



**HERRAMIENTAS  
DE CORTE**  
CATÁLOGO

**CUTTING TOOLS**  
CATALOGUE



**2023**v.SP

### PRESENCIA INTERNACIONAL

**Tivoly (NECO)** está integrado dentro de la multinacional francesa Groupe Tivoly, uno de los líderes mundiales en la fabricación de herramientas de corte y laminación, que cuenta con centros productivos en Francia, España, EE.UU, Inglaterra y China.

### INTERNATIONAL PRESENCE

**Tivoly (NECO)** is integrated in to the French multinational Groupe Tivoly, one of the world wide leading groups in the manufacturing of cutting and rolling tools, which has productive centres in France, Spain, U.S.A, England and China.





## **DISEÑO Y FABRICACIÓN**

HERRAMIENTAS DE CORTE Y ACCESORIOS  
PARA HERRAMIENTA ELECTROPORTÁTIL

**Tivoly (NECO)** es el primer fabricante nacional de herramienta de corte. Con la gama más completa del mercado (brocas, machos de roscar, fresas, escariadores, avellanadores, rodillos, peines y herramienta especial), un servicio de asistencia técnica y un departamento de I+D+i propio, **NECO** es el principal referente de la herramienta de corte, capaz de garantizarlas más altas exigencias de calidad que demanda el mercado actual.



# PROCESO FABRICACIÓN DE MACHOS / TAPS MANUFACTURING PROCESS



## 1. MATERIA PRIMA / RAW MATERIAL



## 2. CORTE-TORNEADO / CUTTING-TURNING



## 3. TRAT. TÉRMICO / HEAT TREATMENT



## 4. ACANALADO / CORRUGATED



## 5. ROSCADO / THREADED



## 6. CONTROL FINAL / FINAL CHECK



## 7. MARCADO LASER - ENVASADO

LASER MARKING - PACKAGING



## DESIGNER & MANUFACTURER

CUTTING TOOLS & POWER TOOL ACCESSORIES

**Tivoly (NECO)** is one of the major manufacturers of cutting tools. With one of the widest ranges in the market (drills, taps, milling cutters, reamers, countersinks reamers, rollers, screw chasers and special tool), a technical assistance service as well as an own R+D+i department, **Tivoly** is one of the main references in the cutting tool, being capable to guarantee the highest quality requirements demanded by the current market.





# ÍNDICE GENERAL 2023

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# GUIA SELECCIÓN BROCAS / METAL DRILL BITS

Tipo de material a mecanizar	Calidad recomendada	TIPO AGUJERO	NORMA	TIPO GEOMETRIA	Referencia TIVOLY	Página
<b>P1</b> ACEROS BLANDOS < 500 N/mm <sup>2</sup>	<b>HSS</b>	Poco profundos < 2 x ø	<b>DIN 1897</b>	TIPO N	<b>026</b>	14
		Profundidad media < 3 x ø	<b>DIN 338</b>	TIPO N	<b>530</b>	23
				PUNTA ESCALONADA	<b>570</b>	30
				STEAM TIN	<b>531</b>	27
				IZQUIERDA	<b>006</b>	26
		Profundos < 7 x ø	<b>DIN 340</b>	SERIE LARGA	<b>056</b>	38
		Muy profundos > 10 x ø	<b>DIN 1869</b>	SERIE EXTRA-LARGA	<b>154</b>	41
		ø10 ÷ ø25 mm	<b>DIN 338</b>	MANGO REDUCIDO	<b>378</b>	25
		> ø25 mm	<b>DIN 345</b>	MANGO CÓNICO	<b>379</b>	45
<b>098</b>	47					
<b>DIN 341</b>	CÓNICA LARGA		<b>110</b>	50		
<b>P2</b> ACEROS SEMI-DUROS < 700 N/mm <sup>2</sup>	<b>HSSE5</b>	Poco profundos < 2 x ø	<b>DIN 1897</b>	TIPO N	<b>028</b>	15
				TIPO S	<b>029</b>	19
		Profundidad media < 3 x ø	<b>DIN 338</b>	TIPO N	<b>550</b>	31
		Profundos < 7 x ø	<b>DIN 340</b>	SERIE LARGA	<b>057</b>	39
				SERIE LARGA	<b>042</b>	39
		Muy profundos > 10 x ø	<b>DIN 1869</b>	SERIE EXTRA-LARGA	<b>067</b>	42
		ø10 ÷ ø25 mm	<b>DIN 338</b>	MANGO REDUCIDO	<b>556</b>	32
> ø25 mm	<b>DIN 345</b>	MANGO CÓNICO	<b>105</b>	48		
<b>P3</b> ACEROS DUROS < 1000 N/mm <sup>2</sup>	<b>HSS Ti2CN</b>	Profundidad media < 3 x ø	<b>DIN 338</b>	FURIUS	<b>541</b>	28
				PUNTA ESCALONADA	<b>571</b>	30
<b>P4</b> ACEROS MUY DUROS < 1200 N/mm <sup>2</sup>	<b>HSS</b>	Profundidad media < 3 x ø	<b>DIN 338</b>	PUNTA METAL DURO	<b>020</b>	69
	<b>HSSE5 TiALN</b>	< 3 x ø	<b>DIN 1897</b>	TBX	<b>391</b>	17
		Profundidad media < 3 x ø	<b>DIN 338</b>	TBX	<b>561</b>	34
				TIPO S	<b>392</b>	37
	<b>METAL DURO INTEGRAL</b>	< 3 x ø	<b>DIN 6537K</b>	POLARIS	<b>150</b>	66
		< 5 x ø			<b>170</b>	67

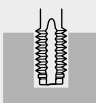
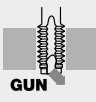

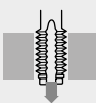


# GUIA SELECCIÓN BROCAS / METAL DRILL BITS

Tipo de material a mecanizar	Calidad recomendada	TIPO AGUJERO	NORMA	TIPO GEOMETRIA	Referencia TIVOLY	Página
<b>P4</b> ACEROS EXTRA DUROS > 1200 N/mm <sup>2</sup>	<b>METAL DURO INTEGRAL</b>	< 2 x ø	<b>DIN 6537K</b>	SIRIUS III	<b>220</b>	60
		< 3 x ø			<b>320</b>	62
		< 5 x ø			<b>520</b>	64
<b>S</b> ALEACIONES REFRACTARIAS Y DE TITANIO	<b>HSSE8</b>	Poco profundos < 2 x ø	<b>DIN 1897</b>	TIPO N	<b>031</b>	21
		Profundidad media < 3 x ø	<b>DIN 338</b>	TIPO N	<b>016</b>	35
		Profundos < 7 x ø	<b>DIN 340</b>	TIPO N	<b>048</b>	40
	<b>METAL DURO INTEGRAL</b>	< 2 x ø	<b>DIN 6537K</b>	SIRIUS III	<b>220</b>	60
		< 3 x ø			<b>320</b>	62
		< 5 x ø			<b>520</b>	64
		< 3 x ø	<b>DIN 6537K</b>	POLARIS	<b>150</b>	66
		< 5 x ø			<b>170</b>	67
<b>P5</b> ACEROS INOXIDABLES FERRÍTICOS	<b>HSSE5</b>	< 2 x ø	<b>DIN 1897</b>	TIPO N	<b>028</b>	15
		< 2 x ø	<b>DIN 338</b>	TIPO S	<b>029</b>	19
		< 3 x ø		TIPO N	<b>550</b>	31
		< 3 x ø	<b>DIN 340</b>	MANGO REDUCIDO	<b>556</b>	32
		< 3 x ø		CUTINOX	<b>558</b>	33
		< 7 x ø		SERIE LARGA	<b>057</b>	39
		< 7 x ø	<b>DIN 345</b>	SERIE LARGA	<b>042</b>	39
		> ø25 mm		MANGO CÓNICO	<b>105</b>	49
<b>P-M</b> ACEROS INOXIDABLES FERRÍTICOS, MARTENSÍTICOS Y AUSTENÍTICOS	<b>HSSE5 TiAIN</b>	< 2 x ø	<b>DIN 1897</b>	TIPO S	<b>391</b>	17
		< 3 x ø	<b>DIN 338</b>	TBX	<b>561</b>	34
		< 3 x ø		TIPO S	<b>392</b>	37
<b>K</b> FUNDICIONES	<b>HSSE5 TiAIN</b>	< 2 x ø	<b>DIN 1897</b>	TIPO S	<b>391</b>	17
		< 3 x ø	<b>DIN 338</b>	TIPO S	<b>392</b>	37
<b>N</b> ALUMINIOS	<b>HSS</b>	< 3 x ø	<b>DIN 338</b>	TIPO S	<b>007</b>	29
	<b>HSSE5 TiAIN</b>	< 2 x ø	<b>DIN 1897</b>	TIPO S	<b>391</b>	17
		< 3 x ø	<b>DIN 338</b>	TIPO S	<b>392</b>	37


















	Material a mecanizar	ROSCA	TIPO	Referencia TIVOLY	Página
<b>MACHOS DE MANO</b>	<b>P1</b> ACEROS BLANDOS < 500 N/mm <sup>2</sup>	<b>M-MF</b>	DCHA	<b>151-152</b>	86
			IZDA	<b>108-106</b>	89
		<b>UNC-UNF</b>	DCHA	<b>101-102</b>	91
		<b>BSW-BSF</b>	DCHA	<b>101-102</b>	93
		<b>BSP GAS</b>	DCHA	<b>102</b>	94
			IZDA	<b>106</b>	94
	<b>P2</b> ACEROS SEMI-DUROS < 700 N/mm <sup>2</sup>	<b>M-MF</b>	DCHA	<b>101-102</b>	126
			<b>BSP GAS</b>	DCHA	<b>142</b>
	<b>P3</b> ACEROS MUY DUROS < 1200 N/mm <sup>2</sup>	<b>M-MF</b>	DCHA	<b>103</b>	90
	<b>P-M</b> ACEROS INOXIDABLES	<b>M-MF</b>	DCHA	<b>103</b>	90
			DCHA	<b>101-102</b>	126
	<b>K</b> FUNDICIONES	<b>M-MF</b>	DCHA	<b>101-102</b>	126

MACHOS DE MÁQUINA

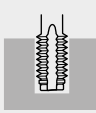
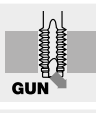

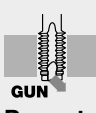

Material a mecanizar	TIPO AGUJERO	ROSCA	Características	Referencia TIVOLY	Página		
<p><b>P1</b> <b>P2</b></p> <p>ACEROS SEMI-DUROS &lt; 700 N/mm<sup>2</sup></p>	 Ciego corto < 1,5 x Ø	M-MF		<b>201-301</b>	96		
		UNC-UNF			111		
		BSW			117		
				BSP GAS		<b>301</b>	120
				NPT			122
				PG			124
	 GUN Pasante	M-MF			<b>252-352</b>	99	
		M	TOLERANCIA 6G		<b>222</b>	102	
			TOLERANCIA 4H (MJ)		<b>212</b>	103	
			ROSCA IZQUIERDA		<b>002</b>	102	
			XL EXTRALARGO		<b>272</b>	107	
			SOBREMEDIDA +0,1		<b>042</b>	108	
		M-MF	PARA TUERCAS		<b>401</b>	109	
		EG	INSERT		<b>056</b>	110	
		UNC-UNF			<b>202-302</b>	113	
		BSW		110			
	BSP GAS			<b>302</b>	120		
	 Ciego	M-MF			<b>255-355</b>	104	
		M	TOLERANCIA 6G		<b>225</b>	106	
			TOLERANCIA 4H (MJ)		<b>215</b>	103	
			ROSCA IZQUIERDA		<b>005</b>	106	
			XL EXTRALARGO		<b>275</b>	107	
			SOBREMEDIDA +0,1		<b>045</b>	108	
			FORMA E		<b>055</b>	109	
		EG	INSERT		<b>057</b>	110	
		UNC-UNF			<b>205-305</b>	115	
		BSW		119			
		BSP GAS	15°		<b>303</b>	121	
		35°		<b>305</b>	121		
	 Pasante / ciego	BSP GAS			<b>301</b>	120	
		NPT			<b>310</b>	122	
			LARGO		<b>301</b>	122	



MACHOS DE MÁQUINA

	Material a mecanizar	TIPO AGUJERO	ROSCA	Características	Referencia TIVOLY	Página	
<b>P3</b> ACEROS DUROS < 1000 N/mm <sup>2</sup>	 Pasante		M-MF	VAPORIZADO	202-302	129	
			M-MF	HSSE TiN	ST2	142	
			UNC-UNF	HSSE TiN	ST2	143	
		 Ciego	M-MF	VAPORIZADO	205-305	132	
			M-MF	HSSE TiN	ST5	142	
			UNC-UNF	HSSE TiN	ST5	143	
	<b>P4</b> ACEROS MUY DUROS < 1200 N/mm <sup>2</sup>	 Pasante		M	HSSE PM8 HCUT	MV2	139
				M-MF	HSSE PM TiCN	IT2	144
				UNC-UNF	HSSE PM TiCN	IT2	145
				 Ciego	M	HSSE PM8 HCUT	MV5
		M-MF	HSSE PM TiCN		IT5	144	
		UNC-UNF	HSSE PM TiCN		IT5	145	
BSP GAS		HSSE PM TiCN	IT5		146		
<b>P4</b> ACEROS EXTRA DUROS > 1200 N/mm <sup>2</sup>		 Pasante		M	HSSE PM8 HC	HT2	156
				 Ciego	M	HSSE PM8 HC	HT3
		 Pasante			M	HSSE PM8 HC	HT2
				 Ciego		M	HSSE PM8 HC
<b>P-M</b> ACEROS INOXIDABLES		 Pasante				M-MF	VAPORIZADO
	HSSE PM VAPORIZADO			582-682	135		
	BSP GAS			VAPORIZADO	342	134	
	M-MF			HSSE PM TiCN	IT2	144	
	UNC-UNF			HSSE PM TiCN	IT2	145	
	 Ciego				M-MF	VAPORIZADO	205-305
		HSSE PM VAPORIZADO	585-685		136		
		BSP GAS	VAPORIZADO		345	134	
		M-MF	HSSE PM TiCN		IT5	144	
		UNC-UNF	HSSE PM TiCN		IT5	145	
		BSP GAS	HSSE PM TiCN		IT5	146	

# GUIA SELECCIÓN MACHOS DE MÁQUINA / MACHINE TAPPING

	Material a mecanizar	TIPO AGUJERO	ROSCA	Características	Referencia TIVOLY	Página	
<b>MACHOS DE MÁQUINA</b>	<b>K</b> FUNDICIONES	 Ciego corto < 1,5 x Ø	<b>M-MF</b>	VAPORIZADO	<b>241</b>	149	
				HSSE PM TiCN	<b>CT1</b>	161	
			<b>UNC-UNF</b>	HSSE PM TiCN	<b>CT1</b>	162	
				<b>BSP GAS</b>	HSSE PM TiCN	<b>CT1</b>	162
		 Pasante	<b>M-MF</b>	VAPORIZADO	<b>202-302</b>	141	
			<b>BSP GAS</b>	VAPORIZADO	<b>342</b>	146	
		 Ciego	<b>M-MF</b>	VAPORIZADO	<b>205-305</b>	144	
			<b>BSP GAS</b>	VAPORIZADO	<b>345</b>	146	
	<b>N3-4</b> LATÓN / BRONCE	Ciego corto < 1,5 x Ø	<b>M-MF</b>		<b>BT1</b>	159	
			<b>UNC-UNF</b>		<b>BT1</b>	160	
			<b>BSP GAS</b>		<b>BT1</b>	160	
	<b>N</b> ALEACIONES DE ALUMINIO	 Pasante	<b>M-MF</b>	HSSE PM TIN	<b>AT2</b>	163	
			<b>UNC-UNF</b>	HSSE PM TIN		164	
			<b>M</b>	HSSE PM CRNPLUS	<b>MT2</b>	165	
			<b>M</b>	HSSE PM	<b>508-608</b>	166	
 Ciego		<b>M-MF</b>	HSSE PM TIN	<b>AT5</b>	163		
		<b>UNC-UNF</b>	HSSE PM TIN		164		
		<b>M</b>	HSSE PM CRNPLUS	<b>MT5</b>	165		
		<b>M</b>	HSSE PM	<b>506-606</b>	167		
<b>MACHOS DE LAMINACIÓN</b>	<b>P2</b> ACEROS SEMI-DUROS < 700 N/mm <sup>2</sup> GENERAL	< 1 x Ø	<b>M</b>	N0	<b>6HX</b>	<b>GSH</b>	170
			<b>M</b>		<b>6GX</b>		
	<b>P3</b> ACEROS DUROS < 1000 N/mm <sup>2</sup>	< 3 x Ø	<b>M-MF</b>	SI	<b>6HX</b>	<b>SRH</b>	171
			<b>M</b>		<b>6GX</b>		
	<b>S</b> ALEACIONES REFRACTARIAS Co/Ni	< 3 x Ø	<b>M-MF</b>	SI	<b>6HX</b>	<b>SRH</b>	171
			<b>M</b>		<b>6GX</b>		
	<b>P-M</b> INOXIDABLES	< 3 x Ø	<b>M-MF</b>	SI	<b>6HX</b>	<b>IRH</b>	172
			<b>M</b>		<b>6GX</b>		
	<b>N</b> ALUMINIO	< 1 x Ø	<b>M-MF</b>	N0	<b>6HX</b>	<b>ASH</b>	173
		< 3 x Ø	<b>MF</b>	SI		<b>ARH</b>	
		< 1 x Ø	<b>M-MF</b>	N0	<b>6GX</b>	<b>ASG</b>	174
		< 3 x Ø	<b>MF</b>	SI		<b>ARG</b>	



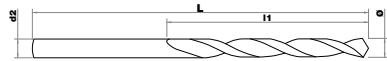


<b>BROCAS ACERO RÁPIDO</b>	<b>14</b>
HSS BITS	
<b>BROCAS METAL DURO</b>	<b>60</b>
CARBIDE BITS	
<b>BROCAS BIDIAMETRALES</b>	<b>52</b>
SUBLAND DRILLS	
<b>BROCAS ESCALONADAS</b>	<b>53</b>
STEP DRILLS	
<b>BROCAS PARA PUNTEAR</b>	<b>54</b>
SPOTTING DRILLS	
<b>BROCAS DE CENTRAR</b>	<b>55</b>
CARBIDE BITS	
<b>ESTUCHES</b>	<b>57</b>
SETS	
<b>AFILADORES</b>	<b>71</b>
DRILL SHARPENER	

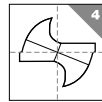
# 026

## BROCA HSS DIN 1897 Taladrados poco profundos <2xd Aceros blandos hasta 400 N/mm<sup>2</sup>

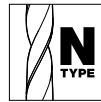
Little deep drilling <2xd Soft steels up to 400 N/mm<sup>2</sup>



Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



SPLIT POINT



	Vc
	M/min
<b>P1</b>	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1140261	Ø	d2	L	l1	Ø	€
11402610100	1,00	1,00	26	6	10	2,38
11402610110	1,10	1,10	26	6	10	2,38
11402610120	1,20	1,20	26	6	10	2,38
11402610125	1,25	1,25	30	8	10	2,38
11402610130	1,30	1,30	30	8	10	2,38
11402610140	1,40	1,40	30	8	10	2,38
11402610150	1,50	1,50	32	9	10	2,11
11402610160	1,60	1,60	32	9	10	2,82
11402610170	1,70	1,70	32	9	10	2,82
11402610175	1,75	1,75	36	11	10	2,82
11402610190	1,90	1,90	36	11	10	2,82
11402610180	1,80	1,80	36	11	10	2,82
11402610200	2,00	2,00	38	12	10	1,06
11402610210	2,10	2,10	38	12	10	1,33
11402610220	2,20	2,20	40	13	10	1,33
11402610225	2,25	2,25	40	13	10	1,33
11402610230	2,30	2,30	40	13	10	1,33
11402610240	2,40	2,40	40	13	10	1,33
11402610250	2,50	2,50	43	14	10	1,06
11402610260	2,60	2,60	43	14	10	1,37
11402610270	2,70	2,70	43	14	10	1,37
11402610275	2,75	2,75	43	14	10	1,37
11402610280	2,80	2,80	46	16	10	1,37
11402610285	2,85	2,85	46	16	10	1,37
11402610290	2,90	2,90	46	16	10	1,37
11402610300	3,00	3,00	46	16	10	1,11
11402610310	3,10	3,10	46	16	10	1,48
11402610320	3,20	3,20	49	18	10	1,48
11402610325	3,25	3,25	49	18	10	1,20
11402610330	3,30	3,30	49	18	10	1,48
11402610340	3,40	3,40	49	18	10	1,48
11402610350	3,50	3,50	52	20	10	1,20
11402610360	3,60	3,60	52	20	10	1,33
11402610370	3,70	3,70	52	20	10	1,33
11402610375	3,75	3,75	52	20	10	1,33
11402610380	3,80	3,80	52	20	10	1,60
11402610390	3,90	3,90	52	20	10	1,60
11402610400	4,00	4,00	55	22	10	1,33
11402610410	4,10	4,10	55	22	10	1,59
11402610420	4,20	4,20	55	22	10	1,59
11402610425	4,25	4,25	55	22	10	1,59
11402610430	4,30	4,30	55	22	10	1,60
11402610450	4,50	4,50	58	24	10	1,60
11402610475	4,75	4,75	58	24	10	1,60
11402610480	4,80	4,80	58	24	10	2,16
11402610490	4,90	4,90	58	24	10	2,16
11402610500	5,00	5,00	62	26	10	1,80
11402610510	5,10	5,10	62	26	10	2,39
11402610520	5,20	5,20	62	26	10	2,39

1140261	Ø	d2	L	l1	Ø	€
11402610525	5,25	5,25	62	26	10	1,95
11402610530	5,30	5,30	62	26	10	1,95
11402610540	5,40	5,40	62	26	10	1,95
11402610550	5,50	5,50	66	28	10	1,95
11402610560	5,60	5,60	66	28	10	2,27
11402610570	5,70	5,70	66	28	10	2,27
11402610575	5,75	5,75	66	28	10	2,27
11402610580	5,80	5,80	66	28	10	2,67
11402610590	5,90	5,90	66	28	10	2,67
11402610600	6,00	6,00	66	28	10	2,27
11402610610	6,10	6,10	66	28	10	2,66
11402610620	6,20	6,20	66	28	10	2,66
11402610625	6,25	6,25	66	28	10	2,66
11402610630	6,30	6,30	70	31	10	2,66
11402610640	6,40	6,40	70	31	10	2,66
11402610650	6,50	6,50	70	31	10	2,66
11402610660	6,60	6,60	70	31	10	3,14
11402610670	6,70	6,70	70	31	10	3,14
11402610675	6,75	6,75	74	34	10	3,14
11402610680	6,80	6,80	74	34	10	3,14
11402610690	6,90	6,90	74	34	10	3,14
11402610700	7,00	7,00	74	34	10	3,14
11402610725	7,25	7,25	74	34	10	3,52
11402610750	7,50	7,50	74	34	10	3,52
11402610775	7,75	7,75	79	37	10	3,87
11402610800	8,00	8,00	79	37	10	3,87
11402610825	8,25	8,25	79	37	5	4,59
11402610850	8,50	8,50	79	37	5	4,59
11402610875	8,75	8,75	84	40	5	4,59
11402610880	8,80	8,80	84	40	5	4,59
11402610900	9,00	9,00	84	40	5	5,04
11402610925	9,25	9,25	84	40	5	5,04
11402610950	9,50	9,50	84	40	5	5,63
11402610975	9,75	9,75	84	40	5	6,30
11402611000	10,00	10,00	89	43	5	6,30
11402611050	10,50	10,50	89	43	5	7,09
11402611100	11,00	11,00	95	47	5	7,93
11402611125	11,25	11,25	95	47	5	8,80
11402611150	11,50	11,50	95	47	5	8,80
11402611180	11,80	11,80	95	47	5	9,31
11402611200	12,00	12,00	102	51	5	9,31
11402611250	12,50	12,50	102	51	5	10,42
11402611275	12,75	12,75	102	51	5	11,40
11402611300	13,00	13,00	102	51	5	11,40
11402611350	13,50	13,50	107	54	1	13,23
11402611400	14,00	14,00	107	54	1	14,06
11402611450	14,50	14,50	111	56	1	16,32
11402611500	15,00	15,00	111	56	1	17,64

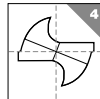
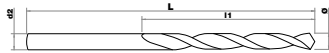
# 028

## BROCA HSSE5 DIN 1897

Taladrados poco profundos <2xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables.

Little deep drilling <2xd | Semi-hard steels up to 700 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>



Acero inoxidable ferrítico  
Ferritic stainless steel



Vc	
M/min	
P1	26-32
P2	20-28
P5	14-16

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1140281	Ø	d2	L	I2	10	€
11402810100	1,00	1,00	26	6	10	1,25
11402810105	1,05	1,05	26	6	10	1,25
11402810150	1,50	1,50	32	9	10	1,25
11402810190	1,90	1,90	36	11	10	1,25
11402810200	2,00	2,00	38	12	10	1,25
11402810210	2,10	2,10	38	12	10	1,25
11402810220	2,20	2,20	40	13	10	1,89
11402810230	2,30	2,30	40	13	10	1,89
11402810240	2,40	2,40	40	13	10	1,89
11402810250	2,50	2,50	43	14	10	1,83
11402810260	2,60	2,60	43	14	10	1,92
11402810270	2,70	2,70	43	14	10	1,92
11402810275	2,75	2,75	46	16	10	1,92
11402810285	2,85	2,85	46	16	10	1,92
11402810290	2,90	2,90	46	16	10	1,92
11402810300	3,00	3,00	46	16	10	1,91
11402810310	3,10	3,10	46	16	10	2,07
11402810320	3,20	3,20	49	18	10	2,07
11402810325	3,25	3,25	49	18	10	1,95
11402810330	3,30	3,30	49	18	10	2,12
11402810340	3,40	3,40	49	18	10	2,12
11402810350	3,50	3,50	52	20	10	2,04
11402810360	3,60	3,60	52	20	10	2,24
11402810375	3,75	3,75	52	20	10	2,24
11402810380	3,80	3,80	52	20	10	2,27
11402810400	4,00	4,00	55	22	10	2,27
11402810410	4,10	4,10	55	22	10	2,62
11402810420	4,20	4,20	55	22	10	2,62
11402810425	4,25	4,25	55	22	10	2,50
11402810430	4,30	4,30	55	22	10	2,50
11402810450	4,50	4,50	58	24	10	2,59
11402810480	4,80	4,80	58	24	10	2,73
11402810485	4,85	4,85	58	24	10	2,73
11402810490	4,90	4,90	58	24	10	2,73
11402810500	5,00	5,00	62	26	10	2,93
11402810510	5,10	5,10	62	26	10	2,93
11402810520	5,20	5,20	62	26	10	2,93
11402810525	5,25	5,25	62	26	10	2,82
11402810530	5,30	5,30	62	26	10	3,02
11402810540	5,40	5,40	62	26	10	3,02
11402810550	5,50	5,50	66	28	10	3,02
11402810560	5,60	5,60	66	28	10	3,02
11402810570	5,70	5,70	66	28	10	3,02
11402810575	5,75	5,75	66	28	10	3,02

1140281	Ø	d2	L	I2	10	€
11402810580	5,80	5,80	66	28	10	3,29
11402810590	5,90	5,90	66	28	10	3,29
11402810600	6,00	6,00	66	28	10	3,29
11402810620	6,20	6,20	66	28	10	3,29
11402810625	6,25	6,25	66	28	10	3,29
11402810630	6,30	6,30	70	31	10	3,29
11402810640	6,40	6,40	70	31	10	3,29
11402810650	6,50	6,50	70	31	10	3,83
11402810675	6,75	6,75	70	31	10	5,14
11402810680	6,80	6,80	74	34	10	5,14
11402810700	7,00	7,00	74	34	10	4,20
11402810750	7,50	7,50	74	34	10	5,38
11402810800	8,00	8,00	79	37	10	5,93
11402810825	8,25	8,25	79	37	5	6,39
11402810850	8,50	8,50	79	37	5	6,39
11402810875	8,75	8,75	84	40	5	6,39
11402810900	9,00	9,00	84	40	5	7,27
11402810950	9,50	9,50	84	40	5	7,66
11402810975	9,75	9,75	89	43	5	8,51
11402811000	10,00	10,00	89	43	5	8,51
11402811050	10,50	10,50	89	43	5	8,82
11402811070	10,70	10,70	89	43	5	9,54
11402811100	11,00	11,00	95	47	5	9,54
11402811150	11,50	11,50	95	47	5	9,92
11402811200	12,00	12,00	102	51	5	11,03
11402811250	12,50	12,50	102	51	5	11,03
11402811300	13,00	13,00	102	51	5	11,50



114550 > HSSE5 DIN338 > pág. 31



114556 > HSSE5 DIN338 M/Red > pág. 32



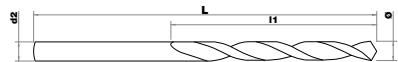
114057 > HSSE5 DIN340 > pág. 39

# 027 BROCA HSS DOBLE PUNTA DIN 1897

Taladrados poco profundos <1xd  
Aceros blandos hasta 400 N/mm<sup>2</sup>

HSS Drill double ended DIN 1897 | Little deep <1x | Soft seels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



HSS
STEAM TREATED
DIN 1897
1xd
h8

<b>Vc</b>
<b>M/min</b>
<b>P1</b> 26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1140271	Ø	d2	L	I1		€
11402710200	2,00	2,00	38	10	1	7,55
11402710220	2,20	2,20	40	10	1	7,20
11402710225	2,25	2,25	40	13	1	7,20
11402710250	2,50	2,50	43	10	1	4,35
11402710275	2,75	2,75	46	16	1	4,35
11402710300	3,00	3,00	46	10	1	3,84
11402710310	3,10	3,10	49	10	1	6,30
11402710320	3,20	3,20	49	10	1	4,01
11402710330	3,30	3,30	49	10	1	4,01
11402710350	3,50	3,50	52	13	1	4,29
11402710375	3,75	3,75	52	13	1	4,29
11402710380	3,80	3,80	55	13	1	7,55
11402710400	4,00	4,00	55	13	1	4,35
11402710410	4,10	4,10	55	13	1	4,39
11402710420	4,20	4,20	55	13	1	4,39
11402710450	4,50	4,50	58	13	1	4,86
11402710480	4,80	4,80	62	16	1	11,19

1140271	Ø	d2	L	I1		€
11402710490	4,90	4,90	62	16	1	8,28
11402710500	5,00	5,00	62	16	1	5,52
11402710510	5,10	5,10	62	16	1	7,85
11402710520	5,20	5,20	62	16	1	7,85
11402710550	5,50	5,50	66	19	1	11,52
11402710575	5,75	5,75	66	19	1	11,52
11402710600	6,00	6,00	66	19	1	7,44
11402710625	6,25	6,25	70	19	1	14,24
11402710650	6,50	6,50	70	19	1	14,24
11402710700	7,00	7,00	74	19	1	16,92
11402710750	7,50	7,50	74	19	1	12,02
11402710800	8,00	8,00	79	22	1	12,02
11402710850	8,50	8,50	79	22	1	22,03
11402710900	9,00	9,00	84	22	1	22,03
11402711000	10,00	10,00	89	22	1	23,55

# 374 BROCA HSS PARA PUNTOS DE SOLDADURA

Chapas y plásticos.

HSS Stub length drill | For sheet metal and plastics

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



Termoplásticos  
Thermoplastics



HSS
BRIGHT UNCOATED
DIN 1897
1xd

<b>Vc</b>
<b>M/min</b>
<b>P1</b> 26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1143741	Ø	d2	L	I1		€
11437410300	3,00	3,00	46	16	10	2,72
11437410350	3,50	3,50	52	20	10	3,22
11437410400	4,00	4,00	55	22	10	3,57
11437410420	4,20	4,20	55	22	10	3,97
11437410450	4,50	4,50	58	24	10	4,08

1143741	Ø	d2	L	I1		€
11437410500	5,00	5,00	62	26	10	4,37
11437410550	5,50	5,50	66	28	10	5,77
11437410600	6,00	6,00	66	28	10	5,92
11437410800	8,00	8,00	79	37	10	10,12
11437411000	10,00	10,00	89	43	5	15,77



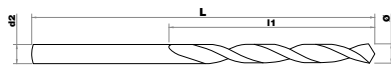
# 391

## BROCA HSSE5 DIN1897 TiALN

### Taladrados poco profundos <2xd

### Aceros duros hasta 1200 N/mm<sup>2</sup> e inoxidables

HSSE5 TiALN | Little deep drilling < 2xd  
Hard steels up to 1200 n/mm<sup>2</sup> and stainless steels



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

	Vc
	M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P4</b>	6-16
<b>P5</b>	14-16
<b>P6</b>	10-14
<b>M1</b>	8-12
<b>K3</b>	12-16
<b>N</b>	30-40

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>



Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)  
Alloyed steel 800-1000 N/mm<sup>2</sup> (23-32 HRC)



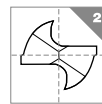
Aceros inoxidables  
Stainless steels



Fundición dúctil grafito esferoidal (GGG)  
Ductile cast iron spheroidal graphite (GGG)



Aleaciones de aluminio  
Aluminum Alloys



8143911	Ø	d2	L	I1		€
81439110200	2,00	2,00	38	12	10	13,04
81439110210	2,10	2,10	38	12	10	12,32
81439110220	2,20	2,20	40	13	10	12,59
81439110230	2,30	2,30	40	13	10	12,86
81439110240	2,40	2,40	43	14	10	13,35
81439110250	2,50	2,50	43	14	10	13,23
81439110260	2,60	2,60	43	14	10	13,23
81439110270	2,70	2,70	46	16	10	13,46
81439110280	2,80	2,80	46	16	10	13,62
81439110290	2,90	2,90	46	16	10	13,70
81439110300	3,00	3,00	46	16	10	13,76
81439110310	3,10	3,10	49	18	10	13,79
81439110320	3,20	3,20	49	18	10	13,40
81439110330	3,30	3,30	49	18	10	14,59
81439110340	3,40	3,40	52	20	10	14,36
81439110350	3,50	3,50	52	20	10	15,02
81439110360	3,60	3,60	52	20	10	14,63
81439110370	3,70	3,70	52	20	10	14,63
81439110380	3,80	3,80	55	22	10	14,92
81439110390	3,90	3,90	55	22	10	14,94
81439110400	4,00	4,00	55	22	10	15,62
81439110410	4,10	4,10	55	22	10	15,62
81439110420	4,20	4,20	55	22	10	15,62
81439110430	4,30	4,30	58	24	10	16,40
81439110440	4,40	4,40	58	24	10	16,65
81439110450	4,50	4,50	58	24	10	16,86
81439110460	4,60	4,60	58	24	10	16,86
81439110470	4,70	4,70	58	24	10	16,86
81439110480	4,80	4,80	62	26	10	17,21
81439110490	4,90	4,90	62	26	10	17,42
81439110500	5,00	5,00	62	26	10	17,63
81439110510	5,10	5,10	62	26	10	17,90
81439110520	5,20	5,20	62	26	10	18,56
81439110530	5,30	5,30	62	26	10	19,00
81439110540	5,40	5,40	66	28	10	20,52
81439110550	5,50	5,50	66	28	10	20,58
81439110560	5,60	5,60	66	28	10	20,89
81439110570	5,70	5,70	66	28	10	20,89
81439110580	5,80	5,80	66	28	10	21,10
81439110590	5,90	5,90	66	28	10	21,10
81439110600	6,00	6,00	66	28	10	20,58
81439110610	6,10	6,10	70	31	10	28,77

8143911	Ø	d2	L	I1		€
81439110620	6,20	6,20	70	31	10	28,99
81439110630	6,30	6,30	70	31	10	29,22
81439110640	6,40	6,40	70	31	10	30,88
81439110650	6,50	6,50	70	31	10	29,81
81439110660	6,60	6,60	70	31	10	31,10
81439110670	6,70	6,70	70	31	10	31,36
81439110680	6,80	6,80	74	34	10	31,97
81439110690	6,90	6,90	74	34	10	32,19
81439110700	7,00	7,00	74	34	10	30,11
81439110710	7,10	7,10	74	34	10	36,19
81439110720	7,20	7,20	74	34	10	38,76
81439110730	7,30	7,30	74	34	10	36,80
81439110740	7,40	7,40	74	34	10	37,23
81439110750	7,50	7,50	74	34	10	31,68
81439110760	7,60	7,60	79	37	10	37,96
81439110770	7,70	7,70	79	37	10	37,96
81439110780	7,80	7,80	79	37	10	41,58
81439110790	7,90	7,90	79	37	10	40,73
81439110800	8,00	8,00	79	37	10	33,83
81439110810	8,10	8,10	79	37	5	41,25
81439110820	8,20	8,20	79	37	5	47,76
81439110830	8,30	8,30	79	37	5	42,75
81439110840	8,40	8,40	79	37	5	44,04
81439110850	8,50	8,50	79	37	5	39,62
81439110860	8,60	8,60	84	40	5	46,21
81439110870	8,70	8,70	84	40	5	46,21
81439110880	8,80	8,80	84	40	5	52,52
81439110890	8,90	8,90	84	40	5	49,12
81439110900	9,00	9,00	84	40	5	42,77
81439110910	9,10	9,10	84	40	5	47,60
81439110920	9,20	9,20	84	40	5	48,88
81439110930	9,30	9,30	84	40	5	48,88
81439110940	9,40	9,40	84	40	5	49,31
81439110950	9,50	9,50	84	40	5	45,18
81439110960	9,60	9,60	89	43	5	50,54
81439110970	9,70	9,70	89	43	5	51,85
81439110980	9,80	9,80	89	43	5	52,73
81439110990	9,90	9,90	89	43	5	54,05
81439111000	10,00	10,00	89	43	5	44,74
81439111010	10,10	10,10	89	43	5	55,06
81439111020	10,20	10,20	89	43	5	55,06
81439111030	10,30	10,30	89	43	5	55,06


**391****BROCA HSSE5 DIN1897 TiALN**

Taladros poco profundos &lt;2xd

Aceros duros hasta 1200 N/mm<sup>2</sup> e inoxidables

HSSE5 TiALN | Little deep drilling &lt; 2xd

Hard steels up to 1200 n/mm<sup>2</sup> and stainless steels

<b>8143911</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>l1</b>		<b>€</b>	<b>8143911</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>l1</b>		<b>€</b>
81439111040	<b>10,40</b>	10,40	89	43	5	<b>55,06</b>	81439111250	<b>12,50</b>	12,50	102	51	5	<b>82,72</b>
81439111050	<b>10,50</b>	10,50	89	43	5	<b>66,13</b>	81439111260	<b>12,60</b>	12,60	102	51	5	<b>85,19</b>
81439111060	<b>10,60</b>	10,60	89	43	5	<b>64,23</b>	81439111270	<b>12,70</b>	12,70	102	51	5	<b>85,19</b>
81439111070	<b>10,70</b>	10,70	95	47	5	<b>64,23</b>	81439111280	<b>12,80</b>	12,80	102	51	5	<b>85,19</b>
81439111080	<b>10,80</b>	10,80	95	47	5	<b>75,24</b>	81439111290	<b>12,90</b>	12,90	102	51	5	<b>85,19</b>
81439111090	<b>10,90</b>	10,90	95	47	5	<b>64,23</b>	81439111300	<b>13,00</b>	13,00	102	51	5	<b>90,98</b>
81439111100	<b>11,00</b>	11,00	95	47	5	<b>66,13</b>	81439111350	<b>13,50</b>	13,50	107	54	5	<b>94,94</b>
81439111110	<b>11,10</b>	11,10	95	47	5	<b>74,42</b>	81439111400	<b>14,00</b>	14,00	107	54	5	<b>96,41</b>
81439111120	<b>11,20</b>	11,20	95	47	5	<b>80,74</b>	81439111450	<b>14,50</b>	14,50	111	56	5	<b>114,38</b>
81439111130	<b>11,30</b>	11,30	95	47	5	<b>82,05</b>	81439111500	<b>15,00</b>	15,00	111	56	5	<b>113,94</b>
81439111140	<b>11,40</b>	11,40	95	47	5	<b>74,42</b>	81439111550	<b>15,50</b>	15,50	115	58	1	<b>125,29</b>
81439111150	<b>11,50</b>	11,50	95	47	5	<b>72,89</b>	81439111600	<b>16,00</b>	16,00	115	58	1	<b>119,27</b>
81439111160	<b>11,60</b>	11,60	95	47	5	<b>74,42</b>	81439111650	<b>16,50</b>	16,50	119	60	1	<b>130,58</b>
81439111170	<b>11,70</b>	11,70	95	47	5	<b>74,42</b>	81439111700	<b>17,00</b>	17,00	119	60	1	<b>131,72</b>
81439111180	<b>11,80</b>	11,80	95	47	5	<b>82,91</b>	81439111750	<b>17,50</b>	17,50	123	62	1	<b>134,18</b>
81439111190	<b>11,90</b>	11,90	102	51	5	<b>74,42</b>	81439111800	<b>18,00</b>	18,00	123	62	1	<b>135,59</b>
81439111200	<b>12,00</b>	12,00	102	51	5	<b>72,89</b>	81439111850	<b>18,50</b>	18,50	127	64	1	<b>140,24</b>
81439111210	<b>12,10</b>	12,10	102	51	5	<b>89,03</b>	81439111900	<b>19,00</b>	19,00	127	64	1	<b>142,03</b>
81439111220	<b>12,20</b>	12,20	102	51	5	<b>89,03</b>	81439111950	<b>19,50</b>	19,50	131	66	1	<b>145,57</b>
81439111230	<b>12,30</b>	12,30	102	51	5	<b>89,03</b>	81439112000	<b>20,00</b>	20,00	131	66	1	<b>147,35</b>
81439111240	<b>12,40</b>	12,40	102	51	5	<b>88,88</b>							



814392 &gt; HSSE5 DIN338 TiALN Hélice tipo "S" &gt; pág. 37

# 029

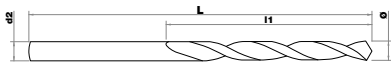
## BROCA HSSE5 DIN 1897

Taladrados poco profundos <2xd

Aceros semi-duros hasta 700N/mm<sup>2</sup> e inoxidable

Little deep drilling < 2xd | Semi-hard steels up to 700 N/mm<sup>2</sup> and stainless steels

New



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>

**P**  
1-2

Acero inoxidable ferrítico  
Ferritic stainless steel

**P**  
5

Aleaciones de aluminio  
Aluminum Alloys

**N**

	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P5</b>	14-16
<b>N</b>	30-40

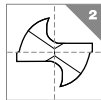
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**HSS E5**

**BRIGHT UNCOATED**

**DIN 1897**

**2xd**



**h8**



8140291	Ø	d2	L	H	Ø	€
81402910200	2,00	2,00	38	12	10	5,74
81402910210	2,10	2,10	38	12	10	5,63
81402910220	2,20	2,20	40	13	10	5,74
81402910230	2,30	2,30	40	13	10	5,74
81402910240	2,40	2,40	43	14	10	6,39
81402910250	2,50	2,50	43	14	10	5,82
81402910260	2,60	2,60	43	14	10	6,12
81402910270	2,70	2,70	46	16	10	6,48
81402910280	2,80	2,80	46	16	10	6,48
81402910290	2,90	2,90	46	16	10	6,48
81402910300	3,00	3,00	46	16	10	6,48
81402910310	3,10	3,10	49	18	10	6,71
81402910320	3,20	3,20	49	18	10	6,71
81402910330	3,30	3,30	49	18	10	6,71
81402910340	3,40	3,40	52	20	10	7,13
81402910350	3,50	3,50	52	20	10	7,13
81402910360	3,60	3,60	52	20	10	8,38
81402910370	3,70	3,70	52	20	10	7,24
81402910380	3,80	3,80	55	22	10	7,65
81402910390	3,90	3,90	55	22	10	7,65
81402910400	4,00	4,00	55	22	10	7,65
81402910410	4,10	4,10	55	22	10	7,65
81402910420	4,20	4,20	55	22	10	7,65
81402910430	4,30	4,30	58	24	10	9,31
81402910440	4,40	4,40	58	24	10	9,31
81402910450	4,50	4,50	58	24	10	9,31
81402910460	4,60	4,60	58	24	10	9,31
81402910470	4,70	4,70	58	24	10	9,31
81402910480	4,80	4,80	62	26	10	9,58
81402910490	4,90	4,90	62	26	10	9,58
81402910500	5,00	5,00	62	26	10	9,58
81402910510	5,10	5,10	62	26	10	10,14
81402910520	5,20	5,20	62	26	10	10,14
81402910530	5,30	5,30	62	26	10	10,58
81402910540	5,40	5,40	66	28	10	12,75
81402910550	5,50	5,50	66	28	10	12,55
81402910560	5,60	5,60	66	28	10	13,04
81402910570	5,70	5,70	66	28	10	13,04
81402910580	5,80	5,80	66	28	10	13,04
81402910590	5,90	5,90	66	28	10	13,04
81402910600	6,00	6,00	66	28	10	12,55
81402910610	6,10	6,10	70	31	10	13,73

8140291	Ø	d2	L	H	Ø	€
81402910620	6,20	6,20	70	31	10	13,73
81402910630	6,30	6,30	70	31	10	13,73
81402910640	6,40	6,40	70	31	10	15,37
81402910650	6,50	6,50	70	31	10	14,97
81402910660	6,60	6,60	70	31	10	15,37
81402910670	6,70	6,70	70	31	10	15,37
81402910680	6,80	6,80	74	34	10	15,80
81402910690	6,90	6,90	74	34	10	15,80
81402910700	7,00	7,00	74	34	10	15,12
81402910710	7,10	7,10	74	34	10	18,84
81402910720	7,20	7,20	74	34	10	22,90
81402910730	7,30	7,30	74	34	10	18,84
81402910740	7,40	7,40	74	34	10	18,84
81402910750	7,50	7,50	74	34	10	15,66
81402910760	7,60	7,60	79	37	10	19,75
81402910770	7,70	7,70	79	37	10	19,75
81402910780	7,80	7,80	79	37	10	25,54
81402910790	7,90	7,90	79	37	10	22,13
81402910800	8,00	8,00	79	37	10	18,73
81402910810	8,10	8,10	79	37	5	22,76
81402910820	8,20	8,20	79	37	5	26,73
81402910830	8,30	8,30	79	37	5	23,05
81402910840	8,40	8,40	79	37	5	23,05
81402910850	8,50	8,50	79	37	5	19,32
81402910860	8,60	8,60	84	40	5	25,22
81402910870	8,70	8,70	84	40	5	25,22
81402910880	8,80	8,80	84	40	5	31,16
81402910890	8,90	8,90	84	40	5	26,68
81402910900	9,00	9,00	84	40	5	22,14
81402910910	9,10	9,10	84	40	5	23,27
81402910920	9,20	9,20	84	40	5	23,27
81402910930	9,30	9,30	84	40	5	23,27
81402910940	9,40	9,40	84	40	5	23,27
81402910950	9,50	9,50	84	40	5	24,37
81402910960	9,60	9,60	89	43	5	24,19
81402910970	9,70	9,70	89	43	5	24,19
81402910980	9,80	9,80	89	43	5	24,19
81402910990	9,90	9,90	89	43	5	24,19
81402911000	10,00	10,00	89	43	5	24,00
81402911010	10,10	10,10	89	43	5	31,74
81402911020	10,20	10,20	89	43	5	31,74
81402911030	10,30	10,30	89	43	5	31,74

**029****BROCA HSSE5 DIN 1897**

Taladrados poco profundos &lt;2xd

Aceros semi-duros hasta 700N/mm<sup>2</sup> e inoxidables**New**Little deep drilling < 2xd | Semi-hard steels up to 700 N/mm<sup>2</sup> and stainless steels

<b>8140291</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>	<b>8140291</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
81402911040	<b>10,40</b>	10,40	89	43	5	<b>31,74</b>	81402911250	<b>12,50</b>	12,50	102	51	5	<b>54,72</b>
81402911050	<b>10,50</b>	10,50	89	43	5	<b>39,47</b>	81402911260	<b>12,60</b>	12,60	102	51	5	<b>56,11</b>
81402911060	<b>10,60</b>	10,60	89	43	5	<b>39,47</b>	81402911270	<b>12,70</b>	12,70	102	51	5	<b>56,11</b>
81402911070	<b>10,70</b>	10,70	95	47	5	<b>39,47</b>	81402911280	<b>12,80</b>	12,80	102	51	5	<b>56,11</b>
81402911080	<b>10,80</b>	10,80	95	47	5	<b>39,47</b>	81402911290	<b>12,90</b>	12,90	102	51	5	<b>56,11</b>
81402911090	<b>10,90</b>	10,90	95	47	5	<b>39,47</b>	81402911300	<b>13,00</b>	13,00	102	51	5	<b>56,11</b>
81402911100	<b>11,00</b>	11,00	95	47	5	<b>39,47</b>	81402911350	<b>13,50</b>	13,50	107	54	5	<b>58,07</b>
81402911110	<b>11,10</b>	11,10	95	47	5	<b>45,72</b>	81402911400	<b>14,00</b>	14,00	107	54	5	<b>59,36</b>
81402911120	<b>11,20</b>	11,20	95	47	5	<b>45,72</b>	81402911450	<b>14,50</b>	14,50	111	56	5	<b>68,81</b>
81402911130	<b>11,30</b>	11,30	95	47	5	<b>45,72</b>	81402911500	<b>15,00</b>	15,00	111	56	5	<b>68,49</b>
81402911140	<b>11,40</b>	11,40	95	47	5	<b>45,72</b>	81402911550	<b>15,50</b>	15,50	115	58	1	<b>79,00</b>
81402911150	<b>11,50</b>	11,50	95	47	5	<b>45,72</b>	81402911600	<b>16,00</b>	16,00	115	58	1	<b>73,42</b>
81402911160	<b>11,60</b>	11,60	95	47	5	<b>45,72</b>	81402911650	<b>16,50</b>	16,50	119	60	1	<b>79,96</b>
81402911170	<b>11,70</b>	11,70	95	47	5	<b>45,72</b>	81402911700	<b>17,00</b>	17,00	119	60	1	<b>80,90</b>
81402911180	<b>11,80</b>	11,80	95	47	5	<b>45,72</b>	81402911750	<b>17,50</b>	17,50	123	62	1	<b>83,20</b>
81402911190	<b>11,90</b>	11,90	102	51	5	<b>45,72</b>	81402911800	<b>18,00</b>	18,00	123	62	1	<b>84,53</b>
81402911200	<b>12,00</b>	12,00	102	51	5	<b>45,72</b>	81402911850	<b>18,50</b>	18,50	127	64	1	<b>84,84</b>
81402911210	<b>12,10</b>	12,10	102	51	5	<b>54,72</b>	81402911900	<b>19,00</b>	19,00	127	64	1	<b>86,53</b>
81402911220	<b>12,20</b>	12,20	102	51	5	<b>54,72</b>	81402911950	<b>19,50</b>	19,50	131	66	1	<b>89,75</b>
81402911230	<b>12,30</b>	12,30	102	51	5	<b>54,72</b>	81402912000	<b>20,00</b>	20,00	131	66	1	<b>91,39</b>
81402911240	<b>12,40</b>	12,40	102	51	5	<b>54,72</b>							



114007 &gt; HSS DIN338 Hélice tipo "S" &gt; pág. 29



# 031

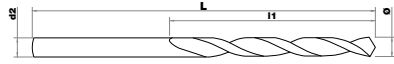
## BROCA HSSE8 DIN 1897

Taladrados poco profundos < 2xd

Aleaciones refractarias Co/Ni y aleaciones de Titanio

Little deep drilling < 2xd | Co/Ni based special alloys and Titanium alloys

New



Aleaciones refractarias con base Co  
Refractory alloys based Co

**S**  
3

Aleaciones refractarias de Titanio  
Refractory alloys de Titanium

**S**  
4

	Vc M/min
<b>S3</b>	10
<b>S4</b>	10

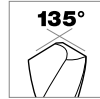
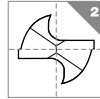
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**HSS E8**

**BRIGHT UNCOATED**

**DIN 1897**

**2xd**



**h8**

8140311	Ø	d2	L	l1	l2	€
81403110200	2,00	2,00	38	12	10	7,33
81403110210	2,10	2,10	38	12	10	7,33
81403110220	2,20	2,20	40	13	10	10,05
81403110230	2,30	2,30	40	13	10	10,05
81403110240	2,40	2,40	43	14	10	10,71
81403110250	2,50	2,50	43	14	10	6,08
81403110260	2,60	2,60	43	14	10	10,71
81403110270	2,70	2,70	46	16	10	11,16
81403110280	2,80	2,80	46	16	10	9,48
81403110290	2,90	2,90	46	16	10	11,46
81403110300	3,00	3,00	46	16	10	6,22
81403110310	3,10	3,10	49	18	10	6,69
81403110320	3,20	3,20	49	18	10	6,69
81403110330	3,30	3,30	49	18	10	6,86
81403110340	3,40	3,40	52	20	10	11,91
81403110350	3,50	3,50	52	20	10	7,45
81403110360	3,60	3,60	52	20	10	11,92
81403110370	3,70	3,70	52	20	10	11,97
81403110380	3,80	3,80	55	22	10	12,10
81403110390	3,90	3,90	55	22	10	12,33
81403110400	4,00	4,00	55	22	10	8,21
81403110410	4,10	4,10	55	22	10	8,43
81403110420	4,20	4,20	55	22	10	8,43
81403110430	4,30	4,30	58	24	10	9,48
81403110440	4,40	4,40	58	24	10	13,38
81403110450	4,50	4,50	58	24	10	13,30
81403110460	4,60	4,60	58	24	10	13,96
81403110470	4,70	4,70	58	24	10	13,54
81403110480	4,80	4,80	62	26	10	9,48
81403110490	4,90	4,90	62	26	10	14,25
81403110500	5,00	5,00	62	26	10	9,77
81403110510	5,10	5,10	62	26	10	10,33
81403110520	5,20	5,20	62	26	10	10,52
81403110530	5,30	5,30	62	26	10	13,32
81403110540	5,40	5,40	66	28	10	15,11
81403110550	5,50	5,50	66	28	10	13,46
81403110560	5,60	5,60	66	28	10	15,26

8140311	Ø	d2	L	l1	l2	€
81403110570	5,70	5,70	66	28	10	15,34
81403110580	5,80	5,80	66	28	10	13,69
81403110590	5,90	5,90	66	28	10	15,35
81403110600	6,00	6,00	66	28	10	13,09
81403110610	6,10	6,10	70	31	10	15,47
81403110620	6,20	6,20	70	31	10	15,48
81403110630	6,30	6,30	70	31	10	15,32
81403110640	6,40	6,40	70	31	10	16,41
81403110650	6,50	6,50	70	31	10	15,11
81403110660	6,60	6,60	70	31	10	16,41
81403110670	6,70	6,70	70	31	10	16,41
81403110680	6,80	6,80	74	34	10	17,76
81403110690	6,90	6,90	74	34	10	17,76
81403110700	7,00	7,00	74	34	10	16,10
81403110720	7,20	7,20	74	34	10	20,52
81403110750	7,50	7,50	74	34	10	16,86
81403110780	7,80	7,80	79	37	10	23,67
81403110800	8,00	8,00	79	37	10	19,92
81403110820	8,20	8,20	79	37	5	23,67
81403110850	8,50	8,50	79	37	5	20,81
81403110880	8,80	8,80	84	40	5	30,46
81403110900	9,00	9,00	84	40	5	26,44
81403110950	9,50	9,50	84	40	5	27,31
81403111000	10,00	10,00	89	43	5	30,51
81403111050	10,50	10,50	89	43	5	39,25
81403111100	11,00	11,00	95	47	5	49,40
81403111150	11,50	11,50	95	47	5	58,05
81403111200	12,00	12,00	102	51	5	59,55
81403111250	12,50	12,50	102	51	5	68,23
81403111300	13,00	13,00	102	51	5	70,49
81403111350	13,50	13,50	107	54	5	85,35
81403111400	14,00	14,00	107	54	5	71,79
81403111450	14,50	14,50	111	56	5	105,38
81403111500	15,00	15,00	111	56	5	85,35
81403111550	15,50	15,50	115	58	1	129,03
81403111600	16,00	16,00	115	58	1	87,18



814016 > DIN 338 HSSE8 > pág. 35



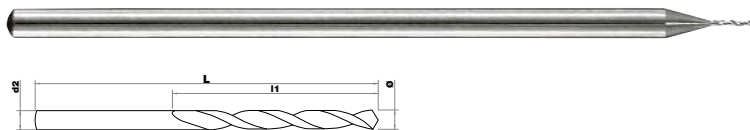
814048 > DIN 340 HSSE8 > pág. 40

# 032 MICRO-BROCA HSSE5

Aceros y fundiciones

HSS fully ground micro drill | Steels and cast irons, accuracy

New



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aluminio no aleado: serie 1000  
Aluminum not alloyed serie 1000

**N**  
1.1

Aleaciones de Aluminio serie 3000  
Aluminum alloys serie 3000

**N**  
1.3

	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>N1.1</b>	250-610
<b>N1.3</b>	160-420

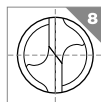
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**HSS E5**

**BRIGHT UNCOATED**

**simDiN 1899**

**2xd**



**h6**

8140321	Ø	d2	L	I1		€
81403210015	0,15	1,00	25	1	10	14,35
81403210016	0,16	1,00	25	1,4	10	10,88
81403210017	0,17	1,00	25	1,4	10	10,88
81403210018	0,18	1,00	25	1,4	10	10,88
81403210019	0,19	1,00	25	1,4	10	10,88
81403210020	0,20	1,00	25	1,8	10	10,88
81403210021	0,21	1,00	25	1,8	10	10,88
81403210022	0,22	1,00	25	1,8	10	10,88
81403210023	0,23	1,00	25	1,8	10	10,88
81403210024	0,24	1,00	25	1,8	10	10,88
81403210025	0,25	1,00	25	2,2	10	10,88
81403210027	0,27	1,00	25	2,2	10	10,88
81403210028	0,28	1,00	25	2,2	10	10,88
81403210029	0,29	1,00	25	2,2	10	10,88
81403210030	0,30	1,00	25	2,2	10	10,88
81403210031	0,31	1,00	25	2,8	10	10,40
81403210032	0,32	1,00	25	2,8	10	10,40
81403210033	0,33	1,00	25	2,8	10	10,40
81403210034	0,34	1,00	25	2,8	10	10,40
81403210035	0,35	1,00	25	2,8	10	10,40
81403210037	0,37	1,00	25	2,8	10	10,40
81403210038	0,38	1,00	25	2,8	10	10,40
81403210040	0,40	1,00	25	3,2	10	9,91
81403210041	0,41	1,00	25	3,2	10	9,91
81403210042	0,42	1,00	25	3,2	10	9,91
81403210043	0,43	1,00	25	3,2	10	9,91
81403210044	0,44	1,00	25	3,2	10	9,91
81403210045	0,45	1,00	25	3,2	10	9,91
81403210046	0,46	1,00	25	3,6	10	9,91
81403210047	0,47	1,00	25	3,6	10	9,91
81403210049	0,49	1,00	25	3,6	10	9,91
81403210050	0,50	1,00	25	3,6	10	9,91
81403210051	0,51	1,50	25	4	10	9,91
81403210052	0,52	1,50	25	4	10	9,91
81403210053	0,53	1,50	25	4	10	9,91

8140321	Ø	d2	L	I1		€
81403210054	0,54	1,50	25	4	10	9,91
81403210055	0,55	1,50	25	4	10	9,91
81403210056	0,56	1,50	25	4,5	10	9,91
81403210058	0,58	1,50	25	4,5	10	9,91
81403210059	0,59	1,50	25	4,5	10	9,91
81403210060	0,60	1,50	25	4,5	10	9,91
81403210061	0,61	1,50	25	4,7	10	9,91
81403210062	0,62	1,50	25	4,7	10	9,91
81403210063	0,63	1,50	25	4,7	10	9,91
81403210065	0,65	1,50	25	4,7	10	9,91
81403210068	0,68	1,50	25	5,2	10	9,91
81403210069	0,69	1,50	25	5,2	10	9,91
81403210070	0,70	1,50	25	5,2	10	9,91
81403210071	0,71	1,50	25	5,2	10	9,91
81403210072	0,72	1,50	25	5,2	10	9,91
81403210073	0,73	1,50	25	5,2	10	9,91
81403210074	0,74	1,50	25	5,2	10	9,91
81403210075	0,75	1,50	25	5,2	10	9,91
81403210076	0,76	1,50	25	5,5	10	9,91
81403210077	0,77	1,50	25	5,5	10	9,91
81403210078	0,78	1,50	25	5,5	10	9,91
81403210079	0,79	1,50	25	5,5	10	9,91
81403210080	0,80	1,50	25	5,5	10	9,91
81403210085	0,85	1,50	25	5,5	10	9,91
81403210090	0,90	1,50	25	6	10	9,91
81403210095	0,95	1,50	25	6	10	9,91
81403210100	1,00	1,50	25	6,5	10	9,91
81403210105	1,05	1,50	25	6,5	10	9,91
81403210110	1,10	1,50	25	7	10	9,91
81403210120	1,20	1,50	25	7,5	10	9,91
81403210125	1,25	1,50	25	7,5	10	9,91
81403210130	1,30	1,50	25	7,5	10	9,91
81403210135	1,35	1,50	25	8,5	10	9,91
81403210140	1,40	1,50	25	8,5	10	9,91
81403210145	1,45	1,50	25	8,5	10	9,91

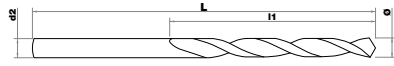
# 530

## BROCA HSS DIN 338

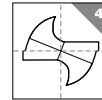
Taladros de profundidad media <3xd  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Medium deep drilling <3xd | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



<b>Vc</b>
<b>M/min</b>
<b>P1</b> 26-32



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$


1145301	Ø	d2	L	I1	I2	€
11453010020	0,20	0,20	19	2,5	10	7,16
11453010025	0,25	0,25	19	3	10	4,18
11453010030	0,30	0,30	19	3	10	4,19
11453010035	0,35	0,35	19	4	10	3,73
11453010040	0,40	0,40	20	5	10	3,73
11453010045	0,45	0,45	20	5	10	3,04
11453010050	0,50	0,50	22	6	10	2,56
11453010055	0,55	0,55	24	7	10	2,66
11453010060	0,60	0,60	24	7	10	2,66
11453010065	0,65	0,65	26	8	10	2,18
11453010070	0,70	0,70	28	9	10	2,18
11453010075	0,75	0,75	29	9	10	2,00
11453010080	0,80	0,80	30	10	10	2,01
11453010085	0,85	0,85	30	10	10	1,89
11453010090	0,90	0,90	32	11	10	1,89
11453010095	0,95	0,95	32	11	10	1,89
11453010100	1,00	1,00	34	12	10	1,63
11453010105	1,05	1,05	34	12	10	1,63
11453010110	1,10	1,10	36	14	10	1,57
11453010120	1,20	1,20	38	14	10	1,82
11453010125	1,25	1,25	38	16	10	1,35
11453010130	1,30	1,30	38	16	10	1,52
11453010140	1,40	1,40	40	18	10	1,57
11453010150	1,50	1,50	40	18	10	1,27
11453010160	1,60	1,60	43	20	10	1,38
11453010170	1,70	1,70	43	20	10	1,57
11453010175	1,75	1,75	46	22	10	1,28
11453010180	1,80	1,80	46	22	10	1,29
11453010190	1,90	1,90	46	22	10	1,28
11453010200	2,00	2,00	49	24	10	1,06
11453010210	2,10	2,10	49	24	10	1,28
11453010220	2,20	2,20	53	27	10	1,28
11453010225	2,25	2,25	53	27	10	1,28
11453010230	2,30	2,30	53	27	10	1,28
11453010240	2,40	2,40	57	30	10	1,42
11453010250	2,50	2,50	57	30	10	1,33
11453010260	2,60	2,60	57	30	10	1,42
11453010270	2,70	2,70	61	33	10	1,42
11453010275	2,75	2,75	61	33	10	1,41
11453010280	2,80	2,80	61	33	10	1,42
11453010290	2,90	2,90	61	33	10	1,42

1145301	Ø	d2	L	I1	I2	€
11453010300	3,00	3,00	61	33	10	1,12
11453010310	3,10	3,10	65	36	10	1,42
11453010320	3,20	3,20	65	36	10	1,39
11453010325	3,25	3,25	65	36	10	1,41
11453010330	3,30	3,30	65	36	10	1,60
11453010340	3,40	3,40	70	39	10	1,60
11453010350	3,50	3,50	70	39	10	1,38
11453010360	3,60	3,60	70	39	10	1,60
11453010370	3,70	3,70	70	39	10	1,60
11453010375	3,75	3,75	70	39	10	1,57
11453010380	3,80	3,80	75	43	10	1,78
11453010390	3,90	3,90	75	43	10	1,78
11453010400	4,00	4,00	75	43	10	1,52
11453010410	4,10	4,10	75	43	10	1,78
11453010420	4,20	4,20	75	43	10	1,78
11453010425	4,25	4,25	75	43	10	1,72
11453010430	4,30	4,30	80	47	10	1,94
11453010440	4,40	4,40	80	47	10	1,94
11453010450	4,50	4,50	80	47	10	1,74
11453010460	4,60	4,60	80	47	10	1,94
11453010470	4,70	4,70	80	47	10	2,06
11453010475	4,75	4,75	80	47	10	2,27
11453010480	4,80	4,80	86	52	10	2,06
11453010490	4,90	4,90	86	52	10	2,11
11453010500	5,00	5,00	86	52	10	1,81
11453010510	5,10	5,10	86	52	10	2,24
11453010520	5,20	5,20	86	52	10	2,24
11453010525	5,25	5,25	86	52	10	2,27
11453010530	5,30	5,30	86	52	10	2,24
11453010540	5,40	5,40	93	57	10	2,59
11453010550	5,50	5,50	93	57	10	2,44
11453010560	5,60	5,60	93	57	10	2,62
11453010570	5,70	5,70	93	57	10	2,66
11453010575	5,75	5,75	93	57	10	2,66
11453010580	5,80	5,80	93	57	10	2,71
11453010590	5,90	5,90	93	57	10	2,80
11453010600	6,00	6,00	93	57	10	2,50
11453010610	6,10	6,10	101	63	10	3,05
11453010620	6,20	6,20	101	63	10	3,05
11453010625	6,25	6,25	101	63	10	3,63
11453010630	6,30	6,30	101	63	10	3,10

**530****BROCA HSS DIN 338**

Taladros de profundidad media &lt;3xd

Aceros blandos hasta 400 N/mm<sup>2</sup>Medium deep drilling <3xd | Soft steels up to 400 N/mm<sup>2</sup>

<b>1145301</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>l1</b>		<b>€</b>
11453010640	<b>6,40</b>	6,40	101	63	10	<b>3,19</b>
11453010650	<b>6,50</b>	6,50	101	63	10	<b>2,97</b>
11453010660	<b>6,60</b>	6,60	101	63	10	<b>3,30</b>
11453010670	<b>6,70</b>	6,70	101	63	10	<b>3,33</b>
11453010675	<b>6,75</b>	6,75	109	69	10	<b>4,05</b>
11453010680	<b>6,80</b>	6,80	109	69	10	<b>4,19</b>
11453010690	<b>6,90</b>	6,90	109	69	10	<b>4,10</b>
11453010700	<b>7,00</b>	7,00	109	69	10	<b>3,58</b>
11453010710	<b>7,10</b>	7,10	109	69	10	<b>4,19</b>
11453010720	<b>7,20</b>	7,20	109	69	10	<b>4,28</b>
11453010725	<b>7,25</b>	7,25	109	69	10	<b>4,28</b>
11453010730	<b>7,30</b>	7,30	109	69	10	<b>4,28</b>
11453010740	<b>7,40</b>	7,40	109	69	10	<b>4,33</b>
11453010750	<b>7,50</b>	7,50	109	69	10	<b>3,75</b>
11453010760	<b>7,60</b>	7,60	117	75	10	<b>4,74</b>
11453010770	<b>7,70</b>	7,70	117	75	10	<b>4,74</b>
11453010775	<b>7,75</b>	7,75	117	75	10	<b>4,78</b>
11453010780	<b>7,80</b>	7,80	117	75	10	<b>4,80</b>
11453010790	<b>7,90</b>	7,90	117	75	10	<b>4,88</b>
11453010800	<b>8,00</b>	8,00	117	75	10	<b>4,28</b>
11453010810	<b>8,10</b>	8,10	117	75	5	<b>4,98</b>
11453010820	<b>8,20</b>	8,20	117	75	5	<b>5,12</b>
11453010825	<b>8,25</b>	8,25	117	75	5	<b>5,12</b>
11453010830	<b>8,30</b>	8,30	117	75	5	<b>5,08</b>
11453010840	<b>8,40</b>	8,40	117	75	5	<b>5,30</b>
11453010850	<b>8,50</b>	8,50	117	75	5	<b>4,64</b>
11453010860	<b>8,60</b>	8,60	125	81	5	<b>6,17</b>
11453010870	<b>8,70</b>	8,70	125	81	5	<b>6,17</b>
11453010875	<b>8,75</b>	8,75	125	81	5	<b>6,17</b>
11453010880	<b>8,80</b>	8,80	125	81	5	<b>6,17</b>
11453010890	<b>8,90</b>	8,90	125	81	5	<b>6,32</b>
11453010900	<b>9,00</b>	9,00	125	81	5	<b>5,63</b>
11453010910	<b>9,10</b>	9,10	125	81	5	<b>6,32</b>
11453010920	<b>9,20</b>	9,20	125	81	5	<b>6,32</b>
11453010925	<b>9,25</b>	9,25	125	81	5	<b>6,65</b>
11453010930	<b>9,30</b>	9,30	125	81	5	<b>6,65</b>
11453010940	<b>9,40</b>	9,40	125	81	5	<b>6,65</b>
11453010950	<b>9,50</b>	9,50	125	81	5	<b>6,12</b>
11453010960	<b>9,60</b>	9,60	133	87	5	<b>6,93</b>
11453010970	<b>9,70</b>	9,70	133	87	5	<b>6,93</b>
11453010975	<b>9,75</b>	9,75	133	87	5	<b>7,31</b>
11453010980	<b>9,80</b>	9,80	133	87	5	<b>7,32</b>
11453010990	<b>9,90</b>	9,90	133	87	5	<b>7,32</b>
11453011000	<b>10,00</b>	10,00	133	87	5	<b>6,63</b>
11453011010	<b>10,10</b>	10,10	133	87	5	<b>8,39</b>
11453011020	<b>10,20</b>	10,20	133	87	5	<b>8,39</b>
11453011025	<b>10,25</b>	10,25	133	87	5	<b>9,08</b>
11453011030	<b>10,30</b>	10,30	133	87	5	<b>9,75</b>
11453011040	<b>10,40</b>	10,40	133	87	5	<b>9,75</b>
11453011050	<b>10,50</b>	10,50	133	87	5	<b>8,54</b>

<b>1145301</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>l1</b>		<b>€</b>
11453011060	<b>10,60</b>	10,60	133	87	5	<b>9,98</b>
11453011070	<b>10,70</b>	10,70	142	94	5	<b>12,33</b>
11453011075	<b>10,75</b>	10,75	142	94	5	<b>11,50</b>
11453011080	<b>10,80</b>	10,80	142	94	5	<b>12,33</b>
11453011090	<b>10,90</b>	10,90	142	94	5	<b>12,33</b>
11453011100	<b>11,00</b>	11,00	142	94	5	<b>9,98</b>
11453011110	<b>11,10</b>	11,10	142	94	5	<b>12,82</b>
11453011120	<b>11,20</b>	11,20	142	94	5	<b>12,33</b>
11453011125	<b>11,25</b>	11,25	142	94	5	<b>12,31</b>
11453011130	<b>11,30</b>	11,30	142	94	5	<b>12,33</b>
11453011140	<b>11,40</b>	11,40	142	94	5	<b>12,33</b>
11453011150	<b>11,50</b>	11,50	142	94	5	<b>10,68</b>
11453011160	<b>11,60</b>	11,60	142	94	5	<b>12,33</b>
11453011170	<b>11,70</b>	11,70	142	94	5	<b>12,33</b>
11453011175	<b>11,75</b>	11,75	142	94	5	<b>12,31</b>
11453011180	<b>11,80</b>	11,80	151	101	5	<b>12,33</b>
11453011190	<b>11,90</b>	11,90	151	101	5	<b>14,76</b>
11453011200	<b>12,00</b>	12,00	151	101	5	<b>11,88</b>
11453011210	<b>12,10</b>	12,10	151	101	5	<b>15,63</b>
11453011220	<b>12,20</b>	12,20	151	101	5	<b>15,90</b>
11453011225	<b>12,25</b>	12,25	151	101	5	<b>14,24</b>
11453011230	<b>12,30</b>	12,30	151	101	5	<b>13,52</b>
11453011240	<b>12,40</b>	12,40	151	101	5	<b>16,12</b>
11453011250	<b>12,50</b>	12,50	151	101	5	<b>13,05</b>
11453011260	<b>12,60</b>	12,60	151	101	5	<b>16,12</b>
11453011270	<b>12,70</b>	12,70	151	101	5	<b>14,72</b>
11453011275	<b>12,75</b>	12,75	151	101	5	<b>14,42</b>
11453011280	<b>12,80</b>	12,80	151	101	5	<b>16,12</b>
11453011290	<b>12,90</b>	12,90	151	101	5	<b>18,29</b>
11453011300	<b>13,00</b>	13,00	151	101	5	<b>13,52</b>
11453011350	<b>13,50</b>	13,50	160	108	1	<b>20,80</b>
11453011400	<b>14,00</b>	14,00	160	108	1	<b>22,13</b>
11453011450	<b>14,50</b>	14,50	169	114	1	<b>23,58</b>
11453011500	<b>15,00</b>	15,00	169	114	1	<b>23,86</b>
11453011550	<b>15,50</b>	15,50	178	120	1	<b>27,52</b>
11453011600	<b>16,00</b>	16,00	178	120	1	<b>28,48</b>
11453011650	<b>16,50</b>	16,50	184	125	1	<b>31,90</b>
11453011700	<b>17,00</b>	17,00	184	125	1	<b>31,90</b>
11453011750	<b>17,50</b>	17,50	191	130	1	<b>36,33</b>
11453011800	<b>18,00</b>	18,00	191	130	1	<b>38,29</b>
11453011850	<b>18,50</b>	18,50	198	135	1	<b>42,21</b>
11453011900	<b>19,00</b>	19,00	198	135	1	<b>42,21</b>
11453011950	<b>19,50</b>	19,50	205	140	1	<b>45,97</b>
11453012000	<b>20,00</b>	20,00	205	140	1	<b>53,00</b>
11453012100	<b>21,00</b>	21,00	205	145	1	<b>60,84</b>
11453012200	<b>22,00</b>	22,00	210	150	1	<b>69,61</b>
11453012300	<b>23,00</b>	23,00	210	150	1	<b>71,14</b>
11453012400	<b>24,00</b>	24,00	220	160	1	<b>72,62</b>
11453012500	<b>25,00</b>	25,00	220	160	1	<b>91,30</b>



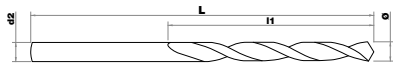
# 378

## BROCA HSS DIN 338 MANGO REDUCIDO

Taladrados de profundidad media <3xd  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Reduced shank | Medium deep drilling <3xd | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

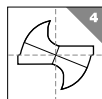


**HSS**

**STEAM TREATED**

**DIN 338**

**3xd**



**h8**

SPLIT POINT

<b>Vc</b>	
<b>M/min</b>	
<b>P1</b>	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1143784	Ø	d2	L	l1		€
11437841000	10,00	10,00	133	87	1	7,63
11437841050	10,50	10,00	133	87	1	7,79
11437841100	11,00	10,00	142	94	1	8,83
11437841150	11,50	10,00	142	94	1	9,31
11437841200	12,00	10,00	151	101	1	10,93
11437841250	12,50	10,00	151	101	1	11,84
11437841300	13,00	12,70	151	101	1	12,94
11437841350	13,50	12,70	160	108	1	15,96
11437841400	14,00	12,70	160	108	1	16,25
11437841450	14,50	12,70	169	114	1	18,17
11437841500	15,00	12,70	169	114	1	18,63
11437841550	15,50	12,70	178	120	1	20,94
11437841600	16,00	12,70	178	120	1	21,93

1143784	Ø	d2	L	l1		€
11437841650	16,50	12,70	184	125	1	26,12
11437841700	17,00	12,70	184	125	1	26,91
11437841750	17,50	12,70	191	130	1	29,50
11437841800	18,00	12,70	191	130	1	29,72
11437841850	18,50	12,70	198	135	1	32,44
11437841900	19,00	12,70	198	135	1	33,14
11437841950	19,50	12,70	205	140	1	36,48
11437842000	20,00	12,70	205	140	1	38,01
11437842100	21,00	12,70	205	140	1	50,13
11437842200	22,00	12,70	210	150	1	50,13
11437842300	23,00	12,70	210	150	1	59,18
11437842400	24,00	12,70	220	160	1	59,12
11437842500	25,00	12,70	220	160	1	65,43



114026 > HSS DIN1897 > pág. 14



114530 > HSS DIN338 > pág. 23



114056 > HSS DIN340 > pág. 38

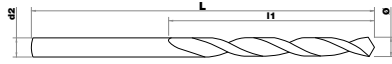
# 006 BROCA A IZQUIERDAS HSS DIN 338

Taladrados de profundidad media <3xd  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



Left hand hss drill short serie DIN 338 | Medium deep drilling <3xd  
Soft steels up to 400 N/mm<sup>2</sup>



**HSS**

**BRIGHT UNCOATED**

**DIN 338**

**3xd**

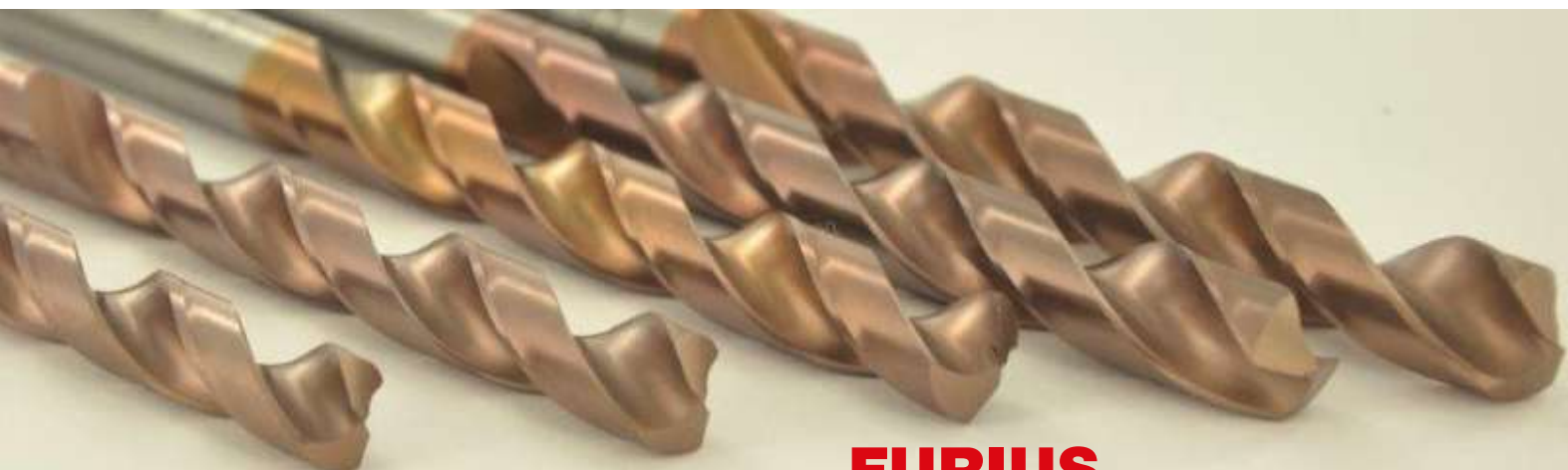
**h8**

<b>Vc</b>
<b>M/min</b>
<b>P1</b> 26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140061	Ø	d2	L	l1		€
81400610100	1,00	1,00	34	12	10	7,61
81400610150	1,50	1,50	40	18	10	6,57
81400610180	1,80	1,80	46	22	10	6,39
81400610200	2,00	2,00	49	24	10	6,05
81400610250	2,50	2,50	57	30	10	6,85
81400610275	2,75	2,75	61	33	10	6,85
81400610300	3,00	3,00	61	33	10	7,17
81400610310	3,10	3,10	65	36	10	7,61
81400610320	3,20	3,20	65	36	10	7,79
81400610325	3,25	3,25	65	36	10	7,79
81400610330	3,30	3,30	65	36	10	8,04
81400610350	3,50	3,50	70	39	10	7,50
81400610375	3,75	3,75	75	43	10	7,50
81400610400	4,00	4,00	75	43	10	8,16
81400610420	4,20	4,20	75	43	10	9,80
81400610425	4,25	4,25	75	43	10	9,80
81400610450	4,50	4,50	80	47	10	10,52
81400610500	5,00	5,00	86	52	10	10,52
81400610520	5,20	5,20	86	52	10	12,11
81400610550	5,50	5,50	93	57	10	12,87

8140061	Ø	d2	L	l1		€
81400610600	6,00	6,00	93	57	10	13,35
81400610620	6,20	6,20	101	63	10	16,65
81400610625	6,25	6,25	101	63	10	16,65
81400610650	6,50	6,50	101	63	10	16,03
81400610675	6,75	6,75	109	69	10	16,65
81400610680	6,80	6,80	109	69	10	19,29
81400610700	7,00	7,00	109	69	10	17,91
81400610750	7,50	7,50	109	69	10	20,28
81400610800	8,00	8,00	117	75	10	23,26
81400610850	8,50	8,50	117	75	5	24,49
81400610900	9,00	9,00	125	81	5	30,63
81400610950	9,50	9,50	125	81	5	31,44
81400611000	10,00	10,00	133	87	5	35,32
81400611025	10,25	10,25	133	87	5	38,50
81400611050	10,50	10,50	133	87	5	38,50
81400611100	11,00	11,00	142	94	5	46,32
81400611150	11,50	11,50	142	94	5	56,52
81400611200	12,00	12,00	151	101	5	56,52
81400611250	12,50	12,50	151	101	5	68,26
81400611300	13,00	13,00	151	101	5	68,26



## FURIUS ESPECIAL ACEROS DUROS

114541 > pág. 28

# 531

New

## BROCA HSS DIN 338 STEAM TiN

Taladrados de profundidad media < 3xd

Aceros blandos hasta 400N/mm<sup>2</sup> e inoxidables

Medium deep drilling <3xd | Soft steels up to 400 N/mm<sup>2</sup> and stainless steels

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>



Acero inoxidable ferrítico  
Ferritic stainless steel



Vc  
M/min

P1	30-35
P5	6-12

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

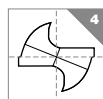
HSS

STEAM TREATED

TiN COATED

DIN 338

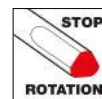
3xd



SPLIT POINT



h8



1145311	Ø	d2	L	l1		€
11453110100	1,00	1,00	34	12	10	1,63
11453110150	1,50	1,50	40	18	10	1,38
11453110200	2,00	2,00	49	24	10	1,52
11453110250	2,50	2,50	57	30	10	1,71
11453110300	3,00	3,00	61	33	10	1,65
11453110320	3,20	3,20	65	36	10	1,90
11453110350	3,50	3,50	70	39	10	1,90
11453110400	4,00	4,00	75	43	10	2,00
11453110420	4,20	4,20	75	43	10	2,35
11453110450	4,50	4,50	80	47	10	2,23
11453110480	4,80	4,80	86	52	10	2,82
11453110500	5,00	5,00	86	52	10	2,79
11453110520	5,20	5,20	86	52	10	3,06
11453110550	5,50	5,50	93	57	10	3,11
11453110600	6,00	6,00	93	57	10	3,36

1145311	Ø	d2	L	l1		€
11453110620	6,20	6,20	101	63	10	4,65
11453110650	6,50	6,50	101	63	10	4,10
11453110700	7,00	7,00	109	69	10	4,39
11453110750	7,50	7,50	109	69	10	4,89
11453110800	8,00	8,00	117	75	10	5,54
11453110850	8,50	8,50	117	75	5	5,94
11453110900	9,00	9,00	125	81	5	7,13
11453110950	9,50	9,50	125	81	5	7,48
11453111000	10,00	10,00	133	87	5	8,12
11453111050	10,50	10,50	133	87	5	10,68
11453111100	11,00	11,00	142	94	5	12,35
11453111150	11,50	11,50	142	94	5	13,25
11453111200	12,00	12,00	151	101	5	14,66
11453111250	12,50	12,50	151	101	5	16,20
11453111300	13,00	13,00	151	101	5	18,63



### MANGO TRILOBULAR

Mango anti-rotación 3 caras planas a 120°  
Permite la máxima transmisión del par  
Evita que resbale en el portabrocas  
Reduce los riesgos de rotura



### PUNTA CON RECUBRIMIENTO TiN

Base TiN, espesor 2/4 µm, dureza 2300 HV  
Coeficiente de fricción 0,4 Ra  
Resistencia al calor 600°C



ESTUCHES STEAM TiN > pág. 57

# 541

## BROCA HSS DIN 338 FURIUS Ti2CN

Taladrados de profundidad media 3xd  
Aceros duros hasta 950 N/mm<sup>2</sup> y fundiciones

Medium deep drilling 3xd

Hard steels up to 950 N/mm<sup>2</sup> and cast iron

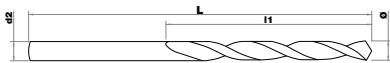
**RECUBRIMIENTO MULTICAPA "FUSIO"**  
 Color: Cobre  
 Composición: Ti2CN  
 Espesor: 2-4 μ  
 Dureza HV: 3200  
 Coef. de rozamiento: 0,2 Ra  
 Resist. al calor: 400°C

Aceros fuertemente aleados  
 700 -1000 N/mm<sup>2</sup>  
 ≤ 32 HRc  
 Steels high alloy  
 700 -1000 N / mm<sup>2</sup>  
 ≤ 32 HRc

**P**  
3

**K**

Fundiciones  
Cast iron



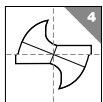
	Vc
	M/min
<b>P3</b>	33-40
<b>K2</b>	40-45
<b>K3</b>	33-40

**HSS**

**FUSIO COATED**  
Ø3-13mm ONLY

**DIN 338**

**3xd**



SPLIT POINT



**h8**

$$r.p.m. = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1145411	Ø	d2	L	l1		€
11454110050	0,50	0,50	22	6	10	3,59
11454110060	0,60	0,60	24	7	10	3,65
11454110070	0,70	0,70	28	9	10	3,45
11454110080	0,80	0,80	30	10	10	3,20
11454110090	0,90	0,90	32	11	10	3,01
11454110100	1,00	1,00	34	12	10	2,71
11454110110	1,10	1,10	36	14	10	2,46
11454110120	1,20	1,20	38	16	10	2,90
11454110130	1,30	1,30	38	16	10	2,40
11454110140	1,40	1,40	40	18	10	2,46
11454110150	1,50	1,50	40	18	10	2,13
11454110160	1,60	1,60	43	20	10	2,18
11454110170	1,70	1,70	43	20	10	2,46
11454110180	1,80	1,80	46	22	10	2,08
11454110190	1,90	1,90	46	22	10	2,04
11454110200	2,00	2,00	49	24	10	1,75
11454110210	2,10	2,10	49	24	10	2,04
11454110220	2,20	2,20	53	27	10	2,04
11454110230	2,30	2,30	53	27	10	2,04
11454110240	2,40	2,40	57	30	10	2,26
11454110250	2,50	2,50	57	30	10	2,21
11454110260	2,60	2,60	57	30	10	2,23
11454110270	2,70	2,70	61	33	10	3,23
11454110280	2,80	2,80	61	33	10	2,76
11454110290	2,90	2,90	61	33	10	2,26
11454110300	3,00	3,00	61	33	10	2,26
11454110310	3,10	3,10	65	36	10	2,49
11454110320	3,20	3,20	65	36	10	2,45
11454110325	3,25	3,25	65	36	10	2,79
11454110330	3,30	3,30	65	36	10	2,63
11454110340	3,40	3,40	70	39	10	2,88
11454110350	3,50	3,50	70	39	10	2,50
11454110360	3,60	3,60	70	39	10	3,21
11454110370	3,70	3,70	70	39	10	2,65
11454110380	3,80	3,80	75	43	10	2,90
11454110390	3,90	3,90	75	43	10	3,12
11454110400	4,00	4,00	75	43	10	2,79
11454110410	4,10	4,10	75	43	10	3,01
11454110420	4,20	4,20	75	43	10	3,01
11454110425	4,25	4,25	75	43	10	3,30
11454110430	4,30	4,30	80	47	10	3,19
11454110440	4,40	4,40	80	47	10	3,73
11454110450	4,50	4,50	80	47	10	3,04

