HSS	*91,62*
SPEED PLUS	*100,80*
HSS CO	*176,68*
HSS CO INOX	*318,43*
HSS TIN	*199,10*
VACIO/VIDE/EMPTY	*16,54*

1143 Ø 1 a 10 X 0,25 mm

Ø mm	X mm		DIN
1 a 10	0,25	37	338

>HSS (1101)



>HSS CO (1105)



REF.	€
HSS	*128,75*
HSS CO	*190,05*
VACIO/VIDE/EMPTY	*41,91*

1144 Ø 6 a 10 X 0,10 mm

Ø mm	X mm		DIN
6 a 10	0,10	41	338

>HSS (1101)



>HSS CO (1105)



REF.	€
HSS	*241,98*
HSS CO	*346,46*
VACIO/VIDE/EMPTY	*72,53*

1145 Ø 1 a 13 X 0,25 mm

Ø mm	X mm		DIN
1 a 13	0,25	49	338

>HSS (1101)



>HSS CO (1105)



REF.	€
HSS	*224,07*
HSS CO	*415,61*
VACIO/VIDE/EMPTY	*43,52*

1146 Ø 1 a 6 X 0,10 mm

Ø mm	X mm		DIN
1 a 6	0,10	51	338

>HSS (1101)



>HSS CO (1105)



REF.	€
HSS	*98,36*
HSS CO	*139,66*
VACIO/VIDE/EMPTY	*29,01*

1173 1/16" a 3/8" x 1/64"

21 | DIN 338

>HSS
(1158/9)



>HSS CO
(1105/9)



REF.	€
SPEED PLUS	*74,95*
HSS CO	*103,12*

1174 1/16" a 1/2" x 1/64"

29 | DIN 338

>SPEED PLUS
(1158/9)



>HSS CO
(1105/9)



REF.	€
SPEED PLUS	*136,17*
HSS CO	*227,39*

1150 Ø 1 a 10 X 0,5 mm

Ø mm	X mm	DIN
1 a 10	0,50	338

>HSS (1101) >HSS NSP (1158) >HSS CO (1105) >HSS TIN (1108)



REF.	€
HSS	*542,13*
HSS NSP	*581,77*
HSS CO	*473,88*
HSS TIN	*604,95*
VACIO/VIDE/EMPTY	*72,53*

Ø mm	HSS	HSS NSP	HSS CO	HSS TIN
1,00	20	20	10	10
1,50	10	10	5	5
2,00	20	20	10	10
2,50	10	10	5	5
3,00	20	20	10	10
3,50	10	10	5	5
4,00	20	20	10	10
4,50	10	10	5	5
5,00	20	20	10	10
5,50	10	10	5	5

Ø mm	HSS	HSS NSP	HSS CO	HSS TIN
6,00	20	20	10	10
6,50	10	10	5	5
7,00	10	10	5	5
7,50	10	10	5	5
8,00	10	10	5	5
8,50	10	10	5	5
9,00	10	10	5	5
9,50	10	10	5	5
10,00	10	10	5	5
TOTAL	250	250	125	125

1183 Ø 1 a 13 X 0,5 mm

Ø mm	X mm	DIN
1 a 10	0,50	338

>HSS (1101) >HSS NSP (1158) >HSS CO (1105) >HSS TIN (1108)



REF.	€
HSS	*838,02*
HSS NSP	*900,99*
HSS CO	*1.043,37*
HSS TIN	*1.193,83*
VACIO/VIDE/EMPTY	*145,07*

Ø mm	HSS	HSS NSP	HSS CO	HSS TIN
1,00	20	20	10	10
1,50	10	10	5	5
2,00	20	20	10	10
2,50	10	10	5	5
3,00	20	20	10	10
3,50	10	10	5	5
4,00	20	20	10	10
4,50	10	10	5	5
5,00	20	20	10	10
5,50	10	10	5	5
6,00	20	20	10	10
6,50	10	10	5	5
7,00	10	10	5	5

Ø mm	HSS	HSS NSP	HSS CO	HSS TIN
7,50	10	10	5	5
8,00	10	10	5	5
8,50	10	10	5	5
9,00	10	10	5	5
9,50	10	10	5	5
10,00	10	10	5	5
10,50	5	5	5	5
11,00	5	5	5	5
11,50	5	5	5	5
12,00	5	5	5	5
12,50	5	5	5	5
13,00	5	5	5	5
TOTAL	280	280	155	155

8201 Ø 1 a 13 mm

>HSS DIN 338 N
(1101)



>HSS DIN 338 NSP
(1158)



>HSSCO DIN 338 N
(1105)



>HSSCO DIN 338 W
(1106)



>HSSTIN DIN 338 N
(1108)



Ø mm	HSS DIN 338 N	HSS DIN 338 NSP	HSSCO DIN 338 N	HSSCO DIN 338 W	HSSTIN DIN 338 N
1,00	20	20	20	-	20
1,50	20	20	10	-	10
2,00	50	50	20	-	20
2,25	20	20	20	-	10
2,50	40	40	20	-	10
3,00	50	50	20	-	20
3,25	30	30	20	10	10
3,50	40	40	20	10	20
4,00	50	50	30	10	30
4,25	30	30	20	10	10
4,50	40	40	20	10	10
5,00	50	50	30	10	30
5,25	20	20	10	10	10
5,50	30	30	20	10	20
6,00	50	50	30	10	20

Ø mm	HSS DIN 338 N	HSS DIN 338 NSP	HSSCO DIN 338 N	HSSCO DIN 338 W	HSSTIN DIN 338 N
6,50	20	20	10	10	10
7,00	20	20	10	10	10
7,50	10	10	10	10	10
8,00	40	40	20	10	10
8,50	20	20	10	10	10
9,00	20	20	10	10	10
9,50	10	10	10	10	10
10,00	20	20	10	10	10
10,50	5	5	5	5	5
11,00	5	5	5	5	5
11,50	5	5	5	5	5
12,00	10	10	5	5	5
12,50	5	5	5	5	5
13,00	5	5	5	5	5
TOTAL	735	735	430	200	360
€	*1.432,31*	*1.565,60*	*1.702,26*	*2.226,32*	*1.795,55*

8201/9 1/16" a 1/2" x 1/64"

>HSS DIN 338 NSP
(1158/9)



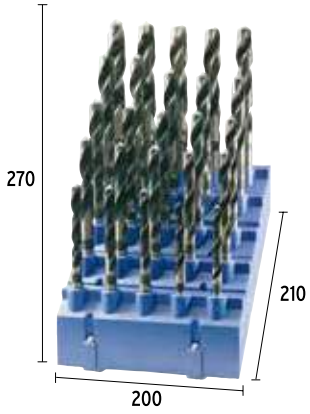
>HSSCO DIN 338 N
(1105/9)



Ø mm	HSS DIN 338 NSP	HSSCO DIN 338 N
1/16"	20	20
5/64"	20	10
3/32"	50	20
7/64"	20	20
1/8"	40	20
9/64"	50	20
5/32"	30	20
11/64"	40	20
3/16"	50	30
13/64"	30	20
7/32"	40	20
15/64"	50	30
1/4"	20	10
17/64"	30	20
9/32"	50	30

Ø mm	HSS DIN 338 NSP	HSSCO DIN 338 N
19/64"	20	10
5/16"	20	10
21/64"	10	10
11/32"	40	20
23/64"	20	10
3/8"	20	10
25/64"	10	10
13/32"	20	10
27/64"	5	5
7/16"	5	5
29/64"	5	5
15/32"	10	5
31/64"	5	5
1/2"	5	5
TOTAL	735	430
€	*1.855,61*	*1.991,75*

8203 Ø 14 a 30 mm (Ref. 1121)



Ø mm	
14,00	1
14,50	1
15,00	1
15,50	1
16,00	1
16,50	1
17,00	1
17,50	1
18,00	1

Ø mm	
18,50	1
19,00	1
19,50	1
20,00	1
20,50	1
21,00	1
21,50	1
22,00	1
22,50	1

Ø mm	
23,00	1
24,00	1
25,00	1
26,00	1
27,00	1
28,00	1
30,00	1
TOTAL	25
€	*1296,38*

8207 Ø 1 a 16 mm

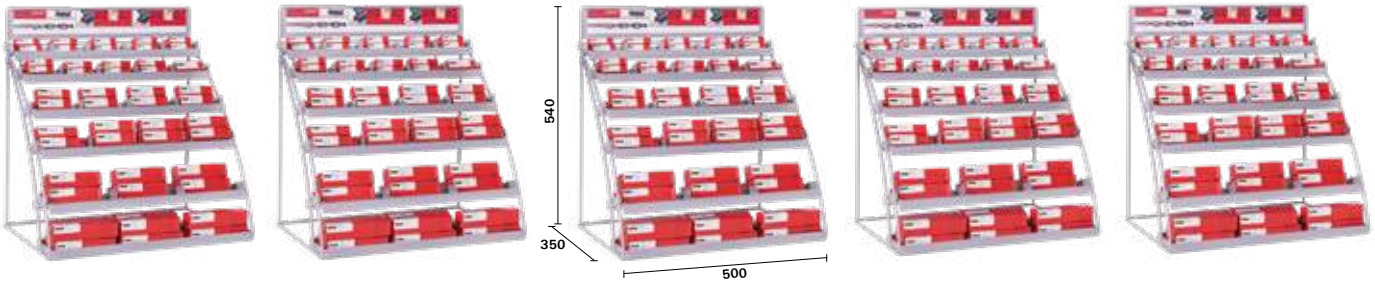
›HSS DIN 338 N (1101)

›HSS DIN 338 NSP (1158)

›HSSCO DIN 338 N (1105)

›HSSCO DIN 338 W (1187)

›HSSTIN DIN 338 N (1108)



Ø mm	HSS DIN 338 N	HSS DIN 338 NSP	HSSCO DIN 338 N	HSSCO DIN 338 W	HSSTIN DIN 338 N
1,00	40	40	40	40	40
1,50	20	20	20	20	20
2,00	40	40	40	40	40
2,25	40	40	40	40	40
2,50	40	40	40	40	40
3,00	60	60	60	60	60
3,25	40	40	40	40	40
3,50	40	40	40	40	40
4,00	60	60	60	60	60
4,25	40	40	40	40	40
4,50	40	40	40	40	40
5,00	60	60	60	60	60
5,50	40	40	40	40	40
6,00	60	60	60	60	60

Ø mm	HSS DIN 338 N	HSS DIN 338 NSP	HSSCO DIN 338 N	HSSCO DIN 338 W	HSSTIN DIN 338 N
6,50	20	20	20	20	20
7,00	20	20	20	20	20
7,50	20	20	20	20	20
8,00	30	30	30	30	30
8,50	20	20	20	20	20
9,00	20	20	20	20	20
10,00	20	20	20	20	20
11,00	10	10	10	10	10
12,00	10	10	10	10	10
13,00	5	5	5	5	5
TOTAL	795	795	795	795	795
€	*1.396,74*	*1.526,75*	*2.551,23*	*3.918,85*	*3.145,28*



Roscado
Taraudage
Threading

ÍNDICE
SOMMAIRE / INDEX

Pág.

Machos de máquina / Tarauds machine / Machine taps (M-MF)

Entrada recta (Agujeros Ciegos y pasantes) / Entrée droite (trous borgnes et débouchants) / Straight flute (through and blind holes)

	2102	HSSE	DIN 371			P	136
	2101	HSSE	DIN 376/374			P	137
	2102/5	HSSE	DIN 371			P	139
	2101/5	HSSE	DIN 376/374			P	139
	2114	HSSE	DIN 371			P	140
	2113	HSSE	DIN 376/374			P	140
	2190	HSSE	DIN 371			N	141
	2191	HSSE	DIN 376			N	141
	2180	HSSE-PM	DIN 371	TICN+		K	142
	2179	HSSE-PM	DIN 376	TICN+		K	142
NEW	2274	HM	DIN 371	TICN		H	143
NEW	2275	HM	DIN 376	TICN		H	143

Entrada Corregida (Agujeros pasantes) / Entrée corrigée (Trous débouchants) / Spiral point (through holes)

	2104	HSSE	DIN 371			P N	144
	2103	HSSE	DIN 376/374			P N	144
	2104/5	HSS	DIN 371			P N	146
	2103/5	HSS	DIN 376/374			P N	146
	2111	HSSE	DIN 371-L			P N	147
NEW	2272	HSS	DIN 376-L			P N	147
	2110	HSSE	DIN 371			P N	148

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

	2109	HSSE	DIN 376			M DIN 13 · Form. B "Gun" · Tol. 6H +0,1 · 3XD · D	P N	148
	2168	HSSE	DIN 371			M DIN 13 · Form. B "Gun" · Tol. 6G · 3XD · R	P N	149
	2169	HSSE	DIN 376			M DIN 13 · Form. B "Gun" · Tol. 6G · 3XD · D	P N	149
NEW	2250	HSSE	DIN 371	VAP		M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · R · MF	P M N	150
NEW	2251	HSSE	DIN 376/374	VAP		M-MF DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D · MF	P M N	150
NEW	2116	HSSE	DIN 371	TIN+		M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · R · MF	P M K N	151
NEW	2115	HSSE	DIN 376	TIN+		M-MF DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D · MF	P M K N	151
	2126	HSSE-PM	DIN 371	TICN+		M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · R · MF	P K	152
	2125	HSSE-PM	DIN 376/374	TICN+		M-MF DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D · MF	P K	152
	2176	HSSE-PM	DIN 371	TICN+		M DIN 13 · Form. B "Gun" · Tol. 6HX · 3XD · R · MF	P K	153
	2175	HSSE-PM	DIN 376	TICN+		M DIN 13 · Form. B "Gun" · Tol. 6HX · 3XD · D · MF	P K	153
	2122	HSSE	DIN 371	VAP		M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · R · MF	P M	154
	2121	HSSE	DIN 376/374	VAP		M-MF DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D · MF	P M	154
	2133	HSSE	DIN 371			M DIN 13 · B-AZ · Tol. 6H · 3XD · R	N	155
	2132	HSSE	DIN 376			M DIN 13 · B-AZ · Tol. 6H · 3XD · D	N	155
	2254	HSSE-PM	DIN 371 MULTI	HL		M DIN 13 · Form. B "Gun" · Tol. 6HX · 3XD · R · MF	P M K N S	156
	2255	HSSE-PM	DIN 371 MULTI	HL		M DIN 13 · Form. B "Gun" · Tol. 6HX · 3XD · D · MF	P M K N S	156
	2258	HSSE-PM	DIN 371 SYNCHRO	HL		M DIN 13 · Form. B "Gun" · Tol. 6HX · CNC · 3XD · R · MF	P M K N S	157
	2259	HSSE-PM	DIN 371 SYNCHRO	HL		M DIN 13 · Form. B "Gun" · Tol. 6HX · CNC · 3XD · D · MF	P M K N S	157

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Hepyc CUTTING TOOL EXPERTS

Pág.

Forma Helicoidal (Agujeros ciegos) / Forme helicoïdale (Trous borgnes)/ Spiral fluted (Blind holes)

	2106	HSSE	DIN 371			M-MF DIN 13 · Form. C · Tol. 6H · 35° · 3XD · R	P N	158
	2105	HSSE	DIN 376/374			M-MF DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D	P N	158
	2106/5	HSSE	DIN 371			M-MF DIN 13 · Form. C · Tol. 6H · 35° LH · 3XD · R	P N	160
	2105/5	HSSE	DIN 376/374			M-MF DIN 13 · Form. C · Tol. 6H · 35° LH · 3XD · D	P N	160
NEW	2112	HSSE	DIN 371-L			M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · R	P N	161
	2273	HSSE	DIN 376-L			M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D	P N	161
	2166	HSSE	DIN 371			M DIN 13 · Form. C · Tol. 6H +0,1 · 35° · 3XD · R	P N	162
	2165	HSSE	DIN 376			M DIN 13 · Form. C · Tol. 6H +0,1 · 35° · 3XD · D	P N	162
	2170	HSSE	DIN 371			M DIN 13 · Form. C · Tol. 6G · 35° · 3XD · R	P N	163
	2208	HSSE	DIN 376			M DIN 13 · Form. C · Tol. 6G · 35° · 3XD · D	P N	163
	2108	HSSE	DIN 371			M DIN 13 · Form. C · Tol. 6H · 15° · 3XD · R	P N	164
	2107	HSSE	DIN 376/374			M DIN 13 · Form. C · Tol. 6H · 15° · 3XD · D	P N	164
NEW	2252	HSSE	DIN 371	VAP		M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · R · MF	P M N	165
NEW	2253	HSSE	DIN 376/374	VAP		M-MF DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D · MF	P M N	165
NEW	2118	HSSE	DIN 371	TIN+		M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · R · MF	P M K N	166
NEW	2117	HSSE	DIN 376/374	TIN+		M-MF DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D · MF	P M K N	166
	2124	HSSE-PM	DIN 371	TICN+		M IN 13 · Form. C · Tol. 6H · 35° · 3XD · R · MF	P K	167
	2123	HSSE-PM	DIN 376/374	TICN+		M-MF DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D · MF	P K	167
	2178	HSSE-PM	DIN 371	TICN+		M DIN 13 · Form. C · Tol. 6HX · 15° · 3XD · R · MF	P K	168
	2177	HSSE-PM	DIN 376	TICN+		M DIN 13 · Form. C · Tol. 6HX · 15° · 3XD · D · MF	P K	168

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

2120	HSSE	DIN 371	VAP		M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · R · MF	P M	169
2119	HSSE	DIN 376/374	VAP		M-MF · Form. C · Tol. 6H · 35° · 3XD · D · MF	P M	169
2182	HSSE	DIN 371			M DIN 13 · Form. C · Tol. 6H · 45° · 3XD · R	N	170
2181	HSSE	DIN 376			M DIN 13 · Form. C · Tol. 6H · 45° · 3XD · D	N	170
2256	HSSE-PM	DIN 371 MULTI	HL		M DIN 13 · Form. C · Tol. 6HX · 45° · 3XD · R · MF	P M K N S	171
2257	HSSE-PM	DIN 376 MULTI	HL		M DIN 13 · Form. C · Tol. 6HX · 45° · 3XD · D · MF	P M K N S	171
2260	HSSE-PM	DIN 371 SYNCHRO	HL		M DIN 13 · CNC · Form. C · Tol. 6HX · 45° · 3XD · R · MF	P M K N S	172
2261	HSSE-PM	DIN 376 SYNCHRO	HL		M DIN 13 · CNC · Form. C · Tol. 6HX · 45° · 3XD · D · MF	P M K N S	172

Laminación / Tarauds à refouler / Forming taps

2188	HSSE-PM	DIN 371	TIN		M DIN 13 · Form. C · Tol. 6HX · A>12% · 1,5XD · R · MF	P M N	173
2187	HSSE-PM	DIN 376	TIN		M DIN 13 · Form. C · Tol. 6HX · A>12% · 1,5XD · D · MF	P M N	173
2214	HSSE-PM	DIN 371	TIN		M DIN 13 · Form. C · Tol. 6HX · A>12% · 3XD · R · MF	P M N	174
2213	HSSE-PM	DIN 376	TIN		M-MF DIN 13 · Form. C · Tol. 6HX · A>12% · 3XD · D · MF	P M N	174
2216	HSSE-PM	DIN 371	TIN		M DIN 13 · Form. C · Tol. 6GX · A>12% · 1,5XD · R · MF	P M N	175
2215	HSSE-PM	DIN 376	TIN		M DIN 13 · Form. C · Tol. 6GX · A>12% · 1,5XD · D · MF	P M N	175
2218	HSSE-PM	DIN 371	TIN		M DIN 13 · Form. C · Tol. 6GX · A>12% · 3XD · R · MF	P M N	176
2217	HSSE-PM	DIN 376	TIN		M DIN 13 · Form. C · Tol. 6GX · A>12% · 3XD · D · MF	P M N	176

Otros / Autres / Others

2199	HSSE	DIN 357			M DIN 13 · 16-18h · Tol. 6H · R	P	177

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

2134	HSSE		NIT		M DIN 13 · 16-18h · Tol. 6H · D	P	177
2806	HSSE	DIN 13			M DIN 13 · Tol. 6H	P N	178
1504	HSS	Hex			M DIN 13 · Tol. 6H · 1/4"	P	178
2248	HSS	ISO 529			M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD	P N	179
2249	HSS	ISO 529			M DIN 13 · Form. C · Tol. 6H · 35° · 3XD	P N	179
2266	HSSE	JIS			M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D	P N	180
2267	HSSE	JIS			M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D	P N	180
2268	HSSE	JIS	VAP		M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D · MF	P N	181
2269	HSSE	JIS	VAP		M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D · MF	P N	181
2270	HSSE	JIS	TIN		M DIN 13 · Form. B "Gun" · Tol. 6H · 3XD · D · MF	P N	182
2271	HSSE	JIS	TIN		M DIN 13 · Form. C · Tol. 6H · 35° · 3XD · D · MF	P N	182

Machos de máquina / Tarauds machine / Machine taps (UNC-UNF-UN-UNS-UNEF)

	2148	HSSE	DIN 371			UNC · Form. C · Tol. 2B · 1,5XD · R	P	183
	2147	HSSE	DIN 376			UNC · Form. C · Tol. 2B · 1,5XD · D	P	183
	2147/5	HSSE	DIN 376			UNC · Form. C · LH · 1,5XD · D	P	184
	2150	HSSE	DIN 371			UNC · Form. B "Gun" · Tol. 2B · 3XD · R	P N	185
	2149	HSSE	DIN 376			UNC · Form. B "Gun" · Tol. 2B · 3XD · D	P N	185
NEW	2262	HSSE	DIN371	VAP		UNC · Form. B "Gun" · Tol. 2B · 3XD · R · MF	P M N	186
NEW	2263	HSSE	DIN 376	VAP		UNC · Form. B "Gun" · Tol. 2B · 3XD · D · MF	P M N	186
NEW	2234	HSSE	DIN 371	TIN+		UNC · Form. B "Gun" · Tol. 2B · 3XD · R · MF	P M K N	187

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

NEW	2235	HSSE	DIN 376	TIN+		P M K N	187
	2152	HSSE	DIN 371			P N	188
	2151	HSSE	DIN 376			P N	188
NEW	2264	HSSE	DIN 371	VAP		P M N	189
NEW	2265	HSSE	DIN 371	VAP		P M N	189
NEW	2236	HSSE	DIN 371	TIN+		P M K N	190
NEW	2237	HSSE	DIN 376	TIN+		P M K N	190
	2154	HSSE	DIN 371			P	191
	2153	HSSE	DIN 374			P	191
	2153/5	HSSE	DIN 374			P	192
	2156	HSSE	DIN 371			P N	193
	2155	HSSE	DIN 374			P N	193
NEW	2276	HSSE	DIN 371	VAP		P M N	194
NEW	2277	HSSE	DIN 374	VAP		P M N	194
NEW	2280	HSSE	DIN 371	TIN+		P M K N	195
NEW	2281	HSSE	DIN 374	TIN+		P M K N	195
	2158	HSSE	DIN 371			P N	196
	2157	HSSE	DIN 374			P N	196
NEW	2278	HSSE	DIN 371	VAP		P M N	197
NEW	2279	HSSE	DIN 374	VAP		P M N	197

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

NEW	2282	HSSE	DIN 371	TIN+		UNF ANSI/ASME B1.1 · Form. C · Tol. 2B · 35° · 3XD · R · MF	P M K N	198
NEW	2283	HSSE	DIN 374	TIN+		UNF ANSI/ASME B1.1 · Form. C · Tol. 2B · 35° · 3XD · D · MF	P M K N	198
	2189	HSSE	DIN 374			UN ANSI/ASME B1.1 · Form. C · Tol. 2B · 1,5XD · D	P	199
	2160	HSSE	DIN 374			UNEF ANSI/ASME B1.1 · Form. C · Tol. 2B · 1,5XD · D	P	199

Machos de máquina / Tarauds machine / Machine taps (BSW-BSF)

	2136	HSSE	DIN 371			BSW BS 84 · Form. C · 1,5XD · R	P	200
	2135	HSSE	DIN 376			BSW BS 84 · Form. C · 1,5XD · D	P	200
	2136/5	HSSE	DIN 371			BSW BS 84 · Form. C · LH · 1,5XD · R	P	201
	2135/5	HSSE	DIN 376			BSW BS 84 · Form. C · LH · 1,5XD · D	P	201
	2138	HSSE	DIN 371			BSW BS 84 · Form. B "Gun" · 3XD · R	P N	202
	2137	HSSE	DIN 376			BSW BS 84 · Form. B "Gun" · 3XD · D	P N	202
	2140	HSSE	DIN 371			BSW BS 84 · Form. C · 35° · 3XD · R	P N	203
	2139	HSSE	DIN 376			BSW BS 84 · Form. C · 35° · 3XD · D	P N	203
	2141	HSSE	DIN 371			BSF BS 84 · Form. C · 1,5XD · R	P	204
	2142	HSSE	DIN 376			BSF BS 84 · Form. C · 1,5XD · D	P	204

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Machos de máquina / Tarauds machine / Machine taps (G-Rc-NPT)

2144	HSSE	DIN 5156			G ISO 228 · Form. C · 1,5XD · D	P	205
2144/5	HSSE	DIN 5156			G ISO 228 · Form. C · LH · 1,5XD · D	P	205
2192	HSSE	DIN 5156			G ISO 228 · Form. E · 1,5XD · D	N	206
2206	HSSE	DIN 5156			G ISO 228 · Form. E · +0,1 · 1,5XD · D	N	206
2145	HSSE	DIN 5156			G ISO 228 · Form. B "Gun" · 3XD · D	P N	207
NEW 2284	HSSE	DIN 5156	VAP		G ISO 228 · Form. B "Gun" · 3XD · D · MF	P M N	207
NEW 2286	HSSE	DIN 5156	TIN+		G ISO 228 · Form. B "Gun" · 3XD · D · MF	P M K N	208
2146	HSSE	DIN 5156			G ISO 228 · Form. C · 35° · 3XD · D	P N	208
NEW 2285	HSSE	DIN 5156	VAP		G ISO 228 · Form. C · 35° · 3XD · D · MF	P M N	209
NEW 2287	HSSE	DIN 5156	TIN+		G ISO 228 · Form. C · 35° · 3XD · D · MF	P M K N	209
2159	HSSE	DIN 5156			Rc DIN 2999 · Form. C · 1,5XD · D	P	210
2164	HSSE	DIN 374			NPT ANSI/ASME B1.20.1 · Form. C · 1,5XD · D	P	210

Machos de máquina / Tarauds machine / Machine taps (TR-VG)

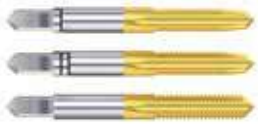
2212	HSSE				Tr DIN 103 · Tol. 7H	P N	211
2212/5	HSSE				Tr DIN 103 · Tol. 7H · LH	P N	211
2163	HSSE	DIN 40433			PG DIN 40430 · Form. C · 1,5XD · D	P	212
2242	HSSE	DIN 371			VG BS 84 · Form. C · 1,5XD · R	P	212

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Machos de mano / Tarauds à main / Hands taps

2301	HSS	DIN 352 / 2181			M-MF DIN 13 · Tol. 6H	P N	213
2301/5	HSS	DIN 352			M-MF DIN 13 · Tol. 6H · LH	P N	215
2314	HSSE	DIN 352			M DIN 13 · Tol. 6HX	P	216
2303	HSSE	DIN 352	VAP		M DIN 13 · Tol. 6HX	P M	216
2324	HSSE-PM	DIN 352	TICN		M DIN 13 · Tol. 6HX	P	217
2302	HSS	DIN 352	TIN		M DIN 13 · Tol. 6HX	P N	217
2304	HSS	DIN 352			BSW BS 84	P N	218
2304/5	HSS	DIN 352			BSW BS 84 · LH 30°	P N	219
2305	HSS	DIN 2181			BSF BS 84	P N	219
2306	HSS	DIN 5157			G ISO 228	P N	220
2306/5	HSS	DIN 5157			G ISO 228 · LH 30°	P N	220
2316	HSS	DIN 5157			G ISO 228	N	221
2317	HSS	DIN 5157			G ISO 228 · +0,1	N	221

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

2307	HSS	DIN 352			UNC ANSI/ASME B1.1 · Tol. 2B	P N	222
2307/5	HSS	DIN 352			UNC ANSI/ASME B1.1 · Tol. 2B · LH	P N	223
2308	HSS	DIN 2181			UNF ANSI/ASME B1.1 · Tol. 2B	P N	223
2308/5	HSS	DIN 2181			UNF ANSI/ASME B1.1 · Tol. 2B · LH	P N	224
2315	HSS	DIN 2181			UN ANSI/ASME B1.1 · Tol. 2B	P N	224
2309	HSS	DIN 5157			Rc DIN 2999	P N	225
2310	HSS	DIN 2181			UNEF ANSI/ASME B1.1 · Tol. 2B	P N	225
2312	HSS	DIN 40432			PG DIN 40430	P N	226
2313	HSS	DIN 2181			NPT ANSI/ASME B1.20.1	P N	226

Machos Perfil Completo / Taraud Profil Complet / Non Serial Form Taps

2321	HSS	DIN 352			M DIN 13 · MF DIN 13 · Tol. 6H	P N	227
2322	HSS	DIN 352			UNC ANSI/ASME B1.1 · Tol. 2B	P N	228
2323	HSS	DIN 2181			UNF ANSI/ASME B1.1 · Tol. 2B	P N	228

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Cojinetes / Filieres / Dies

2501	HSS	DIN EN22568			M-MF DIN 13 · Tol. 6g	P N	229
2501/5	HSS	DIN EN22568			M-MF DIN 13 · Tol. 6g · LH	P N	231
2514	HSSE	DIN EN22568	NIT		M DIN 13 · Tol. 6g · 2,25 tpi · GUN	P	232
2512	HSSE	DIN EN22568	VAP		M DIN 13 · Tol. 6g · 2 tpi · GUN	P M	232
2502	HSS	DIN EN22568			BSW BS 84	P N	233
2502/5	HSS	DIN EN22568			BSW BS 84 · LH	P N	233
2503	HSS	DIN EN22568			BSF BS 84	P N	234
2504	HSS	DIN EN24231			G ISO 228	P N	234
2504/5	HSS	DIN EN24231			G ISO 228 · LH	P N	235
2522	HSS	DIN EN24231			G ISO 228	N	236
2521	HSS	DIN EN24231			G ISO 228 · -0,1 · GUN	N	236
2505	HSS	DIN EN22568			UNC ANSI/ASME B1.1 · Tol. 2A	P N	237
2505/5	HSS	DIN EN22568			UNC ANSI/ASME B1.1 · Tol. 2A · LH	P N	237
2506	HSS	DIN EN22568			UNF ANSI/ASME B1.1 · Tol. 2A	P N	238
2506/5	HSS	DIN EN22568			UNF ANSI/ASME B1.1 · Tol. 2A · LH	P N	238
2507	HSS	DIN EN24230			R DIN 2999	P N	239
2508	HSS	DIN EN22568			UNEF ANSI/ASME B1.1 · Tol. 2A	P N	239
2520	HSS	DIN EN22568			UN ANSI/ASME B1.1 · Tol. 2A	P N	240
2510	HSS	DIN 40434			PG DIN 40430	P N	240
2509	HSS	DIN EN24230			NPT ANSI/ASME B1.20.1	P N	241

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Machos máquina para insertos / Tarauds machine pour inserts / Machine taps for wire thread inserts

2701	HSS	ISO 529		EG-M STI	Form. D	Tol. 4H	P N	242
2702	HSS	ISO 529		EG-UNC STI	Form. D	Tol. 4H	P N	243
2703	HSS	ISO 529		EG-UNF STI	Form. D	Tol. 4H	P N	243
2704	HSS	ISO 529		EG-W STI	Form. D	Tol. 4H	P N	244
2715	HSS	ISO 529		EG-G STI	Form. D		P N	244

Insertos roscados / Filets rapportés / Wire thread inserts

2705	HSS	DIN 8140		M DIN 8140		Tol. 6H		245
2706	HSS	DIN 8140		UNC ANSI/ASME B18.29.1		Tol. 2B		246
2707	HSS	DIN 8140		UNF ANSI/ASME B18.29.1		Tol. 2B		247
2708	HSS	DIN 8140		BSW BS 84				248
2716	HSS	DIN 8140		G ISO 229		Tol. 2B		248

Accesorios / Accessoires / Accessories

2709	**Insertador /** Appareil de pose manuel / Insert Tool				249
2710	**Rompe Arrastre /** Rupteur / Tang break tool				250
Estuches / Kits / Sets					251

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Calibres / Calibres / Gauges

2901/1	ISO 1502		CTPNP	M-MF DIN 13 · Tol. 6H · PASA NO PASA	256
2901/4	ISO 1502		CTP	M-MF DIN 13 · Tol. 6H · PASA	257
2901/5	ISO 1502		CTNP	M-MF DIN 13 · Tol. 6H · NO PASA	257
2901/2	ISO 1502		CAP	M-MF DIN 13 · Tol. 6G · PASA	258
2901/3	ISO 1502		CANP	M-MF DIN 13 · Tol. 6G · NO PASA	259
2902/1	ISO 228-2		CTPNP	G ISO 228 · PASA NO PASA	260
2902/4	ISO 228-2		CTP	G ISO 228 · PASA	260
2902/5	ISO 228-2		CTNP	G ISO 228 · NO PASA	260
2902/2	ISO 228-2		CAP	G ISO 228 · PASA	261
2902/3	ISO 228-2		CANP	G ISO 228 · NO PASA	261
2903/1	BS 919		CTPNP	BSW BS 84 · PASA NO PASA	262
2903/2	BS 919		CAP	BSW BS 84 · PASA	262
2903/3	BS 919		CANP	BSW BS 84 · NO PASA	262
2904/1	ANSI / ASME B1.2		CTPNP	UNC ANSI/ASME B1.1 · PASA NO PASA	263
2904/2	ANSI / ASME B1.2		CAP	UNC ANSI/ASME B1.1 · PASA	263
2904/3	ANSI / ASME B1.2		CANP	UNC ANSI/ASME B1.1 · NO PASA	264
2905/1	ANSI / ASME B1.2		CTPNP	UNF ANSI/ASME B1.1 · PASA NO PASA	264
2905/2	ANSI / ASME B1.2		CAP	UNF ANSI/ASME B1.1 · PASA	264
2905/3	ANSI / ASME B1.2		CANP	UNF ANSI/ASME B1.1 · NO PASA	265

ÍNDICE
SOMMAIRE / INDEX

				Pág.
2906/1	ANSI / ASME B1.20.1		CTPNP · NPT ANSI/ASME B1.1 · PASA NO PASA	265
2906/2	ANSI / ASME B1.20.1		CAPNP · NPT ANSI/ASME B1.1 · PASA NO PASA	265
2907/1	DIN 7162		CTL · PASA NO PASA	266
2907/4	DIN 7162		CTLP · H7 · PASA	266
2907/5	DIN 7162		CTLNP · H7 · NO PASA	267
2907/2	DIN 2250-C		CAL	267

Accesorios / Accesoires / Accessories

2801	**Giramachos /** Tourne-à-gauche / Tap turners			268
2802	**Volvedor /** Porte-filières / Tap wrench			268
2803	**Giramacho T /** Tourne-à-gauche en T / Tap turner in T			268
2804	**Giramacho T /** Tourne-à-gauche en T / Tap turner in T			269
2805	**Extractor /** Extracteur			269
2808	**Alargador /** Adaptateur / Extension piece			269
2834	**Extractor /** Extracteur			270
2846	**Aceite /** Huile / Oil			270
Estuches / Coffrets / Sets				271

¿Por qué conformarse con menos?

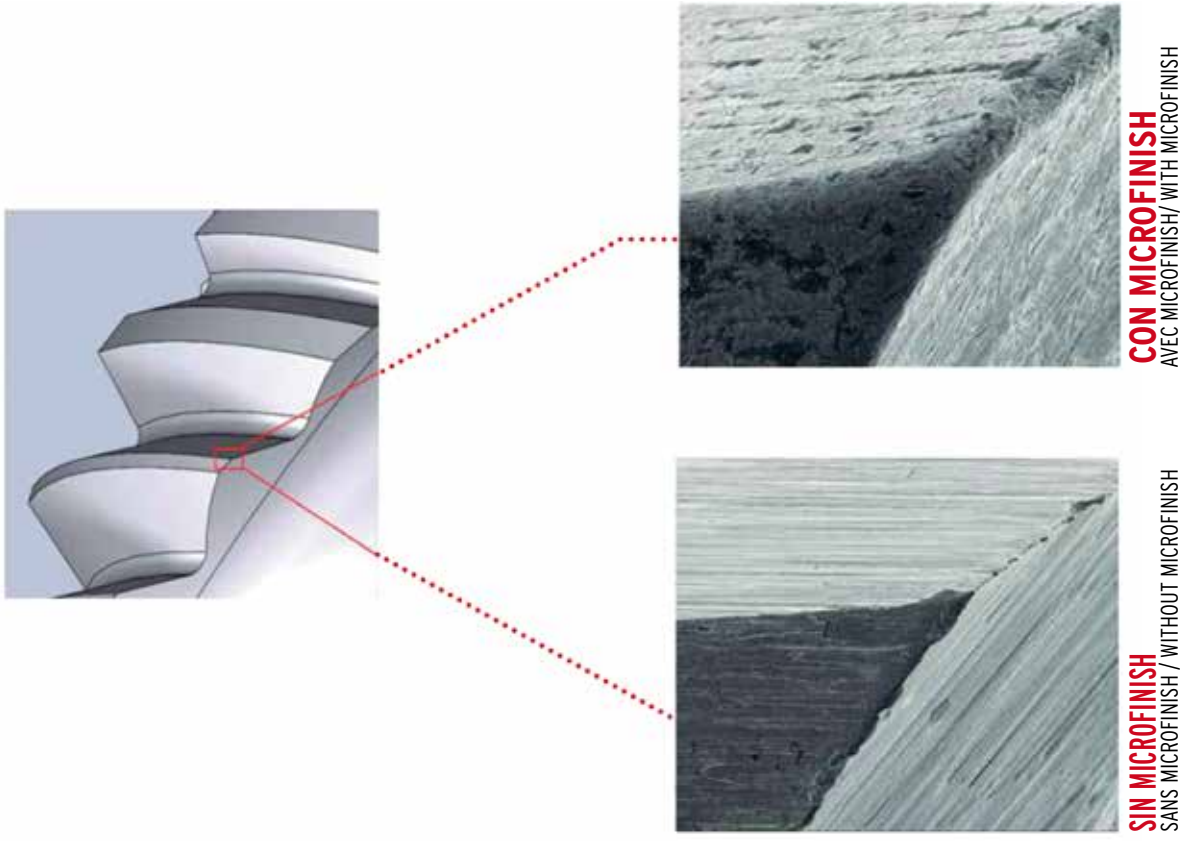
• La tecnología MICROFINISH consiste en que una vez el macho de roscar es rectificado, se limpia de rebabas y se redondean las aristas de corte.
• Se logra un mayor control y estabilidad del desgaste de la herramienta.
• Ello se traduce en un notable incremento de su rendimiento.
• Y en la mejora de los acabados de la rosca.

Pourquoi se satisfaire de peu?

• La technologie MICROFINISH agit après le surfaçage du taraud, qui est nettoyé des bavures et dont les arêtes de coupe sont arrondies.
• L'usure de l'outil est alors mieux contrôlée et plus stable.
• Cela se traduit par une augmentation significative de son rendement.
• Et une amélioration des finitions du filetage.

Why settle for less?

• With MICROFINISH technology once the thread of the tap is rectified, it is cleaned from burrs and the cutting edges are rounded.
• Greater control and stability of wear on the tool is achieved.
• This translates into a notable increase in performance.
• And improves the finishes of the thread.



CON MICROFINISH
AVEC MICROFINISH/ WITH MICROFINISH



SIN MICROFINISH
SANS MICROFINISH / WITHOUT MICROFINISH



1. UNA ROSCA CON CALIDAD SUPERFICIAL SUPERIOR

Las roscas obtenidas tienen una calidad superficial superior, gracias a dos efectos:

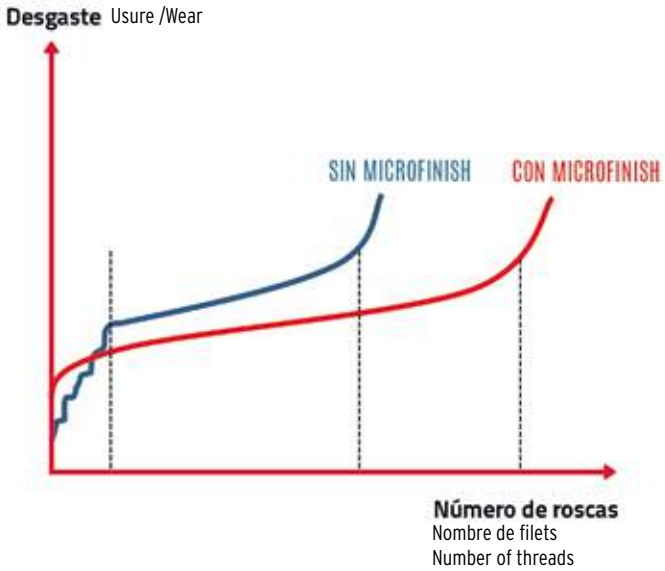
• La geometría redondeada de forma constante a lo largo de todo el filo de corte del macho, permite un corte continuo y homogéneo de la rosca de la pieza.

• La menor rugosidad superficial de la rosca del macho reduce la fricción durante el roscado para obtener a su vez, una rosca con mejor calidad superficial.

2. MAYOR VIDA ÚTIL DE LA HERRAMIENTA

• Gracias a su nuevo acabado redondeado y a que el filo de corte se va desgastando de manera más controlada y constante, se evita el salto de partículas de cualquier forma y tamaño.

• Ello impide que se produzcan roturas prematuras con el uso.



1. UN FILET D'UNE QUALITÉ DE SURFACE SUPÉRIEURE

Les filets obtenus présentent une qualité de surface supérieure, grâce à deux effets :

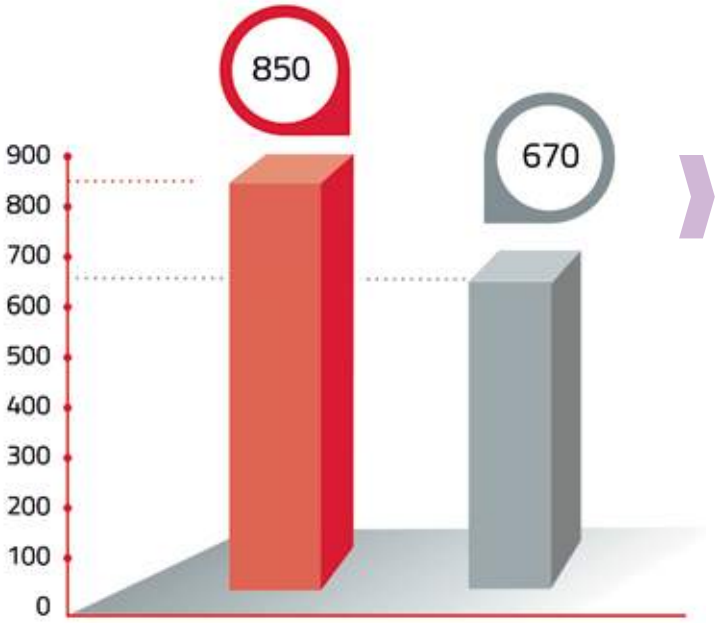
• La géométrie arrondie de manière constante tout au long du fil de coupe du taraud apporte une coupe continue et homogène sur le filetage de la pièce.

• La plus faible rugosité de surface du taraud réduit la friction lors du taraudage, permettant ainsi d'obtenir un filet de meilleure qualité de surface.

2. UNE DURÉE DE VIE UTILE DE L'OUTIL PROLONGÉE

• Grâce à sa nouvelle finition arrondie et grâce à un fil de coupe qui s'use de manière mieux contrôlée et plus homogène, le décrochement de particules de toute forme et dimension est évité.

• Cela évite les ruptures prématurées à l'usage.



Rosca/Filet/Thread: M6 6H
Material/Matériau/Material: F114 (C45)
Profundidad/Profondeur/Depth: 12mm
Velocidad/Vitesse/Speed: 10 m/min

1. A THREAD WITH HIGHER SERVICE QUALITY

The threads obtained have a higher service quality, thanks to two effects:

• The constant rounded geometry over the entire cutting edge of the tap enables continuous and even cutting of the part's thread.

• The lower surface roughness of the thread on the tap reduces friction during threading, which obtains a thread with a higher surface quality.

2. LONGER SERVICE LIFE OF THE TOOL

• Thanks to its new rounded finish and that the cutting-edge is worn in a controlled and constant manner, the release of particles of any shape and size is avoided.

• This avoids premature breakage with use.

FORMULARIO MACHOS ESPECIALES
FICHE TECHNIQUE TARAUDS SPECIAUX / TECHNICAL ENQUIRY FOR SPECIAL TAPS

Fecha / Date: .....

Empresa / Entreprise / Company: ..... Contacto / Contact: .....

Dirección / Adresse / Adress: ..... Población / Ville / Town: .....

Tel / Fax: ..... E-mail: .....

.....

TRABAJO A REALIZAR / TRAVAIL DEMANDE / REQUESTED WORK

Material / Matière / Material ..... Norma / Norme / Norm: .....

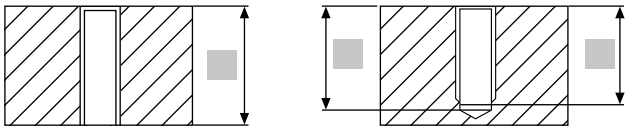
Dureza / Dureté / Hardness ..... HB ..... HRc Resistencia / Résistance / Resistance ..... N/mm^2

Tipo viruta: ☐ Corta ☐ Larga ☐ Polvo
Type copeau: Courte Longue Poussière
Shaving: Short Long Powder

Máquina / Machine ..... Refrigerante / Réfrigérant / Coolant .....

Posición / Position: ☐ Horizontal ☐ Vertical ☐ V. Corte / V. Coupe / Cutting Speed ☐ V. avance / Avance / Feed

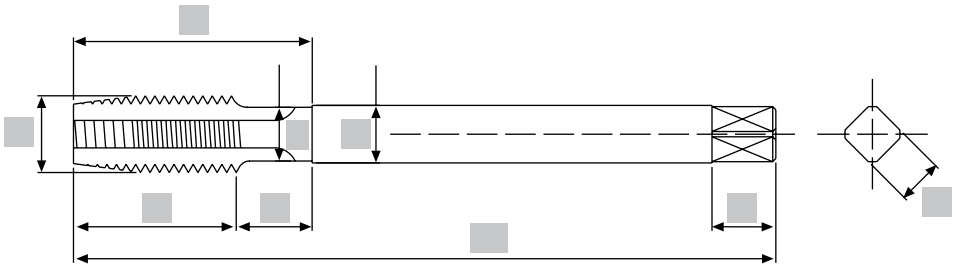
Agujero / Trou / Hole:



HERRAMIENTA / OUTIL / TOOL

Descripción / Description ..... Tolerancia / Tolérance / Tolerance .....

Cantidad / Quantité / Quantity ..... Número ranuras / Rainures / Grooves .....



Mango: ☐ Cilíndrico ☐ Weldon ☐ Cónico ☐ Rebajado
Queue: Cylindrique Weldon Conique Réduite
Shank: Straight Weldon Taper Reduced

Entrada: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ Otra
Entrée: A B C D E Autres
Entry: A B C D E Others

Material / Matière / Material: ☐ HSS ☐ HSSE ☐ HM ☐ HSS-HM

Superficie / Surface: ☐ Brillante / Brillant / Brilliant ☐ Recubrimiento / Revêtement / Coating

COMENTARIOS / COMMENTAIRES/ COMMENTS: .....

.....

.....

.....

Servicio de Herramienta Especial - Service Outils Spéciaux - Special Tools Service
Tel. (+34) 93 387 32 99 - Fax.(+ 34) 93 383 33 08 - especiales@hepycrf.com

FORMULARIO COJINETES ESPECIALES
FICHE TECHNIQUE FILIERES SPECIAUX / TECHNICAL ENQUIRY FOR SPECIAL DIES

Fecha / Date: .....

Empresa / Entreprise / Company: ..... Contacto / Contact: .....

Dirección / Adresse / Adress: ..... Población / Ville / Town: .....

Tel / Fax: ..... E-mail: .....

.....

TRABAJO A REALIZAR / TRAVAIL DEMANDE / REQUESTED WORK

Material / Matière / Material ..... Norma / Norme / Norm: .....

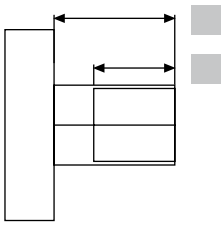
Dureza / Dureté / Hardness ..... HB ..... HRc Resistencia / Résistance / Resistance ..... N/mm^2

Tipo viruta: ☐ Corta ☐ Larga ☐ Polvo
Type copeau Courte Longue Poussière
Shaving Short Long Powder

Máquina / Machine ..... Refrigerante / Réfrigérant / Coolant .....

Posición / Position: ☐ Horizontal ☐ Vertical ☐ V. Corte ☐ V. avance
V. Coupe Avance
Cutting Speed Feed

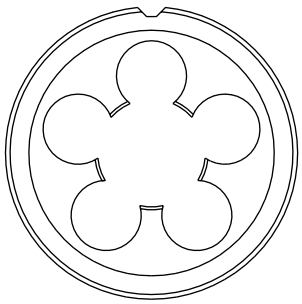
Eje / Axe / Axis:

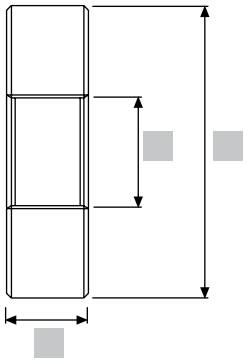


HERRAMIENTA / OUTIL / TOOL

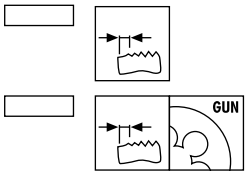
Descripción / Description ..... Tolerancia / Tolérance / Tolerance .....

Cantidad / Quantité / Quantity ..... Número ranuras / Rainures / Grooves .....





Entrada / Entrée / Entry



Material / Matière / Material: ☐ HSS ☐ HSSE ☐ HM ☐ HSS-HM

Superficie / Surface: ☐ Brillante ☐ Recubrimiento
Brillant Revêtement
Brilliant Coating

COMENTARIOS / COMMENTAIRES/ COMMENTS: .....

.....

.....

.....

Servicio de Herramienta Especial - Service Outils Spéciaux - Special Tools Service
Tel. (+34) 93 387 32 99 - Fax.(+ 34) 93 383 33 08 - especiales@hepycrf.com

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x \varnothing}$$



Ref./ Réf. / Ref.		2102	2101	2102/5	2101/5	2114	2113	2190	2191	2180	2179	2274	2275	2148	2147	2147/5	2154	2153	2153/5	2189
Rosca/ Filetage/Thread		M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	UNC	UNC	UNC	UNF	UNF	UNF	UN
DIN		371	376-374	371	376-374	371	376-374	371	376-374	371	376-374	371	376	371	376-374	376-374	374	374	374	374
Form.		C(2-3)	C(2-3)	C(2-3)	C(2-3)	A(6-8)	A(6-8)	E(1,5-2)	E(1,2-2)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)
Ejec./Exéc./Exec.				LH	LH											LH			LH	
Tol.		6H	6H	6H	6H	6H	6H	6H	6H	6HX	6HX	6HX	6HX	6H	6H	6H	6H	6H	6H	6H
Mat.		HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HM	HM	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
Rec./Rev./Coat.										TICN+	TICN+	TICN	TICN							
Prof./ Depth		1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD
Gama/Gamme/Range		1-10	3-63	3-10	5-30	2-10	3-52	3-10	6-16	3-10	8-20	3-10	12-16	N.4-5/16	1/4-1"1/2	1/4-1"	N.4-5/16	1/4-1"1/2	1/4-1"	1"1/8-2"
Pag.		136	137	139	139	140	140	141	141	142	142	143	143	183	183	184	191	191	192	199
Mat.		Vc (m/min)																		
P.1	<600	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25							o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25
P.2	<800	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20							● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20
P.3	<1000	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15							o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15
P.4	<1200																			
P.5	<1400																			
M.1	<950																			
M.2																				
M.3	<1200																			
M.4																				
K.1	<500									● 15-30	● 15-30									
K.2																				
K.3	<800									● 10-20	● 10-20									
K.4.1		o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15							o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15
K.4.2	<1400																			
N.1.1	Al																			
N.1.2																				
N.1.3																				
N.2.1	Cu																			
N.2.2								● 25-35	● 25-35	o 35-50	o 35-50									
N.2.3		o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20							o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20
N.2.4																				
N.3.1	Mg/Zn																			
N.4.1	Plastic																			
N.4.2																				
N.4.3																				
S.1.1	Ni																			
S.1.2																				
S.2.1	Ti																			
S.2.2																				
S.2.3																				
H.1	50 HRC											● 3-6	● 3-6							
H.2	55 HRC											● 2-5	● 2-5							
H.3	60 HRC											● 1-4	● 1-4							

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials



2160	2136	2135	2136/5	2135/5	2141	2142	2144	2144/5	2192	2206	2159	2164	2212	2212/5	2163	2242	2199	2134	1504
UNEF	BSW	BSW	BSW	BSW	BSF	BSF	G	G	G	G	GT	NPT	TR	TR	PG	VG	M	M	M-MF
374	371	376	371	376	371	374	5156	5156	5156	5156	5156	374			40433	371	357		
C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	E(1,2-2)	E(1,2-2)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	A(6-8)	A(6-8)	D(3,5-5)
			LH	LH				LH						LH					
6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H
HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSS
1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD
1/4-1"	3/32-3/8	1/8-2"1/2	1/8-3/16	1/4-1"	3/16-3/8	7/16-1"	1/8-2"	1/8-1"	1/8-1"	1/8-1"	1/8-1"	1/16-2"	10-32	10-32	7-48	5-8	3-24	3-24	3-10
199	200	200	201	201	204	204	205	205	206	206	210	210	211	211	212	212	177	177	178
Vc (m/min)																			
o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25			o 10-15	o 10-15	o 3-8	o 3-8	o 15-25	o 15-25	o 15-25	o 15-25	o 10-20
● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20			● 7-14	● 7-14	● 2-6	● 2-6	● 10-20	● 10-20	● 10-20	● 10-20	● 5-15
o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15			o 7-10	o 7-10	o 1-5	o 1-5	o 10-15	o 10-15			
o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15			o 7-10	o 7-10			o 10-15	o 10-15	o 10-15	o 10-15	o 5-15
									● 25-35	● 25-35									
o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20	o 10-20			o 7-15	o 7-15	● 2-6	● 2-6	o 10-20	o 10-20	o 10-20	o 10-20	

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

r.p.m.= $\frac{Vc \times 1.000}{\pi x Ø}$

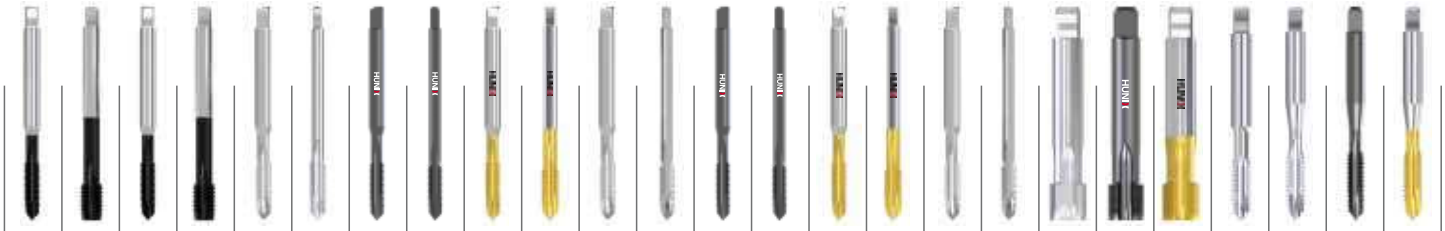


Ref./ Réf. / Ref.		2104	2103	2104/5	2103/5	2111	2272	2110	2109	2168	2169	2250	2251	2116	2115	2126	2125	2176	2175	2122	2121	2133	2132
Rosca/ Filetage/Thread		M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF
DIN		371	374 376	371	374 376	371-EL	376-EL	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376
Form.		B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)-AZ	B(3,5-5)-AZ
Ejec./Exéc./Exec.				LH	LH																		
Tol.		6H	6H	6H	6H	6H	6H	6H+01	6H+0,1	6G	6G	6H	6H	6H	6H	6H	6H	6HX	6HX	6H	6H	6H	6H
Mat.		HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE
Rec./Rev./Coat.												VAP	VAP	TIN+	TIN+	TICN+	TICN+	TICN+	TICN+	VAP	VAP		
Prof./ Depth		3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	2xD	2xD	3xD	3xD	3xD	3xD
Gama/Gamme/Range		2-10	3-52	3-10	20-24	3-12	8-16	3-10	8-16	3-10	8-20	2-10	3-24	2-10	3-24	3-10	8-24	3-10	8-20	3-10	8-24	3-10	4-16
Pag.		144	144	146	146	147	147	148	148	149	149	150	150	151	151	152	152	153	153	154	154	155	155
Mat.		**Vc (m/min)**																					
P.1	<600	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	● 15-25	● 15-25	● 20-30	● 20-30					● 15-25	● 15-25		
P.2	<800	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25					o 10-20	o 10-20		
P.3	<1000	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	● 12-18	● 12-18	● 10-15	● 10-15						
P.4	<1200													● 8-12	● 8-12	● 6-10	● 6-10	o 6-10	o 6-10				
P.5	<1400															o 4-6	o 4-6	● 4-6	● 4-6				
M.1	<950	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	● 7-10	● 7-10	● 9-12	● 9-12					● 7-10	● 7-10		
M.2	<950	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	● 5-8	● 5-8	● 6-10	● 6-10					● 5-8	● 5-8		
M.3	<1200											o 5-8	o 5-8	o 6-10	o 6-10	● 6-12	● 6-12						
M.4	<1200																	o 4-6	o 4-6				
K.1	<500													● 10-15	● 10-15								
K.2	<500													● 10-15	● 10-15								
K.3	<800													● 15-20	● 15-20								
K.4.1	<800	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	● 15-20	● 15-20								
K.4.2	<1400															● 10-20	● 10-20	● 10-20	● 10-20				
N.1.1	Al													● 15-25	● 15-25							● 10-20	● 10-20
N.1.2	Al	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	● 15-25	● 15-25							o 10-15	o 10-15
N.1.3	Al													● 15-25	● 15-25								
N.2.1	Cu													● 15-25	● 15-25							o 6-8	o 6-8
N.2.2	Cu															o 4-6	o 4-6	o 4-6	o 4-6				
N.2.3	Cu	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25								
N.2.4	Cu																						
N.3.1	Mg/Zn																					o 10-20	o 10-20
N.4.1	Plastic	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 12-18	o 12-18							o 10-15	o 10-15
N.4.2	Plastic															o 10-15	o 10-15	o 10-15	o 10-15				
N.4.3	Plastic																						
S.1.1	Ni																						
S.1.2	Ni																						
S.2.1	Ti																			o 10-15	o 10-15		
S.2.2	Ti															o 6-8	o 6-8	o 6-8	o 6-8				
S.2.3	Ti															o 4-6	o 4-6	o 4-6	o 4-6				
H.1	50 HRC																						
H.2	55 HRC																						
H.3	60 HRC																						

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals
S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials				

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE



2254	2255	2258	2259	2150	2149	2262	2263	2234	2235	2156	2155	2276	2277	2280	2281	2138	2137	2145	2284	2286	2248	2266	2268	2270
M-MF	M-MF	M-MF	M-MF	UNC	UNC	UNC	UNC	UNC	UNC	UNF	UNF	UNF	UNF	UNF	UNF	BSW	BSW	G	G	G	M-MF	M-MF	M-MF	M-MF
371	374 376	371	374 376	371	376	371	376	371	376	371	374	371	374	371	374	371	376	5156	5156	5156	ISO 529	JIS B4430	JIS B4430	JIS B4430
B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)	B(3,5-5)
6HX	6HX	6HX	6HX	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	Med	Med	Med	Med	Med	6H	6H	6H	6H
HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSS	HSSE	HSSE	HSSE
HL	HL	HL	HL			VAP	VAP	TIN+	TIN+			VAP	VAP	TIN+	TIN+				VAP	TIN+			VAP	TIN
3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD
3-10	12-16	3-10	12-16	N.4-3/8	1/4- 1"1/4	N.4-3/8	7/16-1"	N.4-3/8	7/16-1"	N.4-3/8	1/4-1"	N.4-3/8	7/16-1"	N.4-3/8	7/16-1"	1/8-3/8	1/4-1"	1/8- 1"1/2	1/8-1"	1/8-1"	3-30	3-20	3-20	3-20
156	156	157	157	185	185	186	186	187	187	193	193	194	194	195	195	202	202	207	207	208	183	180	180	182
Vc (m/min)																								
● 20-40	● 20-40	● 20-50	● 20-50	o 15-25	o 15-25	● 15-25	● 15-25	● 20-30	● 20-30	o 15-25	o 15-25	● 15-25	● 15-25	● 20-30	● 20-30	o 15-25	o 15-25	o 15-25	● 15-25	● 20-30	o 10-20	o 15-25	o 15-25	o 20-30
● 20-40	● 20-40	● 20-50	● 20-50	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 5-15	● 10-20	● 10-20	● 15-25
● 15-30	● 15-30	● 15-40	● 15-40	o 10-15	o 10-15	o 10-15	o 10-15	● 12-18	● 12-18	o 10-15	o 10-15	o 10-15	o 10-15	● 12-18	● 12-18	o 10-15	o 10-15	o 10-15	o 10-15	● 12-18		o 10-15	o 10-15	o 12-18
● 10-20	● 10-20	● 10-20	● 10-20					o 8-12	o 8-12					o 8-12	o 8-12					o 8-12				
● 5-10	● 5-10	● 5-10	● 5-10																					
● 5-15	● 5-15	● 5-15	● 5-15	o 7-10	o 7-10	● 7-10	● 7-10	● 9-12	● 9-12	o 7-10	o 7-10	● 7-10	● 7-10	● 9-12	● 9-12	o 7-10	o 7-10	o 7-10	● 7-10	● 9-12		o 7-10	o 7-10	o 9-12
● 5-15	● 5-15	● 5-15	● 5-15	o 5-8	o 5-8	● 5-8	● 5-8	● 6-10	● 6-10	o 5-8	o 5-8	● 5-8	● 5-8	● 6-10	● 6-10	o 5-8	o 5-8	o 5-8	● 5-8	● 6-10		o 5-8	o 5-8	o 6-10
● 5-10	● 5-10	● 5-10	● 5-10			o 5-8	o 5-8	o 6-10	o 6-10			o 5-8	o 5-8	o 6-10	o 6-10				o 5-8	o 6-10				
● 5-10	● 5-10	● 5-10	● 5-10																					
● 10-30	● 10-30	● 10-40	● 10-40					● 10-15	● 10-15					● 10-15	● 10-15					● 10-15				
● 10-30	● 10-30	● 10-40	● 10-40					● 10-15	● 10-15					● 10-15	● 10-15					● 10-15				
● 10-20	● 10-20	● 10-20	● 10-20					● 15-20	● 15-20					● 15-20	● 15-20					● 15-20				
● 10-30	● 10-30	● 10-40	● 10-40	o 10-15	o 10-15	o 10-15	o 10-15	● 15-20	● 15-20	o 10-15	o 10-15	o 10-15	o 10-15	● 15-20	● 15-20	o 10-15	o 10-15	o 10-15	o 10-15	● 15-20	o 5-15	o 10-15	o 10-15	o 15-20
● 5-15	● 5-15	● 5-15	● 5-15																					
● 10-30	● 10-30	● 10-40	● 10-40					● 15-25	● 15-25					● 15-25	● 15-25					● 15-25				
● 10-30	● 10-30	● 10-40	● 10-40	o 10-15	o 10-15	o 10-15	o 10-15	● 15-25	● 15-25	o 10-15	o 10-15	o 10-15	o 10-15	● 15-25	● 15-25	o 10-15	o 10-15	o 10-15	o 10-15	● 15-25	o 10-15	o 10-15	o 10-15	o 15-20
● 10-30	● 10-30	● 10-40	● 10-40					● 15-25	● 15-25					● 15-25	● 15-25					● 15-25				
● 10-30	● 10-30	● 10-40	● 10-40					● 15-25	● 15-25					● 15-25	● 15-25					● 15-25				
● 10-30	● 10-30	● 10-40	● 10-40																					
● 10-30	● 10-30	● 10-40	● 10-40	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 5-15	● 10-20	● 10-20	● 15-25
● 10-30	● 10-30	● 10-40	● 10-40																					
● 5-15	● 5-15	● 5-15	● 5-15																					
● 10-30	● 10-30	● 10-40	● 10-40	o 10-15	o 10-15	o 10-15	o 10-15	o 12-18	o 12-18	o 10-15	o 10-15	o 10-15	o 10-15	o 12-18	o 12-18	o 10-15	o 10-15	o 10-15	o 10-15	o 12-18	o 10-15	o 10-15	o 10-15	o 12-18
● 10-30	● 10-30	● 10-40	● 10-40																					
● 2-8	● 2-8	● 2-8	● 2-8																					
● 10-15	● 10-15	● 10-15	● 10-15																					
● 2-8	● 2-8	● 2-8	● 2-8																					

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

Hepyc CUTTING TOOL EXPERTS

$$r.p.m.= \frac{Vc \times 1.000}{\pi x \varnothing}$$



Ref./ Réf. / Ref.		2106	2105	2106/5	2105/5	2112	2273	2166	2165	2170	2208	2108	2107	2252	2253	2118	2117	2124	2123	2178	2177	2120	2119	2182	2181
Rosca/ Filetage/Thread		M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF
DIN		371	374 376	371	374 376	371-EL	376-EL	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376	371	374 376
Form.		C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)
Ejec./Exéc./Exec.		R35°	R35°	L35°-LH	L35°-LH	R35°	R35°	R35°	R35°	R35°	R35°	R15°	R15°	R35°	R35°	R35°	R35°	R35°	R35°	R15°	R15°	R35°	R35°	R45°	R45°
Tol.		6H	6H	6H	6H	6H	6H	6H+01	6H+0,1	6G	6G	6H	6H	6H	6H	6H	6H	6H	6H	6HX	6HX	6H	6H	6H	6H
Mat.		HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE
Rec./Rev./Coat.														VAP	VAP	TIN+	TIN+	TICN+	TICN+	TICN+	TICN+	VAP	VAP		
Prof./ Depth		2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	1,5xD	1,5xD	2,5xD	2,5xD	2,5xD	2,5xD
Gama/Gamme/Range		M2-M10	M3-M52	M3-M10	M10-M24	M3-M12	M8-M16	M3-M10	M8-M16	M3-M10	M8-M20	M2-M10	M4-M36	M2-M10	M3-M24	M2-M10	M3-M24	M3-M10	M8-M24	M3-M10	M8-M20	M3-M10	M8-M24	M3-M10	M6-M16
Pag.		158	158	160	160	161	161	162	162	163	163	164	164	165	165	166	166	167	167	168	168	169	169	170	170
Mat.		Vc (m/min)																							
P.1	<600	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	o 15-25	● 15-25	● 15-25	● 20-30	● 20-30					● 15-25	● 15-25		
P.2	<800	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25					o 10-20	o 10-20		
P.3	<1000	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	● 12-18	● 12-18	● 10-15	● 10-15						
P.4	<1200															● 8-12	● 8-12	● 6-10	● 6-10	o 6-10	o 6-10				
P.5	<1400																	o 4-6	o 4-6	● 4-6	● 4-6				
M.1	<950	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	o 7-10	● 7-10	● 7-10	● 9-12	● 9-12					● 7-10	● 7-10		
M.2		o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	o 5-8	● 5-8	● 5-8	● 6-10	● 6-10					● 5-8	● 5-8		
M.3	<1200													o 5-8	o 5-8	o 6-10	o 6-10	● 6-12	● 6-12						
M.4																				o 4-6	o 4-6				
K.1	<500																								
K.2																									
K.3	<800															● 15-20	● 15-20								
K.4.1		o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	● 15-20	● 15-20								
K.4.2	<1400																	● 10-20	● 10-20	● 10-20	● 10-20				
N.1.1	Al																							● 10-20	● 10-20
N.1.2		o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15											o 10-15	o 10-15
N.1.3																									
N.2.1	Cu															● 15-25	● 15-25							o 6-8	o 6-8
N.2.2																									
N.2.3		● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25								
N.2.4																									
N.3.1	Mg/Zn																							o 10-20	o 10-20
N.4.1	Plastic	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 10-15	o 12-18	o 12-18							o 10-15	o 10-15
N.4.2																		o 10-15	o 10-15	o 10-15	o 10-15				
N.4.3																									
S.1.1	Ni																								
S.1.2																									
S.2.1	Ti																					o 10-15	o 10-15		
S.2.2																		o 6-8	o 6-8	o 6-8	o 6-8				
S.2.3																		o 4-6	o 4-6	o 4-6	o 4-6				
H.1	50 HRC																								
H.2	55 HRC																								
H.3	60 HRC																								

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals
S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials				



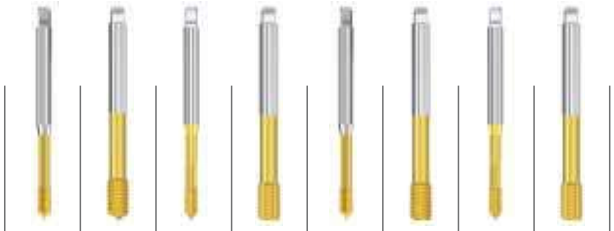
2256	2257	2260	2261	2152	2151	2264	2265	2236	2237	2158	2157	2278	2279	2282	2283	2140	2139	2146	2285	2287	2806	2249	2267	2269	2271
M-MF	M-MF	M-MF	M-MF	UNC	UNC	UNC	UNC	UNC	UNC	UNF	UNF	UNF	UNF	UNF	UNF	BSW	BSW	G	G	G	M-MF	M-MF	M-MF	M-MF	M-MF
371	374 376	371	374 376	371	376	371	376	371	376	371	374	371	374	371	374	371	376	5156	5156	5156		ISO 529	JIS B4430	JIS B4430	JIS B4430
C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	D(3,5-5)	C(2-3)	C(2-3)	C(2-3)	C(2-3)
R45°	R45°	R45°	R45°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R35°	R25°	R35°	R35°	R35°	R35°
6HX	6HX	6HX	6HX	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	Med	Med	Med	Med	Med	6H	6H	6H	6H	6H
HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSS	HSSE	HSSE	HSSE
HL	HL	HL	HL			VAP	VAP	TIN+	TIN+			VAP	VAP	TIN+	TIN+				VAP	TIN+				VAP	TIN
2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	2,5xD	1,5xD	2,5xD	2,5xD	2,5xD	2,5xD
M3-M10	M12-M16	M3-M10	M12-M16	N.4-3/8	1/4-1"1/4	N.4-3/8	7/16-1"	N.4-3/8	7/16-1"	N.4-3/8	1/4-1"	N.4-3/8	7/16-1"	N.4-3/8	7/16-1"	1/8-3/8	3/16-1"	1/8-1"1/2	1/8-1"	1/8-1"					
171	171	172	172	188	188	189	189	190	190	196	196	197	197	198	198	203	203	208	209	209	178	179	180	181	182
Vc (m/min)																									
● 20-40	● 20-40	● 20-50	● 20-50	○ 15-25	○ 15-25	● 15-25	● 15-25	● 20-30	● 20-30	○ 15-25	○ 15-25	● 15-25	● 15-25	● 20-30	● 20-30	○ 15-25	○ 15-25	○ 15-25	● 15-25	● 20-30	○ 15-25	○ 10-20	○ 15-25	○ 15-25	○ 20-30
● 20-40	● 20-40	● 20-50	● 20-50	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 10-20	● 5-15	● 10-20	● 10-20	● 15-25
● 15-30	● 15-30	● 15-40	● 15-40	○ 10-15	○ 10-15	○ 10-15	○ 10-15	● 12-18	● 12-18	○ 10-15	○ 10-15	○ 10-15	○ 10-15	● 12-18	● 12-18	○ 10-15	○ 10-15	○ 10-15	○ 10-15	● 12-18			○ 10-15	○ 10-15	○ 12-18
● 10-20	● 10-20	● 10-20	● 10-20					● 8-12	● 8-12					● 8-12	● 8-12					● 8-12					
● 5-10	● 5-10	● 5-10	● 5-10																						
● 5-15	● 5-15	● 5-15	● 5-15	○ 7-10	○ 7-10	● 7-10	● 7-10	● 9-12	● 9-12	○ 7-10	○ 7-10	● 7-10	● 7-10	● 9-12	● 9-12	○ 7-10	○ 7-10	○ 7-10	● 7-10	● 9-12			○ 7-10	○ 7-10	○ 9-12
● 5-15	● 5-15	● 5-15	● 5-15	○ 5-8	○ 5-8	● 5-8	● 5-8	● 6-10	● 6-10	○ 5-8	○ 5-8	● 5-8	● 5-8	● 6-10	● 6-10	○ 5-8	○ 5-8	○ 5-8	● 5-8	● 6-10			○ 5-8	○ 5-8	○ 6-10
● 5-10	● 5-10	● 5-10	● 5-10			○ 5-8	○ 5-8	○ 6-10	○ 6-10			○ 5-8	○ 5-8	○ 6-10	○ 6-10				○ 5-8	○ 6-10					
● 5-10	● 5-10	● 5-10	● 5-10																						
● 10-30	● 10-30	● 10-40	● 10-40																						
● 10-30	● 10-30	● 10-40	● 10-40																						
● 10-20	● 10-20	● 10-20	● 10-20					● 15-20	● 15-20					● 15-20	● 15-20					● 15-20					
● 10-30	● 10-30	● 10-40	● 10-40	○ 10-15	○ 10-15	○ 10-15	○ 10-15	● 15-20	● 15-20	○ 10-15	○ 10-15	○ 10-15	○ 10-15	● 15-20	● 15-20	○ 10-15	○ 10-15	○ 10-15	○ 10-15	● 15-20	10-15	5-15	10-15	10-15	15-20
● 5-15	● 5-15	● 5-15	● 5-15																						
● 10-30	● 10-30	● 10-40	● 10-40																						
● 10-30	● 10-30	● 10-40	● 10-40	○ 10-15	○ 10-15					○ 10-15	○ 10-15					○ 10-15	○ 10-15	○ 10-15			○ 10-15	○ 10-15	○ 10-15	○ 10-15	○ 15-20
● 10-30	● 10-30	● 10-40	● 10-40																						
● 10-30	● 10-30	● 10-40	● 10-40					● 15-25	● 15-25					● 15-25	● 15-25					● 15-25					
● 10-30	● 10-30	● 10-40	● 10-40																						
● 10-30	● 10-30	● 10-40	● 10-40	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 10-20	● 10-20	● 10-20	● 10-20	● 15-25	● 10-20	● 5-15	● 10-20	● 10-20	● 15-25
● 10-30	● 10-30	● 10-40	● 10-40																						
● 5-15	● 5-15	● 5-15	● 5-15																						
● 10-30	● 10-30	● 10-40	● 10-40	○ 10-15	○ 10-15	○ 10-15	○ 10-15	○ 12-18	○ 12-18	○ 10-15	○ 10-15	○ 10-15	○ 10-15	○ 12-18	○ 12-18	○ 10-15	○ 10-15	○ 10-15	○ 10-15	○ 12-18	○ 10-15	○ 10-15	○ 10-15	○ 10-15	○ 12-18
● 10-30	● 10-30	● 10-40	● 10-40																						
● 2-8	● 2-8	● 2-8	● 2-8																						
● 10-15	● 10-15	● 10-15	● 10-15																						
● 2-8	● 2-8	● 2-8	● 2-8																						

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.		2188	2187	2214	2213	2216	2215	2218	2217
Rosca/ Filetage/Thread		M	M	M	M	M	M	M	M
DIN		371	374 376	371	374 376	371	374 376	371	374 376
Form.		C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)	C(2-3)
Ejec./Exéc./Exec.		A>12%	A>12%	A>12%	A>12%	A>12%	A>12%	A>12%	A>12%
Tol.		6HX	6HX	6HX	6HX	6GX	6GX	6GX	6GX
Mat.		HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM
Rec./Rev./Coat.		TIN	TIN	TIN	TIN	TIN	TIN	TIN	TIN
Prof./ Depth		1,5xD	1,5xD	3xD	3xD	1,5xD	1,5xD	3xD	3xD
Gama/Gamme/Range		M3-M10	M12-M16	M3-M10	M8-M16	M3-M10	M12	M3-M10	M12
Pag.		173	173	174	174	175	175	176	176
Mat.		Vc (m/min)							
P.1	<600	● 25-45	● 25-45	● 25-45	● 25-45	● 25-45	● 25-45	● 25-45	● 25-45
P.2	<800	● 15-40	● 15-40	● 15-40	● 15-40	● 15-40	● 15-40	● 15-40	● 15-40
P.3	<1000	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25
P.4	<1200								
P.5	<1400								
M.1	<950	● 10-25	● 10-25	● 10-25	● 10-25	● 10-25	● 10-25	● 10-25	● 10-25
M.2		● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20	● 10-20
M.3	<1200								
M.4									
K.1	<500								
K.2									
K.3	<800								
K.4.1									
K.4.2	<1400								
N.1.1	Al	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40
N.1.2		● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30
N.1.3									
N.2.1	Cu	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30
N.2.2									
N.2.3		● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30
N.2.4									
N.3.1	Mg/Zn	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40	● 20-40
N.4.1	Plastic								
N.4.2									
N.4.3									
S.1.1	Ni								
S.1.2									
S.2.1	Ti	○ 10-20	○ 10-20	○ 10-20	○ 10-20	○ 10-20	○ 10-20	○ 10-20	○ 10-20
S.2.2									
S.2.3									
H.1	50 HRC								
H.2	55 HRC								
H.3	60 HRC								

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials



TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

Hepyc CUTTING TOOL EXPERTS

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.		2301	2301/5	2302	2314	2303	2324	2304	2304/5	2305	2306	2306/5	2316	2317
Rosca/ Filetage/Thread		M-MF	M	M	M	M	M	BSW	BSW	BSF	G	G	G	G
DIN		352-2181	352	352	352	352	352	352	352	2181	5157	5157	5157	5157
Form.													E(1,5-2)	E(1,5-2)
Ejec./Exéc./Exec.			LH						LH			LH		
Tol.		6H	6H	6H	6HX	6HX	6HX	Med	Med	Med	Med	Med	Med	+0,1
Mat.		HSS	HSS	HSS	HSSE	HSSE	HSSE-PM	HSS	HSS	HSS	HSS	HSS	HSS	HSS
Rec./Rev./Coat.				TiN		VAP	TICN							
Prof./ Depth														
Gama/Gamme/Range		M1-M64	M3-M30	M3-M20	M3-M16	M3-M20	M4-M16	3/32-3"	1/8-1"	3/16-1"1/2	1/8-3"	1/8-1"	1/8-1"	1/8-1"
Pag.		213	215	217	216	216	217	218	219	219	220	220	221	221
Mat.		Vc (m/min)												
P.1	<600	●	●	●	o	o		●	●	●	●	●		
P.2	<800	●	●	●	●	●	o	●	●	●	●	●		
P.3	<1000			o	●	●	●							
P.4	<1200				o	o	●							
P.5	<1400						●							
M.1	<950				o	●								
M.2					o	●								
M.3	<1200						o							
M.4							o							
K.1	<500													
K.2														
K.3	<800													
K.4.1														
K.4.2	<1400						o							
N.1.1	Al													
N.1.2		o	o	o				o	o	o	o	o		
N.1.3		●	●	●				●	●	●	●	●		
N.2.1	Cu													
N.2.2													●	●
N.2.3		●	●	●	o	o	o	●	●	●	●	●		
N.2.4														
N.3.1	Mg/Zn													
N.4.1	Plastic													
N.4.2														
N.4.3														
S.1.1	Ni													
S.1.2														
S.2.1	Ti					●								
S.2.2														
S.2.3														
H.1	50 HRC													
H.2	55 HRC													
H.3	60 HRC													

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals
S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials				



2307	2307/5	2308	2308/5	2315	2309	2310	2312	2313	2321	2322	2323	2701	2702	2703	2704
UNC	UNC	UNF	UNF	UN	Rc	UNEF	Pg	NPT	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF	M-MF
352	352	2181	2181	2181	5157	2181	40432	2181	352-2181	352-2181	352-2181	ISO 529	ISO 529	ISO 529	ISO 529
									No Prog	No Prog	No Prog	D(3-5)	D(3-5)	D(3-5)	D(3-5)
	LH		LH												
2B	2B	2B	2B	2B		2B			6H	6H	6H	4H	4H	4H	4H
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
N.4-2"	1/4-1"	N.4-1"1/2	1/4-1"	1"1/8-2"	1/8-1"	1/4-1"	7-48	1/16-2"	M2-M42	N.4-2"	N.4-1"1/2	M2-M24	N.2-1"	N.4-1"	
222	223	223	224	224	225	225	226	226	227	228	228	242	243	243	244
Vc (m/min)															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

r.p.m.= $\frac{Vc \times 1.000}{\pi x Ø}$













Ref./ Réf. / Ref.		2501	2501/5	2514	2512	2502	2502/5	2503	2504	2504/5	2522	2521
Rosca/ Filetage/Thread		M-MF	M	M	M	BSW	BSW	BSF	G	G	G	G
DIN		22568	22568	22568	22568	22568	22568	22568	24231	24231	24231	24231
Form.												
Ejec./Exéc./Exec.			LH				LH			LH		
Tol.		6g	6g	6g	6g	Med	Med	Med	Med	Med	Med	-0,1
Mat.		HSS	HSS	HSSE	HSSE	HSS	HSS	HSS	HSS	HSS	HSS	HSS
Rec./Rev./Coat.				NIT	VAP							
Prof./ Depth												
Gama/Gamme/Range		M1-M64	M3-M30	M3-M16	M3-M20	3/32-2"	1/8-1"	3/16-1"	1/8-2"	1/8-1"	1/8-1"	1/8-1"
Pag.		229	231	232	232	233	233	234	234	235	236	236
Mat.		Vc (m/min)										
P.1	<600	•	•	o	o	•	•	•	•	•		
P.2	<800	•	•	•	•	•	•	•	•	•		
P.3	<1000			•	•							
P.4	<1200			o	o							
P.5	<1400											
M.1	<950			o	•							
M.2				o	•							
M.3	<1200											
M.4												
K.1	<500											
K.2												
K.3	<800											
K.4.1												
K.4.2	<1400						o					
N.1.1	Al											
N.1.2		o	o			o	o	o	o	o		
N.1.3		•	•			•	•	•	•	•		
N.2.1	Cu											
N.2.2											•	•
N.2.3		•	•	o	o	•	•	•	•	•		
N.2.4												
N.3.1	Mg/Zn											
N.4.1	Plastic											
N.4.2												
N.4.3												
S.1.1	Ni											
S.1.2												
S.2.1	Ti											
S.2.2					•							
S.2.3												
H.1	50 HRC											
H.2	55 HRC											
H.3	60 HRC											

● Optima / Optimun ○ Alternativo / Alternative

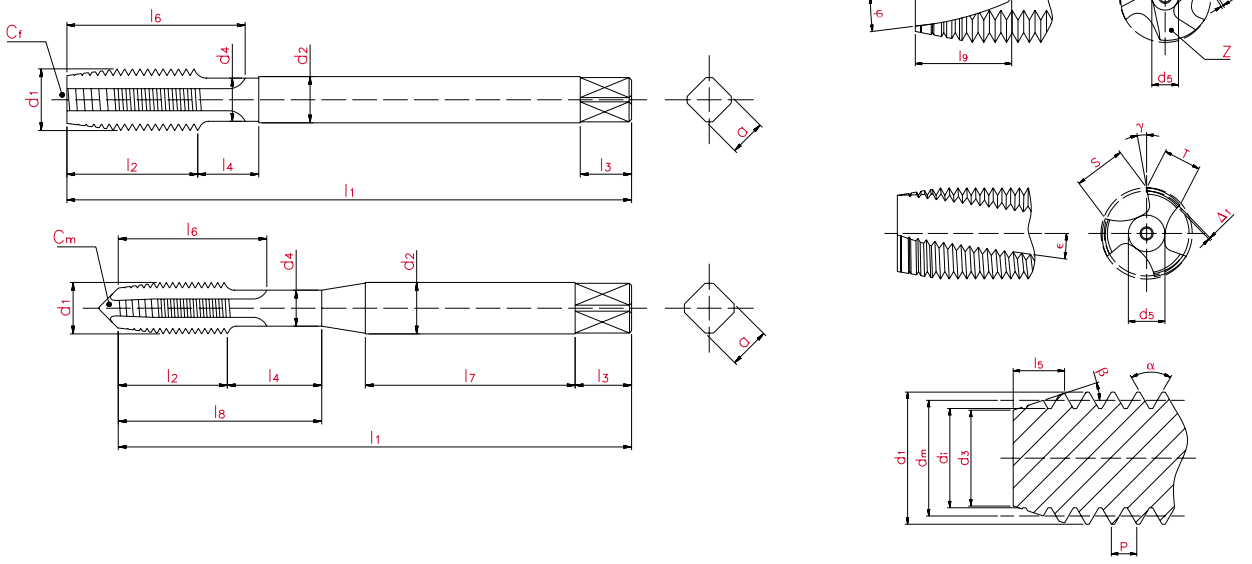
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

								
2505	2505/5	2506	2506/5	2520	2507	2508	2510	2509
UNC	UNC	UNF	UNF	UN	R	UNEF	Pg	NPT
22568	22568	22568	22568	22568	24231	22568	40434	24230
	LH		LH					
2A	2A	2A	2A	2A		2A		
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
N.4-2"	1/4-1"	N.4-1"1/2	1/4-1"	1"1/8-2"	1/8-1"	1/4-1"	7-48	1/16-2"
237	237	238	238	240	239	239	240	241
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
o	o	o	o	o	o	o	o	o
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●

● Optima / Optimun ○ Alternativo / Alternative

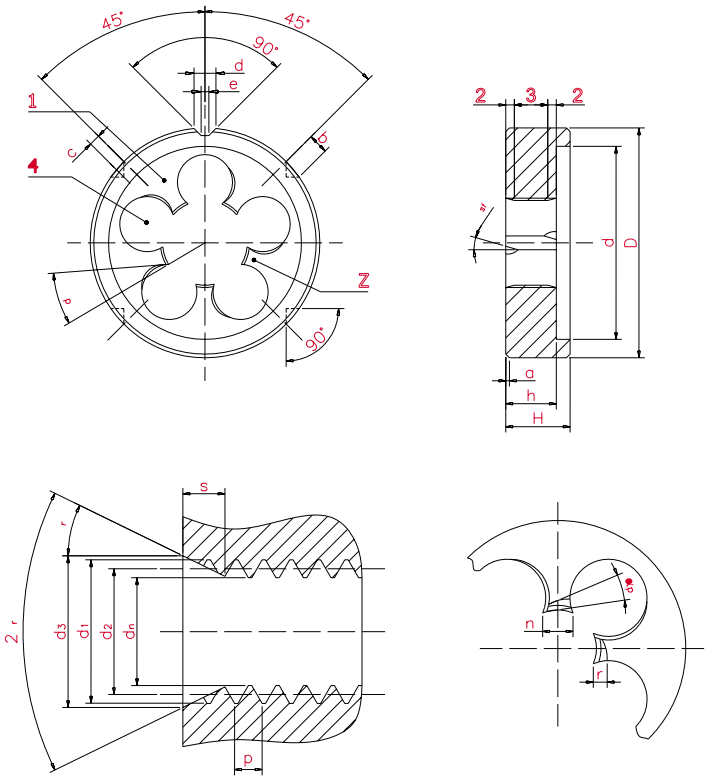
P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TERMINOLOGÍA
TERMINOLOGIE / TERMINOLOGY



l1	**Longitud total** / Longueur totale / Total length
l2	**Longitud de rosca** / Longueur de filetage / Thread length
l7	**Longitud de mango** / Longueur de queue / Shank length
l3	**Longitud de cuadro** / Longueur du carré / Square length
l4	**Longitud de sangrado** / Longueur d'indentation / Neck length
l5	**Longitud de entrada** / Longueur d'entrée / Chamfer length
l6	**Longitud de ranura** / Longueur de rainure / Flute Length
l8	**Longitud útil de corte** / Longueur utile de coupe / Useful length of cut
l9	**Longitud de la entrada en hélice** / Longueur de l'entrée en hélice / Spiral point length
d1	**Diámetro exterior** / Diamètre extérieur / External diameter
d2	**Diámetro de mango** / Diamètre de queue / Shank diameter
d3	**Diámetro de entrada** / Diamètre d'entrée / Chamfer diameter
d4	**Diámetro de sangrado** / Diamètre d'indentation / Neck diameter
d5	**Diámetro del alma** / Diamètre de l'âme / Core diameter
dm	**Diámetro medio** / Diamètre moyen / Pitch diameter
di	**Diámetro interno** / Diamètre interne / Internal diameter
a	**Cuadradillo** / Carré / Square
Cm	**Punto macho** / Pointe mâle / Male point
Cf	**Punto hembra** / Pointe femelle / Female point
P	**Paso de la rosca** / Pas de filetage / Pitch of thread
S	**Ancho de la ranura** / Largeur de la rainure / Flute width
T	**Ancho del diente** / Largeur de la dent / Width of land
Z	**Número de ranuras** / Nombre de rainures / Number of flutes
α	**Ángulo de flancos** / Angle de flancs / Angle of thread
β	**Ángulo de la entrada** / Angle de l'entrée / Chamfer angle
γ	**Ángulo de corte** / Angle de coupe / Rake angle
γ_1	**Ángulo de corte de la entrada corregida** / Angle de coupe de l'entrée corrigée / Spiral point rake angle
φ	**Ángulo de la entrada corregida** / Angle de l'entrée corrigée / Spiral point angle
ε	**Ángulo de la ranura** / Angle de la rainure / Flute angle
Δ	**Ángulo de destalonado de la entrada** / Angle de détalonnage de l'entrée / Chamfer relief angle
Δ_1	**Ángulo de destalonado de flancos** / Angle de détalonnage des flancs / Flank relief angle

TERMINOLOGÍA
TERMINOLOGIE / TERMINOLOGY



1	**Cuerpo del cojinete** / Corps de la filière / Die body
2	**Parte cortante - Entrada cónica** / Partie coupante - Entrée conique / Cutting part - Conical entry
3	**Hilos enteros** / Fils entiers / Entire threads
4	**Alojamiento para viruta** / Logement pour copeau / Void for shavings
d1	**Diámetro nominal de rosca** / Diamètre nominal de filetage / Nominal diameter of thread
d2	**Diámetro de flancos** / Diamètre de flancs / Flank Diameter
dn	**Diámetro de núcleo** / Diamètre du noyau / Nucleus diameter
d3	**Diámetro de la entrada cónica** / Diamètre de l'entrée conique / Diameter of conical chamfer
P	**Paso de la rosca** / Pas de filetage / Thread pitch
D	**Diámetro exterior del cojinete** / Diamètre extérieur de la filière / Exterior diameter of die
d	**Diámetro de la parte rebajada** / Diamètre de la partie chanfreinée / Diameter of the reduced part
H	**Diámetro de sangrado** / Diamètre d'indentation / Bled diameter
h	**Ancho del cojinete** / Largeur de la filière / Die width
Z	**Ancho útil del cojinete** / Largeur utile de la filière / Useful width of the die
n	**Número de dientes** / Nombre de dents / Number of teeth
r	**Ancho del diente** / Largeur de la dent / Tooth width
s	**Destalonado de la entrada cónica** / Détalonnage de l'entrée conique / Conical chamfer relief
a	**Longitud de la entrada cónica** / Longueur de l'entrée conique / Conical chamfer length
b	**Chaflán** / Chanfrein / Bevel
c	**Diámetro del agujero de fijación** / Diamètre du trou de fixation / Mounting hole diameter
d	**Desplazamiento del agujero de fijación** / Déplacement du trou de fixation / Mounting hole displacement
e	**Ancho de preranura** / Largeur de pré-rainure / Pre-groove width
γp	**Ángulo de la ranura** / Angle de la rainure / Groove angle
χr	**Ángulo de desprendimiento (de corte)** / Angle de dégagement (de coupe) / Rake angle (of cut)
2χr	**Ángulo de la entrada cónica** / Angle de l'entrée conique / Conical chamfer angle
αp	**Ángulo de destalonado de la entrada cónica** / Angle de détalonnage de l'entrée conique / Conical chamfer relief angle
γsf	**Ángulo de la entrada en hélice (rompevirutas)** / Longueur de l'entrée en hélice (brise-copeaux) / Blade chamfer angle (chip cap)

TABLAS DE ROSCAS Y PASOS
GRILLES DES FILETAGES ET DES PAS / TABLE OF THREADS AND PITCHES

> **Roscas más usuales en pulgadas.**
> **Filetages les plus courants en pouces.**
> **Most common threads in inches.**

Ø	W 55º	BSF 55º	GAS 55º	BSB BRASS 55º	UNC 60º	UNF 60º	UNEF NEF 60º	NPS NPT API 60º	UN 60º						UNS 60º					
Nº 0	-	-	-	-	-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 1	-	-	-	-	64	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 2	-	-	-	-	56	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 3	-	-	-	-	48	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 4	-	-	-	-	40	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 5	-	-	-	-	40	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 6	-	-	-	-	32	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 8	-	-	-	-	32	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nº 10	-	-	-	-	24	32	-	-	-	-	-	-	-	-	28	36	40	48	56	-
Nº 12	-	-	-	-	24	28	32	-	-	-	-	-	-	-	36	40	48	56	-	-
1/16	60	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-
3/32	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/8	40	-	28	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-
5/32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3/16	24	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/32	24	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/4	20	26	19	26	20	28	32	18	-	-	-	-	-	-	24	27	26	40	48	56
9/32	20	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/16	18	22	-	26	18	24	32	-	20	28	-	-	-	-	27	36	40	48	-	-
3/8	16	20	19	26	16	24	32	18	20	28	-	-	-	-	18	27	36	40	-	-
7/16	14	18	-	26	14	20	28	-	16	32	-	-	-	-	18	24	27	-	-	-
1/2	12	16	14	26	13	20	28	14	16	32	-	-	-	-	12	14	18	24	27	-
9/16	12	16	-	26	12	18	24	-	16	20	28	32	-	-	14	27	-	-	-	-
5/8	11	14	14	26	11	18	24	14	12	16	20	28	32	-	14	27	-	-	-	-
11/16	11	14	-	-	-	-	24	-	12	16	20	28	32	-	-	-	-	-	-	-
3/4	10	12	14	26	10	16	20	14	12	28	32	-	-	-	14	18	24	27	-	-
13/16	10	12	-	-	-	-	20	-	12	16	28	32	-	-	-	-	-	-	-	-
7/8	9	11	14	26	9	14	20	-	12	16	28	32	-	-	10	18	24	27	-	-
15/16	-	-	-	-	-	-	20	-	16	28	32	-	-	-	-	-	-	-	-	-
1"	8	10	11	26	8	12	20	11,5	16	28	16	-	28	-	10	14	18	24	27	-
1"1/16	-	-	-	-	-	-	18	-	8	16	20	28	-	-	-	-	-	-	-	-
1"1/8	7	9	11	26	7	12	18	-	8	16	20	28	-	-	10	14	24	-	-	-
1"3/16	-	-	-	-	-	-	18	-	8	16	20	28	-	-	-	-	-	-	-	-
1"1/4	7	9	11	26	7	12	18	11,5	8	16	20	28	-	-	10	14	24	-	-	-
1"5/16	-	-	-	-	-	-	18	-	8	16	20	28	-	-	-	-	-	-	-	-
1"3/8	6	8	11	26	6	12	18	-	6	8	12	16	20	28	10	14	24	-	-	-
1"7/16	-	-	-	-	-	-	18	-	8	16	20	28	-	-	-	-	-	-	-	-
1"1/2	6	8	11	26	6	12	18	11,5	6	8	16	20	-	-	10	14	24	-	-	-
1"9/16	-	-	-	-	-	-	18	-	6	8	12	16	20	-	-	-	-	-	-	-
1"5/8	5	8	11	26	-	-	18	-	6	8	12	16	20	-	10	14	24	-	-	-
1"11/16	-	-	-	-	-	-	18	-	6	8	12	16	20	-	-	-	-	-	-	-
1"3/4	5	7	11	26	5	-	-	-	6	8	12	16	20	-	10	14	24	-	-	-
1"13/16	-	-	-	-	-	-	-	-	6	8	12	16	20	-	-	-	-	-	-	-
1"7/8	4,5	-	-	26	-	-	-	-	6	8	12	16	20	-	10	14	24	-	-	-
1"15/16	-	-	-	-	-	-	-	-	6	8	12	16	20	-	-	-	-	-	-	-
2"	4,5	7	11	26	4,5	-	-	11,5	6	8	12	16	20	-	10	14	24	-	-	-

TABLAS DE ROSCAS Y PASOS
GRILLES DES FILETAGES ET DES PAS / TABLE OF THREADS AND PITCHES

> Equivalencias en mm de los diámetros de las siguientes roscas.
Équivalences en mm des diamètres des filetages suivants.
Equivalents in mm of the diameters of the following threads.

BSW/BSF			UNC/UNF			BSP (GAS)			NSP/NPT			PG		
3/32	=	2,381mm	5/8	=	15,875 mm	G1/8	=	9,728 mm	G1”3/8	=	44,323 mm	1/8	=	10,287 mm	PG7	=	12,50 mm
1/8	=	3,175 mm	3/4	=	19,050 mm	G1/4	=	13,157 mm	G1”1/2	=	47,803 mm	1/4	=	13,716 mm	PG9	=	15,20 mm
5/32	=	3,969 mm	7/8	=	22,225 mm	G3/8	=	16,662 mm	G1”5/8	=	51,988 mm	3/8	=	17,145 mm	PG11	=	18,60 mm
3/16	=	4,762 mm	1”	=	25,400 mm	G1/2	=	20,955 mm	G1”3/4	=	53,746 mm	1/2	=	21,336 mm	PG13,5	=	20,40 mm
7/32	=	5,556 mm	1”1/8	=	28,575 mm	G5/8	=	22,911 mm	G2”	=	59,614 mm	3/4	=	26,670 mm	PG16	=	22,50 mm
1/4	=	6,350 mm	1”1/4	=	31,750 mm	G3/4	=	26,441 mm	G2”1/4	=	65,710 mm	1”	=	33,401 mm	PG21	=	28,30 mm
9/32	=	7,144 mm	1”3/8	=	34,925 mm	G7/8	=	30,201 mm	G2”3/8	=	69,390 mm	1”1/4	=	42,164 mm	PG29	=	37,00 mm
5/16	=	7,938 mm	1”1/2	=	38,100 mm	G1”	=	33,249 mm	G2”1/2	=	75,184 mm	1”1/2	=	48,260 mm	PG36	=	47,00 mm
3/8	=	9,525 mm	1”5/8	=	41,275 mm	G1”1/8	=	37,897 mm	G2”3/4	=	81,534 mm	2”	=	60,325 mm	PG42	=	54,00 mm
7/16	=	11,112 mm	1”3/4	=	44,450 mm	G1”1/4	=	41,910 mm	G3”	=	87,844 mm	2”1/2	=	73,025 mm	PG48	=	59,30 mm
1/2	=	12,700 mm	1”7/8	=	47,625 mm							3”	=	88,900 mm			
9/16	=	14,288 mm	2”	=	50,800 mm												

> Equivalencia del paso en hilos por pulgada a mm.
Équivalence du pas en fils par pouce en mm.
Equivalents of pitch in threads per inch to mm.

PASO h/1” PAS h/1” PITCH h/1”	**EQUIV. mm** ÉQUIV. mm EQUIV. mm	**PASO h/1”** PAS h/1” PITCH h/1”	**EQUIV. mm** ÉQUIV. mm EQUIV. mm	**PASO h/1”** PAS h/1” PITCH h/1”	**EQUIV. mm** ÉQUIV. mm EQUIV. mm	**PASO h/1”** PAS h/1” PITCH h/1”	**EQUIV. mm** ÉQUIV. mm EQUIV. mm	**PASO h/1”** PAS h/1” PITCH h/1”	**EQUIV. mm** ÉQUIV. mm EQUIV. mm
80	0,317	44	0,577	26	0,976	16	1,587	9	2,822
72	0,352	40	0,636	24	1,058	14	1,814	8	3,174
64	0,396	36	0,705	22	1,154	13	1,953	7	3,628
60	0,423	32	0,793	20	1,270	12	2,116	6	4,233
56	0,453	28	0,907	19	1,336	11,5	2,208	5	5,080
48	0,523	27	0,940	18	1,411	11	2,309	4,5	5,644

> Equivalencia de las roscas PG a MF.
Équivalence du pas PG à MF.
Equivalents of threads PG to MF.

