

# CUTTING TOOLS

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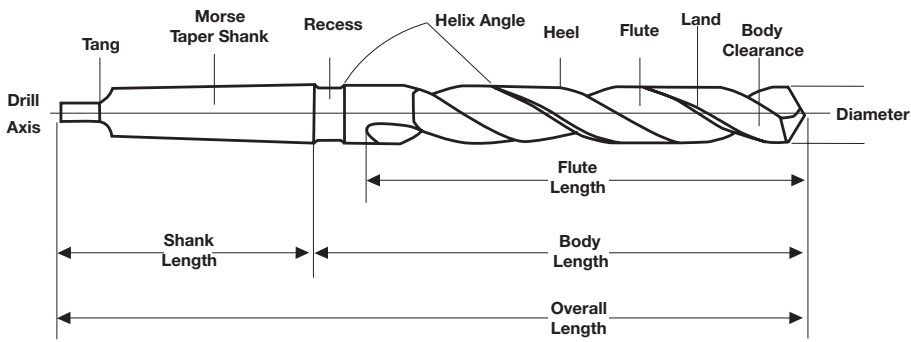
## APPLICATION GUIDE

### Application Guide

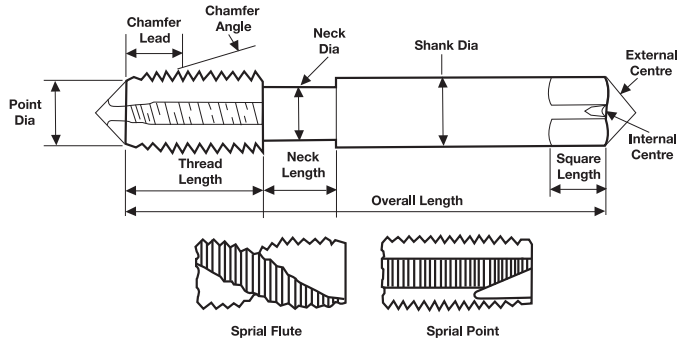
Main Group	Material Group	Material ISO, DIN, BS EN Standard	Old BS & ANSI Standard	N/mm <sup>2</sup>	HB
1 Steel	Magnetic Soft	95MnPh28;S133;S137;RFe80	BS590 230M07Pb;EN1A leaded	<400	120
	Structural	35S20 S137-2 S150	BS4360-50C 55C EN3A EN8 EN32	<750	220
	Plain Carbon Steel	C10; 14NiCr14; 18CrNi8; 16MnCr5	080M46;080A62;EN9; EN43	<850	250
	Low Alloy Engineering	C35; C45; C60	708M40; EN16; 534A99;EN311; 4140	<850	250
	Alloy Steel	110WCrV5; S6-5-2; GS-34CrMo4	EN24T;EN25T M2; M42; 4340;D2; H13	<1000	300
2 Stainless Steel	Alloy Steel Heat Treated	X210Cr12; 55NiCrMoV6, 32CrMo12	826M40; 830M31; S95; EN25W	<1200	350
	Austenitic	X5CrNi18.10; X6CrNiMoTi17.12.2	316; 304; 321 EN58J	<850	250
	Ferritic	XCrAl13; X6CrTi; X1CrMoNb18.2	303; S33; EN56	<1000	300
	Duplex	X8CrNiMo2.7.5		<1000	300
	Martensitic	X20Cr13; G-X10CRM013; X105CrMo17	420S29		
3 Cast Iron	Soft Grey Iron	GG10 ... GG40 Meehanite GF-20	BS1452 Grade 350 / 400	<500	140
	Grey and Heat Treated Irons	GG20 ... GG40 GTS GTW	Black/Whiteheart Malleable Iron	<850	250
	Spheroidal Graphite	GGG-25...GGG-70	BS2789Grade699;BS6681 GradeP70	<750	220
4 Titanium	Pure Titanium	Ti99.5; Ti99.2		<700	200
	Titanium Alloy	TiCu2; TiAl6V4; TiAl6Zr5		<1000	300
5 Nickel	Pure Nickel	Ni99.9Si; Monel400; Hastelloy; Inconel600		<850	250
	Nickel Alloys	Nimonic 80/90; Inconel718; NimocastPK24		<1200	350
6 Copper and Brass	Pure Copper	E-Cu57; Se-Cu; CuMn3	BS2874-C101,C103, C106	<350	100
	Short Chip Brass	CuZn40; CuZn39Pb2(Ms58) CuZn40Mn1Pb	BS2874 -CZ122;CZ128	<700	200
	Long Chipping Brass	CuZn20; CuZn37; CuSn6	BS2874 CZ108, CZ106	<700	200
	High strength Bronze	Ampco18; Ampco20 ...26	AB1 Type	<1350	400
	Aluminium	Al99.9; 9Mg05			
7 Aluminium	Aluminium Cast Si<0.5	AlMg3	1050A; 6082; LM0; LM1B	<350	100
	Aluminium Cast Si =0.5 -10%	G-AlSi8Cu4	LM5; LM10; LM12;LM16;	<500	140
	Aluminium Cast Si>10%	G-AlSi10NMg	LM2; LM4; LM18; LM21;	>400	120
			LM6; LM13; LM20; LM28...30	>400	120
8 Synthetics	Thermo Plastics	Ultramid; Merkalo; Polystyrol; Degola			
	Thermo Setting Plastics	Akalite, Pertiax; Ferrozell; Alkbanit			
	Reinforced Plastics	FK; GFK; AFK	Kevlar; Printed Circuit Board		



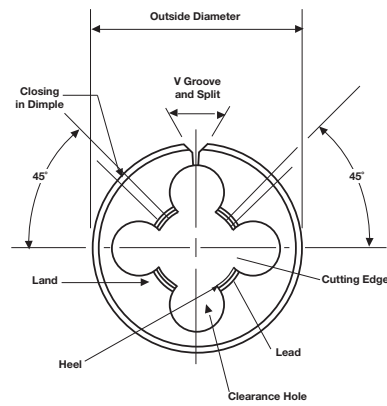
## Drills



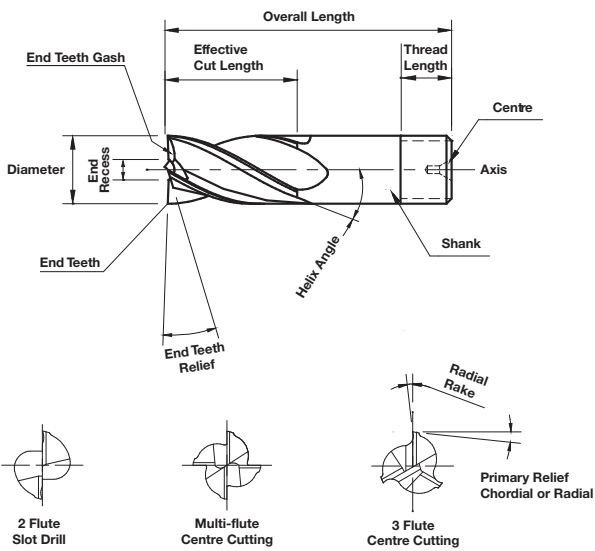
## Taps



## Dies



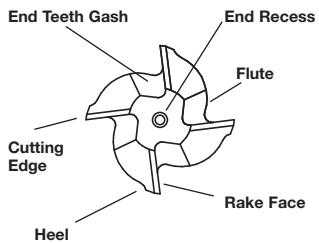
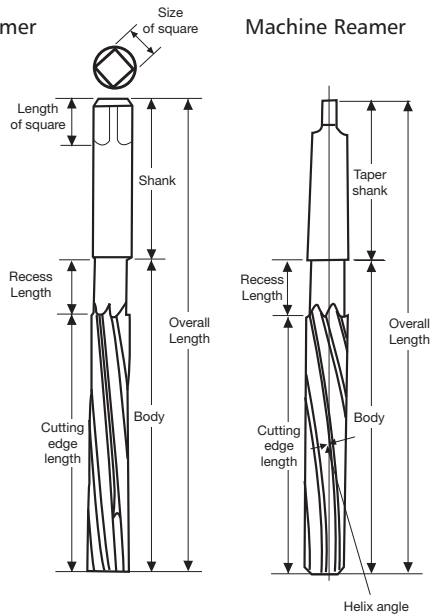
## Milling Cutters