1145411	Ø	d2	L	l1		€
11454110460	4,60	4,60	80	47	10	3,98
11454110470	4,70	4,70	80	47	10	3,64
11454110480	4,80	4,80	86	52	10	3,31
11454110490	4,90	4,90	86	52	10	3,34
11454110500	5,00	5,00	86	52	10	3,24
11454110510	5,10	5,10	86	52	10	3,77
11454110520	5,20	5,20	86	52	10	3,77
11454110525	5,25	5,25	86	52	10	4,77
11454110530	5,30	5,30	86	52	10	3,77
11454110540	5,40	5,40	93	57	10	4,16
11454110550	5,50	5,50	93	57	10	4,16
11454110560	5,60	5,60	93	57	10	4,83
11454110570	5,70	5,70	93	57	10	4,50
11454110580	5,80	5,80	93	57	10	4,37
11454110590	5,90	5,90	93	57	10	4,50
11454110600	6,00	6,00	93	57	10	4,37
11454110610	6,10	6,10	101	63	10	5,31
11454110620	6,20	6,20	101	63	10	5,31
11454110630	6,30	6,30	101	63	10	5,39
11454110640	6,40	6,40	101	63	10	5,50
11454110650	6,50	6,50	101	63	10	5,42
11454110660	6,60	6,60	101	63	10	5,61
11454110670	6,70	6,70	101	63	10	5,72
11454110675	6,75	6,75	109	69	10	6,77
11454110680	6,80	6,80	109	69	10	6,77
11454110690	6,90	6,90	109	69	10	7,81
11454110700	7,00	7,00	109	69	10	6,28
11454110710	7,10	7,10	109	69	10	6,77
11454110720	7,20	7,20	109	69	10	6,88
11454110730	7,30	7,30	109	69	10	6,88
11454110740	7,40	7,40	109	69	10	7,99
11454110750	7,50	7,50	109	69	10	6,54
11454110760	7,60	7,60	117	75	10	7,51
11454110770	7,70	7,70	117	75	10	8,24
11454110780	7,80	7,80	117	75	10	7,59
11454110790	7,90	7,90	117	75	10	7,67
11454110800	8,00	8,00	117	75	10	7,67
11454110810	8,10	8,10	117	75	5	8,42
11454110820	8,20	8,20	117	75	5	8,63
11454110830	8,30	8,30	117	75	5	8,57
11454110840	8,40	8,40	117	75	5	8,86
11454110850	8,50	8,50	117	75	5	8,11
11454110860	8,60	8,60	125	81	5	9,98



# 541

## BROCA HSS DIN 338 FURIUS Ti2CN

Taladros de profundidad media 3xd  
Aceros duros hasta 950 N/mm<sup>2</sup> y fundiciones

Medium deep drilling 3xd

Hard steels up to 950 N/mm<sup>2</sup> and cast iron

TALADRADO / DRILLING

1145411	Ø	d2	L	I1		€
11454110870	8,70	8,70	125	81	5	9,98
11454110880	8,80	8,80	125	81	5	9,98
11454110890	8,90	8,90	125	81	5	10,18
11454110900	9,00	9,00	125	81	5	9,26
11454110910	9,10	9,10	125	81	5	10,18
11454110920	9,20	9,20	125	81	5	10,18
11454110930	9,30	9,30	125	81	5	10,66
11454110940	9,40	9,40	125	81	5	10,66
11454110950	9,50	9,50	125	81	5	9,91
11454110960	9,60	9,60	133	87	5	11,03
11454110970	9,70	9,70	133	87	5	11,03
11454110980	9,80	9,80	133	87	5	11,52
11454110990	9,90	9,90	133	87	5	11,52

1145411	Ø	d2	L	I1		€
11454111000	10,00	10,00	133	87	5	10,67
11454111010	10,10	10,10	133	87	5	14,39
11454111020	10,20	10,20	133	87	5	13,92
11454111025	10,25	10,25	133	87	5	17,56
11454111030	10,30	10,30	133	87	5	16,74
11454111040	10,40	10,40	133	87	5	16,74
11454111050	10,50	10,50	133	87	5	14,17
11454111100	11,00	11,00	142	94	5	17,65
11454111150	11,50	11,50	142	94	5	18,71
11454111200	12,00	12,00	151	101	5	20,19
11454111250	12,50	12,50	151	101	5	21,96
11454111300	13,00	13,00	151	101	5	22,69

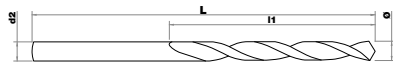
# 007

## BROCA HSS DIN 338

Taladros de profundidad media 3xd  
Aleaciones de aluminio

Medium deep drilling 3xd | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	Vc M/min
N1.1	140-360
N1.4.2	250-610

**HSS**

**BRIGHT UNCOATED**

**DIN 338**

**3xd**

**135°**

**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1140071	Ø	d2	L	I1		€
11400710250	2,50	2,50	57	30	10	4,56
11400710260	2,60	2,60	57	30	10	7,73
11400710280	2,80	2,80	61	33	10	6,63
11400710290	2,90	2,90	61	33	10	9,72
11400710300	3,00	3,00	61	33	10	5,02
11400710310	3,10	3,10	65	36	10	5,25
11400710320	3,20	3,20	65	36	10	5,21
11400710330	3,30	3,30	65	36	10	5,21
11400710340	3,40	3,40	70	39	10	7,13
11400710350	3,50	3,50	70	39	10	5,81
11400710360	3,60	3,60	70	39	10	5,54
11400710370	3,70	3,70	70	39	10	9,48
11400710380	3,80	3,80	75	43	10	10,21
11400710400	4,00	4,00	75	43	10	5,99
11400710410	4,10	4,10	75	43	10	5,94
11400710420	4,20	4,20	75	43	10	5,86
11400710430	4,30	4,30	80	47	10	7,88
11400710450	4,50	4,50	80	47	10	7,64
11400710470	4,70	4,70	80	47	10	10,58
11400710480	4,80	4,80	86	52	10	9,49
11400710490	4,90	4,90	86	52	10	7,21

1140071	Ø	d2	L	I1		€
11400710500	5,00	5,00	86	52	10	8,03
11400710510	5,10	5,10	86	52	10	7,88
11400710520	5,20	5,20	86	52	10	7,88
11400710550	5,50	5,50	93	57	10	9,27
11400710600	6,00	6,00	93	57	10	10,09
11400710650	6,50	6,50	101	63	10	11,26
11400710680	6,80	6,80	109	69	10	13,70
11400710700	7,00	7,00	109	69	10	12,16
11400710720	7,20	7,20	109	69	10	19,29
11400710750	7,50	7,50	109	69	10	14,80
11400710800	8,00	8,00	117	75	10	15,64
11400710850	8,50	8,50	117	75	5	16,83
11400710900	9,00	9,00	125	81	5	19,12
11400710950	9,50	9,50	125	81	5	21,25
11400711000	10,00	10,00	133	87	5	22,94
11400711050	10,50	10,50	133	87	5	27,39
11400711100	11,00	11,00	142	94	5	33,11
11400711150	11,50	11,50	142	94	5	37,80
11400711200	12,00	12,00	151	101	5	41,91
11400711250	12,50	12,50	151	101	5	46,06
11400711300	13,00	13,00	151	101	5	47,26

# 570

## BROCA HSS DIN 338 PUNTA ESCALONADA

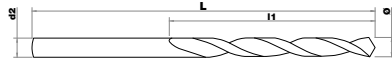
Taladrados de profundidad media < 3xd  
Aceros blandos hasta 400 N/mm<sup>2</sup> y tubos

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>



New

Medium deep drilling up to < 3xd  
Soft steels up to 400 N/mm<sup>2</sup> and tubes



	Vc
	M/min
P1	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

HSS	BRIGHT UNCOATED	DIN 338	3xd	N TYPE	h8	AMPLI-TROU ENLARGER	TIVOLY SMART POINT	TROU PARFAIT PERFECT HOLE	STOP ROTATION
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1145706	Ø	d2	L	l1	Ø	€
11457060300	3,00	3,00	61	33	5	10,89
11457060320	3,20	3,20	65	36	5	11,77
11457060350	3,50	3,50	70	39	5	12,51
11457060400	4,00	4,00	75	43	5	16,21
11457060420	4,20	4,20	75	43	5	17,94
11457060450	4,50	4,50	80	47	5	19,12
11457060500	5,00	5,00	86	52	5	23,63

1145706	Ø	d2	L	l1	Ø	€
11457060550	5,50	5,50	93	57	5	26,65
11457060600	6,00	6,00	93	57	5	27,74
11457060650	6,50	6,50	101	63	5	31,74
11457060700	7,00	7,00	109	69	5	38,52
11457060750	7,50	7,50	109	69	5	43,43
11457060800	8,00	8,00	117	75	5	50,86

# 571

## BROCA HSS DIN 338 Ti2CN PUNTA ESCALONADA

Taladrados de profundidad media < 3xd  
Aceros duros hasta 950 N/mm<sup>2</sup> y tubos

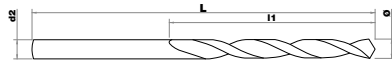
Aceros fuertemente aleados 700-1000 N/mm<sup>2</sup> ≤ 32 HRC  
Steels high alloy 700-1000 N / mm<sup>2</sup> ≤ 32 HRC



New

Medium deep drilling up to < 3xd  
Hard steels up to 950 N/mm<sup>2</sup> and tubes

Fundiciones Cast iron



	Vc
	M/min
P3	33-40
K2	40-45
K3	33-40

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

HSS	FUSIO COATED Ø3-13mm ONLY	DIN 338	3xd	N TYPE	h8	AMPLI-TROU ENLARGER	TIVOLY SMART POINT	TROU PARFAIT PERFECT HOLE	STOP ROTATION
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1145716	Ø	d2	L	l1	Ø	€
11457160300	3,00	3,00	61	33	5	15,31
11457160320	3,20	3,20	65	36	5	16,26
11457160350	3,50	3,50	70	39	5	17,07
11457160400	4,00	4,00	75	43	5	21,07
11457160420	4,20	4,20	75	43	5	22,95
11457160450	4,50	4,50	80	47	5	24,23
11457160500	5,00	5,00	86	52	5	29,12

1145716	Ø	d2	L	l1	Ø	€
11457160550	5,50	5,50	93	57	5	32,38
11457160600	6,00	6,00	93	57	5	33,56
11457160650	6,50	6,50	101	63	5	43,00
11457160700	7,00	7,00	109	69	5	50,34
11457160750	7,50	7,50	109	69	5	55,67
11457160800	8,00	8,00	117	75	5	63,71

# 550

## BROCA HSSE5 DIN 338

Taladros de profundidad media < 3xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables

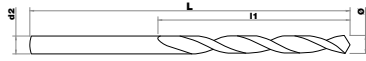
Medium deep drilling <3xd

Semi-hard steels up to 700 N/mm<sup>2</sup> and Stainless steels

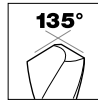
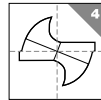
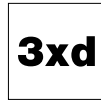
Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Acero inoxidable  
ferrítico  
Ferritic  
stainless steel



	Vc
	M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P5</b>	14-16



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1145501	Ø	d2	L	l1	l2	€
11455010100	1,00	1,00	34	12	10	1,57
11455010110	1,10	1,10	36	14	10	1,47
11455010120	1,20	1,20	38	16	10	1,53
11455010125	1,25	1,25	38	16	10	1,69
11455010130	1,30	1,30	38	16	10	1,47
11455010140	1,40	1,40	40	18	10	1,47
11455010150	1,50	1,50	40	18	10	1,35
11455010160	1,60	1,60	43	20	10	1,66
11455010170	1,70	1,70	43	20	10	1,66
11455010175	1,75	1,75	46	22	10	1,74
11455010180	1,80	1,80	46	22	10	1,69
11455010190	1,90	1,90	46	22	10	1,69
11455010200	2,00	2,00	49	24	10	1,47
11455010210	2,10	2,10	49	24	10	1,84
11455010220	2,20	2,20	53	27	10	1,84
11455010225	2,25	2,25	53	27	10	1,79
11455010230	2,30	2,30	53	27	10	1,90
11455010240	2,40	2,40	57	30	10	1,90
11455010250	2,50	2,50	57	30	10	1,65
11455010260	2,60	2,60	57	30	10	1,79
11455010270	2,70	2,70	61	33	10	1,79
11455010275	2,75	2,75	61	33	10	1,79
11455010280	2,80	2,80	61	33	10	1,82
11455010290	2,90	2,90	61	33	10	1,82
11455010300	3,00	3,00	61	33	10	1,49
11455010310	3,10	3,10	65	36	10	1,92
11455010320	3,20	3,20	65	36	10	1,84
11455010325	3,25	3,25	65	36	10	1,84
11455010330	3,30	3,30	65	36	10	1,91
11455010340	3,40	3,40	70	39	10	1,95
11455010350	3,50	3,50	70	39	10	1,84
11455010360	3,60	3,60	70	39	10	2,08
11455010370	3,70	3,70	70	39	10	2,08
11455010375	3,75	3,75	70	39	10	2,11
11455010380	3,80	3,80	75	43	10	2,07
11455010390	3,90	3,90	75	43	10	2,07
11455010400	4,00	4,00	75	43	10	1,91
11455010410	4,10	4,10	75	43	10	2,60
11455010420	4,20	4,20	75	43	10	2,28
11455010425	4,25	4,25	75	43	10	2,13
11455010430	4,30	4,30	80	47	10	2,44
11455010440	4,40	4,40	80	47	10	2,44

1145501	Ø	d2	L	l1	l2	€
11455010450	4,50	4,50	80	47	10	2,13
11455010460	4,60	4,60	80	47	10	2,71
11455010470	4,70	4,70	80	47	10	2,71
11455010475	4,75	4,75	80	47	10	2,52
11455010480	4,80	4,80	86	52	10	2,73
11455010490	4,90	4,90	86	52	10	2,73
11455010500	5,00	5,00	86	52	10	2,39
11455010510	5,10	5,10	86	52	10	2,69
11455010520	5,20	5,20	86	52	10	2,94
11455010525	5,25	5,25	86	52	10	2,76
11455010530	5,30	5,30	86	52	10	3,05
11455010540	5,40	5,40	93	57	10	3,05
11455010550	5,50	5,50	93	57	10	2,99
11455010560	5,60	5,60	93	57	10	3,72
11455010570	5,70	5,70	93	57	10	3,72
11455010575	5,75	5,75	93	57	10	3,23
11455010580	5,80	5,80	93	57	10	3,59
11455010590	5,90	5,90	93	57	10	3,59
11455010600	6,00	6,00	93	57	10	3,22
11455010610	6,10	6,10	101	63	10	4,51
11455010620	6,20	6,20	101	63	10	4,51
11455010625	6,25	6,25	101	63	10	3,83
11455010630	6,30	6,30	101	63	10	4,43
11455010640	6,40	6,40	101	63	10	4,43
11455010650	6,50	6,50	101	63	10	3,97
11455010660	6,60	6,60	101	63	10	4,73
11455010670	6,70	6,70	101	63	10	4,73
11455010675	6,75	6,75	109	69	10	4,43
11455010680	6,80	6,80	109	69	10	5,06
11455010690	6,90	6,90	109	69	10	5,06
11455010700	7,00	7,00	109	69	10	4,20
11455010710	7,10	7,10	109	69	10	5,98
11455010720	7,20	7,20	109	69	10	5,98
11455010725	7,25	7,25	109	69	10	4,90
11455010730	7,30	7,30	109	69	10	5,52
11455010740	7,40	7,40	109	69	10	5,52
11455010750	7,50	7,50	109	69	10	4,73
11455010760	7,60	7,60	117	75	10	6,75
11455010770	7,70	7,70	117	75	10	6,56
11455010775	7,75	7,75	117	75	10	5,64
11455010780	7,80	7,80	117	75	10	6,38
11455010790	7,90	7,90	117	75	10	6,38


**550****BROCA HSSE5 DIN 338**

Taladrados de profundidad media &lt; 3xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables

Medium deep drilling &lt;3xd

Semi-hard steels up to 700 N/mm<sup>2</sup> and Stainless steels

1145501	Ø	d2	L	I1		€
11455010800	8,00	8,00	117	75	10	5,35
11455010810	8,10	8,10	117	75	5	7,38
11455010820	8,20	8,20	117	75	5	7,38
11455010825	8,25	8,25	117	75	5	6,06
11455010830	8,30	8,30	117	75	5	7,50
11455010840	8,40	8,40	117	75	5	7,50
11455010850	8,50	8,50	117	75	5	5,68
11455010860	8,60	8,60	125	81	5	8,02
11455010870	8,70	8,70	125	81	5	8,02
11455010875	8,75	8,75	125	81	5	6,86
11455010880	8,80	8,80	125	81	5	7,96
11455010890	8,90	8,90	125	81	5	7,96
11455010900	9,00	9,00	125	81	5	6,91
11455010910	9,10	9,10	125	81	5	9,38
11455010920	9,20	9,20	125	81	5	9,38
11455010925	9,25	9,25	125	81	5	7,78
11455010930	9,30	9,30	125	81	5	9,05
11455010940	9,40	9,40	125	81	5	9,05
11455010950	9,50	9,50	125	81	5	7,24
11455010960	9,60	9,60	133	87	5	10,87

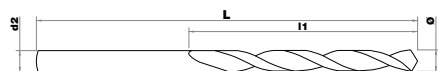
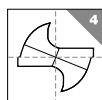
1145501	Ø	d2	L	I1		€
11455010970	9,70	9,70	133	87	5	10,87
11455010980	9,80	9,80	133	87	5	11,04
11455010990	9,90	9,90	133	87	5	11,05
11455011000	10,00	10,00	133	87	5	7,85
11455011010	10,10	10,10	133	87	5	12,00
11455011020	10,20	10,20	133	87	5	12,00
11455011025	10,25	10,25	133	87	5	18,05
11455011030	10,30	10,30	133	87	5	12,49
11455011040	10,40	10,40	133	87	5	12,49
11455011050	10,50	10,50	133	87	5	10,34
11455011100	11,00	11,00	142	94	5	11,95
11455011150	11,50	11,50	142	94	5	13,85
11455011200	12,00	12,00	151	101	5	14,20
11455011250	12,50	12,50	151	101	5	16,09
11455011300	13,00	13,00	151	101	5	18,01
11455011350	13,50	13,50	160	108	5	20,21
11455011400	14,00	14,00	160	108	5	21,45
11455011500	15,00	15,00	168	114	5	30,03
11455011600	16,00	16,00	178	120	5	36,24

**556****BROCA HSSE5 DIN 338 MANGO REDUCIDO**

Taladrados de profundidad media &lt; 3xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables

Medium deep drilling &lt; 3xd

Semi-hard steels up to 700 N/mm<sup>2</sup> and stainless steelsAceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 700 N / mm<sup>2</sup>**P**  
1-2Acero inoxidable  
ferrítico  
Ferritic  
stainless steel**P**  
5**HSS**  
**E5****GOLD**  
TREATED**DIN**  
**338****3xd**

SPLIT POINT




135°

**N**  
TYPE**h8**

	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P5</b>	14-16

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1145561	Ø	d2	L	I1		€
11455611000	10,00	10,00	133	87	1	15,18
11455611050	10,50	10,00	133	87	1	16,44
11455611100	11,00	10,00	142	94	1	18,24
11455611150	11,50	10,00	142	94	1	19,46
11455611200	12,00	10,00	151	101	1	21,12
11455611250	12,50	10,00	151	101	1	24,35
11455611300	13,00	12,70	151	101	1	25,51
11455611350	13,50	12,70	160	108	1	34,33
11455611400	14,00	12,70	160	108	1	40,53
11455611450	14,50	12,70	169	114	1	43,98
11455611500	15,00	12,70	169	114	1	45,00

1145561	Ø	d2	L	I1		€
11455611550	15,50	12,70	178	120	1	48,81
11455611600	16,00	12,70	178	120	1	49,49
11455611650	16,50	12,70	184	125	1	53,69
11455611700	17,00	12,70	184	125	1	59,06
11455611750	17,50	12,70	191	130	1	62,84
11455611800	18,00	12,70	191	130	1	64,73
11455611850	18,50	12,70	198	135	1	66,38
11455611900	19,00	12,70	198	135	1	70,34
11455611950	19,50	12,70	205	140	1	74,56
11455612000	20,00	12,70	205	140	1	74,99



# 558

## BROCA HSSE5 DIN 338 CUTINOX

Taladrados de profundidad media <3xd  
Aceros inoxidables ferríticos

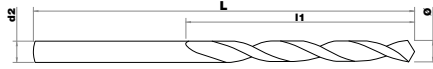
Medium deep drilling <3xd | Ferritic stainless steels



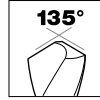
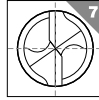
Acero inoxidable ferrítico  
Ferritic stainless steel



TALADRADO / DRILLING



	Vc
	M/min
<b>P5</b>	14-16



$$r.p.m = \frac{Vc \times 1000}{\pi \times \emptyset}$$

1145581	Ø	d2	L	l1		€
11455810080	0,80	0,80	30	10	10	4,54
11455810090	0,90	0,90	32	11	10	4,49
11455810100	1,00	1,00	34	12	10	4,11
11455810110	1,10	1,10	36	14	10	4,13
11455810120	1,20	1,20	38	16	10	4,58
11455810130	1,30	1,30	36	16	10	4,38
11455810140	1,40	1,40	40	18	10	4,09
11455810150	1,50	1,50	40	18	10	3,79
11455810160	1,60	1,60	43	20	10	4,49
11455810170	1,70	1,70	43	20	10	4,22
11455810180	1,80	1,80	46	22	10	4,22
11455810190	1,90	1,90	46	22	10	4,28
11455810200	2,00	2,00	49	24	10	3,49
11455810210	2,10	2,10	49	24	10	4,38
11455810220	2,20	2,20	53	27	10	4,38
11455810230	2,30	2,30	53	27	10	4,38
11455810240	2,40	2,40	57	30	10	4,41
11455810250	2,50	2,50	57	30	10	2,66
11455810260	2,60	2,60	57	30	10	2,70
11455810270	2,70	2,70	61	33	10	2,70
11455810275	2,75	2,75	61	33	10	5,42
11455810280	2,80	2,80	61	33	10	2,75
11455810290	2,90	2,90	61	33	10	3,61
11455810300	3,00	3,00	61	33	10	2,37
11455810310	3,10	3,10	65	36	10	2,90
11455810320	3,20	3,20	65	36	10	2,68
11455810325	3,25	3,25	65	36	10	3,08
11455810330	3,30	3,30	65	36	10	3,08
11455810340	3,40	3,40	70	39	10	3,08
11455810350	3,50	3,50	70	39	10	2,81
11455810360	3,60	3,60	70	39	10	3,83
11455810370	3,70	3,70	70	39	10	3,86
11455810375	3,75	3,75	70	39	10	5,88
11455810380	3,80	3,80	75	43	10	3,89
11455810390	3,90	3,90	75	43	10	4,06
11455810400	4,00	4,00	75	43	10	3,08
11455810410	4,10	4,10	75	43	10	3,47
11455810420	4,20	4,20	75	43	10	3,47
11455810425	4,25	4,25	75	43	10	3,80
11455810430	4,30	4,30	80	47	10	3,81
11455810440	4,40	4,40	80	47	10	4,55
11455810450	4,50	4,50	80	47	10	3,55
11455810460	4,60	4,60	80	47	10	4,63
11455810470	4,70	4,70	80	47	10	4,04
11455810475	4,75	4,75	80	47	10	6,04
11455810480	4,80	4,80	86	52	10	4,04
11455810490	4,90	4,90	86	52	10	4,09
11455810500	5,00	5,00	86	52	10	3,77
11455810510	5,10	5,10	86	52	10	4,32
11455810520	5,20	5,20	86	52	10	4,32
11455810525	5,25	5,25	86	52	10	4,77
11455810530	5,30	5,30	86	52	10	4,77
11455810540	5,40	5,40	93	57	10	6,30
11455810550	5,50	5,50	93	57	10	5,02
11455810560	5,60	5,60	93	57	10	5,69

1145581	Ø	d2	L	l1		€
11455810570	5,70	5,70	93	57	10	5,92
11455810575	5,75	5,75	93	57	10	8,02
11455810580	5,80	5,80	93	57	10	5,35
11455810590	5,90	5,90	93	57	10	6,04
11455810600	6,00	6,00	93	57	10	5,18
11455810610	6,10	6,10	101	63	10	5,77
11455810620	6,20	6,20	101	63	10	5,77
11455810625	6,25	6,25	101	63	10	5,87
11455810630	6,30	6,30	101	63	10	5,88
11455810640	6,40	6,40	101	63	10	6,67
11455810650	6,50	6,50	101	63	10	5,94
11455810660	6,60	6,60	101	63	10	7,74
11455810670	6,70	6,70	101	63	10	6,33
11455810675	6,75	6,75	109	69	10	7,95
11455810680	6,80	6,80	109	69	10	7,95
11455810690	6,90	6,90	109	69	10	7,77
11455810700	7,00	7,00	109	69	10	7,17
11455810710	7,10	7,10	109	69	10	7,87
11455810720	7,20	7,20	109	69	10	8,10
11455810730	7,30	7,30	109	69	10	8,10
11455810740	7,40	7,40	109	69	10	8,18
11455810750	7,50	7,50	109	69	10	7,50
11455810760	7,60	7,60	117	75	10	8,89
11455810770	7,70	7,70	117	75	10	9,62
11455810780	7,80	7,80	117	75	10	9,01
11455810790	7,90	7,90	117	75	10	9,23
11455810800	8,00	8,00	117	75	10	8,56
11455810810	8,10	8,10	117	75	5	9,40
11455810820	8,20	8,20	117	75	5	9,68
11455810830	8,30	8,30	117	75	5	9,60
11455810840	8,40	8,40	117	75	5	9,96
11455810850	8,50	8,50	117	75	5	9,04
11455810860	8,60	8,60	125	81	5	11,59
11455810870	8,70	8,70	125	81	5	11,59
11455810880	8,80	8,80	125	81	5	11,59
11455810890	8,90	8,90	125	81	5	11,86
11455810900	9,00	9,00	125	81	5	9,23
11455810910	9,10	9,10	125	81	5	11,86
11455810920	9,20	9,20	125	81	5	11,86
11455810930	9,30	9,30	125	81	5	12,51
11455810940	9,40	9,40	125	81	5	12,51
11455810950	9,50	9,50	125	81	5	12,25
11455810960	9,60	9,60	133	87	5	13,11
11455810970	9,70	9,70	133	87	5	13,11
11455810980	9,80	9,80	133	87	5	13,76
11455810990	9,90	9,90	133	87	5	13,76
11455811000	10,00	10,00	133	87	5	13,16
11455811020	10,20	10,20	133	87	5	15,95
11455811050	10,50	10,50	133	87	5	14,18
11455811100	11,00	11,00	142	94	5	15,66
11455811150	11,50	11,50	142	94	5	16,80
11455811200	12,00	12,00	151	101	5	18,07
11455811250	12,50	12,50	151	101	5	19,47
11455811300	13,00	13,00	151	101	5	20,03

# 561

## BROCA HSSE5 DIN 338 TBX TIALN

Taladrados de profundidad media <3xd

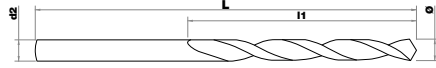
Aceros duros hasta 1200 N/mm² e inoxidables

Medium deep drilling <3xd | Stainless steels and hard steels up to 1200 n/mm²

Aceros fuertemente  
aleados 900-1200 N/mm²  
(32-38 HRC)  
Alloyed steel  
800-1000 N/mm²  
(23-32 HRC)

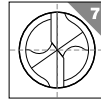
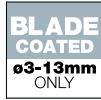


Aceros  
inoxidables  
Stainless  
steels



	Vc M/min
<b>P4</b>	6-16
<b>P5</b>	14-16
<b>P6</b>	10-14
<b>M1</b>	8-12

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



1145611	Ø	d2	L	l1	€	
11456110100	1,00	1,00	34	12	10	2,83
11456110110	1,10	1,10	36	14	10	4,18
11456110120	1,20	1,20	38	16	10	4,90
11456110130	1,30	1,30	38	16	10	4,05
11456110140	1,40	1,40	40	18	10	4,18
11456110150	1,50	1,50	40	18	10	2,94
11456110160	1,60	1,60	43	20	10	3,67
11456110170	1,70	1,70	43	20	10	4,18
11456110180	1,80	1,80	46	22	10	3,46
11456110190	1,90	1,90	46	22	10	3,42
11456110200	2,00	2,00	49	24	10	2,97
11456110210	2,10	2,10	49	24	10	3,42
11456110220	2,20	2,20	53	27	10	3,42
11456110230	2,30	2,30	53	27	10	3,42
11456110240	2,40	2,40	57	30	10	3,84
11456110250	2,50	2,50	57	30	10	3,74
11456110260	2,60	2,60	57	30	10	3,81
11456110270	2,70	2,70	61	33	10	3,81
11456110280	2,80	2,80	61	33	10	3,87
11456110290	2,90	2,90	61	33	10	5,09
11456110300	3,00	3,00	61	33	10	3,30
11456110310	3,10	3,10	65	36	10	4,09
11456110320	3,20	3,20	65	36	10	3,78
11456110330	3,30	3,30	65	36	10	4,31
11456110340	3,40	3,40	70	39	10	4,31
11456110350	3,50	3,50	70	39	10	3,97
11456110360	3,60	3,60	70	39	10	5,40
11456110370	3,70	3,70	70	39	10	5,46
11456110380	3,80	3,80	75	43	10	5,50
11456110390	3,90	3,90	75	43	10	5,69
11456110400	4,00	4,00	75	43	10	4,33
11456110410	4,10	4,10	75	43	10	4,87
11456110420	4,20	4,20	75	43	10	4,87
11456110430	4,30	4,30	80	47	10	5,36
11456110440	4,40	4,40	80	47	10	6,41
11456110450	4,50	4,50	80	47	10	5,01
11456110460	4,60	4,60	80	47	10	6,50
11456110470	4,70	4,70	80	47	10	5,66
11456110480	4,80	4,80	86	52	10	5,66
11456110490	4,90	4,90	86	52	10	5,76
11456110500	5,00	5,00	86	52	10	5,29
11456110510	5,10	5,10	86	52	10	6,06
11456110520	5,20	5,20	86	52	10	6,06
11456110530	5,30	5,30	86	52	10	6,71
11456110540	5,40	5,40	93	57	10	8,86
11456110550	5,50	5,50	93	57	10	7,07
11456110560	5,60	5,60	93	57	10	7,99
11456110570	5,70	5,70	93	57	10	8,31
11456110580	5,80	5,80	93	57	10	7,53
11456110590	5,90	5,90	93	57	10	8,50
11456110600	6,00	6,00	93	57	10	7,29
11456110610	6,10	6,10	101	63	10	8,11
11456110620	6,20	6,20	101	63	10	8,11

1145611	Ø	d2	L	l1	€	
11456110630	6,30	6,30	101	63	10	8,24
11456110640	6,40	6,40	101	63	10	9,35
11456110650	6,50	6,50	101	63	10	8,36
11456110660	6,60	6,60	101	63	10	10,87
11456110670	6,70	6,70	101	63	10	8,92
11456110680	6,80	6,80	109	69	10	11,18
11456110690	6,90	6,90	109	69	10	10,90
11456110700	7,00	7,00	109	69	10	10,07
11456110710	7,10	7,10	109	69	10	11,07
11456110720	7,20	7,20	109	69	10	11,40
11456110730	7,30	7,30	109	69	10	11,40
11456110740	7,40	7,40	109	69	10	11,51
11456110750	7,50	7,50	109	69	10	10,56
11456110760	7,60	7,60	117	75	10	12,49
11456110770	7,70	7,70	117	75	10	13,51
11456110780	7,80	7,80	117	75	10	12,65
11456110790	7,90	7,90	117	75	10	12,98
11456110800	8,00	8,00	117	75	10	12,05
11456110810	8,10	8,10	117	75	5	13,22
11456110820	8,20	8,20	117	75	5	13,62
11456110830	8,30	8,30	117	75	5	13,47
11456110840	8,40	8,40	117	75	5	14,02
11456110850	8,50	8,50	117	75	5	12,69
11456110860	8,60	8,60	125	81	5	16,27
11456110870	8,70	8,70	125	81	5	16,27
11456110880	8,80	8,80	125	81	5	16,27
11456110890	8,90	8,90	125	81	5	16,66
11456110900	9,00	9,00	125	81	5	12,98
11456110910	9,10	9,10	125	81	5	16,66
11456110920	9,20	9,20	125	81	5	16,66
11456110930	9,30	9,30	125	81	5	17,60
11456110940	9,40	9,40	125	81	5	17,60
11456110950	9,50	9,50	125	81	5	17,23
11456110960	9,60	9,60	133	87	5	18,44
11456110970	9,70	9,70	133	87	5	18,44
11456110980	9,80	9,80	133	87	5	19,33
11456110990	9,90	9,90	133	87	5	19,33
11456111000	10,00	10,00	133	87	5	18,52
11456111020	10,20	10,20	133	87	5	22,44
11456111050	10,50	10,50	133	87	5	19,96
11456111100	11,00	11,00	142	94	5	21,99
11456111150	11,50	11,50	142	94	5	23,62
11456111200	12,00	12,00	151	101	5	25,42
11456111250	12,50	12,50	151	101	5	27,39
11456111300	13,00	13,00	151	101	5	28,16
11456111400	14,00	12,00	160	108	1	53,70
11456111500	15,00	12,00	169	114	1	57,99
11456111600	16,00	12,00	178	120	1	69,51
11456111700	17,00	12,00	184	125	1	77,97
11456111800	18,00	12,00	191	130	1	93,76
11456111900	19,00	12,00	198	135	1	103,40
11456112000	20,00	12,00	205	140	1	130,10

# 016

## BROCA HSSE8 DIN 338

Taladrados de profundidad media <3xd

Aleaciones refractarias Co/Ni y aleaciones de titanio

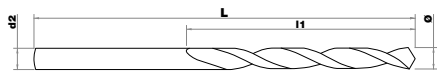
Medium deep drilling <3xd | Co/Ni based special alloys and titanium alloys

Aleaciones refractarias con base Co  
Refractory alloys based Co

**S3**

Aleaciones refractarias de Titanio  
Refractory alloys de Titanium

**S4**



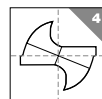
	Vc M/min
<b>S3</b>	10
<b>S4</b>	10

**HSS E8**

**BRIGHT UNCOATED**

**DIN 338**

**3xd**



SPLIT POINT



**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140161	Ø	d2	L	H	Ø	€
81401610200	2,00	2,00	49	24	10	5,82
81401610210	2,10	2,10	49	24	10	7,34
81401610220	2,20	2,20	53	27	10	6,54
81401610225	2,25	2,25	53	27	10	12,45
81401610230	2,30	2,30	53	27	10	10,99
81401610240	2,40	2,40	57	30	10	6,47
81401610250	2,50	2,50	57	30	10	6,23
81401610260	2,60	2,60	57	30	10	7,46
81401610270	2,70	2,70	61	33	10	7,36
81401610275	2,75	2,75	61	33	10	12,43
81401610280	2,80	2,80	61	33	10	7,38
81401610290	2,90	2,90	61	33	10	6,89
81401610300	3,00	3,00	61	33	10	5,62
81401610310	3,10	3,10	65	36	10	7,85
81401610320	3,20	3,20	65	36	10	6,89
81401610325	3,25	3,25	65	36	10	6,97
81401610330	3,30	3,30	65	36	10	7,21
81401610340	3,40	3,40	70	39	10	7,43
81401610350	3,50	3,50	70	39	10	6,89
81401610360	3,60	3,60	70	39	10	8,81
81401610370	3,70	3,70	70	39	10	9,59
81401610375	3,75	3,75	70	39	10	12,10
81401610380	3,80	3,80	75	43	10	7,67
81401610390	3,90	3,90	75	43	10	7,92
81401610400	4,00	4,00	75	43	10	7,43
81401610410	4,10	4,10	75	43	10	8,04
81401610420	4,20	4,20	75	43	10	8,13
81401610425	4,25	4,25	75	43	10	7,99
81401610430	4,30	4,30	80	47	10	8,61
81401610440	4,40	4,40	80	47	10	11,43
81401610450	4,50	4,50	80	47	10	8,26
81401610460	4,60	4,60	80	47	10	10,22
81401610470	4,70	4,70	80	47	10	9,27
81401610475	4,75	4,75	80	47	10	9,15
81401610480	4,80	4,80	86	52	10	9,38
81401610490	4,90	4,90	86	52	10	9,57
81401610500	5,00	5,00	86	52	10	8,83
81401610510	5,10	5,10	86	52	10	9,66
81401610520	5,20	5,20	86	52	10	9,78
81401610525	5,25	5,25	86	52	10	9,92
81401610530	5,30	5,30	86	52	10	9,92
81401610540	5,40	5,40	93	57	10	18,53

8140161	Ø	d2	L	H	Ø	€
81401610550	5,50	5,50	93	57	10	11,34
81401610560	5,60	5,60	93	57	10	12,51
81401610570	5,70	5,70	93	57	10	12,51
81401610575	5,75	5,75	93	57	10	12,51
81401610580	5,80	5,80	93	57	10	12,51
81401610590	5,90	5,90	93	57	10	12,51
81401610600	6,00	6,00	93	57	10	11,87
81401610610	6,10	6,10	101	63	10	13,82
81401610620	6,20	6,20	101	63	10	13,98
81401610625	6,25	6,25	101	63	10	13,98
81401610630	6,30	6,30	101	63	10	13,98
81401610640	6,40	6,40	101	63	10	16,62
81401610650	6,50	6,50	101	63	10	13,82
81401610660	6,60	6,60	101	63	10	15,11
81401610670	6,70	6,70	101	63	10	15,11
81401610675	6,75	6,75	109	69	10	16,22
81401610680	6,80	6,80	109	69	10	16,22
81401610690	6,90	6,90	109	69	10	16,22
81401610700	7,00	7,00	109	69	10	14,59
81401610710	7,10	7,10	109	69	10	19,74
81401610720	7,20	7,20	109	69	10	19,74
81401610725	7,25	7,25	109	69	10	19,74
81401610730	7,30	7,30	109	69	10	19,74
81401610740	7,40	7,40	109	69	10	19,74
81401610750	7,50	7,50	109	69	10	15,50
81401610760	7,60	7,60	117	75	10	23,95
81401610770	7,70	7,70	117	75	10	23,95
81401610775	7,75	7,75	117	75	10	23,95
81401610780	7,80	7,80	117	75	10	23,95
81401610790	7,90	7,90	117	75	10	23,95
81401610800	8,00	8,00	117	75	10	18,12
81401610810	8,10	8,10	117	75	5	23,95
81401610820	8,20	8,20	117	75	5	23,95
81401610825	8,25	8,25	117	75	5	22,80
81401610830	8,30	8,30	117	75	5	23,95
81401610840	8,40	8,40	117	75	5	23,95
81401610850	8,50	8,50	117	75	5	18,89
81401610860	8,60	8,60	125	81	5	28,08
81401610870	8,70	8,70	125	81	5	28,08
81401610875	8,75	8,75	125	81	5	29,15
81401610880	8,80	8,80	125	81	5	29,15
81401610890	8,90	8,90	125	81	5	29,15

## 016

**BROCA HSSE8 DIN 338**

Taladros de profundidad media &lt;3xd

Aleaciones refractarias Co/Ni y aleaciones de titanio

Medium deep drilling &lt;3xd | Co/Ni based special alloys and titanium alloys

8140161	Ø	d2	L	l1		€
81401610900	9,00	9,00	125	81	5	24,16
81401610910	9,10	9,10	125	81	5	31,17
81401610920	9,20	9,20	125	81	5	31,17
81401610925	9,25	9,25	125	81	5	32,23
81401610930	9,30	9,30	125	81	5	34,28
81401610940	9,40	9,40	125	81	5	34,28
81401610950	9,50	9,50	125	81	5	24,93
81401610960	9,60	9,60	133	87	5	38,46
81401610970	9,70	9,70	133	87	5	39,40
81401610975	9,75	9,75	133	87	5	38,02
81401610980	9,80	9,80	133	87	5	39,47
81401610990	9,90	9,90	133	87	5	39,47
81401611000	10,00	10,00	133	87	5	27,58
81401611010	10,10	10,10	133	87	5	44,89
81401611020	10,20	10,20	133	87	5	39,47
81401611025	10,25	10,25	133	87	5	54,16
81401611030	10,30	10,30	133	87	5	53,08
81401611040	10,40	10,40	133	87	5	54,26
81401611050	10,50	10,50	133	87	5	40,52
81401611060	10,60	10,60	133	87	5	48,29
81401611070	10,70	10,70	142	94	5	57,62
81401611075	10,75	10,75	142	94	5	57,65
81401611080	10,80	10,80	142	94	5	46,03
81401611090	10,90	10,90	142	94	5	57,76
81401611100	11,00	11,00	142	94	5	44,70
81401611110	11,10	11,10	142	94	5	51,72

8140161	Ø	d2	L	l1		€
81401611120	11,20	11,20	142	94	5	60,51
81401611125	11,25	11,25	142	94	5	60,54
81401611130	11,30	11,30	142	94	5	60,59
81401611140	11,40	11,40	142	94	5	60,66
81401611150	11,50	11,50	142	94	5	57,15
81401611160	11,60	11,60	142	94	5	70,17
81401611170	11,70	11,70	142	94	5	92,16
81401611175	11,75	11,75	142	94	5	92,20
81401611180	11,80	11,80	142	94	5	92,36
81401611190	11,90	11,90	151	101	5	78,07
81401611200	12,00	12,00	151	101	5	61,31
81401611210	12,10	12,10	151	101	5	78,02
81401611220	12,20	12,20	151	101	5	103,03
81401611225	12,25	12,25	151	101	5	103,08
81401611230	12,30	12,30	151	101	5	103,15
81401611240	12,40	12,40	151	101	5	94,32
81401611250	12,50	12,50	151	101	5	76,88
81401611260	12,60	12,60	151	101	5	85,50
81401611270	12,70	12,70	151	101	5	106,43
81401611275	12,75	12,75	151	101	5	106,48
81401611280	12,80	12,80	151	101	5	106,54
81401611300	13,00	13,00	151	101	5	83,12
81401611400	14,00	14,00	160	108	5	84,94
81401611500	15,00	15,00	169	114	5	122,24
81401611600	16,00	16,00	178	120	1	146,61



814031 &gt; HSSE8 DIN 1897 &gt; pág. 21



814048 &gt; HSSE8 DIN 340 &gt; pág. 40

# 392

## BROCA HSSE5 DIN 338 TiAlN

Taladrados profundidad media <3xd

Aceros duros hasta 1.200 N/mm<sup>2</sup>, inoxidables, aluminio y fundición

Medium deep drilling < 3xd | Hard steels up 1.200 N/mm<sup>2</sup>, stainless steels, aluminium and cast iron

New



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**HSS E5**

**TiAlN COATED**

**DIN 338**

**3xd**



**h8**

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P 1-2**

Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)  
Alloyed steel 800-1000 N/mm<sup>2</sup> (23-32 HRC)

**P 4**

Aceros inoxidables  
Stainless steels

**P-M**

Fundición dúctil grafito esferoidal (GGG)  
Ductile cast iron spheroidal graphite (GGG)

**K 3**

Aleaciones de Aluminio serie 4000 0,5% <Si <5%  
Aluminum alloys serie 4000 with Si <0.5%

**N 1.4.1**

	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P4</b>	6-16
<b>P5</b>	14-16
<b>P6</b>	10-14
<b>M1</b>	8-12
<b>K3</b>	12-16
<b>N1.4.1</b>	30-40

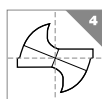
8143921	Ø	d2	L	I1	€	
81439210250	2,50	2,50	57	30	10	14,35
81439210260	2,60	2,60	57	30	10	15,02
81439210270	2,70	2,70	61	33	10	15,48
81439210280	2,80	2,80	61	33	10	15,66
81439210290	2,90	2,90	61	33	10	15,66
81439210300	3,00	3,00	61	33	10	14,56
81439210310	3,10	3,10	65	36	10	16,04
81439210320	3,20	3,20	65	36	10	15,85
81439210325	3,25	3,25	65	36	10	15,02
81439210330	3,30	3,30	65	36	10	16,81
81439210340	3,40	3,40	70	39	10	16,54
81439210350	3,50	3,50	70	39	10	17,15
81439210360	3,60	3,60	70	39	10	17,18
81439210370	3,70	3,70	70	39	10	17,47
81439210380	3,80	3,80	75	43	10	18,09
81439210390	3,90	3,90	75	43	10	19,00
81439210400	4,00	4,00	75	43	10	16,36
81439210410	4,10	4,10	75	43	10	18,09
81439210420	4,20	4,20	75	43	10	17,53
81439210425	4,25	4,25	75	43	10	16,67
81439210430	4,30	4,30	80	47	10	19,08
81439210440	4,40	4,40	80	47	10	19,08
81439210450	4,50	4,50	80	47	10	18,09
81439210460	4,60	4,60	80	47	10	19,08
81439210470	4,70	4,70	80	47	10	19,08
81439210475	4,75	4,75	80	47	10	17,89
81439210480	4,80	4,80	86	52	10	19,23
81439210490	4,90	4,90	86	52	10	19,70
81439210500	5,00	5,00	86	52	10	18,59
81439210510	5,10	5,10	86	52	10	20,13
81439210520	5,20	5,20	86	52	10	20,36
81439210525	5,25	5,25	86	52	10	19,61
81439210530	5,30	5,30	86	52	10	20,36
81439210540	5,40	5,40	93	57	10	21,88
81439210550	5,50	5,50	93	57	10	20,62
81439210560	5,60	5,60	93	57	10	21,10
81439210570	5,70	5,70	93	57	10	22,00
81439210575	5,75	5,75	93	57	10	22,29
81439210580	5,80	5,80	93	57	10	22,25
81439210590	5,90	5,90	93	57	10	22,25
81439210600	6,00	6,00	93	57	10	21,60
81439210610	6,10	6,10	101	63	10	29,72
81439210620	6,20	6,20	101	63	10	30,54
81439210625	6,25	6,25	101	63	10	31,19
81439210630	6,30	6,30	101	63	10	31,74
81439210640	6,40	6,40	101	63	10	32,16
81439210650	6,50	6,50	101	63	10	30,64
81439210660	6,60	6,60	101	63	10	33,42
81439210670	6,70	6,70	101	63	10	33,50
81439210675	6,75	6,75	109	69	10	32,96

8143921	Ø	d2	L	I1	€	
81439210680	6,80	6,80	109	69	10	34,33
81439210690	6,90	6,90	109	69	10	34,43
81439210700	7,00	7,00	109	69	10	30,58
81439210710	7,10	7,10	109	69	10	41,30
81439210720	7,20	7,20	109	69	10	41,30
81439210725	7,25	7,25	109	69	10	40,87
81439210730	7,30	7,30	109	69	10	41,30
81439210740	7,40	7,40	109	69	10	41,30
81439210750	7,50	7,50	109	69	10	36,36
81439210760	7,60	7,60	117	75	10	38,92
81439210770	7,70	7,70	117	75	10	38,92
81439210775	7,75	7,75	117	75	10	43,67
81439210780	7,80	7,80	117	75	10	38,92
81439210790	7,90	7,90	117	75	10	39,34
81439210800	8,00	8,00	117	75	10	37,19
81439210810	8,10	8,10	117	75	5	49,65
81439210820	8,20	8,20	117	75	5	49,85
81439210825	8,25	8,25	117	75	5	51,87
81439210830	8,30	8,30	117	75	5	53,60
81439210840	8,40	8,40	117	75	5	54,07
81439210850	8,50	8,50	117	75	5	41,75
81439210860	8,60	8,60	125	81	5	57,37
81439210870	8,70	8,70	125	81	5	57,82
81439210880	8,80	8,80	125	81	5	57,82
81439210890	8,90	8,90	125	81	5	58,71
81439210900	9,00	9,00	125	81	5	43,20
81439210910	9,10	9,10	125	81	5	60,80
81439210920	9,20	9,20	125	81	5	62,04
81439210930	9,30	9,30	125	81	5	62,04
81439210940	9,40	9,40	125	81	5	62,04
81439210950	9,50	9,50	125	81	5	47,96
81439210960	9,60	9,60	133	87	5	66,07
81439210970	9,70	9,70	133	87	5	69,99
81439210980	9,80	9,80	133	87	5	69,15
81439210990	9,90	9,90	133	87	5	69,62
81439211000	10,00	10,00	133	87	5	47,60
81439211020	10,20	10,20	133	87	5	70,95
81439211025	10,25	10,25	133	87	5	68,89
81439211050	10,50	10,50	133	87	5	63,85
81439211075	10,75	10,75	142	94	5	101,79
81439211080	10,80	10,80	142	94	5	101,60
81439211100	11,00	11,00	142	94	5	69,16
81439211120	11,20	11,20	142	94	5	120,81
81439211150	11,50	11,50	142	94	5	75,66
81439211180	11,80	11,80	142	94	5	124,80
81439211200	12,00	12,00	151	101	5	106,34
81439211220	12,20	12,20	151	101	5	146,92
81439211250	12,50	12,50	151	101	5	110,23
81439211280	12,80	12,80	151	101	5	158,52
81439211300	13,00	13,00	151	101	5	132,61



**056 BROCA HSS DIN 340 SERIE LARGA**

Taladros profundos &lt;7xd

Aceros blandos hasta 400 N/mm<sup>2</sup>Deep drilling <7xd | Soft steels up to 400 N/mm<sup>2</sup>Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>**HSS****STEAM  
TREATED****DIN  
340****7xd**

SPLIT POINT

**h8**

<b>Vc</b>
<b>M/min</b>
<b>P1</b> 26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

<b>1140561</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>l1</b>		<b>€</b>
11405610080	<b>0,80</b>	0,80	51	26	10	<b>5,51</b>
11405610090	<b>0,90</b>	0,90	51	26	10	<b>5,51</b>
11405610100	<b>1,00</b>	1,00	56	33	10	<b>5,51</b>
11405610120	<b>1,20</b>	1,20	65	41	10	<b>4,99</b>
11405610130	<b>1,30</b>	1,30	65	41	10	<b>4,99</b>
11405610150	<b>1,50</b>	1,50	70	45	10	<b>3,92</b>
11405610175	<b>1,75</b>	1,75	80	53	10	<b>3,92</b>
11405610180	<b>1,80</b>	1,80	80	53	10	<b>3,85</b>
11405610190	<b>1,90</b>	1,90	85	56	10	<b>3,85</b>
11405610200	<b>2,00</b>	2,00	85	56	10	<b>2,73</b>
11405610220	<b>2,20</b>	2,20	90	59	10	<b>3,05</b>
11405610225	<b>2,25</b>	2,25	90	59	10	<b>3,05</b>
11405610250	<b>2,50</b>	2,50	95	62	10	<b>3,05</b>
11405610255	<b>2,55</b>	2,55	95	62	10	<b>3,05</b>
11405610260	<b>2,60</b>	2,60	95	62	10	<b>3,05</b>
11405610270	<b>2,70</b>	2,70	100	66	10	<b>3,05</b>
11405610275	<b>2,75</b>	2,75	100	66	10	<b>3,41</b>
11405610300	<b>3,00</b>	3,00	100	66	10	<b>2,84</b>
11405610310	<b>3,10</b>	3,10	106	69	10	<b>2,84</b>
11405610320	<b>3,20</b>	3,20	106	69	10	<b>3,09</b>
11405610325	<b>3,25</b>	3,25	106	69	10	<b>3,13</b>
11405610330	<b>3,30</b>	3,30	106	69	10	<b>3,13</b>
11405610340	<b>3,40</b>	3,40	112	73	10	<b>3,13</b>
11405610350	<b>3,50</b>	3,50	112	73	10	<b>3,13</b>
11405610375	<b>3,75</b>	3,75	112	73	10	<b>3,77</b>
11405610380	<b>3,80</b>	3,80	119	78	10	<b>3,77</b>
11405610390	<b>3,90</b>	3,90	119	78	10	<b>3,77</b>
11405610400	<b>4,00</b>	4,00	119	78	10	<b>3,32</b>
11405610410	<b>4,10</b>	4,10	119	78	10	<b>4,05</b>
11405610420	<b>4,20</b>	4,20	119	78	10	<b>4,15</b>
11405610425	<b>4,25</b>	4,25	119	78	10	<b>4,24</b>
11405610430	<b>4,30</b>	4,30	126	82	10	<b>4,24</b>
11405610440	<b>4,40</b>	4,40	126	82	10	<b>4,24</b>
11405610450	<b>4,50</b>	4,50	126	82	10	<b>3,80</b>
11405610460	<b>4,60</b>	4,60	126	82	10	<b>3,80</b>
11405610470	<b>4,70</b>	4,70	126	82	10	<b>3,80</b>
11405610475	<b>4,75</b>	4,75	126	82	10	<b>4,70</b>
11405610480	<b>4,80</b>	4,80	132	87	10	<b>4,70</b>
11405610490	<b>4,90</b>	4,90	132	87	10	<b>4,70</b>
11405610500	<b>5,00</b>	5,00	132	87	10	<b>4,07</b>
11405610520	<b>5,20</b>	5,20	132	87	10	<b>5,07</b>
11405610525	<b>5,25</b>	5,25	132	87	10	<b>5,24</b>
11405610540	<b>5,40</b>	5,40	139	91	10	<b>5,24</b>
11405610550	<b>5,50</b>	5,50	139	91	10	<b>5,08</b>

<b>1140561</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>l1</b>		<b>€</b>
11405610560	<b>5,60</b>	5,60	139	91	10	<b>5,08</b>
11405610570	<b>5,70</b>	5,70	139	91	10	<b>5,08</b>
11405610575	<b>5,75</b>	5,75	139	91	10	<b>5,77</b>
11405610580	<b>5,80</b>	5,80	139	91	10	<b>5,77</b>
11405610600	<b>6,00</b>	6,00	139	91	10	<b>5,24</b>
11405610620	<b>6,20</b>	6,20	148	97	10	<b>5,24</b>
11405610625	<b>6,25</b>	6,25	148	97	10	<b>6,59</b>
11405610630	<b>6,30</b>	6,30	148	97	10	<b>6,59</b>
11405610650	<b>6,50</b>	6,50	148	97	10	<b>6,62</b>
11405610660	<b>6,60</b>	6,60	148	97	10	<b>8,17</b>
11405610670	<b>6,70</b>	6,70	156	102	10	<b>8,17</b>
11405610675	<b>6,75</b>	6,75	156	102	10	<b>8,17</b>
11405610680	<b>6,80</b>	6,80	156	102	10	<b>8,17</b>
11405610700	<b>7,00</b>	7,00	156	102	10	<b>7,60</b>
11405610710	<b>7,10</b>	7,10	156	102	10	<b>7,60</b>
11405610725	<b>7,25</b>	7,25	156	102	10	<b>7,60</b>
11405610740	<b>7,40</b>	7,40	156	102	10	<b>7,60</b>
11405610750	<b>7,50</b>	7,50	156	102	10	<b>8,15</b>
11405610760	<b>7,60</b>	7,60	165	109	10	<b>9,48</b>
11405610770	<b>7,70</b>	7,70	165	109	10	<b>9,48</b>
11405610790	<b>7,90</b>	7,90	165	109	10	<b>9,48</b>
11405610800	<b>8,00</b>	8,00	165	109	10	<b>9,48</b>
11405610810	<b>8,10</b>	8,10	165	109	10	<b>10,43</b>
11405610825	<b>8,25</b>	8,25	165	109	10	<b>10,43</b>
11405610830	<b>8,30</b>	8,30	165	109	10	<b>10,43</b>
11405610840	<b>8,40</b>	8,40	165	109	10	<b>10,43</b>
11405610850	<b>8,50</b>	8,50	165	109	5	<b>10,43</b>
11405610860	<b>8,60</b>	8,60	175	115	5	<b>11,20</b>
11405610870	<b>8,70</b>	8,70	175	115	5	<b>11,20</b>
11405610880	<b>8,80</b>	8,80	175	115	5	<b>11,20</b>
11405610890	<b>8,90</b>	8,90	175	115	5	<b>11,20</b>
11405610900	<b>9,00</b>	9,00	175	115	5	<b>11,20</b>
11405610940	<b>9,40</b>	9,40	175	115	5	<b>11,20</b>
11405610950	<b>9,50</b>	9,50	175	115	5	<b>11,85</b>
11405610960	<b>9,60</b>	9,60	184	121	5	<b>11,95</b>
11405610970	<b>9,70</b>	9,70	184	121	5	<b>11,95</b>
11405610975	<b>9,75</b>	9,75	184	121	5	<b>11,95</b>
11405611000	<b>10,00</b>	10,00	184	121	5	<b>11,95</b>
11405611050	<b>10,50</b>	10,50	184	121	5	<b>20,89</b>
11405611100	<b>11,00</b>	11,00	195	128	5	<b>19,35</b>
11405611150	<b>11,50</b>	11,50	195	128	5	<b>20,89</b>
11405611200	<b>12,00</b>	12,00	205	134	5	<b>21,82</b>
11405611250	<b>12,50</b>	12,50	205	134	5	<b>22,77</b>
11405611300	<b>13,00</b>	13,00	205	134	5	<b>23,71</b>

# 057

## BROCA HSSE5 DIN 340 SERIE LARGA

Taladrados profundos <7xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables

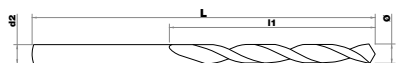
Deep drilling <7xd | Semi-hard steels up to 700 N/mm<sup>2</sup> and stainless steels

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>

**P**  
1-2

Aceros inoxidables ferríticos  
Ferritic stainless steel

**P**  
5

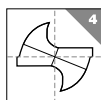


**HSS E5**

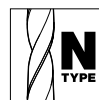
**GOLD TREATED**

**DIN 340**

**7xd**



SPLIT POINT



**h8**

	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P5</b>	14-16

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1140571	Ø	d2	L	I1	Ø	€
11405710150	1,50	1,50	70	45	10	4,37
11405710200	2,00	2,00	85	56	10	5,40
11405710240	2,40	2,40	95	62	10	5,46
11405710250	2,50	2,50	95	62	10	6,41
11405710275	2,75	2,75	95	62	10	6,41
11405710300	3,00	3,00	100	66	10	6,41
11405710320	3,20	3,20	100	66	10	6,41
11405710325	3,25	3,25	100	66	10	6,41
11405710330	3,30	3,30	100	66	10	6,41
11405710350	3,50	3,50	112	73	10	7,62
11405710375	3,75	3,75	112	73	10	7,62
11405710390	3,90	3,90	119	78	10	7,62
11405710400	4,00	4,00	119	78	10	7,62
11405710410	4,10	4,10	119	78	10	7,62
11405710420	4,20	4,20	119	78	10	7,62
11405710450	4,50	4,50	126	82	10	9,71
11405710500	5,00	5,00	132	87	10	9,71
11405710510	5,10	5,10	132	87	10	9,71
11405710520	5,20	5,20	132	87	10	9,71

1140571	Ø	d2	L	I1	Ø	€
11405710525	5,25	5,25	132	87	10	9,71
11405710550	5,50	5,50	139	91	10	10,64
11405710570	5,70	5,70	139	91	10	10,64
11405710575	5,75	5,75	139	91	10	10,64
11405710580	5,80	5,80	139	91	10	10,64
11405710600	6,00	6,00	139	91	10	10,64
11405710650	6,50	6,50	148	97	10	13,56
11405710700	7,00	7,00	156	102	10	14,71
11405710800	8,00	8,00	165	109	10	16,57
11405710850	8,50	8,50	165	109	5	20,44
11405710900	9,00	9,00	175	115	5	20,44
11405710950	9,50	9,50	175	115	5	20,44
11405711000	10,00	10,00	184	121	5	32,08
11405711050	10,50	10,50	184	121	5	35,35
11405711100	11,00	11,00	195	128	1	36,70
11405711150	11,50	11,50	195	128	1	47,59
11405711200	12,00	12,00	205	134	1	39,44
11405711250	12,50	12,50	205	134	1	50,30
11405711300	13,00	13,00	205	134	1	50,30

# 042

## BROCA HSSE5 DIN 340 SERIE LARGA

Taladrados profundos <7xd

Aceros duros hasta 700 N/mm<sup>2</sup> e inoxidables

Deep drilling <7xd | Hard steels up to 700 N/mm<sup>2</sup> and stainless steels

Aceros inoxidables  
Stainless steels

**P-M**

New

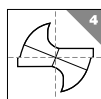


**HSS E5**

**BRIGHT UNCOATED**

**DIN 340**

**7xd**



SPLIT POINT



**h8**

	Vc M/min
<b>P5</b>	14-16
<b>P6</b>	10-14
<b>M1</b>	8-12

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140421	Ø	d2	L	I1	Ø	€
81404210100	1,00	1,00	56	33	10	16,26
81404210120	1,20	1,20	65	41	10	18,83
81404210125	1,25	1,25	65	41	10	18,87
81404210130	1,30	1,30	65	41	10	18,62
81404210140	1,40	1,40	70	45	10	18,40
81404210150	1,50	1,50	70	45	10	15,55
81404210160	1,60	1,60	76	50	10	17,78
81404210170	1,70	1,70	80	53	10	17,69
81404210180	1,80	1,80	80	53	10	17,24

8140421	Ø	d2	L	I1	Ø	€
81404210200	2,00	2,00	85	56	10	12,90
81404210210	2,10	2,10	85	56	10	16,08
81404210250	2,50	2,50	95	62	10	13,23
81404210270	2,70	2,70	100	66	10	19,61
81404210290	2,90	2,90	100	66	10	16,64
81404210300	3,00	3,00	100	66	10	11,92
81404210320	3,20	3,20	106	69	10	16,76
81404210325	3,25	3,25	106	69	10	16,76
81404210330	3,30	3,30	106	69	10	16,76

**042****BROCA HSSE5 DIN 340 SERIE LARGA**

Taladrados profundos &lt;7xd

Aceros duros hasta 700 N/mm<sup>2</sup> e inoxidablesDeep drilling <7xd | Hard steels up to 700 N/mm<sup>2</sup> and stainless steels

New

8140421	Ø	d2	L	I1		€
81404210350	3,50	3,50	112	73	10	14,05
81404210370	3,70	3,70	112	73	10	18,39
81404210380	3,80	3,80	119	78	10	20,11
81404210400	4,00	4,00	119	78	10	14,72
81404210410	4,10	4,10	119	78	10	18,40
81404210420	4,20	4,20	119	78	10	18,71
81404210430	4,30	4,30	126	82	10	20,16
81404210450	4,50	4,50	126	82	10	19,37
81404210500	5,00	5,00	132	87	10	18,82
81404210510	5,10	5,10	132	87	10	22,10
81404210520	5,20	5,20	132	87	10	22,10
81404210550	5,50	5,50	139	91	10	21,94

8140421	Ø	d2	L	I1		€
81404210580	5,80	5,80	139	91	10	26,08
81404210600	6,00	6,00	139	91	10	22,10
81404210650	6,50	6,50	148	97	10	25,34
81404210675	6,75	6,75	156	102	10	36,80
81404210700	7,00	7,00	156	102	10	30,66
81404210800	8,00	8,00	165	109	10	36,19
81404210850	8,50	8,50	165	109	5	37,45
81404210900	9,00	9,00	175	115	5	41,45
81404210950	9,50	9,50	175	115	5	47,37
81404211000	10,00	10,00	184	121	5	72,44
81404211050	10,50	10,50	184	121	5	85,70
81404211200	12,00	12,00	205	134	5	105,27

**048****BROCA HSSE8 DIN 340 SERIE LARGA**

Taladrados profundos &lt;7xd

Aleaciones refractarias Co/Ni y aleaciones de titanio

Deep drilling &lt;7xd | Co/Ni based special alloys and titanium alloys

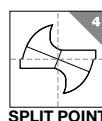
New

Aleaciones refractarias con base Co  
Refractory alloys based Co**S3**Aleaciones refractarias de Titanio  
Refractory alloys de Titanium**S4**

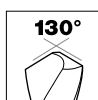
	Vc M/min
<b>S3</b>	10
<b>S4</b>	10

**HSS E8**

BRIGHT UNCOATED

**DIN 340****7xd**

SPLIT POINT



130°



N TYPE

**h8**

$$r.p.m = \frac{V_c \times 1000}{\pi \times \varnothing}$$

8140481	Ø	d2	L	I1		€
81404810200	2,00	2,00	85	56	10	15,79
81404810250	2,50	2,50	95	62	10	16,81
81404810280	2,80	2,80	100	66	10	21,12
81404810300	3,00	3,00	100	66	10	13,78
81404810320	3,20	3,20	106	69	10	21,27
81404810330	3,30	3,30	106	69	10	21,27
81404810350	3,50	3,50	112	73	10	17,84
81404810370	3,70	3,70	112	73	10	21,62
81404810400	4,00	4,00	119	78	10	18,70
81404810410	4,10	4,10	119	78	10	23,08
81404810420	4,20	4,20	119	78	10	23,08
81404810450	4,50	4,50	126	82	10	24,60
81404810470	4,70	4,70	126	82	10	26,88
81404810480	4,80	4,80	132	87	10	27,01
81404810500	5,00	5,00	132	87	10	23,85
81404810510	5,10	5,10	132	87	10	28,04
81404810550	5,50	5,50	139	91	10	32,80

8140481	Ø	d2	L	I1		€
81404810580	5,80	5,80	139	91	10	31,53
81404810600	6,00	6,00	139	91	10	28,04
81404810650	6,50	6,50	148	97	10	32,16
81404810680	6,80	6,80	156	102	10	46,76
81404810700	7,00	7,00	156	102	10	38,97
81404810750	7,50	7,50	156	102	10	47,60
81404810800	8,00	8,00	165	109	10	44,15
81404810820	8,20	8,20	165	109	10	60,46
81404810850	8,50	8,50	165	109	5	47,60
81404810900	9,00	9,00	175	115	5	48,46
81404810950	9,50	9,50	175	115	5	59,72
81404810980	9,80	9,80	184	121	5	94,99
81404811000	10,00	10,00	184	121	5	91,67
81404811100	11,00	11,00	195	128	5	117,55
81404811200	12,00	12,00	205	134	5	122,77
81404811250	12,50	12,50	205	134	5	160,71
81404811300	13,00	13,00	205	134	5	164,42

# 154

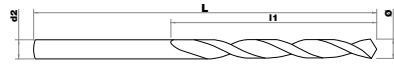
## BROCA HSS DIN 1869 SERIE EXTRA LARGA

Taladrados muy profundos > 10xd

Aceros blandos hasta 400 N/mm<sup>2</sup>

Very deep drilling > 10xd | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 500 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	26-32

**HSS**

**STEAM  
TREATED**

**DIN  
1869**

**>10xd**

**118°**

**N  
TYPE**

**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

<b>1141541</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11415410200	<b>2,00</b>	2,00	125	85	1	<b>13,25</b>
11415410250	<b>2,50</b>	2,50	140	95	1	<b>13,10</b>
11415410300	<b>3,00</b>	3,00	150	100	1	<b>14,33</b>
11415410350	<b>3,50</b>	3,50	165	115	1	<b>15,31</b>
11415410400	<b>4,00</b>	4,00	175	120	1	<b>15,31</b>
11415410450	<b>4,50</b>	4,50	185	125	1	<b>16,97</b>
11415410500	<b>5,00</b>	5,00	195	135	1	<b>17,91</b>
11415410550	<b>5,50</b>	5,50	205	140	1	<b>21,21</b>
11415410600	<b>6,00</b>	6,00	205	140	1	<b>21,21</b>
11415410650	<b>6,50</b>	6,50	215	150	1	<b>25,24</b>

<b>1141541</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11415410700	<b>7,00</b>	7,00	220	155	1	<b>26,73</b>
11415410750	<b>7,50</b>	7,50	225	155	1	<b>30,12</b>
11415410800	<b>8,00</b>	8,00	240	165	1	<b>46,08</b>
11415410850	<b>8,50</b>	8,50	240	165	1	<b>45,28</b>
11415410900	<b>9,00</b>	9,00	250	175	1	<b>43,14</b>
11415410950	<b>9,50</b>	9,50	250	175	1	<b>50,85</b>
11415411000	<b>10,00</b>	10,00	265	185	1	<b>50,16</b>
11415411100	<b>11,00</b>	11,00	280	195	1	<b>67,07</b>
11415411200	<b>12,00</b>	12,00	295	205	1	<b>83,88</b>

<b>1141551</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11415510300	<b>3,00</b>	3,00	190	136	1	<b>17,42</b>
11415510350	<b>3,50</b>	3,50	210	145	1	<b>19,61</b>
11415510400	<b>4,00</b>	4,00	220	150	1	<b>20,04</b>
11415510450	<b>4,50</b>	4,50	235	160	1	<b>22,35</b>
11415510500	<b>5,00</b>	5,00	245	170	1	<b>24,03</b>
11415510550	<b>5,50</b>	5,50	260	180	1	<b>30,32</b>
11415510600	<b>6,00</b>	6,00	260	180	1	<b>32,00</b>
11415510650	<b>6,50</b>	6,50	275	190	1	<b>34,41</b>

<b>1141551</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11415510700	<b>7,00</b>	7,00	290	200	1	<b>37,23</b>
11415510750	<b>7,50</b>	7,50	290	200	1	<b>42,33</b>
11415510800	<b>8,00</b>	8,00	305	210	1	<b>46,08</b>
11415510850	<b>8,50</b>	8,50	305	210	1	<b>61,70</b>
11415510900	<b>9,00</b>	9,00	320	220	1	<b>57,00</b>
11415510950	<b>9,50</b>	9,50	320	220	1	<b>69,87</b>
11415511000	<b>10,00</b>	10,00	340	235	1	<b>65,64</b>

<b>1141561</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11415610350	<b>3,50</b>	3,50	265	180	1	<b>28,04</b>
11415610400	<b>4,00</b>	4,00	280	190	1	<b>28,59</b>
11415610450	<b>4,50</b>	4,50	295	200	1	<b>33,68</b>
11415610500	<b>5,00</b>	5,00	315	210	1	<b>31,12</b>
11415610550	<b>5,50</b>	5,50	330	225	1	<b>36,93</b>
11415610600	<b>6,00</b>	6,00	330	225	1	<b>38,86</b>
11415610650	<b>6,50</b>	6,50	350	235	1	<b>42,85</b>

<b>1141561</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11415610700	<b>7,00</b>	7,00	370	250	1	<b>53,13</b>
11415610750	<b>7,50</b>	7,50	370	250	1	<b>61,66</b>
11415610800	<b>8,00</b>	8,00	390	265	1	<b>66,70</b>
11415610850	<b>8,50</b>	8,50	390	265	1	<b>84,83</b>
11415610900	<b>9,00</b>	9,00	410	280	1	<b>88,33</b>
11415610950	<b>9,50</b>	9,50	410	280	1	<b>99,36</b>
11415611000	<b>10,00</b>	10,00	430	295	1	<b>101,34</b>

# 067

New

## BROCA HSSE5 SERIE EXTRA LARGA

Taladrados muy profundos > 10xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables

Very Deep drilling > 10xd | Semi hard steels up to 700 N/mm<sup>2</sup> and stainless steels

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros  
inoxidables  
Stainless  
steels

**P-M**



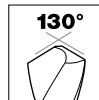
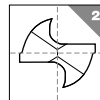
	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P5</b>	14-16
<b>P6</b>	10-14
<b>M1</b>	8-12

**HSS  
E5**

**BRIGHT  
UNCOATED**

**NFE  
66075**

>10xd



**h8**

$$r.p.m = \frac{V_c \times 1000}{\pi \times \varnothing}$$

814067	Ø	d2	L	I1	€
81406710200	2,00	2,00	125	93	19,58
81406710210	2,10	2,10	125	93	27,32
81406710220	2,20	2,20	125	93	27,32
81406710230	2,30	2,30	125	93	27,32
81406710240	2,40	2,40	125	93	27,32
81406710250	2,50	2,50	125	93	19,58

814067	Ø	d2	L	I1	€
81406710260	2,60	2,60	125	93	27,32
81406710270	2,70	2,70	125	93	27,32
81406710280	2,80	2,80	125	93	27,32
81406710290	2,90	2,90	125	93	27,32
81406710300	3,00	3,00	125	93	20,34

8140681	Ø	d2	L	I1	€
81406810200	2,00	2,00	160	120	21,91
81406810210	2,10	2,10	160	120	30,62
81406810220	2,20	2,20	160	120	30,62
81406810230	2,30	2,30	160	120	30,62
81406810240	2,40	2,40	160	120	30,62
81406810250	2,50	2,50	160	120	21,91
81406810260	2,60	2,60	160	120	30,62
81406810270	2,70	2,70	160	120	30,62
81406810280	2,80	2,80	160	120	30,62
81406810290	2,90	2,90	160	120	30,62
81406810300	3,00	3,00	160	120	22,88
81406810310	3,10	3,10	160	120	31,97
81406810320	3,20	3,20	160	120	31,97
81406810330	3,30	3,30	160	120	31,97
81406810340	3,40	3,40	160	120	31,97
81406810350	3,50	3,50	160	120	23,67
81406810360	3,60	3,60	160	120	33,19
81406810370	3,70	3,70	160	120	33,19
81406810380	3,80	3,80	160	120	33,19
81406810390	3,90	3,90	160	120	33,19
81406810400	4,00	4,00	160	120	23,67

8140681	Ø	d2	L	I1	€
81406810410	4,10	4,10	160	120	33,13
81406810420	4,20	4,20	160	120	33,13
81406810430	4,30	4,30	160	120	33,13
81406810440	4,40	4,40	160	120	33,13
81406810450	4,50	4,50	160	120	24,85
81406810460	4,60	4,60	160	120	34,81
81406810470	4,70	4,70	160	120	34,81
81406810480	4,80	4,80	160	120	34,81
81406810490	4,90	4,90	160	120	34,81
81406810500	5,00	5,00	160	120	25,62
81406810510	5,10	5,10	160	120	35,86
81406810520	5,20	5,20	160	120	35,83
81406810530	5,30	5,30	160	120	35,83
81406810540	5,40	5,40	160	120	35,83
81406810550	5,50	5,50	160	120	27,85
81406810560	5,60	5,60	160	120	39,01
81406810570	5,70	5,70	160	120	39,01
81406810580	5,80	5,80	160	120	39,01
81406810590	5,90	5,90	160	120	39,01
81406810600	6,00	6,00	160	120	29,36

8140691	Ø	d2	L	I1	€
81406910300	3,00	3,00	200	50	28,15
81406910310	3,10	3,10	200	50	39,40
81406910320	3,20	3,20	200	50	39,40
81406910330	3,30	3,30	200	50	39,40
81406910340	3,40	3,40	200	50	39,40
81406910350	3,50	3,50	200	50	29,30
81406910360	3,60	3,60	200	50	40,96
81406910370	3,70	3,70	200	50	40,96
81406910380	3,80	3,80	200	50	40,96
81406910390	3,90	3,90	200	50	40,96

8140691	Ø	d2	L	I1	€
81406910400	4,00	4,00	200	50	29,70
81406910410	4,10	4,10	200	50	41,54
81406910420	4,20	4,20	200	50	41,54
81406910430	4,30	4,30	200	50	41,54
81406910440	4,40	4,40	200	50	41,54
81406910450	4,50	4,50	200	50	32,71
81406910460	4,60	4,60	200	50	43,77
81406910470	4,70	4,70	200	50	43,77
81406910480	4,80	4,80	200	50	43,77
81406910490	4,90	4,90	200	50	43,77



**067****BROCA HSSE5 SERIE EXTRA LARGA**

Taladros muy profundos &gt; 10xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidablesVery Deep drilling > 10xd | Semi hard steels up to 700 N/mm<sup>2</sup> and stainless steels

<b>8140691</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
81406910500	<b>5,00</b>	5,00	200	50	1	<b>31,67</b>
81406910510	<b>5,10</b>	5,10	200	50	1	<b>44,34</b>
81406910520	<b>5,20</b>	5,20	200	50	1	<b>44,34</b>
81406910530	<b>5,30</b>	5,30	200	50	1	<b>44,34</b>
81406910540	<b>5,40</b>	5,40	200	50	1	<b>44,34</b>
81406910550	<b>5,50</b>	5,50	200	50	1	<b>34,54</b>
81406910560	<b>5,60</b>	5,60	200	50	1	<b>48,32</b>
81406910570	<b>5,70</b>	5,70	200	50	1	<b>48,32</b>
81406910580	<b>5,80</b>	5,80	200	50	1	<b>48,32</b>
81406910590	<b>5,90</b>	5,90	200	50	1	<b>48,32</b>
81406910600	<b>6,00</b>	6,00	200	50	1	<b>35,24</b>
81406910610	<b>6,10</b>	6,10	200	50	1	<b>49,28</b>
81406910620	<b>6,20</b>	6,20	200	50	1	<b>49,28</b>
81406910630	<b>6,30</b>	6,30	200	50	1	<b>49,28</b>
81406910640	<b>6,40</b>	6,40	200	50	1	<b>49,28</b>
81406910650	<b>6,50</b>	6,50	200	50	1	<b>38,01</b>

<b>8140691</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
81406910660	<b>6,60</b>	6,60	200	50	1	<b>53,17</b>
81406910670	<b>6,70</b>	6,70	200	50	1	<b>53,17</b>
81406910680	<b>6,80</b>	6,80	200	50	1	<b>53,17</b>
81406910690	<b>6,90</b>	6,90	200	50	1	<b>53,17</b>
81406910700	<b>7,00</b>	7,00	200	50	1	<b>40,54</b>
81406910710	<b>7,10</b>	7,10	200	50	1	<b>56,67</b>
81406910720	<b>7,20</b>	7,20	200	50	1	<b>56,67</b>
81406910730	<b>7,30</b>	7,30	200	50	1	<b>56,67</b>
81406910740	<b>7,40</b>	7,40	200	50	1	<b>56,67</b>
81406910750	<b>7,50</b>	7,50	200	50	1	<b>42,92</b>
81406910800	<b>8,00</b>	8,00	200	50	1	<b>46,86</b>
81406910850	<b>8,50</b>	8,50	200	50	1	<b>48,27</b>
81406910900	<b>9,00</b>	9,00	200	50	1	<b>50,89</b>
81406910950	<b>9,50</b>	9,50	200	50	1	<b>53,33</b>
81406911000	<b>10,00</b>	10,00	200	50	1	<b>54,05</b>

<b>8140701</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
81407010300	<b>3,00</b>	3,00	250	187	1	<b>42,30</b>
81407010310	<b>3,10</b>	3,10	250	187	1	<b>58,94</b>
81407010320	<b>3,20</b>	3,20	250	187	1	<b>58,94</b>
81407010330	<b>3,30</b>	3,30	250	187	1	<b>58,94</b>
81407010340	<b>3,40</b>	3,40	250	187	1	<b>58,94</b>
81407010350	<b>3,50</b>	3,50	250	187	1	<b>35,21</b>
81407010360	<b>3,60</b>	3,60	250	187	1	<b>49,08</b>
81407010370	<b>3,70</b>	3,70	250	187	1	<b>49,08</b>
81407010380	<b>3,80</b>	3,80	250	187	1	<b>49,08</b>
81407010390	<b>3,90</b>	3,90	250	187	1	<b>49,08</b>
81407010400	<b>4,00</b>	4,00	250	187	1	<b>35,21</b>
81407010410	<b>4,10</b>	4,10	250	187	1	<b>53,19</b>
81407010420	<b>4,20</b>	4,20	250	187	1	<b>53,19</b>
81407010430	<b>4,30</b>	4,30	250	187	1	<b>53,19</b>
81407010440	<b>4,40</b>	4,40	250	187	1	<b>53,19</b>
81407010450	<b>4,50</b>	4,50	250	187	1	<b>37,62</b>
81407010460	<b>4,60</b>	4,60	250	187	1	<b>52,50</b>
81407010470	<b>4,70</b>	4,70	250	187	1	<b>52,50</b>
81407010480	<b>4,80</b>	4,80	250	187	1	<b>52,50</b>
81407010490	<b>4,90</b>	4,90	250	187	1	<b>52,50</b>
81407010500	<b>5,00</b>	5,00	250	187	1	<b>39,80</b>
81407010510	<b>5,10</b>	5,10	250	187	1	<b>60,11</b>
81407010520	<b>5,20</b>	5,20	250	187	1	<b>60,11</b>
81407010530	<b>5,30</b>	5,30	250	187	1	<b>60,11</b>
81407010540	<b>5,40</b>	5,40	250	187	1	<b>60,11</b>
81407010550	<b>5,50</b>	5,50	250	187	1	<b>41,78</b>
81407010560	<b>5,60</b>	5,60	250	187	1	<b>58,44</b>
81407010570	<b>5,70</b>	5,70	250	187	1	<b>58,44</b>
81407010580	<b>5,80</b>	5,80	250	187	1	<b>58,44</b>

<b>8140701</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
81407010590	<b>5,90</b>	5,90	250	187	1	<b>58,44</b>
81407010600	<b>6,00</b>	6,00	250	187	1	<b>42,54</b>
81407010610	<b>6,10</b>	6,10	250	187	1	<b>59,47</b>
81407010620	<b>6,20</b>	6,20	250	187	1	<b>59,47</b>
81407010630	<b>6,30</b>	6,30	250	187	1	<b>59,47</b>
81407010640	<b>6,40</b>	6,40	250	187	1	<b>59,47</b>
81407010650	<b>6,50</b>	6,50	250	187	1	<b>47,19</b>
81407010660	<b>6,60</b>	6,60	250	187	1	<b>66,02</b>
81407010670	<b>6,70</b>	6,70	250	187	1	<b>66,02</b>
81407010680	<b>6,80</b>	6,80	250	187	1	<b>66,02</b>
81407010690	<b>6,90</b>	6,90	250	187	1	<b>66,02</b>
81407010700	<b>7,00</b>	7,00	250	187	1	<b>49,61</b>
81407010710	<b>7,10</b>	7,10	250	187	1	<b>69,23</b>
81407010720	<b>7,20</b>	7,20	250	187	1	<b>69,23</b>
81407010730	<b>7,30</b>	7,30	250	187	1	<b>69,23</b>
81407010740	<b>7,40</b>	7,40	250	187	1	<b>69,23</b>
81407010750	<b>7,50</b>	7,50	250	187	1	<b>52,43</b>
81407010800	<b>8,00</b>	8,00	250	187	1	<b>53,19</b>
81407010850	<b>8,50</b>	8,50	250	187	1	<b>56,52</b>
81407010900	<b>9,00</b>	9,00	250	187	1	<b>59,79</b>
81407010950	<b>9,50</b>	9,50	250	187	1	<b>62,99</b>
81407011000	<b>10,00</b>	10,00	250	187	1	<b>63,28</b>
81407011050	<b>10,50</b>	10,50	250	187	1	<b>65,21</b>
81407011100	<b>11,00</b>	11,00	250	187	1	<b>75,77</b>
81407011150	<b>11,50</b>	11,50	250	187	1	<b>76,71</b>
81407011200	<b>12,00</b>	12,00	250	187	1	<b>87,38</b>
81407011250	<b>12,50</b>	12,50	250	187	1	<b>87,22</b>
81407011300	<b>13,00</b>	13,00	250	187	1	<b>99,18</b>

067

## BROCA HSSE5 SERIE EXTRA LARGA


Taladrados muy profundos &gt; 10xd


Aceros duros hasta 700 N/mm<sup>2</sup> e inoxidables


New

Very Deep drilling > 10xd | Hard steels up to 700 N/mm<sup>2</sup> and stainless steels

8140711	Ø	d2	L	I1		€
81407110400	4,00	4,00	315	235	1	42,95
81407110410	4,10	4,10	315	235	1	59,93
81407110420	4,20	4,20	315	235	1	59,93
81407110430	4,30	4,30	315	235	1	59,93
81407110440	4,40	4,40	315	235	1	59,93
81407110450	4,50	4,50	315	235	1	46,42
81407110460	4,60	4,60	315	235	1	64,91
81407110470	4,70	4,70	315	235	1	64,91
81407110480	4,80	4,80	315	235	1	64,91
81407110490	4,90	4,90	315	235	1	64,91
81407110500	5,00	5,00	315	235	1	48,94
81407110510	5,10	5,10	315	235	1	68,38
81407110520	5,20	5,20	315	235	1	67,65
81407110530	5,30	5,30	315	235	1	68,38
81407110540	5,40	5,40	315	235	1	68,38
81407110550	5,50	5,50	315	235	1	53,38
81407110560	5,60	5,60	315	235	1	74,56
81407110570	5,70	5,70	315	235	1	74,56
81407110580	5,80	5,80	315	235	1	74,56
81407110590	5,90	5,90	315	235	1	74,56
81407110600	6,00	6,00	315	235	1	56,53
81407110610	6,10	6,10	315	235	1	78,47
81407110620	6,20	6,20	315	235	1	78,47
81407110630	6,30	6,30	315	235	1	78,47

8140711	Ø	d2	L	I1		€
81407110640	6,40	6,40	315	235	1	78,47
81407110650	6,50	6,50	315	235	1	59,79
81407110660	6,60	6,60	315	235	1	82,91
81407110670	6,70	6,70	315	235	1	82,91
81407110680	6,80	6,80	315	235	1	82,91
81407110690	6,90	6,90	315	235	1	82,91
81407110700	7,00	7,00	315	235	1	62,98
81407110710	7,10	7,10	315	235	1	88,03
81407110720	7,20	7,20	315	235	1	88,03
81407110730	7,30	7,30	315	235	1	88,03
81407110740	7,40	7,40	315	235	1	88,03
81407110750	7,50	7,50	315	235	1	65,76
81407110800	8,00	8,00	315	235	1	67,67
81407110850	8,50	8,50	315	235	1	71,07
81407110900	9,00	9,00	315	235	1	74,12
81407110950	9,50	9,50	315	235	1	76,54
81407111000	10,00	10,00	315	235	1	77,69
81407111050	10,50	10,50	315	235	1	81,80
81407111100	11,00	11,00	315	235	1	83,15
81407111150	11,50	11,50	315	235	1	87,18
81407111200	12,00	12,00	315	235	1	88,62
81407111250	12,50	12,50	315	235	1	93,63
81407111300	13,00	13,00	315	235	1	99,41

8140721	Ø	d2	L	I1		€
81407210500	5,00	5,00	400	300	1	64,70
81407210510	5,10	5,10	400	300	1	90,59
81407210520	5,20	5,20	400	300	1	90,59
81407210530	5,30	5,30	400	300	1	90,59
81407210540	5,40	5,40	400	300	1	90,59
81407210550	5,50	5,50	400	300	1	71,29
81407210560	5,60	5,60	400	300	1	99,75
81407210570	5,70	5,70	400	300	1	99,75
81407210580	5,80	5,80	400	300	1	99,75
81407210590	5,90	5,90	400	300	1	99,75
81407210600	6,00	6,00	400	300	1	63,62
81407210610	6,10	6,10	400	300	1	89,07
81407210620	6,20	6,20	400	300	1	89,07
81407210630	6,30	6,30	400	300	1	89,07
81407210640	6,40	6,40	400	300	1	89,07
81407210650	6,50	6,50	400	300	1	71,56
81407210660	6,60	6,60	400	300	1	79,84
81407210670	6,70	6,70	400	300	1	79,84
81407210680	6,80	6,80	400	300	1	79,84