PG	MF	PG	MF
7 x 20 h.	12 x 1,50	21 x 16 h.	32 x 1,50
9 x 18 h.	16 x 1,50	29 x 16 h.	40 x 1,50
11 x 18 h.	20 x 1,50	36 x 16 h.	50 x 1,50
13,5 x 18 h.	20 x 1,50	48 x 16 h.	63 x 1,50
16 x 18 h.	25 x 1,50		

DIÁMETROS PREVIOS AL ROSCADO
DIAMÈTRES PRÉALABLES AU FILETAGE / DIAMETERS BEFORE THREAD

M d1 x p (mm)	Ø a
M 1 x 0,25	0,75
M 1,1 x 0,25	0,85
M 1,2 x 0,25	0,95
M 1,4 x 0,3	1,10
M 1,6 x 0,35	1,25
M 1,7 x 0,35	1,30
M 1,8 x 0,35	1,45
M 2 x 0,4	1,60
M 2,2 x 0,45	1,75
M 2,3 x 0,4	1,90
M 2,5 x 0,45	2,05
M 2,6 x 0,45	2,10
M 3 x 0,5	2,50
M 3,5 x 0,6	2,90
M 4 x 0,7	3,30
M 4,5 x 0,75	3,70
M 5 x 0,8	4,20
M 6 x 1	5,00
M 7 x 1	6,00
M 8 x 1,25	6,80
M 9 x 1,25	7,80
M 10 x 1,5	8,50
M 11 x 1,5	9,50
M 12 x 1,75	10,20
M 14 x 2	12,00
M 16 x 2	14,00
M 18 x 2,5	15,50
M 20 x 2,5	17,50
M 22 x 2,5	19,50
M 24 x 3	21,00
M 27 x 3	24,00
M 30 x 3,5	26,50
M 33 x 3,5	29,50
M 36 x 4	32,00
M 39 x 4	35,00
M 42 x 4,5	37,50
M 45 x 4,5	40,50
M 48 x 5	43,00
M 52 x 5	47,00
M 56 x 5,5	50,50
M 60 x 5,5	54,50
M 64 x 6	58,00
M 68 x 6	62,00

M d1 x p (mm)	Ø a
M 3 x 0,6	2,40
M 3,5 x 0,75	2,75
M 4 x 0,75	3,25
M 4 x 0,8	3,20
M 5 x 0,9	4,10
M 5 x 1	4,00
M 5,5 x 0,9	4,60
M 6 x 1,25	4,75
M 8 x 1,5	6,50
M 13 x 1,75	11,25
M 15 x 2	13,00

MF d1 x p (mm)	Ø a
M 1 x 0,2	0,80
M 1,1 x 0,2	0,90
M 1,2 x 0,2	1,00
M 1,4 x 0,2	1,20
M 1,6 x 0,2	1,40
M 1,7 x 0,2	1,50
M 1,8 x 0,2	1,60
M 2 x 0,25	1,75
M 2,2 x 0,25	1,95
M 2,3 x 0,25	2,05
M 2,5 x 0,35	2,15
M 2,6 x 0,35	2,25
M 3 x 0,35	2,65
M 3,5 x 0,35	3,15
M 4 x 0,35	3,65
M 4 x 0,5	3,50
M 4,5 x 0,5	4,00
M 5 x 0,5	4,50
M 5,5 x 0,5	5,00
M 6 x 0,5	5,50
M 6 x 0,75	5,20
M 7 x 0,5	6,50
M 7 x 0,75	6,20
M 8 x 0,5	7,50
M 8 x 0,75	7,20
M 8 x 1	7,00
M 9 x 0,75	8,20
M 9 x 1	8,00
M 10 x 0,5	9,50
M 10 x 0,75	9,20
M 10 x 1	9,00
M 10 x 1,25	8,80
M 11 x 0,75	10,20
M 11 x 1	10,00
M 11 x 1,25	9,75
M 12 x 0,75	11,25
M 12 x 1	11,00
M 12 x 1,25	10,80
M 12 x 1,5	10,50
M 13 x 0,75	12,25
M 13 x 1	12,00
M 13 x 1,25	11,75
M 13 x 1,5	11,50
M 14 x 0,75	13,25
M 14 x 1	13,00
M 14 x 1,25	12,80
M 14 x 1,5	12,50
M 15 x 1	14,00
M 15 x 1,25	13,75
M 15 x 1,5	13,50
M 16 x 1	15,00
M 16 x 1,25	14,75
M 16 x 1,5	14,50
M 17 x 1	16,00
M 17 x 1,25	15,75
M 17 x 1,5	15,50
M 18 x 1	17,00
M 18 x 1,25	16,75
M 18 x 1,5	16,50

MF d1 x p (mm)	Ø a
M 18 x 2	16,00
M 19 x 1	18,00
M 19 x 1,25	17,75
M 19 x 1,5	17,50
M 20 x 1	19,00
M 20 x 1,25	18,75
M 20 x 1,5	18,50
M 20 x 2	18,00
M 21 x 1	20,00
M 21 x 1,25	19,75
M 21 x 1,5	19,50
M 22 x 1	21,00
M 22 x 1,25	20,75
M 22 x 1,5	20,50
M 22 x 2	20,00
M 23 x 1	22,00
M 23 x 1,5	21,50
M 24 x 1	23,00
M 24 x 1,25	22,75
M 24 x 1,5	22,50
M 24 x 2	22,00
M 25 x 1	24,00
M 25 x 1,25	23,75
M 25 x 1,5	23,50
M 25 x 2	23,00
M 26 x 1	25,00
M 26 x 1,5	24,50
M 26 x 2	24,00
M 27 x 1	26,00
M 27 x 1,5	25,50
M 27 x 2	25,00
M 28 x 1	27,00
M 28 x 1,5	26,50
M 28 x 2	26,00
M 30 x 1	29,00
M 30 x 1,5	28,50
M 30 x 2	28,00
M 30 x 3	27,00
M 32 x 1	31,00
M 32 x 1,5	30,50
M 32 x 2	30,00
M 33 x 1	32,00
M 33 x 1,5	31,50
M 33 x 2	31,00
M 33 x 3	30,00
M 34 x 1,5	32,50
M 34 x 2	32,00
M 35 x 1,5	33,50
M 36 x 1,5	34,50
M 36 x 2	34,00
M 36 x 3	33,00
M 38 x 1,5	36,50
M 38 x 2	36,00
M 39 x 1,5	37,50
M 39 x 2	37,00
M 39 x 3	36,00
M 40 x 1,5	38,50
M 40 x 2	38,00
M 40 x 3	37,00

MF d1 x p (mm)	Ø a
M 42 x 1,5	40,50
M 42 x 2	40,00
M 42 x 3	39,00
M 44 x 1,5	42,50
M 45 x 1,5	43,50
M 45 x 2	43,00
M 45 x 3	42,00
M 45 x 4	41,00
M 48 x 1,5	46,50
M 48 x 2	46,00
M 48 x 3	45,00
M 48 x 4	44,00
M 50 x 1,5	48,50
M 50 x 2	48,00
M 50 x 3	47,00
M 52 x 1,5	50,50
M 52 x 2	50,00
M 52 x 3	49,00
M 52 x 4	48,00
M 56 x 1,5	54,50
M 56 x 2	54,00
M 56 x 3	53,00
M 56 x 4	52,00
M 60 x 1,5	58,50
M 60 x 2	58,00
M 60 x 3	57,00
M 60 x 4	56,00
M 63 x 1,5	61,50

BSW d1 (") - p (tpi)	Ø a
W 1/16 - 60	1,15
W 3/32 - 48	1,80
W 1/8 - 40	2,50
W 5/32 - 32	3,10
W 3/16 - 24	3,60
W 7/32 - 24	4,40
W 1/4 - 20	5,10
W 9/32 - 20	5,90
W 5/16 - 18	6,50
W 3/8 - 16	7,90
W 7/16 - 14	9,30
W 1/2 - 12	10,50
W 9/16 - 12	12,00
W 5/8 - 11	13,50
W 11/16 - 11	15,00
W 3/4 - 10	16,50
W 13/16 - 10	18,00
W 7/8 - 9	19,25
W 1" - 8	22,00
W 1"1/8 - 7	24,75
W 1"1/4 - 7	27,75
W 1"3/8 - 6	30,50
W 1"1/2 - 6	33,50
W 1"5/8 - 5	35,50
W 1"3/4 - 5	39,00
W 1"7/8 - 4,5	41,50

DIÁMETROS PREVIOS AL ROSCADO
DIAMÈTRES PRÉALABLES AU FILETAGE / DIAMETERS BEFORE THREAD



BSW

d1 (") - p (tpi)				⌀a
W	2"	-	4,5	44,50
W	2"1/4	-	4	50,00
W	2"1/2	-	4	56,50
W	2"3/4	-	3,5	62,00
W	3"	-	3,5	68,50



UNC

d1 (") - p (tpi)				⌀a
UNC	1"3/4	-	5	39,50
UNC	2"	-	4,5	45,00
UNC	2"1/4	-	4,5	51,50
UNC	2"1/2	-	4	57,25
UNC	2"3/4	-	4	63,50
UNC	3"	-	4	70,00



UNEF

d1 (") - p (tpi)				⌀a
UNEF	1"7/16	-	18	35,10
UNEF	1"1/2	-	18	36,70
UNEF	1"9/16	-	18	38,30
UNEF	1"5/8	-	18	39,90



BSF

d1 (") - p (tpi)				⌀a
BSF	3/16	-	32	4,00
BSF	7/32	-	28	4,50
BSF	1/4	-	26	5,20
BSF	9/32	-	26	6,00
BSF	5/16	-	22	6,60
BSF	3/8	-	20	8,10
BSF	7/16	-	18	9,50
BSF	1/2	-	16	11,00
BSF	9/16	-	16	12,50
BSF	5/8	-	14	14,00
BSF	11/16	-	14	15,60
BSF	3/4	-	12	16,50
BSF	13/16	-	12	18,25
BSF	7/8	-	11	19,50
BSF	1"	-	10	22,50
BSF	1"1/8	-	9	25,50
BSF	1"1/4	-	9	28,75
BSF	1"3/8	-	8	31,50
BSF	1"1/2	-	8	34,50
BSF	1"5/8	-	8	37,50
BSF	1"3/4	-	7	40,50
BSF	2"	-	7	46,50



UNF

d1 (") - p (tpi)				⌀a
UNF	N.0	-	80	1,30
UNF	N.1	-	72	1,60
UNF	N.2	-	64	1,90
UNF	N.3	-	56	2,10
UNF	N.4	-	48	2,40
UNF	N.5	-	44	2,70
UNF	N.6	-	40	3,00
UNF	N.8	-	36	3,50
UNF	N.10	-	32	4,10
UNF	N.12	-	28	4,70
UNF	1/4	-	28	5,50
UNF	5/16	-	24	6,90
UNF	3/8	-	24	8,50
UNF	7/16	-	20	9,90
UNF	1/2	-	20	11,50
UNF	9/16	-	18	12,90
UNF	5/8	-	18	14,50
UNF	3/4	-	16	17,50
UNF	7/8	-	14	20,40
UNF	1"	-	12	23,25
UNF	1"1/8	-	12	26,50
UNF	1"1/4	-	12	29,50
UNF	1"3/8	-	12	32,75
UNF	1"1/2	-	12	36,00



G (BSP)

d1 (") - p (tpi)				⌀a
G1/16		-	28	6,80
G1/8		-	28	8,80
G1/4		-	19	11,80
G3/8		-	19	15,25
G1/2		-	14	19,00
G5/8		-	14	21,00
G3/4		-	14	24,50
G7/8		-	14	28,25
G1"		-	11	30,75
G1"1/8		-	11	35,30
G1"1/4		-	11	39,25
G1"3/8		-	11	41,90
G1"1/2		-	11	45,25
G1"3/4		-	11	51,30
G2"		-	11	57,00
G2"1/4		-	11	63,10
G2"1/2		-	11	72,60
G2"3/4		-	11	79,10
G3"		-	11	85,50
G3"1/4		-	11	91,50
G3"1/2		-	11	97,70
G3"3/4		-	11	104,00
G4"		-	11	110,50



UNC

d1 (") - p (tpi)				⌀a
UNC	N.1	-	64	1,50
UNC	N.2	-	56	1,80
UNC	N.3	-	48	2,10
UNC	N.4	-	40	2,30
UNC	N.5	-	40	2,60
UNC	N.6	-	32	2,85
UNC	N.8	-	32	3,50
UNC	N.10	-	24	3,90
UNC	N.12	-	24	4,50
UNC	1/4	-	20	5,20
UNC	5/16	-	18	6,60
UNC	3/8	-	16	8,00
UNC	7/16	-	14	9,40
UNC	1/2	-	13	10,75
UNC	9/16	-	12	12,20
UNC	5/8	-	11	13,50
UNC	3/4	-	10	16,50
UNC	7/8	-	9	19,50
UNC	1"	-	8	22,25
UNC	1"1/8	-	7	25,00
UNC	1"1/4	-	7	28,25
UNC	1"3/8	-	6	30,75
UNC	1"1/2	-	6	34,00



UNEF

d1 (") - p (tpi)				⌀a
UNEF	N.12	-	32	4,70
UNEF	1/4	-	32	5,55
UNEF	5/16	-	32	7,15
UNEF	3/8	-	32	8,70
UNEF	7/16	-	28	10,20
UNEF	1/2	-	28	11,80
UNEF	9/16	-	24	13,20
UNEF	5/8	-	24	14,80
UNEF	11/16	-	24	16,40
UNEF	3/4	-	20	17,80
UNEF	13/16	-	20	19,40
UNEF	7/8	-	20	20,95
UNEF	15/16	-	20	22,50
UNEF	1"	-	20	24,10
UNEF	1"1/16	-	18	25,60
UNEF	1"1/8	-	18	27,15
UNEF	1"3/16	-	18	28,75
UNEF	1"1/4	-	18	30,35
UNEF	1"5/16	-	18	31,90
UNEF	1"3/8	-	18	33,60

BA

d1 (") - p (tpi)				
BA 7	2,5	-	0,48	2,00
BA 8	2,2	-	0,43	1,80
BA 9	1,9	-	0,39	1,50
BA 10	1,7	-	0,35	1,30
BA 11	1,5	-	0,31	1,20
BA 12	1,3	-	0,28	1,00
BA 13	1,2	-	0,25	0,95
BA 14	1	-	0,23	0,75

PG

d1 (") - p (tpi)				
Pg 7	12,5	-	20	11,40
Pg 9	15,2	-	18	14,00
Pg 11	18,6	-	18	17,25
Pg 13,5	20,4	-	18	19,00
Pg 16	22,5	-	18	21,25
Pg 21	28,3	-	16	26,75
Pg 29	37,0	-	16	35,50
Pg 36	47,0	-	16	45,50
Pg 42	54,0	-	16	52,50
Pg 48	59,3	-	16	58,00

DIÁMETROS PREVIOS AL ROSCADO
DIAMÈTRES PRÉALABLES AU FILETAGE / DIAMETERS BEFORE THREAD

BA

d1 (") - p (tpi)	⌀a
Rp1/16 - 28	6,60
Rp1/8 - 28	8,60
Rp1/4 - 19	11,50
Rp3/8 - 19	15,00
Rp1/2 - 14	18,50
Rp3/4 - 14	24,00
Rp1" - 11	30,25
Rp1"1/4 - 11	39,00
Rp1"1/2 - 11	45,00
Rp2" - 11	56,50
Rp2"1/2 - 11	72,25
Rp3" - 11	85,00

NPSM

d1 (") - p (tpi)	⌀a
NPSM 1/8 - 27	9,10
NPSM 1/4 - 18	12,00
NPSM 3/8 - 18	15,50
NPSM 1/2 - 14	19,00
NPSM 3/4 - 14	24,50
NPSM 1" - 11,5	30,50
NPSM 1"1/4 - 11,5	39,25
NPSM 1"1/2 - 11,5	45,50
NPSM 2" - 11,5	57,50
NPSM 2"1/2 - 8	69,00
NPSM 3" - 8	85,00

M (Laminación Laminage/Lamination)

d1 - p (mm)	○a ± 0,02
M 3 x 0,5	2,76
M 4 x 0,7	3,67
M 5 x 0,8	4,62
M 6 x 1	5,52
M 8 x 1,25	7,40
M 10 x 1,5	9,28
M 12 x 1,75	11,16
M 14 x 2	13,04
M 16 x 2	15,03

Rp

d1 (") - p (tpi)	⌀a
BA 0 6 - 1	5,10
BA 1 5,3 - 0,9	4,50
BA 2 4,7 - 0,81	4,00
BA 3 4,1 - 0,73	3,40
BA 4 3,6 - 0,66	3,00
BA 5 3,2 - 0,59	2,60
BA 6 2,8 - 0,53	2,30

NPT

d1 (") - p (tpi)	L min	⌀a	⌀b	⌀c
NPT 1/16 - 27	12,00	6,20	6,00	6,39
NPT 1/8 - 27	12,00	8,50	8,30	8,74
NPT 1/4 - 18	17,50	11,00	10,70	11,36
NPT 3/8 - 18	17,60	14,50	14,20	14,80
NPT 1/2 - 14	22,80	17,80	17,40	18,32
NPT 3/4 - 14	23,00	23,00	22,50	23,67
NPT 1" - 11,5	27,40	29,00	28,50	29,69
NPT 1"1/4 - 11,5	28,00	37,50	37,00	38,45
NPT 1"1/2 - 11,5	28,40	44,00	43,50	44,52
NPT 2" - 11,5	28,00	56,00	55,50	56,56
NPT 2"1/2 - 8	40,80	66,50	66,00	67,62
NPT 3" - 8	43,00	82,50	82,00	83,53

NPTF

d1 (") - p (tpi)	L min	⌀a	⌀b	⌀c
NPTF 1/16 - 27	12,00	6,20	6,00	6,41
NPTF 1/8 - 27	12,00	8,50	8,30	8,76
NPTF 1/4 - 18	17,50	11,00	10,70	11,40
NPTF 3/8 - 18	17,60	14,50	14,20	14,84
NPTF 1/2 - 14	22,80	17,80	17,40	18,33
NPTF 3/4 - 14	23,00	23,00	22,50	23,68
NPTF 1" - 11,5	27,40	29,00	28,50	29,72
NPTF 1"1/4 - 11,5	28,00	37,50	37,00	38,48
NPTF 1"1/2 - 11,5	28,40	44,00	43,50	44,55
NPTF 2" - 11,5	28,00	56,00	55,50	56,59
NPTF 2"1/2 - 8	40,80	66,50	66,00	67,67
NPTF 3" - 8	43,00	82,50	82,00	83,58

RC

d1 (") - p (tpi)	L min	⌀a	⌀b	⌀c
Rc 1/16 - 28	10,10	6,30	6,00	6,50
Rc 1/8 - 28	10,10	8,30	8,00	8,50
Rc 1/4 - 19	15,00	11,00	10,70	11,35
Rc 3/8 - 19	15,40	14,50	14,15	14,85
Rc 1/2 - 14	20,50	18,10	17,60	18,50
Rc 3/4 - 14	21,80	23,50	23,00	24,00
Rc 1" - 11	26,00	29,60	29,00	30,20
Rc 1"1/4 - 11	28,30	38,10	37,50	38,80
Rc 1"1/2 - 11	28,30	44,00	43,35	44,70
Rc 2" - 11	32,70	55,60	54,90	56,50

RC

d1 (") - p (tpi)	⌀a
UN 1"1/8 - 8	25,40
UN 1"1/4 - 8	28,50
UN 1"3/8 - 8	31,75
UN 1"1/2 - 8	35,00
UN 1"5/8 - 8	38,10
UN 1"3/4 - 8	41,25
UN 2" - 8	47,63
UN 2"1/4 - 8	54,00
UN 2"1/2 - 8	60,35
UN 2"3/4 8	66,70
UN 3" - 8	73,05

EJES PREVIOS AL ROSCADO
AXES PRÉALABLES AU FILETAGE / SHAFTS BEFORE THREAD



M							
d1 x p (mm)							⌀a
M	1	x	0,25				0,97
M	1,1	x	0,25				1,07
M	1,2	x	0,25				1,17
M	1,4	x	0,3				1,36
M	1,6	x	0,35				1,54
M	1,7	x	0,35				1,64
M	1,8	x	0,35				1,74
M	2	x	0,4				1,93
M	2,2	x	0,45				2,13
M	2,3	x	0,4				2,23
M	2,5	x	0,45				2,43
M	2,6	x	0,45				2,53
M	3	x	0,5				2,92
M	3,5	x	0,6				3,41
M	4	x	0,7				3,91
M	4,5	x	0,75				4,41
M	5	x	0,8				4,90
M	6	x	1				5,88
M	7	x	1				6,88
M	8	x	1,25				7,87
M	9	x	1,25				8,87
M	10	x	1,5				9,85
M	11	x	1,5				10,85
M	12	x	1,75				11,83
M	14	x	2				13,82
M	16	x	2				15,82
M	18	x	2,5				17,79
M	20	x	2,5				19,79
M	22	x	2,5				21,79
M	24	x	3				23,77
M	27	x	3				26,77
M	30	x	3,5				29,73
M	33	x	3,5				32,73
M	36	x	4				35,70
M	39	x	4				38,70
M	42	x	4,5				41,69
M	45	x	4,5				44,69
M	48	x	5				47,66
M	52	x	5				51,66
M	56	x	5,5				55,65
M	60	x	5,5				59,65
M	64	x	6				63,62
M	68	x	6				67,62



M							
d1 x p (mm)							⌀a
M	3	x	0,6				2,40
M	3,5	x	0,75				2,75
M	4	x	0,75				3,25
M	4	x	0,8				3,20
M	5	x	0,9				4,10
M	5	x	1				4,00
M	5,5	x	0,9				4,60
M	6	x	1,25				4,75
M	8	x	1,5				6,50
M	13	x	1,75				11,25
M	15	x	2				13,00

MF							
d1 x p (mm)							⌀a
M	2	x	0,25				1,97
M	2,2	x	0,25				2,17
M	2,3	x	0,25				2,27
M	2,5	x	0,35				2,44
M	2,6	x	0,35				2,54
M	3	x	0,35				2,94
M	3,5	x	0,35				3,44
M	4	x	0,35				3,94
M	4	x	0,5				3,93
M	4,5	x	0,5				4,42
M	5	x	0,5				4,93
M	5,5	x	0,5				5,42
M	6	x	0,5				5,93
M	6	x	0,75				5,90
M	7	x	0,5				6,92
M	7	x	0,75				6,90
M	8	x	0,5				7,93
M	8	x	0,75				7,90
M	8	x	1				7,88
M	9	x	0,75				8,90
M	9	x	1				8,88
M	10	x	0,5				9,93
M	10	x	0,75				9,90
M	10	x	1				9,88
M	10	x	1,25				9,86
M	11	x	0,75				10,90
M	11	x	1				10,88
M	11	x	1,25				10,87
M	12	x	0,75				11,90
M	12	x	1				11,88
M	12	x	1,25				11,86
M	12	x	1,5				11,85
M	13	x	0,75				12,90
M	13	x	1				12,88
M	13	x	1,25				12,87
M	13	x	1,5				12,85
M	14	x	0,75				13,90
M	14	x	1				13,88
M	14	x	1,25				13,86
M	14	x	1,5				13,85
M	15	x	1				14,88
M	15	x	1,25				14,87
M	15	x	1,5				14,85
M	16	x	1				15,88
M	16	x	1,25				15,87
M	16	x	1,5				15,85
M	17	x	1,25				16,87
M	17	x	1,5				16,85
M	18	x	1				17,88
M	18	x	1,25				17,85
M	18	x	1,5				17,85
M	18	x	2				17,82
M	19	x	1				18,88
M	19	x	1,25				18,87
M	19	x	1,5				18,85
M	20	x	1				19,88
M	20	x	1,25				19,87
M	20	x	1,5				19,85
M	20	x	2				19,82



MF							
d1 x p (mm)							⌀a
M	21	x	1				20,88
M	21	x	1,25				20,87
M	21	x	1,5				20,85
M	22	x	1				21,88
M	22	x	1,25				21,87
M	22	x	1,5				21,85
M	22	x	2				21,82
M	23	x	1				22,88
M	23	x	1,5				22,85
M	24	x	1				23,88
M	24	x	1,25				23,87
M	24	x	1,5				23,85
M	24	x	2				23,82
M	25	x	1				24,88
M	25	x	1,25				24,87
M	25	x	1,5				24,85
M	25	x	2				24,82
M	26	x	1				25,88
M	26	x	1,5				25,85
M	26	x	2				25,82
M	27	x	1				26,88
M	27	x	1,5				26,85
M	27	x	2				26,82
M	28	x	1				27,88
M	28	x	1,5				27,85
M	28	x	2				27,82
M	30	x	1				29,88
M	30	x	1,5				29,85
M	30	x	2				29,82
M	30	x	3				29,76
M	32	x	1				31,88
M	32	x	1,5				31,85
M	32	x	2				31,82
M	33	x	1				32,88
M	33	x	1,5				32,85
M	33	x	2				32,82
M	33	x	3				32,76
M	34	x	1,5				33,85
M	34	x	2				33,82
M	35	x	1,5				34,85
M	36	x	1,5				35,85
M	36	x	2				35,82
M	36	x	3				35,76
M	38	x	1,5				37,85
M	38	x	2				37,82
M	39	x	1,5				38,85
M	39	x	2				38,82
M	39	x	3				38,76
M	40	x	1,5				39,85
M	40	x	2				39,82
M	40	x	3				39,76
M	42	x	1,5				41,85
M	42	x	2				41,82
M	42	x	3				41,76
M	44	x	1,5				43,75
M	45	x	1,5				44,85
M	45	x	2				44,82
M	45	x	3				44,76
M	45	x	4				44,70

MF							
d1 x p (mm)							⌀a
M	48	x	1,5				47,85
M	48	x	2				47,82
M	48	x	3				47,76
M	48	x	4				47,70
M	50	x	1,5				49,85
M	50	x	2				49,82
M	50	x	3				49,76
M	52	x	1,5				51,85
M	52	x	2				51,82
M	52	x	3				51,76
M	52	x	4				51,70
M	56	x	1,5				55,85
M	56	x	2				55,82
M	56	x	3				55,76
M	56	x	4				55,70
M	60	x	1,5				59,75
M	60	x	2				59,82
M	60	x	3				59,76
M	60	x	4				59,70
M	63	x	1,5				62,85



BSW							
d1 (") - p (tpi)							⌀a
W	1/16	-	60				1,49
W	3/32	-	48				2,28
W	1/8	-	40				3,06
W	5/32	-	32				3,85
W	3/16	-	24				4,63
W	7/32	-	24				5,42
W	1/4	-	20				6,18
W	5/16	-	18				7,78
W	3/8	-	16				9,35
W	7/16	-	14				10,90
W	1/2	-	12				12,47
W	9/16	-	12				13,92
W	5/8	-	11				15,66
W	11/16	-	11				17,20
W	3/4	-	10				18,80
W	7/8	-	9				21,92
W	1"	-	8				25,11
W	1"1/8	-	7				28,28
W	1"1/4	-	7				31,45
W	1"3/8	-	6				34,57
W	1"1/2	-	6				37,76
W	1"5/8	-	5				40,91
W	1"3/4	-	5				44,05
W	1"7/8	-	4,5				47,27
W	2"	-	4,5				50,38
W	2"1/4	-	4				56,90
W	2"1/2	-	4				63,20
W	2"3/4	-	3,5				69,60
W	3"	-	3,5				76,20

EJES PREVIOS AL ROSCADO
AXES PRÉALABLES AU FILETAGE / SHAFTS BEFORE THREAD

UNC

d1 (") - p (tpi)	⌀a
UNC N.1- 64	1,79
UNC N.2- 56	2,12
UNC N.3- 48	2,44
UNC N.4- 40	2,76
UNC N.5- 40	3,09
UNC N.6- 32	3,41
UNC N.8- 32	4,07
UNC N.10- 24	4,71
UNC N.12- 24	5,37
UNC 1/4- 20	6,22
UNC 5/16- 18	7,8
UNC 3/8- 16	9,37
UNC 7/16- 14	10,95
UNC 1/2- 13	12,52
UNC 9/16- 12	14,10
UNC 5/8- 11	15,68
UNC 3/4- 10	18,84
UNC 7/8- 9	22,00
UNC 1"- 8	25,16
UNC 1"1/8- 7	28,31
UNC 1"1/4- 7	31,49
UNC 1"3/8- 6	34,63
UNC 1"1/2- 6	37,81
UNC 1"3/4- 5	44,12
UNC 2"- 4,5	50,45
UNC 2"1/4- 4,5	56,80
UNC 2"1/2- 4	63,10
UNC 2"3/4- 4	69,45
UNC 3"- 4	75,80

UNF

d1 (") - p (tpi)	⌀a
UNF N.0- 80	1,47
UNF N.1- 72	1,79
UNF N.2- 64	2,12
UNF N.3- 56	2,44
UNF N.4- 48	2,77
UNF N.5- 44	3,10
UNF N.6- 40	3,42
UNF N.8- 36	4,08
UNF N.10- 32	4,73
UNF N.12- 28	5,38
UNF 1/4- 28	6,24
UNF 5/16- 24	7,82
UNF 3/8- 24	9,41
UNF 7/16- 20	10,98
UNF 1/2- 20	12,56
UNF 9/16- 18	14,14
UNF 5/8- 18	15,73
UNF 3/4- 16	18,89
UNF 7/8- 14	22,05
UNF 1"- 12	25,21
UNF 1"1/8- 12	28,38
UNF 1"1/4- 12	31,56
UNF 1"3/8- 12	34,73
UNF 1"1/2- 12	37,91

UNEF

d1 (") - p (tpi)	⌀a
UNEF N.12- 32	5,39
UNEF 1/4- 32	6,25
UNEF 5/16- 32	7,84
UNEF 3/8- 32	9,42
UNEF 7/16- 28	11,00
UNEF 1/2- 28	12,59
UNEF 9/16- 24	14,18
UNEF 5/8- 24	15,75
UNEF 3/4- 20	18,91
UNEF 7/8- 20	22,09
UNEF 1"- 20	25,26
UNEF 1"1/8- 18	28,40
UNEF 1"1/4- 18	31,59
UNEF 1"3/8- 18	34,76
UNEF 1"1/2- 18	37,94

G (BSP)

d1 (") - p (tpi)	⌀a
G 1/16- 28	7,61
G 1/8- 28	9,62
G 1/4- 19	13,03
G 3/8- 19	16,53
G 1/2- 14	20,81
G 5/8- 14	22,77
G 3/4- 14	26,30
G 7/8- 14	30,06
G 1"- 11	33,07
G 1"1/8- 11	37,71
G 1"1/4- 11	41,73
G 1"3/8- 11	44,14
G 1"1/2- 11	47,62
G 1"3/4- 11	53,56
G 2"- 11	59,43
G 2"1/4- 11	65,49
G 2"1/2- 11	74,94
G 2"3/4- 11	81,27
G 3"- 11	87,57
G 3"1/4- 11	93,68
G 3"1/2- 11	100,01
G 3"3/4- 11	106,35
G 4"- 11	112,68

BA

d1 (") - p (tpi)	⌀a
BA 0 6-1	5,93
BA 1 5,3- 0,9	5,23
BA 2 4,7- 0,81	4,64
BA 3 4,1- 0,73	4,04
BA 4 3,6- 0,66	3,55
BA 5 3,2- 0,59	3,15
BA 6 2,8- 0,53	2,76
BA 7 2,5- 0,48	2,46
BA 8 2,2- 0,43	2,16

PG

d1 (") - p (tpi)	⌀a
Pg 7 12,5- 20	12,40
Pg 9 15,2- 18	15,10
Pg 11 18,6- 18	18,50
Pg 13,5 20,4- 18	20,30
Pg 16 22,5- 18	22,40
Pg 21 28,3- 16	28,15
Pg 29 37,0- 16	36,85
Pg 36 47,0- 16	46,85
Pg 42 54,0- 16	53,85
Pg 48 59,3- 16	59,15

NPSM

d1 (") - p (tpi)	⌀a
NPSM 1/8- 27	4,99
NPSM 1/4- 18	13,24
NPSM 3/8- 18	16,70
NPSM 1/2- 14	20,77
NPSM 3/4- 14	26,13
NPSM 1"- 11,5	32,68
NPSM 1"1/4- 11,5	41,45
NPSM 1"1/2- 11,5	47,52
NPSM 2" - 11,5	59,56

NPT

d1 (") - p (tpi)	L min	⌀a
NPT 1/16- 27	8,40	7,58
NPT 1/8- 27	8,50	9,93
NPT 1/4- 18	12,70	13,18
NPT 3/8- 18	12,90	16,60
NPT 1/2- 14	16,80	20,63
NPT 3/4- 14	17,10	25,95
NPT 1"- 11,5	21,30	32,51
NPT 1"1/4- 11,5	21,90	41,23
NPT 1"1/2- 11,5	22,30	47,30
NPT 2" - 11,5	23,10	59,31

NPTF

d1 (") - p (tpi)	L min	⌀a
NPTF 1/16- 27	8,40	7,58
NPTF 1/8- 27	8,50	9,93
NPTF 1/4- 18	12,70	13,18
NPTF 3/8- 18	12,90	16,60
NPTF 1/2- 14	16,80	20,63
NPTF 3/4- 14	17,10	25,95
NPTF 1"- 11,5	21,30	32,51
NPTF 1"1/4- 11,5	21,90	41,23
NPTF 1"1/2- 11,5	22,30	47,30
NPTF 2" - 11,5	23,10	59,31

R

d1 (") - p (tpi)	L min	⌀a
R 1/8- 28	8,20	9,48
R 1/4- 19	12,10	12,78
R 3/8- 19	12,50	16,26
R 1/2- 14	16,40	20,44
R 3/4- 14	17,70	25,85
R 1"- 11	20,90	32,60
R 1"1/4- 11	23,20	41,12
R 1"1/2- 11	23,20	47,01
R 2" - 11	27,50	58,62

BSF



d1 (") - p (tpi)	⌀a
BSF 3/16 - 32	4,67
BSF 7/32 - 28	5,47
BSF 1/4 - 26	6,25
BSF 5/16 - 22	7,82
BSF 3/8 - 20	9,39
BSF 7/16 - 18	10,97
BSF 1/2 - 16	12,54
BSF 9/16 - 16	14,12
BSF 5/8 - 14	15,71
BSF 11/16 - 14	17,30
BSF 3/4 - 12	18,85
BSF 7/8 - 11	22,02
BSF 1" - 10	25,17
BSF 1"1/8 - 9	24,40
BSF 1"1/4 - 9	31,60
BSF 1"3/8 - 8	34,70
BSF 1"1/2 - 8	37,90
BSF 1"5/8 - 8	41,10
BSF 1"3/4 - 7	44,20
BSF 2" - 7	50,60

TABLA DE CONVERSIÓN DE PULGADAS A MILÍMETROS

Calculado: 1 pulgada = 25,4 mm. (exactos), ver DIN 4890 (edición 2/75)

Milímetros

Parte de pulgadas	0	1	2	3	4	5	6	7	9	10	11	12
0	0	25,400 0	50,800 0	76,200 0	101,600 0	127,000 0	152,400 0	177,800 0	228,600 0	254,000 0	279,400 0	203,200 0
1/64	0,015 625	0,396 9	25,796 9	51,196 9	76,596 9	101,996 9	127,396 9	152,796 9	178,196 9	228,996 9	254,396 9	279,796 9	203,596 9
1/32	0,031 25	0,793 8	26,193 8	51,593 8	76,993 8	102,393 8	127,793 8	153,193 8	178,593 8	229,393 8	254,793 8	280,193 8	203,393 8
3/64	0,046 875	1,190 6	26,590 6	51,990 6	77,390 6	102,790 6	128,190 6	153,590 6	178,990 6	229,790 6	255,190 6	280,590 6	204,390 6
1/16	0,062 5	1,587 5	26,987 5	52,387 5	77,787 5	103,187 5	128,587 5	153,987 5	179,387 5	260,187 5	255,587 5	280,987 5	204,787 5
5/64	0,078 125	1,984 4	27,384 4	52,784 4	78,181 4	103,584 4	128,984 4	154,384 4	179,784 4	230,584 4	255,984 4	281,384 4	205,180 4
3/32	0,093 75	2,381 2	27,781 2	53,181 2	78,581 2	103,981 2	129,381 2	154,781 2	180,181 2	230,981 2	256,381 2	281,781 2	205,581 2
7/64	0,109 375	2,778 1	28,178 1	53,578 1	78,978 1	104,378 1	129,778 1	155,178 1	180,578 1	231,378 1	256,778 1	282,178 1	205,578 1
1/8	0,125	3,175 0	28,575 0	53,975 0	79,375 2	104,775 0	130,175 0	155,575 0	150,975 0	231,775 0	257,175 0	282,575 0	206,375 0
9/64	0,140 625	3,571 9	28,971 9	54,361 9	79,771 9	105,171 9	130,571 9	155,971 9	181,371 9	232,171 9	257,571 9	282,971 9	206,771 9
5/32	0,156 25	3,968 8	29,368 8	54,768 8	80,186 8	105,568 8	130,968 8	156,368 8	181,768 8	232,568 8	257,968 8	283,368 8	207,168 8
11/64	0,171 875	4,365 6	29,765 6	55,165 6	80,565 6	105,965 6	131,365 6	156,765 6	182,165 6	232,965 6	258,365 6	283,765 6	207,565 6
3/16	0,187 5	4,762 5	30,162 5	55,562 5	80,962 5	106,362 5	131,762 5	157,162 5	182,562 5	233,362 5	258,762 5	284,162 5	207,962 5
13/64	0,203 125	5,159 4	30,559 4	55,959 4	81,359 4	106,759 4	132,159 4	157,559 4	182,959 4	233,759 4	259,159 4	284,559 4	208,359 4
7/32	0,218 75	5,556 2	30,956 2	56,356 2	81,756 2	107,156 2	132,556 2	157,956 2	183,353 2	234,156 2	259,556 2	284,956 2	208,756 2
15/64	0,234 375	5,953 1	31,353 1	56,753 1	82,153 1	107,553 1	132,953 1	158,353 1	183,753 1	234,553 1	259,953 1	285,353 1	209,153 1
1/4	0,25	6,350 0	31,750 0	56,150 0	82,550 0	107,950 0	133,350 0	158,750 0	184,150 0	234,950 0	260,350 0	285,750 0	209,550 0
17/64	0,265 625	6,746 9	32,146 9	57,546 9	82,946 9	108,346 9	133,746 9	159,146 9	184,546 9	235,346 9	260,746 9	286,146 9	209,946 9
9/32	0,281 25	7,143 8	32,543 8	57,943 8	83,343 8	108,743 8	134,143 8	159,543 8	184,943 8	235,743 8	261,143 8	286,543 8	210,343 8
19/64	0,296 875	7,540 6	32,940 6	58,340 6	83,740 6	109,140 6	134,540 6	159,940 6	185,340 6	236,140 6	261,540 6	286,940 6	210,740 6
5/16	0,312 5	7,937 5	33,337 5	58,737 5	84,137 5	109,537 5	134,937 5	160,337 5	185,737 5	236,537 5	261,937 5	287,337 5	211,137 5
21/64	0,328 125	8,334 4	33,734 4	59,134 4	84,534 4	109,934 4	135,334 4	160,734 4	186,134 4	236,934 4	262,334 4	287,734 4	211,534 4
11/32	0,343 75	8,731 2	34,131 2	59,531 2	84,931 2	110,331 2	135,731 2	161,131 2	186,531 2	237,331 2	262,731 2	288,131 2	211,931 2
23/64	0,359 375	9,128 1	34,528 1	59,928 1	85,328 1	110,728 1	136,128 1	161,528 1	186,928 1	237,728 1	263,128 1	288,528 1	212,328 1
3/8	0,375	9,525 0	34,925 0	60,325 0	85,725 0	111,125 0	136,525 0	161,925 0	187,625 0	238,125 0	263,525 0	288,925 0	212,725 0
25/64	0,390 625	9,921 9	35,321 9	60,721 9	86,121 9	111,521 9	136,921 9	162,321 9	187,721 9	238,521 9	263,921 9	289,321 9	213,121 9
13/32	0,406 25	10,318 8	35,718 8	61,118 8	86,518 8	111,918 8	137,318 8	162,718 8	188,118 8	238,918 8	264,318 8	289,718 8	213,518 8
27/64	0,421 875	10,715 6	36,115 6	61,515 6	86,915 6	112,315 6	137,715 6	163,115 6	188,515 6	239,315 6	264,715 6	290,115 6	213,915 6
7/16	0,437 5	11,112 5	36,512 5	61,912 5	87,312 5	112,712 5	138,112 5	163,512 5	188,912 5	239,712 5	265,112 5	290,512 5	214,312 5
29/64	0,453 125	11,509 4	36,909 4	62,309 4	87,709 4	113,109 4	138,509 4	163,909 4	189,309 4	240,109 4	265,509 4	290,909 4	214,709 4
15/32	0,468 75	11,906 2	37,306 2	62,706 2	88,106 2	113,506 2	138,906 2	164,306 2	189,706 2	240,506 2	265,906 2	291,306 2	215,106 2
31/64	0,484 375	12,303 1	37,703 1	63,103 1	88,503 1	113,903 1	139,303 1	164,703 1	190,103 1	240,903 1	266,303 1	291,703 1	215,503 1
1/2	0,5	12,700 0	38,100 0	63,500 0	88,900 0	114,300 0	139,700 0	165,100 0	190,500 0	241,300 0	266,700 0	292,100 0	215,900 0
33/64	0,515 625	13,096 9	38,496 9	63,896 9	89,296 9	114,696 9	140,096 9	165,496 9	190,896 9	241,696 9	267,096 9	292,496 9	216,296 9
17/32	0,531 25	13,493 8	38,893 8	64,293 8	89,693 8	115,093 8	140,493 8	165,893 8	191,293 8	242,093 8	267,493 8	292,893 8	216,693 8
35/64	0,546 875	13,890 6	39,290 6	64,690 6	90,090 6	115,490 6	140,890 6	166,290 6	191,690 6	242,490 6	267,890 6	293,290 6	217,090 6
9/16	0,562 5	14,287 5	39,687 5	65,087 5	90,487 5	115,887 5	141,287 5	166,687 5	192,087 5	242,887 5	268,287 5	293,687 5	217,487 5
37/64	0,578 125	14,684 4	40,084 4	65,484 4	90,884 4	116,284 4	141,684 4	167,084 4	192,484 4	243,284 4	268,684 4	294,084 4	217,884 4
19/32	0,593 75	15,081 2	40,481 2	65,8812	91,281 2	116,681 2	142,081 2	167,481 2	192,881 2	243,681 2	269,081 2	294,481 2	218,281 2
39/64	0,609 375	15,478 1	40,878 1	66,278 1	91,678 1	117,078 1	142,478 1	167,878 1	193,278 1	244,078 1	269,478 1	294,878 1	218,678 1
5/8	0,625	15,875 0	41,275 0	66,675 0	92,075 0	117,475 0	142,875 0	168,275 0	193,675 0	244,475 0	269,875 0	295,275 0	219,075 0
41/64	0,640 625	16,271 9	41,761 9	67,071 9	92,471 9	117,871 9	143,271 9	168,671 9	194,071 9	244,871 9	270,271 9	295,671 9	219,471 9
21/32	0,656 25	16,668 9	42,068 8	67,468 8	92,868 8	118,268 8	143,668 8	169,068 8	194,468 8	245,268 8	270,668 8	296,068 8	219,868 8
43/64	0,671 875	15,065 6	42,465 6	67,865 6	93,265 6	118,665 6	144,065 6	169,465 6	194,865 6	245,665 6	271,065 6	296,465 6	220,265 6
11/16	0,687 5	17,462 5	42,862 5	68,262 5	93,662 5	119,062 5	144,462 5	169,862 5	195,262 5	246,062 5	271,462 5	296,862 5	220,662 5
45/64	0,703 125	15,859 4	43,259 4	68,659 4	94,059 4	119,459 4	144,859 4	170,259 4	195,659 4	246,459 4	271,859 4	297,259 4	221,059 4
23/32	0,718 75	18,256 2	43,656 2	69,056 2	94,456 2	119,856 2	145,256 2	170,652 2	196,056 2	246,856 2	272,256 2	297,656 2	221,456 2
47/64	0,734 375	18,653 1	44,053 1	69,4531	94,853 1	120,253 1	145,653 1	171,053 1	196,453 1	247,253 1	272,653 1	298,053 1	221,853 1
3/4	0,75	19,050 0	44,450 0	69,850 0	95,250 0	120,650 0	146,050 0	171,450 0	196,850 0	247,650 0	273,050 0	298,450 0	222,250 0
49/64	0,765 625	19,446 9	44,846 9	70,246 9	95,646 9	121,046 9	146,446 9	171,846 9	197,246 9	248,046 9	273,466 9	298,846 9	222,646 9
25/32	0,781 25	19,843 8	45,243 8	70,643 8	96,043 8	121,443 8	146,843 8	172,243 8	197,643 8	248,443 8	273,843 8	299,243 8	223,043 8
51/64	0,796 875	20,240 6	45,640 6	71,040 6	96,440 6	121,840 6	147,240 6	172,640 6	198,040 6	248,340 6	274,240 6	299,640 6	223,440 6
13/16	0,812 5	20,637 5	46,037 5	71,437 5	96,837 5	122,237 5	147,637 5	173,077 5	198,437 5	249,237 5	274,637 5	300,037 5	223,837 5
53/64	0,828 125	21,034 4	46,434 4	71,834 4	97,234 4	122,634 4	148,034 4	173,434 4	198,834 4	249,634 4	275,034 4	300,434 4	224,234 4
0/32	0,843 75	21,431 2	46,831 2	72,231 2	97,631 2	123,031 2	148,431 2	173,831 2	199,231 2	250,031 2	275,431 2	300,831 2	224,631 2
55/64	0,859 375	21,828 1	47,228 1	72,628 1	98,028 1	123,428 1	148,828 1	174,228 1	199,628 1	250,428 1	275,828 1	301,228 1	225,028 1
7/8	0,875	22,225 0	47,625 0	73,025 0	98,425 0	123,825 0	149,225 0	174,625 2	200,025 0	250,825 0	276,225 0	301,625 0	225,425 0
57/64	0,890 625	22,621 9	48,021 9	73,421 9	98,821 9	124,221 9	149,621 9	175,021 9	200,421 9	251,221 9	276,621 9	302,021 9	225,821 9
29/32	0,906 25	23,018 8	48,418 8	73,818 8	99,218 8	124,618 8	150,018 8	175,418 8	200,818 8	251,618 8	277,018 8	302,418 8	226,218 8
59/64	0,921 875	23,415 6	48,815 6	74,215 6	99,615 6	125,015 6	150,415 6	175,815 6	201,215 6	252,015 6	277,415 6	302,815 6	226,615 6
15/16	0,937 5	23,812 5	49,212 5	74,612 5	100,012 5	125,412 5	150,812 5	176,212 5	201,612 5	252,412 5	277,812 5	303,212 5	227,012 5
61/64	0,953 125	24,209 4	49,609 4	75,009 4	100,409 4	125,809 4	151,209 4	176,609 4	202,009 4	252,809 4	278,209 4	303,609 4	227,409 4
31/32	0,968 75	24,606 2	50,006 2	75,406 2	100,806 2	126,206 2	151,606 2	177,006 2	202,406 2	253,206 2	278,606 2	304,006 2	227,806 2
63/64	0,984 375	25,003 1	50,403 1	75,803 1	101,203 1	126,603 1	152,003 1	177,403 1	202,803 1	253,603 1	279,003 1	304,403 1	228,203 1

12" = 304,800 0

Ejemplo: 2"1/8 = 53,975

Milímetros

Parte de pulgadas	0	1	2	3	4	5	6	7	9	10	11	12
0	0	25,400 0		76,200 0	101,600 0	127,000 0	152,400 0	177,800 0	203,200 0	228,600 0	254,000 0	279,400 0
1/64	0,015 625	0,396 9	25,796 9		76,596 9	101,996 9	127,396 9	152,796 9	178,196 9	203,596 9	228,996 9	254,396 9	279,796 9
1/32	0,031 25	0,793 8	26,193 8		76,993 8	102,393 8	127,793 8	153,193 8	178,593 8	203,393 8	229,393 8	254,7938	280,193 8
3/64	0,046 875	1,190 6	26,590 6		77,390 6	102,790 6	128,190 6	153,590 6	178,990 6	204,390 6	229,790 6	255,190 6	280,590 6
1/16	0,062 5	1,587 5	26,987 5		77,787 5	103,187 5	128,587 5	153,987 5	179,387 5	204,787 5	230,187 5	255,587 5	280,987 5
5/64	0,078 125	1,984 4	27,384 4		78,181 4	103,584 4	128,984 4	154,384 4	179,784 4	205,184 4	230,584 4	255,984 4	281,384 4
3/32	0,093 75	2,381 2	27,781 2		78,581 2	103,981 2	129,381 2	154,781 2	180,181 2	205,581 2	230,981 2	256,381 2	281,781 2
7/64	0,109 375	2,778 1	28,178 1		78,978 1	104,378 1	129,778 1	155,178 1	180,578 1	205,978 1	231,378 1	256,778 1	282,178 1
1/8				53,975 0	79,375 0	104,775 0	130,175 0	155,575 0	180,975 0	206,375 0	231,775 0	257,175 0	282,575 0
9/64	0,140 625	3,571 9	28,971 9	54,371 9	79,771 9	105,171 9	130,571 9	155,971 9	181,371 9	206,371 9	232,171 9	257,571 9	282,971 9
5/32	0,156 25	3,968 8	29,368 8	54,768 8	80,168 8	105,568 8	130,968 8	156,368 8	181,768 8	207,168 8	232,568 8	257,968 8	283,368 8
11/64	0,171 875	4,365 6	29,765 6	55,165 6	80,565 6	105,965 6	131,365 6	156,765 6	182,165 6	207,165 6	232,965 6	258,365 6	283,765 6

TABLA DE DATOS TÉCNICOS PARA LA INSTALACIÓN DE INSERTOS ROSCADOS
INFORMATION TECHNIQUE POUR L' INSTALLATION DE FILETS RAPPORTES
TECHNICAL DATA SHEET FOR THE INSTALLATION OF WIRE THREAD INSERTS

Taladro									Rosca									Inserto				
Rosca	D	p	Diam. (Dt)	Longitud mínima (Lt) mm					*Diam.ext. (Dr ext) min.*	*Diam.int (Dr int) min.*	*Diam.int. (Dr int) max.*	Longitud mínima (Lr) mm					*Diam.ext. (d1) min.*	*Diam.ext. (d1) max.*	Longitud (W) nº de hilos (min-max)				
			mm	1xd	1,5xd	2xd	2,5xd	3xd	mm	mm	mm	1xd	1,5xd	2xd	2,5xd	3xd	mm	mm	1xd	1,5xd	2xd	2,5xd	3xd
M	2	0,40	2,10	3,80	4,80	5,80	6,80	7,80	2,52	2,09	2,18	2,00	3,00	4,00	5,00	6,00	2,60	2,80	3,0 - 3,3	5,2 - 5,7	7,4 - 8,1	9,6 - 10,5	11,8 - 13,0
M	2,5	0,45	2,60	4,52	5,77	7,02	8,27	9,52	3,08	2,60	2,70	2,50	3,75	5,00	6,25	7,50	3,20	3,70	3,1 - 3,8	5,2 - 6,5	7,4 - 9,2	9,5 - 11,9	11,7 - 14,6
M	3	0,50	3,20	5,25	6,75	8,25	9,75	11,25	3,65	3,11	3,22	3,00	4,50	6,00	7,50	9,00	3,80	4,35	3,4 - 4,3	5,8 - 7,2	8,2 - 10,1	10,5 - 12,8	12,9 - 16,0
M	3,5	0,60	3,70	6,20	7,95	9,70	11,45	13,20	4,28	3,63	3,76	3,50	5,25	7,00	8,75	10,50	4,55	4,75	3,4 - 4,3	5,8 - 7,2	8,2 - 10,1	10,5 - 12,8	12,9 - 16,0
M	4	0,70	4,20	7,15	9,15	11,15	13,15	15,15	4,91	4,15	4,29	4,00	6,00	8,00	10,00	12,00	5,05	5,60	3,4 - 4,0	5,7 - 6,8	8,1 - 9,6	10,5 - 12,3	12,8 - 15,1
M	5	0,80	5,20	8,60	11,10	13,60	16,10	18,60	6,04	5,17	5,33	5,00	7,50	10,00	12,50	15,00	6,25	6,80	3,9 - 4,5	6,5 - 7,6	9,2 - 10,6	11,8 - 13,7	14,4 - 16,7
M	6	1,00	6,30	10,50	13,50	16,50	19,50	22,50	7,30	6,22	6,41	6,00	9,00	12,00	15,00	18,00	7,40	7,95	3,8 - 4,3	6,4 - 7,2	9,1 - 10,1	11,7 - 13,1	14,3 - 16,0
M	7	1,00	7,30	11,50	15,00	18,50	22,00	25,50	8,30	7,22	7,41	7,00	10,50	14,00	17,50	21,00	8,65	9,20	4,6 - 5,3	7,7 - 8,7	10,7 - 12,1	13,7 - 15,6	16,7 - 19,0
M	8	1,25	8,30	13,62	17,62	21,62	25,62	29,62	9,62	8,27	8,48	8,00	12,00	16,00	20,00	24,00	9,80	10,35	4,2 - 4,8	7,1 - 7,8	9,9 - 10,9	12,8 - 14,1	15,6 - 17,2
M	8	1,00	8,30	12,50	16,50	20,50	24,50	28,50	9,30	8,22	8,41	8,00	12,00	16,00	20,00	24,00	9,70	10,25	5,6 - 6,1	9,1 - 10,1	12,5 - 13,8	16,0 - 17,7	19,5 - 21,5
M	9	1,25	9,30	14,62	19,12	23,62	28,13	32,62	10,62	9,27	9,48	9,00	13,50	18,00	22,50	27,00	10,85	11,10	5,1 - 5,5	8,4 - 9,0	11,7 - 12,5	15,0 - 16,1	18,3 - 19,6
M	10	1,50	10,40	16,75	21,75	26,75	31,75	36,75	11,95	10,32	10,56	10,00	15,00	20,00	25,00	30,00	11,95	12,50	4,6 - 5,3	7,7 - 8,2	10,8 - 11,5	13,8 - 14,7	16,9 - 18,0
M	10	1,25	10,30	15,62	20,62	25,62	30,62	35,62	11,62	10,27	10,48	10,00	15,00	20,00	25,00	30,00	12,10	12,65	5,6 - 6,1	9,2 - 10,0	12,7 - 13,8	16,3 - 17,7	19,8 - 21,5
M	10	1,00	10,30	14,50	19,50	24,50	29,50	34,50	11,30	10,22	10,41	10,00	15,00	20,00	25,00	30,00	12,10	12,50	7,3 - 8,1	11,7 - 12,9	16,1 - 17,8	20,5 - 22,6	24,9 - 27,5
M	11	1,50	11,40	17,75	23,25	28,75	34,25	39,75	12,95	11,33	11,56	11,00	16,50	22,00	27,50	33,00	13,10	13,50	5,2 - 5,6	8,6 - 9,2	12,0 - 12,8	15,4 - 16,4	18,7 - 20,0
M	12	1,75	12,40	19,87	25,87	31,87	37,87	43,87	14,27	12,38	12,64	12,00	18,00	24,00	30,00	36,00	14,30	15,00	4,8 - 5,2	7,9 - 8,5	11,1 - 11,9	14,2 - 15,2	17,3 - 18,6
M	12	1,50	12,40	18,75	24,75	30,75	36,75	42,75	14,10	12,32	12,56	12,00	18,00	24,00	30,00	36,00	14,25	14,95	5,6 - 6,1	9,2 - 10,0	12,7 - 13,8	16,2 - 17,7	19,8 - 21,5
M	12	1,25	12,30	17,62	23,62	29,62	35,62	41,62	13,62	12,27	12,48	12,00	18,00	24,00	30,00	36,00	14,30	15,00	7,0 - 7,9	11,2 - 12,5	15,5 - 17,2	19,7 - 21,8	23,9 - 26,5
M	12	1,00	12,30	16,50	22,50	28,50	34,50	40,50	13,30	12,22	12,41	12,00	18,00	24,00	30,00	36,00	14,40	14,80	9,3 - 10,3	14,7 - 16,1	20,0 - 21,9	25,4 - 27,8	30,8 - 33,6
M	14	2,00	14,50	23,00	30,00	37,00	44,00	51,00	16,60	14,43	14,73	14,00	21,00	28,00	35,00	42,00	16,65	17,35	5,0 - 5,5	8,2 - 8,9	11,4 - 12,3	14,6 - 15,8	17,9 - 19,2
M	14	1,50	14,50	20,75	27,75	34,75	41,75	48,75	15,95	14,35	14,56	14,00	21,00	28,00	35,00	42,00	15,96	16,64	6,9 - 7,7	11,1 - 12,2	15,3 - 16,7	19,4 - 21,2	23,6 - 25,7
M	14	1,25	14,40	19,62	26,62	33,62	40,62	47,62	15,62	14,27	14,48	14,00	21,00	28,00	35,00	42,00	15,74	16,00	8,6 - 9,5	13,6 - 14,9	18,6 - 20,4	23,6 - 25,8	28,6 - 31,2
M	14	1,00	14,40	18,50	25,50	32,50	39,50	46,50	15,30	14,22	14,41	14,00	21,00	28,00	35,00	42,00	15,35	15,65	11,1 - 12,2	17,4 - 18,9	23,7 - 25,7	30,0 - 32,5	36,2 - 39,3
M	16	2,00	16,50	25,00	33,00	41,00	49,00	57,00	18,60	16,43	16,73	16,00	24,00	32,00	40,00	48,00	18,90	19,60	5,9 - 6,5	9,5 - 10,2	13,2 - 14,2	16,9 - 18,1	20,5 - 22,0
M	16	1,50	16,50	22,75	30,75	38,75	46,75	54,75	17,95	16,32	16,56	16,00	24,00	32,00	40,00	48,00	18,10	18,40	8,0 - 8,9	12,8 - 13,9	17,5 - 19,2	22,3 - 24,3	27,0 - 29,4
M	18	2,50	18,50	29,25	38,25	47,25	56,25	65,25	21,25	18,54	18,90	18,00	27,00	36,00	45,00	54,00	21,30	22,00	5,1 - 5,7	8,5 - 9,2	11,8 - 12,7	15,2 - 16,3	18,5 - 19,8
M	18	2,00	18,50	27,00	36,00	45,00	54,00	63,00	20,60	18,43	18,73	18,00	27,00	36,00	45,00	54,00	20,80	21,45	6,6 - 7,3	10,8 - 11,7	15,0 - 16,0	19,1 - 20,4	23,1 - 24,7
M	18	1,50	18,50	24,75	33,75	42,75	51,75	60,75	19,95	18,32	18,56	18,00	27,00	36,00	45,00	54,00	20,15	20,80	9,2 - 10,3	14,5 - 16,1	20,0 - 21,9	25,4 - 27,8	30,6 - 33,6
M	20	2,50	20,50	31,25	41,25	51,25	61,25	71,25	23,25	20,54	20,90	20,00	30,00	40,00	50,00	60,00	23,55	24,40	5,8 - 6,5	9,5 - 10,4	13,2 - 14,4	16,8 - 18,3	20,5 - 22,2
M	20	2,00	20,50	29,00	39,00	49,00	59,00	69,00	22,60	20,43	20,73	20,00	30,00	40,00	50,00	60,00	22,80	23,45	7,5 - 8,3	12,0 - 13,1	16,5 - 18,0	21,2 - 22,8	25,7 - 27,7
M	20	1,50	20,50	26,75	36,75	46,75	56,75	66,75	21,95	20,32	20,56	20,00	30,00	40,00	50,00	60,00	22,20	22,80	10,4 - 11,6	16,3 - 18,1	22,3 - 24,6	28,2 - 31,1	34,2 - 37,6
M	22	2,50	22,50	33,25	44,25	55,25	66,25	77,25	25,25	22,54	22,90	22,00	33,00	44,00	55,00	66,00	25,90	26,90	6,4 - 7,3	10,4 - 11,6	14,4 - 16,0	18,4 - 20,3	22,4 - 24,7
M	22	2,00	22,50	31,00	42,00	53,00	64,00	75,00	24,60	22,43	22,73	22,00	33,00	44,00	55,00	66,00	24,85	26,80	8,4 - 9,3	13,3 - 14,6	18,3 - 20,0	23,3 - 25,3	28,3 - 30,6
M	22	1,50	22,50	28,75	39,75	50,75	61,75	72,75	23,95	22,32	22,56	22,00	33,00	44,00	55,00	66,00	24,20	26,80	11,5 - 12,9	18,0 - 20,1	24,3 - 27,2	31,0 - 34,4	37,5 - 41,5
M	24	3,00	24,75	37,50	49,50	61,50	73,50	85,50	27,90	24,65	25,05	24,00	36,00	48,00	60,00	72,00	27,43	29,00	5,8 - 6,5	9,6 - 10,4	13,3 - 14,4	17,0 - 18,3	20,8 - 22,2
M	24	2,00	24,50	33,00	45,00	57,00	69,00	81,00	26,60	24,43	24,73	24,00	36,00	48,00	60,00	72,00	28,60	29,10	9,1 - 10,3	14,5 - 16,1	19,8 - 21,9	25,2 - 27,8	30,5 - 33,6
M	24	1,50	24,50	30,75	42,75	54,75	66,75	78,75	26,02	24,33	24,56	24,00	36,00	48,00	60,00	72,00	26,20	26,80	12,9 - 14,2	20,1 - 22,0	27,3 - 29,9	34,5 - 37,7	41,7 - 45,5
UNC	N.2	56	2,30	4,22	5,31	6,40	7,50	8,58	2,84	2,28	2,44	2,18	3,27	4,36	5,46	6,55	2,79	3,02	2,7 - 3,2	4,7 - 5,5	6,8 - 7,9	8,9 - 10,2	11,0 - 12,6
UNC	N.4	40	3,00	5,69	7,11	8,53	9,95	11,38	3,67	3,00	3,15	2,84	4,26	5,68	7,11	8,53	3,65	4,03	2,3 - 3,2	4,2 - 5,1	6,1 - 7,2	8,0 - 9,3	9,8 - 11,5
UNC	N.5	40	3,40	6,02	7,62	9,19	10,79	12,37	4,00	3,33	3,48	3,17	4,74	6,35	7,92	9,52	4,01	4,04	2,8 - 3,4	4,9 - 5,8	7,1 - 8,2	9,2 - 10,6	11,4 - 13,1
UNC	N.6	32	3,70	7,09	8,84	10,60	12,34	14,10	4,54	3,68	3,89	3,50	5,25	7,00	8,76	10,50	4,52	4,90	2,3 - 2,9	4,2 - 4,9	6,1 - 7,1	8,1 - 9,2	10,0 - 11,3
UNC	N.8	32	4,50	7,75	9,83	11,91	14,00	16,07	5,11	4,34	4,52	4,16	6,24	8,33	10,41	12,50	5,20	5,58	3,1 - 3,6	5,4 - 6,2	7,7 - 8,7	10,0 - 11,3	12,3 - 13,8
UNC	N.10	24	5,20	9,57	11,99	14,40	16,81	19,22	6,20	5,06	5,28	4,82	7,24	9,65	12,06	14,47	6,19	6,58	2,5 - 2,9	4,5 - 5,1	6,6 - 7,3	8,6 - 9,5	10,6 - 11,7
UNC	N.12	24	5,80	10,26	13,00	15,74	18,46	21,23	6,86	5,72	5,92	5,48	8,22	10,97	13,70	16,45	6,85	7,23	3,1 - 3,6	5,5 - 6,1	7,8 - 8,4	10,2 - 11,1	12,5 - 13,6
UNC	1/4	20	6,70	12,06	15,24	18,41	21,59	24,76	8,00	6,62	6,86	6,35	9,52	12,70	15,87	19,05	7,87	8,38	3,0 - 3,3	5,2 - 5,7	7,5 - 8,1	9,8 - 10,5	12,0 - 13,0
UNC	5/16	18	8,30	14,27	18,26	22,22	26,18	30,15	9,77	8,24	8,49	7,92	11,91	15,87	19,84	23,79	9,65	10,16	3,6 - 4,1	6,2 - 6,8	8,8 - 9,6	11,4 - 12,3	14,0 - 15,1
UNC	3/8	16	9,90	16,66	21,43	26,18	30,96	35,71	11,59	9,89	10,12	9,52	14,27	19,05	23,80	28,57	11,48	11,99	4,0 - 4,5	6,7 - 7,3	9,5 - 10,2	12,3 - 13,2	15,1 - 16,1
UNC	7/16	14	11,60	19,27	24,84	30,38	35,94	41,50	13,47	11,51	11,78	11,10	16,66	22,22	27,80	33,32	13,36	14,00	4,0 - 4,6	6,9 - 7,5	9,7 - 10,5	12,5 - 13,5	15,4 - 16,4
UNC	1/2	13	13,00	21,49	27,83	34,18	40,54	46,89	15,23	13,12	13,40	12,70	19,05	25,40	31,75	38,10	15,16	15,80	4,4 - 4,9	7,4 - 8,1	10,5 - 11,2	13,5 - 14,4	16,5 - 17,6
UNC	9/16	12	14,75	23,80	30,96	38,10	45,23	52,37	17,04	14,75	15,03	14,27	21,43	28,57	35,70	42,84	17,75	17,63	4,7 - 5,1	7,8 - 8,5	11,0 - 11,8	14,1 - 15,1	17,3 - 18,4
UNC	5/8	11	16,50	26,26	34,21	42,14	50,09	58,01	18,87	16,38	16,68	15,87	23,80	31,75	39,67	47,62	18,84	19,48	4,8 - 5,3	8,0 - 8,6	11,2 - 12,0	14,4 - 15,3	17,6 - 18,7
UNC	3/4	10	19,75	30,48	40,00	49,53	59,05	68,58	22,35	19,60	19,91	19,05	28,57	38,10	47,62	57,15	22,37	23,01	5,4 - 6,0	8,9 - 9,6	12,5 - 13,2	16,0 -16,9	19,5 - 20,6
UNC	7/8	9	23,00	34,92	46,02	54,33	68,24	79,37	25,89	22,84	23,18	22,22	33,32	44,45	55,55	66,67	25,95	26,72	5,8 -6,3	9,5 - 10,1	13,2 - 14,0	16,9 - 17,9	20,6 - 21,8
UNC	1	8	26,00	39,70	52,37	65,07	77,77	90,47	29,52	26,09	26,47	25,40	38,10	50,80	63,50	76,20	29,61	30,38	5,9 - 6,4	9,7 -10,3	13,5 - 14,3	17,2 - 18,2	21,0 - 22,1
UNC	1"1/8	7	29,50	44,91	59,18	73,48	87,75	102,05	33,29	29,36	29,74	28,57	42,85	57,15	71,50	85,72	33,40	34,42	5,8 - 6,3	9,5 - 10,2	13,2 - 14,1	16,9 - 18,0	20,6 -21,9
UNC	1"1/4	7	33,00	48,08	63,95	79,83	95,70	111,58	36,46	32,54	32,92	31,75	47,62	63,50	79,37	95,25	36,65	37,67	6,6 - 7,2	10,8 - 11,5	14,9 - 15,9	19,1 - 20,2	23,2 - 24,5
UNC	1"3/8	6	36,00	53,97	71,42	88,90	106,34	123,82	40,42	35,84	36,35	34,92	52,37	69,85	87,30	104,77	40,59	41,73	6,1 - 6,6	10,0 - 10,7	13,9 - 14,7	17,7 - 18,8	21,6 - 22,8
UNC	1"1/2	6	39,00	57,15	76,20	95,25	114,30	133,35	43,60	39,02	39,53	38,10	57,15	76,20	95,25	114,30	43,86	45,00	6,8 - 7,4	11,0 - 11,8	15,3 - 16,2	19,5 - 20,7	23,8 - 25,1
UNF	N.4	48	3,00	5,23	6,65	8,07	9,50	10,92	3,53	2,97	3,12	2,84	4,26	5,69	7,11	8,53	3,73	4,11	3,1 - 3,8	5,3 - 6,5	7,5 - 9,1	9,7 - 11,7	12,0 - 14,3
UNF	N.6	40	3,70	6,35	9,85	11,60	12,20	13,36	4,33	3,66	3,81	3,50	5,26	7,00	8,76	10,51	4,39	4,90	3,1 - 3,8	5,4 - 6,4	7,7 - 9,1	10,0 - 11,7	12,3 - 14,3
UNF	N.8	36	4,40	7,34	9,42	11,50	13,58	15,67	5,08	4,32	4,47	4,16	6,25	8,33	10,41	12,50	5,18	5,69	3,5 - 4,2	6,0 - 7,0	8,5 - 9,8	11,0 - 12,6	13,5 - 15,4
UNF	N.10	32	5,10	8,40	10,82	13,23	15,65	18,06	5,86	5,00	5,18	4,82	7,24	9,65	12,06	14,48	5,99	6,50	3,7 - 4,4	6,3 - 7,3	8,9 - 10,2	11,5 - 13,1	14,3 - 16,0
UNF	1/4	28	6,60	10,44	13,61	16,79	19,96	23,14	7,53	6,55	6,72	6,35	9,52	12,70	15,87	19,05	7,77	8,28	4,6 - 5,3	7,6 - 8,6	10,7 - 12,0	13,7 - 15,3	16,8 - 18,7
UNF	5/16	24	8,20	12,70	16,66	20,62	24,61	28,57	9,31	8,17	8,35	7,92	11,91	15,87	19,84	23,80	9,65	10,16	5,0 - 5,7	8,4 - 9,3	11,6 - 12,9	14,9 - 16,5	18,2 - 20,1
UNF	3/8	24	9,80	14,27	19,05	23,80	28,57	33,32	10,90	9,75	9,93	9,52	14,27	19,05	23,80	28,57	11,38	11,89	6,4 - 7,2	10,4 - 11,5	14,4 - 15,9	18,4 - 20,2	22,4 - 24,6
UNF	7/16	20	11,50	16,81	22,38	27,94	33,50	39,04	12,76	11,39	11,59	11,10	16,66	22,22	27,79	33,32	13,31	13,94	6,2 - 7,0	10,1 - 11,2	13,9 - 15,4	17,8 - 19,6	21,6 - 23,8
UNF	1/2	20	13,00	18,41	24,76	31,11	37,46	43,81	14,35	12,97	13,16	12,70	19,10	25,40	31,75	38,10	15,03	15,67	7,3 - 8,2	11,8 - 13,0	16,2 - 17,9	20,7 - 22,7	25,1 - 27,6
UNF	9/16	18	14,50	20,62	27,79	34,92	42,06	49,20	16,12	14,59	14,79	14,27	21,43	28,57	35,71	42,85	16,91	17,55	7,5 - 8,4	12,1 - 13,4	16,7 - 18,3	21,2 - 23,2	25,8 - 28,2
UNF	5/8	18	16,25	22,22	30,15	38,10	46,02	53,98	17,70	16,18	16,38	15,87	23,80	31,75	39,67	47,62	18,62	19,25	8,6 - 9,5	13,7 - 15,0	18,8 - 20,6	23,9 - 26,1	29,0 - 31,6
UNF	3/4	16	19,50	26,18	35,71	45,23	54,76	64,28	21,11	19,39	19,60	19,05	28,57	38,10	47,62	57,15	22,25	22,88	9,2 - 10,2	14,6 - 16,0	20,0 - 21,6	25,4 - 27,7	30,8 - 33,5
UNF	7/8	14	22,50	30,38	41,50	52,60	63,72	74,83	24,58	22,62	22,84	22,22	33,32	44,45	55,55	66,67	25,93	26,70	9,5 - 10,4	15,0 - 16,4	20,5 - 22,3	26,1 - 28,3	31,5 - 34,3
UNF	1	12	26,00	34,92	47,62	60,32	73,02	85,72	28,15	25,86	26,11	25,40	38,10	50,80	63,50	76,20	29,69	30,45	9,3 - 10,2	14,7 - 16,1	20,2 - 21,9	25,6 - 27,8	31,00 - 33,6
UNF	1"1/8	12	29,00	38,10	52,37	66,67	80,95	95,25	31,33	29,03	29,29	28,57	42,85	57,15	71,42	85,72	33,12	33,88	10,7 - 11,6	16,8 - 18,3	22,9 - 24,9	29,1 - 31,5	35,2 - 38,1
UNF	1"1/4	12	32,50	41,27	57,15	73,02	88,90	104,77	34,50	32,21	32,46	31,75	47,62	63,50	79,37	95,25	36,55	37,31	12,1 - 13,2	18,9 - 20,5	25,7 - 27,9	32,6 - 35,2	39,4 - 42,6
UNF	1"3/8	12	35,50	44,45	61,90	79,37	96,82	114,30	37,68	35,38	35,63	34,80	52,37	69,85	87,30	104,77	40,00	40,90	13,4 - 14,7	20,9 - 22,8	28,4 - 30,9	35,9 - 38,9	43,4 - 46,9
UNF	1"1/2	12	38,50	47,62	66,67	85,72	104,77	123,82	40,85	38,56	38,81	38,10	57,15	76,20	95,25	114,30	43,43	44,32	14,8 - 16,00	23,0 - 25,0	31,2 - 33,8	39,4 - 42,7	47,6 - 51,5
BSW	1/8	40	3,40	6,10	7,59	9,19	10,79	12,37	3,93	3,28	3,43	3,17	4,75	6,35	7,92	9,52	3,98	4,37	2,9 - 3,6	5,0 - 5,9	7,2 - 8,5	9,3 - 10,9	11,5 - 13,5
BSW	3/16	24	5,00	9,52	11,89	14,27	16,66	19,05	6,01	4,98	5,13	4,75	7,14	9,52	11,90	14,27	6,09	6,47	2,5 - 3,0	4,5 - 5,2	6,5 - 7,5	8,6 - 9,8	10,6 - 11,9
BSW	1/4	20	6,70	12,06	15,24	18,41	21,59	24,76	7,84	6,63	6,78	6,35	9,52	12,70	15,87	19,05	7,97	8,38	3,0 - 3,5	5,3 - 6,0	7,6 - 8,6	9,8 - 11,1	12,1 - 13,6
BSW	5/16	18	8,30	15,20	19,20	23,20	27,10	30,14	9,59	8,33	8,48	7,92	11,91	15,87	19,84	23,80	9,78	10,16	3,7 - 4,2	6,3 - 7,0	8,9 - 9,9	11,5 - 12,7	14,1 15,6
BSW	3/8	16	9,90	16,66	21,44	26,18	30,96	35,71	11,39	9,91	10,11	9,52	14,27	19,05	23,80	28,57	11,60	11,99	4,0 - 4,6	6,8 - 7,5	9,6 - 10,6	12,4 - 13,6	15,2 - 16,6
BSW	7/16	14	11,60	19,28	24,84	30,38	35,94	41,50	13,24	11,51	11,76	11,10	16,70	22,20	27,76	33,30	13,51	14,02	4,1 - 4,7	7,0 - 7,7	9,8 - 10,8	12,7 - 13,9	15,5 - 17,00
BSW	1/2	12	13,00	22,22	28,57	34,92	41,27	47,62	15,17	13,08	13,34	12,70	19,05	25,40	31,75	38,10	15,49	16,00	4,0 - 4,6	6,9 - 7,5	9,7 - 10,6	12,5 - 13,7	15,3 - 16,7
BSW	9/16	12	14,75	23,80	30,96	38,10	45,23	52,37	16,76	14,68	14,94	14,27	21,43	28,57	35,71	42,85	17,14	17,65	4,8 - 5,3	7,9 - 8,7	11,1 - 12,1	14,3 - 15,5	17,5 - 18,9
BSW	5/8	11	16,50	26,26	34,21	42,13	50,08	56,74	18,57	16,59	16,84	15,87	23,80	31,75	39,37	47,62	18,97	19,48	4,9 - 5,5	8,1 - 8,8	11,4 - 12,3	14,6 - 15,8	17,8 - 19,3
BSW	3/4	10	19,75	30,48	40,00	49,53	59,05	68,58	22,02	19,84	20,09	19,05	28,57	38,10	47,62	57,15	22,50	23,00	5,5 - 6,1	9,1 - 9,8	12,6 - 13,6	16,2 - 17,4	19,7 - 21,2
BSW	7/8	9	23,00	34,92	46,02	57,15	68,25	79,37	25,52	23,01	23,27	22,22	33,32	44,45	55,55	66,67	26,08	26,72	5,9 - 6,5	9,6 - 10,3	13,3 - 14,4	17,0 - 18,3	20,8 - 22,3
BSW	1"	8	26,00	39,70	52,37	65,07	77,77	90,47	29,10	26,19	26,52	25,40	38,10	50,80	63,50	76,20	29,77	30,40	6,0 - 6,6	9,8 - 10,5	13,6 - 14,6	17,4 - 18,7	21,1 - 22,7
G	1/8	28	9,90	7,29	8,86	10,46	12,03	13,64	10,82	9,91	10,16	3,17	4,75	6,35	7,92	9,53	11,53	12,03	1,6 - 2,0	3,1 - 3,7	4,6 - 5,4	6,3 - 7,1	
G	1/4	19	13,50	12,39	15,57	18,74	21,92	25,10	14,74	13,46	13,72	6,35	9,52	12,70	15,87	19,05	15,72	16,23	2,7 - 3,2	4,8 - 5,6	7,0 - 7,9	9,1 - 10,2	
G	3/8	19

2102 HSSE DIN 371

M-MF DIN 13 | Form. C | Tol. 6H | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M1,0	**0,25**	*51,15*	**40**	**6**	**2,10**	**2,5**
M1,1	**0,25**	*51,15*	**40**	**6**	**2,10**	**2,5**
M1,2	**0,25**	*36,59*	**40**	**6**	**2,10**	**2,5**
M1,4	**0,30**	*36,59*	**40**	**7**	**2,10**	**2,5**
M1,6	**0,35**	*35,94*	**40**	**8**	**2,10**	**2,5**
M1,7	**0,35**	*32,84*	**40**	**8**	**2,10**	**2,5**
M1,8	**0,35**	*33,75*	**40**	**8**	**2,10**	**2,5**
M2,0	**0,40**	*15,70*	**45**	**10**	**2,10**	**2,8**
M2,2	**0,45**	*16,23*	**45**	**10**	**2,10**	**2,8**
M2,3	**0,40**	*16,23*	**45**	**10**	**2,10**	**2,8**
M2,5	**0,45**	*15,70*	**50**	**9**	**2,10**	**2,8**
M2,6	**0,45**	*15,70*	**50**	**9**	**2,10**	**2,8**
M3,0	0,35	*23,85*	56	11	2,70	3,5
M3,0	**0,50**	*10,78*	**56**	**11**	**2,70**	**3,5**
*M3,0	0,60	*18,07*	56	11	2,70	3,5

Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,5	**0,60**	*14,25*	**56**	**12**	**3,00**	**4,0**
*M3,5	0,75	*20,60*	56	11	3,00	4,0
M4,0	0,50	*22,51*	63	13	3,40	4,5
M4,0	**0,70**	*11,03*	**63**	**13**	**3,40**	**4,5**
M4,5	**0,75**	*19,65*	**70**	**14**	**4,90**	**6,0**
M5,0	0,50	*23,14*	70	14	4,90	6,0
*M5,0	0,75	*23,63*	70	16	4,90	6,0
M5,0	**0,80**	*11,06*	**70**	**16**	**4,90**	**6,0**
M6,0	0,75	*19,85*	80	14	4,90	6,0
M6,0	**1,00**	*12,56*	**80**	**19**	**4,90**	**6,0**
M7,0	**1,00**	*15,19*	**80**	**18**	**5,50**	**7,0**
M8,0	0,75	*23,20*	80	18	6,20	8,0
M8,0	**1,25**	*14,12*	**90**	**22**	**6,20**	**8,0**
M9,0	**1,25**	*22,94*	**90**	**22**	**7,00**	**9,0**
M10,0	**1,50**	*15,83*	**100**	**24**	**8,00**	**10,0**

***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

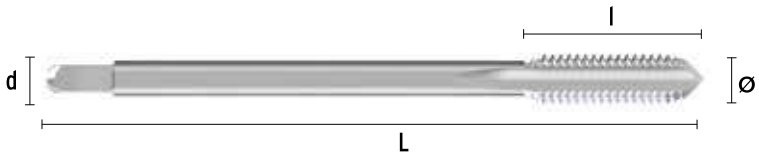
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2101 HSSE DIN 376/374

M-MF DIN 13 | Form. C | Tol. 6H | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	**0,50**	*10,58*	**56**	**11**	**2,00**	**2,2**
*M3,5	0,60	*14,25*	56	13	2,10	2,8
M4,0	**0,70**	*11,03*	**63**	**13**	**2,10**	**2,8**
M5,0	**0,80**	*11,06*	**70**	**16**	**2,70**	**3,5**
*M6,0	0,50	*27,77*	80	18	3,40	4,5
*M6,0	0,75	*18,27*	80	14	3,40	4,5
M6,0	**1,00**	*12,56*	**80**	**19**	**3,40**	**4,5**
*M7,0	0,50	*31,61*	80	19	4,30	5,5
*M7,0	0,75	*24,38*	80	14	4,30	5,5
*M7,0	1,00	*15,19*	80	19	4,30	5,5
*M8,0	0,50	*30,44*	80	19	4,90	6,0
*M8,0	0,75	*22,24*	80	19	4,90	6,0
M8,0	1,00	*18,01*	90	20	4,90	6,0
M8,0	**1,25**	*14,12*	**90**	**22**	**4,90**	**6,0**
*M9,0	0,75	*32,99*	90	22	5,50	7,0
M9,0	1,00	*27,47*	90	20	5,50	7,0
*M9,0	1,25	*22,94*	90	20	5,50	7,0
*M10,0	0,50	*87,43*	90	18	5,50	7,0
M10,0	0,75	*35,57*	90	18	5,50	7,0
M10,0	1,00	*20,00*	90	20	5,50	7,0
M10,0	1,25	*22,88*	100	20	5,50	7,0
M10,0	**1,50**	*15,83*	**100**	**24**	**5,50**	**7,0**
M11,0	1,00	*35,13*	90	20	6,20	8,0
*M11,0	1,25	*35,13*	90	22	6,20	8,0
M11,0	1,50	*28,88*	100	24	6,20	8,0
*M12,0	0,75	*54,88*	100	22	7,00	9,0
M12,0	1,00	*27,32*	100	20	7,00	9,0
M12,0	1,25	*27,63*	100	20	7,00	9,0
M12,0	1,50	*24,71*	100	22	7,00	9,0
M12,0	**1,75**	*20,39*	**110**	**29**	**7,00**	**9,0**
*M13,0	0,75	*93,91*	100	22	9,00	11,0
*M13,0	1,00	*50,74*	100	22	9,00	11,0
*M13,0	1,25	*50,74*	100	22	9,00	11,0
*M13,0	1,50	*50,74*	100	22	9,00	11,0
*M13,0	1,75	*50,74*	110	27	9,00	11,0
*M14,0	0,75	*93,91*	100	22	9,00	11,0
M14,0	1,00	*43,92*	100	20	9,00	11,0
M14,0	1,25	*36,11*	100	20	9,00	11,0
M14,0	1,50	*28,48*	100	20	9,00	11,0
M14,0	**2,00**	*28,25*	**110**	**30**	**9,00**	**11,0**

Ø	P	€	L mm	l mm	⊠ mm	d mm
M15,0	1,00	*56,56*	100	20	9,00	12,0
*M15,0	1,25	*61,78*	100	22	9,00	12,0
*M15,0	1,50	*50,22*	100	22	9,00	12,0
*M15,0	2,00	*61,45*	110	30	9,00	12,0
M16,0	1,00	*53,30*	100	20	9,00	12,0
*M16,0	1,25	*58,14*	100	22	9,00	12,0
M16,0	1,50	*32,52*	100	22	9,00	12,0
M16,0	**2,00**	*33,21*	**110**	**30**	**9,00**	**12,0**
*M17,0	1,00	*106,02*	100	20	9,00	12,0
*M17,0	1,25	*106,02*	100	22	9,00	12,0
*M17,0	1,50	*106,02*	100	22	9,00	12,0
M18,0	1,00	*59,68*	110	24	11,00	14,0
*M18,0	1,25	*75,44*	110	25	11,00	14,0
M18,0	1,50	*46,61*	110	25	11,00	14,0
M18,0	2,00	*67,04*	125	34	11,00	14,0
M18,0	**2,50**	*47,87*	**125**	**34**	**11,00**	**14,0**
*M19,0	1,00	*139,29*	110	25	11,00	14,0
*M19,0	1,25	*139,21*	110	25	11,00	14,0
*M19,0	1,50	*139,28*	110	25	11,00	14,0
M20,0	1,00	*78,79*	125	24	12,00	16,0
M20,0	1,25	*139,29*	125	25	12,00	16,0
M20,0	1,50	*52,78*	125	25	12,00	16,0
M20,0	2,00	*69,16*	140	27	12,00	16,0
M20,0	**2,50**	*50,87*	**140**	**34**	**12,00**	**16,0**
*M21,0	1,00	*202,22*	125	25	12,00	16,0
*M21,0	1,25	*202,22*	125	25	12,00	16,0
*M21,0	1,50	*148,45*	125	25	12,00	16,0
M22,0	1,00	*88,34*	125	24	14,50	18,0
*M22,0	1,25	*139,29*	125	25	14,50	18,0
M22,0	1,50	*63,53*	125	24	14,50	18,0
M22,0	2,00	*88,34*	140	27	14,50	18,0
M22,0	**2,50**	*64,49*	**140**	**34**	**14,50**	**18,0**
*M23,0	1,00	*202,13*	125	25	14,50	18,0
*M23,0	1,50	*96,31*	125	25	14,50	18,0
M24,0	1,00	*202,22*	140	27	14,50	18,0
*M24,0	1,25	*78,12*	140	28	14,50	18,0
M24,0	1,50	*98,76*	140	27	14,50	18,0
M24,0	2,00	*77,24*	140	27	14,50	18,0
M24,0	**3,00**	*261,59*	**160**	**38**	**14,50**	**18,0**
M25,0	1,00	*121,57*	140	28	14,50	18,0

(**continúa Ref.2101** / suite Réf.2101 / Ref.2101 cont'd)

MACHOS DE MÁQUINA
TARAUDS MACHINE / MACHINE TAPS

Ø	P	€	L mm	l mm	⊠ mm	d mm
M25,0	1,50	*261,59*	140	27	14,50	18,0
*M25,0	2,00	*261,59*	140	28	14,50	18,0
*M26,0	1,00	*27,32*	140	28	14,50	18,0
*M26,0	1,0	*105,36*	140	27	14,50	18,0
*M26,0	2,00	*261,59*	140	28	14,50	18,0
*M27,0	1,00	*132,32*	140	27	16,00	20,0
M27,0	1,50	*115,06*	140	27	16,00	20,0
M27,0	2,00	*137,70*	140	27	16,00	20,0
M27,0	**3,00**	*96,40*	**160**	**38**	**16,00**	**20,0**
*M28,0	1,00	*261,59*	140	28	16,00	20,0
M28,0	1,50	*115,06*	140	27	16,00	20,0
M28,0	2,00	*261,59*	140	27	16,00	20,0
*M30,0	1,00	*147,18*	150	27	18,00	22,0
M30,0	1,50	*119,93*	150	27	18,00	22,0
M30,0	2,00	*148,45*	150	27	18,00	22,0
*M30,0	3,00	*163,23*	180	45	18,00	22,0
M30,0	**3,50**	*123,54*	**180**	**40**	**18,00**	**22,0**
*M32,0	1,00	*321,09*	150	28	18,00	22,0
M32,0	1,50	*151,71*	150	27	18,00	22,0
*M32,0	2,00	*321,23*	150	27	18,00	22,0
*M33,0	1,00	*321,23*	160	30	20,00	25,0
M33,0	1,50	*166,26*	160	30	20,00	25,0
M33,0	2,00	*280,18*	160	30	20,00	25,0
*M33,0	3,00	*308,06*	180	50	20,00	25,0
M33,0	**3,50**	*148,45*	**180**	**45**	**20,00**	**25,0**
*M34,0	1,50	*195,37*	170	30	22,00	28,0
*M34,0	2,00	*352,58*	170	30	22,00	28,0
M35,0	1,50	*194,85*	170	30	22,00	28,0
M36,0	1,50	*190,03*	170	30	22,00	28,0
M36,0	2,00	*256,67*	170	30	22,00	28,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M36,0	3,00	*294,45*	200	50	22,00	28,0
M36,0	**4,00**	*189,74*	**200**	**50**	**22,00**	**28,0**
M38,0	1,50	*202,59*	170	30	22,00	28,0
*M38,0	2,00	*415,25*	170	30	22,00	28,0
M39,0	1,50	*307,02*	170	30	24,00	32,0
M39,0	2,00	*307,02*	170	30	24,00	32,0
M39,0	3,00	*415,72*	200	50	24,00	32,0
M39,0	**4,00**	*242,25*	**200**	**55**	**24,00**	**32,0**
M40,0	1,50	*265,01*	170	30	24,00	32,0
M40,0	2,00	*307,84*	170	30	24,00	32,0
*M40,0	3,00	*307,84*	200	60	24,00	32,0
M42,0	1,50	*268,99*	170	30	24,00	32,0
M42,0	2,00	*352,14*	170	30	24,00	32,0
M42,0	3,00	*352,14*	200	50	24,00	32,0
M42,0	**4,50**	*311,41*	**200**	**60**	**24,00**	**32,0**
M45,0	1,50	*333,03*	180	30	29,00	36,0
M45,0	2,00	*422,80*	180	30	29,00	36,0
M45,0	3,00	*422,80*	200	50	29,00	36,0
M45,0	**4,50**	*340,28*	**220**	**60**	**29,00**	**36,0**
M48,0	1,50	*340,28*	190	30	29,00	36,0
M48,0	2,00	*512,42*	190	30	29,00	36,0
M48,0	3,00	*512,39*	225	50	29,00	36,0
M48,0	**5,00**	*418,40*	**250**	**65**	**29,00**	**36,0**
M50,0	1,50	*397,93*	190	30	29,00	36,0
M52,0	1,50	*402,83*	190	32	32,00	40,0
M52,0	2,00	*615,47*	190	32	32,00	40,0
*M52,0	3,00	*631,93*	225	50	32,00	40,0
M52,0	**5,00**	*428,52*	**250**	**65**	**32,00**	**40,0**
***M63,0**	**1,50**	*923,24*	**275**	**40**	**32,00**	**40,0**

***(Hasta fin de existencias / Jusqu'à épuisement des stocks / While supplies last)**

2102/5 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | LH | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*21,57*	56	10	2,70	3,5
M4,0	0,70	*22,02*	63	12	3,40	4,5
M5,0	0,80	*22,12*	70	14	4,90	6,0

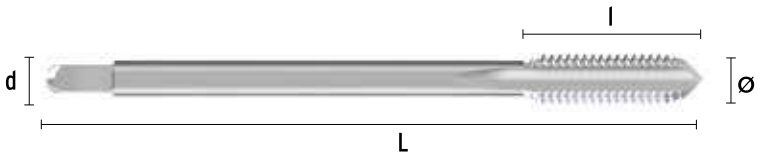
ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*25,10*	80	18	4,90	6,0
M8,0	1,25	*28,26*	90	20	6,20	8,0
M10,0	1,50	*31,65*	100	20	8,00	10,0

2101/5 HSSE DIN 376/374

M-MF DIN 13 | Form. C | Tol. 6H | LH | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
*M5,0	0,80	*22,12*	70	14	2,70	3,5
*M6,0	1,00	*25,10*	80	18	3,40	4,5
*M7,0	1,00	*30,39*	80	18	4,30	5,5
*M8,0	1,00	*36,02*	90	20	4,90	6,0
*M8,0	1,25	*28,26*	90	20	4,90	6,0
*M9,0	1,25	*45,90*	90	20	5,50	7,0
*M10,0	1,00	*39,96*	90	20	5,50	7,0
*M10,0	1,25	*31,65*	90	20	5,50	7,0
*M10,0	1,50	*31,65*	100	20	5,50	7,0
*M12,0	1,25	*55,23*	100	20	7,00	9,0
*M12,0	1,50	*49,40*	100	20	7,00	9,0
M12,0	1,75	*40,80*	110	24	7,00	9,0
*M14,0	1,50	*56,95*	100	20	9,00	11,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	2,00	*56,49*	110	25	9,00	11,0
*M16,0	1,50	*65,02*	100	20	9,00	12,0
M16,0	2,00	*66,40*	110	32	9,00	12,0
*M18,0	1,50	*93,22*	110	24	11,00	14,0
M18,0	2,50	*100,36*	125	32	11,00	14,0
*M20,0	1,50	*105,56*	125	24	12,00	16,0
M20,0	2,50	*106,59*	140	32	12,00	16,0
*M22,0	1,50	*127,07*	125	24	14,50	18,0
M22,0	2,50	*129,01*	140	32	14,50	18,0
*M24,0	1,50	*156,26*	140	27	14,50	18,0
M24,0	3,00	*154,49*	160	38	14,50	18,0
*M27,0	3,00	*192,78*	160	38	16,00	20,0
*M30,0	3,50	*247,05*	180	40	18,00	22,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

2114 HSSE DIN 371

M-MF DIN 13 | Form. A | Tol. 6H | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*M2,0	0,40	*16,65*	45	8	2,10	2,8
*M2,2	0,45	*18,03*	45	9	2,10	2,8
*M2,3	0,40	*17,17*	45	9	2,10	2,8
*M2,5	0,45	*16,65*	50	9	2,10	2,8
*M2,6	0,45	*16,65*	50	9	2,10	2,8
M3,0	0,50	*11,87*	56	11	2,70	3,5
*M3,5	0,60	*15,12*	56	12	3,00	4,0
M4,0	0,70	*12,11*	63	13	3,40	4,5

Ø	P	€	L mm	l mm	⊠ mm	d mm
M4,5	0,75	*20,82*	70	14	4,90	6,0
M5,0	0,80	*12,17*	70	16	4,90	6,0
M6,0	1,00	*13,81*	80	19	4,90	6,0
M7,0	1,00	*15,79*	80	16	5,50	7,0
M8,0	1,25	*15,53*	90	19	6,20	8,0
*M9,0	1,25	*24,33*	90	19	7,00	9,0
M10,0	1,50	*17,39*	100	22	8,00	10,0

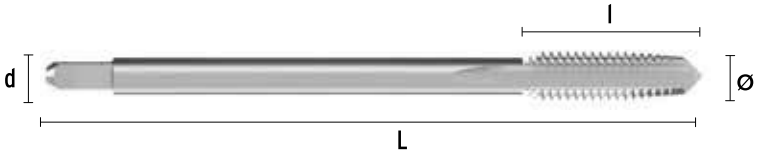
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2113 HSSE DIN 376/374

M-MF DIN 13 | Form. A | Tol. 6H | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*M3,0	0,50	*11,87*	56	11	2,00	2,2
*M3,5	0,60	*15,12*	56	13	2,10	2,8
M4,0	0,70	*12,11*	63	13	2,10	2,8
M5,0	0,80	*12,17*	70	16	2,70	3,5
M6,0	1,00	*13,81*	80	19	3,40	4,5
*M7,0	1,00	*15,79*	80	19	4,30	5,5
M8,0	1,25	*15,53*	90	22	4,90	6,0
*M9,0	1,25	*24,33*	90	22	5,50	7,0
M10,0	1,50	*17,39*	100	24	5,50	7,0
*M11,0	1,50	*30,64*	100	24	6,20	8,0
M12,0	1,75	*22,45*	110	29	7,00	9,0
*M13,0	1,75	*53,77*	110	29	9,00	11,0
M14,0	2,00	*29,36*	110	30	9,00	11,0
*M15,0	2,00	*65,11*	110	30	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*34,49*	110	32	9,00	12,0
M18,0	2,50	*53,17*	125	34	11,00	14,0
M20,0	2,50	*56,48*	140	34	12,00	16,0
M22,0	2,50	*68,33*	140	34	14,50	18,0
M24,0	3,00	*81,85*	160	38	14,50	18,0
*M27,0	3,00	*102,13*	160	38	16,00	20,0
*M30,0	3,50	*130,89*	180	45	18,00	22,0
*M33,0	3,50	*157,29*	180	50	20,00	25,0
*M36,0	4,00	*201,05*	200	56	22,00	28,0
*M39,0	4,00	*256,66*	200	60	24,00	32,0
*M42,0	4,50	*329,96*	200	60	24,00	32,0
*M45,0	4,50	*360,53*	220	65	29,00	36,0
*M48,0	5,00	*443,32*	250	70	29,00	36,0
*M52,0	5,00	*454,01*	250	70	32,00	40,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2190 HSSE DIN 371

M DIN 13 | Form. E | Tol. 6H | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
										● 25-35							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☐ mm	d mm
M3,0	0,50	*12,05*	56	11	2,70	3,5
M4,0	0,70	*12,31*	63	13	3,40	4,5
M5,0	0,80	*12,35*	70	16	4,90	6,0

Ø	P	€	L mm	l mm	☐ mm	d mm
M6,0	1,00	*14,05*	80	19	4,90	6,0
M8,0	1,25	*18,02*	90	22	6,20	8,0
M10,0	1,50	*23,25*	100	24	8,00	10,0

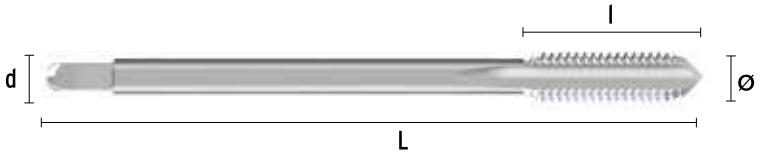
2191 HSSE DIN 376

M DIN 13 | Form. E | Tol. 6H | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
										● 25-35							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☐ mm	d mm
M6,0	1,00	*14,05*	80	19	3,40	4,5
M8,0	1,25	*18,02*	90	22	4,90	6,0
M10,0	1,50	*23,25*	100	24	5,50	7,0

Ø	P	€	L mm	l mm	☐ mm	d mm
M12,0	1,75	*30,96*	110	29	7,00	9,0
M14,0	2,00	*36,41*	110	30	9,00	11,0
M16,0	2,00	*43,68*	110	32	9,00	12,0

2180 HSSE-PM DIN 371

M DIN 13 | Form. C | Tol. 6HX | 1,5XD | R | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
						● 15-30	● 10-20			○ 35-50							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*21,65*	56	10	2,70	3,5
M4,0	0,70	*22,10*	63	12	3,40	4,5
M5,0	0,80	*22,10*	70	14	4,90	6,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*23,43*	80	18	4,90	6,0
M8,0	1,25	*27,92*	90	20	6,20	8,0
M10,0	1,50	*33,78*	100	20	8,00	10,0

2179 HSSE-PM DIN 376

M DIN 13 | Form. C | Tol. 6HX | 1,5XD | D | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
						● 15-30	● 10-20			○ 35-50							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*27,92*	90	20	4,90	6,0
M10,0	1,50	*33,78*	100	20	5,50	7,0
M12,0	1,75	*42,54*	110	24	7,00	9,0
M14,0	2,00	*54,22*	110	25	9,00	11,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*62,53*	110	32	9,00	12,0
M18,0	2,50	*104,96*	125	32	11,00	14,0
M20,0	2,50	*118,60*	140	32	12,00	16,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2274 HM DIN 371

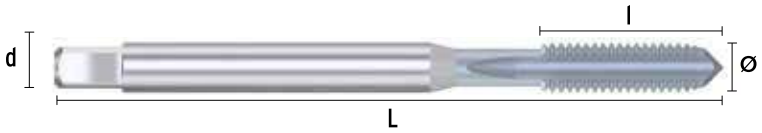
M DIN 13 | Form. D | Tol. 6HX | 1,5XD | R | TICN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
															● 3-6	● 2-5	● 1-4

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*90,08*	56	10	2,70	3,5
M4,0	0,70	*92,96*	63	12	3,40	4,5
M5,0	0,80	*95,74*	70	14	4,90	6,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*106,98*	80	18	4,90	6,0
M8,0	1,25	*129,50*	90	20	6,20	8,0
M10,0	1,50	*224,70*	100	20	8,00	10,0

2275 HM DIN 376

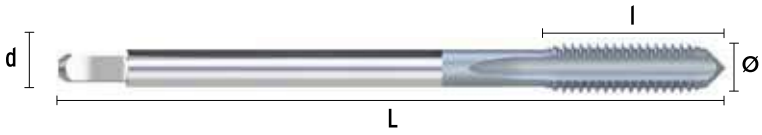
M DIN 13 | Form. D | Tol. 6HX | 1,5XD | D | TICN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
															● 3-6	● 2-5	● 1-4

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*382,19*	110	24	7,00	9,0
M14,0	2,00	*382,19*	110	25	9,00	11,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*464,75*	110	32	9,00	12,0

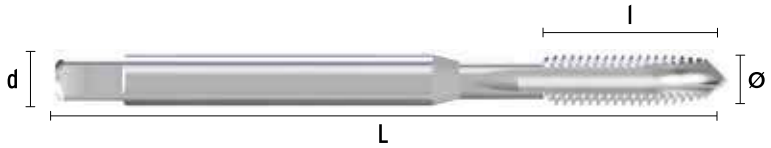
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2104 HSSE DIN 371

M-MF DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☐ mm	d mm
M2,0	**0,40**	*17,16*	**45**	**10**	**2,10**	**2,8**
M2,2	**0,45**	*17,16*	**45**	**10**	**2,10**	**2,8**
M2,3	**0,45**	*17,16*	**45**	**10**	**2,10**	**2,8**
M2,5	**0,45**	*17,07*	**50**	**9**	**2,10**	**2,8**
M2,6	**0,45**	*17,07*	**50**	**9**	**2,10**	**2,8**
M3,0	0,35	*17,07*	56	10	2,70	3,5
M3,0	**0,50**	*12,16*	**56**	**11**	**2,70**	**3,5**
*M3,0	0,60	*20,18*	56	10	2,70	3,5
M3,5	0,35	*20,18*	56	10	3,00	4,0
M3,5	**0,60**	*15,57*	**56**	**12**	**3,00**	**4,0**
M4,0	0,50	*24,77*	63	12	3,00	4,0
M4,0	**0,70**	*12,43*	**63**	**13**	**3,40**	**4,5**

Ø	P	€	L mm	l mm	☐ mm	d mm
*M4,0	0,75	*17,76*	63	13	3,40	4,5
M4,5	**0,75**	*21,80*	**70**	**14**	**4,90**	**6,0**
M5,0	0,50	*25,46*	70	14	4,90	6,0
M5,0	**0,80**	*12,45*	**70**	**16**	**4,90**	**6,0**
M6,0	0,75	*23,65*	80	14	4,90	6,0
M6,0	**1,00**	*13,66*	**80**	**19**	**4,90**	**6,0**
M7,0	**1,00**	*17,87*	**80**	**18**	**5,50**	**7,0**
M8,0	0,75	*25,80*	80	18	6,20	8,0
M8,0	**1,25**	*15,07*	**90**	**22**	**6,20**	**8,0**
M9,0	**1,25**	*23,39*	**90**	**18**	**7,00**	**9,0**
M10,0	**1,50**	*18,49*	**100**	**24**	**8,00**	**10,0**

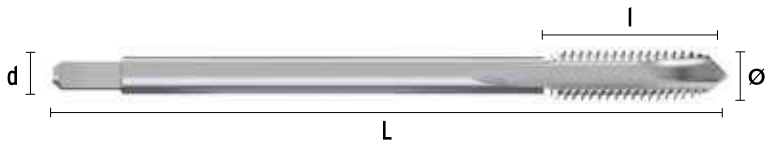
***(Hasta fin de existencias / Jusqu'à épuisement des stocks / While supplies last)**

2103 HSSE DIN 376/374

M-MF DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☐ mm	d mm
M3,0	**0,50**	*12,16*	**56**	**11**	**2,70**	**3,5**
***M3,5**	**0,60**	*15,58*	**56**	**13**	**3,00**	**4,0**
M4,0	**0,70**	*12,43*	**63**	**13**	**2,10**	**2,8**
***M4,5**	**0,75**	*21,80*	**70**	**16**	**2,70**	**3,5**
M5,0	**0,80**	*12,45*	**70**	**16**	**2,70**	**3,5**
*M6,0	0,75	*20,70*	80	18	3,40	4,5
M6,0	**1,00**	*13,66*	**80**	**19**	**3,40**	**4,5**
*M7,0	0,75	*27,02*	80	18	4,30	5,5
***M7,0**	**1,00**	*17,87*	**80**	**18**	**4,30**	**5,5**
*M8,0	0,75	*25,56*	90	20	4,30	5,5
M8,0	1,00	*19,80*	90	20	4,90	6,0
M8,0	**1,25**	*15,07*	**90**	**22**	**4,90**	**6,0**
M9,0	1,00	*30,21*	90	20	5,50	7,0
*M9,0	1,25	*23,39*	90	20	5,50	7,0
M10,0	0,75	*36,31*	90	18	5,50	7,0

Ø	P	€	L mm	l mm	☐ mm	d mm
M10,0	1,00	*22,06*	90	20	5,50	7,0
M10,0	1,25	*26,28*	100	20	5,50	7,0
M10,0	**1,50**	*18,49*	**100**	**24**	**5,50**	**7,0**
M11,0	1,00	*38,67*	90	20	6,20	8,0
*M11,0	1,25	*38,67*	100	22	6,20	8,0
M11,0	**1,50**	*31,76*	**100**	**22**	**6,20**	**8,0**
M12,0	1,00	*30,06*	100	20	7,00	9,0
M12,0	1,25	*30,39*	100	20	7,00	9,0
M12,0	1,50	*27,14*	100	20	7,00	9,0
M12,0	**1,75**	*23,60*	**110**	**29**	**7,00**	**9,0**
*M13,0	1,00	*55,81*	100	22	9,00	11,0
*M13,0	1,25	*55,77*	100	22	9,00	11,0
*M13,0	1,50	*55,77*	100	22	9,00	11,0
***M13,0**	**1,75**	*55,81*	**110**	**27**	**9,00**	**11,0**
M14,0	1,00	*48,31*	100	20	9,00	11,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

MACHOS DE MÁQUINA
TARAUDS MACHINE / MACHINE TAPS

Ø	P	€	L mm	l mm	☒ mm	d mm
M14,0	1,25	*39,42*	100	20	9,00	11,0
M14,0	1,50	*31,35*	100	20	9,00	11,0
M14,0	**2,00**	*31,08*	**110**	**30**	**9,00**	**11,0**
M15,0	1,00	*62,08*	100	20	9,00	12,0
*M15,0	1,25	*67,98*	100	22	9,00	12,0
*M15,0	1,50	*55,22*	100	22	9,00	12,0
***M15,0**	**2,00**	*67,60*	**110**	**30**	**9,00**	**12,0**
M16,0	1,00	*58,61*	100	20	9,00	12,0
*M16,0	1,25	*64,97*	100	22	9,00	12,0
M16,0	1,50	*39,07*	100	22	9,00	12,0
M16,0	**2,00**	*38,18*	**110**	**30**	**9,00**	**12,0**
M18,0	1,00	*65,61*	110	24	11,00	14,0
M18,0	1,50	*51,27*	110	24	11,00	14,0
M18,0	2,00	*73,77*	125	27	11,00	14,0
M18,0	**2,50**	*51,88*	**125**	**34**	**11,00**	**14,0**
M20,0	1,00	*86,69*	125	24	12,00	16,0
M20,0	1,50	*58,03*	125	25	12,00	16,0
M20,0	2,00	*76,06*	140	27	12,00	16,0
M20,0	**2,50**	*55,97*	**140**	**34**	**12,00**	**16,0**
M22,0	1,00	*97,17*	125	25	14,50	18,0
M22,0	1,50	*69,87*	125	25	14,50	18,0
M22,0	2,00	*97,17*	140	27	14,50	18,0
M22,0	2,50	*70,94*	140	34	14,50	18,0
M24,0	1,00	*121,05*	140	28	14,50	18,0
M24,0	1,50	*85,89*	140	27	14,50	18,0
M24,0	2,00	*108,63*	140	27	14,50	18,0
M24,0	**3,00**	*84,48*	**160**	**38**	**14,50**	**18,0**
M25,0	1,50	*133,47*	140	27	14,50	18,0
*M25,0	2,00	*287,75*	140	28	14,50	18,0
M26,0	1,50	*110,47*	140	27	14,50	18,0
*M26,0	2,00	*287,75*	140	28	14,50	18,0
M27,0	1,50	*126,27*	140	27	16,00	20,0
M27,0	2,00	*150,57*	140	27	16,00	20,0
M27,0	**3,00**	*105,68*	**160**	**38**	**16,00**	**20,0**
M28,0	1,50	*126,27*	140	27	16,00	20,0
M28,0	2,00	*287,75*	140	27	16,00	20,0
*M30,0	1,00	*179,62*	150	28	18,00	22,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M30,0	1,50	*131,95*	150	27	18,00	22,0
M30,0	2,00	*163,29*	150	27	18,00	22,0
M30,0	**3,50**	*135,80*	**180**	**40**	**18,00**	**22,0**
M32,0	1,50	*166,80*	150	27	18,00	22,0
*M32,0	2,00	*353,37*	150	28	18,00	22,0
M33,0	1,50	*180,51*	160	30	20,00	25,0
M33,0	2,00	*308,15*	160	30	20,00	25,0
M33,0	**3,50**	*170,82*	**180**	**45**	**20,00**	**25,0**
*M34,0	1,50	*209,03*	170	30	22,00	28,0
M35,0	1,50	*220,87*	170	30	22,00	28,0
M36,0	1,50	*209,03*	170	30	22,00	28,0
M36,0	2,00	*282,33*	170	30	22,00	28,0
M36,0	3,00	*323,89*	200	50	22,00	28,0
M36,0	**4,00**	*208,70*	**200**	**50**	**22,00**	**28,0**
M38,0	1,50	*228,23*	170	30	22,00	28,0
M38,0	2,00	*456,80*	170	30	22,00	28,0
M39,0	1,50	*407,43*	170	30	24,00	32,0
M39,0	2,00	*412,14*	170	30	24,00	32,0
M39,0	3,00	*549,48*	170	30	24,00	32,0
M39,0	**4,00**	*266,49*	**200**	**55**	**24,00**	**32,0**
M40,0	1,50	*291,55*	170	30	24,00	32,0
M40,0	2,00	*310,50*	170	30	24,00	32,0
*M40,0	3,00	*360,09*	200	60	24,00	32,0
M42,0	1,50	*296,37*	170	30	24,00	32,0
M42,0	2,00	*442,34*	170	30	24,00	32,0
M42,0	3,00	*442,34*	170	30	24,00	32,0
M42,0	**4,50**	*342,60*	**200**	**60**	**24,00**	**32,0**
M45,0	1,50	*362,90*	180	30	29,00	36,0
M45,0	2,00	*442,34*	180	30	29,00	36,0
M45,0	3,00	*411,75*	200	50	29,00	36,0
M45,0	**4,50**	*374,26*	**220**	**60**	**29,00**	**36,0**
M48,0	1,50	*490,50*	190	30	29,00	36,0
M48,0	2,00	*494,45*	190	30	29,00	36,0
M48,0	3,00	*470,93*	225	50	29,00	36,0
M48,0	**5,00**	*460,22*	**250**	**65**	**29,00**	**36,0**
M50,0	1,50	*442,31*	190	30	29,00	36,0
M52,0	**5,00**	*471,12*	**250**	**65**	**32,00**	**40,0**

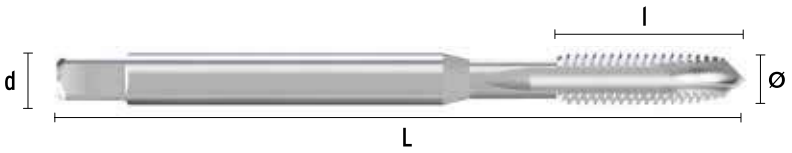
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2104/5 HSS DIN 371

M-MF DIN 13 | Form. B "Gun" | LH | Tol. 6H | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*23,50*	56	11	2,70	3,5
M4,0	0,70	*23,76*	63	13	3,40	4,5
M5,0	0,80	*25,05*	70	16	4,90	6,0

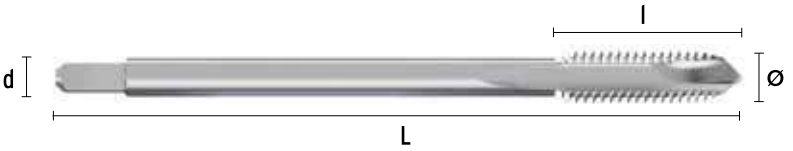
ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*25,05*	80	19	4,90	6,0
M8,0	1,25	*29,26*	90	22	6,20	8,0
M10,0	1,50	*37,48*	100	24	8,00	10,0

2103/5 HSS DIN 376/374

M-MF DIN 13 | Form. "Gun" B | LH | Tol. 6H | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*52,95*	110	29	7,00	9,0
M16,0	2,00	*77,48*	110	30	9,00	12,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M20,0	2,50	*112,73*	140	34	12,00	16,0
M24,0	3,00	*148,80*	160	38	14,50	18,0