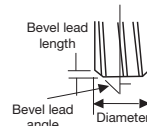
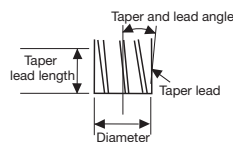
## Reamers

### Hand Reamer

### Machine Reamer



**Multi Flute End Mill**  
Cutters with 4 or more cutting edges















# DRILLING

## Jobber and Stub Drills

Type	Image	Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Straight Shank Jobber Drills		For general purpose drilling	HSS	0.3-20	1/64-1 1/16	ISO 235 DIN 338 BS 328	5101	1
Kombat TiN Coated Split Point Jobber Drills		For general purpose drilling	HSS	1-16	5/64 - 1/2	ISO 235 DIN 338 BS 328	5103	1
Kombat Blue Band Application Drills		Multi facet point TiAIN coated for Stainless steel	HSS-Co	2-13		ISO 235 DIN 338 BS 328	5104	2
Kombat Red Band Application Drills		32° helix TiAIN coated for tough steels	HSS-Co	2-13		ISO 235 DIN 338 BS 328	5104	1
Cobalt Straight Shank Jobber Drills		For drilling high tensile steels and other difficult materials	HSS-Co	1-13	1/16-1/2	ISO 235 DIN 338 BS 328	5112	1
Cobalt Straight Shank Heavy Duty Jobber Drills		For drilling high tensile steels and other difficult materials	HSS-Co	1.5-13	1/16-1/2	ISO 235 DIN 338 BS 328	5177	1
ADZe Cobalt Jobber Drills for long chipping materials		Ideal for use on CNC machines where high productivity and accurate holes are required	HSS-Co	2-14	1/16-1/2	ISO 235 DIN 338 BS 328	5154	1 2 4 5 6 7 8
ADZe Cobalt Stub Drills for long chipping materials		Ideal for use on CNC machines where high productivity and accurate holes are required	HSS-Co	2-13	1/16-1/2	DIN 1897	5153	1 2 4 5 6 7 8
ADZe Cobalt Long Series Drills for long chipping materials		High performance long reach drilling	HSS-Co	1.5-14	1/16-1/2	DIN 340	5109	1 2 4 5 6 7 8
DH Cobalt Extra Length Drills - Series 1, 2, 3		High performance extra deep hole drilling	HSS-Co	2-10			5118	1 2 3 4 5 6 7 8
				3-10			5119	
				3.5-10		DIN 1869	5120	
Stub Drills		A short robust drill for most applications	HSS	1-14	1/32-35/64	ISO 235 DIN 1897 BS 328	5141	1
Cobalt Stub Drills Heavy Duty		For drilling high tensile steels and other difficult materials	HSS-Co	2.5-11		DIN 1897	5199	1 2 4 5 6 7 8
Double Ended Body Drills		A self centering drill designed to produce accurate holes in thin materials	HSS	3.2-5.8		WORKS STANDARD	5151	1
Long Series Straight Shank Drills		For general purpose long reach drilling	HSS	0.5-16	1/32-3/4	ISO 494 DIN 340 BS 328	5116	1
Straight Shank Extra Length Drills		For extra deep hole drilling	HSS	1.5-13	1/16-9/16	ISO 3292 BS 328 PART 1	5121	1
Reduced Shank Drills		For general purpose drilling	HSS	13-28	33/64-1 1/2	WORKS STANDARD	5175	1
Economy Jobber Drills		General purpose engineering drills	HSS	1-13	1/16-1/2	ISO 235/1 DIN 338 BS 128	5196	1





## Centre, Spotting, Taper Shank, Masonry and Hammer Drills

Type	Image	Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Centre Drills		For general centering operations on workpieces requiring additional machining between centres	HSS	1-10	BS1- BS7	ISO 866 DIN 333 BS 328	5114	1
NC Spotting Drills		For accurate positioning of holes. Ideal for CNC lathes. Alternative to using Centre drills - 90° and 120°	HSS-Co	6-20		ISO 235 DIN 1897 BS 328	5147	1 2 3 4 5 6 7 8
Morse Taper Shank Drills		For general purpose drilling	HSS	2-50	1/32-2	ISO 235 DIN 345 BS 328	5201	1
Morse Taper Shank Drills		For drilling high tensile steels and other difficult materials	HSS-Co	14-35		ISO 235 DIN 345	5208	1 2 3 5 6 7 8
Morse Taper Shank Chipbreaker Drills		High performance production drilling	HSS	6-76	1/4-3	ISO 235 DIN 345 BS 328	5290	1
Morse Taper Shank Extra Length Chipbreaker Drills		For extra deep hole drilling	HSS	10-50	13/32-2 1/2	ISO 3292 BS 328	5295	1
Morse Taper Shank Armour Piercing Drills		Heavy duty drilling in work hardening and heat treated steels	HSS-Co	5-50	1/4-1 1/4	ISO 3291 BS 328	5261	1
Morse Taper Shank Oilfeed Chipbreaker Drills - cross hole feed		High performance production drilling	HSS	10-44	25/64-2 1/2	ISO 235 DIN 345 BS 328	5286	1
Professional Rotary/ Impact Masonry Drills		Standard, Medium, Long and Extra Long Masonry drills	Carbide Tip	3-30, 8-30, 12-34, 16-34		WORKS STANDARD	5911	N/A
SDS Shank Hammer Drills		Hammer drills	Carbide Tip	5-25		WORKS STANDARD	5912	N/A




## GUHRING

# DRILLING

### Standard Length Taper Shank Drills

Type	Image	Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Standard Length Taper Shank		Standard	HSS	2 - 100	1/8 - 2	Steam Tempered	245	1 3
Standard Length Taper Shank		Standard	HSS	3 - 31	17/64 - 7/8	TiN	654	1 2
Standard Length Taper Shank		Standard	HSCo	3 - 67	1/4 - 1 1/8	Steam Tempered	345	1 2 3
Standard Length Taper Shank		Standard	HSCo	7.94 - 31	63/64 only	TiN	661	1 3






### Bushing Length Taper Shank Drills

Type	Image	Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Bushing Length Drills		Standard	HSS	2.9 - 59	31/64 - 63/64	Steam Tempered	257	1 3
Bushing Length Drills		Standard	HSS	4.2 - 22		TiN	655	1 3
Bushing Length Drills		Standard	HSCo	4.75 - 50	63/64 only	Steam Tempered	357	1 3







# DRILLING

**CUTTING TOOLS**







## Extra Length Taper Shank Drills

Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Extra Length Series 1		Standard	HSS	8 - 50	9/16 - 63/64	Steam Tempered	266	1 3
Extra Length Series 2		Standard	HSS	7.7 - 45	63/64 only	Steam Tempered	267	1 3 6
Extra Length Series 1		Deep Hole GT100	HSS	8 - 32	9/16 - 63/64	Steam Tempered	526	1 3 6
Extra Length Series 2		Deep Hole GT100	HSS	7.8 - 30	7/16 - 63/64	Bright/Nitrided Lands	527	1 3 6