8140721	Ø	d2	L	I1		€
81407210690	6,90	6,90	400	300	1	79,84
81407210700	7,00	7,00	400	300	1	71,59
81407210710	7,10	7,10	400	300	1	100,05
81407210720	7,20	7,20	400	300	1	100,05
81407210730	7,30	7,30	400	300	1	100,05
81407210740	7,40	7,40	400	300	1	100,05
81407210750	7,50	7,50	400	300	1	89,44
81407210800	8,00	8,00	400	300	1	82,84
81407210850	8,50	8,50	400	300	1	88,37
81407210900	9,00	9,00	400	300	1	92,84
81407210950	9,50	9,50	400	300	1	96,67
81407211000	10,00	10,00	400	300	1	99,24
81407211050	10,50	10,50	400	300	1	105,82
81407211100	11,00	11,00	400	300	1	111,50
81407211150	11,50	11,50	400	300	1	115,96
81407211200	12,00	12,00	400	300	1	119,16
81407211250	12,50	12,50	400	300	1	126,13
81407211300	13,00	13,00	400	300	1	132,13

8141821	Ø	d2	L	I1		€
81418210500	5,00	5,00	500	450	1	102,09
81418210600	6,00	6,00	500	450	1	105,97
81418210700	7,00	7,00	500	450	1	113,54
81418210800	8,00	8,00	500	450	1	119,69
81418210900	9,00	9,00	500	450	1	120,97

8141821	Ø	d2	L	I1		€
81418211000	10,00	10,00	500	450	1	135,73
81418211100	11,00	11,00	500	450	1	140,89
81418211200	12,00	12,00	500	450	1	150,72
81418211300	13,00	13,00	500	450	1	167,14

# 379

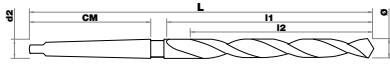
## BROCA HSS DIN 345 MANGO CÓNICO

Taladrados de profundidad media <3xd

Aceros blandos hasta 400 N/mm<sup>2</sup>

Medium deep drilling <3xd | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

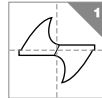


**HSS**

**STEAM  
TREATED**

**DIN  
345**

**3xd**



**h8**

	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1143791	Ø	d2	L	I1	I2	€
11437910300	3,00	CM1	114	33	1	13,53
11437910325	3,25	CM1	120	39	1	13,53
11437910350	3,50	CM1	120	39	1	13,53
11437910375	3,75	CM1	124	43	1	13,53
11437910400	4,00	CM1	124	43	1	15,28
11437910420	4,20	CM1	124	43	1	15,28
11437910425	4,25	CM1	124	43	1	15,28
11437910450	4,50	CM1	128	47	1	15,28
11437910470	4,70	CM1	133	52	1	15,63
11437910480	4,80	CM1	133	52	1	15,63
11437910520	5,20	CM1	133	52	1	15,63
11437910550	5,50	CM1	138	57	1	17,33
11437910560	5,60	CM1	138	57	1	17,33
11437910570	5,70	CM1	138	57	1	17,33
11437910575	5,75	CM1	138	57	1	17,33
11437910580	5,80	CM1	138	57	1	17,33
11437910600	6,00	CM1	138	57	1	17,33
11437910625	6,25	CM1	144	63	1	17,64
11437910650	6,50	CM1	144	63	1	17,64
11437910660	6,60	CM1	144	63	1	17,64
11437910680	6,80	CM1	150	69	1	17,64
11437910700	7,00	CM1	150	69	1	18,69
11437910725	7,25	CM1	150	69	1	18,69
11437910750	7,50	CM1	150	69	1	18,69
11437910775	7,75	CM1	150	69	1	18,69
11437910820	8,20	CM1	156	75	1	22,56
11437910825	8,25	CM1	156	75	1	22,56
11437910830	8,30	CM1	156	75	1	22,56
11437910850	8,50	CM1	156	75	1	22,56
11437910870	8,70	CM1	156	75	1	22,56
11437910875	8,75	CM1	162	81	1	22,56
11437910880	8,80	CM1	162	81	1	22,56
11437910925	9,25	CM1	162	81	1	25,36
11437910940	9,40	CM1	162	81	1	25,36
11437910950	9,50	CM1	162	81	1	25,36
11437910975	9,75	CM1	168	87	1	25,36
11437911000	10,00	CM1	168	87	1	17,60
11437911020	10,20	CM1	168	87	1	18,84
11437911025	10,25	CM1	168	87	1	18,84
11437911040	10,40	CM1	168	87	1	18,84
11437911050	10,50	CM1	168	87	1	18,84
11437911060	10,60	CM1	168	87	1	19,08


1143791	Ø	d2	L	I1	I2	€
11437911075	10,75	CM1	175	94	1	19,08
11437911080	10,80	CM1	175	94	1	19,08
11437911100	11,00	CM1	175	94	1	19,08
11437911125	11,25	CM1	175	94	1	19,08
11437911150	11,50	CM1	175	94	1	19,08
11437911170	11,70	CM1	175	94	1	19,36
11437911175	11,75	CM1	175	94	1	19,36
11437911200	12,00	CM1	182	101	1	19,36
11437911250	12,50	CM1	182	101	1	20,35
11437911300	13,00	CM1	182	101	1	19,66
11437911320	13,20	CM1	182	101	1	21,82
11437911325	13,25	CM1	182	101	1	21,82
11437911330	13,30	CM1	182	101	1	21,82
11437911350	13,50	CM1	189	108	1	21,82
11437911400	14,00	CM1	189	108	1	21,82
11437911425	14,25	CM1	189	108	1	25,15
11437911490	14,90	CM1	212	114	1	25,15
11437911450	14,50	CM2	212	114	1	25,15
11437911500	15,00	CM2	212	114	1	29,22
11437911550	15,50	CM2	218	120	1	29,22
11437911600	16,00	CM2	218	120	1	28,68
11437911650	16,50	CM2	223	125	1	32,52
11437911700	17,00	CM2	223	125	1	30,83
11437911750	17,50	CM2	228	130	1	33,98
11437911800	18,00	CM2	228	130	1	36,21
11437911850	18,50	CM2	233	135	1	38,18
11437911900	19,00	CM2	233	135	1	37,17
11437911925	19,25	CM2	233	135	1	42,35
11437911950	19,50	CM2	238	140	1	42,35
11437911990	19,90	CM2	238	140	1	39,81
11437912000	20,00	CM2	238	140	1	39,81
11437912050	20,50	CM2	243	145	1	46,26
11437912100	21,00	CM2	243	145	1	47,24
11437912125	21,25	CM2	248	150	1	51,52
11437912150	21,50	CM2	248	150	1	51,52
11437912175	21,75	CM2	248	150	1	50,96
11437912200	22,00	CM2	248	150	1	50,96
11437912250	22,50	CM2	253	155	1	55,37
11437912300	23,00	CM2	253	155	1	59,09
11437912350	23,50	CM3	276	155	1	56,88
11437912375	23,75	CM3	281	160	1	59,58
11437912400	24,00	CM3	281	160	1	59,58


## 379

## BROCA HSS DIN 345 MANGO CÓNICO

Taladrados de profundidad media &lt;3xd

Aceros blandos hasta 400 N/mm<sup>2</sup>Medium deep drilling <3xd | Soft steels up to 400 N/mm<sup>2</sup>

1143791	Ø	d2	L	I1		€
11437912425	24,25	CM3	281	160	1	62,00
11437912450	24,50	CM3	281	160	1	62,00
11437912500	25,00	CM3	281	160	1	56,47
11437912550	25,50	CM3	286	165	1	69,76
11437912600	26,00	CM3	286	165	1	70,76
11437912625	26,25	CM3	286	165	1	71,30
11437912650	26,50	CM3	286	165	1	71,30
11437912675	26,75	CM3	286	165	1	76,95
11437912700	27,00	CM3	291	170	1	76,95
11437912725	27,25	CM3	291	170	1	76,95
11437912750	27,50	CM3	291	170	1	78,00
11437912775	27,75	CM3	291	170	1	80,58
11437912800	28,00	CM3	291	170	1	80,58
11437912850	28,50	CM3	296	175	1	90,92
11437912900	29,00	CM3	296	175	1	86,79
11437912950	29,50	CM3	296	175	1	89,91
11437913000	30,00	CM3	296	175	1	93,53
11437913025	30,25	CM4	296	175	1	112,58
11437913050	30,50	CM3	301	180	1	112,58
11437913100	31,00	CM3	301	180	1	105,47
11437913125	21,25	CM3	301	180	1	118,84
11437913150	31,50	CM3	301	180	1	118,84
11437913200	32,00	CM4	334	185	1	111,57
114379132500	32,50	CM4	334	185	1	118,15
11437913275	32,75	CM4	334	185	1	119,93
11437913300	33,00	CM4	334	185	1	119,93
11437913325	33,25	CM4	334	185	1	134,60
11437913375	33,75	CM4	334	185	1	134,60
11437913400	34,00	CM4	339	190	1	134,60
114379134500	34,50	CM4	339	190	1	131,33
11437913475	34,75	CM4	339	190	1	134,60
11437913500	35,00	CM4	344	195	1	133,29
11437913550	35,50	CM4	344	195	1	147,65
11437913600	36,00	CM4	344	195	1	149,86
11437913650	36,50	CM4	344	195	1	152,61
11437913675	36,75	CM4	344	195	1	154,90
11437913700	37,00	CM4	344	195	1	154,90
11437913725	37,25	CM4	344	195	1	170,46

1143791	Ø	d2	L	I1		€
11437913750	37,50	CM4	344	195	1	179,75
11437913800	38,00	CM4	349	200	1	170,46
11437913850	38,50	CM4	349	200	1	215,13
11437913875	38,75	CM4	349	200	1	174,61
11437913900	39,00	CM4	349	200	1	174,61
11437913950	39,50	CM4	349	200	1	215,13
11437914000	40,00	CM4	349	200	1	192,17
11437914050	40,50	CM4	349	200	1	227,42
11437914100	41,00	CM4	354	205	1	227,42
11437914200	42,00	CM4	354	205	1	237,75
11437914275	42,75	CM4	354	205	1	254,19
11437914300	43,00	CM4	354	205	1	254,19
11437914350	43,50	CM4	359	210	1	263,52
11437914375	43,75	CM4	359	210	1	263,52
11437914400	44,00	CM4	359	210	1	263,52
11437914450	44,50	CM4	359	210	1	263,52
11437914500	45,00	CM4	359	210	1	273,84
11437914600	46,00	CM4	364	215	1	278,99
11437914650	46,50	CM4	364	215	1	309,91
11437914700	47,00	CM4	364	215	1	289,51
11437914800	48,00	CM4	369	220	1	309,91
11437914900	49,00	CM4	369	220	1	320,43
11437915000	50,00	CM4	369	220	1	335,90
11437915100	51,00	CM5	412	225	1	396,35
11437915125	51,25	CM5	412	225	1	416,20
11437915150	51,50	CM5	412	225	1	416,20
11437915200	52,00	CM5	412	225	1	416,20
11437915300	53,00	CM5	412	225	1	416,20
11437915350	53,50	CM5	412	225	1	445,94
11437915400	54,00	CM5	417	230	1	445,94
11437915500	55,00	CM5	417	230	1	456,04
11437915600	56,00	CM5	417	230	1	456,04
11437915700	57,00	CM5	422	235	1	490,51
11437915800	58,00	CM5	422	235	1	515,32
11437915900	59,00	CM5	422	235	1	515,32
11437915950	59,50	CM5	422	235	1	535,15
11437916000	60,00	CM5	422	235	1	535,15



114105 &gt; HSSE5 DIN 345 &gt; pág. 49



114110 &gt; HSS DIN 341 &gt; pág. 50

# 098

## BROCA HSS DIN 345 MANGO CÓNICO

Taladrados de profundidad media <3xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Medium deep <3xd | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



	Vc M/min
P1	26-32
P2	20-28

**HSS**

**BRIGHT UNCOATED**

**DIN 345**

**3xd**

**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1140981	Ø	d2	L	l1	l2	€
11409810300	3,00	CM1	114	33	1	34,44
11409810350	3,50	CM1	120	39	1	36,28
11409810400	4,00	CM1	124	43	1	32,62
11409810420	4,20	CM1	124	43	1	46,85
11409810450	4,50	CM1	128	47	1	31,20
11409810500	5,00	CM1	133	52	1	28,92
11409810520	5,20	CM1	133	52	1	48,64
11409810550	5,50	CM1	138	57	1	30,34
11409810600	6,00	CM1	138	57	1	28,50
11409810620	6,20	CM1	144	63	1	48,64
11409810650	6,50	CM1	144	63	1	28,01
11409810670	6,70	CM1	144	63	1	48,64
11409810675	6,75	CM1	150	69	1	28,01
11409810680	6,80	CM1	150	69	1	48,64
11409810700	7,00	CM1	150	69	1	26,63
11409810750	7,50	CM1	150	69	1	30,34
11409810800	8,00	CM1	156	75	1	26,89
11409810850	8,50	CM1	156	75	1	31,20
11409810880	8,80	CM1	162	81	1	40,85
11409810900	9,00	CM1	162	81	1	32,15
11409810950	9,50	CM1	162	81	1	34,44
11409810975	9,75	CM1	168	87	1	54,14
11409810980	9,80	CM1	168	87	1	54,14
11409811000	10,00	CM1	168	87	1	35,75
11409811020	10,20	CM1	168	87	1	44,54
11409811025	10,25	CM1	168	87	1	44,29
11409811050	10,50	CM1	168	87	1	43,25
11409811075	10,75	CM1	175	94	1	52,14
11409811100	11,00	CM1	175	94	1	44,47
11409811150	11,50	CM1	175	94	1	44,77
11409811175	11,75	CM1	175	94	1	68,29
11409811200	12,00	CM1	182	101	1	44,70
11409811250	12,50	CM1	182	101	1	40,62
11409811270	12,70	CM1	182	101	1	50,17
11409811275	12,75	CM1	182	101	1	46,61
11409811300	13,00	CM1	182	101	1	40,29
11409811325	13,25	CM1	189	108	1	55,90
11409811350	13,50	CM1	189	108	1	49,13
11409811375	13,75	CM1	189	108	1	65,87
11409811400	14,00	CM1	189	108	1	41,69
11409811410	14,10	CM2	212	114	1	65,70
11409811425	14,25	CM2	212	114	1	59,59


1140981	Ø	d2	L	l1	l2	€
11409811450	14,50	CM2	212	114	1	54,08
11409811475	14,75	CM2	212	114	1	69,21
11409811500	15,00	CM2	212	114	1	54,11
11409811525	15,25	CM2	218	120	1	67,27
11409811550	15,50	CM2	218	120	1	56,00
11409811575	15,75	CM2	218	120	1	69,62
11409811600	16,00	CM2	218	120	1	54,89
11409811625	16,25	CM2	223	125	1	64,92
11409811650	16,50	CM2	223	125	1	60,25
11409811675	16,75	CM2	223	125	1	63,99
11409811700	17,00	CM2	223	125	1	57,13
11409811720	17,20	CM2	228	130	1	93,08
11409811750	17,50	CM2	228	130	1	62,95
11409811775	17,75	CM2	228	130	1	65,70
11409811800	18,00	CM2	228	130	1	67,08
11409811825	18,25	CM2	233	135	1	75,81
11409811850	18,50	CM2	233	135	1	70,73
11409811875	18,75	CM2	233	135	1	76,92
11409811900	19,00	CM2	233	135	1	68,83
11409811925	19,25	CM2	238	140	1	78,43
11409811950	19,50	CM2	238	140	1	78,43
11409811975	19,75	CM2	238	140	1	79,53
11409812000	20,00	CM2	238	140	1	73,77
11409812025	20,25	CM2	243	145	1	94,90
11409812050	20,50	CM2	243	145	1	85,70
11409812075	20,75	CM2	243	145	1	91,23
11409812100	21,00	CM2	243	145	1	87,54
11409812150	21,50	CM2	248	150	1	95,38
11409812200	22,00	CM2	248	150	1	94,36
11409812250	22,50	CM2	253	155	1	102,55
11409812300	23,00	CM2	253	155	1	109,52
11409812350	23,50	CM3	276	155	1	105,35
11409812400	24,00	CM3	281	160	1	110,35
11409812450	24,50	CM3	281	160	1	114,87
11409812500	25,00	CM3	281	160	1	104,65
11409812550	25,50	CM3	286	165	1	129,21
11409812575	25,75	CM3	286	165	1	148,33
11409812600	26,00	CM3	286	165	1	131,07
11409812650	26,50	CM3	286	165	1	132,09
11409812700	27,00	CM3	291	170	1	142,53
11409812750	27,50	CM3	291	170	1	144,48
11409812800	28,00	CM3	291	170	1	149,36




**098****BROCA HSS DIN 345 MANGO CÓNICO**

Taladrados de profundidad media &lt;3xd

Aceros semi-duros hasta 700 N/mm<sup>2</sup>Medium deep <3xd | Semi-hard steels up to 700 N/mm<sup>2</sup>

<b>1140981</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11409812850	<b>28,50</b>	CM3	296	175	1	<b>168,38</b>
11409812900	<b>29,00</b>	CM3	296	175	1	<b>160,83</b>
11409812950	<b>29,50</b>	CM3	296	175	1	<b>166,51</b>
11409813000	<b>30,00</b>	CM3	296	175	1	<b>173,21</b>
11409813050	<b>30,50</b>	CM3	301	180	1	<b>208,58</b>
11409813100	<b>31,00</b>	CM3	301	180	1	<b>195,34</b>
11409813150	<b>31,50</b>	CM3	301	180	1	<b>220,17</b>
11409813200	<b>32,00</b>	CM4	334	185	1	<b>206,74</b>
11409813250	<b>32,50</b>	CM4	334	185	1	<b>241,26</b>
11409813300	<b>33,00</b>	CM4	334	185	1	<b>222,16</b>
11409813350	<b>33,50</b>	CM4	334	185	1	<b>256,52</b>
11409813400	<b>34,00</b>	CM4	339	190	1	<b>249,34</b>
11409813450	<b>34,50</b>	CM4	339	190	1	<b>294,90</b>
11409813500	<b>35,00</b>	CM4	339	190	1	<b>246,94</b>
11409813550	<b>35,50</b>	CM4	339	190	1	<b>290,81</b>
11409813600	<b>36,00</b>	CM4	344	195	1	<b>277,63</b>
11409813650	<b>36,50</b>	CM4	344	195	1	<b>308,08</b>
11409813700	<b>37,00</b>	CM4	344	195	1	<b>287,00</b>
11409813750	<b>37,50</b>	CM4	344	195	1	<b>332,89</b>
11409813800	<b>38,00</b>	CM4	349	200	1	<b>315,80</b>
11409813850	<b>38,50</b>	CM4	349	200	1	<b>398,40</b>
11409813900	<b>39,00</b>	CM4	349	200	1	<b>323,50</b>
11409813950	<b>39,50</b>	CM4	349	200	1	<b>398,40</b>

<b>1140981</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
11409814000	<b>40,00</b>	CM4	349	200	1	<b>356,03</b>
11409814050	<b>40,50</b>	CM4	354	205	1	<b>444,33</b>
11409814100	<b>41,00</b>	CM4	354	205	1	<b>421,16</b>
11409814200	<b>42,00</b>	CM4	354	205	1	<b>440,28</b>
11409814300	<b>43,00</b>	CM4	359	210	1	<b>470,73</b>
11409814400	<b>44,00</b>	CM4	359	210	1	<b>488,00</b>
11409814500	<b>45,00</b>	CM4	359	210	1	<b>507,09</b>
11409814600	<b>46,00</b>	CM4	364	215	1	<b>516,65</b>
11409814700	<b>47,00</b>	CM4	364	215	1	<b>536,12</b>
11409814800	<b>48,00</b>	CM4	369	220	1	<b>573,92</b>
11409814900	<b>49,00</b>	CM4	369	220	1	<b>593,39</b>
11409815000	<b>50,00</b>	CM4	369	220	1	<b>622,04</b>
11409815100	<b>51,00</b>	CM5	412	225	1	<b>733,99</b>
11409815200	<b>52,00</b>	CM5	412	225	1	<b>770,76</b>
11409815300	<b>53,00</b>	CM5	412	225	1	<b>770,76</b>
11409815400	<b>54,00</b>	CM5	417	230	1	<b>825,81</b>
11409815500	<b>55,00</b>	CM5	417	230	1	<b>844,53</b>
11409815600	<b>56,00</b>	CM5	417	230	1	<b>844,53</b>
11409815700	<b>57,00</b>	CM5	422	235	1	<b>908,37</b>
11409815800	<b>58,00</b>	CM5	422	235	1	<b>954,29</b>
11409815900	<b>59,00</b>	CM5	422	235	1	<b>954,29</b>
11409816000	<b>60,00</b>	CM5	422	235	1	<b>991,02</b>



**BROCAS ESCALONADAS**  
pág. 53

# 105

## BROCA HSSE5 DIN 345 MANGO CÓNICO

Taladrados de profundidad media <3xd

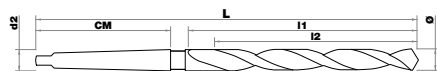
Aceros semi-duros hasta 700 N/mm<sup>2</sup> e inoxidables

Medium deep drilling <3xd | Semi-hard steels up to 700 N/mm<sup>2</sup> and stainless steels

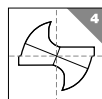
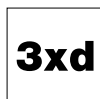
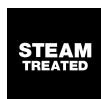
Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>



Acero inoxidable ferrítico  
Ferritic stainless steel



	Vc
	M/min
<b>P1</b>	26-32
<b>P2</b>	20-28
<b>P5</b>	14-16



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1141051	Ø	d2	L	I1		€
11410510700	7,00	CM1	150	69	1	67,09
11410510800	8,00	CM1	156	75	1	67,09
11410510850	8,50	CM1	156	75	1	67,09
11410511000	10,00	CM1	168	87	1	84,44
11410511020	10,20	CM1	168	87	1	88,11
11410511025	10,25	CM1	168	87	1	88,11
11410511040	10,40	CM1	168	87	1	88,11
11410511050	10,50	CM1	168	87	1	88,11
11410511100	11,00	CM1	175	94	1	84,44
11410511150	11,50	CM1	175	94	1	88,11
11410511200	12,00	CM1	182	101	1	90,29
11410511225	12,25	CM1	182	101	1	95,60
11410511250	12,50	CM1	182	101	1	95,60
11410511275	12,75	CM1	182	101	1	92,76
11410511280	12,80	CM1	182	101	1	92,76
11410511300	13,00	CM1	182	101	1	92,76
11410511320	13,20	CM1	182	101	1	121,21
11410511350	13,50	CM1	189	108	1	121,21
11410511400	14,00	CM1	189	108	1	118,85
11410511450	14,50	CM2	212	114	1	131,97
11410511500	15,00	CM2	212	114	1	121,21
11410511525	15,25	CM2	212	114	1	134,32
11410511550	15,50	CM2	218	120	1	134,32
11410511575	15,75	CM2	218	120	1	129,58
11410511600	16,00	CM2	218	120	1	129,58
11410511675	16,75	CM2	223	125	1	135,51
11410511650	16,50	CM2	223	125	1	135,51
11410511700	17,00	CM2	223	125	1	130,72
11410511750	17,50	CM2	228	130	1	142,67
11410511800	18,00	CM2	228	130	1	140,25
11410511850	18,50	CM2	233	135	1	153,32
11410511900	19,00	CM2	233	135	1	149,79
11410511950	19,50	CM2	238	140	1	172,35
11410512000	20,00	CM2	238	140	1	167,57
11410512050	20,50	CM2	243	145	1	192,53
11410512075	20,75	CM2	243	145	1	194,93
11410512100	21,00	CM2	243	145	1	194,93
11410512150	21,50	CM2	248	150	1	219,94
11410512200	22,00	CM2	248	150	1	198,37

1141051	Ø	d2	L	I1		€
11410512250	22,50	CM2	253	155	1	244,81
11410512275	22,75	CM2	253	155	1	230,72
11410512300	23,00	CM2	253	155	1	230,72
11410512350	23,50	CM3	276	155	1	244,81
11410512375	23,75	CM3	281	160	1	247,22
11410512400	24,00	CM3	281	160	1	247,22
11410512450	24,50	CM3	281	160	1	263,97
11410512500	25,00	CM3	281	160	1	261,16
11410512550	25,50	CM3	286	165	1	323,36
11410512575	25,75	CM3	286	165	1	306,47
11410512600	26,00	CM3	286	165	1	306,47
11410512675	26,75	CM3	286	165	1	339,90
11410512650	26,50	CM3	286	165	1	339,90
11410512700	27,00	CM3	291	170	1	339,90
11410512750	27,50	CM3	291	170	1	406,54
11410512800	28,00	CM3	291	170	1	376,08
11410512850	28,50	CM3	296	175	1	416,05
11410512900	29,00	CM3	296	175	1	384,43
11410512975	29,75	CM3	296	175	1	392,62
11410513000	30,00	CM3	296	175	1	392,62
11410513100	31,00	CM3	301	180	1	460,61
11410513200	32,00	CM4	334	185	1	497,59
11410513400	34,00	CM4	339	190	1	647,58
11410513450	34,50	CM4	339	190	1	616,91
11410513500	35,00	CM4	339	190	1	616,91
11410513600	36,00	CM4	344	195	1	747,79
11410513700	37,00	CM4	344	195	1	781,21
11410513800	38,00	CM4	349	200	1	895,74
11410513900	39,00	CM4	349	200	1	929,94
11410514000	40,00	CM4	349	200	1	900,49
11410514200	42,00	CM4	354	205	1	569,79
11410514400	44,00	CM4	359	210	1	645,15
11410514550	45,50	CM4	359	210	1	672,80
11410515400	54,00	CM5	417	230	1	1090,05
11410515600	56,00	CM5	417	230	1	1200,89
11410515700	57,00	CM5	422	235	1	1316,22
11410515900	59,00	CM5	422	235	1	1379,25
11410516600	66,00	CM5	432	245	1	1759,99

# 110

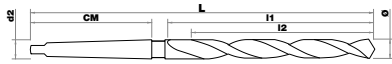
New

## BROCA HSS DIN 341 MANGO CÓNICO SERIE LARGA

Taladrados profundos <7xd  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Deep drilling <7xd | Soft steels up to N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

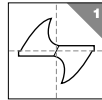


HSS

STEAM TREATED

DIN 341

7xd



h8

	Vc
	M/min
P1	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1141101	Ø	d2	L	I1		€
11411010700	7,00	CM1	174	93	1	37,88
11411010750	7,50	CM1	174	93	1	39,86
11411010800	8,00	CM1	181	100	1	40,51
11411010850	8,50	CM1	181	100	1	40,51
11411010900	9,00	CM1	188	107	1	44,73
11411010950	9,50	CM1	188	107	1	48,88
11411011000	10,00	CM1	197	116	1	50,35
11411011020	10,20	CM1	197	116	1	84,67
11411011050	10,50	CM1	197	116	1	52,41
11411011100	11,00	CM1	206	125	1	50,35
11411011150	11,50	CM1	206	125	1	64,99
11411011180	11,80	CM1	206	125	1	90,81
11411011200	12,00	CM1	215	134	1	53,79
11411011250	12,50	CM1	215	134	1	60,97
11411011300	13,00	CM1	215	134	1	55,19
11411011350	13,50	CM1	223	142	1	60,06
11411011400	14,00	CM1	223	142	1	62,19
11411011450	14,50	CM2	245	147	1	78,22
11411011500	15,00	CM2	245	147	1	78,22
11411011525	15,25	CM2	251	153	1	102,58
11411011550	15,50	CM2	251	153	1	76,80
11411011600	16,00	CM2	251	153	1	79,61
11411011625	16,25	CM2	257	159	1	121,77
11411011650	16,50	CM2	257	159	1	86,58
11411011700	17,00	CM2	257	159	1	86,58
11411011750	17,50	CM2	263	165	1	99,17
11411011800	18,00	CM2	263	165	1	96,35
11411011850	18,50	CM2	269	171	1	108,95
11411011900	19,00	CM2	269	171	1	101,90
11411011950	19,50	CM2	275	177	1	118,70
11411012000	20,00	CM2	275	177	1	108,95
11411012050	20,50	CM2	282	184	1	139,65

1141101	Ø	d2	L	I1		€
11411012100	21,00	CM2	282	184	1	125,69
11411012150	21,50	CM2	289	191	1	152,25
11411012200	22,00	CM2	289	191	1	142,45
11411012250	22,50	CM2	296	198	1	168,73
11411012300	23,00	CM2	296	198	1	142,45
11411012350	23,50	CM3	319	198	1	171,31
11411012400	24,00	CM3	327	206	1	182,91
11411012450	24,50	CM3	327	206	1	183,24
11411012500	25,00	CM3	327	206	1	182,91
11411012550	25,50	CM3	335	214	1	208,22
11411012600	26,00	CM3	335	214	1	192,76
11411012650	26,50	CM3	335	214	1	214,74
11411012700	27,00	CM3	343	222	1	208,09
11411012750	27,50	CM3	343	222	1	252,99
11411012800	28,00	CM3	343	222	1	237,44
11411012850	28,50	CM3	351	230	1	300,53
11411012900	29,00	CM3	351	230	1	259,71
11411012950	29,50	CM3	351	230	1	300,53
11411013000	30,00	CM3	351	230	1	266,63
11411013050	30,50	CM3	360	239	1	345,10
11411013100	31,00	CM3	360	239	1	338,01
11411013150	31,50	CM3	360	239	1	368,92
11411013200	32,00	CM4	397	248	1	338,01
11411013300	32,50	CM4	397	248	1	360,26
11411013400	34,00	CM4	406	257	1	438,36
11411013500	35,00	CM4	406	257	1	441,27
11411013600	36,00	CM4	416	267	1	508,44
11411013700	37,00	CM4	416	267	1	519,05
11411013800	38,00	CM4	426	277	1	572,69
11411013900	39,00	CM4	426	277	1	597,49
11411014000	40,00	CM4	426	277	1	647,86


## 034 CASQUILLO DE REDUCCIÓN

### Conos interiores y exteriores rectificados

TEMPERED ADAPTER | Rectified interior and exterior cones



**DIN  
2185**

<b>1110341</b>	<b>CE</b>	<b>CI</b>	<b>L</b>		<b>€</b>
11103410201	2	1	92	1	<b>17,25</b>
11103410301	3	1	99	1	<b>21,53</b>
11103410302	3	2	112	1	<b>21,53</b>
11103410402	4	2	124	1	<b>28,67</b>
11103410403	4	3	140	1	<b>28,67</b>
11103410504	5	4	171	1	<b>50,20</b>


## 036 CASQUILLO DE REDUCCIÓN LARGO

### Conos interiores y exteriores rectificados

TEMPERED ELONGATED ADAPTER | Rectified interior and exterior cones



**DIN  
2187**


<b>1110361</b>	<b>CE</b>	<b>CI</b>	<b>L</b>		<b>€</b>
11103610201	2	1	160	1	<b>72,54</b>
11103610202	2	2	175	1	<b>91,28</b>
11103610203	2	3	196	1	<b>126,20</b>
11103610302	3	2	194	1	<b>91,28</b>
11103610304	3	4	240	1	<b>202,02</b>
11103610405	4	5	300	1	<b>340,76</b>

## 036 EXTRACTOR DE CONOS

### CONE PUNCH



**TIVOLY  
NORM**

<b>1110371</b>	<b>CM</b>		<b>€</b>
11103710102	1/2	1	<b>7,92</b>
11103710203	2/3	1	<b>13,21</b>
11103710304	3/4	1	<b>14,56</b>

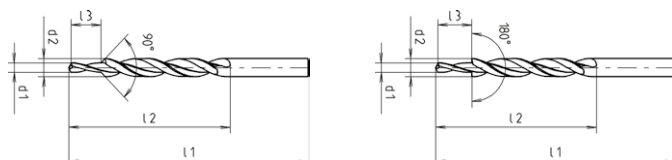
## BROCAS HSS BIDIAMETRALES DIN 8374, 8376, 8378

Afilado forma A

Taladrado para asientos de tornillos.

Subland drills HSS DIN 8374, 8376, 8378

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 500 N / mm<sup>2</sup>



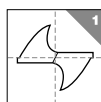
**HSS**

**STEAM  
TREATED**

**DIN  
8374**

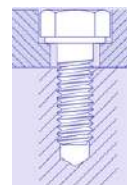
**DIN  
8376**

**DIN  
8378**

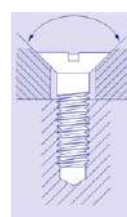


**h8**

DIN 8374 ASIENTO ALLEN 180°								
<b>1141511</b>	<b>M</b>	<b>d1</b>	<b>d2</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>		<b>€</b>
11415113260	M3	3,20	6,00	93	57	9	1	<b>62,24</b>
11415114380	M4	4,30	8,00	117	75	11	1	<b>73,43</b>
11415115310	M5	5,30	10,00	133	87	13	1	<b>82,76</b>
114151164115	M6	6,40	11,50	142	94	15	1	<b>93,84</b>
11415118415	M8	8,40	15,00	169	114	19	1	<b>124,16</b>
114151110519	M10	10,50	19,00	198	135	23	1	<b>167,94</b>



DIN 8376 ASIENTO CÓNICO 90°								
<b>1141521</b>	<b>M</b>	<b>d1</b>	<b>d2</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>		<b>€</b>
11415213460	M3	3,40	6,00	93	57	9	1	<b>65,08</b>
11415214580	M4	4,50	8,00	117	75	11	1	<b>76,76</b>
11415215510	M5	5,50	10,00	133	87	13	1	<b>87,78</b>
11415216611	M6	6,60	11,00	142	94	15	1	<b>101,15</b>
11415210915	M8	9,00	15,00	169	114	19	1	<b>127,54</b>
11415211118	M10	11,00	18,00	191	130	23	1	<b>229,60</b>



DIN 8378 TALADRADO PREVIO								
<b>1141531</b>	<b>M</b>	<b>d1</b>	<b>d2</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>		<b>€</b>
11415312534	M3	2,50	3,40	70	39	8,8	1	<b>62,64</b>
11415313345	M4	3,30	4,50	80	47	11,4	1	<b>63,22</b>
11415314255	M5	4,20	5,50	93	57	13,6	1	<b>64,31</b>
11415315066	M6	5,00	6,60	101	63	16,5	1	<b>81,73</b>
11415316890	M8	6,80	9,00	125	81	21	1	<b>83,57</b>
11415318511	M10	8,50	11,00	142	94	25,5	1	<b>97,62</b>
1141531102135	M12	9,00	15,00	160	108	30	1	<b>118,32</b>



## BROCAS ESCALONADAS

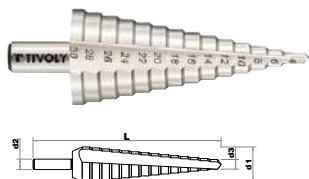
Taladrado de chapas <3mm y plásticos

Step drills | Metal sheet <3mm and plastics



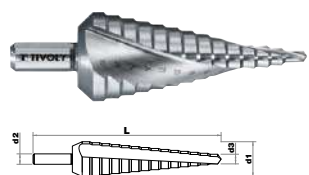
Ø	Ø d3 > d1
4 - 12	Ø 4 - 5 - 7 - 8 - 9 - 10 - 11 - 12 mm
4 - 20	Ø 4 - 6 - 8 - 10 - 12 - 14 - 16 - 18 - 20 mm
4 - 30	Ø 4 - 6 - 8 - 10 - 12 - 14 - 16 - 18 - 20 - 22 - 24 - 26 - 28 - 30 mm
6 - 37	Ø 6 - 9 - 12,5 - 15,2 - 18,6 - 20,4 - 22,5 - 26 - 28,3 - 30,5 - 34 - 37 mm

## 486 BROCA ESCALONADA HSS CANAL RECTO



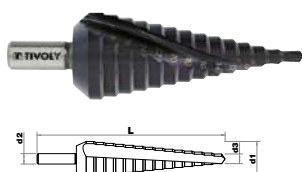
1144862	Ø	d1	d2	d3	L		€
11448620412	4-12	12	6	4	65	1	30,22
11448620420	4-20	20	8	4	75	1	39,84
11448620430	4-30	30	10	4	100	1	67,62
11448620637	6-37	37	10	6	100	1	96,08

## 485 BROCA ESCALONADA HSS CANAL HELICOIDAL



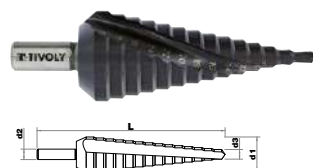
1144852	Ø	d1	d2	d3	L		€
11448520412	4-12	12	6	4	65	1	41,05
11448520420	4-20	20	8	4	75	1	52,42
11448520430	4-30	30	10	4	100	1	75,95
11448520637	6-37	37	10	6	100	1	120,54

## 387 BROCA ESCALONADA HSS TiALN CANAL HELICOIDAL



1143872	Ø	d1	d2	d3	L		€
11438720412	4-12	12	6	4	65	1	58,15
11438720420	4-20	20	8	4	75	1	74,28
11438720430	4-30	30	10	4	100	1	128,49
11438720637	6-37	37	10	6	100	1	203,91

## 487 BROCA ESCALONADA HSSE5 TiALN CANAL HELICOIDAL



1144872	Ø	d1	d2	d3	L		€
11448720412	4-12	12	6	4	65	1	81,42
11448720420	4-20	20	8	4	75	1	103,99
11448720430	4-30	30	10	4	100	1	179,91
11448720637	6-37	37	10	6	100	1	285,48

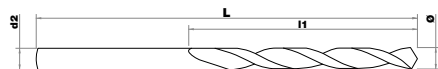
# 089 BROCA PARA PUNTEAR 90° HSSE5

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spotting drill 90° HSSE5 | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

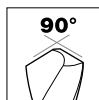


	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28

**HSS  
E5**

**BRIGHT  
UNCOATED**

**NF  
66052**



**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140891	Ø	d2	L	I1		€
81408910300	<b>3,00</b>	3,00	50	10	1	<b>27,12</b>
81408910400	<b>4,00</b>	4,00	52	12	1	<b>27,12</b>
81408910500	<b>5,00</b>	5,00	60	15	1	<b>30,58</b>
81408910600	<b>6,00</b>	6,00	66	20	1	<b>30,58</b>
81408910800	<b>8,00</b>	8,00	79	25	1	<b>34,46</b>

8140891	Ø	d2	L	I1		€
81408911000	<b>10,00</b>	10,00	89	25	1	<b>34,66</b>
81408911200	<b>12,00</b>	12,00	102	30	1	<b>47,78</b>
81408911600	<b>16,00</b>	16,00	115	35	1	<b>65,82</b>
81408912000	<b>20,00</b>	20,00	131	40	1	<b>129,45</b>

# 091 BROCA PARA PUNTEAR 120° HSSE5

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2



	Vc M/min
<b>P1</b>	26-32
<b>P2</b>	20-28

**HSS  
E5**

**BRIGHT  
UNCOATED**

**NF  
66052**



**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140911	Ø	d2	L	I1		€
81409110300	<b>3,00</b>	3,00	50	10	1	<b>27,12</b>
81409110400	<b>4,00</b>	4,00	52	12	1	<b>27,12</b>
81409110500	<b>5,00</b>	5,00	60	15	1	<b>30,58</b>
81409110600	<b>6,00</b>	6,00	66	20	1	<b>30,58</b>
81409110800	<b>8,00</b>	8,00	79	25	1	<b>34,46</b>

8140911	Ø	d2	L	I1		€
81409111000	<b>10,00</b>	10,00	89	25	1	<b>34,66</b>
81409111200	<b>12,00</b>	12,00	102	30	1	<b>47,78</b>
81409111600	<b>16,00</b>	16,00	115	35	1	<b>65,82</b>
81409112000	<b>20,00</b>	20,00	131	40	1	<b>129,45</b>

# 081 BROCA DE CENTRAR 60° HSS DIN 333A

Aceros blandos hasta 400 N/mm<sup>2</sup>

Soft steels up to 400 N/mm<sup>2</sup>

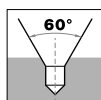
Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



**HSS**

**BRIGHT UNCOATED**

**DIN 333A**



**A FORM**

**h8**

	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140811	Ø	d2	L	l1	€
8140811050315	0,50	3,15	25	1	11,45
8140811063315	0,63	3,15	25	1	11,45
8140811080315	0,80	3,15	25	1	11,45
8140811100315	1,00	3,15	31	1	11,45
8140811100400	1,00	4,00	35	1	11,45
8140811125315	1,25	3,15	31	1	11,45
8140811150500	1,50	5,00	40	1	12,39
8140811160400	1,60	4,00	35	1	11,45
8140811200500	2,00	5,00	40	1	12,39
8140811200600	2,00	6,00	45	1	13,76
8140811250630	2,50	6,30	45	1	13,76
8140811250800	2,50	8,00	50	1	15,18

8140811	Ø	d2	L	l1	€
8140811300100	3,00	10,00	55	1	19,72
8140811300800	3,00	8,00	50	1	15,18
8140811315800	3,15	8,00	50	1	15,18
8140811400100	4,00	10,00	55	1	19,72
8140811400120	4,00	12,00	63	1	33,05
8140811500120	5,00	12,00	63	1	33,05
8140811500125	5,00	12,50	63	1	33,05
8140811500140	5,00	14,00	71	1	41,72
8140811600180	6,00	18,00	80	1	64,65
8140811630160	6,30	16,00	71	1	47,26
8140811800200	8,00	20,00	80	1	88,50

# 082 BROCA DE CENTRAR 60° HSS DIN 333B

Aceros blandos hasta 400 N/mm<sup>2</sup>

Soft steels up to 400 N/mm<sup>2</sup>

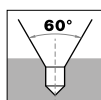
Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



**HSS**

**BRIGHT UNCOATED**

**DIN 333B**



**B FORM**

**h8**

	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140821	Ø	d2	L	l1	l2	€
8140821100040	1,00	4,00	25	0,8	1	20,20
8140821125050	1,25	5,00	25	1,1	1	20,20
8140821100060	1,00	6,00	25	0,9	1	20,20
8140821160063	1,60	6,30	35	1,3	1	20,20
8140821150080	1,50	8,00	31	1,3	1	23,02
8140821200080	2,00	8,00	31	1,6	1	23,02
8140821200100	2,00	10,00	40	2	1	28,70
8140821250100	2,50	10,00	35	2	1	28,70

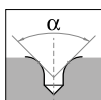
8140821	Ø	d2	L	l1	l2	€
8140821315112	3,15	11,20	45	3,1	1	40,90
8140821250120	2,50	12,00	40	2,5	1	40,90
8140821300140	3,00	14,00	45	2,5	1	54,97
8140821400140	4,00	14,00	50	3,1	1	54,97
8140821400180	4,00	18,00	50	3,9	1	77,50
8140821500180	5,00	18,00	55	3,9	1	77,50
8140821630200	6,30	20,00	50	3,9	1	110,37

# 083 BROCA DE CENTRAR CON RADIO HSS DIN 333R

Aceros blandos hasta 400 N/mm<sup>2</sup>

Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140831	Ø	d2	L	I1		€
8140831050315	0,50	<b>3,15</b>	25	2,3	1	<b>11,76</b>
8140831080315	0,80	<b>3,15</b>	25	2,6	1	<b>11,76</b>
8140831100315	1,00	<b>3,15</b>	31	3	1	<b>11,76</b>
8140831125315	1,25	<b>3,15</b>	31	3,3	1	<b>11,76</b>
8140831160400	1,60	<b>4,00</b>	35	4,2	1	<b>11,76</b>
8140831200500	2,00	<b>5,00</b>	40	5	1	<b>12,69</b>

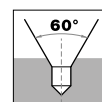
8140831	Ø	d2	L	I1		€
8140831250630	2,50	<b>6,30</b>	45	6,3	1	<b>14,10</b>
8140831315800	3,15	<b>8,00</b>	50	8	1	<b>15,56</b>
81408314001000	4,00	<b>10,00</b>	55	10	1	<b>20,44</b>
81408315001250	5,00	<b>12,50</b>	63	12,5	1	<b>34,21</b>
81408316301600	6,30	<b>16,00</b>	71	16	1	<b>48,93</b>

# 084 BROCA DE CENTRAR 60° HSSE5 SERIE LARGA

Aceros blandos hasta 400 N/mm<sup>2</sup>

Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	26-32
<b>P2</b>	20-28

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8140841	Ø	d2	L	I1		€
8140841075350	<b>0,75</b>	<b>3,50</b>	60	1	1	<b>23,88</b>
8140841100400	<b>1,00</b>	<b>4,00</b>	60	1,3	1	<b>23,42</b>
8140841150500	<b>1,50</b>	<b>5,00</b>	60	2	1	<b>23,88</b>
8140851	Ø	d2	L	I1		€
8140851200600	<b>2,00</b>	<b>6,00</b>	80	2,5	1	<b>24,85</b>
8140851250800	<b>2,50</b>	<b>8,00</b>	80	3,1	1	<b>30,24</b>
8140851300800	<b>3,00</b>	<b>8,00</b>	80	3,9	1	<b>30,24</b>
8140861	Ø	d2	L	I1		€
8140861300100	<b>3,00</b>	<b>10,00</b>	100	3,9	1	<b>39,01</b>
8140861400100	<b>4,00</b>	<b>10,00</b>	100	5	1	<b>39,01</b>
8140861400120	<b>4,00</b>	<b>12,00</b>	100	5	1	<b>51,16</b>

8140871	Ø	d2	L	I1		€
8140871100400	<b>1,00</b>	<b>4,00</b>	120	1,3	1	<b>58,43</b>
8140871150500	<b>1,50</b>	<b>5,00</b>	120	2	1	<b>55,50</b>
8140871200600	<b>2,00</b>	<b>6,00</b>	120	2,5	1	<b>55,50</b>
8140871250800	<b>2,50</b>	<b>8,00</b>	120	3,1	1	<b>64,29</b>
8140871300800	<b>3,00</b>	<b>8,00</b>	120	3,9	1	<b>64,29</b>
8140871500140	<b>5,00</b>	<b>14,00</b>	120	3,9	1	<b>104,70</b>
81408713001000	<b>3,00</b>	<b>10,00</b>	120	5	1	<b>73,88</b>
81408714001000	<b>4,00</b>	<b>10,00</b>	120	5	1	<b>73,88</b>
81408714001200	<b>4,00</b>	<b>12,00</b>	120	6,3	1	<b>88,15</b>

**HSS**

11453070015	11453070017	11453070013	11453070014
			
<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>84,19€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>149,62€</b>	<b>37 pzs:</b> 1-10 x 0,25 mm PVP: <b>153,36€</b>	<b>49 pzs:</b> 1-13 x 0,25 PVP: <b>301,09€</b>

**HSS**

11453070024	11453070026	11400170009	11400170011
			
<b>170 pzs:</b> 1-10 x 0,5 mm (Ø1>8 x10 pzs   Ø 8,5>10 x 5 pzs) PVP: <b>462,53€</b>	<b>222 brocas metal punta en cruz</b> HSS Ø 1>13mm x1/2+3,3+4,2 (Ø 4 5x20 pcs) (Ø 1>8x10 pcs) (Ø 8,5>10x5 pcs) (10,5>13x2 pcs) PVP: <b>686,04€</b>	<b>32 pzs:</b> 1-10,5 x 0,5 mm + 1,9/2,1/2,6/2,9/3,2/3,3/3,8/ 4,2/5,1/6,8/7,9/10,2 PVP: <b>213,89€</b>	<b>41 pzs:</b> 6-10 x 0,10 mm PVP: <b>465,11€</b>

**HSS**

New

**HSS STEAM TiN**

11400170010	1140017008	11453170015	11453170017
			
<b>51 pzs:</b> Ø 1>6 x 0,10 mm PVP: <b>213,86€</b>	<b>91 pzs:</b> Ø 1>10 x 0,10 mm PVP: <b>639,62€</b>	<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>92,34€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>164,13€</b>

New

**HSS PUNTA ESCALONADA**

11457070015	11457070017	11457170015	11457170017
			
<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>122,27€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>244,12€</b>	<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>151,16€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>293,51€</b>



HSS FURIUS		HSSE 8% COBALTO	
<b>11454170015</b>	<b>11454170017</b>	<b>81401670015</b>	<b>81401670017</b>
			
<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>118,62€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>210,72€</b>	<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>263,48€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>641,06€</b>

HSSE 5% COBALTO			
<b>11455070015</b>	<b>11455070017</b>	<b>11455070013</b>	<b>11455070014</b>
			
<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>71,40€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>158,19€</b>	<b>37 pzs:</b> 1-10 x 0,25 mm PVP: <b>182,45€</b>	<b>49 pzs:</b> 1-13x0,25 PVP: <b>356,80</b>

HSSE5 CUTINOX		HSSE5 TBX TiALN	
<b>11455870015</b>	<b>11455870017</b>	<b>11456170015</b>	<b>11456170017</b>
			
<b>51 pzs:</b> Ø 1>6 x 0,10 mm PVP: <b>120,98€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>262,57€</b>	<b>19 pzs:</b> 1-10 x 0,5 mm PVP: <b>170,10€</b>	<b>25 pzs:</b> 1-13 x 0,5 mm PVP: <b>369,22€</b>

BROCAS ESCALONADAS: 4-12   4-20   4-30 mm			
<b>HSS CANAL RECTO</b>	<b>HSS CANAL HELICOIDAL</b>	<b>HSS TiALN CANAL HELICOIDAL</b>	<b>HSSE TiALN CANAL HELICOIDAL</b>
<b>11448670001</b>	<b>11448570001</b>	<b>11438770001</b>	<b>11448770001</b>
			
PVP: <b>143,11€</b>	PVP: <b>176,19€</b>	PVP: <b>262,22€</b>	PVP: <b>367,86€</b>



**BROCAS METAL DURO**

CARBIDE DRILLS

**60**

# 220

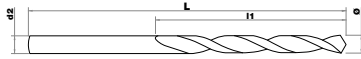
New

## BROCA METAL DURO DIN 6537K SIRIUS III

### Taladrados poco profundos 2xd

### Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables y fundiciones

Little deep drilling 2xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)  
Alloyed steel 800-1000 N/mm<sup>2</sup> (23-32 HRC)



Aceros inoxidables  
Stainless steels

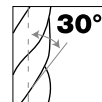
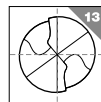
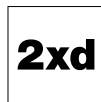


Fundiciones  
Cast iron



	Vc M/min
<b>P1</b>	100-120
<b>P2</b>	90-100
<b>P3</b>	75-95
<b>P4</b>	35-40
<b>P5</b>	50-65
<b>P6</b>	40-60
<b>M1</b>	30-40
<b>K2</b>	125-150
<b>K3</b>	90-110

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8242201	Ø	d2	L	l1	€
82422010300	3,00	6	62	20	49,74
82422010310	3,10	6	62	20	49,74
82422010320	3,20	6	62	20	49,74
82422010330	3,30	6	62	20	49,74
82422010340	3,40	6	62	20	49,74
82422010350	3,50	6	62	20	49,74
82422010360	3,60	6	62	20	49,74
82422010370	3,70	6	62	20	49,74
82422010380	3,80	6	66	24	49,74
82422010390	3,90	6	66	24	49,74
82422010400	4,00	6	66	24	49,74
82422010410	4,10	6	66	24	49,74
82422010420	4,20	6	66	24	49,74
82422010430	4,30	6	66	24	49,74
82422010440	4,40	6	66	24	49,74
82422010450	4,50	6	66	24	49,74
82422010460	4,60	6	66	24	49,74
82422010465	4,65	6	66	24	49,74
82422010470	4,70	6	66	24	49,74
82422010480	4,80	6	66	28	49,74
82422010490	4,90	6	66	28	49,74
82422010500	5,00	6	66	28	49,74
82422010510	5,10	6	66	28	49,74
82422010520	5,20	6	66	28	49,74
82422010530	5,30	6	66	28	49,74
82422010540	5,40	6	66	28	49,74
82422010550	5,50	6	66	28	49,74
82422010555	5,55	6	66	28	49,74
82422010560	5,60	6	66	28	49,74
82422010570	5,70	6	66	28	49,74
82422010580	5,80	6	66	28	49,74
82422010590	5,90	6	66	28	49,74
82422010600	6,00	6	66	28	49,74
82422010610	6,10	8	79	34	65,84
82422010620	6,20	8	79	34	65,84
82422010630	6,30	8	79	34	65,84

8242201	Ø	d2	L	l1	€
82422010640	6,40	8	79	34	65,84
82422010650	6,50	8	79	34	65,84
82422010660	6,60	8	79	34	65,84
82422010670	6,70	8	79	34	65,84
82422010675	6,75	8	79	34	65,84
82422010680	6,80	8	79	34	65,84
82422010690	6,90	8	79	34	65,84
82422010700	7,00	8	79	34	65,84
82422010710	7,10	8	79	41	65,84
82422010720	7,20	8	79	41	65,84
82422010730	7,30	8	79	41	65,84
82422010740	7,40	8	79	41	65,84
82422010750	7,50	8	79	41	65,84
82422010755	7,55	8	79	41	65,84
82422010760	7,60	8	79	41	65,84
82422010770	7,70	8	79	41	65,84
82422010780	7,80	8	79	41	65,84
82422010790	7,90	8	79	41	65,84
82422010800	8,00	8	79	41	65,84
82422010810	8,10	10	89	47	79,32
82422010820	8,20	10	89	47	79,32
82422010830	8,30	10	89	47	79,32
82422010840	8,40	10	89	47	79,32
82422010850	8,50	10	89	47	79,32
82422010860	8,60	10	89	47	79,32
82422010870	8,70	10	89	47	79,32
82422010880	8,80	10	89	47	79,32
82422010890	8,90	10	89	47	79,32
82422010900	9,00	10	89	47	79,32
82422010910	9,10	10	89	47	79,32
82422010920	9,20	10	89	47	79,32
82422010930	9,30	10	89	47	79,32
82422010940	9,40	10	89	47	79,32
82422010950	9,50	10	89	47	79,32
82422010955	9,55	10	89	47	79,32
82422010960	9,60	10	89	47	79,32

# 220

## BROCA METAL DURO DIN 6537K SIRIUS III

### Taladros poco profundos 2xd

### Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables y fundiciones



Little deep drilling 2xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron

TALADRADO / DRILLING

8242201	Ø	d2	L	I1		€
82422010970	9,70	10	89	47	1	79,32
82422010980	9,80	10	89	47	1	79,32
82422010990	9,90	10	89	47	1	79,32
82422011000	10,00	10	89	47	1	79,32
82422011010	10,10	12	102	55	1	110,23
82422011020	10,20	12	102	55	1	110,23
82422011025	10,25	12	102	55	1	110,23
82422011030	10,30	12	102	55	1	110,23
82422011040	10,40	12	102	55	1	110,23
82422011050	10,50	12	102	55	1	110,23
82422011060	10,60	12	102	55	1	110,23
82422011070	10,70	12	102	55	1	110,23
82422011080	10,80	12	102	55	1	110,23
82422011090	10,90	12	102	55	1	110,23
82422011100	11,00	12	102	55	1	110,23
82422011110	11,10	12	102	55	1	110,23
82422011120	11,20	12	102	55	1	110,23
82422011130	11,30	12	102	55	1	110,23
82422011140	11,40	12	102	55	1	110,23
82422011150	11,50	12	102	55	1	110,23
82422011160	11,60	12	102	55	1	110,23
82422011170	11,70	12	102	55	1	110,23
82422011180	11,80	12	102	55	1	110,23
82422011190	11,90	12	102	55	1	110,23
82422011200	12,00	12	102	55	1	110,23
82422011210	12,10	14	107	60	1	159,15
82422011220	12,20	14	107	60	1	159,15
82422011230	12,30	14	107	60	1	159,15
82422011240	12,40	14	107	60	1	159,15
82422011250	12,50	14	107	60	1	159,15
82422011260	12,60	14	107	60	1	159,15
82422011270	12,70	14	107	60	1	159,15
82422011280	12,80	14	107	60	1	159,15

8242201	Ø	d2	L	I1		€
82422011290	12,90	14	107	60	1	159,15
82422011300	13,00	14	107	60	1	159,15
82422011310	13,10	14	107	60	1	159,15
82422011320	13,20	14	107	60	1	159,15
82422011330	13,30	14	107	60	1	159,15
82422011340	13,40	14	107	60	1	159,15
82422011350	13,50	14	107	60	1	159,15
82422011360	13,60	14	107	60	1	159,15
82422011370	13,70	14	107	60	1	159,15
82422011380	13,80	14	107	60	1	159,15
82422011390	13,90	14	107	60	1	159,15
82422011400	14,00	14	107	60	1	159,15
82422011410	14,10	16	115	65	1	200,30
82422011420	14,20	16	115	65	1	200,30
82422011430	14,30	16	115	65	1	200,30
82422011440	14,40	16	115	65	1	200,30
82422011450	14,50	16	115	65	1	200,30
82422011460	14,60	16	115	65	1	200,30
82422011470	14,70	16	115	65	1	200,30
82422011480	14,80	16	115	65	1	200,30
82422011490	14,90	16	115	65	1	200,30
82422011500	15,00	16	115	65	1	200,30
82422011510	15,10	16	115	65	1	200,30
82422011520	15,20	16	115	65	1	200,30
82422011525	15,25	16	115	65	1	200,30
82422011530	15,30	16	115	65	1	200,30
82422011540	15,40	16	115	65	1	200,30
82422011550	15,50	16	115	65	1	200,30
82422011560	15,60	16	115	65	1	200,30
82422011570	15,70	16	115	65	1	200,30
82422011580	15,80	16	115	65	1	200,30
82422011590	15,90	16	115	65	1	200,30
82422011600	16,00	16	115	65	1	200,30

# 320

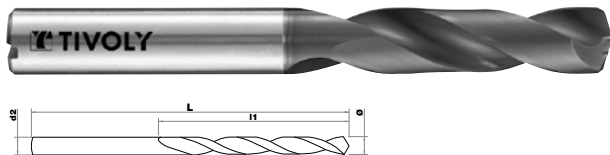
New

## BROCA METAL DURO DIN 6537K SIRIUS III

### Taladrados poco profundos 3xd

### Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables y fundiciones

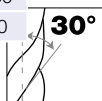
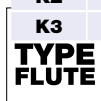
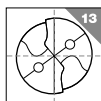
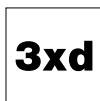
Little deep drilling 3xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron



Aceros no aleados y para decoletaje < 700 N/mm <sup>2</sup> Unalloyed and free cutting steels < 700 N / mm <sup>2</sup>	<b>P</b> 1-2
Aceros fuertemente aleados 900-1200 N/mm <sup>2</sup> (32-38 HRC) Alloyed steel 800-1000 N/mm <sup>2</sup> (23-32 HRC)	<b>P</b> 3-4
Aceros inoxidables Stainless steels	<b>P-M</b>
Fundiciones Cast iron	<b>K</b>

	Vc M/min
<b>P1</b>	100-120
<b>P2</b>	90-100
<b>P3</b>	75-95
<b>P4</b>	35-40
<b>P5</b>	50-65
<b>P6</b>	40-60
<b>M1</b>	30-40
<b>K2</b>	125-150
<b>K3</b>	90-110

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



824320	Ø	d2	L	l1		€
82432010300	3,00	6	62	20	1	66,67
82432010310	3,10	6	62	20	1	66,67
82432010320	3,20	6	62	20	1	66,67
82432010330	3,30	6	62	20	1	66,67
82432010340	3,40	6	62	20	1	66,67
82432010350	3,50	6	62	20	1	66,67
82432010360	3,60	6	62	20	1	66,67
82432010370	3,70	6	62	20	1	66,67
82432010380	3,80	6	66	24	1	66,67
82432010390	3,90	6	66	24	1	66,67
82432010400	4,00	6	66	24	1	66,67
82432010410	4,10	6	66	24	1	66,67
82432010420	4,20	6	66	24	1	66,67
82432010430	4,30	6	66	24	1	66,67
82432010440	4,40	6	66	24	1	66,67
82432010450	4,50	6	66	24	1	66,67
82432010460	4,60	6	66	24	1	66,67
82432010465	4,65	6	66	24	1	66,67
82432010470	4,70	6	66	24	1	66,67
82432010480	4,80	6	66	28	1	66,67
82432010490	4,90	6	66	28	1	66,67
82432010500	5,00	6	66	28	1	66,67
82432010510	5,10	6	66	28	1	66,67
82432010520	5,20	6	66	28	1	66,67
82432010530	5,30	6	66	28	1	66,67
82432010540	5,40	6	66	28	1	66,67
82432010550	5,50	6	66	28	1	66,67
82432010555	5,55	6	66	28	1	66,67
82432010560	5,60	6	66	28	1	66,67
82432010570	5,70	6	66	28	1	66,67
82432010580	5,80	6	66	28	1	66,67
82432010590	5,90	6	66	28	1	66,67
82432010600	6,00	6	66	28	1	66,67
82432010610	6,10	8	79	34	1	78,50
82432010620	6,20	8	79	34	1	78,50
82432010630	6,30	8	79	34	1	78,50
82432010640	6,40	8	79	34	1	78,50
82432010650	6,50	8	79	34	1	78,50

824320	Ø	d2	L	l1		€
82432010660	6,60	8	79	34	1	78,50
82432010670	6,70	8	79	34	1	78,50
82432010675	6,75	8	79	34	1	78,50
82432010680	6,80	8	79	34	1	78,50
82432010690	6,90	8	79	34	1	78,50
82432010700	7,00	8	79	34	1	78,50
82432010710	7,10	8	79	41	1	78,50
82432010720	7,20	8	79	41	1	78,50
82432010730	7,30	8	79	41	1	78,50
82432010740	7,40	8	79	41	1	78,50
82432010750	7,50	8	79	41	1	78,50
82432010755	7,55	8	79	41	1	78,50
82432010760	7,60	8	79	41	1	78,50
82432010770	7,70	8	79	41	1	78,50
82432010780	7,80	8	79	41	1	78,50
82432010790	7,90	8	79	41	1	78,50
82432010800	8,00	8	79	41	1	78,50
82432010810	8,10	10	89	47	1	106,20
82432010820	8,20	10	89	47	1	106,20
82432010830	8,30	10	89	47	1	106,20
82432010840	8,40	10	89	47	1	106,20
82432010850	8,50	10	89	47	1	106,20
82432010860	8,60	10	89	47	1	106,20
82432010870	8,70	10	89	47	1	106,20
82432010880	8,80	10	89	47	1	106,20
82432010890	8,90	10	89	47	1	106,20
82432010900	9,00	10	89	47	1	106,20
82432010910	9,10	10	89	47	1	106,20
82432010920	9,20	10	89	47	1	106,20
82432010930	9,30	10	89	47	1	106,20
82432010940	9,40	10	89	47	1	106,20
82432010950	9,50	10	89	47	1	106,20
82432010955	9,55	10	89	47	1	106,19
82432010960	9,60	10	89	47	1	106,20
82432010970	9,70	10	89	47	1	106,20
82432010980	9,80	10	89	47	1	106,20
82432010990	9,90	10	89	47	1	106,20
82432011000	10,00	12	102	55	1	106,20



# 320

New

## BROCA METAL DURO DIN 6537K SIRIUS III

### Taladros poco profundos 3xd

### Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidable y fundiciones

Little deep drilling 3xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron

824320	Ø	d2	L	I1		€
82432011010	10,10	12	102	55	1	133,88
82432011020	10,20	12	102	55	1	133,88
82432011025	10,25	12	102	55	1	133,88
82432011030	10,30	12	102	55	1	133,88
82432011040	10,40	12	102	55	1	133,88
82432011050	10,50	12	102	55	1	133,88
82432011060	10,60	12	102	55	1	133,88
82432011070	10,70	12	102	55	1	133,88
82432011080	10,80	12	102	55	1	133,88
82432011090	10,90	12	102	55	1	133,88
82432011100	11,00	12	102	55	1	133,88
82432011110	11,10	12	102	55	1	133,88
82432011120	11,20	12	102	55	1	133,88
82432011130	11,30	12	102	55	1	133,88
82432011140	11,40	12	102	55	1	133,88
82432011150	11,50	12	102	55	1	133,88
82432011160	11,60	12	102	55	1	133,88
82432011170	11,70	12	102	55	1	133,88
82432011180	11,80	12	102	55	1	133,88
82432011190	11,90	12	102	55	1	133,88
82432011200	12,00	12	102	55	1	133,88
82432011210	12,10	14	107	60	1	194,10
82432011220	12,20	14	107	60	1	194,10
82432011230	12,30	14	107	60	1	194,10
82432011240	12,40	14	107	60	1	194,10
82432011250	12,50	14	107	60	1	194,10
82432011260	12,60	14	107	60	1	194,10
82432011270	12,70	14	107	60	1	194,10
82432011280	12,80	14	107	60	1	194,10
82432011290	12,90	14	107	60	1	194,10
82432011300	13,00	14	107	60	1	194,10

824320	Ø	d2	L	I1		€
82432011310	13,10	14	107	60	1	194,10
82432011320	13,20	14	107	60	1	194,10
82432011330	13,30	14	107	60	1	194,10
82432011340	13,40	14	107	60	1	194,10
82432011350	13,50	14	107	60	1	194,10
82432011360	13,60	14	107	60	1	194,10
82432011370	13,70	14	107	60	1	194,10
82432011380	13,80	14	107	60	1	194,10
82432011390	13,90	14	107	60	1	194,10
82432011400	14,00	14	107	60	1	194,10
82432011410	14,10	16	115	65	1	254,86
82432011420	14,20	16	115	65	1	254,86
82432011430	14,30	16	115	65	1	254,86
82432011440	14,40	16	115	65	1	254,86
82432011450	14,50	16	115	65	1	254,86
82432011460	14,60	16	115	65	1	254,86
82432011470	14,70	16	115	65	1	254,86
82432011480	14,80	16	115	65	1	254,86
82432011490	14,90	16	115	65	1	254,86
82432011500	15,00	16	115	65	1	254,86
82432011510	15,10	16	115	65	1	254,86
82432011520	15,20	16	115	65	1	254,86
82432011525	15,25	16	115	65	1	254,86
82432011530	15,30	16	115	65	1	254,86
82432011540	15,40	16	115	65	1	254,86
82432011550	15,50	16	115	65	1	254,86
82432011560	15,60	16	115	65	1	254,86
82432011570	15,70	16	115	65	1	254,86
82432011580	15,80	16	115	65	1	254,86
82432011590	15,90	16	115	65	1	254,86
82432011600	16,00	16	115	65	1	254,86

# 520

New

## BROCA METAL DURO DIN 6537K SIRIUS III

Taladrados poco profundos 5xd

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables y fundiciones

Little deep drilling 5xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)  
Alloyed steel 800-1000 N/mm<sup>2</sup> (23-32 HRC)

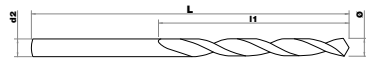
**P**  
3-4

Aceros inoxidables  
Stainless steels

**P-M**

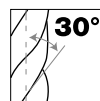
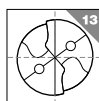
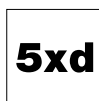
Fundiciones  
Cast iron

**K**



	Vc M/min
<b>P1</b>	100-120
<b>P2</b>	90-100
<b>P3</b>	75-95
<b>P4</b>	35-40
<b>P5</b>	50-65
<b>P6</b>	40-60
<b>M1</b>	30-40
<b>K2</b>	125-150
<b>K3</b>	90-110

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



824520	Ø	d2	L	l1	l2	€
82452010300	3,00	6	66	28	1	76,60
82452010310	3,10	6	66	28	1	76,60
82452010320	3,20	6	66	28	1	76,60
82452010330	3,30	6	66	28	1	76,60
82452010340	3,40	6	66	28	1	76,60
82452010350	3,50	6	66	28	1	76,60
82452010360	3,60	6	66	28	1	76,60
82452010370	3,70	6	66	28	1	76,60
82452010380	3,80	6	74	36	1	76,60
82452010390	3,90	6	74	36	1	76,60
82452010400	4,00	6	74	36	1	76,60
82452010410	4,10	6	74	36	1	76,60
82452010420	4,20	6	74	36	1	76,60
82452010430	4,30	6	74	36	1	76,60
82452010440	4,40	6	74	36	1	76,60
82452010450	4,50	6	74	36	1	76,60
82452010460	4,60	6	74	36	1	76,60
82452010465	4,65	6	74	36	1	76,60
82452010470	4,70	6	74	36	1	76,60
82452010480	4,80	6	82	44	1	76,60
82452010490	4,90	6	82	44	1	76,60
82452010500	5,00	6	82	44	1	76,60
82452010510	5,10	6	82	44	1	76,60
82452010520	5,20	6	82	44	1	76,60
82452010530	5,30	6	82	44	1	76,60
82452010540	5,40	6	82	44	1	76,60
82452010550	5,50	6	82	44	1	76,60
82452010555	5,55	6	82	44	1	76,60
82452010560	5,60	6	82	44	1	76,60
82452010570	5,70	6	82	44	1	76,60
82452010580	5,80	6	82	44	1	76,60
82452010590	5,90	6	82	44	1	76,60
82452010600	6,00	6	82	44	1	76,60
82452010610	6,10	8	91	53	1	92,78
82452010620	6,20	8	91	53	1	92,78
82452010630	6,30	8	91	53	1	92,78
82452010640	6,40	8	91	53	1	92,78
82452010650	6,50	8	91	53	1	92,78


824520	Ø	d2	L	l1	l2	€
82452010660	6,60	8	91	53	1	92,78
82452010670	6,70	8	91	53	1	92,78
82452010675	6,75	8	91	53	1	92,77
82452010680	6,80	8	91	53	1	92,78
82452010690	6,90	8	91	53	1	92,78
82452010700	7,00	8	91	53	1	92,78
82452010710	7,10	8	91	53	1	92,78
82452010720	7,20	8	91	53	1	92,78
82452010730	7,30	8	91	53	1	92,78
82452010740	7,40	8	91	53	1	92,78
82452010750	7,50	8	91	53	1	92,78
82452010755	7,55	8	91	53	1	92,78
82452010760	7,60	8	91	53	1	92,78
82452010770	7,70	8	91	53	1	92,78
82452010780	7,80	8	91	53	1	92,78
82452010790	7,90	8	91	53	1	92,78
82452010800	8,00	8	91	53	1	92,78
82452010810	8,10	10	103	61	1	114,25
82452010820	8,20	10	103	61	1	114,25
82452010830	8,30	10	103	61	1	114,25
82452010840	8,40	10	103	61	1	114,25
82452010850	8,50	10	103	61	1	114,25
82452010860	8,60	10	103	61	1	114,25
82452010870	8,70	10	103	61	1	114,25
82452010880	8,80	10	103	61	1	114,25
82452010890	8,90	10	103	61	1	114,25
82452010900	9,00	10	103	61	1	114,25
82452010910	9,10	10	103	61	1	114,25
82452010920	9,20	10	103	61	1	114,25
82452010930	9,30	10	103	61	1	114,25
82452010940	9,40	10	103	61	1	114,25
82452010950	9,50	10	103	61	1	114,25
82452010955	9,55	10	103	61	1	114,25
82452010960	9,60	10	103	61	1	114,25
82452010970	9,70	10	103	61	1	114,25
82452010980	9,80	10	103	61	1	114,25
82452010990	9,90	10	103	61	1	114,25
82452011000	10,00	10	103	61	1	114,25

**520****BROCA METAL DURO DIN 6537K SIRIUS III**

Taladrados poco profundos 5xd

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables y fundiciones**New**Little deep drilling 5xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron

<b>824520</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
82452011010	<b>10,10</b>	12	118	71	1	<b>173,39</b>
82452011020	<b>10,20</b>	12	118	71	1	<b>173,39</b>
82452011025	<b>10,25</b>	12	118	71	1	<b>173,39</b>
82452011030	<b>10,30</b>	12	118	71	1	<b>173,39</b>
82452011040	<b>10,40</b>	12	118	71	1	<b>173,39</b>
82452011050	<b>10,50</b>	12	118	71	1	<b>173,39</b>
82452011060	<b>10,60</b>	12	118	71	1	<b>173,39</b>
82452011070	<b>10,70</b>	12	118	71	1	<b>173,39</b>
82452011080	<b>10,80</b>	12	118	71	1	<b>173,39</b>
82452011090	<b>10,90</b>	12	118	71	1	<b>173,39</b>
82452011100	<b>11,00</b>	12	118	71	1	<b>173,39</b>
82452011110	<b>11,10</b>	12	118	71	1	<b>173,39</b>
82452011120	<b>11,20</b>	12	118	71	1	<b>173,39</b>
82452011130	<b>11,30</b>	12	118	71	1	<b>173,39</b>
82452011140	<b>11,40</b>	12	118	71	1	<b>173,39</b>
82452011150	<b>11,50</b>	12	118	71	1	<b>173,39</b>
82452011160	<b>11,60</b>	12	118	71	1	<b>173,39</b>
82452011170	<b>11,70</b>	12	118	71	1	<b>173,39</b>
82452011180	<b>11,80</b>	12	118	71	1	<b>173,39</b>
82452011190	<b>11,90</b>	12	118	71	1	<b>173,39</b>
82452011200	<b>12,00</b>	12	118	71	1	<b>173,39</b>
82452011210	<b>12,10</b>	14	124	77	1	<b>227,15</b>
82452011220	<b>12,20</b>	14	124	77	1	<b>227,15</b>
82452011230	<b>12,30</b>	14	124	77	1	<b>227,15</b>
82452011240	<b>12,40</b>	14	124	77	1	<b>227,15</b>
82452011250	<b>12,50</b>	14	124	77	1	<b>227,15</b>
82452011260	<b>12,60</b>	14	124	77	1	<b>227,15</b>
82452011270	<b>12,70</b>	14	124	77	1	<b>227,15</b>
82452011280	<b>12,80</b>	14	124	77	1	<b>227,15</b>
82452011290	<b>12,90</b>	14	124	77	1	<b>227,15</b>
82452011300	<b>13,00</b>	14	124	77	1	<b>227,15</b>

<b>824520</b>	<b>Ø</b>	<b>d2</b>	<b>L</b>	<b>I1</b>		<b>€</b>
82452011310	<b>13,10</b>	14	124	77	1	<b>227,15</b>
82452011320	<b>13,20</b>	14	124	77	1	<b>227,15</b>
82452011330	<b>13,30</b>	14	124	77	1	<b>227,15</b>
82452011340	<b>13,40</b>	14	124	77	1	<b>227,15</b>
82452011350	<b>13,50</b>	14	124	77	1	<b>227,15</b>
82452011360	<b>13,60</b>	14	124	77	1	<b>227,15</b>
82452011370	<b>13,70</b>	14	124	77	1	<b>227,15</b>
82452011380	<b>13,80</b>	14	124	77	1	<b>227,15</b>
82452011390	<b>13,90</b>	14	124	77	1	<b>227,15</b>
82452011400	<b>14,00</b>	14	124	77	1	<b>227,15</b>
82452011410	<b>14,10</b>	16	133	83	1	<b>280,94</b>
82452011420	<b>14,20</b>	16	133	83	1	<b>280,94</b>
82452011430	<b>14,30</b>	16	133	83	1	<b>280,94</b>
82452011440	<b>14,40</b>	16	133	83	1	<b>280,94</b>
82452011450	<b>14,50</b>	16	133	83	1	<b>280,94</b>
82452011460	<b>14,60</b>	16	133	83	1	<b>280,94</b>
82452011470	<b>14,70</b>	16	133	83	1	<b>280,94</b>
82452011480	<b>14,80</b>	16	133	83	1	<b>280,94</b>
82452011490	<b>14,90</b>	16	133	83	1	<b>280,94</b>
82452011500	<b>15,00</b>	16	133	83	1	<b>280,94</b>
82452011510	<b>15,10</b>	16	133	83	1	<b>280,94</b>
82452011520	<b>15,20</b>	16	133	83	1	<b>280,94</b>
82452011525	<b>15,25</b>	16	133	83	1	<b>280,94</b>
82452011530	<b>15,30</b>	16	133	83	1	<b>280,94</b>
82452011540	<b>15,40</b>	16	133	83	1	<b>280,94</b>
82452011550	<b>15,50</b>	16	133	83	1	<b>280,94</b>
82452011560	<b>15,60</b>	16	133	83	1	<b>280,94</b>
82452011570	<b>15,70</b>	16	133	83	1	<b>280,94</b>
82452011580	<b>15,80</b>	16	133	83	1	<b>280,94</b>
82452011590	<b>15,90</b>	16	133	83	1	<b>280,94</b>
82452011600	<b>16,00</b>	16	133	83	1	<b>280,94</b>

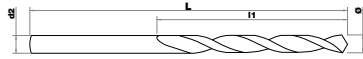
# 150

## BROCA METAL DURO DIN 6537K POLARIS

Taladrados poco profundos 3xd

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables y fundiciones

Little deep drilling 3xd | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)  
Alloyed steel 800-1000 N/mm<sup>2</sup> (23-32 HRC)



Aceros inoxidables  
Stainless steels

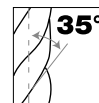
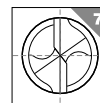
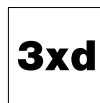


Fundiciones  
Cast iron



	Vc
	M/min
<b>P1</b>	100-120
<b>P2</b>	90-100
<b>P3</b>	75-95
<b>P4</b>	35-40
<b>P5</b>	50-65
<b>P6</b>	40-60
<b>M1</b>	30-40
<b>K2</b>	125-150
<b>K3</b>	90-110

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8241501	Ø	d2	L	I1		€
82415010300	3,00	6	62	20	1	38,78
82415010330	3,30	6	62	20	1	38,78
82415010350	3,50	6	62	20	1	38,78
82415010400	4,00	6	66	24	1	38,78
82415010420	4,20	6	66	24	1	38,78
82415010450	4,50	6	66	24	1	38,78
82415010500	5,00	6	66	28	1	38,78
82415010550	5,50	6	66	28	1	38,78
82415010600	6,00	6	66	28	1	38,78
82415010650	6,50	8	79	34	1	38,78
82415010675	6,75	8	79	34	1	38,78
82415010680	6,80	8	79	34	1	38,78
82415010700	7,00	8	79	34	1	38,78
82415010750	7,50	8	79	41	1	38,78
82415010800	8,00	8	79	41	1	38,78
82415010850	8,50	8	79	41	1	38,78

8241501	Ø	d2	L	I1		€
82415010900	9,00	10	89	47	1	43,50
82415010950	9,50	10	89	47	1	43,50
82415011000	10,00	10	89	47	1	43,50
82415011020	10,20	12	102	55	1	64,80
82415011050	10,50	12	102	55	1	64,80
82415011100	11,00	12	102	55	1	64,80
82415011150	11,50	12	102	55	1	64,80
82415011200	12,00	12	102	55	1	64,80
82415011250	12,50	14	107	60	1	87,00
82415011300	13,00	14	107	60	1	87,00
82415011350	13,50	14	107	60	1	87,00
82415011400	14,00	14	107	60	1	87,00
82415011450	14,50	16	115	65	1	112,26
82415011500	15,00	16	115	65	1	112,26
82415011550	15,50	16	115	65	1	112,26
82415011600	16,00	16	115	65	1	112,26

# 170

## BROCA METAL DURO DIN 6537K POLARIS CON REFRIGERACIÓN INTERNA

Taladrados de profundidad 5xd

Aceros duros hasta 1200 N/mm<sup>2</sup>, aceros inoxidables y fundición

Deep drilling 5xd | Very hard steels up to 1200 N/mm<sup>2</sup>, stainless steels and cast iron

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



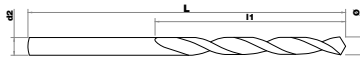
Aceros fuertemente  
aleados 900-1200 N/mm<sup>2</sup>  
(32-38 HRC)  
Alloyed steel  
800-1000 N/mm<sup>2</sup>  
(23-32 HRC)



Aceros  
inoxidables  
Stainless  
steels

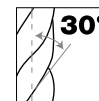
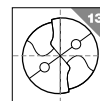
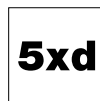


Fundiciones  
Cast iron



	Vc M/min
<b>P1</b>	100-120
<b>P2</b>	90-100
<b>P3</b>	75-95
<b>P4</b>	35-40
<b>P5</b>	50-65
<b>P6</b>	40-60
<b>M1</b>	30-40
<b>K2</b>	125-150
<b>K3</b>	90-110

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8241701	Ø	d2	L	I1	1	€
82417010400	4,00	6	74	36	1	67,98
82417010420	4,20	6	74	36	1	67,98
82417010450	4,50	6	74	36	1	67,98
82417010500	5,00	6	82	44	1	67,98
82417010550	5,50	6	82	44	1	67,98
82417010600	6,00	6	82	44	1	67,98
82417010650	6,50	8	91	53	1	75,14
82417010675	6,75	8	91	53	1	75,14
82417010680	6,80	8	91	53	1	75,14
82417010700	7,00	8	91	53	1	75,14
82417010750	7,50	8	91	53	1	75,14
82417010800	8,00	8	91	53	1	75,14
82417010850	8,50	10	103	61	1	86,23
82417010900	9,00	10	103	61	1	86,23
82417010950	9,50	10	103	61	1	86,23
82417011000	10,00	10	103	61	1	86,23
82417011020	10,20	12	118	71	1	125,80
82417011050	10,50	12	118	71	1	125,80
82417011100	11,00	12	118	71	1	125,80

8241701	Ø	d2	L	I1	1	€
82417011150	11,50	12	118	71	1	125,80
82417011200	12,00	12	118	71	1	125,80
82417011250	12,50	14	124	77	1	169,31
82417011300	13,00	14	124	77	1	169,31
82417011350	13,50	14	124	77	1	169,31
82417011400	14,00	14	124	77	1	169,31
82417011450	14,50	16	133	83	1	208,84
82417011500	15,00	16	133	83	1	208,84
82417011550	15,50	16	133	83	1	208,84
82417011600	16,00	16	133	83	1	208,84
82417011650	16,50	18	143	93	1	334,63
82417011700	17,00	18	143	93	1	334,63
82417011750	17,50	18	143	93	1	334,63
82417011800	18,00	18	143	93	1	334,63
82417011850	18,50	20	153	101	1	363,83
82417011900	19,00	20	153	101	1	363,83
82417011950	19,50	20	153	101	1	363,83
82417012000	20,00	20	153	101	1	363,83



# 392

## BROCA METAL DURO DIN 338

Taladrados de profundidad media 3xd

Aceros duros hasta 1200 N/mm<sup>2</sup>, aceros inoxidables y fundición

Medium deep drilling 3xd | Very hard steels up to 1200 N/mm<sup>2</sup>

and stainless steels, cast iron



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)  
Alloyed steel 800-1000 N/mm<sup>2</sup> (23-32 HRC)



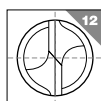
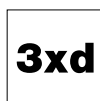
Aceros inoxidables Stainless steels



Fundiciones Cast iron



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



	Vc M/min
<b>P1-2</b>	60-100
<b>P3</b>	60-80
<b>P4</b>	20-60
<b>P5-6</b>	30-60
<b>M1</b>	30-60
<b>K2-3</b>	40-80

8243921	Ø	d2	L	l1		€
82439210100	1,00	1,00	34	12	1	8,53
82439210110	1,10	1,10	36	14	1	9,03
82439210120	1,20	1,20	38	16	1	9,43
82439210130	1,30	1,30	38	16	1	9,97
82439210140	1,40	1,40	40	18	1	10,72
82439210150	1,50	1,50	40	18	1	10,90
82439210160	1,60	1,60	43	20	1	11,05
82439210170	1,70	1,70	43	20	1	11,26
82439210180	1,80	1,80	46	22	1	12,71
82439210190	1,90	1,90	46	22	1	12,71
82439210200	2,00	2,00	49	24	1	12,94
82439210210	2,10	2,10	49	24	1	13,82
82439210220	2,20	2,20	53	27	1	15,31
82439210230	2,30	2,30	53	27	1	15,31
82439210240	2,40	2,40	57	30	1	16,80
82439210250	2,50	2,50	57	30	1	15,15
82439210260	2,60	2,60	57	30	1	17,17
82439210270	2,70	2,70	61	33	1	19,75
82439210280	2,80	2,80	61	33	1	20,12
82439210290	2,90	2,90	61	33	1	19,75
82439210300	3,00	3,00	61	33	1	18,46
82439210310	3,10	3,10	65	36	1	21,05
82439210320	3,20	3,20	65	36	1	21,05
82439210330	3,30	3,30	65	36	1	21,97
82439210340	3,40	3,40	70	39	1	22,72
82439210350	3,50	3,50	70	39	1	22,72
82439210360	3,60	3,60	70	39	1	24,37
82439210370	3,70	3,70	70	39	1	25,50
82439210380	3,80	3,80	75	43	1	25,66
82439210390	3,90	3,90	75	43	1	26,22
82439210400	4,00	4,00	75	43	1	24,37
82439210410	4,10	4,10	75	43	1	26,96
82439210420	4,20	4,20	75	43	1	26,96
82439210430	4,30	4,30	80	47	1	35,60
82439210440	4,40	4,40	80	47	1	35,60
82439210450	4,50	4,50	80	47	1	32,47
82439210460	4,60	4,60	80	47	1	36,53
82439210470	4,70	4,70	80	47	1	36,53

8243921	Ø	d2	L	l1		€
82439210480	4,80	4,80	86	52	1	38,18
82439210490	4,90	4,90	86	52	1	38,18
82439210500	5,00	5,00	86	52	1	35,60
82439210510	5,10	5,10	86	52	1	41,32
82439210520	5,20	5,20	86	52	1	41,32
82439210530	5,30	5,30	86	52	1	41,32
82439210540	5,40	5,40	93	57	1	47,06
82439210550	5,50	5,50	93	57	1	44,29
82439210560	5,60	5,60	93	57	1	49,07
82439210570	5,70	5,70	93	57	1	49,07
82439210580	5,80	5,80	93	57	1	50,93
82439210590	5,90	5,90	93	57	1	50,93
82439210600	6,00	6,00	93	57	1	47,60
82439210610	6,10	6,10	101	63	1	63,84
82439210620	6,20	6,20	101	63	1	63,84
82439210630	6,30	6,30	101	63	1	61,99
82439210640	6,40	6,40	101	63	1	63,13
82439210650	6,50	6,50	101	63	1	58,86
82439210660	6,60	6,60	101	63	1	76,42
82439210670	6,70	6,70	101	63	1	76,42
82439210680	6,80	6,80	109	69	1	71,79
82439210690	6,90	6,90	109	69	1	76,42
82439210700	7,00	7,00	109	69	1	68,05
82439210750	7,50	7,50	109	69	1	73,63
82439210780	7,80	7,80	117	75	1	95,57
82439210800	8,00	8,00	117	75	1	100,76
82439210850	8,50	8,50	117	75	1	96,49
82439210900	9,00	9,00	125	81	1	108,31
82439210950	9,50	9,50	125	81	1	122,15
82439211000	10,00	10,00	133	87	1	141,14
82439211020	10,20	10,20	133	87	1	150,19
82439211050	10,50	10,50	133	87	1	152,96
82439211100	11,00	11,00	142	94	1	185,04
82439211150	11,50	11,50	142	94	1	205,15
82439211200	12,00	12,00	151	101	1	219,93
82439211300	13,00	13,00	151	101	1	265,33
82439211400	14,00	14,00	160	108	1	308,84

# 020

## BROCA CON PUNTA DE METAL DURO DIN 338

### Taladrados de profundidad media 3xd

### Aceros muy duros hasta 1200 N/mm<sup>2</sup>

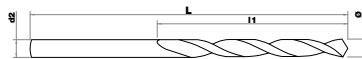
Medium deep drilling 3xd | Very hard steels up to 1200 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 900-1200 N/mm<sup>2</sup>  
(32-38 HRC)  
Alloyed steel  
800-1000 N/mm<sup>2</sup>  
(23-32 HRC)

**P**  
3-4



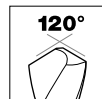
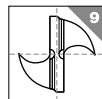
	Vc M/min
<b>P1</b>	60-75
<b>P2</b>	55-65
<b>P3</b>	40-80
<b>P4</b>	20-60