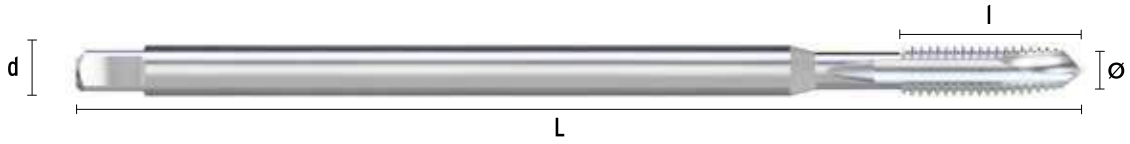
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2111 HSSE DIN 371

M | DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*27,97*	100	10	2,70	3,5
M4,0	0,70	*27,97*	125	12	3,40	4,5
M5,0	0,80	*31,59*	140	14	4,90	6,0
M6,0	1,00	*31,59*	160	18	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
*M8,0	1,25	*41,71*	150	22	6,20	8,0
*M10,0	1,50	*50,62*	150	24	8,00	10,0
*M12,0	1,75	*56,89*	150	29	9,00	12,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

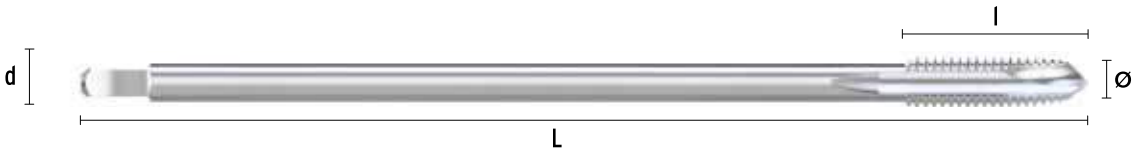
2272 HSS DIN 376

M | DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*49,73*	180	20	4,90	6,0
M10,0	1,50	*61,03*	200	20	5,50	7,0

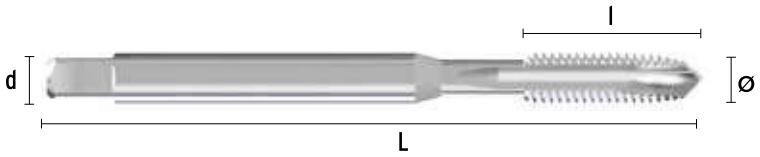
Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*78,35*	220	24	7,00	9,0
M16,0	2,00	*114,73*	220	32	9,00	12,0

2110 HSSE DIN 371

M DIN 13 | Form. B "Gun" | Tol. 6H +0,1 | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*19,33*	56	11	2,70	3,5
M4,0	0,70	*19,74*	63	13	3,40	4,5
M5,0	0,80	*19,79*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*22,49*	80	16	4,90	6,0
M8,0	1,25	*25,32*	90	18	6,20	8,0
M10,0	1,50	*31,88*	100	22	8,00	10,0

2109 HSSE DIN 376

M DIN 13 | Form. B "Gun" | Tol. 6H +0,1 | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M8,0	1,25	*25,32*	90	20	4,90	6,0
M10,0	1,50	*31,88*	100	22	5,50	7,0
M12,0	1,75	*40,71*	110	27	7,00	9,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M14,0	2,00	*51,10*	110	30	9,00	11,0
M16,0	2,00	*61,83*	110	30	9,00	12,0

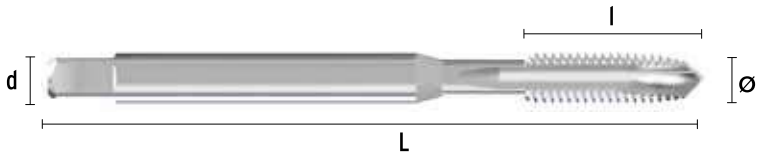
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2168 HSSE DIN 371

M DIN 13 | Form. B "Gun" | Tol. 6G | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*19,11*	56	10	2,70	3,5
M4,0	0,70	*19,11*	63	12	3,40	4,5
M5,0	0,80	*19,11*	70	14	4,90	6,0

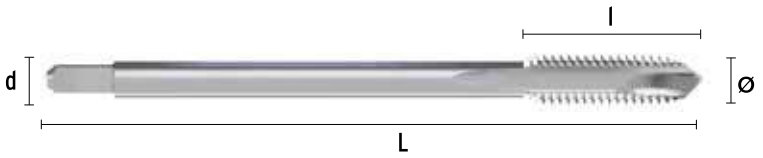
Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*19,27*	80	18	4,90	6,0
M8,0	1,25	*23,12*	90	20	6,20	8,0
M10,0	1,50	*27,17*	100	20	8,00	10,0

2169 HSSE DIN 376

M DIN 13 | Form. B "Gun" | Tol. 6G | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*23,12*	90	20	4,90	6,0
M10,0	1,50	*27,17*	100	20	5,50	7,0
M12,0	1,75	*33,96*	110	24	7,00	9,0
M14,0	2,00	*42,59*	110	25	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*51,52*	110	32	9,00	12,0
M18,0	2,50	*70,77*	125	32	11,00	14,0
M20,0	2,50	*73,98*	140	32	12,00	16,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2250 HSSE DIN 371

M DIN13 | Form. B "Gun" | Tol. 6H | 3XD | R | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M2,0	**0,40**	*25,70*	**45**	**10**	**2,10**	**2,8**
M2,5	**0,45**	*25,70*	**50**	**9**	**2,10**	**2,8**
M3,0	**0,50**	*13,41*	**56**	**11**	**2,70**	**3,5**
M3,5	**0,60**	*17,74*	**56**	**12**	**3,00**	**4,0**
M4,0	**0,70**	*13,60*	**63**	**13**	**3,40**	**4,5**

Ø	P	€	L mm	l mm	⊠ mm	d mm
M5,0	**0,80**	*14,33*	**70**	**16**	**4,90**	**6,0**
M6,0	**1,00**	*14,33*	**80**	**19**	**4,90**	**6,0**
M8,0	**1,25**	*16,72*	**90**	**22**	**6,20**	**8,0**
M10,0	**1,50**	*21,39*	**100**	**24**	**8,00**	**10,0**

2251 HSSE DIN 376/374

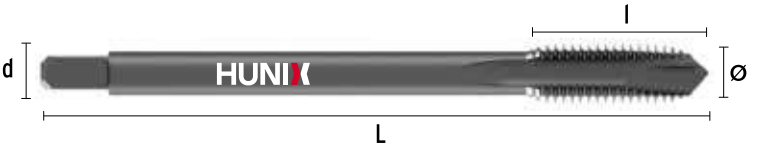
M-MF DIN13 | Form. B "Gun" | Tol. 6H | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	**0,50**	*16,13*	**56**	**11**	**2,70**	**3,5**
M4,0	**0,70**	*17,21*	**63**	**13**	**2,10**	**2,8**
M5,0	**0,80**	*18,19*	**70**	**16**	**2,70**	**3,5**
M6,0	**1,00**	*18,19*	**80**	**19**	**3,40**	**4,5**
M8,0	1,00	*27,48*	90	20	4,90	6,0
M8,0	**1,25**	*21,17*	**90**	**22**	**4,90**	**6,0**
M10,0	1,00	*30,99*	90	20	5,50	7,0
M10,0	1,25	*36,20*	100	20	5,50	7,0
M10,0	**1,50**	*23,55*	**100**	**24**	**5,50**	**7,0**
M12,0	1,00	*40,08*	100	20	7,00	9,0
M12,0	1,25	*43,39*	100	20	7,00	9,0
M12,0	1,50	*40,08*	100	20	7,00	9,0
M12,0	**1,75**	*30,34*	**110**	**29**	**7,00**	**9,0**
M14,0	1,00	*54,71*	100	20	9,00	11,0
M14,0	1,25	*50,18*	100	20	9,00	11,0
M14,0	1,50	*54,71*	100	20	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	**2,00**	*45,54*	**110**	**30**	**9,00**	**11,0**
M16,0	1,00	*63,43*	100	20	9,00	12,0
M16,0	1,50	*56,17*	100	22	9,00	12,0
M16,0	**2,00**	*48,78*	**110**	**30**	**9,00**	**12,0**
M18,0	1,00	*87,16*	110	24	11,00	14,0
M18,0	1,50	*66,99*	110	24	11,00	14,0
M18,0	**2,50**	*66,99*	**125**	**34**	**11,00**	**14,0**
M20,0	1,00	*85,18*	125	24	12,00	16,0
M20,0	1,50	*78,06*	125	25	12,00	16,0
M20,0	**2,50**	*70,95*	**140**	**34**	**12,00**	**16,0**
M22,0	1,00	*121,30*	125	25	14,50	18,0
M22,0	1,50	*101,14*	125	25	14,50	18,0
M22,0	**2,50**	*101,14*	**140**	**34**	**14,50**	**18,0**
M24,0	1,50	*103,04*	140	27	14,50	18,0
M24,0	2,00	*112,41*	140	27	14,50	18,0
M24,0	**3,00**	*93,67*	**160**	**38**	**14,50**	**18,0**

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2116 HSSE DIN 371

M DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | R | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M2,0	**0,40**	*26,63*	**45**	**10**	**2,10**	**2,8**
M2,5	**0,45**	*26,63*	**50**	**9**	**2,10**	**2,8**
M3,0	**0,50**	*18,67*	**56**	**11**	**2,70**	**3,5**
M3,5	**0,60**	*21,98*	**56**	**12**	**3,00**	**4,0**
M4,0	**0,70**	*18,83*	**63**	**13**	**3,40**	**4,5**

Ø	P	€	L mm	l mm	⊠ mm	d mm
M5,0	**0,80**	*20,59*	**70**	**16**	**4,90**	**6,0**
M6,0	**1,00**	*21,34*	**80**	**19**	**4,90**	**6,0**
M8,0	**1,25**	*25,55*	**90**	**22**	**6,20**	**8,0**
M10,0	**1,50**	*33,60*	**100**	**24**	**8,00**	**10,0**

2115 HSSE DIN 376/374

M-MF DIN13 | Form. B "Gun" | Tol. 6H | 3XD | D | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	**0,50**	*20,60*	**56**	**11**	**2,70**	**3,5**
M4,0	**0,70**	*22,19*	**63**	**13**	**2,10**	**2,8**
M5,0	**0,80**	*24,06*	**70**	**16**	**2,70**	**3,5**
M6,0	**1,00**	*24,86*	**80**	**19**	**3,40**	**4,5**
M8,0	1,00	*38,24*	90	20	4,90	6,0
M8,0	**1,25**	*29,71*	**90**	**22**	**4,90**	**6,0**
M10,0	1,00	*45,07*	90	20	5,50	7,0
M10,0	1,25	*49,23*	100	20	5,50	7,0
M10,0	**1,50**	*37,60*	**100**	**24**	**5,50**	**7,0**
M12,0	1,00	*56,06*	100	20	7,00	9,0
M12,0	1,25	*62,09*	100	20	7,00	9,0
M12,0	1,50	*53,77*	100	20	7,00	9,0
M12,0	**1,75**	*46,62*	**110**	**29**	**7,00**	**9,0**
M14,0	1,00	*73,93*	100	20	9,00	11,0
M14,0	1,25	*68,91*	100	20	9,00	11,0
M14,0	1,50	*71,26*	100	20	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	**2,00**	*61,50*	**110**	**30**	**9,00**	**11,0**
M16,0	1,00	*85,72*	100	20	9,00	12,0
M16,0	1,50	*74,57*	100	22	9,00	12,0
M16,0	**2,00**	*66,62*	**110**	**30**	**9,00**	**12,0**
M18,0	1,00	*106,10*	110	24	11,00	14,0
M18,0	1,50	*94,68*	110	24	11,00	14,0
M18,0	**2,50**	*90,46*	**125**	**34**	**11,00**	**14,0**
M20,0	1,00	*100,66*	125	24	12,00	16,0
M20,0	1,50	*106,62*	125	25	12,00	16,0
M20,0	**2,50**	*99,05*	**140**	**34**	**12,00**	**16,0**
M22,0	1,00	*136,61*	125	25	14,50	18,0
M22,0	1,50	*133,40*	125	25	14,50	18,0
M22,0	**2,50**	*133,45*	**140**	**34**	**14,50**	**18,0**
M24,0	1,50	*145,19*	140	27	14,50	18,0
M24,0	2,00	*159,32*	140	27	14,50	18,0
M24,0	**3,00**	*136,55*	**160**	**38**	**14,50**	**18,0**

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2126 HSSE-PM DIN 371

M | DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | R | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
	● 10-15	● 6-10	○ 4-6		● 6-12			● 10-20		○ 4-6		○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*21,31*	56	10	2,70	3,5
M4,0	0,70	*21,62*	63	12	3,40	4,5
M5,0	0,80	*23,36*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*24,09*	80	18	4,90	6,0
M8,0	1,25	*28,91*	90	20	6,20	8,0
M10,0	1,50	*37,91*	100	20	8,00	10,0

2125 HSSE-PM DIN 376/374

M-MF DIN13 | Form. B "Gun" | Tol. 6H | 3XD | D | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
	● 10-15	● 6-10	○ 4-6		● 6-12			● 10-20		○ 4-6		○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☒ mm	d mm
M8,0	1,00	*44,89*	90	20	4,90	6,0
M8,0	1,25	*33,18*	90	20	4,90	6,0
M10,0	1,00	*47,21*	90	20	5,50	7,0
M10,0	1,25	*63,30*	100	20	5,50	7,0
M10,0	1,50	*41,74*	100	20	5,50	7,0
M12,0	1,00	*60,98*	100	20	7,00	9,0
M12,0	1,25	*65,14*	100	20	7,00	9,0
M12,0	1,50	*60,98*	110	20	7,00	9,0
M12,0	1,75	*52,73*	110	24	7,00	9,0
M14,0	1,25	*76,73*	100	20	9,00	11,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M14,0	1,50	*81,10*	100	20	9,00	11,0
M14,0	2,00	*69,75*	110	25	9,00	11,0
M16,0	1,50	*84,65*	100	20	9,00	12,0
M16,0	2,00	*75,62*	110	32	9,00	12,0
M18,0	1,50	*102,84*	110	24	11,00	14,0
M18,0	2,50	*102,79*	125	32	11,00	14,0
M20,0	1,50	*123,42*	125	24	12,00	16,0
M20,0	2,50	*112,19*	140	32	12,00	16,0
M22,0	2,50	*151,86*	140	32	14,50	18,0
M24,0	3,00	*154,09*	160	38	14,50	18,0

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2176 HSSE-PM DIN 371

M DIN 13 | Form. B "Gun" | Tol. 6HX | 3XD | R | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
		○ 6-10	● 4-6		○ 4-6			● 10-20		○ 4-6		○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*27,07*	56	10	2,70	3,5
M4,0	0,70	*27,50*	63	12	3,40	4,5
M5,0	0,80	*29,56*	70	14	4,90	6,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*31,47*	80	18	4,90	6,0
M8,0	1,25	*36,71*	90	20	6,20	8,0
M10,0	1,50	*45,85*	100	20	8,00	10,0

2175 HSSE-PM DIN 376

M DIN 13 | Form. B "Gun" | Tol. 6HX | 3XD | D | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
		○ 6-10	● 4-6		○ 4-6			● 10-20		○ 4-6		○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*45,85*	90	20	4,90	6,0
M10,0	1,50	*59,93*	100	20	5,50	7,0
M12,0	1,75	*68,74*	110	24	7,00	9,0
M14,0	2,00	*95,69*	110	25	9,00	11,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*101,10*	110	32	9,00	12,0
M18,0	2,50	*147,86*	125	32	11,00	14,0
M20,0	2,50	*145,98*	140	32	12,00	16,0

P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

2122 HSSE DIN 371

M DIN 13 | Form. B "Gun" | Tol. 6H | 3XD | R | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25				● 5-10										○ 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*18,37*	56	10	2,70	3,5
M4,0	0,70	*18,37*	63	12	3,40	4,5
M5,0	0,80	*18,37*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*20,18*	80	18	4,90	6,0
M8,0	1,25	*22,97*	90	20	6,20	8,0
M10,0	1,50	*26,96*	100	20	8,00	10,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock
*Para mismo rendimiento / Pour le même rendement / For the same performance **Ref. 2250**
*Para mayor rendimiento / Pour plus rendement / For higher performance **Ref. 2116**

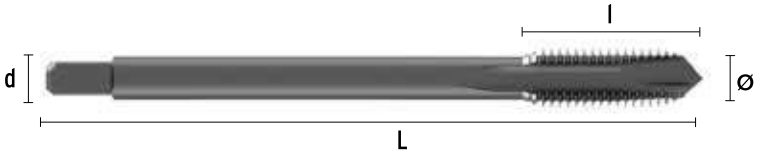
2121 HSSE DIN 376/374

M-MF DIN13 | Form. B "Gun" | Tol. 6H | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25				● 5-10										○ 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☒ mm	d mm
M8,0	1,00	*27,81*	90	20	4,90	6,0
M8,0	1,25	*22,97*	90	20	4,90	6,0
M10,0	1,00	*30,59*	90	20	5,50	7,0
M10,0	1,25	*34,89*	100	20	5,50	7,0
M10,0	1,50	*26,96*	100	20	5,50	7,0
M12,0	1,00	*41,73*	100	20	7,00	9,0
M12,0	1,25	*42,05*	100	20	7,00	9,0
M12,0	1,50	*42,39*	110	20	7,00	9,0
M12,0	1,75	*35,14*	110	24	7,00	9,0
M14,0	1,25	*56,76*	100	20	9,00	11,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M14,0	1,50	*45,04*	100	20	9,00	11,0
M14,0	2,00	*44,76*	110	25	9,00	11,0
M16,0	1,50	*53,59*	100	20	9,00	12,0
M16,0	2,00	*52,67*	110	32	9,00	12,0
M18,0	1,50	*73,83*	110	24	11,00	14,0
M18,0	2,50	*74,72*	125	32	11,00	14,0
M20,0	1,50	*111,09*	125	24	12,00	16,0
M20,0	2,50	*80,59*	140	32	12,00	16,0
M22,0	2,50	*87,03*	140	32	14,50	18,0
M24,0	3,00	*94,00*	160	38	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock
*Para mismo rendimiento / Pour le même rendement / For the same performance **Ref. 2251**
*Para mayor rendimiento / Pour plus rendement / For higher performance **Ref. 2115**

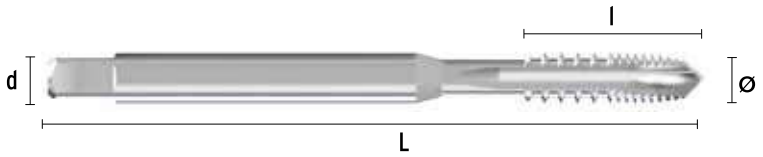
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2133 HSSE DIN 371

M DIN 13 | B-AZ | Tol. 6H | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 10-20	○ 6-8	○ 10-20	○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*19,99*	56	11	2,70	3,5
M4,0	0,70	*19,99*	63	13	3,40	4,5
M5,0	0,80	*19,99*	70	16	4,90	6,0

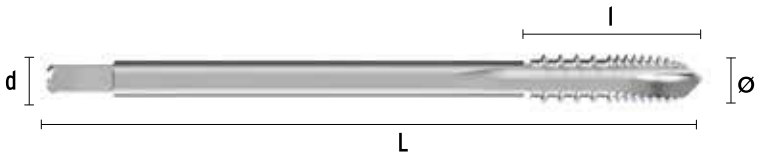
Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*21,05*	80	19	4,90	6,0
M8,0	1,25	*25,18*	90	22	6,20	8,0
M10,0	1,50	*29,66*	100	24	8,00	10,0

2132 HSSE DIN 376

M DIN 13 | B-AZ | Tol. 6H | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 10-20	○ 6-8	○ 10-20	○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M4,0	0,70	*19,99*	63	13	2,10	2,8
M5,0	0,80	*19,99*	70	16	2,70	3,5
M6,0	1,00	*21,05*	80	19	3,40	4,5
M8,0	1,25	*25,18*	90	22	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M10,0	1,50	*29,66*	100	24	5,50	7,0
M12,0	1,75	*37,43*	110	29	7,00	9,0
M14,0	2,00	*46,61*	110	30	9,00	11,0
M16,0	2,00	*61,80*	110	32	9,00	12,0

P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

2254 HSSE-PM DIN 371 MULTI

M DIN 13 | Form. B "Gun" | Tol. 6HX | 3XD | R | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-40	● 15-30	● 10-20	● 5-10	● 5-15	● 5-10	● 10-30	● 10-30	● 5-15	● 10-30	● 10-30	● 5-15	● 10-30	● 2-8	● 2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*26,30*	56	5	2,70	3,5
M4,0	0,70	*29,18*	63	7	3,40	4,5
M5,0	0,80	*30,48*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*31,78*	80	10	4,90	6,0
M8,0	1,25	*38,40*	90	13	6,20	8,0
M10,0	1,50	*50,54*	100	15	8,00	10,0

2255 HSSE-PM DIN 376 MULTI

M DIN 13 | Form. B "Gun" | Tol. 6HX | 3XD | D | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-40	● 15-30	● 10-20	● 5-10	● 5-15	● 5-10	● 10-30	● 10-30	● 5-15	● 10-30	● 10-30	● 5-15	● 10-30	● 2-8	● 2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	☒ mm	d mm
M12,0	1,75	*75,22*	110	18	7,00	9,0
M14,0	2,00	*101,66*	110	20	9,00	11,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M16,0	2,00	*106,99*	110	20	9,00	12,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2258 HSSE-PM DIN 371 SYNCHRO

M | DIN 13 | Form. B "Gun" | Tol. 6HX | CNC | 3XD | R | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-50	● 15-40	● 10-20	● 5-10	● 5-15	● 5-10	● 10-30	● 10-30	● 5-15	● 10-30	● 10-30	● 5-15	● 10-30	● 2-8	● 2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*26,30*	56	5	2,70	3,5
M4,0	0,70	*29,18*	63	7	3,40	4,5
M5,0	0,80	*30,48*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*31,78*	80	10	4,90	6,0
M8,0	1,25	*38,40*	90	13	6,20	8,0
M10,0	1,50	*50,54*	100	15	8,00	10,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2259 HSSE-PM DIN 376 SYNCHRO

M | DIN 13 | Form. B "Gun" | Tol. 6HX | CNC | 3XD | D | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-50	● 15-40	● 10-20	● 5-10	● 5-15	● 5-10	● 10-30	● 10-30	● 5-15	● 10-30	● 10-30	● 5-15	● 10-30	● 2-8	● 2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*75,22*	110	18	7,00	9,0
M14,0	2,00	*101,66*	110	20	9,00	11,00

Ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*106,99*	110	20	9,00	12,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2106 HSSE DIN 371

M-MF DIN 13 | Form. C | Tol. 6H | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M2,0	**0,40**	*33,74*	**45**	**5**	**2,10**	**2,8**
M2,2	**0,45**	*33,74*	**45**	**10**	**2,10**	**2,8**
M2,3	**0,40**	*33,74*	**45**	**10**	**2,10**	**2,8**
M2,5	**0,45**	*33,74*	**50**	**5**	**2,10**	**2,8**
M2,6	**0,45**	*33,74*	**50**	**5**	**2,10**	**2,8**
M3,0	0,35	*33,74*	56	5	2,70	3,5
M3,0	**0,50**	*14,99*	**56**	**6**	**2,70**	**3,5**
M3,5	0,35	*33,74*	56	5	3,00	4,0
M3,5	**0,60**	*18,50*	**56**	**6**	**3,00**	**4,0**
M4,0	0,50	*24,78*	63	7	3,40	4,5
M4,0	**0,70**	*14,99*	**63**	**7**	**3,40**	**4,5**

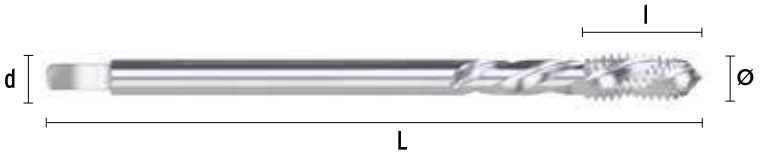
Ø	P	€	L mm	l mm	⊠ mm	d mm
M4,5	**0,75**	*25,54*	**70**	**7**	**4,90**	**6,0**
M5,0	0,50	*34,75*	70	8	4,90	6,0
M5,0	**0,80**	*14,49*	**70**	**8**	**4,90**	**6,0**
M6,0	0,75	*24,40*	80	10	4,90	6,0
M6,0	**1,00**	*15,89*	**80**	**10**	**4,90**	**6,0**
M7,0	**1,00**	*19,45*	**80**	**10**	**5,50**	**7,0**
M8,0	0,75	*28,21*	80	10	6,20	8,0
M8,0	**1,25**	*18,94*	**90**	**14**	**6,20**	**8,0**
M9,0	**1,25**	*32,89*	**90**	**13**	**7,00**	**9,0**
M10,0	**1,50**	*22,03*	**100**	**16**	**8,00**	**10,0**

2105 HSSE DIN 376/374

M-MF DIN13 | Form. C | Tol. 6H | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	**0,50**	*14,99*	**56**	**5**	**2,00**	**2,2**
M4,0	**0,70**	*14,99*	**63**	**7**	**2,10**	**2,8**
M5,0	**0,80**	*14,49*	**70**	**8**	**2,70**	**3,5**
M6,0	**1,00**	*15,89*	**80**	**10**	**3,40**	**4,5**
***M7,0**	**1,00**	*19,45*	**80**	**10**	**4,30**	**5,5**
M8,0	1,00	*23,44*	90	10	4,90	6,0
M8,0	**1,25**	*18,94*	**90**	**14**	**4,90**	**6,0**
M9,0	1,00	*30,20*	90	10	5,50	7,0
***M9,0**	**1,25**	*28,77*	**90**	**13**	**5,50**	**7,0**
M10,0	0,75	*42,65*	90	10	5,50	7,0
M10,0	1,00	*27,67*	90	10	5,50	7,0
M10,0	1,25	*30,08*	100	15	5,50	7,0
M10,0	**1,50**	*22,03*	**100**	**16**	**5,50**	**7,0**
M11,0	1,00	*88,10*	90	10	6,20	8,0
*M11,0	1,25	*78,58*	100	15	6,20	8,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M11,0	**1,50**	*64,19*	**100**	**15**	**6,20**	**8,0**
M12,0	1,00	*35,58*	100	10	7,00	9,0
M12,0	1,25	*34,03*	100	15	7,00	9,0
M12,0	1,50	*32,77*	100	15	7,00	9,0
M12,0	**1,75**	*29,42*	**110**	**18**	**7,00**	**9,0**
M14,0	1,00	*57,46*	100	10	9,00	11,0
M14,0	1,25	*49,07*	100	15	9,00	11,0
M14,0	1,50	*36,95*	100	15	9,00	11,0
M14,0	**2,00**	*37,77*	**110**	**20**	**9,00**	**11,0**
M15,0	1,00	*75,25*	100	10	9,00	12,0
*M15,0	1,50	*55,21*	100	20	9,00	12,0
M16,0	1,00	*120,33*	100	10	9,00	12,0
*M16,0	1,25	*99,87*	100	20	9,00	12,0
M16,0	1,50	*48,22*	100	15	9,00	12,0
M16,0	**2,00**	*45,61*	**110**	**20**	**9,00**	**12,0**

P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

MACHOS DE MÁQUINA
TARAUDS MACHINE / MACHINE TAPS

Ø	P	€	L mm	l mm	⊠ mm	d mm
M18,0	1,00	*95,80*	110	13	11,00	14,0
M18,0	1,50	*61,04*	110	20	11,00	14,0
M18,0	2,00	*115,03*	125	20	11,00	14,0
M18,0	**2,50**	*61,33*	**125**	**25**	**11,00**	**14,0**
M20,0	1,00	*93,65*	125	13	12,00	16,0
M20,0	1,50	*69,75*	125	20	12,00	16,0
M20,0	2,00	*109,30*	140	20	12,00	16,0
M20,0	**2,50**	*65,34*	**140**	**25**	**12,00**	**16,0**
M22,0	1,00	*92,25*	125	13	14,50	18,0
M22,0	1,50	*75,27*	125	17	14,50	18,0
M22,0	2,00	*103,50*	140	20	14,50	18,0
M22,0	**2,50**	*80,58*	**140**	**27**	**14,50**	**18,0**
M24,0	1,00	*123,70*	140	13	14,50	18,0
M24,0	1,50	*102,28*	140	20	14,50	18,0
M24,0	2,00	*123,70*	140	20	14,50	18,0
M24,0	**3,00**	*98,37*	**160**	**30**	**14,50**	**18,0**
M25,0	1,50	*164,90*	140	20	14,50	18,0
M26,0	1,50	*110,44*	140	20	14,50	18,0
M27,0	1,50	*126,22*	140	20	16,00	20,0
M27,0	2,00	*165,60*	140	20	16,00	20,0
M27,0	**3,00**	*120,49*	**160**	**30**	**16,00**	**20,0**
M28,0	1,50	*126,22*	140	20	16,00	20,0
M28,0	2,00	*206,90*	140	20	16,00	20,0
M30,0	1,50	*157,27*	150	22	18,00	22,0
M30,0	2,00	*332,26*	150	22	18,00	22,0
M30,0	**3,50**	*154,38*	**180**	**35**	**18,00**	**22,0**
M32,0	1,50	*194,08*	150	22	18,00	22,0
M33,0	1,50	*238,00*	160	22	20,00	25,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M33,0	2,00	*261,70*	160	24	20,00	25,0
M33,0	**3,50**	*185,49*	**180**	**35**	**20,00**	**25,0**
M35,0	1,50	*265,50*	170	22	22,00	28,0
M36,0	1,50	*323,55*	170	22	22,00	28,0
M36,0	2,00	*420,50*	170	24	22,00	28,0
M36,0	3,00	*328,00*	200	30	22,00	28,0
M36,0	**4,00**	*250,31*	**200**	**40**	**22,00**	**28,0**
M38,00	1,50	*388,10*	170	24	22,00	28,0
M39,00	1,50	*312,75*	170	25	24,00	32,0
M39,00	2,00	*312,75*	170	25	24,00	32,0
M39,00	3,00	*511,70*	200	30	24,00	32,0
M39,00	**4,00**	*528,75*	**200**	**40**	**24,00**	**32,0**
M40,00	1,50	*426,85*	170	25	24,00	32,0
M40,00	2,00	*346,50*	170	25	24,00	32,0
M42,00	1,50	*459,00*	170	25	24,00	32,0
M42,00	2,00	*387,00*	170	25	24,00	32,0
M42,00	3,00	*387,00*	200	30	24,00	32,0
M42,00	**4,50**	*386,20*	**200**	**45**	**24,00**	**32,0**
M45,00	1,50	*452,25*	180	27	29,00	36,0
M45,00	2,00	*452,25*	180	27	29,00	36,0
M45,00	3,00	*540,00*	200	30	29,00	36,0
M45,00	**4,50**	*708,75*	**220**	**45**	**29,00**	**36,0**
M48,00	1,50	*540,00*	190	27	29,00	36,0
M48,00	2,00	*540,00*	190	27	29,00	36,0
M48,00	3,00	*540,00*	225	33	29,00	36,0
M48,00	**5,00**	*776,25*	**250**	**50**	**29,00**	**36,0**
M50,00	1,50	*630,00*	190	27	29,00	36,0
M52,00	**5,00**	*922,50*	**250**	**50**	**32,00**	**40,0**

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2106/5 HSS DIN 371

M DIN 13 | Form. C | Tol. 6H | 35° | LH | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*25,05*	56	6	2,70	3,5
M4,0	0,70	*25,36*	63	7	3,40	4,5
M5,0	0,80	*26,77*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*26,77*	80	10	4,90	6,0
M8,0	1,25	*31,23*	90	14	6,20	8,0
M10,0	1,50	*39,95*	100	16	8,00	10,0

2105/5 HSS DIN 376/374

M DIN13 | Form. C | Tol. 6H | 35° | LH | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M12,0	1,75	*58,82*	110	18	7,00	9,0
M16,0	2,00	*86,03*	110	20	9,00	12,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M20,0	2,50	*125,04*	140	25	12,00	16,0
M24,0	1,50	*165,18*	140	20	14,50	18,0

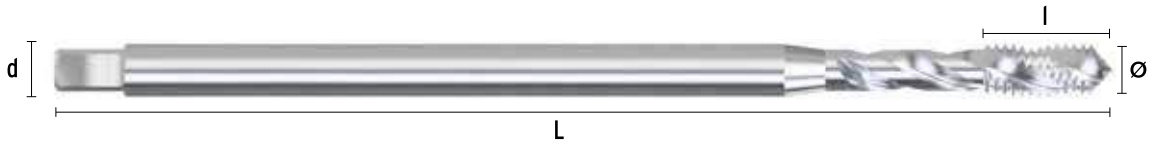
P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

2112 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*33,04*	100	5	2,70	3,5
M4,0	0,70	*33,04*	125	7	3,40	4,5
M5,0	0,80	*38,10*	140	8	4,90	6,0
M6,0	1,00	*38,10*	160	10	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
*M8,0	1,25	*48,24*	150	14	6,20	8,0
*M10,0	1,50	*58,35*	150	16	8,00	10,0
*M12,0	1,75	*60,72*	150	18	9,00	12,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

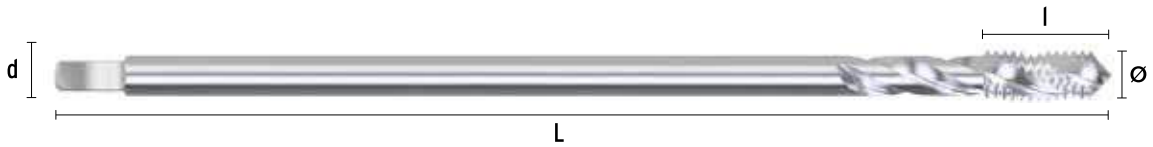
2273 HSSE DIN 376

M DIN 13 | Form. C | Tol. 6H | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*54,80*	180	20	4,90	6,0
M10,0	1,50	*67,09*	200	20	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*86,27*	220	24	7,00	9,0
M16,0	2,00	*126,22*	220	32	9,00	12,0

2166 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H +0,1 | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*24,21*	56	5	2,70	3,5
M4,0	0,70	*24,21*	63	7	3,40	4,5
M5,0	0,80	*23,37*	70	8	4,90	6,0

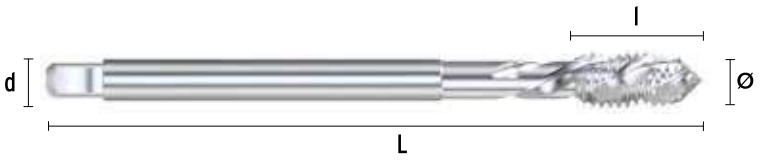
Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*25,63*	80	10	4,90	6,0
M8,0	1,25	*30,59*	90	13	4,90	6,0
M10,0	1,50	*36,27*	110	15	8,00	10,0

2165 HSSE DIN 376

M DIN 13 | Form. C | Tol. 6H +0,1 | 35° | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M8,0	1,25	*30,59*	90	15	4,90	6,0
M10,0	1,50	*36,27*	100	17	5,50	7,0
M12,0	1,75	*40,71*	110	18	7,00	9,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M14,0	2,00	*58,28*	110	20	9,00	11,0
M16,0	2,00	*70,36*	110	20	9,00	12,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2170 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6G | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*21,05*	56	5	2,70	3,5
M4,0	0,70	*21,05*	63	7	3,40	4,5
M5,0	0,80	*20,30*	70	8	4,90	6,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*22,27*	80	10	4,90	6,0
M8,0	1,25	*26,59*	90	13	6,20	8,0
M10,0	1,50	*31,51*	110	15	8,00	10,0

2208 HSSE DIN 376

M DIN 13 | Form. C | Tol. 6G | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*26,59*	90	15	4,90	6,0
M10,0	1,50	*31,51*	100	17	5,50	7,0
M12,0	1,75	*42,05*	110	18	7,00	9,0
M14,0	2,00	*48,57*	110	20	9,00	11,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*58,65*	110	20	9,00	12,0
M18,0	2,50	*79,91*	125	25	11,00	14,0
M20,0	2,50	*84,06*	140	25	12,00	16,0

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2108 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | 15° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
*M2,0	0,40	*18,96*	45	8	2,10	2,8
M3,0	0,50	*15,91*	56	11	2,70	3,5
M4,0	0,70	*15,27*	63	13	3,40	4,5
M5,0	0,80	*14,72*	70	16	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*16,14*	80	19	4,90	6,0
M7,0	1,00	*19,57*	80	19	5,50	7,0
M8,0	1,25	*19,28*	90	22	6,20	8,0
M10,0	1,50	*22,84*	100	24	8,00	10,0

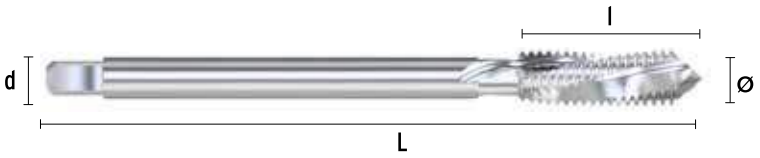
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2107 HSSE DIN 376/374

M DIN 13 | Form. C | Tol. 6H | 15° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M4,0	0,70	*15,13*	63	13	2,10	2,8
M5,0	0,80	*14,62*	70	16	2,70	3,5
M6,0	1,00	*16,14*	80	19	3,40	4,5
M7,0	1,00	*19,57*	80	19	4,30	5,5
M8,0	1,25	*19,28*	90	22	4,90	6,0
M10,0	1,50	*22,84*	100	24	5,50	7,0
M12,0	1,75	*30,50*	110	29	7,00	9,0
M14,0	2,00	*36,27*	110	30	9,00	11,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M16,0	2,00	*43,82*	110	32	9,00	12,0
M18,0	2,50	*58,95*	125	34	11,00	14,0
M20,0	2,50	*62,80*	140	34	12,00	16,0
M22,0	2,50	*77,45*	140	34	14,50	18,0
M24,0	3,00	*94,10*	160	38	14,50	18,0
*M27,0	3,00	*115,83*	160	38	16,00	20,0
*M30,0	3,50	*148,40*	180	45	18,00	22,0
*M36,0	4,00	*239,30*	200	56	22,00	28,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2252 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | 35° | 3XD | R | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M2,0	**0,40**	*29,21*	**45**	**5**	**2,10**	**2,8**
M2,5	**0,45**	*29,21*	**50**	**5**	**2,10**	**2,8**
M3,0	**0,50**	*16,21*	**56**	**6**	**2,70**	**3,5**
M3,5	**0,60**	*19,44*	**56**	**6**	**3,00**	**4,0**
M4,0	**0,70**	*16,48*	**63**	**7**	**3,40**	**4,5**

Ø	P	€	L mm	l mm	⊠ mm	d mm
M5,0	**0,80**	*17,41*	**70**	**8**	**4,90**	**6,0**
M6,0	**1,00**	*17,41*	**80**	**10**	**4,90**	**6,0**
M8,0	**1,25**	*20,24*	**90**	**14**	**6,20**	**8,0**
M10,0	**1,50**	*25,90*	**100**	**16**	**8,00**	**10,0**

2253 HSSE DIN 376/374

M-MF DIN13 | Form. C | Tol. 6H | 35° | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	**0,50**	*18,59*	**56**	**5**	**2,00**	**2,2**
M4,0	**0,70**	*18,99*	**63**	**7**	**2,10**	**2,8**
M5,0	**0,80**	*19,97*	**70**	**8**	**2,70**	**3,5**
M6,0	**1,00**	*19,97*	**80**	**10**	**3,40**	**4,5**
M8,0	1,00	*30,26*	90	10	4,90	6,0
M8,0	**1,25**	*23,27*	**90**	**14**	**4,90**	**6,0**
M10,0	1,00	*34,22*	90	10	5,50	7,0
M10,0	1,25	*39,88*	100	15	5,50	7,0
M10,0	**1,50**	*28,53*	**100**	**16**	**5,50**	**7,0**
M12,0	1,00	*44,04*	100	10	7,00	9,0
M12,0	1,25	*47,80*	100	15	7,00	9,0
M12,0	1,50	*44,04*	100	15	7,00	9,0
M12,0	**1,75**	*36,73*	**110**	**18**	**7,00**	**9,0**
M14,0	1,00	*60,13*	100	10	9,00	11,0
M14,0	1,25	*55,19*	100	15	9,00	11,0
M14,0	1,50	*60,13*	100	15	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	**2,00**	*50,18*	**110**	**20**	**9,00**	**11,0**
M16,0	1,00	*69,70*	100	10	9,00	12,0
M16,0	1,50	*61,70*	100	15	9,00	12,0
M16,0	**2,00**	*53,66*	**110**	**20**	**9,00**	**12,0**
M18,0	1,00	*95,80*	110	13	11,00	14,0
M18,0	1,50	*73,70*	110	20	11,00	14,0
M18,0	**2,50**	*73,70*	**125**	**25**	**11,00**	**14,0**
M20,0	1,00	*93,67*	125	13	12,00	16,0
M20,0	1,50	*85,83*	125	20	12,00	16,0
M20,0	**2,50**	*78,06*	**140**	**25**	**12,00**	**16,0**
M22,0	1,00	*157,00*	125	13	14,50	18,0
M22,0	1,50	*111,21*	125	17	14,50	18,0
M22,0	**2,50**	*111,21*	**140**	**27**	**14,50**	**18,0**
M24,0	1,50	*113,39*	140	20	14,50	18,0
M24,0	2,00	*123,68*	140	20	14,50	18,0
M24,0	**3,00**	*103,04*	**160**	**30**	**14,50**	**18,0**

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2118 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | 35° | 3XD | R | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	☐ mm	d mm
M2,0	**0,40**	*31,41*	**45**	**5**	**2,10**	**2,8**
M2,5	**0,45**	*31,41*	**50**	**5**	**2,10**	**2,8**
M3,0	**0,50**	*19,52*	**56**	**6**	**2,70**	**3,5**
M3,5	**0,60**	*24,80*	**56**	**6**	**3,00**	**4,0**
M4,0	**0,70**	*19,68*	**63**	**7**	**3,40**	**4,5**

Ø	P	€	L mm	l mm	☐ mm	d mm
M5,0	**0,80**	*21,44*	**70**	**8**	**4,90**	**6,0**
M6,0	**1,00**	*22,19*	**80**	**10**	**4,90**	**6,0**
M8,0	**1,25**	*26,67*	**90**	**14**	**6,20**	**8,0**
M10,0	**1,50**	*35,04*	**100**	**16**	**8,00**	**10,0**

2117 HSSE DIN 376/374

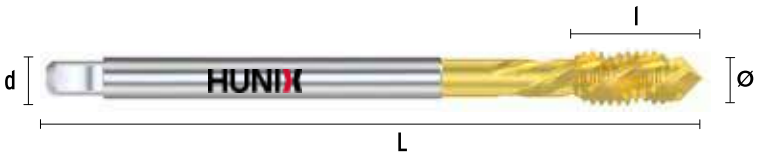
M-MF DIN 13 | Form. C | Tol. 6H | 35° | 3XD | D | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	☐ mm	d mm
M3,0	**0,50**	*21,03*	**56**	**5**	**2,00**	**2,2**
M4,0	**0,70**	*24,11*	**63**	**7**	**2,10**	**2,8**
M5,0	**0,80**	*26,08*	**70**	**8**	**2,70**	**3,5**
M6,0	**1,00**	*26,88*	**80**	**10**	**3,40**	**4,5**
M8,0	1,00	*41,50*	90	10	4,90	6,0
M8,0	**1,25**	*32,11*	**90**	**14**	**4,90**	**6,0**
M10,0	1,00	*48,65*	90	10	5,50	7,0
M10,0	1,25	*53,23*	100	15	5,50	7,0
M10,0	**1,50**	*40,54*	**100**	**16**	**5,50**	**7,0**
M12,0	1,00	*60,49*	100	10	7,00	9,0
M12,0	1,25	*67,31*	100	15	7,00	9,0
M12,0	1,50	*57,98*	100	15	7,00	9,0
M12,0	**1,75**	*50,14*	**110**	**18**	**7,00**	**9,0**
M14,0	1,00	*80,17*	100	10	9,00	11,0
M14,0	1,25	*74,51*	100	15	9,00	11,0
M14,0	1,50	*77,07*	100	15	9,00	11,0

Ø	P	€	L mm	l mm	☐ mm	d mm
M14,0	**2,00**	*66,30*	**110**	**20**	**9,00**	**11,0**
M16,0	1,00	*92,76*	100	10	9,00	12,0
M16,0	1,50	*80,49*	100	15	9,00	12,0
M16,0	**2,00**	*71,85*	**110**	**20**	**9,00**	**12,0**
M18,0	1,00	*110,61*	110	13	11,00	14,0
M18,0	1,50	*101,88*	110	20	11,00	14,0
M18,0	**2,50**	*97,61*	**125**	**25**	**11,00**	**14,0**
M20,0	1,00	*108,61*	125	13	12,00	16,0
M20,0	1,50	*114,95*	125	20	12,00	16,0
M20,0	**2,50**	*106,62*	**140**	**25**	**12,00**	**16,0**
M22,0	1,00	*148,01*	125	13	14,50	18,0
M22,0	1,50	*144,17*	125	17	14,50	18,0
M22,0	**2,50**	*144,12*	**140**	**27**	**14,50**	**18,0**
M24,0	1,50	*156,12*	140	20	14,50	18,0
M24,0	2,00	*181,30*	140	20	14,50	18,0
M24,0	**3,00**	*146,52*	**160**	**30**	**14,50**	**18,0**

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2124 HSSE-PM DIN 371

M DIN 13 | Form. C | Tol. 6H | 35° | 3XD | R | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
	● 10-15	● 6-10	○ 4-6		● 6-12			● 10-20				○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*23,12*	56	5	2,70	3,5
M4,0	0,70	*23,48*	63	7	3,40	4,5
M5,0	0,80	*25,31*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*26,11*	80	10	4,90	6,0
M8,0	1,25	*33,61*	90	13	6,20	8,0
M10,0	1,50	*40,75*	100	15	8,00	10,0

2123 HSSE-PM DIN 376/374

M-MF DIN 13 | Form. C | Tol. 6H | 35° | 3XD | D | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
	● 10-15	● 6-10	○ 4-6		● 6-12			● 10-20				○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,00	*44,37*	90	10	4,90	6,0
M8,0	1,25	*34,87*	90	15	4,90	6,0
M10,0	1,00	*51,09*	90	10	5,50	7,0
M10,0	1,25	*58,75*	100	15	5,50	7,0
M10,0	1,50	*44,84*	100	17	5,50	7,0
M12,0	1,00	*76,14*	100	10	7,00	9,0
M12,0	1,25	*68,03*	100	15	7,00	9,0
M12,0	1,50	*65,99*	100	15	7,00	9,0
M12,0	1,75	*56,89*	110	18	7,00	9,0
M14,0	1,25	*164,57*	100	15	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	1,50	*87,80*	100	15	9,00	11,0
M14,0	2,00	*75,48*	110	20	9,00	11,0
M16,0	1,50	*91,65*	100	15	9,00	12,0
M16,0	2,00	*81,71*	110	20	9,00	12,0
M18,0	1,50	*111,06*	110	17	11,00	14,0
M18,0	2,50	*111,79*	125	25	11,00	14,0
M20,0	1,50	*130,59*	125	17	12,00	16,0
M20,0	2,50	*120,98*	140	25	12,00	16,0
M22,0	2,50	*164,38*	140	25	14,50	18,0
M24,0	3,00	*178,41*	160	30	14,50	18,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2178 HSSE-PM DIN 371

M DIN 13 | Form. C | Tol. 6HX | 15º | 3XD | R | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
		○ 6-10	● 4-6		○ 4-6			● 10-20				○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*35,04*	56	10	2,70	3,5
M4,0	0,70	*25,85*	63	12	3,40	4,5
M5,0	0,80	*27,50*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*29,42*	80	18	4,90	6,0
M8,0	1,25	*33,61*	90	20	6,20	8,0
M10,0	1,50	*44,04*	100	20	8,00	10,0

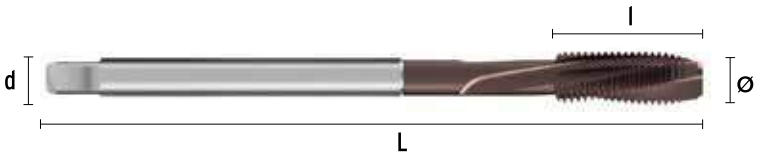
2177 HSSE-PM DIN 376

M DIN 13 | Form. C | Tol. 6HX | 15º | 3XD | D | TICN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
		○ 6-10	● 4-6		○ 4-6			● 10-20				○ 10-15		○ 4-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*50,10*	90	20	4,90	6,0
M10,0	1,50	*51,63*	100	20	5,50	7,0
M12,0	1,75	*61,38*	110	24	7,00	9,0
M14,0	2,00	*85,19*	110	25	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*88,29*	110	32	9,00	12,0
M18,0	2,50	*146,76*	125	32	11,00	14,0
M20,0	0,25	*136,02*	140	32	12,00	16,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2120 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | 3XD | R | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25				● 5-10										○ 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*20,18*	56	5	2,70	3,5
M4,0	0,70	*20,18*	63	7	3,40	4,5
M5,0	0,80	*20,18*	70	8	4,90	6,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*21,55*	80	10	4,90	6,0
M8,0	1,25	*25,31*	90	13	6,20	8,0
M10,0	1,50	*30,88*	100	15	8,00	10,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock
*Para mismo rendimiento / Pour le mème rendement / For the same performance **Ref. 2252**
*Para mayor rendimiento / Pour plus rendement / For higher performance **Ref. 2118**

2119 HSSE DIN 376/374

M-MF DIN 13 | Form. C | Tol. 6H | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25				● 5-10										○ 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,00	*29,89*	90	10	4,90	6,0
M8,0	1,25	*25,31*	90	15	4,90	6,0
M10,0	1,00	*36,63*	90	10	5,50	7,0
M10,0	1,25	*39,09*	100	15	5,50	7,0
M10,0	1,50	*30,88*	100	17	5,50	7,0
M12,0	1,00	*48,03*	100	10	7,00	9,0
M12,0	1,25	*46,46*	100	15	7,00	9,0
M12,0	1,50	*48,14*	110	15	7,00	9,0
M12,0	1,75	*41,76*	110	18	7,00	9,0
M14,0	1,25	*67,43*	100	15	9,00	11,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	1,50	*51,08*	100	15	9,00	11,0
M14,0	2,00	*51,92*	110	20	9,00	11,0
M16,0	1,50	*65,40*	100	15	9,00	12,0
M16,0	2,00	*62,74*	110	20	9,00	12,0
M18,0	1,50	*83,75*	110	17	11,00	14,0
M18,0	2,50	*84,33*	125	25	11,00	14,0
M20,0	1,50	*94,35*	125	17	12,00	16,0
M20,0	2,50	*89,86*	140	25	12,00	16,0
M22,0	2,50	*95,75*	140	25	14,50	18,0
M24,0	3,00	*101,51*	160	30	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock
*Para mismo rendimiento / Pour le mème rendement / For the same performance **Ref. 2253**
*Para mayor rendimiento / Pour plus rendement / For higher performance **Ref. 2117**

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2182 HSSE DIN 371

M DIN 13 | Form. C | Tol. 6H | 45° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 10-20	○ 6-8	○ 10-20	○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*18,09*	56	6	2,70	3,5
M4,0	0,70	*18,09*	63	7	3,40	4,5
M5,0	0,80	*18,46*	70	8	4,90	6,0

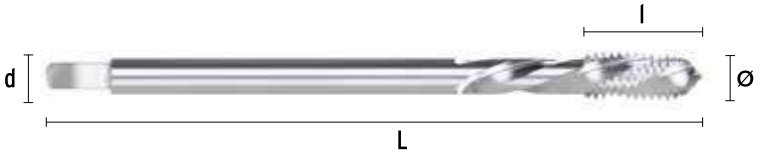
Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*20,02*	80	10	4,90	6,0
M8,0	1,25	*23,90*	90	14	6,20	8,0
M10,0	1,50	*28,24*	100	16	8,00	10,0

2181 HSSE DIN 376

M DIN 13 | Form. C | Tol. 6H | 45° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 10-20	○ 6-8	○ 10-20	○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*20,02*	80	18	3,40	4,5
M8,0	1,25	*23,90*	90	20	4,90	6,0
M10,0	1,50	*28,24*	100	22	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*33,58*	110	18	7,00	9,0
M14,0	2,00	*49,08*	110	20	9,00	11,0
M16,0	2,00	*66,19*	110	22	9,00	12,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

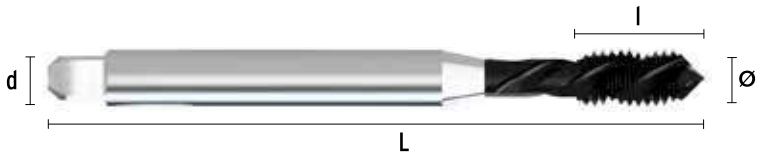
2256 HSSE-PM DIN 371 MULTI

M DIN 13 | Form. C | Tol. 6HX | 45° | 3XD | R | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
20-40	15-30	10-20	5-10	5-15	5-15	10-30	10-30	5-15	10-30	10-30	5-15	10-30	2-8	2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*31,08*	56	5	2,70	3,5
M4,0	0,70	*32,71*	63	7	3,40	4,5
M5,0	0,80	*35,52*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*36,82*	80	10	4,90	6,0
M8,0	1,25	*44,21*	90	13	6,20	8,0
M10,0	1,50	*58,18*	100	15	8,00	10,0

2257 HSSE-PM DIN 376 MULTI

M DIN 13 | Form. C | Tol. 6HX | 45° | 3XD | D | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
20-40	15-30	10-20	5-10	5-15	5-15	10-30	10-30	5-15	10-30	10-30	5-15	10-30	2-8	2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*86,95*	110	18	7,00	9,0
M14,0	2,00	*114,46*	110	20	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*124,1*	110	20	9,00	12,0

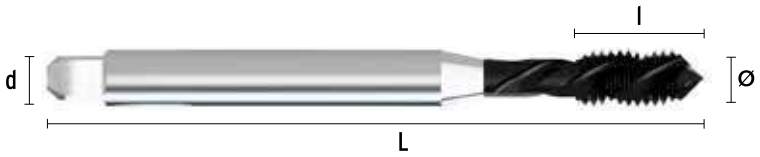
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2260 HSSE-PM DIN 371 SYNCHRO

M DIN 13 | Form. C | Tol. 6HX | 45° | CNC | 3XD | R | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
20-50	15-40	10-20	5-10	5-15	5-10	10-40	10-40	5-15	10-40	10-40	5-15	10-40	2-8	2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	*31,08*	56	5	2,70	3,5
M4,0	0,70	*32,71*	63	7	3,40	4,5
M5,0	0,80	*35,52*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M6,0	1,00	*36,82*	80	10	4,90	6,0
M8,0	1,25	*44,21*	90	13	6,20	8,0
M10,0	1,50	*58,18*	100	15	8,00	10,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2261 HSSE-PM DIN 376 SYNCHRO

M DIN 13 | Form. C | Tol. 6HX | 45° | CNC | 3XD | D | HL

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
20-50	15-40	10-20	5-10	5-15	5-10	10-40	10-40	5-15	10-40	10-40	5-15	10-40	2-8	2-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
M12,0	1,75	*86,95*	110	18	7,00	9,0
M14,0	2,00	*114,46*	110	20	9,00	11,0

Ø	P	€	L mm	l mm	☒ mm	d mm
M16,0	2,00	*124,10*	110	20	9,00	12,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

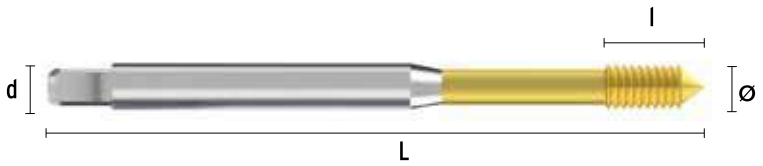
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2188 HSSE-PM DIN 371

A>12% | M DIN 13 | Form. C | Tol. 6HX | 1,5XD | R | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*30,17*	56	10	2,70	3,5
M4,0	0,70	*30,17*	63	7	3,40	4,5
M5,0	0,80	*31,73*	70	8	4,90	6,0

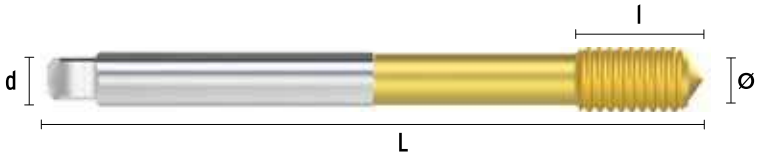
Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*33,82*	80	10	4,90	6,0
M8,0	1,25	*40,40*	90	13	6,20	8,0
M10,0	1,50	*49,26*	100	15	8,00	10,0

2187 HSSE-PM DIN 376

A>12% | M DIN 13 | Form. C | Tol. 6HX | 1,5XD | D | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*63,70*	110	18	7,00	9,0
M14,0	2,00	*85,90*	110	20	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*103,09*	110	20	9,00	12,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

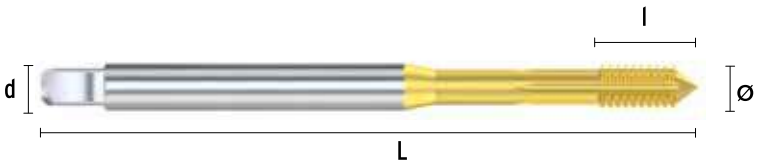
2214 HSSE-PM DIN 371

A>12% | M DIN 13 | Form. C | Tol. 6HX | 3XD | R | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*30,17*	56	10	2,70	3,5
M4,0	0,70	*30,17*	63	7	3,40	4,5
M5,0	0,80	*31,73*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*33,82*	80	10	4,90	6,0
M8,0	1,25	*40,40*	90	13	6,20	8,0
M10,0	1,50	*49,26*	100	15	8,00	10,0

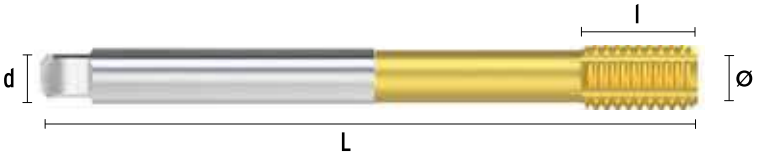
2213 HSSE-PM DIN 376/374

A>12% | M-MF DIN13 | Form. C | Tol. 6HX | 3XD | D | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,00	*66,20*	90	13	4,90	6,0
M8,0	1,25	*57,10*	90	13	4,90	6,0
M10,0	1,00	*54,25*	90	13	5,50	7,0
M10,0	1,25	*84,60*	100	15	5,50	7,0
M10,0	1,50	*67,40*	100	15	5,50	7,0
M12,0	1,00	*83,75*	100	10	7,00	9,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,25	*87,55*	100	15	7,00	9,0
M12,0	1,50	*85,15*	100	15	7,00	9,0
M12,0	1,75	*65,15*	110	18	7,00	9,0
M14,0	2,00	*85,90*	110	20	9,00	11,0
M16,0	1,50	*133,00*	100	15	9,00	12,0
M16,0	2,00	*103,10*	110	20	9,00	12,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

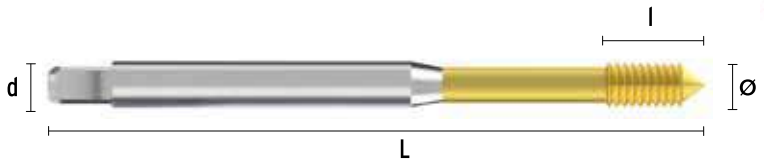
2216 HSSE-PM DIN 371

A>12% | M DIN 13 | Form. C | Tol. 6GX | 1,5XD | R | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*25,90*	56	10	2,70	3,5
M4,0	0,70	*26,80*	63	7	3,40	4,5
M5,0	0,80	*27,50*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*28,60*	80	10	4,90	6,0
M8,0	1,25	*38,90*	90	13	6,20	8,0
M10,0	1,50	*48,80*	100	15	8,00	10,0

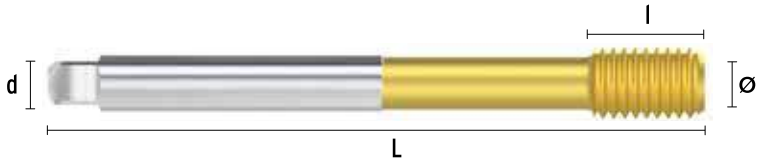
2215 HSSE-PM DIN 376

A>12% | M DIN 13 | Form. C | Tol. 6GX | 1,5XD | D | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*73,60*	110	18	7,00	9,0

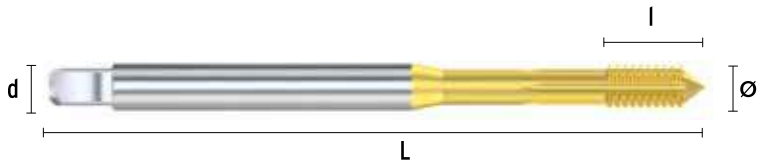
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2218 HSSE-PM DIN 371 A>12% M DIN 13 Form. C Tol. 6GX 3XD R TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*25,45*	56	10	2,70	3,5
M4,0	0,70	*31,55*	63	7	3,40	4,5
M5,0	0,80	*33,40*	70	8	4,90	6,0

ø	P	€	L mm	l mm	⊠ mm	d mm
M6,0	1,00	*26,75*	80	10	4,90	6,0
M8,0	1,25	*43,45*	90	13	6,20	8,0
M10,0	1,50	*52,35*	100	15	8,00	10,0

2217 HSSE-PM DIN 376 A>12% M DIN 13 Form. C Tol. 6GX 3XD D TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45	● 15-25			● 10-25					● 15-40	● 15-30	● 20-40			○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*52,35*	110	18	7,00	9,0

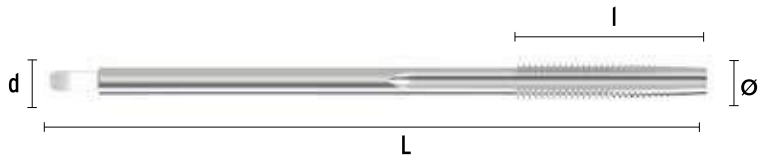
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2199 HSSE DIN 357

M DIN 13 | Tol. 6H | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25							○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*26,47*	70	22		2,2
M4,0	0,70	*26,47*	90	25	2,10	2,8
M5,0	0,80	*27,23*	100	28	2,70	3,5
M6,0	1,00	*25,24*	110	32	3,40	4,5
M8,0	1,25	*29,49*	125	40	4,90	6,0
M10,0	1,50	*45,37*	140	45	5,50	7,0
M12,0	1,75	*54,43*	180	50	7,00	9,0

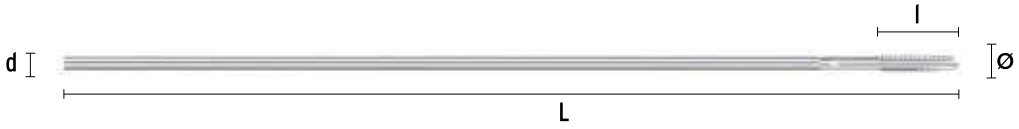
Ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	2,00	*60,47*	200	56	9,00	11,0
M16,0	2,00	*74,10*	200	63	9,00	12,0
M18,0	2,50	*90,72*	220	63	11,00	14,0
M20,0	2,50	*105,07*	250	70	12,00	16,0
M22,0	2,50	*134,55*	280	80	14,50	18,0
M24,0	3,00	*158,73*	280	80	14,50	18,0

2134 HSSE

M DIN 13 | 16-18 tpi | Tol. 6H | D | NIT

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25							○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	d mm
M3,0	0,50	*72,56*	280	12	2,7
M4,0	0,70	*71,54*	280	17	2,1
M5,0	0,80	*71,54*	280	20	2,7
M6,0	1,00	*71,54*	280	25	3,4
M8,0	1,25	*75,88*	280	31	4,9
M10,0	1,50	*87,96*	280	37	5,5
M12,0	1,75	*137,16*	420	43	7,0

Ø	P	€	L mm	l mm	d mm
M14,0	2,00	*132,48*	420	50	9,0
M16,0	2,00	*186,31*	420	50	9,0
M18,0	2,50	*230,09*	530	62	14,2
M20,0	2,50	*304,28*	530	63	12,0
M22,0	2,50	*351,47*	530	62	18,0
M24,0	3,00	*492,28*	530	75	19,2

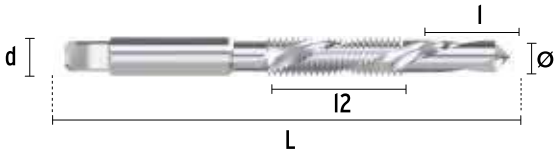
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2806 HSSE DIN 13

M DIN 13 | Tol. 6H

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25							○ 10-15		○ 10-15	● 10-20		○ 10-15		○			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*35,88*	56	16	2,40	3,0
M4,0	0,70	*35,88*	63	18	3,00	4,0
M5,0	0,80	*35,88*	71	20	3,80	5,0
M6,0	1,00	*39,65*	80	22	4,90	6,0

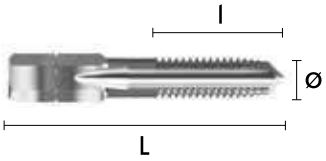
ø	P	€	L mm	l mm	⊠ mm	d mm
M8,0	1,25	*44,79*	95	26	6,20	8,0
M10,0	1,50	*49,29*	106	30	8,00	10,0
M12,0	1,75	*58,17*	115	32	9,00	12,0

1504 HSS Hex.

M DIN 13 | Tol. 6H | 1/4"

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-45																	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm
M3,0	0,50	*7,33*	33	11	1/4"
M4,0	0,70	*7,33*	35	12	1/4"
M5,0	0,80	*7,33*	36	15	1/4"

ø	P	€	L mm	l mm	⊠ mm
M6,0	1,00	*7,33*	39	18	1/4"
M8,0	1,25	*10,15*	40	19	1/4"
M10,0	1,50	*11,62*	41	21	1/4"

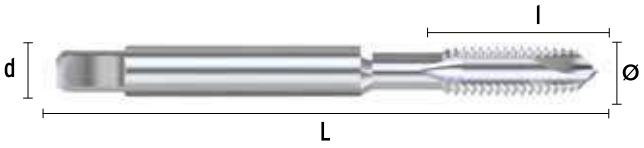
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2248 HSS ISO 529

M DIN 13 | Form. B "Gun" | Tol. 6H | 3XD

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 5-20							○ 5-15		○ 10-15	● 5-15		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*5,95*	48	11	2,50	3,2
M4,0	0,70	*6,04*	53	13	3,15	4,0
M5,0	0,80	*7,66*	58	16	4,00	5,0
M6,0	1,00	*8,01*	66	19	5,00	6,3
M8,0	1,25	*8,27*	72	22	6,30	8,0
M10,0	1,50	*10,11*	80	24	8,00	10,0
M12,0	1,75	*15,31*	89	29	7,10	10,2
M14,0	2,00	*16,06*	95	30	9,00	11,2

ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*18,77*	102	32	10,00	12,5
M18,0	2,50	*23,45*	110	37	11,20	14,0
M20,0	2,50	*26,21*	112	37	11,20	14,0
M22,0	2,50	*29,71*	118	38	12,50	16,0
M24,0	3,00	*37,54*	130	45	14,00	18,0
M27,0	3,00	*50,40*	135	45	16,00	20,0
M30,0	3,50	*93,54*	138	48	16,00	20,0

2249 HSS ISO 529

M DIN 13 | Form. C | 35° | Tol. 6H | 3XD

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 5-20							○ 5-15		○ 10-15	● 5-15		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*7,44*	48	11	2,50	3,2
M4,0	0,70	*7,70*	53	13	3,15	4,0
M5,0	0,80	*9,54*	58	16	4,00	5,0
M6,0	1,00	*9,89*	66	19	5,00	6,3
M8,0	1,25	*10,54*	72	22	6,30	8,0
M10,0	1,50	*12,64*	80	24	8,00	10,0
M12,0	1,75	*19,12*	89	29	7,10	10,2
M14,0	2,00	*21,57*	95	30	9,00	11,2

ø	P	€	L mm	l mm	⊠ mm	d mm
M16,0	2,00	*23,45*	102	32	10,00	12,5
M18,0	2,50	*29,44*	112	37	11,20	14,0
M20,0	2,50	*32,99*	112	37	11,20	14,0
M22,0	2,50	*37,06*	118	38	12,50	16,0
M24,0	3,00	*46,81*	130	45	14,00	18,0
M27,0	3,00	*62,91*	135	45	16,00	20,0
M30,0	3,50	*105,70*	138	48	16,00	20,0

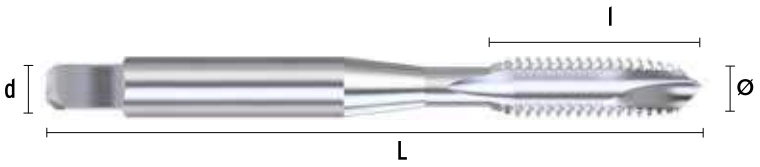
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2266 HSSE JIS

M DIN13 | Form. B "Gun" | HH1 HH4 | 3XD

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*12,16*	46	11	3,20	4,0
M4,0	0,70	*12,43*	52	13	4,00	5,0
M5,0	0,80	*12,45*	60	16	4,50	5,5
M6,0	1,00	*13,66*	62	19	4,50	6,0
M8,0	1,25	*15,07*	70	22	5,00	6,2
M10,0	1,50	*18,49*	75	24	5,50	7,0

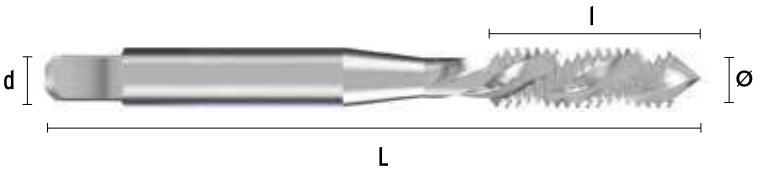
Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*23,60*	82	29	6,50	8,5
M14,0	2,00	*31,08*	88	30	8,00	10,5
M16,0	2,00	*38,18*	95	32	10,00	12,5
M18,0	2,50	*51,88*	100	37	11,00	14,0
M20,0	2,50	*55,97*	105	37	12,00	15,0

2267 HSSE JIS

M DIN13 | Form. C | HH1 HH4 | 35° | 3XD

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*14,99*	46	6	3,20	4,0
M4,0	0,70	*14,99*	52	9	4,00	5,0
M5,0	0,80	*14,49*	60	10	4,50	5,5
M6,0	1,00	*15,89*	62	12	4,50	6,0
M8,0	1,25	*18,94*	70	15	5,00	6,2
M10,0	1,50	*22,03*	75	18	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*29,42*	82	21	6,50	8,5
M14,0	2,00	*37,77*	88	24	8,00	10,5
M16,0	2,00	*45,61*	95	24	10,00	12,5
M18,0	2,50	*61,33*	100	30	11,00	14,0
M20,0	2,50	*65,34*	105	30	12,00	15,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2268 HSSE JIS

M DIN13 | Form. B "Gun" | HH1 HH4 | 3XD | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*13,61*	46	11	3,20	4,0
M4,0	0,70	*13,93*	52	13	4,00	5,0
M5,0	0,80	*13,94*	60	16	4,50	5,5
M6,0	1,00	*15,30*	62	19	4,50	6,0
M8,0	1,25	*16,87*	70	22	5,00	6,2
M10,0	1,50	*20,72*	75	24	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*26,44*	82	29	6,50	8,5
M14,0	2,00	*34,81*	88	30	8,00	10,5
M16,0	2,00	*42,76*	95	32	10,00	12,5
M18,0	2,50	*58,11*	100	37	11,00	14,0
M20,0	2,50	*62,69*	105	37	12,00	15,0

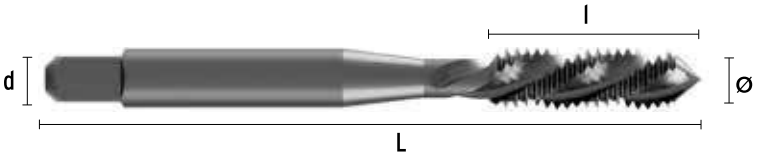
2269 HSSE JIS

M DIN13 | Form. C | HH1 HH4 | 35° | 3XD | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*16,81*	46	6	3,20	4,0
M4,0	0,70	*16,81*	52	9	4,00	5,0
M5,0	0,80	*16,23*	60	10	4,50	5,5
M6,0	1,00	*17,79*	62	12	4,50	6,0
M8,0	1,25	*21,22*	70	15	5,00	6,2
M10,0	1,50	*24,69*	75	18	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*32,95*	82	21	6,50	8,5
M14,0	2,00	*42,30*	88	24	8,00	10,5
M16,0	2,00	*51,08*	95	24	10,00	12,5
M18,0	2,50	*68,69*	100	30	11,00	14,0
M20,0	2,50	*73,19*	105	30	12,00	15,0

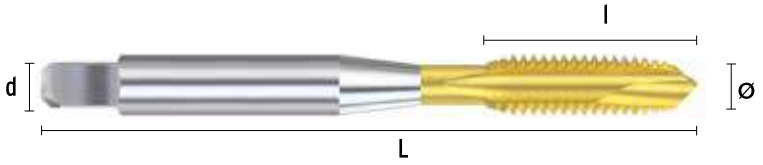
2270 HSSE JIS

M DIN13 | Form. B "Gun" | HH1 HH4 | 3XD | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 12-18			○ 5-10			○ 15-20		○ 15-20	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*17,02*	46	11	3,20	4,0
M4,0	0,70	*18,19*	52	13	4,00	5,0
M5,0	0,80	*18,20*	60	16	4,50	5,5
M6,0	1,00	*19,41*	62	19	4,50	6,0
M8,0	1,25	*22,47*	70	22	5,00	6,2
M10,0	1,50	*29,47*	75	24	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*35,69*	82	29	6,50	8,5
M14,0	2,00	*44,79*	88	30	8,00	10,5
M16,0	2,00	*53,26*	95	32	10,00	12,5
M18,0	2,50	*66,96*	100	37	11,00	14,0
M20,0	2,50	*71,04*	105	37	12,00	15,0

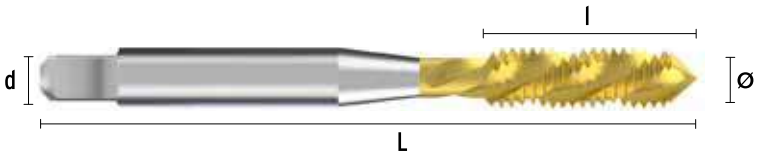
2271 HSSE JIS

M DIN13 | Form. C | HH1 HH4 | 35° | 3XD | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 12-18			○ 5-10			○ 15-20		○ 15-20	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	*20,11*	46	6	3,20	4,0
M4,0	0,70	*21,03*	52	9	4,00	5,0
M5,0	0,80	*20,53*	60	10	4,50	5,5
M6,0	1,00	*21,91*	62	12	4,50	6,0
M8,0	1,25	*26,70*	70	15	5,00	6,2
M10,0	1,50	*33,53*	75	18	5,50	7,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	*42,09*	82	21	6,50	8,5
M14,0	2,00	*52,14*	88	24	8,00	10,5
M16,0	2,00	*61,41*	95	24	10,00	12,5
M18,0	2,50	*77,13*	100	30	11,00	14,0
M20,0	2,50	*81,14*	105	30	12,00	15,0

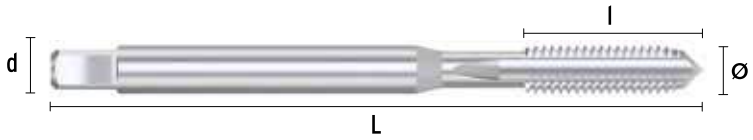
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2148 HSSE DIN 371

UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*23,96*	56	11	2,70	3,5
Nº5	40,00	*23,96*	56	11	2,70	3,5
Nº6	32,00	*22,81*	56	12	3,00	4,0
Nº8	32,00	*22,81*	63	13	3,40	4,5

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº10	24,00	*23,96*	70	14	4,90	6,0
Nº12	24,00	*25,14*	80	16	4,90	6,0
1/4	20,00	*21,27*	80	16	5,50	7,0
5/16	18,00	*22,62*	90	20	6,20	8,0

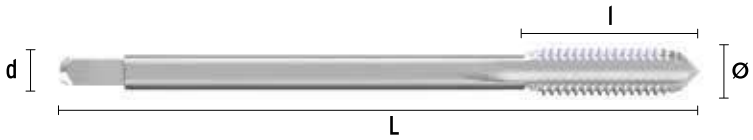
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2147 HSSE DIN 376

UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/4	20,00	*21,27*	80	18	3,40	4,5
5/16	18,00	*24,07*	90	20	4,90	6,0
3/8	16,00	*27,46*	100	22	5,50	7,0
7/16	14,00	*37,75*	100	22	6,20	8,0
1/2	13,00	*41,42*	110	27	7,00	9,0
9/16	12,00	*56,41*	110	30	9,00	11,0
5/8	11,00	*54,79*	110	30	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	10,00	*72,41*	125	35	11,00	14,0
7/8	9,00	*95,39*	140	36	14,50	18,0
1	8,00	*125,28*	160	38	16,00	20,0
1"1/8	7,00	*158,18*	180	45	18,00	22,0
1"1/4	7,00	*193,95*	180	45	18,00	22,0
1"1/2	6,00	*327,03*	200	55	24,00	32,0

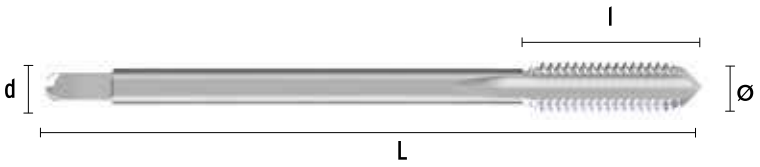
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2147/5 HSSE DIN 376

UNC ANSI/ASME B1.1 | Form. C | LH | Tol. 2B | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
1/4	20,00	*42,53*	80	18	3,40	4,5
5/16	18,00	*48,13*	90	20	4,90	6,0
3/8	16,00	*54,94*	100	22	5,50	7,0
7/16	14,00	*75,51*	100	22	6,20	8,0
1/2	13,00	*82,83*	110	27	7,00	9,0

Ø	P	€	L mm	l mm	☒ mm	d mm
9/16	12,00	*112,82*	110	30	9,00	11,0
5/8	11,00	*109,58*	110	30	9,00	12,0
3/4	10,00	*144,82*	125	35	11,00	14,0
7/8	9,00	*190,81*	140	36	14,50	18,0
1"	8,00	*250,53*	160	38	16,00	20,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

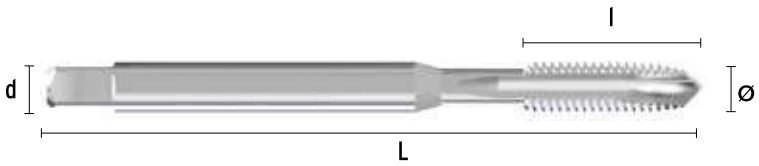
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2150 HSSE DIN 371

UNC ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*22,15*	56	10	2,70	3,5
Nº5	40,00	*20,64*	56	10	2,70	3,5
Nº6	32,00	*20,64*	56	12	3,00	4,0
Nº8	32,00	*20,64*	63	12	3,40	4,5
Nº10	24,00	*20,89*	70	14	4,90	6,0

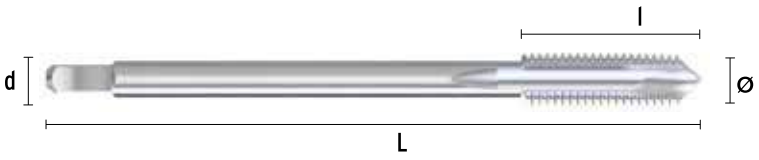
Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	24,00	*22,10*	80	18	4,90	6,0
1/4	20,00	*22,10*	80	18	5,50	7,0
5/16	18,00	*23,87*	90	20	6,20	8,0
3/8	16,00	*28,21*	100	20	8,00	10,0

2149 HSSE DIN 376

UNC ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*1/4	20,00	*22,10*	80	18	3,40	4,5
*5/16	18,00	*23,87*	90	20	4,90	6,0
*3/8	16,00	*28,21*	100	20	5,50	7,0
7/16	14,00	*40,10*	100	22	6,20	8,0
1/2	13,00	*40,10*	110	24	7,00	9,0
9/16	12,00	*54,70*	110	25	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	11,00	*53,65*	110	32	9,00	12,0
3/4	10,00	*78,05*	125	32	11,00	14,0
7/8	9,00	*111,20*	140	32	14,50	18,0
1"	8,00	*103,05*	160	38	16,00	20,0
1"1/8	7,00	*171,55*	180	40	18,00	22,0
1"1/4	7,00	*176,40*	180	40	18,00	22,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2262 HSSE DIN 371

UNC ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | R | 3XD | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*24,36*	56	10	2,70	3,5
Nº5	40,00	*22,71*	56	10	2,70	3,5
Nº6	32,00	*22,71*	56	12	3,00	4,0
Nº8	32,00	*22,71*	63	12	3,40	4,5
Nº10	24,00	*22,98*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	24,00	*24,31*	80	18	4,90	6,0
1/4	20,00	*24,31*	80	18	5,50	7,0
5/16	18,00	*26,26*	90	20	6,20	8,0
3/8	16,00	*31,03*	100	20	8,00	10,0

2263 HSSE DIN 376

UNC ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | D | 3XD | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	14,00	*44,09*	100	22	6,20	8,0
1/2	13,00	*44,09*	110	24	7,00	9,0
9/16	12,00	*60,19*	110	25	9,00	11,0
5/8	11,00	*59,03*	110	32	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	10,00	*85,87*	125	32	11,00	14,0
7/8	9,00	*122,33*	140	32	14,50	18,0
1"	8,00	*113,34*	160	38	16,00	20,0

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2234 HSSE DIN 371

UNC ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | R | 3XD | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*33,28*	56	10	2,70	3,5
Nº5	40,00	*30,02*	56	10	2,70	3,5
Nº6	32,00	*30,02*	56	12	3,00	4,0
Nº8	32,00	*30,02*	63	12	3,40	4,5
Nº10	24,00	*32,26*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	24,00	*33,73*	80	18	4,90	6,0
1/4	20,00	*33,73*	80	18	5,50	7,0
5/16	18,00	*37,83*	90	20	6,20	8,0
3/8	16,00	*46,47*	100	20	8,00	10,0

2235 HSSE DIN 376

UNC ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | D | 3XD | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	14,00	*64,97*	100	22	6,20	8,0
1/2	13,00	*66,95*	110	24	7,00	9,0
9/16	12,00	*91,40*	110	25	9,00	11,0
5/8	11,00	*86,66*	110	32	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	10,00	*127,89*	125	32	11,00	14,0
7/8	9,00	*191,64*	140	32	14,50	18,0
1"	8,00	*176,85*	160	38	16,00	20,0

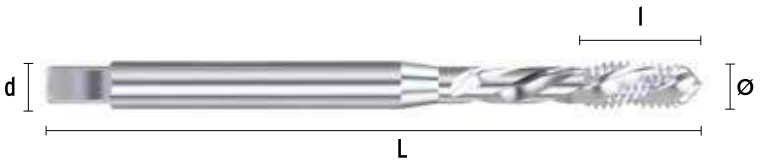
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2152 HSSE DIN 371

UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*24,40*	56	5	2,70	3,5
Nº5	40,00	*22,65*	56	7	2,70	3,5
Nº6	32,00	*22,65*	56	6	3,00	4,0
Nº8	32,00	*22,65*	63	7	3,40	4,5
Nº10	24,00	*23,05*	70	8	4,90	6,0

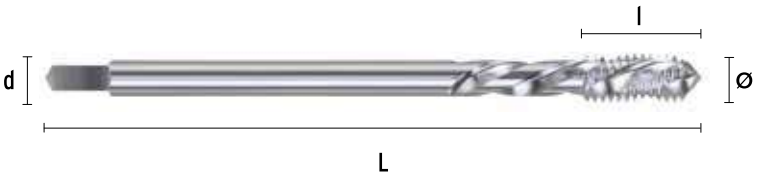
Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	24,00	*24,35*	80	10	4,90	6,0
1/4	20,00	*24,35*	80	13	5,50	7,0
5/16	18,00	*26,30*	90	13	6,20	8,0
3/8	16,00	*31,05*	100	15	8,00	10,0

2151 HSSE DIN 376

UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*1/4	20,00	*24,35*	80	13	3,40	4,5
*5/16	18,00	*26,30*	90	13	4,90	6,0
*3/8	16,00	*31,05*	100	16	5,50	7,0
7/16	14,00	*44,05*	100	15	6,20	8,0
1/2	13,00	*44,05*	110	18	7,00	9,0
9/16	12,00	*60,15*	110	20	9,00	11,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	11,00	*59,05*	110	22	9,00	12,0
3/4	10,00	*85,85*	125	25	11,00	14,0
7/8	9,00	*122,30*	140	30	14,50	18,0
1"	8,00	*113,40*	160	30	16,00	20,0
1"1/8	7,00	*188,71*	180	40	18,00	22,0
1"1/4	7,00	*194,04*	180	40	18,00	22,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2264 HSSE DIN 371

UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | R | 3XD | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*26,84*	56	5	2,70	3,5
Nº5	40,00	*24,94*	56	7	2,70	3,5
Nº6	32,00	*24,94*	56	6	3,00	4,0
Nº8	32,00	*24,94*	63	7	3,40	4,5
Nº10	24,00	*25,38*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	24,00	*26,76*	80	10	4,90	6,0
1/4	20,00	*26,76*	80	13	5,50	7,0
5/16	18,00	*28,94*	90	13	6,20	8,0
3/8	16,00	*34,14*	100	15	8,00	10,0

2265 HSSE DIN 376

UNC ANSI/ASME | Form. C | Tol. 2B | 35° | D | 3XD | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	14,00	*48,45*	100	15	6,20	8,0
1/2	13,00	*48,45*	110	18	7,00	9,0
9/16	12,00	*66,14*	110	20	9,00	11,0
5/8	11,00	*64,98*	110	22	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	10,00	*94,41*	125	25	11,00	14,0
7/8	9,00	*134,54*	140	30	14,50	18,0
1"	8,00	*124,72*	160	30	16,00	20,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2236 HSSE DIN 371

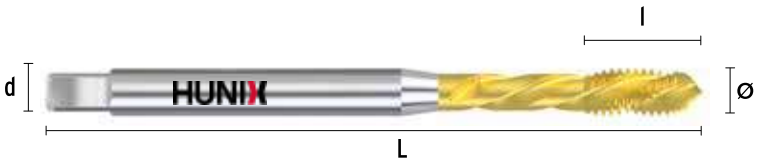
UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | R | 3XD | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	40,00	*33,28*	56	5	2,70	3,5
Nº5	40,00	*33,28*	56	7	2,70	3,5
Nº6	32,00	*32,64*	56	6	3,00	4,0
Nº8	32,00	*32,64*	63	7	3,40	4,5
Nº10	24,00	*34,95*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	24,00	*36,61*	80	10	4,90	6,0
1/4	20,00	*36,61*	80	13	5,50	7,0
5/16	18,00	*40,84*	90	13	6,20	8,0
3/8	16,00	*50,12*	100	15	8,00	10,0

2237 HSSE DIN 376

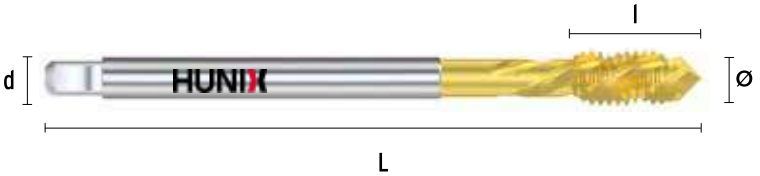
UNC ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | D | 3XD | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	14,00	*70,09*	100	15	6,20	8,0
1/2	13,00	*72,14*	110	18	7,00	9,0
9/16	12,00	*98,76*	110	20	9,00	11,0
5/8	11,00	*93,45*	110	22	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	10,00	*137,93*	125	25	11,00	14,0
7/8	9,00	*206,61*	140	30	14,50	18,0
1"	8,00	*190,04*	160	30	16,00	20,0

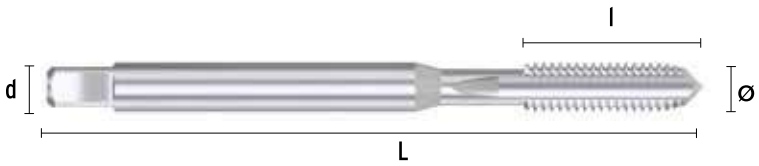
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2154 HSSE DIN 371

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	*26,25*	56	11	2,70	3,5
Nº5	44,00	*26,25*	56	11	2,70	3,5
Nº6	40,00	*25,16*	56	12	3,00	4,0
Nº8	36,00	*25,16*	63	13	3,40	4,5

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº10	32,00	*25,16*	70	14	4,90	6,0
Nº12	28,00	*26,25*	80	16	4,90	6,0
1/4	28,00	*20,20*	80	16	5,50	7,0
5/16	24,00	*23,22*	90	20	6,20	8,0

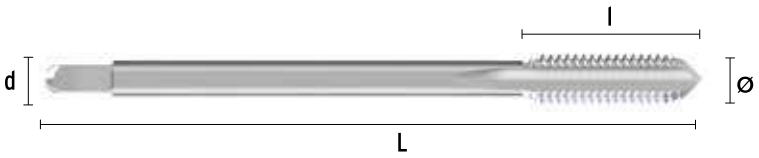
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2153 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/4	28,00	*20,20*	80	18	3,40	4,5
5/16	24,00	*23,22*	90	20	4,90	6,0
3/8	24,00	*26,80*	100	20	5,50	7,0
7/16	20,00	*34,34*	100	22	6,20	8,0
1/2	20,00	*36,55*	100	22	7,00	9,0
9/16	18,00	*44,88*	100	22	9,00	11,0
5/8	18,00	*50,54*	100	22	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	16,00	*64,66*	110	25	11,00	14,0
7/8	14,00	*81,34*	125	25	14,50	18,0
1"	12,00	*106,62*	140	28	16,00	20,0
1"1/8	12,00	*160,13*	150	28	18,00	22,0
1"1/4	12,00	*202,38*	150	28	18,00	22,0
1"1/2	12,00	*339,61*	170	30	22,00	28,0

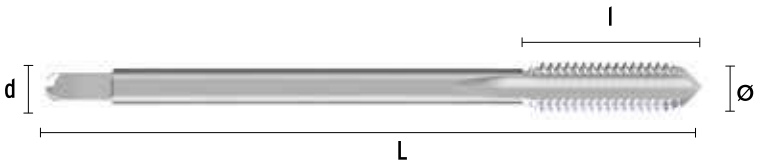
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2153/5 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. C | LH | Tol. 2B | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
1/4	28,00	*40,37*	80	18	3,40	4,5
5/16	24,00	*46,42*	90	20	4,90	6,0
3/8	24,00	*53,59*	100	20	5,50	7,0
7/16	20,00	*68,65*	100	22	6,20	8,0
1/2	20,00	*73,08*	100	22	7,00	9,0

Ø	P	€	L mm	l mm	☒ mm	d mm
9/16	18,00	*89,74*	100	22	9,00	11,0
5/8	18,00	*101,07*	100	22	9,00	12,0
3/4	16,00	*129,32*	110	25	11,00	14,0
7/8	14,00	*162,69*	125	25	14,50	18,0
1"	12,00	*213,26*	140	28	16,00	20,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

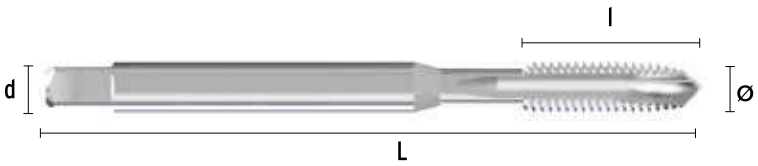
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2156 HSSE DIN 371

UNF ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	*23,35*	56	11	2,70	3,5
Nº5	44,00	*23,35*	56	11	2,70	3,5
Nº6	40,00	*23,52*	56	12	3,00	4,0
Nº8	36,00	*23,72*	63	12	3,40	4,5
Nº10	32,00	*24,13*	70	14	4,90	6,0

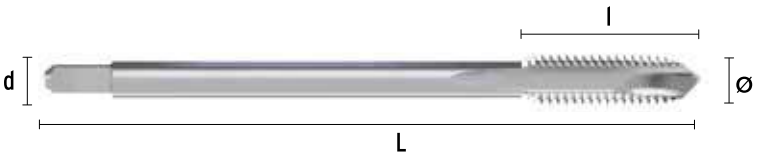
Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	28,00	*25,33*	80	18	4,90	6,0
1/4	20,00	*26,51*	80	18	5,50	7,0
5/16	24,00	*27,48*	90	20	6,20	8,0
3/8	24,00	*32,57*	100	20	8,00	10,0

2155 HSSE DIN 376

UNF ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*1/4	28,00	*26,51*	80	19	3,40	4,5
*5/16	24,00	*27,48*	90	22	4,90	6,0
*3/8	24,00	*32,57*	90	20	5,50	7,0
7/16	20,00	*46,07*	100	20	6,20	8,0
1/2	20,00	*46,07*	100	20	7,00	9,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
9/16	18,00	*62,83*	100	20	9,00	11,0
5/8	18,00	*61,70*	100	20	9,00	12,0
3/4	16,00	*89,79*	110	24	11,00	14,0
7/8	14,00	*127,89*	125	24	14,50	18,0
1"	12,00	*118,60*	140	27	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

2276 HSSE DIN 371

UNF ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | R | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	*25,69*	56	11	2,70	3,5
Nº5	44,00	*25,68*	56	11	2,70	3,5
Nº6	40,00	*25,88*	56	12	3,00	4,0
Nº8	36,00	*26,10*	63	12	3,40	4,5
Nº10	32,00	*26,54*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	28,00	*27,86*	80	18	4,90	6,0
1/4	20,00	*29,16*	80	18	5,50	7,0
5/16	24,00	*30,23*	90	20	6,20	8,0
3/8	24,00	*35,82*	100	20	8,00	10,0

2277 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	20,00	*50,68*	100	20	6,20	8,0
1/2	20,00	*50,68*	100	20	7,00	9,0
9/16	18,00	*69,11*	100	20	9,00	11,0
5/8	18,00	*67,87*	100	20	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	16,00	*98,77*	110	24	11,00	14,0
7/8	14,00	*140,68*	125	24	14,50	18,0
1"	12,00	*130,46*	140	27	14,50	18,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2280 HSSE DIN 371

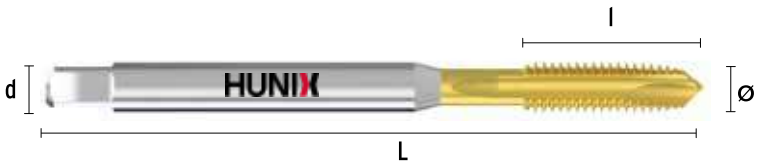
UNF ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | R | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	☐ mm	d mm
Nº4	48,00	*37,93*	56	11	2,70	3,5
Nº5	44,00	*34,22*	56	11	2,70	3,5
Nº6	40,00	*34,22*	56	12	3,00	4,0
Nº8	36,00	*34,22*	63	12	3,40	4,5
Nº10	32,00	*36,48*	70	14	4,90	6,0

Ø	P	€	L mm	l mm	☐ mm	d mm
Nº12	28,00	*38,15*	80	18	4,90	6,0
1/4	20,00	*38,15*	80	18	5,50	7,0
5/16	24,00	*43,20*	90	20	6,20	8,0
3/8	24,00	*53,77*	100	20	8,00	10,0

2281 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. B "Gun" | Tol. 2B | 3XD | D | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	☐ mm	d mm
7/16	20,00	*73,35*	100	20	6,20	8,0
1/2	20,00	*77,06*	100	20	7,00	9,0
9/16	18,00	*105,10*	100	20	9,00	11,0
5/8	18,00	*99,59*	100	20	9,00	12,0

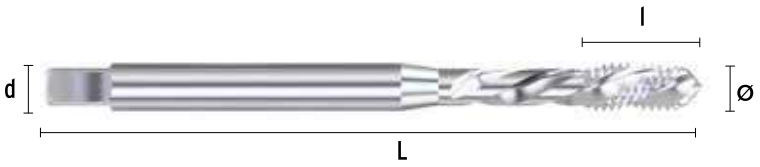
Ø	P	€	L mm	l mm	☐ mm	d mm
3/4	16,00	*147,22*	110	24	11,00	14,0
7/8	14,00	*216,21*	125	24	14,50	18,0
1"	12,00	*203,03*	140	27	14,50	18,0

2158 HSSE DIN 371

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	*25,70*	56	5	2,70	3,5
Nº5	44,00	*25,70*	56	5	2,70	3,5
Nº6	40,00	*26,03*	56	6	3,00	4,0
Nº8	36,00	*26,18*	63	7	3,40	4,5
Nº10	32,00	*26,51*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	28,00	*27,88*	80	10	4,90	6,0
1/4	28,00	*29,21*	80	10	5,50	7,0
5/16	24,00	*30,26*	90	13	6,20	8,0
3/8	24,00	*35,87*	100	15	8,00	10,0

2157 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*1/4	28,00	*29,21*	80	13	3,40	4,5
*5/16	24,00	*30,26*	90	13	4,90	6,0
*3/8	24,00	*35,87*	100	16	5,50	7,0
7/16	20,00	*50,71*	100	15	6,20	8,0
1/2	20,00	*50,71*	100	15	7,00	9,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
9/16	18,00	*69,29*	100	15	9,00	11,0
5/8	18,00	*67,92*	100	15	9,00	12,0
3/4	16,00	*98,76*	110	17	11,00	14,0
7/8	14,00	*140,74*	125	17	14,50	18,0
1"	12,00	*130,40*	140	20	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2278 HSSE DIN 371

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | R | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
N°4	48,00	*28,27*	56	5	2,70	3,5
N°5	44,00	*28,27*	56	5	2,70	3,5
N°6	40,00	*28,63*	56	6	3,00	4,0
N°8	36,00	*28,80*	63	7	3,40	4,5
N°10	32,00	*29,16*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
N°12	28,00	*30,67*	80	10	4,90	6,0
1/4	28,00	*32,13*	80	10	5,50	7,0
5/16	24,00	*33,29*	90	13	6,20	8,0
3/8	24,00	*39,46*	100	15	8,00	10,0

2279 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

MICRO FINISH



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	20,00	*55,78*	100	20	6,20	8,0
1/2	20,00	*55,78*	100	20	7,00	9,0
9/16	18,00	*76,22*	100	20	9,00	11,0
5/8	18,00	*74,71*	100	20	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	16,00	*108,63*	110	24	11,00	14,0
7/8	14,00	*154,82*	125	24	14,50	18,0
1"	12,00	*143,44*	140	27	14,50	18,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2282 HSSE DIN 371

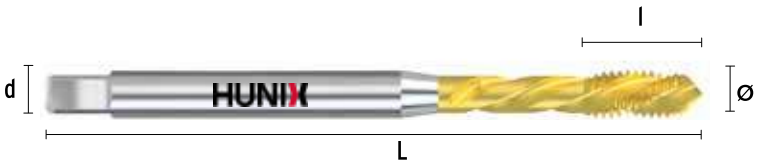
UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | R | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	*41,83*	56	5	2,70	3,5
Nº5	44,00	*37,60*	56	5	2,70	3,5
Nº6	40,00	*37,60*	56	6	3,00	4,0
Nº8	36,00	*37,60*	63	7	3,40	4,5
Nº10	32,00	*39,56*	70	8	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº12	28,00	*41,35*	80	10	4,90	6,0
1/4	28,00	*41,35*	80	10	5,50	7,0
5/16	24,00	*46,72*	90	13	6,20	8,0
3/8	24,00	*57,61*	100	15	8,00	10,0

2283 HSSE DIN 374

UNF ANSI/ASME B1.1 | Form. C | Tol. 2B | 35° | 3XD | D | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	20,00	*79,18*	100	15	6,20	8,0
1/2	20,00	*82,95*	100	15	7,00	9,0
9/16	18,00	*113,61*	100	15	9,00	11,0
5/8	18,00	*106,44*	100	15	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	16,00	*158,61*	110	17	11,00	14,0
7/8	14,00	*233,37*	125	17	14,50	18,0
1"	12,00	*217,56*	140	20	14,50	18,0

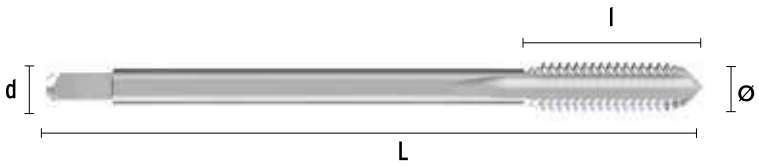
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2189 HSSE DIN 374

UN ANSI/ASME B1.1 | Form. C | Tol. 2B | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1"1/8	8,00	*418,52*	180	45	18,00	22,0
1"1/4	8,00	*539,96*	180	45	18,00	22,0
1"3/8	8,00	*449,79*	200	56	22,00	28,0
1"1/2	8,00	*514,98*	200	60	24,00	32,0

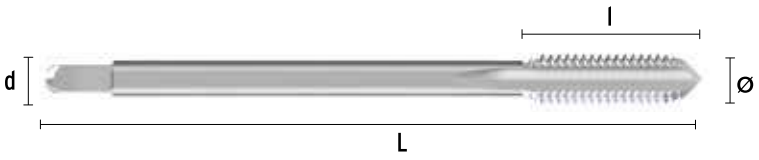
Ø	P	€	L mm	l mm	⊠ mm	d mm
1"5/8	8,00	*524,25*	200	60	24,00	32,0
1"3/4	8,00	*657,22*	200	50	29,00	36,0
2"	8,00	*1.068,29*	225	50	32,00	40,0

2160 HSSE DIN 374

UNEF ANSI/ASME B1.1 | Form. C | Tol. 2B | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/4	32,00	*86,12*	80	18	3,40	4,5
5/16	32,00	*100,31*	90	20	4,90	6,0
3/8	32,00	*114,98*	90	20	5,50	7,0
7/16	28,00	*146,35*	90	22	6,20	8,0
1/2	28,00	*156,60*	100	22	7,00	9,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
9/16	24,00	*188,10*	100	22	9,00	11,0
5/8	24,00	*218,74*	100	22	9,00	12,0
3/4	20,00	*289,87*	110	25	11,00	14,0
1"	20,00	*474,97*	140	28	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

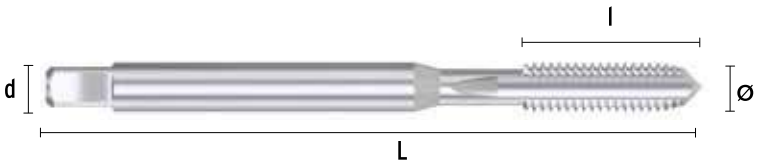
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2136 HSSE DIN 371

BSW BS 84 | Form. C | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
3/32	48,00	*20,24*	50	10	2,10	2,8
1/8	40,00	*16,91*	56	11	2,70	3,5
5/32	32,00	*16,91*	63	13	3,40	4,5
3/16	24,00	*16,91*	70	16	4,90	6,0

Ø	P	€	L mm	l mm	☒ mm	d mm
7/32	24,00	*25,70*	80	16	4,90	6,0
1/4	20,00	*18,43*	80	18	5,50	7,0
5/16	18,00	*22,62*	90	20	6,20	8,0
3/8	16,00	*24,99*	100	22	8,00	10,0

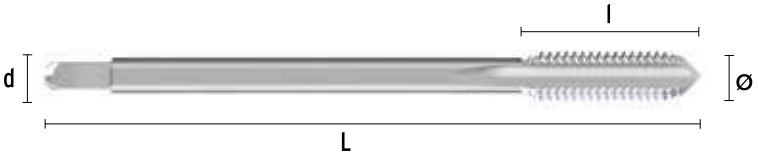
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2135 HSSE DIN 376

BSW BS 84 | Form. C | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	☒ mm	d mm
1/8	40,00	*16,91*	56	11	2,10	2,8
5/32	32,00	*16,91*	63	13	2,10	2,8
3/16	24,00	*16,91*	70	16	2,70	3,5
7/32	24,00	*25,70*	80	18	3,40	4,5
1/4	20,00	*18,43*	80	18	3,40	4,5
5/16	18,00	*22,62*	90	20	4,90	6,0
3/8	16,00	*24,99*	100	20	5,50	7,0
7/16	14,00	*32,97*	100	22	6,20	8,0
1/2	12,00	*31,62*	110	22	7,00	9,0
9/16	12,00	*45,35*	110	30	9,00	11,0
5/8	11,00	*42,89*	110	28	9,00	12,0
3/4	10,00	*57,40*	125	32	11,00	14,0

Ø	P	€	L mm	l mm	☒ mm	d mm
7/8	9,00	*77,74*	140	36	14,50	18,0
1"	8,00	*97,77*	160	38	14,50	18,0
1"1/8	7,00	*129,70*	180	45	18,00	22,0
1"1/4	7,00	*188,24*	180	45	18,00	22,0
1"3/8	6,00	*309,48*	200	55	22,00	28,0
1"1/2	6,00	*335,95*	200	55	24,00	32,0
1"5/8	5,00	*490,19*	220	60	24,00	32,0
1"3/4	5,00	*528,83*	220	62	29,00	36,0
1"7/8	4,50	*586,28*	250	70	29,00	36,0
2"	4,50	*756,85*	250	70	32,00	40,0
2"1/4	4,00	*824,86*	280	78	35,00	45,0
2"1/2	4,00	*952,83*	315	90	39,00	50,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

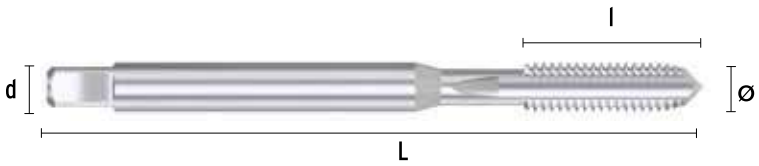
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2136/5 HSSE DIN 371

BSW BS 84 | Form. C | LH | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	40,00	*33,83*	56	11	2,70	3,5
5/32	32,00	*33,83*	63	13	3,40	4,5
3/16	24,00	*33,83*	70	14	4,90	6,0

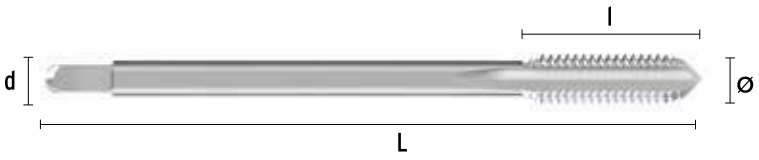
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2135/5 HSSE DIN 376

BSW BS 84 | Form. C | LH | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/4	20,00	*36,86*	80	18	3,40	4,5
5/16	18,00	*45,24*	90	20	4,90	6,0
3/8	16,00	*49,98*	100	22	5,50	7,0
7/16	14,00	*65,93*	100	22	6,20	8,0
1/2	12,00	*63,22*	110	27	7,00	9,0
9/16	12,00	*90,69*	110	30	9,00	11,0
5/8	11,00	*85,81*	110	30	9,00	12,0
3/4	10,00	*114,79*	125	35	11,00	14,0
7/8	9,00	*155,48*	140	36	14,50	18,0
1"	8,00	*195,53*	160	38	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