## Straight Shank Stub Drills

Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Stub Drills		Standard	HSS	0.35 - 50	1/64 - 1 1/2	Steam Tempered	223	1 3
Stub Drills		Standard	HSS	0.6 - 30.16	3/64 - 1	TiN	653	1 3
Stub Drills		Heavy Duty GV120	HSCo	0.4 - 48	1/64 - 1	Steam Tempered	329	1 2 3
Stub Drills		Heavy Duty GV120	HSCo	0.5 - 15.5	1/16 - 9/16	TiN	659	3
Stub Drills		Standard	M42	1 - 15.87	1/16 - 31/64	Bright	1259	2 4

## Straight Shank Long Series Drills













Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Long Series Drills		Standard	HSS	0.4 - 36.51	1/64 - 11/16	Steam Tempered	217	1 3 6
Long Series Drills		Standard	HSS	0.5 - 22.22	1/16 - 9/16	TiN	667	1 3 6
Long Series Drills		Standard	HSCo	0.5 - 26	3/64 - 9/16	Steam Tempered	317	1 3 6
Long Series Drills		Heavy Duty Ti	HSCo	1 - 13	1/16 - 7/16	Bright	617	2 4
Long Series Drills		Deep Hole GT100	HSS	1 - 14	3/64 - 35/64	Nitrided Lands/Bright	535	1 3

## Straight Shank Extra Length Drills








Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Extra Length Series 1		Standard	HSS	1.6 - 13	3/32 - 1/2	Steam Tempered	235	1 3 6
Extra Length Series 2		Standard	HSS	2.7 - 13	1/8 - 3/8	Steam Tempered	236	1 3 6
Extra Length Series 3		Standard	HSS	3.5 - 13	N/A	Steam Tempered	237	1 3 6
Extra Length Series 1		Deep Hole GT100	HSS	1.95 - 13	3/32 - 1/2	Bright	502	1 3 6
Extra Length Series 2		Deep Hole GT100	HSS	2 - 13	1/8 - 1/2	Bright	503	1 3 6
Extra Length Series 3		Deep Hole GT100	HSS	2.5 - 13	1/8 - 7/16	Bright	504	1 2 3 6











**Straight Shank Jobber Drills**

Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Jobber Drills		Standard	HSS	0.2 - 20	1/64 - 25/32	Steam Tempered	205	1 3
Jobber Drills		Standard	HSS	0.2 - 19.5	1/64 - 5/8	TiN	651	1 3
Jobber Drills		Standard	HSS	1 - 14	3/32 - 17/32	TiN Tip	9651	1 3
Jobber Drills		Deep Hole GT100	HSS	0.6 - 16	1/32 - 5/8	Nitrided Lands/ Bright	549	1 3
Jobber Drills		Deep Hole GT100	HSS	1 - 16	3/64 - 9/16	TiN	652	1 3
Jobber Drills		Standard	HSSCo	0.2 - 20	1/64 - 21/32	Steam Tempered	305	1 2 3
Jobber Drills		Heavy Duty Ti	HSSCo	0.2 - 19	1/64 - 37/64	Bright	605	2 4
Jobber Drills		Heavy Duty Ti	HSSCo	0.5 - 14.5	3/64 - 1/2	TiN	657	2 4
Jobber Drills		Deep Hole GT100	HSSCo	1 - 16	3/64 - 1/2	Nitrided Lands/ Bright	622	1 3 6
Jobber Drills		Deep Hole GT100	HSSCo	1 - 16	3/64 - 15/32	TiN	658	1 3 6
Jobber Drills		Standard	M42	0.5 - 16	1/16 - 5/8	Bright	1146	2 4

**Superline HSSCo Stub and Jobber Drills**

Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Stub Drills		General Purpose GU 500	HSSCo	1 - 14	3/32 - 7/16	Bright	5524	1 2 3 6 7
Stub Drills		General Purpose GU 500	HSSCo	1 - 14	3/32 - 7/16	TiN	5520	1 2 3 6 7
Stub Drills		General Purpose GT 500	PM-HSS-E	1 - 14	3/32 - 7/16	TiN	5521	1 2 3 6 7
Jobber Drills		General Purpose GU 500	HSSCo	1 - 14	3/32 - 7/16	Bright	5523	1 2 3 6 7
Jobber Drills		General Purpose GU 500	HSSCo	1 - 14	3/32 - 7/16	TiN	5519	1 2 3 6 7
Jobber Drills		High Tensile GT 500	PM-HSS-E	1 - 14	3/32 - 7/16	TiN	5522	1 2 3

**Centre, Spotting, Micro Precision, Aircraft and Oil Feed Taper Shank Drills**

Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
BS Centre Drills		Standard Form A	HSS		BS1 to BS7	Bright	292	1 3 6 7 8
NC Spotting Drills 90°		Standard	HSS	2.95 - 25.4	1/4 - 1	Bright	557	1 3 6 7
NC Spotting Drills 120°		Standard	HSS	3 - 25.4	1/4 - 1	Bright	556	1 3 6 7 8
Micro Precision Drills		Standard	HSSCo	0.05 - 1.92	1/64 - 1/16	Bright	301	1 2 3 6 7 8
6" Aircraft Extension Drills		Standard	HSS	1.5 - 8.5	1/16 - 1/4	Bright	577	1 3 7
12" Aircraft Extension Drills		Standard	HSS	1.5 - 8	1/16 - 5/16	Bright	578	1 3 7
Taper Shank Oil Feed Drills		Standard	HSS	10 - 49		Steam Tempered	270	1 3 6 7

## DRILLING

## Step Drill Bits



- Single flute for maximum drilling control into sheet metal
- Unique flute design ensures perfect round holes in sheet metal
- Self-centring point - will not walk, eliminates centre punching
- Made from industrial grade M7 high speed steel
- Flatted shank prevents the drill bit from slipping in the chuck

Code	Description	List Price (exc VAT)
10502850	1M 9 hole sizes (4 - 12mm), 1mm increments	£16.44
10502851	2M 5 hole sizes (4 - 12mm), 2mm increments	£16.48
10502852	3M 7 hole sizes (6 - 18mm), 2mm increments	£23.42
10502853	4M 10 hole sizes (4 - 22mm), 2mm increments	£26.92
10502854	5M 13 hole sizes (5 - 35mm), 2 - 3mm increments	£48.64
10502855	PG29M10 hole sizes 5, 7.5, 10, 12.5, 15.2, 18.6, 20.4, 22.5, 25.5 and 28.3 mm	£48.22

## TCT Drill Bits



- Manufactured to DIN 338
- Designed for drilling of hard and very abrasive materials like hardened steel, cast iron etc
- Designed for use in stationary drills
- Diamond ground 4-face carbide tip for easy centring and low drilling pressure

Code	Diameter x Working Length x Total Length (mm)	List Price (exc VAT)
10502618	2 x 24 x 51	£9.34
10502619	2.5 x 30 x 57	£9.34
10502652	6.1 x 63 x 101	£10.47
10502654	6.3 x 63 x 101	£10.47
10502659	6.8 x 69 x 109	£11.06
10502666	7.5 x 69 x 109	£12.02
10502671	8 x 7.5 x 117	£12.90
10502676	8.5 x 75 x 117	£13.97
10502691	11 x 94 x 142	£20.09
10502697	14 x 108 x 160	£32.99