**HM**  
CARB

BRIGHT  
UNCOATED

simDIN  
**338**

**3xd**



**N**  
TYPE

**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8240201	Ø	d2	L	l1		€
82402010200	2,00	2,00	49	24	1	18,82
82402010210	2,10	2,10	49	24	1	21,45
82402010220	2,20	2,20	53	27	1	21,45
82402010230	2,30	2,30	53	27	1	21,45
82402010240	2,40	2,40	57	30	1	21,45
82402010250	2,50	2,50	57	30	1	18,82
82402010260	2,60	2,60	57	30	1	21,45
82402010270	2,70	2,70	61	33	1	21,45
82402010280	2,80	2,80	61	33	1	21,45
82402010290	2,90	2,90	61	33	1	21,45
82402010300	3,00	3,00	61	33	1	18,82
82402010310	3,10	3,10	65	36	1	21,45
82402010320	3,20	3,20	65	36	1	21,45
82402010330	3,30	3,30	65	36	1	21,45
82402010340	3,40	3,40	70	39	1	21,45
82402010350	3,50	3,50	70	39	1	18,82
82402010360	3,60	3,60	70	39	1	21,45
82402010370	3,70	3,70	70	39	1	21,45
82402010380	3,80	3,80	75	43	1	21,45
82402010390	3,90	3,90	75	43	1	21,45
82402010400	4,00	4,00	75	43	1	18,82
82402010410	4,10	4,10	75	43	1	22,06
82402010420	4,20	4,20	75	43	1	22,06
82402010430	4,30	4,30	80	47	1	22,06
82402010440	4,40	4,40	80	47	1	22,06
82402010450	4,50	4,50	80	47	1	19,30
82402010460	4,60	4,60	80	47	1	22,06
82402010470	4,70	4,70	80	47	1	22,06
82402010480	4,80	4,80	86	52	1	22,06
82402010490	4,90	4,90	86	52	1	22,06
82402010500	5,00	5,00	86	52	1	19,30
82402010510	5,10	5,10	86	52	1	23,08
82402010520	5,20	5,20	86	52	1	23,08
82402010530	5,30	5,30	86	52	1	23,08
82402010540	5,40	5,40	93	57	1	23,08
82402010550	5,50	5,50	93	57	1	20,33
82402010560	5,60	5,60	93	57	1	24,27
82402010570	5,70	5,70	93	57	1	24,27
82402010580	5,80	5,80	93	57	1	24,27
82402010590	5,90	5,90	93	57	1	24,27
82402010600	6,00	6,00	93	57	1	21,33
82402010610	6,10	6,10	101	63	1	27,94

8240201	Ø	d2	L	l1		€
82402010620	6,20	6,20	101	63	1	27,94
82402010630	6,30	6,30	101	63	1	27,94
82402010640	6,40	6,40	101	63	1	27,94
82402010650	6,50	6,50	101	63	1	25,40
82402010660	6,60	6,60	101	63	1	27,94
82402010670	6,70	6,70	101	63	1	27,94
82402010680	6,80	6,80	109	69	1	27,94
82402010690	6,90	6,90	109	69	1	27,94
82402010700	7,00	7,00	109	69	1	25,40
82402010710	7,10	7,10	109	69	1	29,07
82402010720	7,20	7,20	109	69	1	29,07
82402010730	7,30	7,30	109	69	1	29,07
82402010740	7,40	7,40	109	69	1	29,07
82402010750	7,50	7,50	109	69	1	26,43
82402010760	7,60	7,60	117	75	1	29,07
82402010770	7,70	7,70	117	75	1	29,07
82402010780	7,80	7,80	117	75	1	29,07
82402010790	7,90	7,90	117	75	1	29,07
82402010800	8,00	8,00	117	75	1	26,43
82402010810	8,10	8,10	117	75	1	31,65
82402010820	8,20	8,20	117	75	1	31,65
82402010830	8,30	8,30	117	75	1	31,65
82402010840	8,40	8,40	117	75	1	31,65
82402010850	8,50	8,50	117	75	1	28,83
82402010860	8,60	8,60	125	81	1	31,65
82402010870	8,70	8,70	125	81	1	31,65
82402010880	8,80	8,80	125	81	1	31,65
82402010890	8,90	8,90	125	81	1	31,65
82402010900	9,00	9,00	125	81	1	28,83
82402010910	9,10	9,10	125	81	1	34,62
82402010920	9,20	9,20	125	81	1	34,62
82402010930	9,30	9,30	125	81	1	34,62
82402010940	9,40	9,40	125	81	1	34,62
82402010950	9,50	9,50	125	81	1	31,50
82402010960	9,60	9,60	133	87	1	34,62
82402010970	9,70	9,70	133	87	1	34,62
82402010980	9,80	9,80	133	87	1	34,62
82402010990	9,90	9,90	133	87	1	34,62
82402011000	10,00	10,00	133	87	1	31,50
82402011020	10,20	10,20	133	87	1	44,67
82402011050	10,50	10,50	133	87	1	40,61
82402011100	11,00	11,00	142	94	1	40,61

**020****BROCA CON PUNTA DE METAL DURO DIN 338**

Taladrados de profundidad media 3xd

Aceros muy duros hasta 1200 N/mm<sup>2</sup>Medium deep drilling 3xd | Very hard steels up to 1200 N/mm<sup>2</sup>

8240201	Ø	d2	L	l1		€
82402011120	11,20	11,20	142	94	1	51,39
82402011150	11,50	11,50	142	94	1	46,69
82402011200	12,00	12,00	151	101	1	46,69
82402011220	12,20	12,20	151	101	1	61,41
82402011250	12,50	12,50	151	101	1	55,83
82402011300	13,00	13,00	151	101	1	55,83
82402011350	13,50	13,50	160	108	1	64,97
82402011400	14,00	14,00	160	108	1	64,97
82402011420	14,20	14,20	169	114	1	81,54
82402011450	14,50	14,50	169	114	1	74,10
82402011500	15,00	15,00	169	114	1	74,10

8240201	Ø	d2	L	l1		€
82402011520	15,20	15,20	178	120	1	93,80
82402011550	15,50	15,50	178	120	1	85,29
82402011600	16,00	16,00	178	120	1	85,29
82402011650	16,50	16,50	184	125	1	93,41
82402011700	17,00	17,00	184	125	1	93,41
82402011750	17,50	17,50	191	130	1	100,49
82402011800	18,00	18,00	191	130	1	100,49
82402011850	18,50	18,50	198	135	1	124,83
82402011900	19,00	19,00	198	135	1	124,83
82402011950	19,50	19,50	204	140	1	142,11
82402012000	20,00	20,00	204	140	1	142,11

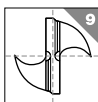
**050****BROCA CON PUNTA DE METAL DURO DIN 340**

SERIE LARGA

Taladrados profundos 7xd

Aceros muy duros hasta 1200 N/mm<sup>2</sup>Deep drilling 7xd | Very hard steels up to 1200 N/mm<sup>2</sup>Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 700 N / mm<sup>2</sup>**P**  
1-2Aceros fuertemente  
aleados 900-1200 N/mm<sup>2</sup>  
(32-38 HRC)  
Alloyed steel  
800-1000 N/mm<sup>2</sup>  
(23-32 HRC)**P**  
3-4

	Vc M/min
<b>P1</b>	60-75
<b>P2</b>	55-65
<b>P3</b>	40-80
<b>P4</b>	20-60

**HM**  
CARBBRIGHT  
UNCOATEDsimDIN  
**340****7xd****N**  
TYPE**h8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8240501	Ø	d2	L	l1		€
82405010200	2,00	2,00	85	56	1	41,54
82405010250	2,50	2,50	95	62	1	41,11
82405010300	3,00	3,00	100	66	1	36,85
82405010320	3,20	3,20	106	69	1	40,64
82405010330	3,30	3,30	106	69	1	40,64
82405010350	3,50	3,50	112	73	1	35,32
82405010400	4,00	4,00	119	78	1	36,56
82405010420	4,20	4,20	119	78	1	43,01
82405010450	4,50	4,50	126	82	1	37,36
82405010480	4,80	4,80	132	87	1	43,37
82405010490	4,90	4,90	132	87	1	43,37
82405010500	5,00	5,00	132	87	1	37,74
82405010520	5,20	5,20	132	87	1	47,13
82405010550	5,50	5,50	139	91	1	40,99
82405010600	6,00	6,00	139	91	1	40,99

8240501	Ø	d2	L	l1		€
82405010650	6,50	6,50	148	97	1	44,05
82405010700	7,00	7,00	156	102	1	44,05
82405010750	7,50	7,50	156	102	1	50,23
82405010780	7,80	7,80	165	106	1	57,73
82405010800	8,00	8,00	165	106	1	50,23
82405010850	8,50	8,50	165	106	1	63,84
82405010900	9,00	9,00	175	115	1	55,57
82405011000	10,00	10,00	184	121	1	59,07
82405011100	11,00	11,00	195	128	1	79,73
82405011200	12,00	12,00	205	134	1	92,47
82405011300	13,00	13,00	205	134	1	99,77
82405011450	14,50	14,50	220	144	1	125,56
82405011600	16,00	16,00	227	149	1	137,62
82405011700	17,00	17,00	235	154	1	184,80

# 750

## DRILL DOCTOR 750 Ø 2,5>19 mm 118°>135° PUNTA CONVENCIONAL Y SPLIT POINT

DRILL DOCTOR 750 Ø 2,5>19 mm | 118°>135° CONVENTIONAL AND SPLIT POINT



111117750M		
QTY	PCB	€
1	1	503,73 €

# 500

## DRILL DOCTOR 500 Ø 2,5>13 mm 118°>135° PUNTA CONVENCIONAL Y SPLIT POINT

DRILL DOCTOR 500 Ø 2,5>13 mm | 118°>135° CONVENTIONAL AND SPLIT POINT



1111177500M		
QTY	PCB	€
1	1	407,89 €

# 400

## DRILL DOCTOR 400 Ø 2,5>13 mm 118° PUNTA CONVENCIONAL Y SPLIT POINT

DRILL DOCTOR 400 Ø 2,5>13 mm | 118° CONVENTIONAL AND SPLIT POINT



1111177400B		
QTY	PCB	€
1	1	196,88 €

# 100

## MUELA PARA DRILL DOCTOR 400, 500, 750 GR. 100

DRILL DOCTOR 400, 500, 750 GRINDER, GRIT 100



11111720004		
QTY	PCB	€
1	1	90,78 €

# 180

## MUELA PARA DRILL DOCTOR 400, 500, 750 GR. 180

DRILL DOCTOR 400, 500, 750 GRINDER, GRIT 180

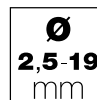


11111720001		
QTY	PCB	€
1	1	78,47 €

# 117

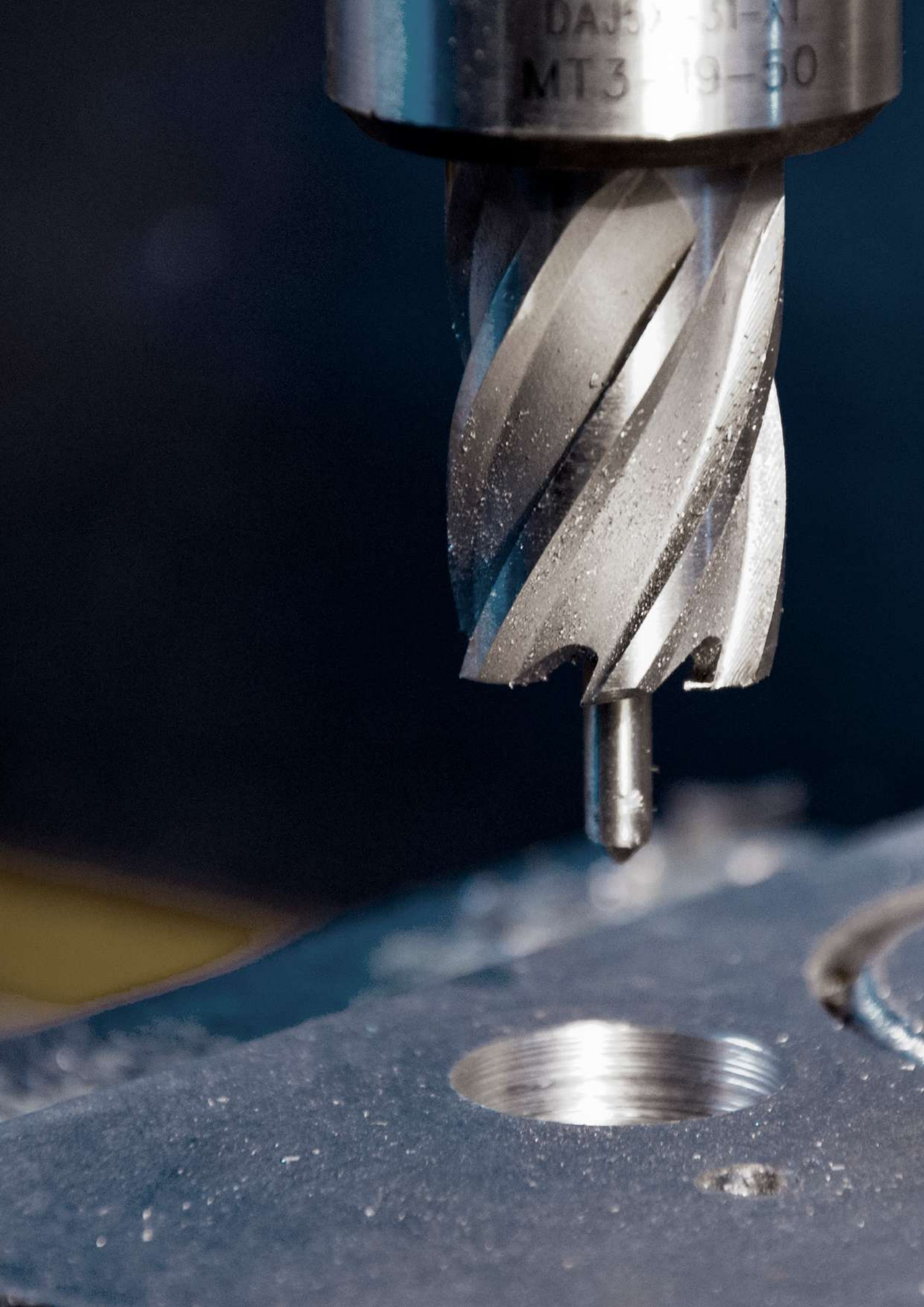
## PORTABROCAS PARA DRILL DOCTOR 400, 500, 750 RANGO Ø 2,5>19 mm

DRILL DOCTOR 400, 500, 750 CHUCK Ø 2,5>19 mm



11111720002		
QTY	PCB	€
1	1	154,75 €







**FRESAS PARA TALADRO  
MAGNÉTICO**

CORE HOLE DRILLS

74

# 700

## FRESA HUECA HSS TIALN TALADRO ELECTROMAGNÉTICO ANCLAJE WELDON

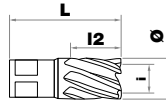
Aceros hasta 950 N/mm<sup>2</sup> e inoxidables

Steels up to 950 N/mm<sup>2</sup> and stainless steels

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc



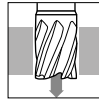
Aceros  
inoxidables  
Stainless  
steels



HSS

TIALN  
COATED

TIVOLY  
NORM



Z  
4-14

WELDON  
19mm

$$r.p.m = \frac{V_c \times 1000}{\pi \times \varnothing}$$

	Vc M/min
P3	33-40
P5	14-16
P6	10-14
M1	8-12

1037001	Ø	L	I2	i	Z	€
10370011200	12	60	30	6	4	49,56
10370011300	13	60	30	6	4	50,30
10370011400	14	60	30	6	4	50,88
10370011500	15	60	30	6	4	51,10
10370011600	16	60	30	7	5	51,20
10370011700	17	60	30	8	5	54,86
10370011800	18	60	30	9	5	55,26
10370011900	19	60	30	10	5	54,24
10370012000	20	60	30	11	5	58,50
10370012100	21	60	30	12	5	60,23
10370012200	22	60	30	13	6	62,72
10370012300	23	60	30	14	6	64,95
10370012400	24	60	30	15	6	67,16
10370012500	25	60	30	16	6	69,37
10370012600	26	60	30	17	6	71,34
10370012700	27	60	30	18	6	76,68
10370012800	28	60	30	19	8	79,77
10370012900	29	60	30	20	8	82,60
10370013000	30	60	30	21	8	84,68
10370013100	31	60	30	22	8	92,25

1037001	Ø	L	I2	i	Z	€
10370013200	32	60	30	23	8	91,72
10370013300	33	60	30	24	8	100,83
10370013400	34	60	30	25	10	103,36
10370013500	35	60	30	26	10	113,72
10370013600	36	60	30	27	10	116,55
10370013700	37	60	30	28	10	123,15
10370013800	38	60	30	29	10	124,75
10370013900	39	60	30	30	10	129,39
10370014000	40	60	30	31	12	132,56
10370014100	41	60	30	32	12	137,83
10370014200	42	60	30	33	12	145,19
10370014300	43	60	30	34	12	148,26
10370014400	44	60	30	35	12	158,72
10370014500	45	60	30	36	12	163,79
10370014600	46	60	30	37	14	167,13
10370014700	47	60	30	38	14	172,61
10370014800	48	60	30	39	14	180,68
10370014900	49	60	30	40	14	183,32
10370015000	50	60	30	41	14	187,88

# 701

## FRESA HUECA HSS TIALN TALADRO ELECTROMAGNÉTICO ANCLAJE WELDON SERIE LARGA



1037011	Ø	L	I2	i	Z	€
10370111200	12	80	50	6	4	73,34
10370111300	13	80	50	6	4	73,68
10370111400	14	80	50	6	4	74,07
10370111500	15	80	50	6	4	74,48
10370111600	16	80	50	7	5	75,16
10370111700	17	80	50	8	5	75,65
10370111800	18	80	50	9	5	75,97
10370111900	19	80	50	10	5	76,81
10370112000	20	80	50	11	5	80,33
10370112100	21	80	50	12	5	82,36
10370112200	22	80	50	14	6	85,00
10370112300	23	80	50	14	6	90,54
10370112400	24	80	50	15	6	93,25
10370112500	25	80	50	16	6	93,72
10370112600	26	80	50	17	6	98,01
10370112700	27	80	50	18	6	104,65
10370112800	28	80	50	19	8	109,13
10370112900	29	80	50	20	8	113,63
10370113000	30	80	50	21	8	118,42
10370113100	31	80	50	22	8	124,11

1037011	Ø	L	I2	i	Z	€
10370113200	32	80	50	23	8	129,71
10370113300	33	80	50	24	8	135,89
10370113400	34	80	50	25	10	140,98
10370113500	35	80	50	26	10	146,81
10370113600	36	80	50	27	10	153,34
10370113700	37	80	50	28	10	155,87
10370113800	38	80	50	29	10	161,55
10370113900	39	80	50	30	10	173,00
10370114000	40	80	50	31	12	177,76
10370114100	41	80	50	32	12	179,62
10370114200	42	80	50	33	12	197,46
10370114300	43	80	50	34	12	203,38
10370114400	44	80	50	35	12	208,86
10370114500	45	80	50	36	12	210,97
10370114600	46	80	50	37	14	226,18
10370114700	47	80	50	38	14	229,96
10370114800	48	80	50	39	14	237,21
10370114900	49	80	50	40	14	239,55
10370115000	50	80	50	41	14	240,80

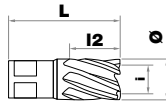
# 705

## FRESA HUECA HSS TALADRO ELECTROMAGNÉTICO ANCLAJE WELDON

Aceros blandos hasta 400 N/mm<sup>2</sup>

Soft steels up to 400 N/mm<sup>2</sup>

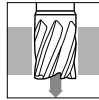
Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 500 N / mm<sup>2</sup>



**HSS**

**BRIGHT UNCOATED**

**TIVOLY NORM**



**Z  
4-14**

**WELDON  
19mm**

<b>Vc</b>
<b>M/min</b>
<b>P1</b> 26-32

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1037051	Ø	L	I2	i	Z	1	€
10370511200	12	60	30	6	4	1	28,44
10370511300	13	60	30	6	4	1	28,85
10370511400	14	60	30	6	4	1	29,21
10370511500	15	60	30	7	4	1	29,32
10370511600	16	60	30	8	5	1	29,36
10370511700	17	60	30	9	5	1	31,50
10370511800	18	60	30	10	5	1	31,70
10370511900	19	60	30	11	5	1	31,13
10370512000	20	60	30	12	6	1	33,58
10370512100	21	60	30	13	6	1	34,57
10370512200	22	60	30	14	6	1	36,00
10370512300	23	60	30	15	6	1	37,30
10370512400	24	60	30	16	6	1	38,57
10370512500	25	60	30	17	6	1	39,82

1037051	Ø	L	I2	i	Z	1	€
10370512600	26	60	30	18	6	1	40,92
10370512700	27	60	30	19	6	1	44,01
10370512800	28	60	30	20	8	1	45,75
10370513000	30	60	30	22	8	1	48,59
10370513200	32	60	30	24	8	1	52,62
10370513400	34	60	30	24	14	1	60,57
10370513500	35	60	30	27	10	1	65,25
10370513600	36	60	30	24	14	1	68,06
10370513800	38	60	30	30	10	1	71,60
10370514000	40	60	30	32	10	1	76,05
10370514200	42	60	30	34	10	1	83,30
10370514500	45	60	30	37	12	1	93,98
10370514800	48	60	30	40	12	1	103,68
10370515000	50	60	30	42	12	1	107,81

# 706

## FRESA HUECA HSS TALADRO ELECTROMAGNÉTICO ANCLAJE WELDON SERIE LARGA



1037061	Ø	L	I2	i	Z	1	€
10370611200	12	80	50	6	4	1	42,08
10370611300	13	80	50	6	4	1	42,25
10370611400	14	80	50	6	4	1	42,52
10370611500	15	80	50	7	4	1	42,72
10370611600	16	80	50	8	5	1	43,14
10370611700	17	80	50	9	5	1	43,42
10370611800	18	80	50	10	5	1	43,59
10370611900	19	80	50	11	5	1	44,10
10370612000	20	80	50	12	6	1	46,11
10370612100	21	80	50	13	6	1	47,28
10370612200	22	80	50	14	6	1	48,80
10370612300	23	80	50	15	6	1	51,95
10370612400	24	80	50	16	6	1	53,50

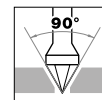
1037061	Ø	L	I2	i	Z	1	€
10370612500	25	80	50	17	6	1	53,79
10370612600	26	80	50	18	6	1	56,25
10370612700	27	80	50	19	6	1	60,04
10370612800	28	80	50	20	8	1	62,63
10370613000	30	80	50	22	8	1	67,95
10370613200	32	80	50	24	8	1	74,43
10370613500	35	80	50	27	10	1	84,25
10370613800	38	80	50	30	10	1	92,71
10370614000	40	80	50	32	12	1	102,04
10370614200	42	80	50	34	12	1	113,34
10370614500	45	80	50	37	12	1	121,07
10370614800	48	80	50	40	14	1	136,14
10370615000	50	80	50	42	14	1	138,14

# 703 FRESA PARA DESBASTAR HSS WELDON

Aceros hasta 400 N/mm<sup>2</sup>

Soft steels up to 400 n/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



1037031	Ø	L	Z	QTY	€	1037031	Ø	L	Z	QTY	€
10370312500	25	43	3	1	150,98	10370314000	40	52	3	1	199,38
10370313000	30	47	3	1	167,86	10370315500	55	63	4	1	298,42

# 112 EXPULSORES PARA FRESA HUECA

Punteado previo al taladrado y extractor

Pilot pin for core hole drill | Pointing before drilling and core ejection



1111121	Ø	L	QTY	€
11111210001	6,34	77	1	14,33
11111210002	6,34	103	1	15,70

# 115 ADAPTADOR FEIN A WELDON

Para uso con fresas huecas weldon en máquinas Fein

For use with weldon core hole drill on fein machine



1111151	Ø	L	QTY	€
11111510001	19	18	1	39,36

# 113 ADAPTADORES DE CM A WELDON

Para uso con fresas huecas weldon en taladros de columna

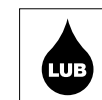
For use with weldon core hole drill on cm column drill



1111131	Ø	CM	QTY	€
11111310002	19	2	1	178,76
11111310003	19	3	1	192,60

# 114 ADAPTADORES DE CM A WELDON SISTEMA DE LUBRICACIÓN INTEGRADO

For use with weldon core hole drill on cm column drill



1111141	Ø	CM	QTY	€
11111410002	19	2	1	415,31
11111410003	19	3	1	423,45

FRESAS HUECAS / CORE HOLE DRILLING

HSS TIALN

1037007001



4 pzs : Ø 12-14-18- 22 + EXPULSOR

PVP: 228,88€

1037007005



4 pzs : Ø 12-14-14-16-18-18-22 + EXPULSOR

PVP: 378,28€

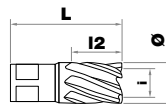
# 707 FRESA HUECA TCT PARA RAÍLES

Dientes de metal duro  
Hardox 400



New

Hardox 400



**TCT**   **BRIGHT UNCOATED**   **TIVOLY NORM**   **WELDON 19mm**   **Z6**

HARDOX 400	RPM											
	Ø 18	Ø 19	Ø 20	Ø 22	Ø 24	Ø 26	Ø 28	Ø 30	Ø 31	Ø 32	Ø 34	Ø 36
	355	335	320	290	265	245	225	210	205	200	185	175

1037071	Ø	L	I2	i	Z	⊞	€
10370711800	18	60	25	10	6	1	74,10
10370711900	19	60	25	11	6	1	74,10
10370712000	20	60	25	12	6	1	74,10
10370712200	22	60	25	14	6	1	75,60
10370712400	24	60	25	16	6	1	76,10
10370712600	26	60	25	18	6	1	77,10

1037071	Ø	L	I2	i	Z	⊞	€
10370712800	28	60	25	20	6	1	77,10
10370713000	30	60	25	22	6	1	81,10
10370713100	31	60	25	23	6	1	82,30
10370713200	32	60	25	24	6	1	82,30
10370713400	34	60	25	26	6	1	82,30
10370713600	36	60	25	28	6	1	88,60



FRESAS HUECAS / CORE HOLE DRILLING





MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING



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## Tabla de aplicaciones

Application table

		ESTÁNDAR										
					6G 4H	IZDA LH	XL	+0,1	TUERCAS	INSERT		
		Ref.	201 301	301	252 352	222 212	002	272	042	401	056 302	
PÁGINA	M-MF-MJ-EG	96 97		99 100	102 103	102	107	108	109	110		
	UNC-UNF	111		113								
	BSP-GAS		120								120	
	BSW	117										
	NPT	122										
	Rc-PG	123 124										
	Material	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
Recubrimiento	BRILLANTE / BRIGHT											
Tipo agujero												
P	1	<b>Aceros no aleados y para decoletaje &lt; 500 N/mm<sup>2</sup></b> Unalloyed and free cutting steels <500 N / mm <sup>2</sup>	●	●	●	●	●	●	●	●	●	●
	2	<b>Aceros al carbono y débilmente aleados &lt;700 N/mm<sup>2</sup></b> Carbon steel and low alloy steel <700 N/mm <sup>2</sup>	○	○	○	○	○	○	○	○	○	○
	3	<b>Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc</b> Steels high alloy 700 -1000 N / mm <sup>2</sup> ≤ 32 HRc										
	4	<b>Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)</b> Alloyed steel 800-1000 N/mm <sup>2</sup> (23-32 HRC)										
	5	<b>Aceros inoxidables ferríticos / Stainless Steels, Ferritic</b>										
	6	<b>Aceros inoxidables martensíticos / Stainless Steels, Martensitic</b>										
M	1	<b>Aceros inoxidables austeníticos / Austenitic stainless steel</b>										
K	1	<b>Fundición maleable / Malleable cast iron</b>										
	2	<b>Fundición gris con grafito laminar / Cast Iron with lamellar graphite</b>										
	3	<b>Fundición grafito esferoidal / Spheroidal graphite cast iron</b>										
N	1	<b>Aluminio no aleado serie 1000 / Aluminum not alloyed serie 1000</b>										
	1.4.1	<b>Aleaciones de Aluminio serie 4000 0,5% &lt;Si &lt;5%</b> Aluminum alloys serie 4000 with Si <0.5%										
	1.4.2	<b>Aleaciones de Aluminio serie 4000 5% &lt;Si &lt;10%</b> Aluminum alloys serie 4000 with 0,5% <Si <10%										
	1.4.3	<b>Aleaciones de Aluminio serie 4000 Si&gt; 10%</b> Aluminum alloys serie 4000 with Si> 10%										
3	<b>Cobre no aleado o débilmente aleado / Copper unalloyed or low alloyed</b>											
S	2.1	<b>Aleaciones refractarias de Niquel &lt; 25HRc</b> Nickel refractory alloys < 25HRc										
	2.2	<b>Aleaciones refractarias de Niquel con baja maquinabilidad 35-45 HRc</b> Nickel refractory alloys 35-45 HRc										
O	1	<b>Termoplásticos/ Thermoplastics</b>										

ESTÁNDAR											MULTIAPLICACIÓN														
				6G 4H	IZDA LH	XL	+0,1	FORMA E	INSERT	35°	15°														
310	301	255 355	225 215	005	275	045	055	057	305	303			241	202 302	342	582 682	205 305	345	585 685	MV2	MV5				
		104 105	106 103	106	107	108	109	110					137	129 130		135	132 135		136	139	139				
		115 116																							
										121	121				134			134							
		119																							
122																									
123	123																								
HSS	HSS	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
BRILLANTE / BRIGHT											VAPORIZADO / STEAM									HC PLUS					
P1	●	●	●	●	●	●	●	●	●	●	●	●		●	●		●	●		●	●		●	●	
P2	○	○	○	○	○	○	○	○	○	○	○	○		○	○		○	○		○	○		○	○	
P3																							●	●	
P4																							●	●	
P5														○	○	●	○	○	●	●	●		●	●	
P6														○	○	●	○	○	●	●	●		●	●	
M1														○	○	●	○	○	●	●	●		●	●	
K1													●										●	●	
K2													●	○	○		○	○					●	●	
K3													○	○	○		○	○					●	●	
N1																							●	●	
N1.4.1																									
N1.4.2																									
N 1.4.3																									
3																									
2.1																							●	●	
2.2																							●	●	
1																									

## Tabla de aplicaciones

Application table



	Tolerancia	6H	6H	6H	6H	6H	6H	6H
	Ref.	CT1	BT1	ST2	IT2	AT2	MT2	508 608
PÁGINA	M-MF	149	147	142	144	151	153	154
	UNC-UNF	150	148	143	145	152		
	BSP-GAS	150	148					
	BSW							
	NPT							
	Rc-PG							
Material	HSS PM	HSSE	HSSE	HSS PM	HSS PM	HSS PM	HSS PM	HSS PM
Recubrimiento	TiCN	BRIGHT	TiN	TiCNMP	TiN	CrN PLUS	BRIGHT	
Tipo agujero Type of hole								

P	1	<b>Aceros no aleados y para decoletaje &lt; 500 N/mm<sup>2</sup></b> Unalloyed and free cutting steels <500 N / mm <sup>2</sup>							
	2	<b>Aceros al carbono y débilmente aleados &lt;700 N/mm<sup>2</sup></b> Carbon steel and low alloy steel <700 N/mm <sup>2</sup>			●	●			
	3	<b>Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc</b> Steels high alloy 700 -1000 N / mm <sup>2</sup> ≤ 32 HRc			○				
	4	<b>Aceros fuertemente aleados 900-1200 N/mm<sup>2</sup> (32-38 HRC)</b> Alloyed steel 800-1000 N/mm <sup>2</sup> (23-32 HRC)							
	5	<b>Aceros inoxidable ferríticos / Stainless Steels, Ferritic</b>				●			
	6	<b>Aceros inoxidable martensíticos / Stainless Steels, Martensitic</b>				●			
M	1	<b>Aceros inoxidable austeníticos / Austenitic stainless steel</b>				●			
K	1	<b>Fundición maleable / Malleable cast iron</b>	●		○				
	2	<b>Fundición gris con grafito laminar / Cast Iron with lamellar graphite</b>	●						
	3	<b>Fundición grafito esférico / Spheroidal graphite cast iron</b>	●		○				
N	1	<b>Aluminio no aleado serie 1000 / Aluminum not alloyed serie 1000</b>					●	●	●
	1.4.1	<b>Aleaciones de Aluminio serie 4000 0,5% &lt;Si &lt;5%</b> Aluminum alloys serie 4000 with Si <0.5%					●	●	●
	1.4.2	<b>Aleaciones de Aluminio serie 4000 5% &lt;Si &lt;10%</b> Aluminum alloys serie 4000 with 0,5% <Si <10%					●	●	●
	1.4.3	<b>Aleaciones de Aluminio serie 4000 Si&gt; 10%</b> Aluminum alloys serie 4000 with Si> 10%					●	●	●
	3	<b>Cobre no aleado o débilmente aleado / Copper unalloyed or low alloyed</b>		●					
S	2.1	<b>Aleaciones refractarias de Níquel &lt; 25HRc</b> Nickel refractory alloys < 25HRc					●		
	2.2	<b>Aleaciones refractarias de Níquel con baja maquinabilidad 35-45 HRc</b> Nickel refractory alloys 35-45 HRc					●		
O	1	<b>Termoplásticos/ Thermoplastics</b>					●		







## MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING

<b>MACHOS DE MANO M-MF</b>	<b>86</b>
REGULAR-HAND TAPS M-MF	
<b>MACHOS DE MANO UNC-UNF</b>	<b>91</b>
REGULAR-HAND TAPS UNC-UNF	
<b>MACHOS DE MANO BSW-BSF</b>	<b>93</b>
REGULAR-HAND TAPS BSW-BSF	
<b>MACHOS DE MANO BSP GAS</b>	<b>94</b>
REGULAR-HAND TAPS BSP GAS	

# 151

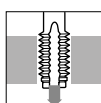
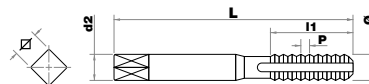
## JUEGO DE 3 MACHOS DE MANO HSS DIN 352

Agujero pasante/ciego

Aceros blandos hasta 400 N/mm<sup>2</sup>

Set of 3 hss din 352 hand taps | Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 500 N / mm<sup>2</sup>



MACHOS & COJINETES / CORE HOLE DRILLING

1501511	Ø	P	L	I	d2	DIN	∠			€
150151100100025	M1	0,25	32	5,5	2,50	352	2,10	0,75	3	65,78
150151100120025	M1,2	0,25	32	5,5	2,50	352	2,10	0,95	3	65,78
150151100140030	M1,4	0,3	32	7	2,50	352	2,10	1,10	3	65,78
150151100200040	M2	0,4	36	9	2,80	352	2,10	1,60	3	30,34
150151100220045	M2,2	0,45	36	9	2,80	352	2,10	1,75	3	32,08
150151100230040	M2,3	0,4	36	9	2,80	352	2,10	1,90	3	32,08
150151100250045	M2,5	0,45	40	10	2,80	352	2,10	2,05	3	29,56
150151100260045	M2,6	0,45	40	9	2,80	352	2,10	2,15	3	28,79
150151100300050	M3	0,5	40	11	3,50	352	2,70	2,50	3	18,10
150151100350060	M3,5	0,6	45	13	4,00	352	3,00	2,90	3	21,74
150151100400070	M4	0,7	45	13	4,50	352	3,40	3,30	3	18,10
150151100450075	M4,5	0,75	50	16	6,00	352	4,90	3,75	3	28,25
150151100500080	M5	0,8	50	15	6,00	352	4,90	4,20	3	18,84
150151100600100	M6	1	50	16	6,00	352	4,90	5,00	3	18,84
150151100700100	M7	1	50	19	6,00	352	4,90	6,00	3	23,35
150151100800125	M8	1,25	56	22	6,00	352	4,90	6,75	3	21,85
150151100900125	M9	1,25	63	22	6,00	352	5,50	7,75	3	37,42
150151101000150	M10	1,5	70	24	7,00	352	5,50	8,50	3	28,15
150151101100150	M11	1,5	70	24	8,00	352	6,20	9,50	3	47,16
150151101200175	M12	1,75	75	29	9,00	352	7,00	10,25	3	40,30
150151101400200	M14	2	80	30	11,00	352	9,00	12,00	3	47,58
150151101500200	M15	2	80	32	12,00	352	9,00	13,00	3	79,13
150151101600200	M16	2	80	32	12,00	352	9,00	14,00	3	65,17
150151101800250	M18	2,5	95	40	14,00	352	11,00	15,50	3	89,05
150151102000250	M20	2,5	95	40	16,00	352	12,00	17,50	3	98,85
150151102200250	M22	2,5	100	40	18,00	352	14,50	19,50	3	130,35
150151102400300	M24	3	110	45	18,00	352	14,50	21,00	3	152,94
150151102700300	M27	3	110	50	20,00	352	16,00	24,00	3	194,79
150151103000350	M30	3,5	125	56	22,00	352	18,00	26,50	3	248,99
150151103300350	M33	3,5	125	56	25,00	352	20,00	29,50	3	316,30
150151103600400	M36	4	150	63	28,00	352	22,00	32,00	3	403,92
150151103900400	M39	4	150	63	32,00	352	24,00	35,00	3	450,18
150151104200450	M42	4,5	150	63	32,00	352	24,00	37,50	3	566,05
150151104500450	M45	4,5	160	70	36,00	352	29,00	40,50	3	628,05
150151105200500	M52	5	180	75	40,00	352	32,00	47,00	3	885,33
150151105600550	M56	5,5	200	85	45,00	352	35,00	50,50	3	1.267,21
150151106000550	M60	5,5	200	85	45,00	352	35,00	54,50	3	1.281,62
150151106400600	M64	6	220	90	50,00	352	39,00	58,00	3	1.558,21
150151106800600	M68	6	220	90	50,00	352	39,00	62,00	3	1.865,48

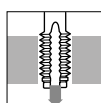
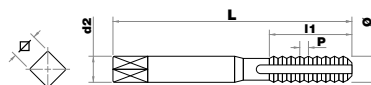
# 152

## JUEGO DE 2 MACHOS DE MANO HSS DIN 2181

Agujero pasante/ciego  
Aceros blandos hasta 400 N/mm<sup>2</sup>




Set of 2 hss din 2181 hand taps | Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



1501521	Ø	P	L	I	d2	DIN				€
150152100400050	MF4	0,5	50	14,5	6,00	2181	3,40	3,50	2	30,86
150152100450050	MF4,5	0,5	50	12	6,00	2181	4,90	4,00	2	30,86
150152100500050	MF5	0,5	50	11	6,00	2181	4,90	4,50	2	32,95
150152100500075	MF5	0,75	50	11	6,00	2181	4,90	4,25	2	31,43
150152100600050	MF6	0,5	50	14	6,00	2181	4,90	5,50	2	25,77
150152100600075	MF6	0,75	50	14	6,00	2181	4,90	5,25	2	19,90
150152100700050	MF7	0,5	50	14	6,00	2181	4,90	6,50	2	28,87
150152100700075	MF7	0,75	50	19	6,00	2181	4,90	6,25	2	23,45
150152100800050	MF8	0,5	50	19	6,00	2181	4,90	7,50	2	38,91
150152100800075	MF8	0,75	50	18	6,00	2181	4,90	7,25	2	26,89
150152100800100	MF8	1	56	22	6,00	2181	4,90	7,00	2	19,89
150152100900100	MF9	1	63	20	7,00	2181	5,50	8,00	2	27,13
150152101000050	MF10	0,5	63	20	7,00	2181	5,50	9,50	2	41,23
150152101000100	MF10	1	63	18	7,00	2181	5,50	9,00	2	21,31
150152101000125	MF10	1,25	70	24	7,00	2181	5,50	8,80	2	21,59
150152101100100	MF11	1	63	20	8,00	2181	6,20	10,00	2	37,51
150152101200050	MF12	0,5	70	22	9,00	2181	7,00	11,50	2	41,85
150152101200075	MF12	0,75	70	22	9,00	2181	7,00	11,25	2	56,29
150152101200100	MF12	1	70	20	9,00	2181	7,00	11,00	2	37,21
150152101200125	MF12	1,25	70	20	9,00	2181	7,00	10,75	2	37,28
150152101200150	MF12	1,5	70	20	9,00	2181	7,00	10,50	2	31,80
150152101300100	MF13	1	70	22	11,00	2181	9,00	12,00	2	59,58
150152101300150	MF13	1,5	70	22	11,00	2181	9,00	11,50	2	55,91
150152101400075	MF14	0,75	70	20	9,00	2181	9,00	13,25	2	71,14
150152101400100	MF14	1	70	22	11,00	2181	9,00	13,00	2	55,74
150152101400125	MF14	1,25	70	22	11,00	2181	9,00	12,80	2	49,07
150152101400150	MF14	1,5	70	22	11,00	2181	9,00	12,50	2	38,15
150152101500100	MF15	1	70	22	12,00	2181	9,00	14,00	2	78,94
150152101500150	MF15	1,5	70	22	12,00	2181	9,00	13,50	2	73,23
150152101600100	MF16	1	70	22	12,00	2181	9,00	15,00	2	78,09
150152101600125	MF16	1,25	70	22	12,00	2181	9,00	14,75	2	78,68
150152101600150	MF16	1,5	70	22	12,00	2181	9,00	14,50	2	47,71
150152101800100	MF17	1,5	70	22	12,00	2181	9,00	15,50	2	86,76
150152101800100	MF18	1	80	22	14,00	2181	11,00	17,00	2	86,76
150152101800125	MF18	1,25	80	22	14,00	2181	11,00	16,75	2	115,46
150152101800150	MF18	1,5	80	22	14,00	2181	11,00	16,50	2	63,11
150152101800200	MF18	2	80	22	14,00	2181	11,00	16,00	2	92,59
150152101900150	MF19	1,5	80	22	14,00	2181	11,00	17,50	2	175,20
150152102000100	MF20	1	80	22	16,00	2181	11,00	19,00	2	114,98



1501521	Ø	P	L	I	d2	DIN				€
150152102000125	MF20	1,25	80	22	16,00	2181	11,00	18,75	2	174,57
150152102000150	MF20	1,5	80	22	16,00	2181	11,00	18,50	2	79,04
150152102000200	MF20	2	80	22	16,00	2181	12,00	18,00	2	96,44
150152102100150	MF21	1,5	80	22	16,00	2181	12,00	19,50	2	174,74
150152102200100	MF22	1	80	22	18,00	2181	14,50	21,00	2	123,40
150152102200125	MF22	1,25	80	22	18,00	2181	14,50	20,75	2	172,89
150152102200150	MF22	1,5	80	22	18,00	2181	14,50	20,50	2	86,18
150152102200200	MF22	2	80	22	18,00	2181	14,50	20,00	2	128,85
150152102400150	MF24	1,5	90	22	18,00	2181	14,50	22,50	2	109,95
150152102400200	MF24	2	90	22	18,00	2181	14,50	22,00	2	144,12
150152102500100	MF25	1	90	22	18,00	2181	14,50	24,00	2	193,00
150152102500150	MF25	1,5	90	22	18,00	2181	14,50	23,50	2	177,22
150152102600150	MF26	1,5	90	22	18,00	2181	14,50	24,50	2	161,87
150152102700100	MF27	1	90	22	20,00	2181	16,00	26,00	2	189,95
150152102700150	MF27	1,5	90	22	20,00	2181	16,00	25,50	2	180,94
150152102700200	MF27	2	90	22	18,00	2181	16,00	25,00	2	199,73
150152102800150	MF28	1,5	90	22	20,00	2181	16,00	26,50	2	179,82
150152102800200	MF28	2	90	22	20,00	2181	16,00	26,00	2	215,15
150152103000100	MF30	1	90	22	22,00	2181	18,00	29,00	2	199,70
150152103000150	MF30	1,5	90	22	22,00	2181	18,00	28,50	2	187,85
150152103000200	MF30	2	90	22	22,00	2181	18,00	28,00	2	216,58
150152103000300	MF30	3	125	56	18,00	2181	18,00	27,00	2	215,98
150152103200150	MF32	1,5	90	22	22,00	2181	18,00	30,50	2	222,07
150152103300150	MF33	1,5	100	25	25,00	2181	20,00	31,50	2	237,50
150152103300200	MF33	2	100	25	25,00	2181	20,00	31,00	2	299,86
150152103400150	MF34	1,5	100	25	28,00	2181	22,00	32,50	2	272,12
150152103500150	MF35	1,5	100	25	28,00	2181	22,00	33,50	2	298,52
150152103600150	MF36	1,5	100	25	28,00	2181	22,00	34,50	2	291,46
150152103600200	MF36	2	125	40	28,00	2181	22,00	34,00	2	373,60
150152103600300	MF36	3	125	40	28,00	2181	22,00	33,00	2	493,44
150152103800150	MF38	1,5	100	25	28,00	2181	22,00	36,50	2	327,84
150152103900150	MF39	1,5	110	25	32,00	2181	24,00	37,50	2	433,92
150152103900200	MF39	2	125	40	32,00	2181	24,00	37,00	2	433,92
150152103900300	MF39	3	125	40	32,00	2181	24,00	36,00	2	418,56
150152104000150	MF40	1,5	110	25	32,00	2181	24,00	38,50	2	384,99
150152104000200	MF40	2	125	40	32,00	2181	24,00	38,00	2	431,67
150152104200150	MF42	1,5	110	25	32,00	2181	24,00	40,50	2	426,09
150152104200200	MF42	2	125	40	32,00	2181	24,00	40,00	2	496,08
150152104200300	MF42	3	125	40	32,00	2181	24,00	39,00	2	498,22
150152104500150	MF45	1,5	110	25	36,00	2181	29,00	43,50	2	465,41
150152104500200	MF45	2	125	40	36,00	2181	29,00	43,00	2	595,76
150152104500300	MF45	3	125	40	36,00	2181	29,00	42,00	2	595,76
150152104800150	MF48	1,5	140	40	36,00	2181	29,00	46,50	2	519,60
150152104800200	MF48	2	140	40	36,00	2181	29,00	46,00	2	721,94
150152104800300	MF48	3	140	40	36,00	2181	29,00	45,00	2	721,94
150152105000150	MF50	1,5	140	40	36,00	2181	29,00	48,50	2	568,25
150152105200150	MF52	1,5	140	40	40,00	2181	32,00	50,50	2	601,53
150152105200200	MF52	2	140	40	40,00	2181	32,00	50,00	2	872,77
150152105200300	MF52	3	140	40	40,00	2181	32,00	49,00	2	803,54

# 108

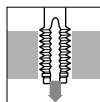
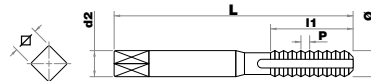
## JUEGO DE MACHOS DE MANO ROSCA IZQUIERDA

Agujero pasante/ciego  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Hand taps set | Left hand

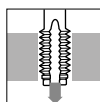
Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



9501081	Ø	P	L	I	d2	DIN	∠			€
950108100300050	M3	0,5	40	11	3,50	351	2,70	2,50	3	31,72
950108100400070	M4	0,7	45	13	4,50	352	3,40	3,30	3	57,13
950108100500080	M5	0,8	50	15	6,00	352	4,90	4,20	3	59,38
950108100600100	M6	1	50	16	6,00	352	4,90	5,00	3	59,38
950108100800125	M8	1,25	56	22	6,00	352	4,90	6,75	3	68,97
950108101000150	M10	1,5	70	24	7,00	352	5,50	8,50	3	88,77
950108101200175	M12	1,75	75	29	9,00	352	7,00	10,25	3	127,07
950108101400200	M14	2	80	30	11,00	352	9,00	12,00	3	137,99
950108101600200	M16	2	80	32	12,00	352	9,00	14,00	3	189,01
950108101800250	M18	2,5	95	40	14,00	352	11,00	15,50	3	148,24
950108102000250	M20	2,5	95	40	16,00	352	12,00	17,50	3	166,31
950108102200250	M22	2,5	100	40	18,00	352	14,50	19,50	3	223,34
950108102400300	M24	3	110	50	18,00	352	14,50	21,00	3	286,15
950108102700300	M27	3	110	50	20,00	352	16,00	24,00	3	336,85
950108103000350	M30	3,5	125	56	22,00	352	18,00	26,50	3	433,52

# 106



9501061	Ø	P	L	I	d2	DIN	∠			€
950106100800100	MF8	1	56	22	6,00	2181	4,90	7,00	2	38,07
950106101000100	MF10	1	63	20	7,00	2181	5,50	9,00	2	40,78
950106101000125	MF10	1,25	70	24	7,00	2181	5,50	8,80	2	41,34
950106101200100	MF12	1	70	22	9,00	2181	7,00	11,00	2	72,30
950106101200125	MF12	1,25	70	22	9,00	2181	7,00	10,80	2	72,09
950106101200150	MF12	1,5	70	22	9,00	2181	7,00	10,50	2	61,43
950106101400150	MF14	1,5	70	22	11,00	2181	9,00	12,50	2	68,45
950106101600150	MF16	1,5	70	22	12,00	2181	9,00	14,50	2	85,17
950106101800150	MF18	1,5	80	22	14,00	2181	11,00	16,50	2	112,23
950106102000150	MF20	1,5	80	22	16,00	2181	11,00	18,50	2	140,54

# 103

## JUEGO DE 3 MACHOS DE MANO HSSE PM ISO 529

Acero sinterizado pulvimetalúrgico

Agujero pasante/ciego

Aceros duros hasta 1200 N/mm<sup>2</sup> e inoxidables

Set of 3 HSSE PM ISO 529 Hand taps | Serial type with pilot

Through/blind hole | Hard steels up to 1200 N/mm<sup>2</sup> and stainless steels

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

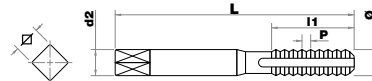
**P**  
1-2

Aceros fuertemente  
aleados 900-1200 N/mm<sup>2</sup>  
(32-38 HRC)  
Alloyed steel  
800-1000 N/mm<sup>2</sup>  
(23-32 HRC)

**P**  
3-4

Aceros  
inoxidables  
Stainless  
steels

**P-M**

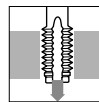


**M**

**HSSE  
PM**

**BRIGHT  
UNCOATED**

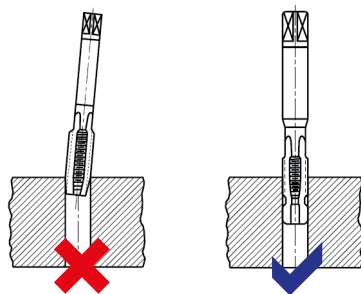
**ISO  
529**



**X3  
SET**

**6H**

9501031	Ø	P	L	I	d2	DIN	∠			€
950103100300050	<b>M3</b>	0,5	48	11	3,15	529	2,50		3	<b>40,33</b>
950103100400070	<b>M4</b>	0,7	53	13	4,00	529	3,15		3	<b>40,33</b>
950103100500080	<b>M5</b>	0,8	58	16	5,00	529	4,00		3	<b>42,07</b>
950103100600100	<b>M6</b>	1	66	19	6,30	529	5,00		3	<b>45,32</b>
950103100800125	<b>M8</b>	1,25	72	22	8,00	529	6,30		3	<b>51,42</b>
950103101000150	<b>M10</b>	1,5	80	24	10,00	529	8,00		3	<b>61,85</b>
950103101200175	<b>M12</b>	1,75	89	29	9,00	529	7,10		3	<b>89,69</b>
950103101400200	<b>M14</b>	2	95	30	11,20	529	9,00		3	<b>103,51</b>
950103101600200	<b>M16</b>	2	102	30	12,50	529	10,00		3	<b>144,90</b>



- Fácil embocadura
- Sin peligro de rotura
- Posibilidad de roscado hasta 1200N/mm<sup>2</sup>

# 101

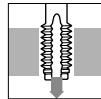
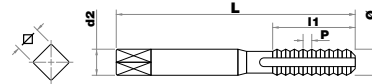
## JUEGO DE 3 MACHOS DE MANO HSS DIN 352

Agujero pasante/ciego

Aceros blandos hasta 400 N/mm<sup>2</sup>

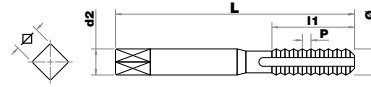
Set of 3 HSS DIN 352 hand taps | Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



9521011	Ø	P Hilos	L	l	d2	DIN	∇			€
952101100001640	N°1	64	32	10	2,50	352	2,10	1,50	3	77,22
952101100002560	N°2	56	36	10	2,80	352	2,10	1,80	3	59,36
952101100003480	N°3	48	40	11	3,50	352	2,10	2,10	3	58,21
952101100004400	N°4	40	40	11	3,50	352	2,70	2,25	3	50,76
952101100005400	N°5	40	40	11	3,50	352	2,70	2,60	3	48,54
952101100006320	N°6	32	45	13	4,00	352	3,00	2,75	3	48,54
952101100008320	N°8	32	45	13	4,00	352	3,40	3,50	3	48,54
952101100010240	N°10	24	50	16	6,00	352	4,90	3,90	3	47,58
952101100012240	N°12	24	50	18	6,00	352	4,90	4,50	3	47,58
952101100140200	1/4	20	56	22	6,00	352	4,90	5,10	3	40,40
952101100516180	5/16	18	63	25	6,00	352	4,90	6,60	3	46,73
952101100380160	3/8	16	70	28	7,00	352	5,50	8,00	3	52,70
952101100716140	7/16	14	75	30	8,00	352	6,20	9,40	3	68,63
952101100120130	1/2	13	80	32	9,00	352	7,00	10,75	3	79,01
952101100916120	9/16	12	80	32	11,00	352	9,00	12,20	3	91,42
952101100580110	5/8	11	90	36	12,00	352	9,00	13,50	3	127,35
952101100340100	3/4	10	105	40	14,00	352	11,00	16,50	3	171,69
952101100780090	7/8	9	110	45	18,00	352	14,50	19,50	3	211,49
952101110000080	1"	8	110	50	20,00	352	14,50	22,25	3	285,60
952101110180070	1"1/8	7	132	56	22,00	352	18,00	25,00	3	364,29
953102110140110	1"1/4	7	132	56	22,00	352	18,00	28,00	3	458,53
952101110380060	1"3/8	6	150	63	28,00	352	22,00	30,75	3	581,71
952101110120060	1"1/2	6	150	63	32,00	352	24,00	34,00	3	714,21

MACHOS & COJINETES / CORE HOLE DRILLING



9521021	Ø	P Hilos	L	l	d2	DIN	∠			€
95210210000800	N°0	80	28	8	2,50	2181	2,10	1,25	2	47,10
952102100001720	N°1	72	32	9	2,80	2181	2,10	1,50	2	47,10
952102100003560	N°3	56	40	11	3,50	2181	2,10	2,10	2	54,75
952102100004480	N°4	48	40	11	3,50	2181	2,70	2,40	2	37,83
952102100005440	N°5	44	40	11	3,50	2181	2,70	2,90	2	37,83
952102100006400	N°6	40	45	13	4,00	2181	3,00	2,95	2	36,12
952102100008360	N°8	36	45	13	4,00	2181	3,40	3,50	2	36,12
952102100010320	N°10	32	50	16	6,00	2181	4,90	4,10	2	36,48
952102100012280	N°12	28	50	18	6,00	2181	4,90	4,60	2	37,83
952102100140280	1/4	28	56	22	6,00	2181	4,90	5,50	2	27,32
952102100516240	5/16	24	63	25	6,00	2181	4,90	6,90	2	29,87
952102100380240	3/8	24	70	25	7,00	2181	5,50	8,50	2	33,80
952102100716200	7/16	20	75	30	8,00	2181	6,20	9,90	2	44,87
952102100120200	1/2	20	80	32	9,00	2181	7,00	11,50	2	45,89
952102100916180	9/16	18	90	32	12,00	2181	9,00	12,80	2	59,81
952102100580180	5/8	18	90	32	12,00	2181	9,00	14,50	2	77,22
952102100340160	3/4	16	105	35	14,00	2181	11,00	17,50	2	103,76
952102100780140	7/8	14	110	35	18,00	2181	14,50	20,50	2	133,30
952102110000120	1"	12	110	35	20,00	2181	16,00	23,50	2	175,07
952102110180120	1"1/8	12	110	50	22,00	2181	18,00	26,50	2	214,49
952102110140120	1"1/4	12	132	56	22,00	2181	20,00	29,50	2	261,95
952102110380120	1"3/8	12	132	56	28,00	2181	22,00	33,00	2	353,40
952102110120120	1"1/2	12	150	63	32,00	2181	22,00	36,00	2	446,46



# 101

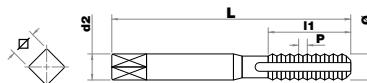
## JUEGO DE 3 MACHOS DE MANO HSS DIN 352

Agujero pasante/ciego

Aceros blandos hasta 400 N/mm<sup>2</sup>

Set of 3 HSS DIN 352 Hand taps | Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



9511011	Ø	P Hilos	L	l	d2	DIN	∠			€
951101100180400	1/8	40	40	11	3,50	352	2,70	2,50	3	28,08
951101100532320	5/32	32	45	13	4,50	352	3,40	3,20	3	28,08
951101100316240	3/16	24	50	16	6,00	352	4,90	3,70	3	28,08
951101100732240	7/32	24	50	18	6,00	352	4,90	4,50	3	41,70
951101100140200	1/4	20	56	22	6,00	352	4,90	5,10	3	31,95
951101100516180	5/16	18	63	25	6,00	352	4,90	6,50	3	38,00
951101100380160	3/8	16	70	28	7,00	352	5,50	7,90	3	42,02
951101100716140	7/16	14	75	30	8,00	352	6,20	9,25	3	55,07
951101100120120	1/2	12	80	32	9,00	352	7,00	10,50	3	60,85
951101100916120	9/16	12	80	32	9,00	352	9,00	12,00	3	80,54
951101100580110	5/8	11	90	36	12,00	352	9,00	13,50	3	94,08
951101100340100	3/4	10	105	40	14,00	352	11,00	16,50	3	134,49
951101100780090	7/8	9	110	45	18,00	352	14,50	19,25	3	167,58
951101110000080	1" 8	8	110	50	20,00	352	14,50	22,00	3	205,37
951101110140070	1" 1/4	7	125	56	25,00	352	18,00	28,00	3	364,66

# 102

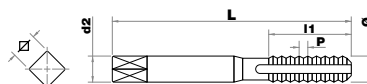
## JUEGO DE 2 MACHOS DE MANO HSS DIN 2181

Agujero pasante/ciego

Aceros blandos hasta 400 N/mm<sup>2</sup>

Set of 3 HSS DIN 2181 Hand taps | Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



9511021	Ø	P Hilos	L	l	d2	DIN	∠			€
951102100140260	1/4	26	56	22	6,00	2181	4,90	5,30	2	40,65
951102100380200	3/8	20	70	28	7,00	2181	5,50	8,30	2	55,36
951102100716180	7/16	18	75	30	8,00	2181	6,20	9,50	2	65,75
951102100120160	1/2	16	80	32	9,00	2181	7,00	11,00	2	74,39
951102100916160	9/16	16	80	32	11,00	2181	9,00	12,70	2	89,18
951102100780110	7/8	11	110	45	14,50	2181	14,50	19,50	2	212,91
951102110000100	1"	10	110	50	20,00	2181	14,50	22,50	2	298,84

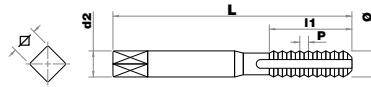
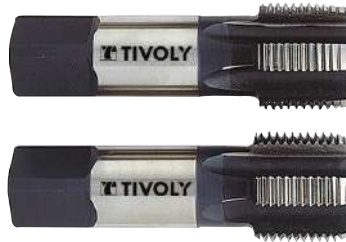
# 102

## JUEGO DE 2 MACHOS DE MANO HSS DIN 5157

Agujero pasante/ciego  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Set of 3 HSS DIN 5157 Hand taps | Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



MACHOS & COJINETES / CORE HOLE DRILLING



9531021	Ø	P Hilos	L	I	d2	DIN	∠			€
953102100180280	1/8	28	63	18	7,00	5157	5,50	8,80	2	33,79
953102100140190	1/4	19	70	20	11,00	5157	9,00	11,80	2	47,58
953102100380190	3/8	19	70	20	12,00	5157	9,00	15,25	2	59,78
953102100120140	1/2	14	80	22	16,00	5157	12,00	19,00	2	83,85
953102100580140	5/8	14	80	22	18,00	5157	14,50	21,00	2	107,32
953102100340140	3/4	14	90	22	20,00	5157	16,00	24,50	2	130,90
953102100780140	7/8	14	90	22	22,00	5157	18,00	28,25	2	174,56
953102110000110	1"	11	100	25	25,00	5157	20,00	30,50	2	207,53
953102110180110	1"1/8	11	125	32	28,00	5157	22,00	35,50	2	295,71
953102110140110	1"1/4	11	125	32	32,00	5157	24,00	39,50	2	325,46
953102110380110	1"3/8	11	125	32	36,00	5157	29,00	42,00	2	437,68
953102110120110	1"1/2	11	140	32	36,00	5157	29,00	45,00	2	491,87
953102120000110	2"	11	160	36	45,00	5157	35,00	57,00	2	897,52

# 106

## JUEGO DE 2 MACHOS DE MANO ROSCA IZQUIERDA

Agujero pasante/ciego  
Aceros blandos hasta 400 N/mm<sup>2</sup>

Hand taps set | Left hand

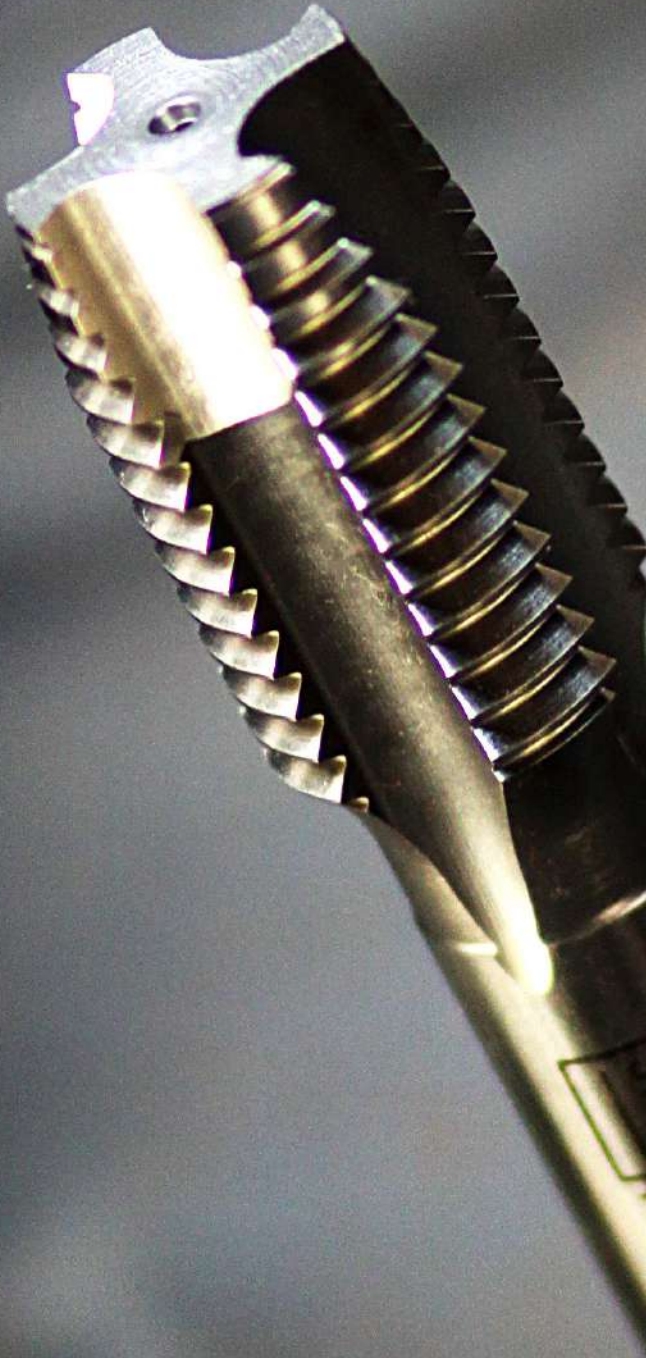
Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



9531061	Ø	P Hilos	L	I	d2	DIN	∠			€
953106100180280	1/8"	28	63	20	7,00	5157	5,50	8,80	2	51,63
953106100140190	1/4"	19	70	22	11,00	5157	9,00	11,80	2	72,77
953106100380190	3/8"	19	70	22	12,00	5157	9,00	15,25	2	91,35
953106100120140	1/2"	14	80	22	16,00	5157	12,00	19,00	2	128,11
953106100580140	5/8"	14	80	22	18,00	5157	14,50	21,00	2	163,92
953106100340140	3/4"	14	90	22	20,00	5157	16,00	24,50	2	199,98
953106110000110	1"	11	100	25	25,00	5157	20,00	30,50	2	317,03

MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING



<b>MACHOS DE MÁQUINA M-MF-MJ</b>	<b>96</b>
REGULAR-MACHINE TAPS M-MF	
<b>MACHOS DE MÁQUINA UNC-UNF</b>	<b>111</b>
REGULAR-MACHINE TAPS UNC-UNF	
<b>MACHOS DE MÁQUINA BSW-BSF</b>	<b>117</b>
REGULAR-MACHINE TAPS BSW-BSF	
<b>MACHOS DE MÁQUINA BSP GAS</b>	<b>120</b>
REGULAR-MACHINE TAPS BSP GAS	
<b>MACHOS DE MÁQUINA NPT</b>	<b>122</b>
REGULAR-MACHINE TAPS NPT	
<b>MACHOS DE MÁQUINA Rc</b>	<b>123</b>
REGULAR-MACHINE TAPS Rc	
<b>MACHOS DE MÁQUINA PG</b>	<b>124</b>
REGULAR-MACHINE TAPS PG	

# 201

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Machine tap HSSE | Through/blind hole < 1,5 x Ø

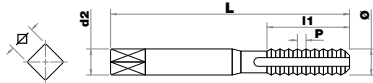
Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P  
1**

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

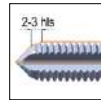
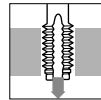
**P  
2**



**Vc**  
**M/min**

<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9602011	Ø	P	L	I	d2	DIN	∠			€
960201100200040	M2	0,4	45	8	2,80	371	2,10	1,60	1	18,85
960201100250045	M2,5	0,45	50	9	2,80	371	2,10	2,10	1	19,16
960201100260045	M2,6	0,45	50	9	2,80	371	2,10	2,10	1	19,16
960201100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	14,37
960201100350060	M3,5	0,6	56	11	4,00	371	3,00	2,90	1	17,24
960201100400070	M4	0,7	63	12	4,50	371	3,40	3,40	1	14,59
960201100450075	M4,5	0,75	70	14	6,00	371	4,90	4,90	1	17,24
960201100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	14,59
960201100600100	M6	1	80	16	6,00	371	4,90	5,00	1	16,60
960201100700100	M7	1	80	16	7,00	371	5,50	6,00	1	18,63
960201100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	18,63
960201100900125	M9	1,25	90	18	9,00	371	7,00	7,75	1	21,30
960201101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	21,30

9602011	Ø	P	L	I	d2	DIN	∠			€
960201100400050	MF4	0,5	63	10	4,50	371	3,40	3,50	1	27,31
960201100500050	MF5	0,5	70	11	6,00	371	4,90	4,50	1	27,60
960201100500075	MF5	0,75	70	12	6,00	371	4,90	4,25	1	27,60
960201100600050	MF6	0,5	80	12	6,00	371	4,90	5,50	1	27,60
960201100700075	MF7	0,75	80	16	7,00	371	5,50	6,25	1	28,96
960201100800075	MF8	0,75	90	18	8,00	371	6,20	7,25	1	27,00
960201100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	22,48
960201100900100	MF9	1	90	18	9,00	371	7,00	8,00	1	34,66
960201101000075	MF10	0,75	90	18	10,00	371	8,00	9,25	1	27,12
960201101000100	MF10	1	100	20	10,00	371	8,00	9,00	1	24,44
960201101000125	MF10	1,25	100	20	10,00	371	8,00	8,75	1	28,54



# 301

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Machine tap HSSE | Through/blind hole < 1,5 x Ø

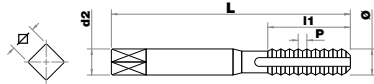
Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P  
1**

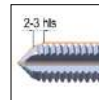
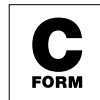
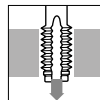
Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P  
2**



**Vc**  
M/min

<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9603011	Ø	P	L	I	d2	DIN	∠	⊕	⊞	€
960301100250045	M2,5	0,45	40	9	2,80	376	2,10	2,05	1	29,12
960301100300050	M2,6	0,45	45	9	2,80	376	2,10	2,15	1	22,04
960301100300050	M3	0,5	45	8	2,20	376	2,10	2,50	1	13,98
960301100350060	M3,5	0,6	56	11	2,50	376	2,10	2,90	1	13,98
960301100400070	M4	0,7	63	12	2,80	376	2,10	3,30	1	14,25
960301100450075	M4,5	0,75	70	14	3,50	376	2,70	3,75	1	22,04
960301100500080	M5	0,8	70	14	3,50	376	2,70	4,20	1	14,25
960301100600100	M6	1	80	16	4,50	376	3,40	5,00	1	16,43
960301100800100	M7	1	80	16	4,50	376	4,30	6,00	1	18,72
960301100800125	M8	1,25	90	18	6,00	376	4,90	6,75	1	18,46
960301100900125	M9	1,25	90	18	6,00	376	5,50	7,75	1	20,73
960301101000150	M10	1,5	100	20	7,00	376	5,50	8,50	1	21,03
960301101100150	M11	1,5	100	20	8,00	376	6,20	9,50	1	25,08
960301101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	26,23
960301101400200	M14	2	110	25	11,00	376	9,00	12,00	1	33,83
960301101500200	M15	2	110	28	12,00	376	9,00	13,00	1	38,60
960301101600200	M16	2	110	28	12,00	376	9,00	14,00	1	40,58
960301101800250	M18	2,5	125	32	14,00	376	11,00	15,50	1	57,50
960301102000250	M20	2,5	140	32	16,00	376	12,00	17,50	1	62,11
960301102200250	M22	2,5	140	32	18,00	376	14,50	19,50	1	57,50
960301102400300	M24	3	160	32	18,00	376	14,50	21,00	1	90,01
960301102700300	M27	3	160	36	20,00	376	16,00	24,00	1	133,36
960301103000350	M30	3,5	180	40	22,00	376	18,00	26,50	1	143,96
960301103300350	M33	3,5	180	40	25,00	376	20,00	29,50	1	171,31
960301103600400	M36	4	200	45	28,00	376	22,00	32,00	1	218,51
960301103900400	M39	4	200	45	32,00	376	24,00	35,00	1	279,57
960301104200450	M42	4,5	200	50	32,00	376	24,00	37,50	1	363,10
960301104500450	M45	4,5	220	50	36,00	376	29,00	40,50	1	392,70
960301104800500	M48	5	250	56	36,00	376	29,00	43,00	1	482,90
960301105200500	M52	5	250	56	40,00	376	32,00	47,00	1	496,13
960301105600550	M56	5,5	250	66	40,00	376	32,00	50,50	1	837,72

9603011	Ø	P	L	I	d2	DIN	∠	⊕	⊞	€
960301100600075	MF6	0,5	80	12	4,50	374	4,90	5,50	1	22,68
960301100600075	MF6	0,75	80	12	4,50	374	4,90	5,25	1	22,68
960301100700075	MF7	0,75	80	12	4,50	374	4,90	6,25	1	24,07
960301100800100	MF8	1	90	18	8,00	374	4,90	7,00	1	18,72
960301101000075	MF10	0,75	90	18	7,00	374	5,50	9,25	1	27,44
960301101000100	MF10	1	90	18	7,00	374	5,50	9,00	1	25,83
960301101000125	MF10	1,25	100	20	7,00	374	5,50	8,75	1	34,11
960301101100100	MF11	1	100	20	7,00	374	6,20	10,00	1	35,59



# 301




## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Machine tap HSSE | Through/blind hole < 1,5 x Ø

Semi-hard steels up to 700N/mm<sup>2</sup>

9603011	Ø	P	L	I	d2	DIN				€
960301101100125	MF11	1,25	100	22	8,00	374	6,20	9,75	1	34,11
960301101200075	MF12	0,75	100	22	9,00	374	7,00	11,25	1	34,11
960301101200100	MF12	1	100	22	9,00	374	7,00	11,00	1	34,11
960301101200125	MF12	1,25	100	22	9,00	374	7,00	10,75	1	33,81
960301101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	30,87
960301101300125	MF13	1,25	100	22	11,00	374	9,00	11,75	1	42,82
960301101300150	MF13	1,5	100	22	11,00	374	9,00	11,50	1	42,82
960301101400100	MF14	1	100	22	11,00	374	9,00	13,00	1	51,38
960301101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	36,44
960301101500125	MF15	1,25	100	22	12,00	374	9,00	13,75	1	50,36
960301101500150	MF15	1,5	100	22	12,00	374	9,00	13,50	1	72,94
960301101600100	MF16	1	100	22	12,00	374	9,00	15,00	1	65,15
960301101600125	MF16	1,25	100	22	12,00	374	9,00	14,75	1	71,12
960301101600150	MF16	1,5	110	22	12,00	374	9,00	14,50	1	45,58
960301101800125	MF18	1,25	110	25	14,00	374	11,00	16,75	1	48,12
960301101800150	MF18	1,5	110	22	12,00	374	11,00	16,50	1	57,01
960301101800200	MF18	2	125	28	14,00	374	11,00	16,00	1	68,82
960301102000100	MF20	1	125	25	14,00	374	12,00	19,00	1	95,39
960301102000150	MF20	1,5	125	25	16,00	374	12,00	18,50	1	64,52
960301102000200	MF20	2	140	25	16,00	374	12,00	18,00	1	64,52
960301102200100	MF22	1	125	25	18,00	374	14,50	21,00	1	111,19
960301102200150	MF22	1,5	125	25	18,00	374	14,50	20,50	1	77,75
960301102200200	MF22	2	140	28	18,00	374	14,50	20,00	1	125,91
960301102400150	MF24	1,5	140	25	18,00	374	14,50	22,50	1	77,18
960301102400200	MF24	2	140	25	18,00	374	18,00	22,00	1	121,90
960301102600100	MF26	1	140	25	18,00	374	18,00	25,00	1	147,53
960301102600150	MF26	1,5	140	25	18,00	374	18,00	24,50	1	103,03
960301102700150	MF27	1,5	140	25	18,00	374	16,00	25,50	1	111,75
960301102700200	MF27	2	140	25	18,00	374	16,00	25,00	1	167,40
960301103000200	MF30	2	150	32	22,00	374	18,00	28,00	1	181,50
960301103200150	MF32	1,5	150	28	28,00	374	18,00	30,50	1	185,52
960301103400150	MF34	1,5	170	32	28,00	374	22,00	32,50	1	198,70
960301103600150	MF36	1,5	170	32	28,00	374	22,00	34,50	1	241,52
960301104000150	MF40	1,5	170	32	32,00	374	24,00	38,50	1	323,87

# 252

## MACHO DE MÁQUINA HSSE

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

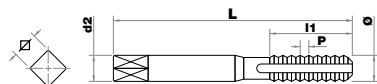
Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P**  
**1**

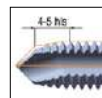
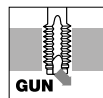
Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P**  
**2**



**Vc**  
**M/min**

<b>A</b>	10-15
<b>B</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1602521	Ø	P	L	I	d2	DIN	∠	⚙	📦	€
160252100200040	M2	0,4	45	8	2,80	371	2,10	1,60	1	14,26
160252100250045	M2,50	0,45	50	9	2,80	371	2,10	2,10	1	14,26
160252100260045	M2,6	0,45	50	9	2,80	371	2,10	2,10	1	14,26
160252100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	11,23
160252100350060	M3,5	0,6	56	11	4,00	371	3,00	2,90	1	11,48
160252100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	11,48
160252100450075	M4,5	0,75	70	14	6,00	371	4,90	3,75	1	17,09
160252100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	11,48
160252100600100	M6	1	80	16	6,00	371	4,90	5,00	1	12,56
160252100700100	M7	1	80	16	7,00	371	5,50	6,00	1	14,78
160252100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	14,13
160252100900125	M9	1,25	90	18	9,00	371	7,00	7,75	1	19,67
160252101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	17,40

1602521	Ø	P	L	I	d2	DIN	∠	⚙	📦	€
160252100400050	MF4	0,5	63	10	4,50	371	3,40	3,50	1	16,54
160252100500050	MF5	0,5	70	11	6,00	371	4,90	4,50	1	16,54
160252100600050	MF6	0,5	80	12	6,00	371	4,90	5,50	1	16,27
160252100600075	MF6	0,75	80	12	6,00	371	4,90	5,25	1	16,27
160252100700075	MF7	0,75	80	12	6,00	371	6,20	6,25	1	16,88
160252100800100	MF8	1	90	16	8,00	371	6,20	7,00	1	17,22
160252101000100	MF10	1	100	18	10,00	371	8,00	9,00	1	19,21
160252101000125	MF10	1,25	100	20	10,00	371	8,00	8,75	1	21,74



960002 > Rosca izquierda > pág. 102



960222 > Tolerancia 6G > pág. 102



16025270003 > Machos + brocas previas > pág. 171

MACHOS & COJINETES / CORE HOLE DRILLING

# 352 MACHO DE MÁQUINA HSSE

Agujero pasante  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>  
Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

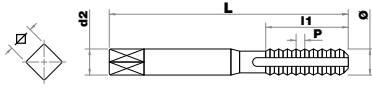
Aceros no aleados y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels  
<500 N / mm<sup>2</sup>



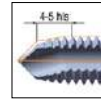
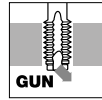
Aceros al carbono y debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>



MANGO DELGADO



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1603521	Ø	P	L	I	d2	DIN	∠			€
160352100300050	M3	0,5	56	11	2,20	376	2,10	2,50	1	12,81
160352100350060	M3,5	0,6	56	11	2,50	376	2,10	2,90	1	12,81
160352100400070	M4	0,7	63	12	4,50	376	2,10	3,30	1	12,81
160352100450075	M4,5	0,75	70	14	3,50	376	2,70	3,75	1	12,81
160352100500080	M5	0,8	70	14	3,50	376	2,70	4,20	1	12,81
160352100600100	M6	1	80	16	4,50	376	3,40	5,00	1	12,33
160352100700100	M7	1	80	16	5,50	376	4,30	6,00	1	15,61
160352100800125	M8	1,25	90	18	6,00	376	4,90	6,75	1	14,07
160352100900125	M9	1,25	90	18	7,00	376	5,50	7,75	1	20,55
160352101000150	M10	1,5	100	20	7,00	376	5,50	8,50	1	17,02
160352101100150	M11	1,5	100	20	8,00	376	6,20	9,50	1	25,45
160352101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	22,09
160352101400200	M14	2	110	25	11,00	376	9,00	12,00	1	29,54
160352101600200	M16	2	110	28	12,00	376	9,00	14,00	1	36,89
160352101800250	M18	2,5	125	32	14,00	376	11,00	15,50	1	59,14
160352102000250	M20	2,5	140	32	16,00	376	12,00	17,50	1	60,33
160352102200250	M22	2,5	140	32	18,00	376	14,50	19,50	1	57,21
160352102400300	M24	3	160	32	18,00	376	14,50	21,00	1	81,84
160352102700300	M27	3	160	36	20,00	376	16,00	24,00	1	115,15
160352103000350	M30	3,5	180	40	22,00	376	18,00	26,50	1	131,54
160352103300350	M33	3,5	180	40	25,00	376	20,00	29,50	1	186,12
160352103600400	M36	4	200	45	28,00	376	22,00	32,00	1	193,32
160352103900400	M39	4	200	45	32,00	376	24,00	35,00	1	214,82
160352104800500	M48	5	250	56	36,00	376	29,00	43,50	1	276,09



# 352

## MACHO DE MÁQUINA HSSE

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

1603521	Ø	P	L	I	d2	DIN	∠			€
160352100700075	MF7	0,75	80	12	6,00	374	4,30	6,25	1	16,96
160352100800075	MF8	0,75	80	12	6,00	374	4,90	7,25	1	16,96
160352100800100	MF8	1	90	18	6,00	374	4,90	7,00	1	16,96
160352101000100	MF10	1	90	18	7,00	374	5,50	9,00	1	18,84
160352101000125	MF10	1,25	100	20	7,00	374	5,50	8,75	1	22,46
160352101100100	MF11	1	100	20	8,00	374	6,20	10,00	1	30,25
160352101100125	MF11	1,25	100	20	8,00	374	6,20	9,75	1	25,92
160352101200100	MF12	1	100	22	9,00	374	7,00	11,00	1	24,76
160352101200125	MF12	1,25	100	22	9,00	374	7,00	10,75	1	25,03
160352101200150	MF12	1,50	100	22	9,00	374	7,00	11,50	1	30,24
160352101300100	MF13	1	100	22	11,00	374	9,00	12,00	1	43,95
160352101300125	MF13	1,25	100	22	11,00	374	9,00	11,75	1	43,95
160352101400100	MF14	1	100	22	11,00	374	9,00	13,00	1	37,98
160352101400125	MF14	1,25	100	22	11,00	374	9,00	12,75	1	33,10
160352101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	37,73
160352101500150	MF15	1,5	100	22	12,00	374	9,00	13,50	1	44,50
160352101600125	MF16	1,25	100	22	12,00	374	9,00	14,75	1	52,37
160352101600150	MF16	1,5	100	22	12,00	374	9,00	14,50	1	33,08
160352101800125	MF18	1,25	110	25	14,00	374	11,00	16,75	1	41,37
160352101800150	MF18	1,5	110	25	14,00	374	11,00	16,50	1	41,37
160352101800200	MF18	2	110	25	14,00	374	11,00	16,00	1	54,34
160352102000100	MF20	1	125	28	16,00	374	12,00	19,00	1	70,54
160352102000150	MF20	1,5	125	25	16,00	374	12,00	18,50	1	46,72
160352102000200	MF20	2	125	25	16,00	374	12,00	18,00	1	61,32
160352102200150	MF22	1,5	125	25	18,00	374	14,50	20,50	1	56,65
160352102400150	MF24	1,5	140	25	18,00	374	14,50	22,50	1	69,26
160352102400200	MF24	2	140	25	18,00	374	14,50	22,00	1	87,57
160352102500150	MF25	1,5	140	28	18,00	374	14,50	23,50	1	107,50
160352102600150	MF26	1,5	140	28	18,00	374	14,50	24,50	1	89,05
160352102700150	MF27	1,5	140	28	20,00	374	16,00	25,50	1	101,84
160352102800200	MF28	2	140	28	20,00	374	16,00	26,00	1	101,84
160352103000150	MF30	1,5	150	32	22,00	374	18,00	28,50	1	106,37
160352103000200	MF30	2	150	32	22,00	374	18,00	28,00	1	131,64
160352103200150	MF32	1,5	150	28	22,00	374	18,00	30,50	1	134,51
160352103400150	MF34	1,5	170	32	28,00	374	22,00	32,50	1	168,53
160352103600150	MF36	1,5	170	32	28,00	374	22,00	34,50	1	178,06
160352103600200	MF36	2	170	32	28,00	374	22,00	34,00	1	227,62
160352103800150	MF38	1,5	170	32	28,00	374	22,00	36,50	1	184,03

MACHOS & COJINETES / CORE HOLE DRILLING



Gama de machos

# FLASH CUT

Alto Rendimiento

Página >>> 142

# 222

## MACHO DE MÁQUINA HSSE TOLERANCIA 6G

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

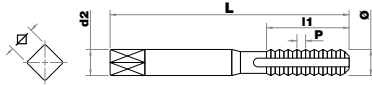
Through hole | 6G Tolerance | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

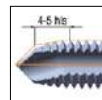
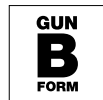
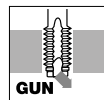
Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9602221	Ø	P	L	I	d2	DIN	∠			€
960222100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	15,15
960222100400070	M4	0,7	63	12	4,50	371	3,30	3,30	1	15,51
960222100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	15,51
960222100600100	M6	1	80	16	6,00	371	4,90	5,00	1	16,95
960222100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	19,08
960222101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	23,49
960322101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	29,82

MACHOS & COJINETES / CORE HOLE DRILLING

# 002

## MACHO DE MÁQUINA HSSE ROSCA IZQUIERDA

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

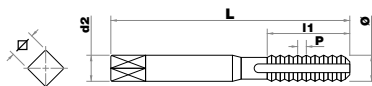
Through hole | Left hand thread | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

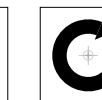
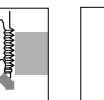
Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9600021	Ø	P	L	I	d2	DIN	∠			€
960002100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	28,13
960002100400070	M4	0,7	63	12	4,50	371	3,30	3,30	1	28,80
960002100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	28,80
960002100600100	M6	1	80	16	6,00	371	4,90	5,00	1	31,48
960002100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	35,42
960002101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	43,60
960012101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	55,35



# 212

## MACHO DE MÁQUINA HSSE TOLERANCIA 4H

Agujero pasante / Aeronáutica  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

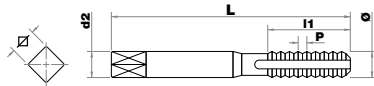
Through hole | 4H Tolerance | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

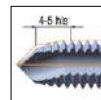
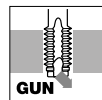
**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**



	Vc
	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9602121	Ø	P	L	I	d2	DIN	∠			€
960212100300050	M3	0,50	56	10	3,50	371	2,70	2,50	1	15,47
960212100400070	M4	0,70	63	12	4,50	371	3,30	3,30	1	15,82
960212100500080	M5	0,80	70	14	6,00	371	4,90	4,20	1	15,82
960212100600100	M6	1	80	16	6,00	371	4,90	5,00	1	17,30
960212100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	19,46
960212101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	23,97
960312101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	30,42

# 215

## MACHO DE MÁQUINA HSSE TOLERANCIA 4H

Helicoidal 35° / Agujero ciego / Aeronáutica  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

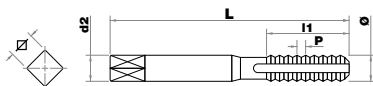
Spiral flute 35° | Blind hole | 4H Tolerance | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

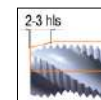
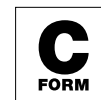
**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**



	Vc
	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9602151	Ø	P	L	I	d2	DIN	∠			€
960215100300050	M3	0,50	56	10	3,50	371	2,70	2,50	1	18,24
960215100400070	M4	0,70	63	12	4,50	371	3,30	3,30	1	18,27
960215100500080	M5	0,80	70	14	6,00	371	4,90	4,20	1	18,27
960215100600100	M6	1	80	16	6,00	371	4,90	5,00	1	19,26
960215100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	22,92
960215101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	27,23
960315101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	36,08

# 255

## MACHO DE MÁQUINA HSSE

Agujero ciego

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

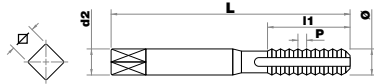
Spiral flute 35° | Blind hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N/mm<sup>2</sup>

**P1**

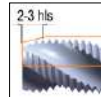
Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**



	Vc
	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



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1602551	Ø	P	L	I	d2	DIN	∠			€
160255100200040	M2	0,4	45	8	2,80	371	2,10	1,60	1	17,60
160255100250045	M2,5	0,45	50	5	2,80	371	2,10	2,05	1	29,01
160255100300050	M3	0,5	50	5	3,50	371	2,70	2,50	1	13,24
160255100350060	M3,5	0,6	56	6	4,00	371	3,00	2,90	1	27,83
160255100400070	M4	0,7	63	7	4,50	371	3,40	3,30	1	13,26
160255100450075	M4,5	0,75	70	9	6,00	371	4,90	3,75	1	27,83
160255100500080	M5	0,8	70	9	6,00	371	4,90	4,20	1	12,72
160255100600100	M6	1	80	10	6,00	371	4,90	5,00	1	13,98
160255100700100	M7	1	80	10	7,00	371	5,50	6,00	1	16,95
160255100800125	M8	1,25	90	12	8,00	371	6,20	6,75	1	16,65
160255100900125	M9	1,25	90	12	9,00	371	7,00	7,75	1	22,61
160255101000150	M10	1,5	100	14	10,00	371	8,00	8,50	1	19,78