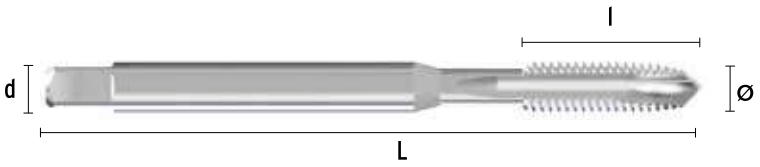
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2138 HSSE DIN 371

BSW BS 84 | Form. B "Gun" | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	40,00	*18,68*	56	11	2,70	3,5
*5/32	32,00	*18,68*	63	13	3,40	4,5
3/16	24,00	*18,68*	70	15	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
1/4	20,00	*21,22*	80	18	5,50	7,0
5/16	18,00	*28,68*	90	20	6,20	8,0
3/8	16,00	*27,46*	100	20	8,00	10,0

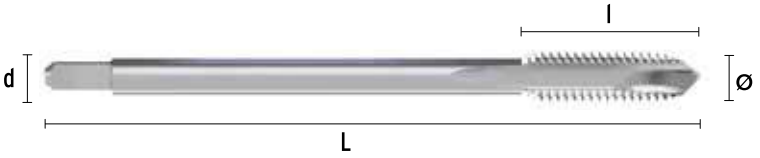
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2137 HSSE DIN 376

BSW BS 84 | Form. B "Gun" | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*1/4	20,00	*21,22*	80	17	3,40	4,5
*5/16	18,00	*24,84*	90	20	4,90	6,0
*3/8	16,00	*27,46*	100	22	5,50	7,0
7/16	14,00	*34,67*	100	22	6,20	8,0
1/2	12,00	*36,30*	110	27	7,00	9,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
9/16	12,00	*49,86*	110	30	9,00	11,0
5/8	11,00	*47,12*	110	30	9,00	12,0
3/4	10,00	*63,20*	125	35	11,00	14,0
7/8	9,00	*85,48*	140	36	14,50	18,0
1"	8,00	*107,48*	160	38	14,50	18,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2140 HSSE DIN 371

BSW BS 84 | Form. C | 35° | 3XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	40,00	*21,22*	56	7	2,70	3,5
*5/32	32,00	*21,22*	63	7	3,40	4,5
3/16	24,00	*21,22*	70	10	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
1/4	20,00	*28,75*	80	13	5,50	7,0
5/16	18,00	*35,26*	90	14	6,20	8,0
3/8	16,00	*37,22*	100	20	8,00	10,0

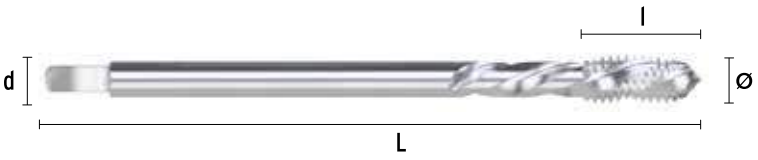
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2139 HSSE DIN 376

BSW BS 84 | Form. C | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
*3/16	24,00	*21,22*	70	14	2,70	3,5
*1/4	20,00	*28,75*	80	16	3,40	4,5
*5/16	18,00	*33,71*	90	18	4,90	6,0
3/8	16,00	*37,22*	100	20	5,50	7,0
7/16	14,00	*42,27*	100	15	6,20	8,0
1/2	12,00	*40,52*	110	18	7,00	9,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
9/16	12,00	*58,08*	110	22	9,00	11,0
5/8	11,00	*54,95*	110	22	9,00	12,0
3/4	10,00	*73,57*	125	25	11,00	14,0
7/8	9,00	*99,58*	140	30	14,50	18,0
1"	8,00	*125,01*	160	30	16,00	20,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

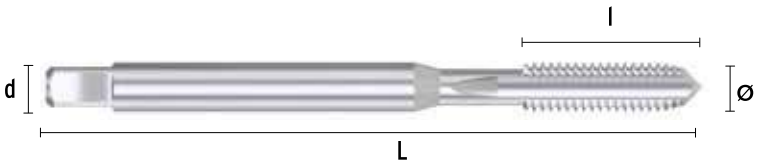
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2141 HSSE DIN 371

BSF BS 84 | Form. C | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
3/16	32,00	*72,58*	70	14	4,90	6,0
1/4	26,00	*30,90*	80	18	3,40	4,5

Ø	P	€	L mm	l mm	⊠ mm	d mm
5/16	22,00	*36,71*	90	20	4,90	6,0
3/8	20,00	*38,56*	100	22	5,50	7,0

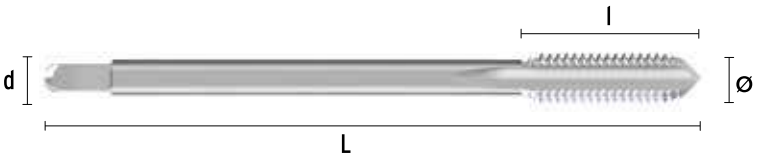
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2142 HSSE DIN 374

BSF BS 84 | Form. C | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	18,00	*52,04*	100	20	6,20	8,0
1/2	16,00	*58,87*	110	22	7,00	9,0
9/16	16,00	*62,31*	110	23	9,00	11,0
5/8	14,00	*83,04*	110	28	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	12,00	*98,29*	125	32	11,00	14,0
7/8	11,00	*136,66*	140	34	14,50	18,0
1"	10,00	*163,18*	140	28	16,00	20,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

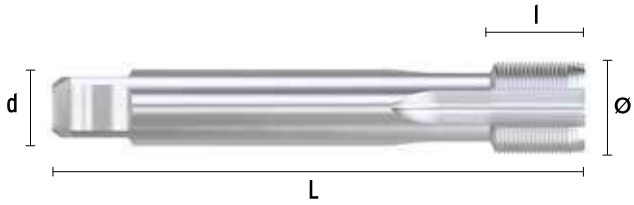
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2144 HSSE DIN 5156

G ISO 228 | Form. C | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*28,57*	90	20	5,50	7,0
1/4	19,00	*40,73*	100	22	9,00	11,0
3/8	19,00	*48,74*	100	22	9,00	12,0
1/2	14,00	*61,59*	125	25	12,00	16,0
5/8	14,00	*76,77*	125	25	14,50	18,0
3/4	14,00	*96,43*	140	28	16,00	20,0
7/8	14,00	*129,63*	150	30	18,00	22,0

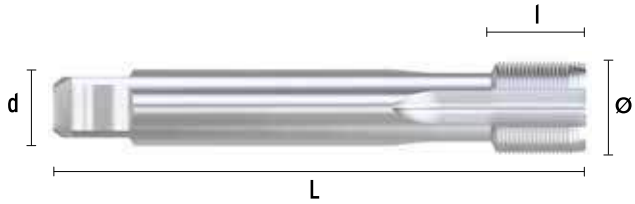
Ø	P	€	L mm	l mm	⊠ mm	d mm
1"	11,00	*149,63*	160	32	20,00	25,0
1"1/8	11,00	*227,41*	170	34	22,00	28,0
1"1/4	11,00	*266,81*	170	34	24,00	32,0
1"3/8	11,00	*333,71*	180	32	29,00	36,0
1"1/2	11,00	*423,49*	190	36	29,00	36,0
1"3/4	11,00	*503,33*	190	36	32,00	40,0
2"	11,00	*641,39*	220	40	35,00	45,0

2144/5 HSSE DIN 5156

G ISO 228 | Form. C | LH | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*57,15*	90	20	5,50	7,0
1/4	19,00	*81,47*	100	22	9,00	11,0
3/8	19,00	*97,45*	100	22	9,00	12,0
1/2	14,00	*123,17*	125	25	12,00	16,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*153,55*	125	25	14,50	18,0
3/4	14,00	*192,86*	140	28	16,00	20,0
1"	11,00	*299,26*	160	32	20,00	25,0

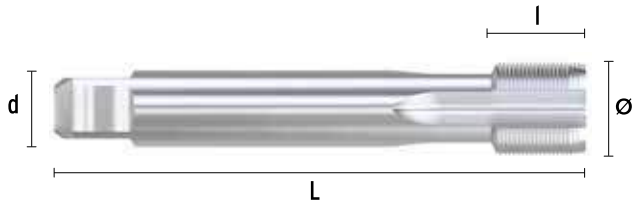
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

2192 HSSE DIN 5156

G ISO 228 | Form. E | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
										● 25-35							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*34,65*	90	20	5,50	7,0
1/4	19,00	*53,21*	100	22	9,00	11,0
3/8	19,00	*73,48*	100	22	9,00	12,0
1/2	14,00	*99,15*	125	25	12,00	16,0

ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*103,59*	125	25	14,50	18,0
3/4	14,00	*145,51*	140	28	16,00	20,0
7/8	14,00	*177,85*	150	28	18,00	22,0
1"	11,00	*221,96*	160	30	20,00	25,0

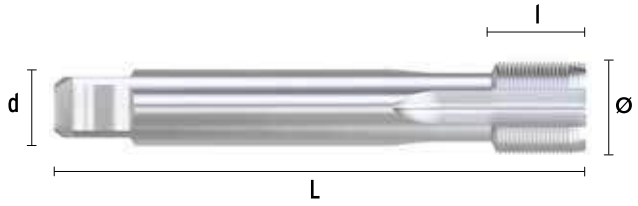
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2206 HSSE DIN 5156

+0,1 | G ISO 228 | Form. E | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
										● 25-35							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*42,24*	90	20	5,50	7,0
1/4	19,00	*62,94*	100	22	9,00	11,0
3/8	19,00	*88,18*	100	22	9,00	12,0
1/2	14,00	*120,38*	125	25	12,00	16,0

ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*125,90*	125	25	14,50	18,0
3/4	14,00	*174,62*	140	28	16,00	20,0
7/8	14,00	*206,30*	150	28	18,00	22,0
1"	11,00	*257,46*	160	30	20,00	25,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

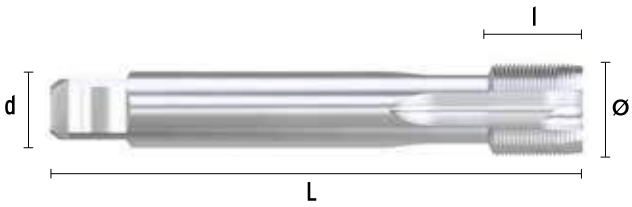
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2145 HSSE DIN 5156

G ISO 228 | Form. B "Gun" | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*33,02*	90	20	5,50	7,0
1/4	19,00	*59,27*	100	22	9,00	11,0
3/8	19,00	*58,47*	100	22	9,00	12,0
1/2	14,00	*78,06*	125	25	12,00	16,0
5/8	14,00	*121,30*	125	25	14,50	18,0
3/4	14,00	*137,99*	140	28	16,00	20,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
7/8	14,00	*176,34*	150	30	18,00	22,0
1"	11,00	*259,62*	160	32	20,00	25,0
1"1/8	11,00	*388,03*	170	30	22,00	28,0
1"1/4	11,00	*386,20*	170	30	24,00	32,0
1"3/8	11,00	*395,40*	190	32	29,00	36,0
1"1/2	11,00	*411,13*	190	32	29,00	36,0

2284 HSSE DIN 5156

G ISO 228 | Form. B "Gun" | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-10		○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*36,32*	90	20	5,50	7,0
1/4	19,00	*65,20*	100	22	9,00	11,0
3/8	19,00	*64,32*	100	22	9,00	12,0
1/2	14,00	*85,87*	125	25	12,00	16,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*133,43*	125	25	14,50	18,0
3/4	14,00	*151,79*	140	28	16,00	20,0
7/8	14,00	*193,98*	150	30	18,00	22,0
1"	11,00	*285,58*	160	32	20,00	25,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2286 HSSE DIN 5156

G ISO 228 | Form. B "Gun" | 3XD | D | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 15-30	● 12-18	○ 8-12		● 6-12	○ 6-10	● 10-15	● 15-20		● 15-25	● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*55,88*	90	20	5,50	7,0
1/4	19,00	*91,34*	100	22	9,00	11,0
3/8	19,00	*102,79*	100	22	9,00	12,0
1/2	14,00	*130,57*	125	25	12,00	16,0

ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*197,46*	125	25	14,50	18,0
3/4	14,00	*221,53*	140	28	16,00	20,0
7/8	14,00	*291,04*	150	30	18,00	22,0
1"	11,00	*397,16*	160	32	20,00	25,0

2146 HSSE DIN 5156

G ISO 228 | Form. C | 35° | 3XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			○ 5-10			○ 10-15		○ 10-15	● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*36,20*	90	10	5,50	7,0
1/4	19,00	*65,21*	100	14	9,00	11,0
3/8	19,00	*64,41*	100	15	9,00	12,0
1/2	14,00	*85,83*	125	17	12,00	16,0
5/8	14,00	*133,43*	125	20	14,50	18,0
3/4	14,00	*151,77*	140	20	16,00	20,0

ø	P	€	L mm	l mm	⊠ mm	d mm
7/8	14,00	*194,08*	150	22	18,00	22,0
1"	11,00	*285,52*	160	24	20,00	25,0
1" 1/8	11,00	*426,84*	170	24	22,00	28,0
1"1/4	11,00	*424,82*	170	25	24,00	32,0
1" 3/8	11,00	*434,94*	190	32	29,00	36,0
1" 1/2	11,00	*452,24*	190	32	29,00	36,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2285 HSSE DIN 5156

G ISO 228 | Form. C | 35° | 3XD | D | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15			● 5-10	○ 5-8		○ 10-15			● 10-20		○ 10-15					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*39,82*	90	10	5,50	7,0
1/4	19,00	*71,73*	100	14	9,00	11,0
3/8	19,00	*70,85*	100	15	9,00	12,0
1/2	14,00	*94,41*	125	17	12,00	16,0

ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*146,77*	125	20	14,50	18,0
3/4	14,00	*166,94*	140	20	16,00	20,0
7/8	14,00	*213,49*	150	22	18,00	22,0
1"	11,00	*314,07*	160	24	20,00	25,0

2287 HSSE DIN 5156

G ISO 228 | Form. C | 35° | 3XD | D | TIN+

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	● 12-18	○ 8-12		● 6-12	○ 6-10		● 15-20			● 15-25		○ 12-18					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

MICRO FINISH

NEW



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*60,17*	90	10	5,50	7,0
1/4	19,00	*98,95*	100	14	9,00	11,0
3/8	19,00	*113,10*	100	15	9,00	12,0
1/2	14,00	*140,62*	125	17	12,00	16,0

ø	P	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	*213,01*	125	20	14,50	18,0
3/4	14,00	*236,38*	140	20	16,00	20,0
7/8	14,00	*313,50*	150	22	18,00	22,0
1"	11,00	*430,25*	160	24	20,00	25,0

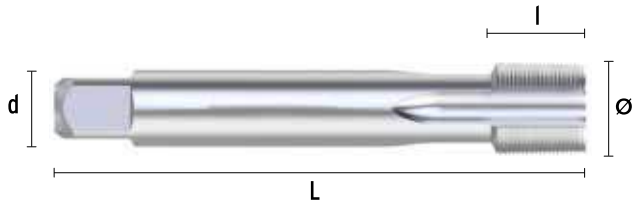
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2159 HSSE DIN 5156

Rc DIN 2999 | Form. C | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 7-15	○ 7-10						○ 7-10			○ 7-15							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*48,14*	90	18	5,50	7,0
1/4	19,00	*69,70*	100	22	9,00	11,0
3/8	19,00	*96,12*	100	22	9,00	12,0
1/2	14,00	*133,97*	125	25	12,00	16,0

ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	14,00	*207,66*	140	28	16,00	20,0
*7/8	14,00	*358,52*	150	28	18,00	22,0
1"	11,00	*298,53*	160	33	20,00	25,0

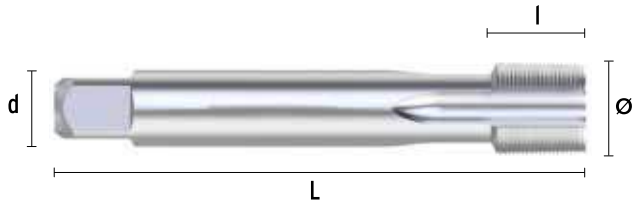
*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

2164 HSSE DIN 374

NPT ANSI/ASME B1.20.1 | Form. C | Tol. 6H | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 7-15	○ 7-10						○ 7-10			○ 7-15							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



ø	P	€	L mm	l mm	⊠ mm	d mm
1/16	27,00	*60,35*	90	12	4,90	6,0
1/8	27,00	*47,52*	90	15	5,50	7,0
1/4	18,00	*65,27*	100	20	9,00	11,0
3/8	18,00	*84,33*	110	22	11,00	14,0
1/2	14,00	*112,41*	140	27	14,50	18,0

ø	P	€	L mm	l mm	⊠ mm	d mm
3/4	14,00	*174,44*	140	28	16,00	20,0
1"	11,50	*373,60*	160	35	20,00	25,0
*1"1/4	11,50	*385,73*	190	35	24,00	32,0
*1"1/2	11,50	*651,21*	200	35	29,00	36,0
*2"	11,50	*896,65*	220	35	35,00	45,0

*Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

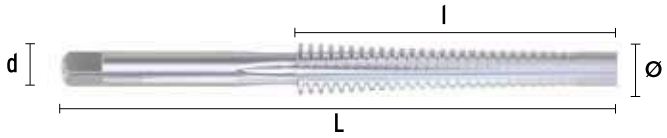
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2212 HSSE

Tr DIN 103 | Tol. 7H

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 2-8	○ 1-5									● 2-6							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
10	2,00	*374,46*	110	63	5,50	7,0
10	3,00	*374,46*	125	75	5,50	7,0
12	3,00	*438,03*	165	111	6,20	8,0
14	3,00	*449,06*	140	85	8,00	10,0
14	4,00	*484,93*	170	112	8,00	10,0
16	4,00	*484,93*	180	116	9,00	11,0
18	4,00	*519,75*	190	120	9,00	12,0

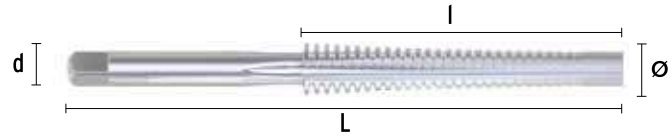
Ø	P	€	L mm	l mm	⊠ mm	d mm
20	4,00	*565,87*	200	124	11,00	14,0
22	5,00	*565,87*	235	155	12,00	16,0
24	5,00	*612,16*	245	160	14,50	18,0
26	5,00	*635,31*	255	165	16,00	20,0
28	5,00	*693,00*	265	170	18,00	22,0
30	6,00	*750,87*	290	185	18,00	22,0
32	6,00	*737,87*	300	191	20,00	25,0

2212/5 HSSE

Tr DIN 103 | Tol. 7H | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 2-8	○ 1-5									● 2-6							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
10	2,00	*468,03*	110	63	5,50	7,0
10	3,00	*468,03*	125	75	5,50	7,0
12	3,00	*547,52*	165	111	6,20	8,0
14	3,00	*561,32*	140	85	8,00	10,0
14	4,00	*606,20*	170	112	8,00	10,0
16	4,00	*606,20*	180	116	9,00	11,0
18	4,00	*649,64*	190	120	9,00	12,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
20	4,00	*707,33*	200	124	11,00	14,0
22	5,00	*707,33*	235	155	12,00	16,0
24	5,00	*765,21*	245	160	14,50	18,0
26	5,00	*794,15*	255	165	16,00	20,0
28	5,00	*866,16*	265	170	18,00	22,0
30	6,00	*938,63*	290	185	18,00	22,0
32	6,00	*922,34*	300	191	20,00	25,0

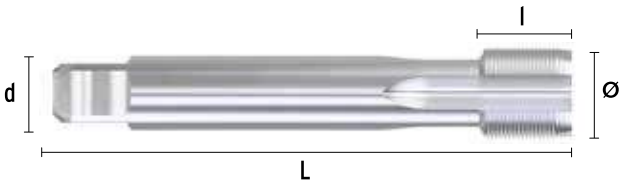
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2163 HSSE DIN 40433

PG DIN 40430 | Form. C | 1,5XD | D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Pg	Ø	P	€	L mm	l mm	⊠ mm	d mm
7,0	12,5	20,00	*44,28*	100	22	7,00	9,0
9,0	15,2	18,00	*61,27*	100	22	9,00	11,0
11,0	18,6	18,00	*79,74*	110	25	11,00	14,0
13,5	20,4	18,00	*89,49*	125	25	12,00	16,0
16,0	22,5	18,00	*105,35*	125	25	14,50	18,0

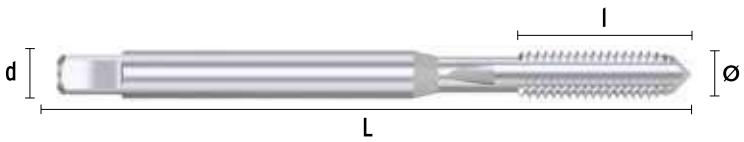
Pg	Ø	P	€	L mm	l mm	⊠ mm	d mm
21,0	28,3	16,00	*167,25*	150	28	18,00	22,0
29,0	37,0	16,00	*282,75*	170	30	22,00	28,0
36,0	47,0	16,00	*496,09*	190	32	29,00	36,0
42,0	54,0	16,00	*807,70*	190	32	32,00	40,0
48,0	59,3	16,00	*984,70*	220	40	35,00	45,0

2242 HSSE DIN 371

Vg DIN 7756 | Form. C | 1,5XD | R

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
● 10-25	○ 10-15						○ 10-15			○ 10-20							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
5,0	36,00	*92,43*	70	12	4,90	6,0
5,2	24,00	*92,43*	80	17	4,90	6,0

Ø	P	€	L mm	l mm	⊠ mm	d mm
6,0	32,00	*105,23*	80	14	5,50	7,0
8,0	32,00	*117,08*	80	16	6,20	8,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2301 HSS DIN 352/2181

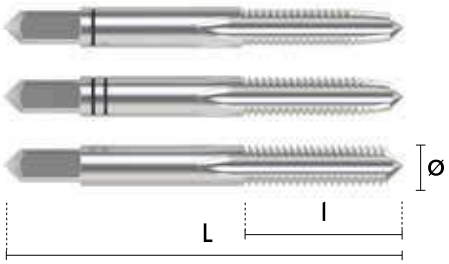
M-MF
DIN 13

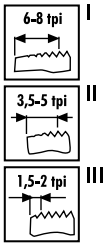
Tol.
6H

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
PVP = €/3 < M (€/3) MF (€/2)





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M1,0	**0,25**	**3**	*76,43*	**32**	**5,5**	**2,10**	**2,5**
M1,1	**0,25**	**3**	*76,43*	**32**	**5,5**	**2,10**	**2,5**
M1,2	**0,25**	**3**	*76,43*	**32**	**5,5**	**2,10**	**2,5**
M1,4	**0,30**	**3**	*76,43*	**32**	**7**	**2,10**	**2,5**
M1,6	**0,35**	**3**	*69,74*	**32**	**8**	**2,10**	**2,5**
M1,7	**0,35**	**3**	*44,04*	**32**	**8**	**2,10**	**2,5**
M1,8	**0,35**	**3**	*65,47*	**32**	**8**	**2,10**	**2,5**
M2,0	**0,40**	**3**	*34,73*	**36**	**8**	**2,10**	**2,8**
M2,2	**0,45**	**3**	*37,41*	**36**	**9**	**2,10**	**2,8**
M2,3	**0,45**	**3**	*37,45*	**36**	**9**	**2,10**	**2,8**
M2,5	**0,45**	**3**	*35,92*	**40**	**9**	**2,10**	**2,8**
M2,6	**0,45**	**3**	*33,05*	**40**	**9**	**2,10**	**2,8**
M3,0	**0,50**	**3**	*19,02*	**40**	**11**	**2,70**	**3,5**
M3,0	0,60	2	*36,47*	40	11	2,70	3,5
M3,5	0,60	2	*26,32*	45	12	3,00	4,0
M3,5	0,75	2	*44,05*	45	14	3,40	4,5
M4,0	0,50	2	*37,09*	45	13	3,40	4,5
M4,0	**0,70**	**3**	*17,51*	**45**	**14**	**3,40**	**4,5**
M4,5	0,75	2	*33,94*	50	16	4,90	6,0
M5,0	0,50	2	*39,44*	50	12	4,90	6,0
M5,0	0,75	2	*36,75*	50	12	4,90	6,0
M5,0	**0,80**	**3**	*19,03*	**50**	**16**	**4,90**	**6,0**
M5,0	1,00	3	*21,13*	50	14	4,90	6,0
M5,5	0,90	2	*128,58*	50	18	4,90	6,0
M6,0	0,50	2	*39,40*	56	14	4,90	6,0
M6,0	0,75	2	*22,19*	56	14	4,90	6,0
M6,0	0,90	2	*128,47*	56	19	4,90	6,0
M6,0	**1,00**	**3**	*19,03*	**56**	**19**	**4,90**	**6,0**
M7,0	0,75	2	*28,01*	56	14	4,90	6,0
M7,0	**1,00**	**3**	*26,26*	**56**	**19**	**4,90**	**6,0**
M8,0	0,50	2	*42,06*	56	18	4,90	6,0
M8,0	0,75	2	*32,77*	56	18	4,90	6,0
M8,0	1,00	2	*21,79*	63	22	4,90	6,0
M8,0	**1,25**	**3**	*22,91*	**63**	**22**	**4,90**	**6,0**
M9,0	1,00	2	*28,16*	63	22	5,50	7,0
M9,0	**1,25**	**3**	*40,65*	**63**	**22**	**5,50**	**7,0**
M10,0	0,50	2	*106,86*	63	18	5,50	7,0
M10,0	0,75	2	*46,97*	63	20	5,50	7,0
M10,0	1,00	2	*23,63*	63	20	5,50	7,0
M10,0	1,25	2	*24,06*	70	24	5,50	7,0
M10,0	**1,50**	**3**	*28,93*	**70**	**24**	**5,50**	**7,0**
M11,0	0,75	2	*116,98*	63	20	6,20	8,0
M11,0	1,00	2	*41,76*	63	20	6,20	8,0
M11,0	1,25	2	*41,76*	70	22	6,20	8,0
M11,0	**1,50**	**3**	*56,06*	**70**	**24**	**6,20**	**8,0**

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M12,0	0,75	2	*66,84*	70	22	7,00	9,0
M12,0	1,00	2	*41,25*	70	22	7,00	9,0
M12,0	1,25	2	*41,42*	70	22	7,00	9,0
M12,0	1,50	2	*35,24*	70	22	7,00	9,0
M12,0	1,75	3	*37,61*	75	28	7,00	9,0
M13,0	0,75	2	*116,98*	70	20	9,00	11,0
M13,0	1,00	2	*67,63*	70	22	9,00	11,0
M13,0	1,25	2	*67,63*	70	22	9,00	11,0
M13,0	1,50	2	*67,63*	70	22	9,00	11,0
M13,0	**1,75**	**3**	*85,19*	**75**	**30**	**9,00**	**11,0**
M14,0	0,75	2	*117,09*	70	22	9,00	11,0
M14,0	1,00	2	*61,72*	70	22	9,00	11,0
M14,0	1,25	2	*50,63*	70	22	9,00	11,0
M14,0	1,50	2	*39,33*	70	22	9,00	11,0
M14,0	**2,00**	**3**	*49,49*	**80**	**30**	**9,00**	**11,0**
M15,0	1,00	2	*91,23*	70	22	9,00	12,0
M15,0	1,25	2	*96,01*	70	22	9,00	12,0
M15,0	1,50	2	*93,40*	70	22	9,00	12,0
M15,0	**2,00**	**3**	*97,60*	**80**	**32**	**9,00**	**12,0**
M16,0	1,00	2	*86,37*	70	22	9,00	12,0
M16,0	1,25	2	*90,92*	70	22	9,00	12,0
M16,0	1,50	2	*49,04*	70	22	9,00	12,0
M16,0	**2,00**	**3**	*69,68*	**80**	**32**	**9,00**	**12,0**
M17,0	1,00	2	*139,18*	70	22	9,00	12,0
M17,0	1,25	2	*139,18*	70	22	9,00	12,0
M17,0	1,50	2	*139,18*	70	22	9,00	12,0
M18,0	1,00	2	*96,00*	80	22	11,00	14,0
M18,0	1,25	2	*137,19*	80	22	11,00	14,0
M18,0	1,50	2	*65,02*	80	22	11,00	14,0
M18,0	2,00	2	*103,45*	80	22	11,00	14,0
M18,0	**2,50**	**3**	*93,14*	**95**	**34**	**11,00**	**14,0**
M19,0	1,00	2	*202,02*	80	22	11,00	14,0
M19,0	1,25	2	*201,84*	80	22	11,00	14,0
M19,0	1,50	2	*202,02*	80	22	11,00	14,0
M20,0	1,00	2	*127,85*	80	22	12,00	16,0
M20,0	1,25	2	*202,02*	80	22	12,00	16,0
M20,0	1,50	2	*81,13*	80	22	12,00	16,0
M20,0	2,00	2	*107,22*	80	22	12,00	16,0
M20,0	**2,50**	**3**	*104,67*	**95**	**34**	**12,00**	**16,0**
M21,0	1,00	2	*261,07*	80	22	12,00	16,0
M21,0	1,25	2	*261,07*	80	22	12,00	16,0
M21,0	1,50	2	*206,44*	80	22	12,00	16,0
M22,0	1,00	2	*142,62*	80	22	14,50	18,0
M22,0	1,25	2	*202,02*	80	22	14,50	18,0
M22,0	1,50	2	*88,70*	80	22	14,50	18,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M22,0	2,00	2	*142,63*	80	22	14,50	18,0
M22,0	**2,50**	**3**	*128,32*	**100**	**34**	**14,50**	**18,0**
M23,0	1,00	2	*260,82*	80	22	14,50	18,0
M23,0	1,50	2	*260,82*	80	22	14,50	18,0
M24,0	1,00	2	*159,46*	90	22	14,50	18,0
M24,0	1,25	2	*261,07*	90	22	14,50	18,0
M24,0	1,50	2	*113,23*	90	22	14,50	18,0
M24,0	2,00	2	*159,46*	90	22	14,50	18,0
M24,0	**3,00**	**3**	*161,64*	**110**	**38**	**14,50**	**18,0**
M25,0	1,00	2	*228,43*	90	22	14,50	18,0
M25,0	1,25	2	*371,92*	90	22	14,50	18,0
M25,0	1,50	2	*197,51*	90	22	14,50	18,0
M25,0	2,00	2	*382,56*	90	22	14,50	18,0
M26,0	1,00	2	*372,29*	90	22	14,50	18,0
M26,0	1,50	2	*180,40*	90	22	14,50	18,0
M26,0	2,00	2	*372,29*	90	22	14,50	18,0
M27,0	1,00	2	*224,18*	90	22	16,00	20,0
M27,0	1,50	2	*199,89*	90	22	16,00	20,0
M27,0	2,00	2	*221,04*	90	22	16,00	20,0
M27,0	**3,00**	**3**	*208,17*	**110**	**38**	**16,00**	**20,0**
M28,0	1,00	2	*372,27*	90	22	16,00	20,0
M28,0	1,50	2	*200,42*	90	22	16,00	20,0
M28,0	2,00	2	*372,27*	90	22	16,00	20,0
M30,0	1,00	2	*230,99*	90	22	18,00	22,0
M30,0	1,50	2	*207,90*	90	22	18,00	22,0
M30,0	2,00	2	*239,68*	90	22	18,00	22,0
M30,0	**3,50**	**3**	*264,30*	**125**	**45**	**18,00**	**22,0**
M32,0	1,00	2	*483,69*	90	22	18,00	22,0
M32,0	1,50	2	*255,98*	90	22	18,00	22,0
M32,0	2,00	2	*484,12*	90	22	18,00	22,0
M33,0	1,00	2	*484,12*	100	25	20,00	25,0
M33,0	1,50	2	*282,03*	100	25	20,00	25,0
M33,0	2,00	2	*335,32*	100	25	20,00	25,0
M33,0	**3,50**	**3**	*335,32*	**125**	**50**	**20,00**	**25,0**
M34,0	1,50	2	*305,18*	100	25	22,00	28,0

Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M35,0	1,50	2	*391,92*	100	25	22,00	28,0
M36,0	1,50	2	*326,92*	100	25	22,00	28,0
M36,0	2,00	2	*418,35*	125	40	22,00	28,0
M36,0	3,00	2	*570,71*	125	40	22,00	28,0
M36,0	**4,00**	**3**	*431,83*	**150**	**56**	**22,00**	**28,0**
M38,0	1,50	2	*367,74*	100	25	22,00	28,0
M38,0	2,00	2	*660,32*	125	40	22,00	28,0
M39,0	1,50	2	*493,21*	110	25	24,00	32,0
M39,0	2,00	2	*493,21*	125	40	24,00	32,0
M39,0	3,00	2	*479,93*	125	40	24,00	32,0
M39,0	**4,00**	**3**	*479,84*	**150**	**60**	**24,00**	**32,0**
M40,0	1,50	2	*431,90*	110	25	24,00	32,0
M40,0	2,00	2	*501,67*	125	40	24,00	32,0
M40,0	3,00	2	*497,01*	125	40	24,00	32,0
M42,0	1,50	2	*477,73*	110	25	24,00	32,0
M42,0	2,00	2	*573,95*	125	40	24,00	32,0
M42,0	3,00	2	*573,95*	125	40	24,00	32,0
M42,0	**4,50**	**3**	*601,22*	**150**	**60**	**24,00**	**32,0**
M45,0	1,50	2	*537,82*	110	25	29,00	36,0
M45,0	2,00	2	*683,31*	125	40	29,00	36,0
M45,0	3,00	2	*683,31*	125	40	29,00	36,0
M45,0	**4,50**	**3**	*697,37*	**160**	**65**	**29,00**	**36,0**
M48,0	1,50	2	*606,06*	140	40	29,00	36,0
M48,0	2,00	2	*899,02*	140	40	29,00	36,0
M48,0	3,00	2	*827,25*	140	40	29,00	36,0
M48,0	**5,00**	**3**	*837,54*	**180**	**70**	**29,00**	**36,0**
M50,0	1,50	2	*662,78*	140	40	29,00	36,0
M52,0	1,50	2	*703,10*	140	40	32,00	40,0
M52,0	2,00	2	*1.011,52*	140	40	32,00	40,0
M52,0	3,00	2	*939,13*	140	40	32,00	40,0
M52,0	**5,00**	**3**	*1.092,95*	**180**	**70**	**32,00**	**40,0**
M56,0	**5,50**	**3**	*1.578,62*	**200**	**70**	**35,00**	**45,0**
M60,0	**5,50**	**3**	*1.978,29*	**200**	**75**	**35,00**	**45,0**
M63,0	1,50	2	*1.572,41*	160	40	39,00	50,0
M64,0	**6,00**	**3**	*2.470,47*	**220**	**80**	**39,00**	**50,0**

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

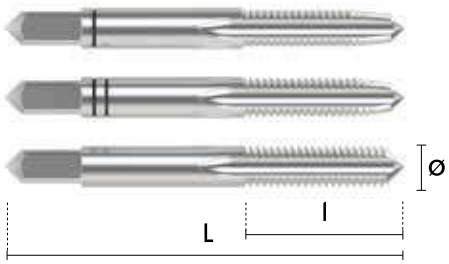
2301/5 HSS DIN 352 Izquierda / A gauche / Left hand

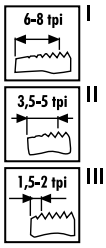
M-MF DIN 13 | Tol. 6H | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
} PVP = €/3





Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M3,0	**0,50**	**3**	*38,02*	**40**	**11**	**2,70**	**3,5**
M4,0	**0,70**	**3**	*35,02*	**45**	**13**	**3,40**	**4,5**
M5,0	**0,80**	**3**	*38,06*	**50**	**16**	**4,90**	**6,0**
M6,0	**1,00**	**3**	*38,06*	**56**	**19**	**4,90**	**6,0**
M7,0	**1,00**	**3**	*52,53*	**56**	**19**	**4,90**	**6,0**
M8,0	1,00	2	*43,58*	63	22	4,90	6,0
M8,0	**1,25**	**3**	*45,83*	**63**	**22**	**4,90**	**6,0**
M9,0	**1,25**	**3**	*81,30*	**63**	**22**	**5,50**	**7,0**
M10,0	1,00	2	*47,24*	63	20	5,50	7,0
M10,0	1,25	2	*48,12*	70	24	5,50	7,0
M10,0	**1,50**	**3**	*57,87*	**70**	**24**	**5,50**	**7,0**
M12,0	1,25	2	*82,87*	70	22	7,00	9,0
M12,0	1,50	2	*70,48*	70	22	7,00	9,0
M12,0	**1,75**	**3**	*75,22*	**75**	**29**	**7,00**	**9,0**

Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M14,0	1,25	2	*101,26*	70	22	9,00	11,0
M14,0	1,50	2	*78,68*	70	22	9,00	11,0
M14,0	**2,00**	**3**	*98,96*	**80**	**30**	**9,00**	**11,0**
M16,0	1,50	2	*98,07*	70	22	9,00	12,0
M16,0	**2,00**	**3**	*139,35*	**80**	**32**	**9,00**	**12,0**
M18,0	**2,50**	**3**	*186,29*	**95**	**34**	**11,00**	**14,0**
M20,0	1,50	2	*162,28*	80	22	12,00	16,0
M20,0	**2,50**	**3**	*209,33*	**95**	**34**	**12,00**	**16,0**
M22,0	1,50	2	*177,41*	80	22	14,50	18,0
M22,0	**2,50**	**3**	*256,65*	**100**	**34**	**14,50**	**18,0**
M24,0	1,50	2	*226,43*	90	22	14,50	18,0
M24,0	**3,00**	**3**	*323,28*	**110**	**38**	**14,50**	**18,0**
M27,0	**3,00**	**3**	*416,35*	**110**	**38**	**16,00**	**20,0**
M30,0	**3,50**	**3**	*528,58*	**125**	**45**	**18,00**	**22,0**

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

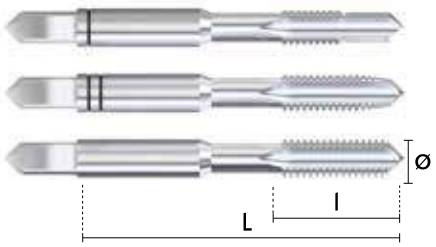
2314 HSSE DIN 352

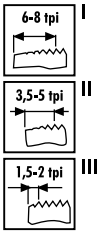
M DIN 13 | Tol. 6HX

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		○						○							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3°
Taraud 3°
Tap 3°
PVP = €/3





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	3	*27,87*	40	11	2,70	3,5
M4,0	0,70	3	*27,81*	45	13	3,40	4,5
M5,0	0,80	3	*29,13*	50	16	4,90	6,0
M6,0	1,00	3	*29,23*	56	19	4,90	6,0
M8,0	1,25	3	*33,57*	63	22	4,90	6,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M10,0	1,50	3	*43,23*	70	24	5,50	7,0
M12,0	1,75	3	*61,44*	75	29	7,00	9,0
M14,0	2,00	3	*81,35*	80	30	9,00	11,0
M16,0	2,00	3	*89,73*	80	32	9,00	12,0

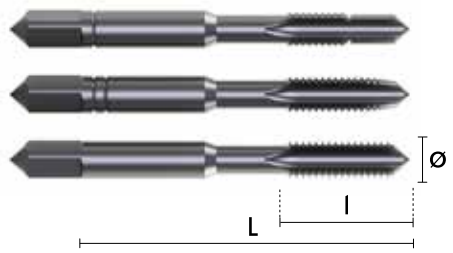
2303 HSSE DIN 352

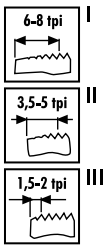
M DIN 13 | Tol. 6HX | VAP

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●										●			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3°
Taraud 3°
Tap 3°
PVP = €/3





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M3,0	0,50	3	*28,42*	40	11	2,70	3,5
M4,0	0,70	3	*28,42*	45	13	3,40	4,5
M5,0	0,80	3	*29,57*	50	16	4,90	6,0
M6,0	1,00	3	*29,57*	56	19	4,90	6,0
M8,0	1,25	3	*34,32*	63	22	4,90	6,0
M10,0	1,50	3	*44,17*	70	24	5,50	7,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M12,0	1,75	3	*63,21*	75	29	7,00	9,0
M14,0	2,00	3	*70,02*	80	30	9,00	11,0
M16,0	2,00	3	*95,92*	80	32	9,00	12,0
M18,0	2,50	3	*131,05*	95	40	11,00	14,0
M20,0	2,50	3	*145,48*	95	40	12,00	16,0

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

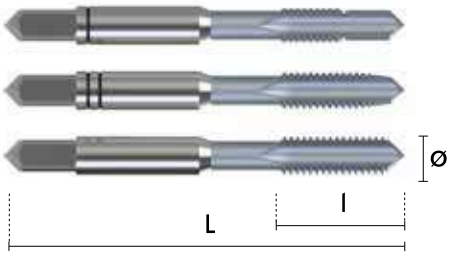
2324 HSSE-PM DIN 352

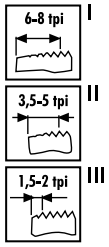
M DIN 13 | Tol. 6HX | TICN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
○	●	●	●		○			○		○							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3°
Taraud 3°
Tap 3°
} PVP = €/3





Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M4,0	0,70	3	*101,19*	45	13	2,70	3,5
M5,0	0,80	3	*102,45*	50	16	4,90	6,0
M6,0	1,00	3	*102,45*	56	19	4,90	6,0
M8,0	1,25	3	*115,48*	63	22	4,90	6,0

Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M10,0	1,50	3	*142,75*	70	24	5,50	7,0
M12,0	1,75	3	*173,52*	75	29	7,00	9,0
M14,0	2,00	3	*255,12*	80	30	9,00	11,0
M16,0	2,00	3	*255,12*	80	32	9,00	12,0

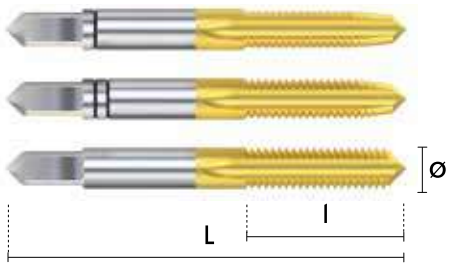
2302 HSS DIN 352

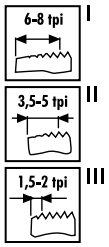
M DIN 13 | Tol. 6H | TIN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○								●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3°
Taraud 3°
Tap 3°
} PVP = €/3





Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M3,0	0,50	3	*42,54*	40	11	2,70	3,5
M4,0	0,70	3	*43,61*	45	13	3,40	4,5
M5,0	0,80	3	*44,58*	50	16	4,90	6,0
M6,0	1,00	3	*44,67*	56	19	4,90	6,0
M8,0	1,25	3	*53,68*	63	22	4,90	6,0

Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
M10,0	1,50	3	*63,74*	70	24	5,50	7,0
M12,0	1,75	3	*97,98*	75	28	7,00	9,0
M14,0	2,00	3	*116,62*	80	30	9,00	11,0
M16,0	2,00	3	*145,61*	80	32	9,00	12,0
M20,0	2,50	3	*157,90*	95	34	12,00	16,0

2304 HSS DIN 352

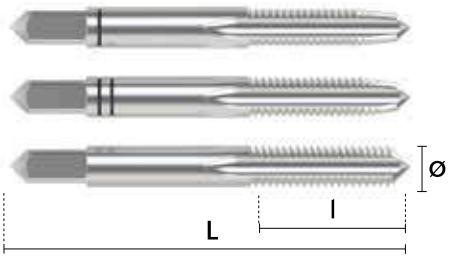
BSW
BS 84

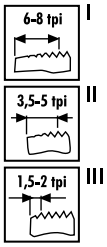


P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
} PVP = €/3





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
3/32	48,00	3	*35,33*	36	10	2,10	2,8
1/8	40,00	3	*24,37*	40	12	2,70	3,5
5/32	32,00	3	*24,61*	45	14	3,40	4,5
3/16	24,00	3	*24,37*	50	18	4,90	6,0
7/32	24,00	3	*43,35*	50	18	4,90	6,0
1/4	20,00	3	*27,46*	50	19	4,90	6,0
5/16	18,00	3	*33,51*	56	22	4,90	6,0
3/8	16,00	3	*36,83*	70	24	5,50	7,0
7/16	14,00	3	*48,97*	70	24	6,20	8,0
1/2	12,00	3	*53,05*	75	29	7,00	9,0
9/16	12,00	3	*72,16*	80	30	9,00	11,0
5/8	11,00	3	*82,94*	80	32	9,00	12,0
3/4	10,00	3	*118,09*	95	40	11,00	14,0
7/8	9,00	3	*172,77*	100	40	14,50	18,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1"	8,00	3	*210,99*	110	50	14,50	18,0
1"1/8	7,00	3	*314,39*	132	56	18,00	22,0
1"1/4	7,00	3	*380,31*	132	56	18,00	22,0
1"3/8	6,00	3	*472,98*	150	63	22,00	28,0
1"1/2	6,00	3	*569,42*	150	63	24,00	32,0
1"5/8	5,00	3	*854,22*	160	70	24,00	32,0
1"3/4	5,00	3	*1.051,33*	160	70	29,00	36,0
1"7/8	4,50	3	*1.357,89*	190	80	29,00	36,0
2"	4,50	3	*1.425,52*	190	80	32,00	40,0
2"1/4	4,00	3	*1.884,36*	220	80	35,00	45,0
2"1/2	4,00	3	*2.292,34*	220	80	39,00	50,0
2"3/4	3,50	3	*3.273,19*	240	80	39,00	50,0
3"	3,50	3	*3.786,72*	240	80	39,00	50,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2304/5 HSS DIN 352 Izquierda / A gauche / Left hand

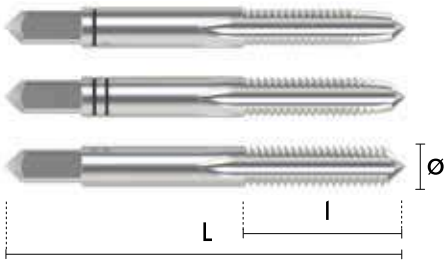
BSW
BS 84

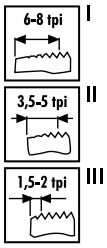
LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
PVP = €/3





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/8	40,00	3	*48,75*	40	12	2,70	3,5
5/32	32,00	3	*49,23*	45	14	3,40	4,5
3/16	24,00	3	*48,75*	50	18	4,90	6,0
1/4	20,00	3	*54,89*	50	19	4,90	6,0
5/16	18,00	3	*67,01*	56	22	4,90	6,0
3/8	16,00	3	*73,65*	70	24	5,50	7,0
7/16	14,00	3	*97,94*	70	24	6,20	8,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/2	12,00	3	*106,08*	75	29	7,00	9,0
9/16	12,00	3	*144,32*	80	30	9,00	11,0
5/8	11,00	3	*165,90*	80	32	9,00	12,0
3/4	10,00	3	*236,18*	95	40	11,00	14,0
7/8	9,00	3	*345,51*	100	40	14,50	18,0
1"	8,00	3	*421,98*	110	50	14,50	18,0

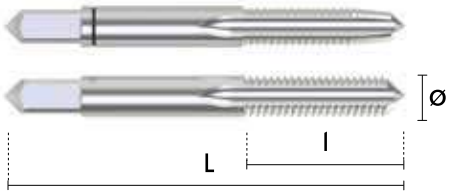
2305 HSS DIN 2181

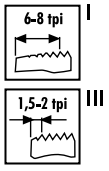
BSF
BS 84

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
PVP = €/2





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
3/16	32,00	2	*93,37*	50	14	4,90	6,0
1/4	26,00	2	*38,48*	50	18	4,90	6,0
5/16	22,00	2	*44,90*	56	22	4,90	6,0
3/8	20,00	2	*51,94*	63	22	5,50	7,0
7/16	18,00	2	*62,33*	63	22	6,20	8,0
1/2	16,00	2	*70,47*	75	24	7,00	9,0
9/16	16,00	2	*84,51*	80	28	9,00	11,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	2	*110,33*	80	28	9,00	12,0
3/4	12,00	2	*169,06*	95	32	11,00	14,0
7/8	11,00	2	*201,76*	100	36	14,50	18,0
1"	10,00	2	*283,21*	110	40	14,50	18,0
1",1/8	9,00	2	*584,39*	110	22	18,00	22,0
1",1/4	9,00	2	*667,23*	110	22	18,00	22,0
1",1/2	9,00	2	*1.016,85*	125	40	24,00	32,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

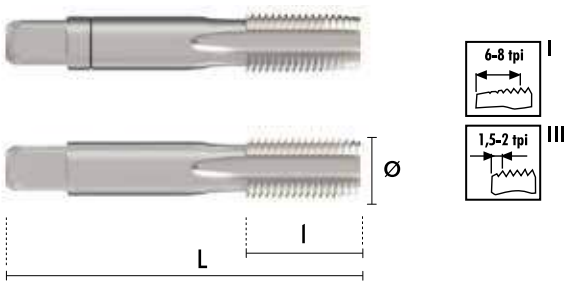
2306 HSS DIN 5157

G ISO 228

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3°
Taraud 3° } PVP = €/2
Tap 3°



Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	2	*31,16*	63	20	5,50	7,0
1/4	19,00	2	*43,89*	70	22	9,00	11,0
3/8	19,00	2	*55,27*	70	22	9,00	12,0
1/2	16,00	2	*77,30*	75	24	7,00	9,0
5/8	14,00	2	*102,10*	80	22	14,50	18,0
3/4	14,00	2	*120,70*	90	22	16,00	20,0
7/8	14,00	2	*166,03*	90	22	18,00	22,0
1"	11,00	2	*192,14*	100	25	20,00	25,0
1"1/8	11,00	2	*285,44*	125	40	22,00	28,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1"1/4	11,00	2	*311,00*	125	40	24,00	32,0
1"3/8	11,00	2	*422,47*	140	40	29,00	36,0
1"1/2	11,00	2	*470,09*	140	40	29,00	36,0
1"3/4	11,00	2	*781,52*	140	40	32,00	40,0
2"	11,00	2	*866,36*	160	40	35,00	45,0
2"1/4	11,00	2	*1.473,99*	160	40	39,00	50,0
2"1/2	11,00	2	*2.215,59*	160	40	39,00	50,0
2"3/4	11,00	2	*2.686,41*	160	40	39,00	50,0
3"	11,00	2	*2.795,80*	160	40	39,00	50,0

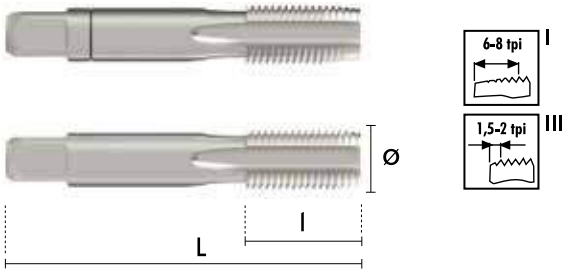
2306/5 HSS DIN 5157 Izquierda / A gauche / Left hand

G ISO 228 LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3°
Taraud 3° } PVP = €/2
Tap 3°



Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	2	*62,34*	63	20	5,50	7,0
1/4	19,00	2	*87,77*	70	22	9,00	11,0
3/8	19,00	2	*110,52*	70	22	9,00	12,0
1/2	14,00	2	*154,59*	80	22	12,00	16,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
5/8	14,00	2	*204,19*	80	22	14,50	18,0
3/4	14,00	2	*241,40*	90	22	16,00	20,0
1"	11,00	2	*384,31*	100	25	20,00	25,0

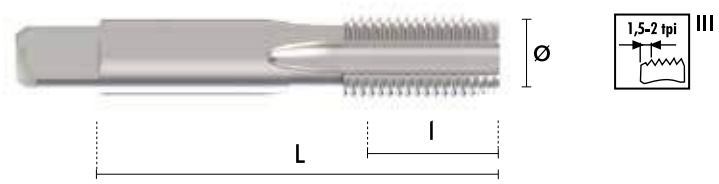
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2316 HSSE DIN 5157

G ISO 228

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
										●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
1/8	28,00	1	*18,43*	63	20	5,50	7,0
1/4	19,00	1	*30,01*	70	22	9,00	11,0
3/8	19,00	1	*32,82*	70	22	9,00	11,0
1/2	14,00	1	*52,51*	80	22	12,00	16,0

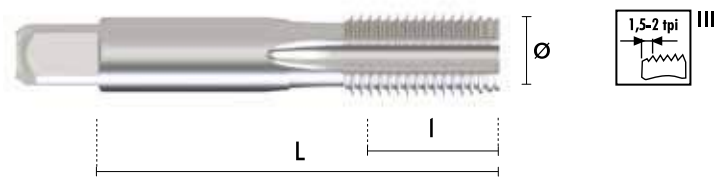
Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
5/8	14,00	1	*70,19*	80	22	14,50	18,0
3/4	14,00	1	*82,10*	90	22	16,00	20,0
7/8	14,00	1	*118,68*	90	22	18,00	22,0
1"	11,00	1	*136,05*	100	25	20,00	25,0

2317 HSSE DIN 5157

G ISO 228 +0,1

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
										●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
1/8	28,00	1	*20,24*	63	20	5,50	7,0
1/4	19,00	1	*33,03*	70	22	9,00	11,0
3/8	19,00	1	*36,24*	70	22	9,00	11,0
1/2	14,00	1	*60,01*	80	22	12,00	16,0

Ø	P	Nº	€	L mm	l mm	☒ mm	d mm
5/8	14,00	1	*77,20*	80	22	14,50	18,0
3/4	14,00	1	*90,28*	90	22	16,00	20,0
7/8	14,00	1	*130,55*	90	22	18,00	22,0
1"	11,00	1	*149,65*	100	25	20,00	25,0

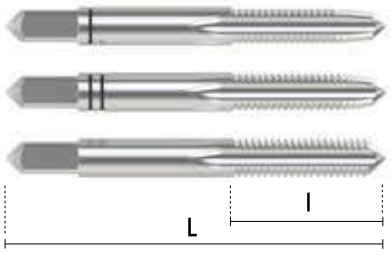
2307 HSS DIN 352

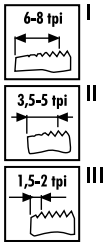
UNC ANSI/ASME B1.1 | Tol. 2B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
PVP = €/3





Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
Nº4	40,00	3	*48,11*	40	12	2,70	3,5
Nº5	40,00	3	*46,00*	40	12	2,70	3,5
Nº6	32,00	3	*46,00*	45	14	3,00	4,0
Nº18	32,00	3	*46,00*	45	14	3,40	4,5
Nº10	24,00	3	*46,00*	50	16	4,90	6,0
Nº12	24,00	3	*46,00*	50	18	4,90	6,0
1/4	20,00	3	*37,23*	50	19	4,90	6,0
5/16	18,00	3	*42,53*	56	22	4,90	6,0
3/8	16,00	3	*48,08*	70	24	5,50	7,0
7/16	14,00	3	*62,58*	70	24	6,20	8,0
1/2	13,00	3	*72,03*	75	29	7,00	9,0

Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
9/16	12,00	3	*85,04*	80	30	9,00	11,0
5/8	11,00	3	*117,31*	80	32	9,00	12,0
3/4	10,00	3	*159,71*	95	40	11,00	14,0
7/8	9,00	3	*196,71*	100	40	14,50	18,0
1"	8,00	3	*265,66*	110	50	14,50	18,0
1"1/8	7,00	3	*405,54*	132	56	18,00	22,0
1"1/4	7,00	3	*510,47*	132	56	18,00	22,0
1"3/8	6,00	3	*647,57*	150	63	22,00	28,0
1"1/2	6,00	3	*795,10*	150	63	24,00	32,0
1"3/4	5,00	3	*990,53*	160	70	29,00	36,0
2"	4,50	3	*1.138,71*	190	80	32,00	40,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

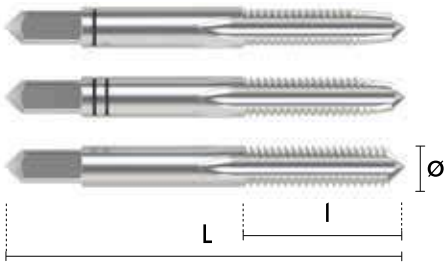
2307/5 HSS DIN 352 Izquierda / A gauche / Left hand

UNC ANSI/ASME B1.1 | Tol. 2B | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
} PVP = €/3





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/4	20,00	3	*74,46*	50	19	4,90	6,0
5/16	18,00	3	*85,04*	56	22	4,90	6,0
3/8	16,00	3	*96,16*	70	24	5,50	7,0
7/16	14,00	3	*125,19*	70	24	6,20	8,0
1/2	13,00	3	*144,06*	75	29	7,00	9,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
9/16	12,00	3	*170,08*	80	30	9,00	11,0
5/8	11,00	3	*234,59*	80	32	9,00	12,0
3/4	10,00	3	*319,42*	95	40	11,00	14,0
7/8	9,00	3	*393,39*	100	40	14,50	18,0
1"	8,00	3	*531,32*	110	50	14,50	18,0

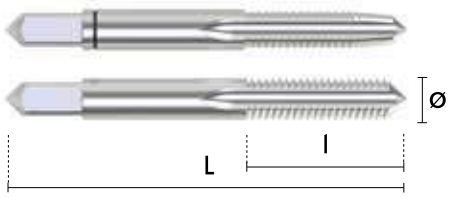
2308 HSS DIN 2181

UNF ANSI/ASME B1.1 | Tol. 2B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º
Tap 3º
} PVP = €/2



Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	2	*36,54*	36	11	2,70	3,5
Nº5	44,00	2	*36,54*	36	11	2,70	3,5
Nº6	40,00	2	*34,91*	40	12	3,40	4,5
Nº8	36,00	2	*34,91*	40	12	3,40	4,5
Nº10	32,00	2	*34,91*	45	14	4,90	6,0
Nº12	28,00	2	*36,54*	50	14	4,90	6,0
1/4	28,00	2	*25,17*	50	18	4,90	6,0
5/16	24,00	2	*26,93*	56	22	4,90	6,0
3/8	24,00	2	*31,14*	63	22	5,50	7,0
7/16	20,00	2	*41,35*	63	22	6,20	8,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/2	20,00	2	*42,28*	75	24	7,00	9,0
9/16	18,00	2	*55,07*	80	28	9,00	11,0
5/8	18,00	2	*71,13*	80	28	9,00	12,0
3/4	16,00	2	*95,56*	95	32	11,00	14,0
7/8	14,00	2	*122,80*	100	36	14,50	18,0
1"	12,00	2	*162,81*	110	40	14,50	18,0
1"1/8	12,00	2	*253,53*	110	50	18,00	22,0
1"1/4	12,00	2	*319,80*	132	56	18,00	22,0
1"3/8	12,00	2	*406,14*	132	56	22,00	28,0
1"1/2	12,00	2	*497,29*	150	63	24,00	32,0

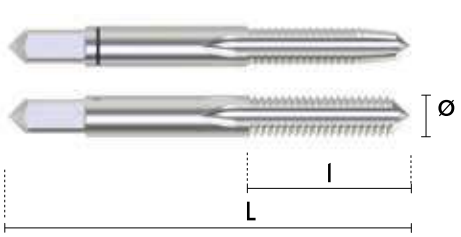
2308/5 HSS DIN 2181 Izquierda / A gauche / Left hand

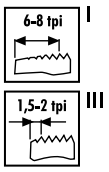
UNF ANSI/ASME B1.1 | Tol. 2B | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3° / Taraud 3° / Tap 3° } PVP = €/2





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1/4	28,00	2	*50,32*	50	18	4,90	6,0
5/16	24,00	2	*53,88*	56	22	4,90	6,0
3/8	24,00	2	*62,28*	63	22	5,50	7,0
7/16	20,00	2	*82,68*	63	22	6,20	8,0
1/2	20,00	2	*84,54*	75	24	7,00	9,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
9/16	18,00	2	*110,12*	80	28	9,00	11,0
5/8	18,00	2	*142,22*	80	28	9,00	12,0
3/4	16,00	2	*191,13*	95	32	11,00	14,0
7/8	14,00	2	*245,62*	100	36	14,50	18,0
1"	12,00	2	*325,62*	110	40	14,50	18,0

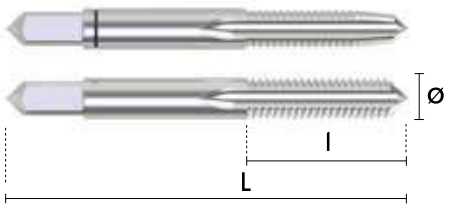
2315 HSS DIN 2184

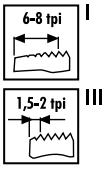
UN ANSI/ASME B1.1 | Tol. 2B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3° / Taraud 3° / Tap 3° } PVP = €/2





Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1"1/8	8,00	2	*224,55*	125	40	18,00	22,0
1"1/4	8,00	2	*289,70*	125	40	18,00	22,0
1"3/8	8,00	2	*328,61*	125	40	22,00	28,0
1"1/2	8,00	2	*431,47*	125	40	24,00	32,0

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
1"5/8	8,00	2	*504,70*	125	40	24,00	32,0
1"3/4	8,00	2	*614,82*	125	40	29,00	36,0
2"	8,00	2	*658,76*	140	40	32,00	40,0

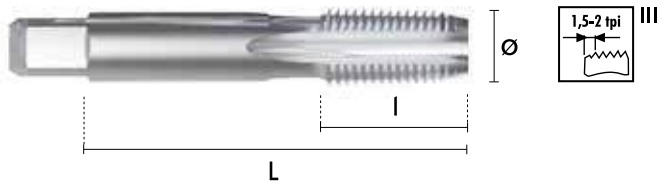
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2309 HSS DIN 5157

Rc
DIN 2999

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
1/8	28,00	1	*32,84*	59	15	6,30	8,0
1/4	19,00	1	*46,32*	67	19	8,00	10,0
3/8	19,00	1	*64,32*	75	21	10,00	12,5
1/2	14,00	1	*90,03*	87	26	12,50	16,0

Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
5/8	14,00	1	*164,76*	80	36	14,50	18,0
3/4	14,00	1	*152,80*	85	28	16,00	20,0
7/8	14,00	1	*274,60*	100	36	18,00	22,0
1"	11,00	1	*232,61*	109	33	20,00	25,0

2310 HSS DIN 2181

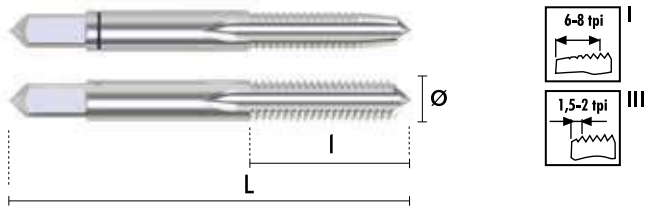
UNEF
ANSI/ASME B1.1

Tol. 2B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º } **PVP = €/2**
Tap 3º



Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
1/4	32,00	2	*103,48*	56	14	4,90	6,0
5/16	32,00	2	*115,62*	56	18	4,90	6,0
3/8	32,00	2	*132,29*	63	20	5,50	7,0
7/16	28,00	2	*168,39*	63	20	6,20	8,0
1/2	28,00	2	*190,27*	70	22	7,00	9,0

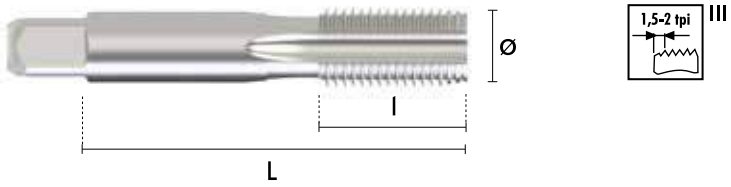
Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
9/16	24,00	2	*222,58*	70	22	9,00	11,0
5/8	24,00	2	*309,80*	70	22	9,00	12,0
3/4	20,00	2	*458,78*	80	22	11,00	14,0
1"	20,00	2	*656,43*	90	22	14,50	18,0

2312 HSS DIN 40432

PG
DIN 40430

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



PG	Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
7,0	12,5	20,00	1	*34,55*	70	22	7,00	9,0
9,0	15,2	18,00	1	*43,92*	70	22	9,00	12,0
11,0	18,6	18,00	1	*60,98*	80	22	11,00	14,0
13,5	20,4	18,00	1	*66,89*	80	22	12,00	16,0
16,0	22,5	18,00	1	*80,30*	80	22	14,50	18,0

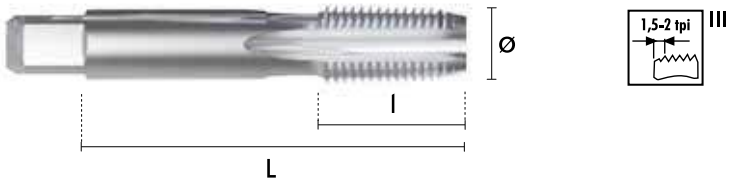
PG	Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
21,0	28,3	16,00	1	*118,11*	90	22	18,00	22,0
29,0	37,0	16,00	1	*234,49*	100	25	22,00	28,0
36,0	47,0	16,00	1	*391,70*	140	40	29,00	36,0
42,0	54,0	16,00	1	*465,18*	140	40	32,00	40,0
48,0	59,3	16,00	1	*586,65*	160	40	35,00	45,0

2313 HSS

NPT
ANSI/ASME B1.20.1

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
1/16	27,00	1	*28,50*	65	19	5,50	7,0
1/8	27,00	1	*28,50*	65	19	5,50	7,0
1/4	18,00	1	*39,97*	70	25	9,00	11,0
3/8	18,00	1	*55,15*	75	26	9,00	12,0
1/2	14,00	1	*77,13*	80	31	12,00	16,0

Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
3/4	14,00	1	*117,93*	100	33	16,00	20,0
1"	11,50	1	*131,31*	110	38	20,00	25,0
1"1/4	11,50	1	*215,30*	125	41	24,00	32,0
1"1/2	11,50	1	*327,16*	140	42	29,00	36,0
2"	11,50	1	*510,73*	160	44	29,00	36,0

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

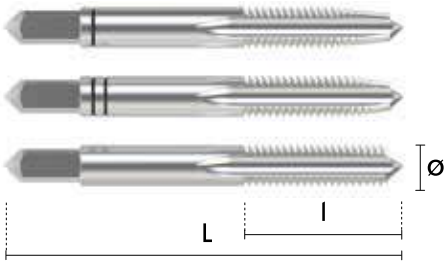
2321 HSS DIN 352

M-MF DIN 13 | Tol. 6H

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3° / Taraud 3° / Tap 3° } PVP = €/3



Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M2,0	**0,40**	**3**	*34,73*	**36**	**8**	**2,10**	**2,8**
M2,5	**0,45**	**3**	*35,92*	**40**	**9**	**2,10**	**2,8**
M3,0	**0,50**	**3**	*19,02*	**40**	**11**	**2,70**	**3,5**
M4,0	**0,70**	**3**	*17,51*	**45**	**13**	**3,40**	**4,5**
M5,0	**0,80**	**3**	*19,03*	**50**	**16**	**4,90**	**6,0**
M6,0	**1,00**	**3**	*19,03*	**56**	**19**	**4,90**	**6,0**
M7,0	**1,00**	**3**	*26,26*	**56**	**19**	**4,90**	**6,0**
M8,0	1,00	2	*21,79*	63	22	4,90	6,0
M8,0	**1,25**	**3**	*22,91*	**63**	**22**	**4,90**	**6,0**
M9,0	1,00	2	*28,16*	63	22	5,50	7,0
M9,0	**1,25**	**3**	*40,65*	**63**	**22**	**5,50**	**7,0**
M10,0	1,00	2	*23,63*	63	20	5,50	7,0
M10,0	1,25	2	*24,06*	70	24	5,50	7,0
M10,0	**1,50**	**3**	*28,93*	**70**	**24**	**5,50**	**7,0**
M11,0	1,00	2	*41,76*	63	20	6,20	8,0
M11,0	1,25	2	*41,76*	70	24	6,20	8,0
M11,0	**1,50**	**3**	*56,06*	**70**	**24**	**6,20**	**8,0**
M12,0	1,00	2	*41,25*	70	22	7,00	9,0
M12,0	1,25	2	*41,42*	70	22	7,00	9,0
M12,0	1,50	2	*35,24*	70	22	7,00	9,0
M12,0	**1,75**	**3**	*37,61*	**75**	**28**	**7,00**	**9,0**
M14,0	1,00	2	*61,72*	70	22	9,00	11,0
M14,0	1,25	2	*50,63*	70	22	9,00	11,0
M14,0	1,50	2	*39,33*	70	22	9,00	11,0
M14,0	**2,00**	**3**	*49,49*	**80**	**30**	**9,00**	**11,0**

Ø	P	Nº	€	L mm	l mm	⊠ mm	d mm
M16,0	1,00	2	*86,37*	70	22	9,00	12,0
M16,0	1,25	2	*90,92*	70	22	9,00	12,0
M16,0	1,50	2	*49,04*	70	22	9,00	12,0
M16,0	**2,00**	**3**	*69,68*	**80**	**32**	**9,00**	**12,0**
M18,0	1,50	2	*65,02*	80	22	11,00	14,0
M18,0	2,00	2	*103,45*	80	22	11,00	14,0
M18,0	**2,50**	**3**	*93,14*	**95**	**34**	**11,00**	**14,0**
M20,0	1,50	2	*81,13*	80	22	12,00	16,0
M20,0	2,00	2	*107,22*	80	22	12,00	16,0
M20,0	**2,50**	**3**	*104,67*	**95**	**34**	**12,00**	**16,0**
M22,0	1,50	2	*88,70*	80	22	14,50	18,0
M22,0	2,00	2	*142,63*	80	22	14,50	18,0
M22,0	**2,50**	**3**	*128,32*	**100**	**34**	**14,50**	**18,0**
M24,0	1,50	2	*113,23*	90	22	14,50	18,0
M24,0	**2,00**	**3**	*159,46*	**90**	**22**	**14,50**	**18,0**
M24,0	3,00	2	*161,64*	110	38	14,50	18,0
M26,0	1,50	2	*180,40*	90	22	14,50	18,0
M26,0	2,00	2	*372,29*	90	22	14,50	18,0
M27,0	**3,00**	**3**	*208,17*	**110**	**38**	**16,00**	**20,0**
M28,0	1,50	2	*200,42*	90	22	16,00	20,0
M30,0	**3,50**	**3**	*264,30*	**125**	**45**	**18,00**	**22,0**
M33,0	**3,50**	**3**	*335,32*	**125**	**50**	**20,00**	**25,0**
M36,0	**4,00**	**3**	*431,83*	**150**	**56**	**22,00**	**28,0**
M39,0	**4,00**	**3**	*479,84*	**150**	**60**	**24,00**	**32,0**
M42,0	**4,50**	**3**	*601,22*	**150**	**60**	**24,00**	**32,0**

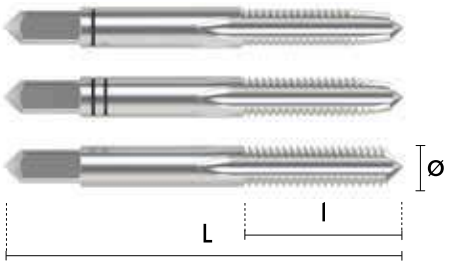
2322 HSS DIN 352

UNC ANSI/ASME B1.1 — Tol. 2B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º } PVP = €/3
Tap 3º



Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
Nº4	40,00	3	*48,11*	40	12	2,70	3,5
Nº5	40,00	3	*46,00*	40	12	2,70	3,5
Nº6	32,00	3	*46,00*	45	14	3,00	4,0
Nº18	32,00	3	*46,00*	45	14	3,40	4,5
Nº10	24,00	3	*46,00*	50	16	4,90	6,0
Nº12	24,00	3	*46,00*	50	18	4,90	6,0
1/4	20,00	3	*37,23*	50	19	4,90	6,0
5/16	18,00	3	*42,53*	56	22	4,90	6,0
3/8	16,00	3	*48,08*	70	24	5,50	7,0
7/16	14,00	3	*62,58*	70	24	6,20	8,0
1/2	13,00	3	*72,03*	75	29	7,00	9,0

Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
9/16	12,00	3	*85,04*	80	30	9,00	11,0
5/8	11,00	3	*117,31*	80	32	9,00	12,0
3/4	10,00	3	*159,71*	95	40	11,00	14,0
7/8	9,00	3	*196,71*	100	40	14,50	18,0
1"	8,00	3	*265,66*	110	50	14,50	18,0
1"1/8	7,00	3	*405,54*	132	56	18,00	22,0
1"1/4	7,00	3	*510,47*	132	56	18,00	22,0
1"3/8	6,00	3	*647,57*	150	63	22,00	28,0
1"1/2	6,00	3	*795,10*	150	63	24,00	32,0
1"3/4	5,00	3	*990,53*	160	70	29,00	36,0
2"	4,50	3	*1.138,71*	190	80	32,00	40,0

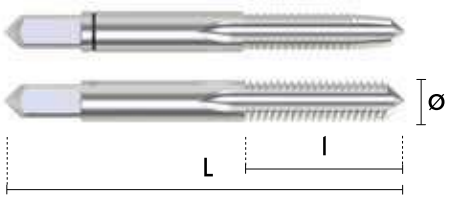
2323 HSS DIN 352 Perfil completo / Profil complet / Non serial form

UNF ANSI/ASME B1.1 — Tol. 2B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Macho 3º
Taraud 3º } PVP = €/2
Tap 3º



Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
Nº4	48,00	2	*36,54*	36	11	2,70	3,5
Nº5	44,00	2	*36,54*	36	11	2,70	3,5
Nº6	40,00	2	*34,91*	40	12	3,40	4,5
Nº8	36,00	2	*34,91*	40	12	3,40	4,5
Nº10	32,00	2	*34,91*	45	14	4,90	6,0
Nº12	28,00	2	*36,54*	50	14	4,90	6,0
1/4	28,00	2	*25,17*	50	18	4,90	6,0
5/16	24,00	2	*26,93*	56	22	4,90	6,0
3/8	24,00	2	*31,14*	63	22	5,50	7,0
7/16	20,00	2	*41,35*	63	22	6,20	8,0

Ø	P	Nº	€	L mm	l mm	☐ mm	d mm
1/2	20,00	2	*42,28*	75	24	7,00	9,0
9/16	18,00	2	*55,07*	80	28	9,00	11,0
5/8	18,00	2	*71,13*	80	28	9,00	12,0
3/4	16,00	2	*95,56*	95	32	11,00	14,0
7/8	14,00	2	*122,80*	100	36	14,50	18,0
1"	12,00	2	*162,81*	110	40	14,50	18,0
1"1/8	12,00	2	*253,53*	110	50	18,00	22,0
1"1/4	12,00	2	*319,80*	132	56	18,00	22,0
1"3/8	12,00	2	*406,14*	132	56	22,00	28,0
1"1/2	12,00	2	*497,29*	150	63	24,00	32,0

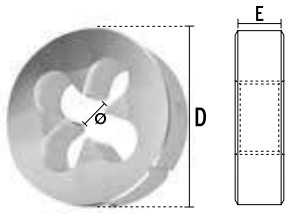
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

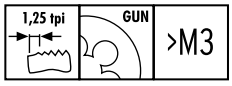
2501 HSS DIN EN 22568

M-MF DIN 13 | Tol. 6g

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

	Ø	P	€	D mm	E mm	
**	**M1,0**	**0,25**	*50,91*	**16**	**5**	**1**
**	**M1,1**	**0,25**	*84,06*	**16**	**5**	**1**
**	**M1,2**	**0,25**	*78,87*	**16**	**5**	**1**
**	**M1,4**	**0,30**	*72,26*	**16**	**5**	**1**
	M1,6	**0,35**	*68,28*	**16**	**5**	**1**
	M1,7	**0,35**	*68,28*	**16**	**5**	**1**
	M1,8	**0,35**	*68,28*	**16**	**5**	**1**
	M2,0	**0,40**	*28,90*	**16**	**5**	**1**
	M2,2	**0,45**	*67,64*	**16**	**5**	**1**
	M2,3	**0,40**	*28,90*	**16**	**5**	**1**
	M2,5	**0,05**	*28,90*	**16**	**5**	**1**
	M2,6	**0,45**	*28,90*	**16**	**5**	**1**
	M3,0	**0,50**	*24,85*	**20**	**5**	**1**
	M3,0	0,60	*32,27*	25	5	1
	M3,5	0,60	*25,65*	20	5	1
	M3,5	0,75	*83,25*	20	5	1
	M4,0	0,50	*30,69*	20	5	1
	M4,0	**0,70**	*24,85*	**20**	**5**	**1**
	M4,5	**0,75**	*33,51*	**20**	**7**	**1**
	M5,0	0,05	*33,85*	20	5	1
	M5,0	0,75	*35,94*	25	7	1
	M5,0	**0,80**	*24,85*	**20**	**7**	**1**
	M5,5	0,90	*83,25*	20	7	1
	M6,0	0,50	*32,94*	20	7	1
	M6,0	0,75	*30,42*	20	7	1
	M6,0	**1,00**	*24,85*	**20**	**7**	**1**
	M7,0	0,75	*32,09*	25	9	1
	M7,0	**1,00**	*27,09*	**25**	**9**	**1**
	M8,0	0,50	*39,55*	25	9	1
	M8,0	0,75	*32,09*	25	9	1
	M8,0	1,00	*32,09*	25	9	1
	M8,0	**1,25**	*25,96*	**25**	**9**	**1**
	M9,0	1,00	*35,77*	25	9	1
	M9,0	**1,25**	*38,21*	**25**	**9**	**1**
	M10,0	0,50	*67,46*	30	11	1
	M10,0	0,75	*49,97*	30	11	1
	M10,0	1,00	*34,02*	30	11	1
	M10,0	1,25	*42,61*	30	11	1
	M10,0	**1,50**	*37,05*	**30**	**11**	**1**
	M11,0	0,75	*92,38*	30	11	1
	M11,0	1,00	*49,70*	30	11	1
	M11,0	1,25	*53,26*	30	11	1
	M11,0	**1,50**	*49,68*	**30**	**11**	**1**
	M12,0	0,75	*57,74*	38	10	1
	M12,0	1,00	*49,68*	38	10	1
	M12,0	1,25	*49,68*	38	10	1

Ø	P	€	D mm	E mm	
M12,0	1,50	*44,37*	38	10	1
M12,0	**1,75**	*40,73*	**38**	**14**	**1**
M13,0	0,75	*92,38*	38	10	1
M13,0	1,00	*58,40*	38	10	1
M13,0	1,50	*60,91*	38	10	1
M13,0	**1,75**	*60,91*	**38**	**14**	**1**
M14,0	0,75	*90,75*	38	10	1
M14,0	1,00	*54,51*	38	10	1
M14,0	1,25	*54,16*	38	10	1
M14,0	1,50	*46,39*	38	10	1
M14,0	**2,00**	*40,73*	**38**	**14**	**1**
M15,0	1,00	*66,20*	38	10	1
M15,0	1,50	*66,20*	38	10	1
M15,0	**2,00**	*81,63*	**38**	**14**	**1**
M16,0	1,00	*68,91*	45	14	1
M16,0	1,25	*62,65*	45	14	1
M16,0	1,50	*51,64*	45	14	1
M16,0	**2,00**	*54,72*	**45**	**18**	**1**
M17,0	1,00	*98,52*	45	14	1
M17,0	1,25	*98,52*	45	14	1
M17,0	1,50	*98,52*	45	14	1
M18,0	1,00	*72,05*	45	14	1
M18,0	1,25	*81,90*	45	14	1
M18,0	1,50	*63,72*	45	14	1
M18,0	2,00	*72,05*	45	14	1
M18,0	**2,50**	*54,72*	**45**	**18**	**1**
M19,0	1,00	*159,69*	45	14	1
M19,0	1,25	*159,69*	45	14	1
M19,0	1,50	*162,55*	45	14	1
M20,0	1,00	*71,75*	45	14	1
M20,0	1,25	*159,69*	45	14	1
M20,0	1,50	*65,76*	45	14	1
M20,0	2,00	*72,27*	45	14	1
M20,0	**2,50**	*54,72*	**45**	**18**	**1**
M21,0	1,00	*185,23*	45	16	1
M21,0	1,25	*185,23*	45	14	1
M21,0	1,50	*152,67*	45	14	1
M22,0	1,00	*97,98*	55	16	1
M22,0	1,25	*159,69*	55	16	1
M22,0	1,50	*84,29*	55	16	1
M22,0	2,00	*93,78*	55	16	1
M22,0	**2,50**	*80,50*	**55**	**22**	**1**
M23,0	1,50	*185,23*	55	16	1
M24,0	1,00	*93,78*	55	16	1
M24,0	1,25	*159,69*	55	16	1

**Tol. 6h

(**continúa Ref.2501** / suite Réf.2501 / Ref.2501 cont'd)

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

(**continúa Ref.2501** / suite Réf.2501 / Ref.2501 cont'd)

Ø	P	€	D mm	E mm	
M24,0	**3,00**	*80,50*	**55**	**22**	**1**
M25,0	1,00	*145,03*	55	16	1
M25,0	1,50	*122,45*	55	16	1
M26,0	1,00	*210,38*	55	16	1
M26,0	1,50	*115,91*	55	16	1
M26,0	2,00	*210,38*	55	16	1
M27,0	1,00	*129,47*	65	18	1
M27,0	1,50	*127,47*	65	18	1
M27,0	2,00	*138,63*	65	18	1
M27,0	**3,00**	*115,91*	**65**	**25**	**1**
M28,0	1,00	*210,38*	65	18	1
M28,0	1,50	*127,47*	65	18	1
M28,0	2,00	*210,38*	65	18	1
M30,0	1,00	*142,35*	65	18	1
M30,0	1,50	*127,44*	65	18	1
M30,0	2,00	*142,35*	65	18	1
M30,0	**3,50**	*119,58*	**65**	**25**	**1**
M32,0	1,00	*214,13*	65	18	1
M32,0	1,50	*134,68*	65	18	1
M32,0	2,00	*210,38*	65	18	1
M33,0	1,50	*127,47*	65	18	1
M33,0	2,00	*138,81*	65	18	1
M33,0	**3,50**	*119,58*	**65**	**25**	**1**
M34,0	1,50	*132,98*	65	18	1
M34,0	2,00	*298,33*	65	18	1
M35,0	1,50	*137,95*	65	18	1
M35,0	2,00	*298,33*	65	18	1
M36,0	1,50	*130,57*	65	18	1
M36,0	2,00	*138,81*	65	18	1
M36,0	3,00	*151,07*	65	25	1
M36,0	**4,00**	*123,98*	**65**	**25**	**1**

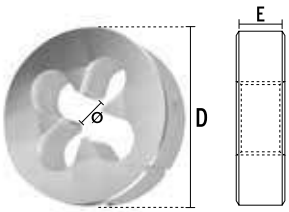
Ø	P	€	D mm	E mm	
M38,0	1,50	*197,49*	75	20	1
M38,0	2,00	*378,05*	75	20	1
M39,0	1,50	*198,45*	75	20	1
M39,0	2,00	*209,55*	75	20	1
M39,0	3,00	*238,13*	75	30	1
M39,0	**4,00**	*186,10*	**75**	**30**	**1**
M40,0	1,50	*206,04*	75	20	1
M40,0	2,00	*209,55*	75	20	1
M40,0	3,00	*228,55*	75	30	1
M42,0	1,50	*270,85*	75	20	1
M42,0	2,00	*302,77*	75	20	1
M42,0	3,00	*315,88*	75	30	1
M42,0	**4,50**	*186,10*	**75**	**30**	**1**
M45,0	1,50	*270,85*	90	22	1
M45,0	2,00	*302,77*	90	22	1
M45,0	3,00	*315,88*	90	36	1
M45,0	**4,50**	*284,62*	**90**	**36**	**1**
M48,0	1,50	*272,56*	90	22	1
M48,0	2,00	*278,63*	90	22	1
M48,0	3,00	*302,77*	90	36	1
M48,0	**5,00**	*284,96*	**90**	**36**	**1**
M50,0	1,50	*270,85*	90	22	1
M52,0	1,50	*270,85*	90	22	1
M52,0	2,00	*314,78*	90	22	1
M52,0	3,00	*343,53*	90	36	1
M52,0	**5,00**	*284,96*	**90**	**36**	**1**
M56,0	**5,50**	*508,74*	**105**	**36**	**1**
M60,0	**5,50**	*508,74*	**105**	**36**	**1**
M63,0	1,50	*960,19*	105	22	1
M64,0	**6,00**	*608,31*	**120**	**36**	**1**

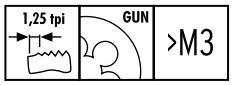
2501/5 HSS DIN EN 22568 Izquierda / A gauche / Left hand

M-MF DIN 13 | Tol. 6g | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
M3,0	0,50	*49,70*	20	5	1
M4,0	0,70	*49,70*	20	5	1
M5,0	0,80	*49,70*	20	7	1
M6,0	1,00	*49,70*	25	7	1
M7,0	1,00	*54,18*	25	9	1
M8,0	1,00	*64,14*	25	9	1
M8,0	1,25	*51,91*	25	9	1
M10,0	1,00	*68,06*	30	11	1
M10,0	1,25	*85,23*	30	11	1
M10,0	1,50	*74,11*	30	11	1
M12,0	1,25	*99,36*	38	10	1
M12,0	1,50	*74,11*	38	10	1
M12,0	1,75	*81,45*	38	14	1
M14,0	1,50	*92,81*	38	10	1

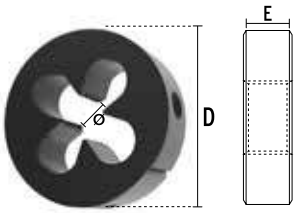
Ø	P	€	D mm	E mm	
M14,0	2,00	*81,44*	38	14	1
M16,0	1,50	*103,29*	45	14	1
M16,0	2,00	*109,44*	45	18	1
M18,0	1,50	*127,44*	45	14	1
M18,0	2,50	*109,44*	45	18	1
M20,0	1,50	*131,51*	45	14	1
M20,0	2,50	*109,44*	45	18	1
M22,0	1,50	*168,60*	55	16	1
M22,0	2,50	*161,00*	55	22	1
M24,0	1,50	*168,60*	55	16	1
M24,0	3,00	*161,00*	55	22	1
M27,0	3,00	*231,80*	65	25	1
M30,0	3,50	*239,16*	65	25	1

2514 HSSE DIN EN 22568

M DIN 13 | Tol. 6g | NIT | 2 tpi | GUN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		○						○							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	D mm	E mm	
M3,0	0,50	*39,83*	20	5	1
M4,0	0,70	*39,83*	20	5	1
M5,0	0,80	*39,83*	20	7	1
M6,0	1,00	*39,83*	20	7	1
M8,0	1,25	*41,61*	25	9	1

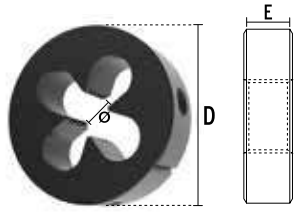
Ø	P	€	D mm	E mm	
M10,0	1,50	*59,36*	30	11	1
M12,0	1,75	*65,26*	38	14	1
M14,0	2,00	*67,87*	38	14	1
M16,0	2,00	*91,14*	45	18	1

2512 HSSE DIN EN 22568

M DIN 13 | Tol. 6g | VAP | 2 tpi | GUN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●									○				

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	D mm	E mm	
M3,0	0,50	*33,82*	20	5	1
M4,0	0,70	*33,82*	20	5	1
M5,0	0,80	*33,82*	20	7	1
M6,0	1,00	*33,82*	20	7	1
M8,0	1,25	*35,33*	25	9	1
M10,0	1,50	*50,45*	30	11	1

Ø	P	€	D mm	E mm	
M12,0	1,75	*55,46*	38	14	1
M14,0	2,00	*56,57*	38	14	1
M16,0	2,00	*75,95*	45	18	1
M18,0	2,50	*75,95*	45	18	1
M20,0	2,50	*75,95*	45	18	1

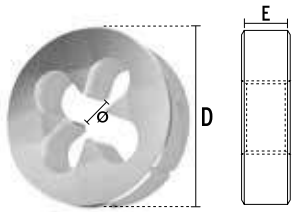
P Aceros Aciers Steels | M Aceros Inox Aciers Inox Stainless Steels | K Fundicion Fonte Cast Iron | N Metales no ferrosos Métal non Ferraux Non Ferrous metals | S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys | H Materiales Duros Materiels Durs Hard materials

2502 HSS DIN EN 22568

BSW
BS 84

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
3/32	48,00	*34,23*			1
1/8	40,00	*27,75*	20	5	1
5/32	32,00	*27,75*	20	7	1
3/16	24,00	*27,75*	20	7	1
7/32	24,00	*27,75*	20	7	1
1/4	20,00	*27,75*	20	7	1
5/16	18,00	*28,94*	25	9	1
3/8	16,00	*41,92*	30	11	1
7/16	14,00	*41,92*	30	11	1
1/2	12,00	*41,92*	38	14	1
9/16	12,00	*50,22*	38	14	1
5/8	11,00	*60,99*	45	18	1

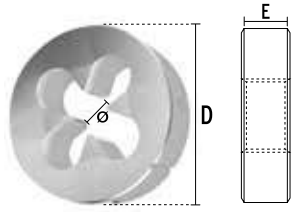
Ø	P	€	D mm	E mm	
3/4	10,00	*60,98*	45	18	1
7/8	9,00	*89,69*	55	22	1
1"	8,00	*89,69*	55	22	1
1"1/8	7,00	*141,20*	65	25	1
1"1/4	7,00	*141,20*	65	25	1
1"3/8	6,00	*143,81*	65	25	1
1"1/2	6,00	*218,58*	75	30	1
1"5/8	5,00	*290,54*	75	30	1
1"3/4	5,00	*365,63*	90	36	1
1"7/8	4,50	*400,05*	90	36	1
2"	4,50	*380,84*	90	36	1

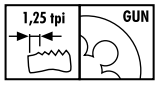
2502/5 HSS DIN EN 22568 Izquierda / A gauche / Left hand

BSW
BS 84
LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ti	Ni	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/8	40,00	*55,50*	20	5	1
5/32	32,00	*55,50*	20	5	1
3/16	24,00	*55,50*	20	7	1
1/4	20,00	*55,50*	20	7	1
5/16	18,00	*57,89*	25	9	1
3/8	16,00	*83,84*	30	11	1

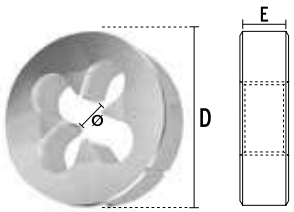
Ø	P	€	D mm	E mm	
7/16	14,00	*83,84*	38	11	1
1/2	12,00	*83,84*	38	14	1
9/16	12,00	*100,44*	38	14	1
5/8	11,00	*122,00*	45	18	1
7/8	9,00	*179,40*	55	22	1
1"	8,00	*179,40*	55	22	1

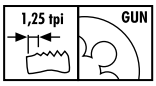
2503 HSS DIN EN 22568

BSF
BS 84

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
3/16	32,00	*125,59*	20	7	1
1/4	26,00	*43,73*	20	7	1
5/16	22,00	*43,60*	25	9	1
3/8	20,00	*76,46*	30	11	1
7/16	18,00	*76,46*	30	11	1
1/2	16,00	*76,46*	38	10	1

Ø	P	€	D mm	E mm	
9/16	16,00	*85,26*	38	10	1
5/8	14,00	*107,73*	45	14	1
3/4	12,00	*107,73*	45	14	1
7/8	11,00	*159,29*	55	22	1
1"	10,00	*159,29*	55	22	1

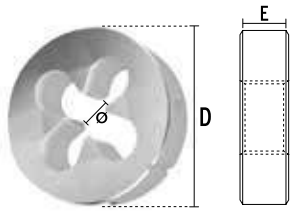
***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

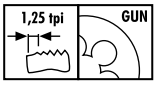
2504 HSS DIN EN 24231

G
ISO 228

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/8	28,00	*44,66*	30	11	1
1/4	19,00	*44,66*	38	10	1
3/8	19,00	*57,74*	45	14	1
1/2	14,00	*57,74*	45	14	1
5/8	14,00	*80,06*	55	16	1
3/4	14,00	*119,67*	55	16	1
7/8	14,00	*125,27*	65	18	1

Ø	P	€	D mm	E mm	
1"	11,00	*125,27*	65	18	1
1"1/8	11,00	*178,56*	75	20	1
1"1/4	11,00	*175,74*	75	20	1
1"3/8	11,00	*277,02*	90	22	1
1"1/2	11,00	*269,21*	90	22	1
1"3/4	11,00	*277,02*	105	22	1
2"	11,00	*333,40*	105	22	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

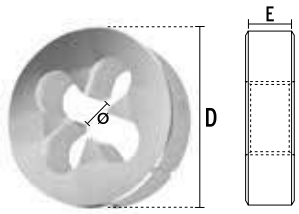
2504/5 HSS DIN EN 24231 Izquierda / A gauche / Left hand

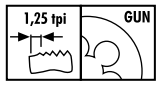
G ISO 228

LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/8	28,00	*89,29*	30	11	1
1/4	19,00	*89,29*	38	10	1
3/8	19,00	*115,47*	45	14	1
1/2	14,00	*115,47*	45	14	1

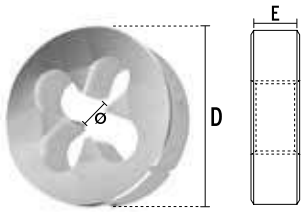
Ø	P	€	D mm	E mm	
5/8	14,00	*160,15*	55	16	1
3/4	14,00	*239,36*	55	16	1
7/8	14,00	*250,55*	65	18	1
1"	11,00	*250,55*	65	18	1

2522 HSS DIN EN 24231

1,5 tpi | GUN | G ISO 228

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
										●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	D mm	E mm	
1/8	28,00	*53,09*	30	11	1
1/4	19,00	*53,09*	38	10	1
3/8	19,00	*68,70*	45	14	1
1/2	14,00	*68,70*	45	14	1

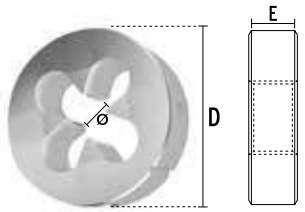
Ø	P	€	D mm	E mm	
5/8	14,00	*108,49*	55	16	1
3/4	14,00	*142,28*	55	16	1
7/8	14,00	*148,95*	65	18	1
1"	11,00	*148,95*	65	18	1

2521 HSS DIN EN 24231

2 tpi | GUN | - 0,1 | G ISO 228

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
										●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	D mm	E mm	
1/8	28,00	*58,39*	30	11	1
1/4	19,00	*58,39*	38	10	1
3/8	19,00	*75,56*	45	14	1
1/2	14,00	*75,56*	45	14	1

Ø	P	€	D mm	E mm	
5/8	14,00	*150,74*	55	16	1
3/4	14,00	*156,51*	55	16	1
7/8	14,00	*190,27*	65	18	1
1"	11,00	*190,27*	65	18	1

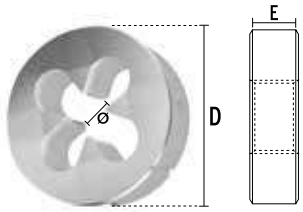
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

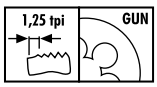
2505 HSS DIN EN 22568

UNC ANSI/ASME B1.1 | Tol. 2A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
N°4	40,00	*35,67*	20	5	1
N°5	40,00	*35,67*	20	5	1
N°6	32,00	*35,67*	20	5	1
N°8	32,00	*35,67*	20	7	1
N°10	24,00	*35,67*	20	7	1
N°12	24,00	*35,67*	20	7	1
1/4	20,00	*32,83*	20	7	1
5/16	18,00	*32,09*	25	9	1
3/8	16,00	*47,25*	30	11	1
7/16	14,00	*47,25*	30	11	1
1/2	13,00	*48,63*	38	14	1

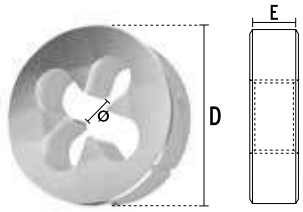
Ø	P	€	D mm	E mm	
9/16	12,00	*50,88*	38	14	1
5/8	11,00	*66,77*	45	18	1
3/4	10,00	*66,77*	45	18	1
7/8	9,00	*87,34*	55	22	1
1"	8,00	*87,34*	55	22	1
1"1/8	7,00	*129,72*	65	25	1
1"1/4	7,00	*129,72*	65	25	1
1"3/8	6,00	*129,72*	65	25	1
1"1/2	6,00	*202,27*	75	30	1
1"3/4	5,00	*433,43*	90	36	1
2"	4,50	*439,28*	90	36	1

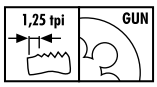
2505/5 HSS DIN EN 22568 Izquierda / A gauche / Left hand

UNC ANSI/ASME B1.1 | Tol. 2A | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/4	20,00	*65,67*	20	7	1
5/16	18,00	*64,14*	25	9	1
3/8	16,00	*94,51*	30	11	1
7/16	14,00	*94,51*	30	11	1
1/2	13,00	*97,24*	38	14	1

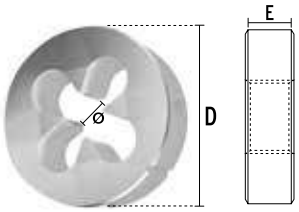
Ø	P	€	D mm	E mm	
9/16	12,00	*101,79*	38	14	1
5/8	11,00	*133,54*	45	18	1
3/4	10,00	*133,54*	45	18	1
7/8	9,00	*174,71*	55	22	1
1"	7,00	*174,71*	55	22	1

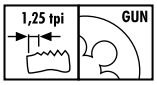
2506 HSS DIN EN 22568

UNF ANSI/ASME B1.1 | Tol. 2A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
Nº4	48,00	*35,98*	16	5	1
Nº5	44,00	*35,98*	20	5	1
Nº6	40,00	*35,98*	20	5	1
Nº8	36,00	*35,98*	20	7	1
Nº10	32,00	*35,98*	20	7	1
Nº12	28,00	*35,28*	20	7	1
1/4	28,00	*28,50*	20	7	1
5/16	24,00	*33,88*	25	9	1
3/8	24,00	*47,55*	30	11	1
7/16	20,00	*43,72*	30	11	1

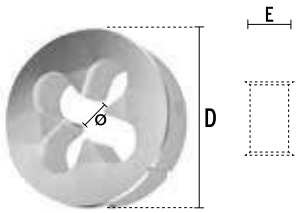
Ø	P	€	D mm	E mm	
1/2	20,00	*49,92*	38	10	1
9/16	18,00	*53,76*	38	10	1
5/8	18,00	*68,71*	45	14	1
3/4	16,00	*68,71*	45	14	1
7/8	14,00	*92,28*	55	16	1
1"	12,00	*92,28*	55	16	1
1"1/8	12,00	*142,12*	65	18	1
1"1/4	12,00	*142,12*	65	18	1
1"3/8	12,00	*212,56*	65	18	1
1"1/2	12,00	*212,56*	75	20	1

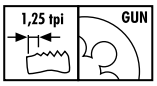
2506/5 HSS DIN EN 22568 Izquierda / A gauche / Left hand

UNF ANSI/ASME B1.1 | Tol. 2A | LH

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/4	28,00	*57,02*	20	7	1
5/16	24,00	*67,77*	25	9	1
3/8	24,00	*95,09*	30	11	1
7/16	20,00	*87,44*	30	11	1
1/2	20,00	*99,83*	38	10	1

Ø	P	€	D mm	E mm	
9/16	18,00	*107,52*	38	10	1
5/8	18,00	*137,41*	45	14	1
3/4	16,00	*137,41*	45	14	1
7/8	14,00	*184,55*	55	16	1
1"	12,00	*184,55*	55	16	1

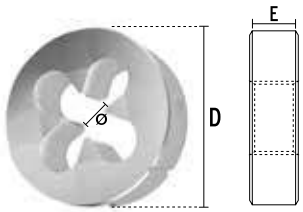
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

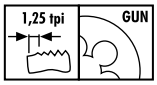
2507 HSS DIN EN 24230

R
DIN 2999

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/8	28,00	*105,08*	30	11	1
1/4	19,00	*105,08*	38	14	1
3/8	19,00	*136,87*	45	18	1

Ø	P	€	D mm	E mm	
1/2	14,00	*136,87*	55	22	1
3/4	14,00	*258,42*	55	22	1
1"	11,00	*275,34*	65	25	1

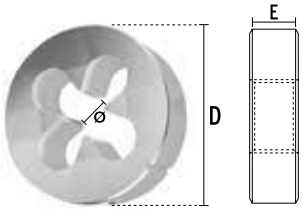
2508 HSS DIN EN 22568

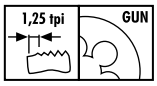
UNEF
ANSI/ASME B1.1

Tol.
2A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/4	32,00	*107,42*	20	7	1
5/16	32,00	*107,42*	25	9	1
3/8	32,00	*166,78*	30	11	1
7/16	28,00	*166,78*	30	11	1
1/2	28,00	*166,78*	38	10	1

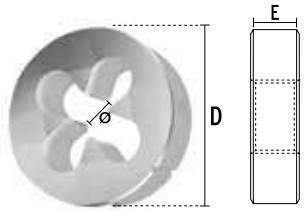
Ø	P	€	D mm	E mm	
9/16	24,00	*166,78*	38	12	1
5/8	24,00	*267,32*	45	14	1
3/4	20,00	*267,32*	45	14	1
1"	20,00	*326,72*	55	16	1

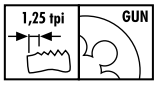
2520 HSS DIN EN 22568

UN ANSI/ASME B1.1 | Tol. 2A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1"1/8	8,00	*355,45*	65	25	1
1"1/4	8,00	*355,45*	65	25	1
1"3/8	8,00	*381,31*	65	25	1
1"1/2	8,00	*403,57*	75	30	1

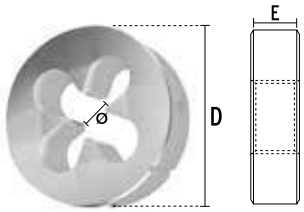
Ø	P	€	D mm	E mm	
1"5/8	8,00	*508,97*	75	30	1
1"3/4	8,00	*619,10*	90	36	1
2"	8,00	*619,10*	90	36	1

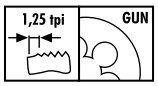
2510 HSS DIN 40434

PG DIN 40430

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Pg	Ø	P	€	D mm	E mm	
7,0	12,5	20,00	*63,80*	38	10	1
9,0	15,2	18,00	*63,80*	45	14	1
11,0	18,6	18,00	*79,91*	45	14	1
13,5	20,4	18,00	*79,91*	45	14	1
16,0	22,5	18,00	*103,03*	55	16	1

Pg	Ø	P	€	D mm	E mm	
21,0	28,3	16,00	*146,44*	65	18	1
29,0	37,0	16,00	*146,44*	65	18	1
36,0	47,0	16,00	*375,32*	90	22	1
42,0	54,0	16,00	*375,32*	105	22	1
48,0	59,3	16,00	*497,75*	105	22	1

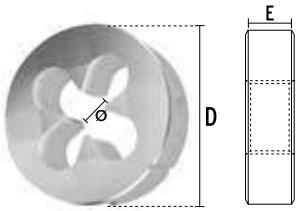
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

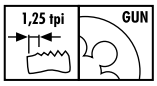
2509 HSS DIN EN 24230

NPT
ANSI/ASME B1.20.1

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative





PVP = € + 10%

Ø	P	€	D mm	E mm	
1/16	27,00	*81,22*	25	9	1
1/8	27,00	*67,01*	30	11	1
1/4	14,00	*67,01*	38	14	1
3/8	18,00	*87,51*	45	18	1
1/2	14,00	*87,51*	45	18	1

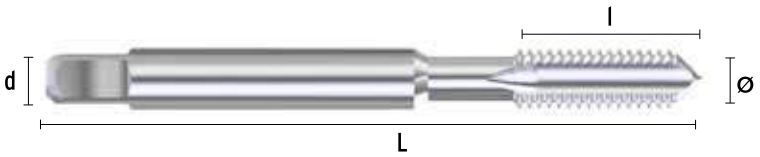
Ø	P	€	D mm	E mm	
3/4	14,00	*160,04*	55	22	1
1"	11,50	*192,43*	65	25	1
1"1/4	11,50	*239,12*	75	25	1
1"1/2	11,50	*333,57*	90	25	1
2"	11,50	*464,43*	105	25	1

2701 HSS ISO 529

Tol. 4H | EG-M (STI) | Form. D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
M2,0	0,40	*13,13*	44,5	9,5	2,24	2,80
M2,2	0,45	*13,13*	44,5	9,5	2,24	2,80
M2,5	0,45	*13,13*	48	11	2,50	3,15
M3,0	0,50	*8,52*	53	13	3,15	4,00
M3,5	0,60	*8,52*	53	13	3,55	4,50
M4,0	0,70	*10,34*	58	16	4,00	5,00
M5,0	0,80	*10,68*	66	19	5,00	6,30
M6,0	1,00	*10,68*	72	22	6,30	8,00
M7,0	1,00	*17,19*	72	22	7,10	9,00
M8,0	1,00	*17,19*	80	24	8,00	10,00
M8,0	1,25	*14,76*	80	24	8,00	10,00
M9,0	1,25	*21,36*	85	25	6,30	8,00
M10,0	1,00	*20,84*	85	25	6,30	8,00
M10,0	1,25	*20,84*	85	25	6,30	8,00
M10,0	1,50	*19,19*	89	29	7,10	9,00
M11,0	1,50	*24,49*	89	29	7,10	9,00
M12,0	1,00	*29,79*	95	30	9,00	11,20
M12,0	1,25	*29,79*	95	30	9,00	11,20
M12,0	1,50	*29,79*	95	30	9,00	11,20
M12,0	1,75	*21,11*	95	30	9,00	11,20

Ø	P	€	L mm	l mm	⊠ mm	d mm
M14,0	1,25	*34,90*	102	32	10,00	12,50
M14,0	1,50	*34,90*	102	32	10,00	12,50
M14,0	1,75	*34,90*	102	32	10,00	12,50
M14,0	2,00	*29,25*	102	32	10,00	12,50
M15,0	1,50	*36,70*	102	32	10,00	12,50
M15,0	2,00	*36,70*	112	37	11,20	14,00
M16,0	1,50	*36,70*	104	29	11,20	14,00
M16,0	2,00	*36,70*	112	37	11,20	14,00
M18,0	1,50	*36,70*	104	29	11,20	14,00
M18,0	2,00	*45,89*	104	29	11,20	14,00
M18,0	2,50	*45,89*	118	38	12,50	16,00
M20,0	1,50	*50,90*	113	33	12,50	16,00
M20,0	2,00	*50,90*	113	33	12,50	16,00
M20,0	2,50	*50,90*	118	38	12,50	16,00
M22,0	1,50	*57,51*	120	35	14,00	18,00
M22,0	2,00	*57,51*	120	35	14,00	18,00
M22,0	2,50	*57,51*	130	45	14,00	18,00
M24,0	1,50	*72,48*	120	35	14,00	18,00
M24,0	2,00	*72,48*	127	37	16,00	20,00
M24,0	3,00	*72,48*	138	48	16,00	20,00