## DRILLING

## Straight Shank Jobber Length Drills

Type	Image	Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Right Hand Spiral 118° Normal Point		Bright body TiN coating on working area	HSS		$\frac{3}{64}$ - $\frac{1}{2}$	ANSI	Hi-Tip	1 3
Right Hand Spiral 135° Normal Point up to $\frac{3}{64}$ " then Split Point		Bright body TiN coating on working area	HSSCo		$\frac{3}{64}$ - $\frac{1}{2}$	ANSI	Hi-Tip	1 4
38° Right Hand Helix Worm Pattern 130° Split Point		Bright body TiN coating on working area	HSSCo		$\frac{5}{64}$ - $\frac{1}{2}$	ANSI	Hi-Tip	1 3
Right Hand Spiral 118° Split Point		Bright body TiN coating on working area	HSS		No1 - No56	ANSI	Hi-Tip	1 3
Right Hand Spiral 135° Normal Point up to $\frac{3}{64}$ " then Split Point		Bright body TiN coating on working area	HSSCo		No1 - No56	ANSI	Hi-Tip	1
38° Right Hand Helix Worm Pattern 130° Split Point		Bright body TiN coating on working area	HSSCo		No1 - No47	ANSI	Hi-Tip	1 3
Right Hand Spiral 118° Normal Point		Bright body TiN coating on working area	HSS	1 - 13		DIN 338	Hi-Tip	1 3
Right Hand Spiral 135° Normal Point up to 1.6 then Split Point		Bright body TiN coating on working area	HSSCo	1 - 13		DIN 338	Hi-Tip	1 3



## Straight Shank Jobber Length Drills continued

Type		Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Right Hand Spiral 118° Normal Point		Bright body TiN coating on working area	HSS	1 - 13		JIS	Hi-Tip	1 3
Right Hand Spiral 118° Split Point		Bright body TiN coating on working area	HSS	1 - 13		DIN 338	Hi-Tip	1 3
38° Right Hand Spiral Worm Pattern 130° Split Point		Bright body TiN coating on working area	HSSCo	2 - 13		DIN 338	Hi-Tip	1
Right Hand Spiral 135° Normal Point up to 1.6 then Split Point		Bright body TiN coating on working area	HSSCo	1 - 13		JIS	Hi-Tip	1 3

## Twist Drills

Type		Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Cor - L Stub		Low/medium alloy steel	HSSCo	3 - 13	1/8 - 1/2	ISO 235 BS 328 DIN 1897	0422 0421	1 2 3
Cor - L Standard		Low/medium alloy steel	HSSCo	3 - 20		ISO 235 BS 328 DIN 1897	0401/0402 0406/0405	1 2 3
Cor - L (K) Stub/Standard		Cast irons	HSSCo	3 - 13	1/8 - 3/4	ISO 235 BS 328 DIN 338	0482 0462	1 3
Cor - L (P) Stub		High alloy/harder steel	HSSCo	3 - 13	1/8 - 1/2	ISO 235 BS 328 DIN 1897	0424 0423	1 2 3 4 5
Jobber Standard		General purpose use	HSS	0.3 - 20	1/64 - 3/4	ISO 235 BS 328 DIN 338	0001 0000	1 2 3 6 7 8
Jobber Wire Gauge		General purpose use	HSS		No80 - No1	Works Standard	0002	1 2 3 6 7 8
Jobber Heavy Duty		High strength materials	HSS	1.6 - 13	1/16 - 1/2	ISO 235 BS 328 DIN 338	0032 0031	1 2 3 4 5
Slow Spiral Standard		Brass, Bronze, Hard Plastics	HSS	1 - 13	1/16 - 1/2	ISO 235 BS 328 DIN338	0062 0061	6 8
Quick Spiral Standard		Fast chip ejection	HSS	1 - 13	1/16 - 1/2	ISO 235 BS 328 DIN 338	0072 0071	1 2 3 7 8
CD33 Standard		Stainless, nimonics etc	HSSCo	1 - 16	1/16 - 1/2	ISO 235 BS 328 DIN 338	0081 0080	1 2 3 4 5
OM200 Standard OM200T TiN		General purpose and deep hole applications	HSSCo	3 - 13	1/8 - 1/2	ISO 235 BS 328 DIN 338	0011 0010	1 2 3 4 5 7 8
Blanks Standard		Hardened and ground for general use (punches)	HSS	1 - 13	1/64 - 1/2	ISO 235 BS 328 DIN 338	0051 0050	N/A
Blacksmith Works Standard		1/4 or 1/2 shanks for limited capacity chucks	HSS	13 - 25	9/32 - 1 1/2	Works Standard	3162 3161	1 3
Masonry Works Standard		Masonry, brick etc	Carbide Tipped	3 - 13	1/8 - 1/2	Works Standard	0202	N/A
Centre Drill Type A		Combined drill and countersink	HSS	1 - 6.3	BS1 - BS7	ISO 866 BS 328 DIN 333A	2002/2001 2004/2003	1 2 3 4 5 6 7
Centre Drill Type B		Combined drill and countersink	HSS	1 - 6.3	1B - 7B	ISO 2540 BS 328 DIN 333	2006 2005	1 2 3 4 5 6 7
Centre Drill Type R		Combined drill and countersink	HSS	1 - 6.3	1R - 5R	ISO 2541 BS 328 DIN 333R	0028 0027	1 2 3 4 5 6 7
Pan-L Single End and Double End		Thin sheet materials	HSS	2.75 - 6.25	3/32 - 1/4 3/32 - 3/8	Works Standard	0121/0122 0027/0028	1 2 6 7
NC Spotting Drill Standard		Accurate targeting and stable location	HSSCo	6 - 20		ISO 10898 BS 328	0134 0132	1 2 3 6 7
Spot Weld Drill Works Standard		NC and bodywork weld applications	HSSCo	6 - 8		Works Standard	0008	1 2 7
Stub Drill Standard		Rigidity in general purpose applications	HSS	1 - 25	1/16 - 1 1/4	ISO 235 BS 328 DIN 1897	0102 0101	1 2 3 6 7
Stub Drill Cobalt		Rigidity in harder to machine materials	HSSCo	2 - 13	1/8 - 1/2	ISO 2540 BS 328 DIN 1897	0182 0181	1 2 3 6 7





# DRILLING



## Twist Drills

Type	Image	Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Long Series Drill Long		General purpose deep hole drilling	HSS	1 - 30	1/16 - 1 1/2	ISO 494 BS 328 DIN 340	0142 0141	1 2 3 6
Long Series Drill Extra Long		General purpose deep hole drilling	HSS	1.4 - 14	1/16 - 1/2	ISO 3292 BS328	0162 0161	1 2 3 6
Worm Pattern Drill Extra Long OM100L		More effective deep hole drilling	HSS	3 - 14	1/8 - 1/2	ISO 3282 BS 238	0164 0163	1 2 3 6 7
Standard MTS		General purpose use	HSS	2 - 80	1/16 - 3 1/2	ISO 235 BS 328 DIN 345	3002 3001	1 2 3 6
Heavy Duty MTS		General purpose use on difficult materials	HSSCo	10 - 32		ISO 235 BS 328 DIN 345	3082	1 2 3 6
Extra Long MTS		General purpose deep hole drilling	HSS	6 - 30	1/4 - 2	BS328	3222 3221	1 2 3 6