1602551	Ø	P	L	I	d2	DIN	∠			€
160255100400050	MF4	0,5	63	10	4,50	371	3,40	3,50	1	32,28
160255100500050	MF5	0,5	70	9	6,00	371	4,90	4,50	1	29,67
160255100600075	MF6	0,75	80	10	6,00	371	4,90	5,25	1	27,69
160255100800100	MF8	1	90	10	8,00	371	6,20	7,00	1	20,44
160255100900100	MF9	1	90	10	8,00	371	7,00	8,00	1	26,15
160255101000100	MF10	1	100	14	10,00	371	8,00	9,00	1	24,08
160255101000125	MF10	1,25	100	14	10,00	371	8,00	8,75	1	31,90



960005 > Rosca izquierda > pág. 106



960225 > Tolerancia 6G > pág. 106



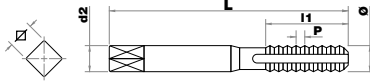
16025570003 > Machos + brocas previas > pág. 171

# 355 MACHO DE MÁQUINA HSSE

## Helicoidal 35° Agujero ciego

### Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spiral flute 35° | Blind hole | Semi-hard steels up to 700 N/mm<sup>2</sup>



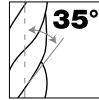
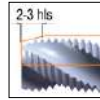
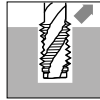
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>



Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

1603551	Ø	P	L	I	d2	DIN	∠			€
160355100250045	M2,5	0,45	56	5	2,20	376	2,10	2,00	1	16,38
160355100300050	M3	0,5	56	5	2,20	376	2,10	2,50	1	16,38
160355100350060	M3,5	0,6	56	6	2,50	376	2,10	2,90	1	19,42
160355100400070	M4	0,7	63	7	2,80	376	3,30	3,30	1	16,96
160355100500080	M5	0,8	70	9	3,50	376	2,70	4,20	1	16,96
160355100600100	M6	1	80	10	4,50	376	3,40	5,00	1	17,77
160355100700100	M7	1	80	10	5,50	376	4,30	6,00	1	20,93
160355100800125	M8	1,25	90	12	6,00	376	4,90	6,75	1	20,60
160355101000150	M10	1,5	100	14	7,00	376	5,50	8,50	1	24,45
160355101100150	M11	1,5	100	14	8,00	376	6,20	9,50	1	50,27
160355101200175	M12	1,75	110	16	9,00	376	7,00	10,25	1	26,21
160355101400200	M14	2	110	18	11,00	376	9,00	12,00	1	34,29
160355101600200	M16	2	110	18	12,00	376	9,00	14,00	1	44,19
160355101800250	M18	2,5	125	25	14,00	376	11,00	15,50	1	66,92
160355102000250	M20	2,5	140	25	16,00	376	12,00	17,50	1	67,45
160355102200250	M22	2,5	140	25	18,00	376	14,50	19,50	1	83,16
160355102400300	M24	3	160	30	18,00	376	14,50	21,00	1	94,85
160355102700300	M27	3	160	30	20,00	376	16,00	24,00	1	131,32
160355103000350	M30	3,5	180	35	22,00	376	18,00	26,50	1	149,57
160355103300350	M33	3,5	180	40	25,00	376	20,00	29,50	1	210,63
160355104200450	M42	4,5	200	56	32,00	376	24,00	37,50	1	279,45

1603551	Ø	P	L	I	d2	DIN	∠			€
160355100600075	MF6	0,75	80	12	6,00	374	4,90	5,25	1	25,96
160355100800100	MF8	1	90	12	6,00	374	4,90	7,00	1	25,96
160355101000075	MF10	0,75	90	12	6,00	374	5,50	9,25	1	30,66
160355101000100	MF10	1	90	12	7,00	374	5,50	9,00	1	30,66
160355101000125	MF10	1,25	100	14	7,00	374	5,50	8,75	1	33,35
160355101200100	MF12	1	100	14	9,00	374	7,00	11,00	1	38,10
160355101200125	MF12	1,25	100	14	9,00	374	7,00	10,75	1	36,45
160355101200150	MF12	1,5	100	14	9,00	374	7,00	11,50	1	36,48
160355101400100	MF14	1	100	16	11,00	374	9,00	13,00	1	45,19
160355101400150	MF14	1,50	100	18	11,00	374	9,00	12,50	1	47,30
160355101500100	MF15	1	100	16	11,00	374	9,00	14,00	1	45,19
160355101800150	MF18	1,5	110	18	14,00	374	9,00	16,50	1	49,25
160355101800200	MF18	2	125	28	14,00	374	11,00	16,00	1	56,23
160355102000150	MF20	1,5	125	25	16,00	374	12,00	18,50	1	56,23
160355102000200	MF20	2	140	25	16,00	374	12,00	18,00	1	58,69
160355102200150	MF22	1,5	125	18	18,00	374	14,50	20,50	1	58,69
160355102400100	MF24	1	140	18	18,00	374	14,50	23,00	1	110,99
160355102600200	MF26	2	140	18	18,00	374	14,50	24,00	1	222,26
160355103000150	MF30	1,5	150	22	22,00	374	18,00	28,50	1	126,81
160355103000200	MF30	2	150	22	22,00	374	18,00	28,00	1	169,56
160355103200200	MF32	2	150	22	22,00	374	18,00	30,00	1	235,44

MACHOS & COJINETES / CORE HOLE DRILLING

# 225

## MACHO DE MÁQUINA HSSE TOLERANCIA 6G

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

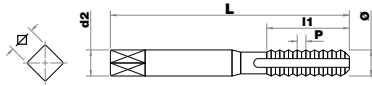
Spiral flute 35° | Blind hole | 6G Tolerance | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

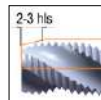
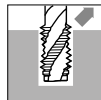
P  
1

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

P  
2



Vc	
M/min	
P1	10-15
P2	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9602251	Ø	P	L	I	d2	DIN	Ø	Ø	Ø	€
960225100300050	M3	0,5	50	5	3,50	371	2,70	2,50	1	17,88
960225100400070	M4	0,7	63	7	4,50	371	3,40	3,30	1	17,91
960225100500080	M5	0,8	70	9	6,00	371	4,90	4,20	1	17,91
960225100600100	M6	1	80	10	6,00	371	4,90	5,00	1	18,89
960225100800125	M8	1,25	90	12	8,00	371	6,20	6,75	1	22,47
960225101000150	M10	1,5	100	14	10,00	371	8,00	8,50	1	26,69
960325101200175	M12	1,75	110	16	9,00	376	7,00	10,25	1	35,37

MACHOS & COJINETES / CORE HOLE DRILLING

# 005

## MACHO DE MÁQUINA HSSE ROSCA IZQUIERDA

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

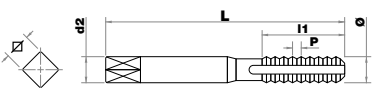
Spiral flute 35° | Blind hole | Left hand thread | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

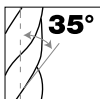
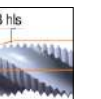
P  
1

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

P  
2



Vc	
M/min	
P1	10-15
P2	8-13



9600051	Ø	P	L	I	d2	DIN	Ø	Ø	Ø	€
960005100300050	M3	0,5	50	5	3,50	371	2,70	2,50	1	34,46
960005100400070	M4	0,7	63	7	4,50	371	3,40	3,30	1	34,52
960005100500080	M5	0,8	70	9	6,00	371	4,90	4,20	1	34,52
960005100600100	M6	1	80	10	6,00	371	4,90	5,00	1	36,40
960005100800125	M8	1,25	90	12	8,00	371	6,20	6,75	1	43,31
960005101000150	M10	1,5	100	14	10,00	371	8,00	8,50	1	51,48
960015101200175	M12	1,75	110	16	9,00	376	7,00	10,25	1	68,20

# 272

## MACHO DE MÁQUINA HSSE XL EXTRALARGO

Agujero pasante  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

New

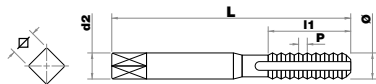
Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**



Vc	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

**M**

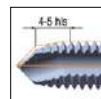
**HSS E**

**BRIGHT UNCOATED**

**XL**

**GUN FORM**

**GUN FORM**



**6H**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9602721	Ø	P	L	I	d2	NORMA	∠	∠	∠	∠	€
960272100300050	<b>M3</b>	0,5	100	10	3,50	Tivoly	2,70	2,50	1		<b>51,51</b>
960272100400070	<b>M4</b>	0,7	120	12	4,50	Tivoly	3,40	3,30	1		<b>51,51</b>
960272100500080	<b>M5</b>	0,8	145	12	6,00	Tivoly	4,90	4,20	1		<b>51,51</b>
960272100600100	<b>M6</b>	1	165	15	6,00	Tivoly	4,90	5,00	1		<b>52,67</b>
960272100800125	<b>M8</b>	1,25	180	18	6,00	Tivoly	4,90	6,75	1		<b>64,31</b>
960272101000150	<b>M10</b>	1,5	200	22	7,00	Tivoly	5,50	8,50	1		<b>72,92</b>
960272101200175	<b>M12</b>	1,75	224	25	9,00	Tivoly	7,00	10,25	1		<b>78,93</b>

# 275

## MACHO DE MÁQUINA HSSE XL EXTRALARGO

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

New

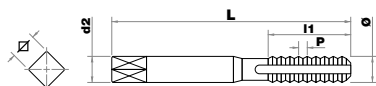
Blind hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**



Vc	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

**M**

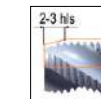
**HSS E**

**BRIGHT UNCOATED**

**XL**

**C FORM**

**C FORM**



**6H**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9602751	Ø	P	L	I	d2	NORMA	∠	∠	∠	∠	€
960275100300050	<b>M3</b>	0,5	100	5	3,50	Tivoly	2,70	2,50	1		<b>54,54</b>
960275100400070	<b>M4</b>	0,7	120	7	4,50	Tivoly	3,40	3,30	1		<b>54,54</b>
960275100500080	<b>M5</b>	0,8	145	8	6,00	Tivoly	4,90	4,20	1		<b>54,54</b>
960275100600100	<b>M6</b>	1	165	10	6,00	Tivoly	4,90	5,00	1		<b>56,24</b>
960275100800125	<b>M8</b>	1,25	180	12	6,00	Tivoly	4,90	6,75	1		<b>64,31</b>
960275101000150	<b>M10</b>	1,5	200	14	7,00	Tivoly	5,50	8,50	1		<b>76,56</b>
960275101200175	<b>M12</b>	1,75	224	16	9,00	Tivoly	7,00	10,25	1		<b>86,83</b>



# 042

## MACHO DE MÁQUINA HSSE SOBREMEDIDA +0,1

Agujero pasante  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

New

Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>



Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
1

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
2

**Vc**  
M/min

<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**M**

**HSS E**

**BRIGHT UNCOATED**

**DIN 371/376**

**GUN FORM**

**GUN FORM**

4-5 HRC

**6H**

**+0,1**

9600421	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960042100300050	M3	0.5	56	10	3,50	371	2,70	2,50	1		38,97
960042100400070	M4	0.7	63	12	4,50	371	3,40	3,30	1		40,75
960042100500080	M5	0.8	70	12	6,00	371	4,90	4,20	1		44,24
960042100600100	M6	1	80	15	6,00	371	4,90	5,00	1		45,29
960042100800125	M8	1.25	90	18	8,00	371	6,20	6,75	1		50,23
960042101000150	M10	1.5	100	22	10,00	371	8,00	8,50	1		53,06
960042101200175	M12	1.75	110	22	9,00	376	7,00	10,25	1		56,43

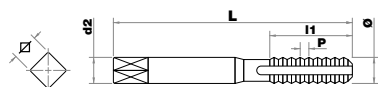
# 045

## MACHO DE MÁQUINA HSSE SOBREMEDIDA +0,1

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

New

Blind hole | Semi-hard steels up to 700 N/mm<sup>2</sup>



Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
1

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
2

**Vc**  
M/min

<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**M**

**HSS E**

**BRIGHT UNCOATED**

**DIN 371/376**

**C FORM**

**C FORM**

2-3 HRC

**6H**

**+0,1**

9600451	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960045100300050	M3	0.5	56	5	3.50	371	2,70	2,50	1		40,75
960045100400070	M4	0.7	63	7	4.50	371	3,40	3,30	1		40,75
960045100500080	M5	0.8	70	9	6,00	371	4,90	4,20	1		44,24
960045100600100	M6	1	80	10	6,00	371	4,90	5,00	1		45,29
960045100800125	M8	1.25	90	12	8,00	371	6,20	6,75	1		50,23
960045101000150	M10	1.5	100	14	10,00	371	8,00	8,50	1		56,21
960045101200175	M12	1.75	110	16	9,00	376	7,00	10,25	1		68,71

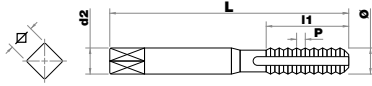
# 055

## MACHO DE MÁQUINA HSSE FORMA E

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

New

Blind hole | Semi-hard steels up to 700 N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P**  
1

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P**  
2

**Vc**

**M/min**

**P1** 10-15

**P2** 8-13

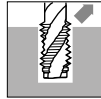
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**M**

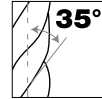
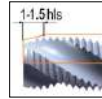
**HSS E**

**BRIGHT UNCOATED**

**DIN 371/376**



**E FORM**



**6H**

9600551	Ø	P	L	I	d2	DIN	∠			€
960055100300050	M3	0.5	56	5	3,50	371	2,70	2,50	1	39,41
960055100400070	M4	0.7	63	7	4,50	371	3,40	3,30	1	39,41
960055100500080	M5	0.8	70	9	6,00	371	4,90	4,20	1	39,41
960055100600100	M6	1	80	10	6,00	371	4,90	5,00	1	41,45
960055100800125	M8	1.25	90	12	8,00	371	6,20	6,75	1	47,26
960055101000150	M10	1.5	100	14	10,00	371	8,00	8,50	1	56,12
960055101200175	M12	1.75	110	16	9,00	376	7,00	10,25	1	75,46

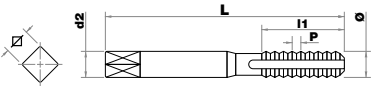
# 401

## MACHO DE MÁQUINA HSSE PARA TUERCAS

Agujero pasante  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

MANGO DELGADO



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

**Vc**

**M/min**

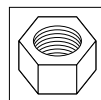
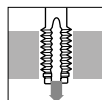
**P1** 10-15

**P2** 8-13

**M MF**

**HSS E**

**BRIGHT UNCOATED**



**A FORM**

**6H**

9704011	Ø	P	L	I	d2	NORMA			€
970401100300050	M3	0,5	280	12,5	2,30	Tivoly	2,50	1	35,08
970401100400070	M4	0,7	280	18	2,90	Tivoly	3,30	1	35,08
970401100500080	M5	0,8	280	20	3,80	Tivoly	4,20	1	35,08
970401100600100	M6	1	280	25	4,50	Tivoly	5,00	1	35,08
970401100700100	M7	1	280	25	5,50	Tivoly	6,00	1	38,31
970401100800125	M8	1,25	280	320	6,10	Tivoly	6,75	1	36,68
970401101000150	M10	1,5	280	38	7,70	Tivoly	8,50	1	42,52
970401101200175	M12	1,75	420	44	9,30	Tivoly	10,25	1	65,75
970401101400200	M14	2	420	50	10,90	Tivoly	12,00	1	74,55
970401101600200	M16	2	520	50	12,90	Tivoly	14,00	1	90,09
970401101800250	M18	2,5	520	63	14,10	Tivoly	15,75	1	121,07
970401102000250	M20	2,5	520	63	16,10	Tivoly	17,50	1	149,37
970401102400300	M24	3	520	75	19,30	Tivoly	21,00	1	238,74

9704011	Ø	P	L	I	d2	NORMA			€
970401100600075	MF6	0,75	280	25	5,10	Tivoly	5,25	1	41,85
970401100800100	MF8	1	280	32	6,40	Tivoly	7,00	1	39,14
970401101000100	MF10	1	280	38	8,40	Tivoly	9,00	1	45,70
970401101200125	MF12	1,25	420	38	10,10	Tivoly	10,75	1	45,70
970401101200150	MF12	1,5	420	44	9,60	Tivoly	10,50	1	69,71
970401102000150	MF20	1,5	520	63	17,80	Tivoly	18,50	1	157,47

# 056 MACHO DE MÁQUINA HSSE INSERT

Agujero pasante  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

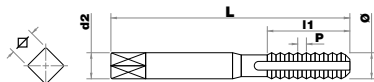
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**

New



**Vc**  
**M/min**

**P1** 10-15

**P2** 8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9600561	Ø	P	L	I	d2	DIN	∠			€
960056100300050	M3	0.5	63	12	4,50	40 435	3,40	3,20	1	35,22
960056100400070	M4	0.7	70	14	6,00	40 435	4,90	4,20	1	35,22
960056100500080	M5	0.8	80	16	6,00	40 435	4,90	5,25	1	35,64
960056100600100	M6	1	90	18	8,00	40 435	6,20	6,30	1	36,46
960056100800125	M8	1.25	100	20	10,00	40 435	8,00	8,40	1	38,61
960056101000150	M10	1.5	110	22	9,00	40 435	7,00	10,40	1	45,39
960056101200175	M12	1.75	110	25	11,00	40 435	9,00	12,50	1	63,76

# 057 MACHO DE MÁQUINA HSSE INSERT

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Blind hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

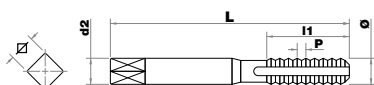
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**

New



**Vc**  
**M/min**

**P1** 10-15

**P2** 8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9600571	Ø	P	L	I	d2	DIN	∠			€
960057100300050	M3	0.5	63	12	4,50	40 435	3,40	3,20	1	38,94
960057100400070	M4	0.7	70	14	6,00	40 435	4,90	4,20	1	38,94
960057100500080	M5	0.8	80	16	6,00	40 435	4,90	5,25	1	39,12
960057100600100	M6	1	90	18	8,00	40 435	6,20	6,30	1	41,64
960057100800125	M8	1.25	100	20	10,00	40 435	8,00	8,40	1	44,08
960057101000150	M10	1.5	110	22	9,00	40 435	7,00	10,40	1	48,79
960057101200175	M12	1.75	110	25	11,00	40 435	9,00	12,50	1	68,01

# 201

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

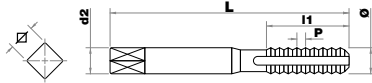
Machine tap HSSE | Through/blind hole < 1,5 x Ø  
Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

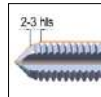
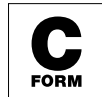
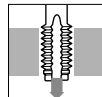
**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**



Vc	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9622011	Ø	P Hilos	L	I	d2	DIN	∠			€
962201100004400	UNC N°4	40	56	11	3,50	371	2,70	2,30	1	16,56
962201100005400	UNC N°5	40	56	12	3,50	371	2,70	2,60	1	16,56
962201100006320	UNC N°6	32	56	11	4,00	371	3,00	2,85	1	21,87
962201100008320	UNC N°8	32	63	12	4,50	371	3,40	3,50	1	21,70
962201100010240	UNC N°10	24	70	14	6,00	371	4,90	3,90	1	21,70
962201100012240	UNC N°12	24	80	14	9,00	371	4,90	4,50	1	21,70
962201100140200	UNC 1/4	20	80	16	7,00	371	5,50	5,10	1	21,32
962201100516180	UNC 5/16	18	90	18	8,00	371	6,20	6,50	1	25,46
962201100380160	UNC 3/8	16	90	18	9,00	371	7,00	7,90	1	28,31

# 301

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

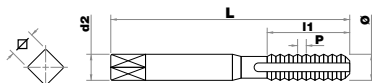
Machine tap HSSE | Through/blind hole < 1,5 x Ø  
Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

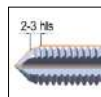
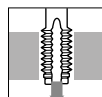
**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**



Vc	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9623011	Ø	P Hilos	L	I	d2	DIN	∠			€
962301100716140	UNC 7/16	14	100	22	8,00	376	6,20	9,30	1	27,67
962301100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,70	1	29,76
962301100916120	UNC 9/16	12	110	25	11,00	376	9,00	12,00	1	41,32
962301100516180	UNC 5/16	18	90	18	6,00	376	4,90	6,50	1	23,40
962301100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	53,12

# 201

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Machine tap HSSE | Through/blind hole < 1,5 x Ø

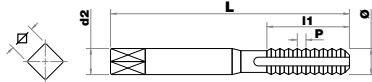
Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
1

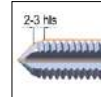
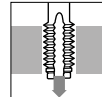
Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
2



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9622011	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	∠	€
962201100004480	UNF N°4	48	56	11	3,50	371	2,70	2,40	1	18,15	
962201100005440	UNF N°5	44	56	11	3,50	371	2,70	2,70	1	18,15	
962201100006400	UNF N°6	40	56	11	4,00	371	3,00	3,00	1	18,15	
962201100008360	UNF N°8	36	63	12	4,50	371	3,40	3,50	1	22,02	
962201100010320	UNF N°10	32	70	14	6,00	371	4,90	4,10	1	25,34	
962201100012280	UNF N°12	28	80	14	6,00	371	4,90	4,70	1	25,34	
962201100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	22,49	
962201100516240	UNF 5/16	24	90	18	8,00	371	6,20	6,90	1	28,00	
962201100380240	UNF 3/8	24	90	18	9,00	371	7,00	8,50	1	28,71	

# 301

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Machine tap HSSE | Through/blind hole < 1,5 x Ø

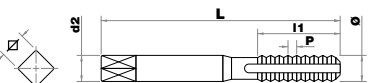
Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
1

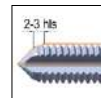
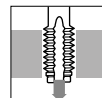
Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
2



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9623011	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	∠	€
962301100140280	UNF 1/4	28	80	16	4,50	376	3,40	5,50	1	16,91	
962301100516240	UNF 5/16	24	90	18	6,00	376	4,90	6,90	1	17,66	
962301100380240	UNF 3/8	24	90	18	7,00	376	5,50	8,50	1	20,37	
962301100716200	UNF 7/16	20	100	22	8,00	376	6,20	9,90	1	36,26	
962301100120200	UNF 1/2	20	110	25	9,00	376	7,00	11,50	1	38,21	
962301100911800	UNF 9/16	18	110	25	11,00	376	9,00	12,90	1	46,99	
962301100580180	UNF 5/8	18	110	28	12,00	376	9,00	14,50	1	53,37	
962301100340160	UNF 3/4	16	125	32	14,00	376	11,00	17,50	1	68,33	
962301100780140	UNF 7/8	14	140	32	18,00	376	14,50	20,50	1	80,56	
96230110000120	UNF 1"	12	160	36	20,00	376	16,00	23,25	1	81,07	



# 202

## MACHO DE MÁQUINA HSSE

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

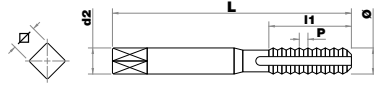
Through hole | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

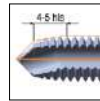
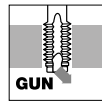
**P**  
**1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P**  
**2**



	Vc
	M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9622021	Ø	P Hilos	L	I	d2	DIN	∠			€
962202100004400	UNC N°4	40	56	11	3,50	371	2,70	2,30	1	27,34
962202100005400	UNC N°5	40	56	11	3,50	371	2,70	2,60	1	27,63
962202100006320	UNC N°6	32	56	11	4,00	371	3,00	2,85	1	26,32
962202100008320	UNC N°8	32	63	12	4,50	371	3,40	3,50	1	26,32
962202100010240	UNC N°10	24	70	14	6,00	371	4,90	3,90	1	27,63
962202100012240	UNC N°12	24	80	14	6,00	371	4,90	4,50	1	26,24
962202100140200	UNC 1/4	20	80	16	7,00	371	4,90	5,10	1	23,53
962202100516180	UNC 5/16	18	90	18	8,00	371	6,20	6,50	1	27,00
962202100380160	UNC 3/8	16	90	18	9,00	371	5,50	7,90	1	30,81

9622021	Ø	P Hilos	L	I	d2	DIN	∠			€
962202100004480	UNF N°4	48	56	11	3,50	371	2,70	2,40	1	27,41
962202100005440	UNF N°5	44	56	11	3,50	371	2,70	2,70	1	27,57
962202100006400	UNF N°6	40	56	11	4,00	371	3,00	3,00	1	27,57
962202100008360	UNF N°8	36	63	12	4,50	371	3,40	3,50	1	27,57
962202100010320	UNF N°10	32	70	14	6,00	371	4,90	4,10	1	28,94
962202100012280	UNF N°12	28	80	17	6,00	371	4,90	4,70	1	29,95
962202100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	24,54
962202100516240	UNF 5/16	24	90	18	8,00	371	6,20	6,90	1	28,03
962202100380240	UNF 3/8	24	100	18	9,00	371	7,00	8,50	1	31,81

MACHOS & COJINETES / CORE HOLE DRILLING

# 302

## MACHO DE MÁQUINA HSSE

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

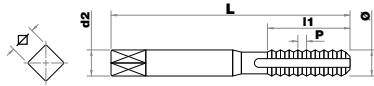
Through hole | Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels  
<500 N / mm<sup>2</sup>

**P  
1**

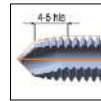
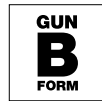
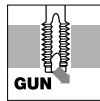
Aceros al carbono y debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P  
2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



MACHOS & COJINETES / CORE HOLE DRILLING

9623021	Ø	P Hilos	L	I	d2	DIN	∠			€
962302100140200	UNC 1/4	20	80	16	4,50	376	3,40	5,10	1	27,92
962302100516180	UNC 5/16	18	90	18	6,00	376	4,90	6,50	1	31,93
962302100380160	UNC 3/8	16	90	18	7,00	376	5,50	7,90	1	36,61
962302100716140	UNC 7/16	14	100	22	8,00	376	6,20	9,25	1	39,94
962302100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,50	1	42,49
962302100916120	UNC 9/16	12	110	25	9,00	376	9,00	12,00	1	54,53
962302100580110	UNC 5/8	11	110	28	12,00	376	9,00	13,50	1	58,68
962302100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	75,20
962302100780090	UNC 7/8	9	140	32	18,00	376	14,50	19,25	1	93,65
962302110000080	UNC 1"	8	160	36	20,00	376	16,00	22,00	1	122,68

9623021	Ø	P Hilos	L	I	d2	DIN	∠			€
962302100140280	UNF 1/4	28	80	16	4,5	376	3,40	5,50	1	31,64
962302100516240	UNF 5/16	24	90	18	6	376	4,90	6,90	1	31,64
962302100380240	UNF 3/8	24	100	18	7	376	6,20	8,50	1	33,96
962302100716200	UNF 7/16	20	100	22	8	376	7,00	9,90	1	43,35
962302100120200	UNF 1/2	20	110	25	9	376	9,00	11,50	1	48,02
962302100916180	UNF 9/16	18	110	25	11	376	9,00	12,90	1	50,23
962302100580180	UNF 5/8	18	110	25	12	376	9,00	14,50	1	63,70
962302100340160	UNF 3/4	16	125	32	14	376	11,00	17,50	1	84,29
962302100780140	UNF 7/8	14	125	32	18	376	14,50	20,50	1	109,68
962302110000120	UNF 1"	12	140	32	20	376	16,00	23,25	1	145,60

# 205

## MACHO DE MÁQUINA HSSE

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

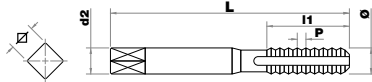
Spiral flute 35° | Blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P  
1**

Aceros al carbono y  
debilitado aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P  
2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9622051	Ø	P Hilos	L	I	d2	DIN	Ø	Ø	Ø	€
962205100004400	UNC N°4	40	56	5	3,50	371	2,70	2,30	1	31,52
962205100005400	UNC N°5	40	63	5	3,50	371	2,70	2,60	1	29,99
962205100006320	UNC N°6	32	56	7	4,00	371	3,00	2,85	1	29,99
962205100008320	UNC N°8	32	63	7	4,50	371	3,40	3,50	1	29,99
962205100010240	UNC N°10	24	70	10	6,00	371	4,90	3,90	1	31,52
962205100012240	UNC N°12	24	80	10	6,00	371	4,90	4,50	1	31,52
962205100140200	UNC 1/4	20	80	12	7,00	371	5,50	5,10	1	26,70
962205100516180	UNC 5/16	18	90	12	8,00	371	6,20	6,50	1	30,76
962205100380160	UNC 3/8	16	90	14	9,00	371	7,00	7,90	1	35,40

9622051	Ø	P Hilos	L	I	d2	DIN	Ø	Ø	Ø	€
962205100004480	UNF N°4	48	56	11	3,50	371	2,70	2,40	1	30,46
962205100005440	UNF N°5	44	56	11	3,50	371	2,70	2,70	1	30,46
962205100006400	UNF N°6	40	56	11	4,00	371	3,00	3,00	1	31,05
962205100008360	UNF N°8	36	63	12	4,50	371	3,40	3,50	1	31,05
962205100010320	UNF N°10	32	70	9	6,00	371	4,90	4,10	1	37,25
962205100012280	UNF N°12	28	80	14	6,00	371	4,90	4,70	1	30,46
962205100140280	UNF 1/4	28	80	10	7,00	371	5,50	5,50	1	28,31
962205100516240	UNF 5/16	24	90	12	8,00	371	6,20	6,90	1	31,93
962205100380240	UNF 3/8	24	100	14	9,00	371	7,00	8,50	1	35,77

MACHOS & COJINETES / CORE HOLE DRILLING

# 305

## MACHO DE MÁQUINA HSSE

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spiral flute 35° | Blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>

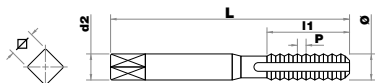
Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P  
1**

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P  
2**

MANGO  
DELGADO



**Vc**  
**M/min**

**P1** 10-15

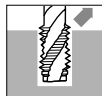
**P2** 8-13

**UNC  
UNF**

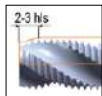
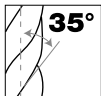
**HSS  
E**

**BRIGHT  
UNCOATED**

**DIN  
376**



**C  
FORM**



**2B**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9623051	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
962305100140200	UNC 1/4	20	80	12	4,50	376	3,40	5,10	1	30,67
962305100516180	UNC 5/16	18	90	12	6,00	376	4,90	6,50	1	36,35
962305100380160	UNC 3/8	16	90	14	7,00	376	5,50	7,90	1	41,10
962305100716140	UNC 7/16	14	100	16	8,00	376	6,20	9,25	1	45,39
962305100120130	UNC 1/2	13	110	16	9,00	376	7,00	10,50	1	48,25
962305100916120	UNC 9/16	12	110	18	11,00	376	9,00	12,00	1	59,23
962305100580110	UNC 5/8	11	110	20	12,00	376	9,00	13,50	1	66,76
962305100340100	UNC 3/4	10	125	25	14,00	376	11,00	16,50	1	85,42
962305100780090	UNC 7/8	9	140	28	18,00	376	14,50	19,25	1	148,56
962305110000080	UNC 1"	8	160	30	20,00	376	16,00	22,00	1	188,17

9623051	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
962305100140280	UNF 1/4	28	80	12	4,50	376	3,40	5,50	1	39,12
962305100380240	UNF 3/8	24	80	12	7,00	376	5,50	8,50	1	44,62
962305100716200	UNF 7/16	20	100	14	8,00	376	6,20	9,90	1	50,14
962305100120200	UNF 1/2	20	110	16	9,00	376	7,00	11,50	1	54,81
962305100916180	UNF 9/16	18	110	18	11,00	376	9,00	12,90	1	73,69
962305100580180	UNF 5/8	18	110	18	12,00	376	9,00	14,50	1	72,37
962305100340160	UNF 3/4	16	125	18	14,00	376	11,00	17,50	1	95,86
962305100780140	UNF 7/8	14	140	25	18,00	376	14,50	20,50	1	88,84
962305110000120	UNF 1"	12	160	25	20,00	376	16,00	23,25	1	110,34

# 201 MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø  
Aceros duros hasta 700 N/mm<sup>2</sup>

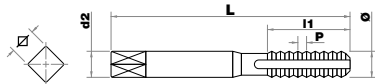
Blind/Through hole | Hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

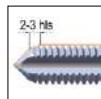
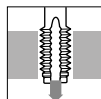
**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9612011	Ø	P Hilos	L	I	d2	DIN	∠			€
961201100180400	<b>BSW 1/8</b>	40	56	10	3,50	371	2,70	2,55	1	<b>16,64</b>
961201100532320	<b>BSW 5/32</b>	32	63	12	4,50	371	3,40	3,20	1	<b>16,79</b>
961201100316240	<b>BSW 3/16</b>	24	70	13	6,00	371	4,90	3,70	1	<b>16,79</b>
961201100140200	<b>BSW 1/4</b>	20	80	16	7,00	371	5,50	5,10	1	<b>17,78</b>
961201100516180	<b>BSW 5/16</b>	18	90	17	8,00	371	6,20	6,50	1	<b>22,34</b>
961201100380160	<b>BSW 3/8</b>	16	90	18	9,00	371	7,00	7,90	1	<b>24,85</b>

# 301 MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø  
Aceros duros hasta 700 N/mm<sup>2</sup>

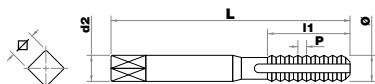
Blind/Through hole | Hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

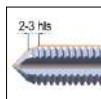
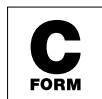
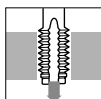
**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9613011	Ø	P Hilos	L	I	d2	DIN	∠			€
961301100140200	<b>BSW 1/4</b>	20	80	16	4.50	376	3.40	5.10	1	*
961301100380160	<b>BSW 3/8</b>	16	90	22	7,00	376	5.50	7.90	1	*
961301100716140	<b>BSW 7/16</b>	14	100	20	8,00	376	6.20	9.25	1	*
961301100120120	<b>BSW 1/2</b>	12	110	25	9,00	376	7,00	10.50	1	*
961301100340100	<b>BSW 3/4</b>	10	125	32	14,00	376	11,00	16.50	1	*
96130110000080	<b>BSW 1"</b>	8	160	36	20,00	376	16,00	22,00	1	*

\* Consultar precio y plazo de entrega



# 202 MACHO DE MÁQUINA HSSE

## Agujero pasante

### Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through hole | Semi-hard steels up to 700N/mm<sup>2</sup>

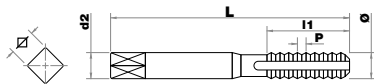
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**

MANGO • OVAL • REFORZADO



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

**BSW**

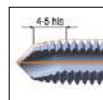
**HSS E**

BRIGHT UNCOATED

**DIN 371**

GUN

**GUN B FORM**



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9612021	Ø	P Hilos	L	I	d2	DIN	∠			€
961202100180400	<b>BSW 1/8</b>	40	56	11	3,50	371	2,70	2,55	1	<b>18,60</b>
961202100532320	<b>BSW 5/32</b>	32	63	12	4,50	371	3,40	3,20	1	<b>18,60</b>
961202100316240	<b>BSW 3/16</b>	24	70	14	6,00	371	4,90	3,70	1	<b>18,60</b>
961202100732240	<b>BSW 7/32</b>	24	80	14	6,00	371	4,90	4,50	1	<b>21,61</b>
961202100140200	<b>BSW 1/4</b>	20	80	16	7,00	371	5,50	5,10	1	<b>21,10</b>
961202100516180	<b>BSW 5/16</b>	18	90	18	8,00	371	6,20	6,50	1	<b>24,68</b>
961202100380160	<b>BSW 3/8</b>	16	90	18	9,00	371	7,00	7,90	1	<b>27,32</b>

# 302 MACHO DE MÁQUINA HSSE

## Agujero pasante

### Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through hole | Semi-hard steels up to 700N/mm<sup>2</sup>

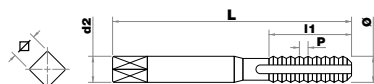
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**

MANGO • DELGADO



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

**BSW**

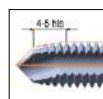
**HSS E**

BRIGHT UNCOATED

**DIN 376**

GUN

**GUN B FORM**



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

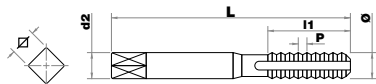
9613021	Ø	P Hilos	L	I	d2	DIN	∠			€
961302100532320	<b>BSW 5/32</b>	32	63	12	2,80	376	2,10	3,20	1	<b>24,28</b>
961302100140200	<b>BSW 1/4</b>	20	80	16	4,50	376	3,40	5,10	1	<b>24,28</b>
961302100516180	<b>BSW 5/16</b>	18	90	18	6,00	376	4,90	6,50	1	<b>24,28</b>
961302100380160	<b>BSW 3/8</b>	16	90	18	7,00	376	5,50	7,90	1	<b>31,43</b>
961302100716140	<b>BSW 7/16</b>	14	100	22	8,00	376	6,20	9,25	1	<b>34,50</b>
961302100120120	<b>BSW 1/2</b>	12	110	25	9,00	376	7,00	10,5	1	<b>36,10</b>
961302100916120	<b>BSW 9/16</b>	12	110	25	11,00	376	9,00	12,00	1	<b>41,94</b>
961302100580110	<b>BSW 5/8</b>	11	110	28	12,00	376	9,00	13,50	1	<b>49,13</b>
961302100340100	<b>BSW 3/4</b>	10	125	32	14,00	376	11,00	16,50	1	<b>62,85</b>
961302110000080	<b>BSW 1"</b>	8	160	36	20,00	376	16,00	22,00	1	<b>106,89</b>
961302110180070	<b>BSW 1"1/8</b>	7	180	40	22,00	376	18,00	24,70	1	<b>128,24</b>
961302110140070	<b>BSW 1"1/4</b>	7	180	40	25,00	376	18,00	27,75	1	<b>209,75</b>
961302110580050	<b>BSW 1"5/8</b>	5	220	56	32,00	376	24,00	35,50	1	<b>389,31</b>
961302120000045	<b>BSW 2"</b>	4,5	250	63	40,00	376	32,00	44,50	1	<b>565,36</b>

# 205

## MACHO DE MÁQUINA HSSE

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spiral flute 35° | Blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>



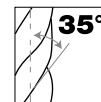
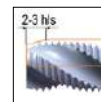
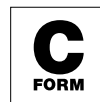
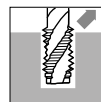
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**

Vc	
M/min	
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

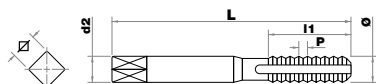
9612051	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
961205100180400	<b>BSW 1/8</b>	40	56	7	3,50	371	2,70	2,50	1	<b>21,10</b>
961205100316240	<b>BSW 3/16</b>	24	70	10	6,00	371	4,90	3,60	1	<b>21,10</b>
961205100140200	<b>BSW 1/4</b>	20	80	12	7,00	371	5,50	5,10	1	<b>23,96</b>
961205100516180	<b>BSW 5/16</b>	18	90	12	8,00	371	6,20	6,50	1	<b>27,94</b>
961205100380160	<b>BSW 3/8</b>	16	90	14	9,00	371	7,00	7,90	1	<b>31,07</b>

# 305

## MACHO DE MÁQUINA HSSE

Helicoidal 35° Agujero ciego  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spiral flute 35° | Blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>



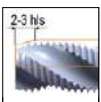
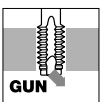
Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**

Vc	
M/min	
<b>P1</b>	10-15
<b>P2</b>	8-13



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9613051	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
961305100140200	<b>BSW 1/4</b>	20	80	12	4,50	376	3,40	5,10	1	<b>24,68</b>
961305100516180	<b>BSW 5/16</b>	18	90	12	6,00	376	4,90	6,50	1	<b>27,64</b>
961305100380160	<b>BSW 3/8</b>	16	90	14	7,00	376	5,50	7,90	1	<b>30,55</b>
961305100716140	<b>BSW 7/16</b>	14	100	16	8,00	376	6,20	9,20	1	<b>34,66</b>
961305100120120	<b>BSW 1/2</b>	12	110	16	9,00	376	7,00	10,50	1	<b>39,32</b>
961305100916120	<b>BSW 9/16</b>	12	110	18	11,00	376	9,00	12,00	1	<b>47,64</b>
961305100580110	<b>BSW 5/8</b>	11	110	20	12,00	376	9,00	13,50	1	<b>52,79</b>
961305100340100	<b>BSW 3/4</b>	10	125	25	14,00	376	11,00	16,50	1	<b>71,40</b>
961305100780090	<b>BSW 7/8</b>	9	140	28	18,00	376	14,50	19,75	1	<b>81,68</b>
961305110000080	<b>BSW 1"</b>	8	160	30	20,00	376	16,00	22,00	1	<b>121,29</b>

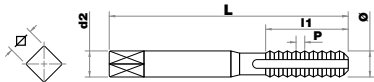
# 301

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through/blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

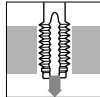
**P**  
**1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P**  
**2**

	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9633011	Ø	P Hilos	L	I	d2	DIN	∠			€
963301100180280	BSP 1/8	28	90	18	7,00	5156	6,00	8,80	1	27,33
963301100140190	BSP 1/4	19	100	22	11,00	5156	9,00	11,80	1	40,51
963301100380190	BSP 3/8	19	100	25	12,00	5156	9,00	15,30	1	48,50
963301100120140	BSP 1/2	14	125	25	16,00	5156	12,00	19,00	1	61,30
963301100580140	BSP 5/8	14	125	25	18,00	5156	15,00	21,00	1	72,18
963301100340140	BSP 3/4	14	140	28	20,00	5156	16,00	24,50	1	95,94
963301100780140	BSP 7/8	14	150	28	22,00	5156	18,00	28,30	1	108,66
963301110000110	BSP 1"	11	160	36	25,00	5156	20,00	30,80	1	148,85
963301110180110	BSP 1"1/8	11	170	36	28,00	5156	22,00	35,50	1	191,61
963301110140110	BSP 1"1/4	11	170	40	32,00	5156	24,00	39,50	1	266,83
963301110580110	BSP 1"5/8	11	190	40	40,00	5156	32,00	49,60	1	358,58
963301120000110	BSP 2"	11	220	40	45,00	5156	35,00	57,00	1	543,14

MACHOS & COJINETES / CORE HOLE DRILLING

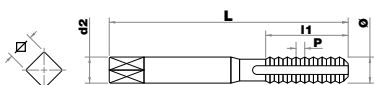
# 302

## MACHO DE MÁQUINA HSSE

Agujero pasante

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Through hole | Semi-hard steels up to 700N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

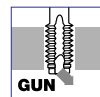
**P**  
**1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P**  
**2**

	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



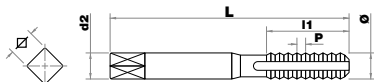
9633021	Ø	P Hilos	L	I	d2	DIN	∠			€
963302100180280	BSP 1/8	28	90	18	7,00	5156	5,50	8,80	1	33,26
963302100140190	BSP 1/4	19	100	22	11,00	5156	9,00	11,80	1	44,57
963302100380190	BSP 3/8	19	100	25	12,00	5156	9,00	15,30	1	53,33
963302100120140	BSP 1/2	14	125	25	16,00	5156	12,00	19,00	1	67,43
963302100580140	BSP 5/8	14	125	25	18,00	5156	14,50	21,00	1	83,77
963302100340140	BSP 3/4	14	140	28	20,00	5156	16,00	24,50	1	105,55
963302100780140	BSP 7/8	14	150	28	22,00	5156	18,00	28,30	1	163,88
963302110000110	BSP 1"	11	160	36	25,00	5156	20,00	30,80	1	163,72
963302110180110	BSP 1"1/8	11	170	36	28,00	5156	22,00	35,50	1	232,19

# 303 MACHO DE MÁQUINA HSSE

## Helicoidal 15° Agujero ciego

### Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spiral flute 15° | Blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**

	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

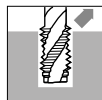
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**BSP G**

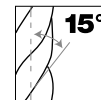
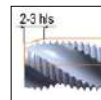
**HSS E**

**BRIGHT UNCOATED**

**DIN 5156**



**C FORM**



9633031	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	∠	€
963303100180280	<b>BSP 1/8</b>	28	90	18	7,00	5156	5,50	8,80	1	<b>35,42</b>	
963303100140190	<b>BSP 1/4</b>	19	100	22	11,00	5156	9,00	11,80	1	<b>50,89</b>	
963303100380190	<b>BSP 3/8</b>	19	100	25	12,00	5156	9,00	15,30	1	<b>60,71</b>	
963303100120140	<b>BSP 1/2</b>	14	125	25	16,00	5156	12,00	19,00	1	<b>76,59</b>	
963303100580140	<b>BSP 5/8</b>	14	125	25	18,00	5156	14,50	21,00	1	<b>80,39</b>	
963303100340140	<b>BSP 3/4</b>	14	125	25	18,00	5156	16,00	24,50	1	<b>119,90</b>	
963303110000110	<b>BSP 1"</b>	14	140	28	20,00	5156	20,00	30,80	1	<b>186,04</b>	

# 305 MACHO DE MÁQUINA HSSE

## Helicoidal 35° Agujero ciego

### Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Spiral flute 35° | Blind hole | Semi-hard steels up to 700N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 500 N / mm<sup>2</sup>

**P1**

Aceros al carbono y debilmente aleados < 700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel < 700 N/mm<sup>2</sup>

**P2**

	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

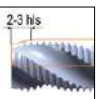
**BSP G**

**HSS E**

**BRIGHT UNCOATED**

**DIN 5156**

**C FORM**



9633051	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	∠	€
963305100180280	<b>BSP 1/8</b>	28	90	12	7,00	5156	5,50	5,50	1	<b>35,42</b>	
963305100140190	<b>BSP 1/4</b>	19	100	16	11,00	5156	9,00	9,00	1	<b>50,89</b>	
963305100380190	<b>BSP 3/8</b>	19	100	18	12,00	5156	9,00	9,00	1	<b>60,71</b>	
963305100120140	<b>BSP 1/2</b>	14	125	20	16,00	5156	12,00	12,00	1	<b>76,59</b>	
963305100780140	<b>BSP 7/8</b>	14	150	22	18,00	5156	18,00	18,00	1	<b>102,93</b>	
963305100340140	<b>BSP 3/4</b>	14	140	22	20,00	5156	16,00	16,00	1	<b>119,90</b>	
963305110000110	<b>BSP 1"</b>	14	160	25	25,00	5156	20,00	20,00	1	<b>186,04</b>	
963305110180110	<b>BSP 1"1/8</b>	11	170	36	28,00	5156	22,00	22,00	1	<b>240,12</b>	
963305110380110	<b>BSP 1"3/8</b>	11	180	40	36,00	5156	29,00	29,00	1	<b>384,07</b>	
963305110340110	<b>BSP 1"3/4</b>	11	190	40	40,00	5156	32,00	51,40	1	<b>964,20</b>	

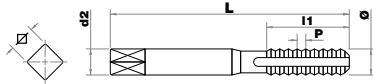
# 310

## MACHO DE MÁQUINA HSS

Agujero pasante/ciego  
Aceros blandos hasta 400 N/mm<sup>2</sup>

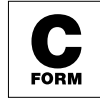
Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	10-15

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



9643101	Ø	P Hilos	L	I	d2	Ø	Ø	Ø	Ø	€
964310100116270	NPT 1/16	27	56	15	6,00	4,90	6,20	1		38,91
964310100180270	NPT 1/8	27	70	21	8,00	6,20	8,50	1		38,91
964310100140180	NPT 1/4	18	70	28	11,00	9,00	11,00	1		54,55
964310100380180	NPT 3/8	18	75	28	14,00	11,00	14,50	1		74,64
964310100120140	NPT 1/2	14	80	35	18,00	14,50	17,80	1		105,31
964310100340140	NPT 3/4	14	90	35	22,00	18,00	23,00	1		160,99
964310110000115	NPT 1"	11,5	110	45	25,00	20,00	29,00	1		180,93
964310110120115	NPT 1" 1/2	11,5	120	45	36,00	29,00	44,00	1		393,01

MACHOS & COJINETES / CORE HOLE DRILLING

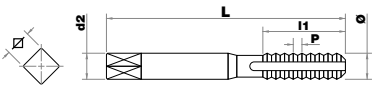
# 301

## MACHO DE MÁQUINA HSS

Agujero pasante/ciego  
Aceros blandos hasta 400 N/mm<sup>2</sup>

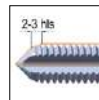
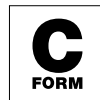
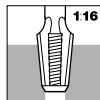
Through/blind hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	10-15

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



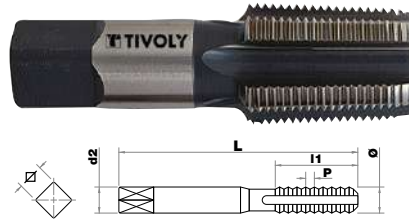
9643011	Ø	P Hilos	L	I	d2	Ø	Ø	Ø	Ø	€
964301100116270	NPT 1/16	27	90	15	6,00	4,90	6,20	1		50,58
964301100180270	NPT 1/8	27	90	15	8,00	6,20	8,50	1		50,58
964301100140180	NPT 1/4	18	100	21	11,00	9,00	11,00	1		70,89
964301100380180	NPT 3/8	18	110	21	14,00	11,00	14,50	1		97,96
964301100120140	NPT 1/2	14	140	27	18,00	14,00	17,80	1		136,91
964301100340140	NPT 3/4	14	140	27	22,00	18,00	23,00	1		209,33
964301110000115	NPT 1"	11,5	160	33	25,00	20,00	29,00	1		235,20
964301110140115	NPT 1" 1/4	11,5	170	33	32,00	29,00	37,50	1		378,43



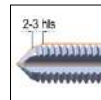
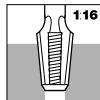
# 310 MACHO DE MÁQUINA HSS Rc (BSPT)

Agujeros cónicos  
Aceros blandos hasta 400 N/mm<sup>2</sup>  
Conical hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	10-15



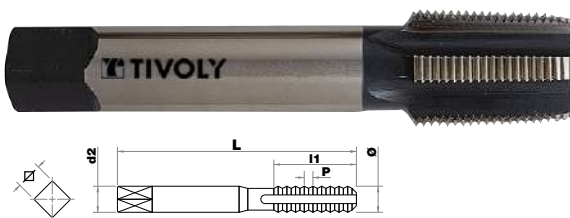
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9663101	Ø	P Hilos	L	I	d2	NORMA				€
966310100180280	Rc 1/8	28	70	21	8	Tivoly	6,20	8,30	1	44,98
966310100140190	Rc 1/4	19	70	28	11	Tivoly	9,00	11,00	1	63,39
966310100380190	Rc 3/8	19	75	28	14	Tivoly	11,00	14,50	1	88,05
966310100120140	Rc 1/2	14	80	35	18	Tivoly	14,50	18,10	1	123,27
966310100580140	Rc 5/8	14	90	35	18	Tivoly	14,50	20,00	1	180,50
966310100340140	Rc 3/4	14	90	35	22	Tivoly	18,00	23,50	1	209,19
966310110000110	Rc 1"	11	110	45	25	Tivoly	20,00	29,60	1	318,56

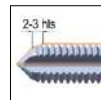
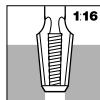
# 301 MACHO DE MÁQUINA HSS Rc (BSPT)

Agujeros cónicos  
Aceros blandos hasta 400 N/mm<sup>2</sup>  
Conical hole | Soft steels up to 400 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	10-15



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9663011	Ø	P Hilos	L	I	d2	DIN				€
966301100180280	Rc 1/8	28	90	21	8	5156	6,20	8,30	1	60,69
966301100140190	Rc 1/4	19	100	21	11	5156	9,00	11,00	1	87,89
966301100380190	Rc 3/8	19	110	21	14	5156	11,00	14,50	1	121,18
966301100120140	Rc 1/2	14	140	27	18	5156	14,50	18,10	1	168,89
966301100580140	Rc 5/8	14	140	27	18	5156	14,50	20,00	1	225,60
966301100340140	Rc 3/4	14	140	27	22	5156	18,00	23,50	1	261,79

# 301

## MACHO DE MÁQUINA HSSE PG

Agujero pasante/ciego <1,5 Ø

Aceros duros hasta 700 N/mm<sup>2</sup>

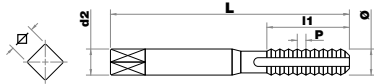
Blind/Through hole | Hard steels up to 700N/mm<sup>2</sup>

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N/mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**



	Vc M/min
<b>P1</b>	10-15
<b>P2</b>	8-13

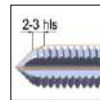
**PG**

**HSS**  
**E**

**BRIGHT**  
**UNCOATED**

**DIN**  
**40433**

**C**  
**FORM**



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

<b>9653011</b>	<b>Ø</b>	<b>P Hilos</b>	<b>L</b>	<b>I</b>	<b>d2</b>	<b>DIN</b>				<b>€</b>
965301100700200	<b>PG 7</b>	20	10	22	9,00	40433	7	11,35	1	<b>55,62</b>
965301100900180	<b>PG 9</b>	18	10	25	12,00	40433	9	13,95	1	<b>76,97</b>
965301101100180	<b>PG 11</b>	18	11	25	14,00	40433	11	17,35	1	<b>100,25</b>
965301101350180	<b>PG 13.5</b>	18	12	25	16,00	40433	12	19,15	1	<b>112,51</b>
965301101600180	<b>PG 16</b>	18	12	25	18,00	40433	14.5	21,25	1	<b>132,40</b>
965301102100160	<b>PG 21</b>	16	15	28	20,00	40433	16	26,95	1	<b>210,29</b>
965301102900160	<b>PG 29</b>	16	17	32	28,00	40433	22	35,60	1	<b>355,45</b>

## MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING

**MACHOS DE MANO  
MULTI-APLICACIÓN M-MF** **126**

MULTI-APPLICATIONS HAND TAPS M-MF

**MACHOS DE MANO  
MULTI-APLICACIÓN BSP GAS** **128**

MULTI-APPLICATIONS HAND TAPS BSP GAS

**MACHOS MÁQUINA  
MULTI-APLICACIÓN M-MF** **129**

MULTI-APPLICATIONS MACHINE TAP M-MF

**MACHOS MÁQUINA  
MULTI-APLICACIÓN BSP GAS** **134**

MULTI-APPLICATIONS MACHINE TAP BSP GAS

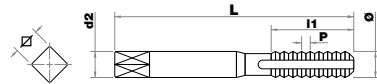
# 101

## JUEGO DE 3 MACHOS DE MANO HSS DIN 352

Agujero pasante/ciego

Vaporizado **MULTI-APLICACIÓN**

Set of 3 multi-application hand taps HSS steam | Through/blind hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRC  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRC

**P**  
3

Acero inoxidable  
austenítico  
Austenitic  
stainless steel

**M**  
1

Fundiciones  
Cast iron

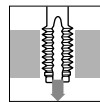
**K**

**M**

**HSS**

**STEAM  
TREATED**

**DIN  
352**



**X3  
SET**

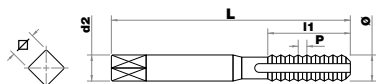
**6H**

9501011	Ø	P	L	I	d2	DIN				€
950101100200040	M2	0,4	36	11,5	2,8	352	2,10	1,60	3	44,22
950101100250045	M2,5	0,45	40	12	2,8	352	2,10	2,05	3	43,07
950101100300050	M3	0,5	40	11	3,5	352	2,70	2,50	3	26,38
950101100350060	M3,5	0,6	45	12	4	352	3,00	2,90	3	31,69
950101100400070	M4	0,7	45	12,5	4,5	352	3,40	3,30	3	26,38
950101100500080	M5	0,8	50	14,5	6	352	4,90	4,20	3	27,42
950101100600100	M6	1	50	15,5	6	352	4,90	5,00	3	27,42
950101100700100	M7	1	50	19	6	352	4,90	6,00	3	34,01
950101100800125	M8	1,25	56	22	6	352	4,90	6,75	3	31,85
950101100900125	M9	1,25	63	22	6	352	5,50	7,75	3	54,50
950101101000150	M10	1,5	70	24	7	352	5,50	8,50	3	41,00
950101101100150	M11	1,5	70	24	8	352	6,20	9,50	3	68,69
950101101200175	M12	1,75	75	29	9	352	7,00	10,25	3	58,72
950101101400200	M14	2	80	29	11	352	9,00	12,00	3	64,39
950101101600200	M16	2	80	31	12	352	9,00	14,00	3	88,17
950101101800250	M18	2,5	95	39	14	352	11,00	15,50	3	120,44
950101102000250	M20	2,5	95	39	16	352	12,00	17,50	3	133,71
950101102200250	M22	2,5	100	40	18	352	14,50	19,50	3	176,14
950101102400300	M24	3	110	45	18	352	14,50	21,00	3	206,91
950101102700300	M27	3	110	50	20	352	16,00	24,00	3	263,53
950101103000350	M30	3,5	125	56	22	352	18,00	26,50	3	336,88
950101103300350	M33	3,5	125	56	25	352	20,00	29,50	3	427,90
950101103600400	M36	4	150	63	28	352	22,00	32,00	3	546,51
950101103900400	M39	4	150	63	32	352	24,00	35,00	3	609,08
950101104200450	M42	4,5	150	63	32	352	24,00	37,50	3	765,80

# 102 JUEGO DE 2 MACHOS DE MANO HSS DIN 2181

Agujero pasante/ciego  
Vaporizado **MULTI-APLICACIÓN**

Set of 2 multi-application hand taps HSS steam | Through/blind hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

**P**  
3

Acero inoxidable  
austenítico  
Austenitic  
stainless steel

**M**  
1

Fundiciones  
Cast iron

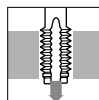
**K**

**MF**

**HSS**

**STEAM  
TREATED**

**DIN  
2181**



**X2  
SET**

**6H**

9501021	Ø	P	L	I	d2	DIN	∠			€
950102100500050	MF5	0,5	50	14,50	6	2181	4,90	4,50	2	48,01
950102100500075	MF5	0,75	50	15,00	6	2181	4,90	4,25	2	44,45
950102100600075	MF6	0,75	50	15,50	6	2181	4,90	5,25	2	29,02
950102100800075	MF8	0,75	50	22,00	6	2181	4,90	7,25	2	39,19
950102100800100	MF8	1	56	22,00	6	2181	4,90	7,00	2	29,00
950102101000100	MF10	1	63	18,00	7	2181	5,50	9,00	2	31,02
950102101000125	MF10	1,25	70	24,00	7	2181	5,50	8,80	2	31,43
950102101100100	MF11	1	63	20,00	8	2181	6,20	10,00	2	54,63
950102101100125	MF11	1,25	63	20,00	8	2181	6,20	9,80	2	54,63
950102101200100	MF12	1	70	20,00	9	2181	7,00	11,00	2	54,23
950102101200125	MF12	1,25	70	20,00	9	2181	7,00	10,75	2	54,33
950102101200150	MF12	1,5	70	20,00	9	2181	7,00	10,50	2	46,31
950102101400100	MF14	1	70	20,00	11	2181	9,00	13,00	2	75,39
950102101400125	MF14	1,25	70	20,00	11	2181	9,00	12,80	2	66,37
950102101400150	MF14	1,5	70	22,00	11	2181	9,00	12,50	2	51,61
950102101600100	MF16	1	70	22,00	12	2181	9,00	15,00	2	105,64
950102101600125	MF16	1,25	70	22,00	12	2181	9,00	14,75	2	111,12
950102101600150	MF16	1,5	70	22,00	12	2181	9,00	14,50	2	64,55
950102101800100	MF18	1	80	22,00	14	2181	9,00	15,50	2	117,38
950102101800125	MF18	1,25	80	22,00	14	2181	11,00	16,75	2	166,08
950102101800150	MF18	1,5	80	22,00	14	2181	11,00	16,50	2	85,38
950102101800200	MF18	2	80	22,00	14	2181	11,00	16,00	2	125,28
950102102000100	MF20	1	80	22,00	16	2181	11,00	19,00	2	155,57
950102102000150	MF20	1,5	80	22,00	16	2181	11,00	18,50	2	106,92
950102102000200	MF20	2	80	22,00	16	2181	12,00	18,00	2	130,47
950102102200150	MF22	1,5	80	22,00	18	2181	14,50	20,50	2	116,58
950102102200200	MF22	2	80	22,00	18	2181	14,50	20,00	2	174,34
950102102400150	MF24	1,5	90	22,00	18	2181	14,50	22,50	2	148,75
950102102400200	MF24	2	90	22,00	18	2181	14,50	22,00	2	194,96
950102102600150	MF26	1,5	90	22,00	20	2181	14,50	24,50	2	233,56
950102102700200	MF27	2	90	22,00	18	2181	16,00	25,00	2	270,19
950102103000150	MF30	1,5	90	22,00	22	2181	18,00	28,50	2	254,16
950102103000200	MF30	2	90	22,00	22	2181	18,00	28,00	2	292,98
950102103300200	MF33	2	100	25,00	25	2181	20,00	31,00	2	435,55



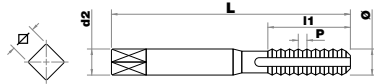
# 142

## JUEGO DE 2 MACHOS DE MANO HSS DIN 5157

Agujero pasante/ciego

Vaporizado **MULTI-APLICACIÓN**

Set of 2 multi-application hand taps HSS steam | Through/blind hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc



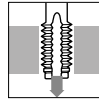
Acero inoxidable  
austenítico  
Austenitic  
stainless steel



Fundiciones  
Cast iron



MACHOS & COJINETES / CORE HOLE DRILLING



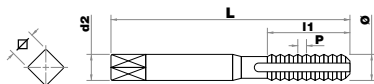
9531421	Ø	P Hilos	L	l	d2	DIN	∠			€
953142100180280	1/8	28	63	18	7	5157	5,50	8,80	2	36,55
953142100140190	1/4	19	70	20	11	5157	9,00	11,80	2	51,47
953142100380190	3/8	19	70	20	12	5157	9,00	15,25	2	64,65
953142100120140	1/2	14	80	22	16	5157	12,00	19,00	2	90,69
953142100580140	5/8	14	80	22	18	5157	14,50	21,00	2	116,07
953142100340140	3/4	14	90	22	20	5157	16,00	24,50	2	141,58
953142100780140	7/8	14	90	22	22	5157	18,00	28,25	2	188,81
953142110000110	1"	11	100	25	25	5157	20,00	30,75	2	224,47
953142110180110	1"1/8	11	125	32	28	5157	22,00	35,50	2	319,85
953142110140110	1"1/4	11	125	32	32	5157	24,00	39,50	2	352,02
953142110380110	1"3/8	11	125	32	36	5157	29,00	42,00	2	473,40
953142110120110	1"1/2	11	140	32	36	5157	29,00	25,50	2	532,01
953142120000110	2"	11	160	36	45	5157	35,00	57,20	2	970,77

# 202

## MACHO DE MÁQUINA HSSE

Agujero pasante  
Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Through hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRC  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRC

**P**  
3

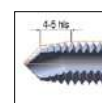
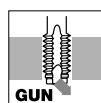
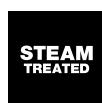
Acero inoxidable  
austenítico  
Austenitic  
stainless steel

**M**  
1

Fundiciones  
Cast iron

**K**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



	Vc M/min
<b>P1</b>	20-25
<b>P2</b>	15-20
<b>P3</b>	10-15
<b>M1</b>	4-8
<b>K</b>	15-20

9602021	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960202100200040	M2	0,4	45	10,00	2,80	371	2,10	1,60	1	19,68
960202100250045	M2,5	0,45	50	10,00	2,80	371	2,10	2,05	1	19,68
960202100300050	M3	0,5	56	7,00	3,50	371	2,70	2,50	1	15,49
960202100350060	M3,5	0,6	56	8,40	4,00	371	3,00	2,90	1	18,07
960202100400070	M4	0,7	63	10,00	4,50	371	3,40	3,30	1	15,84
960202100500080	M5	0,8	70	11,20	6,00	371	4,90	4,20	1	15,84
960202100600100	M6	1	80	14,00	6,00	371	4,90	5,00	1	17,30
960202100700100	M7	1	80	14,00	7,00	371	5,50	6,00	1	21,42
960202100800125	M8	1,25	90	17,50	8,00	371	6,20	6,75	1	19,53
960202100900125	M9	1,25	90	17,50	8,00	371	7,00	7,75	1	28,27
960202101000150	M10	1,5	100	21,00	10,00	371	8,00	8,50	1	24,00

9602021	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960202100400050	MF4	0,5	63	10,00	4,50	371	3,40	3,50	1	28,38
960202100500050	MF5	0,5	70	11,20	6,00	371	4,90	4,50	1	29,19
960202100600075	MF6	0,75	80	14,00	6,00	371	4,90	5,25	1	23,59
960202100800075	MF8	0,75	90	17,50	8,00	371	6,20	7,25	1	23,59
960202100800100	MF8	1	90	17,50	8,00	371	6,20	7,00	1	23,73
960202101000100	MF10	1	90	21,00	10,00	371	8,00	9,00	1	26,49
960202101000125	MF10	1,25	100	21,00	10,00	371	8,00	8,75	1	31,54



96020270003 > Machos + brocas previas > pág. 171

# 302

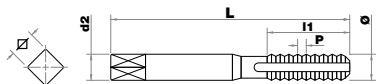
## MACHO DE MÁQUINA HSSE

Agujero pasante

Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Through hole

MANGO DELGADO



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 - 1000 N/mm<sup>2</sup> ≤ 32 HRC  
Steels high alloy 700 - 1000 N / mm<sup>2</sup> ≤ 32 HRC

**P**  
3

Acero inoxidable austenítico  
Austenitic stainless steel

**M**  
1

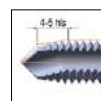
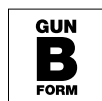
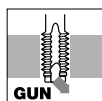
Fundiciones  
Cast iron

**K**

$$r.p.m = \frac{V_c \times 1000}{\pi \times \varnothing}$$

**Vc**  
M/min

<b>P1</b>	20-25
<b>P2</b>	15-20
<b>P3</b>	10-15
<b>M1</b>	4-8
<b>K</b>	15-20






9603021	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960302100300050	M3	0,5	56	10,00	2,70	376	2,10	2,50	1	16,07	
960302100400070	M4	0,7	63	12,00	2,80	376	2,10	3,30	1	16,37	
960302100500080	M5	0,8	70	13,50	3,50	376	2,70	4,20	1	16,37	
960302100600100	M6	1	80	15,50	4,50	376	3,40	5,00	1	18,01	
960302100800125	M8	1,25	90	17,00	6,00	376	4,90	6,75	1	20,54	
960302101000150	M10	1,5	100	20,00	7,00	376	5,50	8,50	1	24,84	
960302101200175	M12	1,75	110	22,00	9,00	376	7,00	10,25	1	30,67	
960302101400200	M14	2	110	25,00	11,00	376	9,00	12,00	1	38,26	
960302101600200	M16	2	110	28,00	12,00	376	9,00	14,00	1	44,79	
960302101800250	M18	2,5	125	32,00	14,00	376	11,00	15,50	1	63,80	
960302102000250	M20	2,5	140	32,00	16,00	376	12,00	17,50	1	68,93	
960302102200250	M22	2,5	140	32,00	18,00	376	14,50	19,50	1	83,42	
960302102400300	M24	3	160	32,00	18,00	376	14,50	21,00	1	99,36	
960302102700300	M27	3	160	36,00	20,00	376	16,00	24,00	1	124,30	
960302103000350	M30	3,5	180	40,00	22,00	376	18,00	26,50	1	159,73	
960302103300350	M33	3,5	180	40,00	25,00	376	20,00	29,50	1	200,85	
960302103600400	M36	4	200	45,00	28,00	376	22,00	32,00	1	245,43	
960302103900400	M39	4	200	45,00	32,00	376	24,00	35,00	1	313,42	
960302104200450	M42	4,5	200	50,00	32,00	376	24,00	35,00	1	402,88	
960302104800500	M48	5	250	56,00	36,00	376	29,00	43,50	1	535,85	

**302****MACHO DE MÁQUINA HSSE**

Agujero pasante

Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Through hole

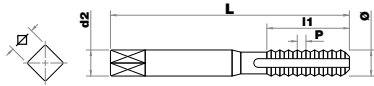
<b>9603021</b>	<b>Ø</b>	<b>P</b>	<b>L</b>	<b>I</b>	<b>d2</b>	<b>DIN</b>				<b>€</b>
960302100800100	<b>MF8</b>	1	90	18,00	6,00	374	4,90	7,00	1	<b>24,71</b>
960302101000100	<b>MF10</b>	1	90	18,00	7,00	374	5,50	9,00	1	<b>27,52</b>
960302101000125	<b>MF10</b>	1,25	100	20,00	7,00	374	5,50	8,75	1	<b>32,77</b>
960302101100125	<b>MF11</b>	1,25	100	20,00	7,00	374	6,20	9,75	1	<b>37,77</b>
960302101200100	<b>MF12</b>	1	100	22,00	9,00	374	7,00	11,00	1	<b>36,14</b>
960302101200125	<b>MF12</b>	1,25	100	22,00	9,00	374	7,00	10,75	1	<b>36,53</b>
960302101200150	<b>MF12</b>	1,5	100	22,00	9,00	374	7,00	11,50	1	<b>32,61</b>
960302101400100	<b>MF14</b>	1	100	22,00	11,00	374	9,00	13,00	1	<b>55,46</b>
960302101400125	<b>MF14</b>	1,25	100	22,00	11,00	374	9,00	12,75	1	<b>48,59</b>
960302101400150	<b>MF14</b>	1,5	100	22,00	11,00	374	9,00	12,50	1	<b>38,58</b>
960302101500150	<b>MF15</b>	1,5	100	22,00	11,00	374	9,00	13,50	1	<b>64,93</b>
960302101600100	<b>MF16</b>	1	100	22,00	12,00	374	9,00	15,00	1	<b>68,93</b>
960302101600125	<b>MF16</b>	1,25	100	22,00	12,00	374	9,00	14,75	1	<b>76,40</b>
960302101600150	<b>MF16</b>	1,5	110	22,00	12,00	374	9,00	14,50	1	<b>48,25</b>
960302101800100	<b>MF18</b>	1	110	25,00	14,00	374	11,00	17,00	1	<b>77,16</b>
960302101800150	<b>MF18</b>	1,5	110	25,00	14,00	374	11,00	16,50	1	<b>60,33</b>
960302101800200	<b>MF18</b>	2	125	28,00	14,00	374	11,00	16,00	1	<b>78,26</b>
960302102000100	<b>MF20</b>	1	125	25,00	16,00	374	12,00	19,00	1	<b>102,87</b>
960302102000150	<b>MF20</b>	1,5	125	25,00	16,00	374	12,00	18,50	1	<b>68,21</b>
960302102000200	<b>MF20</b>	2	140	25,00	16,00	374	12,00	18,00	1	<b>89,47</b>
960302102200150	<b>MF22</b>	1,5	125	25,00	18,00	374	14,50	20,50	1	<b>82,18</b>
960302102200200	<b>MF22</b>	2	140	28,00	18,00	374	14,50	20,00	1	<b>114,27</b>
960302102400150	<b>MF24</b>	1,5	140	25,00	18,00	374	14,50	22,50	1	<b>101,03</b>
960302102400200	<b>MF24</b>	2	140	25,00	18,00	374	14,50	22,00	1	<b>127,77</b>
960302102500150	<b>MF25</b>	1,5	140	25,00	18,00	374	14,50	23,50	1	<b>156,83</b>
960302102600150	<b>MF26</b>	1,5	140	25,00	18,00	374	14,50	24,50	1	<b>129,92</b>
960302102700150	<b>MF27</b>	1,5	140	25,00	18,00	374	16,00	25,50	1	<b>148,54</b>
960302102800150	<b>MF28</b>	1,5	140	28,00	20,00	374	16,00	26,50	1	<b>148,54</b>
960302103000150	<b>MF30</b>	1,5	150	32,00	22,00	374	18,00	28,50	1	<b>155,19</b>
960302103000200	<b>MF30</b>	2	150	32,00	22,00	374	18,00	28,00	1	<b>192,04</b>
960302103200150	<b>MF32</b>	1,5	150	28,00	22,00	374	18,00	30,50	1	<b>196,22</b>
960302103600150	<b>MF36</b>	1,5	170	32,00	28,00	374	22,00	34,50	1	<b>257,17</b>
960302103600200	<b>MF36</b>	2	170	32,00	28,00	374	22,00	34,00	1	<b>332,03</b>
960302103600300	<b>MF36</b>	3	170	32,00	28,00	374	22,00	33,00	1	<b>380,90</b>

# 205 MACHO DE MÁQUINA HSSE

## Helicoidal 35° Agujero ciego

### Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Flute 35° | Blind hole



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P**  
3

Acero inoxidable austenítico  
Austenitic stainless steel

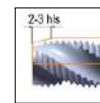
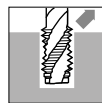
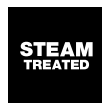
**M**  
1

Fundiciones  
Cast iron

**K**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

	Vc M/min
<b>P1</b>	20-25
<b>P2</b>	15-20
<b>P3</b>	10-15
<b>M1</b>	4-8
<b>K</b>	15-20



9602051	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960205100200040	M2	0,4	45	10	2,80	371	2,10	1,60	1	22,65	
960205100250045	M2,5	0,45	50	10	2,80	371	2,10	2,05	1	22,65	
960205100300050	M3	0,5	50	7	3,50	371	2,70	2,50	1	18,27	
960205100350060	M3,5	0,6	56	8,4	4,00	371	3,00	2,90	1	20,79	
960205100400070	M4	0,7	63	10	4,50	371	3,40	3,30	1	18,28	
960205100500080	M5	0,8	70	11,2	6,00	371	4,90	4,20	1	17,56	
960205100600100	M6	1	80	14	6,00	371	4,90	5,00	1	19,28	
960205100700100	M7	1	80	14	7,00	371	5,50	6,00	1	23,30	
960205100800125	M8	1,25	90	17,5	8,00	371	6,20	6,75	1	22,95	
960205100900125	M9	1,25	90	17,5	9,00	371	7,00	7,75	1	32,81	
960205101000150	M10	1,5	100	21	10,00	371	8,00	8,50	1	27,29	

9602051	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960205100800100	MF8	1	90	17,5	8,00	371	6,20	7,00	1	28,18	
960205101000100	MF10	1	90	21	6,00	371	8,00	9,00	1	33,22	
960205101000125	MF10	1,25	100	21	10,00	371	8,00	8,75	1	36,11	



96020570003 > Machos + brocas previas > pág. 171

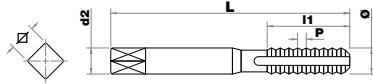


# 305

## MACHO DE MÁQUIN HSSE

Helicoidal 35° Agujero ciego  
Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Flute 35° | Blind hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

**P**  
3

Acero inoxidable  
austenítico  
Austenitic  
stainless steel

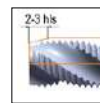
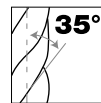
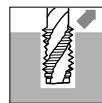
**M**  
1

Fundiciones  
Cast iron

**K**

$$r.p.m = \frac{V_c \times 1000}{\pi \times \varnothing}$$

	Vc M/min
<b>P1</b>	20-25
<b>P2</b>	15-20
<b>P3</b>	10-15
<b>M1</b>	4-8
<b>K</b>	15-20



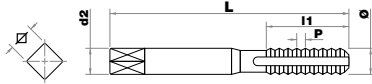
9603051	Ø	P	L	I	d2	DIN	∠			€
960305100400070	M4	0,7	63	7	2,8	376	3,30	3,30	1	18,91
960305100500080	M5	0,8	70	8,5	3,5	376	2,70	4,20	1	18,91
960305100600100	M6	1	80	9,5	3,5	376	3,40	5,00	1	19,86
960305100800125	M8	1,25	90	12	6	376	4,90	6,75	1	23,99
960305101000150	M10	1,5	100	14	7	376	5,50	8,50	1	28,05
960305101200175	M12	1,75	110	16	9	376	7,00	10,25	1	36,15
960305101400200	M14	2	110	18	11	376	9,00	12,00	1	44,12
960305101600200	M16	2	110	18	12	376	9,00	14,00	1	53,35
960305101800250	M18	2,5	125	25	14	376	11,00	15,50	1	71,81
960305102000250	M20	2,5	140	25	16	376	12,00	17,50	1	76,62
960305102200250	M22	2,5	140	25	18	376	14,50	19,50	1	94,21
960305102400300	M24	3	160	30	18	376	14,50	21,00	1	114,46
960305102700300	M27	3	160	30	20	376	16,00	24,00	1	140,89
960305103000350	M30	3,5	180	35	22	376	18,00	26,50	1	180,56
960305103300350	M33	3,5	180	40	25	376	20,00	29,50	1	225,99
960305103600400	M36	4	200	45	28	376	22,00	32,00	1	271,49

9603051	Ø	P	L	I	d2	DIN	∠			€
960305100800100	MF8	1	90	12	6	374	4,90	7,00	1	29,00
960305101000100	MF10	1	90	12	7	374	5,50	9,00	1	34,18
960305101000125	MF10	1,25	100	14	7	374	5,50	8,75	1	37,21
960305101200100	MF12	1	100	14	9	374	7,00	11,00	1	42,47
960305101200125	MF12	1,25	100	14	9	374	7,00	10,75	1	40,69
960305101200150	MF12	1,5	100	14	9	374	7,00	11,50	1	39,13
960305101400100	MF14	1	100	16	11	374	9,00	13,00	1	65,58
960305101400125	MF14	1,25	100	16	11	374	9,00	12,75	1	60,11
960305101400150	MF14	1,5	100	18	11	374	9,00	12,50	1	48,07
960305101600150	MF16	1,5	110	18	12	374	9,00	14,50	1	59,08
960305101800150	MF18	1,5	110	18	14	374	9,00	16,50	1	71,38
960305102000150	MF20	1,5	125	18	16	374	12,00	18,50	1	81,54
960305102200150	MF22	1,5	125	18	18	374	14,50	20,50	1	85,11
960305102400150	MF24	1,5	140	18	18	374	14,50	22,50	1	119,58
960305103000150	MF30	1,5	150	22	22	374	18,00	28,50	1	183,85
960305103000200	MF30	2	150	22	22	374	18,00	28,00	1	341,40

# 342 MACHO DE MÁQUINA HSSE

## Agujero pasante Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Through hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

**P**  
3

Acero inoxidable  
austenítico  
Austenitic  
stainless steel

**M**  
1

Fundiciones  
Cast iron

**K**

	Vc M/min
<b>P1</b>	20-25
<b>P2</b>	15-20
<b>P3</b>	10-15
<b>M1</b>	4-8
<b>K</b>	15-20

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**BSP**  
**G**

**HSS**  
**E**

**STEAM**  
**TREATED**

**DIN**  
**5156**

**GUN**  
**FORM**

**GUN**  
**B**  
**FORM**

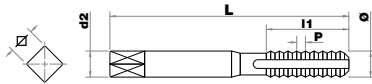


9633421	Ø	P Hilos	L	I	d2	DIN	∠			€
963342100180280	<b>G1/8</b>	28	90	18	7,00	5156	5,50	8,80	1	<b>35,98</b>
963342100140190	<b>G1/4</b>	19	100	22	11,00	5156	9,00	11,80	1	<b>48,22</b>
963342100380190	<b>G3/8</b>	19	100	25	12,00	5156	9,00	15,30	1	<b>57,68</b>
963342100120140	<b>G1/2</b>	14	125	25	16,00	5156	12,00	19,00	1	<b>72,93</b>
963342100580140	<b>G5/8</b>	14	125	25	18,00	5156	14,50	21,00	1	<b>90,61</b>
963342100340140	<b>G3/4</b>	14	140	28	20,00	5156	16,00	24,50	1	<b>114,17</b>
963342110000110	<b>G1"</b>	11	160	36	25,00	5156	20,00	30,80	1	<b>177,09</b>

# 345 MACHO DE MÁQUINA HSSE

## Helicoidal 35° / Agujero ciego Vaporizado **MULTI-APLICACIÓN**

HSSE Multi-application machine tap | Spiral flute 35° | Blind hole



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

**P**  
3

Acero inoxidable  
austenítico  
Austenitic  
stainless steel

**M**  
1

Fundiciones  
Cast iron

**K**

	Vc M/min
<b>P1</b>	20-25
<b>P2</b>	15-20
<b>P3</b>	10-15
<b>M1</b>	4-8
<b>K</b>	15-20

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**BSP**  
**G**

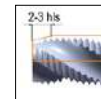
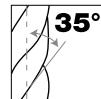
**HSS**  
**E**

**STEAM**  
**TREATED**

**DIN**  
**5156**



**C**  
**FORM**



9633451	Ø	P Hilos	L	I	d2	DIN	∠			€
963345100180280	<b>G1/8</b>	28	90	18	7,00	5156	5,50	8,80	1	<b>38,31</b>
963345100140190	<b>G1/4</b>	19	100	22	11,00	5156	9,00	11,80	1	<b>55,05</b>
963345100380190	<b>G3/8</b>	19	100	25	12,00	5156	9,00	15,30	1	<b>65,67</b>
963345100120140	<b>G1/2</b>	14	125	25	16,00	5156	12,00	19,00	1	<b>82,84</b>
963345100340140	<b>G3/4</b>	14	125	25	18,00	5156	16,00	24,50	1	<b>129,68</b>
963345110000110	<b>G1"</b>	11	140	28	20,00	5156	20,00	30,80	1	<b>201,22</b>
963345110140110	<b>G1"1/4</b>	11	160	36	25,00	5156	24,00	39,50	1	<b>357,42</b>
963345110120110	<b>G1"1/2</b>	11	190	32	36,00	5156	29,00	25,50	1	<b>627,67</b>

# 582 MACHO DE MÁQUINA HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

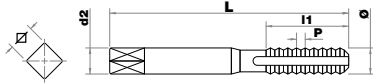
Agujero pasante  
Aceros inoxidables

Machine tap HSSE PM | Through hole | Stainless steel

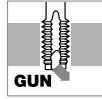
Acero inoxidable  
ferrítico  
Ferritic  
stainless steel



Aceros  
inoxidables  
Stainless  
steels



	Vc M/min
<b>P5</b>	6-12
<b>P6</b>	4-8
<b>M1</b>	6-12
<b>M2</b>	4-8
<b>M3</b>	2-5



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9605821	Ø	P	L	I	d2	DIN	∠			€
960582100200040	M2	0,4	45	10	2,80	371	2,10	1,60	1	46,98
960582100250045	M2,5	0,45	50	10	2,80	371	2,10	2,05	1	48,50
960582100300050	M3	0,5	56	7	3,50	371	2,70	2,50	1	26,80
960582100350060	M3,5	0,6	56	8,4	4,00	371	3,00	2,90	1	30,73
960582100400070	M4	0,7	63	10	4,50	371	3,40	3,30	1	26,80
960582100500080	M5	0,8	70	11,2	6,00	371	4,90	4,20	1	28,05
960582100600100	M6	1	80	14	6,00	371	4,90	5,00	1	29,44
960582100800125	M8	1,25	90	17,5	8,00	371	6,20	6,75	1	34,01
960582101000150	M10	1,5	100	21	10,00	371	8,00	8,50	1	39,88
9605821	Ø	P	L	I	d2	DIN	∠			€
960582100800100	MF8	1	90	17,5	8,00	371	6,20	7,00	1	39,13
960582101000100	MF10	1	90	21	10,00	371	8,00	9,00	1	44,99

# 682 MACHO DE MÁQUINA HSSE PM



9606821	Ø	P	L	I	d2	DIN	∠			€
960682100600100	M6	1	80	15,5	4,50	376	3,40	5,00	1	32,38
960682100800125	M8	1,25	90	17	6,00	376	4,90	6,75	1	37,43
960682101000150	M10	1,5	100	20	7,00	376	5,50	8,50	1	43,88
960682101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	54,03
960682101400200	M14	2	110	25	11,00	376	9,00	12,00	1	74,97
960682101600200	M16	2	110	28	12,00	376	9,00	14,00	1	80,82
960682101800250	M18	2,5	125	32	14,00	376	11,00	15,50	1	109,99
960682102000250	M20	2,5	140	32	16,00	376	12,00	17,50	1	118,79
960682102400300	M24	3	160	32	18,00	376	14,50	21,00	1	213,19
9606821	Ø	P	L	I	d2	DIN	∠			€
960682100800100	MF8	1	90	18	6,00	374	4,90	7,00	1	44,97
96068 2101000100	MF10	1	90	18	7,00	374	5,50	9,00	1	51,73
960682101200150	MF12	1,5	100	22	9,00	374	7,00	11,50	1	62,14
960682101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	86,19
960682101600150	MF16	1,5	110	22	12,00	374	9,00	14,50	1	92,97

# 585

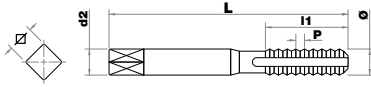
## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Helicoidal 35° / Agujero ciego Aceros inoxidables

Machine tap HSSE PM | Spiral flute 35° | Blind hole

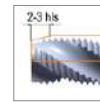
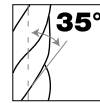
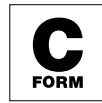
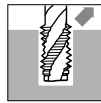
Acero inoxidable  
ferrítico  
Ferritic  
stainless steel



Aceros  
inoxidables  
Stainless  
steels



	Vc M/min
<b>P5</b>	6-12
<b>P6</b>	4-8
<b>M1</b>	6-12
<b>M2</b>	4-8
<b>M3</b>	2-5



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9605851	Ø	P	L	I	d2	DIN	∠			€
960585100300050	<b>M3</b>	0,5	50	7	3,50	371	2,70	2,50	1	<b>29,44</b>
960585100350060	<b>M3,5</b>	0,6	56	8,4	4,00	371	3,00	2,90	1	<b>33,76</b>
960585100400070	<b>M4</b>	0,7	63	10	4,50	371	3,40	3,30	1	<b>29,44</b>
960585100500080	<b>M5</b>	0,8	70	11,2	6,00	371	4,90	4,20	1	<b>30,45</b>
960585100600100	<b>M6</b>	1	80	14	6,00	371	4,90	5,00	1	<b>30,73</b>
960585100800125	<b>M8</b>	1,25	90	17,5	8,00	371	6,20	6,75	1	<b>37,43</b>
960585101000150	<b>M10</b>	1,5	100	21	10,00	371	8,00	8,50	1	<b>45,61</b>

9605851	Ø	P	L	I	d2	DIN	∠			€
960585100800100	<b>MF8</b>	1	90	17,5	8,00	371	6,20	7,00	1	<b>44,32</b>
960585101000100	<b>MF10</b>	1	90	21	6,00	371	8,00	9,00	1	<b>51,73</b>

# 685

## MACHO DE MÁQUINA HSSE PM



9606851	Ø	P	L	I	d2	DIN	∠			€
960685100600100	<b>M6</b>	1	80	9,5	3,50	376	3,40	5,00	1	<b>34,50</b>
960685100800125	<b>M8</b>	1,25	90	12	6,00	376	4,90	6,75	1	<b>41,10</b>
960685101000150	<b>M10</b>	1,5	100	14	7,00	376	5,50	8,50	1	<b>50,21</b>
960685101200175	<b>M12</b>	1,75	110	16	9,00	376	7,00	10,25	1	<b>64,13</b>
960685101400200	<b>M14</b>	2	110	18	11,00	376	9,00	12,00	1	<b>87,04</b>
960685101600200	<b>M16</b>	2	110	18	12,00	376	9,00	14,00	1	<b>96,33</b>
960685101800250	<b>M18</b>	2,5	125	25	14,00	376	11,00	15,50	1	<b>124,47</b>
960685102000250	<b>M20</b>	2,5	140	25	16,00	376	12,00	17,50	1	<b>132,99</b>
960685102200250	<b>M22</b>	2,5	140	25	18,00	376	14,50	19,50	1	<b>155,95</b>
960685102400300	<b>M24</b>	3	160	30,	18,00	376	14,50	21,00	1	<b>158,72</b>

9606851	Ø	P	L	I	d2	DIN	∠			€
960685100800100	<b>MF8</b>	1	90	12	6,00	374	4,90	7,00	1	<b>52,99</b>
960685101000100	<b>MF10</b>	1	90	12	7,00	374	5,50	9,00	1	<b>57,24</b>
960685101200150	<b>MF12</b>	1,5	100	14	9,00	374	7,00	11,50	1	<b>73,75</b>
960685101400150	<b>MF14</b>	1,5	100	18	11,00	374	9,00	12,50	1	<b>100,10</b>
960685101600150	<b>MF16</b>	1,5	110	18	12,00	374	9,00	14,50	1	<b>106,53</b>
960685101800150	<b>MF18</b>	1,5	110	18	14,00	374	9,00	16,50	1	<b>119,05</b>