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

2702 HSS ISO 529

Tol. 3B | EG-UNC (STI) | Form. D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº2	56,00	*21,54*	48	9,5	2,50	3,15
Nº4	40,00	*21,54*	53	13	3,15	4,00
Nº6	32,00	*21,54*	58	16	4,00	5,00
Nº8	32,00	*21,54*	62	17	4,50	5,60
Nº10	24,00	*14,41*	66	19	5,00	6,30
Nº12	24,00	*14,41*	66	19	5,60	7,10
1/4	20,00	*14,41*	72	22	6,30	8,00
5/16	18,00	*15,20*	80	24	8,00	10,00
3/8	16,00	*16,41*	85	25	6,30	8,00

Ø	P	€	L mm	l mm	⊠ mm	d mm
7/16	14,00	*23,18*	95	30	9,00	11,20
1/2	13,00	*24,93*	102	32	10,00	12,50
9/16	12,00	*38,72*	112	37	11,20	14,00
5/8	11,00	*46,46*	112	37	11,20	14,00
11/16	11,00	*61,81*	112	37	11,20	14,00
3/4	10,00	*61,81*	118	38	12,50	16,00
7/8	9,00	*71,54*	130	45	14,00	18,00
1"	8,00	*71,54*	138	48	16,00	20,00

2703 HSS ISO 529

Tol. 3BH | EG-UNF (STI) | Form. D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
Nº4	48,00	*21,54*	53	13	3,15	4,00
Nº6	40,00	*21,54*	53	13	3,55	4,50
Nº8	36,00	*21,54*	62	17	4,50	5,60
Nº10	32,00	*14,41*	66	19	5,00	6,30
1/4	28,00	*14,41*	69	19	6,30	8,00
5/16	24,00	*15,20*	76	20	8,00	10,00
3/8	24,00	*16,41*	82	22	6,30	8,00
7/16	20,00	*23,18*	84	24	7,10	9,00

Ø	P	€	L mm	l mm	⊠ mm	d mm
1/2	20,00	*24,93*	90	25	9,00	11,20
9/16	18,00	*38,72*	104	29	10,00	12,50
5/8	18,00	*46,46*	104	29	11,20	14,00
3/4	16,00	*61,81*	104	29	11,20	14,00
7/8	14,00	*71,54*	120	35	14,00	18,00
1"	14,00	*71,54*	127	37	16,00	20,00
1"	12,00	*71,54*	127	37	16,00	20,00

2704 HSS ISO 529

EG-W (STI) | Form. D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	40,00	*14,41*	53	13	3,15	4,00
3/16	24,00	*14,41*	66	19	5,00	6,30
1/4	20,00	*14,41*	72	22	6,30	8,00
5/16	18,00	*15,20*	80	24	8,00	10,00
3/8	16,00	*16,41*	85	25	6,30	8,00
7/16	14,00	*23,18*	95	30	9,00	11,20
1/2	12,00	*24,93*	102	32	10,00	12,50

Ø	P	€	L mm	l mm	⊠ mm	d mm
9/16	12,00	*38,72*	102	32	10,00	12,50
5/8	11,00	*46,46*	112	37	11,20	14,00
11/16	11,00	*61,81*	112	37	11,20	14,00
3/4	10,00	*61,81*	118	38	12,50	16,00
7/8	9,00	*71,54*	130	45	14,00	18,00
1"	8,00	*71,54*	138	48	16,00	20,00

2715 HSS ISO 529

EG-G (STI) | Form. D

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●									●	●							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



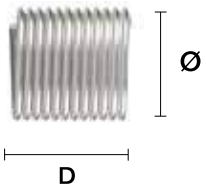
Ø	P	€	L mm	l mm	⊠ mm	d mm
1/8	28,00	*16,75*	59	15	6,30	8,00
1/4	19,00	*19,01*	67	19	9,00	11,20

Ø	P	€	L mm	l mm	⊠ mm	d mm
3/8	19,00	*25,02*	75	21	11,20	14,00
1/2	14,00	*40,53*	87	26	12,50	16,00

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

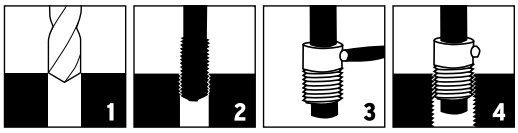
2705 DIN 8140

M DIN 8140 | Tol. 6H



Ø	P	Dmm. 1,0 Ø €	1,5 Ø €	2,0 Ø €	2,5 Ø* €	3,0 Ø* €	
M2,0	0,40	*0,38*	*0,40*	*0,41*	*0,43*	*0,48*	10
M2,2	0,45	*0,36*	*0,38*	*0,40*	*0,41*	*0,36*	10
M2,5	0,45	*0,30*	*0,34*	*0,36*	*0,38*	*0,41*	10
M3,0	0,50	*0,27*	*0,28*	*0,30*	*0,38*	*0,41*	10
M3,5	0,60	*0,36*	*0,38*	*0,40*	*0,41*	*0,45*	10
M4,0	0,70	*0,27*	*0,28*	*0,30*	*0,36*	*0,40*	10
M5,0	0,80	*0,27*	*0,28*	*0,30*	*0,36*	*0,40*	10
M6,0	1,00	*0,27*	*0,28*	*0,30*	*0,36*	*0,40*	10
M7,0	1,00	*0,30*	*0,34*	*0,36*	*0,43*	*0,48*	10
M8,0	1,00	*0,34*	*0,38*	*0,45*	*0,63*	*0,74*	5
M8,0	1,25	*0,30*	*0,38*	*0,43*	*0,54*	*0,65*	5
M9,0	1,25	*0,47*	*0,54*	*0,66*	*0,83*	*0,96*	5
M10,0	1,00	*0,36*	*0,43*	*0,57*	*0,80*	*0,96*	5
M10,0	1,25	*0,36*	*0,43*	*0,57*	*0,80*	*0,96*	5
M10,0	1,50	*0,36*	*0,43*	*0,57*	*0,70*	*0,85*	10
M11,0	1,50	*0,48*	*0,76*	*1,02*	*1,39*	*1,72*	10
M12,0	1,00	*0,43*	*0,68*	*0,91*	*1,39*	*1,72*	10
M12,0	1,25	*0,43*	*0,68*	*0,91*	*1,39*	*1,72*	10
M12,0	1,50	*0,43*	*0,68*	*0,91*	*1,39*	*1,72*	10
M12,0	1,75	*0,43*	*0,68*	*0,91*	*1,23*	*1,53*	10
M14,0	1,00	*1,06*	*1,34*	*1,72*	*2,13*	*2,45*	10
M14,0	1,25	*1,06*	*1,34*	*1,72*	*2,13*	*2,45*	10
M14,0	1,50	*1,06*	*1,34*	*1,72*	*2,13*	*2,45*	10
M14,0	2,00	*0,75*	*0,95*	*1,21*	*2,13*	*2,45*	5
M16,0	1,50	*1,42*	*1,76*	*2,18*	*2,64*	*3,10*	5
M16,0	2,00	*1,00*	*1,24*	*1,53*	*2,64*	*3,13*	5
M18,0	1,50	*1,93*	*2,52*	*3,07*	*3,64*	*4,18*	5
M18,0	2,00	*1,93*	*2,52*	*3,09*	*3,64*	*4,16*	5
M18,0	2,50	*1,54*	*2,04*	*2,46*	*3,64*	*4,16*	5
M20,0	1,50	*2,33*	*3,05*	*3,70*	*4,78*	*5,49*	5
M20,0	2,00	*2,33*	*3,05*	*3,70*	*4,78*	*5,49*	5
M20,0	2,50	*1,87*	*2,44*	*2,96*	*4,78*	*5,49*	5
M22,0	1,50	*3,22*	*4,03*	*4,99*	*6,47*	*7,53*	5
M22,0	2,00	*3,22*	*4,03*	*4,99*	*6,47*	*7,53*	5
M22,0	2,50	*2,58*	*3,22*	*3,99*	*6,47*	*7,53*	5
M24,0	1,50	*4,03*	*5,28*	*6,42*			5
M24,0	2,00	*4,03*	*5,28*	*6,42*			5
M24,0	3,00	*4,03*	*5,28*	*6,42*			5

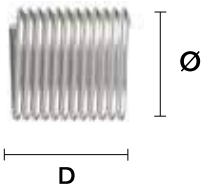
*** Bajo pedido**
Sur commande
To-order



MODO DE EMPLEO / MODE D´EMPLOI / HOW TO USE
1- Taladrado previo / Perçage préalable / Previous drilling
2- Roscado previo / Taraudage préalable / Previous threading
3- Instalación del inserto en la herramienta / Pose de l'insert dans l'outil / Placement of the insert in the tool
4- Introducción del inserto en la rosca / Introduction de l'insert dans le filet / Introduction of the insert in the coil

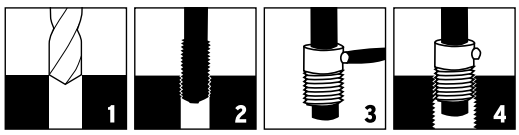
2706 DIN 8140

UNC ANSI/ASME B18.29.1 | Tol. 2B



Ø	P	Dmm. 1,0 Ø €	1,5 Ø €	2,0 Ø €	2,5 Ø* €	3,0 Ø* €	
Nº 2	56,00	*0,63*	*0,54*	*0,76*	*0,83*	*0,90*	10
Nº 4	40,00	*0,48*	*0,43*	*0,54*	*0,65*	*0,70*	10
Nº 5	40,00	*0,53*	*0,48*	*0,61*	*0,70*	*0,79*	10
Nº 6	32,00	*0,48*	*0,43*	*0,54*	*0,65*	*0,70*	10
Nº 8	32,00	*0,48*	*0,43*	*0,54*	*0,66*	*0,76*	10
Nº 10	24,00	*0,48*	*0,53*	*0,54*	*0,66*	*0,76*	10
Nº 12	24,00	*0,54*	*0,57*	*0,66*	*0,65*	*0,70*	10
1/4	20,00	*0,48*	*0,43*	*0,54*	*0,68*	*0,68*	10
5/16	18,00	*0,54*	*0,53*	*0,65*	*1,06*	*1,13*	10
3/8	16,00	*0,63*	*0,63*	*1,00*	*1,37*	*1,64*	5
7/16	14,00	*0,71*	*0,71*	*1,17*	*1,64*	*1,95*	5
1/2	13,00	*0,79*	*0,97*	*1,60*	*2,36*	*2,93*	5
9/16	12,00	*1,48*	*1,66*	*2,78*	*3,42*	*3,97*	5
5/8	11,00	*2,02*	*2,15*	*3,53*	*4,23*	*5,03*	5
3/4	10,00	*2,72*	*3,10*	*4,97*	*5,85*	*6,73*	10
7/8	9,00	*4,33*	*4,13*	*6,68*	*7,91*	*9,21*	10
1"	8,00	*5,43*	*5,37*	*8,61*	*11,26*	*12,94*	10

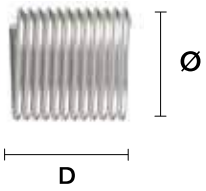
*** Bajo pedido**
Sur commande
To-order



MODO DE EMPLEO / MODE D´EMPLOI / HOW TO USE
1- Taladrado previo / Perçage préalable / Previous drilling
2- Roscado previo / Taraudage préalable / Previous threading
3- Instalación del inserto en la herramienta / Pose de l'insert dans l'outil / Placement of the insert in the tool
4- Introducción del inserto en la rosca / Introduction de l'insert dans le filet / Introduction of the insert in the coil

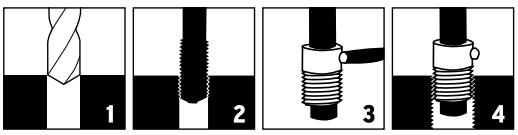
2707 DIN 8140

UNF ANSI/ASME B18.29.1 | Tol. 2B



Ø	P	Dmm. 1,0 Ø €	1,5 Ø €	2,0 Ø €	2,5 Ø* €	3,0 Ø* €	
4	48,00	*0,48*	*0,43*	*0,54*	*0,65*	*0,70*	10
6	40,00	*0,48*	*0,43*	*0,54*	*0,65*	*0,70*	10
8	36,00	*0,54*	*0,43*	*0,61*	*0,66*	*0,76*	10
10	32,00	*0,48*	*0,43*	*0,54*	*0,68*	*0,76*	10
1/4	28,00	*0,48*	*0,43*	*0,54*	*0,66*	*0,76*	10
5/16	24,00	*0,54*	*0,54*	*0,79*	*1,06*	*1,25*	10
3/8	24,00	*0,63*	*0,63*	*1,00*	*1,37*	*1,64*	10
7/16	20,00	*0,71*	*0,71*	*1,17*	*1,62*	*1,95*	10
1/2	20,00	*0,76*	*0,97*	*1,60*	*2,36*	*2,93*	10
9/16	18,00	*1,56*	*1,66*	*2,78*	*3,42*	*3,97*	5
5/8	18,00	*2,10*	*2,15*	*3,53*	*4,23*	*5,03*	5
3/4	16,00	*2,85*	*3,10*	*4,97*	*5,85*	*6,73*	5
7/8	14,00	*4,33*	*4,13*	*6,68*	*7,91*	*9,21*	5
1"	12,00	*5,43*	*5,37*	*8,61*	*11,26*	*12,94*	5
1"1/8	12,00	*9,08*	*9,03*	*13,69*			10
1"1/4	12,00	*10,04*	*15,59*				10
1"3/8	12,00	*11,91*	*11,21*				10
1"1/2	12,00	*12,56*	*13,57*				

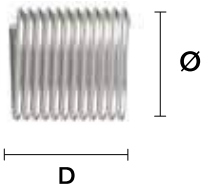
*** Bajo pedido**
Sur commande
To-order



MODO DE EMPLEO / MODE D´EMPLOI / HOW TO USE
1- Taladrado previo / Perçage préalable / Previous drilling
2- Roscado previo / Taraudage préalable / Previous threading
3- Instalación del inserto en la herramienta / Pose de l'insert dans l'outil / Placement of the insert in the tool
4- Introducción del inserto en la rosca / Introduction de l'insert dans le filet / Introduction of the insert in the coil

2708 DIN 8140

BSW BS 84 | Tol. 2B

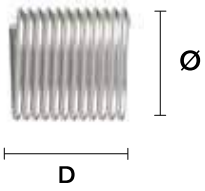


Ø	P	Dmm. 1,0 Ø €	1,5 Ø €	2,0 Ø €	2,5 Ø* €	3,0 Ø* €	
1/8	48,00	*0,61*	*0,48*	*0,66*	*0,70*	*0,79*	10
3/16	24,00	*0,54*	*0,43*	*0,61*	*0,70*	*0,79*	10
1/4	20,00	*0,54*	*0,43*	*0,61*	*0,74*	*0,85*	10
5/16	18,00	*0,61*	*0,54*	*0,86*	*1,17*	*1,37*	10
3/8	16,00	*0,68*	*0,63*	*1,10*	*1,48*	*1,80*	10
7/16	14,00	*0,79*	*0,71*	*1,29*	*1,80*	*2,15*	10
1/2	12,00	*0,76*	*1,17*	*1,60*	*2,58*	*3,21*	10
9/16	12,00	*1,72*	*1,85*	*2,78*	*3,75*	*4,35*	10
5/8	11,00	*2,30*	*2,15*	*3,53*	*4,65*	*5,49*	10
3/4	10,00	*3,15*	*3,10*	*4,18*	*5,41*	*7,39*	5
7/8	9,00	*3,93*	*3,30*	*6,08*	*7,88*	*9,19*	5
1"	8,00	*4,94*	*4,31*	*7,84*	*10,23*	*11,76*	5

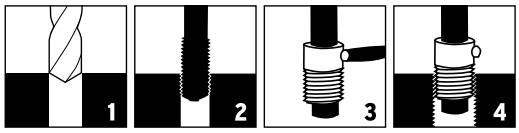
*** Bajo pedido**
Sur commande
To-order

2716 DIN 8140

G ISO 229 | Tol. 2B



Ø	P	Dmm. 1,0 Ø €	1,5 Ø €	2,0 Ø €	
1/8	28,00	*0,57*	*0,82*	*0,90*	10
1/4	19,00	*0,77*	*1,11*	*1,25*	10
3/8	19,00	*0,69*	*1,26*	*1,43*	10
1/2	14,00	*1,19*	*1,82*	*1,91*	10



MODO DE EMPLEO / MODE D´EMPLOI / HOW TO USE
1- Taladrado previo / Perçage préalable / Previous drilling
2- Roscado previo / Taraudage préalable / Previous threading
3- Instalación del inserto en la herramienta / Pose de l'insert dans l'outil / Placement of the insert in the tool
4- Introducción del inserto en la rosca / Introduction de l'insert dans le filet / Introduction of the insert in the coil

2709 Insertador / Appareil de pose manuel / Insert Tool



nº	Ø x P mm	UNC/UNF/BSW/BSF/BSP		€
2	M 2,00 x 0,40 M 2,20 x 0,45	UNC Nº 2	1	*24,75*
3	M 2,50 x 0,45		1	*24,75*
4	M 3,00 x 0,50	UNC Nº 5, UNC/UNF Nº 4, BSW 18	1	*18,68*
5	M 3,50 x 0,60	UNC/UNF Nº 6	1	*18,68*
6	M 4,00 x 0,70	UNC, UNF Nº 8	1	*18,68*
7		BSW 3/16, UNC Nº 10	1	*18,68*
8	M 5,00 x 0,80	UNF Nº 10, UNC Nº 12, BSF 3/16	1	*18,68*
9	M 6,00 x 1,00	UNC, UNF 1/4, BSW, BSF 1/4	1	*18,68*
10	M 7,00 x 1,00		1	*18,68*
11	M 8,00 x 1,00 M 8,00 x 1,25	UNF, BSF 5/16 UNC, BSW 5/16	1	*18,68*
12	M 9,00 x 1,00 M 9,00 x 1,25		1	*18,68*
13	M 10,00 x 1,00 M 10,00 x 1,25 M 10,00 x 1,50	UNF, BSF 3/8 UNC, BSW 3/8 G 1/18	1	*18,68*
14	M 11,00 x 1,25 M 11,00 x 1,50	UNC, UNF 7/16, BSW, BSF 7/16	1	*19,92*
15	M 12,00 x 1,00 M 12,00 x 1,25 M 12,00 x 1,50 M 12,00 x 1,75	UNC, UNF 1/2, BSW, BSF 1/2	1	*22,35*
16	M 14,00 x 1,50 M 14,00 x 2,00	UNC, UNF 9/16, BSW, BSF 9/16 G 1/4, G 3/8	1	*24,87*
17	M 14,00 x 1,00 M 14,00 x 1,25		1	*24,87*
18	M 16,00 x 1,50 M 16,00 x 2,00	UNC, UNF 5/8, BSW, BSF 5/8	1	*24,87*
20	M 18,00 x 1,50 M 18,00 x 2,00 M 18,00 x 2,50	UNC 3/4, BSW, BSF 3/4	1	*31,04*
21	M 20,00 x 1,50 M 20,00 x 2,00 M 20,00 x 2,50	UNF 3/4	1	*31,04*
22	M 22,00 x 1,50 M 22,00 x 2,00 M 22,00 x 2,50	UNC, UNF 7/8, BSW, BSF 7/8 G 1/2	1	*31,04*
23	M 24,00 x 1,50 M 24,00 x 2,00 M 24,00 x 3,00	UNC, UNF 1", BSW, BSF 1"	1	*49,76*

2710 Rompe Arrastre / Rupteur / Tang break tool



nº	Ø x P mm	UNC/UNF/BSW/BSF/BSP		€
2	M 2,00 x 0,40 M 2,20 x 0,45	UNC Nº 2	1	*5,91*
3	M 2,50 x 0,45		1	*5,91*
4	M 3,00 x 0,50	UNC, UNF Nº 4	1	*5,91*
5	M 3,50 x 0,60	UNC, UNF Nº 6	1	*5,91*
6	M 4,00 x 0,70	UNC Nº 10, UNC/UNF Nº 8, BSF 3/16	1	*5,91*
8	M 5,00 x 0,80		1	*7,42*
9	M 6,00 x 1,00	UNC/UNF 1/4, BSW/BSF 1/4	1	*7,42*
11	M 7,00 x 1,00 M 8,00 x 1,00 M 8,00 x 1,25	UNC/UNF 5/16, BSW/BSF 5/16	1	*9,68*
12	M 9,00 x 1,00 M 9,00 x 1,25	BSF 3/8	1	*9,68*
13	M 10,00 x 1,00 M 10,00 x 1,25 M 10,00 x 1,50	UNF 3/8 UNC, BSW 3/8 G 1/8	1	*9,68*
14	M 11,00 x 1,25 M 11,00 x 1,50	UNC/UNF 7/16, BSW/BSF 7/16	1	*9,68*
15	M 12,00 x 1,00 M 12,00 x 1,25 M 12,00 x 1,50 M 12,00 x 1,75	UNC/UNF 1/2, BSW/BSF 1/2 G 1/4	1	*9,68*

2711 Kits / Kits

EG-M (STI)



Ø	P				1,5D	€
M2,0	0,40	2,10	No. 2	No. 2	10	*60,82*
M2,5	0,45	2,60	No. 3	No. 3	10	*60,26*
M3,0	0,50	3,20	No. 4	No. 4	10	*49,35*
M3,5	0,60	3,70	No. 5	No. 5	10	*50,14*
M4,0	0,70	4,20	No. 6	No. 6	10	*51,29*
M5,0	0,80	5,20	No. 8	No. 8	10	*54,20*
M6,0	1,00	6,30	No. 9	No. 9	10	*54,24*
M7,0	1,00	7,30	No. 10	No. 11	10	*64,16*
M8,0	1,00	8,30	No. 11	No. 11	10	*63,09*
M8,0	1,25	8,30	No. 11	No. 11	10	*65,52*
M9,0	1,25	9,30	No. 12		10	*62,69*
M10,0	1,00	10,40	No. 13		10	*62,31*
M10,0	1,25	10,30	No. 13		10	*62,31*
M10,0	1,50	10,30	No. 13		10	*60,66*
M11,0	1,50	11,40	No. 14		5	*68,25*
M12,0	1,00	12,40	No. 15		5	*77,05*
M12,0	1,25	12,40	No. 15		5	*77,05*
M12,0	1,50	12,30	No. 15		5	*68,37*
M12,0	1,75	12,30	No. 15		5	*78,68*
M14,0	1,00		No. 16		5	*67,60*
M14,0	1,25		No. 16		5	*78,68*
M14,0	1,50		No. 17		5	*78,68*
M14,0	2,00		No. 17		5	*67,60*
M16,0	1,50		No. 18		5	*82,51*
M16,0	2,00		No. 18		5	*82,51*
M18,0	1,50		No. 20		5	*101,79*
M18,0	2,00		No. 20		5	*101,79*
M18,0	2,50		No. 20		5	*101,79*
M20,0	1,50		No. 21		5	*109,33*
M20,0	2,00		No. 21		5	*109,33*
M20,0	2,50		No. 21		5	*109,33*
M22,0	1,50		No. 22		5	*120,92*
M22,0	2,00		No. 22		5	*120,92*
M22,0	2,50		No. 22		5	*120,92*
M24,0	1,50		No. 23		5	*160,74*
M24,0	2,00		No. 23		5	*160,74*
M24,0	3,00		No. 23		5	*160,74*

2712 Kits / Kits

EG-UNC (STI)



Ø	P				1,5 D	€
N°2	56,00	2,10	No. 2	No. 2	10	*70,79*
N°4	40,00	2,60	No. 3	No. 3	10	*63,58*
N°6	32,00	3,20	No. 4	No. 4	10	*63,74*
N°8	32,00	3,70	No. 5	No. 5	10	*63,96*
N°10	24,00	4,20	No. 6	No. 6	10	*58,37*
N°12	24,00	5,20	No. 8	No. 8	10	*60,36*
1/4	20,00	6,30	No. 9	No. 9	10	*59,72*
5/16	18,00	7,30	No. 10	No. 11	10	*65,08*
3/8	16,00	8,30	No. 11	No. 11	10	*59,12*
7/16	14,00	8,30	No. 11	No. 11	10	*67,17*
1/2	13,00	9,30	No. 12		10	*72,84*
9/16	12,00	10,40	No. 13		10	*84,05*
5/8	11,00	10,30	No. 13		10	*94,22*
3/4	10,00	10,30	No. 13		10	*120,55*
7/8	9,00	11,40	No. 14		5	*135,36*
1"	8,00	12,40	No. 15		5	*160,30*

2713 Kits / Kits

EG-UNF (STI)



Ø	P				1,5D	€
Nº4	48,00	2,10	No. 2	No. 2	10	*65,71*
Nº6	40,00	2,60	No. 3	No. 3	10	*66,17*
Nº8	36,00	3,20	No. 4	No. 4	10	*66,39*
Nº10	32,00	3,70	No. 5	No. 5	10	*61,15*
1/4	28,00	4,20	No. 6	No. 6	10	*62,15*
5/16	24,00	5,20	No. 8	No. 8	10	*67,70*
3/8	24,00	6,30	No. 9	No. 9	10	*61,55*
7/16	20,00	7,30	No. 10	No. 11	10	*77,57*
1/2	20,00	8,30	No. 11	No. 11	10	*84,99*
9/16	18,00	8,30	No. 11	No. 11	10	*96,21*
5/8	18,00	9,30	No. 12		10	*106,37*
3/4	16,00	10,40	No. 13		10	*157,01*
7/8	14,00	10,30	No. 13		10	*171,81*
1"	12,00	10,30	No. 13		10	*196,77*

2714 Kits / Kits — EG-W (STI)



Ø	P				1,5D	€
1/8	40,00	2,10	No. 2	No. 2	10	*59,54*
3/16	24,00	2,60	No. 3	No. 3	10	*62,15*
1/4	20,00	3,20	No. 4	No. 4	10	*62,15*
5/16	18,00	3,70	No. 5	No. 5	10	*67,70*
3/8	16,00	4,20	No. 6	No. 6	10	*61,55*
7/16	14,00	5,20	No. 8	No. 8	10	*77,57*
1/2	12,00	6,30	No. 9	No. 9	10	*85,97*
9/16	12,00	7,30	No. 10	No. 11	10	*97,19*
5/8	11,00	8,30	No. 11	No. 11	10	*106,37*
3/4	10,00	8,30	No. 11	No. 11	10	*157,01*
7/8	9,00	9,30	No. 12		10	*167,71*
1"	8,00	10,40	No. 13		10	*191,40*

2717 Kits / Kits — EG-G (STI)



Ø	P				1,5D	€
1/8	28,00	2,10	No. 2	No. 2	10	*98,41*
1/4	19,00	2,60	No. 3	No. 3	10	*103,91*
3/8	19,00	3,20	No. 4	No. 4	10	*119,42*
1/2	14,00	3,70	No. 5	No. 5	10	*156,99*

7167 Multi-kits / Multi-kits

EG-M (STI)



Ø	P				1,5 D
M5,0	0,80	2,10	No. 2	No. 2	10
M6,0	1,00	2,60	No. 3	No. 3	10
M8,0	1,25	3,20	No. 4	No. 4	10
M10,0	1,50	3,70	No. 5	No. 5	10
M12,0	1,75	4,20	No. 6	No. 6	10

€	*383,21*

2901/1 DIN ISO 1502

PASA NO PASA | CTPNP | M-MF DIN 13 | Tol. 6H



Ø	P	€	
M1,0	0,25	*305,45*	1
M1,1	0,25	*305,45*	1
M1,2	0,25	*291,82*	1
M1,4	0,30	*291,82*	1
M1,6	0,35	*245,45*	1
M1,8	0,35	*215,45*	1
M2,0	0,40	*139,09*	1
M2,2	0,45	*199,29*	1
M2,5	0,45	*122,73*	1
M3,0	0,50	*114,55*	1
M4,0	0,50	*226,36*	1
M4,0	0,70	*109,09*	1
M4,5	0,75	*120,58*	1
M5,0	0,50	*220,91*	1
M5,0	0,80	*106,36*	1
M6,0	0,50	*220,91*	1
M6,0	0,75	*150,00*	1
M6,0	1,00	*100,91*	1
M7,0	1,00	*100,91*	1
M8,0	0,50	*220,91*	1
M8,0	0,75	*160,91*	1
M8,0	1,00	*144,55*	1
M8,0	1,25	*106,36*	1
M9,0	1,25	*109,09*	1
M10,0	0,50	*237,27*	1
M10,0	0,75	*163,64*	1
M10,0	1,00	*150,00*	1
M10,0	1,25	*177,27*	1
M10,0	1,50	*111,82*	1
M12,0	0,50	*253,64*	1

Ø	P	€	
M12,0	0,75	*171,82*	1
M12,0	1,00	*163,64*	1
M12,0	1,25	*171,82*	1
M12,0	1,50	*174,55*	1
M12,0	1,75	*117,27*	1
M14,0	1,00	*171,82*	1
M14,0	1,25	*185,45*	1
M14,0	1,50	*160,91*	1
M14,0	2,00	*125,45*	1
M16,0	1,00	*185,45*	1
M16,0	1,50	*166,36*	1
M16,0	2,00	*133,64*	1
M18,0	1,00	*188,18*	1
M18,0	1,50	*174,55*	1
M18,0	2,50	*144,55*	1
M20,0	1,00	*201,82*	1
M20,0	1,50	*185,45*	1
M20,0	2,00	*185,45*	1
M20,0	2,50	*155,45*	1
M22,0	1,00	*223,64*	1
M22,0	1,50	*207,27*	1
M22,0	2,50	*160,91*	1
M24,0	1,00	*240,00*	1
M24,0	1,50	*218,18*	1
M24,0	2,00	*218,18*	1
M24,0	3,00	*180,00*	1
M25,0	1,00	*245,45*	1
M25,0	1,50	*223,64*	1
M25,0	2,00	*223,64*	1
M27,0	1,00	*259,09*	1

Ø	P	€	
M27,0	1,50	*237,27*	1
M27,0	2,00	*237,27*	1
M27,0	3,00	*196,36*	1
M30,0	1,00	*291,82*	1
M30,0	1,50	*261,82*	1
M30,0	2,00	*261,82*	1
M30,0	3,00	*300,00*	1
M30,0	3,50	*215,45*	1
M32,0	1,00	*291,82*	1
M32,0	1,50	*267,27*	1
M32,0	2,00	*267,27*	1
M33,0	1,00	*294,55*	1
M33,0	1,50	*272,73*	1
M33,0	2,00	*272,73*	1
M33,0	3,00	*308,18*	1
M33,0	3,50	*237,27*	1
M36,0	1,00	*316,36*	1
M36,0	1,50	*291,82*	1
M36,0	2,00	*291,82*	1
M36,0	3,00	*291,82*	1
M36,0	4,00	*256,36*	1
M39,0	1,50	*316,36*	1
M39,0	2,00	*316,36*	1
M39,0	3,00	*370,91*	1
M39,0	4,00	*278,18*	1
M40,0	1,50	*335,45*	1
M40,0	2,00	*335,45*	1
M40,0	3,00	*376,36*	1

2901/4 DIN ISO 1502

PASA | CTP | M-MF DIN 13 | Tol. 6H



Ø	P	€	
M42,0	1,50	*196,36*	1
M42,0	2,00	*196,36*	1
M42,0	3,00	*226,36*	1
M42,0	4,50	*188,18*	1
M45,0	1,50	*204,55*	1
M45,0	2,00	*207,27*	1
M45,0	3,00	*237,27*	1

Ø	P	€	
M45,0	4,50	*201,82*	1
M48,0	1,50	*212,73*	1
M48,0	2,00	*218,18*	1
M48,0	3,00	*248,18*	1
M48,0	5,00	*218,18*	1
M50,0	1,50	*223,64*	1
M50,0	2,00	*226,36*	1

Ø	P	€	
M50,0	3,00	*259,09*	1
M52,0	1,50	*229,09*	1
M52,0	2,00	*237,27*	1
M52,0	3,00	*272,73*	1
M52,0	5,00	*229,09*	1

2901/5 DIN ISO 1502

NO PASA | CTNP | M-MF DIN 13 | Tol. 6H



Ø	P	€	
M42,0	1,50	*196,36*	1
M42,0	2,00	*196,36*	1
M42,0	3,00	*226,36*	1
M42,0	4,50	*188,18*	1
M45,0	1,50	*204,55*	1
M45,0	2,00	*207,27*	1
M45,0	3,00	*237,27*	1

Ø	P	€	
M45,0	4,50	*201,82*	1
M48,0	1,50	*212,73*	1
M48,0	2,00	*218,18*	1
M48,0	3,00	*248,18*	1
M48,0	5,00	*218,18*	1
M50,0	1,50	*223,64*	1
M50,0	2,00	*226,36*	1

Ø	P	€	
M50,0	3,00	*259,09*	1
M52,0	1,50	*229,09*	1
M52,0	2,00	*237,27*	1
M52,0	3,00	*272,73*	1
M52,0	5,00	*229,09*	1

2901/2 DIN ISO 1502

PASA | CAP | M-MF DIN 13 | Tol. 6g



Ø	P	€		Ø	P	€		Ø	P	€	
M2,0	0,40	*155,45*	1	M16,0	1,50	*174,55*	1	M33,0	3,00	*319,09*	1
M2,2	0,45	*182,73*	1	M16,0	2,00	*169,09*	1	M33,0	3,50	*324,55*	1
M2,5	0,45	*120,00*	1	M18,0	1,00	*201,82*	1	M36,0	1,00	*354,55*	1
M3,0	0,50	*117,27*	1	M18,0	1,50	*188,18*	1	M36,0	1,50	*313,64*	1
M4,0	0,50	*242,73*	1	M18,0	2,50	*193,64*	1	M36,0	2,00	*330,00*	1
M4,0	0,70	*109,09*	1	M20,0	1,00	*215,45*	1	M36,0	3,00	*368,18*	1
M4,5	0,75	*109,09*	1	M20,0	1,50	*201,82*	1	M36,0	4,00	*349,09*	1
M5,0	0,50	*242,73*	1	M20,0	2,00	*215,45*	1	M39,0	1,50	*346,36*	1
M5,0	0,80	*109,09*	1	M20,0	2,50	*215,45*	1	M39,0	2,00	*360,00*	1
M6,0	0,50	*242,73*	1	M22,0	1,00	*264,55*	1	M39,0	3,00	*373,64*	1
M6,0	0,75	*150,00*	1	M22,0	1,50	*215,45*	1	M39,0	4,00	*379,09*	1
M6,0	1,00	*109,09*	1	M22,0	2,50	*231,82*	1	M40,0	1,50	*346,36*	1
M7,0	1,00	*139,09*	1	M24,0	1,00	*250,91*	1	M40,0	2,00	*368,18*	1
M8,0	0,50	*234,55*	1	M24,0	1,50	*234,55*	1	M40,0	3,00	*384,55*	1
M8,0	0,75	*169,09*	1	M24,0	2,00	*242,73*	1	M42,0	1,50	*360,00*	1
M8,0	1,00	*130,91*	1	M24,0	3,00	*245,45*	1	M42,0	2,00	*300,00*	1
M8,0	1,25	*109,09*	1	M25,0	1,00	*294,55*	1	M42,0	3,00	*395,45*	1
M9,0	1,25	*150,00*	1	M25,0	1,50	*240,00*	1	M42,0	4,50	*411,82*	1
M10,0	0,50	*270,00*	1	M25,0	2,00	*242,73*	1	M45,0	1,50	*379,09*	1
M10,0	0,75	*188,18*	1	M27,0	1,00	*316,36*	1	M45,0	2,00	*308,18*	1
M10,0	1,00	*144,55*	1	M27,0	1,50	*250,91*	1	M45,0	3,00	*400,91*	1
M10,0	1,25	*177,27*	1	M27,0	2,00	*264,55*	1	M45,0	4,50	*436,36*	1
M10,0	1,50	*122,73*	1	M27,0	3,00	*272,73*	1	M48,0	1,50	*400,91*	1
M12,0	0,50	*308,18*	1	M30,0	1,00	*300,00*	1	M48,0	2,00	*313,64*	1
M12,0	0,75	*223,64*	1	M30,0	1,50	*270,00*	1	M48,0	3,00	*414,55*	1
M12,0	1,00	*163,64*	1	M30,0	2,00	*270,00*	1	M48,0	5,00	*460,91*	1
M12,0	1,25	*199,09*	1	M30,0	3,00	*302,73*	1	M50,0	1,50	*414,55*	1
M12,0	1,50	*155,45*	1	M30,0	3,50	*300,00*	1	M50,0	2,00	*327,27*	1
M12,0	1,75	*141,82*	1	M32,0	1,00	*321,82*	1	M50,0	3,00	*425,45*	1
M14,0	1,00	*174,55*	1	M32,0	1,50	*289,09*	1	M52,0	1,50	*436,36*	1
M14,0	1,25	*250,91*	1	M32,0	2,00	*289,09*	1	M52,0	2,00	*335,45*	1
M14,0	1,50	*160,91*	1	M33,0	1,00	*330,00*	1	M52,0	3,00	*463,64*	1
M14,0	2,00	*155,45*	1	M33,0	1,50	*294,55*	1	M52,0	5,00	*496,36*	1
M16,0	1,00	*188,18*	1	M33,0	2,00	*300,00*	1				

2901/3 DIN ISO 1502

NO PASA | CANP | M-MF DIN 13 | Tol. 6g



Ø	P	€	
M2,0	0,40	*155,45*	1
M2,2	0,45	*182,73*	1
M2,5	0,45	*120,00*	1
M3,0	0,50	*117,27*	1
M4,0	0,50	*242,73*	1
M4,0	0,70	*109,09*	1
M4,5	0,75	*109,09*	1
M5,0	0,50	*242,73*	1
M5,0	0,80	*109,09*	1
M6,0	0,50	*242,73*	1
M6,0	0,75	*150,00*	1
M6,0	1,00	*109,09*	1
M7,0	1,00	*139,09*	1
M8,0	0,50	*234,55*	1
M8,0	0,75	*169,09*	1
M8,0	1,00	*130,91*	1
M8,0	1,25	*109,09*	1
M9,0	1,25	*150,00*	1
M10,0	0,50	*270,00*	1
M10,0	0,75	*188,18*	1
M10,0	1,00	*144,55*	1
M10,0	1,25	*177,27*	1
M10,0	1,50	*122,73*	1
M12,0	0,50	*308,18*	1
M12,0	0,75	*223,64*	1
M12,0	1,00	*163,64*	1
M12,0	1,25	*199,09*	1
M12,0	1,50	*155,45*	1
M12,0	1,75	*141,82*	1
M14,0	1,00	*174,55*	1
M14,0	1,25	*250,91*	1
M14,0	1,50	*160,91*	1
M14,0	2,00	*155,45*	1
M16,0	1,00	*188,18*	1

Ø	P	€	
M16,0	1,50	*174,55*	1
M16,0	2,00	*169,09*	1
M18,0	1,00	*201,82*	1
M18,0	1,50	*188,18*	1
M18,0	2,50	*193,64*	1
M20,0	1,00	*215,45*	1
M20,0	1,50	*201,82*	1
M20,0	2,00	*215,45*	1
M20,0	2,50	*215,45*	1
M22,0	1,00	*264,55*	1
M22,0	1,50	*215,45*	1
M22,0	2,50	*231,82*	1
M24,0	1,00	*250,91*	1
M24,0	1,50	*234,55*	1
M24,0	2,00	*242,73*	1
M24,0	3,00	*245,45*	1
M25,0	1,00	*294,55*	1
M25,0	1,50	*240,00*	1
M25,0	2,00	*242,73*	1
M27,0	1,00	*316,36*	1
M27,0	1,50	*250,91*	1
M27,0	2,00	*264,55*	1
M27,0	3,00	*272,73*	1
M30,0	1,00	*300,00*	1
M30,0	1,50	*270,00*	1
M30,0	2,00	*270,00*	1
M30,0	3,00	*302,73*	1
M30,0	3,50	*300,00*	1
M32,0	1,00	*321,82*	1
M32,0	1,50	*289,09*	1
M32,0	2,00	*289,09*	1
M33,0	1,00	*330,00*	1
M33,0	1,50	*294,55*	1
M33,0	2,00	*300,00*	1

Ø	P	€	
M33,0	3,00	*319,09*	1
M33,0	3,50	*324,55*	1
M36,0	1,00	*354,55*	1
M36,0	1,50	*313,64*	1
M36,0	2,00	*330,00*	1
M36,0	3,00	*349,09*	1
M36,0	4,00	*349,09*	1
M39,0	1,50	*346,36*	1
M39,0	2,00	*360,00*	1
M39,0	3,00	*373,64*	1
M39,0	4,00	*379,09*	1
M40,0	1,50	*346,36*	1
M40,0	2,00	*368,18*	1
M40,0	3,00	*384,55*	1
M42,0	1,50	*360,00*	1
M42,0	2,00	*300,00*	1
M42,0	3,00	*395,45*	1
M42,0	4,50	*411,82*	1
M45,0	1,50	*379,09*	1
M45,0	2,00	*308,18*	1
M45,0	3,00	*400,91*	1
M45,0	4,50	*436,36*	1
M48,0	1,50	*400,91*	1
M48,0	2,00	*313,64*	1
M48,0	3,00	*414,55*	1
M48,0	5,00	*460,91*	1
M50,0	1,50	*414,55*	1
M50,0	2,00	*327,27*	1
M50,0	3,00	*425,45*	1
M52,0	1,50	*436,36*	1
M52,0	2,00	*335,45*	1
M52,0	3,00	*463,64*	1
M52,0	5,00	*496,36*	1

2902/1 ISO 228-2

PASA NO PASA | CTPNP | G ISO 228



Ø	P	€	
1/8	28,00	*160,91*	1
1/4	19,00	*171,82*	1
3/8	19,00	*199,09*	1

Ø	P	€	
1/2	14,00	*226,36*	1
5/8	14,00	*240,00*	1
3/4	14,00	*261,82*	1

Ø	P	€	
7/8	14,00	*291,82*	1
1"	11,00	*308,18*	1
1"1/8	7,00	*349,09*	1

2902/4 ISO 228-2

PASA | CTP | G ISO 228



Ø	P	€	
1"1/4	11,00	*215,45*	1
1"1/2	11,00	*250,91*	1

Ø	P	€	
1"3/4	11,00	*283,64*	1
2"	11,00	*310,91*	1

Ø	P	€	
2"1/4	11,00	*338,18*	1
2"1/2	11,00	*390,00*	1

2902/5 ISO 228-2

NO PASA | CTNP | G ISO 228



Ø	P	€	
1"1/4	11,00	*215,45*	1
1"1/2	11,00	*250,91*	1

Ø	P	€	
1"3/4	11,00	*283,64*	1
2"	11,00	*310,91*	1

Ø	P	€	
2"1/4	11,00	*338,18*	1
2"1/2	11,00	*390,00*	1

2902/2 DIN ISO 228-2

PASA | CAP | Tol. A | G ISO 228



Ø	P	€	
1/8	28,00	*177,27*	1
1/4	19,00	*207,27*	1
3/8	19,00	*248,18*	1
1/2	14,00	*240,00*	1
5/8	14,00	*259,09*	1

Ø	P	€	
3/4	14,00	*275,45*	1
7/8	14,00	*310,91*	1
1"	11,00	*340,91*	1
1"1/8	11,00	*387,27*	1
1"1/4	11,00	*422,73*	1

Ø	P	€	
1"1/2	11,00	*474,55*	1
1"3/4	11,00	*523,64*	1
2"	11,00	*578,18*	1
2"1/4	11,00	*624,55*	1
2"1/2	11,00	*709,09*	1

2902/3 DIN ISO 228-2

NO PASA | CANP | Tol. A | G ISO 228



Ø	P	€	
1/8	28,00	*177,27*	1
1/4	19,00	*207,27*	1
3/8	19,00	*248,18*	1
1/2	14,00	*240,00*	1
5/8	14,00	*259,09*	1

Ø	P	€	
3/4	14,00	*275,45*	1
7/8	14,00	*310,91*	1
1"	11,00	*340,91*	1
1"1/8	11,00	*387,27*	1
1"1/4	11,00	*422,73*	1

Ø	P	€	
1"1/2	11,00	*474,55*	1
1"3/4	11,00	*523,64*	1
2"	11,00	*578,18*	1
2"1/4	11,00	*624,55*	1
2"1/2	11,00	*709,09*	1

2903/1 BS 919 — PASA NO PASA — CTPNP — BSW BS 84



Ø	P	€		Ø	P	€		Ø	P	€	
1/8	40,00	*240,00*	1	1/2	12,00	*240,00*	1	7/8	9,00	*346,36*	1
1/4	20,00	*210,00*	1	5/8	11,00	*270,00*	1	1	8,00	*398,18*	1
3/8	16,00	*220,91*	1	3/4	10,00	*310,91*	1				

2903/2 BS 919 — PASA — CAP — BSW BS 84



Ø	P	€		Ø	P	€		Ø	P	€	
1/8	40,00	*199,09*	1	1/2	12,00	*212,73*	1	7/8	9,00	*330,00*	1
1/4	20,00	*169,09*	1	5/8	11,00	*248,18*	1	1	8,00	*368,18*	1
3/8	16,00	*190,91*	1	3/4	10,00	*289,09*	1				

2903/3 BS 919 — NO PASA — CANP — BSW BS 84



Ø	P	€		Ø	P	€		Ø	P	€	
1/8	40,00	*199,09*	1	1/2	12,00	*212,73*	1	7/8	9,00	*330,00*	1
1/4	20,00	*169,09*	1	5/8	11,00	*248,18*	1	1	8,00	*368,18*	1
3/8	16,00	*190,91*	1	3/4	10,00	*289,09*	1				

2904/1 ANSI / ASME B1.2

PASA NO PASA | CTPNP | UNC ANSI/ASME B1.1 | Tol. 2B



Ø	P	€	
N°4	40,00	*245,45*	1
N°5	40,00	*259,09*	1
N°6	32,00	*155,45*	1
N°8	32,00	*150,00*	1
N°10	24,00	*147,27*	1
N°12	24,00	*141,82*	1
1/4	20,00	*141,82*	1

Ø	P	€	
5/16	18,00	*147,27*	1
3/8	16,00	*147,27*	1
7/16	14,00	*155,45*	1
1/2	13,00	*166,36*	1
9/16	12,00	*171,82*	1
5/8	11,00	*185,45*	1
3/4	10,00	*207,27*	1

Ø	P	€	
7/8	9,00	*234,55*	1
1	8,00	*261,82*	1
1,1/8	7,00	*289,09*	1
1,1/4	7,00	*313,64*	1
1"3/8	6,00	*338,18*	1
1"1/2	6,00	*373,64*	1

2904/2 ANSI / ASME B1.2

PASA | CAP | UNC ANSI/ASME B1.1 | Tol. 2A



Ø	P	€	
N°4	40,00	*226,36*	1
N°5	40,00	*169,09*	1
N°6	32,00	*166,36*	1
N°8	32,00	*155,45*	1
N°10	24,00	*150,00*	1
N°12	24,00	*144,55*	1
1/4	20,00	*144,55*	1

Ø	P	€	
5/16	18,00	*155,45*	1
3/8	16,00	*166,36*	1
7/16	14,00	*177,27*	1
1/2	13,00	*199,09*	1
9/16	12,00	*220,91*	1
5/8	11,00	*240,00*	1
3/4	10,00	*272,73*	1

Ø	P	€	
7/8	9,00	*316,36*	1
1	8,00	*354,55*	1
1,1/8	7,00	*392,73*	1
1,1/4	7,00	*450,00*	1
1"3/8	6,00	*496,36*	1
1"1/2	6,00	*529,09*	1

2904/3 ANSI / ASME B1.2

NO PASA | CANP | UNC ANSI/ASME B1.1 | Tol. 2A



Ø	P	€	
N°4	40,00	*226,36*	1
N°5	40,00	*169,09*	1
N°6	32,00	*166,36*	1
N°8	32,00	*155,45*	1
N°10	24,00	*150,00*	1
N°12	24,00	*144,55*	1
1/4	20,00	*144,55*	1

Ø	P	€	
5/16	18,00	*155,45*	1
3/8	16,00	*166,36*	1
7/16	14,00	*177,27*	1
1/2	13,00	*199,09*	1
9/16	12,00	*220,91*	1
5/8	11,00	*240,00*	1
3/4	10,00	*272,73*	1

Ø	P	€	
7/8	9,00	*316,36*	1
1	8,00	*354,55*	1
1,1/8	7,00	*392,73*	1
1,1/4	7,00	*450,00*	1
1"3/8	7,00	*496,36*	1
1"1/2	7,00	*529,09*	1

2905/1 ANSI / ASME B1.2

PASA NO PASA | CTPNP | UNF ANSI/ASME B1.1 | Tol. 2B



Ø	P	€	
Nº4	48,00	*245,45*	1
Nº5	44,00	*160,91*	1
Nº6	40,00	*155,45*	1
Nº8	36,00	*150,00*	1
Nº10	32,00	*147,27*	1
Nº12	28,00	*165,79*	1
1/4	28,00	*141,82*	1

Ø	P	€	
3/8	24,00	*147,27*	1
5/16	24,00	*147,27*	1
1/2	20,00	*166,36*	1
7/16	20,00	*155,45*	1
5/8	18,00	*177,27*	1
9/16	18,00	*171,82*	1
3/4	16,00	*196,36*	1

Ø	P	€	
7/8	14,00	*215,45*	1
1"	12,00	*240,00*	1
1"1/8	12,00	*261,82*	1
1"1/4	12,00	*275,45*	1
1"3/8	8,00	*300,00*	1
1"1/2	12,00	*330,00*	1

2905/2 ANSI / ASME B1.2

PASA | CAP | UNF ANSI/ASME B1.1 | Tol. 2A



Ø	P	€	
Nº4	48,00	*223,64*	1
Nº5	44,00	*169,09*	1
Nº6	40,00	*166,36*	1
Nº8	36,00	*155,45*	1
Nº10	32,00	*150,00*	1
Nº12	28,00	*150,00*	1
1/4	28,00	*144,55*	1

Ø	P	€	
3/8	24,00	*166,36*	1
5/16	24,00	*155,45*	1
1/2	20,00	*199,09*	1
7/16	20,00	*177,27*	1
5/8	18,00	*240,00*	1
9/16	18,00	*220,91*	1
3/4	16,00	*272,73*	1

Ø	P	€	
7/8	14,00	*316,36*	1
1"	12,00	*354,55*	1
1"1/8	12,00	*414,55*	1
1"1/4	12,00	*450,00*	1
1"3/8	8,00	*496,36*	1
1"1/2	12,00	*529,09*	1

2905/3 ANSI / ASME B1.2

NO PASA | CANP | UNF ANSI/ASME B1.1 | Tol. 2A



Ø	P	€	
Nº4	48,00	*223,64*	1
Nº5	44,00	*169,09*	1
Nº6	40,00	*166,36*	1
Nº8	36,00	*155,45*	1
Nº10	32,00	*150,00*	1
Nº12	28,00	*150,00*	1
1/4	28,00	*144,55*	1

Ø	P	€	
3/8	24,00	*166,36*	1
5/16	24,00	*155,45*	1
1/2	20,00	*199,09*	1
7/16	20,00	*177,27*	1
5/8	18,00	*240,00*	1
9/16	18,00	*220,91*	1
3/4	16,00	*272,73*	1

Ø	P	€	
7/8	14,00	*316,36*	1
1"	12,00	*354,55*	1
1"1/8	12,00	*414,55*	1
1"1/4	12,00	*450,00*	1
1"3/8	8,00	*496,36*	1
1"1/2	12,00	*529,09*	1

2906/1 ANSI / ASME B1.20.1

PASA NO PASA | CTPNP | NPT ANSI/ASME B1.1



Ø	P	€	
1/16	27,00	*313,64*	1
1/8	27,00	*343,64*	1
1/4	18,00	*362,73*	1
3/8	18,00	*390,00*	1
1/2	14,00	*422,73*	1

Ø	P	€	
3/4	14,00	*471,82*	1
1	11,50	*542,73*	1
1"1/4	11,50	*646,36*	1
1"1/2	11,50	*722,73*	1
2"	11,50	*938,57*	1

2906/2 ANSI / ASME B1.20.1

PASA NO PASA | CAPNP | NPT ANSI/ASME B1.1



Ø	P	€	
1/16	27,00	*544,17*	1
1/8	27,00	*572,73*	1
1/4	18,00	*600,00*	1
3/8	18,00	*570,00*	1
1/2	14,00	*616,36*	1

Ø	P	€	
3/4	14,00	*673,64*	1
1	11,50	*758,18*	1
1"1/4	11,50	*886,36*	1
1"1/2	11,50	*979,09*	1
2"	11,50	*1.189,09*	1

2907/1 DIN 7162

PASA NO PASA | H7 | CTLPNP



ø	€	
1	73,64	1
2	81,82	1
3	81,82	1
4	73,64	1
5	73,64	1
6	73,64	1
7	68,18	1
8	68,18	1
9	68,18	1
10	68,18	1
11	79,09	1
12	79,09	1
13	79,09	1
14	79,09	1
15	84,55	1
16	84,55	1
17	84,55	1
18	84,55	1

ø	€	
19	95,45	1
20	95,45	1
21	95,45	1
22	95,45	1
23	100,91	1
24	100,91	1
25	100,91	1
26	100,91	1
27	100,91	1
28	111,82	1
30	111,82	1
32	111,82	1
33	125,45	1
34	125,45	1
35	125,45	1
36	125,45	1
37	125,45	1
38	125,45	1

ø	€	
40	133,64	1
42	133,64	1
44	150,00	1
45	150,00	1
46	150,00	1
47	150,00	1
48	150,00	1
50	185,45	1
52	185,45	1
55	185,45	1
58	226,36	1
60	226,36	1
62	226,36	1
65	242,73	1
68	242,73	1
70	242,73	1

2907/4 DIN 7162

PASA | H7 | CTLP



ø	€	
72	160,91	1
75	160,91	1
78	177,27	1
80	177,27	1

2907/5 DIN 7162

NO PASA | H7 | CTLNP



Ø	€	
72	*160,91*	1
75	*160,91*	1
78	*177,27*	1
80	*177,27*	1

2907/2 DIN 2250-C

CAL



Ø	€	
4	*250,91*	1
5	*250,91*	1
6	*201,82*	1
7	*201,82*	1
8	*201,82*	1
9	*201,82*	1
10	*201,82*	1
11	*207,27*	1
12	*207,27*	1
13	*207,27*	1
14	*207,27*	1
15	*226,36*	1
16	*226,36*	1
17	*226,36*	1
18	*226,36*	1
19	*234,55*	1
20	*234,55*	1
21	*234,55*	1
22	*234,55*	1

Ø	€	
23	*248,18*	1
24	*248,18*	1
25	*248,18*	1
26	*248,18*	1
27	*248,18*	1
28	*261,82*	1
30	*261,82*	1
32	*261,82*	1
33	*283,64*	1
34	*283,64*	1
35	*283,64*	1
36	*283,64*	1
37	*283,64*	1
38	*283,64*	1
40	*308,18*	1
42	*308,18*	1
44	*321,82*	1
45	*321,82*	1
46	*321,82*	1

Ø	€	
47	*321,82*	1
48	*321,82*	1
50	*340,91*	1
52	*340,91*	1
55	*340,91*	1
58	*360,00*	1
60	*360,00*	1
62	*360,00*	1
65	*379,09*	1
68	*379,09*	1
70	*379,09*	1
72	*403,64*	1
75	*403,64*	1
78	*441,82*	1
80	*441,82*	1
82	*441,82*	1
85	*488,18*	1
90	*488,18*	1

2801 Giramachos / Tourne-à-gauche / Tap turners



Ø	Nº	€	mm	
M1 - M12	1	17,78	2,00 - 6,30	1
M4 - M12	2	23,76	3,00 - 9,00	1
M5 - M20	3	33,81	4,90 - 12,00	1
M10 - M27	4	53,94	5,50- 16,00	1

Ø	Nº	€	mm	
M13 - M32	5	113,38	7,00 - 20,00	1
M18 - M42	6	113,38	11,00 - 24,00	1
M25 - M52	7	196,58	16,00 - 32,00	1
M45 - M60	8	284,10	25,00- 36,00	1

2802 Volvedor / Porte-filières / Tap wrench



Ø Ext.	H mm	€	
16,00	5,00	*9,86*	1
20,00	5,00	*10,08*	1
20,00	7,00	*10,10*	1
20,60	6,35	*10,08*	1
25,00	9,00	*11,99*	1
25,40	9,50	*11,99*	1
30,00	11,00	*13,51*	1
38,00	14,00	*17,81*	1
38,10	12,70	*17,81*	1
45,00	14,00	*22,13*	1
45,00	18,00	*22,13*	1

Ø Ext.	H mm	€	
50,80	15,90	*28,97*	1
55,00	16,00	*28,97*	1
55,00	22,00	*28,97*	1
65,00	18,00	*44,50*	1
65,00	25,00	*44,50*	1
75,00	20,00	*71,18*	1
75,00	30,00	*71,17*	1
90,00	22,00	*90,15*	1
90,00	36,00	*90,16*	1
105,00	22,00	*96,26*	1
105,00	36,00	*96,27*	1

2803 Giramacho T / Tourne-à-gauche en T / Tap turner in T



M DIN	M ISO	€	L mm	gr	mm	
M3 - 10	M3 - 6	*20,58*	85	180	2,60 - 5,50	1
M5 - 12	M6 - 12	*26,85*	110	300	4,60 - 8,00	1
M13- 20	M14 - 20	*104,10*	117	400	9,00 - 12,50	1

2804 Giramacho T / Tourne-à-gauche en T / Tap turner in T



M DIN	M ISO	€	L mm	gr	⊠ mm	▣
M3-10	M3-6	*32,95*	250	250	2,60 - 5,50	1
M5-12	M6-12	*39,27*	300	440	4,60 - 8,00	1

2805 Extractor / Extracteur



M	Z	€	▣
M3	3	*33,30*	1
M4	3	*33,30*	1
M5	3	*33,30*	1
M6	3	*34,14*	1
M8	4,3	*35,98*	1

M	Z	€	▣
M10	4,3	*37,33*	1
M12	4,3	*40,20*	1
M14	4,3	*55,37*	1
M16	4,3	*60,38*	1

2808 Alargador / Adaptateur / Extension piece



⊠ mm	€	L mm	▣
2,10	*6,45*	60	1
2,40	*6,45*	60	1
2,70	*6,45*	80	1
3,00	*6,45*	90	1
3,40	*10,10*	95	1
3,80	*10,58*	95	1
4,30	*11,28*	110	1
4,90	*11,77*	110	1
5,50	*12,33*	115	1
6,20	*15,90*	120	1
7,00	*16,57*	125	1

⊠ mm	€	L mm	▣
8,00	*18,78*	130	1
9,00	*22,21*	130	1
10,00	*26,83*	130	1
11,00	*31,09*	150	1
12,00	*33,51*	155	1
13,00	*46,29*	155	1
14,50	*53,16*	175	1
16,00	*56,22*	180	1
18,00	*64,09*	200	1
20,00	*85,42*	220	1

2834 Extractor / Extracteur



M	ø mm	€	L mm	mm	
M3 - 6	1,80 - 7,00	*2,23*	50	2,70	1
M6 - 8	3,20 - 10,00	*2,23*	57	3,80	1
M8 - 11	4,50 - 13,00	*2,64*	64	4,90	1
M11 - 14	6,50 - 16,00	*3,26*	71	7,00	1
M14 - 18	8,50 - 21,00	*4,22*	79	9,00	1
M18 - 24	12,00	*6,79*	85	12,00	1
M24 - 33	15,30	*10,43*	92	14,50	1
M33 - 45	20,00	*15,25*	100	18,00	1

JUEGOS / JEUX / SETS

M	Pcs.	€	
M3 - 18	5	*16,76*	1
M3 - 24	6	*23,66*	1
M3 - 45	8	*49,57*	1

2846 Aceite de corte uso general / Huile de coupe usage général / Cutting oil for general uses



Envase /Emballage/ Packaging	Litr.	€	
Aerosol /Pulvérisateur/ Spray	400 ml	*19,04*	1
Granel /Vrac/ Bulk	1 l.	*25,76*	1
Granel /Vrac/ Bulk	5 l.	*93,48*	1

2821 Macho Nº3 / Taraud / Tap

M
DIN 13

HSS



HSSCO



HSSCO INOX



	Machos Tarauds / Taps	Brocas Forets / Drill-bits	Giramachos nº Tourne-à-gauche nº Tap turner nº	€
HSS	M3-4-5-6-8-10-12	2,50-3,30-4,20-5,00-6,80-8,50-10,20	1,50	*90,24*
HSSCO	M3-4-5-6-8-10-12	2,50-3,30-4,20-5,00-6,80-8,50-10,20	1,50	*154,36*
HSSCO INOX	M3-4-5-6-8-10-12	2,50-3,30-4,20-5,00-6,80-8,50-10,20	1,50	*156,15*

2822/2840 Juegos de machos / Jeux de taraud / Tap set

M
DIN 13

>2822



>2840



Ref.	Machos Tarauds / Taps	Brocas Forets / Drill-bits	€
2822	M3-4-5-6-8-10-12	-	*137,20*
2840	M3-4-5-6-8-10-12	2,50-3,30-4,20-5,00-6,80-8,50-10,20	*200,28*

2824 M3-12

Form. B "Gun" | M 3-4-5-6-8-10-12 | 7

›HSS E ›HSSE-PM ›HSSE VAP ›HSSE TIN



REF.	€
HSS E	*134,80*
HSSE-PM	*209,93*
HSSE VAP	*124,12*
HSSE TIN	*185,20*

2825 M3-12

35° | M 3-4-5-6-8-10-12 | 7

›HSS E ›HSSE-PM ›HSSE VAP ›HSSE TIN



REF.	€
HSS E	*139,50*
HSSE-PM	*229,27*
HSSE VAP	*150,38*
HSSE TIN	*194,68*

2850 M3-12

Form B | M 3-4-5-6-8-10-12 | Ø 2,5-3,3-4,2-5-6, 8-8,5-10,2 | 14

›HSSE + HSSCO ›HSSEVAP + HSSCO



REF.	€
HSSE+HSSCO	*166,99*
HSSEVAP(INOX)+HSSCO	*202,38*

2851 M3-12

35° | M 3-4-5-6-8-10-12 | Ø 2,5-3,3-4,2-5-6, 8-8,5-10,2 | 14

›HSSE + HSSCO ›HSSEVAP + HSSCO



REF.	€
HSSE+HSSCO	*171,70*
HSSEVAP(INOX)+HSSCO	*221,33*

2809/2810 M3-12 — M DIN 13

›2809



›2810



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Brocas** Forets/Drill-bits	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	**Carraca nº** Cliquet nº Ratchet nº	€
2809	M3-4-5-6-8-10-12	2,50-3,30-4,20-5,00-6,80-8,50-10,20	20x5-20x7-25x9-30x11-38x40	1-2	-	*338,85*
2810	M3-4-5-6-8-10-12	-	25x9	1-1/2	1	*231,54*

2811/2812 M3-20 / M5-20 — M DIN 13

›2811/2812



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	**Carraca nº** Cliquet nº Ratchet nº	€
2811	M3-4-5-6-8-10-12-14-16-18-20	20x5-20x7-25x9-30x11-38x14-45x18	1 - 3	1 - 2	*677,67*
2812	M5-6-8-10-12-14-16-18-20	20x7-25x9-30x11-38x14-45x18	1 - 3	1 - 2	*643,80*

2813/2814 M3-24 / M5-30 — M DIN 13

›2813/2814



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	€
2813	M3-4-5-6-8-10-12-14-16-18-20-22-24	20x5-20x7-25x9-30x11-38x14-45x18-55x22	1 - 4	*1058,85*
2814	M5-6-8-10-12-14-16-18-20-22-24-27-30	20x7-25x9-30x11-38x14-45x18-55x22-65x25	3 - 5	*1796,93*

2841/2842 MF3-12 / MF6-20 — MF DIN 13

›2841



›2842



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	**Carraca nº** Cliquet nº Ratchet nº	€
2841	M3x0,35-4x0,50-5x0,50-6x0,75-8x0,75 8x1,00-10x1,00-12x1,50	20x5-25x9-30x11-38x10	1 - 2	1	*695,32*
2842	M6x0,75-8x0,75-8x1,00-10x1,00-12x1,00-12x1,50 14x1,25-14x1,50-16x1,50-18x1,50-20x1,50	20x7-25x9-30x11-38x10-45x14	1 - 3	1	*1166,52*

2815/2816/2817 W1/8-1/2, W1/4-1/2, W1/4-1" BSW BS 84

›2815



›2816



›2817



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	**Carraca nº** Cliquet nº Ratchet nº	€
2815	W1/8-3/16-1/4-5/16-3/8-7/16-1/2	20x5-20x7-25x9-30x11-38x14	1 - 2	1	*555,68*
2816	W1/4-5/16-3/8-7/16-1/2	20x7-25x9-30x11-38x14	1 - 2	1	*470,98*
2817	W1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1"	20x7-25x9-30x11-38x14-45x18-55x22	1 - 4	-	*1298,87*

2843/2818 UNC1/4", UNF1/4-1" UNC ANSI/ASME B1.1 UNF ANSI/ASME B1.1

›2843/2818



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	€
2843	UNC1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1"	20x7-25x9-30x11-38x14-45x18-55x22	1 - 4	*1870,87*
2818	UNF1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1"	20x7-25x9-30x11-38x10-45x14-55x16	1 - 4	*1185,90*

2819/2820 BSP1/8-1", BSP1/4-1"1/2

G
ISO 228

>2819



>2820



Ref.	**Machos y cojinetes** Tarauds et filières Taps and bearing	**Volvedores** Porte-filières Tap wrench	**Giramachos nº** Tourne-à-gauche nº Tap turner nº	€
2819	BSP1/8-1/4-3/8-1/2-3 4-1"	30x11-38x10-45x14-65x18-55x18	1 - 3 - 5	*914,84*
2820	BSP1/4-3/8-1/2-3/4-1"-1"1/4-1"1/2	38x10-45x14-65x18-75x20-90x22	2 - 4 - 7	*2134,65*



Escariado
Alésage
Reaming

ÍNDICE
SOMMAIRE / INDEX

Hepyc CUTTING TOOL EXPERTS

Pág.

Escariadores de mano / Alésoirs à main / Hand reamers

4101	HSS	DIN 206		Form. B · 8° · Tol. H7 · ISO 236	P K N	283
4102	HSS	DIN 9		Form. B · 8° · 2% · ISO 3465	P K N	284
4119	HSS			Form. B · 8° · C. 1:16 (NPT-BSPT)	P K N	284

Escariadores de máquina / Alésoirs machine / Machine reamers

4118	HM-MD	DIN 212		Form. B-D · 8° · Tol. H7 · ISO 521	P M K N S H	285
4104	HSSCO	DIN 212		Form. B · 8° · Tol. H7 · ISO 521	P M K N S	286
4105	HSSCO	DIN 212		Form. E · 45° · Tol. H7 · ISO 521	P N	287
4103	HSSCO	DIN 2179		Form. E · 45° · 2% · ISO 3466	P K N	288
4106	HSSCO	DIN 208		Form. B · 8° · Tol. H7 · ISO 521	P M K N S	288
4107	HSSCO	DIN 208		Form. C · 45° · Tol. H7 · ISO 521	P N	289
4108	HSS	DIN 311		25° · ISO 2238	P K N	289

Escariadores de máquina entrada cónica / Alésoirs machine pour goupilles coniques / Machine reamers for taper holes

4115	HSSCO	DIN 212		45° · 5%	P K N	290
4116	HSSCO	DIN 212		45° · 8%	P K N	290
4117	HSSCO	DIN 212		45° · 10%	P K N	291

Escariadores huecos / Alésoirs creux finisseurs à machine / Hole machine reamers

4109	HSS	DIN 219		Form. B · 8° · Tol. H7 · ISO 2402	P M K N S	291
4114	HSS					292

Escariadores extensibles / Alésoirs extenseibles / Extendables reamers

4110	HSS			Form. A · REFORZ. RENFORC. REINFORC.	P K N	292
4111	HSS			Form. A	P K N	293

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

FORMULARIO ESCARIADORES / AVELLANADORES ESPECIALES
FICHE TECNIQUE ALESOIRS ET FRAISES A TROU SPECIAUX
TECHNICAL ENQUIRY FOR SPECIAL REAMERS AND COUNTERSINK CUTTERS

Fecha / Date: .....

Empresa / Entreprise / Company: ..... Contacto / Contact: .....

Dirección / Adresse / Adress: ..... Población / Ville / Town: .....

Tel / Fax: ..... E-mail: .....

.....

TRABAJO A REALIZAR / TRAVAIL DEMANDE / REQUESTED WORK

Material / Matière / Material ..... Norma / Norme / Norm: .....

Dureza / Dureté / Hardness ..... HB ..... HRc Resistencia / Résistance / Resistance ..... N/mm^2

Tipo viruta: ☐ Corta ☐ Larga ☐ Polvo
Type copeau Courte Longue Poussière
Shaving Short Long Powder

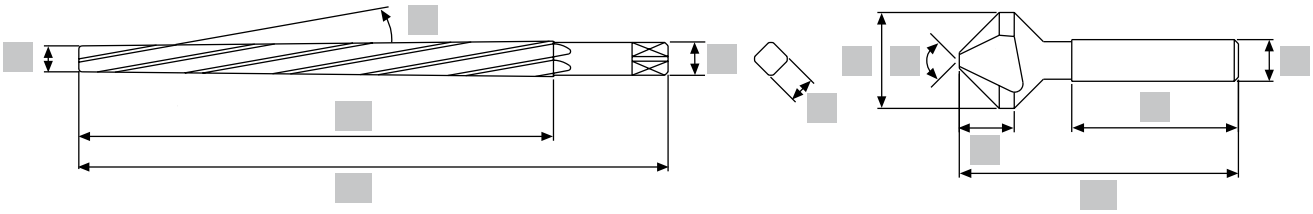
Máquina / Machine ..... Refrigerante / Réfrigérant / Coolant .....

Posición / Position ☐ Horizontal ☐ Vertical ☐ V. Corte ☐ V. avance
V. Coupe Avance
Cutting Speed Feed

HERRAMIENTA / OUTIL / TOOL

Descripción / Description ..... Tolerancia / Tolérance / Tolerance .....

Cantidad / Quantité / Quantity ..... Número ranuras / Rainures / Grooves .....



Mango: ☐ Cilíndrico ☐ Weldon ☐ Cónico ☐ Rebajado
Queue: Cylindrique Weldon Conique Réduite
Shank: Straight Weldon Taper Reduced

Material / Matière / Material: ☐ HSS ☐ HSSE ☐ HM ☐ HSS-HM

Superficie / Surface: ☐ Brillante ☐ Negra ☐ Recubrimiento
Brillant Noire Revêtement
Brilliant Black Coating

COMENTARIOS / COMMENTAIRES/ COMMENTS: .....

.....

.....

.....

Servicio de Herramienta Especial - Service Outils Spéciaux - Special Tools Service
Tel. (+34) 93 387 32 99 - Fax.(+ 34) 93 383 33 08 - especiales@hepycrf.com

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

Hepyc CUTTING TOOL EXPERTS



$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$

Ref./ Réf. / Ref.	4118	4104
Form.	B	B
Hel./Hél./Spiral	8°	8°
Mat.	HM	HSSCO
Rec./Rev./Coating		
DIN	212	212
Tol.	H7	H7
Gama/Gamme/Range	2-12	1-20
Pag.	285	286

Mat.		Avance/Feed (mm/rpm) Ø2	Ø5	Ø10	Ø15	Ø20	Ø25	Ø30	Ø35	Ø40	Ø2	Ø5	Ø10	Ø15	Ø20	Ø25	Ø30	Ø35	Ø40	Vc (m/min)	
P.1	<600	0.05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	● 14-18	● 10-14
P.2	<800	0.05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	● 12-16	● 8-12
P.3	<1000	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	● 10-14	● 6-8
P.4	<1200	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	0,05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	● 6-10	○ 4-6
P.5	<1400										0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	● 4-6	
M.1	<950	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	● 8-12	● 6-8
M.2	<950	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	● 8-12	● 6-8
M.3	<1200	0,02	0,05	0,1	0,12	0,16	0,2	0,23	0,25	0,27	0,02	0,05	0,1	0,12	0,16	0,2	0,23	0,25	0,27	● 6-10	○ 4-6
M.4	<1200	0,02	0,05	0,1	0,12	0,16	0,2	0,23	0,25	0,27	0,02	0,05	0,1	0,12	0,16	0,2	0,23	0,25	0,27	● 6-10	○ 4-6
K.1	<500	0.05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	● 25-30	● 12-16
K.2	<500																				
K.3	<800	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	● 8-12	○ 6-8
K.4.1	<800	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	● 14-18	● 10-12
K.4.2	<1400										0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	● 6-10	
N.1.1	Al	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 30-35	● 20-25
N.1.2	Al	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 25-30	● 16-22
N.1.3	Al	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 20-30	● 14-20
N.2.1	Cu	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	● 20-25	● 12-20
N.2.2	Cu	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 30-35	● 20-25
N.2.3	Cu	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	● 20-25	● 16-22
N.2.4	Cu																				
N.3.1	Mg/Zn	0,63	0,12	0,25	0,3	0,4	0,5	0,53	0,56	0,6	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 20-25	○ 12-16
N.4.1	Plastic	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 15-20	● 10-14
N.4.2	Plastic	0,08	0,16	0,3	0,4	0,5	0,6	0,7	0,75	0,8	0,1	0,2	0,4	0,5	0,65	0,8	0,9	0,95	1	● 12-18	● 8-10
N.4.3	Plastic																				
S.1.1	Ni	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	0,05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	● 4-6	○ 1-3
S.1.2	Ni	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	● 4-6	○ 1-3
S.2.1	Ti	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	0,05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	● 8-12	● 6-8
S.2.2	Ti	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	0,05	0,1	0,2	0,26	0,33	0,4	0,45	0,5	0,55	● 6-10	○ 2-6
S.2.3	Ti	0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	0,04	0,08	0,16	0,2	0,25	0,32	0,36	0,4	0,43	● 6-10	○ 2-6
H.1	50 HRC										0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	● 3-4	
H.2	55 HRC										0,03	0,06	0,12	0,16	0,2	0,25	0,28	0,32	0,35	● 3-4	
H.3	60 HRC										0,02	0,05	0,1	0,12	0,16	0,2	0,23	0,25	0,27	○ 3-4	

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials

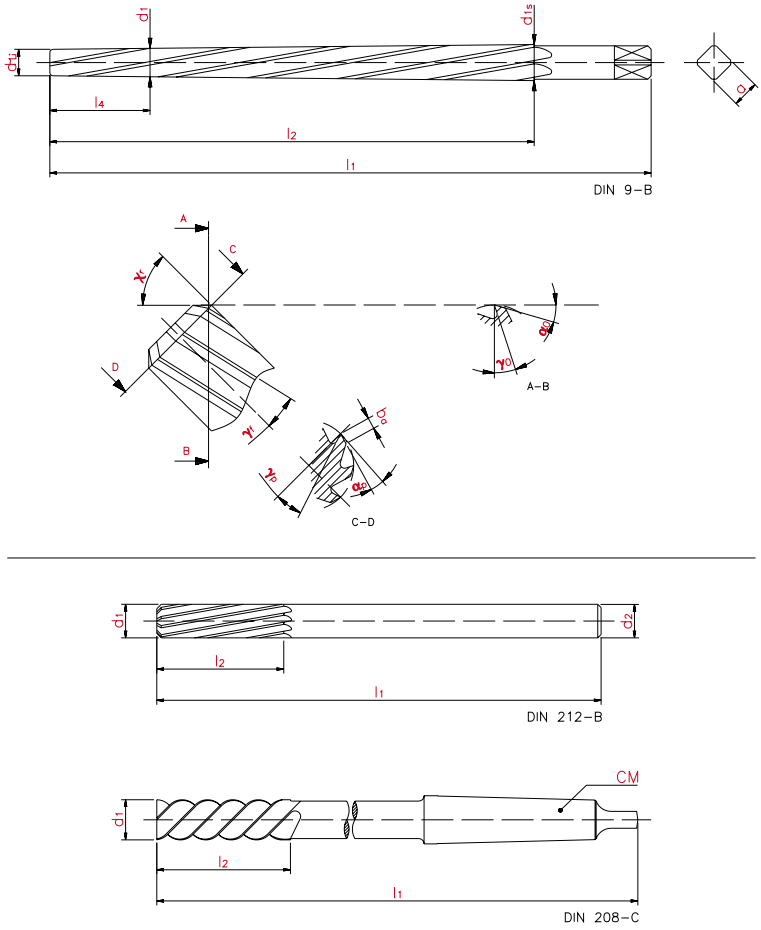


4105	4103	4106	4107	4108	4115	4116	4117	4109
E	E	B	C					B
45º	45º	8º	45º	25º	45º	46º	47º	8º
HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSSCO	HSS
212	2179	208	208	311	212	212	212	219
H7		H7	H7					H7
3-16	3-10	4-40	5-29	10-37	3-7	3-6	2-6	32-80
287	288	288	289	289	290	290	291	291
● 12-16	● 8-12	● 10-14	● 12-16	● 8-12	● 8-12	● 8-12	● 8-12	● 10-14
● 10-14	● 6-12	● 8-12	● 10-14	● 6-12	● 6-12	● 6-12	● 6-12	● 8-12
	○ 4-6	● 6-8		○ 4-6	○ 4-6	○ 4-6	○ 4-6	○ 6-8
		○ 4-6						
	○ 4-6	● 6-8		○ 4-6	○ 4-6	○ 4-6	○ 4-6	● 6-8
	○ 4-6	● 6-8		○ 4-6	○ 4-6	○ 4-6	○ 4-6	● 6-8
		○ 4-6						
		○ 4-6						
	● 10-14	● 12-16		● 10-14	● 10-14	● 10-14	● 10-14	● 10-14
		○ 6-8						○ 6-8
	● 6-8	● 10-12		● 6-8	● 6-8	● 6-8	● 6-8	● 10-12
● 20-25	● 16-22	● 20-25	● 20-25	● 16-22	● 16-22	● 16-22	● 16-22	● 20-25
● 16-22	● 14-20	● 16-22	● 16-22	● 14-20	● 14-20	● 14-20	● 14-20	● 16-22
● 14-20	● 8-12	● 14-20	● 14-20	● 8-12	● 8-12	● 8-12	● 8-12	● 14-20
	● 10-16	● 12-20		● 10-16	● 10-16	● 10-16	● 10-16	● 12-20
	● 16-22	● 20-25		● 16-22	● 16-22	● 16-22	● 16-22	● 20-25
● 14-20	● 12-18	● 16-22	● 14-20	● 12-18	● 12-18	● 12-18	● 12-18	● 16-22
		○ 12-16						○ 12-16
● 12-16	● 16-22	● 10-14	● 12-16	● 16-22	● 16-22	● 16-22	● 16-22	● 10-14
● 10-14	● 14-20	● 8-10	● 10-14	● 14-20	● 14-20	● 14-20	● 14-20	● 8-10
		○ 1-3						○ 1-3
		○ 1-3						
	○ 4-6	● 6-8		○ 4-6	○ 4-6	○ 4-6	○ 4-6	● 6-8
		○ 2-6						○ 2-6
		○ 2-6						

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials
---	---	---	---	---	---	---	---	---	---	---	---

TERMINOLOGÍA
TERMINOLOGIE / TERMINOLOGY



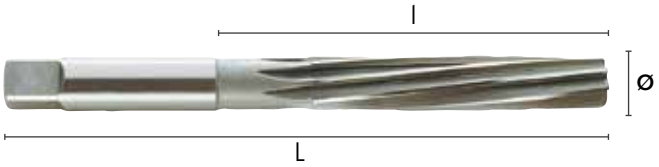
l1	**Longitud total** / Longueur totale / Total length
l2	**Longitud de corte** / Longueur de coupe / Length of cut
l4	**Longitud hasta el diámetro nominal** / Longueur jusqu'au diamètre nominal / Length to the nominal diametre
a	**Cuadradillo** / Carré / Square
ba	**Ancho de fase** / Largeur de phase / Phase width
d1	**Diámetro nominal** / Diamètre nominal / Nominal diametre
d1i	**Diámetro inferior** / Diamètre inférieur / Inferior diametre
d1s	**Diámetro superior** / Diamètre supérieur / Superior diametre
d2	**Diámetro de mango** / Diamètre de queue / Shank diametre
di	**Diámetro interior** / Diamètre intérieur / Interior diametre
CM	**Tamaño del cono morse** / Taille du cône morse / Morse taper size
α**0**	**Ángulo de destalonado** / Angle de détalonnage / Relief angle
$\alpha\pi$	**Ángulo de destalonado del corte seco** / Angle de détalonnage de la coupe sèche / Dry cut relief angle
γ**0**	**Ángulo corte ortogonal** / Angle coupe orthogonale / Orthogonal cut angle
$\gamma\phi$	**Ángulo de corte lateral** / Angle de coupe latérale / Lateral cut angle
$\gamma\pi$	**Ángulo corte posterior** / Angle coupe postérieure / Rear cut angle
$\chi\rho$	**Ángulo de posición** / Angle de position / Angle of position

4101 HSS DIN ≃ 206

Form. B | 7° | Tol. H7 | ISO 236

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●						●	●		●	●		●					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,50	*76,18*	41	20	1
2,00	*21,43*	50	25	1
2,25	*23,56*	54	27	1
2,50	*21,43*	58	29	1
2,75	*23,56*	62	31	1
3,00	*21,43*	62	31	1
3,25	*61,11*	66	33	1
3,50	*21,43*	71	35	1
3,75	*61,11*	71	35	1
4,00	*21,43*	76	38	1
4,25	*61,11*	76	38	1
4,50	*22,40*	81	41	1
4,75	*61,11*	81	41	1
5,00	*22,40*	87	44	1
5,25	*61,11*	87	44	1
5,50	*22,40*	93	47	1
5,75	*61,11*	93	47	1
6,00	*22,40*	93	47	1
6,25	*61,11*	100	50	1
6,50	*22,40*	100	50	1
6,75	*61,11*	107	54	1
7,00	*22,40*	107	54	1
7,25	*61,82*	107	54	1
7,50	*23,63*	107	54	1
7,75	*61,82*	115	58	1
8,00	*23,63*	115	58	1
8,25	*61,82*	115	58	1
8,50	*24,83*	115	58	1
8,75	*61,82*	124	62	1
9,00	*24,83*	124	62	1
9,25	*61,82*	124	62	1
9,50	*25,87*	124	62	1
9,75	*118,48*	133	66	1
10,00	*25,87*	133	66	1
10,25	*118,48*	133	66	1
10,50	*32,79*	133	66	1
10,75	*118,48*	142	71	1
11,00	*32,79*	142	71	1
11,25	*118,48*	142	71	1
11,50	*118,48*	142	71	1
11,75	*126,35*	142	71	1
12,00	*35,24*	152	76	1

Ø mm	€	L mm	l mm	
12,50	*44,99*	152	76	1
13,00	*44,99*	152	76	1
13,50	*126,35*	163	81	1
14,00	*48,05*	163	81	1
14,50	*126,35*	163	81	1
15,00	*52,50*	163	81	1
15,50	*126,35*	175	87	1
16,00	*57,11*	175	87	1
16,50	*126,35*	175	87	1
17,00	*68,76*	175	87	1
17,50	*126,35*	188	93	1
18,00	*82,44*	188	93	1
18,50	*126,35*	188	93	1
19,00	*82,44*	188	93	1
19,50	*181,97*	201	100	1
20,00	*89,18*	201	100	1
20,50	*178,46*	201	100	1
21,00	*112,00*	201	100	1
21,50	*162,95*	215	107	1
22,00	*116,05*	215	107	1
22,50	*188,43*	215	107	1
23,00	*121,21*	215	107	1
23,50	*207,79*	215	107	1
24,00	*133,85*	231	115	1
24,50	*220,52*	231	115	1
25,00	*142,05*	231	115	1
25,50	*345,60*	231	115	1
26,00	*155,22*	231	115	1
26,50	*290,29*	231	115	1
27,00	*169,22*	247	124	1
27,50	*297,25*	247	124	1
28,00	*175,19*	247	124	1
28,50	*312,57*	247	124	1
29,00	*248,40*	247	124	1
29,50	*347,03*	247	124	1
30,00	*222,96*	247	124	1
32,00	*258,32*	265	133	1
34,00	*270,90*	284	142	1
36,00	*305,54*	284	142	1
38,00	*354,25*	305	152	1
40,00	*354,25*	305	152	1

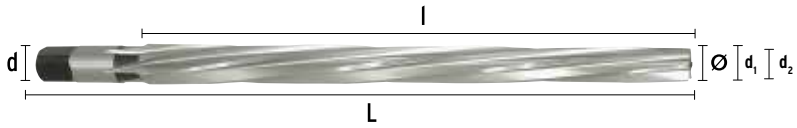
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4102 HSS DIN 9

Form. B | 7° | 2% | ISO 3465

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●						●	●		●	●		●					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø Nom.	d1 mm	d2 mm	d mm	☐ mm	€	L mm	l mm	
*1,50	2,14	1,40	3,15	2,40	*50,07*	57	37	1
2,00	2,86	1,90	3,15	2,40	*38,55*	68	48	1
2,50	3,36	2,40	3,15	2,40	*38,55*	68	48	1
3,00	4,06	2,90	4,00	3,00	*38,55*	80	58	1
*3,50	4,56	3,40	4,50	3,00	*42,32*	87	63	1
4,00	5,26	3,90	5,00	3,80	*23,32*	93	68	1
*4,50	5,76	4,40	6,00	3,80	*30,27*	93	68	1
5,00	6,36	4,90	6,30	4,90	*23,98*	100	73	1
*5,50	7,18	5,40	6,30	4,90	*37,99*	118	89	1

Ø Nom.	d1 mm	d2 mm	d mm	☐ mm	€	L mm	l mm	
6,00	8,00	5,90	8,00	6,20	*28,35*	135	105	1
*6,50	8,50	6,40	8,00	6,20	*39,38*	135	105	1
7,00	9,00	6,90	8,00	6,20	*32,71*	135	105	1
8,00	10,80	7,90	10,00	8,00	*44,02*	180	145	1
10,00	13,40	9,90	12,50	10,00	*54,62*	215	175	1
12,00	16,00	11,80	14,00	11,00	*73,46*	255	210	1
14,00	18,30	13,80	16,00	12,00	*103,04*	270	225	1
16,00	20,40	15,80	18,00	14,50	*114,16*	280	230	1
20,00	24,80	19,80	22,40	18,00	*157,15*	310	250	1

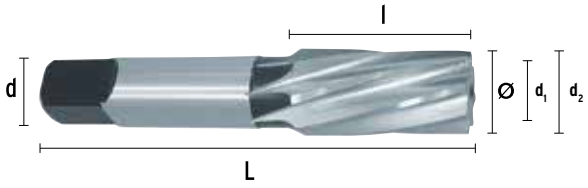
***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

4119 HSS

Form. B | 8° | C. 1:16 (NPTBSPT)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●						●	●		●	●		●					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø Nom.	d1 mm	d2 mm	d mm	☐ mm	€	L mm	l mm	
1/16	5,91	6,98	6	4,90	*142,30*	70	17	1
1/8	8,92	9,08	7	5,50	*144,15*	70	17	1
1/4	10,28	11,97	11	9,00	*151,45*	80	27	1
3/8	13,70	15,39	12	9,00	*157,65*	85	27	1

Ø Nom.	d1 mm	d2 mm	d mm	☐ mm	€	L mm	l mm	
1/2	16,91	19,10	16	12,00	*173,20*	95	35	1
3/4	22,29	24,42	20	16,00	*226,10*	105	35	1
1"	27,97	30,66	25	20,00	*287,95*	130	43	1

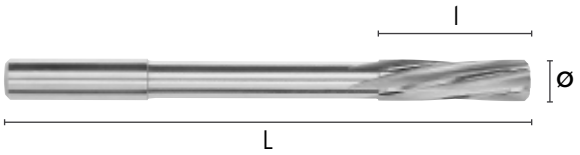
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4118 HM-MD DIN 212

Form. B-D | 8° | Tol. H7 | ISO 521

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○
12-18	10-14	6-10	4-6	8-12	6-10	25-30	8-18	6-10	20-35	20-35	20-25	12-20	4-6	6-12	3-4	3-4	3-4

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	€	L mm	l mm	
1,00	*111,64*	38	7	1
1,10	*116,09*	40	10	1
1,20	*116,09*	40	10	1
1,30	*116,09*	40	10	1
1,40	*116,09*	40	10	1
1,50	*116,09*	40	10	1
1,60	*111,64*	43	11	1
1,70	*111,64*	43	11	1
1,80	*109,36*	49	12	1
1,90	*109,36*	49	12	1
2,00	*67,23*	49	12	1
2,10	*109,36*	49	12	1
2,20	*109,36*	49	12	1
2,30	*109,36*	49	12	1
2,40	*107,18*	57	18	1
2,50	*77,27*	57	18	1
2,60	*107,18*	57	18	1
2,70	*107,18*	57	18	1
2,80	*107,18*	57	18	1
2,90	*107,18*	57	18	1
3,00	*73,32*	57	18	1
3,10	*107,18*	57	18	1
3,20	*107,18*	57	18	1
3,30	*107,18*	57	18	1
3,40	*107,18*	57	18	1
3,50	*82,18*	57	18	1
3,60	*107,18*	57	18	1
3,70	*107,18*	57	18	1
3,80	*118,32*	75	19	1
3,90	*118,32*	75	19	1

Ø mm	€	L mm	l mm	
4,00	*77,91*	75	19	1
4,10	*118,32*	75	19	1
4,20	*118,32*	75	19	1
4,30	*133,95*	80	21	1
4,40	*133,95*	80	21	1
4,50	*89,59*	80	21	1
4,60	*133,95*	80	21	1
4,70	*133,95*	80	21	1
4,80	*129,50*	86	23	1
4,90	*129,50*	86	23	1
5,00	*82,50*	86	23	1
5,10	*129,50*	86	23	1
5,20	*129,50*	86	23	1
5,30	*129,50*	86	23	1
5,40	*145,09*	93	26	1
5,50	*100,27*	93	26	1
5,60	*145,09*	93	26	1
5,70	*145,09*	93	26	1
5,80	*145,09*	93	26	1
5,90	*140,64*	101	28	1
6,00	*99,27*	101	28	1
6,50	*121,77*	101	28	1
7,00	*128,36*	109	31	1
8,00	*146,68*	117	33	1
8,50	*168,68*	117	33	1
9,00	*168,05*	125	36	1
10,00	*186,41*	133	38	11
11,00	*278,05*	133	38	1
12,00	*293,36*	151	44	1

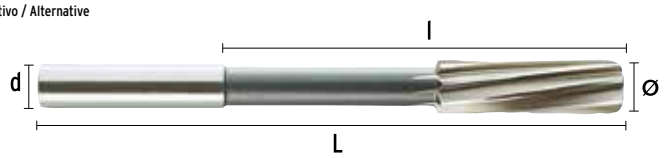
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4104 HSSCO DIN 212

Form. B Ø ≤3,70 | Form. D Ø >3,70 | 10° | Tol. H7 | ISO 521

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 8-14	● 6-8	○ 4-6		● 6-8	○ 4-6	● 12-16	● 6-12		● 14-25	● 12-25	○ 12-16	● 8-14	○ 1-3	● 2-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
1,00	1,00	*38,63*	34	7	1
1,20	1,20	*38,63*	34	7	1
1,40	1,40	*34,63*	40	8	1
1,50	1,50	*34,63*	40	8	1
1,60	1,60	*34,63*	43	9	1
1,80	1,80	*34,63*	46	10	1
1,90	1,90	*34,63*	46	10	1
2,00	2,00	*34,63*	49	11	1
2,10	2,10	*34,63*	49	11	1
2,20	2,20	*34,63*	53	12	1
2,30	2,30	*34,63*	53	12	1
2,40	2,40	*30,58*	57	14	1
2,50	2,50	*30,58*	57	14	1
2,60	2,60	*30,58*	57	14	1
2,70	2,70	*28,29*	61	15	1
2,80	2,80	*28,29*	61	15	1
2,90	2,90	*28,29*	61	15	1
3,00	3,00	*21,25*	61	15	1
3,10	3,10	*27,52*	65	16	1
3,20	3,20	*27,52*	65	16	1
3,30	3,30	*27,52*	65	16	1
3,40	3,40	*27,52*	70	18	1
3,50	3,50	*21,25*	70	18	1
3,60	3,60	*27,52*	70	18	1
3,70	3,70	*27,52*	70	18	1
3,80	4,00	*27,52*	75	19	1
3,90	4,00	*27,52*	75	19	1
4,00	4,00	*21,25*	75	19	1
4,10	4,00	*27,52*	75	19	1
4,20	4,00	*27,52*	75	19	1
4,30	4,50	*27,52*	80	21	1
4,40	4,40	*27,52*	80	21	1
4,50	4,50	*21,25*	80	21	1
4,60	4,50	*27,52*	80	21	1
4,70	4,50	*27,52*	80	21	1
4,80	5,00	*27,52*	86	23	1
4,90	5,00	*27,52*	86	23	1
5,00	5,00	*21,25*	86	23	1
5,10	5,00	*27,52*	86	23	1
5,20	5,00	*27,52*	86	23	1
5,30	5,00	*27,52*	86	23	1
5,40	5,60	*27,52*	93	26	1
5,50	5,60	*21,25*	93	26	1
5,60	5,60	*27,52*	93	26	1
5,70	5,60	*27,52*	93	26	1
5,80	5,60	*27,52*	93	26	1
5,90	5,60	*27,52*	93	26	1
6,00	5,60	*23,31*	93	26	1
6,10	6,30	*30,23*	101	28	1
6,20	6,30	*30,23*	101	28	1
6,30	6,30	*30,23*	101	28	1
6,40	6,30	*30,23*	101	28	1
6,50	6,30	*23,31*	101	28	1
6,60	6,30	*30,23*	101	28	1
6,70	6,30	*30,23*	101	28	1
6,80	7,10	*30,23*	109	31	1
6,90	7,10	*30,23*	109	31	1
7,00	7,10	*23,31*	109	31	1
7,10	7,10	*30,23*	109	31	1
7,20	7,10	*30,23*	109	31	1
7,30	7,10	*30,23*	109	31	1
7,40	7,10	*30,23*	109	31	1
7,50	7,10	*25,28*	109	31	1
7,60	8,00	*33,40*	117	33	1
7,70	8,00	*33,40*	117	33	1
7,80	8,00	*33,40*	117	33	1
7,90	8,00	*33,40*	117	33	1
8,00	8,00	*25,77*	117	33	1
8,10	8,00	*38,40*	117	33	1
8,20	8,00	*38,40*	117	33	1
8,30	8,00	*38,40*	117	33	1
8,40	8,00	*38,40*	117	33	1
8,50	8,00	*28,21*	117	33	1
8,60	9,00	*38,40*	125	36	1
8,70	9,00	*38,40*	125	36	1
8,80	9,00	*38,40*	125	19	1
8,90	9,00	*38,40*	125	36	1
9,00	9,00	*31,02*	125	36	1
9,10	9,00	*38,40*	125	36	1
9,20	9,00	*38,40*	125	36	1
9,30	9,00	*38,40*	125	36	1
9,40	9,00	*38,40*	125	36	1
9,50	9,00	*31,51*	125	36	1
9,60	10,00	*42,22*	133	38	1
9,70	10,00	*42,22*	133	38	1
9,80	10,00	*42,22*	133	38	1
9,90	10,00	*42,22*	133	38	1
10,00	10,00	*31,51*	133	38	1
11,00	10,00	*37,23*	142	41	1
12,00	10,00	*36,39*	151	44	1
13,00	10,00	*62,56*	151	44	1
14,00	12,50	*59,82*	160	47	1
15,00	12,50	*65,32*	162	50	1
16,00	12,50	*69,92*	170	52	1
17,00	14,00	*80,63*	175	54	1
18,00	14,00	*84,07*	182	56	1
19,00	16,00	*89,32*	189	58	1
20,00	16,00	*89,95*	195	60	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4104/1 HSSCO DIN 212

Form. B Ø ≤ 3,70 | Form. D Ø > 3,70 | 8° | ISO 521

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 8-14	● 6-8	○ 4-6		● 6-8	○ 4-6	● 12-16	● 6-12		● 14-25	● 12-25	○ 12-16	● 8-14	○ 1-3	● 2-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

Ø mm	€	L mm	l mm	
0,95 - 1,31	*40,73*	34	5-7	1
1,32 - 1,54	*36,52*	40	8	1
1,55 - 1,70	*36,52*	43	9	1
1,71 - 1,90	*36,52*	46	10	1
1,91 - 2,12	*36,52*	49	11	1
2,13 - 2,36	*36,52*	53	12	1
2,37 - 2,66	*32,25*	57	14	1
2,67 - 3,05	*29,86*	61	15	1
3,06 - 3,35	*29,86*	65	16	1
3,36 - 3,75	*33,53*	70	18	1
3,76 - 4,25	*33,53*	75	19	1
4,26 - 4,75	*32,68*	80	21	1
4,76 - 5,30	*32,68*	86	23	1
5,31 - 5,95	*33,08*	93	26	1
5,96 - 6,00	*33,89*	93	26	1
6,01 - 6,70	*33,89*	101	28	1
6,71 - 7,29	*37,34*	109	31	1

Ø mm	€	L mm	l mm	
7,30 - 7,55	*41,97*	109	32	1
7,56 - 8,50	*41,97*	117	33	1
8,51 - 9,25	*47,40*	125	36	1
9,26 - 9,50	*54,10*	125	36	1
9,51 - 10,64	*52,04*	133	38	1
10,65 - 11,25	*61,10*	142	41	1
11,26 - 11,80	*62,74*	142	41	1
11,81 - 12,02	*62,74*	151	44	1
12,03 - 13,02	*86,27*	151	44	1
13,03 - 13,20	*86,27*	151	44	1
13,21 - 14,00	*104,87*	160	47	1
14,01 - 14,02	*104,87*	162	50	1
14,03 - 15,00	*127,90*	162	50	1
15,01 - 15,02	*127,90*	170	52	1
15,03 - 16,00	*136,92*	170	52	1
16,01 - 16,02	*136,92*	175	54	1

4105 HSSCO DIN 212

Form. E | 45° | Tol. H7 | ISO 521

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-16									● 14-25	● 14-20		● 10-16					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
3,00	3,00	*29,15*	61	15	1
3,50	3,50	*29,15*	70	18	1
4,00	4,00	*29,15*	75	19	1
4,50	4,50	*29,69*	80	21	1
5,00	5,00	*29,69*	86	23	1
5,50	5,60	*29,69*	93	26	1
6,00	5,60	*29,69*	93	26	1
6,50	6,30	*34,51*	101	28	1
7,00	7,10	*30,20*	109	31	1
7,50	7,10	*35,16*	109	31	1
8,00	8,00	*30,77*	117	33	1

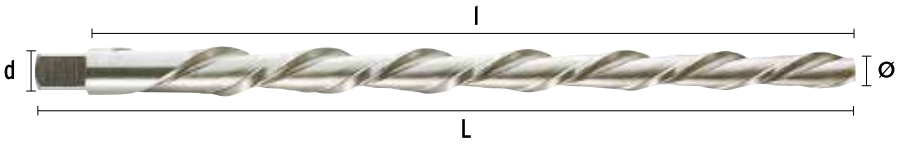
Ø mm	d mm	€	L mm	l mm	
8,50	8,00	*39,08*	117	33	1
9,00	9,00	*34,20*	125	36	1
9,50	9,00	*39,08*	125	36	1
10,00	10,00	*34,20*	133	38	1
11,00	10,00	*52,68*	142	41	1
12,00	10,00	*50,72*	151	44	1
13,00	10,00	*59,63*	151	44	1
14,00	12,50	*64,17*	160	47	1
15,00	12,50	*86,24*	162	50	1
16,00	12,50	*107,30*	170	52	1

4103 HSSCO DIN 2179

Form. E | 45° | 2% | ISO 3466

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 6-12	○ 4-6			○ 4-6		● 10-14	● 6-8		● 8-22	● 10-22		● 14-22		○ 4-6			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø Nom.	D mm	d mm	€	L mm	l mm	
3,00	4,06	2,90	*27,56*	100	58	1
4,00	5,26	3,90	*44,80*	112	68	1
5,00	6,36	4,90	*42,70*	122	73	1
6,00	8,00	5,90	*49,57*	160	105	1
8,00	10,80	7,90	*79,59*	207	145	1
10,00	13,40	9,90	*157,93*	245	175	1

4106 HSSCO DIN 208

Form. B | 10° | Tol. H7 | ISO 521

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 8-14	● 6-8	○ 4-6		● 6-8	○ 4-6	● 12-16	● 6-12		● 14-25	● 12-25	○ 12-16	● 8-14	○ 1-3	● 2-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



	Ø mm	€	L mm	l mm	
1	4,00	*53,54*	129	19	1
1	5,00	*38,80*	133	23	1
1	5,50	*47,68*	138	26	1
1	6,00	*39,36*	138	26	1
1	6,50	*48,62*	144	28	1
1	7,00	*40,04*	150	31	1
1	7,50	*33,02*	150	31	1
1	8,00	*40,99*	156	33	1
1	8,50	*52,73*	156	33	1
1	9,00	*43,84*	162	36	1
1	9,50	*53,23*	162	36	1
1	10,00	*41,59*	168	38	1
1	10,50	*53,94*	168	38	1
1	11,00	*42,14*	175	41	1
1	11,50	*56,84*	175	41	1
1	12,00	*42,14*	182	44	1
1	12,50	*66,64*	182	44	1
1	13,00	*55,29*	182	44	1
1	13,50	*68,62*	189	47	1
1	14,00	*56,85*	189	47	1
2	14,50	*72,25*	204	50	1
2	15,00	*58,57*	204	50	1
2	15,50	*75,92*	210	52	1
2	16,00	*63,77*	210	52	1
2	16,50	*84,36*	214	54	1
2	17,00	*71,28*	214	54	1
2	18,00	*75,75*	219	56	1
2	19,00	*79,29*	223	58	1
2	20,00	*82,32*	228	60	1
2	21,00	*102,13*	232	62	1
2	22,00	*108,65*	237	64	1
2	23,00	*113,49*	241	66	1
3	24,00	*137,55*	268	68	1
3	25,00	*140,29*	268	68	1
3	26,00	*146,92*	273	70	1
3	27,00	*169,05*	277	71	1
3	28,00	*169,05*	277	71	1
3	29,00	*184,18*	281	73	1
3	30,00	*184,18*	281	73	1
3	31,00	*235,25*	285	75	1
4	32,00	*220,44*	317	77	1
4	34,00	*231,57*	321	78	1
4	35,00	*266,73*	321	78	1
4	36,00	*342,71*	325	79	1
4	38,00	*364,91*	329	81	1
4	40,00	*372,32*	329	81	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4107 HSSCO DIN 208

Form. C | 45° | Tol. H7 | ISO 521

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 10-16									● 14-25	● 14-20		● 10-16					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Δ	Ø mm	€	L mm	l mm	
1	5,00	*65,70*	133	23	1
1	6,00	*65,70*	138	26	1
1	7,00	*65,70*	150	31	1
1	8,00	*65,70*	156	33	1
1	9,00	*63,29*	162	36	1
1	10,00	*63,29*	168	38	1
1	11,00	*66,08*	175	41	1
1	12,00	*66,08*	182	44	1
1	13,00	*98,30*	182	44	1
1	14,00	*101,36*	189	47	1
2	15,00	*110,97*	204	50	1
2	16,00	*116,35*	210	52	1

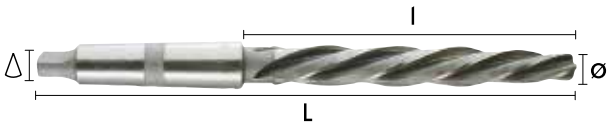
Δ	Ø mm	€	L mm	l mm	
2	17,00	*125,92*	214	54	1
2	18,00	*133,77*	219	56	1
2	19,00	*141,91*	223	58	1
2	20,00	*149,19*	228	60	1
2	21,00	*161,23*	232	62	1
2	22,00	*172,07*	237	64	1
2	23,00	*184,53*	241	66	1
3	24,00	*194,64*	268	68	1
3	25,00	*206,62*	268	68	1
3	26,00	*218,05*	273	70	1
3	28,00	*241,06*	277	71	1
3	29,00	*253,66*	281	73	1

4108 HSS DIN 311

25° | ISO 2238 | 1:10

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 6-12	○ 4-6			○ 4-6		● 10-14	● 6-8		● 8-22	● 10-22		● 14-22		○ 4-6			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo

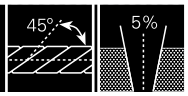


Δ	Ø mm	€	L mm	l mm	
1	10,00	*62,22*	171	95	1
1	11,00	*63,92*	176	100	1
2	12,00	*66,20*	199	105	1
2	13,00	*72,09*	199	105	1
2	14,00	*79,41*	209	115	1
2	15,00	*83,42*	219	125	1
2	16,00	*87,58*	229	135	1
3	17,00	*113,12*	251	135	1
3	18,00	*117,04*	261	145	1
3	19,00	*120,38*	261	145	1
3	20,00	*122,56*	271	155	1
3	21,00	*134,87*	271	155	1
3	22,00	*140,75*	281	165	1
3	23,00	*150,92*	281	165	1

Δ	Ø mm	€	L mm	l mm	
3	24,00	*161,46*	296	180	1
3	25,00	*172,11*	296	180	1
3	26,00	*187,94*	296	180	1
3	27,00	*201,75*	311	195	1
3	28,00	*220,40*	311	195	1
3	29,00	*236,54*	311	195	1
3	30,00	*236,99*	311	195	1
3	31,00	*240,95*	326	210	1
4	32,00	*262,29*	354	210	1
4	33,00	*350,10*	364	220	1
4	34,00	*370,01*	364	220	1
4	35,00	*389,03*	364	220	1
4	36,00	*452,10*	364	220	1
4	37,00	*472,00*	364	220	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4115 HSSCO 5%



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 6-12	○ 4-6			○ 4-6		● 10-14	● 6-8		● 8-22	● 10-22		● 14-22		○ 4-6			

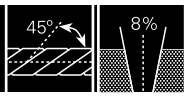
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø Nom.	€	D mm	d mm	L mm	l mm	
3,00	*103,66*	3	6	110	60	1
4,00	*139,59*	4	8	130	80	1
5,00	*171,36*	5	10	155	100	1

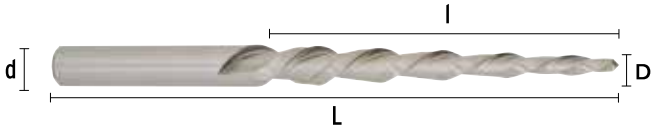
Ø Nom.	€	D mm	d mm	L mm	l mm	
6,00	*211,09*	6	12	180	120	1
7,00	*271,77*	7	14	200	140	1

4116 HSSCO 8%



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 6-12	○ 4-6			○ 4-6		● 10-14	● 6-8		● 8-22	● 10-22		● 14-22		○ 4-6			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

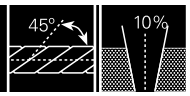


Ø Nom.	€	D mm	d mm	L mm	l mm	
3,00	*85,91*	3	8	110	62	1
4,00	*105,63*	4	10	130	75	1

Ø Nom.	€	D mm	d mm	L mm	l mm	
5,00	*139,22*	5	12	150	90	1
6,00	*159,60*	6	14	160	100	1

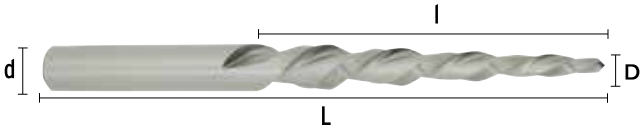
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4117 HSSCO 10%



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 6-12	○ 4-6			○ 4-6		● 10-14	● 6-8		● 8-22	● 10-22		● 14-22		○ 4-6			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

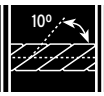


Ø Nom.	€	D mm	d mm	L mm	l mm	
2,00	*81,48*	2	6	90	40	1
3,00	*101,20*	3	8	100	50	1
4,00	*127,08*	4	10	115	60	1

Ø Nom.	€	D mm	d mm	L mm	l mm	
5,00	*128,17*	5	12	130	70	1
6,00	*224,65*	6	14	140	80	1

4109 HSS DIN 219

Form. B

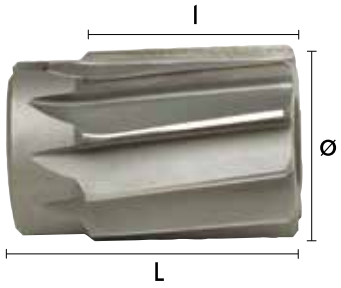


Tol. H7

ISO 2402

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 8-14	○ 6-8			● 6-8		● 12-16	● 6-12		● 14-25	● 16-25	○ 12-16	● 8-14	○ 1-3	● 2-8			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Ø int.	€	L mm	l mm	
32,00	16,00	*101,33*	50	36	1
34,00	16,00	*112,35*	50	36	1
36,00	19,00	*128,63*	56	40	1
38,00	19,00	*137,03*	56	40	1
42,00	19,00	*155,93*	56	40	1
45,00	22,00	*183,23*	63	45	1
47,00	22,00	*194,25*	63	45	1
48,00	22,00	*205,80*	63	45	1
52,00	27,00	*249,90*	71	50	1

Ø mm	Ø int.	€	L mm	l mm	
55,00	27,00	*277,20*	71	50	1
58,00	27,00	*292,43*	71	50	1
62,00	32,00	*356,48*	80	56	1
65,00	32,00	*392,70*	80	56	1
70,00	32,00	*430,50*	80	56	1
72,00	40,00	*495,60*	90	63	1
75,00	40,00	*539,70*	90	63	1
80,00	40,00	*587,48*	90	63	1

4114 Mandrino / Mandrin / Mandrel



△	Ø mm	D mm	€	L mm	
3	31,00 - 35,00	16	*226,10*	260	1
4	36,00 - 42,00	19	*261,44*	298	1
4	43,00 - 50,00	22	*332,08*	310	1

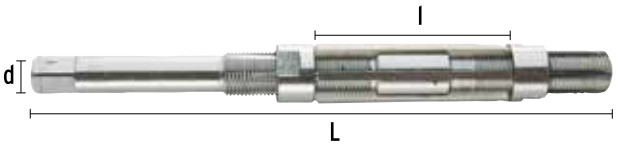
△	Ø mm	D mm	€	L mm	
5	51,00 - 60,00	27	*491,06*	325	1
5	61,00 - 71,00	32	*589,98*	376	1
5	72,00 - 85,00	40	*748,99*	396	1

4110 Extensible / Extendible

Form. A — REFORZ. RENFORC. REINFORC.