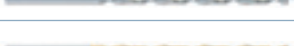


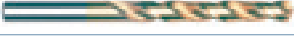

# DRILLING








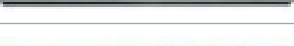












## Stub, Sheet, Spotting and Jobber Drills

Type	Image	Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Stub Drills		Standard Helix	HSS	1 - 30	3/64-1	Steam Tempered	02000	1 2 3 4
Stub Drills		Standard Helix	HSS	3 - 20		TiN	02005	1 2 3 4 5 6 7 8
Stub Drills		Standard Helix left hand	HSS	2 - 20	3/32-1/2	Steam Tempered	02010	1 2 3
Stub Drills		High Helix	HSSCo	1 - 13		Bright	02360	1 2 4 5 6 7
Stub Drills		Heavy Duty	HSSCo-8	1 - 13	1/16-1/2	Bronze	02111	1 2 3 4 5 6 7
Stub Drills		Heavy Duty	HSSCo-8	1 - 13	1/16 - 1/2	TiN	02115	1 2 3 4 5 6 7 8
Stub Drills		SM 200	HSSCo-8	1 - 20	1/16-1/2	Bronze	02491	1 2 4 5 6 7 8
Stub Drills		SM 200	HSSCo-8	1 - 13	1/16-1/2	TiN	02495	1 2 4 5 6 7 8
Stub Drills		SM 200	HSSCo-8	1 - 13	1/16-1/2	TiAIN	02498	1 2 4 5 6 7 8
Sheet Drills		Standard Helix	HSS	2 - 10	3/32-9/32	Steam Tempered	08150	1 2 3 4
Sheet Drills		Standard Helix	HSS	3 - 6	3/32-1/4	Steam Tempered	08100	1 2 3 4 5
Welding Point Drills		Standard Helix	HSSCo-8	6 - 10		Bronze	02181	1 2 4 5 6 7
NC-Spotting Drills		90°	HSSCo	3 - 20		Bright	08050	1 2 3 4 5 6 7 8
NC-Spotting Drills		120°	HSSCo	3 - 20		Bright	08060	1 2 3 4 5 6 7 8
Jobber Drills		Standard Helix	HSS	0.3 - 20	1/64-3/4	Bright	01030	1 4 5 6 7 8
Jobber Drills		Standard Helix	HSS	0.3 - 20	1/64-3/4	Steam Tempered	01000	1 2 3 4 5
Jobber Drills		Cotter pin	HSS	1 - 13	1/64-1/2	Bright	01130	1 2 3 4 5 6 7 8
Jobber Drills		Cotter pin	HSS	1 - 13	1/64-1/2	Steam Tempered	01100	1 2 3 4 5 6 7 8
Jobber Drills		Standard Helix	HSS	1 - 20	1/16-1/2	TiN	01005	1 2 3 4 5 6 7 8

**Stub, Sheet, Spotting and Jobber Drills continued**

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Jobber Drills		Elite	HSS	3 - 13	1/8-1/2	Steam Tempered	01002	1 2 3 4 5
Jobber Drills		Standard Helix left hand	HSS	1 - 13	1/16-1/2	Steam Tempered	01010	1 2 3 4 5 8
Jobber Drills		Low Helix	HSS	1 - 16	1/16-1/2	Bright	01200	3 6 8
Jobber Drills		High Helix	HSS	1 - 13	1/16-1/2	Bright	01300	1 7 8
Jobber Drills		Standard Helix	HSCo	1 - 13		Steam Tempered	01113	1 2 3 4 5 6 7 8
Jobber Drills		High Helix	HSCo	1 - 20		Bright	01360	2 4 5 7 8
Jobber Drills		High Helix	HSCo	1 - 13		TiN	01365	1 2 4 5 7 8
Jobber Drills		Heavy Duty	HSCo-8	1 - 13	1/16-1/2	Bronze	01111	1 2 3 4 5
Jobber Drills		Heavy Duty	HSCo-8	1 - 13	1/16-1/2	TiN	01115	1 2 3 4 5 6 7
Jobber Drills		VHD	HSCo-8	1 - 13	1/16-1/2	Bronze	01211	1 2 4 5
Jobber Drills		SM 200	HSCo-8	1 - 13	1/8-1/2	Bronze	01491	1 2 4 5 6 7

**Jobber, LS, EXL and Roofing Drills**

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Jobber Drills		SM 200	HSCo-8	1 - 13	1/8-1/2	TiN	01495	1 2 3 4 5 6 7 8
Jobber Drills		SM 200	HSCo-8	1 - 13	1/8-1/2	TiAlN	01498	1 2 3 4 5 6 7 8
Jobber Drills		Hi-Nox	HSS	3 - 13	1/8-1/2	Steam Tempered	01320	1 2 4 5
Jobber Drills		Jobber blank	HSS	1 - 13		Bright	01900	1 2 3 4 5 6 7 8
Long Series		Standard Helix	HSS	1 - 16	3/64-41/64	Steam Tempered	04000	1 2 3 4 5
Long Series		SM 100	HSS	2.5 - 13	1/16-1/2	Bright	04151	1 6 7 8
Long Series		SM 200	HSS	1 - 13		Nitrided lands	04159	1 2 3 4 5
Long Series		Standard Helix	HSCo	1 - 13		Steam Tempered	04112	1 3 4 5
Long Series		Heavy Duty	HSCo-8	1 - 13		Bronze	04111	1 2 3 4 5
Long Series		SM 200	HSCo-8	1 - 13	1/8-1/2	Bronze	04191	1 2 4 5 6 7 8
Long Series		SM 200	HSCo-8	1 - 13		TiN	04195	1 2 3 4 5 6 7 8
Long Series		SM 200	HSCo-8	1 - 13		TiAlN	04198	1 2 3 4 5 6 7 8
Extra Length		Standard Helix	HSS	2 - 13		Steam Tempered	05001/05002/05003	1 3
Extra Length		SM 200	HSS	2 - 13		Nitrided lands	05154/05155/05156	1 2 3 4 5
Extra Length		SM 100	HSS	2 - 10		Bright	05151/05152	1 6 7 8
Extra Length		SM 200	HSCo	2 - 10		Nitrided lands	05157/05158	1 2 3 4 5
Extra Length		Standard Helix-125	HSS	1.5 - 3	1/16-1/8	Steam Tempered	05000	1 3



## Jobber, LS, EXL and Roofing Drills continued

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Extra Length		Standard Helix-160	HSS	1.5 - 5	1/16-3/16	Steam Tempered	05000	1 3
Extra Length		Standard Helix-200	HSS	3 - 8	3/32-3/8	Steam Tempered	05000	1 3
Extra Length		Standard Helix-250	HSS	3 - 12	1/8-1/2	Steam Tempered	05000	1 3
Extra Length		Standard Helix-315	HSS	4 - 14	1/8-1/2	Steam Tempered	05000	1 3
Extra Length		Standard Helix-400	HSS	5 - 14	3/16-1/2	Steam Tempered	05000	1 3
Extra Length		SM 200-160	HSS	3 - 5	1/8-3/16	Bright	05195	1 2 3 4 5 6 7 8
Extra Length		SM 200-200	HSS	3 - 8	1/8-1/4	Bright	05195	1 2 3 4 5 6 7 8
Extra Length		SM 200-250	HSS	3 - 12	1/8-1/4	Bright	05195	1 2 3 4 5 6 7 8
Extra Length		SM 200-315	HSS	4 - 14	3/16, 1/4, 9/32	Bright	05195	1 2 3 4 5 6 7 8
Extra Length		SM 200-400	HSS	5 - 14		Bright	05195	1 2 3 4 5 6 7 8
Roofing Drills		Standard Helix-100	HSS	5 - 5.8		Steam Tempered	08220	1 2 3 7 8
Roofing Drills		Standard Helix-150	HSS	5 - 5.8		Steam Tempered	08220	1 2 3 7 8
Roofing Drills		Standard Helix-180	HSS	5 - 5.8		Steam Tempered	08220	1 2 3 7 8






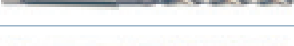
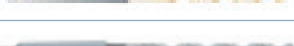


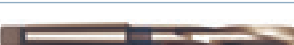












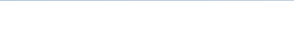
## Roofing, Aircraft, Blacksmith and Centre Drills