# 241

## MACHO DE MÁQUINA HSSE

Agujero pasante/ciego < 1,5 x Ø

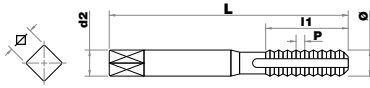
Fundiciones

Machine tap HSSE | Through/blind hole < 1,5 x Ø | Cast iron

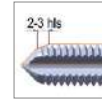
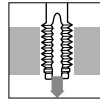
Fundiciones  
Cast iron



MANGO  
REFORZADO



	<b>Vc</b>
	<b>M/min</b>
<b>K</b>	15-20



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9602411	Ø	P	L	I	d2	DIN	∠			€
960241100300050	<b>M3</b>	0,5	56	10	3,5	371	2,7	2,5	1	<b>15,70</b>
960241100400070	<b>M4</b>	0,7	63	12	4,5	371	3,4	3,3	1	<b>15,98</b>
960241100500080	<b>M5</b>	0,8	70	12	6	371	4,9	4,2	1	<b>15,98</b>
960241100600100	<b>M6</b>	1	80	15	6	371	4,9	5	1	<b>18,18</b>
960241100800125	<b>M8</b>	1,25	90	18	8	371	6,2	6,75	1	<b>20,45</b>
960241101000150	<b>M10</b>	1,5	100	22	10	371	8	8,5	1	<b>22,69</b>

MACHOS & COJINETES / CORE HOLE DRILLING



# MV SERIES MULTI-TOP

Roscado de alto rendimiento

- ✓ Cuerpo fabricado en Acero pulvimetalúrgico HSSE PM con altas propiedades anti-desgaste
- ✓ Innovación en la geometría de corte
- ✓ Canal mejorado que garantiza una excelente evacuación de la viruta.
- ✓ Recubrimiento multi-capas **HC PLUS**
- ✓ Dureza **3.800 HV**
- ✓ Excelente resistencia al desgaste
- ✓ Bajo coeficiente de fricción
- ✓ Para el mecanizado con poca refrigeración **eco+**

Óptimo para todo tipo de industria



Óptima evacuación de la viruta  
Dureza superficial y resistencia a la temperatura  
Excelentes propiedades de fricción y lubricación

## MV5



Para roscados profundos de hasta 3 veces el diámetro nominal del macho

## MV2



# MV2 MACHO DE MÁQUINA HSSE PM MULTI-TOP

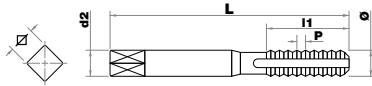
## ACERO SINTERIZADO PULVIMETALÚRGICO

New

Agujero pasante  
Aceros duros hasta 1.200 N/mm<sup>2</sup>, inoxidables  
y aleaciones refractarias

Machine tap HSSE PM | Through hole | Hard and stainless steel

MANGO OVALADO REFORZADO



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados < 1200 N/mm<sup>2</sup>  
Alloyed steel  
< 1200 N/mm<sup>2</sup>

**P**  
3-4

Aceros  
inoxidables  
Stainless  
steels

**P-M**

Fundiciones  
Cast iron

**K**

Aleaciones  
refractarias  
Refractory  
alloys

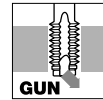
**S**

**M**

**HSSE  
PM8**

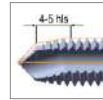
**HC  
PLUS**

**DIN  
371/376**



**6HX**

**GUN  
B  
FORM**



960MV21	Ø	P	L	I	d2	DIN	∠				€
960MV2100300050	M3	0.5	56	10,00	3,50	371	2,70	2,50	1	34,37	
960MV2100400070	M4	0.7	63	12,00	4,50	371	3,40	3,30	1	34,27	
960MV2100500080	M5	0.8	70	12,00	6,00	371	4,90	4,20	1	36,04	
960MV2100600100	M6	1	80	15,00	6,00	371	4,90	5,00	1	37,61	
960MV2100800125	M8	1.25	90	18,00	8,00	371	6,20	6,75	1	42,06	
960MV2101000150	M10	1.5	100	22,00	10,00	371	8,00	8,50	1	50,67	
960MV2101200175	M12	1.75	110	22,00	9,00	376	7,00	10,25	1	70,48	
960MV2101400200	M14	2	110	25,00	11,00	376	9,00	12,00	1	97,01	
960MV2101600200	M16	2	110	28,00	12,00	376	9,00	14,00	1	104,79	

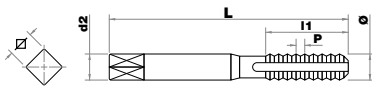
# MV5 MACHO DE MÁQUINA HSSE PM MULTI-TOP

## ACERO SINTERIZADO PULVIMETALÚRGICO

New

Helicoidal 35° Agujero ciego

MANGO OVALADO REFORZADO



	Vc M/min
<b>P1-2</b>	23-30
<b>P3</b>	15-23
<b>P4</b>	8-15
<b>P5</b>	9-18
<b>P6</b>	6-12
<b>M1</b>	9-18
<b>M2-3</b>	6-12
<b>K1-3</b>	23-30
<b>S2.1</b>	9-18
<b>S4</b>	3-8

**M**

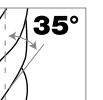
**HSSE  
PM8**

**HC  
PLUS**

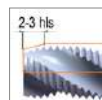
**DIN  
371/376**



**C  
FORM**



**6HX**



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960MV51	Ø	P	L	I	d2	DIN	∠				€
960MV5100300050	M3	0.5	56	5	3,50	371	2,70	2,50	1	35,77	
960MV5100400070	M4	0.7	63	7	4,50	371	3,40	3,30	1	35,77	
960MV5100500080	M5	0.8	70	9	6,00	371	4,90	4,20	1	36,76	
960MV5100600100	M6	1	80	10	6,00	371	4,90	5,00	1	37,74	
960MV5100800125	M8	1.25	90	12	8,00	371	6,20	6,75	1	43,51	
960MV5101000150	M10	1.5	100	14	10,00	371	8,00	8,50	1	54,66	
960MV5101200175	M12	1.75	110	16	9,00	376	7,00	10,25	1	76,10	
960MV5101400200	M14	2	110	18	11,00	376	9,00	12,00	1	100,29	
960MV5101600200	M16	2	110	22	12,00	376	9,00	14,00	1	111,90	





MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING

**MACHOS DE MÁQUINA FLASH-CUT**

FLASH-CUT MACHINE TAPS

**ACEROS ST2 | ST5 142**

STEELS ST2 | ST5

**INOX IT2 | IT5 144**

STAINLES IT2 | IT5

**LATÓN BT1 147**

BRASS BT1

**FUNDICIONES CT1 149**

CAST IRON CT1

**ALUMINIO AT2 | AT5 | MT2 | MT5 151**

ALUMINIUM AT2 | AT5 | MT2 | MT5

**ALEACIONES REFRACTARIAS  
HT2 | HT3 156**

SPECIAL ALLOYS HT2 | HT3

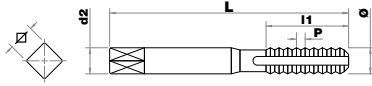
# ST2 MACHO DE MÁQUINA HSSE

Agujero pasante  
Aceros duros hasta 1000 N/mm<sup>2</sup>

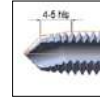
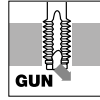
HSSE Machine tap | Through hole | Hard steels up to 1000 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 1000 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<1000 N / mm<sup>2</sup>

**P**  
1-2-3



	Vc M/min
<b>P1</b>	23-30
<b>P2</b>	15-23
<b>P3</b>	8-15



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960ST21	Ø	P	L	I	d2	DIN	∠			€
960ST2100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	19,07
960ST2100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	19,47
960ST2100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	19,47
960ST2100600100	M6	1	80	16	6,00	371	4,90	5,00	1	21,01
960ST2100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	24,12
960ST2101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	30,55
960ST2101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	39,38
960ST2101400200	M14	2	110	25	11,00	376	9,00	12,00	1	48,40
960ST2101600200	M16	2	110	28	12,00	376	9,00	14,00	1	56,19

960ST21	Ø	P	L	I	d2	DIN	∠			€
960ST2100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	27,04
960ST2101000100	MF10	1	90	18	10,00	371	8,00	9,00	1	34,21
960ST2101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	42,14
960ST2101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	51,82

# ST5 MACHO DE MÁQUINA HSSE

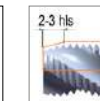
Helicoidal 35° / Agujero ciego

Aceros no aleados  
y para decoletaje  
< 1000 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<1000 N / mm<sup>2</sup>

**P**  
1-2-3



	Vc M/min
<b>P1</b>	23-30
<b>P2</b>	15-23
<b>P3</b>	8-15



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960ST51	Ø	P	L	I	d2	DIN	∠			€
960ST5100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	22,02
960ST5100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	22,04
960ST5100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	21,25
960ST5100600100	M6	1	80	16	6,00	371	4,90	5,00	1	23,05
960ST5100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	27,73
960ST5101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	32,01
960ST5101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	45,59
960ST5101400200	M14	2	110	25	11,00	376	9,00	12,00	1	55,05
960ST5101600200	M16	2	110	28	12,00	376	9,00	14,00	1	65,92

960ST51	Ø	P	L	I	d2	DIN	∠			€
960ST5100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	31,08
960ST5101000100	MF10	1	90	18	10,00	371	8,00	9,00	1	35,85
960ST5101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	48,83
960ST5101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	58,98



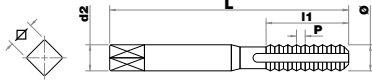
# ST2 MACHO DE MÁQUINA HSSE

Agujero pasante  
Aceros duros hasta 950 N/mm<sup>2</sup>

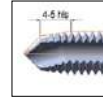
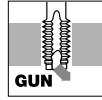
HSSE Machine tap | Through hole | Hard steels up to 950 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 1000 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<1000 N / mm<sup>2</sup>

**P**  
1-2-3



	Vc M/min
<b>P1</b>	23-30
<b>P2</b>	15-23
<b>P3</b>	8-15



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

962ST21	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
962ST2100140200	UNC 1/4	20	80	16	7,00	371	5,50	5,10	1	33,13
962ST2100380160	UNC 3/8	16	90	18	9,00	371	7,00	7,90	1	47,82
962ST2100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,70	1	59,83
962ST2100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	105,92
962ST2110000080	UNC 1"	8	160	36	20,00	376	16,00	22,20	1	172,78

962ST21	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
962ST2100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	34,56
962ST2100380240	UNF 3/8	24	100	18	9,00	371	7,00	8,50	1	51,55
962ST2100120200	UNF 1/2	20	110	25	9,00	376	7,00	11,50	1	67,66
962ST2100340160	UNF 3/4	16	125	32	14,00	376	11,00	17,50	1	118,70
962ST2110000120	UNF 1"	12	140	32	20,00	376	16,00	23,30	1	205,04

# ST5 MACHO DE MÁQUINA HSSE

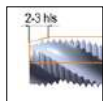
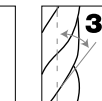
Helicoidal 35° / Agujero ciego

Aceros no aleados  
y para decoletaje  
< 1000 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<1000 N / mm<sup>2</sup>

**P**  
1-2-3



	Vc M/min
<b>P1</b>	23-30
<b>P2</b>	15-23
<b>P3</b>	8-15



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

962ST51	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
962ST5100140200	UNC 1/4	20	80	16	7,00	371	5,50	5,10	1	39,86
962ST5100380160	UNC 3/8	16	90	18	9,00	371	7,00	7,90	1	54,30
962ST5100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,70	1	67,96
962ST5100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	120,33
962ST5110000080	UNC 1"	8	160	36	20,00	376	16,00	22,20	1	224,23

962ST51	Ø	P Hilos	L	I	d2	DIN	∠	∠	∠	€
962ST5100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	40,49
962ST5100380240	UNF 3/8	24	100	18	9,00	371	7,00	8,50	1	57,88
962ST5100120200	UNF 1/2	20	110	25	9,00	376	7,00	11,50	1	77,22
962ST5100340160	UNF 3/4	16	125	32	14,00	376	11,00	17,50	1	135,01
962ST5110000120	UNF 1"	12	140	32	20,00	376	16,00	23,30	1	265,04

# IT2

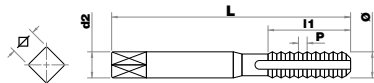
**MACHO DE MÁQUINA HSSE PM**  
**ACERO SINTERIZADO PULVIMETALURGICO**  
 Agujero pasante  
 Aceros muy duros hasta 1200 N/mm<sup>2</sup> e inoxidables  
 Machine tap HSSE PM | Through hole  
 Very hard steels up to 1200 N/mm<sup>2</sup> and stainless steels

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>

**P**  
4

Aceros  
inoxidables  
Stainless  
steels

**P-M**



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

**M**  
**MF**

**HSSE**  
**PM**

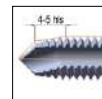
**TiCN**  
**MP**  
COATED

**DIN**  
371/374  
376

**GUN**

**GUN**  
**B**  
FORM

**6H**



	Vc M/min
<b>P4</b>	8-15
<b>P5</b>	9-18
<b>P6</b>	6-12
<b>M1</b>	9-18
<b>M2</b>	6-12
<b>M3</b>	3-8

960IT21	Ø	P	L	I	d2	DIN	∠			€
960IT2100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	31,50
960IT2100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	31,42
960IT2100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	33,04
960IT2100600100	M6	1	80	16	6,00	371	4,90	5,00	1	34,48
960IT2100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	40,44
960IT2101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	48,73
960IT2101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	67,76
960IT2101400200	M14	2	110	25	11,00	376	9,00	12,00	1	93,27
960IT2101600200	M16	2	110	28	12,00	376	9,00	14,00	1	100,77

960IT21	Ø	P	L	I	d2	DIN	∠			€
960IT2100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	46,88
960IT2101000100	MF10	1	90	18	10,00	371	8,00	9,00	1	52,17
960IT2101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	75,36
960IT2101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	101,14

# IT5

**MACHO DE MÁQUINA HSSE PM**  
**ACERO SINTERIZADO PULVIMETALÚRGICO**  
 Helicoidal 35° / Agujero ciego

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>

**P**  
4

Aceros  
inoxidables  
Stainless  
steels

**P-M**



**M**  
**MF**

**HSSE**  
**PM**

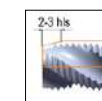
**TiCN**  
**MP**  
COATED

**DIN**  
371/374  
376



**C**  
FORM

**35°**



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960IT51	Ø	P	L	I	d2	DIN	∠			€
960IT5100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	32,79
960IT5100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	32,79
960IT5100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	33,68
960IT5100600100	M6	1	80	16	6,00	371	4,90	5,00	1	34,60
960IT5100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	41,84
960IT5101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	52,56
960IT5101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	73,17
960IT5101400200	M14	2	110	25	11,00	376	9,00	12,00	1	96,42
960IT5101600200	M16	2	110	28	12,00	376	9,00	14,00	1	107,58

960IT51	Ø	P	L	I	d2	DIN	∠			€
960IT5100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	46,22
960IT5101000100	MF10	1	90	18	10,00	371	8,00	9,00	1	59,07
960IT5101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	78,87
960IT5101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	108,09

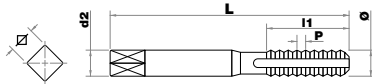
# IT2

**MACHO DE MÁQUINA HSSE PM**  
**ACERO SINTERIZADO PULVIMETALÚRGICO**  
 Agujero pasante  
 Aceros muy duros hasta 1200 N/mm<sup>2</sup> e inoxidables  
 Machine tap HSSE PM | Through hole  
 Very hard steels up to 1200 N/mm<sup>2</sup> and stainless steels

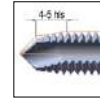
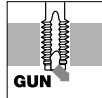
Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



	Vc M/min
<b>P4</b>	8-15
<b>P5</b>	9-18
<b>P6</b>	6-12
<b>M1</b>	9-18
<b>M2</b>	6-12
<b>M3</b>	3-8

962IT21	Ø	P Hilos	L	I	d2	DIN	∠			€
962IT2100140200	UNC 1/4	20	80	16	7,00	371	5,50	5,10	1	55,82
962IT2100380160	UNC 3/8	16	90	18	9,00	371	7,00	7,90	1	101,99
962IT2100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,70	1	80,95
962IT2100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	182,11
962IT2110000080	UNC 1"	8	160	36	20,00	376	16,00	22,20	1	298,28
962IT21	Ø	P Hilos	L	I	d2	DIN	∠			€
962IT2100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	58,31
962IT2100380240	UNF 3/8	24	100	18	9,00	371	7,00	8,50	1	115,60
962IT2100120200	UNF 1/2	20	110	25	9,00	376	7,00	11,50	1	87,70
962IT2100340160	UNF 3/4	16	125	32	14,00	376	11,00	17,50	1	204,25
962IT2110000120	UNF 1"	12	140	32	20,00	376	16,00	23,30	1	351,96

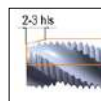
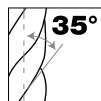
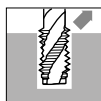
# IT5

**MACHO DE MÁQUINA HSSE PM**  
**ACERO SINTERIZADO PULVIMETALÚRGICO**  
 Helicoidal 35° / Agujero ciego

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



962IT51	Ø	P Hilos	L	I	d2	DIN	∠			€
962IT5100140200	UNC 1/4	20	80	16	7,00	371	5,50	5,10	1	63,50
962IT5100380160	UNC 3/8	16	90	18	9,00	371	7,00	7,90	1	116,27
962IT5100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,70	1	92,57
962IT5100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	207,20
962IT5110000080	UNC 1"	8	160	36	20,00	376	16,00	22,20	1	387,65
962IT51	Ø	P Hilos	L	I	d2	DIN	∠			€
962IT5100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	67,48
962IT5100380240	UNF 3/8	24	100	18	9,00	371	7,00	8,50	1	132,34
962IT5100120200	UNF 1/2	20	110	25	9,00	376	7,00	11,50	1	98,77
962IT5100340160	UNF 3/4	16	125	32	14,00	376	11,00	17,50	1	232,52
962IT5110000120	UNF 1"	12	140	32	20,00	376	16,00	23,30	1	458,70

# IT5

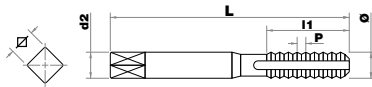
## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Helicoidal 35° / Agujero ciego Aceros muy duros hasta 1200 N/mm<sup>2</sup> e inoxidables

Machine tap HSSE PM | Spiral flute 35° | Blind hole  
Very hard steels up to 1200 N/mm<sup>2</sup> and stainless steels

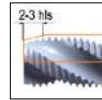
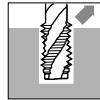
Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



	Vc M/min
<b>P4</b>	8-15
<b>P5</b>	9-18
<b>P6</b>	6-12
<b>M1</b>	9-18
<b>M2</b>	6-12
<b>M3</b>	3-8



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

963IT51	Ø	P Hilos	L	l	d2	DIN	∠			€
963IT5100180280	G1/8	28	90	18	7,00	5156	5,50	8,80	1	81,43
963IT5100140190	G1/4	19	100	22	11,00	5156	9,00	11,80	1	116,18
963IT5100380190	G3/8	19	100	25	12,00	5156	9,00	15,30	1	134,10
963IT5100120140	G1/2	14	125	25	16,00	5156	12,00	19,10	1	201,25
963IT5100340140	G3/4	14	140	28	20,00	5156	16,00	24,60	1	328,74
963IT5110000110	G1"	11	160	36	25,00	5156	20,00	31,00	1	*

\* Consultar precio y plazo de entrega

MACHOS & COJINETES / CORE HOLE DRILLING

# BT1 MACHO DE MÁQUINA HSSE

Agujero pasante/ciego

Latón / Bronce

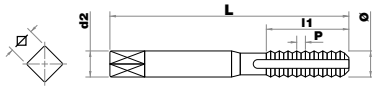
Machine tap HSSE | Through/blind hole | Brass / Bronze

Latón con Pb<1%  
Brass with Pb < 1%

**N**  
3.2

Bronze  
Bronze

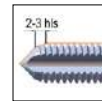
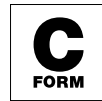
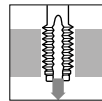
**N**  
3.4



**Vc**  
M/min

**N3.2** 15-20

**N3.4** 15-20



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960BT11	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960BT1100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	16,21	
960BT1100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	16,49	
960BT1100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	16,49	
960BT1100600100	M6	1	80	16	6,00	371	4,90	5,00	1	18,56	
960BT1100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	20,69	
960BT1101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	23,42	
960BT1101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	28,80	
960BT1101400200	M14	2	110	25	11,10	376	9,00	12,00	1	37,14	
960BT1101600200	M16	2	110	28	12,00	376	9,00	14,00	1	44,55	

960BT11	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960BT1100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	24,74	
960BT1101000100	MF10	1	90	18	10,00	374	8,00	9,00	1	26,88	
960BT1101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	33,78	
960BT1101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	39,86	

MACHOS & COJINETES / CORE HOLE DRILLING



# BT1 MACHO DE MÁQUINA HSSE

Agujero pasante/ciego  
Latón / Bronce

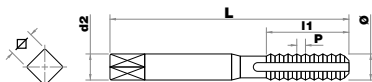
Machine tap HSSE | Through/blind hole | Brass / Bronze

Latón con Pb<1%  
Brass with Pb < 1%

**N**  
3.2

Bronce  
Bronze

**N**  
3.4

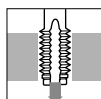


**UNC**  
**UNF**

**HSS**  
**E**

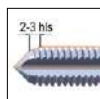
**BRIGHT**  
**UNCOATED**

**DIN**  
**371/376**



**C**  
**FORM**

**2B**



	Vc M/min
<b>N3.2</b>	15-20
<b>N3.4</b>	15-20

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

962BT11	Ø	P Hilos	L	I	d2	DIN	∠			€
962BT1100140200	<b>UNC 1/4</b>	20	80	16	7,0	371	5,50	5,10	1	<b>28,73</b>
962BT1100380160	<b>UNC 3/8</b>	16	90	18	9,0	371	7,00	7,90	1	<b>38,11</b>
962BT1100120130	<b>UNC 1/2</b>	13	110	25	9,0	376	7,00	10,70	1	<b>51,46</b>
962BT1100340100	<b>UNC 3/4</b>	10	125	32	14,0	376	11,00	16,50	1	<b>92,06</b>
962BT1110000080	<b>UNC 1"</b>	8	160	36	20,0	376	16,00	22,20	1	<b>150,30</b>

962BT11	Ø	P Hilos	L	I	d2	DIN	∠			€
962BT1100140280	<b>UNF 1/4</b>	28	80	16	7,0	371	5,50	5,50	1	<b>30,27</b>
962BT1100380240	<b>UNF 3/8</b>	24	100	18	9,0	371	7,00	8,50	1	<b>38,70</b>
962BT1100120200	<b>UNF 1/2</b>	20	110	25	9,0	376	7,00	11,50	1	<b>58,39</b>
962BT1100340160	<b>UNF 3/4</b>	16	125	32	14,0	376	11,00	17,50	1	<b>102,19</b>
962BT1110000120	<b>UNF 1"</b>	12	140	32	20,0	376	16,00	23,30	1	<b>177,76</b>

# BT1 MACHO DE MÁQUINA HSSE

Agujero pasante/ciego  
Latón / Bronce

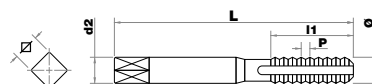
Machine tap HSSE | Through/blind hole | Brass / Bronze

Latón con Pb<1%  
Brass with Pb < 1%

**N**  
3.2

Bronce  
Bronze

**N**  
3.4

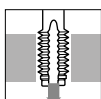


**BSP**  
**G**

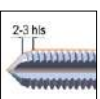
**HSS**  
**E**

**BRIGHT**  
**UNCOATED**

**DIN**  
**5156**



**C**  
**FORM**



	Vc M/min
<b>N3.2</b>	15-20
<b>N3.4</b>	15-20

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

963BT11	Ø	P Hilos	L	I	d2	DIN	∠			€
963BT1100180280	<b>G1/8</b>	28	90	18	7,00	5156	5,50	8,80	1	<b>37,78</b>
963BT1100140190	<b>G1/4</b>	19	100	22	11,00	5156	9,00	11,80	1	<b>56,01</b>
963BT1100380190	<b>G3/8</b>	19	100	25	12,00	5156	9,00	15,30	1	<b>67,05</b>
963BT1100120140	<b>G1/2</b>	14	125	25	16,00	5156	12,00	19,10	1	<b>84,75</b>
963BT1100340140	<b>G3/4</b>	14	140	28	20,00	5156	16,00	24,60	1	<b>132,67</b>
963BT1110000110	<b>G1"</b>	11	160	36	25,00	5156	20,00	31,00	1	<b>205,87</b>

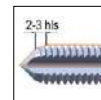
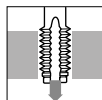
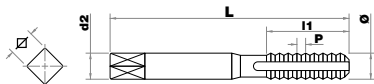
# CT1 MACHO DE MÁQUINA HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

### Agujero pasante/ciego / Fundiciones

Machine tap HSSE PM | Through/blind hole | Cast iron

Fundiciones  
Cast iron



	<b>Vc</b>
	<b>M/min</b>
<b>K</b>	23-30

$$\text{r.p.m} = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960CT11	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960CT1100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	26,09
960CT1100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	26,09
960CT1100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	27,13
960CT1100600100	M6	1	80	16	6,00	371	4,90	5,00	1	28,30
960CT1100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	33,30
960CT1101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	40,57
960CT1101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	57,52
960CT1101400200	M14	2	110	25	11,10	376	9,00	12,00	1	77,75
960CT1101600200	M16	2	110	28	12,00	376	9,00	14,00	1	83,99

960CT11	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960CT1100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	37,29
960CT1101000100	MF10	1	90	18	10,00	374	8,00	9,00	1	45,46
960CT1101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	57,61
960CT1101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	83,05

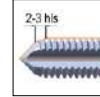
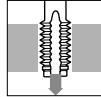
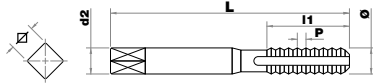
MACHOS & COJINETES / CORE HOLE DRILLING

# CT1

## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Agujero pasante/ciego / Fundiciones

Machine tap HSSE PM | Through/blind hole | Cast iron

Fundiciones  
Cast iron



Vc

M/min

K 23-30

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

962CT11	Ø	P Hilos	L	I	d2	DIN	∠			€
962CT1100140200	UNC 1/4	20	80	16	7,00	371	5,50	5,10	1	44,42
962CT1100380160	UNC 3/8	16	90	18	9,00	371	7,00	7,90	1	58,91
962CT1100120130	UNC 1/2	13	110	25	9,00	376	7,00	10,70	1	79,60
962CT1100340100	UNC 3/4	10	125	32	14,00	376	11,00	16,50	1	142,28
962CT1110000080	UNC 1"	8	160	36	20,00	376	16,00	22,20	1	232,35

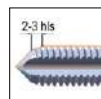
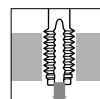
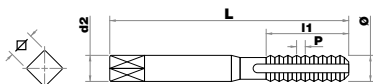
962CT11	Ø	P Hilos	L	I	d2	DIN	∠			€
962CT1100140280	UNF 1/4	28	80	16	7,00	371	5,50	5,50	1	46,85
962CT1100380240	UNF 3/8	24	100	18	9,00	371	7,00	8,50	1	59,79
962CT1100120200	UNF 1/2	20	110	25	9,00	376	7,00	11,50	1	90,18
962CT1100340160	UNF 3/4	16	125	32	14,00	376	11,00	17,50	1	157,99
962CT1110000120	UNF 1"	12	140	32	20,00	376	16,00	23,30	1	274,71

# CT1

## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Agujero pasante/ciego / Fundiciones

Machine tap HSSE PM | Through/blind hole | Cast iron

Fundiciones  
Cast iron



Vc

M/min

K 23-30

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

963CT11	Ø	P Hilos	L	I	d2	DIN	∠			€
963CT1100180280	G1/8	28	90	18	7,00	5156	5,50	8,80	1	61,80
963CT1100140190	G1/4	19	100	22	11,00	5156	9,00	11,80	1	91,66
963CT1100380190	G3/8	19	100	25	12,00	5156	9,00	15,30	1	109,74
963CT1100120140	G1/2	14	125	25	16,00	5156	12,00	19,10	1	138,67
963CT1100340140	G3/4	14	140	28	20,00	5156	16,00	24,60	1	217,12
963CT1110000110	G1"	11	160	36	25,00	5156	20,00	31,00	1	336,85

# AT2

## MACHO DE MÁQUINA HSSE PM

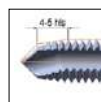
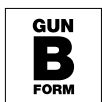
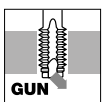
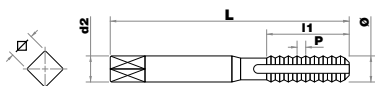
### ACERO SINTERIZADO PULVIMETALURGICO

Diente alterno / Agujero pasante  
Aluminio

Aleaciones de aluminio  
Aluminum Alloys



Machine tap HSSE PM | Interrupted threads | Through hole | Aluminium



	Vc
	M/min
N	23-30

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960AT21	Ø	P	L	I	d2	DIN	∠			€
960AT2100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	33,32
960AT2100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	33,32
960AT2100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	34,78
960AT2100600100	M6	1	80	16	6,00	371	4,90	5,00	1	36,27
960AT2100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	42,30
960AT2101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	50,65
960AT2101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	69,92
960AT2101400200	M14	2	110	25	11,00	376	9,00	12,00	1	95,49
960AT2101600200	M16	2	110	28	12,00	376	9,00	14,00	1	103,13

960AT21	Ø	P	L	I	d2	DIN	∠			€
960AT2100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	48,73
960AT2101000100	MF10	1	90	18	10,00	371	8,00	9,00	1	54,07
960AT2101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	77,37
960AT2101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	103,26

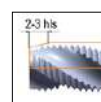
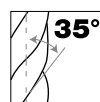
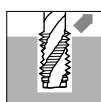
# AT5

## MACHO DE MÁQUINA HSSE PM

### ACERO SINTERIZADO PULVIMETALÚRGICO

Helicoidal 35° Diente alterno / Agujero ciego

Aleaciones de aluminio  
Aluminum Alloys



	Vc
	M/min
N	23-30

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960AT51	Ø	P	L	I	d2	DIN	∠			€
960AT5100300050	M3	0,5	56	10	3,50	371	2,70	2,50	1	34,34
960AT5100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	34,34
960AT5100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	35,45
960AT5100600100	M6	1	80	16	6,00	371	4,90	5,00	1	36,42
960AT5100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	43,70
960AT5101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	54,50
960AT5101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	75,16
960AT5101400200	M14	2	110	25	11,00	376	9,00	12,00	1	98,42
960AT5101600200	M16	2	110	28	12,00	376	9,00	14,00	1	109,71

960AT51	Ø	P	L	I	d2	DIN	∠			€
960AT5100800100	MF8	1	90	18	8,00	371	6,20	7,00	1	48,08
960AT5101000100	MF10	1	90	18	10,00	371	8,00	9,00	1	61,00
960AT5101200150	MF12	1,5	100	22	9,00	374	7,00	10,50	1	81,06
960AT5101400150	MF14	1,5	100	22	11,00	374	9,00	12,50	1	110,24

# AT2

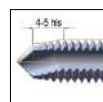
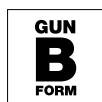
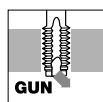
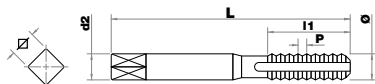
## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO

Diente alterno / Agujero pasante  
Aleaciones de aluminio

Aleaciones  
de aluminio  
Aluminum  
Alloys



Machine tap HSSE PM | Interrupted threads | Through hole | Aluminium alloys



<b>Vc</b>
<b>M/min</b>
<b>N</b> 23-30

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

962AT21	Ø	P Hilos	L	I	d2	DIN	Ø	Ø	Ø	€
962AT2100140200	UNC 1/4	20	80	16	7	371	5,90	5,10	1	57,65
962AT2100380160	UNC 3/8	16	90	18	9	371	7,00	7,90	1	83,14
962AT2100120130	UNC 1/2	13	110	25	9	376	7,00	10,70	1	104,08
962AT2100340100	UNC 3/4	10	125	32	14	376	11,00	16,50	1	184,23
962AT2110000080	UNC 1"	8	160	36	20	376	16,00	22,20	1	300,46

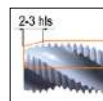
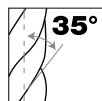
962AT21	Ø	P Hilos	L	I	d2	DIN	Ø	Ø	Ø	€
962AT2100140280	UNF 1/4	28	80	16	7	371	5,50	5,00	1	60,09
962AT2100380240	UNF 3/8	24	100	18	9	371	7,00	8,00	1	89,68
962AT2100120200	UNF 1/2	20	110	25	9	376	7,00	11,00	1	117,63
962AT2100340160	UNF 3/4	16	125	32	14	376	11,00	17,00	1	206,42
962AT2110000120	UNF 1"	12	140	32	20	376	16,00	23,00	1	356,63

# AT5

## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO

Helicoidal 35° / Diente alterno / Agujero ciego

Aleaciones  
de aluminio  
Aluminum  
Alloys



<b>Vc</b>
<b>M/min</b>
<b>N</b> 23-30

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

962AT51	Ø	P Hilos	L	I	d2	DIN	Ø	Ø	Ø	€
962AT5100140200	UNC 1/4	20	80	16	7	371	5,50	5,10	1	65,30
962AT5100380160	UNC 3/8	16	90	18	9	371	7,00	7,90	1	94,46
962AT5100120130	UNC 1/2	13	110	25	9	376	7,00	10,75	1	118,21
962AT5100340100	UNC 3/4	10	125	32	14	376	11,00	16,50	1	209,24
962AT5110000080	UNC 1"	8	160	36	20	376	16,00	22,00	1	389,98

962AT51	Ø	P Hilos	L	I	d2	DIN	Ø	Ø	Ø	€
962AT5100140280	UNF 1/4	28	80	16	7	371	5,50	5,50	1	69,31
962AT5100380240	UNF 3/8	24	100	18	9	371	7,00	8,50	1	100,66
962AT5100120200	UNF 1/2	20	110	25	9	376	7,00	11,50	1	134,26
962AT5100340160	UNF 3/4	16	125	32	14	376	11,00	17,50	1	234,83
962AT5110000120	UNF 1"	12	140	32	20	376	16,00	23,25	1	460,93



# MT2 MACHO DE MÁQUINA HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

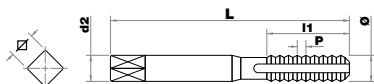
New

Diente alterno / Agujero pasante  
Aleaciones de aluminio

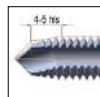
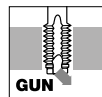
Machine tap HSSE PM | Through hole | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys

N



	Vc M/min
N1.1	23-30
N1.2	23-30
N1.4.1	23-30
N1.4.2	15-23
N1.4.3	9-18
N1.5	23-30
N1.6	23-30
N1.7	23-30



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960MT21	Ø	P	L	I	d2	DIN	∠			€
960MT2100300050	M3	0.5	56	10	3,50	371	2,70	2,50	1	*
960MT2100400070	M4	0.7	63	12	4,50	371	3,40	3,30	1	*
960MT2100500080	M5	0.8	70	12	6,00	371	4,90	4,20	1	*
960MT2100600100	M6	1	80	15	6,00	371	4,90	5,00	1	*
960MT2100800125	M8	1.25	90	18	8,00	371	6,20	6,75	1	*
960MT2101000150	M10	1.5	100	22	10,00	371	8,00	8,50	1	*
960MT2101200175	M12	1.75	110	22	9,00	376	7,00	10,25	1	*
960MT2101400200	M14	2	110	25	11,00	376	9,00	12,00	1	*
960MT2101600200	M16	2	110	28	12,00	376	9,00	14,00	1	*

\* Consultar precio y plazo de entrega

# MT5 MACHO DE MÁQUINA HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

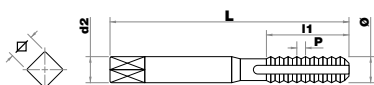
New

Helicoidal 45° / Agujero ciego  
Aleaciones de aluminio

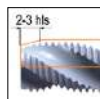
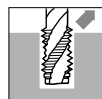
Machine tap HSSE PM | Blind hole | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys

N



	Vc M/min
N1.1	23-30
N1.2	23-30
N1.4.1	23-30
N1.4.2	15-23
N1.4.3	9-18
N1.5	23-30
N1.6	23-30
N1.7	23-30



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960MT51	Ø	P	L	I	d2	DIN	∠			€
960MT5100300050	M3	0.5	56	5	3,50	371	2,70	2,50	1	*
960MT5100400070	M4	0.7	63	7	4,50	371	3,40	3,30	1	*
960MT5100500080	M5	0.8	70	9	6,00	371	4,90	4,20	1	*
960MT5100600100	M6	1	80	10	6,00	371	4,90	5,00	1	*
960MT5100800125	M8	1.25	90	12	8,00	371	6,20	6,75	1	*
960MT5101000150	M10	1.5	100	14	10,00	371	8,00	8,50	1	*
960MT5101200175	M12	1.75	110	16	9,00	376	7,00	10,25	1	*
960MT5101400200	M14	2	110	18	11,00	376	9,00	12,00	1	*
960MT5101600200	M16	2	110	22	12,00	376	9,00	14,00	1	*

\* Consultar precio y plazo de entrega

# 508

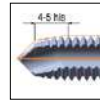
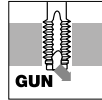
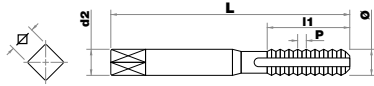
## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Diente alterno / Agujero pasante Aleaciones de aluminio

Aleaciones de aluminio  
Aluminum Alloys



New

Machine tap HSSE PM | Through hole | Aluminium alloys



	Vc
	M/min
N	10-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9605081	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960508100300050	M3	0,5	56	11	3,50	371	2,70	2,50	1	<b>30,31</b>	
960508100400070	M4	0,7	63	12	4,50	371	3,40	3,30	1	<b>30,31</b>	
960508100500080	M5	0,8	70	14	6,00	371	4,90	4,20	1	<b>31,81</b>	
960508100600100	M6	1	80	16	6,00	371	4,90	5,00	1	<b>33,25</b>	
960508100700100	M7	1	80	16	7,00	371	5,50	6,00	1	<b>42,25</b>	
960508100800125	M8	1,25	90	18	8,00	371	6,20	6,75	1	<b>38,44</b>	
960508101000150	M10	1,5	100	20	10,00	371	8,00	8,50	1	<b>45,07</b>	

# 608

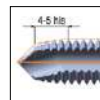
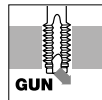
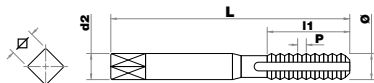
## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Diente alterno / Agujero pasante Aleaciones de aluminio

Aleaciones de aluminio  
Aluminum Alloys



New

Machine tap HSSE PM | Through hole | Aluminium alloys



	Vc
	M/min
N	10-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9606081	Ø	P	L	I	d2	DIN	∠	∠	∠	∠	€
960608100600100	M6	1	80	16	4,50	376	3,40	5,00	1	<b>36,59</b>	
960608100800125	M8	1,25	90	18	6,00	376	4,90	6,75	1	<b>42,25</b>	
960608101000150	M10	1,5	100	20	7,00	376	5,50	8,50	1	<b>49,59</b>	
960608101200175	M12	1,75	110	22	9,00	376	7,00	10,25	1	<b>61,05</b>	
960608101400200	M14	2	110	25	11,00	376	9,00	12,00	1	<b>84,75</b>	
960608101600200	M16	2	110	28	12,00	376	9,00	14,00	1	<b>91,38</b>	

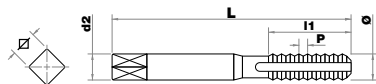
# 506

## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Helicoidal 45° / Agujero ciego Aleaciones de aluminio

New

Machine tap HSSE PM | Blind hole | Aluminium alloys

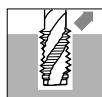
Aleaciones de aluminio  
Aluminum Alloys



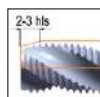
HSSE  
PM

BRIGHT  
UNCOATED

DIN  
371



6H



	Vc
	M/min
N	10-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9605061	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960506100300050	M3	0.5	56	5	3,50	371	2,70	2,50	1	32,10
960506100400070	M4	0.7	63	7	4,50	371	3,40	3,30	1	32,10
960506100500080	M5	0.8	70	9	6,00	371	4,90	4,20	1	33,34
960506100600100	M6	1	80	10	6,00	371	4,90	5,00	1	34,30
960506100800125	M8	1.25	90	12	8,00	371	6,20	6,75	1	40,75
960506101000150	M10	1.5	100	14	10,00	371	8,00	8,50	1	49,69

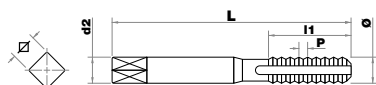
# 606

## MACHO DE MÁQUINA HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Helicoidal 45° / Agujero ciego Aleaciones de aluminio

New

Machine tap HSSE PM | Blind hole | Aluminium alloys

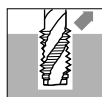
Aleaciones de aluminio  
Aluminum Alloys



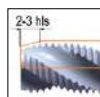
HSSE  
PM

BRIGHT  
UNCOATED

DIN  
376



6H



	Vc
	M/min
N	10-13

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

9606061	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960606100600100	M6	1	80	10	4,50	376	3,40	5,00	1	*
960606100800125	M8	1.25	90	12	6,00	376	4,90	6,75	1	46,87
960606101000150	M10	1.5	100	14	7,00	376	5,50	8,50	1	57,12

\* Consultar precio y plazo de entrega

MACHOS & COJINETES / CORE HOLE DRILLING

# HT2 MACHO DE MÁQUINA HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

New

Agujero pasante

Aceros muy duros hasta 1400 N/mm<sup>2</sup> y aleaciones refractarias

Machine tap HSSE PM | Through hole

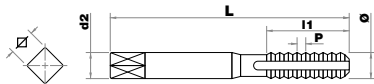
Very hard steels up to 1400 N/mm<sup>2</sup> and special alloys

Aceros fuertemente aleados <1200 N/mm<sup>2</sup>  
Alloyed steel <1200 N/mm<sup>2</sup>

P  
4

Aleaciones refractarias  
Refractory alloys

S



Vc  
M/min

<b>P4</b>	8-15
<b>S1</b>	23-30
<b>S2</b>	3-8
<b>S3</b>	9-18

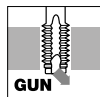
$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

M

HSSE  
PM8

HC

TIVOLY  
NORM



6H



960HT21	Ø	P	L	I	d2				€
960HT2100300050	M3	0.5	56	12	3,50	2,70	2,50	1	51,83
960HT2100400070	M4	0.7	63	15	4,50	3,40	3,30	1	51,83
960HT2100500080	M5	0.8	70	15	6,00	4,90	4,20	1	51,83
960HT2100600100	M6	1	80	23	6,00	4,90	5,00	1	52,88
960HT2100800125	M8	1.25	90	29	8,00	6,20	6,75	1	61,83
960HT2101000150	M10	1.5	100	38	10,00	8,00	8,50	1	64,85

# HT3 MACHO DE MÁQUINA HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

New

Agujero ciego

Aceros muy duros hasta 1400 N/mm<sup>2</sup> y aleaciones refractarias

Machine tap HSSE PM | Blind hole

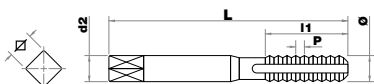
Very hard steels up to 1400 N/mm<sup>2</sup> and special alloys

Aceros fuertemente aleados <1200 N/mm<sup>2</sup>  
Alloyed steel <1200 N/mm<sup>2</sup>

P  
4

Aleaciones refractarias  
Refractory alloys

S



Vc  
M/min

<b>P4</b>	8-15
<b>S1</b>	23-30
<b>S2</b>	3-8
<b>S3</b>	9-18

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

M

HSSE  
PM8

HC

TIVOLY  
NORM



6H



960HT31	Ø	P	L	I	d2				€
960HT3100300050	M3	0.5	56	12	3,50	2,70	2,50	1	51,83
960HT3100400070	M4	0.7	63	15	4,50	3,40	3,30	1	51,83
960HT3100500080	M5	0.8	70	15	6,00	4,90	4,20	1	51,83
960HT3100600100	M6	1	80	23	6,00	4,90	5,00	1	52,88
960HT3100800125	M8	1.25	90	29	8,00	6,20	6,75	1	61,83
960HT3101000150	M10	1.5	100	38	10,00	8,00	8,50	1	64,85

# MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING



## MACHOS DE LAMINACIÓN

FORMING MACHINE TAPS

960SRG  
960GSH

**S** Aceros

**G** Uso General

**I** Inoxidables

**A** Aluminios

**R** Con ranuras

**S** Sin ranuras

**G** Tolerancia 6GX

**H** Tolerancia 6HX

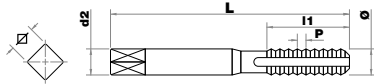


# GSH MACHO DE LAMINACIÓN HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

Agujero pasante/ciego < 1 x Ø  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Forming machine tap HSSE PM | Semi-hard steels up to 700N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

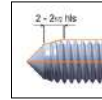
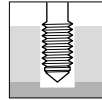
**P1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**

	Vc M/min
<b>P1</b>	25-30
<b>P2</b>	20-25

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



960GSH1	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960GSH100300050	M3	0,5	56	5	3,50	371	2,70	2,80	1	37,15
960GSH100400070	M4	0,7	63	7	4,50	371	3,40	3,70	1	38,32
960GSH100500080	M5	0,8	70	8,5	6,00	371	4,90	4,65	1	38,32
960GSH100600100	M6	1	80	10	6,00	371	4,90	5,57	1	40,89
960GSH100800125	M8	1,25	90	12,5	8,00	371	6,20	7,45	1	52,50
960GSH101000150	M10	1,5	100	15	10,00	371	8,00	9,30	1	59,94
960GSH101200175	M12	1,75	110	18	9,00	376	7,00	11,23	1	77,74
960GSH101400200	M14	2	110	20	11,00	376	9,00	13,12	1	103,94
960GSH101600200	M16	2	110	20	12,00	376	9,00	15,12	1	115,39

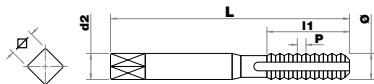
960GSH1	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960GSH100800100	MF8	1	90	12,5	8,00	371	6,20	7,57	1	58,80
960GSH101000100	MF10	1	90	10	10,00	371	8,00	9,57	1	67,13
960GSH101200150	MF12	1,5	100	15	9,00	374	7,00	11,36	1	89,39
960GSH101400150	MF14	1,5	100	15	11,00	374	9,00	13,35	1	119,49

# GSG MACHO DE LAMINACIÓN HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

Agujero pasante/ciego < 1 x Ø  
Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Forming machine tap HSSE PM | Semi-hard steels up to 700N/mm<sup>2</sup>



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P1**

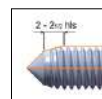
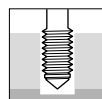
Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P2**

	Vc M/min
<b>P1</b>	25-30
<b>P2</b>	20-25

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

New



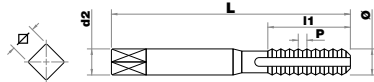
960GSG1	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960GSG100300050	M3	0,5	56	5	3,5	371	2,70	2,80	1	43,14
960GSG100400070	M4	0,7	63	7	4,5	371	3,40	3,70	1	44,51
960GSG100500080	M5	0,8	70	8,5	6	371	4,90	4,65	1	44,51
960GSG100600100	M6	1	80	10	6	371	4,90	5,57	1	47,48
960GSG100800125	M8	1,25	90	12,5	8	371	6,20	7,45	1	60,96
960GSG101000150	M10	1,5	100	15	10	371	8,00	9,30	1	69,61
960GSG101200175	M12	1,75	110	18	9	376	7,00	11,23	1	90,26

# SRH MACHO DE LAMINACIÓN HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

Agujero pasante/ciego < 3 x Ø  
Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidables

Forming machine tap HSSE PM | Hard steels up to 1000 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

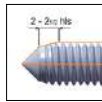
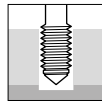
**P**  
3

Acero inoxidable ferrítico y martensítico  
Ferritic and martensitic stainless steel

**P**  
5-6

	Vc M/min
<b>P1</b>	25-30
<b>P2</b>	20-25
<b>P3</b>	15-20
<b>P5</b>	20-25
<b>P6</b>	20-25

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



960SRH1	Ø	P	L	I	d2	DIN	∠			€
960SRH100300050	M3	0,5	56	5	3,50	371	2,70	2,80	1	46,50
960SRH100400070	M4	0,7	63	7	4,50	371	3,40	3,70	1	47,66
960SRH100500080	M5	0,8	70	8,5	6,00	371	4,90	4,65	1	47,66
960SRH100600100	M6	0,9	80	10	6,00	371	4,90	5,57	1	50,98
960SRH100800125	M8	1,25	90	12,5	8,00	371	6,20	7,45	1	64,25
960SRH101000150	M10	1,5	100	15	10,00	371	8,00	9,30	1	73,66
960SRH101200175	M12	1,75	110	18	9,00	376	7,00	11,23	1	82,76
960SRH101400200	M14	2	110	20	11,00	376	9,00	13,12	1	108,03
960SRH101600200	M16	2	110	20	12,00	376	9,00	15,12	1	119,56

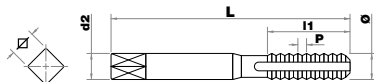
960SRH1	Ø	P	L	I	d2	DIN	∠			€
960SRH100800100	MF8	1	90	12,5	8,00	371	6,20	7,57	1	71,96
960SRH101000100	MF10	1	90	10	10,00	371	8,00	9,57	1	82,53
960SRH101200150	MF12	1,5	100	15	9,00	374	7,00	11,36	1	95,16
960SRH101400150	MF14	1,5	100	15	11,00	374	9,00	13,35	1	124,20

# SRG MACHO DE LAMINACION HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

Agujero pasante/ciego < 3 x Ø  
Aceros duros hasta 950 N/mm<sup>2</sup> e inoxidables

Forming machine tap HSSE PM | Hard steels up to 950 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

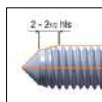
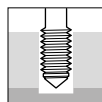
**P**  
3

Acero inoxidable ferrítico y martensítico  
Ferritic and martensitic stainless steel

**P**  
5-6

	Vc M/min
<b>P1</b>	25-30
<b>P2</b>	20-25
<b>P3</b>	15-20
<b>P5</b>	20-25
<b>P6</b>	20-25

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



960SG1	Ø	P	L	I	d2	DIN	∠			€
960SRG100300050	M3	0,5	56	10	3,50	371	2,70	2,81	1	54,00
960SRG100400070	M4	0,7	63	12	4,50	371	3,40	3,72	1	55,33
960SRG100500080	M5	0,8	70	12	6,00	371	4,90	4,67	1	55,33
960SRG100600100	M6	1	80	15	6,00	371	4,90	5,60	1	59,19
960SRG100800125	M8	1,25	90	18	8,00	371	6,20	7,47	1	74,62
960SRG101000150	M10	1,5	100	22	10,00	371	8,00	9,34	1	85,53
960SRG101200175	M12	1,75	110	22	9,00	376	7,00	11,25	1	96,09

# IRH

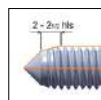
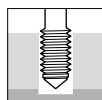
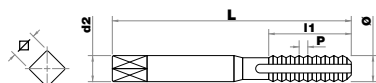
## MACHO DE LAMINACIÓN HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Agujero pasante/ciego < 3 x Ø Aceros inoxidables y aleaciones refractarias

Forming machine tap HSSE PM | Stainless steels and special alloys

Aceros inoxidables  
Stainless steels



Aleaciones refractarias  
Refractory alloys



Vc  
M/min

P5	12-25
P6	10-20
M1	15-25
S2.1	12-24
S3	12-24
S4	5-10

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960IRH1	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960IRH100300050	M3	0,5	56	5	3,50	371	2,70	2,80	1	47,89
960IRH100400070	M4	0,7	63	7	4,50	371	3,40	3,70	1	49,12
960IRH100500080	M5	0,8	70	8,5	6,00	371	4,90	4,65	1	49,12
960IRH100600100	M6	1	80	10	6,00	371	4,90	5,57	1	52,50
960IRH100800125	M8	1,25	90	12,5	8,00	371	6,20	7,45	1	66,19
960IRH101000150	M10	1,5	100	15	10,00	371	8,00	9,30	1	75,91
960IRH101200175	M12	1,75	110	18	9,00	376	7,00	11,23	1	89,41
960IRH101400200	M14	2	110	20	11,00	376	9,00	13,12	1	112,30
960IRH101600200	M16	2	110	20	12,00	376	9,00	15,12	1	124,48

960IRH1	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960IRH100800100	MF8	1	90	12,5	8,00	371	6,20	7,57	1	76,44
960IRH101000100	MF10	1	90	10	10,00	371	8,00	9,57	1	87,28
960IRH101200150	MF12	1,5	100	15	9,00	374	7,00	11,36	1	116,21
960IRH101400150	MF14	1,5	100	15	11,00	374	9,00	13,35	1	155,36

# IRG

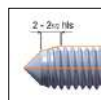
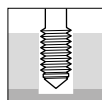
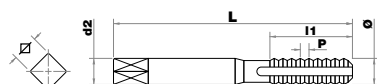
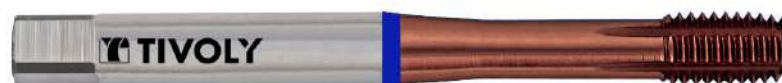
## MACHO DE LAMINACIÓN HSSE PM ACERO SINTERIZADO PULVIMETALÚRGICO Agujero pasante/ciego < 3 x Ø Aceros inoxidables y aleaciones refractarias

Forming machine tap HSSE PM | Stainless steels and special alloys

Aceros inoxidables  
Stainless steels



Aleaciones refractarias  
Refractory alloys



Vc  
M/min

P5	12-25
P6	10-20
M1	15-25
S2.1	12-24
S3	12-24
S4	5-10

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960IRG1	Ø	P	L	I	d2	DIN	∠	∠	∠	€
960IRG100300050	M3	0.5	56	5	3,50	371	2,70	2,81	1	55,61
960IRG100400070	M4	0.7	63	7	4,50	371	3,40	3,72	1	57,02
960IRG100500080	M5	0.8	70	8,5	6,00	371	4,90	4,67	1	57,03
960IRG100600100	M6	1	80	10	6,00	371	4,90	5,60	1	60,96
960IRG100800125	M8	1,25	90	12,5	8,00	371	6,20	7,47	1	76,87
960IRG101000150	M10	1,5	100	15	10,00	371	8,00	9,34	1	88,12
960IRG101200175	M12	1,75	110	18	9,00	376	7,00	11,25	1	103,83

# ASH MACHO DE LAMINACIÓN HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

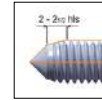
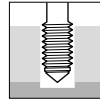
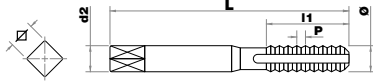
Agujero pasante/ciego < 1 x Ø

Aleaciones de aluminio

New

HSSE PM forming tap | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	Vc
	M/min
N	15-40

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960ASH1	Ø	P	L	I	d2	DIN	∠			€
960ASH100300050	M3	0,5	56	5	3,50	371	2,70	2,80	1	41,20
960ASH100400070	M4	0,7	63	7	4,50	371	3,40	3,70	1	41,62
960ASH100500080	M5	0,8	70	8,5	6,00	371	4,90	4,60	1	41,62
960ASH100600100	M6	1	80	10	6,00	371	4,90	5,60	1	44,34
960ASH100800125	M8	1,25	90	12,5	8,00	371	6,20	7,45	1	56,96
960ASH101000150	M10	1,5	100	15	10,00	371	8,00	9,30	1	67,77
960ASH101200175	M12	1,75	110	18	9,00	376	7,00	11,20	1	86,99
960ASH101400200	M14	2	110	20	11,00	376	9,00	13,00	1	115,34
960ASH101600200	M16	2	110	20	12,00	376	9,00	15,00	1	127,93

960ASH1	Ø	P	L	I	d2	DIN	∠			€
960ASH100800100	MF8	1	90	12,5	8,00	371	6,20	7,50	1	63,59
960ASH101000100	MF10	1	90	10	10,00	371	8,00	9,50	1	75,37
960ASH101200150	MF12	1.5	100	15	9,00	374	7,00	11,30	1	99,29
960ASH101400150	MF14	1.5	100	15	11,00	374	9,00	13,30	1	131,74

MACHOS & COJINETES / CORE HOLE DRILLING

# ASG MACHO DE LAMINACIÓN HSSE PM

## ACERO SINTERIZADO PULVIMETALÚRGICO

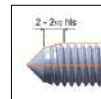
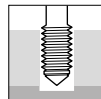
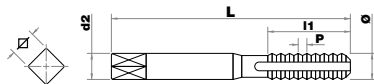
Agujero pasante/ciego < 1 x Ø

Aleaciones de aluminio

New

HSSE PM forming tap | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	Vc
	M/min
N	15-40

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960ASG1	Ø	P	L	I	d2	DIN	∠			€
960ASG100300050	M3	0,5	56	5	3,50	371	2,70	2,81	1	45,31
960ASG100400070	M4	0,7	63	7	4,50	371	3,40	3,72	1	45,79
960ASG100500080	M5	0,8	70	8,5	6,00	371	4,90	4,67	1	45,79
960ASG100600100	M6	1	80	10	6,00	371	4,90	5,60	1	48,77
960ASG100800125	M8	1,25	90	12,5	8,00	371	6,20	7,47	1	62,66
960ASG101000150	M10	1,5	100	15	10,00	371	8,00	9,34	1	74,56
960ASG101200175	M12	1,75	110	18	9,00	376	7,00	11,25	1	95,67

# ARH MACHO DE LAMINACIÓN HSSE PM

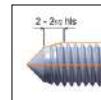
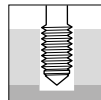
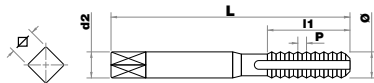
## ACERO SINTERIZADO PULVIMETALÚRGICO

Agujero pasante/ciego < 3 x Ø  
Aleaciones de aluminio

Aleaciones de aluminio  
Aluminum Alloys



New



	<b>Vc</b>
	<b>M/min</b>
<b>N</b>	15-40

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960ARH1	Ø	P	L	I	d2	DIN	∠			€
960ARH100300050	M3	0.5	56	5	3,50	371	2,70	2,80	1	51,07
960ARH100400070	M4	0.7	63	7	4,50	371	3,40	3,70	1	51,48
960ARH100500080	M5	0.8	70	8,5	6,00	371	4,90	4,60	1	51,48
960ARH100600100	M6	1	80	10	6,00	371	4,90	5,50	1	54,98
960ARH100800125	M8	1.25	90	12,5	8,00	371	6,20	7,40	1	69,38
960ARH101000150	M10	1.5	100	15	10,00	371	8,00	9,30	1	82,27
960ARH101200175	M12	1.75	110	18	9,00	376	7,00	11,20	1	92,28
960ARH101400200	M14	2	110	20	11,00	376	9,00	13,00	1	119,63
960ARH101600200	M16	2	110	20	12,00	376	9,00	15,00	1	132,33

960ARH1	Ø	P	L	I	d2	DIN	∠			€
960ARH100800100	MF8	1	90	12,5	8,00	371	6,20	7,50	1	77,51
960ARH101000100	MF10	1	90	10	10,00	371	8,00	9,50	1	91,62
960ARH101200150	MF12	1.5	100	15	9,00	374	7,00	11,30	1	105,37
960ARH101400150	MF14	1.5	100	15	11,00	374	9,00	13,30	1	136,70

MACHOS & COJINETES / CORE HOLE DRILLING

# ARG MACHO DE LAMINACIÓN HSSE PM

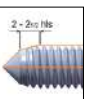
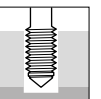
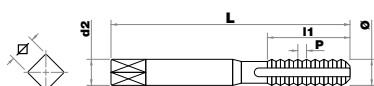
## ACERO SINTERIZADO PULVIMETALÚRGICO

Agujero pasante/ciego < 3 x Ø  
Aleaciones de aluminio

Aleaciones de aluminio  
Aluminum Alloys



New



	<b>Vc</b>
	<b>M/min</b>
<b>N</b>	15-40

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

960ARG1	Ø	P	L	I	d2	DIN	∠			€
960ARG100300050	M3	0.5	56	5	3,50	371	2,70	2,81	1	*
960ARG100400070	M4	0.7	63	7	4,50	371	3,40	3,72	1	*
960ARG100500080	M5	0.8	70	8,5	6,00	371	4,90	4,67	1	*
960ARG100600100	M6	1	80	10	6,00	371	4,90	5,60	1	*
960ARG100800125	M8	1.25	90	12,5	8,00	371	6,20	7,47	1	*
960ARG101000150	M10	1.5	100	15	10,00	371	8,00	9,34	1	*
960ARG101200175	M12	1.75	110	18	9,00	376	7,00	11,25	1	*

\* Consultar precio y plazo de entrega



**MACHOS Y COJINETES DE ROSCAR / TAPPING & THREADING**



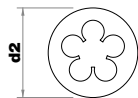
<b>COJINETES M-MF</b> DIES M-MF	<b>164</b>
<b>COJINETES UNC-UNF</b> DIES UNC-UNF	<b>168</b>
<b>COJINETES BSW</b> DIES BSW	<b>169</b>
<b>COJINETES BSP GAS</b> DIES BSP GAS	<b>169</b>
<b>ACCESORIOS</b> ACCESSORIES	<b>170</b>

# 041

## COJINETE MULTIAPLICACIÓN HSSE

Vaporizado

Multi-application die HSSE | Steam treated



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

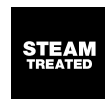
**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

**P**  
3

Acero inoxidable  
austenítico  
Austenitic  
stainless steel

**M**  
1



MACHOS & COJINETES / CORE HOLE DRILLING

1100411	Ø	P	H	d2	EN	QTY		€
1100411020040	M2	0,4	5	16	22568	1	1	37,60
1100411025045	M2,5	0,45	5	16	22568	1	1	32,89
1100411030050	M3	0,5	5	20	22568	1	1	30,55
1100411040070	M4	0,7	5	20	22568	1	1	30,55
1100411050080	M5	0,8	7	20	22568	1	1	28,65
1100411060100	M6	1	7	20	22568	1	1	28,65
1100411070100	M7	1	9	25	22568	1	1	36,17
1100411080125	M8	1,25	9	25	22568	1	1	30,55
1100411090125	M9	1,25	9	25	22568	1	1	39,92
1100411100150	M10	1,5	11	30	22568	1	1	38,77
1100411110150	M11	1,5	11	38	22568	1	1	48,16
1100411120175	M12	1,75	14	38	22568	1	1	48,16
1100411140200	M14	2	14	45	22568	1	1	48,16
1100411160200	M16	2	18	45	22568	1	1	65,32
1100411180250	M18	2,5	18	45	22568	1	1	67,14
1100411200250	M20	2,5	18	45	22568	1	1	67,14
1100411220250	M22	2,5	22	55	22568	1	1	96,77
1100411240300	M24	3	22	55	22568	1	1	96,77
1100411270300	M27	3	25	65	22568	1	1	138,33
1100411300350	M30	3,5	25	65	22568	1	1	138,33
1100411330350	M33	3,5	25	65	22568	1	1	164,38
1100411360400	M36	4	25	65	22568	1	1	164,38
1100411390400	M39	4	30	75	22568	1	1	234,84
1100411420450	M42	4,5	30	75	22568	1	1	258,32

# 044

## COJINETE MULTIAPLICACIÓN HSSE

1100441	Ø	P	H	d2	EN	QTY		€
1100441080100	MF8	1	9	25	22568	1	1	36,65
1100441100100	MF10	1	11	30	22568	1	1	47,22
1100441100125	MF10	1,25	11	30	22568	1	1	47,91
1100441120100	MF12	1	10	38	22568	1	1	54,00
1100441120125	MF12	1,25	10	38	22568	1	1	59,89
1100441120150	MF12	1,5	10	38	22568	1	1	52,60
1100441140100	MF14	1	10	38	22568	1	1	56,62
1100441140125	MF14	1,25	10	38	22568	1	1	60,62
1100441140150	MF14	1,5	10	38	22568	1	1	58,70
1100441160150	MF16	1,5	14	45	22568	1	1	74,67
1100441180150	MF18	1,5	14	45	22568	1	1	75,63
1100441200150	MF20	1,5	14	45	22568	1	1	77,04
1100441220150	MF22	1,5	16	55	22568	1	1	102,61
1100441240150	MF24	1,5	16	55	22568	1	1	108,13
1100441300150	MF30	1,5	18	65	22568	1	1	145,39

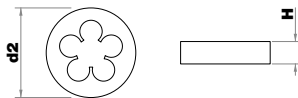
# 037 COJINETE HSS

HSS Dies

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>



1100371	Ø	P	d2	DIN	QTY		€
110037102004016	M2	0,4	16	223	1	1	24,68
110037102504516	M2,5	0,45	16	223	1	1	24,68
110037103005020	M3	0,5	20	223	1	1	21,20
110037103506020	M3,5	0,6	20	223	1	1	23,49
110037104007020	M4	0,7	20	223	1	1	21,31
110037105008020	M5	0,8	20	223	1	1	21,19
110037106010020	M6	1	20	223	1	1	21,20
110037107010025	M7	1	25	223	1	1	23,57
110037108012525	M8	1,25	25	223	1	1	22,50
110037109012525	M9	1,25	38	223	1	1	27,69
110037110015030	M10	1,5	30	223	1	1	30,11
110037111015030	M11	1,5	30	223	1	1	38,63
110037112017538	M12	1,75	38	223	1	1	32,72
110037102004016	M14	2	38	223	1	1	32,39
110037116020045	M16	2	45	223	1	1	43,92
110037118025045	M18	2,5	45	223	1	1	46,53
110037120025045	M20	2,5	45	223	1	1	43,25
110037122025055	M22	2,5	55	223	1	1	68,82
110037124030055	M24	3	55	223	1	1	68,82
110037127030065	M27	3	65	223	1	1	104,39
110037130035065	M30	3,5	65	223	1	1	104,65
110037133035065	M33	3,5	65	223	1	1	106,66
110037136040065	M36	4	65	223	1	1	108,74
110037139040075	M39	4	75	223	1	1	165,40
110037142045075	M42	4,5	75	223	1	1	165,38
110037145045090	M45	4,5	90	223	1	1	256,27
110037148050090	M48	5	90	223	1	1	256,58
110037152050090	M52	5	90	223	1	1	256,58

MACHOS & COJINETES / CORE HOLE DRILLING

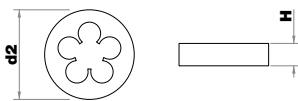
# 037 COJINETE HSS

HSS Dies

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>



Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>



**MF**

**HSS**

**BRIGHT  
UNCOATED**

**EN  
22568**

**GUN  
B  
FORM**


**6g**

MACHOS & COJINETES / CORE HOLE DRILLING

1100371	Ø	P	d2	EN	QTY		€
110037104005020	MF4	0,5	20	22568	1	1	25,22
110037105005020	MF5	0,5	25	22568	1	1	27,54
110037105007520	MF5	0,75	20	22568	1	1	34,30
110037105007520	MF5	0,75	25	22568	1	1	34,30
110037106005020	MF6	0,5	20	22568	1	1	30,76
110037106007520	MF6	0,75	25	22568	1	1	25,23
110037107007525	MF7	0,75	25	22568	1	1	24,98
110037108007525	MF8	0,75	25	22568	1	1	27,01
110037108010025	MF8	1	25	22568	1	1	26,05
110037109010025	MF9	1	25	22568	1	1	28,95
110037110007530	MF10	0,75	30	22568	1	1	46,22
110037110010030	MF10	1	30	22568	1	1	30,64
110037110012530	MF10	1,25	30	22568	1	1	32,69
110037111010030	MF11	1	38	22568	1	1	48,37
110037111012530	MF11	1,25	30	22568	1	1	48,36
110037112007538	MF12	0,75	38	22568	1	1	52,44
110037112010038	MF12	1	38	22568	1	1	46,22
110037112012538	MF12	1,25	38	22568	1	1	44,56
110037112015038	MF12	1,5	38	22568	1	1	39,96
110037113010038	MF13	1	38	22568	1	1	49,10
110037113015038	MF13	1,5	38	22568	1	1	51,61
110037114010038	MF14	1	38	22568	1	1	51,83
110037114012538	MF14	1,25	38	22568	1	1	51,83
110037114015038	MF14	1,5	38	22568	1	1	44,13
110037115010038	MF15	1	38	22568	1	1	55,81
110037115015038	MF15	1,5	45	22568	1	1	59,80
110037116010045	MF16	1	45	22568	1	1	63,19
110037116012545	MF16	1,25	45	22568	1	1	53,17
110037116015045	MF16	1,5	45	22568	1	1	49,64
110037118010045	MF18	1	45	22568	1	1	66,82
110037118012545	MF18	1,25	45	22568	1	1	69,50
110037118015045	MF18	1,5	45	22568	1	1	60,12
110037118020045	MF18	2	45	22568	1	1	67,17
110037120010045	MF20	1	45	22568	1	1	66,82
110037120012545	MF20	1,25	45	22568	1	1	145,02
110037120015045	MF20	1,5	45	22568	1	1	61,51
110037120020045	MF20	2	45	22568	1	1	66,82
110037122010055	MF22	1	55	22568	1	1	89,95
110037122015055	MF22	1,5	55	22568	1	1	77,38
110037122020055	MF22	2	55	22568	1	1	86,09
110037124010055	MF24	1	55	22568	1	1	87,73
110037124015055	MF24	1,5	55	22568	1	1	78,83
110037124020055	MF24	2	55	22568	1	1	87,73

# 037 COJINETE HSS

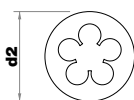
HSS Dies

1100371	Ø	P	d2	EN	QTY		€
110037125015055	MF25	1,5	55	22568	1	1	114,52
110037126010055	MF26	1	55	22568	1	1	131,96
110037126015055	MF26	1,5	55	22568	1	1	106,38
110037126020055	MF26	2	55	22568	1	1	149,12
110037127015065	MF27	1,5	65	22568	1	1	119,21
110037127020065	MF27	2	65	22568	1	1	129,66
110037128015065	MF28	1,5	65	22568	1	1	108,07
110037128020065	MF28	2	65	22568	1	1	151,95
110037130015065	MF30	1,5	65	22568	1	1	119,21
110037130020065	MF30	2	65	22568	1	1	132,11
110037133015065	MF33	1,5	65	22568	1	1	116,99
110037135015065	MF35	1,5	65	22568	1	1	126,62
110037136030065	MF36	3	65	22568	1	1	125,42
110037142015075	MF42	1,5	75	22568	1	1	212,76
110037142030075	MF42	3	75	22568	1	1	212,76
110037145015090	MF45	1,5	90	22568	1	1	248,62
110037152015090	MF52	1,5	90	22568	1	1	258,69
110037152020090	MF52	2	90	22568	1	1	300,63

# 039 COJINETE HSS

Rosca izquierda

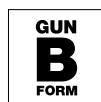
HSS Dies | Left thread



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>



Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>



1100391	Ø	P	d2	EN	QTY		€
110039103005020	M3	0,5	20	22568	1	1	44,90
110039104007020	M4	0,7	20	22568	1	1	45,13
110039105008020	M5	0,8	20	22568	1	1	44,87
110039106010020	M6	1	20	22568	1	1	44,90
110039108012525	M8	1,25	25	22568	1	1	47,64
110039110015030	M10	1,5	30	22568	1	1	63,77
110039112017538	M12	1,75	38	22568	1	1	69,28



# 047 COJINETE HSS

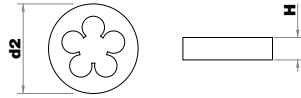
HSS din dies

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**



**UNC**

**HSS**

**BRIGHT UNCOATED**

**EN 22568**

**2A**

**2A**

1100471	Ø	P hilos	H	d2	EN	QTY		€
11004710005	UNC N°5	40	5	20	22568	1	1	28,50
11004710006	UNC N°6	32	5	20	22568	1	1	27,36
11004710008	UNC N°8	32	5	20	22568	1	1	26,97
11004710010	UNC N°10	24	7	20	22568	1	1	28,10
11004710012	UNC N°12	24	7	20	22568	1	1	28,50
11004710104	UNC 1/4	20	7	20	22568	1	1	28,10
11004710516	UNC 5/16	18	9	25	22568	1	1	30,20
11004710308	UNC 3/8	16	11	30	22568	1	1	37,93
11004710716	UNC 7/16	14	11	30	22568	1	1	37,93
11004710102	UNC 1/2	13	14	38	22568	1	1	43,38
11004710304	UNC 3/4	10	18	45	22568	1	1	61,88

MACHOS & COJINETES / CORE HOLE DRILLING

# 048 COJINETE HSS

HSS din dies

Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**



**UNF**

**HSS**

**BRIGHT UNCOATED**

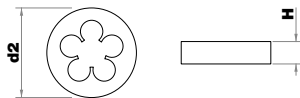
**EN 22568**

**2A**

1100481	Ø	P hilos	H	d2	EN	QTY		€
11004810005	UNF N°5	44	5	20	22568	1	1	28,50
11004810006	UNF N°6	40	5	20	22568	1	1	27,36
11004810008	UNF N°8	36	5	20	22568	1	1	27,36
11004810010	UNF N°10	32	7	20	22568	1	1	28,10
11004810012	UNF N°12	28	7	20	22568	1	1	28,50
11004810104	UNF 1/4	28	7	20	22568	1	1	28,10
11004810516	UNF 5/16	24	9	25	22568	1	1	30,20
11004810308	UNF 3/8	24	11	30	22568	1	1	37,93
11004810716	UNF 7/16	20	11	30	22568	1	1	37,93
11004810102	UNF 1/2	20	10	38	22568	1	1	43,38
11004810304	UNF 3/4	16	11	45	22568	1	1	61,88

# 050 COJINETE HSS

HSS DIN Dies



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**

**BSW**

**HSS**

**BRIGHT UNCOATED**

**EN 22568**

**MEDIUM CLASS**

1100501	Ø	P	H	d2	EN	QTY		€
11005010108	BSW 1/8	40	5	20	24231	1	1	27,36
11005010532	BSW 5/32	32	5	20	24231	1	1	26,97
11005010316	BSW 3/16	24	7	20	24231	1	1	28,10
11005010104	BSW 1/4	20	7	20	24231	1	1	27,36
11005010516	BSW 5/16	18	9	25	24231	1	1	29,05
11005010308	BSW 3/8	16	11	30	24231	1	1	36,03
11005010716	BSW 7/16	14	11	30	24231	1	1	39,23
11005010102	BSW 1/2	12	14	38	24231	1	1	44,52
11005010508	BSW 5/8	11	18	45	24231	1	1	59,98
11005010304	BSW 3/4	10	18	45	24231	1	1	66,02
11005010708	BSW 7/8	9	22	55	24231	1	1	95,42
11005011000	BSW 1"	8	22	55	24231	1	1	99,96

# 049 COJINETE HSS

HSS DIN Dies



Aceros no aleados y para decoletaje < 500 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y debilmente aleados <700 N/mm<sup>2</sup>  
Carbon steel and low alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**

**BSP G**

**HSS**

**BRIGHT UNCOATED**

**EN 24231**

**CLASS A**

1100491	Ø	P	H	d2	EN	QTY		€
11004910108	G 1/8	28	11	30	24231	1	1	40,16
11004910104	G 1/4	19	10	38	24231	1	1	42,24
11004910308	G 3/8	19	14	45	24231	1	1	58,45
11004910102	G 1/2	14	14	45	24231	1	1	58,45
11004910508	G 5/8	14	16	55	24231	1	1	91,07
11004910304	G 3/4	14	16	55	24231	1	1	78,45
11004910708	G 7/8	14	18	65	24231	1	1	118,45
11004911000	G 1	11	18	65	24231	1	1	118,45
11004911104	G 1"1/4	11	20	75	24231	1	1	188,35
11004911102	G 1"1/2	11	22	90	24231	1	1	294,94

# 001 GIRAMACHOS MANUAL

Tap wrench



1110011	N°	Rango	QTY		€
11100110000	N°0	M1 - M6	1	1	15,94
11100110010	N°1	M3 - M8	1	1	16,96
11100110015	N°1,5	M3 - M12	1	1	22,27
11100110020	N°2	M4 - M14	1	1	27,92
11100110030	N°3	M6 - M20	1	1	38,08
11100110040	N°4	M9 - M27	1	1	56,03

# 003 GIRAMACHOS REVERSIBLE CON TRINQUETE

Tap wrench with ratchet



1110031	Ø	Rango	L	QTY		€
11100310001	2 - 5	M3 - M10	85	1	1	18,62
11100310002	4,5 - 6,5	M5 - M12	105	1	1	27,24
11100310003	2 - 5	M3 - M12	250	1	1	40,75
11100310004	4,5 - 6,5	M5 - M12	300	1	1	49,72

# 004 PORTACOJINETES

Die holder



1110041	d2	H	QTY		€
11100410205	20	5	1	1	11,79
11100410207	20	7	1	1	11,79
11100410259	25	9	1	1	13,95
11100413011	30	11	1	1	15,90
11100413810	38	10	1	1	20,77
11100413814	38	14	1	1	20,77
11100414514	45	14	1	1	26,59
11100414518	45	18	1	1	27,87
11100415516	55	16	1	1	30,41
11100415522	55	22	1	1	37,58
11100416518	65	18	1	1	46,28
11100416525	65	25	1	1	46,28

# 005 ALARGADOR DE PORTACOJINETES

End die holder



1110051	Ø	d2	QTY		€
11100510254	25,4	8	1	1	62,42
11100510381	38,1	13	1	1	118,94

# 968 JUEGO DE EXTRACTORES DE TORNILLOS ROTOS

Broken pin remover set



120968	Ø	QTY		€
12096810001	M3 - M18	5	1	18,43
12096810002	M3 - M24	6	1	19,35

## ESTUCHES DE MACHOS + BROCAS PREVIAS | Taps & previous drills sets

Composición: **MACHOS** | TAPS **M3-M4-M5-M6-M8-M10-M12** + **BROCAS** | DRILLS **Ø 2,5-3,3-4,2-5-6,8-8,5-10,2**

ESTÁNDAR		MULTIPLIACIÓN	
<b>16025270003</b>	<b>1602557000</b>	<b>96020270003</b>	<b>96020570003</b>
			
Machos 252 + brocas HSS 530	Machos 255 + brocas HSS 530	Machos 202 + brocas HSSCo 550	Machos 205 + brocas HSSCo 550
<b>Agujero pasante</b>	<b>Agujero ciego</b>	<b>Agujero pasante</b>	<b>Agujero ciego</b>
PVP: <b>101,85€</b>	PVP: <b>115,00€</b>	PVP: <b>128,50€</b>	PVP: <b>159,39€</b>

## ESTUCHES DE MACHOS + BROCAS PREVIAS | Taps & previous drills sets

Composición: **MACHOS** | TAPS **M3-M4-M5-M6-M8-M10-M12** + **BROCAS** | DRILLS **Ø 2,5-3,3-4,2-5-6,8-8,5-10,2**

### FLASH CUT

<b>960ST270003</b>	<b>960ST570003</b>	<b>960IT270003</b>	<b>960IT570003</b>
			
Machos ST2 + brocas FURIUS	Machos ST5 + brocas FURIUS	Machos IT2+ brocas TBX	Machos IT5+ brocas TBX
<b>Agujero pasante</b>	<b>Agujero ciego</b>	<b>Agujero pasante</b>	<b>Agujero ciego</b>
PVP: <b>196,97€</b>	PVP: <b>224,34€</b>	PVP: <b>247,72€</b>	PVP: <b>285,45€</b>

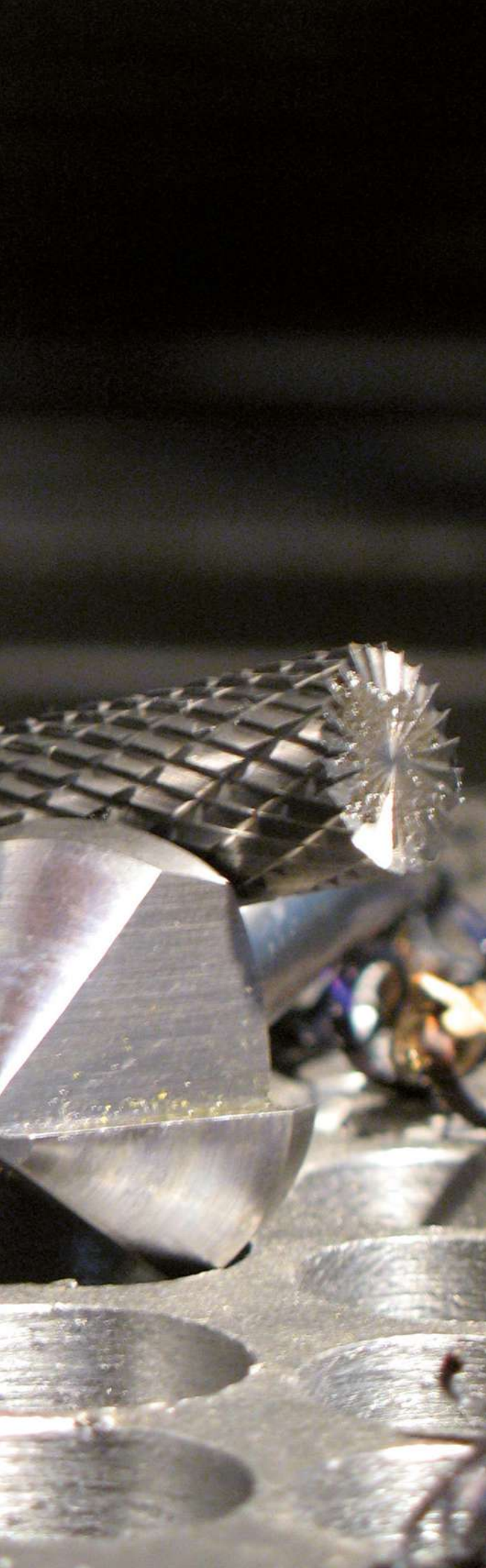
## ESTUCHES DE MACHOS Y COJINETES | Taps & dies sets

<b>M3 a M12</b>	<b>M3 a M12 : 7 Juegos de machos + 7 cojinetes + 1 giramachos nº 1,5 + 1 portacojinetes 25,4 + 1 avellanador</b>	<b>M3 a M20: 11 juegos de machos + 11 cojinetes + 2 giramachos nº 1 y nº 3 + 2 portacojinetes 25,4 / 38</b>	<b>M3 a M12</b>
<b>80511670001</b>	<b>11900870001</b>	<b>11900870006</b>	<b>11004170007</b>
			
<b>Juegos de machos de mano</b>	<b>Machos + cojinetes</b>	<b>Machos + cojinetes</b>	<b>Cojinetes HSSCo</b>
PVP: <b>247,27€</b>	PVP: <b>388,61€</b>	PVP: <b>741,10€</b>	PVP: <b>241,07€</b>









<b>AVELLANADORES</b> COUNTERSINKERS	<b>174</b>
<b>FRESAS ROTATIVAS</b> ROTARY BURRS	<b>178</b>
<b>FRESAS FRONTALES</b> END MILLS	<b>187</b>
<b>FRESAS METAL DURO</b> SOLID CARBIDE END MILLS	<b>199</b>
<b>FRESAS DE SIERRA</b> SLITTING SAWS	<b>203</b>
<b>FRESAS WOODRUFF</b> WOODRUFF CUTTERS	<b>205</b>

# 315

## AVELLANADOR HSS 3 CORTES 60°

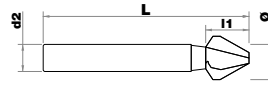
Aceros blandos hasta 500 N/mm<sup>2</sup>

Countersink HSS | 3Z | Soft steels up to 500 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
1

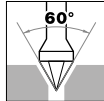
New



**HSS**

**BRIGHT UNCOATED**

**TIVOLY NORM**



**Z3**

1033151	Ø	d2	L	QTY	📦	€
10331510630	6.3	5	47	1	1	24,96
10331510800	8	6	52	1	1	25,85
10331511000	10	6	53	1	1	29,85
10331511250	12.5	8	60	1	1	33,90

1033151	Ø	d2	L	QTY	📦	€
10331511600	16	10	65	1	1	42,01
10331512000	20	10	69	1	1	58,85
10331512500	25	10	75	1	1	80,19

# 316

## AVELLANADOR HSSE5 3 CORTES 90°

Aceros semi-duros hasta 700 N/mm<sup>2</sup>,  
inoxidables y aluminio

Countersink HSSE5 | 3Z | Semi-hard steels up to 700 N/mm<sup>2</sup>,  
stainless steels and aluminium

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

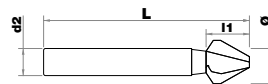
**P**  
1-2

Acero inoxidable  
ferrítico  
Ferritic  
stainless steel

**P**  
5

Aleaciones  
de aluminio  
Aluminum  
Alloys

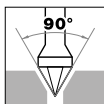
**N**



**HSS E5**

**BRIGHT UNCOATED**

**DIN 335C**



**Z3**

1033162	Ø	d2	L	QTY	📦	€
10331620430	4.3	4	40	1	1	14,87
10331620530	5.3	4	40	1	1	14,87
10331620630	6.3	5	45	1	1	15,22
10331620800	8	6	50	1	1	16,81
10331620830	8.3	6	50	1	1	17,09
10331620940	9.4	6	50	1	1	18,81
10331621000	10	6	50	1	1	19,91
10331621040	10.4	6	50	1	1	20,66
10331621150	11.5	8	56	1	1	21,65

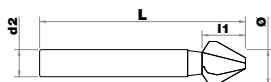
1033162	Ø	d2	L	QTY	📦	€
10331621240	12.4	8	56	1	1	21,96
10331621340	13.4	8	56	1	1	23,48
10331621500	15	10	60	1	1	25,19
10331621650	16.5	10	60	1	1	27,04
10331621900	19	10	63	1	1	27,04
10331622050	20.5	10	63	1	1	36,63
10331622300	23	10	57	1	1	37,47
10331622500	25	10	67	1	1	47,98
10331623100	31	12	71	1	1	75,67

# 663 AVELLANADOR HSSE5 TiAlN 3 CORTES 90°

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables y aluminio

Countersink HSSE5 | 3Z |

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels and aluminium



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

**P**  
3

Aceros  
inoxidables  
Stainless  
steels

**P-M**

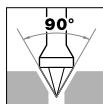
Aleaciones  
de aluminio  
Aluminum  
Alloys

**N**

**HSS**  
**E5**

**TiAlN**  
COATED

**DIN**  
**335C**

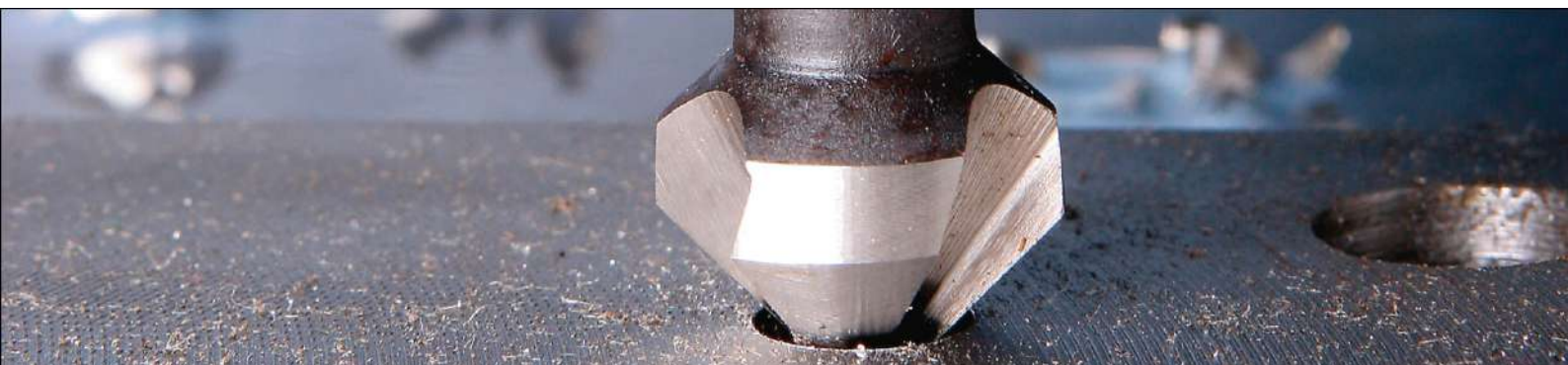


**Z3**

1036631	Ø	d2	L	QTY	€
10366310630	6,3	5	45	1	30,62
10366310830	8,3	6	50	1	33,04
10366311040	10,4	6	50	1	34,85
10366311240	12,4	8	56	1	38,20