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●						●	●		●	●		●					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm		€ J.CUCHILLAS J.LAMES/SET OF BLADES
8,00-9,00	4,50	*118,14*	100	35	1	*74,53*
9,00-10,00	5,50	*118,14*	120	39	1	*74,53*
10,00-11,00	5,90	*118,14*	125	40	1	*74,53*
11,00-12,00	6,50	*118,14*	130	43	1	*74,53*
12,00-13,50	7,50	*118,14*	135	46	1	*74,53*
13,50-15,50	8,00	*118,14*	140	51	1	*74,53*
15,50-18,00	9,50	*125,71*	165	61	1	*78,04*
18,00-21,00	12,00	*130,13*	185	66	1	*82,26*

Ø mm	d mm	€	L mm	l mm		€ J.CUCHILLAS J.LAMES/SET OF BLADES
21,00-24,00	13,50	*151,40*	195	7 0	1	*94,69*
24,00-27,50	15,00	*164,85*	215	83	1	*99,70*
27,50-31,50	18,50	*180,27*	240	88	1	*109,64*
31,50-37,00	21,00	*234,99*	265	91	1	*134,88*
37,00-45,00	25,00	*350,37*	310	110	1	*208,76*
45,00-55,00	32,00	*504,09*	380	128	1	*321,05*
55,00-67,00	42,00	*916,60*	440	150	1	*486,48*
67,00-80,00	45,00	*1.389,81*	490	170	1	*739,20*

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

4111 Extensible guía / Extensible guide / Extendible guide

Form. A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●						●	●		●	●		●					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm		€ J.CUCHILLAS J.LAMES/SET OF BLADES
8,00-9,00	4,50	*151,83*	175	35	1	*74,53*
9,00-10,00	5,50	*151,83*	185	35	1	*74,53*
10,00-11,00	5,90	*151,83*	195	40	1	*74,53*
11,00-12,00	6,50	*151,83*	200	41	1	*74,53*
12,00-13,50	7,50	*151,83*	220	44	1	*74,53*
13,50-15,50	8,00	*151,83*	243	53	1	*74,53*
15,50-18,00	9,50	*160,94*	274	61	1	*78,04*
18,00-21,00	12,00	*160,94*	300	66	1	*82,26*

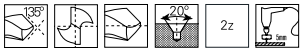
Ø mm	d mm	€	L mm	l mm		€ J.CUCHILLAS J.LAMES/SET OF BLADES
21,00-24,00	13,50	*168,60*	320	70	1	*94,69*
24,00-27,50	15,00	*179,25*	350	83	1	*99,70*
27,50-31,50	18,50	*229,45*	385	88	1	*109,64*
31,50-37,00	21,00	*342,42*	424	91	1	*134,88*
37,00-45,00	25,00	*498,57*	490	110	1	*208,76*
45,00-55,00	32,00	*714,58*	600	128	1	*321,05*
55,00-67,00	42,00	*1.140,10*	740	150	1	*486,48*
67,00-80,00	45,00	*1.568,49*	830	170	1	*739,20*


Avellanado
Chanfreinage
Counterboring

ÍNDICE
SOMMAIRE / INDEX

Pág.

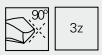
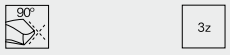
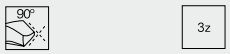
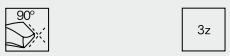
Brocas avellanadoras / Fraises coniques / Counterbore drill-bits

5101	HSS					P K N	303
5102	HSSCO					P K N S	303
5103	HSS		TIALN			P K N	304

Brocas escalonadas / Fraises étagées / Step drill-bits

5157	HSS					P K N	305
5158	HSS		TIALN			P K N	305
5105	HSS					P K N	306
5106	HSS		TIALN			P K N	306
5160	HSS	MULTI				P K N	307
5109	HSS					P K N	307
5112	HSS						308

Avellanadores / Fraises à trou et à chanfreiner / Countersink cutters

5159	HM-MD		TIALN			P M K N S H	309
5116	HSS	DIN 335 C				P K N	309
5117	HSSCO	DIN 335 C				P M K N S	310
5118	HSS	DIN 335 C	TIALN			P K N	310
5119	HSSCO	DIN 335 C	TIALN			P M K N S	311
1505	HSS	DIN 335 C				P K N	311
5120	HSS	DIN 335 C				P K N	312

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

5121	HSS	DIN 335 C		90°	3z	P K N	312
5122	HSS	DIN 335 C		120°	3z	P K N	313
5123	HSS	DIN 334 C		60°	3z	P K N	313
5124	HSS	DIN 335 C		75°	3z	P K N	314
5161	HSS			30°	3z	P K N	314
5125	HSS	DIN 335 C		90°	1z	P K N	315
5126	HSS	DIN 334 A		60°	z ≥ 4	P K N	315
5127	HSS	DIN 335 A		90°	z ≥ 4	P K N	316
5129	HSS	DIN 335 D		90°	3z	P K N	316
5130	HSS	DIN 334 D		60°	3z	P K N	317
5132	HSS	DIN 334 D		120°	3z	P K N	317

Avellanadores con agujero / Fraises à trou et à chanfreiner / Countersink cutters

5133	HSS			90°		P K N	318
5134	HSSCO			90°		P M K N	318
5135	HSS			75°		P K N	319

Avellanadores Allen / Fraises à trou et à chanfreiner / Countersink cutters

5136	HSS	DIN 373			ALLEN ISO 4206	P K N	320
5137	HSS	DIN 375			ALLEN	P K N	320
Estuches / Coffrets / Sets							321

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.	5159	5116	5117	5118	5119
Z	3	3	3	3	3
Punta/Poin/Point	90°	90°	90°	90°	90°
Mat.	HM	HSS	HSSCo	HSS	HSSCo
Rec./Rev./Coat.				TIALN	TIALN
DIN	335	335	335	335	335
Form.	C	C	C	C	C
Gama/Gamme/Range	6,30-31	4,30-40	6-40	4,30-40	6,30-30
Pag.	309	309	310	310	311

Mat.		Avance/Feed (mm/rpm) HSS/HSSCo - HM=x1,5									Vc (m/min)				
		Ø2	Ø5	Ø10	Ø15	Ø20	Ø25	Ø30	Ø35	Ø40					
P.1	<600	0,05	0,08	0,12	0,14	0,16	0,20	0,20	0,25	0,25	● 40-80	● 25-30	● 25-30	● 30-35	● 30-35
P.2	<800	0,04	0,07	0,10	0,12	0,14	0,18	0,20	0,22	0,22	● 35-60	● 20-25	● 20-25	● 25-30	● 25-30
P.3	<1000	0,03	0,04	0,05	0,06	0,08	0,10	0,10	0,12	0,12	● 30-40	○ 12-18	● 12-18	○ 15-20	● 15-20
P.4	<1200	0,03	0,04	0,05	0,06	0,08	0,10	0,10	0,12	0,12	● 15-25		○ 4-8		○ 6-10
P.5	<1400	0,01	0,03	0,03	0,06	0,08	0,10	0,12	0,14	0,16	● 10-15				
M.1	<950	0,04	0,05	0,06	0,07	0,08	0,09	0,10	0,11	0,12	● 20-30	○ 4-10	● 4-10	○ 6-12	● 6-12
M.2		0,04	0,05	0,06	0,07	0,08	0,09	0,10	0,11	0,12	● 20-30	○ 4-10	● 4-10	○ 6-12	● 6-12
M.3	<1200	0,01	0,03	0,03	0,06	0,08	0,10	0,12	0,14	0,16	● 15-25				○ 4-6
M.4		0,01	0,03	0,03	0,06	0,08	0,10	0,12	0,14	0,16	● 15-25				○ 4-6
K.1	<500	0,08	0,10	0,12	0,16	0,20	0,25	0,25	0,30	0,30	● 40-70	● 15-24	● 15-24	● 20-30	● 20-30
K.2															
K.3	<800	0,06	0,07	0,08	0,12	0,16	0,20	0,20	0,25	0,25	● 25-35	○ 9-13	○ 9-13	○ 12-16	● 12-16
K.4.1		0,06	0,07	0,08	0,12	0,16	0,20	0,20	0,25	0,25	● 25-35	● 9-13	● 9-13	● 12-16	● 12-16
K.4.2	<1400	0,02	0,04	0,04	0,08	0,12	0,16	0,18	0,20	0,22	● 20-30				○ 6-10
N.1.1	Al	0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	● 60-120	● 50-80	● 50-80	● 65-100	● 65-100
N.1.2		0,08	0,10	0,12	0,16	0,20	0,25	0,25	0,30	0,30	● 50-90	● 30-50	● 30-50	● 40-65	● 40-65
N.1.3		0,08	0,10	0,12	0,16	0,20	0,25	0,25	0,30	0,30	● 40-80	● 15-30	● 15-30	● 20-40	● 20-40
N.2.1	Cu	0,06	0,07	0,08	0,12	0,16	0,20	0,20	0,25	0,25	● 40-80	● 25-35	● 25-35	● 30-45	● 30-45
N.2.2		0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	● 60-100	● 40-60	● 40-60	● 50-75	● 50-75
N.2.3		0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	● 50-90	● 30-50	● 30-50	● 40-65	● 40-65
N.2.4															
N.3.1	Mg/Zn	0,10	0,13	0,16	0,20	0,25	0,30	0,30	0,35	0,35	● 80-140	● 60-90	● 60-90	● 75-115	● 75-115
N.4.1	Plastic	0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	● 60-100	● 35-70	● 35-70	● 45-90	● 45-90
N.4.2		0,04	0,06	0,08	0,10	0,12	0,16	0,20	0,20	0,25	● 30-60	● 12-24	● 12-24	● 15-30	● 15-30
N.4.3															
S.1.1	Ni	0,04	0,07	0,1	0,12	0,14	0,18	0,2	0,22	0,22	● 15-25		○ 4-6		● 6-8
S.1.2		0,03	0,04	0,05	0,06	0,08	0,1	0,1	0,12	0,12	● 10-15		○ 2-5		● 3-6
S.2.1	Ti	0,04	0,07	0,1	0,12	0,14	0,18	0,2	0,22	0,22	● 20-30	○ 4-10	● 6-10	○ 8-12	● 8-12
S.2.2		0,04	0,07	0,1	0,12	0,14	0,18	0,2	0,22	0,22	● 15-25		○ 4-6		● 6-8
S.2.3		0,03	0,04	0,05	0,06	0,08	0,1	0,1	0,12	0,12	● 10-15		○ 2-5		● 3-6
H.1	50 HRC	0,01	0,03	0,03	0,06	0,08	0,10	0,12	0,14	0,16	● 6-10				
H.2	55 HRC	0,01	0,03	0,03	0,06	0,08	0,10	0,12	0,14	0,16	● 6-10				
H.3	60 HRC	0,01	0,03	0,03	0,06	0,08	0,10	0,12	0,14	0,16	○ 4-8				

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials



5121	5122	5123	5124	5161	5125	5126	5127	5129	5130	5132	5133	5134	5135	5136	5137
3	3	3	3	3	1	>4	>4	3	3	3					
90°	120°	60°	75°	30°	90°	60°	90°	90°	60°	120°	90°	90°	75°	ALLEN	ALLEN
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSSCo	HSS	HSS	HSS
335	335	334	335		335	334	335	335	334	334	335				
C	C	C	C		C	A	A	D	D	D					
10,40-31	6,30-25	6,30-25	6,30-25	6,30-31	10-31	12,50-25	8-25	20,50-80	40-63	40-63	2-5 - 25-30	2-5 - 15-20	2-5 - 10-15	M3-M12	M10-M24
311	313	313	314	314	315	315	316	316	317	317	318	318	319	320	320
Vc (m/min)															
● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30	● 25-30
● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25	● 20-25
○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	○ 12-18	● 12-18	○ 12-18	○ 12-18	○ 12-18
												○ 4-8			
○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	● 4-10	○ 4-10	○ 4-10	○ 4-10
○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	● 4-10	○ 4-10	○ 4-10	○ 4-10
● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24	● 15-24
○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13	○ 9-13
● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13	● 9-13
● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80
● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50
● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30	● 15-30
● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35	● 25-35
● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60
● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50	● 30-50
● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90
● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70	● 35-70
● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24	● 12-24
												○ 4-6			
												○ 2-5			
○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 4-10	○ 6-10	○ 4-10	○ 4-10	○ 4-10
												○ 4-6			
												○ 2-5			

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x Ø}$$



Ref./ Réf. / Ref.	5101	5102	5103	5157	5158
Z	2	2	2	2	2
Punta/Poin/Point	118°	118°	118°	118°	118°
Mat.	HSS	HSSCo	HSS	HSS	HSS
Rec./Rev./Coat.			TiAlN		TiAlN
DIN					
Form.				35°	35°
Gama/Gamme/Range	3-14 - 6-25,40	3-14 - 26-40	3-14 - 46-60	4-12 - 6-37	4-12 - 6-30
Pag.	303	303	304	305	305

Mat.		Ø2	Ø5	Ø10	Ø15	Ø20	Ø25	Ø30	Ø35	Ø40	Ø40	Vc (m/min)				
		Avance/Feed (mm/rpm) HSS/HSSCo - HM=x1,5														
P.1	<600	0,05	0,08	0,12	0,14	0,16	0,20	0,20	0,25	0,25	0,40	● 25-30	● 25-30	● 30-35	● 25-30	● 30-35
P.2	<800	0,04	0,07	0,10	0,12	0,14	0,18	0,20	0,22	0,22	0,30	● 20-25	● 20-25	● 25-30	● 20-25	● 25-30
P.3	<1000	0,03	0,04	0,05	0,06	0,08	0,10	0,10	0,12	0,12	0,22	○ 12-18	● 12-18	○ 15-20	○ 12-18	○ 15-20
P.4	<1200	0,03	0,04	0,05	0,06	0,08	0,10	0,10	0,12	0,12	0,22		○ 4-8			
P.5											0,16					
M.1	<950	0,04	0,05	0,06	0,07	0,08	0,09	0,10	0,11	0,12	0,16	○ 4-10	● 4-10	○ 6-12	○ 4-10	○ 6-12
M.2		0,04	0,05	0,06	0,07	0,08	0,09	0,10	0,11	0,12	0,16	○ 4-10	● 4-10	○ 6-12	○ 4-10	○ 6-12
M.3	<1200										0,16					
M.4											0,16					
K.1	<500	0,08	0,10	0,12	0,16	0,20	0,25	0,25	0,30	0,30	0,35	● 15-24	● 15-24	● 20-30	● 15-24	● 20-30
K.2																
K.3	<800	0,06	0,07	0,08	0,12	0,16	0,20	0,20	0,25	0,25	0,30	○ 9-13	○ 9-13	○ 12-16	○ 9-13	○ 12-16
K.4.1		0,06	0,07	0,08	0,12	0,16	0,20	0,20	0,25	0,25	0,30	● 9-13	● 9-13	● 12-16	● 9-13	● 12-16
K.4.2	<1400										0,22					
N.1.1	Al	0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	0,40	● 40-60	● 40-60	● 50-70	● 40-60	● 50-70
N.1.2		0,08	0,10	0,12	0,16	0,20	0,25	0,25	0,30	0,30	0,40	● 25-40	● 25-40	● 30-50	● 25-40	● 30-50
N.1.3		0,08	0,10	0,12	0,16	0,20	0,25	0,25	0,30	0,30	0,35	● 15-30	● 15-30	● 20-40	● 15-30	● 20-40
N.2.1	Cu	0,06	0,07	0,08	0,12	0,16	0,20	0,20	0,25	0,25	0,30	● 25-35	● 25-35	● 30-40	● 25-35	● 30-40
N.2.2		0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	0,40	● 35-45	● 35-45	● 40-60	● 35-45	● 40-60
N.2.3		0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	0,30	● 25-35	● 25-35	● 30-50	● 25-35	● 30-50
N.2.4																
N.3.1	Mg/Zn	0,10	0,13	0,16	0,20	0,25	0,30	0,30	0,35	0,35	0,40	● 40-60	● 40-60	● 60-80	● 40-60	● 60-80
N.4.1	Plastic	0,10	0,12	0,14	0,18	0,20	0,24	0,30	0,35	0,40	0,40	● 30-50	● 30-50	● 35-50	● 30-50	● 35-50
N.4.2		0,04	0,06	0,08	0,10	0,12	0,16	0,20	0,20	0,25	0,35	● 12-24	● 12-24	● 15-30	● 12-24	● 15-30
N.4.3																
S.1.1	Ni	0,04	0,07	0,1	0,12	0,14	0,18	0,2	0,22	0,22	0,22					
S.1.2		0,03	0,04	0,05	0,06	0,08	0,1	0,1	0,12	0,12	0,16					
S.2.1	Ti	0,04	0,07	0,1	0,12	0,14	0,18	0,2	0,22	0,22	0,22	○ 4-10	● 6-10	○ 8-12	○ 4-10	○ 8-12
S.2.2		0,04	0,07	0,1	0,12	0,14	0,18	0,2	0,22	0,22	0,22					
S.2.3		0,03	0,04	0,05	0,06	0,08	0,1	0,1	0,12	0,12	0,16					
H.1	50 HRC										0,16					
H.2	55 HRC										0,16					
H.3	60 HRC										0,16					

● Optima / Optimun ○ Alternativo / Alternative

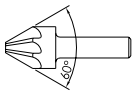
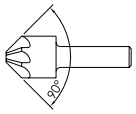
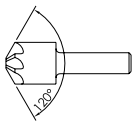
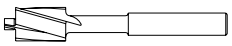
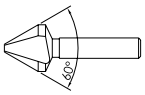
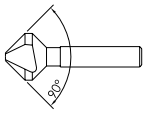
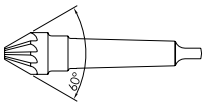
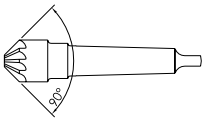
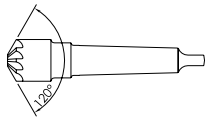
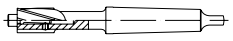
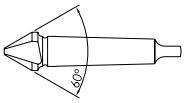
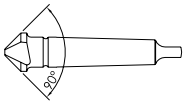
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

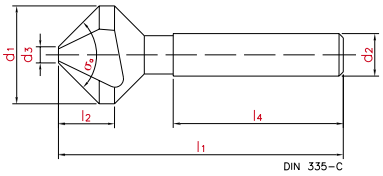
			
5105	5106	5160	5109
2	2	2	4
118°	118°	118°	118°
HSS	HSS	HSS	HSS
	TiAlN		
4-12 - 50-60	4-12 - 30-40	M8-M40	9-36 - 25-58
306	306	307	307
Vc (m/min)			
● 20-25	● 30-35	● 25-30	● 25-30
● 20-25	● 25-30	● 20-25	● 20-25
○ 12-18	○ 15-20	○ 12-18	○ 12-18
○ 4-10	○ 6-12	○ 4-10	○ 4-10
○ 4-10	○ 6-12	○ 4-10	○ 4-10
● 15-24	● 20-30	● 15-24	● 15-24
○ 9-13	○ 12-16	○ 9-13	○ 9-13
● 9-13	● 12-16	● 9-13	● 9-13
● 40-60	● 50-70	● 40-60	● 40-60
● 25-40	● 30-50	● 25-40	● 25-40
● 15-30	● 20-40	● 15-30	● 15-30
● 25-35	● 30-40	● 25-35	● 25-35
● 35-45	● 40-60	● 35-45	● 35-45
● 25-35	● 30-50	● 25-35	● 25-35
● 40-60	● 60-80	● 40-60	● 40-60
● 30-50	● 35-50	● 30-50	● 30-50
● 12-24	● 15-30	● 12-24	● 12-24
○ 4-10	○ 8-12	○ 4-10	○ 4-10

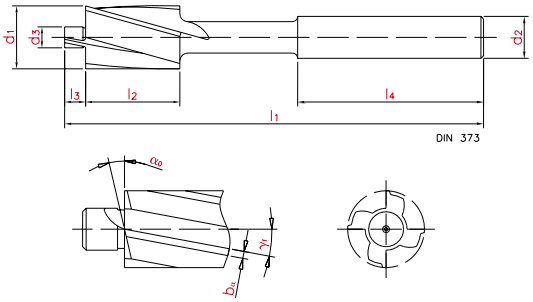
● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TERMINOLOGÍA
TERMINOLOGIE / TERMINOLOGY

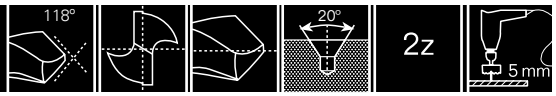
MANGO QUEUE SHANK	RANURA RAINURE GROOVE	FORMA FORME FORM	DIN 334	DIN 335	DIN 347	PLANOS PLANES FLAT	
			60º	90º	120º		
CILÍNDRICO CYLINDRIQUE CYLINDRICAL	>4	A				DIN 373	
	3	C					
CÓNICO CONIQUE TAPERED	>4	B				DIN 375	
	3	D					





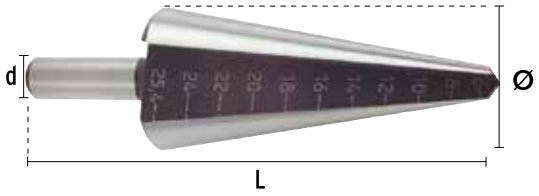
l1	**Longitud total** / Longueur totale / Total length
l2	**Longitud diámetro mayor** / Longueur du plus grand diamètre / Greater diametre length
l3	**Longitud diámetro menor** / Longueur du plus petit diamètre / Lesser diametre length
l4	**Longitud mango** / Longueur queue / Shank length
ba	**Ancho de fase** / Largeur de phase / Phase width
d2	**Diámetro de mango** / Diamètre de queue / Shank diametre
d1	**Diámetro mayor** / Plus grand diamètre / Greater diametre
d3	**Diámetro menor** / Plus petit diamètre / Lesser diametre
d6	**Diámetro interno** / Diamètre interne / Interior diametre
σa	**Ángulo de avellanado** / Angle de chanfreinage / Countersink angle
α0	**Ángulo de destalonado** / Angle de détalonnage / Relief angle
γ0	**Ángulo corte ortogonal** / Angle coupe orthogonale / Orthogonal cut angle
γf	**Ángulo de corte lateral** / Angle de coupe latérale / Lateral cut angle
γp	**Ángulo corte posterior** / Angle coupe postérieure / Rear cut angle
χr	**Ángulo de posición** / Angle de position / Angle of position

5101 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-60	25-45	40-60	12-50		4-10			

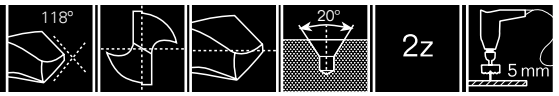
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
3,00 - 14,00	6	*20,04*	62	1
6,00 - 20,00	8	*27,97*	70	1
16,00 - 30,00	10	*56,92*	78	1
26,00 - 40,00	12	*120,49*	86	1
36,00 - 50,00	12	*185,61*	90	1

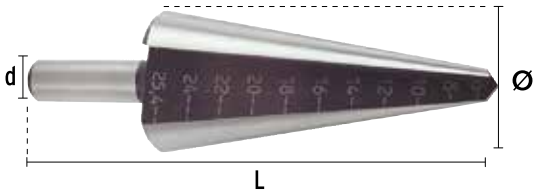
Ø mm	d mm	€	L mm	
46,00 - 60,00	13	*361,12*	94	1
6,00 - 30,00	10	*69,95*	106	1
6,00 - 22,50	8	*50,53*	80	1
6,00 - 25,40	8	*56,39*	84	1

5102 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●		●	●		●	●	●	●		●			
20-30	12-18	4-8		4-10		15-24	9-13		15-60	25-45	40-60	12-50		6-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

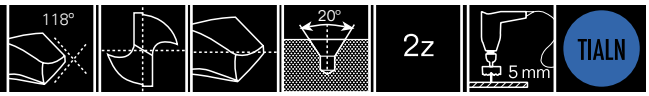


Ø mm	d mm	€	L mm	
3,00 - 14,00	6	*28,18*	62	1
6,00 - 20,00	8	*36,72*	70	1

Ø mm	d mm	€	L mm	
16,00 - 30,00	10	*70,37*	78	1
26,00 - 40,00	12	*144,62*	86	1

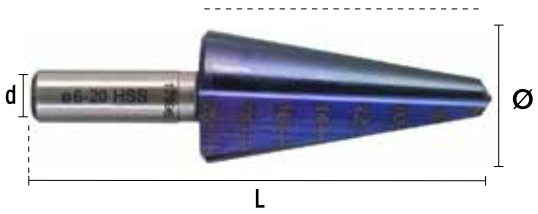
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5103 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-35	○ 15-20			○ 6-12		● 20-30	● 12-16		● 20-70	● 30-60	● 60-80	● 15-50		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
3,00 - 14,00	6	*55,00*	62	1
6,00 - 20,00	8	*65,29*	70	1
6,00 - 30,00	10	*119,91*	106	1
16,00 - 30,00	10	*104,93*	78	1

Ø mm	d mm	€	L mm	
26,00 - 40,00	12	*185,82*	86	1
36,00 - 50,00	12	*264,69*	90	1
46,00 - 60,00	13	*455,93*	94	1

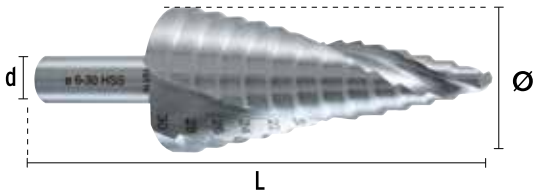
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5157 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-60	25-45	40-60	12-50		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	Grad. mm	€	L mm	
4,00 - 12,00	6	1	*59,79*	70	1
4,00 - 20,00	8	2	*87,75*	77	1

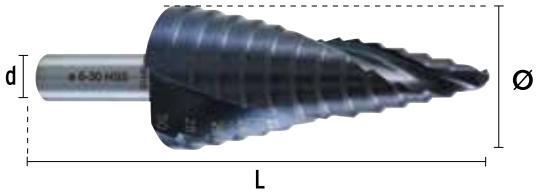
Ø mm	d mm	Grad. mm	€	L mm	
6,00 - 30,00	10	2	*122,31*	98	1
6,00 - 37,00	10	PG	*190,81*	100	1

5158 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
25-35	15-20			6-12		20-30	12-16		20-70	30-60	60-80	15-50		8-12			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

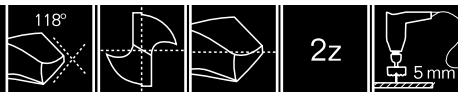


Ø mm	d mm	Grad. mm	€	L mm	
4,00 - 12,00	6	1	*89,69*	70	1
4,00 - 20,00	8	2	*131,61*	77	1

Ø mm	d mm	Grad. mm	€	L mm	
6,00 - 30,00	10	2	*183,47*	98	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

5105 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-60	25-45	40-60	12-50		4-10			

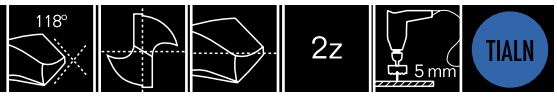
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	Grad. mm	€	L mm	
4,00 - 12,00	6	1	*41,01*	69	1
4,00 - 12,00	6	2	*42,84*	69	1
4,00 - 20,00	8	2	*55,34*	75	1
6,00 - 30,00	10	2	*84,05*	95	1
12,00 - 20,00	9	1	*75,60*	75	1

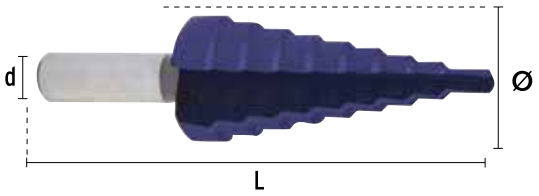
Ø mm	d mm	Grad. mm	€	L mm	
20,00 - 30,00	12	1	105,24	*93*	1
30,00 - 40,00	12	1	190,55	*93*	1
40,00 - 50,00	12	1	276,29	*97*	1
50,00 - 60,00	13	1	402,02	*97*	1

5106 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
25-35	15-20			6-12		20-30	12-16		20-70	30-60	60-80	15-50		8-12			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

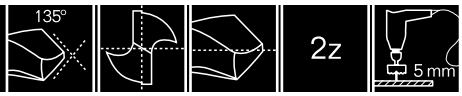


Ø mm	d mm	Grad. mm	€	L mm	
4,00 - 12,00	6	1	*96,53*	69	1
4,00 - 12,00	6	2	*99,95*	69	1
4,00 - 20,00	8	2	*126,97*	75	1
6,00 - 30,00	10	2	*182,35*	95	1

Ø mm	d mm	Grad. mm	€	L mm	
12,00 - 20,00	9	1	*114,78*	75	1
20,00 - 30,00	12	1	*170,91*	93	1
30,00 - 40,00	12	1	*309,57*	93	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

5160 HSS MULTI



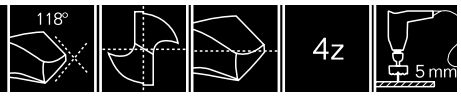
P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-60	● 25-45	● 40-60	● 12-50		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



M	Ciego Borgne Bling	Pasante Debouchant Bushing	d mm	€	L mm	
M8	-	Ø 8,5	12		97	
M10	Ø 8,5	Ø 10,5	12		97	
M12	Ø 10,5	Ø 12,5	12		97	
M16	Ø 14,5	Ø 16,5	12	*176,4*	97	1
M20	Ø 18,5	Ø 20,5	12		97	
M25	Ø 23,5	Ø 25,5	12		97	
M32	Ø 30,5	Ø 32,5	12		97	
M40	Ø 38,5	Ø 40,5	12		97	

5109 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-60	● 25-45	● 40-60	● 12-50		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø mm	d mm	€	L mm	
9,00 - 36,00	10	*220,40*	88	1
25,00 - 58,00	10	*540,76*	91	1

***(Hasta fin de existencias** / Jusqu'à épuisement des stocks / While supplies last)*

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

5112 Broca piloto / Foret pilote / Pilot drill-bit



Ø mm	d mm	€	L mm	
7,00	4	*36,30*	40	1

***(Hasta fin de existencias / Jusqu'à épuisement des stocks / While supplies last)**

5159 HM-MD DIN335C

90° | 3z | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 35-80	● 30-40	● 15-25	● 10-15	● 20-30	● 15-25	● 40-70	● 25-35	● 20-30	● 40-120	● 40-100	● 80-140	● 30-100	● 10-25	● 10-30	● 6-10	● 6-10	○ 4-8

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
6,30	6	*76,65*	50	1
8,30	6	*84,61*	50	1
10,40	8	*88,35*	50	1
12,40	8	*95,10*	50	1

Ø mm	d mm	€	L mm	
16,50	10	*105,84*	60	1
20,50	10	*116,51*	60	1
25,00	10	*159,37*	67	1
31,00	12	*215,17*	71	1

5116 HSS DIN 335 C

90° | 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
4,30	4	*16,84*	40	1
5,00	4	*16,84*	40	1
5,30	4	*16,84*	40	1
5,80	5	*16,84*	45	1
6,00	5	*15,04*	45	1
6,30	5	*14,81*	45	1
7,00	6	*16,84*	50	1
7,30	6	*16,84*	50	1
8,00	6	*16,84*	50	1
8,30	6	*14,37*	50	1
9,40	6	*19,64*	50	1
10,00	6	*17,02*	50	1
10,40	6	*16,71*	50	1
11,50	8	*19,74*	56	1

Ø mm	d mm	€	L mm	
12,40	8	*16,80*	56	1
13,40	8	*21,34*	56	1
15,00	10	*27,09*	60	1
16,50	10	*23,09*	60	1
19,00	10	*39,89*	63	1
20,50	10	*33,97*	63	1
23,00	10	*49,08*	67	1
25,00	10	*42,86*	67	1
26,00	10	*58,23*	67	1
28,00	12	*71,65*	71	1
30,00	12	*53,30*	71	1
31,00	12	*98,19*	71	1
40,00	13	*113,65*	80	1

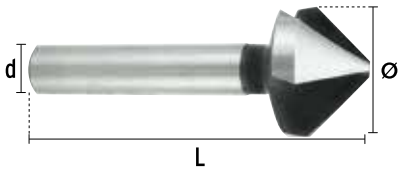
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5117 HSSCO DIN 335 C

90° | 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●		●	●		●	●	●	●	○	●			
20-30	12-18	4-8		4-10		15-24	9-13		15-80	25-60	60-90	12-70	2-6	2-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
6,00	5	*15,69*	45	1
6,30	5	*15,69*	45	1
8,00	6	*21,68*	50	1
8,30	6	*21,69*	50	1
9,40	6	*25,34*	50	1
10,00	6	*25,34*	50	1
10,40	6	*25,34*	50	1
11,50	8	*27,92*	56	1
12,40	8	*27,92*	56	1

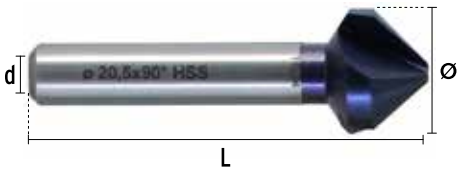
Ø mm	d mm	€	L mm	
15,00	10	*38,20*	60	1
16,50	10	*38,21*	60	1
19,00	10	*56,26*	63	1
20,50	10	*56,26*	63	1
25,00	10	*71,07*	57	1
30,00	12	*107,37*	71	1
31,00	12	*114,45*	71	1
40,00	13	*140,10*	80	1

5118 HSS DIN 335 C

90° | 3z | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
25-35	15-20			6-12		20-30	12-16		20-100	30-75	75-115	15-90		8-12			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

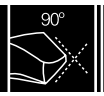


Ø mm	d mm	€	L mm	
4,30	4	*33,35*	40	1
5,00	4	*33,35*	40	1
5,30	4	*33,35*	40	1
5,80	5	*29,31*	45	1
6,00	5	*28,65*	45	1
6,30	5	*28,65*	45	1
7,00	6	*38,24*	50	1
7,30	6	*38,24*	50	1
8,00	6	*38,24*	50	1
8,30	6	*38,24*	50	1
9,40	6	*43,19*	50	1
10,00	6	*43,19*	50	1
10,40	6	*43,19*	50	1
11,50	8	*45,73*	56	1

Ø mm	d mm	€	L mm	
12,40	8	*45,73*	56	1
13,40	8	*47,24*	56	1
15,00	10	*63,48*	60	1
16,50	10	*65,21*	60	1
19,00	10	*79,55*	63	1
20,50	10	*81,24*	63	1
23,00	10	*92,56*	67	1
25,00	10	*93,85*	67	1
26,00	12	*101,78*	71	1
28,00	12	*119,29*	71	1
30,00	12	*123,77*	71	1
31,00	12	*128,29*	71	1
40,00	13	*195,83*	80	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

5119 HSSCO DIN 335 C



3z

TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-35	● 15-20	○ 6-10		● 6-12	○ 4-6	● 20-30	● 12-16	○ 6-10	● 20-100	● 30-75	● 75-115	● 15-90	● 3-8	● 3-12			

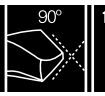
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
6,30	5	*32,21*	45	1
8,30	6	*43,19*	50	1
10,40	6	*49,17*	50	1
12,40	8	*53,92*	56	1

Ø mm	d mm	€	L mm	
16,50	10	*76,46*	60	1
20,50	10	*97,71*	63	1
25,00	10	*114,68*	67	1
30,00	12	*155,04*	71	

1505 HSS DIN 335 C Hex.





3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	L mm	€	
6,30	31	*9,80*	1
8,30	32	*11,33*	1
10,40	34	*13,47*	1

Ø mm	L mm	€	
12,40	36	*15,88*	1
16,50	40	*23,46*	1
20,50	43	*28,40*	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5120 HSS DIN 335 C

90° 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	L mm	€	
12,00	120	*19,47*	1
12,40	130	*25,08*	1
15,00	150	*33,87*	1
16,00	150	*25,98*	1

Ø mm	L mm	€	
16,50	150	*34,71*	1
19,00	150	*47,57*	1
20,50	150	*47,57*	1
25,00	150	*57,65*	1

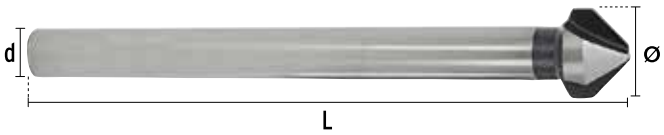
***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

5121 HSS DIN 335 C EL

90° 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
10,40	6	*64,00*	112	1
12,40	8	*78,03*	120	1
16,50	10	*94,03*	120	1

Ø mm	d mm	€	L mm	
20,50	10	*126,05*	124	1
25,00	10	*152,04*	128	1
31,00	12	*178,08*	133	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5122 HSS DIN 335 C

120° 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
6,30	5	*16,74*	45	1
8,30	6	*23,07*	50	1
10,40	6	*26,93*	50	1
12,40	8	*32,25*	56	1

Ø mm	d mm	€	L mm	
16,50	10	*40,81*	60	1
20,50	10	*60,21*	63	1
25,00	10	*75,92*	71	1

5123 HSS DIN 334 C

60° 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

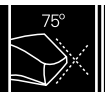


Ø mm	d mm	€	L mm	
6,30	5	*20,41*	45	1
8,00	6	*22,45*	50	1
10,00	6	*24,49*	53	1
12,50	8	*27,13*	56	1

Ø mm	d mm	€	L mm	
16,00	10	*34,71*	63	1
20,00	10	*48,97*	67	1
25,00	10	*68,36*	71	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5124 HSS DIN 335 C



3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

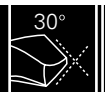
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
6,30	5	*15,71*	45	1
8,30	6	*21,42*	50	1
10,40	6	*25,32*	50	1
12,40	8	*27,96*	56	1

Ø mm	d mm	€	L mm	
16,50	10	*35,08*	60	1
20,50	10	*51,63*	63	1
25,00	10	*65,08*	67	1

5161 HSS



3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
6,30	5	*36,75*	50	1
12,40	8	*51,45*	65	1
16,50	10	*62,48*	73	1

Ø mm	d mm	€	L mm	
20,50	10	*84,53*	83	1
25,00	10	*113,93*	90	1
31,00	12	*161,70*	98	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5125 HSS DIN 335 C

90° | 1z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
10,00	8	*13,20*	46	1
12,00	8	*14,61*	46	1
16,00	8	*20,00*	47	1
20,00	8	*30,61*	47	1

Ø mm	d mm	€	L mm	
25,00	10	*42,04*	50	1
30,00	12	*71,43*	71	1
31,00	12	*75,62*	71	1

5126 HSS DIN 334 A

60° | z ≥ 4

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
12,50	8	*24,73*	50	1
16,00	10	*41,51*	60	1

Ø mm	d mm	€	L mm	
20,00	10	*53,54*	60	1
25,00	10	*74,92*	65	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5127 HSS DIN 335 A

90° z ≥ 4

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
8,00	8	*13,51*	48	1
12,50	8	*19,78*	48	1
16,00	10	*33,26*	56	1

Ø mm	d mm	€	L mm	
20,00	10	*42,83*	60	1
25,00	10	*59,98*	65	1

5129 HSS DIN 335 D

90° 3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



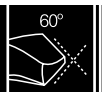
△	Ø mm	€	L mm	
2	20,50*	*102,05*	100	1
2	23,00*	*106,04*	106	1
2	25,00	*106,04*	106	1
2	26,00	*106,04*	106	1
2	28,00	*108,03*	112	1
2	30,00	*114,04*	112	1
2	31,00	*118,04*	112	1

△	Ø mm	€	L mm	
2	34,00	*124,04*	118	1
2	37,00	*136,04*	118	1
3	40,00	*170,06*	140	1
3	50,00	*214,06*	150	1
4	63,00	*346,11*	180	1
4	80,00	*592,21*	190	1

***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5130 HSS DIN 334 D



3z

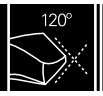
P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



△	Ø mm	€	L mm	
3	40,00	*218,25*	150	1
3	50,00	*311,82*	160	1
4	63,00	*491,07*	190	1

5132 HSS DIN 334 D



3z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



△	Ø mm	€	L mm	
3	40,00	*187,07*	134	1
3	50,00	*241,66*	142	1
4	63,00	*394,55*	178	1

5133 HSS DIN 335 D



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
2,00 - 5,00	6	*17,15*	45	1
5,00 - 10,00	8	*21,42*	48	1
10,00 - 15,00	10	*38,38*	65	1

Ø mm	d mm	€	L mm	
15,00 - 20,00	12	*68,55*	85	1
20,00 - 25,00	15	*115,70*	95	1
25,00 - 30,00	15	*177,72*	100	1

5134 HSSCO



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●		●	●		●	●	●	●	○	○			
20-30	12-18	4-8		4-10		15-24	9-13		15-80	25-60	60-90	12-70	2-6	2-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
2,00 - 5,00	6	*20,41*	45	1
5,00 - 10,00	8	*25,53*	48	1

Ø mm	d mm	€	L mm	
10,00 - 15,00	10	*45,54*	65	1
15,00 - 20,00	12	*81,63*	85	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5135 HSS



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	○			○		●	●		●	●	●	●		○			
20-30	12-18			4-10		15-24	9-13		15-80	25-60	60-90	12-70		4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	
2,00 - 5,00	6	*20,41*	45	1
5,00 - 10,00	8	*25,53*	48	1
10,00 - 15,00	10	*45,71*	65	1



P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

5136 HSS DIN 373 — ALLEN — ISO 4206

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



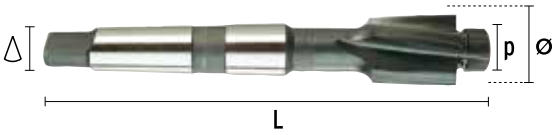
M	Ø mm	P mm	€	L mm	
M3	6,00	3,20	*23,88*	71	1
M4	8,00	4,30	*24,98*	71	1
M5	10,00	5,30	*24,11*	80	1
M6	11,00	6,40	*25,47*	80	1

M	Ø mm	P mm	€	L mm	
M8	15,00	8,40	*33,29*	100	1
M10	18,00	10,50	*43,42*	100	1
M12	20,00	13,00	*54,02*	100	1

5137 HSS DIN 375 — ALLEN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 20-30	○ 12-18			○ 4-10		● 15-24	● 9-13		● 15-80	● 25-60	● 60-90	● 12-70		○ 4-10			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



△	M	Ø mm	P mm	€	L mm	
2	M10	18,00	10,50	*60,28*	140	1
2	M12	20,00	13,00	*73,22*	140	1
2	M14	24,00	15,00	*95,99*	150	1
3	M16	26,00	17,00	*115,76*	180	1

△	M	Ø mm	P mm	€	L mm	
3	M18	30,00	19,00	*124,82*	1	1
3	M20	33,00	21,00	*159,18*	1	1
3	M22	36,00	23,00	*178,95*	1	1
3	M24	40,00	25,00	*197,28*	1	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

5142 Ø 6 a 19 mm

Ø mm	
6 - 8 - 10 - 11,5 - 15 - 19	6

›HSS ›HSS CO ›HSS TIALN



REF.	€
HSS	*142,99*
HSS CO	*189,82*
HSS TIALN	*285,61*

5143 Ø 6,3 a 20,5 mm

Ø mm	
6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5	6

›HSS ›HSS CO ›HSS TIALN



REF.	€
HSS	*132,52*
HSS CO	*192,32*
HSS TIALN	*304,95*

5151 Ø 2-5 a 10-20 mm

Ø mm	
2-5/5-10/10-15/15-20	4

›HSS



REF.	€	
HSS	*173,85*	4

5155 M3 - M10

Ø mm	
M3/M4/M5/M6/M8/M10	6

›HSS



REF.	€	
HSS	*236,05*	6

5138 Ø 3 a 14 / 6 a 20 / 16 a 30 mm

Ø mm	
3-14,6-20,16-30	3

›HSS ›HSS CO ›HSS TIALN



REF.	€
HSS	*118,30*
HSS CO	*148,63*
HSS TIALN	*253,55*

5139 Ø 4 a 12 / 12 a 20 / 20 a 30 mm

Ø mm	X mm	
4-12,12-20,20-30	1	3

›HSS ›HSS TIALN



REF.	€
HSS	*246,97*
HSS TIALN	*396,24*

5140 Ø 4 a 12 / 4 a 20 / 6 a 30 mm

Ø mm	X mm	
4-12,4-20,6-30	2	3

>HSS



>HSS TIALN



>HSS (35º)



>HSS TIALN (35º)



REF.	€
HSS	*205,73*
HSS TIALN	*423,32*
HSS (35º)	*283,90*
HSS TIALN (35º)	*418,81*

5141 Ø 4 a 20 / 6 a 30 mm

Ø mm	X mm	
4-20,6-30	2	2

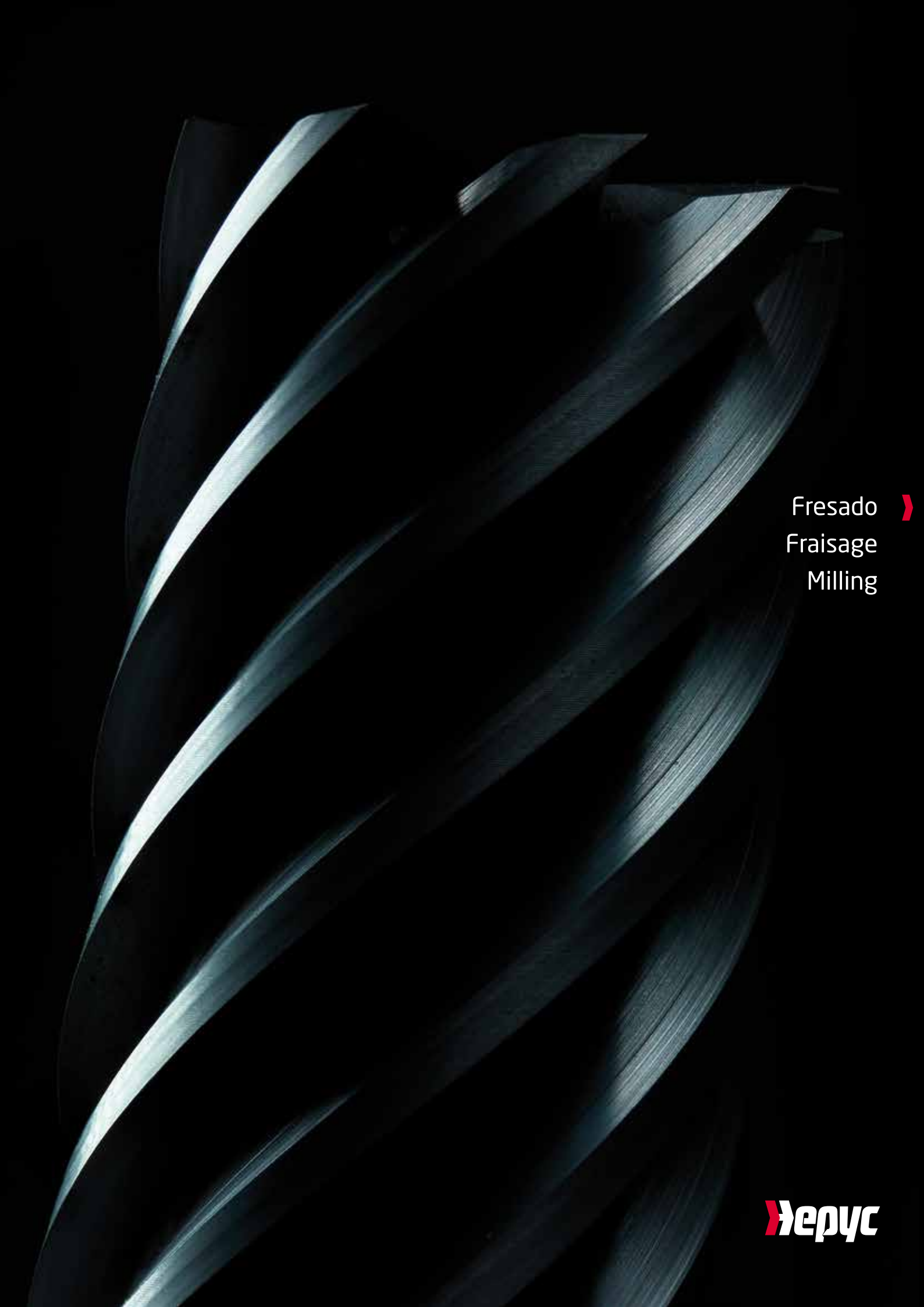
>HSS



>HSS TIALN



REF.	€
HSS	*160,85*
HSS TIALN	*323,37*



Fresado
Fraisage
Milling

ÍNDICE
SOMMAIRE / INDEX

Hepyc CUTTING TOOL EXPERTS

								Pág.
Fresas Metal duro / Fraises carbure / Hard metal mills								
	3141	HM-MD				1z	N	349
	3189	HM-MD				2z 45° DIN 6535 HA	N	349
NEW	3190	HM-MD				45° 3z DIN 6535 HA	N	350
	3167	HM-MD	DIN 6527S	TIALN		2z 30° DIN 6535 HA	P M K S	350
	3168	HM-MD	DIN 6527L	TIALN		2z 30° DIN 6535 HA	P M K S	351
	3169	HM-MD	DIN 6527S	TIALN		2z 30° DIN 6535 HA	P M K N H	352
	3170	HM-MD	DIN 6527L	TIALN		2z 30° DIN 6535 HA	P M K N H	352
NEW	3191	HM-MD	DIN 6527EL	AlCrN		2z 30° DIN 6535 HA	P K S H	353
	3171	HM-MD	DIN 6527S	TIALN		3z 30° DIN 6535 HA	P M K S	353
	3172	HM-MD	DIN 6527L	TIALN		3z 30° DIN 6535 HA	P M K S	354
	3173	HM-MD	DIN 6527S	TIALN		3z 45° DIN 6535 HA	P M K S H	354
	3174	HM-MD	DIN 6527L	TIALN		3z 45° DIN 6535 HA	P M K S	355
	3175	HM-MD	DIN 6527S	TIALN		4z 30° DIN 6535 HA	P M K S	356
	3176	HM-MD	DIN 6527L	TIALN		4z 30° DIN 6535 HA	P M K S	356
	3177	HM-MD	DIN 6527L	TIALN		4z 35°38° DIN 6535 HA	P M K S H	357
NEW	3192	HM-MD	DIN 6527 L	AlCrN		4z 35°38° DIN 6535 HA	P M K S H	358
NEW	3193	HM-MD	DIN 6527 EL	AlCrN		5z 35°38° DIN 6535 HA	P H	358
	3178	HM-MD	DIN 6527L	AlCrN		4z 35°38° DIN 6535 HA	P M K S H	359
	3179	HM-MD	DIN 6527L	TIALN		6,8z 45° DIN 6535 HA	P M K S H	360

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

							Pág.
	3180	HM-MD	DIN 6527EL	TIALN		6,8z · 45° · DIN 6535 HA	P M K S H	360
	3181	HM-MD	DIN 6527L	TIALN		3,4,5,6 z · 45° · DIN 6535 HA	P M K S	361
	3183	HM-MD		TIALN		60° · 4z · DIN 6535 HA	P M K S H	361
	3184	HM-MD		TIALN		90° · 4z · DIN 6535 HA	P M K S	362
	3185	HM-MD		TIALN		r · 4z · DIN 6535 HA	P M K S	362
NEW	3194	HM-MD	DIN 6527 L	AlCr		4z · 40° 42° · DIN 6535 HA	M S	363
NEW	3195	HM-MD	DIN 6527 EL	AlCr		5z · 40° 42° · DIN 6535 HA	M S	363
	3101	HM-MD				2z · 30°	P M K S	364
	3105	HM-MD				3z · 30°	P M K S	364
	3107	HM-MD				4z · 30°	P M K S	365

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Fresas HSSE mango cilíndrico cortas / Fraises HSSE queue cylindrique courtes / HSSE Straight short shank mills

3120	HSSE				1z	N	366
3121	HSSE				1z	N	366
3122	HSSE				1z	N	367
3186	HSSE				40° 2z	P N	367
3110	HSSE	DIN 327 N			30° 2z	P	368
3110/1	HSSE	DIN 327 N	TIALN		30° 2z	P K	369
3112	HSSE	DIN 327 N			30° 2z	P	370
3112/1	HSSE	DIN 327 N	TIALN		30° 2z	P K S	370
3187	HSSE	DIN 327 N			30° 3z	P	371
3187/1	HSSE	DIN 327 N	TIALN		30° 3z	P K	371
3114	HSSE	DIN 844 W			45° 3z	P N	372
3114/1	HSSE	DIN 844 W	TIALN		45° 3z	P N	372
3115	HSSE	DIN 844 N			30° z≥4	P	373
3115/1	HSSE	DIN 844 N	TIALN		30° z≥4	P K S	373
3117	HSSE	DIN 844 NR			30° z≥4	P	374
3117/1	HSSE	DIN 844 NR	TIALN		30° z≥4	P K	374
3119	HSSE	DIN 844 NRF			30° z≥4	P K	375
3119/1	HSSE	DIN 844 NRF	TIALN		30° z≥4	P K	375

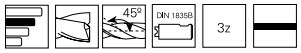
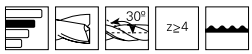
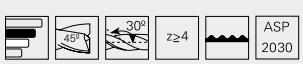
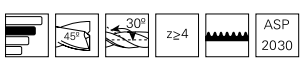
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

3162	HSSE-PM	DIN 844 N	TIALN			P M K S	376
3157	HSSE-PM	DIN 844 NR	TIALN			P M K	376
3159	HSSE-PM	DIN 844 NRF	TIALN			P M K S	377

Fresas HSSE mango cilíndrico largas / Fraises HSSE queue cylindrique longues / HSSE Straight long shank mills

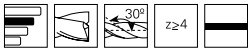
3111	HSSE	DIN 844				P	378
3111/1	HSSE	DIN 844				P K	378
3113	HSSE	DIN 844				P	379
3113/1	HSSE	DIN 844	TIALN			P K S	379
3188	HSSE	DIN 327 N				P	380
3188/1	HSSE	DIN 327 N	TIALN			P K	380
3182	HSSE	DIN 844 W				P N	381
3182/1	HSSE	DIN 844 W	TIALN			P N	381
3116	HSSE	DIN 844 N				P	382
3116/1	HSSE	DIN 844 N	TIALN			P K S	382
3118	HSSE	DIN 844 NR				P	383
3118/1	HSSE	DIN 844 NR	TIALN			P K	383
3163	HSSE-PM	DIN 844 N	TIALN			P M K S	384
3158	HSSE-PM	DIN 844 vNR	TIALN			P M K	384
3160	HSSE-PM	DIN 844 NRF	TIALN			P M K S	385

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

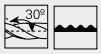
ÍNDICE
SOMMAIRE / INDEX

Pág.

Fresas mango cónico / Fraises queue conique / Tapered shank mills

3144	HSSE	DIN 326 N				P N	386
3144/1	HSSE	DIN 326 N	TIALN			P K N	386
3145	HSSE	DIN 845 N				P N	387
3145/1	HSSE	DIN 845 N	TIALN			P K N S	387
3146	HSSE	DIN 845 NR				P N	388
3146/1	HSSE	DIN 845 NR	TIALN			P K N	388
3147	HSSE	DIN 845 N				P N	389
3147/1	HSSE	DIN 845 N	TIALN			P K N S	389
3148	HSSE	DIN 845 NR				P N	390
3148/1	HSSE	DIN 845 NR	TIALN			P K N	390

Fresas con agujero / Fraises à trou / Mills with holes

3149	HSSE	DIN 1880 N				P M K N S	391
3150	HSSE	DIN 1880 NR				P M K N S	391
3165	HSSE	DIN 1880 NRF				P M K N S	392
3151	HSSE	DIN 885 D				P K N	392
3161	HSSE	DIN 885 A				P M K N S	393
3166	HSSE	DIN 1834 A				P K N	393

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

Pág.

Fresas HSSE especiales / Fraises HSSE spéciales / HSSE Special mills

3152	HSSE	DIN 850 D		Tol	P N	394
3153	HSSE	DIN 851 N		Tol ISO 3337	P N	394
3154	HSSE	DIN 851 B		Tol ISO 1641	P N	395
3155	HSSE	DIN 1833 A		Tol ISO 3859	P N	395
3156	HSSE	DIN 1833 B		Tol ISO 3859	P N	396
3164	HSSE	DIN 6518 N		Tol	P N	396

Fresas rotativas metal duro / Fraises rotatives métal dur / Hard metal rotary mills

3201	HM-MD	Cilíndrica Cylindrique Straight		DIAM CRUZ ALU	P M K N S H	397
3202	HM-MD	Cilíndrica con corte Cylindrique taillée Straight with cut		DIAM CRUZ ALU	P M K N S H	397
3203	HM-MD	Cilíndrica radio Cylindrique à rayon Straight radius		DIAM CRUZ ALU	P M K N S H	398
3204	HM-MD	Esférica Sphérique Spherical		DIAM CRUZ ALU	P M K N S H	398
3205	HM-MD	Oval Ovale		DIAM CRUZ ALU	P M K N S H	399
3206	HM-MD	Árbol con radio Arbre à rayon Arc with radius		DIAM CRUZ ALU	P M K N S H	399
3207	HM-MD	Árbol Arbre Arc		DIAM CRUZ ALU	P M K N S H	400
3208	HM-MD	Llama Flamme Flame		DIAM CRUZ ALU	P M K N S H	400
3209	HM-MD	Cónica Conique Tapered		DIAM CRUZ ALU	P M K N S H	401
3210	HM-MD	Cónica 90º Conique 90º Tapered 90º		DIAM CRUZ ALU	P M K N S H	401
3211	HM-MD	Cónica radio Conique à rayon Tapered radius		DIAM CRUZ ALU	P M K N S H	402
3212	HM-MD	Cono invertido Cône inversé Inverted taper		DIAM CRUZ ALU	P M K N S H	402

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

ÍNDICE
SOMMAIRE / INDEX

						Pág.
3214	HM-MD	Cilíndrica L Cylindrique L Straight L			DIAM CRUZ ALU	P M K N S H	403
3215	HM-MD	Cilíndrica con corte L Cylindrique taillée L Straight with L cut			DIAM CRUZ ALU	P M K N S H	403
3216	HM-MD	Cilíndrica radio L Cylindrique à rayon L Straight L radius			DIAM CRUZ ALU	P M K N S H	404
3217	HM-MD	Árbol L Arbre L L Arc			DIAM CRUZ ALU	P M K N S H	404
3218	HM-MD	Esférica L Sphérique L L Spherical			DIAM CRUZ ALU	P M K N S H	405
3219	HM-MD	Árbol con radio L Arbre à rayon L L Radius arc			DIAM CRUZ ALU	P M K N S H	405

Fresas huecas máquinas electromagnéticas / Fraises à trou électromagnétiques / Electromagnetics core bits

							Pág.
7172	HSS				WELDON 19 QUICK CHANGE	L=30	P N	406
7172	HSS				WELDON 19 QUICK CHANGE	L=50	P N	407
7137	HSSE				WELDON 19 QUICK CHANGE	L=30	P K N	408
7137	HSSE				WELDON 19 QUICK CHANGE	L=50	P K N	409
7137	HSSE				WELDON 19 QUICK CHANGE	L=100	P K N	410
7138	HSSE		TIALN		WELDON 19 QUICK CHANGE	L=30	P M K N S	410
7138	HSSE		TIALN		WELDON 19 QUICK CHANGE	L=50	P M K N S	411
7139	TCT				WELDON 19 QUICK CHANGE	L=35	P M K N S H	412
7139	TCT				WELDON 19 QUICK CHANGE	L=50	P M K N S H	412
7140		CONO MORSE CONE MORSE MORSE TAPER						413
7141		PUNZON POINÇON PUNCHER						413
7158		ADAPTADOR FEIN FEIN FEIN						413
Estuches / Coffrets / Sets								414

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

FORMULARIO FRESAS ESPECIALES
FICHE TECHIQUE FRAISES SPECIAUX / TECHNICAL ENQUIRY FOR SPECIAL MILLS

Fecha / Date: .....

Empresa / Entreprise / Company: ..... **Contacto /** Contact: .....

Dirección / Adresse / Adress: ..... **Población /** Ville / Town: .....

Tel / Fax: ..... **E-mail:** .....

.....

TRABAJO A REALIZAR / TRAVAIL DEMANDE / REQUESTED WORK

Material / Matière / Material ..... **Norma /** Norme / Norm: .....

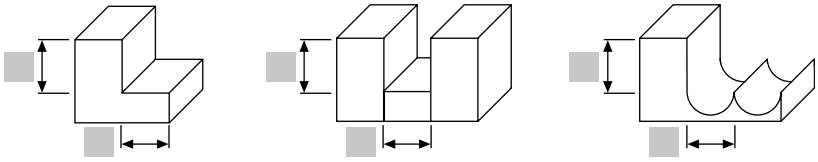
Dureza / Dureté / Hardness ..... **HB** ..... **HRc** **Resistencia /** Résistance / Resistance .....N/mm²

Tipo viruta: ☐ **Corta** ☐ **Larga** ☐ **Polvo**
Type copeau — Courte — Longue — Poussière
Shaving — Short — Long — Powder

Máquina / Machine ..... **Refrigerante /** Réfrigérant / Coolant .....

Posición / Position: ☐ **Horizontal** ☐ **Vertical** ☐ **V. Corte** (V. Coupe / Cutting Speed) ☐ **V. avance** (Avance / Feed)

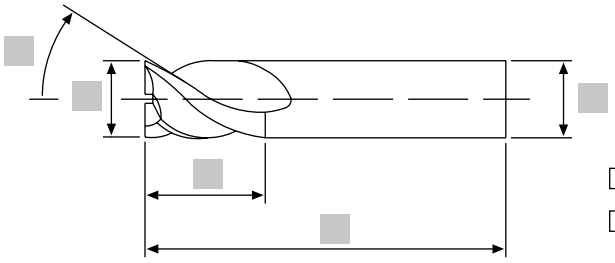
Forma / Forme / Form:



HERRAMIENTA / OUTIL / TOOL

Descripción / Description .....

Cantidad / Quantité / Quantity..... **Número ranuras /** Rainures / Grooves .....



☐ **Corte al centro /** Coupe au centre / Cut to the center

☐ **Sin corte al centro /** Sans coupe au centre / Without cut to the center

Mango: ☐ **Cilíndrico** ☐ **Weldon** ☐ **Cónico** ☐ **Rebajado**
Queue: — Cylindrique — Weldon — Conique — Réduite
Shank: — Straight — Weldon — Taper — Reduced

Tipos de punta: ☐ **Recta** ☐ **Chaflán** ☐ **Radial**
Types de pointe: — Droite — Chanfrein — Radiale
Types of tips: — Straight — Chamfered — Radial

Labios: ☐ **Desbaste** ☐ **Desbaste fino** ☐ **Acabado**
Lèvres: — Dégrossissage — Dégrossissage fin — Finition
Lips: — Grinding — Fine grinding — Finishing

Material / Matière / Material: ☐ **HSS** ☐ **HSSE** ☐ **HM** ☐ **HSS-HM**

Superficie / Surface: ☐ **Brillante** (Brillant / Brilliant) ☐ **Recubrimiento** (Revêtement / Coating)

COMENTARIOS / COMMENTAIRES/ COMMENTS: .....

.....

.....

.....

Servicio de Herramienta Especial - Service Outils Spéciaux - Special Tools Service
Tel. (+34) 93 387 32 99 - Fax.(+ 34) 93 383 33 08 - especiales@hepycrf.com

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi \times Ø}$$



		3141	3189	3190	3167	3168	3169	3170	3191	3171	3172	3173	3174	3175
Ref./ Réf. / Ref.		3141	3189	3190	3167	3168	3169	3170	3191	3171	3172	3173	3174	3175
Z		1Z	2Z	3Z	2Z	2Z	2Z	2Z	2Z	3Z	3Z	3Z	3Z	4Z
Ejec./Exéc./Exec.		N	W	W	N	N	N	N	N	N	N	W	W	N
Hel./Hel./Spiral		30°	45°	45°	30°	30°	30°	30°	30°	30°	30°	45°	45°	30°
Mat.		HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM
Rec./Rev./Coat.					TIALN	TIALN	TIALN	TIALN	AICRN	TIALN	TIALN	TIALN	TIALN	TIALN
DIN					6527S	6527L	6527S	6527L	6527EL	6527S	6527L	6527S	6527L	6527S
Arista/Arête/Edge		45°					R	R	R					
Gama/Gamme/Range		3-10	3-20	3-20	3-20	3-20	3-20	3-20	2-20	3-20	3-20	3-20	3-20	3-20
Pag.		349	349	350	351	351	352	352	353	354	354	355	355	356
Mat.		Vc (m/min)												
P.1	<600				● 140-250	● 120-220	● 140-250	● 140-250	● 180-240	● 140-250	● 120-220	● 140-250	● 120-220	● 140-250
P.2	<800				● 110-220	● 100-200	● 110-220	● 110-220	● 160-220	● 110-220	● 100-200	● 110-220	● 100-200	● 110-220
P.3	<1000				● 90-200	● 80-180	● 90-200	● 90-200	● 140-210	● 90-200	● 80-180	● 90-200	● 80-180	● 90-200
P.4	<1200				● 75-180	● 70-150	● 75-180	● 75-180	● 150-200	● 75-180	● 70-150	● 75-180	● 70-150	● 75-180
P.5	<1400				● 60-120	● 60-90	● 60-120	● 60-120	● 100-140	● 60-120	● 60-90	● 60-120	● 60-90	● 60-120
M.1	<950				● 80-140	● 70-110	● 70-110	● 70-110		● 80-140	● 70-110	● 80-140	● 70-110	● 80-140
M.2	<950				● 80-140	● 70-110	● 70-110	● 70-110		● 80-140	● 70-110	● 80-140	● 70-110	● 80-140
M.3	<1200				● 60-120	● 60-100	● 60-100	● 60-100		● 60-120	● 60-100	● 60-120	● 60-100	● 60-120
M.4	<1200				● 60-120	● 60-100	● 60-100	● 60-100		● 60-120	● 60-100	● 60-120	● 60-100	● 60-120
K.1	<500				● 120-180	● 100-160	● 120-180	● 120-180	● 120-180	● 120-180	● 100-160	● 120-180	● 100-160	● 120-180
K.2	<500				● 120-180	● 100-160	● 120-180	● 120-180	● 120-180	● 120-180	● 100-160	● 120-180	● 100-160	● 120-180
K.3	<800				● 100-140	● 80-120	● 100-140	● 100-140	● 90-130	● 100-140	● 80-120	● 100-140	● 80-120	● 100-140
K.4.1	<800				● 100-140	● 80-120	● 100-140	● 100-140	● 90-130	● 100-140	● 80-120	● 100-140	● 80-120	● 100-140
K.4.2	<1400				○ 60-120	○ 60-90	○ 60-120	○ 60-120	○ 100-140	○ 60-120	○ 60-90	○ 60-120	○ 60-90	○ 60-120
N.1.1	Al	● 150-300	● 150-300	● 150-300			○ 150 - 450	○ 150 - 450				○ 150-300	○ 110-240	
N.1.2	Al	● 150-300	● 150-300	● 150-300			○ 150 - 450	○ 150 - 450				○ 150-300	○ 110-240	
N.1.3	Al	● 150-300	● 150-300	● 150-300			○ 150 - 450	○ 150 - 450				○ 150-300	○ 110-240	
N.2.1	Cu	● 120-350	● 120-350	● 120-350			● 120-350	● 120-350				○ 120-350	○ 110-250	
N.2.2	Cu	● 120-350	● 120-350	● 120-350			● 120-350	● 120-350				○ 120-350	○ 110-250	
N.2.3	Cu				○ 110-220	○ 100-200	● 110-220	● 110-220		○ 110-220	○ 100-200	○ 110-220	○ 100-200	○ 110-220
N.2.4	Cu						● 60-120	● 60-120						
N.3.1	Mg/Zn	● 120-350	● 120-350	● 120-350			● 150 - 450	● 150 - 450				○ 120-350	○ 90-250	
N.4.1	Plastic	● 150-300	● 150-300	● 150-300			● 150 - 450	● 150 - 450				○ 150-300	○ 110-240	
N.4.2	Plastic													
N.4.3	Plastic													
S.1.1	Ni				● 60-90	● 50-80			● 50-80	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90
S.1.2	Ni				● 40-75	● 40-60			● 40-60	● 40-75	● 40-75	● 40-75	● 40-75	● 40-75
S.2.1	Ti				● 80-140	● 70-110				● 80-140	● 70-110	● 80-140	● 70-110	● 80-140
S.2.2	Ti				● 75-100	● 70-90			● 70-90	● 75-100	● 75-100	● 75-100	● 75-100	● 75-100
S.2.3	Ti				● 60-90	● 60-80			● 60-80	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90
H.1	50 HRC						● 40-80	● 40-80	● 90-150			● 40-80		
H.2	55 HRC						○ 30-50	○ 30-50	● 70-130			○ 30-50		
H.3	60 HRC								○ 60-110					

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials



3176	3177	3192	3193	3178	3179	3180	3181	3183	3184	3185	3194	3195	3101	3105	3107
4Z	4Z	4Z	5Z	4Z	6,8Z	6,8Z	3,4,5,6Z	4Z	4Z	4Z	4Z	5Z	2Z	3Z	4Z
N	N-V	N-V	N-V	N-V	W	W	WR	60º	90º	r	N-V	N-V	N	N	N
30º	35º-38º	35º-38º	37º-38º	35º-38º	45º	45º	45º	0º	0º	0º	40º-42º	40º-42º	30º	30º	30º
HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM
TIALN	TIALN	AICRN	AICRN	AICRN	TIALN	TIALN	TIALN	TIALN	TIALN	TIALN	ALCR	ALCR			
6527L	6527L	6527L	6527EL	6527L	6527S	6527EL	6527L				6527L	6527EL			
	45º	45º	45º	r	45º	45º	45º	30º	45º	r	45º	45º			
3-20	3-20	3-20	6-25	6-16	6-20	6-20	4-20	1,20-2,40	1,20-2,40	0,50-5	3-20	6-25	3-20	3-20	3-20
356	357	358	358	359	360	360	361	361	362	362	363	363	364	364	365
Vc (m/min)															
● 120-220	● 120-220	● 180-240	● 220-380	● 180-240	● 120-220	● 120-220	● 120-220	● 120-220	● 120-220	● 120-220			● 85-155	● 85-155	● 85-155
● 100-200	● 100-200	● 170-220	● 210-350	● 170-220	● 100-200	● 100-200	● 100-200	● 100-200	● 100-200	● 100-200			● 70-130	● 70-130	● 70-130
● 80-180	● 80-180	● 160-210	● 200-320	● 160-210	● 80-180	● 80-180	● 80-180	● 80-180	● 80-180	● 80-180			● 60-110	● 60-110	● 60-110
● 70-150	● 70-150	● 150-200	● 200-300	● 150-200	● 70-150	● 70-150	● 70-150	● 70-150	● 70-150	● 70-150			● 50-105	● 50-105	● 50-105
● 60-90	● 60-90	● 100-140	● 180-250	● 100-140	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90	● 60-90			○ 45-65	○ 45-65	○ 45-65
● 70-110	● 70-110	● 80-140		● 80-140	● 70-110	● 70-110	● 70-110	● 70-110	● 70-110	● 70-110	● 90-150	● 150-230	● 50-80	● 50-80	● 50-80
● 70-110	● 70-110	● 80-140		● 80-140	● 70-110	● 70-110	● 70-110	● 70-110	● 70-110	● 70-110	● 90-150	● 150-230	● 50-80	● 50-80	● 50-80
● 60-100	● 60-100	● 60-120		● 60-120	● 60-100	● 60-100	● 60-100	● 60-100	● 60-100	● 60-100	● 70-130	● 130-200	● 45-70	● 45-70	● 45-70
● 60-100	● 60-100	● 60-120		● 60-120	● 60-100	● 60-100	● 60-100	● 60-100	● 60-100	● 60-100	● 70-130	● 130-200	● 45-70	● 45-70	● 45-70
● 100-160	● 100-160	● 120-180		● 120-180	● 100-160	● 100-160	● 100-160	● 100-160	● 100-160	● 100-160			● 70-115	● 70-115	● 70-115
● 100-160	● 100-160	● 120-180		● 120-180	● 100-160	● 100-160	● 100-160	● 100-160	● 100-160	● 100-160			● 70-115	● 70-115	● 70-115
● 80-120	● 80-120	● 90-130		● 90-130	● 80-120	● 80-120	● 80-120	● 80-120	● 80-120	● 80-120			● 60-85	● 60-85	● 60-85
● 80-120	● 80-120	● 90-130		● 90-130	● 80-120	● 80-120	● 80-120	● 80-120	● 80-120	● 80-120			● 60-85	● 60-85	● 60-85
○ 60-90	○ 60-90	○ 100-140		○ 100-140	○ 60-90	○ 60-90	○ 60-90	○ 60-90	○ 60-90	○ 60-90					
○ 100-200	○ 100-200	○ 170-220	○ 200-250	○ 170-220	○ 100-200	○ 100-200	○ 100-200	○ 100-200	○ 100-200	○ 100-200			○ 70-130	○ 70-130	○ 70-130
● 60-90		● 50-80		● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 50-80	● 60-80	● 50-100	● 40-60	● 40-60	● 40-60
● 40-75	● 40-60	● 40-60		● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 40-60	● 50-70	● 40-80	● 30-45	● 30-45	● 30-45
● 70-110		● 80-140		● 80-140	● 70-110	● 70-110	● 70-110	● 70-110	● 70-110	● 70-110	● 90-150	● 150-230	● 50-80	● 50-80	● 50-80
● 75-100		● 70-90		● 70-90	● 70-90	● 70-90	● 70-90	● 70-90	● 70-90	● 70-90	● 80-100	● 80-170	● 50-80	● 50-80	● 50-80
● 60-90	● 60-80	● 60-80		● 60-80	● 60-80	● 60-80	● 60-80	● 60-80	● 60-80	● 60-80	● 60-80	● 60-120	● 45-60	● 45-60	● 45-60
	● 40-80	● 90-150	● 70-130	● 90-150	● 60-100	● 60-100		● 40-80							
	○ 30-50	● 70-130	● 50-120	● 70-130	○ 50-80	○ 50-80		○ 30-50							
		○ 60-110	○ 40-80	○ 60-110											

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi \times Ø}$$



		Ref./ Réf. / Ref.	3120	3121	3122	3186	3110	3110/1	3112	3112/1	3187	3187/1	3114	3114/1	3115	3115/1	3117	3117/1	3119	3119/1
		Z	1Z	1Z	1Z	2Z	2Z	2Z	2Z	2Z	3Z	3Z	3Z	3Z	Z>4	Z>4	Z>4	Z>4	Z>4	Z>4
		Ejec./Exéc./Exec.	W	W	W	W	N	N	N	N	N	N	W	W	N	N	NR	NR	NRF	NRF
		Hel./Hel./Spiral				40°	30°	30°	30°	30°	30°	30°	45°	45°	30°	30°	30°	30°	30°	30°
		Mat.	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
		Rec./Rev./Coat.						TIALN		TIALN		TIALN		TIALN		TIALN		TIALN		TIALN
		DIN					327	327	327	327	327	327	844	844	844	844	844	844	844	844
		Gama/Gamme/Range	3-10	4-8	5	2-20	2,40	2-40	3-25	3-25	2-32	2-32	2-30	6-20	2-32	3-32	6-40	6-32	6-30	6-30
		Pag.	366	366	367	367	368	369	370	370	371	371	372	372	373	373	374	374	375	375
Mat.			Vc (m/min)																	
P.1	<600					● 45-50	● 45-50	o 70-80	● 45-50	o 70-80	● 45-50	o 70-80	● 45-50	● 70-80	● 45-50	o 70-80	● 45-50	● 70-80	o 45-50	o 70-80
P.2	<800				o 30-36	● 30-36	● 48-65	● 30-36	● 48-65	● 30-36	● 48-65	● 30-36	o 48-65	● 30-36	● 48-65	● 35-45	● 55-65	● 30-36	● 48-65	
P.3	<1000					o 25-30	● 40-45	o 25-30	● 40-45	o 25-30	● 40-45			o 25-30	● 40-45	o 25-30	● 45-55	● 25-30	● 40-45	
P.4	<1200						o 30-35		o 30-35		o 30-35				o 30-35		o 35-40			
P.5	<1400																			
M.1	<950						o 15-20	o 25-35	o 15-20	o 25-35	o 15-20	o 25-35			o 15-20	o 25-35	o 15-20	o 25-35	o 15-20	o 25-35
M.2							o 15-20	o 25-35	o 15-20	o 25-35	o 15-20	o 25-35			o 15-20	o 25-35	o 15-20	o 25-35	o 15-20	o 25-35
M.3	<1200																			
M.4																				
K.1	<500						o 34-38	● 55-60	o 34-38	● 55-60	o 34-38	● 55-60			o 34-38	● 55-60	o 34-38	● 55-60	o 34-38	● 55-60
K.2																				
K.3	<800							o 30-35		o 30-35		o 30-35				o 30-35			● 20-25	● 30-40
K.4.1							o 20-24	● 30-40	o 20-24	● 30-40	o 20-24	● 30-40			o 20-24	● 30-40			o 34-38	o 55-60
K.4.2	<1400							o 30-35		o 30-35		o 30-35				o 30-35				
N.1.1	Al		● 160-200	● 160-200	● 160-200	● 160-200							● 100-150	● 130-200						
N.1.2			● 160-200	● 160-200	● 160-200	● 160-200							● 100-150	● 130-200						
N.1.3			o 60-100	o 60-100	o 60-100	o 60-100							o 60-100	o 100-160						
N.2.1	Cu						o 70-90	o 90-120	o 70-90	o 90-120	o 70-90	o 90-120			o 70-90	o 90-120	o 70-90	o 90-120	o 70-90	o 90-120
N.2.2							o 70-90	o 90-120	o 70-90	o 90-120	o 70-90	o 90-120			o 70-90	o 90-120	o 70-90	o 90-120	o 70-90	o 90-120
N.2.3							o 45-50	o 70-80	o 45-50	o 70-80	o 45-50	o 70-80			o 45-50	o 70-80	o 45-50	o 60-75	o 45-50	o 60-75
N.2.4																				
N.3.1	Mg/Zn		● 60-100	● 60-100	● 60-100	● 60-100							● 60-100	● 80-120						
N.4.1	Plastic		● 50-80	● 50-80	● 50-80	● 50-80							● 50-80	● 65-100						
N.4.2																				
N.4.3																				
S.1.1	Ni								o 2-4	● 4-6					o 15-20	● 25-35			o 15-20	o 25-35
S.1.2																				
S.2.1	Ti										o 15-20	o 25-35			o 15-20	● 25-35				
S.2.2												o 30-35				o 30-35				
S.2.3																				
H.1	50 HRC																			
H.2	55 HRC																			
H.3	60 HRC																			

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron
N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials



3162	3157	3159	3111	3111/1	3113	3113/1	3188	3188/1	3182	3182/1	3116	3116/1	3118	3118/1	3163	3158	3160
Z>4	Z>4	Z>4	2Z	2Z	2Z	2Z	3Z	3Z	3Z	3Z	Z>4	Z>4	Z>4	Z>4	Z>4	Z>4	Z>4
N	NR	NRF	N	N	N	N	N	N	W	W	N	N	NR	NR	N	NR	NRF
30°	30°	30°	30°	30°	30°	30°	30°	30°	40°	40°	30°	30°	30°	30°	30°	30°	30°
HSSE-PM	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE-PM	HSSE-PM	HSSE-PM
TIALN	TIALN	TIALN		TIALN		TIALN		TIALN		TIALN		TIALN		TIALN	TIALN	TIALN	TIALN
844	844	844	844-L	844-L	327-L	327-L	327-L	327-L	844-L	844-L	844-L	844-L	844-L	844-L	844-L	844-L	844-L
6-20	6-32	6-20	4-25	4-25	4-25	4-25	3-25	3-25	6-20	6-20	3-25	6-25	6-32	6-32	6-20	6-32	6-20
376	376	377	378	378	379	379	380	380	381	381	382	382	383	383	384	384	385
Vc (m/min)																	
o 80-85	o 85-90	o 80-85	● 45-50	o 70-80	● 45-50	o 70-80	● 45-50	o 70-80	● 45-50	● 70-80	● 45-50	o 70-80	● 45-50	● 70-80	o 80-85	o 85-90	o 80-85
● 55-65	● 60-70	● 55-65	● 30-36	● 48-65	● 30-36	● 48-65	● 30-36	● 48-65	o 30-36	o 48-65	● 35-45	● 48-65	● 35-45	● 55-65	● 55-65	● 60-70	● 55-65
● 50-60	● 50-60	● 40-50	25-30	● 40-45	o 25-30	● 40-45	o 25-30	● 40-45			o 25-30	● 40-45	o 25-30	● 45-55	● 50-60	● 50-60	● 40-50
o 35-40	o 45-50	o 35-40		o 30-35		o 30-35		o 30-35				o 30-35		o 35-40	o 35-40	o 45-50	o 35-40
● 35-40	● 35-40	● 30-35	o 15-20	o 25-35	o 15-20	o 25-35	o 15-20	o 25-35			o 15-20	o 25-35	o 15-20	o 25-35	● 35-40	● 35-40	● 30-35
● 35-40	● 35-40	● 30-35	o 15-20	o 25-35	o 15-20	o 25-35	o 15-20	o 25-35			o 15-20	o 25-35	o 15-20	o 25-35	● 35-40	● 35-40	● 30-35
o 28-35	o 28-35	o 25-30													o 28-35	o 28-35	o 25-30
o 28-35	o 28-35	o 25-30													o 28-35	o 28-35	o 25-30
● 55-60	● 60-65	● 55-60	o 34-38	● 55-60	o 34-38	● 55-60	o 34-38	● 55-60			o 34-38	● 55-60	o 34-38	● 55-60	● 55-60	● 60-65	● 55-60
o 30-35				o 30-35		o 30-35		o 30-35				o 30-35			o 30-35		
● 30-40			o 20-24	● 30-40	o 20-24	● 30-40	o 20-24	● 30-40			o 20-24	● 30-40			● 30-40		
o 30-35				o 30-35		o 30-35		o 30-35				o 30-35			o 30-35		
o 130-200									● 100-150	● 130-200					o 130-200		
o 130-200									● 100-150	● 130-200					o 130-200		
o 90-130									o 60-100	o 100-160					o 90-130		
o 90-120	o 120-140	o 120-140	o 60-80	o 80-110	o 70-90	o 90-120	o 55-75	o 90-120			o 70-90	o 90-120	o 70-90	o 90-120	o 90-120	o 120-140	o 120-140
o 90-120	o 120-140	o 120-140	o 60-80	o 80-110	o 70-90	o 90-120	o 55-75	o 90-120			o 70-90	o 90-120	o 70-90	o 90-120	o 90-120	o 120-140	o 120-140
o 80-85	o 85-90	o 80-85	o 45-50	o 70-80	o 45-50	o 70-80	o 45-50	o 70-80			o 45-50	o 70-80	o 45-50	o 60-75	o 80-85	o 85-90	o 80-85
o 90-130									o 60-100	o 80-120					o 90-130		
o 75-190									o 50-150	o 65-100					o 75-190		
● 35-40		● 35-40			o 2-4	● 4-6					o 15-20	● 25-35			● 35-40		● 35-40
15-20		15-20													15-20		15-20
● 35-40		● 35-40					o 15-20	o 25-35			o 15-20	o 25-35			● 35-40		● 35-40
o 30-35		o 30-35						o 30-35				o 30-35			o 30-35		o 30-35

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

r.p.m.= $\frac{Vc \times 1.000}{\pi x \varnothing}$



		3144	3144/1	3145	3145/1	3146	3146/1	3147	3147/1	3148	3148/1
Ref./ Réf. / Ref.		3144	3144/1	3145	3145/1	3146	3146/1	3147	3147/1	3148	3148/1
Z		2Z	2Z	Z>4	Z>4	Z>4	Z>4	Z>4	Z>4	Z>4	Z>4
Ejec./Exéc./Exec.		N	N	N	N	NR	NR	N	N	NR	NR
Hel./Hel./Spiral		30°	30°	30°	30°	30°	30°	30°	30°	30°	30°
Mat.		HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
Rec./Rev./Coat.			TIALN		TIALN		TIALN		TIALN		TIALN
DIN		326	326	845	845	845	845	845-L	845-L	845-L	845-L
Gama/Gamme/Range		12-40	12-40	12-50	12-50	12-50	12-50	12-50	12-50	16-50	20-50
Pag.		386	386	387	387	388	388	389	389	390	390
Mat.		Vc (m/min)									
P.1	<600	● 45-50	● 70-80	● 45-50	● 70-80	● 50-55	● 70-80	● 45-50	● 70-80	● 50-55	● 70-80
P.2	<800	● 30-36	● 48-65	● 30-36	● 48-65	● 35-45	● 55-65	● 30-36	● 48-65	● 35-45	● 55-65
P.3	<1000	○ 25-30	● 40-45	○ 25-30	● 40-45	○ 25-30	● 45-55	○ 25-30	● 40-45	○ 25-30	● 45-55
P.4	<1200		○ 30-35		○ 30-35		○ 35-40		○ 30-35		○ 35-40
P.5	<1400										
M.1	<950	○ 15-20	○ 25-35	○ 15-20	○ 25-35	○ 15-20	○ 25-35	○ 15-20	○ 25-35	○ 15-20	○ 25-35
M.2	<950	○ 15-20	○ 25-35	○ 15-20	○ 25-35	○ 15-20	○ 25-35	○ 15-20	○ 25-35	○ 15-20	○ 25-35
M.3	<1200										
M.4	<1200										
K.1	<500	○ 34-38	● 55-60	○ 34-38	● 55-60	○ 38-42	● 55-60	○ 34-38	● 55-60	○ 38-42	● 55-60
K.2	<500										
K.3	<800		○ 30-35		○ 30-35				○ 30-35		
K.4.1	<800	○ 20-24	● 30-40	○ 20-24	● 30-40	○ 20-24	● 30-35	○ 20-24	● 30-40	○ 20-24	● 30-35
K.4.2	<1400		○ 30-35		○ 30-35				○ 30-35		
N.1.1	Al	○ 100-150	○ 130-200	○ 100-150	○ 130-200			○ 100-150	○ 130-200		
N.1.2	Al	○ 100-150	○ 130-200	○ 100-150	○ 130-200			○ 100-150	○ 130-200		
N.1.3	Al	○ 60-100	○ 90-130	○ 60-100	○ 90-130			○ 60-100	○ 90-130		
N.2.1	Cu	● 55-75	● 90-120	● 55-75	● 90-120	● 55-75	● 90-120	● 55-75	● 90-120	● 55-75	● 90-120
N.2.2	Cu	● 55-75	● 90-120	● 55-75	● 90-120	● 55-75	● 90-120	● 55-75	● 90-120	● 55-75	● 90-120
N.2.3	Cu	● 75-95	● 120-140	● 75-95	● 120-140	● 75-95	● 120-140	● 75-95	● 120-140	● 75-95	● 120-140
N.2.4	Cu										
N.3.1	Mg/Zn	○ 60-100	○ 90-130	○ 60-100	○ 90-130			○ 60-100	○ 90-130		
N.4.1	Plastic	○ 50-150	○ 75-190	○ 50-150	○ 75-190			○ 50-150	○ 75-190		
N.4.2	Plastic										
N.4.3	Plastic										
S.1.1	Ni			○ 15-20	● 25-35			○ 15-20	● 25-35		
S.1.2	Ni										
S.2.1	Ti			○ 15-20	○ 25-35			○ 15-20	○ 25-35		
S.2.2	Ti				○ 30-35				○ 30-35		
S.2.3	Ti										
H.1	50 HRC										
H.2	55 HRC										
H.3	60 HRC										

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

r.p.m.= $\frac{Vc \times 1.000}{\pi x \varnothing}$














Ref./ Réf. / Ref.		3149	3150	3165	3151	3161	3166	3152	3153	3154	3155	3156	3164
Z		6-10	6-10	8-10	18-24	18-24	16-40	6-12	4-10	8-10	8-12	10-12	4
Ejec./Exéc./Exec.		N	NR	NRF	H	H	H		N	N			
Hel./Hel./Spiral		30°	30°	30°	0°	10°	10°	10°	10°	10°	0°	0°	0°
Mat.		HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
Rec./Rev./Coat.													
DIN		1880	1880	1880	885-B	885-A	1834-A	850	851	851	1833-A	1833-B	6518
Gama/Gamme/Range		40-80	40-80	40-80	63-125	63-125	50-125	4,5-45,50	11-40	18-72	16-32	16-32	8-56
Pag.		391	391	392	392	393	393	394	394	395	395	396	396
Mat.		Vc (m/min)						Vc (m/min)					
P.1	<600	● 35-40	● 40-50	● 35-40	● 35-40	● 35-40	● 35-40	● 35-40	● 35-40	● 35-40	● 35-40	● 35-40	● 40-50
P.2	<800	● 30-35	● 35-45	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 35-45
P.3	<1000	● 15-25	● 25-35	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 15-25	● 25-35
P.4	<1200			● 15-20	● 15-20	● 15-20	● 15-20						
P.5	<1400												
M.1	<950	● 10-15	● 15-20	● 10-15		● 10-15							
M.2		● 10-15	● 15-20	● 10-15		● 10-15							
M.3	<1200												
M.4													
K.1	<500			o 30-35	● 30-35	● 30-35	● 30-35						
K.2				o 30-35	● 30-35	● 30-35	● 30-35						
K.3	<800	● 20-24	● 25-30	● 15-25	● 15-25	● 15-25	● 15-25						
K.4.1		● 20-24	● 25-30	● 15-25	● 15-25	● 15-25	● 15-25	o 20-24	o 20-24	o 20-24	o 20-24	o 20-24	o 25-30
K.4.2	<1400												
N.1.1	Al						o 60-100	o 100-150	o 100-150	o 100-150	o 100-150	o 100-150	
N.1.2							● 160-260	o 100-150	o 100-150	o 100-150	o 100-150	o 100-150	
N.1.3							o 60-100	o 60-100	o 60-100	o 60-100	o 60-100	o 60-100	
N.2.1	Cu							● 55-75	● 55-75	● 55-75	● 55-75	● 55-75	
N.2.2					● 60-100	● 60-100	● 60-100	● 55-75	● 55-75	● 55-75	● 55-75	● 55-75	
N.2.3		● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 30-35	● 75-95	● 75-95	● 75-95	● 75-95	● 75-95	
N.2.4													
N.3.1	Mg/Zn				● 50-90	● 50-90	● 50-90	o 60-100	o 60-100	o 60-100	o 60-100	o 60-100	
N.4.1	Plastic												
N.4.2													
N.4.3													
S.1.1	Ni			o 10-15									
S.1.2				● 5-10									
S.2.1	Ti	● 10-15	● 15-20	● 10-15		● 10-15							
S.2.2													
S.2.3													
H.1	50 HRC												
H.2	55 HRC												
H.3	60 HRC												

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE

$$r.p.m.= \frac{Vc \times 1.000}{\pi x \varnothing}$$

								
Ref./ Réf. / Ref.					7172	7137	7138	7139
Z								
Ejec./Exéc./Exec.		CRUZ	DIAM	ALU				
Hel./Hel./Spiral								
Mat.		HM	HM	HM	HSS	HSSE	HSSE	HSS - WIDIA
Rec./Rev./Coat.							TIALN	
DIN								
Gama/Gamme/Range					12-60	12-60	12-50	18-50
Pag.					406	408	410	412
Mat.		Vc (m/min)			Vc (m/min)			
P.1	<600	● 400-800	o 400-800		● 20-25	● 35-45	o 45-55	o 55-65
P.2	<800	● 400-800	o 400-800		● 15-20	● 25-35	● 40-50	● 40-50
P.3	<1000	● 400-800	● 400-800			● 20-25	● 30-40	● 30-40
P.4	<1200	o 300-700	● 300-700			o 15-20	● 20-25	● 20-25
P.5	<1400		● 300-700				o 15-20	● 15-20
M.1	<950	● 600-1000	o 600-1000			o 15-20	● 20-25	● 20-30
M.2		● 600-1000	o 600-1000			o 15-20	● 20-25	● 20-30
M.3	<1200	o 400-800	● 400-800				o 15-20	o 15-20
M.4		o 400-800	● 400-800				o 15-20	o 15-20
K.1	<500	● 500-800	● 500-800		o 20-30	● 30-35	● 45-55	● 50-60
K.2		● 500-800	● 500-800		o 20-30	● 30-35	● 45-55	● 50-60
K.3	<800	● 400-800	● 400-800		o 15-20	o 25-30	o 40-50	● 45-55
K.4.1		● 400-800	● 400-800		o 15-20	o 25-30	o 40-50	● 45-55
K.4.2	<1400		● 300-700				o 15-20	o 15-20
N.1.1	Al			● 400-1000	● 40-50	● 50-60	● 60-70	● 70-90
N.1.2				● 400-1000	o 40-50	o 50-60	o 60-70	o 70-90
N.1.3				● 300-700	o 40-50	o 50-60	o 60-70	o 70-90
N.2.1	Cu	o 400-800		● 300-700	o 40-50	● 50-60	● 60-70	● 70-90
N.2.2		o 400-800	o 400-800	● 300-700	o 40-50	● 50-60	● 60-70	● 70-90
N.2.3		● 400-800			o 15-20	● 25-35	● 40-50	● 40-50
N.2.4			o 300-700			o 15-20	● 20-25	● 20-25
N.3.1	Mg/Zn	● 400-800		o 400-1000	o 20-25	● 30-35	● 45-55	● 50-60
N.4.1	Plastic			● 400-1000	o 40-50	o 50-60	o 60-70	o 70-90
N.4.2				● 400-1000	o 40-50	o 50-60	o 60-70	o 70-90
N.4.3			o 300-700					
S.1.1	Ni	o 400-800	● 400-800				o 10-15	● 15-20
S.1.2			o 300-700					o 15-20
S.2.1	Ti	● 600-1000	● 600-1000				● 20-25	● 20-30
S.2.2			● 400-800				o 15-20	● 20-25
S.2.3			o 300-700					o 15-20
H.1	50 HRC		● 200-600					● 20-25
H.2	55 HRC		● 200-600					o 15-20
H.3	60 HRC							

● Optima / Optimun ○ Alternativo / Alternative

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

Avance / Feed
vf (mm/min) = rpm x Z x fz x K
rpm = (Vc x 1000) / (D x P)
Z = número de dientes / nombre de dents / teeth number
fz = avance por diente / avance per dent / feed per tooth

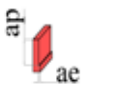
Fresado / Fresage / Milling			
1	2	3	4
			

K = Coef. x material (rest = 1)															
P.4	P.5	M.3	M.4	K.4.2	N.1.1	N.1.2	N.1.3	N.4.1	N.4.2	N.4.3	S.1.2	S.2.3	H.1	H.2	H.3
0,7	0,7	0,7	0,7	0,7	1,3	1,3	1,3	1,3	1,3	1,3	0,7	0,7	0,7	0,7	0,7

TABLA DE AVANCES
GUIDE D'AVANCES / FEED GUIDE

FRESAS METAL DURO / FRAISES CARBURE / HARD METAL MILLS

AVANCE / FEED (Fz = mm / Z)															
Ref.	Fres./ Mill	Ap	Ae	D (mm)											
				1	2	3	4	5	6	8	10	12	14	16	18	20
3189	2	1xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,060	0,067
3190	2	1xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,060	0,067
3167	2	0,5xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,060	0,067
3168	2	0,75xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,060	0,067
3169	4	0,025xD	0,05xD	-	-	0,050	0,067	0,083	0,100	0,133	0,167	0,200	0,233	0,267	0,300	0,333
3170	4	0,025xD	0,05xD	-	-	0,045	0,060	0,075	0,090	0,120	0,150	0,180	0,210	0,240	0,270	0,300
3191	4	0,1xD	0,05xD	-	-	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
3171	2	0,25xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,062	0,067
3171	3	0,75xD	0,2xD	-	-	0,020	0,025	0,033	0,040	0,050	0,065	0,080	0,090	0,100	0,110	0,130
3172	2	0,5xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,062	0,067
3172	3	1,5xD	0,2xD	-	-	0,015	0,020	0,025	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
3173	2	0,25xD	1xD	-	-	0,015	0,020	0,025	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
3173	3	0,75xD	0,2xD	-	-	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,135	0,160	0,180	0,200
3174	2	0,5xD	1xD	-	-	0,010	0,013	0,017	0,020	0,027	0,033	0,040	0,047	0,053	0,060	0,067
3174	3	1,5xD	0,2xD	-	-	0,025	0,035	0,040	0,050	0,065	0,080	0,100	0,115	0,130	0,150	0,170
3175	3	1xD	0,2xD	-	-	0,020	0,025	0,033	0,040	0,050	0,065	0,080	0,090	0,100	0,110	0,130
3176	3	1,75xD	0,2xD	-	-	0,012	0,017	0,022	0,025	0,035	0,040	0,050	0,060	0,070	0,080	0,090
3177	3	1,5xD	0,3xD	-	-	0,018	0,025	0,031	0,039	0,050	0,060	0,075	0,085	0,100	0,115	0,120
3177	2	1xD	1xD	-	-	0,012	0,016	0,020	0,024	0,032	0,040	0,048	0,056	0,064	0,072	0,080
3192	3	1,5xD	0,3xD	-	-	0,020	0,025	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,120
3193	2	3xD	0,2xD	-	-	0,015	0,023	0,043	0,062	0,083	0,104	0,125	0,146	0,166	0,187	0,208
3178	3	1,5xD	0,3xD	-	-	0,010	0,015	0,015	0,020	0,020	0,025	0,025	0,030	0,030	0,035	0,035
3178	2	1xD	1xD	-	-	0,010	0,015	0,015	0,020	0,025	0,025	0,030	0,030	0,030	0,035	0,035
3179	3	1,75xD	0,05xD	-	-	0,020	0,025	0,030	0,035	0,045	0,055	0,070	0,080	0,090	0,100	0,115
3180	3	2,75xD	0,05xD	-	-	0,010	0,015	0,018	0,022	0,032	0,038	0,045	0,052	0,060	0,067	0,075
3181	3	1,5xD	0,4xD	-	-	0,015	0,018	0,022	0,027	0,035	0,040	0,050	0,060	0,070	0,080	0,090
3181	2	1xD	1xD	-	-	0,012	0,015	0,019	0,023	0,030	0,038	0,045	0,053	0,060	0,068	0,075
3183	3	30°	-	0,030	0,070	0,110	-	-	-	-	-	-	-	-	-	-
3184	3	45°	-	0,040	0,100	0,140	-	-	-	-	-	-	-	-	-	-
3185	3	r	-	-	-	0,030	0,040	0,050	0,070	0,120	0,150	-	-	-	-	-
3194	3	1,5xD	0,3xD	-	-	0,020	0,025	0,030	0,038	0,050	0,060	0,072	0,085	0,095	0,110	0,125
3194	2	1xD	1xD	-	-	0,020	0,025	0,030	0,035	0,050	0,060	0,070	0,085	0,095	0,105	0,120
3195	2	3xD	0,12xD	-	-	0,010	0,015	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
3101	2	0,75xD	1xD	-	-	0,007	0,009	0,012	0,014	0,019	0,023	0,028	0,033	0,037	0,042	0,047
3105	3	1,5xD	0,2xD	-	-	0,010	0,015	0,020	0,025	0,030	0,035	0,040	0,045	0,050	0,055	0,060
3105	2	0,5xD	1xD	-	-	0,007	0,009	0,012	0,014	0,019	0,023	0,028	0,032	0,037	0,042	0,047
3107	3	1,75xD	0,2xD	-	-	0,010	0,015	0,020	0,024	0,028	0,035	0,040	0,047	0,055	0,065	0,075

Fresado / Fresage / Milling			
1	2	3	4
			

FRESAS HSSE MANGO CILÍNDRICO / FRAISES HSSE QUEUE CYLINDRIQUE / HSSE STRAIGHT SHANK MILLS

AVANCE / FEED (Fz = mm / Z)															
Ref.	Fres./ Mill	Ap	Ae	D (mm)											
				3	4	5	6	8	10	12	14	16	18	20	25	32
3120	1	-	-	0,015	0,020	0,025	0,030	0,050	0,050	0,055	0,055	0,060	0,060	0,065	0,065	0,070
3121	1	-	-	0,015	0,020	0,025	0,030	0,050	0,050	0,055	0,055	0,060	0,060	0,065	0,065	0,070
3122	1	-	-	0,015	0,020	0,025	0,030	0,050	0,050	0,055	0,055	0,060	0,060	0,065	0,065	0,070
3186	2	0,5xD	1xD	0,009	0,013	0,016	0,022	0,029	0,036	0,044	0,051	0,058	0,065	0,073	0,091	0,116
3110	2	0,5xD	1xD	0,009	0,013	0,016	0,022	0,029	0,036	0,044	0,051	0,058	0,065	0,073	0,091	0,116
3110/1	2	0,5xD	1xD	0,012	0,017	0,021	0,029	0,038	0,047	0,057	0,066	0,075	0,085	0,095	0,118	0,151
3112	4	0,05xD	0,05xD	0,020	0,022	0,025	0,029	0,036	0,044	0,058	0,062	0,065	0,073	0,080	0,100	0,130
3112/1	4	0,05xD	0,05xD	0,026	0,029	0,033	0,038	0,047	0,057	0,075	0,081	0,085	0,095	0,104	0,130	0,169
3114	2	1xD	0,1xD	0,006	0,008	0,011	0,015	0,021	0,028	0,034	0,040	0,044	0,051	0,057	0,071	0,091
3114/1	2	1xD	0,1xD	0,008	0,010	0,014	0,020	0,027	0,036	0,044	0,052	0,057	0,066	0,074	0,092	0,118
3187	2	0,5xD	1xD	0,009	0,013	0,016	0,022	0,029	0,036	0,044	0,051	0,058	0,065	0,073	0,091	0,116
3187/1	2	0,5xD	1xD	0,012	0,017	0,021	0,029	0,038	0,047	0,057	0,066	0,075	0,085	0,095	0,118	0,151
3115	3	1xD	0,1xD	0,011	0,015	0,018	0,020	0,025	0,035	0,040	0,060	0,070	0,080	0,090	0,100	0,120
3115/1	3	1xD	0,1xD	0,014	0,020	0,023	0,026	0,033	0,046	0,052	0,078	0,091	0,104	0,117	0,130	0,156
3162	3	1xD	0,1xD	0,016	0,021	0,026	0,029	0,036	0,050	0,057	0,086	0,100	0,114	0,129	0,143	0,172
3157	3	1,5xD	0,5xD	0,018	0,025	0,030	0,033	0,041	0,058	0,066	0,099	0,115	0,132	0,148	0,164	0,197
3159	3	1,5xD	0,5xD	0,018	0,025	0,030	0,033	0,041	0,058	0,066	0,099	0,115	0,132	0,148	0,164	0,197
3117	3	1,5xD	0,5xD	0,012	0,015	0,018	0,020	0,025	0,035	0,040	0,060	0,070	0,080	0,090	0,100	0,120
3117/1	3	1,5xD	0,5xD	0,016	0,020	0,023	0,026	0,033	0,046	0,052	0,078	0,091	0,104	0,117	0,130	0,156
3119	3	1,5xD	0,5xD	0,012	0,015	0,018	0,020	0,025	0,035	0,040	0,060	0,070	0,080	0,090	0,100	0,120
3119/1	3	1,5xD	0,5xD	0,016	0,020	0,023	0,026	0,033	0,046	0,052	0,078	0,091	0,104	0,117	0,130	0,156
3111	2	1,2xD	1xD	0,009	0,013	0,016	0,022	0,029	0,036	0,044	0,051	0,058	0,065	0,073	0,091	0,116
3111/1	2	1,2xD	1xD	0,012	0,017	0,021	0,029	0,038	0,047	0,057	0,066	0,075	0,085	0,095	0,118	0,151
3113	4	0,05xD	0,05xD	0,020	0,022	0,025	0,029	0,036	0,044	0,058	0,062	0,065	0,073	0,080	0,100	0,130
3113/1	4	0,05xD	0,05xD	0,026	0,029	0,033	0,038	0,047	0,057	0,075	0,081	0,085	0,095	0,104	0,130	0,169
3188	2	0,5xD	1xD	0,009	0,013	0,016	0,022	0,029	0,036	0,044	0,051	0,058	0,065	0,073	0,091	0,116
3188/1	2	0,5xD	1xD	0,012	0,017	0,021	0,029	0,038	0,047	0,057	0,066	0,075	0,085	0,095	0,118	0,151
3182	3	2,5xD	0,3xD	0,006	0,008	0,011	0,015	0,021	0,028	0,034	0,040	0,044	0,051	0,057	0,071	0,091
3182/1	3	2,5xD	0,3xD	0,008	0,010	0,014	0,020	0,027	0,036	0,044	0,052	0,057	0,066	0,074	0,092	0,118
3116	3	2,5xD	0,3xD	0,011	0,015	0,018	0,020	0,025	0,035	0,040	0,060	0,070	0,080	0,090	0,100	0,120
3116/1	3	2,5xD	0,3xD	0,014	0,020	0,023	0,026	0,033	0,046	0,052	0,078	0,091	0,104	0,117	0,130	0,156
3118	3	2,5xD	0,5xD	0,011	0,015	0,018	0,020	0,025	0,035	0,040	0,060	0,070	0,080	0,090	0,100	0,120
3118/1	3	2,5xD	0,5xD	0,014	0,020	0,023	0,026	0,033	0,046	0,052	0,078	0,091	0,104	0,117	0,130	0,156
3163	3	2,5xD	0,3xD	0,016	0,021	0,026	0,029	0,036	0,050	0,057	0,086	0,100	0,114	0,129	0,143	0,172
3158	3	2,5xD	0,5xD	0,018	0,025	0,030	0,033	0,041	0,058	0,066	0,099	0,115	0,132	0,148	0,164	0,197
3160	3	2,5xD	0,5xD	0,018	0,025	0,030	0,033	0,041	0,058	0,066	0,099	0,115	0,132	0,148	0,164	0,197