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Roofing Drills		Standard Helix-210	HSS	5 - 5.8		Steam Tempered	08220	1 2 3 7 8
Aircraft Maintenance and Autobody Drills		Standard Helix	HSCo-8		3/32 - 1/4	Steam Tempered	08200	1 2 4 8
Aircraft Maintenance and Autobody Drills		Standard Helix	HSCo-8		3/32 - 1/4	Steam Tempered	08210	1 2 4 5
Blacksmith Drills		Standard Helix	HSS	13 - 32	1 7/32 - 1 1/2	Steam Tempered	08610	1 2 3 4 5 6 7 8
Centre Drills		Form A	HSS	1 - 12.5	BS1 - BS7	Bright	07000	1 2 3 4 5 6 7 8
Centre Drills		Form R	HSS	1 - 12.5	BS1R - BS5R	Bright	07010	1 2 3 4 5 6 7 8
Centre Drills		Form B	HSS	1 - 10	1B - 7B	Bright	07020	1 2 3 4 5 6 7 8
Centre Drills with Flat		Form A	HSS	1.6 - 10		Bright	07040	1 2 3 4 5 6 7 8
Centre Drills with Flat		Form R	HSS	1.6 - 10		Bright	07060	1 2 3 4 5 6 7 8
Centre Drills with Flat		Form B	HSS	1.6 - 10		Bright	07050	1 2 3 4 5 6 7 8





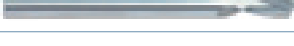

**IF YOU CAN'T FIND THE PRODUCT YOU'RE LOOKING FOR PLEASE ASK!**



**Taper Shank Drills**

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Taper Shank		Standard Helix	HSS	2.5 - 100	3/32 - 3	Steam Tempered	11000	1 2 3 4 5
Taper Shank		Standard Helix	HSS	8 - 25		TiN	11005	1 2 3 4 5 6 7 8
Taper Shank		Standard Helix	HSCo	6 - 40		Steam Tempered	11411	1 2 3 4 5 6 7 8
Taper Shank		High Helix	HSCo	10 - 25		Bright	11360	2 4 5 7 8
Taper Shank		Heavy Duty	HSCo-8	8 - 40	1 1/32 - 1	Bronze	11111	1 2 3 4 5
Taper Shank		Heavy Duty	HSCo-8	8 - 25	1 1/32 - 1	TiN	11115	1 2 3 4 5
Taper Shank		SM 200	HSCo	10 - 25		Bright	15110	1 2 3 4 5 6 7 8
Taper Shank		SM 200	HSCo	10 - 25		TiN	15115	1 2 3 4 5 6 7 8
Taper Shank		SM 200	HSCo	10 - 25		TiAlN	15118	1 2 3 4 5 6 7 8
Armour Piercing		Low Helix	HSCo-8	5 - 40	1/4 - 1 1/2	Bronze	11211	1 3
Oversize Shank		Standard Helix	HSS	10 - 30		Steam Tempered	11020	1 2 3
Bushing Drills		Standard Helix	HSS	5 - 50		Steam Tempered	11400	1 2 3
Bushing Drills		Standard Helix	HSCo	5 - 40		Steam Tempered	11401	1 2 3
Core Drills 3 flutes		Standard Helix	HSS	7.8 - 40	1/4 - 1 1/2	Steam Tempered	17000	1 2 3
Extra Length Taper Shank		Standard Helix	HSS	8 - 50		Steam Tempered	15001/15002	1 2 3
Extra Length Taper Shank		SM 200	HSCo	8 - 20		Nitrided lands	15111/15112	1 2 3 4 5 6 7 8
Extra Length Taper Shank		Standard Helix-200	HSS	6 - 9.5	1/4 - 1/2	Steam Tempered	15000	1 2 3
Extra Length Taper Shank		Standard Helix-250	HSS	6 - 14	1/4 - 17/32	Steam Tempered	15000	1 2 3
Extra Length Taper Shank		Standard Helix-315	HSS	6 - 25	1/4 - 1	Steam Tempered	15000	1 2 3
Extra Length Taper Shank		Standard Helix-400	HSS	8 - 40	1/4 - 1 1/4	Steam Tempered	15000	1 2 3
Extra Length Taper Shank		Standard Helix-500	HSS	8 - 50	3/8 - 2	Steam Tempered	15000	1 2 3
Extra Length Taper Shank		Standard Helix-630	HSS	18 - 50	1/2 - 2	Steam Tempered	15000	1 2 3

**Carbide Tipped Drills and NC Spotting Drills**

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Carbide Tipped Twist Drills		Low Helix	K10/20	3 - 20		Bright	02217	1 3 6 8
Carbide Tipped Twist Drills		Low Helix	K10/20	8 - 30		Bright	12217	1 3 6 8
Carbide Tipped Twist Drills		Standard Helix	K10/20	3 - 16		Bright	01217	1 3 6 7 8
NC-Spotting Drills		90°	UF	6 - 20		Bright	22000	1 2 3 4 5 6 7 8
NC-Spotting Drills		120°	UF	6 - 20		Bright	22001	1 2 3 4 5 6 7 8

## Subland, Step and Sheet Drills

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Subland Drills with Straight Shank		90°	HSS	M3 - M12		Steam Tempered	01501/01500/01700	1 3
Subland Drills with Straight Shank		180°	HSS	M3 - M10		Steam Tempered	01600	1 3
Subland Drills with Taper Shank		90°	HSS	M5 - M20		Steam Tempered	01800/01801	1 3
Subland Drills with Taper Shank		180°	HSS	M5 - M20		Steam Tempered	01802	1 3
Step Drills for Centre Holes		Form D	HSS	M6 - M24		Steam Tempered	01823	1 3
Step Drills for Centre Holes		Form DS	HSS	M6 - M30		Steam Tempered	01822	1 3
Multi Step Drills			HSS	4 - 30		Bright	06300	1 2 4 6 7 8
Conical Sheet Drills			HSS	3 - 60		Bright	06200	1 2 4 6 7 8

## Inner Coolant Drills

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Straight Shank		SM 200	HSS	3 - 13		Bright	01940	1 2 3 4 5 6 7 8
Straight Shank		With Flat Notch Hi Helix	HSCo	5 - 20		Bright	01960	2 4 5 7
Straight Shank		With Flat Notch Hi Helix	HSCo	5 - 20		TiN	01965	2 4 5 7
Straight Shank		With Flat Notch SM 200	HSCo	5 - 20		TiN	01975	1 2 3 4 5 6 7 8
Straight Shank		With Whistle Notch SM 200	HSCo	5 - 20		TiAlN	01978	1 2 3 4 5 6 7 8
Taper Shank		Standard Helix-Axial	HSS	10 - 40		Steam Tempered	11902	1 2 3 4
Taper Shank		Standard Helix-Radial	HSS	10 - 40		Steam Tempered	11901	1 3
Taper Shank		Standard Helix-Axial	HSS	10 - 40		Steam Tempered	11900	1 3
Taper Shank		Standard Helix-Radial	HSS	10 - 40		Steam Tempered	11904	1 3