1036631	Ø	d2	L	QTY	€
10366311650	16,5	10	60	1	43,73
10366312050	20,5	10	63	1	47,96
10366312500	25	10	67	1	56,72

FRESADO / MILLING



# 103

New

## AVELLANADOR HSSE5 DIN373 180° PARA ASIENTOS DE TORNILLOS ALLEN

Aceros semiduros hasta 700 N/mm<sup>2</sup>, inoxidables y aluminios  
Semi-hard steels up to 700 N/mm<sup>2</sup> stainless steels and aluminums

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Acero inoxidable  
ferrítico  
Ferritic  
stainless steel



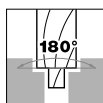
Aleaciones  
de aluminio  
Aluminum  
Alloys



HSS  
E5

BRIGHT  
UNCOATED

DIN  
373



1031031	Ø	d	d2	L	R	QTY		€
1031031042020	4,20	2,00	4,20	56	M2	1	1	29,66
1031031043022	4,30	2,20	4,30	56	M2	1	1	32,40
1031031050027	5,00	2,70	5,00	56	M2,5	1	1	32,40
1031031052025	5,20	2,50	5,20	56	M2,5	1	1	32,62
1031031052030	5,20	3,00	5,20	56	M2,5	1	1	30,53
1031031060032	6,30	2,00	6,00	71	M3	1	1	34,27
1031031062030	6,20	3,00	6,20	71	M3	1	1	32,62
1031031065037	6,50	3,70	6,50	71	M3	1	1	35,37
1031031072035	7,20	4,00	7,20	71	M3,5	1	1	33,53
1031031072040	7,20	4,00	7,20	71	M3,5	1	1	33,53
1031031080043	8,00	4,30	8,00	71	M4	1	1	35,37
1031031082040	8,20	4,00	8,20	71	M4	1	1	37,26
1031031082050	8,20	5,00	8,20	71	M4	1	1	37,26
1031031092045	9,20	4,50	9,20	71	M4	1	1	37,75
1031031092050	9,20	5,00	9,20	71	M4	1	1	37,26
1031031100053	10,00	5,30	10,00	80	M5	1	1	39,53
1031031102050	10,20	5,00	10,20	80	M5	1	1	42,20
1031031102060	10,20	6,00	10,20	80	M5	1	1	42,20
1031031110064	11,00	6,40	11,00	80	M6	1	1	41,39
1031031142070	14,20	7,00	12,50	80	M6	1	1	61,74
1031031142080	14,20	8,00	12,50	80	M6	1	1	61,74
1031031150084	15,00	8,40	12,50	100	M8	1	1	63,23
1031031162080	16,20	8,00	12,50	100	M8	1	1	68,87
1031031162090	16,20	9,00	12,50	100	M8	1	1	68,87
1031031162100	16,20	10,00	12,50	100	M8	1	1	68,87
1031031180105	18,00	10,50	12,50	100	M10	1	1	70,76
1031031182090	18,20	9,00	12,50	100	M10	1	1	96,70
1031031182100	18,20	10,00	12,50	100	M10	1	1	96,70
1031031182120	18,20	12,00	12,50	100	M10	1	1	96,70
1031031200130	20,00	13,00	12,50	100	M12	1	1	84,32

FRESADO / MILLING

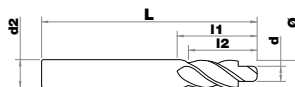
# 104

## AVELLANADOR HSSE5 DIN1866 90° PARA ASIENTOS DE TORNILLOS

Aceros semiduros hasta 700 N/mm<sup>2</sup>, inoxidable y aluminios

Semi-hard steels up to 700 N/mm<sup>2</sup> stainless steels and aluminums

New



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Acero inoxidable  
ferrítico  
Ferritic  
stainless steel

**P**  
5

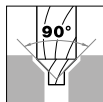
Aleaciones  
de aluminio  
Aluminum  
Alloys

**N**

**HSS  
E5**

**BRIGHT  
UNCOATED**

**DIN  
1866**



1031041	Ø	d	d2	L	R	QTY		€
1031041043022	4,30	2,20	4,30	56	M2	1	1	32,48
1031041046024	4,60	2,40	4,60	56	M2	1	1	32,48
1031041060032	6,00	3,20	6,00	71	M3	1	1	38,10
1031041065034	6,50	3,40	6,50	71	M4	1	1	38,10
1031041080043	8,00	4,30	8,00	71	M4	1	1	40,13
1031041086045	8,60	4,50	8,60	71	M5	1	1	43,70
1031041100053	10,00	5,30	10,00	80	M5	1	1	45,45
1031041104055	10,40	5,50	10,40	80	M6	1	1	50,59
1031041115064	11,50	6,40	11,50	80	M6	1	1	54,51
1031041124066	12,40	6,60	12,40	80	M6	1	1	63,71
1031041150084	15,00	8,40	12,50	100	M8	1	1	83,85
1031041190105	19,00	10,50	12,50	100	M10	1	1	122,23
1031041204110	20,40	11,00	12,50	100	M10	1	1	108,30

### ESTUCHES DE AVELLANADORES | Countersink sets

FNH06	FNH05	FNH06	FLH
<b>10331670005</b>	<b>10331670002</b>	<b>10366370001</b>	<b>10310370002</b>
6 Avellanadores 90° HSSE5 Ø 6,3/8,3/10,4/12,4/16,5/20,5	5 Avellanadores 90° HSSE5 Ø 10,4/16,5/20,5/25/31	6 Avellanadores 90° HSSE5 TIALN Ø 6,3/8,3/10,4/12,4/16,5/20,5	6 Alojamiento tornillos 180° HSSE5, Ø 6/8/10/11/15/18 mm
PVP: <b>123,69€</b>	PVP: <b>191,54€</b>	PVP: <b>215,00€</b>	PVP: <b>283,35€</b>

FRESADO / MILLING



# 160

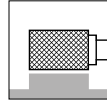
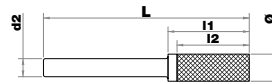
## FRESA ROTATIVA METAL DURO CILÍNDRICA

Carbide rotary burrs | Cylindrical

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



1031601	Ø	d2	L	L2	QTY	€
10316010400	4	6	50	14	1	28,40
10316010600	6	6	50	16	1	28,40
10316010800	8	6	65	20	1	34,25
10316011000	10	6	65	20	1	38,68

1031601	Ø	d2	L	L2	QTY	€
10316011200	12	6	70	25	1	51,35
10316011600	16	8	70	25	1	72,91
103160116006	16	6	70	25	1	72,91
103160120006	20	6	70	25	1	106,39

# 161

## FRESA ROTATIVA METAL DURO CILÍNDRICA

Dentado cruzado

Carbide rotary burrs | Cylindrical

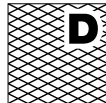
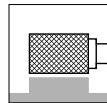
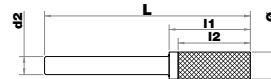
Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Fundiciones  
Cast iron



Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed



1031611	Ø	d2	L	L2	QTY	€
10316110400	4	6	50	14	1	33,93
10316110600	6	6	50	16	1	33,93
10316110800	8	6	65	20	1	40,77
10316111000	10	6	65	20	1	45,86

1031611	Ø	d2	L	L2	QTY	€
10316111200	12	6	70	25	1	61,60
10316111600	16	8	70	25	1	86,56
103161116006	16	6	70	25	1	86,56

FRESADO / MILLING

# 162

## FRESA ROTATIVA METAL DURO CILÍNDRICA

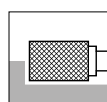
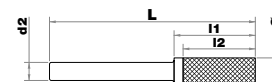
Corte al centro

Carbide rotary burrs | Cylindrical end cutting

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



1031621	Ø	d2	L	L2	QTY	€
10316210400	4	6	50	14	1	31,16
10316210600	6	6	50	16	1	31,16
10316210800	8	6	65	20	1	37,32
10316211000	10	6	65	20	1	42,45

1031621	Ø	d2	L	L2	QTY	€
10316211200	12	6	70	25	1	56,46
10316211600	16	8	70	25	1	80,41
103162116006	16	6	70	25	1	80,41

# 163

## FRESA ROTATIVA METAL DURO CILÍNDRICA

Dentado cruzado / Corte al centro

Carbide rotary burrs | Cylindrical end cutting



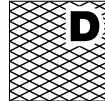
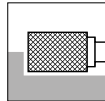
Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Fundiciones  
Cast iron



Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed



1031631	Ø	d2	L	L2	QTY	€
10316310400	4	6	50	14	1	37,32
10316310600	6	6	50	16	1	37,32
10316310800	8	6	65	20	1	44,81
10316311000	10	6	65	20	1	50,65

1031631	Ø	d2	L	L2	QTY	€
10316311200	12	6	70	25	1	67,74
10316311600	16	8	70	25	1	96,15
103163116006	16	6	70	25	1	96,15
10316312000	20	6	70	25	1	139,99

# 665

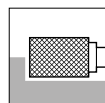
## FRESA ROTATIVA METAL DURO CILÍNDRICA

Aleaciones de aluminio

Carbide rotary burrs | Cylindrical end cutting



Aleaciones  
de aluminio  
Aluminum  
Alloys



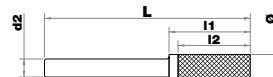
1036651	Ø	d2	L	L2	QTY	€
10366511000	10	6	70	25	1	49,35
10366511200	12	6	70	25	1	67,74

1036651	Ø	d2	L	L2	QTY	€
10366511600	16	6	70	25	1	96,17

# 164

## FRESA ROTATIVA METAL DURO CILÍNDRICA CON RADIO

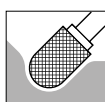
Carbide rotary burrs | Domed cylindrical



Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



1031641	Ø	d2	L	L2	QTY	€
10316410400	4	6	50	14	1	30,82
10316410600	6	6	50	16	1	30,82
10316410800	8	6	65	20	1	39,04
10316411000	10	6	65	20	1	44,51

1031641	Ø	d2	L	L2	QTY	€
10316411200	12	6	70	25	1	63,00
10316411600	16	8	70	25	1	82,44
103164116006	16	6	70	25	1	82,44

# 165 FRESA ROTATIVA METAL DURO CILÍNDRICA CON RADIO

Dentado cruzado

Carbide rotary burrs | Domed cylindrical



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Fundiciones  
Cast iron

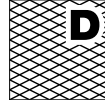
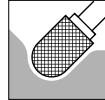
**K**

Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed

**N**  
3

**HM**  
CARB

BRIGHT  
UNCOATED



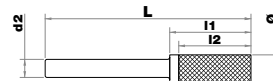
1031651	Ø	d2	L	L2	QTY	€
103165103080	3	3	80	20	1	35,32
10316510400	4	6	50	14	1	36,96
103165104080	4	4	80	20	1	40,63
10316510600	6	6	50	16	1	36,96
103165106080	6	6	80	20	1	47,53
10316510800	8	6	65	20	1	46,21

1031651	Ø	d2	L	L2	QTY	€
10316511000	10	6	65	20	1	53,04
10316511200	12	6	70	25	1	75,62
10316511600	16	8	70	25	1	98,89
103165116006	16	6	70	25	1	98,89
103165120006	20	6	70	25	1	148,20

# 668 FRESA ROTATIVA METAL DURO CILÍNDRICA CON RADIO

Aleaciones de aluminio

Carbide rotary burrs | Domed cylindrical

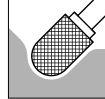


Aleaciones  
de aluminio  
Aluminum  
Alloys

**N**

**HM**  
CARB

BRIGHT  
UNCOATED



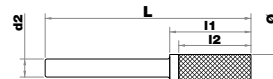
1036681	Ø	d2	L	L2	QTY	€
10366811000	10	6	65	20	1	53,04
10366811200	12	6	70	25	1	75,62

1036681	Ø	d2	L	L2	QTY	€
10366811600	16	6	70	25	1	92,43

FRESADO / MILLING

# 170 FRESA ROTATIVA METAL DURO PUNTA CÓNICA

Carbide rotary burrs | Cone



Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>

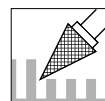
**P**  
4

Aceros  
inoxidables  
Stainless  
steels

**P-M**

**HM**  
CARB

BRIGHT  
UNCOATED



1031701	Ø	d2	L	L2	QTY	€
10317010600	6	6	50	16	1	30,51
10317010800	8	6	63	16	1	32,19

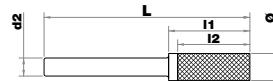
1031701	Ø	d2	L	L2	QTY	€
10317011000	10	6	65	20	1	37,32
10317011200	12	6	70	25	1	45,18

# 171

## FRESA ROTATIVA METAL DURO PUNTA CÓNICA

Dentado cruzado

Carbide rotary burrs | Cone



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

**P**  
1-2

Fundiciones  
Cast iron

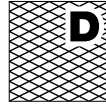
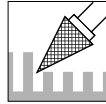
**K**

Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed

**N**  
3

**HM**  
CARB

**BRIGHT**  
UNCOATED



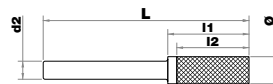
1031711	Ø	d2	L	L2	QTY	€
10317110400	4	6	50	12	1	36,67
10317110600	6	6	50	16	1	36,67
10317110800	8	6	63	16	1	38,68

1031711	Ø	d2	L	L2	QTY	€
10317111000	10	6	65	20	1	44,51
10317111200	12	6	70	25	1	54,10
103171116006	16	6	70	25	1	74,27

# 172

## FRESA ROTATIVA METAL DURO PUNTA CÓNICA

Carbide rotary burrs | Cone



Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>

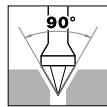
**P**  
4

Aceros  
inoxidables  
Stainless  
steels

**P-M**

**HM**  
CARB

**BRIGHT**  
UNCOATED



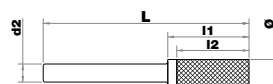
1031721	Ø	d2	L	L2	QTY	€
10317210400	4	6	50	3	1	25,70
10317210600	6	6	50	4	1	25,70
10317210800	8	6	52	5	1	27,08
10317211000	10	6	55	6	1	30,82

1031721	Ø	d2	L	L2	QTY	€
10317211200	12	6	58	7	1	38,68
103172116006	16	8	61	9	1	45,18

# 174

## FRESA ROTATIVA METAL DURO PUNTA CÓNICA

Carbide rotary burrs | Cone



Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>

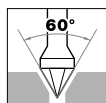
**P**  
4

Aceros  
inoxidables  
Stainless  
steels

**P-M**

**HM**  
CARB

**BRIGHT**  
UNCOATED



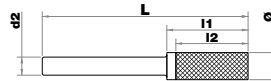
1031741	Ø	d2	L	L2	QTY	€
10317410400	4	6	50	12	1	26,72
10317410600	6	6	50	16	1	26,72
10317411000	10	6	65	20	1	32,19

1031741	Ø	d2	L	L2	QTY	€
10317411200	12	6	70	25	1	40,03
103174116006	16	8	70	25	1	48,94

# 176

## FRESA ROTATIVA METAL DURO PUNTA CÓNICA REDONDEADA

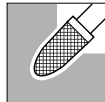
Carbide rotary burrs | Rounded cone



Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



1031761	Ø	d2	L	L2	QTY	⊞	€
10317610600	6	6	50	20	1	1	33,23
10317610800	8	6	65	20	1	1	42,81
10317611000	10	6	65	20	1	1	52,06

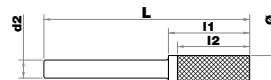
1031761	Ø	d2	L	L2	QTY	⊞	€
10317611200	12	6	70	25	1	1	63,34
10317611600	16	8	75	30	1	1	95,83
103176116006	16	6	70	30	1	1	95,83

# 177

## FRESA ROTATIVA METAL DURO PUNTA CÓNICA REDONDEADA

Dentado cruzado

Carbide rotary burrs | Rounded cone



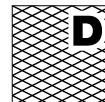
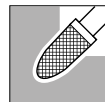
Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Fundiciones  
Cast iron



Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed



1031771	Ø	d2	L	L2	QTY	⊞	€
10317710600	6	6	50	20	1	1	39,66
10317710800	8	6	65	20	1	1	50,99
10317711000	10	6	65	20	1	1	62,27

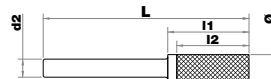
1031771	Ø	d2	L	L2	QTY	⊞	€
10317711200	12	6	70	25	1	1	75,62
103177116006	16	6	70	30	1	1	114,64

# 670

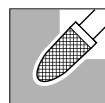
## FRESA ROTATIVA METAL DURO PUNTA CÓNICA REDONDEADA

Aleaciones de aluminio

Carbide rotary burrs | Rounded cone



Aleaciones de aluminio  
Aluminum  
Alloys



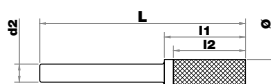
1036701	Ø	d2	L	L2	QTY	⊞	€
10367011000	10	6	65	20	1	1	62,27
10367011200	12	6	70	25	1	1	75,62

1036701	Ø	d2	L	L2	QTY	⊞	€
10367011600	16	6	70	30	1	1	114,64



# 178 FRESA ROTATIVA METAL DURO PUNTA OJIVA

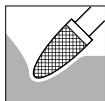
Carbide rotary burrs | Tree



Aceros fuertemente aleados <math><1200\text{ N/mm}^2</math>  
Alloyed steel <math><1200\text{ N/mm}^2</math>



Aceros inoxidables  
Stainless steels



1031781	Ø	d2	L	L2	QTY	⊞	€
10317810400	4	6	50	14	1	1	34,91
10317810600	6	6	50	18	1	1	34,91
10317810800	8	6	63	18	1	1	35,95
10317811000	10	6	65	20	1	1	42,45

1031781	Ø	d2	L	L2	QTY	⊞	€
10317811200	12	6	70	25	1	1	49,99
10317811600	16	8	75	30	1	1	73,62
103178116006	16	6	75	30	1	1	73,62

# 179 FRESA ROTATIVA METAL DURO PUNTA OJIVA

Dentado cruzado

Carbide rotary burrs | Tree



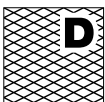
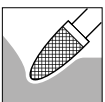
Aceros no aleados y para decoletaje <math><700\text{ N/mm}^2</math>  
Unalloyed and free cutting steels <math><700\text{ N/mm}^2</math>



Fundiciones  
Cast iron



Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

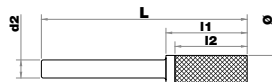


1031792	Ø	d2	L	L2	QTY	⊞	€
10317920600	6	6	50	18	1	1	35,40
10317920800	8	6	63	18	1	1	36,28

1031792	Ø	d2	L	L2	QTY	⊞	€
10317921000	10	6	65	20	1	1	42,89
10317921200	12	6	70	25	1	1	50,41

# 180 FRESA ROTATIVA METAL DURO PUNTA OVAL

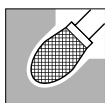
Carbide rotary burrs | oval



Aceros fuertemente aleados <math><1200\text{ N/mm}^2</math>  
Alloyed steel <math><1200\text{ N/mm}^2</math>



Aceros inoxidables  
Stainless steels



1031801	Ø	d2	L	L2	QTY	⊞	€
10318010600	6	6	50	16	1	1	31,85
10318010800	8	6	58	20	1	1	35,28
10318011000	10	6	61	20	1	1	42,45

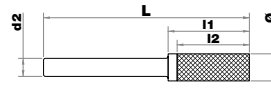
1031801	Ø	d2	L	L2	QTY	⊞	€
10318011200	12	6	65	25	1	1	50,99
10318011600	16	8	70	25	1	1	73,62
103180116006	16	6	70	25	1	1	73,62

# 181

## FRESA ROTATIVA METAL DURO PUNTA OVAL

Dentado cruzado

Carbide rotary burrs | oval



Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 700 N / mm<sup>2</sup>

**P**  
1-2

Fundiciones  
Cast iron

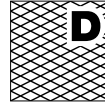
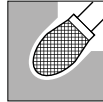
**K**

Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed

**N**  
3

**HM**  
CARB

**BRIGHT**  
UNCOATED



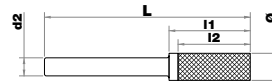
1031811	Ø	d2	L	L2	QTY	€
10318110400	4	6	50	6	1	38,35
10318110600	6	6	50	10	1	38,35
10318110800	8	6	58	13	1	42,45
10318111000	10	6	61	16	1	50,99

1031811	Ø	d2	L	L2	QTY	€
10318111200	12	6	65	20	1	60,90
103181116006	16	6	70	25	1	88,66
103181120006	20	6	70	25	1	139,99

# 182

## FRESA LIMA METAL DURO PUNTA OJIVA REDONDEADA

Carbide rotary burrs | Ball nosed tree



Aceros fuertemente  
aleados < 1200 N/mm<sup>2</sup>  
Alloyed steel  
< 1200 N/mm<sup>2</sup>

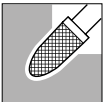
**P**  
4

Aceros  
inoxidables  
Stainless  
steels

**P-M**

**HM**  
CARB

**BRIGHT**  
UNCOATED



1031821	Ø	d2	L	L2	QTY	€
10318210600	6	6	50	18	1	36,29
10318210800	8	6	63	18	1	38,00
10318211000	10	6	65	20	1	45,18

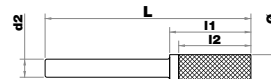
1031821	Ø	d2	L	L2	QTY	€
10318211200	12	6	70	25	1	54,10
10318211600	16	8	75	30	1	77,35
103182116006	16	6	75	30	1	77,35

# 183

## FRESA ROTATIVA METAL DURO PUNTA OJIVA REDONDEADA

Dentado cruzado

Carbide rotary burrs | Ball nosed tree



Fundiciones  
Cast iron

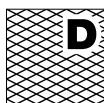
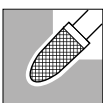
**K**

Cobre no aleado o  
debilmente aleado  
Copper unalloyed  
or low alloyed

**N**  
3

**HM**  
CARB

**BRIGHT**  
UNCOATED



1031832	Ø	d2	L	L2	QTY	€
10318320600	6	6	50	18	1	36,83
10318320800	8	6	63	18	1	38,29

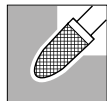
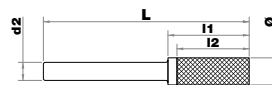
1031832	Ø	d2	L	L2	QTY	€
10318321000	10	6	65	20	1	45,50
10318321200	12	6	70	25	1	54,41

# 667 FRESA ROTATIVA METAL DURO PUNTA OJIVA REDONDEADA

Aleaciones de aluminio

Carbide rotary burrs | Ball nosed tree

Aleaciones de aluminio  
Aluminum Alloys



1036671	Ø	d2	L	L2	QTY	€
10366711000	10	6	65	20	1	54,64
10366711200	12	6	70	25	1	64,68

1036671	Ø	d2	L	L2	QTY	€
10366711600	16	6	75	30	1	92,43

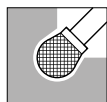
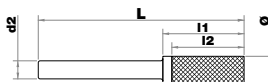
# 184 FRESA ROTATIVA METAL DURO PUNTA ESFÉRICA

Carbide rotary burrs | Ball

Aceros fuertemente aleados <1200 N/mm<sup>2</sup>  
Alloyed steel <1200 N/mm<sup>2</sup>



Aceros inoxidables  
Stainless steels



1031841	Ø	d2	L	L2	QTY	€
10318410400	4	6	50	18	1	30,82
10318410600	6	6	50	18	1	30,82
10318410800	8	6	63	18	1	32,19
10318411000	10	6	65	20	1	37,30

1031841	Ø	d2	L	L2	QTY	€
10318411200	12	6	70	25	1	45,18
10318411600	16	8	75	30	1	64,33
103184116006	16	6	75	30	1	64,33

# 185 FRESA ROTATIVA METAL DURO PUNTA ESFÉRICA

Dentado cruzado

Carbide rotary burrs | Ball

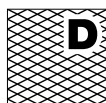
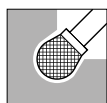
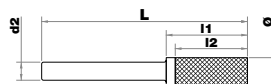
Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N/mm<sup>2</sup>



Fundiciones  
Cast iron



Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed



1031852	Ø	d2	L	L2	QTY	€
10318520600	6	6	50	18	1	31,09
10318520800	8	6	63	18	1	32,54

1031852	Ø	d2	L	L2	QTY	€
10318521000	10	6	65	20	1	37,69
10318521200	12	6	70	25	1	45,50

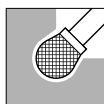
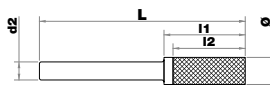
# 669

## FRESA ROTATIVA METAL DURO PUNTA ESFÉRICA

Aleaciones de aluminio

Carbide rotary burrs | Ball

Aleaciones  
de aluminio  
Aluminum  
Alloys



1036691	Ø	d2	L	L2	QTY		€
10366911000	10	6	54	9	1	1	44,83
10366911200	12	6	55	10	1	1	54,10

1036691	Ø	d2	L	L2	QTY		€
10366911600	16	6	59	14	1	1	77,36

### FRESAS ROTATIVAS METAL DURO

**FLK08**



5 pzs: Ø 12 mango de 6 mm

PVP: 108,85€

**FLK05**

**1031607002**



5 pzs: Ø 12 mango de 6 mm

PVP: 207,05€

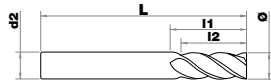
FRESADO / MILLING

# 088

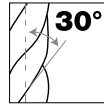
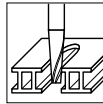
## FRESA HSSE8 Z1 Aleaciones de aluminio

Z1 | Finishing end mill cobalt steel | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	<b>Vc</b>
	<b>M/min</b>
<b>N</b>	100-160



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8030881	Ø	d2	L	L2	QTY	€
80308810406	4	8	60	12	1	23,32
80308810506	5	8	60	14	1	23,32
80308810508	5	8	80	14	1	23,32
80308810512	5	8	120	14	1	29,10
80308810606	6	8	60	14	1	25,90

8030881	Ø	d2	L	L2	QTY	€
80308810706	7	8	60	14	1	26,98
80308810808	8	8	80	14	1	25,09
80308810813	8	8	130	14	1	29,30
80308811008	10	8	80	14	1	30,51
80308811013	10	10	130	17	1	30,45

# 003

## FRESA FRONTAL PARA RANURAR HSSE8 Z2 Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidables

Z2 | Finishing end mill cobalt steel

Hard steels up to 1000 N/mm<sup>2</sup> and stainless steels

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



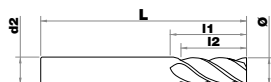
Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc



Aceros inoxidables  
Stainless steels

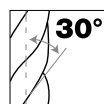
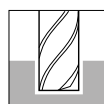


Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18
<b>N3</b>	50-75

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8030031	Ø	d2	L	L2	QTY	€
80300310100	1	6	47	2,5	1	15,07
80300310150	1,5	6	47	3	1	15,33
80300310200	2	6	48	4	1	13,45
80300310250	2,5	6	49	5	1	13,45
80300310300	3	6	49	5	1	13,45
80300310350	3,5	6	50	6	1	14,16
80300310400	4	6	51	7	1	13,45
80300310450	4,5	6	51	7	1	15,16
80300310500	5	6	52	8	1	13,45
80300310550	5,5	6	52	8	1	15,91
80300310600	6	6	52	8	1	13,45
80300310650	6,5	10	60	10	1	21,05
80300310700	7	10	60	10	1	20,33
80300310750	7,5	10	60	10	1	20,33
80300310800	8	10	61	11	1	17,37
80300310850	8,5	10	61	11	1	22,54
80300310900	9	10	61	11	1	20,09
80300310950	9,5	10	61	11	1	19,83

8030031	Ø	d2	L	L2	QTY	€
80300311000	10	10	63	13	1	19,10
80300311100	11	12	70	13	1	22,39
80300311200	12	12	73	16	1	21,10
80300311300	13	12	73	16	1	28,12
80300311400	14	12	73	16	1	26,24
80300311500	15	12	73	16	1	30,19
80300311600	16	16	79	19	1	29,98
80300311700	17	16	79	19	1	39,80
80300311800	18	16	79	19	1	36,27
80300311900	19	16	79	19	1	53,68
80300312000	20	20	88	22	1	49,84
80300312200	22	20	88	22	1	63,64
80300312400	24	25	102	26	1	89,46
80300312800	28	25	102	26	1	112,31
80300313000	30	25	102	26	1	124,57
80300313200	32	32	112	32	1	135,19
80300313600	36	32	112	32	1	152,92
80300314000	40	40	130	38	1	194,66



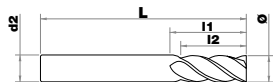
# 649

## FRESA FRONTAL PARA RANURAR HSSE8 HICUT Z2

Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidables

Z2 | Highcut end mills | Short series slotting

Hard steels up to 1000 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P**  
3

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N**  
3

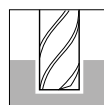
	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

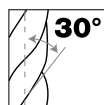
**HSS E8**

**HICUT COATED**

**DIN 327D**



**Z2**



**e8**

8036491	Ø	d2	L	L2	QTY	€
80364910200	2	6	48	4	1	16,49
80364910300	3	6	49	5	1	16,05
80364910400	4	6	51	7	1	18,79
80364910500	5	6	52	8	1	19,18
80364910600	6	10	52	8	1	20,99
80364910800	8	10	61	11	1	26,28

8036491	Ø	d2	L	L2	QTY	€
80364911000	10	10	63	13	1	29,14
80364911200	12	12	73	16	1	34,43
80364911400	14	12	73	16	1	43,94
80364911600	16	16	79	19	1	50,29
80364911800	18	16	79	19	1	57,85
80364912000	20	20	88	22	1	72,26

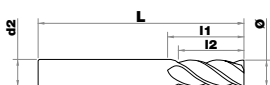
# 013

## FRESAS FRONTAL PARA RANURAR HSSE8 Z2

Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidables

Z2 | HSSE8 End mills | Slotting

Hard steels up to 1000 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P**  
3

Aceros inoxidables  
Stainless steels

**P-M**

	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

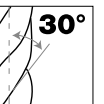
**HSS E8**

**BRIGHT UNCOATED**

**DIN 844BK**



**Z2**



**e8**

8030131	Ø	d2	L	L2	QTY	€
80301310200	2	6	51	7	1	17,62
80301310250	2,5	6	52	8	1	17,62
80301310300	3	6	52	8	1	17,62
80301310400	4	6	55	11	1	17,62
80301310500	5	6	57	13	1	17,62
80301310600	6	6	57	13	1	17,62
80301310700	7	10	66	16	1	26,23
80301310800	8	10	69	19	1	19,34
80301310900	9	10	69	19	1	25,99

8030131	Ø	d2	L	L2	QTY	€
80301311000	10	10	72	22	1	21,21
80301311100	11	12	79	22	1	28,92
80301311200	12	12	83	26	1	24,54
80301311400	14	12	83	26	1	32,06
80301311600	16	16	92	32	1	38,97
80301311800	18	16	92	32	1	47,33
80301312000	20	20	104	38	1	55,05

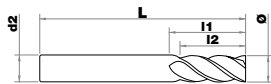
# 713

## FRESAS FRONTAL ACABADO HSSE8 TiAlN Z3

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidable

HSSE8 End mills | Z3 | Slotting

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P**  
3

Aceros inoxidable  
Stainless steels

**P-M**

Cobre no aleado o debilitado aleado  
Copper unalloyed or low alloyed

**N**  
3

	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

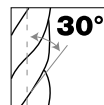
**HSS E8**

**TiAlN COATED**

**DIN 844BK**



**Z3**



**e8**

8037131	Ø	d2	L	L2	QTY	€
80371310400	4	6	55	11	1	15,71
80371310500	5	6	57	13	1	15,71
80371310600	6	6	57	13	1	15,71
80371310800	8	10	69	19	1	30,75

8037131	Ø	d2	L	L2	QTY	€
80371311000	10	10	72	22	1	30,75
80371311200	12	12	83	26	1	44,05
80371311600	16	16	92	32	1	59,71
80371312000	20	20	104	38	1	88,95

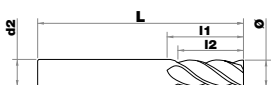
# 011

## FRESAS FRONTAL ACABADO HSSE8 Z3

Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidable

Z3 | HSSE8 End mills | Short series slotting

Hard steels up to 1000 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P**  
3

Aceros inoxidable  
Stainless steels

**P-M**

	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

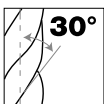
**HSS E8**

**BRIGHT UNCOATED**

**DIN 327D**



**Z3**



**e8**

8030111	Ø	d2	L	L2	QTY	€
80301110200	2	6	48	4	1	15,22
80301110300	3	6	49	5	1	15,53
80301110400	4	6	51	7	1	15,73
80301110500	5	6	52	8	1	15,73
80301110600	6	10	60	10	1	15,73
80301110800	8	10	61	11	1	20,95
80301111000	10	10	63	13	1	19,52
80301111200	12	12	73	16	1	23,72

8030111	Ø	d2	L	L2	QTY	€
80301111400	14	12	73	16	1	30,79
80301111600	16	16	79	19	1	36,30
80301111800	18	16	79	19	1	43,79
80301112000	20	20	88	22	1	51,28
80301112200	22	20	88	22	1	79,09
80301112400	24	25	102	26	1	108,19
80301112800	28	25	102	26	1	137,28
80301113000	30	25	102	26	1	144,01

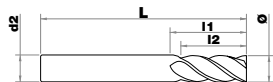
# 617

## FRESA FRONTAL ACABADO HSSE8 HICUT Z3

Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidables

Z3 | HSSE8 Highcut end mills | Short series slotting

Hard steels up to 1000 N/mm<sup>2</sup> and stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRC  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRC

**P**  
3

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N**  
3

	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

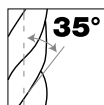
**HSS E8**

**HICUT COATED**

**DIN 327D**



**Z3**



**e8**

8036171	Ø	d2	L	L2	QTY	€
80361710200	2	6	48	4	1	17,42
80361710300	3	6	49	5	1	17,42
80361710400	4	6	51	7	1	20,03
80361710500	5	6	52	8	1	19,77
80361710600	6	10	60	10	1	21,14
80361710800	8	10	61	11	1	26,41
80361711000	10	10	63	13	1	29,79

8036171	Ø	d2	L	L2	QTY	€
80361711200	12	12	73	16	1	37,98
80361711400	14	12	73	16	1	48,55
80361711600	16	16	79	19	1	54,67
80361711800	18	16	79	19	1	63,09
80361712000	20	20	88	22	1	78,53
80361712200	22	20	88	22	1	116,44
80361712500	25	25	102	26	1	142,86

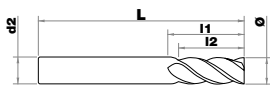
# 476

## FRESA FRONTAL ACABADO HSSE8 Z3

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables

Z3 | HSSE8 End mills | Slotting

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRC  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRC

**P**  
3

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N**  
3

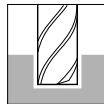
	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18
<b>N3</b>	50-75

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

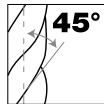
**HSS E8**

**BRIGHT UNCOATED**

**DIN 844BK**



**Z3**



**e8**

8034761	Ø	d2	L	L2	QTY	€
80347610300	3	6	52	8	1	16,08
80347610400	4	6	55	11	1	16,36
80347610450	4,5	6	55	11	1	19,15
80347610500	5	6	57	13	1	16,36
80347610550	5,5	6	57	13	1	21,93
80347610600	6	6	57	13	1	16,36
80347610700	7	10	66	16	1	24,90
80347610800	8	10	69	19	1	21,70
80347610900	9	10	69	19	1	26,74

8034761	Ø	d2	L	L2	QTY	€
80347611000	10	10	72	22	1	20,40
80347611200	12	12	83	26	1	24,76
80347611400	14	12	83	26	1	32,04
80347611600	16	16	92	32	1	39,45
80347611800	18	16	92	32	1	45,45
80347612000	20	20	104	38	1	53,24
80347612200	22	20	104	38	1	86,44
80347612500	25	25	121	45	1	117,33
80347613200	32	25	133	53	1	173,40

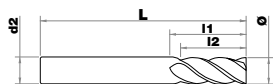
# 650

## FRESA FRONTAL ACABADO HSSE8 HICUT Z3

Aceros duros hasta 1000 N/mm<sup>2</sup> inoxidables

Z3 | HSSE8 Highcut end mills | Slotting

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aceros fuertemente aleados 700 - 1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 - 1000 N / mm<sup>2</sup> ≤ 32 HRc

**P**  
3

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilitado aleado  
Copper unalloyed or low alloyed

**N**  
3

	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

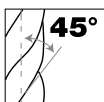
**HSS E8**

**HICUT COATED**

**DIN 844BK**



**Z3**



**e8**

8036501	Ø	d2	L	L2	Z	QTY	€
80365010300	3	6	52	8	1	1	20,87
80365010400	4	6	55	11	1	1	20,87
80365010500	5	6	57	13	1	1	20,63
80365010600	6	6	57	13	1	1	21,59
80365010800	8	10	69	19	1	1	28,83
80365011000	10	10	72	22	1	1	32,90

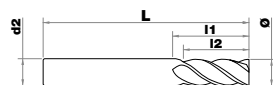
8036501	Ø	d2	L	L2	Z	QTY	€
80365011200	12	12	83	26	1	1	43,05
80365011400	14	12	83	26	1	1	52,41
80365011600	16	16	92	32	1	1	64,42
80365011800	18	16	92	32	1	1	73,76
80365012000	20	20	104	38	1	1	87,35

# 026

## FRESA FRONTAL DE ACABADO HSSE8 Z2-3

Aleaciones de aluminio

Z2-3 | HSSE8 End mills | Finishing | Aluminium alloys



Aleaciones de aluminio  
Aluminum Alloys

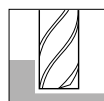
**N**

	Vc M/min
<b>N</b>	100-150

**HSS E8**

**BRIGHT UNCOATED**

**DIN 844BK**



**Z 2-3**



**e8**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8030261	Ø	d2	L	L2	Z	QTY	€
80302610300	3	6	52	8	2	1	16,95
80302610400	4	6	55	11	2	1	16,87
80302610500	5	6	57	13	2	1	16,87
80302610600	6	6	57	13	2	1	17,37
80302610800	8	10	69	19	2	1	20,33
80302611000	10	10	72	22	3	1	22,66

8030261	Ø	d2	L	L2	Z	QTY	€
80302611200	12	12	83	26	3	1	31,04
80302611400	14	12	83	26	3	1	39,80
80302611600	16	16	92	32	3	1	43,34
80302611800	18	16	92	32	3	1	57,97
80302612000	20	20	104	38	3	1	60,88

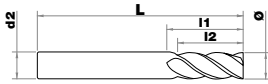
# 028

## FRESA FRONTAL ACABADO HSSE8 Z2-3

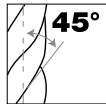
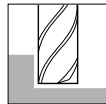
Serie larga  
Aleaciones de aluminio

Z2-3 | HSSE8 End mills | Long series finishing | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	<b>Vc</b>
	<b>M/min</b>
<b>N</b>	100-150



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8030281	Ø	d2	L	L2	Z	QTY	€
80302810400	4	6	63	19	2	1	21,80
80302810600	6	6	68	24	2	1	22,54
80302810800	8	10	88	38	2	1	26,49
80302811000	10	10	95	45	3	1	29,58
80302811200	12	12	110	53	3	1	40,44

8030281	Ø	d2	L	L2	Z	QTY	€
80302811400	14	12	110	53	3	1	51,70
80302811600	16	16	123	63	3	1	56,31
80302811800	18	16	123	63	3	1	75,53
80302812000	20	20	141	75	3	1	79,28

# 714

## FRESA FRONTAL ACABADO HSSE8 TiALN Z4

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidable y fundiciones

4Z | HSSE8 Finishing end mill | Slotting

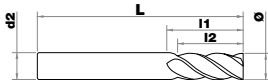
Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels and cast iron

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

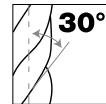
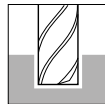
Aceros inoxidables  
Stainless steels

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed



	<b>Vc</b>
	<b>M/min</b>
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8037141	Ø	d2	L	L2	QTY	€
80371410400	4	6	55	11	1	15,71
80371410500	5	6	57	13	1	15,71
80371410600	6	6	57	13	1	15,71
80371410800	8	10	69	19	1	30,75

8037141	Ø	d2	L	L2	QTY	€
80371411000	10	10	72	22	1	30,75
80371411200	12	12	83	26	1	44,05
80371411600	16	16	92	32	1	59,71
80371412000	20	20	104	38	1	88,95



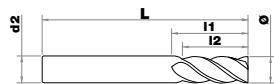
# 019

## FRESA FRONTAL ACABADO HSSE8 Z3-6

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables

Z3-6 | HSSE8 Finishing end mill

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



**HSS E8**

**BRIGHT UNCOATED**

**DIN 844BK**



**Z 3-6**



**e8**

	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18
<b>N3</b>	50-75

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P 1-2**

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P 3**

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N 3**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8030191	Ø	d2	L	L2	Z	QTY	€	8030191	Ø	d2	L	L2	Z	QTY	€
80301910200	2	6	51	7	3	1	14,91	80301911200	12	12	83	26	4	1	23,92
80301910250	2,5	6	52	8	3	1	15,16	80301911400	14	12	83	26	4	1	30,61
80301910300	3	6	52	8	3	1	13,45	80301911500	15	12	83	26	4	1	36,67
80301910350	3,5	6	54	10	3	1	14,16	80301911600	16	16	92	32	4	1	33,34
80301910400	4	6	55	11	4	1	12,93	80301911800	18	16	92	32	4	1	44,59
80301910450	4,5	6	55	11	4	1	13,45	80301912000	20	20	104	38	4	1	46,89
80301910500	5	6	57	13	4	1	12,93	80301912200	22	20	104	38	4	1	74,94
80301910600	6	6	57	13	4	1	13,45	80301912500	25	25	121	45	6	1	97,81
80301910700	7	10	66	16	4	1	20,68	80301912800	28	25	121	45	6	1	122,67
80301910800	8	10	69	19	4	1	15,66	80301913000	30	25	121	45	6	1	127,67
80301910900	9	10	69	19	4	1	20,87	80301913200	32	32	133	53	6	1	139,83
80301911000	10	10	72	22	4	1	17,46								

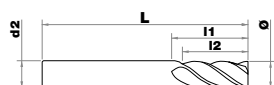
# 622

## FRESA FRONTAL ACABADO HSSE8 HICUT Z3-6

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables

Z3-6 | HSSE8 Finishing end mill

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



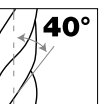
**HSS E8**

**HICUT COATED**

**DIN 844BK**



**Z 3-6**



**e8**

	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P 1-2**

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P 3**

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N 3**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

803622	Ø	d2	L	L2	Z	QTY	€	803622	Ø	d2	L	L2	Z	QTY	€
80362210200	2	6	51	7	3	1	20,03	80362211200	12	12	83	26	4	1	43,31
80362210300	3	6	52	8	3	1	18,79	80362211400	14	12	83	26	4	1	52,20
80362210400	4	6	55	11	4	1	18,38	80362211600	16	16	92	32	4	1	59,77
80362210600	6	6	57	13	4	1	18,57	80362211800	18	16	92	32	4	1	74,58
80362210800	8	10	69	19	4	1	24,29	80362212000	20	20	104	38	4	1	83,05
80362211000	10	10	72	22	4	1	30,67								

# 023

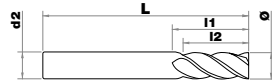
## FRESA FRONTAL ACABADO HSSE8 Z4-6

Serie larga

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables

Z4-6 | HSSE8 End mills | Long series finishing

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



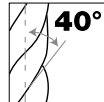
**HSS E8**

**BRIGHT UNCOATED**

**DIN 844BL**



**Z 4-6**



**e8**

	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18
<b>N3</b>	50-75

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>

**P 1-2**

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P 3**

Aceros inoxidables Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N 3**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

8030231	Ø	d2	L	L2	Z	QTY	€
80302310400	4	6	63	19	4	1	16,87
80302310600	6	6	68	24	4	1	18,52
80302310800	8	10	88	38	4	1	22,21
80302311000	10	10	95	45	4	1	25,63
80302311200	12	12	110	53	4	1	31,75
80302311400	14	12	110	53	4	1	39,96
80302311600	16	16	123	63	4	1	44,29

8030231	Ø	d2	L	L2	Z	QTY	€
80302311800	18	16	123	63	4	1	58,41
80302312000	20	20	141	75	4	1	69,42
80302312200	22	22	141	75	4	1	93,29
80302312500	25	25	166	90	6	1	135,59
80302312800	28	25	166	90	6	1	161,15
80302313000	30	25	166	90	6	1	166,94
80302313600	36	36	186	106	6	1	205,36

# 623

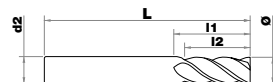
## FRESA FRONTAL ACABADO HSSE8 HICUT Z4

Serie larga

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables

Z4 | HSSE8 End mills | Long series finishing

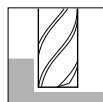
Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



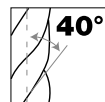
**HSS E8**

**HICUT COATED**

**DIN 844BL**



**Z4**



	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>N3</b>	80-120

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels <700 N / mm<sup>2</sup>

**P 1-2**

Aceros fuertemente aleados 700 -1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 -1000 N / mm<sup>2</sup> ≤ 32 HRc

**P 3**

Aceros inoxidables Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N 3**

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

803623	Ø	d2	L	L2	Z	QTY	€
80362310400	4	6	63	19	4	1	25,02
80362310500	5	6	68	24	4	1	28,31
80362310600	6	6	68	24	4	1	30,97
80362310800	8	10	88	38	4	1	38,79
80362311000	10	10	95	45	4	1	38,61

803623	Ø	d2	L	L2	Z	QTY	€
80362311200	12	12	110	53	4	1	54,35
80362311400	14	12	110	53	4	1	69,64
80362311600	16	16	123	63	4	1	79,08
80362311800	18	16	123	63	4	1	93,48
80362312000	20	20	141	75	4	1	108,00

# 015

## FRESA FRONTAL ACABADO HSSE8 Z3

Serie larga

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidable

Z3 | HSSE8 End mills | Long series finishing

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels

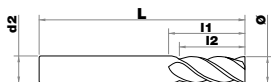
Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>



Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc

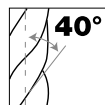


Aceros  
inoxidables  
Stainless  
steels



	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36
<b>P5</b>	18-24
<b>P6</b>	16-22
<b>M1</b>	14-18

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8030151	Ø	d2	L	L2	QTY	€
80301510400	4	6	39	19	1	23,76
80301510600	6	6	68	24	1	27,68
80301510800	8	10	88	38	1	35,81
80301511000	10	10	95	45	1	33,12
80301511200	12	12	110	53	1	38,32

8030151	Ø	d2	L	L2	QTY	€
80301511400	14	12	110	53	1	50,25
80301511600	16	16	123	63	1	60,88
80301511800	18	16	123	63	1	73,62
80301512000	20	20	141	75	1	85,95

# 016

## FRESA FRONTAL ACABADO HSSE8 Z4

Serie extra larga

Aceros duros hasta 1000 N/mm<sup>2</sup>

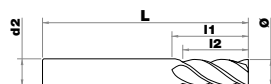
Z4 | HSSE8 End mills | Extra long series finishing

Hard steels up to 1000 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 700 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<700 N / mm<sup>2</sup>

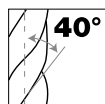
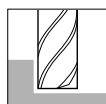


Aceros fuertemente  
aleados 700 -1000 N/mm<sup>2</sup>  
≤ 32 HRc  
Steels high alloy  
700 -1000 N / mm<sup>2</sup>  
≤ 32 HRc



	Vc M/min
<b>P1</b>	38-44
<b>P2</b>	32-38
<b>P3</b>	30-36

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8030161	Ø	d2	L	L2	QTY	€
80301610600	6	6	95	50	1	34,22
80301610800	8	10	110	60	1	46,66
80301611000	10	10	115	65	1	50,81
80301611200	12	12	130	75	1	58,95

8030161	Ø	d2	L	L2	QTY	€
80301611400	14	12	135	80	1	76,91
80301611600	16	16	155	95	1	80,09
80301611800	18	16	160	100	1	113,05
80301612000	20	20	175	110	1	113,30

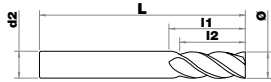
# 715

## FRESA FRONTAL DESBASTE HSSE8 TiALN Z4

Aceros duros hasta 1000 N/mm<sup>2</sup>, inoxidables

Z4 | HSSE8 end mills | Roughing

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados 700 - 1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 - 1000 N / mm<sup>2</sup> ≤ 32 HRc



Aceros inoxidables  
Stainless steels

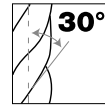
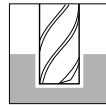


Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed



	Vc M/min
P1	65-75
P2	55-70
P3	50-65
P5	30-36
P6	28-34
M1	22-26
N3	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8037151	Ø	d2	L	L2	QTY	⊞	€
80371510600	6	6	57	13	1	1	21,18
80371510800	8	10	69	19	1	1	34,03
80371511000	10	10	72	22	1	1	34,03

8037151	Ø	d2	L	L2	QTY	⊞	€
80371511200	12	12	83	26	1	1	47,54
80371511600	16	16	92	32	1	1	65,51
80371512000	20	20	104	38	1	1	96,02

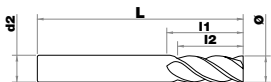
# 634

## FRESA FRONTAL DESBASTE HSSE8 Z4

Aceros duros hasta 1000 N/mm<sup>2</sup> e inoxidables

Z4 | HSSE8 end mills | Roughing

Hard steels up to 1000 N/mm<sup>2</sup>, stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados 700 - 1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 - 1000 N / mm<sup>2</sup> ≤ 32 HRc

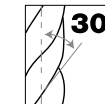


Aceros inoxidables  
Stainless steels



	Vc M/min
P1	38-44
P2	32-38
P3	30-36
P5	18-24
P6	16-22
M1	14-18

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8036341	Ø	d2	L	L2	Z	QTY	⊞	€
80363410600	6	6	57	13	4	1	1	45,92
80363410800	8	10	69	19	4	1	1	39,30
80363411000	10	10	72	22	4	1	1	38,21
80363411200	12	12	83	26	4	1	1	49,98

8036341	Ø	d2	L	L2	Z	QTY	⊞	€
80363411400	14	12	83	26	4	1	1	54,57
80363411600	16	16	92	32	4	1	1	65,85
80363412000	20	20	104	38	4	1	1	85,87
80363412200	22	20	104	38	4	1	1	102,50

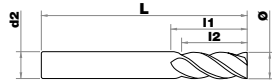
# 635

## FRESA FRONTAL DESBASTE HSSE8 HICUT Z4

Aceros duros hasta 1200 N/mm<sup>2</sup> e inoxidables

Z4 | HSSE8 end mills | Roughing

Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados 700 - 1000 N/mm<sup>2</sup> ≤ 32 HRc  
Steels high alloy 700 - 1000 N / mm<sup>2</sup> ≤ 32 HRc



Aceros inoxidables  
Stainless steels

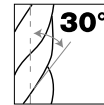
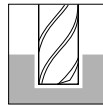


Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed



	Vc M/min
P1	65-75
P2	55-70
P3	50-65
P5	30-36
P6	28-34
M1	22-26
N3	80-120

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8036351	Ø	d2	L	L2	Z	QTY	€
80363510600	6	6	57	13	4	1	44,31
80363510800	8	10	69	19	4	1	50,33
80363511000	10	10	72	22	4	1	51,40
80363511200	12	12	83	26	4	1	69,35

8036351	Ø	d2	L	L2	Z	QTY	€
80363511400	14	12	83	26	4	1	75,86
80363511600	16	16	92	32	4	1	92,32
80363512000	20	20	104	38	4	1	122,03

# 637

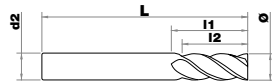
## FRESA FRONTAL DESBASTE HSSE PM HICUT Z4

ACERO SINTERIZADO PULVIMETALÚRGICO

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables, fundiciones y aleaciones refractarias

Z4 | HSSE PM end mills

Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels, cast iron and special alloys



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aceros fuertemente aleados < 1200 N/mm<sup>2</sup>  
Alloyed steel < 1200 N/mm<sup>2</sup>



Aceros inoxidables  
Stainless steels



Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed



Fundiciones  
Cast iron

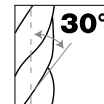
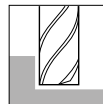


Aleaciones refractarias  
Refractory alloys



	Vc M/min
P1	65-75
P2	55-70
P3	50-65
P4	42-50
P5	30-36
P6	28-34
M1	22-26
K2	60-70
K3	38-44
S	20-26

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$



8036371	Ø	d2	L	L2	Z	QTY	€
80363710600	6	6	57	13	4	1	49,39
80363710700	7	10	66	16	4	1	60,70
80363710800	8	10	69	19	4	1	55,95
80363711000	10	10	72	22	4	1	56,87
80363711200	12	12	83	26	4	1	76,59

8036371	Ø	d2	L	L2	Z	QTY	€
80363711400	14	12	83	26	4	1	83,72
80363711600	16	16	92	32	4	1	101,94
80363711800	18	16	92	32	4	1	110,37
80363712000	20	20	104	38	4	1	134,60



# 641

## FRESA FRONTAL DESBASTE HSSE PM HICUT Z4-6

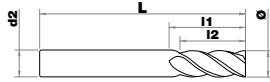
ACERO SINTERIZADO PULVIMETALÚRGICO

Serie larga

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables, fundiciones y aleaciones refractarias

Z4-6 | HSSE PM end mills | Long series roughing

Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels, cast iron and special alloys



$$\text{r.p.m} = \frac{V_c \times 1000}{\pi \times \varnothing}$$

**HSSE  
PM**

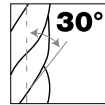
**HICUT  
COATED**

**DIN  
844BL**



**NR  
TYPE**

**Z  
4-6**



Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P  
1-2**

Aceros fuertemente aleados < 1200 N/mm<sup>2</sup>  
Alloyed steel < 1200 N/mm<sup>2</sup>

**P  
3-4**

Aceros inoxidables  
Stainless steels

**P-M**

Cobre no aleado o debilmente aleado  
Copper unalloyed or low alloyed

**N  
3**

Fundiciones  
Cast iron

**K**

Aleaciones refractarias  
Refractory alloys

**S**

	Vc M/min
<b>P1</b>	65-75
<b>P2</b>	55-70
<b>P3</b>	50-65
<b>P4</b>	42-50
<b>P5</b>	30-36
<b>P6</b>	28-34
<b>M1</b>	22-26
<b>K2</b>	60-70
<b>K3</b>	38-44
<b>S</b>	20-26

8036411	Ø	d2	L	L2	Z	QTY	€
80364110800	8	10	88	38	4	1	67,19
80364111000	10	10	95	45	4	1	70,79
80364111200	12	12	110	53	4	1	91,57
80364111400	14	12	110	53	4	1	101,94
80364111600	16	16	123	63	4	1	122,76

8036411	Ø	d2	L	L2	Z	QTY	€
80364111800	18	16	123	63	4	1	132,66
80364112000	20	20	141	75	4	1	171,06
80364112500	25	25	166	90	4	1	270,17
80364113000	30	25	166	90	6	1	314,87
80364113200	32	32	186	106	6	1	337,43



**FRESADO / MILLING**

**FRESAS METAL DURO**  
SOLID CARBIDE END MILLS

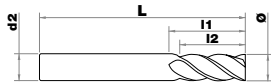
**200**

# 624 FRESA METAL DURO Z2

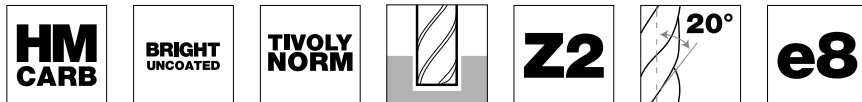
Ángulo de corte 15°  
Aleaciones de aluminio

Z2 | Solid carbide | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	<b>Vc</b>
	<b>M/min</b>
<b>N</b>	250-400



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

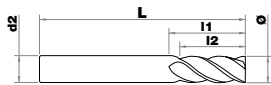
823624	Ø	d2	L	I2	QTY	€	823624	Ø	d2	L	I2	QTY	€		
82362410300	3	6	8	57	1	1	71,28	82362411200	12	12	26	83	1	1	157,10
82362410400	4	6	11	57	1	1	75,64	82362411400	14	14	26	83	1	1	274,58
82362410500	5	6	13	57	1	1	80,23	82362411600	16	16	32	92	1	1	336,14
82362410600	6	6	13	57	1	1	80,73	82362411800	18	18	32	92	1	1	414,04
82362410800	8	8	19	63	1	1	94,50	82362412000	20	20	38	104	1	1	515,70
82362411000	10	10	22	72	1	1	115,99								

# 625 FRESA METAL DURO Z2 SLIDE CUT

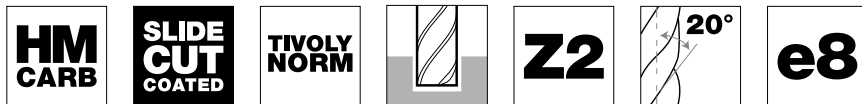
Ángulo de corte 15°  
Aleaciones de aluminio

Z2 | Solid carbide | Aluminium alloys

Aleaciones de aluminio  
Aluminum Alloys



	<b>Vc</b>
	<b>M/min</b>
<b>N</b>	300-550



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

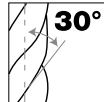
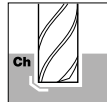
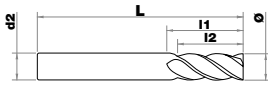
823625	Ø	d2	L	I2	QTY	€	823625	Ø	d2	L	I2	QTY	€		
82362510300	3	6	8	57	1	1	95,79	82362511200	12	12	26	83	1	1	210,72
82362510400	4	6	11	57	1	1	90,84	82362511400	14	14	26	83	1	1	341,75
82362510500	5	6	13	57	1	1	104,73	82362511600	16	16	32	92	1	1	406,14
82362510600	6	6	13	57	1	1	105,25	82362511800	18	18	32	92	1	1	517,99
82362510800	8	8	19	63	1	1	126,96	82362512000	20	20	38	104	1	1	619,66
82362511000	10	10	22	72	1	1	161,71								

# 603

## FRESA METAL DURO Z3

Aceros duros hasta 1200 N/mm<sup>2</sup>,  
inoxidables, fundiciones y composites

Z4- | Solid carbide | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels,  
cast iron and plastics



	Vc M/min
<b>P3</b>	60-80
<b>P4</b>	40-60
<b>P5</b>	60-80
<b>P6</b>	40-60
<b>M1</b>	25-40
<b>K3</b>	80-100
<b>K4</b>	50-70
<b>O1</b>	80-150

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



Fundiciones  
Cast iron



Termoplásticos  
Thermoplastics



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

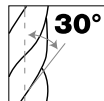
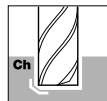
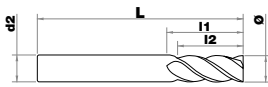
823603	Ø	d2	L	I2	QTY	€	823603	Ø	d2	L	I2	QTY	€		
82360310100	1	3	39	3	1	1	20,46	82360310800	8	8	64	21	1	1	48,29
82360310150	1,5	3	39	5	1	1	21,72	82360310900	9	10	70	22	1	1	68,72
82360310200	2	3	39	7	1	1	21,72	82360311000	10	10	70	22	1	1	68,72
82360310250	2,5	3	39	7	1	1	21,72	82360311100	11	11	70	25	1	1	78,44
82360310300	3	3	39	9	1	1	21,72	82360311200	12	12	76	25	1	1	89,43
82360310350	3,5	4	51	12	1	1	24,55	82360311400	14	14	89	30	1	1	120,03
82360310400	4	4	51	14	1	1	24,55	82360311600	16	16	89	32	1	1	143,05
82360310450	4,5	5	51	14	1	1	27,08	82360311800	18	18	102	35	1	1	217,10
82360310500	5	5	51	16	1	1	27,08	82360312000	20	20	102	38	1	1	253,12
82360310600	6	6	64	19	1	1	32,96	82360312200	22	22	102	38	1	1	367,28
82360310700	7	8	64	19	1	1	48,29	82360312500	25	25	102	38	1	1	390,54

# 616

## FRESA METAL DURO Z3 HARD CUT

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidables,  
fundiciones y composites

Z4- | Solid carbide | Hard steels up to 1200 N/mm<sup>2</sup>, stainless steels,  
cast iron and plastics



	Vc M/min
<b>P3</b>	75-95
<b>P4</b>	55-75
<b>P5</b>	75-95
<b>P6</b>	55-75
<b>M1</b>	40-55
<b>K3</b>	100-130
<b>K4</b>	75-100
<b>O1</b>	160-220

Aceros fuertemente  
aleados <1200 N/mm<sup>2</sup>  
Alloyed steel  
<1200 N/mm<sup>2</sup>



Aceros  
inoxidables  
Stainless  
steels



Fundiciones  
Cast iron



Termoplásticos  
Thermoplastics



$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

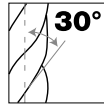
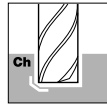
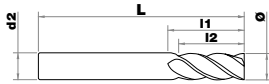
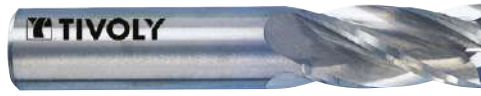
823616	Ø	d2	L	I2	QTY	€	823616	Ø	d2	L	I2	QTY	€		
82361610100	1	3	39	3	1	1	24,79	82361610800	8	8	64	21	1	1	58,38
82361610150	1,5	3	39	5	1	1	26,30	82361610900	9	10	70	22	1	1	83,06
82361610200	2	3	39	7	1	1	26,30	82361611000	10	10	70	22	1	1	83,06
82361610250	2,5	3	39	7	1	1	26,30	82361611100	11	11	70	25	1	1	94,78
82361610300	3	3	39	9	1	1	26,30	82361611200	12	12	76	25	1	1	108,12
82361610350	3,5	4	51	12	1	1	29,68	82361611400	14	14	89	30	1	1	145,11
82361610400	4	4	51	14	1	1	29,68	82361611600	16	16	89	32	1	1	172,95
82361610450	4,5	5	51	14	1	1	32,83	82361611800	18	18	102	35	1	1	262,37
82361610500	5	5	51	16	1	1	32,83	82361612000	20	20	102	38	1	1	305,87
82361610600	6	6	64	19	1	1	39,84	82361612200	22	22	102	38	1	1	443,84
82361610700	7	8	64	19	1	1	58,38	82361612500	25	25	102	38	1	1	471,99

# 604

## FRESA METAL DURO Z4

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidable, fundiciones y aluminios

Z4- | Solid carbide | Hard steels up to 1200 N/mm<sup>2</sup> stainless steels, cast iron and aluminium alloys



Aceros fuertemente aleados <1200 N/mm<sup>2</sup>  
Alloyed steel <1200 N/mm<sup>2</sup>



Aceros inoxidable  
Stainless steels



Fundiciones  
Cast iron



Termoplásticos  
Thermoplastics



	Vc M/min
<b>P3</b>	60-80
<b>P4</b>	40-60
<b>P5</b>	60-80
<b>P6</b>	40-60
<b>M1</b>	25-40
<b>K3</b>	80-100
<b>K4</b>	50-70
<b>O1</b>	80-150

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

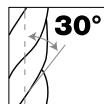
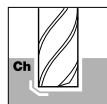
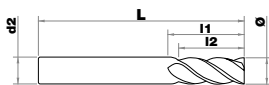
823604	Ø	d2	L	I2	QTY	€	823604	Ø	d2	L	I2	QTY	€		
82360410100	1	3	39	3	1	1	22,99	82360410800	8	8	64	21	1	1	48,29
82360410150	1,5	3	39	5	1	1	21,72	82360410900	9	10	70	22	1	1	66,17
82360410200	2	3	39	7	1	1	19,15	82360411000	10	10	70	22	1	1	66,17
82360410250	2,5	3	39	7	1	1	21,72	82360411100	11	11	70	25	1	1	78,44
82360410300	3	3	39	9	1	1	19,15	82360411200	12	12	76	25	1	1	89,43
82360410350	3,5	4	51	12	1	1	22,99	82360411400	14	14	89	30	1	1	114,96
82360410400	4	4	51	14	1	1	22,99	82360411600	16	16	89	32	1	1	140,50
82360410450	4,5	5	51	14	1	1	27,08	82360411800	18	18	102	35	1	1	209,71
82360410500	5	5	51	16	1	1	27,08	82360412000	20	20	102	38	1	1	237,54
82360410600	6	6	64	19	1	1	31,93	82360412200	22	22	102	38	1	1	367,28
82360410700	7	8	64	19	1	1	43,16	82360412500	25	25	102	38	1	1	390,54

# 617

## FRESA METAL DURO Z4 HARD CUT

Aceros duros hasta 1200 N/mm<sup>2</sup>, inoxidable, fundiciones y aluminios

Z4- | Solid carbide | Hard steels up to 1200 N/mm<sup>2</sup> stainless steels, cast iron and aluminium alloys



Aceros fuertemente aleados <1200 N/mm<sup>2</sup>  
Alloyed steel <1200 N/mm<sup>2</sup>



Aceros inoxidable  
Stainless steels



Fundiciones  
Cast iron



Termoplásticos  
Thermoplastics



	Vc M/min
<b>P3</b>	75-95
<b>P4</b>	55-75
<b>P5</b>	75-95
<b>P6</b>	55-75
<b>M1</b>	40-55
<b>K3</b>	100-130
<b>K4</b>	75-100
<b>O1</b>	160-220

$$r.p.m = \frac{Vc \times 1000}{\pi \times \varnothing}$$

823617	Ø	d2	L	I2	QTY	€	823617	Ø	d2	L	I2	QTY	€		
82361710100	1	3	39	3	1	1	27,84	82361710800	8	8	64	21	1	1	58,38
82361710150	1,5	3	39	5	1	1	26,30	82361710900	9	10	70	22	1	1	80,00
82361710200	2	3	39	7	1	1	23,27	82361711000	10	10	70	22	1	1	80,00
82361710250	2,5	3	39	7	1	1	26,30	82361711100	11	11	70	25	1	1	94,78
82361710300	3	3	39	9	1	1	23,27	82361711200	12	12	76	25	1	1	108,12
82361710350	3,5	4	51	12	1	1	27,84	82361711400	14	14	89	30	1	1	139,04
82361710400	4	4	51	14	1	1	27,84	82361711600	16	16	89	32	1	1	169,76
82361710450	4,5	5	51	14	1	1	32,83	82361711800	18	18	102	35	1	1	253,42
82361710500	5	5	51	16	1	1	32,83	82361712000	20	20	102	38	1	1	287,01
82361710600	6	6	64	19	1	1	38,64	82361712200	22	22	102	38	1	1	443,84
82361710700	7	8	64	19	1	1	52,17	82361712500	25	25	102	38	1	1	471,99



# 151

## FRESA DE SIERRA HSS DENTADO FINO

Aceros semi-duros hasta 700 N/mm<sup>2</sup> y aleaciones de aluminio

HSS Slitting saws fine teeth.

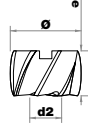
Semi-hard steels up to 700 N/mm<sup>2</sup> and aluminium alloys

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

**P**  
1-2

Aleaciones de aluminio  
Aluminum Alloys

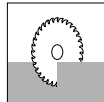
**N**



**HSS**

**BRIGHT UNCOATED**

**DIN 1837**



**Z**  
40-200



8031511	Ø	d2	Z	e	QTY		€
8031511020021	20	5	80	0,2	1	1	21,03
8031511020031	20	5	64	0,3	1	1	18,75
8031511020041	20	5	64	0,4	1	1	18,75
8031511020051	20	5	48	0,5	1	1	18,35
8031511020061	20	5	48	0,6	1	1	18,35
8031511020081	20	5	48	0,8	1	1	18,35
8031511020101	20	5	40	1	1	1	18,35
8031511020121	20	5	40	1,2	1	1	21,03
8031511020161	20	5	80	1,6	1	1	23,36
8031511025021	25	8	80	0,2	1	1	26,79
8031511025031	25	8	80	0,3	1	1	23,71
8031511025041	25	8	64	0,4	1	1	22,91
8031511025051	25	8	64	0,5	1	1	23,83
8031511025061	25	8	64	0,6	1	1	23,83
8031511025081	25	8	48	0,8	1	1	23,83
8031511025101	25	8	48	1	1	1	23,83
8031511025121	25	8	48	1,2	1	1	26,33
8031511025161	25	8	40	1,6	1	1	25,33
8031511032021	32	8	100	0,2	1	1	24,13
8031511032031	32	8	80	0,3	1	1	21,03
8031511032041	32	8	80	0,4	1	1	21,03
8031511032051	32	8	80	0,5	1	1	20,30
8031511032061	32	8	64	0,6	1	1	20,30
8031511032081	32	8	64	0,8	1	1	20,30
8031511032101	32	8	64	1	1	1	20,30
8031511032121	32	8	48	1,2	1	1	23,71
8031511032161	32	8	48	1,6	1	1	24,83
8031511040021	40	10	128	0,2	1	1	25,24
8031511040031	40	10	100	0,3	1	1	24,13
8031511040041	40	10	100	0,4	1	1	24,13
8031511040051	40	10	80	0,5	1	1	22,56
8031511040061	40	10	80	0,6	1	1	22,56
8031511040081	40	10	80	0,8	1	1	22,56
8031511040101	40	10	64	1	1	1	22,56
8031511040121	40	10	64	1,2	1	1	24,13
8031511040161	40	10	64	1,6	1	1	25,62
8031511050051	50	13	100	0,5	1	1	25,62
8031511050061	50	13	100	0,6	1	1	25,62
8031511050081	50	13	80	0,8	1	1	25,62
8031511050101	50	13	80	1	1	1	25,62
8031511050121	50	13	80	1,2	1	1	27,16
8031511050161	50	13	64	1,6	1	1	29,80

8031511	Ø	d2	Z	e	QTY		€
8031511050201	50	13	64	2	1	1	31,73
8031511050251	50	13	64	2,5	1	1	34,40
8031511050301	50	13	48	3	1	1	38,99
8031511063051	63	16	128	0,5	1	1	29,80
8031511063061	63	16	100	0,6	1	1	29,80
8031511063081	63	16	100	0,8	1	1	29,80
8031511063101	63	16	100	1	1	1	29,80
8031511063121	63	16	80	1,2	1	1	31,00
8031511063161	63	16	80	1,6	1	1	34,40
8031511063201	63	16	80	2	1	1	37,11
8031511063251	63	16	64	2,5	1	1	38,99
8031511063301	63	16	64	3	1	1	43,24
8031511080051	80	27	128	0,5	1	1	35,56
8031511080061	80	27	128	0,6	1	1	35,56
8031511080081	80	27	128	0,8	1	1	35,56
8031511080101	80	27	100	1	1	1	35,56
8031511080121	80	27	100	1,2	1	1	36,70
8031511080161	80	27	100	1,6	1	1	38,63
8031511080201	80	27	80	2	1	1	42,83
8031511080251	80	27	80	2,5	1	1	50,85
8031511080301	80	27	80	3	1	1	55,40
8031511080401	80	27	64	4	1	1	68,02
8031511080501	80	27	64	5	1	1	83,31
8031511100051	100	27	160	0,5	1	1	41,32
8031511100061	100	27	160	0,6	1	1	41,32
8031511100081	100	27	128	0,8	1	1	41,32
8031511100101	100	27	128	1	1	1	41,32
8031511100121	100	27	128	1,2	1	1	42,83
8031511100161	100	27	100	1,6	1	1	51,18
8031511100201	100	27	100	2	1	1	56,57
8031511100251	100	27	100	2,5	1	1	63,80
8031511100301	100	27	80	3	1	1	68,77
8031511100401	100	27	80	4	1	1	93,59
8031511100501	100	27	80	5	1	1	104,68
8031511125101	125	27	160	1	1	1	62,67
8031511125121	125	27	128	1,2	1	1	62,67
8031511125161	125	27	128	1,6	1	1	65,69
8031511125201	125	27	128	2	1	1	68,77
8031511125251	125	27	100	2,5	1	1	72,98
8031511125301	125	27	100	3	1	1	81,37
8031511125401	125	27	100	4	1	1	121,09
8031511125501	125	27	80	5	1	1	141,73

FRESADO / MILLING


# 151

## FRESA DE SIERRA HSS DENTADO FINO

Aceros semi-duros hasta 700 N/mm<sup>2</sup> y aleaciones de aluminio

HSS Slitting saws fine teeth.

Semi-hard steels up to 700 N/mm<sup>2</sup> and aluminium alloys

8031511	Ø	d2	Z	e	QTY		€
8031511160101	160	32	160	1	1	1	88,25
8031511160161	160	32	128	1,6	1	1	90,56
8031511160201	160	32	128	2	1	1	93,59
8031511160251	160	32	128	2,5	1	1	104,68
8031511160301	160	32	100	3	1	1	119,19
8031511160401	160	32	100	4	1	1	167,28
8031511160501	160	32	100	5	1	1	198,23
8031511200101	200	32	200	1	1	1	121,09
8031511200161	200	32	160	1,6	1	1	130,63
8031511200201	200	32	160	2	1	1	138,65

8031511	Ø	d2	Z	e	QTY		€
8031511200251	200	32	160	2,5	1	1	157,34
8031511200301	200	32	128	3	1	1	175,68
8031511200401	200	32	128	4	1	1	248,64
8031511200501	200	32	128	5	1	1	314,34
8031511250201	250	32	200	2	1	1	192,13
8031511250251	250	32	160	2,5	1	1	220,00
8031511250301	250	32	160	3	1	1	242,46
8031511250401	250	32	160	4	1	1	351,33
8031511250501	250	32	128	5	1	1	417,04

# 152

## FRESA DE SIERRA HSS DENTADO GRUESO

Aceros semi-duros hasta 700 N/mm<sup>2</sup> y aleaciones de aluminio

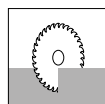
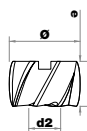
HSS Slitting saws medium teeth.


Semi-hard steels up to 700 N/mm<sup>2</sup> and aluminium alloys


Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>



Aleaciones de aluminio  
Aluminium Alloys



8031521	Ø	d2	Z	e	QTY		€
8031521050051	50	13	48	0,5	1	1	21,41
8031521050061	50	13	48	0,6	1	1	21,41
8031521050081	50	13	40	0,8	1	1	21,41
8031521050101	50	13	40	1	1	1	21,41
8031521050121	50	13	40	1,2	1	1	22,56
8031521050161	50	13	32	1,6	1	1	24,83
8031521050201	50	13	32	2	1	1	26,41
8031521050251	50	13	32	2,5	1	1	28,67
8031521050301	50	13	24	3	1	1	32,50
8031521063051	63	16	64	0,5	1	1	24,83
8031521063061	63	16	48	0,6	1	1	24,83
8031521063081	63	16	48	0,8	1	1	24,83
8031521063101	63	16	48	1	1	1	25,09
8031521063121	63	16	40	1,2	1	1	25,62
8031521063161	63	16	40	1,6	1	1	28,67
8031521063201	63	16	40	2	1	1	30,57
8031521063251	63	16	32	2,5	1	1	32,50
8031521063301	63	16	32	3	1	1	35,93
8031521080051	80	27	64	0,5	1	1	29,44
8031521080061	80	27	64	0,6	1	1	29,44
8031521080081	80	27	64	0,8	1	1	30,26
8031521080101	80	27	48	1	1	1	29,83
8031521080121	80	27	48	1,2	1	1	30,97

8031521	Ø	d2	Z	e	QTY		€
8031521080161	80	27	48	1,6	1	1	33,49
8031521080201	80	27	40	2	1	1	35,17
8031521080251	80	27	40	2,5	1	1	42,03
8031521080301	80	27	40	3	1	1	45,86
8031521080401	80	27	32	4	1	1	56,15
8031521080501	80	27	32	5	1	1	68,77
8031521100051	100	27	80	0,5	1	1	34,05
8031521100061	100	27	80	0,6	1	1	34,31
8031521100081	100	27	64	0,8	1	1	42,45
8031521100101	100	27	64	1	1	1	36,54
8031521100121	100	27	64	1,2	1	1	36,54
8031521100161	100	27	48	1,6	1	1	42,45
8031521100201	100	27	48	2	1	1	46,64
8031521100251	100	27	48	2,5	1	1	52,88
8031521100301	100	27	40	3	1	1	59,09
8031521100401	100	27	40	4	1	1	77,56
8031521100501	100	27	40	5	1	1	86,72
8031521125101	125	27	80	1	1	1	51,98
8031521125121	125	27	64	1,2	1	1	51,98
8031521125161	125	27	64	1,6	1	1	66,37
8031521125201	125	27	64	2	1	1	69,83
8031521125251	125	27	48	2,5	1	1	80,98

# 152

## FRESA DE SIERRA HSS | DENTADO GRUESO

Aceros semi-duros hasta 700 N/mm<sup>2</sup> y aleaciones de aluminio

HSS Slitting saws medium teeth.