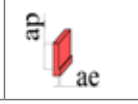
Fresado / Fresage / Milling			
1	2	3	4
			

TABLA DE AVANCES
GUIDE D'AVANCES / FEED GUIDE

FRESAS MANGO CÓNICO / FRAISES QUEUE CONIQUE / TAPERED SHANK MILLS

AVANCE / FEED (Fz = mm / Z)									
Ref.	Fres./Mill	Ap	Ae	D (mm)					
				12	16	20	25	32	40
3144	2	0,5xD	1xD	0,050	0,060	0,075	0,090	0,100	0,110
3144/1	2	0,5xD	1xD	0,065	0,078	0,098	0,117	0,130	0,143
3145	3	1xD	0,1xD	0,035	0,045	0,060	0,070	0,080	0,090
3145/1	3	1xD	0,1xD	0,046	0,059	0,078	0,091	0,104	0,117
3146	3	1,5xD	0,5xD	0,040	0,070	0,090	0,110	0,120	0,130
3146/1	3	1,5xD	0,5xD	0,052	0,091	0,117	0,143	0,156	0,169
3147	3	1xD	0,1xD	0,035	0,045	0,060	0,070	0,080	0,090
3147/1	3	1xD	0,1xD	0,046	0,059	0,078	0,091	0,104	0,117
3148	3	1,5xD	0,5xD	0,040	0,070	0,090	0,110	0,120	0,130
3148/1	3	1,5xD	0,5xD	0,052	0,091	0,117	0,143	0,156	0,169

FRESAS CON AGUJERO / FRAISES À TROU / MILLS WITH HOLES

AVANCE / FEED (Fz = mm / Z)									
Ref.	Fres./Mill	Ap	Ae	D (mm)					
				40	50	80	100	160	200
3149	3	0,05xD	0,75xD	0,080	0,085	0,110	0,110		
3150	3	0,05xD	0,75xD	0,080	0,085	0,110	0,110		
3165	3	0,05xD	0,75xD	0,080	0,085	0,110	0,110		
3151	2	0,1xD	1xe		0,050	0,070	0,080	0,090	0,090
3161	2	0,1xD	1xe		0,050	0,070	0,080	0,090	0,090
3166	2	0,1xD	1xe		0,050	0,070	0,080	0,090	0,090

FRESAS HSSE ESPECIALES / FRAISES HSSE SPECIALES / HSSE SPECIAL MILLS

AVANCE / FEED (Fz = mm / Z)										
Ref.	Fres./Mill	Ap	Ae	D (mm)						
				8	12	16	20	25	32	45
3152	1	-	-	0,040	0,055	0,070	0,075	0,090	0,090	0,100
3153	1	-	-	0,040	0,055	0,070	0,075	0,080	0,080	0,100
3154	1	0,1xD	1xl	0,040	0,055	0,070	0,075	0,080	0,080	0,100
3155	2	-	-	0,040	0,055	0,070	0,075	0,080	0,080	0,100
3156	2	-	1xl	0,040	0,055	0,070	0,075	0,080	0,080	0,100
3164	3	-	-	0,040	0,060	0,065	0,070	0,075	0,080	0,100

Fresado / Fresage / Milling			
1	2	3	4
			

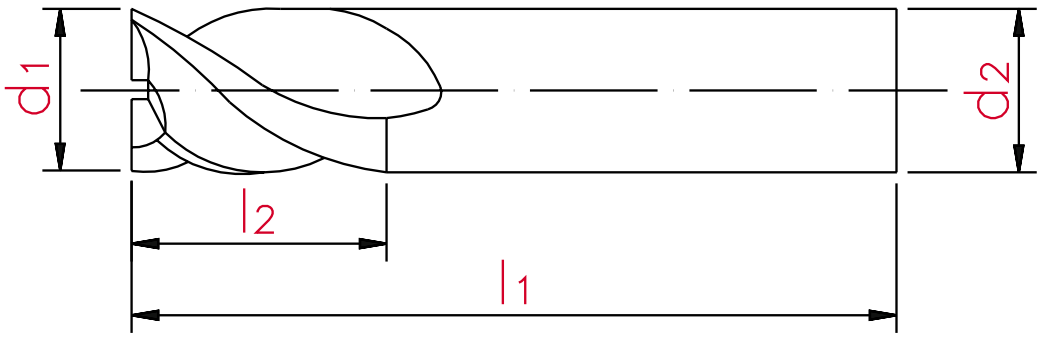
FRESAS ROTATIVAS / FRAISES ROTATIVES / ROTARY MILLS

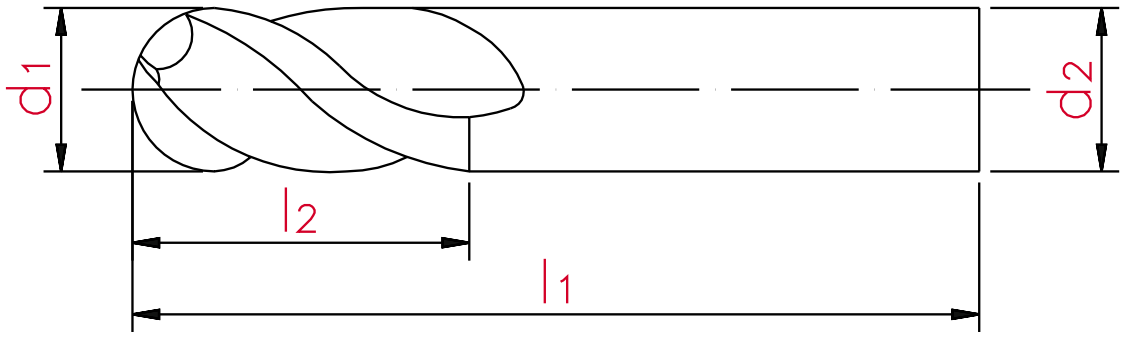
RPM		Vc (m/min)									
		100	200	300	400	500	600	700	800	900	1000
D (mm)	3	10.610	21.221	31.831	42.441	53.052	63.662	74.272	84.882	95.493	106.103
	4	7.958	15.915	23.873	31.831	39.789	47.746	55.704	63.662	71.620	79.577
	5	6.366	12.732	19.099	25.465	31.831	38.197	44.563	50.929	57.296	63.662
	6	5.305	10.610	15.915	21.221	26.526	31.831	37.136	42.441	47.746	53.052
	7	4.547	9.095	13.642	18.189	22.736	27.284	31.831	36.378	40.925	45.473
	8	3.979	7.958	11.937	15.915	19.894	23.873	27.852	31.831	35.810	39.789
	9	3.537	7.074	10.610	14.147	17.684	21.221	24.757	28.294	31.831	35.368
	10	3.183	6.366	9.549	12.732	15.915	19.099	22.282	25.465	28.648	31.831
	11	2.894	5.787	8.681	11.575	14.469	17.362	20.256	23.150	26.043	28.937
	12	2.653	5.305	7.958	10.610	13.263	15.915	18.568	21.221	23.873	26.526
	13	2.449	4.897	7.346	9.794	12.243	14.691	17.140	19.588	22.037	24.485
	14	2.274	4.547	6.821	9.095	11.368	13.642	15.915	18.189	20.463	22.736
	15	2.122	4.244	6.366	8.488	10.610	12.732	14.854	16.976	19.099	21.221
	16	1.989	3.979	5.968	7.958	9.947	11.937	13.926	15.915	17.905	19.894

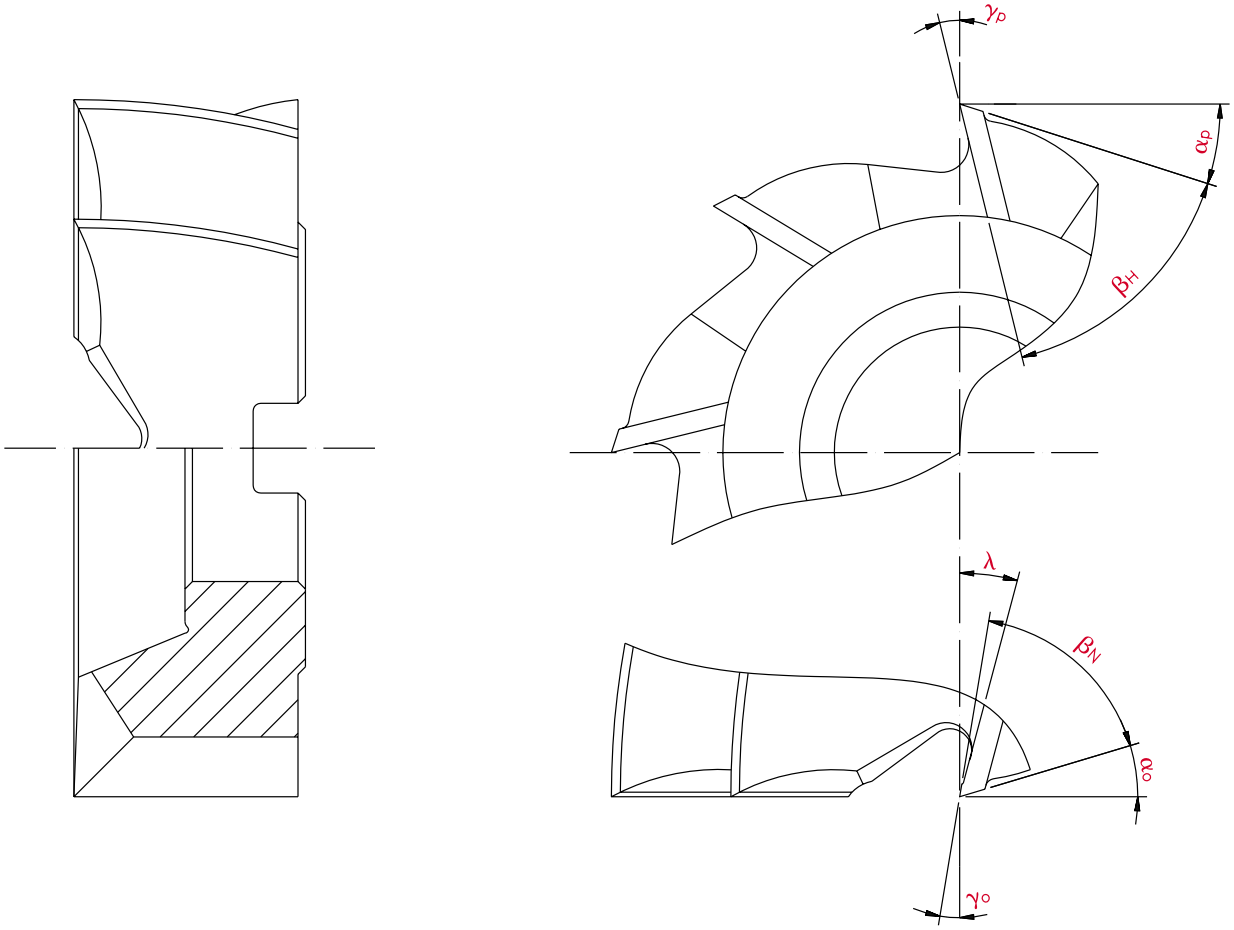
TABLA DE VELOCIDADES
GUIDE DE VITESSE / SPEED GUIDE

FRESAS HUECAS / FRAISES À TROU / CORE BITS

RPM		Vc (m/min)									
		100	200	300	400	500	600	700	800	900	1000
D (mm)	12	265	531	796	1.061	1.326	1.592	1.857	2.122	2.387	2.653
	13	245	490	735	979	1.224	1.469	1.714	1.959	2.204	2.449
	14	227	455	682	909	1.137	1.364	1.592	1.819	2.046	2.274
	15	212	424	637	849	1.061	1.273	1.485	1.698	1.910	2.122
	16	199	398	597	796	995	1.194	1.393	1.592	1.790	1.989
	17	187	374	562	749	936	1.123	1.311	1.498	1.685	1.872
	18	177	354	531	707	884	1.061	1.238	1.415	1.592	1.768
	19	168	335	503	670	838	1.005	1.173	1.340	1.508	1.675
	20	159	318	477	637	796	955	1.114	1.273	1.432	1.592
	21	152	303	455	606	758	909	1.061	1.213	1.364	1.516
	22	145	289	434	579	723	868	1.013	1.157	1.302	1.447
	23	138	277	415	554	692	830	969	1.107	1.246	1.384
	24	133	265	398	531	663	796	928	1.061	1.194	1.326
	25	127	255	382	509	637	764	891	1.019	1.146	1.273
	26	122	245	367	490	612	735	857	979	1.102	1.224
	27	118	236	354	472	589	707	825	943	1.061	1.179
	28	114	227	341	455	568	682	796	909	1.023	1.137
	29	110	220	329	439	549	659	768	878	988	1.098
	30	106	212	318	424	531	637	743	849	955	1.061
	31	103	205	308	411	513	616	719	821	924	1.027
	32	99	199	298	398	497	597	696	796	895	995
	33	96	193	289	386	482	579	675	772	868	965
	34	94	187	281	374	468	562	655	749	843	936
	35	91	182	273	364	455	546	637	728	819	909
	36	88	177	265	354	442	531	619	707	796	884
	37	86	172	258	344	430	516	602	688	774	860
	38	84	168	251	335	419	503	586	670	754	838
	39	82	163	245	326	408	490	571	653	735	816
	40	80	159	239	318	398	477	557	637	716	796
	41	78	155	233	311	388	466	543	621	699	776
	42	76	152	227	303	379	455	531	606	682	758
	43	74	148	222	296	370	444	518	592	666	740
	44	72	145	217	289	362	434	506	579	651	723
	45	71	141	212	283	354	424	495	566	637	707
	46	69	138	208	277	346	415	484	554	623	692
	47	68	135	203	271	339	406	474	542	610	677
	48	66	133	199	265	332	398	464	531	597	663
	49	65	130	195	260	325	390	455	520	585	650
	50	64	127	191	255	318	382	446	509	573	637
	51	62	125	187	250	312	374	437	499	562	624
	52	61	122	184	245	306	367	428	490	551	612
	53	60	120	180	240	300	360	420	480	541	601
	54	59	118	177	236	295	354	413	472	531	589
	55	58	116	174	231	289	347	405	463	521	579
	56	57	114	171	227	284	341	398	455	512	568
	57	56	112	168	223	279	335	391	447	503	558
	58	55	110	165	220	274	329	384	439	494	549
	59	54	108	162	216	270	324	378	432	486	540
	60	53	106	159	212	265	318	371	424	477	531


d1
d2
l2
l1


d1
d2
l2
l1



l1	**Longitud total** / Longueur totale / Total length
l2	**Longitud de corte** / Longueur de coupe / Length of cut
d1	**Diámetro de fresa** / Diamètre de fraise / Diametre of mill
d2	**Longitud mango** / Longueur queue / Shank length
λ	**Ángulo de espiral** / Angle de spirale / Spiral angle
απ	**Ángulo de destalonado del corte principal** / Angle de détalonnage de la coupe principale / Main cutting relief angle
α()	**Ángulo de destalonado del corte secundario** / Angle de détalonnage de la coupe secondaire / Secondary cutting relief angle
βH	**Ángulo de cuña del corte principal** / Angle de coin de la coupe principale / Main cutting wedge angle
βN	**Ángulo de cuña del corte secundario** / Angle de coin de la coupe secondaire / Secondary cutting wedge angle
γp	**Ángulo de desprendimiento del corte principal** / Angle de dégagement de la coupe principale / Main cutting rake angle
γ0	**Ángulo de desprendimiento del corte secundario** / Angle de dégagement de la coupe secondaire / Secondary cutting rake angle

3141 HM-MD

1z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 150-300	● 120-350	● 120-350	● 150-300					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
3,00	6	*27,27*	50	8	1
4,00	6	*27,27*	54	11	1
5,00	6	*27,27*	54	13	1

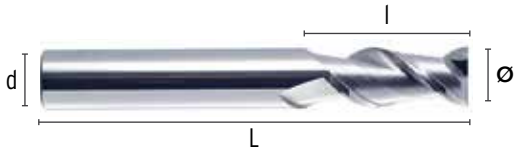
Ø mm	d mm	€	L mm	l mm	
6,00	6	*27,27*	54	13	1
8,00	8	*38,48*	58	19	1
10,00	10	*54,69*	66	22	1

3189 HM-MD

45° 2z DIN 6535 HA

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 150-300	● 120-350	● 120-350	● 150-300					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*29,93*	57	8	2	1
3,50	6	*29,93*	57	10	2	1
4,00	6	*29,93*	57	11	2	1
4,50	6	*29,93*	57	11	2	1
5,00	6	*29,93*	57	13	2	1
6,00	6	*29,93*	57	13	2	1
7,00	8	*37,65*	63	16	2	1
8,00	8	*37,65*	63	19	2	1

Ø mm	d mm	€	L mm	l mm	Z	
9,00	10	*55,11*	72	19	2	1
10,00	10	*55,11*	72	22	2	1
12,00	12	*79,63*	83	26	2	1
14,00	14	*119,53*	83	26	2	1
16,00	16	*147,14*	92	32	2	1
18,00	18	*193,26*	92	32	2	1
20,00	20	*233,42*	104	38	2	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

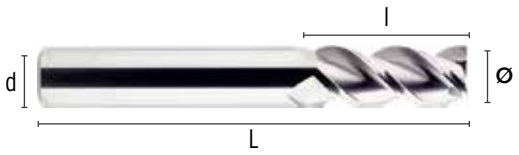
3190 HM-MD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 150-300	● 120-350	● 120-350	● 150-300					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*29,93*	57	8	3	1
3,50	6	*29,93*	57	9	3	1
4,00	6	*29,93*	57	11	3	1
4,50	6	*29,93*	57	11	3	1
5,00	6	*29,93*	57	13	3	1
6,00	6	*29,93*	57	13	3	1
8,00	8	*37,65*	63	19	3	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*55,11*	72	22	3	1
12,00	12	*79,63*	83	26	3	1
14,00	14	*119,53*	83	26	3	1
16,00	16	*147,14*	92	32	3	1
18,00	18	*193,26*	92	32	3	1
20,00	20	*233,42*	104	38	3	1

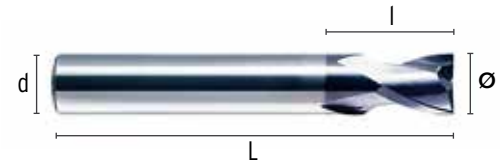
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3167 HM-MD DIN 6527 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 110-250	● 90-200	● 75-180	● 60-120	● 80-140	● 60-120	● 120-180	● 100-140	○ 60-120		○ 110-220			● 40-90	● 60-140			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*24,51*	50	4	2	1
3,50	6	*24,51*	50	4	2	1
4,00	6	*25,05*	54	5	2	1
4,50	6	*25,05*	54	5	2	1
5,00	6	*25,05*	54	6	2	1
6,00	6	*25,05*	54	7	2	1
7,00	8	*33,12*	58	8	2	1
8,00	8	*33,12*	58	9	2	1

Ø mm	d mm	€	L mm	l mm	Z	
9,00	10	*45,51*	66	10	2	1
10,00	10	*45,51*	66	11	2	1
12,00	12	*65,46*	73	12	2	1
14,00	14	*93,66*	75	14	2	1
16,00	16	*110,25*	82	16	2	1
18,00	18	*152,46*	84	18	2	1
20,00	20	*171,84*	92	20	2	1

3168 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 100-220	● 80-180	● 70-150	● 60-90	● 70-110	● 60-100	● 100-160	● 80-120	○ 60-90		○ 100-200			● 40-80	● 60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*21,75*	57	7	2	1
3,50	6	*21,75*	57	7	2	1
4,00	6	*21,75*	57	8	2	1
4,50	6	*21,75*	57	8	2	1
5,00	6	*21,75*	57	10	2	1
6,00	6	*21,75*	57	10	2	1
7,00	8	*32,01*	63	13	2	1
8,00	8	*32,01*	63	16	2	1

Ø mm	d mm	€	L mm	l mm	Z	
9,00	10	*46,28*	72	16	2	1
10,00	10	*46,28*	72	19	2	1
12,00	12	*66,03*	83	22	2	1
14,00	14	*102,77*	83	22	2	1
16,00	16	*125,68*	92	26	2	1
18,00	18	*159,57*	92	26	2	1
20,00	20	*196,29*	104	32	2	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3169 HM-MD DIN 6527 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	○	
110-250	90-200	75-180	60-120	70-110	60-100	120-180	100-140	60-120	150-450	60-350	150-450	150-450	40-80	60-110	40-80	30-50	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*32,55*	50	4	2	1
4,00	6	*33,12*	54	5	2	1
5,00	6	*33,12*	54	6	2	1
6,00	6	*33,12*	54	7	2	1
8,00	8	*44,67*	58	9	2	1
10,00	10	*60,90*	66	11	2	1

Ø mm	d mm	€	L mm	l mm	Z	
12,00	12	*85,26*	73	12	2	1
14,00	14	*113,25*	75	14	2	1
16,00	16	*137,76*	82	16	2	1
18,00	18	*168,57*	84	18	2	1
20,00	20	*207,75*	92	20	2	1

3170 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	○	
110-250	90-200	75-180	60-120	70-110	60-100	120-180	100-140	60-120	150-450	60-350	150-450	150-450	40-80	60-110	40-80	30-50	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*21,75*	57	7	2	1
4,00	6	*21,75*	57	8	2	1
5,00	6	*21,75*	57	10	2	1
6,00	6	*21,75*	57	10	2	1
8,00	8	*32,01*	63	16	2	1
10,00	10	*46,28*	72	19	2	1

Ø mm	d mm	€	L mm	l mm	Z	
12,00	12	*66,03*	83	22	2	1
14,00	14	*102,77*	83	22	2	1
16,00	16	*137,74*	92	26	2	1
18,00	18	*178,75*	92	26	2	1
20,00	20	*250,43*	104	32	2	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

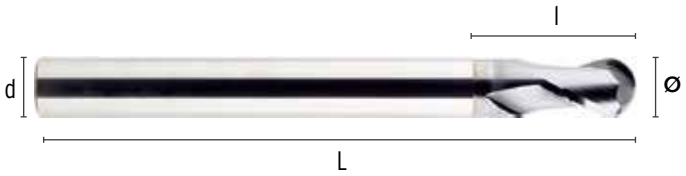
3191 HM-MD DIN 6527 EL



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●			●	●	○		○			●	●	●	●	○
160-240	140-210	150-200	100-140			120-180	90-130	100-140		100-200			40-80	60-90	90-150	70-130	60-110

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø mm	d mm	€	L mm	l mm	r	Z	
2,00	6	*43,77*	62	3	1,0	2	1
3,00	6	*43,77*	62	4	1,5	2	1
4,00	6	*43,77*	62	5	2,0	2	1
5,00	6	*50,55*	80	6	2,5	2	1
6,00	6	*50,55*	80	7	3,0	2	1
8,00	8	*72,00*	90	9	4,0	2	1

Ø mm	d mm	€	L mm	l mm	r	Z	
10,00	10	*105,11*	100	11	5,0	2	1
12,00	12	*152,81*	120	13	6,0	2	1
14,00	14	*180,77*	120	15	7,0	2	1
16,00	16	*247,81*	140	17	8,0	2	1
18,00	18	*298,03*	140	19	9,0	2	1
20,00	20	*391,54*	160	21	10,0	2	1

3171 HM-MD DIN 6527 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 110-250	● 90-200	● 75-180	● 60-120	● 80-140	● 60-120	● 120-180	● 100-140	○ 60-120		○ 110-220			● 40-90	● 60-140			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*24,51*	50	4	2	1
3,50	6	*24,51*	50	4	2	1
4,00	6	*25,05*	54	5	2	1
4,50	6	*25,05*	54	5	2	1
5,00	6	*25,05*	54	6	2	1
6,00	6	*25,05*	54	7	2	1
8,00	8	*33,12*	58	9	2	1

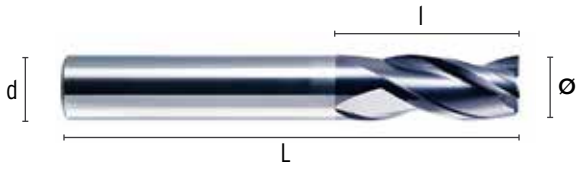
Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*45,51*	66	11	3	1
12,00	12	*65,46*	73	12	3	1
14,00	14	*93,66*	75	14	3	1
16,00	16	*110,25*	82	16	3	1
18,00	18	*152,46*	84	18	3	1
20,00	20	*171,84*	92	20	3	1

3172 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 100-220	● 80-180	● 70-150	● 60-90	● 70-110	● 60-100	● 100-160	● 80-120	○ 60-90		○ 100-200			● 40-80	● 60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*21,75*	57	7	3	1
3,50	6	*21,75*	57	7	3	1
4,00	6	*21,75*	57	8	3	1
4,50	6	*21,75*	57	8	3	1
5,00	6	*21,75*	57	10	3	1
6,00	6	*21,75*	57	10	3	1
8,00	8	*32,01*	63	16	3	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*46,28*	72	19	3	1
12,00	12	*66,03*	83	22	3	1
14,00	14	*102,77*	83	22	3	1
16,00	16	*125,68*	92	26	3	1
18,00	18	*159,57*	92	26	3	1
20,00	20	*196,29*	104	32	3	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3173 HM-MD DIN 6527 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○	○	○	○	○	●	●	●	○	
110-250	90-200	75-180	60-120	80-140	60-120	120-180	100-140	60-120	150-300	110-350	120-350	150-300	40-90	60-140	40-80	30-50	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*25,05*	50	4	2	1
3,50	6	*25,05*	50	4	2	1
4,00	6	*25,56*	54	5	2	1
4,50	6	*25,56*	54	5	2	1
5,00	6	*25,56*	54	6	2	1
6,00	6	*25,56*	54	7	2	1
8,00	8	*33,24*	58	9	2	1

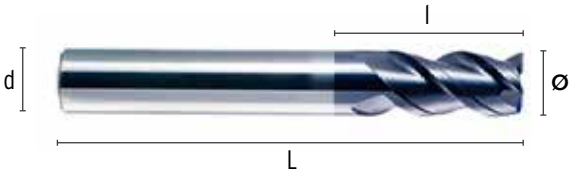
Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*45,72*	66	11	3	1
12,00	12	*65,46*	73	12	3	1
14,00	14	*93,66*	75	14	3	1
16,00	16	*110,25*	82	16	3	1
18,00	18	*152,46*	84	18	3	1
20,00	20	*171,72*	92	20	3	1

3174 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○	○	○		○	●	●			
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90	110-240	100-250		110-240	40-80	60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*28,71*	57	7	3	1
3,50	6	*28,71*	57	7	3	1
4,00	6	*28,71*	57	8	3	1
4,50	6	*28,71*	57	8	3	1
5,00	6	*28,71*	57	10	3	1
6,00	6	*28,71*	57	10	3	1
8,00	8	*36,60*	63	16	3	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*50,40*	72	19	3	1
12,00	12	*74,91*	83	22	3	1
14,00	14	*103,80*	83	22	3	1
16,00	16	*126,21*	92	26	3	1
18,00	18	*165,75*	92	26	3	1
20,00	20	*196,35*	104	32	3	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3175 HM-MD DIN 6527 S



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●			
110-250	90-200	75-180	60-120	80-140	60-120	120-180	100-140	60-120		110-220			40-90	60-140			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*24,51*	50	5	4	1
3,50	6	*24,51*	50	6	4	1
4,00	6	*25,05*	54	8	4	1
4,50	6	*25,05*	54	8	4	1
5,00	6	*25,05*	54	9	4	1
6,00	6	*25,05*	54	10	4	1
8,00	8	*33,12*	58	12	4	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*45,51*	66	14	4	1
12,00	12	*65,46*	73	16	4	1
14,00	14	*93,66*	75	18	4	1
16,00	16	*110,25*	82	22	4	1
18,00	18	*152,46*	84	24	4	1
20,00	20	*171,84*	92	26	4	1

3176 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●			
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90		100-200			40-80	60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*21,75*	57	8	4	1
3,50	6	*21,75*	57	10	4	1
4,00	6	*21,75*	57	11	4	1
4,50	6	*21,75*	57	11	4	1
5,00	6	*21,75*	57	13	4	1
6,00	6	*21,75*	57	13	4	1
8,00	8	*32,01*	63	19	4	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*46,28*	72	22	4	1
12,00	12	*66,03*	83	26	4	1
14,00	14	*102,77*	83	26	4	1
16,00	16	*125,68*	92	32	4	1
18,00	18	*159,57*	92	32	4	1
20,00	20	*196,29*	104	38	4	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3177 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●	●	○	
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90		100-200			40-60	60-80	40-80	30-50	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*31,35*	57	8	4	1
3,50	6	*31,35*	57	10	4	1
4,00	6	*31,35*	57	11	4	1
4,50	6	*31,35*	57	11	4	1
5,00	6	*31,35*	57	13	4	1
6,00	6	*31,35*	57	13	4	1
8,00	8	*41,85*	63	19	4	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*65,46*	72	22	4	1
12,00	12	*86,46*	83	26	4	1
14,00	14	*119,70*	83	26	4	1
16,00	16	*141,60*	92	32	4	1
18,00	18	*195,99*	92	32	4	1
20,00	20	*227,70*	104	38	4	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3192 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 170-240	● 160-210	● 150-200	● 100-140	● 80-140	● 60-120	● 120-180	● 90-130	○ 100-140		○ 170-220			● 40-80	● 60-140	● 90-150	● 70-130	○ 60-110

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø mm	d mm	€	L mm	l mm	z	
3,00	6	*41,46*	57	8	4	1
3,50	6	*41,46*	57	9	4	1
4,00	6	*41,46*	57	11	4	1
4,50	6	*41,46*	57	11	4	1
5,00	6	*41,46*	57	13	4	1
6,00	6	*41,46*	57	13	4	1
8,00	8	*52,18*	63	19	4	1

Ø mm	d mm	€	L mm	l mm	z	
10,00	10	*81,43*	72	22	4	1
12,00	12	*101,58*	83	26	4	1
14,00	14	*140,60*	83	26	4	1
16,00	16	*166,32*	92	32	4	1
18,00	18	*218,09*	92	32	4	1
20,00	20	*253,38*	104	38	4	1

3193 HM-MD DIN 6527 EL



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 210-380	● 200-320	● 200-300	● 180-250							○ 200-250					● 70-130	● 50-120	○ 40-80

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø mm	d mm	€	L mm	l mm	z	
6,00	6	*45,53*	62	18	5	1
8,00	8	*58,29*	68	24	5	1
10,00	10	*86,25*	80	30	5	1
12,00	12	*115,02*	93	36	5	1
14,00	14	*156,28*	100	42	5	1

Ø mm	d mm	€	L mm	l mm	z	
16,00	16	*214,16*	108	48	5	1
18,00	18	*273,46*	115	54	5	1
20,00	20	*331,69*	126	60	5	1
25,00	25	*585,34*	150	75	5	1

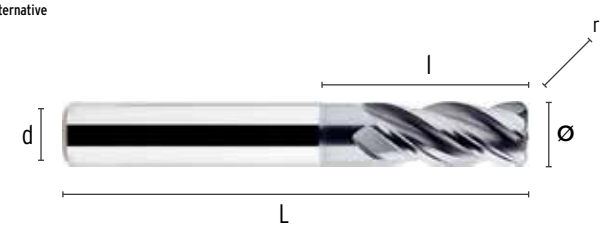
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3178 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 170-240	● 160-210	● 150-200	● 100-140	● 80-140	● 60-120	● 120-180	● 90-130	○ 100-140		○ 170-220			● 40-80	● 60-140	● 90-150	● 70-130	○ 60-110

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	r	
6,00	6	*45,00*	57	13	0,5	1
6,00	6	*45,00*	57	13	1,0	1
8,00	8	*58,11*	63	19	0,5	1
8,00	8	*58,11*	63	19	1,0	1
10,00	10	*87,51*	72	22	0,5	1
10,00	10	*87,51*	72	22	1,0	1
10,00	10	*87,51*	72	22	2,0	1

Ø mm	d mm	€	L mm	l mm	r	
12,00	12	*113,04*	83	26	0,5	1
12,00	12	*113,04*	83	26	1,0	1
12,00	12	*122,49*	83	26	2,0	1
16,00	16	*179,76*	92	32	0,5	1
16,00	16	*179,76*	92	32	1,0	1
16,00	16	*184,32*	92	32	2,0	1

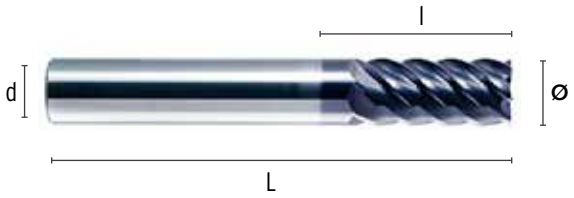
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3179 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●	●	○	
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90		100-200			40-80	60-110	60-100	50-80	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
6,00	6	*33,96*	57	13	6	1
8,00	8	*46,89*	63	19	6	1
10,00	10	*63,21*	72	22	6	1
12,00	12	*89,82*	83	26	6	1

Ø mm	d mm	€	L mm	l mm	Z	
14,00	14	*112,20*	83	26	6	1
16,00	16	*151,05*	92	32	6	1
18,00	18	*189,36*	92	32	6	1
20,00	20	*225,96*	104	38	8	1

3180 HM-MD DIN 6527 EL



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●	●	○	
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90		100-200			40-90	60-110	60-100	50-80	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
6,00	6	*36,96*	62	18	6	1
8,00	8	*50,40*	68	24	6	1
10,00	10	*70,71*	80	30	6	1
12,00	12	*101,49*	93	36	6	1

Ø mm	d mm	€	L mm	l mm	Z	
14,00	14	*140,55*	100	45	6	1
16,00	16	*189,21*	108	48	6	1
18,00	18	*255,00*	115	55	6	1
20,00	20	*326,07*	126	60	8	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3181 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 100-220	● 80-180	● 70-150	● 60-90	● 70-110	● 60-100	● 100-160	● 80-120	○ 60-90		○ 100-200			● 40-90	● 60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	Z	
4,00	6	*34,86*	57	11	3	1
5,00	6	*34,86*	57	13	4	1
6,00	6	*34,86*	57	13	4	1
8,00	8	*49,56*	63	19	4	1
10,00	10	*67,41*	72	22	4	1
12,00	12	*94,35*	83	26	4	1

Ø mm	d mm	€	L mm	l mm	Z	
14,00	14	*126,90*	83	26	4	1
16,00	16	*163,80*	92	32	4	1
16,00	16	*163,80*	92	32	5	1
18,00	18	*200,13*	92	32	5	1
20,00	20	*224,55*	104	38	5	1
20,00	20	*224,55*	104	38	6	1

3183 HM-MD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 100-220	● 80-180	● 70-150	● 60-90	● 70-110	● 60-100	● 100-160	● 80-120	○ 60-90		○ 100-200			● 40-90	● 60-110	● 40-80	○ 30-50	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	Z	
1,20	6	*28,93*	57	4	1
1,60	8	*40,15*	63	4	1

Ø mm	d mm	€	L mm	Z	
2,00	10	*59,85*	72	4	1
2,40	12	*86,45*	83	4	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3184 HM-MD

90° | 4z | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●			
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90		100-200			40-90	60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	Z	
1,20	6	*28,93*	57	4	1
1,60	8	*40,15*	63	4	1

Ø mm	d mm	€	L mm	Z	
2,00	10	*59,85*	72	4	1
2,40	12	*86,45*	83	4	1

3185 HM-MD

r | 4z | DIN 6535 HA | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	○		○			●	●			
100-220	80-180	70-150	60-90	70-110	60-100	100-160	80-120	60-90		100-200			40-90	60-110			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	r	d mm	€	L mm	Z	
5,00	0,50	6	*30,18*	57	4	1
4,00	1,00	6	*30,18*	57	4	1
5,00	1,50	8	*40,15*	63	4	1
4,00	2,00	8	*40,15*	63	4	1
5,00	2,50	10	*59,85*	72	4	1

Ø mm	r	d mm	€	L mm	Z	
4,00	3,00	10	*59,85*	72	4	1
5,00	3,50	12	*86,45*	83	4	1
4,00	4,00	12	*86,45*	83	4	1
4,00	5,00	14	*115,79*	83	4	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

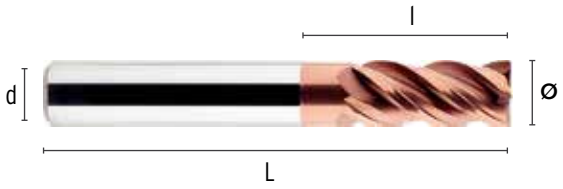
3194 HM-MD DIN 6527 L



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
				● 90-150	● 70-130								● 50-80	● 60-150			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW



Ø mm	d mm	€	L mm	l mm	Z	
3,00	6	*44,72*	57	8	4	1
3,50	6	*44,72*	57	10	4	1
4,00	6	*44,72*	57	11	4	1
4,50	6	*44,72*	57	11	4	1
5,00	6	*44,72*	57	13	4	1
6,00	6	*44,72*	57	13	4	1
8,00	8	*56,73*	63	19	4	1

Ø mm	d mm	€	L mm	l mm	Z	
10,00	10	*87,26*	72	22	4	1
12,00	12	*107,49*	83	26	4	1
14,00	14	*144,54*	83	26	4	1
16,00	16	*193,66*	92	32	4	1
18,00	18	*239,67*	92	32	4	1
20,00	20	*289,82*	104	38	4	1

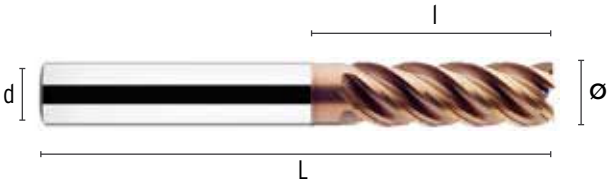
3195 HM-MD DIN 6527 EL



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
				● 150-230	● 130-200								● 40-100	● 60-230			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

NEW

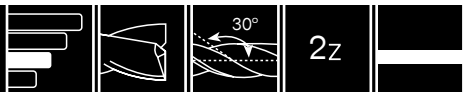


Ø mm	d mm	€	L mm	l mm	Z	
6,00	6	*49,20*	62	18	5	1
8,00	8	*60,60*	68	24	5	1
10,00	10	*89,98*	80	30	5	1
12,00	12	*119,90*	93	36	5	1
14,00	14	*169,51*	100	42	5	1

Ø mm	d mm	€	L mm	l mm	Z	
16,00	16	*230,04*	108	48	5	1
18,00	18	*291,11*	115	54	5	1
20,00	20	*351,98*	126	60	5	1
25,00	25	*615,67*	150	75	5	1

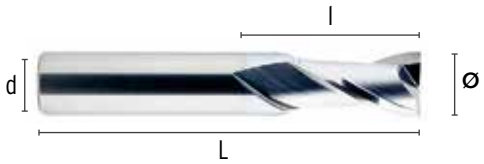
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3101 HM-MD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	○	●	●	●	●			○			●	●			
70-155	60-110	50-105	45-65	50-80	45-70	70-115	60-85			70-130			30-60	45-80			

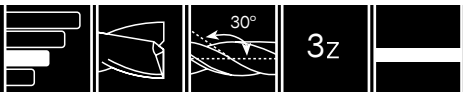
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
3,00	3	*17,84*	40	12	1
4,00	4	*20,14*	40	12	1
5,00	5	*20,98*	50	14	1
6,00	6	*25,88*	50	16	1
8,00	8	*37,21*	60	20	1

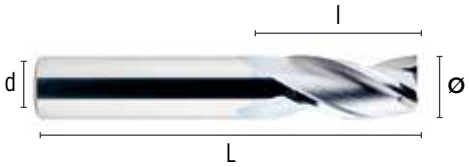
Ø mm	d mm	€	L mm	l mm	
10,00	10	*50,91*	70	22	1
12,00	12	*71,59*	70	22	1
16,00	16	*120,81*	75	25	1
20,00	20	*183,37*	100	32	1

3105 HM-MD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	○	●	●	●	●			○			●	●			
70-155	60-110	50-105	45-65	50-80	45-70	70-115	60-85			70-130			30-60	45-80			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

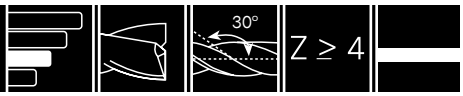


Ø mm	d mm	€	L mm	l mm	
3,00	3	*17,84*	40	12	1
4,00	4	*20,14*	40	14	1
5,00	5	*20,98*	50	16	1
6,00	6	*25,88*	50	19	1
8,00	8	*37,21*	60	20	1

Ø mm	d mm	€	L mm	l mm	
10,00	10	*50,91*	70	22	1
12,00	12	*71,59*	70	22	1
16,00	16	*120,81*	75	25	1
20,00	20	*183,37*	100	32	1

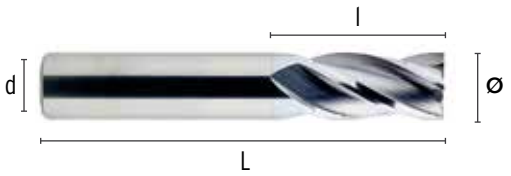
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3107 HM-MD



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 70-155	● 60-110	● 50-105	○ 45-65	● 50-80	● 45-70	● 70-115	● 60-85			○ 70-130			● 30-60	● 45-80			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
3,00	3	*17,84*	40	12	1
4,00	4	*20,14*	40	12	1
5,00	5	*20,98*	50	14	1
6,00	6	*25,88*	50	16	1
8,00	8	*37,21*	60	20	1

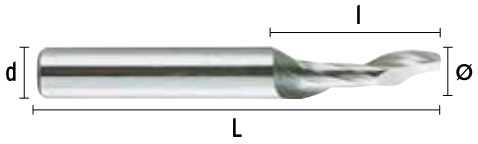
Ø mm	d mm	€	L mm	l mm	
10,00	10	*50,91*	75	22	1
12,00	12	*71,59*	70	22	1
16,00	16	*120,81*	75	25	1
20,00	20	*183,37*	100	32	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3120 HSSE W — 1z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 60-200		● 60-100	● 50-80					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
3,00	8	*15,38*	60	12	1
4,00*	6	*15,38*	60	12	1
4,00	8	*15,38*	60	12	1
5,00*	6	*15,38*	60	12	1
5,00	8	*15,38*	60	14	1

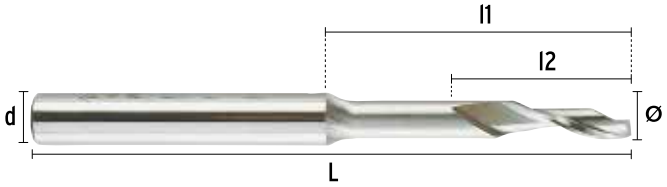
Ø mm	d mm	€	L mm	l mm	
6,00	6	*15,38*	60	14	1
6,00	8	*15,38*	60	14	1
7,00	8	*18,68*	60	14	1
8,00	8	*18,68*	80	14	1
10,00	8	*23,61*	80	14	1

***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

3121 HSSE W — 1z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 60-200		● 60-100	● 50-80					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l1 mm	l2 mm	
4,00	8	*21,78*	80	45	16	1
5,00*	6	*21,78*	80	45	14	1
5,00	8	*21,78*	80	45	16	1

Ø mm	d mm	€	L mm	l1 mm	l2 mm	
6,00	8	*21,78*	90	45	16	1
8,00	8	*24,15*	100	70	30	1

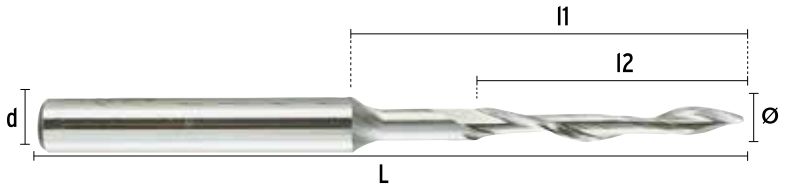
***(Hasta fin de existencias /** Jusqu'à épuisement des stocks / While supplies last)

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3122 HSSE W — 1z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
									● 60-200		● 60-100	● 50-80					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l1 mm	l2 mm	
5,00	8	*21,78*	100	55	35	1

3186 HSSE W — 2z

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50									● 60-150		● 60-100	● 50-80					

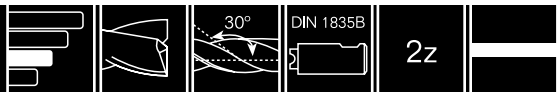
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
2	2	6	*15,24*	51	7	1
3	2	6	*15,24*	52	8	1
4	2	6	*15,24*	55	11	1
5	2	6	*15,24*	57	13	1
6	2	6	*15,24*	57	13	1
8	2	10	*20,75*	69	19	1

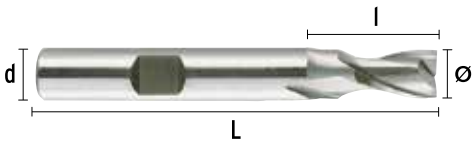
Ø mm	Z	d mm	€	L mm	l mm	
10	2	10	*21,70*	72	22	1
12	2	12	*28,16*	83	26	1
14	2	12	*31,12*	83	26	1
16	2	16	*37,96*	92	32	1
18	2	16	*47,10*	92	32	1
20	2	20	*57,32*	104	38	1

3110 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 45-90							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

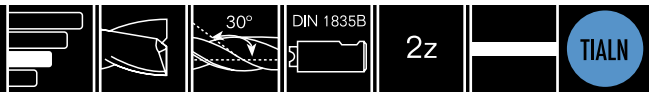


Ø mm	d mm	€	L mm	l mm	
2,00	6	*13,84*	48	4	1
2,50	6	*13,84*	49	5	1
3,00	6	*13,84*	49	5	1
3,50	6	*15,06*	50	6	1
4,00	6	*13,84*	51	7	1
4,50	6	*16,54*	51	7	1
5,00	6	*13,84*	52	8	1
5,50	6	*17,56*	52	8	1
6,00	6	*13,84*	52	8	1
6,50	10	*22,95*	60	10	1
7,00	10	*22,26*	60	10	1
7,50	10	*22,06*	60	10	1
8,00	10	*19,83*	61	11	1
8,50	10	*24,76*	61	11	1
9,00	10	*22,79*	61	11	1
9,50	10	*24,16*	61	11	1
10,00	10	*19,62*	63	13	1
11,00	12	*26,76*	70	13	1

Ø mm	d mm	€	L mm	l mm	
12,00	12	*25,36*	73	16	1
13,00	12	*33,46*	73	16	1
14,00	12	*33,46*	73	16	1
15,00	12	*37,49*	73	16	1
16,00	16	*36,60*	79	19	1
17,00	16	*44,58*	79	19	1
18,00	16	*44,58*	79	19	1
19,00	16	*56,29*	79	19	1
20,00	20	*53,28*	88	22	1
22,00	20	*69,68*	88	22	1
24,00	25	*88,26*	102	26	1
25,00	25	*96,12*	102	26	1
28,00	25	*111,67*	102	26	1
30,00	25	*129,90*	102	26	1
32,00	32	*130,74*	112	32	1
36,00	32	*174,87*	112	32	1
40,00	32	*214,70*	130	38	1

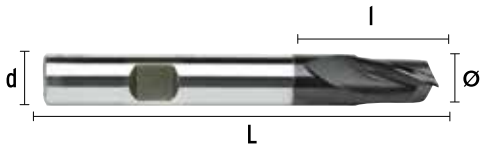
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3110/1 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		○ 70-120							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

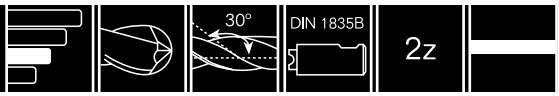


Ø mm	d mm	€	L mm	l mm	
2,00	6	*19,37*	48	4	1
2,50	6	*19,37*	49	5	1
3,00	6	*19,37*	49	5	1
3,50	6	*21,08*	50	6	1
4,00	6	*19,37*	51	7	1
4,50	6	*23,15*	51	7	1
5,00	6	*19,37*	52	8	1
5,50	6	*24,58*	52	8	1
6,00	6	*19,37*	52	8	1
6,50	10	*32,13*	60	10	1
7,00	10	*31,16*	60	10	1
7,50	10	*30,88*	60	10	1
8,00	10	*27,77*	61	11	1
8,50	10	*34,66*	61	11	1
9,00	10	*31,90*	61	11	1
9,50	10	*33,82*	61	11	1
10,00	10	*27,47*	63	13	1
11,00	12	*37,47*	70	13	1

Ø mm	d mm	€	L mm	l mm	
12,00	12	*35,50*	73	16	1
13,00	12	*46,85*	73	16	1
14,00	12	*46,85*	73	16	1
15,00	12	*52,48*	73	16	1
16,00	16	*51,24*	79	19	1
17,00	16	*62,42*	79	19	1
18,00	16	*62,42*	79	19	1
19,00	16	*78,81*	79	19	1
20,00	20	*74,59*	88	22	1
22,00	20	*97,55*	88	22	1
24,00	25	*123,57*	102	26	1
25,00	25	*134,56*	102	26	1
28,00	25	*156,33*	102	26	1
30,00	25	*181,85*	102	26	1
32,00	32	*183,03*	112	32	1
36,00	32	*244,81*	112	32	1
40,00	40	*300,59*	118	38	1

Bajo demanda / Sur commande / Upon request

3112 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 45-90			○ 2-4				

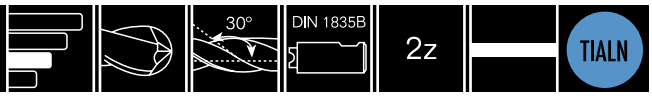
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
3,00	6	*27,32*	49	5	1
4,00	6	*27,32*	51	7	1
5,00	6	*27,32*	52	8	1
6,00	6	*27,32*	52	8	1
7,00	10	*32,94*	60	10	1
8,00	10	*29,33*	61	11	1
9,00	10	*33,72*	61	11	1
10,00	10	*29,12*	63	13	1
12,00	12	*37,53*	73	16	1

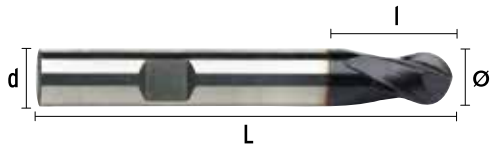
Ø mm	d mm	€	L mm	l mm	
13,00	12	*49,59*	73	16	1
14,00	12	*49,59*	73	16	1
15,00	12	*49,67*	73	16	1
16,00	16	*54,19*	79	19	1
18,00	16	*65,98*	79	19	1
20,00	20	*78,80*	88	22	1
22,00	20	*103,13*	88	22	1
24,00	25	*123,24*	102	26	1
25,00	25	*113,26*	102	26	1

3112/1 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		○ 70-120			● 4-6				

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



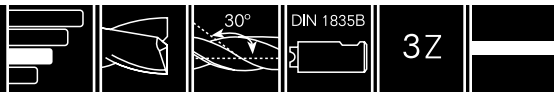
Ø mm	d mm	€	L mm	l mm	
3,00	6	*38,25*	49	5	1
4,00	6	*38,25*	51	7	1
5,00	6	*38,25*	52	8	1
6,00	6	*38,25*	52	8	1
7,00	10	*46,11*	60	10	1
8,00	10	*41,06*	61	11	1
9,00	10	*47,20*	61	11	1
10,00	10	*40,76*	63	13	1
12,00	12	*52,54*	73	16	1

Ø mm	d mm	€	L mm	l mm	
13,00	12	*69,43*	73	16	1
14,00	12	*69,43*	73	16	1
15,00	12	*69,53*	73	16	1
16,00	16	*75,87*	79	19	1
18,00	16	*92,37*	79	19	1
20,00	20	*110,32*	88	22	1
22,00	20	*144,38*	88	22	1
24,00	25	*172,53*	102	26	1
25,00	25	*158,57*	102	26	1

Bajo demanda / Sur commade / upon request

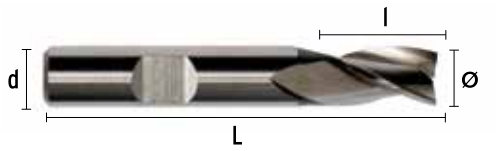
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3187 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 45-90				○ 15-20			

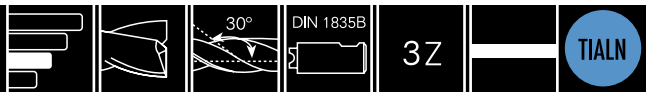
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
2,00	3	6	*13,89*	48	4	1
3,00	3	6	*12,62*	49	5	1
4,00	3	6	*12,62*	51	7	1
5,00	3	6	*12,62*	52	8	1
6,00	3	6	*12,62*	52	8	1
7,00	3	10	*15,79*	60	10	1
8,00	3	10	*15,79*	61	11	1
9,00	3	10	*18,50*	91	11	1
10,00	3	10	*18,49*	63	13	1
11,00	3	12	*21,53*	70	13	1
12,00	3	12	*21,51*	73	16	1

Ø mm	Z	d mm	€	L mm	l mm	
13,00	3	12	*26,68*	73	16	1
14,00	3	12	*26,68*	73	16	1
15,00	3	12	*30,94*	73	16	1
16,00	3	16	*30,94*	79	19	1
18,00	3	16	*38,06*	79	19	1
20,00	3	20	*47,61*	88	22	1
22,00	3	20	*70,91*	88	22	1
25,00	3	25	*93,73*	102	26	1
28,00	3	25	*105,35*	102	26	1
30,00	3	25	*131,62*	102	26	1
32,00	3	32	*174,39*	112	32	1

3187/1 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		○ 70-120				○ 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

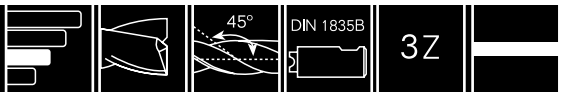


Ø mm	Z	d mm	€	L mm	l mm	
2,00	3	6	*19,45*	48	4	1
3,00	3	6	*17,67*	49	5	1
4,00	3	6	*17,67*	51	7	1
5,00	3	6	*17,67*	52	8	1
6,00	3	6	*17,67*	52	8	1
7,00	3	10	*22,11*	60	10	1
8,00	3	10	*22,11*	61	11	1
9,00	3	10	*25,90*	91	11	1
10,00	3	10	*25,89*	63	13	1
11,00	3	12	*30,14*	70	13	1
12,00	3	12	*30,12*	73	16	1

Ø mm	Z	d mm	€	L mm	l mm	
13,00	3	12	*37,35*	73	16	1
14,00	3	12	*37,35*	73	16	1
15,00	3	12	*43,32*	73	16	1
16,00	3	16	*43,32*	79	19	1
18,00	3	16	*53,29*	79	19	1
20,00	3	20	*66,65*	88	22	1
22,00	3	20	*99,27*	88	22	1
25,00	3	25	*131,23*	102	26	1
28,00	3	25	*147,49*	102	26	1
30,00	3	25	*184,26*	102	26	1
32,00	3	32	*244,15*	112	32	1

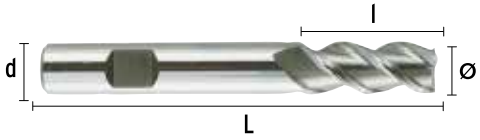
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3114 HSSE DIN 844 W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50									● 60-150		● 60-100	● 50-80					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

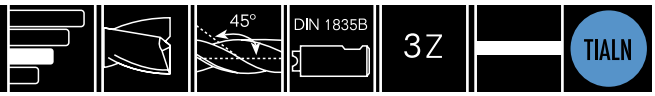


Ø mm	d mm	€	L mm	l mm	z	
2,00	6	*16,26*	51	7	3	1
3,00	6	*16,26*	52	8	3	1
4,00	6	*16,26*	55	11	3	1
5,00	6	*16,26*	57	13	3	1
6,00	6	*20,23*	57	13	3	1
7,00	10	*22,40*	69	16	3	1
8,00	10	*24,66*	69	19	3	1
9,00	10	*27,17*	69	19	3	1
10,00	10	*25,43*	72	22	3	1

Ø mm	d mm	€	L mm	l mm	z	
12,00	12	*30,88*	83	26	3	1
14,00	12	*40,57*	83	26	3	1
15,00	12	*40,28*	83	26	3	1
16,00	16	*46,26*	92	32	3	1
18,00	16	*54,83*	92	32	3	1
20,00	20	*66,38*	104	38	3	1
25,00*	25	*109,60*	121	45	4	1
30,00*	25	*156,69*	121	45	4	1

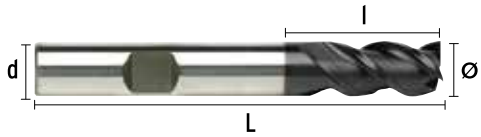
* Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

3114/1 HSSE DIN 844 W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80									● 100-200		● 80-120	● 65-100					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	z	
6,00	6	*28,33*	57	13	3	1
7,00	10	*31,36*	66	16	3	1
8,00	10	*34,53*	69	19	3	1
9,00	10	*38,04*	69	19	3	1
10,00	10	*35,60*	72	22	3	1
12,00	12	*43,23*	83	26	3	1

Ø mm	d mm	€	L mm	l mm	z	
14,00	12	*56,80*	83	26	3	1
15,00	12	*56,39*	83	26	3	1
16,00	16	*64,77*	92	32	3	1
18,00	16	*76,76*	92	32	3	1
20,00	20	*92,93*	104	38	3	1

Bajo demanda / Sur commade / upon request

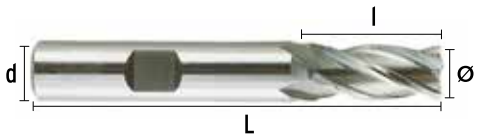
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3115 HSSE DIN 844 N

30° · DIN 1835B · Z ≥ 4

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 45-90			○ 15-20	● 15-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
2,00	3	6	*15,23*	51	7	1
2,50	3	6	*15,23*	52	8	1
3,00	4	6	*15,23*	52	8	1
4,00	4	6	*15,34*	55	11	1
5,00	4	6	*15,34*	57	13	1
6,00	4	6	*15,34*	57	13	1
7,00	4	10	*23,15*	69	16	1
8,00	4	10	*19,13*	69	19	1
9,00	4	10	*24,15*	69	19	1
10,00	4	10	*21,35*	72	22	1
11,00	4	12	*29,12*	79	22	1
12,00	4	12	*27,03*	83	26	1

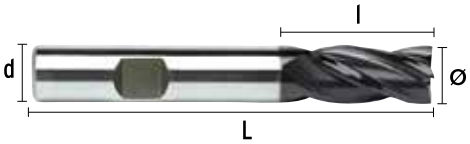
Ø mm	Z	d mm	€	L mm	l mm	
13,00	4	12	*36,40*	83	26	1
14,00	4	12	*34,35*	83	26	1
15,00	4	12	*39,21*	83	26	1
16,00	4	16	*38,26*	92	32	1
18,00	4	16	*47,16*	92	32	1
20,00	4	20	*55,19*	104	38	1
22,00	5	20	*76,64*	104	38	1
25,00	5	25	*95,24*	121	45	1
28,00	5	25	*119,07*	121	45	1
30,00	5	25	*141,90*	121	45	1
32,00	6	32	*141,90*	133	53	1

3115/1 HSSE DIN 327 N

30° · DIN 1835B · Z ≥ 4 · TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35	○ 90-200	○ 70-120			● 25-35	● 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



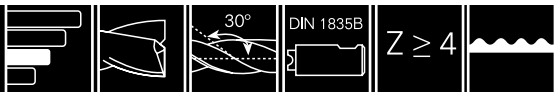
Ø mm	Z	d mm	€	L mm	l mm	
3,00	4	6	*21,32*	52	8	1
4,00	4	6	*21,32*	55	11	1
5,00	4	6	*21,32*	57	13	1
6,00	4	6	*21,48*	57	13	1
7,00	4	10	*21,48*	66	16	1
8,00	4	10	*21,48*	69	19	1
9,00	4	10	*32,41*	69	19	1
10,00	4	10	*26,78*	72	22	1
11,00	4	12	*33,81*	79	22	1
12,00	4	12	*29,89*	83	26	1
13,00	4	12	*40,76*	83	26	1

Ø mm	Z	d mm	€	L mm	l mm	
14,00	4	12	*37,84*	83	26	1
15,00	4	12	*50,96*	83	26	1
16,00	4	16	*48,08*	92	32	1
18,00	4	16	*54,89*	92	32	1
20,00	4	20	*53,57*	104	38	1
22,00	5	20	*66,02*	104	38	1
25,00	5	25	*77,26*	121	45	1
28,00	5	25	*107,30*	121	45	1
30,00	5	25	*133,33*	121	45	1
32,00	6	32	*166,70*	133	53	1

Bajo demanda / Sur commade / upon request

P Aceros · Aciers · Steels
M Aceros Inox · Aciers Inox · Stainless Steels
K Fundicion · Fonte · Cast Iron
N Metales no ferrosos · Métal non Ferraux · Non Ferrous metals
S Titanio y Superaleaciones · Titanium et Supealliages · Titanium and Superalloys
H Materiales Duros · Materiels Durs · Hard materials

3117 HSSE DIN 844 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 35-50	○ 25-30			○ 15-20		○ 34-38				○ 45-90							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

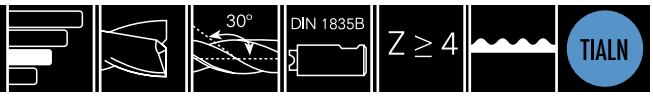


Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*39,22*	57	13	1
7,00	4	10	*47,26*	66	16	1
8,00	4	10	*44,13*	69	19	1
9,00	4	10	*49,02*	69	19	1
10,00	4	10	*38,70*	72	22	1
11,00	4	12	*57,74*	79	22	1
12,00	4	12	*50,90*	83	26	1
13,00	4	12	*69,06*	83	26	1
14,00	4	12	*55,19*	83	26	1
15,00	4	12	*72,59*	83	26	1
16,00	4	16	*67,61*	92	32	1
17,00	4	16	*89,45*	92	32	1

Ø mm	Z	d mm	€	L mm	l mm	
18,00	4	16	*71,43*	92	32	1
20,00	4	20	*89,51*	98	38	1
22,00	5	20	*102,85*	104	38	1
24,00	5	25	*129,49*	121	45	1
25,00	5	25	*128,55*	121	45	1
26,00	5	25	*153,53*	121	45	1
28,00	5	25	*148,58*	121	45	1
30,00	5	25	*165,01*	121	45	1
32,00	6	32	*180,95*	133	53	1
36,00*	6	32	*214,25*	133	53	1
40,00*	6	32	*240,92*	155	63	1

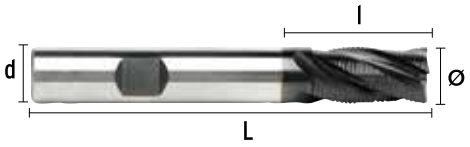
* Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

3117/1 HSSE DIN 844 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-80	● 45-55	○ 35-40		○ 25-35		● 55-60				○ 60-120							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



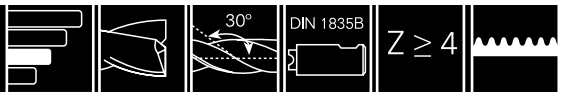
Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*54,90*	57	13	1
7,00	4	10	*66,16*	66	16	1
8,00	4	10	*61,78*	69	19	1
9,00	4	10	*68,63*	69	19	1
10,00	4	10	*54,18*	72	22	1
11,00	4	12	*80,84*	79	22	1
12,00	4	12	*71,27*	83	26	1
13,00	4	12	*96,68*	83	26	1
14,00	4	12	*77,26*	83	26	1
15,00	4	12	*101,62*	83	26	1
16,00	4	16	*94,65*	92	32	1

Ø mm	Z	d mm	€	L mm	l mm	
17,00	4	16	*125,23*	92	32	1
18,00	4	16	*100,00*	92	32	1
20,00	4	20	*125,32*	98	38	1
22,00	5	20	*143,99*	104	38	1
24,00	5	25	*181,28*	121	45	1
25,00	5	25	*179,97*	121	45	1
26,00	5	25	*214,94*	121	45	1
28,00	5	25	*208,01*	121	45	1
30,00	5	25	*231,01*	121	45	1
32,00	6	32	*253,33*	133	53	1

Bajo demanda / Sur commade / upon request

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3119 HSSE DIN 844 NRF



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	● 20-38			○ 50-90			○ 15-20				

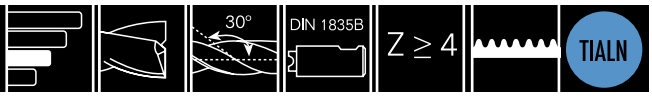
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*43,68*	57	13	1
8,00	4	10	*49,14*	69	19	1
10,00	4	10	*43,12*	72	22	1
12,00	4	12	*56,69*	83	26	1
14,00	4	12	*61,46*	83	26	1

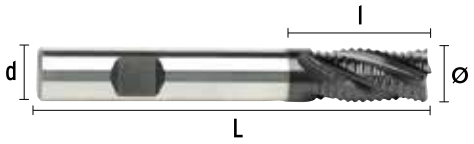
Ø mm	Z	d mm	€	L mm	l mm	
16,00	4	16	*75,22*	9	32	1
18,00	4	16	*79,46*	92	32	1
20,00	4	20	*99,61*	104	38	1
25,00	5	25	*143,03*	121	45	1
30,00	5	25	*183,58*	121	45	1

3119/1 HSSE DIN 844 NRF



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 40-45			○ 25-35		● 55-60	● 20-38			○ 60-120			○ 25-35				

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



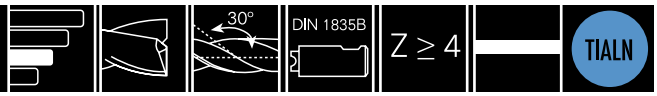
Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*61,15*	57	13	1
8,00	4	10	*68,80*	69	19	1
10,00	4	10	*60,37*	72	22	1
12,00	4	12	*79,37*	83	26	1
14,00	4	12	*86,04*	83	26	1

Ø mm	Z	d mm	€	L mm	l mm	
16,00	4	16	*105,31*	92	32	1
18,00	4	16	*111,25*	92	32	1
20,00	4	20	*139,46*	104	38	1
25,00	5	25	*200,24*	121	45	1
30,00	6	25	*257,01*	121	45	1

Bajo demanda / Sur commade / upon request

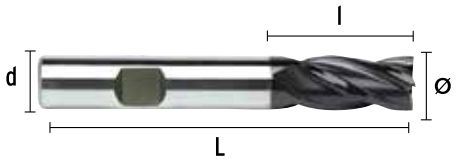
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3162 HSSE-PM DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-85	● 50-60	○ 35-40		● 35-40	○ 28-35	● 55-60	● 30-40	○ 30-35	○ 90-200	○ 80-120	○ 90-130	○ 75-190	● 15-40	● 30-40			

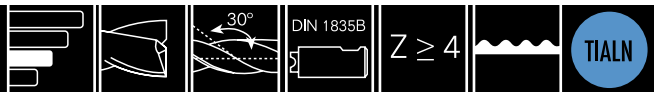
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	l mm	€	Z	
6,00	6	57	13	*42,23*	4	1
8,00	10	69	19	*52,73*	4	1
10,00	10	72	22	*62,46*	4	1
12,00	12	83	26	*74,69*	4	1

Ø mm	d mm	L mm	l mm	€	Z	
14,00	12	83	26	*87,24*	4	1
16,00	16	92	32	*103,43*	4	1
18,00	16	92	32	*126,39*	4	1
20,00	20	104	38	*155,81*	4	1

3157 HSSE-PM DIN 844 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 60-90	● 50-60	○ 45-50		● 35-40	○ 28-35	● 60-65				○ 85-140							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

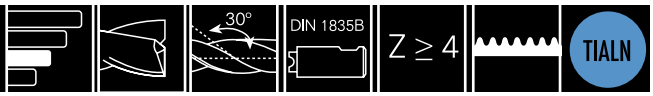


Ø mm	d mm	L mm	l mm	€	Z	
6,00	6	57	13	*72,42*	4	1
8,00	10	69	19	*79,50*	4	1
10,00	10	72	22	*77,12*	4	1
12,00	12	83	26	*98,82*	4	1
14,00	12	83	26	*118,04*	4	1
16,00	16	92	32	*145,11*	4	1
18,00	16	92	32	*158,55*	4	1

Ø mm	d mm	L mm	l mm	€	Z	
20,00	20	104	38	*196,94*	4	1
22,00	20	104	38	*243,81*	5	1
25,00	25	121	45	*289,35*	5	1
28,00	25	121	45	*371,04*	5	1
30,00	25	121	45	*387,83*	5	1
32,00	32	133	53	*421,10*	6	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3159 HSSE-PM DIN 844 NRF



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-85	● 40-50	○ 35-40		● 30-35	○ 25-30	● 55-60				○ 80-140			● 15-40	● 30-40			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

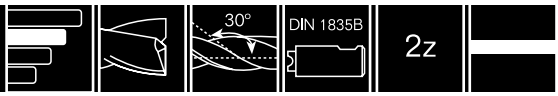


Ø mm	d mm	L mm	l mm	€	Z	
6,00	6	57	13	*79,67*	4	1
8,00	10	69	19	*87,11*	4	1
10,00	10	72	22	*84,69*	4	1
12,00	12	83	26	*108,77*	4	1

Ø mm	d mm	L mm	l mm	€	Z	
14,00	12	83	26	*129,59*	4	1
16,00	16	92	32	*159,08*	4	1
18,00	16	92	32	*173,96*	4	1
20,00	20	104	38	*215,51*	4	1

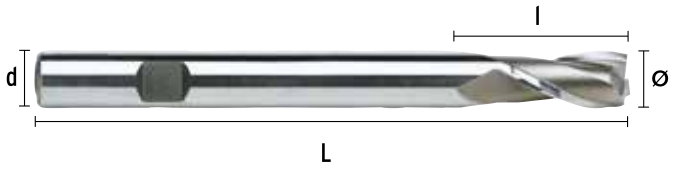
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3111 HSSE DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 45-80							

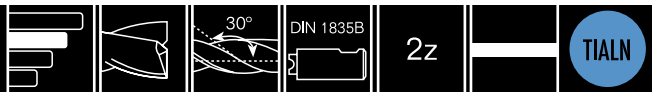
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
4,00	6	*21,15*	63	11	1
5,00	6	*21,15*	68	13	1
6,00	6	*21,15*	68	13	1
7,00	10	*35,18*	80	16	1
8,00	10	*30,75*	88	19	1
9,00	10	*41,67*	88	19	1
10,00	10	*35,18*	95	22	1

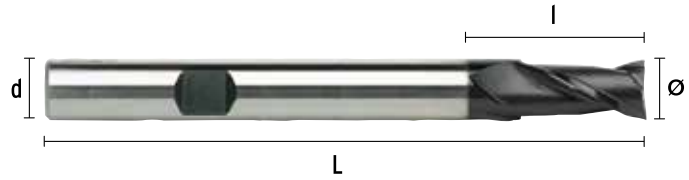
Ø mm	d mm	€	L mm	l mm	
12,00	12	*48,06*	110	26	1
14,00	12	*62,48*	110	26	1
16,00	16	*73,49*	123	32	1
18,00	16	*87,57*	123	32	1
20,00	20	*95,64*	141	38	1
22,00	20	*129,83*	141	38	1
25,00	25	*186,21*	166	45	1

3111/1 HSSE DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		○ 70-110							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



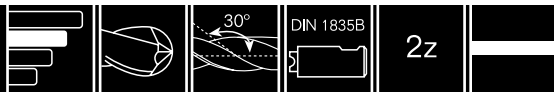
Ø mm	d mm	€	L mm	l mm	
4,00	6	*29,61*	63	11	1
5,00	6	*29,61*	68	13	1
6,00	6	*29,61*	68	13	1
7,00	10	*49,25*	80	16	1
8,00	10	*43,05*	88	19	1
9,00	10	*58,34*	88	19	1
10,00	10	*49,25*	95	22	1

Ø mm	d mm	€	L mm	l mm	
12,00	12	*67,28*	110	26	1
14,00	12	*87,47*	110	26	1
16,00	16	*102,88*	123	32	1
18,00	16	*122,60*	123	32	1
20,00	20	*133,90*	141	38	1
22,00	20	*181,76*	141	38	1
25,00	25	*260,69*	166	45	1

Bajo demanda / Sur commade / upon request

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3113 HSSE DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 45-90			○ 2-4				

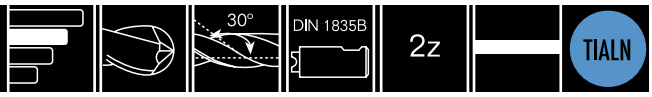
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	
4,00	6	*30,83*	63	11	1
5,00	6	*32,63*	68	13	1
6,00	6	*29,46*	68	13	1
8,00	10	*36,13*	88	19	1
10,00	12	*39,64*	95	22	1
12,00	12	*50,85*	110	26	1

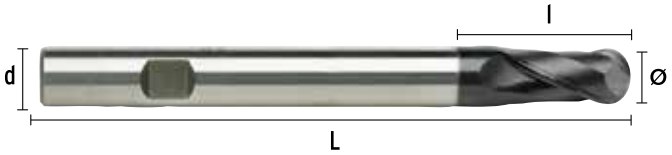
Ø mm	d mm	€	L mm	l mm	
14,00	12	*59,81*	110	26	1
16,00	16	*76,02*	123	32	1
18,00	16	*91,41*	123	32	1
20,00	20	*99,09*	141	38	1
22,00	20	*122,83*	141	38	1
25,00	25	*182,37*	166	45	1

3113/1 HSSE DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		○ 70-120			● 4-6				

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



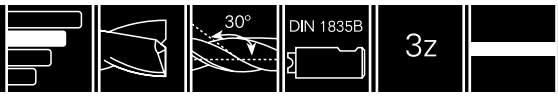
Ø mm	d mm	€	L mm	l mm	
4,00	6	*43,16*	63	11	1
5,00	6	*45,69*	68	13	1
6,00	6	*41,25*	68	13	1
8,00	10	*50,58*	88	19	1
10,00	10	*55,49*	95	22	1
12,00	12	*71,19*	110	26	1

Ø mm	d mm	€	L mm	l mm	
14,00	12	*83,73*	110	26	1
16,00	16	*106,43*	123	32	1
18,00	16	*127,98*	123	32	1
20,00	20	*138,72*	141	38	1
22,00	20	*171,96*	141	38	1
25,00	25	*255,32*	166	45	1

Bajo demanda / Sur commade / upon request

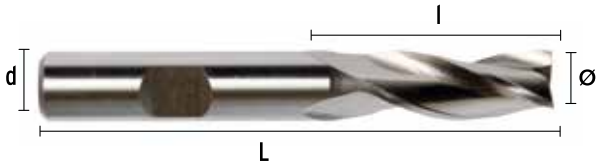
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3188 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			○ 55-75				○ 15-20			

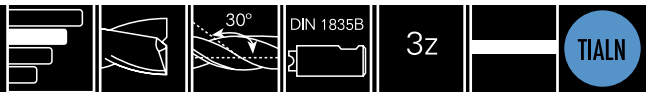
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
3	3	6	*16,33*	52	8	1
4	3	6	*16,33*	55	11	1
5	3	6	*16,33*	57	13	1
6	3	6	*16,33*	57	13	1
7	3	10	*20,48*	66	16	1
8	3	10	*20,48*	69	19	1
9	3	10	*22,10*	69	22	1
10	3	10	*24,11*	72	22	1
11	3	12	*25,80*	79	22	1

Ø mm	Z	d mm	€	L mm	l mm	
12	3	12	*27,94*	83	26	1
13	3	12	*30,22*	83	26	1
14	3	12	*34,80*	83	26	1
15	3	12	*38,08*	83	26	1
16	3	16	*40,30*	92	32	1
18	3	16	*49,64*	92	32	1
20	3	20	*61,94*	104	38	1
22	3	20	*72,17*	104	38	1
25	3	25	*80,12*	121	45	1

3188/1 HSSE DIN 327 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		○ 70-120				○ 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

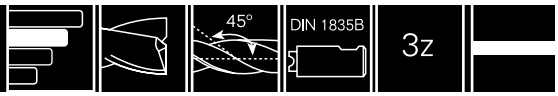


Ø mm	Z	d mm	€	L mm	l mm	
3	3	6	*22,86*	52	8	1
4	3	6	*22,86*	55	11	1
5	3	6	*22,86*	57	13	1
6	3	6	*22,86*	57	13	1
7	3	10	*28,67*	66	16	1
8	3	10	*28,67*	69	19	1
9	3	10	*30,94*	69	22	1
10	3	10	*33,75*	72	22	1
11	3	12	*36,12*	79	22	1

Ø mm	Z	d mm	€	L mm	l mm	
12	3	12	*39,12*	83	26	1
13	3	12	*42,31*	83	26	1
14	3	12	*48,72*	83	26	1
15	3	12	*53,32*	83	26	1
16	3	16	*56,42*	92	32	1
18	3	16	*69,50*	92	32	1
20	3	20	*86,72*	104	38	1
22	3	20	*101,03*	104	38	1
25	3	25	*112,16*	121	45	1

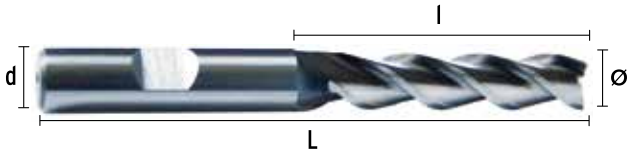
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3182 HSSE DIN 844 W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50									● 60-150		○ 60-100	○ 50-150					

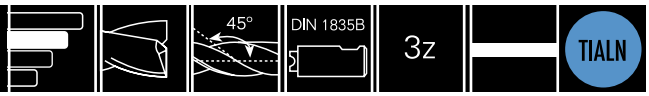
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	€	L mm	l mm	z	
6,00	6	*21,72*	68	24	3	1
8,00	10	*27,69*	88	38	3	1
10,00	10	*32,55*	95	45	3	1
12,00	12	*39,05*	110	53	3	1

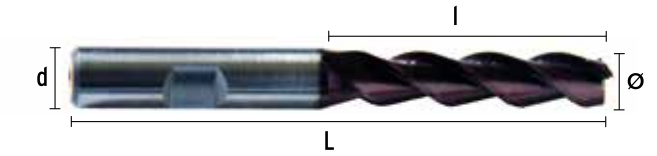
Ø mm	d mm	€	L mm	l mm	z	
14,00	12	*45,56*	110	53	3	1
16,00	16	*54,31*	123	63	3	1
18,00	16	*61,77*	123	63	3	1
20,00	20	*77,04*	141	75	3	1

3182/1 HSSE DIN 844 W



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50									● 60-150		● 60-100	● 50-150					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

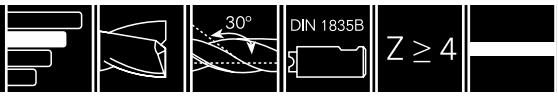


Ø mm	d mm	€	L mm	l mm	z	
6,00	6	*30,41*	68	24	3	1
8,00	10	*38,76*	88	38	3	1
10,00	10	*45,57*	95	45	3	1
12,00	12	*54,67*	110	53	3	1

Ø mm	d mm	€	L mm	l mm	z	
14,00	12	*63,78*	110	53	3	1
16,00	16	*76,03*	123	63	3	1
18,00	16	*86,48*	123	63	3	1
20,00	20	*107,85*	141	75	3	1

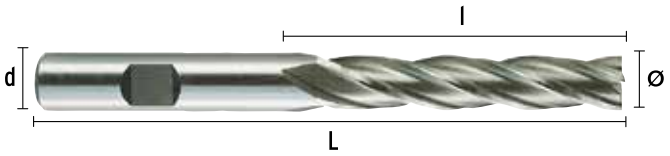
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3116 HSSE DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24			● 55-75			○ 15-20	○ 15-20			

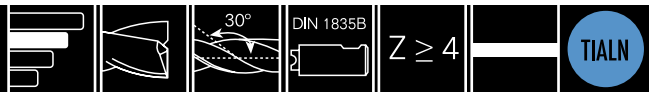
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
3,00	4	6	*18,22*	56	12	1
4,00	4	6	*18,22*	63	19	1
5,00	4	6	*18,22*	68	24	1
6,00	4	6	*18,22*	68	24	1
7,00	4	10	*27,63*	80	30	1
8,00	4	10	*25,38*	88	38	1
9,00	4	10	*28,57*	88	38	1
10,00	4	10	*25,15*	95	45	1

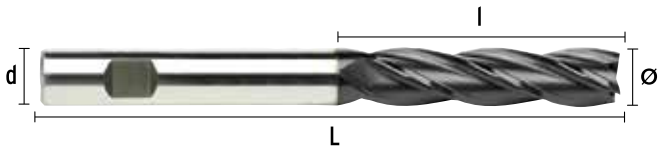
Ø mm	Z	d mm	€	L mm	l mm	
12,00	4	12	*31,88*	110	53	1
14,00	4	12	*41,70*	110	53	1
16,00	4	16	*45,61*	123	63	1
18,00	4	16	*55,70*	123	63	1
20,00	4	20	*65,23*	141	75	1
22,00	5	20	*90,46*	141	75	1
25,00	5	25	*119,99*	166	90	1

3116/1 HSSE DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35		● 70-120			● 25-35	○ 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



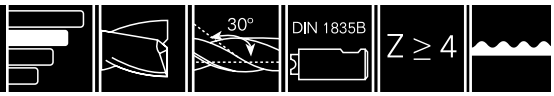
Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*25,50*	68	24	1
7,00	4	10	*38,68*	80	30	1
8,00	4	10	*35,53*	88	38	1
9,00	4	10	*40,00*	88	38	1
10,00	4	10	*35,21*	95	45	1
12,00	4	12	*44,63*	110	53	1

Ø mm	Z	d mm	€	L mm	l mm	
14,00	4	12	*58,37*	110	53	1
16,00	4	16	*63,86*	123	63	1
18,00	4	16	*77,98*	123	63	1
20,00	4	20	*91,32*	141	75	1
22,00	5	20	*126,64*	141	75	1
25,00	5	25	*167,99*	166	90	1

Bajo demanda / Sur commade / upon request

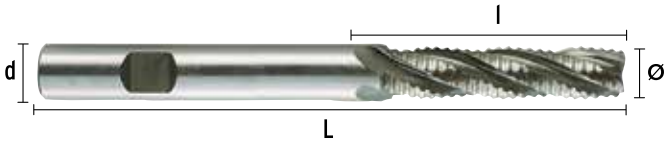
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3118 HSSE DIN 844 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 35-50	○ 25-30			○ 15-20		○ 34-38				○ 45-90							

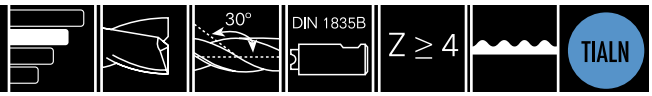
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*54,03*	68	24	1
8,00	4	10	*71,43*	88	38	1
10,00	4	10	*49,02*	95	45	1
12,00	4	12	*58,08*	110	53	1
14,00	4	12	*67,12*	110	53	1
16,00	4	16	*78,54*	123	63	1
18,00	4	16	*88,58*	123	63	1

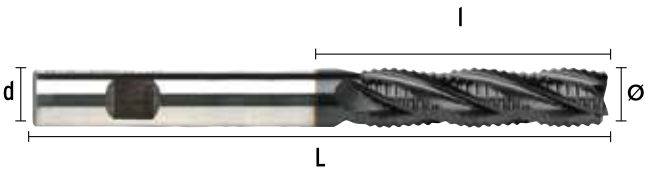
Ø mm	Z	d mm	€	L mm	l mm	
20,00	4	20	*111,39*	141	75	1
22,00	5	20	*135,72*	141	75	1
25,00	5	25	*171,39*	166	90	1
28,00	5	25	*194,27*	166	90	1
30,00	5	25	*260,28*	166	90	1
32,00	6	32	*246,68*	186	106	1

3118/1 HSSE DIN 844 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-80	● 45-55	○ 35-40		○ 25-35		● 55-60				○ 60-120							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



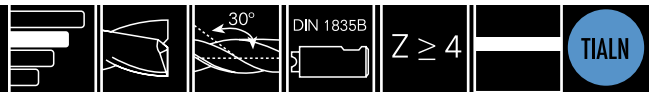
Ø mm	Z	d mm	€	L mm	l mm	
6,00	4	6	*75,65*	68	24	1
8,00	4	10	*100,00*	88	38	1
10,00	4	10	*68,63*	95	45	1
12,00	4	12	*81,31*	110	53	1
14,00	4	12	*93,96*	110	53	1
16,00	4	16	*109,96*	123	63	1
18,00	4	16	*124,01*	123	63	1

Ø mm	Z	d mm	€	L mm	l mm	
20,00	4	20	*155,95*	141	75	1
22,00	5	20	*190,01*	141	75	1
25,00	5	25	*239,95*	166	90	1
28,00	5	25	*271,98*	166	90	1
30,00	5	25	*364,40*	166	90	1
32,00	6	32	*345,35*	186	106	1

Bajo demanda / Sur commade / upon request

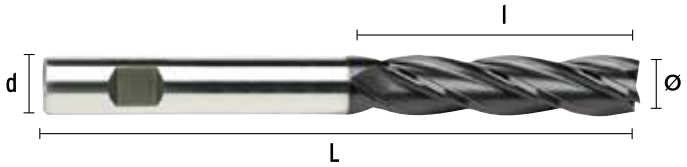
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3163 HSSE-PM DIN 844 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-85	● 50-60	○ 35-40		● 35-40	○ 28-35	● 55-60	● 30-40	○ 30-35	○ 90-200	○ 80-120	○ 90-130	○ 75-190	● 15-40	● 30-40			

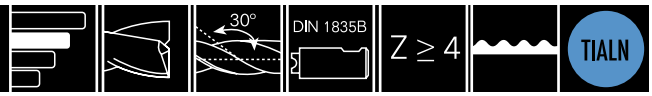
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	l mm	€	Z	
6,00	6	68	24	*35,32*	4	1
8,00	10	88	38	*44,11*	4	1
10,00	10	95	45	*52,25*	4	1
12,00	12	110	53	*62,46*	4	1

Ø mm	d mm	L mm	l mm	€	Z	
14,00	12	110	53	*72,67*	4	1
16,00	16	123	63	*86,15*	4	1
18,00	16	123	63	*104,83*	4	1
20,00	20	141	75	*129,23*	4	1

3158 HSSE-PM DIN 844 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 60-90	● 50-60	○ 45-50		● 35-40	○ 28-35	● 60-65				○ 85-140							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

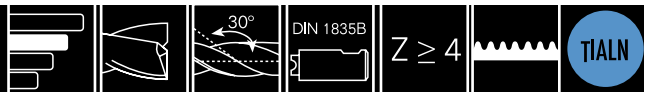


Ø mm	d mm	L mm	l mm	€	Z	
6,00	6	68	24	*76,66*	4	1
8,00	10	88	38	*80,08*	4	1
10,00	10	95	45	*72,93*	4	1
12,00	12	110	53	*91,41*	4	1
14,00	12	110	53	*104,29*	4	1

Ø mm	d mm	L mm	l mm	€	Z	
16,00	16	123	63	*128,86*	4	1
18,00	16	123	63	*145,18*	4	1
20,00	20	141	75	*185,83*	4	1
25,00	25	166	90	*285,54*	5	1
32,00	32	186	106	*406,16*	6	1

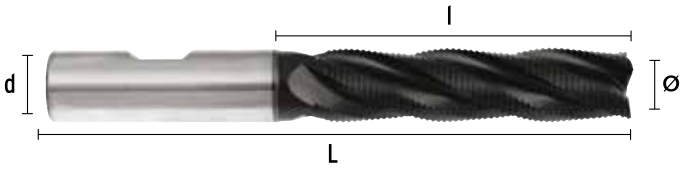
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3160 HSSE-PM DIN 844 NRF



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-85	● 40-50	○ 35-40		● 30-35	○ 25-30	● 55-60				○ 80-140			● 15-40	● 30-40			

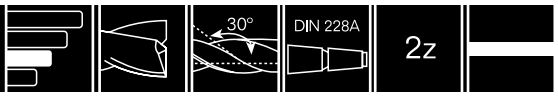
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	l mm	€	Z	
6,00	6	68	24	*84,40*	4	1
8,00	10	88	38	*88,06*	4	1
10,00	10	95	45	*79,95*	4	1
12,00	12	110	53	*100,42*	4	1

Ø mm	d mm	L mm	l mm	€	Z	
14,00	12	110	53	*114,69*	4	1
16,00	16	123	63	*141,49*	4	1
18,00	16	123	63	*159,42*	4	1
20,00	20	141	75	*204,40*	4	1

3144 HSSE DIN 326 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24		○ 60-150	● 55-95	○ 60-100	○ 50-150					

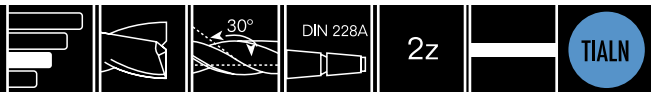
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	2	*80,36*	85	14	1
2	14,00	2	*82,72*	100	16	1
2	16,00	2	*88,07*	105	18	1
2	18,00	2	*98,19*	110	20	1
2	20,00	2	*107,39*	115	20	1
2	22,00	2	*129,14*	120	22	1
3	24,00	2	*144,87*	140	25	1

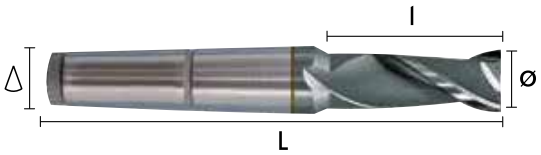
Δ	Ø mm	Z	€	L mm	l mm	
3	25,00	2	*154,74*	140	25	1
3	28,00	2	*183,91*	145	28	1
3	30,00	2	*196,10*	150	30	1
4	32,00	2	*221,97*	175	32	1
4	36,00	2	*280,57*	175	35	1
4	40,00	2	*341,28*	180	38	1

3144/1 HSSE DIN 326 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35	○ 90-200	● 90-140	○ 90-130	○ 75-190					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



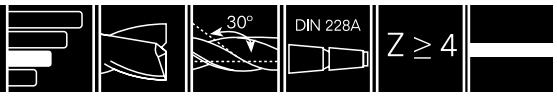
Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	2	*112,50*	85	14	1
2	14,00	2	*115,81*	100	16	1
2	16,00	2	*123,30*	105	18	1
2	18,00	2	*137,46*	110	20	1
2	20,00	2	*150,35*	115	20	1
2	22,00	2	*180,80*	120	22	1
3	24,00	2	*202,82*	140	25	1

Δ	Ø mm	Z	€	L mm	l mm	
3	25,00	2	*216,63*	140	25	1
3	28,00	2	*257,47*	145	28	1
3	30,00	2	*274,54*	150	30	1
4	32,00	2	*310,76*	175	32	1
4	36,00	2	*392,80*	175	35	1
4	40,00	2	*477,79*	180	38	1

Bajo demanda / Sur commade / upon request

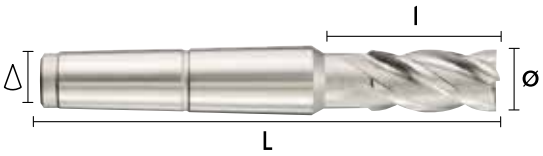
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3145 HSSE DIN 845 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24		○ 60-150	● 55-95	○ 60-100	○ 50-150	○ 15-20	○ 15-20			

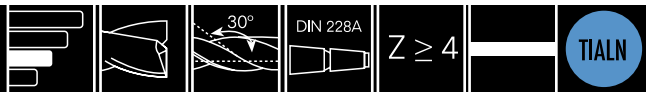
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	4	*79,45*	96	26	1
2	14,00	4	*87,76*	111	26	1
2	16,00	4	*87,76*	117	32	1
2	18,00	4	*94,87*	117	32	1
2	20,00	4	*104,63*	123	38	1
2	22,00	5	*119,76*	123	38	1
3	24,00	5	*169,58*	147	45	1
3	25,00	5	*158,89*	147	45	1

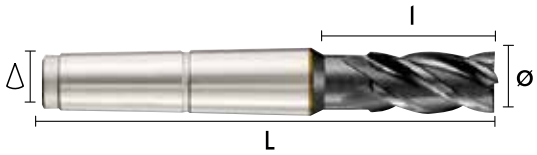
Δ	Ø mm	Z	€	L mm	l mm	
3	26,00	5	*179,92*	147	45	1
3	28,00	5	*181,09*	147	45	1
3	30,00	6	*197,72*	147	45	1
3	32,00	6	*260,55*	178	53	1
4	36,00	6	*298,18*	178	53	1
4	40,00	6	*359,54*	188	63	1
5	50,00	6	*541,50*	233	75	1

3145/1 HSSE DIN 845 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35	○ 90-200	● 90-140	○ 90-130	○ 75-190	● 25-35	○ 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

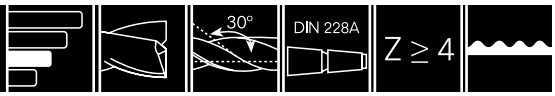


Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	4	*111,23*	96	26	1
2	14,00	4	*122,86*	111	26	1
2	16,00	4	*122,86*	117	32	1
2	18,00	4	*132,81*	117	32	1
2	20,00	4	*146,49*	123	38	1
2	22,00	5	*167,67*	123	38	1
3	24,00	5	*237,41*	147	45	1
3	25,00	5	*222,44*	147	45	1

Δ	Ø mm	Z	€	L mm	l mm	
3	26,00	5	*251,88*	147	45	1
3	28,00	5	*253,53*	147	45	1
3	30,00	6	*276,80*	147	45	1
3	32,00	6	*364,77*	178	53	1
4	36,00	6	*417,45*	178	53	1
4	40,00	6	*503,36*	188	63	1
5	50,00	6	*758,09*	233	75	1

Bajo demanda / Sur commade / upon request

3146 HSSE DIN 845 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 35-55	○ 25-30			○ 15-20		○ 38-42	○ 20-24			● 55-95							

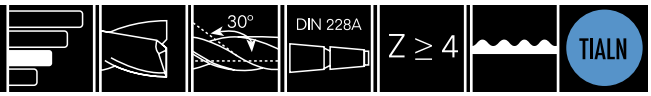
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	4	*103,55*	96	26	1
2	14,00	4	*104,54*	111	26	1
2	16,00	4	*113,24*	117	32	1
2	18,00	4	*119,09*	117	32	1
2	20,00	4	*131,69*	123	38	1
2	22,00	5	*167,92*	123	38	1
3	25,00	5	*195,43*	147	45	1

Δ	Ø mm	Z	€	L mm	l mm	
3	28,00	5	*220,00*	147	45	1
3	30,00	5	*238,44*	147	45	1
4	32,00	6	*266,28*	201	53	1
4	36,00	6	*299,25*	201	53	1
4	40,00	6	*342,31*	211	63	1
5	50,00	8	*489,50*	261	75	1

3146/1 HSSE DIN 845 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-80	● 45-55	○ 35-40		○ 25-35		● 55-60	● 30-35			● 90-140							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



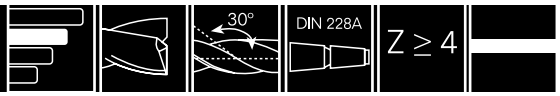
Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	4	*144,97*	96	26	1
2	14,00	4	*146,35*	111	26	1
2	16,00	4	*158,54*	117	32	1
2	18,00	4	*166,73*	117	32	1
2	20,00	4	*184,37*	123	38	1
2	22,00	5	*235,08*	123	38	1
3	25,00	5	*273,60*	147	45	1

Δ	Ø mm	Z	€	L mm	l mm	
3	28,00	5	*307,99*	147	45	1
3	30,00	5	*333,82*	147	45	1
4	32,00	6	*372,79*	178	53	1
4	36,00	6	*418,95*	178	53	1
4	40,00	6	*479,23*	188	63	1
4	50,00	8	*685,30*	233	75	1

Bajo demanda / Sur commade / upon request

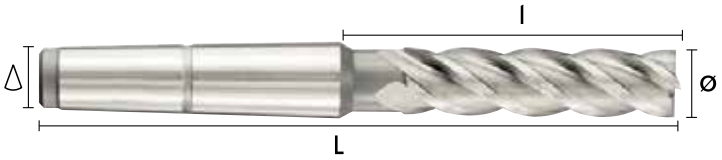
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3147 HSSE DIN 845 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-50	○ 25-30			○ 15-20		○ 34-38	○ 20-24		○ 60-150	● 55-95	○ 60-100	○ 50-150	○ 15-20	○ 15-20			

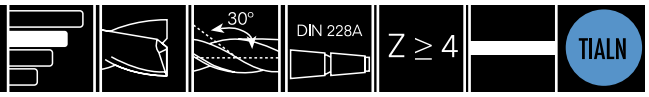
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	4	*91,29*	138	53	1
2	14,00	4	*96,06*	138	53	1
2	16,00	4	*104,63*	148	63	1
2	18,00	4	*118,55*	148	63	1
2	20,00	4	*169,58*	160	75	1
3	22,00	5	*181,09*	160	75	1
3	25,00	5	*199,19*	192	90	1

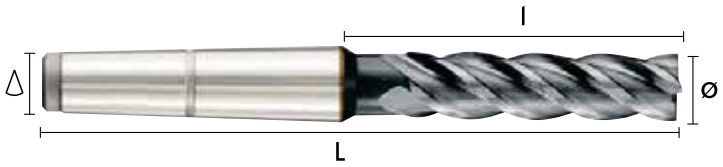
Δ	Ø mm	Z	€	L mm	l mm	
3	28,00	5	*221,41*	192	90	1
3	30,00	6	*283,65*	192	90	1
4	32,00	6	*303,81*	210	106	1
4	36,00	6	*364,86*	231	106	1
4	40,00	6	*417,90*	250	125	1
4	50,00	6	*643,47*	308	150	1

3147/1 HSSE DIN 845 N



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 48-80	● 40-45	○ 30-35		○ 25-35		● 55-60	● 30-40	○ 30-35	○ 90-200	● 90-140	○ 90-130	○ 75-190	● 25-35	○ 25-35			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



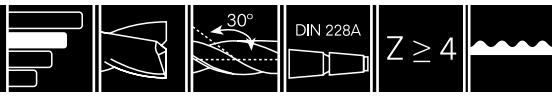
Δ	Ø mm	Z	€	L mm	l mm	
1	12,00	4	*127,80*	123	53	1
2	14,00	4	*134,49*	138	53	1
2	16,00	4	*146,49*	148	63	1
2	18,00	4	*165,96*	148	63	1
2	20,00	4	*237,41*	160	75	1
3	22,00	5	*253,53*	160	75	1
3	25,00	5	*278,86*	192	90	1

Δ	Ø mm	Z	€	L mm	l mm	
3	28,00	5	*309,98*	192	90	1
3	30,00	5	*397,11*	192	90	1
4	32,00	6	*425,33*	231	106	1
4	36,00	6	*510,81*	231	106	1
4	40,00	6	*585,06*	250	125	1
4	50,00	6	*900,86*	308	150	1

Bajo demanda / Sur commade / upon request

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3148 HSSE DIN 845 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 35-55	○ 25-30			○ 15-20		○ 38-42	○ 20-24			● 55-95							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

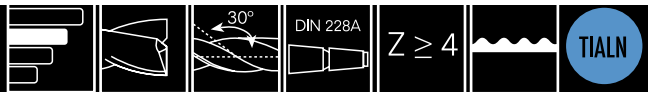


Δ	Ø mm	Z	€	L mm	l mm	
2	16,00*	4	*151,74*	148	63	1
2	18,00*	4	*161,47*	148	63	1
2	20,00	4	*168,90*	160	75	1
2	22,00	5	*229,38*	160	75	1
3	25,00	5	*265,62*	192	90	1
3	28,00	5	*297,64*	192	90	1

Δ	Ø mm	Z	€	L mm	l mm	
3	30,00	5	*335,83*	192	90	1
4	32,00	6	*363,30*	254	106	1
4	36,00	6	*398,27*	254	106	1
4	40,00	6	*508,88*	273	125	1
5	50,00	8	*768,34*	336	150	1

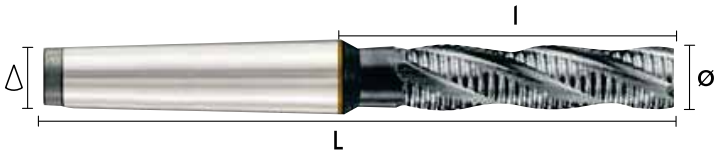
* Hasta fin de existencias / Jusqu'à epuisement des stocks / Until end of stock

3148/1 HSSE DIN 845 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 55-80	● 45-55	○ 35-40		○ 25-35		● 55-60	● 30-35			● 90-140							

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	Z	€	L mm	l mm	
2	20,00	4	*212,43*	160	75	1
2	22,00	5	*226,06*	160	75	1
3	25,00	5	*236,46*	192	90	1
3	28,00	5	*321,14*	192	90	1
3	30,00	5	*371,87*	192	90	1

Δ	Ø mm	Z	€	L mm	l mm	
4	32,00	6	*416,70*	254	106	1
4	36,00	6	*470,16*	254	106	1
4	40,00	6	*508,62*	273	125	1
5	50,00	8	*557,57*	336	150	1

Bajo demanda / Sur commade / upon request

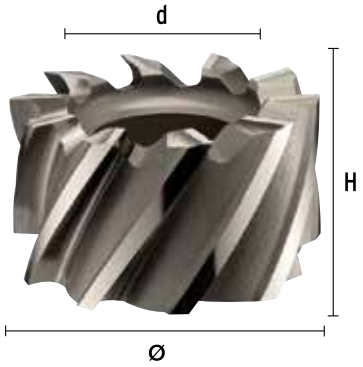
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3149 HSSE DIN 1880 N



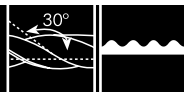
P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40	● 15-25			● 10-15			● 20-24			● 30-35				● 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



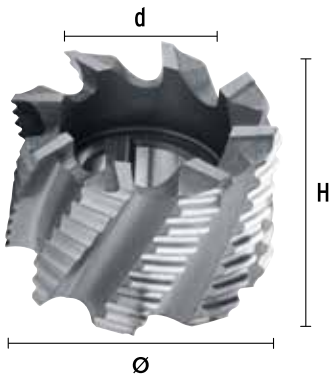
Ø mm	Z	d mm	€	H mm	
40,00	6	16	*136,65*	32	1
50,00	8	22	*173,87*	36	1
63,00	8	27	*236,28*	40	1
80,00	10	27	*346,69*	45	1

3150 HSSE DIN 1880 NR



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 35-50	● 25-35			● 15-20			● 25-30			● 30-35				● 15-20			

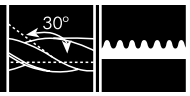
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	H mm	
40,00	6	16	*205,70*	32	1
50,00	6	22	*255,63*	36	1
63,00	8	27	*324,31*	40	1
80,00	8	27	*450,95*	45	1

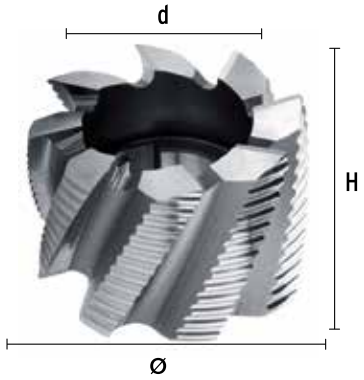
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3165 HSSE DIN 1880 NRF



P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40	● 15-25	● 15-20		● 10-15		○ 30-35	● 15-25			● 30-100			● 5-15	● 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	H mm	
40,00	8	16	*250,40*	32	1
50,00	8	22	*311,17*	36	1

Ø mm	Z	d mm	€	H mm	
63,00	10	27	*402,43*	40	1
80,00	10	27	*604,60*	45	1

3151 HSSE DIN 885 B

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40	● 15-25	● 15-20				● 30-35	● 15-25			● 30-100	● 50-90						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Z	d mm	€	e mm	
63,00	18	22	*154,53*	4	1
63,00	18	22	*145,90*	5	1
63,00	18	22	*138,39*	6	1
63,00	18	22	*147,61*	8	1
63,00	18	22	*155,67*	10	1
80,00	20	27	*137,75*	4	1
80,00	20	27	*174,12*	5	1
80,00	20	27	*177,65*	6	1
80,00	20	27	*182,21*	8	1
80,00	20	27	*199,52*	10	1
80,00	20	27	*219,11*	12	1