**FOR A RANGE OF BENCH & PILLAR DRILLS  
GO TO PAGES 529-531**



## Stub, Centre and Spotting Drills

Type	Image	Description	Material	Diameter		Finish	Series Range	Application								
				Metric (mm)	Imperial (")											
Stub Drills		Standard Helix	Carbide	3 - 20			MTB 25	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Jobber Drills		Standard Helix	Carbide	3 - 16			MTB 30	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Micro Drills		Standard Helix	Carbide	0.3 - 3			MTB 35	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Medium Length		Standard Helix	Carbide	0.3 - 13			MTB 45	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Long Length		Standard Helix	Carbide	1 - 13			MTB 50	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Super Long		Standard Helix	Carbide	1 - 10			MTB 60	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Drills with Reinforced Shank		3/5/7/9 x Diameter	Carbide	0.8 - 6			TTD 203/205/207/209	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Drills with Through Coolant		12/15 x Diameter	Carbide	1 - 6			TTD 212/215	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Drills for Aluminium		5 x Diameter	Carbide	0.8 - 6			TTD 305	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Centre Drills		BS ASA Standard	HSS		000 - 10ASA	Bright	114/115	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		Form A	HSS/5%/8% TiN/TiCN/Futura/Carbide	3.15 - 31.5		Bright TiN/TiCN/Futura	011/010/105/811/910/8100	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		Long Series	HSS		1 x 3 - 8 x 6ASA	Bright	185	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		Long Series Metric	HSS	3.5 x 0.75 - 10 x 4		Bright	018	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Centre Drills		Form B 60°/120°	HSS		11-20 ASA	Bright	135	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		Form B	HSS		1B - 7B	Bright	134	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		Form R	Carbide	3.15 - 12.5			012	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		Reinforced Point	HSS	3.15 - 10		Bright	014	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Centre Drills		90°	HSS	3.5 - 18		Bright	015	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Spotting Drills		90°	5% Cob	2 - 25		Bright/TiN Futura	F195/F895/F995	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Spotting Drills		120°	5% Cob	2 - 25		Bright/TiN Futura	F196/F896/F996	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Spotting Drills		90° /120° Long Series	5% Cob	3 - 20		Bright	F197/F199	<table border="1"><tr><td>1</td><td>3</td><td>6</td><td>7</td></tr></table>	1	3	6	7				
1	3	6	7													
Spotting Drills		90°/120°	Carbide	2 - 20		Bright	F8195	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Spotting Drills		90°/120° Long Series	Carbide	4 - 20		Bright	F8197/F8199	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													

**STRUGGLING TO FIND WHAT YOU NEED  
CALL OUR FRIENDLY SALES STAFF FOR ADVICE**



# DRILL SETS

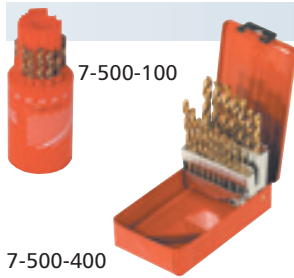


## Drill Sets

- Standard Helix right hand spiral
- 118° point angle
- Blue oxide surface treatment
- For general purpose drilling
- Price on application

Code	Description	No of Drills in Sets	Material	Size Range	Size Increments
5181	Economy	13, 21 or 29	HSS	1/16"-1/2"	1/64"
5181	Economy	19 or 25	HSS	1-13mm	0.5mm
5182	Cobalt	13 or 29	HSS-Co	1/16"-1/2"	1/64"
5182	Cobalt	19 or 25	HSS-Co	1-13mm	0.5mm
5182	Cobalt	41 or 51	HSS-Co	1-10mm	0.1mm
5195	General	13 or 29	HSS	1/16"-1/2"	1/64"
5195	General	15	HSS	1/16"-1/2"	1/32"
5195	General	19 or 25	HSS	1-13mm	0.5mm
5195	General	41 or 51	HSS	1-10mm	0.1mm
5103	Kombat	29	HSS	1/16"-1/2"	1/64"
5103	Kombat	25	HSS	1-13mm	5mm

# DRILL SETS



## Drill Sets

- High speed
- Fully ground
- Titanium coated
- Taper shank drills from 14mm to 50mm available

Code	No of Pieces	Length	Diameter	List Price Per Set (exc VAT)
7-500-100	13	1.5-6.5mm	0.5mm	£5.00
7-500-200	19	1-10mm	0.5mm	£15.00
7-500-300	25	1-13mm	0.5mm	£30.00
7-500-400	21	1/16"-3/8"	1/64"	£17.00
7-500-500	29	1/16"-1/2"	1/64"	£35.00

# DRILL SETS



## Drill Sets












































- High speed
- Fully ground
- Jobber length, straight shank
- Price on application

Code	Set No	Material	Size Range	Size Increments	No of Drills
10210015	15F	HSS	1/16 - 1/2"	1/32"	15
10210029	29F	HSS	1/16 - 1/2"	1/64"	29
10410013	B13	HSS	1/16 - 1/4"	1/64"	13
10410021	B21	HSS	1/16 - 3/8"	1/64"	21
10430060	B60	HSS	No1- No60	1	60
10220019	19M	HSS	1-10mm	0.5mm	19
10220025	25M	HSS	1-13mm	0.5mm	25
10420001	M1	HSS	1.5-6.5mm	0.5mm	13
10420005	M4	HSS	1-5.9mm	0.1mm	50
10420006	M5	HSS	6-10mm	0.1mm	41
10510029	29F	SVG	1/16 - 1/2"	1/64"	29
10510021	B21	SVG	1/16 - 3/8"	1/64"	21
10520019	19M	SVG	1-10mm	0.5mm	19
10520025	25M	SVG	1-13mm	0.5mm	25
10520013	M1	SVG	1.5-6.5mm	0.5mm	13





## Taps

Type		Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Short Hand Taps - Ground Thread - Metric Coarse		For hand or machine tapping of through or blind holes	HSS	M2-M45		METRIC ISO 529	5501	
Short Hand Taps - Ground Thread - Metric Fine		For hand or machine tapping of through or blind holes	HSS	M3-M27		METRIC FINE ISO 529	5511	
UNC Short Hand Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		No 4-12 1/4-2	ISO 529	5541	
UNF Short Hand Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		No 5-12 1/4-1 1/2	ISO 529	5551	
BSF Short Hand Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		3/16-1 1/4	ISO 529	5531	
BSW Short Hand Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		1/8-1 1/4	ISO 529	5521	
BA Short Hand Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		No 0-8	ISO 529	5591	
BSP Parallel Pipe Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		1/8-2	ISO 2284	5571	
BSPT Taper Pipe Hand Taps - Ground Thread		For hand and machine tapping of through or blind holes	HSS		1/8-1 1/2	ISO 2284	5575	
NPT Taper Pipe Taps - Ground Thread		For hand or machine tapping of through or blind holes	HSS		1/8-1 1/2	ISO 2284	5585	
Adjustable Tap Wrenches		For direct application of hand taps			1-64 No 1-8	DIN 1814	5588	
Ratchet Type Tap Wrenches						WORKS STANDARD	9782	
EDT Short Machine Taps - Ground Thread metric Coarse Spiral Point		For machine tapping of through holes	HSSE-V		M2-M24	METRIC ISO 529	5508	
EDT Short machine Taps - Ground Thread Metric Coarse Spiral Flute		For machine tapping of blind holes	HSSE-V	M2.5-M24		METRIC ISO 529	5510	
EDT Short Machine Taps - Ground Thread Metric Fine Spiral Point		For machine tapping of through holes	HSSE-V	M2-M20		METRIC FINE ISO 529	5515	
BSW Short Machine Taps - Ground Thread Spiral Point		For machine tapping of through holes	HSSE-V		3/16-3/4	ISO 529	5526	
BSW Short Machine Taps - Ground Thread Spiral Flute		For machine tapping of blind holes	HSSE-V		3/16-3/4	ISO 529	5528	
UNC Short Machine Taps - Ground Thread Spiral Point		For machine tapping of through holes	HSSE-V		No 5-12 1/4-3/4	ISO 529	5545	
UNC Short Machine Taps - Ground Thread Spiral Flute		For machine tapping of blind holes	HSSE-V		No 6-10 1/4-7/8	ISO 529	5546	
UNF Short Machine Taps - Ground Thread Spiral Point		For machine tapping of through holes	HSSE-V		No 5-12 1/4-3/4	ISO 529	5555	
UNF Short Machine Taps - Ground Thread Spiral Flute		For machine tapping of blind holes	HSSE-V		No 8-10 1/4-3/4	ISO 529	5556	