Semi-hard steels up to 700 N/mm<sup>2</sup> and aluminium alloys

8031521	Ø	d2	Z	e	QTY	€
8031521125301	125	27	48	3	1	91,44
8031521125401	125	27	48	4	1	100,51
8031521125501	125	27	40	5	1	117,28
8031521160101	160	32	80	1	1	73,35
8031521160161	160	32	80	1,6	1	74,89
8031521160201	160	32	64	2	1	77,56
8031521160251	160	32	64	2,5	1	87,31
8031521160301	160	32	64	3	1	120,81
8031521160401	160	32	48	4	1	138,65
8031521160501	160	32	48	5	1	169,12
8031521200101	200	32	100	1	1	100,51

8031521	Ø	d2	Z	e	QTY	€
8031521200161	200	32	80	1,6	1	108,10
8031521200201	200	32	80	2	1	114,98
8031521200251	200	32	80	2,5	1	130,24
8031521200301	200	32	64	3	1	153,50
8031521200401	200	32	64	4	1	206,25
8031521200501	200	32	64	5	1	260,08
8031521250201	250	32	100	2	1	158,86
8031521250251	250	32	80	2,5	1	182,17
8031521250301	250	32	80	3	1	202,49
8031521250401	250	32	80	4	1	291,02
8031521250501	250	32	64	5	1	345,25

# 107

## FRESA WOODRUFF HSSE5

Aceros semi-duros hasta 700 N/mm<sup>2</sup> y aleaciones de aluminio

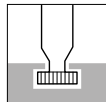
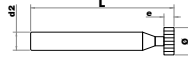
HSSE5 Woodruff cutters

Semi-hard steels up to 700 N/mm<sup>2</sup> and aluminium alloys

Aceros no aleados y para decoletaje < 700 N/mm<sup>2</sup>  
Unalloyed and free cutting steels < 700 N / mm<sup>2</sup>

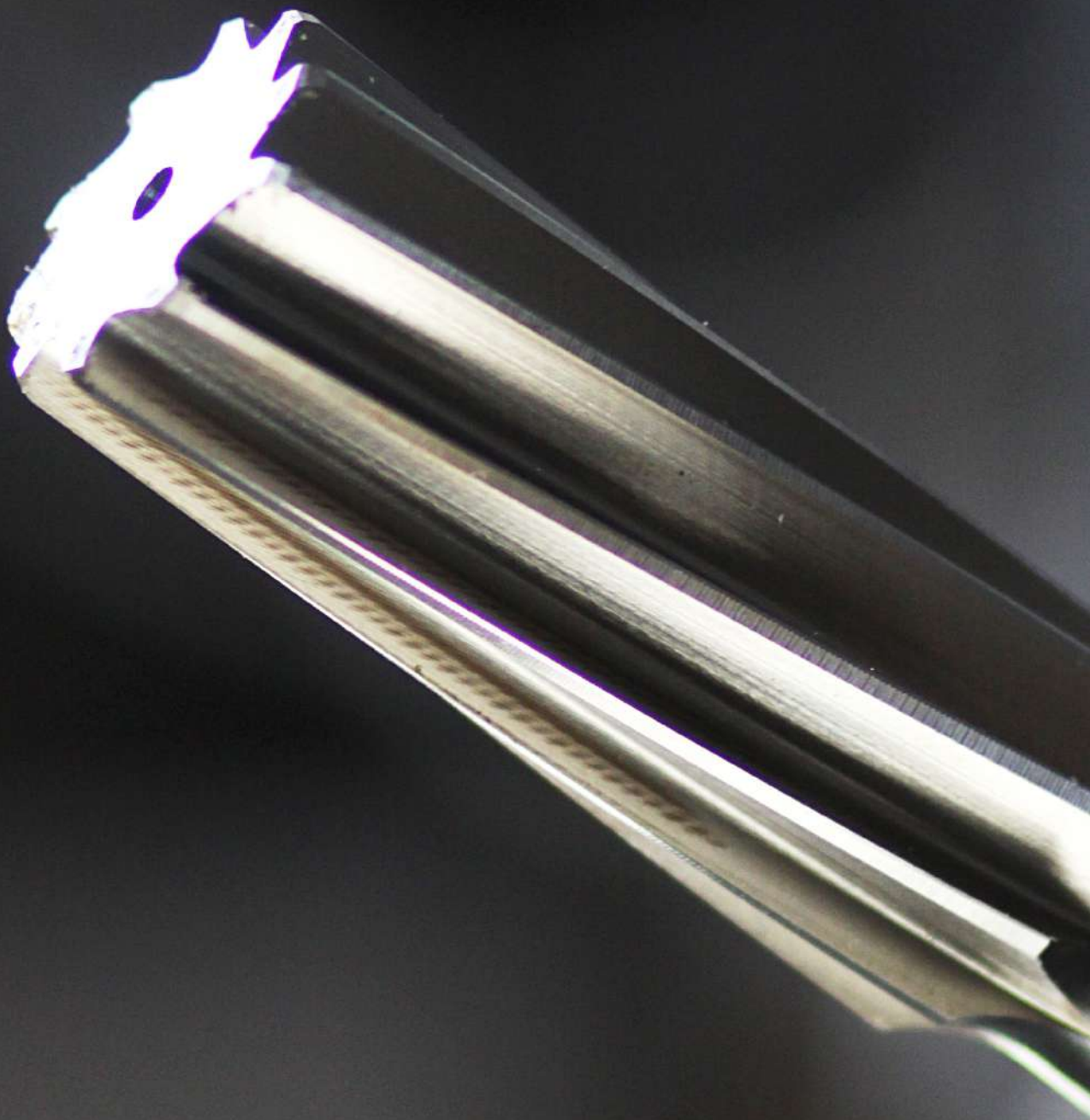


Aleaciones de aluminio  
Aluminum Alloys



8031071	Ø	d2	Z	e	QTY	€
8031071075015	7,50	6	50	1,5	1	33,06
8031071075020	7,50	6	50	2	1	33,06
8031071105025	10,50	12	50	2,5	1	33,27
8031071105030	10,50	12	50	3	1	33,27
8031071135020	13,50	12	56	2	1	35,42
8031071135040	13,50	12	56	4	1	35,42
8031071165030	16,50	12	56	3	1	37,12
8031071165040	16,50	12	56	4	1	37,12
8031071195030	19,50	12	56	3	1	39,70
8031071195040	19,50	12	56	4	1	39,70
8031071195050	19,50	12	56	5	1	39,70
8031071225040	22,50	12	56	4	1	40,80

8031071	Ø	d2	Z	e	QTY	€
8031071225050	22,50	12	56	5	1	40,80
8031071255050	25,50	12	63	5	1	43,36
8031071255070	25,50	12	63	7	1	43,36
8031071285060	28,50	12	63	6	1	49,37
8031071325050	32,50	12	63	5	1	55,78
8031071325060	32,50	12	63	6	1	55,78
8031071325080	32,50	12	63	8	1	55,78
8031071355060	35,50	12	63	6	1	62,23
8031071385070	38,50	12	63	7	1	68,68
8031071385080	38,50	12	63	8	1	68,68
8031071455080	45,50	16	63	8	1	91,83
8031071455100	45,50	16	63	10	1	91,83





**ESCARIADORES**  
REAMERS

**208**



# 002 ESCARIADOR DE MANO HSS

## Aceros semi-duros hasta 700 N/mm<sup>2</sup>

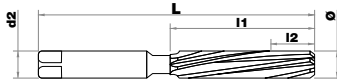
Reamers HSS American hand | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
< 500 N / mm<sup>2</sup>

**P  
1**

Aceros al carbono y  
debilmente aleados  
< 700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel < 700 N / mm<sup>2</sup>

**P  
2**



**HSS**

**BRIGHT  
UNCOATED**

**DIN  
206B**

**B  
FORM**

**10°**

**H7**

104002	Ø	d2	L	l2	QTY	€
10400210200	2	2	50	25	1	49,30
10400210250	2,5	2,5	58	29	1	48,04
10400210300	3	3	62	31	1	48,04
10400210350	3,5	3,5	70	35	1	48,04
10400210400	4	4	76	38	1	49,84
10400210450	4,5	4,5	81	41	1	49,84
10400210500	5	5	87	44	1	49,84
10400210550	5,5	5,5	93	47	1	49,84
10400210600	6	6	93	47	1	49,84
10400210650	6,5	6,5	100	50	1	54,47
10400210700	7	7	107	54	1	57,20
10400210750	7,5	7,5	107	54	1	57,20
10400210800	8	8	115	58	1	58,04
10400210850	8,5	8,5	115	58	1	58,04
10400210900	9	9	124	62	1	60,55
10400210950	9,5	9,5	124	62	1	60,55
10400211000	10	10	133	60	1	65,74
10400211100	11	11	142	71	1	67,88
10400211200	12	12	152	76	1	73,57
10400211300	13	13	152	76	1	79,12

104002	Ø	d2	L	l2	QTY	€
10400211400	14	14	163	81	1	84,82
10400211500	15	15	163	81	1	93,96
10400211600	16	16	175	87	1	99,83
10400211700	17	17	175	87	1	108,93
10400211800	18	18	188	93	1	117,13
10400211900	19	19	188	96	1	127,11
10400212000	20	20	201	100	1	136,21
10400212100	21	21	201	100	1	177,11
10400212200	22	22	215	107	1	183,00
10400212300	23	23	215	107	1	196,34
10400212400	24	24	231	115	1	228,16
10400212500	25	25	231	115	1	231,99
10400212600	26	26	231	115	1	251,84
10400212700	27	27	247	124	1	279,61
10400212800	28	28	247	124	1	282,26
10400212900	29	29	247	124	1	320,04
10400213000	30	30	247	124	1	323,42
10400213100	31	31	265	133	1	377,35
10400213200	32	32	265	133	1	377,35

ESCARIADO / REAMING

# 006

## ESCARIADOR DE MANO HSS CÓNICO

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

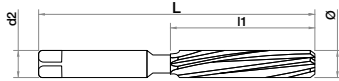
Hand taper reamer HSS | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**

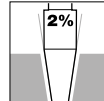
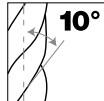


**HSS**

**BRIGHT  
UNCOATED**

**DIN  
9**

**B  
FORM**



**C  
1:50**

<b>104006</b>	Ø nominal	Ø min.	Ø max.	d2	L	l2	QTY		€
10400610100	1	0,9	1.4	1,5	46	28	1	1	51,07
10400610120	1,2	1,1	1.7	1,8	50	32	1	1	50,01
10400610150	1,5	1,4	2.1	2,2	57	37	1	1	43,16
10400610200	2	1,9	2.8	3,1	72	48	1	1	40,97
10400610250	2,5	2,4	3.3	3,1	72	48	1	1	40,40
10400610300	3	2,9	4	4	80	58	1	1	39,76
10400610400	4	3,9	5.2	5	93	68	1	1	39,76
10400610500	5	4,9	6.3	6,3	105	73	1	1	46,08
10400610600	6	5,9	8	8	140	105	1	1	57,56
10400610700	7	6,9	9	9	140	105	1	1	72,36
10400610800	8	7,9	10.8	10	185	145	1	1	76,04
10400610900	9	8,9	11.8	11,8	190	145	1	1	102,43
10400611000	10	9,9	13.4	12,5	220	175	1	1	117,44
10400611200	12	11,8	16	14	260	210	1	1	150,11
10400611400	14	13,8	18	18	260	210	1	1	298,27
10400611600	16	15,8	20.4	18	280	230	1	1	192,66
10400611800	18	17,8	22.4	22,4	290	230	1	1	349,76
10400612000	20	19,8	24.8	22,4	310	250	1	1	310,81
10400612200	22	21,8	26.8	26,8	320	250	1	1	570,58
10400612500	25	24,7	30.7	28	370	300	1	1	588,79

ESCARIADO / REAMING

# 009

## ESCARIADOR DE MANO HSS

Extensible

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

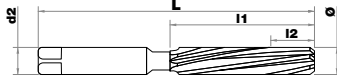
Reamers HSS Adjustable | Semi-hard steels up to 700 N/mm<sup>2</sup>

Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**




**HSS**

**BRIGHT  
UNCOATED**

**TIVOLY  
NORM**

**A  
FORM**

<b>104009</b>	<b>Ø min.</b>	<b>Ø max.</b>	<b>d2</b>	<b>L</b>	<b>I2</b>	<b>QTY</b>		<b>€</b>
10400910809	8	9	4	111	32	1	1	171,24
10400910910	9	10	4	115	32	1	1	171,24
10400911011	10	11	4	120	35	1	1	171,24
10400911112	11	12	6	125	35	1	1	171,24
10400911213	12	13,5	6,2	130	42	1	1	171,24
10400911315	13,5	15,5	7	145	50	1	1	171,24
10400911518	15,5	18	8	165	60	1	1	182,17
10400911821	18	21	9	180	65	1	1	188,62
10400912124	21	24	10	190	70	1	1	219,42
10400912427	24	27,5	11	205	75	1	1	238,97
10400912731	27,5	31,5	12	225	80	1	1	261,28
10400913137	31,5	37	14,5	240	90	1	1	340,58
10400913745	37	45	16	285	100	1	1	507,80
10400914555	45	55	20	320	109	1	1	730,59

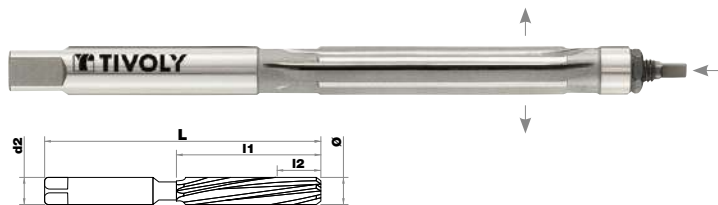
# 010

## ESCARIADOR DE MANO HSS

Ajustable

Aceros semi-duros hasta 700 N/mm<sup>2</sup>

Reamers HSS Adjustable | Semi-hard steels up to 700 N/mm<sup>2</sup>



Aceros no aleados  
y para decoletaje  
< 500 N/mm<sup>2</sup>  
Unalloyed and free  
cutting steels  
<500 N / mm<sup>2</sup>

**P**  
**1**

Aceros al carbono y  
debilmente aleados  
<700 N/mm<sup>2</sup>  
Carbon steel and low  
alloy steel <700 N/mm<sup>2</sup>

**P**  
**2**

**HSS**

**BRIGHT  
UNCOATED**

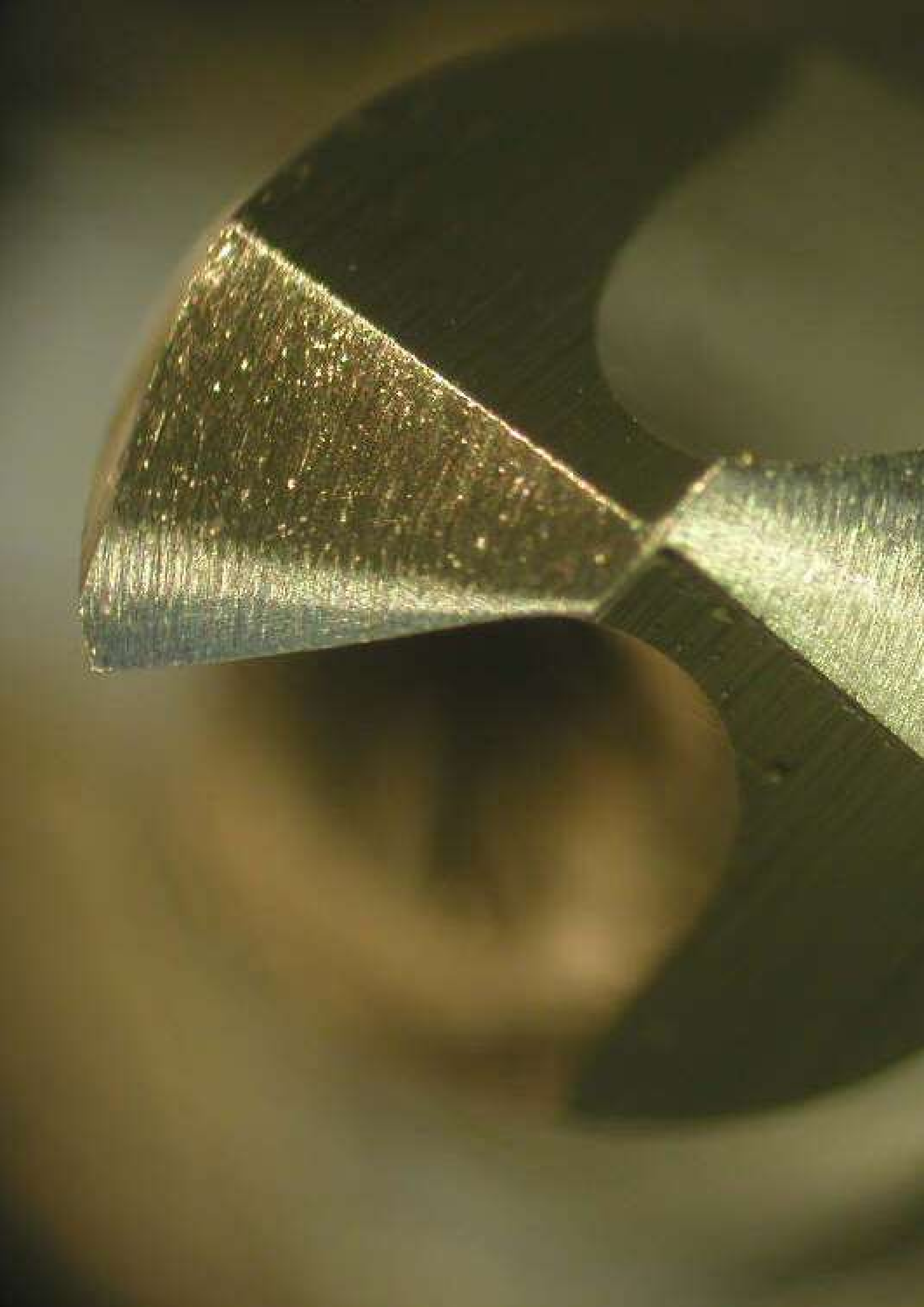
**DIN  
859**

**A  
FORM**

104010	Ø	d2	L	l2	QTY	€
10401010500	5	5	85	32	1	118,94
10401010550	5,5	5.5	85	32	1	115,54
10401010600	6	6	90	32	1	111,08
10401010650	6,5	6.5	100	37	1	111,08
10401010700	7	7	100	37	1	111,08
10401010750	7,5	7.5	110	42	1	115,54
10401010800	8	8	110	42	1	115,54
10401010850	8,5	8.5	120	47	1	117,33
10401010900	9	9	120	47	1	117,33
10401010950	9,5	9.5	130	49	1	118,94
10401011000	10	10	130	49	1	118,94
10401011050	10,5	10.5	140	54	1	126,85
10401011100	11	11	140	54	1	126,85
10401011150	11,5	11.5	150	59	1	135,75
10401011200	12	12	150	59	1	135,75
10401011250	12,5	12.5	160	60	1	146,94
10401011300	13	13	160	60	1	146,94
10401011350	13,5	13.5	170	65	1	157,69
10401011400	14	14	170	65	1	157,69
10401011450	14,5	14.5	180	70	1	168,79
10401011500	15	15	180	70	1	168,79
10401011550	15,5	15.5	180	75	1	183,41

104010	Ø	d2	L	l2	QTY	€
10401011600	16	16	185	75	1	183,41
10401011650	16,5	16.5	190	75	1	199,17
10401011700	17	17	190	75	1	199,17
10401011750	17,5	17.5	200	77	1	211,54
10401011800	18	18	200	77	1	211,54
10401011850	18,5	18.5	205	77	1	234,45
10401011900	19	19	205	77	1	234,45
10401011950	19,5	19.5	210	82	1	250,64
10401012000	20	20	210	82	1	250,64
10401012100	21	21	215	87	1	272,54
10401012200	22	22	220	87	1	291,55
10401012300	23	23	230	89	1	309,00
10401012400	24	24	235	89	1	341,00
10401012500	25	25	240	94	1	383,54
10401012600	26	26	245	95	1	390,45
10401012700	27	27	260	100	1	411,50
10401012800	28	28	260	100	1	439,65
10401012900	29	29	270	102	1	462,74
10401013000	30	30	270	102	1	491,33
10401013100	31	31	280	107	1	524,29
10401013200	32	32	280	107	1	544,60

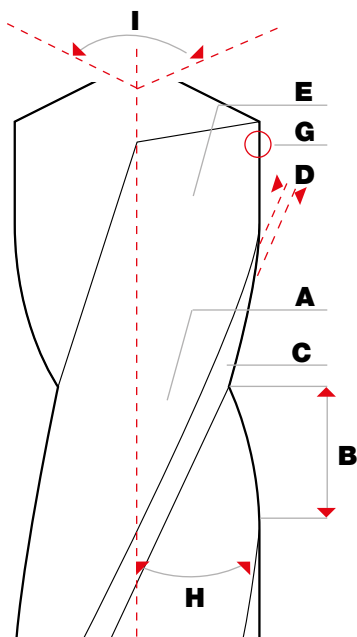
ESCARIADO / REAMING



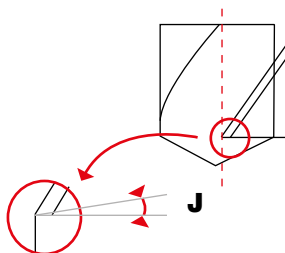
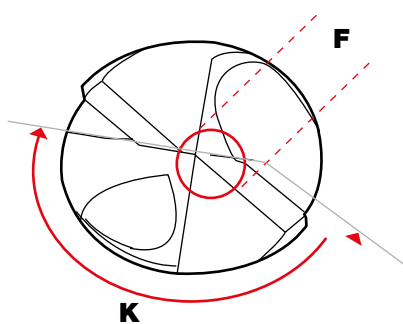


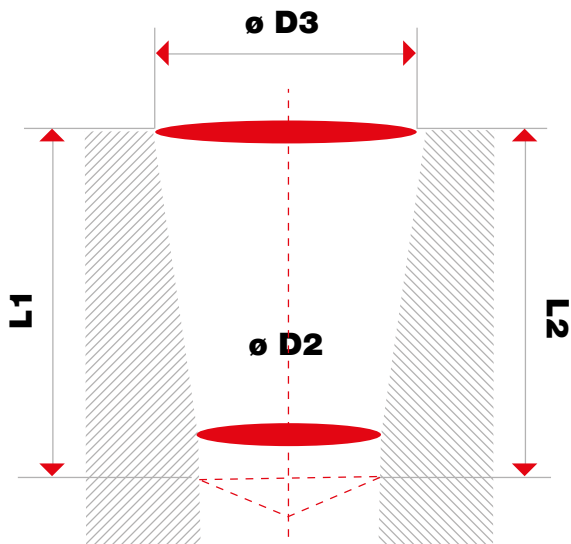
<b>CONDICIONES DE CORTE ROSCADO</b>	<b>215</b>
CUTTING CONDITIONS TAPPING	
<b>CONDICIONES DE CORTE BROCAS</b>	<b>220</b>
CUTTING CONDITIONS DRILLS	
<b>CONDICIONES DE CORTE MACHOS</b>	<b>222</b>
CUTTING CONDITIONS TAPS	
<b>CONDICIONES DE CORTE FRESAS LIMAS</b>	<b>224</b>
CUTTING CONDITIONS ROTARY BURRS	
<b>CONDICIONES DE CORTE FRESADO</b>	<b>226</b>
CUTTING CONDITIONS END MILLING	
<b>CONDICIONES DE VENTA</b>	<b>229</b>
CONDITIONS OF SALE	

<b>N</b>	$\frac{V_c \times 1000}{\phi \times \pi}$	Velocidad de giro / Revolution per minute
<b>Vc</b>	$\frac{\phi \times \pi \times N}{1000}$	Velocidad de corte / Cutting speed
<b>Fz</b>	$\frac{V_f}{Z \times N}$	Avance por diente / Fed per tooth
<b>F</b>	$F_z \times Z$	Avance por vuelta / Feed per revolution
<b>Vf</b>	$F_z \times Z \times N$	Velocidad de avance / Feed speed



- A. Canal / Flute**
- B. Labio / Lip**
- C. Faja guía / Margin**
- D. Ancho de la faja guía / Margin Width**
- E. Superficie destalonada / Relief**
- F. Nucleo / Web**
- G. Punta externa / Corner**
- H. Angulo de la helice / Helix Angle**
- I. Angulo de la punta / Point Angle**
- J. Angulo de incidencia de la artista principal / Lip relief angle**
- K. Angulo del filo transversal / Chisel edge angle**





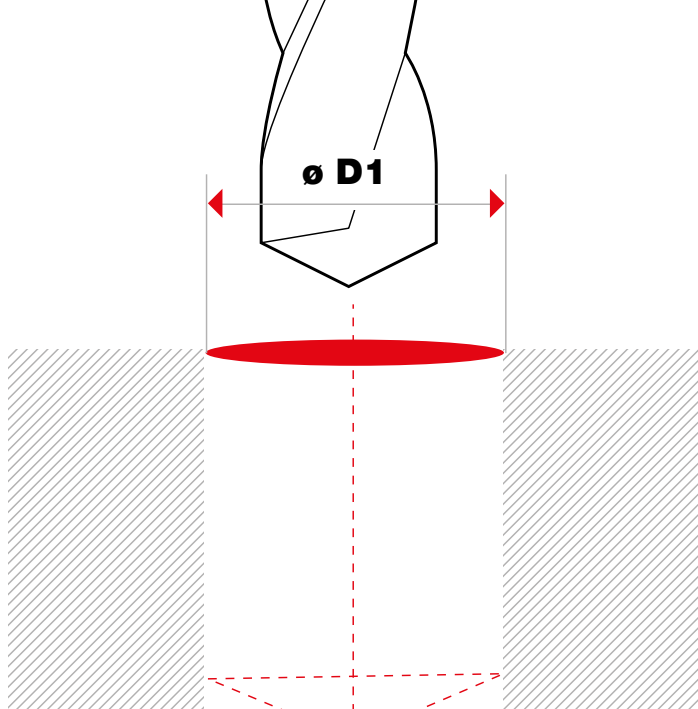
## CONDICIONES DE CORTE | CUTTING CONDITIONS

ROSCADO TAPPING

RC (Conical)				
ø	P	D2	D3	L1 MMIN.
RC 1/16	28	6	6,5	10,1
RC 1/8	28	8	8,5	10,1
RC 1/4	19	10,7	11,35	15
RC 3/8	19	14,15	14,85	15,4
RC 1/2	14	17,6	18,5	20,5
RC 3/4	14	23	24	21,8
RC 1	11	29	30,2	26
RC 1,1/4	11	37,5	38,8	28,3
RC 1,1/2	11	43,35	44,7	28,3
RC 2	11	54,9	56,5	32,7

NPT (Conical)				
ø	P	D2	D3	L1 MMIN.
NPT 1/16	27	6	6,41	12
NPT 1/8	27	8,3	8,76	12
NPT 1/4	18	10,7	11,4	17,5
NPT 3/8	18	14,2	14,84	17,6
NPT 1/2	14	17,4	18,33	22,8
NPT 3/4	14	22,8	23,68	23
NPT 1	11,5	28,6	29,72	27,4
NPT 1,1/4	11,5	37,4	38,48	28,1
NPT 1,1/2	11,5	43,4	44,55	28,4
NPT 2	11,5	55,5	56,59	28

NPTF (Conical)				
ø	P	D2	D3	L1 MMIN.
NPTF 1/16	27	6	6,41	12
NPTF 1/8	27	8,3	8,76	12
NPTF 1/4	18	10,7	11,4	17,5
NPTF 3/8	18	14,2	14,84	17,6
NPTF 1/2	14	17,4	18,33	22,8
NPTF 3/4	14	22,8	23,68	23
NPTF 1	11,5	28,6	29,72	27,4
NPTF 1,1/4	11,5	37,4	38,48	28,1
NPTF 1,1/2	11,5	43,4	44,55	28,4
NPTF 2	11,5	55,5	56,59	28



## DIÁMETROS PREVIOS | PREVIOUS HOLE AL ROSCADO | TAPPING

M		
$\varnothing$	P	PRE-HOLE (mm)
M 1	0,25	<b>0,75</b>
M 1,1	0,25	<b>0,85</b>
M 1,2	0,25	<b>0,95</b>
M 1,4	0,3	<b>1,1</b>
M 1,6	0,35	<b>1,25</b>
M 1,7	0,35	-
M 1,8	0,35	<b>1,45</b>
M 2	0,4	<b>1,6</b>
M 2,2	0,45	<b>1,75</b>
M 2,3	0,4	-
M 2,5	0,45	<b>2,05</b>
M 2,6	0,45	-
M 3	0,5	<b>2,5</b>
M 3,5	0,6	<b>2,9</b>
M 4	0,7	<b>3,3</b>
M 4,5	0,75	<b>3,7</b>
M 5	0,8	<b>4,2</b>
M 5,5	0,9	-
M 6	1	<b>5</b>
M 7	1	<b>6</b>
M 8	1,25	<b>6,8</b>
M 9	1,25	<b>7,8</b>
M 10	1,5	<b>8,5</b>
M 11	1,5	<b>9,5</b>
M 12	1,75	<b>10,2</b>
M 14	2	<b>12</b>
M 16	2	<b>14</b>
M 18	2,5	<b>15,5</b>
M 20	2,5	<b>17,5</b>
M 22	2,5	<b>19,5</b>
M 24	3	<b>21</b>
M 27	3	<b>24</b>
M 30	3,5	<b>26,5</b>
M 33	3,5	<b>29,5</b>
M 36	4	<b>32</b>
M 39	4	<b>35</b>
M 42	4,5	<b>37,5</b>
M 45	4,5	<b>40,5</b>
M 48	5	<b>43</b>
M 52	5	<b>47</b>
M 56	5,5	<b>50,5</b>
M 60	5,5	<b>54,5</b>
M 64	6	<b>58</b>
M 68	6	<b>62</b>

MF		
$\varnothing$	P	PRE-HOLE (mm)
MF 2	0,25	<b>1,75</b>
MF 2,2	0,25	<b>1,95</b>
MF 2,25	0,25	<b>2</b>
MF 3	0,35	<b>2,65</b>
MF 3,5	0,35	<b>3,15</b>
MF 4	0,5	<b>3,5</b>
MF 4,5	0,5	<b>4</b>
MF 5	0,5	<b>4,5</b>
MF 6	0,5	<b>5,5</b>
MF 6	0,75	<b>5,2</b>
MF 8	0,75	<b>7,2</b>
MF 10	0,75	<b>9,2</b>
MF 8	1	<b>7</b>
MF 10	1	<b>9</b>
MF 12	1	<b>11</b>
MF 16	1	<b>15</b>
MF 20	1	<b>19</b>
MF 10	1,25	<b>8,8</b>
MF 14	1,25	<b>12,8</b>
MF 12	1,5	<b>10,5</b>
MF 16	1,5	<b>14,5</b>
MF 20	1,5	<b>18,5</b>
MF 24	1,5	<b>22,5</b>
MF 36	1,5	<b>34,5</b>
MF 48	1,5	<b>46,5</b>
MF 56	1,5	<b>54,5</b>
MF 20	2	<b>18</b>
MF 30	2	<b>28</b>
MF 42	2	<b>40</b>
MF 56	2	<b>54</b>
MF 36	3	<b>33</b>
MF 48	3	<b>45</b>
MF 56	3	<b>53</b>
MF 64	3	<b>61</b>
MF 48	4	<b>44</b>
MF 56	4	<b>52</b>
MF 64	4	<b>60</b>
MF 72	4	<b>68</b>
MF 80	6	<b>74</b>
MF 95	6	<b>89</b>
MF 110	6	<b>104</b>

BSW		
$\varnothing$	P	PRE-HOLE (mm)
BSW (1/16)	60	<b>1,15</b>
BSW (3/32)	48	<b>1,85</b>
BSW (1/8)	40	<b>2,55</b>
BSW (5/32)	32	<b>3,2</b>
BSW (3/16)	24	<b>3,7</b>
BSW (7/32)	24	<b>4,5</b>
BSW 1/4	20	<b>5,1</b>
BSW 5/16	18	<b>6,5</b>
BSW 3/8	16	<b>7,9</b>
BSW 7/16	14	<b>9,25</b>
BSW 1/2	12	<b>10,5</b>
BSW 9/16	12	<b>12</b>
BSW 5/8	11	<b>13,5</b>
BSW 3/4	10	<b>16,5</b>
BSW 7/8	9	<b>19,25</b>
BSW 1"	8	<b>22</b>
BSW 1,1/8	7	<b>24,75</b>
BSW 1,1/4	7	<b>27,75</b>
BSW 1,3/8	6	<b>30,5</b>
BSW 1,1/2	6	<b>33,5</b>
BSW 1,5/8	5	<b>35,5</b>
BSW 1,3/4	5	<b>39</b>
BSW 1,7/8	4,1/2	<b>41,5</b>
BSW 2"	4,1/2	<b>44,5</b>
BSW 2,1/4	4	<b>50</b>
BSW 2,1/2	4	<b>56,5</b>
BSW 2,3/4	3,1/2	<b>62</b>
BSW 3"	2,1/2	<b>68</b>

BSF		
$\varnothing$	P	PRE-HOLE (mm)
BSF 3/16	32	<b>4</b>
BSF 7/32	28	<b>4,6</b>
BSF 1,4	26	<b>5,3</b>
BSF 9/32	26	<b>60,1</b>
BSF 5/16	22	<b>6,8</b>
BSF 3/8	20	<b>8,3</b>
BSF 7/16	18	<b>9,7</b>
BSF 1/2	16	<b>11,1</b>
BSF 9/16	16	<b>12,7</b>
BSF 5/8	14	<b>14</b>
BSF 11/16	14	<b>15,5</b>
BSF 3/4	12	<b>16,75</b>
BSF (13/16)	12	<b>18,5</b>
BSF 7/8	11	<b>19,75</b>
BSF 1"	10	<b>22,75</b>
BSF 1,1/8	9	<b>25,5</b>
BSF 1,3/8	8	<b>31,5</b>
BSF 1,1/2	8	<b>34,8</b>
BSF 1,5/8	8	<b>38</b>
BSF 1,3/4	7	<b>40,5</b>
BSF 2"	7	<b>47</b>
BSF 2,1/4	6	<b>52,5</b>
BSF 2,1/2	6	<b>50</b>
BSF 2,3/4	6	<b>65,4</b>
BSF 3"	5	<b>70,5</b>

BSPG		
Ø	P	PRE-HOLE (ØH)

BSPG 1/8	28	<b>8,8</b>
BSPG 1/4	19	<b>11,8</b>
BSPG 3/8	19	<b>15,25</b>
BSPG 1/2	14	<b>19</b>
BSPG 5/8	14	<b>21</b>
BSPG 3/4	14	<b>24,5</b>
BSPG 7/8	14	<b>28,25</b>
BSPG 1"	11	<b>30,75</b>
BSPG 1,1/8	11	<b>35,5</b>
BSPG 1,1/4	11	<b>39,5</b>
BSPG (1,3/8)	11	<b>42</b>
BSPG 1,1/2	11	<b>45,5</b>
BSPG (1,5/8)	11	<b>49,6</b>
BSPG 1,3/4	11	<b>51,4</b>
BSPG 2"	11	<b>57,2</b>
BSPG 2,1/4	11	<b>63,3</b>
BSPG (2,3/8)	11	<b>67</b>
BSPG (2,1/2)	11	<b>72,8</b>
BSPG 2,3/4	11	<b>79,1</b>
BSPG 3"	11	<b>85,5</b>
BSPG 3,1/4	11	<b>91,5</b>
BSPG 3,1/2	11	<b>98</b>
BSPG 3,3/4	11	<b>104</b>
BSPG 4"	11	<b>110,5</b>

UNC		
Ø	P	PRE-HOLE (ØH)

UNC 1	64	<b>1,5</b>
UNC 2	56	<b>1,8</b>
UNC 3	48	<b>2,1</b>
UNC 4	40	<b>2,3</b>
UNC 5	40	<b>2,6</b>
UNC 6	32	<b>2,85</b>
UNC 8	32	<b>3,5</b>
UNC 10	24	<b>3,9</b>
UNC 12	24	<b>4,5</b>
UNC 1/4	20	<b>5,2</b>
UNC 5/16	18	<b>6,6</b>
UNC 3/8	16	<b>8</b>
UNC 7/16	14	<b>9,4</b>
UNC 1/2	13	<b>10,75</b>
UNC 9/16	12	<b>12,26</b>
UNC 5/8	11	<b>13,5</b>
UNC 3/4	10	<b>16,5</b>
UNC 7/8	9	<b>19,5</b>
UNC 1"	8	<b>22,25</b>
UNC 1,1/8	7	<b>25</b>
UNC 1,1/4	7	<b>28,25</b>
UNC 1,3/8	6	<b>30,75</b>
UNC 1,1/2	6	<b>34</b>
UNC 1,3/4	5	<b>39,5</b>
UNC 2"	4,1/2	<b>45</b>
UNC 2,1/4	4,1/2	<b>51,5</b>
UNC 2,1/2	4	<b>57,5</b>
UNC 2,3/4	4	<b>63,5</b>
UNC 3"	4	<b>70</b>

UNF		
Ø	P	PRE-HOLE (ØH)

UNF 0	80	<b>1,25</b>
UNF 1	72	<b>1,55</b>
UNF 2	64	<b>1,85</b>
UNF 3	56	<b>2,1</b>
UNF 4	48	<b>2,4</b>
UNF 5	44	<b>2,75</b>
UNF 6	40	<b>3</b>
UNF 8	36	<b>3,5</b>
UNF 10	32	<b>4,1</b>
UNF 12	28	<b>4,65</b>
UNF 1/4	28	<b>5,5</b>
UNF 5/16	24	<b>6,9</b>
UNF 3/8	20	<b>8,5</b>
UNF 7/16	20	<b>9,9</b>
UNF 1/2	20	<b>11,5</b>
UNF 9/16	18	<b>12,9</b>
UNF 5/8	18	<b>14,5</b>
UNF 3/4	16	<b>17,5</b>
UNF 7/8	14	<b>20,5</b>
UNF 1"	12	<b>23,25</b>
UNF 1,1/8	12	<b>26,5</b>
UNF 1,1/4	12	<b>29,75</b>
UNF 1,3/8	12	<b>32,75</b>
UNF 1,1/2	12	<b>36</b>

PG		
Ø	-	PRE-HOLE (ØH)

PG 7	-	<b>11,4</b>
PG 9	-	<b>14</b>
PG 11	-	<b>17,25</b>
PG 13,5	-	<b>19</b>
PG 16	-	<b>21,25</b>
PG 21	-	<b>26,75</b>
PG 29	-	<b>35,5</b>
PG 36	-	<b>45,5</b>
PG 42	-	<b>62,6</b>
PG 48	-	<b>57,7</b>

RC			
Ø	P	PRE-HOLE (ØH)	L1 MMIN.

RC 1/16	28	<b>6,3</b>	10,1
RC 1/8	28	<b>8,3</b>	10,1
RC 1/4	19	<b>11</b>	15
RC 3/8	19	<b>14,5</b>	15,4
RC 1/2	14	<b>18,1</b>	20,5
RC 3/4	14	<b>23,5</b>	21,8
RC 1	11	<b>29,6</b>	26
RC 1,1/4	11	<b>38,1</b>	28,3
RC 1,1/2	11	<b>44</b>	28,3
RC 2	11	<b>55,6</b>	32,7

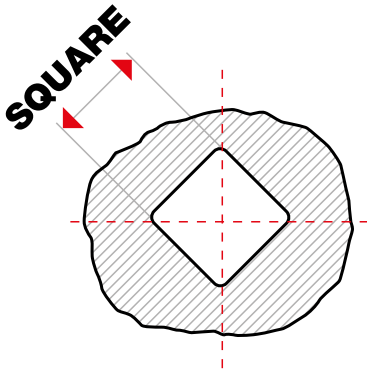
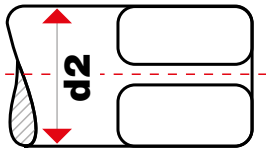
NPT			
Ø	P	PRE-HOLE (ØH)	L1 MMIN.

NPT 1/16	27	<b>6,2</b>	12
NPT 1/8	27	<b>8,5</b>	12
NPT 1/4	18	<b>11</b>	17,5
NPT 3/8	18	<b>14,5</b>	17,6
NPT 1/2	14	<b>17,8</b>	22,8
NPT 3/4	14	<b>23</b>	23
NPT 1	11,5	<b>29</b>	27,4
NPT 1,1/4	11,5	<b>37,5</b>	28,1
NPT 1,1/2	11,5	<b>44</b>	28,4
NPT 2	11,5	<b>56</b>	28

NPTF			
Ø	P	PRE-HOLE (ØH)	L1 MMIN.

NPTF 1/16	27	<b>6,2</b>	12
NPTF 1/8	27	<b>8,5</b>	12
NPTF 1/4	18	<b>11</b>	17,5
NPTF 3/8	18	<b>14,5</b>	17,6
NPTF 1/2	14	<b>17,8</b>	22,8
NPTF 3/4	14	<b>23</b>	23
NPTF 1	11,5	<b>29</b>	27,4
NPTF 1,1/4	11,5	<b>37,5</b>	28,1
NPTF 1,1/2	11,5	<b>44</b>	28,4
NPTF 2	11,5	<b>56</b>	28





## DIMENSIONES DE MANGO | SHANK DIMENSIONS

ROSCADO TAPPING

SQUARE ISO 529			
ø	P	d2	SQUARE
M2	0,4	2,5	<b>2</b>
M2,5	0,45	2,8	<b>2,24</b>
M3	0,5	3,15	<b>2,5</b>
M3,5	0,6	3,55	<b>2,8</b>
M4	0,7	4	<b>3,15</b>
M4	0,75	4	<b>3,15</b>
M5	0,8	5	<b>4</b>
M5	0,9	5	<b>4</b>
M6	1	6,3	<b>5</b>
M7	1	7,1	<b>5,6</b>
M8	1,25	8	<b>6,3</b>
M9	1,25	8	<b>6,3</b>
M10	1,5	10	<b>8</b>
M11	1,5	8	<b>6,3</b>
M12	1,75	9	<b>7,1</b>
M14	2	11,2	<b>9</b>
M16	2	12,5	<b>10</b>
M18	2,5	14	<b>11,2</b>
M20	2,5	14	<b>11,2</b>
M22	2,5	16	<b>12,5</b>
M24	3	18	<b>14</b>
M27	3	20	<b>16</b>
M30	3,5	20	<b>16</b>
MF3	0,6	3,15	<b>2,5</b>
MF8	1	8	<b>6,3</b>
MF9	1	9	<b>7,1</b>
MF10	1	10	<b>8</b>
MF10	1,25	10	<b>8</b>
MF12	1	9	<b>7,1</b>
MF12	1,25	9	<b>7,1</b>
MF12	1,5	9	<b>7,1</b>
MF14	1,25	11,2	<b>9</b>
MF14	1,5	11,2	<b>9</b>
MF16	1,5	12,5	<b>10</b>
MF18	1,5	14	<b>11,2</b>
MF20	1,5	14	<b>11,2</b>
MF22	1,5	16	<b>12,5</b>
MF24	1,5	18	<b>14</b>

SQUARE DIN 352			
ø	P	d2	SQUARE
M2	0,4	2,8	<b>2,1</b>
M2,5	0,45	2,8	<b>2,1</b>
M3	0,5	3,5	<b>2,7</b>
M3,5	0,6	4	<b>3</b>
M4	0,7	4,5	<b>3,4</b>
M4,5	0,75	6	<b>4,9</b>
M5	0,8	6	<b>4,9</b>
M6	1	6	<b>4,9</b>
M7	1	6	<b>4,9</b>
M8	1,25	6	<b>4,9</b>
M9	1,25	6	<b>4,9</b>
M10	1,5	7	<b>5,5</b>
M11	1,5	8	<b>6,2</b>
M12	1,75	9	<b>7</b>
M14	2	11	<b>9</b>
M16	2	12	<b>9</b>
M18	2,5	14	<b>11</b>
M20	2,5	16	<b>12</b>
M22	2,5	18	<b>14,5</b>
M24	3	18	<b>14,5</b>
M27	3	20	<b>16</b>
M30	3,5	22	<b>18</b>
M33	3,5	25	<b>20</b>
M36	4	28	<b>22</b>
M39	4	32	<b>24</b>
M42	4,5	32	<b>24</b>
M45	4,5	36	<b>29</b>
M52	5	40	<b>32</b>

SQUARE DIN 352 UNC			
ø	P	d2	SQUARE
N°2	56	2,8	<b>2,1</b>
N°3	48	3,5	<b>2,7</b>
N°4	40	3,5	<b>2,7</b>
N°5	40	3,5	<b>2,7</b>
N°6	32	4	<b>3</b>
N°8	32	4	<b>3</b>
N°10	24	6	<b>4,9</b>
N°12	24	6	<b>4,9</b>
1/4	20	6	<b>4,9</b>
5/16	18	6	<b>4,9</b>
3/8	16	7	<b>5,5</b>
7/16	14	8	<b>6,2</b>
1/2	13	9	<b>7</b>
9/16	12	11	<b>9</b>
5/8	11	12	<b>9</b>
3/4	10	14	<b>11</b>
7/8	9	18	<b>14,5</b>
1"	8	20	<b>16</b>

SQUARE DIN 352 BSW			
ø	P	d2	SQUARE
1/8	40	3,5	<b>2,7</b>
5/32	32	4,5	<b>3,4</b>
3/16	24	6	<b>4,9</b>
7/32	24	6	<b>4,9</b>
1/4	20	6	<b>4,9</b>
5/16	18	6	<b>4,9</b>
3/8	16	7	<b>5,5</b>
7/16	14	8	<b>6,2</b>
1/2	12	9	<b>7</b>
9/16	12	9	<b>7</b>
5/8	0	0	<b>-</b>
3/4	10	14	<b>11</b>
7/8	9	18	<b>14,5</b>
1"	8	20	<b>16</b>
1 1/4	7	25	<b>20</b>

### SQUARE DIN 374 / 376 M & MF

ø	P	d2	SQUARE
M3	0,5	2,7	<b>2,2</b>
M4	0,7	2,8	<b>2,1</b>
M5	0,8	3,5	<b>2,7</b>
M6	1	4,5	<b>3,4</b>
M8	1,25	6	<b>4,9</b>
M10	1,5	7	<b>5,5</b>
M12	1,75	9	<b>7</b>
M14	2	11	<b>9</b>
M16	2	12	<b>9</b>
M18	2,5	14	<b>11</b>
M20	2,5	16	<b>12</b>
M22	2,5	18	<b>14,5</b>
M24	3	18	<b>14,5</b>
M27	3	20	<b>16</b>
M30	3,5	22	<b>18</b>
M33	3,5	25	<b>20</b>
M36	4	28	<b>22</b>
M42	4,5	32	<b>24</b>
M48	5	36	<b>29</b>
MF8	1	6	<b>4,9</b>
MF10	1	7	<b>5,5</b>
MF10	1,25	7	<b>5,5</b>
MF11	1,25	7	<b>5,5+7</b>
MF12	1	9	<b>7</b>
MF12	1,25	9	<b>7</b>
MF12	1,5	9	<b>9</b>
MF14	1	11	<b>9</b>
MF14	1,25	11	<b>9</b>
MF14	1,5	11	<b>9</b>
MF15	1,5	11	<b>9</b>
MF16	1	12	<b>9</b>
MF16	1,25	12	<b>9</b>
MF18	1	14	<b>11</b>
MF18	1,5	14	<b>11</b>
MF18	2	14	<b>11</b>
MF20	1	16	<b>12</b>
MF20	1,5	16	<b>12</b>
MF20	2	16	<b>12</b>
MF22	1,5	18	<b>14,5</b>
MF22	2	18	<b>14,5</b>
MF24	1,5	18	<b>14,5</b>
MF24	2	18	<b>14,5</b>
MF25	1,5	18	<b>14,5</b>
MF26	1,5	18	<b>14,5</b>
MF27	1,5	18	<b>14,5</b>
MF28	1,5	20	<b>16</b>
MF30	1,5	22	<b>18</b>
MF30	2	22	<b>18</b>
MF32	1,5	22	<b>18</b>
MF36	1,5	28	<b>22</b>
MF36	2	28	<b>22</b>
MF36	3	28	<b>22</b>

### SQUARE DIN 371 M & MF

ø	P	d2	SQUARE
M2	0,4	2,8	<b>2,1</b>
M2,5	0,45	2,8	<b>2,1</b>
M3	0,5	3,5	<b>2,7</b>
M3,5	0,6	4	<b>3</b>
M4	0,7	4,5	<b>3,4</b>
M5	0,8	6	<b>4,9</b>
M6	1	6	<b>4,9</b>
M7	1	6	<b>5,5</b>
M8	1,25	8	<b>6,2</b>
M10	1,5	10	<b>8</b>
MF8	1	8	<b>6,2</b>
MF10	1	10	<b>8</b>

### SQUARE NFE 66112

ø	P	d2	SQUARE
M3	0,5	2,1	<b>1,6</b>
M4	0,7	2,9	<b>2,3</b>
M5	0,8	3,7	<b>3</b>
M6	1	4,5	<b>3,5</b>
M8	1,25	6,2	<b>5</b>
M10	1,5	7,6	<b>6</b>
M12	1,75	9	<b>7</b>
M14	2	10,5	<b>8</b>
M16	2	12,5	<b>10</b>

### SQUARE DIN 2181

ø	P	d2	SQUARE
MF4	0,5	6	<b>4,9</b>
MF5	0,5	6	<b>4,9</b>
MF5	0,75	6	<b>4,9</b>
MF6	0,75	6	<b>4,9</b>
MF7	0,75	6	<b>4,9</b>
MF8	0,75	6	<b>4,9</b>
MF8	1	6	<b>4,9</b>
MF9	1	7	<b>5,5</b>
MF10	1	7	<b>5,5</b>
MF10	1,25	7	<b>5,5</b>
MF11	1	8	<b>6,2</b>
MF11	1,25	8	<b>6,2</b>
MF12	1	9	<b>7</b>
MF12	1,25	9	<b>7</b>
MF12	1,5	9	<b>7</b>
MF13	1,25	11	<b>9</b>
MF14	1	11	<b>9</b>
MF14	1,25	11	<b>9</b>
MF14	1,5	11	<b>9</b>
MF15	1,5	12	<b>9</b>
MF16	1	12	<b>9</b>
MF16	1,25	12	<b>9</b>
MF16	1,5	12	<b>9</b>
MF18	1	14	<b>11</b>
MF18	1,25	14	<b>11</b>
MF18	1,5	14	<b>11</b>
MF18	2	14	<b>11</b>
MF20	1	16	<b>12</b>
MF20	1,5	16	<b>12</b>
MF20	2	16	<b>12</b>
MF22	1,5	18	<b>14,5</b>
MF22	2	18	<b>14,5</b>
MF24	1	18	<b>14,5</b>
MF24	1,5	18	<b>14,5</b>
MF24	2	18	<b>14,5</b>
MF26	1,5	20	<b>16</b>
MF26	2	18	<b>14,5</b>
MF27	1,5	20	<b>16</b>
MF27	2	18	<b>14,5</b>
MF30	1,5	22	<b>18</b>
MF30	2	22	<b>18</b>
MF33	2	25	<b>20</b>

### SQUARE DIN 66101

ø	P	d2	SQUARE
M3	0,5	2,3	<b>2,3</b>
M4	0,7	2,9	<b>2,9</b>
M5	0,8	3,8	<b>3,8</b>
M6	1	4,5	<b>4,5</b>
M7	1	5,5	<b>5,5</b>
M8	1,25	6,1	<b>6,1</b>
M10	1,5	7,7	<b>7,7</b>
M12	1,75	9,3	<b>9,3</b>
M14	2	10,9	<b>10,9</b>
M16	2	12,9	<b>12,9</b>
M18	2,5	14,1	<b>14,1</b>
M20	2,5	16,1	<b>16,1</b>
M22	2,5	18	<b>18</b>
M24	3	19,3	<b>19,3</b>
MF6	0,75	4,5	<b>4,5</b>
MF8	1	6,1	<b>6,1</b>
MF10	1	7,7	<b>7,7</b>
MF12	1,25	10,1	<b>10,1</b>
MF12	1,5	9,6	<b>9,6</b>
MF14	1,5	11,8	<b>11,8</b>
MF20	1,5	17,8	<b>17,8</b>
MF22	1,5	19,8	<b>19,8</b>
MF24	1,5	21,8	<b>21,8</b>

### SQUARE DIN 2181 UNF

ø	P	d2	SQUARE
N°3	56	3,5	<b>2,7</b>
N°4	48	3,5	<b>2,7</b>
N°5	44	3,5	<b>2,7</b>
N°6	40	4	<b>3</b>
N°8	36	4	<b>3</b>
N°10	32	6	<b>4,9</b>
N°12	28	6	<b>4,9</b>
1/4	28	6	<b>4,9</b>
5/16	24	6	<b>4,9</b>
3/8	24	7	<b>5,5</b>
7/16	20	8	<b>6,2</b>
1/2	20	9	<b>7</b>
9/16	18	12	<b>9</b>
5/8	18	12	<b>9</b>
3/4	16	14	<b>11</b>
7/8	14	18	<b>14,5</b>
1*	12	20	<b>16</b>

### SQUARE DIN 2181 BSF

ø	P	d2	SQUARE
1/4	26	6	
3/8	20	7	<b>5,5</b>
7/16	18	8	<b>6,2</b>
1/2	16	9	<b>7</b>
9/16	16	11	<b>9</b>
7/8	19,5	14,5	-
1*	10	20	<b>16</b>

### SQUARE DIN 5156 BSPG

ø	P	d2	SQUARE
G1/8	28	7	<b>5,5</b>
G1/4	19	11	<b>9</b>
G3/8	19	12	<b>9</b>
G1/2	14	16	<b>12</b>
G7/8	14	18	<b>14,5</b>
G3/4	14	18	<b>16</b>
G1*	14	20	<b>20</b>
G1*1/4	11	25	<b>20</b>
G1*1/2	11	36	<b>29</b>

### SQUARE sin DIN 5156 NPT

ø	P	d2	SQUARE
T 1/16	27	6	<b>4,9</b>
T 1/8	27	8	<b>6,2</b>
T 1/4	18	11	<b>9</b>
T 3/8	18	14	<b>11</b>
T 1/2	14	18	<b>14,5</b>
T 3/4	14	22	<b>18</b>
T 1*	11,5	25	<b>20</b>
T 1*1/4	11,5	32	<b>24</b>

### SQUARE sin DIN 5156 RC

ø	P	d2	SQUARE
Rc 1/8	27	8	<b>6,2</b>
Rc 1/4	18	11	<b>9</b>
Rc 3/8	18	14	<b>11</b>
Rc 1/2	14	18	<b>14,5</b>
Rc 5/8	14	22	<b>18</b>
Rc 3/4	11,5	25	<b>20</b>

### SQUARE sin DIN 40433 Pg

ø	P	d2	SQUARE
PG 16	18	18	<b>14,5</b>
PG 21	16	20	<b>16</b>
PG 29	16	28	<b>22</b>

# Condiciones de corte | Cutting conditions

## Brocas | Drills

### Velocidad de corte / Cutting speed

Vc (M/min)  
f (mm/tr)

		HSS to HSCo					CARBIDE												
							Standard					Hight performance							
		Vc	f:	Ø2	Ø5	Ø10	Ø15	Vc	f:	Ø2	Ø5	Ø10	Ø15	Vc	f:	Ø2	Ø5	Ø10	Ø15
<b>P1</b>	<b>Aceros de construccion o aceros poco aleados</b> Unalloyed & low alloyed steels <b>&lt;400N/mm<sup>2</sup></b>	<b>32</b>	f:	0,06	0,12	0,3	0,4	<b>100</b>	f:	0,03	0,05	0,08	0,12	<b>140</b>	f:	0,07	0,13	0,25	0,4
<b>P2</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&lt; 700 N/mm<sup>2</sup></b>	<b>28</b>	f:	0,06	0,12	0,3	0,4	<b>100</b>	f:	0,03	0,04	0,07	0,1	<b>140</b>	f:	0,06	0,12	0,25	0,4
<b>P3</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&lt; 1000 N/mm<sup>2</sup></b>	<b>20</b>	f:	0,03	0,07	0,18	0,24	<b>80</b>	f:	0,02	0,03	0,06	0,08	<b>120</b>	f:	0,06	0,12	0,25	0,4
<b>P4</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&lt; 1200 N/mm<sup>2</sup></b>	<b>16</b>	f:	0,04	0,09	0,18	0,28	<b>60</b>	f:	0,02	0,03	0,06	0,08	<b>100</b>	f:	0,06	0,12	0,25	0,4
<b>P4</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&gt; 1200 N/mm<sup>2</sup></b>	<b>NC</b>	f:	-	-	-	-	-	f:	-	-	-	-	-	f:	-	-	-	-
<b>P5</b>	<b>Aceros inoxidables, Ferriticos</b> Stainless Steels, Ferritic	<b>16</b>	f:	0,04	0,09	0,21	0,28	<b>60</b>	f:	0,01	0,05	0,08	0,1	<b>70</b>	f:	0,04	0,08	0,15	0,25
<b>P6</b>	<b>Aceros inoxidables, Martensiticos</b> Stainless Steels, Martensitic	<b>14</b>	f:	0,03	0,07	0,18	0,28	<b>60</b>	f:	0,01	0,05	0,08	0,1	<b>60</b>	f:	0,03	0,06	0,13	0,2
<b>M1</b>	<b>Aceros inoxidables, Austeniticos</b> Stainless Steels, Austenitic	<b>12</b>	f:	0,04	0,09	0,21	0,28	<b>40</b>	f:	0,01	0,05	0,08	0,1	<b>60</b>	f:	0,03	0,06	0,13	0,2
<b>K</b>	<b>Fundición gris</b> Cast iron	<b>30</b>	f:	0,06	0,12	0,3	0,4	<b>80</b>	f:	0,01	0,05	0,08	0,1	<b>100</b>	f:	0,08	0,16	0,24	0,3

## Condiciones de corte | Cutting conditions

### Brocas | Drills

**Velocidad de corte / Cutting speed**  
*Vc (M/min)*  
*f (mm/tr)*

HSS to HSCo

CARBIDE

Standard

Hight performance

**Vc** f: Ø2 Ø5 Ø10 Ø15 **Vc** f: Ø2 Ø5 Ø10 Ø15 **Vc** f: Ø2 Ø5 Ø10 Ø15

<b>K</b>	<b>Fundición gris con grafito laminar</b> SG Iron	<b>16</b> f: 0,04 0,09 0,21 0,28	<b>50</b> f: 0,01 0,05 0,08 0,1	<b>90</b> f: 0,04 0,08 0,16 0,25
<b>N</b>	<b>Aleaciones de aluminio</b> Aluminium Forgings	<b>80</b> f: 0,05 0,1 0,24 0,32	<b>150</b> f: 0,03 0,08 0,13 0,16	<b>400</b> f: 0,03 0,06 0,14 0,24
<b>N</b>	<b>Aleaciones de aluminio</b> Cast Aluminium <b>Si &lt; 10%</b>	<b>60</b> f: 0,04 0,09 0,21 0,28	<b>150</b> f: 0,03 0,08 0,13 0,16	<b>350</b> f: 0,02 0,05 0,12 0,2
<b>N</b>	<b>Aleaciones de aluminio</b> Cast Aluminium <b>Si &gt; 10%</b>	<b>40</b> f: 0,04 0,09 0,21 0,28	<b>80</b> f: 0,01 0,06 0,09 0,12	<b>300</b> f: 0,02 0,05 0,12 0,2
<b>N</b>	<b>Latón</b> Brass	<b>60</b> f: 0,05 0,1 0,24 0,32	<b>100</b> f: 0,03 0,06 0,1 0,15	<b>nc</b> f: nc nc nc nc
<b>N</b>	<b>Bronce</b> Bronze	<b>60</b> f: 0,04 0,09 0,21 0,28	<b>100</b> f: 0,02 0,05 0,09 0,12	<b>nc</b> f: nc nc nc nc
<b>S</b>	<b>Aleaciones refractarias, base Co Ni</b> Special Alloys based Co Ni	<b>10</b> f: 0,02 0,04 0,1 0,17	<b>20</b> f: 0,01 0,03 0,05 0,08	<b>30</b> f: 0,02 0,05 0,1 0,16
<b>S</b>	<b>Aleaciones de titanio</b> Titan alloys	<b>10</b> f: 0,02 0,04 0,1 0,17	<b>20</b> f: 0,01 0,03 0,05 0,08	<b>30</b> f: 0,02 0,05 0,1 0,16

# Condiciones de corte | Cutting conditions

## Machos | Taps

Velocidad de corte / Cutting speed

Vc (M/min)

Recubrimiento / coating = Vc + 20 => 50%



<b>P1</b>	<b>Aceros de construccion o aceros poco aleados</b> Unalloyed & low alloyed steels <b>&lt;400N/mm<sup>2</sup></b>	25-30	18-20	18-20	15-18
<b>P2</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&lt; 700 N/mm<sup>2</sup></b>	20-30	15-18	15-18	20-25
<b>P3</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&lt; 1000 N/mm<sup>2</sup></b>		6-8	6-8	5-8
<b>P4</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&lt; 1200 N/mm<sup>2</sup></b>		4-6	4-6	2-5
<b>P4</b>	<b>Aceros aleados y tratados</b> Heat Treatable Steels <b>&gt; 1200 N/mm<sup>2</sup></b>			3-5	3-5
<b>P5</b>	<b>Aceros inoxidable, ferriticos</b> Stainless Steels, Ferritic	10-20		6-8	6-8
<b>P6</b>	<b>Aceros inoxidable, Martensiticos</b> Stainless Steels, Martensitic			4-6	4-6
<b>M1</b>	<b>Aceros inoxidable, Austeniticos</b> Stainless Steels, Austenitic			5-7	5-7
<b>K</b>	<b>Fundición gris</b> Cast Iron		15-20		



## Condiciones de corte | Cutting conditions

### Machos | Taps

Velocidad de corte / Cutting speed

Vc (M/min)

Recubrimiento / coating = Vc + 20 => 50%



		Uncoated	TiN	TiAlN	AlTiN	AlCrN
<b>K</b>	<b>Fundición gris con grafito laminar</b> SG iron		10-15			
<b>N</b>	<b>Aleaciones de aluminio</b> Aluminium Forgings	30-40		15-25		15-25
<b>N</b>	<b>Aleaciones de aluminio</b> Cast Aluminium <b>Si &lt; 10%</b>	12-20		12-18		12-18
<b>N</b>	<b>Aleaciones de aluminio</b> Cast Aluminium <b>Si &gt; 10%</b>	12-20		12-18		12-18
<b>N</b>	<b>Latón</b> Brass	25-30	18-20	18-20	15-18	15-18
<b>N</b>	<b>Bronce</b> Bronze		5-10	5-10	5-10	4-8
<b>S</b>	<b>Aleaciones refractarias, base Co Ni</b> Special Alloys based Co Ni		2-4	2-4	2-4	2-4
<b>S</b>	<b>Aleaciones de titanio</b> Titan alloys			3-5		3-5

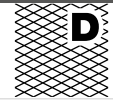
# Condiciones de corte | Cutting conditions

## Fresas lima | Rotary burrs

Velocidad de corte / Cutting speed

Vc (M/min)

Recubrimiento / coating = Vc + 20 => 50%



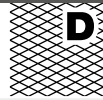
	A	C	D
<b>P1</b> Aceros de construccion o aceros poco aleados Unalloyed & low alloyed steels <400N/mm <sup>2</sup>			400>800 m/min
<b>P2</b> Aceros aleados y tratados Heat Treatable Steels < 700 N/mm <sup>2</sup>			400>800 m/min
<b>P3</b> Aceros aleados y tratados Heat Treatable Steels < 1000 N/mm <sup>2</sup>		400>800 m/min	
<b>P4</b> Acier pour traitement thermique Staal voor thermische behandeling Vergütungsstähle Heat Treatable Steels Aceros aleados y tratados Acciai per trattamento termico < 1200 N/mm <sup>2</sup>		300>700 m/min	
<b>P4</b> Aceros aleados y tratados Heat Treatable Steels > 1200 N/mm <sup>2</sup>		300>600 m/min	
<b>P5</b> Aceros inoxidables, ferriticos Stainless Steels, Ferritic		600>1000 m/min	
<b>P6</b> Aceros inoxidables, Martensiticos Stainless Steels, Martensitic		600>1000 m/min	
<b>M1</b> Aceros inoxidables, Austeniticos Stainless Steels, Austenitic		600>1000 m/min	
<b>K</b> Fundición gris Cast iron			500>800 m/min

## Condiciones de corte | Cutting conditions

### Fresas lima | Rotary burrs

Velocidad de corte / Cutting speed

$V_c$  (M/min)    Recubrimiento / coating =  $V_c + 20 \Rightarrow 50\%$



		A	C	D
<b>K</b>	<b>Fundición gris con grafito laminar</b> SG Iron		500>800 m/min	
<b>N</b>	<b>Aleaciones de aluminio</b> Aluminium Forgings	400>1000 m/min		
<b>N</b>	<b>Aleaciones de aluminio</b> Cast Aluminium <b>Si &lt; 10%</b>	400>1000 m/min		
<b>N</b>	<b>Aleaciones de aluminio</b> Cast Aluminium <b>Si &gt; 10%</b>	300>7000 m/min		
<b>N</b>	<b>Latón</b> Brass			400>800 m/min
<b>N</b>	<b>Bronce</b> Bronze			400>800 m/min
<b>S</b>	<b>Aleaciones refractarias, base Co Ni</b> Special Alloys based Co Ni		400>800 m/min	400>800 m/min
<b>S</b>	<b>Aleaciones de titanio</b> Titan alloys		400>1000 m/min	

Fresado Condiciones de corte (Part.A) | End milling Cutting conditions










Class	Material	Ø	Vc and Vc'(Coated) = m/min fz = m/tr	HSS to HSSPM			HM carbide regular			HM carbide high perf. <small>(23621, 23623, 23640, 23642, 23634, 23636)</small>		
				0,5d			0,5d			0,5d		
				d	d	d	d	d	d	d	d	d
<b>P1</b>	Aceros de construccion o aceros poco aleados Unalloyed & low alloyed steels <400N/mm <sup>2</sup>		Vc	38 to 44 m/min			80 to 120 m/min			145 to 190 m/min (recub.)coated		
			Vc(C)	65 to 75 m/min (recub.)coated			96 to 144 m/min (recub.)coated					
		4	fz	0,017	0,015	0,022	0,017	0,015	0,022	0,013	0,015	0,038
		6	fz	0,023	0,021	0,029	0,023	0,021	0,029	0,027	0,031	0,077
		8	fz	0,037	0,350	0,049	0,037	0,350	0,049	0,038	0,043	0,108
		10	fz	0,041	0,038	0,054	0,041	0,038	0,054	0,047	0,054	0,134
		12	fz	0,050	0,046	0,065	0,050	0,046	0,065	0,062	0,071	0,178
<b>P2</b>	Aceros aleados y tratados Heat Treatable Steels < 700 N/mm <sup>2</sup>		Vc	32 to 38 m/min			60 to 100 m/min			120 to 170 m/min (recub.)coated		
			Vc(C)	55 to 70 m/min (recub.)coated			72 to 120 m/min (recub.)coated					
		4	fz	0,018	0,016	0,023	0,018	0,016	0,023	0,012	0,014	0,035
		6	fz	0,027	0,024	0,035	0,027	0,024	0,035	0,025	0,028	0,070
		8	fz	0,039	0,036	0,051	0,039	0,036	0,051	0,035	0,040	0,099
		10	fz	0,044	0,041	0,058	0,044	0,041	0,058	0,043	0,049	0,123
		12	fz	0,053	0,049	0,069	0,053	0,049	0,069	0,057	0,065	0,163
<b>P3</b>	Aceros aleados y tratados Heat Treatable Steels < 1000 N/mm <sup>2</sup>		Vc	30 to 36 m/min			60 to 80 m/min			100 to 130 m/min (coated/revétu)		
			Vc(C)	50 to 65 m/min (recub.)coated			75 to 95 m/min (recub.)coated					
		4	fz	0,017	0,016	0,022	0,017	0,016	0,022	0,011	0,013	0,032
		6	fz	0,025	0,023	0,033	0,025	0,023	0,033	0,022	0,026	0,064
		8	fz	0,039	0,036	0,052	0,039	0,036	0,052	0,032	0,036	0,090
		10	fz	0,047	0,043	0,061	0,047	0,043	0,061	0,039	0,045	0,112
		12	fz	0,050	0,047	0,066	0,050	0,047	0,066	0,052	0,059	0,148
<b>P4</b>	Aceros aleados y tratados Heat Treatable Steels < 1200 N/mm <sup>2</sup>		Vc	22 to 28 m/min			40 to 60 m/min			75 to 100 m/min (recub.)coated		
			Vc(C)	42 to 50 m/min (recub.)coated			55 to 75 m/min (recub.)coated					
		4	fz	0,014	0,012	0,017	0,014	0,012	0,017	0,010	0,012	0,029
		6	fz	0,021	0,018	0,026	0,021	0,018	0,026	0,020	0,023	0,058
		8	fz	0,033	0,029	0,041	0,033	0,029	0,041	0,028	0,032	0,081
		10	fz	0,038	0,033	0,047	0,038	0,033	0,047	0,035	0,040	0,101
		12	fz	0,041	0,036	0,052	0,041	0,036	0,052	0,047	0,053	0,133
<b>P4</b>	Aceros aleados y tratados Heat Treatable Steels > 1200 N/mm <sup>2</sup>		Vc	16 to 22 m/min			25 to 40 m/min			55 to 75 m/min (recub.)coated		
			Vc(C)	30 to 36 m/min (recub.)coated			40 to 55 m/min (recub.)coated					
		4	fz	0,014	0,012	0,017	0,014	0,012	0,017	0,008	0,009	0,022
		6	fz	0,021	0,018	0,026	0,021	0,018	0,026	0,016	0,018	0,045
		8	fz	0,033	0,029	0,041	0,033	0,029	0,041	0,022	0,025	0,063
		10	fz	0,038	0,033	0,047	0,038	0,033	0,047	0,027	0,031	0,078
		12	fz	0,041	0,036	0,052	0,041	0,036	0,052	0,036	0,041	0,104
<b>P5</b>	Aceros inoxidables, ferríticos Stainless Steels, Ferritic		Vc	18 to 24 m/min			60 to 80 m/min			95 to 125 m/min (recub.)coated		
			Vc(C)	30 to 36 m/min (recub.)coated			75 to 95 m/min (recub.)coated					
		4	fz	0,010	0,009	0,013	0,010	0,009	0,013	0,011	0,013	0,032
		6	fz	0,022	0,019	0,027	0,022	0,019	0,027	0,022	0,026	0,064
		8	fz	0,033	0,029	0,042	0,033	0,029	0,042	0,032	0,036	0,090
		10	fz	0,043	0,038	0,054	0,043	0,038	0,054	0,039	0,045	0,112
		12	fz	0,054	0,047	0,067	0,054	0,047	0,067	0,052	0,059	0,148
<b>P6</b>	Aceros inoxidables, Martensíticos Stainless Steels, Martensitic		Vc	16 to 22 m/min			40 to 60 m/min			75 to 105 m/min (recub.)coated		
			Vc(C)	28 to 34 m/min (recub.)coated			55 to 75 m/min (recub.)coated					
		4	fz	0,010	0,009	0,013	0,010	0,009	0,013	0,010	0,012	0,029
		6	fz	0,022	0,019	0,027	0,022	0,019	0,027	0,020	0,023	0,058
		8	fz	0,033	0,029	0,042	0,033	0,029	0,042	0,028	0,032	0,081
		10	fz	0,043	0,038	0,054	0,043	0,038	0,054	0,035	0,040	0,101
		12	fz	0,054	0,047	0,067	0,054	0,047	0,067	0,047	0,053	0,133
<b>M1</b>	Aceros inoxidables, Austeníticos Stainless Steels, Austenitic		Vc	14 to 18 m/min			25 to 40 m/min			55 to 75 m/min (recub.)coated		
			Vc(C)	22 to 26 m/min (recub.)coated			40 to 55 m/min (recub.)coated					
		4	fz	0,010	0,009	0,013	0,010	0,009	0,013	0,009	0,010	0,026
		6	fz	0,022	0,019	0,027	0,022	0,019	0,027	0,018	0,020	0,051
		8	fz	0,033	0,029	0,042	0,033	0,029	0,042	0,025	0,029	0,072
		10	fz	0,043	0,038	0,054	0,043	0,038	0,054	0,031	0,036	0,090
		12	fz	0,054	0,047	0,067	0,054	0,047	0,067	0,041	0,047	0,118

**Fresado Condiciones de corte (Part.B) | End milling Cutting conditions**

Vc and Vc'(Coated) = m/min  
fz = m/tr

Class	Material	Ø	Vc/fz	HSS to HSSPM			HM carbide regular			HM carbide high perf. <small>(23621, 23623, 23640, 23642, 23634, 23636)</small>		
				0,5d	d	0,1d	0,5d	d	0,1d	0,5d	d	0,1d
<b>K</b>	Fontes grises Grau gietzjer Grauguss Cast Iron Fundicion gris Ghisa grigia	4	Vc	34 to 40 m/min			80 to 100 m/min			130 to 160 m/min (recub.,coated)		
		4	Vc(C)	60 to 70 m/min (recub.,coated)			100 to 130 m/min (recub.,coated)			130 to 160 m/min (recub.,coated)		
		6	fz	0,020	0,017	0,025	0,020	0,017	0,025	0,013	0,015	0,038
		8	fz	0,034	0,030	0,042	0,034	0,030	0,042	0,027	0,031	0,077
		10	fz	0,045	0,039	0,056	0,045	0,039	0,056	0,038	0,043	0,108
		12	fz	0,054	0,047	0,067	0,054	0,047	0,067	0,047	0,054	0,134
		20	fz	0,059	0,052	0,074	0,059	0,052	0,074	0,062	0,071	0,178
<b>K</b>	Fontes GS Gietzjer SG SG Guss SG Iron Fundicion gris con grafito laminar Ghisa a Grafite Sferoidale	4	Vc	20 to 24 m/min			50 to 70 m/min			100 to 130 m/min (recub.,coated)		
		4	Vc(C)	38 to 44 m/min (recub.,coated)			75 to 100 m/min (recub.,coated)			100 to 130 m/min (recub.,coated)		
		6	fz	0,020	0,017	0,025	0,020	0,017	0,025	0,012	0,014	0,035
		8	fz	0,034	0,030	0,042	0,034	0,030	0,042	0,025	0,028	0,070
		10	fz	0,045	0,039	0,056	0,045	0,039	0,056	0,035	0,040	0,099
		12	fz	0,054	0,047	0,067	0,054	0,047	0,067	0,043	0,049	0,123
		20	fz	0,059	0,052	0,074	0,059	0,052	0,074	0,057	0,065	0,163
<b>N</b>	Alliages d'aluminium gras Zuivere aluminiumlegeringen Reinaluminium Aluminium Forgings Aleaciones de aluminio Laminato (Al)	4	Vc	150 to 250 m/min			350 to 500 m/min			600 to 800 m/min (recub.,coated)		
		4	Vc(C)	200 to 300 m/min (recub.,coated)			450 to 650 m/min (recub.,coated)			600 to 800 m/min (recub.,coated)		
		6	fz	0,025	0,022	0,031	0,025	0,022	0,031	0,016	0,018	0,045
		8	fz	0,038	0,033	0,047	0,038	0,033	0,047	0,031	0,036	0,090
		10	fz	0,052	0,046	0,065	0,052	0,046	0,065	0,044	0,050	0,126
		12	fz	0,059	0,052	0,074	0,059	0,052	0,074	0,055	0,063	0,157
		20	fz	0,066	0,058	0,082	0,066	0,058	0,082	0,073	0,083	0,207
<b>N</b>	Alliages d'aluminium Aluminiumleggeringen Aluminium-legierungen Cast Aluminium Aleaciones de aluminio Stampate Al <b>Si &lt; 10%</b>	4	Vc	100 to 150 m/min			250 to 400 m/min			500 to 700 m/min (recub.,coated)		
		4	Vc(C)	150 to 200 m/min (recub.,coated)			300 to 550 m/min (recub.,coated)			500 to 700 m/min (recub.,coated)		
		6	fz	0,028	0,024	0,035	0,028	0,024	0,035	0,015	0,017	0,042
		8	fz	0,041	0,036	0,052	0,041	0,036	0,052	0,029	0,033	0,083
		10	fz	0,057	0,050	0,071	0,057	0,050	0,071	0,041	0,047	0,117
		12	fz	0,065	0,057	0,081	0,065	0,057	0,081	0,051	0,058	0,146
		20	fz	0,073	0,064	0,091	0,073	0,064	0,091	0,067	0,077	0,192
<b>N</b>	Alliages d'aluminium Aluminiumleggeringen Aluminium-legierungen Cast Aluminium Aleaciones de aluminio Stampate Al <b>Si &gt; 10%</b>	4	Vc	60 to 100 m/min			150 to 300 m/min			350 to 500 m/min (coated/revêtu)		
		4	Vc(C)	80 to 120 m/min (recub.,coated)			200 to 400 m/min (coated/revêtu)			350 to 500 m/min (coated/revêtu)		
		6	fz	0,030	0,027	0,038	0,030	0,027	0,038	0,013	0,015	0,038
		8	fz	0,046	0,040	0,057	0,046	0,040	0,057	0,027	0,031	0,077
		10	fz	0,063	0,055	0,078	0,063	0,055	0,078	0,038	0,043	0,108
		12	fz	0,071	0,063	0,089	0,071	0,063	0,089	0,047	0,054	0,134
		20	fz	0,080	0,070	0,100	0,080	0,070	0,100	0,062	0,071	0,178
<b>N</b>	Latón Brass	4	Vc	70 to 95 m/min			100 to 200 m/min			150 to 250 m/min (coated/revêtu)		
		4	Vc(C)	100 to 180 m/min (coated/revêtu)			120 to 240 m/min (coated/revêtu)			150 to 250 m/min (coated/revêtu)		
		6	fz	0,011	0,009	0,013	0,011	0,009	0,013	0,011	0,013	0,032
		8	fz	0,019	0,017	0,024	0,019	0,017	0,024	0,022	0,026	0,064
		10	fz	0,031	0,028	0,039	0,031	0,028	0,039	0,032	0,036	0,090
		12	fz	0,039	0,035	0,049	0,039	0,035	0,049	0,039	0,045	0,112
		20	fz	0,053	0,047	0,066	0,053	0,047	0,066	0,052	0,059	0,148
<b>N</b>	Bronce Bronze	4	Vc	50 to 75 m/min			75 to 125 m/min			130 to 180 m/min (coated/revêtu)		
		4	Vc(C)	80 to 120 m/min (coated/revêtu)			110 to 160 m/min (coated/revêtu)			130 to 180 m/min (coated/revêtu)		
		6	fz	0,011	0,009	0,013	0,011	0,009	0,013	0,011	0,013	0,032
		8	fz	0,019	0,017	0,024	0,019	0,017	0,024	0,022	0,026	0,064
		10	fz	0,031	0,028	0,039	0,031	0,028	0,039	0,032	0,036	0,090
		12	fz	0,039	0,035	0,049	0,039	0,035	0,049	0,039	0,045	0,112
		20	fz	0,053	0,047	0,066	0,053	0,047	0,066	0,052	0,059	0,148
<b>S</b>	Aleaciones refractarias, base Co Ni Special Alloys based Co Ni	4	Vc	12 to 18 m/min			30 to 45 m/min			45 to 65 m/min (recub.,coated)		
		4	Vc(C)	18 to 24 m/min (recub.,coated)			35 to 50 m/min (recub.,coated)			45 to 65 m/min (recub.,coated)		
		6	fz	0,009	0,008	0,012	0,009	0,008	0,012	0,008	0,009	0,022
		8	fz	0,019	0,017	0,024	0,019	0,017	0,024	0,016	0,018	0,045
		10	fz	0,030	0,027	0,038	0,030	0,027	0,038	0,022	0,025	0,063
		12	fz	0,039	0,034	0,049	0,039	0,034	0,049	0,027	0,031	0,078
		20	fz	0,048	0,043	0,061	0,048	0,043	0,061	0,036	0,041	0,104

Fresado Condiciones de corte (Part.C) | End milling Cutting conditions

		Vc and Vc'(Coated) = m/min fz = m/tr		HSS to HSSPM				HM carbide regular			HM carbide high perf. <small>(23621, 23623, 23640, 23642, 23634, 23636)</small>		
Class	Material	Ø	Vc/fz										
<b>S</b>	Aleaciones refractarias, base Co Ni <small>Special Alloys based Co Ni</small>		Vc	10 to 16 m/min				25 to 40 m/min			40 to 60 m/min (recub.,coated)		
			Vc(C)	20 to 26 m/min (recub.,coated)				30 to 45 m/min (recub.,coated)					
		4	fz	0,013	0,012	0,016	0,013	0,012	0,016	0,007	0,008	0,016	
		6	fz	0,022	0,019	0,027	0,022	0,019	0,027	0,013	0,015	0,036	
		8	fz	0,033	0,029	0,042	0,033	0,029	0,042	0,019	0,022	0,054	
		10	fz	0,044	0,039	0,056	0,044	0,039	0,056	0,024	0,027	0,067	
		12	fz	0,057	0,050	0,071	0,057	0,050	0,071	0,031	0,036	0,086	
<b>S</b>	Aleaciones refractarias, base Co Ni <small>Special Alloys based Co Ni</small>		Vc	8 to 12 m/min				20 to 35 m/min					
			Vc(C)	14 to 16 m/min (recub.,coated)				25 to 40 m/min (recub.,coated)			35 to 55 m/min (recub.,coated)		
		4	fz	0,011	0,010	0,014	0,011	0,010	0,014	0,007	0,008	0,019	
		6	fz	0,018	0,016	0,023	0,018	0,016	0,023	0,013	0,015	0,038	
		8	fz	0,029	0,025	0,036	0,029	0,025	0,036	0,019	0,022	0,054	
		10	fz	0,038	0,034	0,048	0,038	0,034	0,048	0,024	0,027	0,067	
		12	fz	0,048	0,043	0,061	0,048	0,043	0,061	0,031	0,036	0,089	
<b>S</b>	Aleaciones de titanio <small>Titan alloys</small>		Vc	12 to 18 m/min				20 to 40 m/min					
			Vc(C)	22 to 28 m/min (recub.,coated)				24 to 48 m/min (recub.,coated)			45 to 65 m/min 55 to 75 m/min 75 to 85 m/min		
		4	fz	0,011	0,010	0,014	0,011	0,010	0,014	0,008	0,009	0,022	
		6	fz	0,017	0,016	0,023	0,017	0,016	0,023	0,016	0,018	0,045	
		8	fz	0,027	0,025	0,036	0,027	0,025	0,036	0,022	0,025	0,063	
		10	fz	0,036	0,034	0,048	0,036	0,034	0,048	0,027	0,031	0,076	
		12	fz	0,046	0,043	0,061	0,046	0,043	0,061	0,036	0,041	0,104	
16	fz	0,055	0,051	0,072	0,055	0,051	0,072	0,048	0,055	0,137			
20	fz	0,064	0,059	0,084	0,064	0,059	0,084	0,060	0,068	0,171			





CATÁLOGO  
GENERAL  
**2023**

**CONDICIONES DE VENTA / CONDITIONS OF SALE**

CONDICIONES DE VENTA / CONDITIONS OF SALE

## CONDICIONES GENERALES DE VENTA

### 1. PREÁMBULO

Las presentes condiciones son aplicables con independencia de las condiciones generales del comprador. Cualquier modificación que las partes realicen requiere un acuerdo expreso por escrito.

### 2. APERTURA DE CUENTA Y CONDICIONES DE CRÉDITO

La apertura de cuenta o la aplicación de nuestras condiciones comerciales está subordinada a la obtención de los documentos (jurídicos, financieros) o garantías que estimamos necesarios.

TIVOLY se reserva la posibilidad de establecer un límite de cuantía más allá de la cual puede exigirse un pago al contado.

### 3. PRECIO

Los precios practicados son los correspondientes a la tarifa vigente en la fecha de recepción del pedido en la sede de TIVOLY.

### 4. PEDIDO

No se acusa recibo de los pedidos: cualquier pedido no rechazado por escrito en un plazo de quince días a partir de su recepción en la sede social de TIVOLY se considera aceptado.

### 5. FABRICACIONES ESPECIALES

Salvo convenios específicos, por razones técnicas de fabricación de artículos que requieran una fabricación especial, nos reservamos el derecho de suministrar y facturar un 10% de más o de menos con relación a la cantidad objeto del pedido. Respecto a los pedidos de menos de 10 piezas, esta tolerancia podrá ser de 2 piezas.

### 6. CONDICIONES DE PAGO

Pago a 60 días f.f. : Neto

Pago a 30 días f.f. : descuento 0,5 %

Reposición : 1 %

### 7. PLAZOS DE ENTREGA

TIVOLY se compromete a respetar en la medida de lo posible los plazos estipulados. No obstante, los plazos de entrega indicados no son de rigor y el comprador no podrá invocarlos en caso de retrasos eventuales para anular el pedido o reclamar una indemnización por daños y perjuicios o penalizaciones.

### 8. TRANSPORTE

Las mercancías vendidas viajan por cuenta y riesgo del comprador con independencia del modo de transporte. Conforme a los artículos L133-3 y siguientes del Código de Comercio, corresponde a los destinatarios ejercer sus recursos contra las transportistas en las formas y plazos legales. Pedidos inferiores a 260 euros NETOS: PORTES DEBIDOS.

Pedidos superiores a 260 euros NETOS: PORTES PAGADOS.

En cualquier caso el vendedor se reserva el derecho de utilizar el medio de envío más económico.

En las poblaciones donde NECO tenga establecidos depósitos de distribución, esta cláusula se aplicará para las reexpediciones a otras poblaciones.

En envíos a la península de carácter urgente, cuya cuantía sea inferior a 260 euros y hasta un peso de 15 kilogramos, se cargará en concepto de portes 6,60 euros en la factura.

En envíos a Canarias y Andorra, para pedidos superiores a 700 euros: PORTES PAGADOS. Para pedidos inferiores, se cargará un porte de 37 euros.

### 9. ENTREGA - RECLAMACIÓN

En caso de mercancías faltantes o de deterioro de productos en la llegada, el destinatario debe hacer lo siguiente:

- anotar en el resguardo del transportista sus reservas, indicando de manera precisa el número exacto de paquetes faltantes o deteriorados y objeto de la reclamación, y conrmarlas al transportista en un plazo de 3 días por carta certificada,
- enviar un duplicado de estas reservas a TIVOLY en un plazo de 48 horas a partir de la entrega, indicando las referencias del pedido

Cualquier reclamación debe ponerse en conocimiento del Servicio Comercial, en la sede social de TIVOLY, en un plazo máximo de 10 días a partir de la recepción de las mercancías si el conicto se reere a estas, o de 30 días de la fecha de la factura si el conicto concierne a la facturación.

### 10. DEVOLUCIÓN DE MERCANCÍAS

No debe realizarse devolución alguna de mercancías sin nuestro consentimiento expreso (acuerdo por escrito del Servicio Comercial).

En caso de aceptación de la devolución, se aplicará un descuento del 15 % en el precio de las mercancías. La devolución se realizará a portes pagados salvo excepción.

#### **11. RESERVA DE PROPIEDAD (Ley de 15 de enero 1985)**

TIVOLY se reserva la propiedad de las mercancías suministradas hasta el pago completo del precio y sus gastos accesorios.

No obstante, los riesgos corridos tras el envío son asumidos por el comprador.

Ni la acción de reventa de los bienes ni su pago por parte de un tercero afectan a los efectos de la cláusula cuya validez solo cesa con la extinción del crédito de TIVOLY. En caso de administración o liquidación judicial, la acción de reventa se retira automáticamente. En consecuencia, el vendedor podrá reivindicar las mercancías que no hayan sido revendidas mientras que el pago no se haya efectuado íntegramente. Este último conservará en concepto de indemnización cualquier suma abonada como anticipo. El comprador se compromete a adoptar cualquier medida para que las mercancías se individualicen como propiedad del vendedor.

#### **12. GARANTÍA - RESPONSABILIDAD**

Garantizamos que nuestros productos respetan las especificaciones que figuran en los catálogos. Se admite una tolerancia en la medida en que se respeten las normas vigentes.

De manera general, no podrá considerarse responsable a TIVOLY en ningún caso si el empleo, manipulación, transformación, almacenamiento o transporte de los productos vendidos causan al comprador, su clientela u otros terceros cualquier daño, ya se trate de accidentes personales, daños a bienes distintos del objeto del contrato o pérdidas nancieras.

El comprador no podrá hacer valer un recurso de garantía para suspender o diferir sus pagos.

#### **13. PROPIEDAD INDUSTRIAL - CONFIDENCIALIDAD**

TIVOLY es la propietaria exclusiva de los estudios, planos y modelos que hayan podido llegar a conocimiento del comprador en el marco del contrato. Cualquier incumplimiento de estas normas podrá dar lugar a acciones legales.

#### **14. EXCEPCIÓN**

Cualquier excepción de las presentes condiciones generales de venta y en particular las condiciones de compra del comprador solo son válidas tras su aceptación por escrito por nuestra parte.

#### **15. JURISDICCIÓN**

En caso de litigio, la competencia corresponde exclusivamente al Tribunal de la jurisdicción de la rma vendedora.

#### **16. NULIDAD**

La nulidad parcial o total de cualquiera de las disposiciones de las presentes condiciones generales de venta no afectará a la validez de las demás disposiciones.



## MERCHANDISING

### Expositores y materiales de PLV

Para desarrollar las ventas Tivoly propone lineales y soluciones a medida. Tivoly dispone de diferentes materiales de exposición y comunicación para el punto de venta, que se adapta a cada gama de productos. Para ello, Tivoly propone diferentes soluciones de exposición adaptadas a cada superficie de venta. Nuestro equipo Comercial y de Márketing le ayudará en la planificación y organización del lineal para optimizar sus ventas.

### Displays, communication and promotional materials

To drive sales and animate the shelves, Tivoly offers customized highlighted solutions for promotions, cross-marketing etc....

For each product line, Tivoly offers the implantation of an assortment of products adapted to your sales floor needs. Our sales representatives and consultants will listen to you to define the way you want to organize the product range for maximum sales.





# EXPOSITORES Y MATERIALES DE PLV

## DISPLAYS, COMMUNICATION AND PROMOTIONAL MATERIALS

### 9130100 0414

Expositor  
Display  
220 x 100 cm



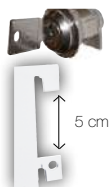
### 9130100 0417

Soporte + 20 ganchos  
Rack + 20 pins  
100 x 32 x 18 cm



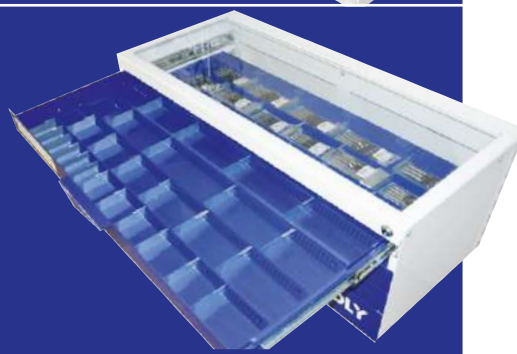
### 9130100 0415

Vitrina  
Showcase  
100 x 37 x 30 cm



### 9130100 0416

Armario 4 cajones  
4 drawers block  
100 x 43 x 35 cm































































# MATERIALES | WORKING MATERIALS

<b>P</b> 1	Aceros no aleados y para decoletaje < 500 N/mm <sup>2</sup> Unalloyed and free cutting steels <500 N / mm <sup>2</sup>	<b>N</b> 1.1	Aluminio no aleado: serie 1000 Aluminum not alloyed serie 1000	<b>S</b> 1	Aleaciones refractarias con base Fe Refractory alloys based Fe
<b>P</b> 2	Aceros al carbono y debilmente aleados <700 N/mm <sup>2</sup> Carbon steel and low alloy steel <700 N/mm <sup>2</sup>	<b>N</b> 1.2	Aleaciones de Aluminio serie 2000 Aluminum alloys serie 2000	<b>S</b> 2.1	Aleaciones refractarias de Niquel < 25HRc Nickel refractory alloys < 25HRc
<b>P</b> 3	Aceros fuertemente aleados 700 -1000 N/mm <sup>2</sup> ≤ 32 HRc Steels high alloy 700 -1000 N / mm <sup>2</sup> ≤ 32 HRc	<b>N</b> 1.3	Aleaciones de Aluminio serie 3000 Aluminum alloys serie 3000	<b>S</b> 2.2	Aleaciones refractarias de Niquel con baja maquinabilidad 35-45 HRc Nickel refractory alloys 35-45 HRc
<b>P</b> 4	Aceros fuertemente aleados 900-1200 N/mm <sup>2</sup> (32-38 HRc) Alloyed steel 800-1000 N/mm <sup>2</sup> (23-32 HRc)	<b>N</b> 1.4.1	Aleaciones de Aluminio serie 4000 0,5% <Si <5% Aluminum alloys serie 4000 with Si <0.5%	<b>S</b> 3	Aleaciones refractarias con base Co Refractory alloys based Co
<b>P</b> 5	Acero inoxidable ferrítico Ferritic stainless steel	<b>N</b> 1.4.2	Aleaciones de Aluminio serie 4000 5% <Si <10% Aluminum alloys serie 4000 with 0,5% <Si <10%	<b>S</b> 4	Aleaciones refractarias de Titanio Refractory alloys de Titanium
<b>P</b> 6	Acero inoxidable martensítico Martensitic stainless steel	<b>N</b> 1.4.3	Aleaciones de Aluminio serie 4000 Si> 10% Aluminum alloys serie 4000 with Si> 10%	<b>O</b> 1	Termoplásticos Thermoplastics
<b>M</b> 1	Acero inoxidable austenítico Austenitic stainless steel	<b>N</b> 1.5	Aleaciones de Aluminio serie 5000 Aluminum alloys serie 5000		
<b>M</b> 2	Acero inoxidable super-austenítico Super-austenitic stainless steel	<b>N</b> 1.6	Aleaciones de Aluminio serie 6000 Aluminum alloys serie 6000		
<b>M</b> 3	Aceros inoxidables austenítico-ferríticos (DUPLEX) Austenitic-ferritic stainless steel (DUPLEX)	<b>N</b> 1.7	Aleaciones de Aluminio serie 7000 Aluminum alloys serie 7000		
<b>K</b> 1	Fundición maleable Malleable cast iron	<b>N</b> 3	Cobre no aleado o debilmente aleado Copper unalloyed or low alloyed		
<b>K</b> 2	Fundición gris grafito laminar (GG) Gray cast iron with lamellar graphite (GG)	<b>N</b> 3.2	Latón con Pb<1% Brass with Pb < 1%		
<b>K</b> 3	Fundición dúctil grafito esferoidal (GGG) Ductile cast iron spheroidal graphite (GGG)	<b>N</b> 3.3	Latón con Pb>1% Brass with Pb > 1%		
<b>K</b> 4	Fundición gris grafito vermicular (CGI) Gray cast iron with vermicular graphite (CGI)	<b>N</b> 4	Bronce Bronze		
<b>K</b> 5	Fundición dúctil austemperada (ADI) Austempered Ductil Iron casting (ADI)				

	Afilado convencional Standard point		Entrada corregida Spiral Point		Sin recubrimiento Uncoated		Rosca Métrica Metric thread
	Afilado 1/3 2/3 caras 1/3-2/3 faces point		Número de labios Number of edges		Vaporizado Steam oxidizing SH		Rosca Métrica fina Fine metric thread
	Afilado en cruz Splint point		Número de piezas Number of pieces		Nitruro de titanio aluminio Titanium aluminium nitride		Rosca Métrica aero Aero metric thread
	Afilado 4 caras 4 faces point		Desbaste grueso Coarse roughing		Titanio Titanium		Rosca Insert Insert thread
	Plaquita soldada Carbide tip		Ángulo de hélice Helix angle		Carbonitruro de titanio Titanium carbonitride		Rosca Americana American thread
	Sin refrigeración interna Without coolant feed		Ángulo de punta Point angle		Carbonitruro MP MP carbonitrid		Rosca Americana Fina Fine american thread
	Con refrigeración interna With coolant feed						
	Agujero pasante/ciego Through/blind hole		Tolerancia Tolerance		CrN+WC/C		Rosca NPT cónica Conical NPT thread
	Agujero pasante Through hole		Metal duro Solid carbide		TiAlN+WC/C		Rosca whitworth Whitworth thread
	Agujero ciego Blind hole		Material Material		Titanio Titanium		Rosca whitworth fina Fine whitworth thread
	Conicidad trasera Back taper		Norma Norm		Recubrimiento Alinox Alinox coated		Rosca BSP GAS BSP GAS thread
	Conicidad 1:16 Taper		Similar a la norma Similar to the standard		Recubrimiento Blade Blade finished		Rosca Tubos electricos Electric pipe threade
	Dentado gran desalojo Great evacuation teeth		Profundidad de taladrado Drilling depth		Acabado dorado Gold finished		Rosca Tubos electricos Electric pipe threade
	Dentado recto Straight teeth						
	Dentado cruzado Cross teeth		Giro izquierda Left hand				

## Atención al Cliente | Customer Support

“Nuestro compromiso es atender las necesidades de nuestros clientes con un alto grado de agilidad, amabilidad y eficacia”

“Our commitment is to meet the needs of our customers with a high degree of agility, kindness and efficiency”

## Servicio | Service

“Garantizamos que nuestros clientes reciban nuestros productos en las condiciones de calidad y plazo solicitados, para ello contamos con un equipo de personas comprometidas y medios adaptados”

“We guarantee that our clients receive our products in the conditions of quality and dead line requested, for this we have a team of committed people and adapted means”

## I+D+i | R&D&i

Disponemos de una estructura propia de I+D+i.

We have our own R&D&i structure.

Atención al cliente

**94 623 14 66**



[www.tivoly.com](http://www.tivoly.com)  
[distribucion@tivoly.com](mailto:distribucion@tivoly.com)

Ortuburu Kalea, 5  
Barrio Urkizuaran  
48230 Elorrio. Bizkaia

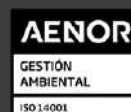


## HERRAMIENTAS DE CORTE

CATÁLOGO

## CUTTING TOOLS

CATALOGUE



NUEVA HERRAMIENTA DE CORTE S.A

EL DISEÑO, LA FABRICACIÓN Y COMERCIALIZACIÓN DE MACHOS DE ROSCAR, PEINES, RODILLOS Y HERRAMIENTA ESPECIAL.  
LA COMERCIALIZACIÓN DE LA HERRAMIENTA DE CORTE Y PRODUCTOS COMPLEMENTARIOS.