Ø mm	Z	d mm	€	e mm	
100,00	24	32	*212,19*	6	1
100,00	24	32	*232,94*	8	1
100,00	24	32	*257,17*	10	1
100,00	24	32	*284,85*	12	1
100,00	24	32	*329,83*	14	1
125,00	24	32	*332,13*	6	1
125,00	24	32	*342,50*	8	1
125,00	24	32	*359,80*	10	1
125,00	24	32	*418,60*	12	1
125,00	24	32	*443,99*	14	1
125,00	24	32	*387,72*	16	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3161 HSSE DIN 885 A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40	● 15-25	● 15-20		● 10-15		● 30-35	● 15-25			● 30-100	● 50-90			● 10-15			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø mm	Z	d mm	€	e mm	
63,00	18	22	*118,22*	4	1
63,00	18	22	*121,83*	5	1
63,00	18	22	*126,98*	6	1
63,00	18	22	*136,67*	8	1
63,00	18	22	*152,58*	10	1
80,00	20	27	*147,00*	4	1
80,00	20	27	*153,23*	5	1
80,00	20	27	*161,72*	6	1
80,00	20	27	*171,64*	8	1
80,00	18	27	*175,97*	10	1
80,00	18	27	*198,19*	12	1

Ø mm	Z	d mm	€	e mm	
100,00	20	32	*191,91*	6	1
100,00	20	32	*213,16*	8	1
100,00	20	32	*247,12*	10	1
100,00	20	32	*266,46*	12	1
100,00	20	32	*297,27*	14	1
125,00	24	32	*226,64*	6	1
125,00	24	32	*269,86*	8	1
125,00	24	32	*295,77*	10	1
125,00	24	32	*352,77*	12	1
125,00	24	32	*397,51*	14	1
125,00	24	32	*412,09*	16	1

3166 HSSE DIN 1834 A

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-40	● 15-25	● 15-20				● 30-35	● 15-25		● 60-260	● 30-100	● 50-90						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternativo



Ø mm	Z	d mm	€	e mm	
50,00	24	16	*143,10*	1,6	1
50,00	24	16	*139,15*	2	1
50,00	24	16	*141,52*	2,5	1
50,00	24	16	*143,90*	3	1
63,00	28	22	*151,63*	4	1
63,00	28	22	*159,81*	5	1
63,00	28	22	*175,43*	6	1
80,00	32	27	*160,01*	1,6	1
80,00	32	27	*155,43*	2	1
80,00	32	27	*158,03*	2,5	1
80,00	32	27	*162,38*	3	1
80,00	32	27	*174,01*	4	1
80,00	32	27	*194,95*	5	1
80,00	32	27	*206,83*	6	1
100,00	36	32	*191,42*	1,6	1
100,00	36	32	*190,37*	2	1

Ø mm	Z	d mm	€	e mm	
100,00	36	32	*190,22*	2,5	1
100,00	36	32	*193,63*	3	1
100,00	36	32	*208,77*	4	1
100,00	36	32	*221,30*	5	1
100,00	36	32	*248,64*	6	1
100,00	28	32	*274,83*	8	1
125,00	40	32	*242,09*	1,6	1
125,00	40	32	*232,84*	2	1
125,00	40	32	*238,64*	2,5	1
125,00	40	32	*244,43*	3	1
125,00	40	32	*261,87*	4	1
125,00	40	32	*280,31*	5	1
125,00	40	32	*301,18*	6	1
125,00	40	32	*352,10*	8	1
125,00	40	32	*390,25*	10	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3152 HSSE DIN 850 D

DIN 1835B

Tol D (h11) d (h8) l (e8)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-04	● 15-25						○ 20-24		○ 60-150	● 55-95	○ 60-100						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	l mm	€	Z	
4,50	6	50	1,00	*55,41*	6	1
7,50	6	50	1,50	*57,68*	6	1
7,50	6	50	2,00	*57,68*	6	1
10,50	6	50	2,00	*62,08*	6	1
10,50	6	50	2,50	*62,08*	6	1
10,50	6	50	3,00	*62,08*	6	1
13,50	10	56	3,00	*63,06*	6	1
13,50	10	56	4,00	*63,06*	6	1
16,50	10	56	3,00	*63,64*	6	1
16,50	10	56	4,00	*63,64*	6	1
16,50	10	56	5,00	*63,64*	6	1
19,50	10	63	4,00	*72,45*	8	1
19,50	10	63	5,00	*72,45*	8	1

Ø mm	d mm	L mm	l mm	€	Z	
19,50	10	63	6,00	*72,45*	8	1
22,50	10	63	5,00	*79,64*	8	1
22,50	10	63	6,00	*79,64*	8	1
22,50	10	63	8,00	*79,64*	8	1
25,50	10	63	6,00	*92,90*	10	1
28,50	10	63	6,00	*94,54*	10	1
28,50	10	63	8,00	*94,54*	10	1
28,50	12	71	10,00	*94,54*	10	1
32,50	12	71	7,00	*117,13*	10	1
32,50	12	71	8,00	*117,13*	10	1
32,50	12	71	10,00	*117,13*	10	1
45,50	12	71	10,00	*185,44*	12	1

3153 HSSE DIN 851 N

DIN 1835B

ISO 3337

Tol D (d11) d (h8) l (d11)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-04	● 15-25						○ 20-24		○ 60-150	● 55-95	○ 60-100						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	l mm	€	Z	
11,00	10	53,50	4	*101,84*	6	1
12,50	10	57	6	*105,87*	6	1
16,00	10	62	8	*116,43*	6	1
18,00	12	70	8	*122,60*	8	1

Ø mm	d mm	L mm	l mm	€	Z	
21,00	12	74	9	*135,08*	6	1
25,00	16	82	11	*152,43*	8	1
32,00	16	90	14	*191,75*	8	1
40,00	25	108	18	*266,12*	10	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3154 HSSE DIN 851 N

DIN 228A | ISO 1641 | Tol D (d11) l (d11)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-04	● 15-25						○ 20-24		○ 60-150	● 55-95	○ 60-100						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Δ	Ø mm	L mm	l mm	€	Z	
1	18,00	82	8	*136,13*	8	1
2	21,00	102	9	*150,08*	8	1
2	25,00	104	11	*155,57*	8	1
2	32,00	111	14	*231,07*	8	1

Δ	Ø mm	L mm	l mm	€	Z	
3	40,00	138	18	*304,52*	8	1
4	50,00	173	22	*369,80*	8	1
4	60,00	188	28	*534,29*	10	1
5	72,00	229	35	*695,97*	10	1

3155 HSSE DIN 1833 A

DIN 1835B | ISO 3859 | Tol D (js16) d (h8)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-04	● 15-25						○ 20-24		○ 60-150	● 55-95	○ 60-100						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	Ang º	L mm	l mm	€	Z	
16,00	12	45	60	4,00	*103,36*	8	1
20,00	12	45	63	5,00	*109,97*	8	1
25,00	12	45	67	6,30	*134,07*	10	1
32,00	16	45	71	8,00	*149,59*	12	1

Ø mm	d mm	Ang º	L mm	l mm	€	Z	
16,00	12	60	60	6,30	*103,36*	8	1
20,00	12	60	63	8,00	*109,97*	8	1
25,00	12	60	67	10,00	*134,07*	10	1
32,00	16	60	71	12,50	*149,59*	12	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3156 HSSE DIN 1833 B

DIN 1835B | ISO 3859 | Tol D (js16) d (h8)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-04	● 15-25						○ 20-24		○ 60-150	● 55-95	○ 60-100						

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	Ang º	L mm	l mm	€	Z	
16,00	12	45	60	4,00	*83,21*	10	1
20,00	12	45	63	5,00	*93,61*	10	1
25,00	12	45	67	6,30	*105,25*	10	1
32,00	16	45	71	8,00	*119,68*	12	1

Ø mm	d mm	Ang º	L mm	l mm	€	Z	
16,00	12	60	60	6,30	*83,21*	10	1
20,00	12	60	63	8,00	*93,61*	10	1
25,00	12	60	67	10,00	*105,25*	10	1
32,00	16	60	71	12,50	*119,68*	12	1

3164 HSSE DIN 6518 N

DIN 1835B | Tol R (H11) d2 (h6)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 30-04	● 15-25						○ 20-24										

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	Radio mm	d mm	L mm	€	Z	
8,00	1,00	10	60	*70,17*	4	1
9,20	1,60	10	60	*76,61*	4	1
10,00	2,00	10	60	*76,61*	4	1
11,00	2,50	10	60	*76,61*	4	1
12,00	3,00	12	60	*79,65*	4	1
14,00	4,00	12	60	*86,19*	4	1
16,00	5,00	12	60	*92,40*	4	1
20,00	6,00	16	67	*97,40*	4	1
22,00	7,00	16	71	*119,61*	4	1
24,00	8,00	16	71	*119,61*	4	1

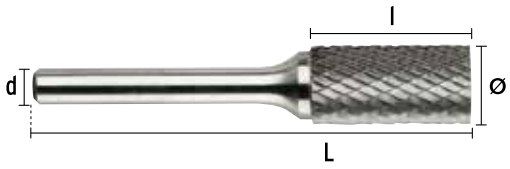
Ø mm	Radio mm	d mm	L mm	€	Z	
26,00	9,00	25	85	*143,99*	4	1
28,00	10,00	25	85	*143,99*	4	1
32,00	11,00	25	90	*159,00*	4	1
34,00	12,00	25	90	*159,00*	4	1
42,00	13,00	25	100	*222,64*	6	1
44,00	14,00	25	100	*222,64*	6	1
46,00	15,00	25	100	*254,61*	6	1
48,00	16,00	25	100	*254,61*	6	1
52,00	18,00	32	112	*287,25*	6	1
56,00	20,00	32	112	*319,05*	6	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3201 Cilíndrica / Cylindrique / Straight

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



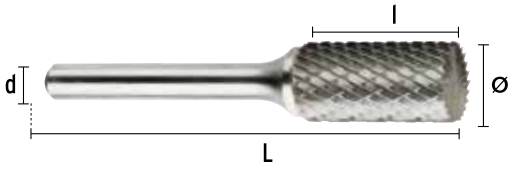
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	12,36	13,59		38	13	1
4,00	4	20,60	22,66		50	13	1
6,00	6	24,18	26,60		50	19	1
8,00	6	30,36	33,40		65	19	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	33,94	37,34	37,53	65	19	1
12,00	6	48,63	53,49	52,84	70	25	1
16,00	6	61,19	67,31	76,58	70	25	1

3202 Cilíndrica con corte / Cylindrique taillée / Straight with cut

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	13,43	14,77		38	13	1
4,00	4	24,64	27,10		50	13	1
6,00	6	26,78	29,46		50	19	1
8,00	6	33,94	37,34		65	19	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	37,35	41,08	44,69	65	19	1
12,00	6	53,65	59,01	66,18	70	25	1
16,00	6	71,56	78,72	87,32	70	25	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3203 Cilíndrica radio / Cylindrique à rayon / Straight radius

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



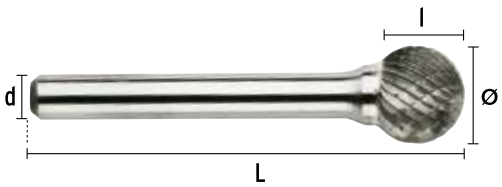
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*13,80*	*15,17*		38	13	1
6,00	3	*22,39*	*24,63*		50	13	1
6,00	6	*27,31*	*30,04*		50	19	1
8,00	6	*32,25*	*35,47*		65	19	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*35,82*	*39,40*	*43,35*	65	19	1
12,00	6	*54,62*	*60,09*	*68,11*	70	25	1
16,00	6	*67,98*	*74,78*	*92,23*	70	25	1

3204 Esférica / Sphérique / Spherical

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*14,07*	*15,48*		38	2,50	1
6,00	3	*21,19*	*23,31*		44	5,00	1
6,00	6	*25,00*	*27,50*		50	5,00	1
8,00	6	*27,76*	*30,54*		51	6,40	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*28,46*	*31,30*	*38,96*	53	8,00	1
12,00	6	*38,36*	*42,20*	*50,07*	56	11,00	1
16,00	6	*51,87*	*57,06*	*62,61*	59	14,00	1
19,00	6	*68,96*	*75,85*		61	16,00	1

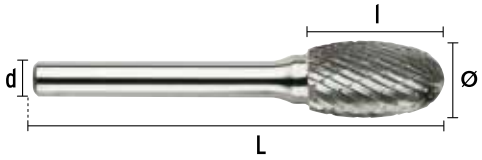
P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

3205 Oval / Ovale



	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

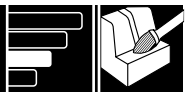
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*15,22*	*16,75*		38	6	1
6,00	3	*21,95*	*29,40*		47	10	1
8,00	6	*30,36*	*33,40*		58	13	1

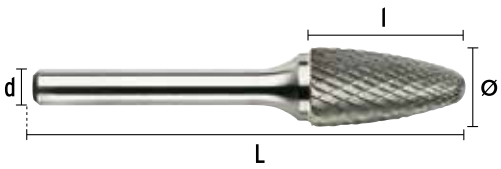
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*34,60*	*38,06*		60	16	1
12,00	6	*46,48*	*51,14*		67	22	1
16,00	6	*69,77*	*76,74*		70	25	1

3206 Árbol con radio / Arbre à rayon / Arc with radius



	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*16,99*	*18,69*		38	13	1
6,00	3	*22,39*	*24,63*		50	13	1
10,00	6	*39,80*	*43,78*	*44,69*	65	19	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
12,00	6	*52,83*	*58,11*	*64,22*	70	25	1
16,00	6	*69,24*	*76,16*	*89,48*	70	25	1

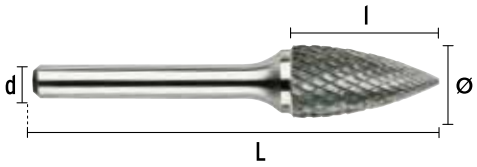
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3207 Árbol / Arbre / Arc



	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*16,04*	*17,64*		38	13	1
6,00	3	*23,21*	*25,53*		50	13	1
6,00	6	*28,57*	*31,43*		50	16	1

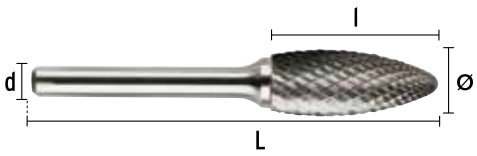
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*38,49*	*42,34*		65	19	1
12,00	6	*49,26*	*54,18*		70	25	1
16,00	6	*68,46*	*75,30*		70	25	1

3208 Llama / Flamme / Flame



	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*17,39*	*19,13*		38	6	1
6,00	6	*29,56*	*32,51*		50	13	1

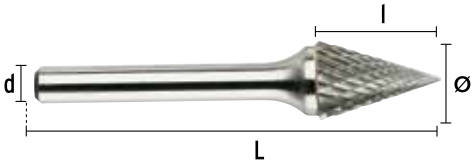
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
8,00	6	*33,91*	*37,30*		65	19	1
12,00	6	*68,69*	*75,56*		77	32	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3209 Cónica / Conique / Tapered

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*15,57*	*17,13*		38	11	1
6,00	6	*25,22*	*27,74*		50	19	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*33,91*	*37,30*		61	16	1
12,00	6	*47,81*	*52,59*		67	25	1

3210 Cónica 90º / Conique 90º / Tapered 90º

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*30,04*	*33,05*		50	5	1
16,00	6	*48,61*	*53,47*		53	8	1

3211 Cónica radio / Conique à rayon / Tapered radius

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



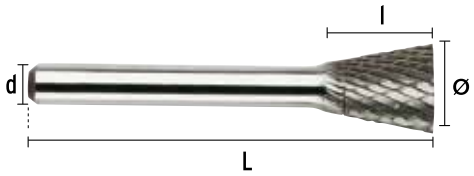
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*17,05*	*18,75*		38	10	1
6,00	6	*29,21*	*32,13*		50	16	1
10,00	6	*43,39*	*47,73*	*52,62*	72	27	1

Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
12,00	6	*51,37*	*56,51*	*62,17*	73	28	1
16,00	6	*81,65*	*89,81*	*124,96*	78	33	1

3212 Cono invertido / Cône inversé / Inverted taper

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



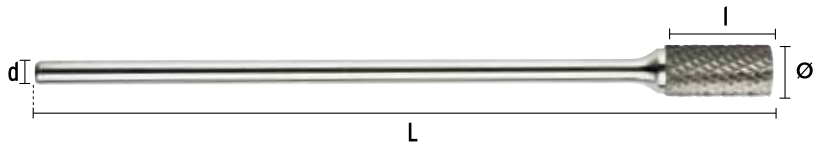
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
3,00	3	*18,24*	*20,07*		38	4	1
6,00	6	*26,42*	*29,07*		50	8	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3214 Cilíndrica L / Cylindrique L / Straight L

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

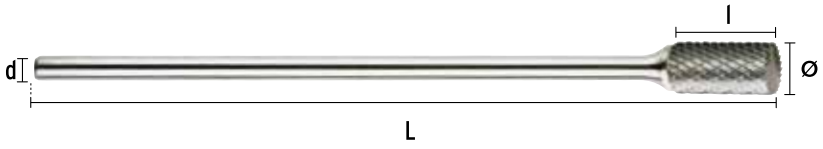


Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*43,39*	*47,73*		169	19	1

3215 Cilíndrica con corte L / Cylindrique taillée L / Straight with L cut

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



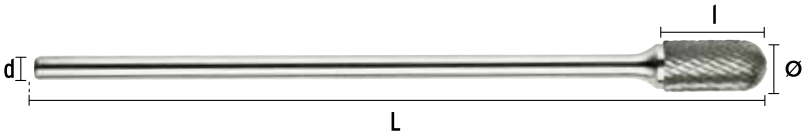
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
6,00	6	*37,40*	*41,14*		162	16	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3216 Cilíndrica radio L / Cylindrique à rayon L / Straight L radius

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative

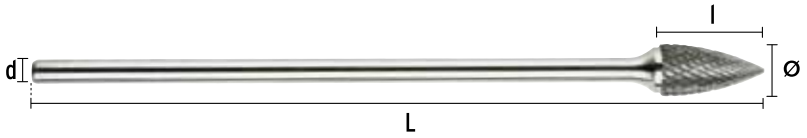


Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
10,00	6	*51,30*	*56,43*		169	19	1
12,00	6	*68,15*	*74,96*		175	25	1

3217 Árbol L / Arbre L / L Arc

	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

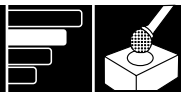
Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
12,00	6	*67,73*	*74,50*		175	25	1

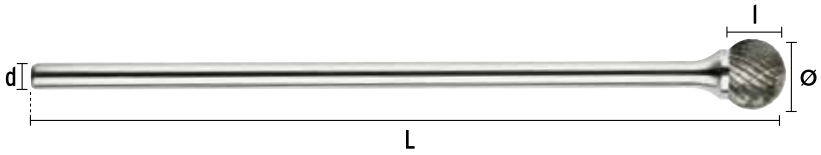
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

3218 Esférica L / Sphérique L / L Spherical



	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



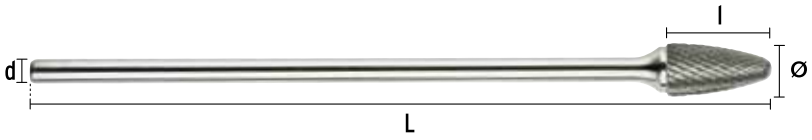
Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
12,00	6	*53,48*	*58,82*		161	11	1

3219 Árbol radio L / Arbre à rayon L / L Radius arc



	P				M		K			N				S		H		
	<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
CRUZ	● 400-800	● 400-800	○ 300-700		● 600-1000	○ 400-800	● 500-800	● 400-800			● 400-800	● 400-800		○ 400-800	● 600-1000			
DIAM	○ 400-800	● 400-800	● 300-700	● 300-700	○ 600-1000	● 400-800	● 500-800	● 400-800	● 300-700		○ 300-800		○ 300-700	● 300-800	● 300-1000	● 200-600	● 200-600	
ALU										● 300-1000	● 300-700	○ 400-1000	● 400-1000					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	CRUZ €	DIAM €	ALU €	L mm	l mm	
12,00	6	*74,49*	*74,13*		175	25	1

7172 HSS

L=30

WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25						○ 20-30	○ 15-20		● 40-50	○ 15-50	○ 20-25	○ 40-50					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
12,00	19	30	*33,08*	1
13,00	19	30	*33,08*	1
14,00	19	30	*33,93*	1
15,00	19	30	*35,31*	1
16,00	19	30	*36,55*	1
17,00	19	30	*37,94*	1
18,00	19	30	*42,66*	1
19,00	19	30	*43,51*	1
20,00	19	30	*45,29*	1
21,00	19	30	*48,50*	1
22,00	19	30	*50,60*	1
23,00	19	30	*52,37*	1
24,00	19	30	*54,34*	1
25,00	19	30	*56,18*	1
26,00	19	30	*57,75*	1
27,00	19	30	*62,28*	1
28,00	19	30	*62,35*	1
29,00	19	30	*64,64*	1
30,00	19	30	*66,29*	1
31,00	19	30	*72,32*	1
32,00	19	30	*81,38*	1
33,00	19	30	*82,49*	1
34,00	19	30	*96,14*	1
35,00	19	30	*105,99*	1
36,00	19	30	*108,61*	1

Ø mm	d mm	L mm	€	
37,00	19	30	*114,85*	1
38,00	19	30	*116,49*	1
39,00	19	30	*120,89*	1
40,00	19	30	*123,84*	1
41,00	19	30	*128,89*	1
42,00	19	30	*135,85*	1
43,00	19	30	*138,80*	1
44,00	19	30	*148,64*	1
45,00	19	30	*153,50*	1
46,00	19	30	*156,65*	1
47,00	19	30	*161,90*	1
48,00	19	30	*169,58*	1
49,00	19	30	*172,14*	1
50,00	19	30	*176,40*	1
51,00	19	30	*177,45*	1
52,00	19	30	*178,64*	1
53,00	19	30	*179,81*	1
54,00	19	30	*182,90*	1
55,00	19	30	*186,64*	1
56,00	19	30	*190,71*	1
57,00	19	30	*194,65*	1
58,00	19	30	*198,85*	1
59,00	19	30	*203,11*	1
60,00	19	30	*206,85*	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

7172 HSS

L=50

WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-25						○ 20-30	○ 15-20		● 40-50	○ 15-50	○ 20-25	○ 40-50					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
12,00	19	50	*51,25*	1
13,00	19	50	*52,30*	1
14,00	19	50	*54,66*	1
15,00	19	50	*55,00*	1
16,00	19	50	*55,19*	1
17,00	19	50	*56,76*	1
18,00	19	50	*62,94*	1
19,00	19	50	*64,90*	1
20,00	19	50	*67,99*	1
21,00	19	50	*72,85*	1
22,00	19	50	*75,27*	1
23,00	19	50	*80,26*	1
24,00	19	50	*82,82*	1
25,00	19	50	*83,09*	1
26,00	19	50	*85,25*	1
27,00	19	50	*89,19*	1
28,00	19	50	*93,06*	1
29,00	19	50	*96,93*	1
30,00	19	50	*101,20*	1
31,00	19	50	*106,11*	1
32,00	19	50	*110,97*	1
33,00	19	50	*116,49*	1
34,00	19	50	*120,89*	1
35,00	19	50	*125,87*	1
36,00	19	50	*131,65*	1

Ø mm	d mm	L mm	€	
37,00	19	50	*133,75*	1
38,00	19	50	*138,80*	1
39,00	19	50	*148,64*	1
40,00	19	50	*159,54*	1
41,00	19	50	*161,24*	1
42,00	19	50	*170,10*	1
43,00	19	50	*175,29*	1
44,00	19	50	*180,08*	1
45,00	19	50	*207,77*	1
46,00	19	50	*223,00*	1
47,00	19	50	*237,96*	1
48,00	19	50	*245,64*	1
49,00	19	50	*248,06*	1
50,00	19	50	*249,31*	1
51,00	19	50	*249,84*	1
52,00	19	50	*251,09*	1
53,00	19	50	*252,53*	1
54,00	19	50	*257,25*	1
55,00	19	50	*260,80*	1
56,00	19	50	*262,37*	1
57,00	19	50	*268,54*	1
58,00	19	50	*269,91*	1
59,00	19	50	*274,45*	1
60,00	19	50	*277,07*	1

7137 HSSE — L=30 — WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 20-25	○ 15-20		○ 15-20		● 30-35	● 25-30		● 50-60	● 25-60	● 30-35	○ 50-60					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
12,00	19	30	*45,45*	1
13,00	19	30	*45,45*	1
14,00	19	30	*45,45*	1
15,00	19	30	*52,43*	1
16,00	19	30	*55,78*	1
17,00	19	30	*57,33*	1
18,00	19	30	*60,56*	1
19,00	19	30	*64,04*	1
20,00	19	30	*67,27*	1
21,00	19	30	*70,78*	1
22,00	19	30	*74,01*	1
23,00	19	30	*76,35*	1
24,00	19	30	*79,59*	1
25,00	19	30	*83,07*	1
26,00	19	30	*84,90*	1
27,00	19	30	*86,40*	1
28,00	19	30	*89,47*	1
29,00	19	30	*92,81*	1
30,00	19	30	*95,88*	1
31,00	19	30	*108,20*	1
32,00	19	30	*111,55*	1
33,00	19	30	*126,70*	1
34,00	19	30	*130,38*	1
35,00	19	30	*134,36*	1
36,00	19	30	*138,04*	1

Ø mm	d mm	L mm	€	
37,00	19	30	*142,04*	1
38,00	19	30	*145,72*	1
39,00	19	30	*149,71*	1
40,00	19	30	*153,39*	1
41,00	19	30	*157,38*	1
42,00	19	30	*161,06*	1
43,00	19	30	*165,05*	1
44,00	19	30	*168,72*	1
45,00	19	30	*172,71*	1
46,00	19	30	*176,40*	1
47,00	19	30	*180,38*	1
48,00	19	30	*184,07*	1
49,00	19	30	*188,06*	1
50,00	19	30	*191,74*	1
55,00	19	30	*211,06*	1
60,00	19	30	*230,08*	1

7137 HSSE

L=50

WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 20-25	○ 15-20		○ 15-20		● 30-35	● 25-30		● 50-60	● 25-60	● 30-35	○ 50-60					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
12,00	19	50	*55,22*	1
13,00	19	50	*59,82*	1
14,00	19	50	*64,42*	1
15,00	19	50	*69,03*	1
16,00	19	50	*73,63*	1
17,00	19	50	*78,24*	1
18,00	19	50	*82,83*	1
19,00	19	50	*87,44*	1
20,00	19	50	*92,03*	1
21,00	19	50	*96,63*	1
22,00	19	50	*101,23*	1
23,00	19	50	*105,84*	1
24,00	19	50	*110,44*	1
25,00	19	50	*115,05*	1
26,00	19	50	*119,65*	1
27,00	19	50	*124,26*	1
28,00	19	50	*128,85*	1
29,00	19	50	*133,44*	1
30,00	19	50	*138,04*	1
31,00	19	50	*142,65*	1
32,00	19	50	*147,25*	1
33,00	19	50	*151,86*	1
34,00	19	50	*156,46*	1
35,00	19	50	*161,06*	1
36,00	19	50	*165,66*	1

Ø mm	d mm	L mm	€	
37,00	19	50	*170,26*	1
38,00	19	50	*174,86*	1
39,00	19	50	*179,47*	1
40,00	19	50	*184,07*	1
41,00	19	50	*188,67*	1
42,00	19	50	*193,27*	1
43,00	19	50	*197,87*	1
44,00	19	50	*202,47*	1
45,00	19	50	*207,07*	1
46,00	19	50	*211,67*	1
47,00	19	50	*216,28*	1
48,00	19	50	*220,88*	1
49,00	19	50	*225,49*	1
50,00	19	50	*230,08*	1
51,00	19	50	*234,69*	1
52,00	19	50	*239,28*	1
53,00	19	50	*243,88*	1
54,00	19	50	*248,48*	1
55,00	19	50	*253,09*	1
56,00	19	50	*257,69*	1
57,00	19	50	*262,30*	1
58,00	19	50	*266,89*	1
59,00	19	50	*271,50*	1
60,00	19	50	*276,10*	1

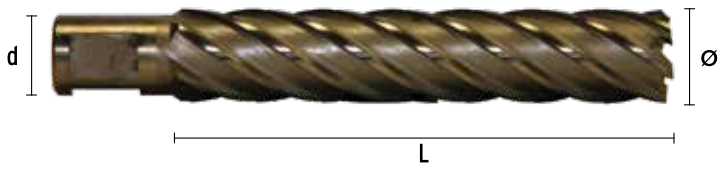
P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

7137 HSSE

L=110 | WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 25-45	● 20-25	○ 15-20		○ 15-20		● 30-35	● 25-30		● 50-60	● 25-60	● 30-35	○ 50-60					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
20,00	19	110	*146,09*	1
22,00	19	110	*152,34*	1
24,00	19	110	*160,84*	1
25,00	19	110	*166,94*	1
26,00	19	110	*181,76*	1
28,00	19	110	*196,33*	1

Ø mm	d mm	L mm	€	
30,00	19	110	*208,66*	1
32,00	19	110	*224,87*	1
35,00	19	110	*239,03*	1
40,00	19	110	*322,11*	1
45,00	19	110	*405,18*	1
50,00	19	110	*474,05*	1

7138 HSSE

L=30 | WELDON 19 | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 40-55	● 30-40	● 20-25	○ 15-20	● 20-25	○ 15-20	● 45-55	● 40-50	○ 15-20	● 60-70	● 20-70	● 45-55	○ 60-70	○ 10-15	● 15-25			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
12,00	19	30	*83,39*	1
13,00	19	30	*83,39*	1
14,00	19	30	*83,39*	1
15,00	19	30	*86,87*	1
16,00	19	30	*86,87*	1
17,00	19	30	*93,61*	1
18,00	19	30	*97,08*	1
19,00	19	30	*99,04*	1
20,00	19	30	*102,95*	1
21,00	19	30	*110,32*	1
22,00	19	30	*115,10*	1
23,00	19	30	*119,24*	1
24,00	19	30	*123,57*	1
25,00	19	30	*128,35*	1
26,00	19	30	*133,14*	1
27,00	19	30	*137,71*	1
28,00	19	30	*142,04*	1
29,00	19	30	*146,60*	1
30,00	19	30	*150,74*	1
31,00	19	30	*164,63*	1

Ø mm	d mm	L mm	€	
32,00	19	30	*176,37*	1
33,00	19	30	*187,66*	1
34,00	19	30	*199,15*	1
35,00	19	30	*205,89*	1
36,00	19	30	*216,75*	1
37,00	19	30	*234,56*	1
38,00	19	30	*245,42*	1
39,00	19	30	*256,27*	1
40,00	19	30	*264,97*	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

7138 HSSE

L=50 | WELDON 19 | TIALN

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 40-55	● 30-40	● 20-25	○ 15-20	● 20-25	○ 15-20	● 45-55	● 40-50	○ 15-20	● 60-70	● 20-70	● 45-55	○ 60-70	○ 10-15	● 15-25			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
12,00	19	50	*111,41*	1
13,00	19	50	*111,41*	1
14,00	19	50	*111,41*	1
15,00	19	50	*120,98*	1
16,00	19	50	*129,44*	1
17,00	19	50	*134,23*	1
18,00	19	50	*144,21*	1
19,00	19	50	*147,90*	1
20,00	19	50	*155,51*	1
21,00	19	50	*167,01*	1
22,00	19	50	*172,44*	1
23,00	19	50	*178,31*	1
24,00	19	50	*183,96*	1
25,00	19	50	*189,83*	1
26,00	19	50	*195,24*	1
27,00	19	50	*204,15*	1
28,00	19	50	*213,05*	1
29,00	19	50	*223,70*	1
30,00	19	50	*232,39*	1
31,00	19	50	*243,24*	1

Ø mm	d mm	L mm	€	
32,00	19	50	*247,59*	1
33,00	19	50	*258,45*	1
34,00	19	50	*267,15*	1
35,00	19	50	*278,01*	1
36,00	19	50	*286,68*	1
37,00	19	50	*299,72*	1
38,00	19	50	*308,41*	1
39,00	19	50	*317,10*	1
40,00	19	50	*334,47*	1
45,00	19	50	*397,47*	1
50,00	19	50	*503,86*	1

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials

7139 TCT — L=35 — WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	○	●	●	●	○	●	○	○	●	●	●	○	
40-65	30-40	20-25	15-20	20-30	15-20	50-60	45-55	15-20	70-90	40-90	50-60	70-90	15-20	15-30	20-25	15-20	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
18,00	19	35	*168,28*	1
19,00	19	35	*168,28*	1
20,00	19	35	*168,28*	1
21,00	19	35	*168,28*	1
22,00	19	35	*171,28*	1
23,00	19	35	*171,28*	1
24,00	19	35	*172,75*	1
25,00	19	35	*172,75*	1
26,00	19	35	*174,55*	1

Ø mm	d mm	L mm	€	
27,00	19	35	*174,55*	1
28,00	19	35	*174,55*	1
29,00	19	35	*174,55*	1
30,00	19	35	*179,01*	1
31,00	19	35	*179,01*	1
32,00	19	35	*179,01*	1
33,00	19	35	*179,01*	1
34,00	19	35	*179,01*	1
35,00	19	35	*193,01*	1

7139 TCT — L=50 — WELDON 19

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	○	●	●	●	○	●	○	○	●	●	●	○	
40-65	30-40	20-25	15-20	20-30	15-20	50-60	45-55	15-20	70-90	40-90	50-60	70-90	15-20	15-30	20-25	15-20	

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ø mm	d mm	L mm	€	
18,00	19	50	*180,51*	1
19,00	19	50	*180,51*	1
20,00	19	50	*180,51*	1
21,00	19	50	*180,51*	1
22,00	19	50	*183,77*	1
23,00	19	50	*183,77*	1
24,00	19	50	*185,26*	1
25,00	19	50	*185,26*	1
26,00	19	50	*186,76*	1
27,00	19	50	*186,76*	1
28,00	19	50	*186,76*	1
29,00	19	50	*186,76*	1
30,00	19	50	*191,52*	1
31,00	19	50	*191,52*	1
32,00	19	50	*191,52*	1
33,00	19	50	*191,52*	1
34,00	19	50	*191,52*	1

Ø mm	d mm	L mm	€	
35,00	19	50	*205,22*	1
36,00	19	50	*205,22*	1
37,00	19	50	*205,22*	1
38,00	19	50	*205,22*	1
39,00	19	50	*205,22*	1
40,00	19	50	*231,74*	1
41,00	19	50	*231,74*	1
42,00	19	50	*231,74*	1
43,00	19	50	*231,74*	1
44,00	19	50	*231,74*	1
45,00	19	50	*231,74*	1
46,00	19	50	*306,79*	1
47,00	19	50	*306,79*	1
48,00	19	50	*306,79*	1
49,00	19	50	*306,79*	1
50,00	19	50	*306,79*	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

Accesorios / Accessoires / Accessories

7140 Cono Morse / Cône Morse / Morse taper



△	€	L mm
Nº 2	*320,89*	180
Nº 3	*320,89*	185

7141 Punzón / Poinçon / Puncher



Ref.	€	Ø mm	L mm	L Fresa L Fraise Cutting L
7137-7138-7172	*19,19*	6,35	77	30
	19,19	6,35	87	35
	19,19	6,35	102	50
	24,22	8,00	160	110
7139	*19,19*	8,00	87	35
	19,19	8,00	102	50

7158 Adaptador para Taladros Fein / Adaptateur pour perceuses Fein / Adaptor for Fein drills



€	*105,92*

3138 Ø 4 a 12 mm

Ø mm 4-5-6 8-10-12 | 2z



REF	€
HSS E	*128,54*
HSS E TIALN	*179,96*

3139 Ø 4 a 12 mm

Ø mm 6-8 10-12 | 3z



REF	€
HSS E	*156,03*
HSS E TIALN	*218,44*

3140 Ø 4 a 12 mm

Ø mm 4-5-6 8-10-12 | 4z



REF	€
HSS E	*135,75*
HSS E TIALN	*190,06*

3220 10 PCS

10 CRUZ



Ref.	Ø mm	d mm	L mm	l mm
3201	10,00	6	65	19
3201	12,00	6	70	25
3203	10,00	6	65	19
3203	12,00	6	70	25
3204	10,00	6	53	9
3205	10,00	6	60	16
3206	12,00	6	70	25
3207	10,00	6	65	19
3207	12,00	6	70	25
3211	12,00	6	75	30
			€	*429,57*

3221 5 PCS

5 CRUZ



Ref.	Ø mm	d mm	L mm	l mm
3201	12,00	6	70	25
3203	12,00	6	70	25
3207	12,00	6	70	25
3211	12,00	6	75	30
3206	12,00	6	75	30
			€	*258,26*

7168 7 PCS L = 25 — 7

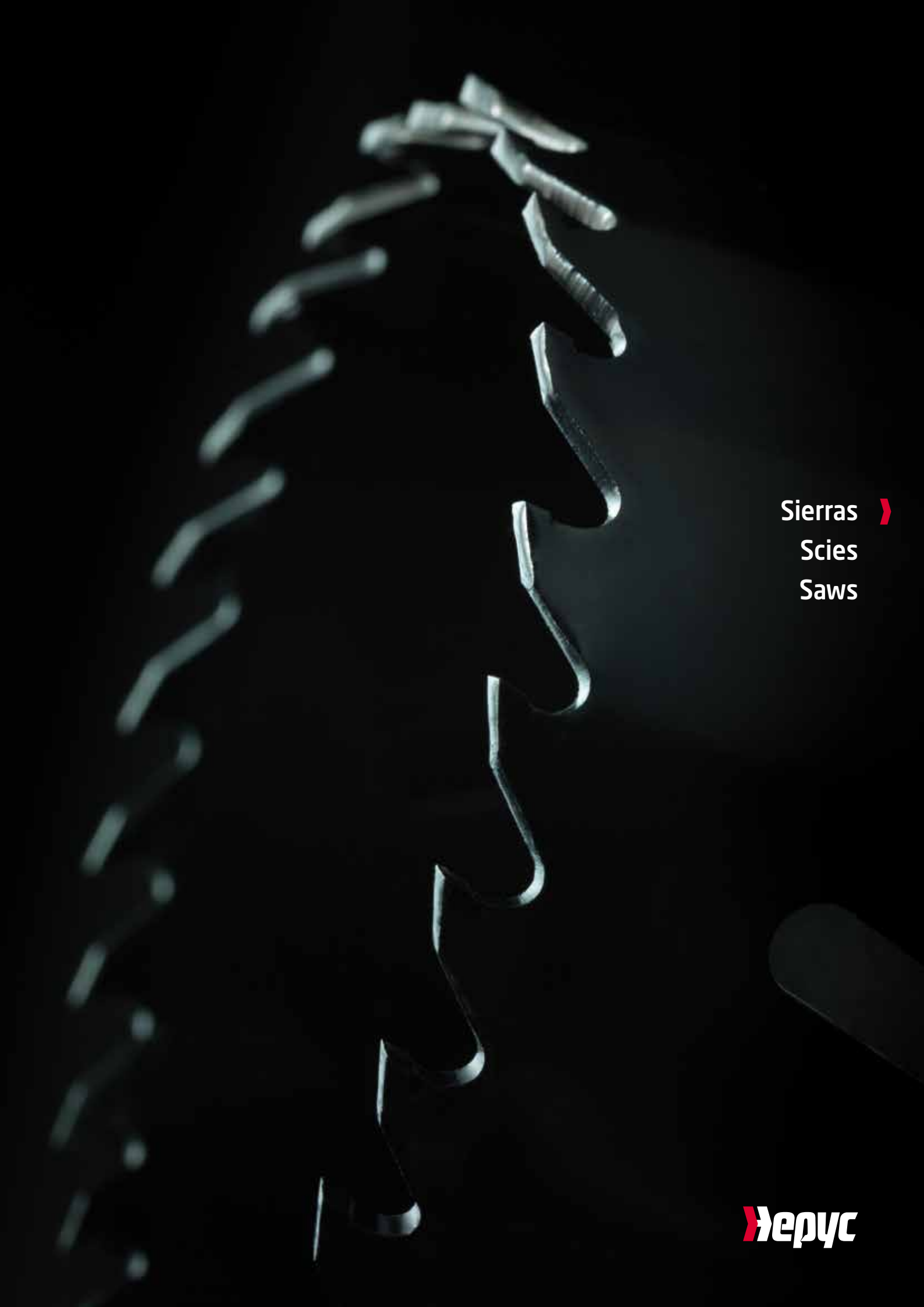


Ref.	Ø mm	d mm	L mm	Pcs.
7137	12	19	25	1
7137	14	19	25	1
7137	16	19	25	1
7137	18	19	25	1
7137	20	19	25	1
7137	22	19	25	1
7141	6,35		77	1
			€	415,96

7169 7 PCS L = 50 — 7



Ref.	Ø mm	d mm	L mm	Pcs.
7137	12	19	50	1
7137	14	19	50	1
7137	16	19	50	1
7137	18	19	50	1
7137	20	19	50	1
7137	22	19	50	1
7141	6,35		102	1
			€	536,79



Sierras
Scies
Saws

Hepyc

ÍNDICE
SOMMAIRE / INDEX

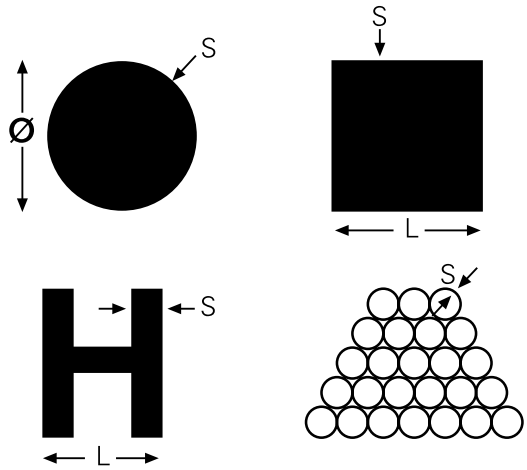
Pág.

Hojas sierra cinta / Lames de scie à ruban / Band saw blades					
7202-7213	M42- CONSTANTE		68-69 HRC · M42 (8% CO) · CR · CP	P M K N	424
7301-7314	M42- VARIABLE		68-69 HRC · M42 (8% CO) · VR · VP	P M K N	425
7321-7324	M51- VARIABLE		68-69 HRC · M51 (10% CO) · VP · 10°	P M K N	426
Sierras Circulares / Scies Circulaires / Circular Saw					
7801	HSS DIN1837 N		ISO 2296 · Form. A · Tol. Ø (j15) d (H7) · Tol. l (j11) D1 (j18)	P K N	427
7802	HSS DIN1838 N		ISO 2296 · Form. B · Tol. Ø (j15) d (H7) · Tol. l (j11) D1 (j18)	P K N	428
Hojas sierra de máquina / Lames de scie pour machine / Machine saw blades					
7401	HSS DC		M2 · DC · 0°	P M K	429

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

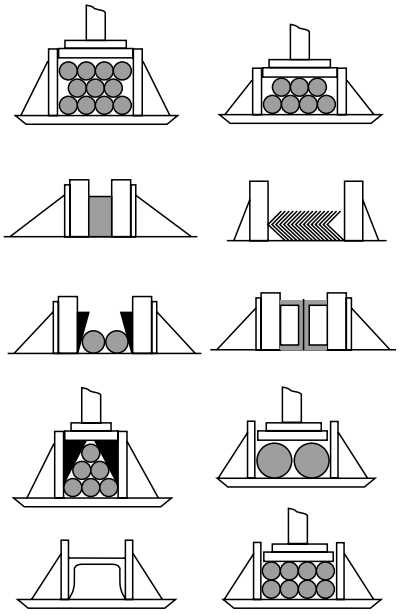
Dentado y amarre del material / Denture et fixation du matériel / Toothing and securing of material

> Selección del correcto dentado para el corte de tubos y perfiles.
Choix de la denture appropriée pour la coupe de tubes et de profilés.
Select correct toothing to cut tubes and beams.

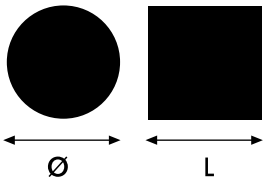


S mm	ØL mm										
	20	40	60	80	100	120	150	200	300	400	500
2	14	14	14	14	10/14	10/14	10/14	10/14	10/14	8/12	8/12
3				10/14					6/10		
4			10/14				6/10	6/10		6/10	6/10
5		10/14			6/10	6/10			4/6	4/6	4/6
6	10/14		8/12	6/10			5/8	4/6			
7		8/12			5/8	5/8					3/4
8			6/10				4/6		3/4	3/4	
10		6/10		5/8	4/6	4/6	3/4	3/4			2/3
12			5/8	4/6	3/4	3/4	2/3	2/3	2/3	2/3	
15											
20											
30											
50											

> Selección correcta de amarre de material.
Choix du type de fixation du matériel approprié.
Correct selection to secure material.



> Para el corte de secciones macizas.
Pour la coupe de sections massives.
For cutting solid sections.



Ø L (mm)	tpi
< 20	10/14 ó 8/12
20 - 40	6/10 ó 6
40 - 70	6 ó 4/6
70 - 140	4 ó 3/4
140 - 200	3/4 ó 3
200 - 400	3 ó 2/3
> 400	1/2 ó 1,25

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE



						Ref./ Réf. / Ref.	7202-7213				
						Diente/ Dent/ Teech	Constante/ Constant				
						Mat.	M42				
						Pag.	424	424	424	424	424
	Z	10/14	8/12-6/10	5/8-4/6	4/6-3/4	3/4-2/3	10/14	8/12-6/10	5/8-4/6	4/6-3/4	3/4-2/3
	Ø/L	0-13mm	13-25mm	25-75mm	75-150mm	>150mm	0-13mm	13-25mm	25-75mm	75-150mm	>150mm
Mat.		Avance/Feed (cm2/min)					Vc (m/min)				
P.1	<600	55-75	60-80	70-90	77-100	77-100	o 100-120	o 95-115	o 90-110	o 80-100	o 70-90
P.2	<800	42-52	45-55	50-65	55-70	55-70	o 75-100	o 70-95	o 65-90	o 60-80	o 55-70
P.3	<1000	30-39	32-42	35-45	40-52	40-52	o 55-75	o 50-70	o 45-65	o 40-60	o 35-55
P.4	<1200	9-17	10-17	10-20	12-22	12-22	o 32-50	o 30-47	o 28-45	o 25-40	o 22-35
P.5	<1400	5-13	5-14	5-15	6-17	6-17					
M.1	<950	14-28	15-30	17-35	19-38	19-38	o 27-50	o 25-47	o 22-45	o 20-40	o 18-35
M.2		14-28	15-30	17-35	19-38	19-38	o 27-50	o 25-47	o 22-45	o 20-40	o 18-35
M.3	<1200	5-14	5-15	5-17	6-19	6-19					
M.4		5-14	5-15	5-17	6-19	6-19					
K.1	<500	26-33	28-36	30-40	35-45	35-45	o 60-85	o 57-82	o 55-80	o 50-70	o 45-60
K.2		26-33	28-36	30-40	35-45	35-45	o 60-85	o 57-82	o 55-80	o 50-70	o 45-60
K.3	<800	30-37	32-43	35-45	40-50	40-50	o 50-80	o 47-70	o 45-65	o 40-60	o 35-55
K.4.1		30-37	32-43	35-45	40-50	40-50	o 50-80	o 47-70	o 45-65	o 40-60	o 35-55
K.4.2	<1400	11-18	12-20	13-22	15-25	15-25					
N.1.1	Al	90-110	95-120	110-135	120-150	120-150	● 175-230	● 170-225	● 165-220	● 150-200	● 135-180
N.1.2		90-110	95-120	110-135	120-150	120-150	● 120-175	● 115-170	● 110-165	● 100-150	● 90-135
N.1.3		52-90	55-95	75-110	70-120	70-120	● 100-120	● 95-115	● 90-110	● 80-100	● 70-90
N.2.1	Cu	90-105	95-112	110-125	120-140	120-140	● 120-145	● 115-140	● 110-135	● 100-120	● 90-115
N.2.2		75-83	80-88	90-100	100-110	100-110	● 100-120	● 95-115	● 90-110	● 80-100	● 70-90
N.2.3		50-60	52-65	60-70	65-80	65-80	o 75-100	o 70-95	o 65-90	o 60-80	o 55-70
N.2.4		15-26	16-28	18-30	20-35	20-35	o 40-60	o 37-57	o 35-55	o 30-50	o 25-45
N.3.1	Mg/Zn	42-52	45-55	50-60	55-70	55-70	● 75-105	● 70-100	● 65-95	● 60-90	● 55-80
N.4.1	Plastic	90-110	95-120	110-135	120-150	120-150	● 120-175	● 115-170	● 110-165	● 100-150	● 90-135
N.4.2		52-90	55-95	75-110	70-120	70-120	● 100-120	● 95-115	● 90-110	● 80-100	● 70-90
N.4.3											
S.1.1	Ni	4-15	5-16	5-18	6-20	6-20					
S.1.2		4-7	5-8	5-9	6-10	6-10					
S.2.1	Ti	4-7	5-8	5-9	6-10	6-10					
S.2.2		4-7	5-8	5-9	6-10	6-10					
S.2.3		4-7	5-8	5-9	6-10	6-10					
H.1	50 HRC										
H.2	55 HRC										
H.3	60 HRC										

● Optima / Optimun ○ Alternativo / Alternative

P Aceros Aciers Steels
M Aceros Inox Aciers Inox Stainless Steels
K Fundicion Fonte Cast Iron
N Metales no ferrosos Métal non Ferraux Non Ferrous metals
S Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys
H Materiales Duros Materiels Durs Hard materials





7301-7314					7321-7324				
Variable					Variable				
M42					M51				
425	425	425	425	425	426	426	426	426	426
10/14	8/12-6/10	5/8-4/6	4/6-3/4	3/4-2/3	10/14	8/12-6/10	5/8-4/6	4/6-3/4	3/4-2/3
0-13mm	13-25mm	25-75mm	75-150mm	150->mm	0-13mm	13-25mm	25-75mm	75-150mm	>150mm
Vc (m/min)									
● 100-120	● 95-115	● 90-110	● 80-100	● 70-90	o 100-120	o 95-115	o 90-110	o 80-100	o 70-90
● 75-100	● 70-95	● 65-90	● 60-80	● 55-70	o 75-100	o 70-95	o 65-90	o 60-80	o 55-70
● 55-75	● 50-70	● 45-65	● 40-60	● 35-55	● 55-75	● 50-70	● 45-65	● 40-60	● 35-55
o 32-50	o 30-47	o 28-45	o 25-40	o 22-35	● 32-50	● 30-47	● 28-45	● 25-40	● 22-35
					● 20-32	● 18-30	● 17-28	● 15-25	● 13-22
● 27-50	● 25-47	● 22-45	● 20-40	● 18-35	● 27-50	● 25-47	● 22-45	● 20-40	● 18-35
● 27-50	● 25-47	● 22-45	● 20-40	● 18-35	● 27-50	● 25-47	● 22-45	● 20-40	● 18-35
o 18-30	o 18-30	o 17-28	o 15-25	o 13-22	● 18-30	● 18-30	● 17-28	● 15-25	● 13-22
o 18-30	o 18-30	o 17-28	o 15-25	o 13-22	● 18-30	● 18-30	● 17-28	● 15-25	● 13-22
o 60-85	o 57-82	o 55-80	o 50-70	o 45-60	● 60-85	● 57-82	● 55-80	● 50-70	● 45-60
o 60-85	o 57-82	o 55-80	o 50-70	o 45-60	● 60-85	● 57-82	● 55-80	● 50-70	● 45-60
o 50-80	o 47-70	o 45-65	o 40-60	o 35-55	● 50-80	● 47-70	● 45-65	● 40-60	● 35-55
o 50-80	o 47-70	o 45-65	o 40-60	o 35-55	● 50-80	● 47-70	● 45-65	● 40-60	● 35-55
					● 32-50	● 30-47	● 28-45	● 25-40	● 22-35
o 175-230	o 170-225	o 165-220	o 150-200	o 135-180	o 175-230	o 170-225	o 165-220	o 150-200	o 135-180
o 120-175	o 115-170	o 110-165	o 100-150	o 90-135	o 120-175	o 115-170	o 110-165	o 100-150	o 90-135
o 100-120	o 95-115	o 90-110	o 80-100	o 70-90	o 100-120	o 95-115	o 90-110	o 80-100	o 70-90
o 120-145	o 115-140	o 110-135	o 100-120	o 90-115	o 120-145	o 115-140	o 110-135	o 100-120	o 90-115
o 100-120	o 95-115	o 90-110	o 80-100	o 70-90	o 100-120	o 95-115	o 90-110	o 80-100	o 70-90
● 75-100	● 70-95	● 65-90	● 60-80	● 55-70	o 75-100	o 70-95	o 65-90	o 60-80	o 55-70
● 40-60	● 37-57	● 35-55	● 30-50	● 25-45	● 40-60	● 37-57	● 35-55	● 30-50	● 25-45
o 75-105	o 70-100	o 65-95	o 60-90	o 55-80	o 75-105	o 70-100	o 65-95	o 60-90	o 55-80
o 120-175	o 115-170	o 110-165	o 100-150	o 90-135	o 120-175	o 115-170	o 110-165	o 100-150	o 90-135
o 100-120	o 95-115	o 90-110	o 80-100	o 70-90	o 100-120	o 95-115	o 90-110	o 80-100	o 70-90
					● 25-30	● 25-30	● 22-28	● 20-25	● 18-22
					● 18-25	● 18-25	● 17-22	● 15-20	● 13-18
					● 25-47	● 25-47	● 22-45	● 20-40	● 18-35
					● 25-30	● 25-30	● 22-28	● 20-25	● 18-22
					● 18-25	● 18-25	● 17-22	● 15-20	● 13-18

● Optima / Optimun ○ Alternativo / Alternative

P	Aceros Aciers Steels	M	Aceros Inox Aciers Inox Stainless Steels	K	Fundicion Fonte Cast Iron	N	Metales no ferrosos Métal non Ferraux Non Ferrous metals	S	Titanio y Superaleaciones Titanium et Supealliages Titanium and Superalloys	H	Materiales Duros Materiels Durs Hard materials

TABLA DE APLICACIONES
GUIDE D'APPLICATION / APPLICATION GUIDE




		Ref./ Réf. / Ref.	7801	7802
		Z	32-200	24-100
		Ejec./Exéc./Exec.	N	N
		Hel./Hel./Spiral		
		Mat.	HSS	HSS
		Rec./Rev./Coat.		
		DIN	1837-A	1838-B
		Gama/Gamme/Range	20-315	50-315
		Pag.	427	428
Mat.		fz mm	Vc (m/min)	
P.1	<600	0,03-0,06	● 25-50	● 25-50
P.2	<800	0,03-0,04	● 15-30	● 15-30
P.3	<1000	0,02-0,03	● 10-20	● 10-20
P.4	<1200	0,01-0,03	○ 5-10	○ 5-10
P.5	<1400			
M.1	<950	0,01-0,03	○ 10-20	○ 10-20
M.2		0,01-0,03	○ 10-20	○ 10-20
M.3	<1200	0,01-0,03	○ 5-10	○ 5-10
M.4		0,01-0,03	○ 5-10	○ 5-10
K.1	<500	0,04-0,05	● 15-30	● 15-30
K.2		0,04-0,05	● 15-30	● 15-30
K.3	<800	0,03-0,04	○ 10-20	○ 10-20
K.4.1		0,03-0,04	○ 10-20	○ 10-20
K.4.2	<1400			
N.1.1	Al	0,04-0,09	● 1000-2000	● 1000-2000
N.1.2		0,03-0,06	● 500-1000	● 500-1000
N.1.3		0,03-0,04	● 120-200	● 120-200
N.2.1	Cu	0,04-0,06	● 100-400	● 100-400
N.2.2		0,04-0,06	● 100-400	● 100-400
N.2.3		0,04-0,06	● 40-120	● 40-120
N.2.4		0,01-0,03	○ 10-20	○ 10-20
N.3.1	Mg/Zn	0,04-0,06	○ 40-120	○ 40-120
N.4.1	Plastic	0,04-0,09	○ 500-1000	○ 500-1000
N.4.2		0,04-0,09	○ 500-1000	○ 500-1000
N.4.3				
S.1.1	Ni	0,03-0,04	○ 20-30	○ 20-30
S.1.2				
S.2.1	Ti	0,01-0,03	○ 10-20	○ 10-20
S.2.2		0,03-0,04	○ 10-20	○ 10-20
S.2.3				
H.1	50 HRC			
H.2	55 HRC			
H.3	60 HRC			

● Optima / Optimun ○ Alternativo / Alternative

P Aceros / Aciers / Steels

M Aceros Inox / Aciers Inox / Stainless Steels

K Fundicion / Fonte / Cast Iron

N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals

S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys

H Materiales Duros / Materiels Durs / Hard materials

7202-7213 M42 Dentado constante
M42 Denture constant / M42 Constant tooth

68-69 HRC | M42 (8% CO) | CR 0° | CP 10°

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
○ 55-120	○ 35-75	○ 22-50		○ 18-50		○ 45-85	○ 35-80		● 70-230	● 25-45	● 55-105	● 70-175					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ref.	A mm	e mm	t.p.i. 1,25	2	3	4	6	8	10	14	18	€ m	€ soldadura soudure welding
*7202	6,00	0,90				CP	CP		CR	CR		17,68	10,05
*7204	10,00	0,90				CP	CP		CR	CR		17,68	10,05
7205	13,00	0,65					CP		CR	CR	CR	16,24	10,05
7206	13,00	0,90			CP	CP	CP		CR	CR		16,24	10,05
7207	20,00	0,90			CP	CP	CR	CR	CR	CR		18,57	10,05
7208	27,00	0,90		CP	CP	CP-CR	CR	CR	CR	CR		19,11	10,05
7209	34,00	1,10	CP	CP	CP	CR						26,55	13,22
7210	41,00	1,30	CP	CP	CP							33,21	16,70
7212	54,00	1,60	CP									48,65	28,12
7213	67,00	1,60	CP									82,87	51,86

*** Se vende sólo en rollos de 30 m.**
Vendu uniquement en rouleaux de 30 m.
Only sold in 30 m rolls.

Axe mm	L	€	
13x0,65	1.138	28,53	3
	1.140	28,56	3
	1.300	31,15	3
	1.325	31,56	3
	1.330	31,65	3
	1.440	33,43	3
	1.470	33,92	3
	1.638	36,65	3
	1.640	36,68	3
	1.735	38,22	3
	1.750	38,46	3
	2.000	42,53	3
13x0,90	1.140	28,56	3
	1.325	31,56	3
	1.330	31,65	3
	1.638	36,65	3
	1.640	36,68	3
	1.735	38,22	3
	1.750	38,46	3
	2.000	42,53	3
20x0,90	2.000	47,20	1
	2.060	48,31	1
	2.070	48,50	1
	2.080	48,69	1
	2.090	48,87	1
	2.100	49,06	1
	2.110	49,25	1
	2.115	49,34	1
	2.120	49,42	1
	2.140	49,80	1
	2.265	52,12	1
	2.360	53,89	1
	2.362	53,93	1
	2.370	54,08	1
	2.375	54,17	1
	2.400	54,63	1
	2.465	55,84	1
	2.520	56,86	1
	2.530	57,05	1
	2.550	57,41	1
27x0,90	2.000	48,26	1
	2.060	49,40	1
	2.070	49,59	1
	2.080	49,78	1
	2.150	51,12	1
	2.352	54,98	1
	2.360	55,14	1
	2.370	55,32	1
	2.420	56,28	1
	2.450	56,86	1
	2.460	57,05	1
	2.480	57,42	1
	2.500	57,81	1
	2.550	58,77	1
	2.600	59,72	1
	2.650	60,68	1
	2.700	61,64	1
	2.750	62,59	1
	2.755	62,69	1
	2.765	62,87	1
	2.825	64,02	1
	2.835	64,21	1
	2.845	64,40	1
	2.850	64,50	1
	2.895	65,35	1
	2.945	66,31	1
	2.950	66,41	1
	2.960	66,60	1
	3.010	67,56	1
	3.100	69,27	1
	3.180	70,80	1
	3.420	75,39	1
	3.505	77,01	1
	3.660	79,97	1
	3.800	82,65	1
	4.100	88,38	1
	4.250	91,25	1
	4.570	97,36	1
	4.870	103,09	1
	5.000	105,58	1
34x1,10	3.180	97,68	1
	3.420	104,06	1
	3.505	106,31	1
	3.660	110,43	1
	3.720	112,02	1
	3.800	114,15	1
	4.100	122,12	1
	4.115	122,51	1
	4.520	133,27	1
	4.570	134,60	1
	4.640	136,46	1
	4.800	140,70	1
	4.860	142,30	1
	4.990	145,75	1
	5.270	153,18	1
	5.300	153,98	1
	5.550	160,62	1
	5.620	162,48	1
	5.800	167,27	1
	6.000	172,58	1
41x1,30	4.100	152,84	1
	4.520	166,79	1
	4.570	168,45	1
	5.300	192,69	1
	5.500	199,33	1
	5.550	200,99	1
	5.800	209,30	1
	6.000	215,93	1
	6.200	222,58	1
	6.300	225,90	1
	6.600	235,86	1
	6.700	239,18	1
	6.900	245,83	1
	7.000	249,14	1
6x0,90	30 M	530,52	1
10x0,90	30 M	530,52	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

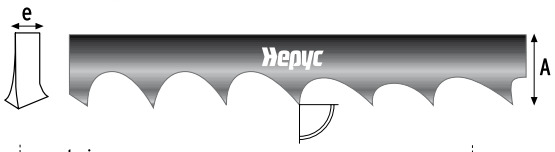
7301-7314 M42 Dentado variable

M42 Denture variable / M42 Variable tooth

68-69 HRC | M42 (8% CO) | VR 0° | VP 10°

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		●	○	○	○		○	●	○	○					
55-120	35-75	22-50		18-50	13-30	45-85	35-80		70-230	25-45	55-105	70-175					

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ref.	A mm	e mm	t.p.i. 0,75/1,25	1,10/1,40	1,40/2	2/3	3/4	4/6	5/8	6/10	8/12	10/14	€ m	€ soldadura soudure welding
7302*	6,00	0,90										VR	*17,68*	*10,05*
7304*	10,00	0,90										VR	*17,68*	*10,05*
7305	13,00	0,65								VR	VR	VR	*16,24*	*10,05*
7306	13,00	0,90								VR	VR	VR	*16,24*	*10,05*
7307	20,00	0,90						VP-VR	VR	VR	VR	VR	*18,57*	*10,05*
7308	27,00	0,90				VP	VP-VR	VP-VR	VP-VR	VR	VR	VR	*19,11*	*10,05*
7309	34,00	1,10				VP	VP-VR	VP-VR	VP-VR	VR	VR		*26,58*	*13,22*
7310	41,00	1,30			VP	VP	VP-VR	VP-VR	VP-VR				*33,21*	*16,70*
7311	54,00	1,30			VP	VP	VP-VR	VP-VR					*48,65*	*28,12*
7312	54,00	1,60	VP	VP	VP	VP	VP						*48,65*	*28,12*
7313	67,00	1,60	VP	VP	VP	VP							*82,87*	*51,86*
7314	80,00	1,60	VP										*97,00*	*86,46*

*** Se vende sólo en rollos de 30 m.**
Vendu uniquement en rouleaux de 30 m.
Only sold in 30 m rolls.

Axe mm	L	€		Axe mm	L	€		Axe mm	L	€	
13x0,65	1.138	*28,53*	3		2.550	*57,41*	1		4.870	*103,09*	1
	1.140	*28,56*	3	27x0,90	2.000	*48,26*	1		5.000	*105,58*	1
	1.300	*31,15*	3		2.060	*49,40*	1	34x1,10	3.180	*97,71*	1
	1.325	*31,56*	3		2.070	*49,59*	1		3.420	*104,09*	1
	1.330	*31,65*	3		2.080	*49,78*	1		3.505	*106,34*	1
	1.440	*33,43*	3		2.150	*51,12*	1		3.660	*110,47*	1
	1.470	*33,92*	3		2.352	*54,98*	1		3.720	*112,06*	1
	1.638	*36,65*	3		2.360	*55,14*	1		3.800	*114,19*	1
	1.640	*36,68*	3		2.370	*55,32*	1		4.100	*122,16*	1
	1.735	*38,22*	3		2.420	*56,28*	1		4.115	*122,56*	1
	1.750	*38,46*	3		2.450	*56,86*	1		4.520	*133,32*	1
	2.000	*42,53*	3		2.460	*57,05*	1		4.570	*134,64*	1
13x0,90	1.140	*28,56*	3		2.480	*57,42*	1		4.640	*136,50*	1
	1.325	*31,56*	3		2.500	*57,81*	1		4.800	*140,75*	1
	1.330	*31,65*	3		2.550	*58,77*	1		4.860	*142,35*	1
	1.638	*36,65*	3		2.600	*59,72*	1		4.990	*145,80*	1
	1.640	*36,68*	3		2.650	*60,68*	1		5.270	*153,25*	1
	1.735	*38,22*	3		2.700	*61,64*	1		5.300	*154,05*	1
	1.750	*38,46*	3		2.750	*62,59*	1		5.550	*160,68*	1
	2.000	*42,53*	3		2.755	*62,69*	1		5.620	*162,54*	1
20x0,90	2.000	*47,20*	1		2.765	*62,87*	1		5.800	*167,33*	1
	2.060	*48,31*	1		2.825	*64,02*	1		6.000	*172,64*	1
	2.070	*48,50*	1		2.835	*64,21*	1	41x1,30	4.100	*152,84*	1
	2.080	*48,69*	1		2.845	*64,40*	1		4.520	*166,79*	1
	2.090	*48,87*	1		2.850	*64,50*	1		4.570	*168,45*	1
	2.100	*49,06*	1		2.895	*65,35*	1		5.300	*192,69*	1
	2.110	*49,25*	1		2.945	*66,31*	1		5.500	*199,33*	1
	2.115	*49,34*	1		2.950	*66,41*	1		5.550	*200,99*	1
	2.120	*49,42*	1		2.960	*66,60*	1		5.800	*209,30*	1
	2.140	*49,80*	1		3.010	*67,56*	1		6.000	*215,93*	1
	2.265	*52,12*	1		3.100	*69,27*	1		6.200	*222,58*	1
	2.360	*53,89*	1		3.180	*70,80*	1		6.300	*225,90*	1
	2.362	*53,93*	1		3.420	*75,39*	1		6.600	*235,86*	1
	2.370	*54,08*	1		3.505	*77,01*	1		6.700	*239,18*	1
	2.375	*54,17*	1		3.660	*79,97*	1		6.900	*245,83*	1
	2.400	*54,63*	1		3.800	*82,65*	1		7.000	*249,14*	1
	2.465	*55,84*	1		4.100	*88,38*	1	6x0,90	30 M	*530,52*	1
	2.520	*56,86*	1		4.250	*91,25*	1	10x0,90	30 M	*530,52*	1
	2.530	*57,05*	1		4.570	*97,36*	1				

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

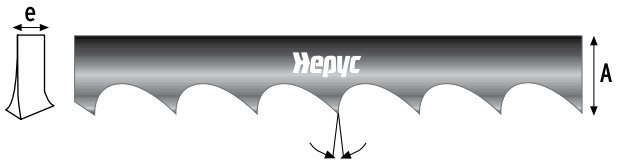
7321-7324 M51 Dentado variable

M42 Denture variable / M42 Variable tooth

VP 10° | 68-69 HRC | M51 (10% CO)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	●	●	●	●	●	●	●	○	●	○	○	●	●			
55-120	35-75	22-50	13-32	18-50	13-30	45-85	35-80	22-50	70-230	25-45	55-105	70-175	13-30	13-47			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



Ref.	A mm	e mm	t.p.i. 0,75/1,25	1,5/2	2/3	3/4	4/6	€ m	€ soldadura soudure welding
7321	27,00	0,90			VP	VP	VP	*36,17*	*86,46*
7322	34,00	1,10			VP	VP	VP	*37,03*	*86,46*
7323	41,00	1,30		VP	VP	VP	VP	*45,24*	*86,46*
7324	54,00	1,60	VP	VP	VP	VP		*80,28*	*86,46*

Axe mm	L	€	
27x0,90	2.000	*84,01*	1
	2.060	*86,18*	1
	2.070	*86,54*	1
	2.080	*86,91*	1
	2.150	*89,44*	1
	2.352	*96,75*	1
	2.370	*97,40*	1
	2.360	*97,03*	1
	2.420	*99,20*	1
	2.450	*100,29*	1
	2.460	*100,65*	1
	2.480	*101,38*	1
	2.500	*102,10*	1
	2.550	*103,91*	1
	2.600	*105,71*	1
	2.650	*107,52*	1
	2.700	*109,34*	1
	2.750	*111,14*	1
	2.755	*111,32*	1
	2.765	*111,68*	1
	2.825	*113,85*	1
	2.835	*114,22*	1
	2.845	*114,58*	1
	2.850	*114,75*	1
	2.895	*116,38*	1
	2.945	*118,20*	1
	2.950	*118,38*	1
	2.960	*118,73*	1
	3.010	*120,55*	1
	3.100	*123,81*	1
	3.180	*126,69*	1
	3.420	*135,38*	1
	3.505	*138,45*	1
	3.660	*144,06*	1
	3.800	*149,12*	1
	4.100	*159,98*	1
	4.250	*165,40*	1

Axe mm	L	€	
	4.570	*176,98*	1
	4.870	*187,82*	1
	5.000	*192,53*	1
34x1,10	3.180	*133,09*	1
	3.420	*141,98*	1
	3.505	*145,12*	1
	3.660	*150,86*	1
	3.720	*153,09*	1
	3.800	*156,05*	1
	4.100	*167,16*	1
	4.115	*167,72*	1
	4.520	*182,71*	1
	4.570	*184,57*	1
	4.640	*187,16*	1
	4.800	*193,08*	1
	4.860	*195,30*	1
	4.990	*200,12*	1
	5.270	*210,49*	1
	5.300	*211,60*	1
	5.550	*220,86*	1
	5.620	*223,45*	1
	5.800	*230,12*	1
	6.000	*237,52*	1
41x1,30	4.100	*204,91*	1
	4.520	*223,91*	1
	4.570	*226,17*	1
	5.300	*259,20*	1
	5.500	*268,25*	1
	5.550	*270,51*	1
	5.800	*281,82*	1
	6.000	*290,87*	1
	6.200	*299,92*	1
	6.300	*304,45*	1
	6.600	*318,02*	1
	6.700	*322,55*	1
	6.900	*331,59*	1
	7.000	*336,12*	1

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

7801 HSS DIN 1837 N

ISO 2296 | Form. A | Tol. Ø (j15) d (H7) | Tol. l (j11) D1 (j18)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
● 15-50	● 10-20	○ 5-10		○ 10-20	○ 5-10	● 15-30	○ 10-20		● 120-2000	● 10-400	○ 40-120	● 500-1000	○ 20-30	○ 10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



D mm	e mm	d mm	z	€
20	0,20	5	80	16,76
	0,25		64	16,86
	0,30		64	15,87
	0,40		64	15,54
	0,50		48	15,54
	0,60		48	14,65
	0,80		48	15,09
	1,00		40	15,98
	1,20		40	16,42
	1,60		40	17,03
	2,00		32	18,20
25	0,20	8	80	17,31
	0,25		80	17,31
	0,30		80	16,42
	0,40		64	15,26
	0,50		64	15,54
	0,60		64	15,71
	0,80		48	15,71
	1,00		48	15,87
	1,20		48	16,42
	1,60		40	16,86
	2,00		40	17,31
	2,50		40	19,26
32	0,20	8	100	16,42
	0,25		100	14,82
	0,30		80	13,65
	0,40		80	13,21
	0,50		80	13,31
	0,60		64	13,48
	0,80		64	13,77
	1,00		64	14,82
	1,20		48	14,82
	1,60		48	15,87
	2,00		48	17,64
	2,50		40	20,31
	3,00		40	22,08
40	0,20	10	128	17,03
	0,25		100	16,15
	0,30		100	14,37
	0,40		100	13,92
	0,50		80	13,92
	0,60		80	14,09
	0,80		80	15,09
	1,00		64	16,42
	1,20		64	16,42
	1,60		64	18,20
	2,00		48	19,58
	2,50		48	22,69
	3,00		48	25,02
50	0,25	13	128	19,58
	0,30		128	15,98
	0,40		100	15,26
	0,50		100	15,87
	0,60		100	15,87
	0,80		80	21,98
	1,00		80	21,98
	1,20		80	21,98
	1,60		64	21,98
	2,00		64	21,98
	2,50		64	24,47
	3,00		48	27,13
	4,00		48	32,46
	5,00		48	36,90
63	0,30	16	128	21,47
	0,40		128	19,43
	0,50		128	19,58
	0,60		100	19,58
	0,80		100	22,03
	1,00		100	23,86
	1,20		80	24,02
	1,60		80	25,19
	2,00		80	26,80
	2,50		64	31,29
	3,00		64	34,51
	4,00		64	41,61
	5,00		48	50,11
	6,00		48	55,87
80	0,50	22	128	24,75
	0,60		128	25,47
	0,80		128	28,13
	1,00		100	27,69
	1,20		100	28,91
	1,60		100	31,57
	2,00		80	33,01
	2,50		80	38,67
	3,00		80	44,01
	4,00		64	53,77
	5,00		64	65,03
	6,00		64	74,52
100	0,60	22	160	32,46
	0,80		128	36,02
	1,00		128	34,85
	1,20		128	34,85
	1,60		100	40,45
	2,00		100	43,11
	2,50		100	52,00
	3,00		80	58,54
	4,00		80	70,08
	5,00		80	85,79
	6,00		64	98,54
125	0,80	22	160	52,88
	1,00		160	56,04
	1,20		128	56,04
	1,60		128	57,04
	2,00		128	60,31
	2,50		100	70,69
	3,00		100	80,46
	4,00		100	97,93
	5,00		80	117,53
	6,00		80	132,62
160	1,20	32	200	72,19
	1,60		160	82,56
	2,00		128	87,28
	2,50		128	103,26
	3,00		128	128,46
	4,00		100	165,80
	5,00		100	206,69
	6,00		100	241,09
200	1,60	32	160	123,46
	2,00		160	132,89
	2,50		160	155,76
	3,00		128	192,20
	4,00		128	258,85
	5,00		128	320,83
	6,00		100	372,10
250	2,00	32	200	172,89
	2,50		160	204,92
	3,00		160	254,13
	4,00		160	319,05
	5,00		128	399,96
	6,00		128	447,95
315	2,50	40	200	325,10
	3,00		200	378,32
	4,00		160	474,92
	5,00		160	588,88
	6,00		160	681,16

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

7802 HSS DIN 1838 N

ISO	Form.	Tol.	Tol.
2296	B	Ø (j15) d (H7)	l (j11) D1 (j18)

P				M		K			N				S		H		
<800	<1.000	<1.200	<1.400	<950	<1.200	<500	<800	<1.400	Al	Cu	Mg/Zn	Plastic	Ni	Ti	50 HRC	55 HRC	60 HRC
●	●	○		○	○	●	○		●	●	○	●	○	○			
15-50	10-20	5-10		10-20	5-10	15-30	10-20		120-2000	10-400	40-120	500-1000	20-30	10-20			

Vc (m/min). ● Optima / Optimun ○ Alternativo / Alternative



D mm	e mm	d mm	z	€
50	0,50	13	48	*15,87*
	0,60		48	*15,87*
	0,80		40	*21,98*
	1,00		40	*21,98*
	1,20		40	*21,98*
	1,60		32	*21,98*
	2,00		32	*21,98*
	2,50		32	*24,47*
	3,00		24	*27,13*
	4,00		24	*32,46*
	5,00		24	*36,90*
63	0,50	16	64	*19,58*
	0,60		48	*19,58*
	0,80		48	*22,03*
	1,00		48	*23,86*
	1,20		40	*24,02*
	1,60		40	*25,19*
	2,00		40	*26,80*
	2,50		32	*31,29*
	3,00		32	*34,51*
	4,00		32	*41,61*
	5,00		24	*50,11*
	6,00		24	*55,87*
80	0,60	22	64	*25,47*
	0,80		64	*28,13*
	1,00		48	*27,69*
	1,20		48	*28,91*
	1,60		48	*31,57*
	2,00		40	*33,01*
	2,50		40	*38,67*
	3,00		40	*44,01*
	4,00		32	*53,77*
	5,00		32	*65,03*
	6,00		32	*74,52*
100	0,80	22	64	*36,02*
	1,00		64	*34,85*
	1,20		64	*34,85*
	1,60		48	*40,45*
	2,00		48	*43,11*
	2,50		48	*52,00*

D mm	e mm	d mm	z	€
	3,00		40	*58,54*
	4,00		40	*70,08*
	5,00		40	*85,79*
	6,00		32	*98,54*
125	0,80	22	80	*52,88*
	1,00		80	*56,04*
	1,20		64	*56,04*
	1,60		64	*57,04*
	2,00		64	*60,31*
	2,50		64	*70,69*
	3,00		48	*80,46*
	4,00		48	*97,93*
	5,00		40	*117,53*
	6,00		40	*132,62*
160	1,20	32	80	*72,19*
	1,60		80	*82,56*
	2,00		64	*87,28*
	2,50		64	*103,26*
	3,00		64	*128,46*
	4,00		48	*165,80*
	5,00		48	*206,69*
	6,00		48	*241,09*
200	1,60	32	80	*123,46*
	2,00		80	*132,89*
	2,50		80	*155,76*
	3,00		64	*192,20*
	4,00		64	*258,85*
	5,00		64	*320,83*
	6,00		48	*372,10*
250	2,00	32	100	*172,89*
	2,50		80	*204,92*
	3,00		80	*254,13*
	4,00		80	*319,05*
	5,00		80	*399,96*
	6,00		64	*447,95*
315	2,50	40	100	*325,10*
	3,00		100	*378,32*
	4,00		80	*474,92*
	5,00		80	*588,88*
	6,00		80	*681,16*

P Aceros / Aciers / Steels
M Aceros Inox / Aciers Inox / Stainless Steels
K Fundicion / Fonte / Cast Iron
N Metales no ferrosos / Métal non Ferraux / Non Ferrous metals
S Titanio y Superaleaciones / Titanium et Supealliages / Titanium and Superalloys
H Materiales Duros / Materiels Durs / Hard materials

7401 HSS DC

M2 | 0° | DC



L mm	A mm	e mm	Pulgadas Pouces Inches	Ø Taladro Perceuse Drill	tpi 4	6	8	10	14	€
300	25	1,50	12	8,5				■	■	*17,99*
350	25	1,25	14	8,5				■		*16,46*
350	25	1,50	14	8,5					■	*20,20*
350	30	1,50	14	8,5				■	■	*22,85*
350	30	2,00	14	8,5		■		■		*30,38*
400	25	1,50	16	8,5				■	■	*23,44*
400	30	1,50	16	8,5		■	■	■	■	*28,25*
400	30	2,00	16	8,5		■	■	■	■	*32,77*
450	30	2,00	18	8,5	■	■	■	■		*32,77*
450	35	2,00	18	8,5		■	■	■		*37,74*
450	40	2,00	18	10,5	■	■		■		*42,76*
500	40	2,00	20	10,5	■	■	■	■		*55,31*
600	50	2,50	24	13		■				*83,86*

Hepyc Display



Nuevo Display Modular
con placas intercambiables

Nouveau Présentoir Modulaire
avec étages réaménageables

New Modular Display
with exchangeable plates

EXPOSITOR TOTEM
PRÉSENTOIRS / DISPLAY STANDS

DISPLAY MODULAR
- Diseño atractivo
- Claridad expositiva
- Ahorro de espacio
- Expositor polivalente: para brocas, machos, fresas, etc
- Portafolletos

PRESENTOIR MODULAIRE
- Design attirant
- Mise en valeur des produits
- Encombrement réduit
- Présentoir polyvalent: pour forets, tarauds, fraises, etc...
- Porte-documents

MODULAR DISPLAY
- Attractive design
- Clear exposition
- Saving space
- Available for drill-bits, taps, end mills, etc.
- Brochure holders















Base + 2 pisos fijos
Posibilidad de añadir un 3º y un 4º módulo.

Base + 2 étages fixes
Possibilité d´ajouter un 3ème et 4ème module.

Base + 2 fixed floors
Possibility of adding a 3th and 4th floor.



A elegir entre diferentes composiciones.

A choisir entre différentes compositions.

To chose among different compositions.

› Ref. 8214



€ Vacío | *1009,53*

› Ref. 8214/1



€ Urna vacía | *105,93*



€ Vacío | *903,61*



€ Vacío | *797,67*

BROCAS CILÍNDRICAS / FORETS CYLINDRIQUES / STRAIGHT DRILL-BITS

8214/2 HSS DIN 338 NSP



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 144,80

8214/3 HSS TIN DIN 338 NSP



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 312,01

8214/4 HSSCO DIN 338 N



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 247,43

8214/5 HSSCO TIALN DIN 338 N



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 508,52

8214/6 HSSCO DIN 338 IX



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 473,49

8214/7 HSSCO TIALN DIN 338 IX



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 901,80

8214/8 HSSCO DIN 338S



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 631,35

8214/9 HSSCO TIALN DIN 338S



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs. 50
€ 883,60

8214/12 HSSCO DIN 1897 S



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs.	50
€	*561,95*

8214/13 HSSCO TIALN DIN 1897



Ø mm	
4	10
5	10
6	10
8	10
10	5
12	5

TOTAL pcs.	50
€	*787,20*

BROCAS ESCALONADAS Y AVELLANADORAS
FRAISES ETAGEES ET CONIQUES / STEP AND COUNTERBORE DRILL-BITS

8214/20 HSS

Ø mm	
4-12*2	6
4-20	6
6-30	5
20-30	4



TOTAL pcs. 21
€ *1.430,28*

8214/21 HSS TIALN

Ø mm	
4-12*2	6
4-20	6
6-30	5
20-30	4



TOTAL pcs. 21
€ *2.956,89*

8214/22 HSS 35º

Ø mm	
4-12*2	12
4-20	6
6-30	10



TOTAL pcs. 28
€ *2.467,08*

8214/23 HSS 35º TIALN

Ø mm	
4-12*2	12
4-20	6
6-30	10



TOTAL pcs. 28
€ *3.700,60*

8214/24 HSS

Ø mm	
3-14	6
6-20	6
16-30	5
26-40	4



TOTAL pcs. 21
€ *1.054,66*

8214/25 HSS TIALN

Ø mm	
3-14	6
6-20	6
16-30	5
26-40	4



TOTAL pcs. 21
€ *1.989,65*

AVELLANADORES 90º / FRAISES A CHANFREINER 90º / COUNTERSINK CUTTERS 90º

8214/26 HSS DIN 335C



Ø mm	
8,30	6
10,40	6
12,40	6
16,50	6
20,50	5
25,00	5
30,00	4

TOTAL pcs.	38
€	*1.023,17*

8214/27 HSS TIALN DIN 335C



Ø mm	
8,30	6
10,40	6
12,40	6
16,50	6
20,50	5
25,00	5
30,00	4

TOTAL pcs.	38
€	*2.524,69*

8214/28 HSSCO DIN 335C



Ø mm	
8,30	6
10,40	6
12,40	6
16,50	6
20,50	5
25,00	5
30,00	4

TOTAL pcs.	38
€	*1.745,11*

8214/29 HSSCO TIALN DIN 335C



Ø mm	
8,30	6
10,40	6
12,40	6
16,50	6
20,50	5
25,00	5
30,00	4

TOTAL pcs.	38
€	*3.018,56*

MACHOS MÁQUINA / TARAUDS MACHINE / MACHINE TAPS

8214/30 HSSE DIN 371/376B



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs. 30
€ 478,54

8214/31 HSSE DIN 371/376 R35º



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs. 30
€ 578,81

8214/38 HSSE VAP DIN 371/376B



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs. 30
€ 553,55

8214/39 HSSE VAP DIN 371/376 R35º



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs. 30
€ 670,85

8214/32 HSSE TIN DIN 371/376B



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs. 30
€ 832,65

8214/33 HSSE TIN DIN 371/376 R35º



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs. 30
€ 875,80

8214/34 HSSEX TICN DIN 371/376B



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs.	30
€	943,10

8214/35 HSSEX TICN DIN 371/376 R35º



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs.	30
€	1.030,75

8214/36 HSSEX TICN DIN 371/376 B



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs.	30
€	1.199,15

8214/37 HSSEX TICN DIN 371/376 R15º LH



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs.	30
€	1.109,00

8214/49 HSSE TIN DIN 371/376 6HX R



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs.	30
€	1.252,65

8214/53 HSSE TIN DIN 371/376 6GX R



Ø mm	
M4	5
M5	5
M6	5
M8	5
M10	5
M12	5

TOTAL pcs.	30
€	1.199,25

FRESAS FRONTALES / FRAISES FRONTALES / END MILLS

8214/54 HSSE DIN 327 N 2Z



Ø mm	
4	5
5	5
6	5
8	5
10	5
12	5

TOTAL pcs. 30
€ 531,67

8214/55 HSSE TIALN DIN 327 N 2Z



Ø mm	
4	5
5	5
6	5
8	5
10	5
12	5

TOTAL pcs. 30
€ 744,25

8214/56 HSSE DIN 327 N 2Z



Ø mm	
4	5
5	5
6	5
8	5
10	5
12	5

TOTAL pcs. 30
€ 889,67

8214/57 HSSE TIALN DIN 327 N 2Z



Ø mm	
4	5
5	5
6	5
8	5
10	5
12	5

TOTAL pcs. 30
€ 1.245,55

8214/58 HSSE DIN 844 W 3Z



Ø mm	
6	5
8	5
10	5
12	5

TOTAL pcs. 20
€ 668,69

8214/59 HSSE TIALN DIN 844 W 3Z



Ø mm	
6	5
8	5
10	5
12	5

TOTAL pcs. 20
€ 708,45

8214/60 HSSE DIN 844 N 4Z



Ø mm	
4	5
5	5
6	5
8	5
10	5
12	5

TOTAL pcs. 30
€ 567,63

8214/61 HSSE TIALN DIN 844 N 4Z



Ø mm	
4	5
5	5
6	5
8	5
10	5
12	5

TOTAL pcs. 30
€ 711,35

8214/62 HSSEX TIALN DIN 844 NR



Ø mm	
6	5
8	5
10	5
12	5

TOTAL pcs.	20
€	*1.147,49*

8214/63 HSSEX TIALN DIN 844 NRF



Ø mm	
6	5
8	5
10	5
12	5

TOTAL pcs.	20
€	*1.260,79*

FRESAS ROTATIVAS / FRAISES ROTATIVES / ROTARY MILLS

8214/69 FRESAS ROTATIVAS



Ø mm	
12x6 (3201)	2
10x6 (3201)	2
8x6 (3201)	1
12x6 (3202)	2
10x6 (3202)	2
8x6 (3202)	1
12x6 (3203)	2
10x6 (3203)	2



Ø mm	
8x6 (3203)	1
12x6 (3204)	2
10x6 (3204)	2
8x6 (3204)	1
12x6 (3207)	3
10x6 (3207)	2
12x6 (3206)	5



TOTAL pcs.	30
€	*1.409,10*

CORONAS METAL / SCIES TREPAN METAUX / METAL HOLE SAWS

8214/64 HSSE

Ø mm	
14x25	1
16x25	1
18x25	1
20x25	1
22x25	1
24x25	1
14x50	1
16x50	1
18x50	1
20x50	1
22x50	1
24x50	1



TOTAL pcs.	12
€	*907,25*

8214/65 HSS

Ø mm	
14x25	1
16x25	1
18x25	1
20x25	1
22x25	1
24x25	1
14x50	1
16x50	1
18x50	1
20x50	1
22x50	1
24x50	1



TOTAL pcs.	12
€	*662,24*

ÍNDICE DE REFERENCIAS
SOMMAIRE / INDEX

Ref.	Pág.	Ref.	Pág.	Ref.	Pág.	Ref.	Pág.	Ref.	Pág.
1101	31	**1166**	57	**2120**	169	**2181**	170	**2273**	161
1103	38	**1167**	58	**2121**	154	**2182**	170	**2274**	143
1104	33	**1171**	86	**2122**	154	**2187**	173	**2275**	143
1105	39	**1172**	86	**2123**	167	**2188**	173	**2276**	194
1106	44	**1173**	88	**2124**	167	**2189**	199	**2277**	194
1107	41	**1174**	88	**2125**	152	**2190**	141	**2278**	197
1108	37	**1175**	24	**2126**	152	**2191**	141	**2279**	197
1109	30	**1176**	25	**2132**	155	**2192**	206	**2280**	195
1110	48	**1177**	26	**2133**	155	**2199**	177	**2281**	195
1112	49	**1178**	27	**2134**	177	**2206**	206	**2282**	198
1113	50	**1179**	77	**2135**	200	**2208**	163	**2283**	198
1114	51	**1180**	77	**2136**	200	**2212**	211	**2284**	207
1115	53	**1181**	64	**2137**	202	**2213**	174	**2285**	209
1116	55	**1182**	28	**2138**	202	**2214**	174	**2286**	208
1117	56	**1183**	89	**2139**	203	**2215**	175	**2287**	209
1118	56	**1184**	27	**2140**	203	**2216**	175	**2301**	213
1119	79	**1185**	78	**2141**	204	**2217**	176	**2302**	217
1120	29	**1186**	78	**2142**	204	**2218**	176	**2303**	216
1121	59	**1187**	43	**2144**	205	**2234**	187	**2304**	218
1122	63	**1188**	72	**2145**	207	**2235**	187	**2305**	219
1123	62	**1189**	76	**2146**	208	**2236**	190	**2306**	220
1125	65	**1190**	76	**2147**	183	**2237**	190	**2307**	222
1126	66	**1191**	71	**2148**	183	**2242**	212	**2308**	223
1127	68	**1192**	71	**2149**	185	**2248**	179	**2309**	225
1128	68	**1193**	73	**2150**	185	**2249**	179	**2310**	225
1129	69	**1194**	79	**2151**	188	**2250**	150	**2312**	226
1130	69	**1501**	34	**2152**	188	**2251**	150	**2313**	226
1132	72	**1504**	178	**2153**	191	**2252**	165	**2314**	216
1133	73	**1505**	311	**2154**	191	**2253**	165	**2315**	224
1135	74	**2101**	137	**2155**	193	**2254**	156	**2316**	221
1137	74	**2102**	136	**2156**	193	**2255**	156	**2317**	221
1138	75	**2103**	144	**2157**	196	**2256**	171	**2321**	227
1139	67	**2104**	144	**2158**	196	**2257**	171	**2322**	228
1143	86	**2105**	158	**2159**	210	**2258**	157	**2323**	228
1144	87	**2106**	158	**2160**	199	**2259**	157	**2324**	217
1145	87	**2107**	164	**2163**	212	**2260**	172	**2501**	229
1146	87	**2108**	164	**2164**	210	**2261**	172	**2502**	233
1150	89	**2109**	148	**2165**	162	**2262**	186	**2503**	234
1152	70	**2110**	148	**2166**	162	**2263**	186	**2504**	234
1153	70	**2111**	147	**2168**	149	**2264**	189	**2505**	237
1155	75	**2112**	161	**2169**	149	**2265**	189	**2506**	238
1158	35	**2113**	140	**2170**	163	**2266**	180	**2507**	239
1159	46	**2114**	140	**2175**	153	**2267**	180	**2508**	239
1160	47	**2115**	151	**2176**	153	**2268**	181	**2509**	241
1161	41	**2116**	151	**2177**	168	**2269**	181	**2510**	240
1162	45	**2117**	166	**2178**	168	**2270**	182	**2512**	232
1164	52	**2118**	166	**2179**	142	**2271**	182	**2514**	232
1165	54	**2119**	169	**2180**	142	**2272**	147	**2520**	240

2521	236	**2850**	272	**3170**	352	**4103**	288	**5142**	321
2522	236	**2851**	272	**3171**	353	**4104**	286	**5143**	321
2701	242	**3101**	364	**3172**	354	**4105**	287	**5151**	322
2702	243	**3105**	364	**3173**	354	**4106**	288	**5155**	322
2703	243	**3107**	365	**3174**	355	**4107**	289	**5157**	305
2704	244	**3110**	368	**3175**	356	**4108**	289	**5158**	305
2705	245	**3111**	378	**3176**	356	**4109**	291	**5159**	309
2706	246	**3112**	370	**3177**	357	**4110**	292	**5160**	307
2707	247	**3113**	379	**3178**	359	**4111**	293	**5161**	314
2708	248	**3114**	372	**3179**	360	**4114**	292	**6101**	83
2709	249	**3115**	373	**3180**	360	**4115**	290	**6102**	84
2710	250	**3116**	382	**3181**	361	**4116**	290	**6103**	84
2711	251	**3117**	374	**3182**	381	**4117**	291	**6110**	81
2712	252	**3118**	383	**3183**	361	**4118**	285	**6111**	81
2713	253	**3119**	375	**3184**	362	**4119**	284	**6112**	82
2714	254	**3120**	366	**3185**	362	**5101**	303	**6113**	82
2715	244	**3121**	366	**3186**	367	**5102**	303	**6114**	81
2716	248	**3122**	367	**3187**	371	**5103**	304	**6115**	83
2717	254	**3138**	414	**3188**	380	**5105**	306	**6120**	83
2801	268	**3139**	414	**3189**	349	**5106**	306	**6122**	85
2802	268	**3140**	414	**3190**	350	**5109**	307	**6123**	85
2803	268	**3141**	349	**3191**	353	**5112**	308	**6124**	85
2804	269	**3144**	386	**3192**	358	**5114**	80	**7137**	408
2805	269	**3145**	387	**3193**	358	**5115**	80	**7138**	410
2806	178	**3146**	388	**3194**	363	**5116**	309	**7139**	412
2808	269	**3147**	389	**3195**	363	**5117**	310	**7140**	413
2809	273	**3148**	390	**3201**	397	**5118**	310	**7141**	413
2810	273	**3149**	391	**3202**	397	**5119**	311	**7158**	413
2811	273	**3150**	391	**3203**	398	**5120**	312	**7167**	255
2812	273	**3151**	392	**3204**	398	**5121**	312	**7168**	416
2813	274	**3152**	394	**3205**	399	**5122**	313	**7169**	416
2814	274	**3153**	394	**3206**	399	**5123**	313	**7172**	406
2815	275	**3154**	395	**3207**	400	**5124**	314	**7401**	429
2816	275	**3155**	395	**3208**	400	**5125**	315	**7801**	427
2817	275	**3156**	396	**3209**	401	**5126**	315	**7802**	428
2818	275	**3157**	376	**3210**	401	**5127**	316	**8201**	90
2819	276	**3158**	384	**3211**	402	**5129**	316	**8203**	92
2820	276	**3159**	377	**3212**	402	**5130**	317	**8207**	92
2821	271	**3160**	385	**3214**	403	**5132**	317	**8214**	432
2822	271	**3161**	393	**3215**	403	**5133**	318	**1101/1**	33
2824	272	**3162**	376	**3216**	404	**5134**	318	**1104/9**	34
2825	272	**3163**	384	**3217**	404	**5135**	319	**1105/9**	40
2834	270	**3164**	396	**3218**	405	**5136**	320	**1107/9**	42
2840	271	**3165**	392	**3219**	405	**5137**	320	**1121/9**	61
2841	274	**3166**	393	**3220**	415	**5138**	323	**1158/9**	36
2842	274	**3167**	350	**3221**	415	**5139**	323	**2101/5**	139
2843	275	**3168**	351	**4101**	283	**5140**	324	**2102/5**	139
2846	270	**3169**	352	**4102**	284	**5141**	324	**2103/5**	146

ÍNDICE DE REFERENCIAS
SOMMAIRE / INDEX

Ref.	Pág.
2104/5	146
2106/5	160
2106/5	160
2135/5	201
2136/5	201
2144/5	205
2147/5	184
2153/5	192
2212/5	211
2301/5	215
2304/5	219
2306/5	220
2307/5	223
2308/5	224
2501/5	231
2502/5	233
2504/5	235
2505/5	237
2506/5	238
2901/1	256
2901/2	258
2901/3	259
2901/4	257
2901/5	257
2902/1	260
2902/2	261
2902/3	261
2902/4	260
2902/5	260
2903/1	262
2903/2	262
2903/3	262
2904/1	263
2904/2	263
2904/3	264
2905/1	264
2905/2	264
2905/3	265
2906/1	265
2906/2	265
2907/1	266
2907/2	267
2907/4	266
2907/5	267
3110/1	369
3111/1	378
3112/1	370
3113/1	379
3114/1	372
3115/1	373
3116/1	382
3117/1	374
3118/1	383
3119/1	375
3144/1	386
3145/1	387
3146/1	388
3147/1	389
3148/1	390
3182/1	381
3187/1	371
3188/1	380
4104/1	287
7202-7213	424
7301-7314	425
7321-7324	425
8201/9	91
8214/1	432
8214/12	434
8214/13	434
8214/2	433
8214/20	435
8214/21	435
8214/22	435
8214/23	435
8214/24	435
8214/25	435
8214/26	436
8214/27	436
8214/28	436
8214/29	436
8214/3	433
8214/30	437
8214/31	437
8214/32	437
8214/33	437
8214/34	438
8214/35	438
8214/36	438
8214/37	438
8214/38	437
8214/39	437
8214/4	433
8214/49	438
8214/5	433
8214/53	438
8214/54	439
8214/55	439
8214/56	439
8214/57	439
8214/58	439
8214/59	439
8214/6	433
8214/60	439
8214/61	439
8214/62	440
8214/63	440
8214/64	440
8214/65	440
8214/69	440
8214/7	433
8214/8	433
8214/9	433

FICHA DE CLIENTE

Representante: ..... Código de cliente (rellenar por Hepyc): .....

CIF: ..... Persona de contacto (nombre y apellido): .....

Dirección de facturación: ..... C.P. .....

Dirección de envío de mercancías (si es diferente): .....

Telf.: ..... Fax: ..... E-mail: .....

Forma de pago: ..... Días pago: .....

CC: ..... Dto a aplicar: .....

FORMULAIRE NOUVEAUX CLIENTS

Agent comercial: ..... Nom de la société: .....

Raison sociale: ..... SIREN/SIRET: .....

N° Intracommunautaire (TVA): .....

Personne à contacter: .....

Adresse de facturation: .....

Tél.: ..... Fax: ..... E-mail: .....

Mode de réglement: .....

IBAN: ..... Remise: .....

CLIENT DATA SHEET

Representative: ..... Client code (to be filled out by Hepyc): .....

Tax Identification Number: .....

Contact person (name and surname): .....

Invoice address: .....

Merchandise delivery address (if different) ..... P.C.: .....

Tel.: ..... Fax: ..... E-mail: .....

Payment method: ..... Payment days: .....

IBAN code: ..... Discount to be applied: .....

1º Condiciones de pago:
Giro a 60 días f.f.: NETO.

2º Vencimientos:
En caso de fechas fijas de pago que rebasen los plazos estipulados giraremos a la fecha fijada pero inmediata anterior, según corresponda, siendo el plazo máximo en cualquier caso, de 60 días, fecha factura o envío.

3º Seguros:
Las mercancías viajarán por exclusiva cuenta y riesgo del comprador, siendo siempre a cargo del mismo la prima del seguro que se realice, en los casos que el cliente desee asegurarla.

4º Reclamaciones:
Se atenderán aquellas reclamaciones que se planteen dentro de los 8 días siguientes a la recepción del material, no aceptando ninguna devolución sin previo conocimiento de Manufacturas Hepyc, S.A.

5º Condicionalidad:
La aceptación de las mercancías, sin el rechazo inme-diato por parte del comprador, supone la aprobación de estas condiciones generales de venta y su modificación sólo tendrá validez si consta por escrito la conformidad de Manufacturas Hepyc, S.A.

6º IVA:
Los precios están sujetos al impuesto sobre el valor añadido, siendo a cargo del cliente el recargo correspondiente.

7º Garantías:
Todas las herramientas están garantizadas contra cualquier defecto de fabricación y materiales, sin responsabilizarse Manufacturas Hepyc, S.A. de la utilización inadecuada de las mismas. En cualquier caso, nuestra responsabilidad estará limitada al valor de la herramienta suministrada. Nos reservamos el derecho de modificar, sin previo aviso, las dimensiones, calidades de acero y en general todas las características técnicas de las herramientas. No será sustituida ninguna herramienta sin un informe previo de Control de Calidad.

8º Portes:
Se suministrarán a portes pagados aquellos envíos a Península y Baleares cuyo valor neto en factura supere los 150 euros.
En aquellos casos de facturación mensual, quincenal, etc., Manufacturas Hepyc, S.A. cargará en factura los portes correspondientes a los envíos inferiores a 150 euros aunque la factura global (mensual, quincenal) supere dicha cantidad.

9º Importe mínimo por pedido:
Queda establecido como pedido mínimo la cantidad de 60 euros netos. Los clientes no habituales que cursen pedidos inferiores a 60 euros pagarán al contado o contra reembolso.

10º Envío de facturas:
Salvo indicación expresa por parte del cliente, se despacharán directamente.

11º Reserva de dominio:
Nuestras ventas se consideran siempre bajo la condición de "RESERVA DE DOMINIO", según el artículo 1506 del C.C. hasta que se haya hecho efectivo ínte-gramente el pago de todo lo adeudado.

12º Jurisdicción competente:
En caso de cualquier litigio por razón de incumplimiento por cualquiera de las partes, se someterán ambas al fuero de los JUZGADOS Y TRIBUNALES DE SAN SEBASTIÁN, con denuncia al que pudiera corresponderles.

CONDITIONS DE VENTE (France)

1º Tarif de prix:
Les prix figurants dans ce tarif sont des prix conseillés et s´entendent HORS TAXES, emballage compris.

2º Remise sur Tarif:
Remise à confirmer par notre agent.

3º Delai d´expédition:
Service normal: Commandes recues avant 14 heures partiront de Hepyc le jour même et seront chez le client en 24-48 heures.
Service express: Sous 24 heures.

4º Port:
FRANCO pour les expédition dont la valeur nette facturée dépasse les 250 euros.
Les commandes inférieures à 250 euros seront majorés d´un forfait de 15 euros.
Manufacturas Hepyc, SA se réserve le droit d´utiliser le moyen de transport le plus économique.
Manufacturas Hepyc, SA facturera les ports concernant les envois d´outils peu courants qui, à la demande du client, devront être livrés en urgence à travers des agences de transport rapide.

5º Condition de paiement:
Le délai de paiement part de la date de facturation. Par LCR magnétique à 60 jours calendaires ou 45 jours fin de mois.

6º Assurances:
Le marchandises seront transportées aux risque et périls exclusifs de l´acheteur, celui-ci étant responsable de la prime d´assurance le cas échéant.

7º Réclamations:
Les réclamations seront acceptées dans un délai de 8 jours à partir de la réception du matériel; aucun retour ne sera accepté sans l´accord préalable de Manufacturas Hepyc, SA.

8º Conditionnalité:
L´acceptation de marchandises sans le rejet immédiat de la part de l´acheteur suppose l´approbation de ces conditions générales de vente et leur modification n´aura de validité que sur confirmation écrite de Manufacturas Hepyc, SA.

9º Garanties:
Tous les outils son garantis contre n´importe quel défaut de fabrication et de matériaux, Manufacturas Hepyc, SA. n´étant pas responsable de leur utilisation inadéquate. Dans tous les cas, notre responsabilité sera limité à la valeur de l´outil fourni. Nous nous réservons le droit de modifier, sans avertissement préalable, les dimensions, les qualités d´acier et en général toutes les caractéristiques techniques des outils. Aucun outil ne sera remplacé sans rapport préalable du contrôle de qualité.

10º Reserve de propieté:
La marchandise reste la pleine et entière propriété de la Société Manufacturas Hepyc, SA tant que le règlement intégral n´aura pas été effectué et ce en application de la loi du 12 mai 1980.

SALES CONDITIONS (Export)

1. Price List:
The prices that appear on this price list are recommended and DO NOT INCLUDE TAXES or packaging.

2. Discount: Discount to be confirmed by Manufacturas Hepyc.

3. Payment conditions:
Terms of payment set from invoice date.
Firts order must be paid in advanced. Rest of the orders to be agreed.

4. Insurance:
The merchandise will be transported exclusively at the purchaser's risk, the purchaser is responsible for the insurance premium if it is necessary.

5. Claims:
Claims will be accepted within the 8 days following the receipt of the merchandise; no returns will be accepted without the prior agreement of Manufacturas Hepyc, SA.

6. Conditions :
The acceptance of merchandise without the immediate rejection on the part of the purchaser supposes the acceptance of these general sales conditions and their modification will not be valid without the written consent of Manufacturas Hepyc, SA.

7. Guarantees:
All tools are guaranteed against any material or manufacturing defect, Manufacturas Hepyc, SA. is not responsible for their improper use. In all cases, our responsibility will be limited to the tool provided. We reserve the right to modify, without preliminary warning, the dimensions, steel qualities and all design feature of the tools in general. No tool will be replaced without the preliminary quality control report.

8. Reservation of title:
The merchandise remains the sole and exclusive property of the Manufacturas Hepyc, SA Corporation as long as the full payment is outstanding pursuant to the law of 12 May 1980.

BUREAU VERITAS
Certification

Certification

Awarded to

MANUFACTURAS HEPYC SA

Bº ZIKUÑAGA,57 E IZQDA. POL IND IBARLUZE - 20120 - HERNANI - GIPUZKOA - ESPAÑA

Bureau Veritas certification certifies that the Management System has been audited and found to be in accordance with the requirements of standard:

STANDARD

ISO 9001:2015

Scope of certification:

DESIGN, MANUFACTURING AND DISTRIBUTION OF CUTTING TOOLS.

Certificate Number:	ES108200-1
Original approval date:	04-07-2001
Certification/Renovation Audit:	14-10-2019
Expiry date of previous cycle:	29-11-2019
Effective date:	30-11-2019
Certificate expiration date:	29-11-2022

Certification Manager:

This certificate is valid, subject to the general and specific terms and conditions of certification services

Certification Body: Bureau Veritas Iberia S.L.
C/ Valportillo Primera 22-24, Edificio Caoba, Pol. Ind. La granja,
28108 Alcobendas - Madrid, España

ENAC
CERTIFICACIÓN
Nº 04/C-SC004

Can we Help you?

ATENCION AL CLIENTE NACIONAL
Tel. +34 943 33 50 40
Fax +34 943 33 52 24
ventas@hepyc.com

EXPORT CUSTOMER SERVICE
Tel. +34 943 33 60 03
Fax +34 943 33 52 24
export@hepyc.com

S.A.T
Tel: +34 943 33 52 26
Fax: +34 943 33 52 24
sat@hepyc.com

SEDE SOCIAL / HEAD OFFICE
Pol. Ind. Ibarluce 57 - E Izq.
20120 Hernani (Spain)
Tel. +34 943 33 52 25
Fax +34 943 33 52 24
ventas@hepyc.com

HEPYC CATALUÑA
C/Xarol, 12 - B
08915 Badalona (Spain)
Tel. +34 933 87 32 99
Fax +34 933 83 33 08
vendes@hepyc.com

HEPYC MADRID
C/ Conde Vistahermosa, 46
28019 Madrid (Spain)
Tel. +34 915 69 81 05
Fax +34 915 65 97 91
madrid@hepyc.com