# THREADING











## Taps continued

Type	Image	Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
EDT Machine Taps - Ground Thread - Metric Coarse - Spiral Point		For machine tapping of through holes	HSSE-V		M3-M10	METRIC DIN 371	5561	1 2 3 4 5 6 7 8
EDT Machine Taps - Ground Thread - Metric Coarse		For machine tapping of blind holes	HSSE-V		M3-M10	METRIC DIN 371	5562	1 2 3 4 5 6 7 8
EDT Machine Taps - Ground Thread - Metric Coarse		For machine tapping of blind holes	HSSE-V	M3-M10		METRIC DIN 371	5563	1 2 3 4 5 6 7 8
EDT Machine Taps - Ground Thread - Metric Coarse - Spiral Point		For machine tapping of: 1) Spiral point - through holes 2) Spiral flute - blind holes	HSSE-V	M6-M24		METRIC DIN 376	5566	1 2 3 4 5 6 7 8
EDT Machine Taps - Ground Thread - Metric Coarse - Spiral Flute		For machine tapping of blind holes	HSSE-V	M6-M20		METRIC DIN 376	5567	1 2 3 4 5 6 7 8
EDT Machine Taps - Ground Thread - Metric Coarse		For machine tapping of blind holes	HSSE-V	M6-M20		METRIC DIN 376	5568	1 2 3 4 5 6 7 8
CAT - Yellow Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in soft materials eg. aluminium	HSSE-V	M3-M10		DIN 371	5538	7
CAT - Blue Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in tough materials eg. stainless steel	HSSE-V	M3-M10		DIN 371	5539	2
CAT - Red Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in high tensile materials eg. tool steel	HSSE-V	M3-M10		DIN 371	5540	1
CAT - Yellow Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in soft materials eg. aluminium	HSSE-V	M12-M24		DIN 376	5548	7
CAT - Blue Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in tough materials eg. stainless steel	HSSE-V	M12-M24		DIN 376	5549	2
CAT - Red Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in high tensile materials eg. tool steel	HSSE-V	M12-M24		DIN 376	5550	1
CAT - Yellow Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in soft materials eg. aluminium	HSSE-V	M3-M10		DIN 371	5558	7
CAT - Blue Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in tough materials eg. stainless steels	HSSE-V	M3-M10		DIN 371	5559	2
CAT - Red Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in high tensile steels eg. tool steel	HSSE-V	M3-M10		DIN 371	5564	1
CAT - White Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind or through holes in Cast Iron	HSSE-V	M3-M10		DIN 371	5578	3
CAT - Yellow Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in soft materials eg. aluminium	HSSE-V	M12-M24		DIN 376	5569	7
CAT - Blue Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in tough materials eg. stainless steel	HSSE-V	M12-M24		DIN 376	5570	2






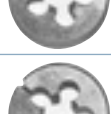

For the application guide see page 248



## Taps continued

Type		Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
CAT - Red Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in high tensile steels eg. tool steel	HSSE-V	M12-M24		DIN 376	5576	1
CAT - White Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind or through holes in Cast Iron	HSSE-V	M12-M24		DIN 376	5579	3
CAT - Yellow Band Spiral Flute Taps - Metric Coarse		For machine tapping of through holes in soft material eg. aluminium	HSSE-V	M3-M20		ISO 529	5529-3	7
CAT - Blue Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in tough materials eg. stainless steel	HSSE-V	M3-M20		ISO 529	5529-0	2
CAT - Red Band Spiral Point Taps - Metric Coarse		For machine tapping of through holes in high tensile steels eg. tool steel	HSSE-V	M3-M20		ISO 529	5529-5	1
CAT - Yellow Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind or through holes in soft materials eg. aluminium	HSSE-V	M3-M20		ISO 529	5529-4	7
CAT - Red Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in high tensile steels eg. tool steel	HSSE-V	M3-M20		ISO 529	5529-6	1
CAT - White Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind or through holes in Cast Iron	HSSE-V	M3-M20		ISO 529	5529-8	3
CAT - Blue Band Spiral Flute Taps - Metric Coarse		For machine tapping of blind holes in tough materials eg. stainless steel	HSSE-V	M3-M20		ISO 529	5529-2	2

## Dies, Diestocks and Dienuts

Type		Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Circular Metric Coarse Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS	1 - 48		BS 1127:1950	6210
Circular Metric Fine Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS	2 - 32		BS 1127:1950	6220
Circular UNC Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS		No 1-12 1/4-1 1/2	BS 1127:1950	6230
Circular UNF Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS		No 0-12 1/4-1 1/2	BS 1127:1950	6240
Circular BSW Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS		1/16-1 1/2	BS 1127:1950	6260
Circular BSF Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS		3/16-1 1/2	BS 1127:1950	6270




















# THREADING

## Dies, Diestocks and Dienuts continued

Type	Image	Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Circular BA Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS		No 0-12	BS 1127:1950	6290
Circular BSPF G Split Dies		Left hand dies are stocked in certain sizes. Solid HSS and CS circular threading dies are also available	HSS		1/8-2	BS 1127:1950	6310
Diestocks		For direct application of circular dies			1 3/16-4	DIN 225	6783
Circular BSPT R Solid Dies		Also available Split and in Carbon Steel	HSS		1/8-1 1/2	BS 1127:1950	6320
Circular NPT Solid Dies		For hand or machine production	HSS		1/8-1	BS 1127:1950	6330
Circular Solid Dies Ground Thread Metric Coarse - Right Hand/ Left Hand		For hand or machine production of components less than 3 x D in length	HSS	M1-M52		SOLID DIN 223	6810 6811
Circular Threading Dies		For hand or machine production of components	HSS-E(Co5)	M2-M30		SOLID DIN 223 METRIC ISO THREAD DIN 13	6812
Circular Solid Dies Ground Thread Metric Fine - Right Hand/Left Hand		For hand or machine production of components less than 3 x D in length	HSS	M2-M52		SOLID DIN 223	6820 6821
Circular Threading Dies		For hand or machine production of components	HSS-E(Co5)	M3-M30		DIN 223 DIN 13	6822
Circular BSW Solid Dies Ground Thread Right Hand Cutting		For hand or machine production of components less than 3 x D in length	HSS		1/16-2	BSW DIN 223	6860
Circular BSP Solid Dies Ground Thread Right Hand Cutting		For hand or machine production of components less than 3 x D in length	HSS		1/8-2	BSP DIN 223	6880
Circular UNF Solid Dies Ground Thread Right Hand Cutting		For hand or machine production of components less than 3 x D in length	HSS		No 0-12 1/4-1 1/2	UNF DIN 223	6840
Circular NPT Solid Dies Ground Thread Right Hand Cutting		For hand or machine production of components less than 3 x D in length	HSS		1/8-2	NPT DIN 223	6850
Circular UNC Solid Dies Ground Thread Right Hand Cutting		For hand or machine production of components less than 3 x D in length	HSS		No 1-12 1/4-2	UNC DIN 223	6830
Hexagon Metric Coarse Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS	3-48		BS 1127:1950	6212

## Dienuts continued

Type		Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Hexagon Metric Fine Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS	3-42		BS 1127:1950	6222
Hexagon UNC Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		No 4-12 1/4-2	BS 1127:1950	6232
Hexagon UNF Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		No 6-12 1/4-1 1/2	BS 1127:1950	6242
Hexagon BSW Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		1/8-2	BS 1127:1950	6262
Hexagon BSF Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		3/16-2	BS 1127:1950	6272
Hexagon BA Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		No 0-6	BS 1127:1950	6292
Hexagon BSPF G Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		1/8-2	BS 1127:1950	6312
Hexagon BSPT R Dienuts		General purpose repairing or cleaning threads. Also available in Carbon Steel	HSS		1/8-1 1/2	BS 1127:1950	6322
Hexagon NPT Dienuts		General purpose repairing or cleaning threads. For hand or machine production and reclamation of screw threads	HSS		1/8-2	BS 1127:1950	6332
Hexagon Dienuts - Ground Thread - UNC		For general purpose repairing or cleaning of threads	HSS		1/4-1 1/2	DIN 382	6835
Hexagon Dienuts - Ground Thread - BSW		For general purpose repairing or cleaning of threads	HSS		1/8-2	DIN 382	6865
Hexagon Dienuts - Ground Thread - BSP		For general purpose repairing or cleaning of threads	HSS		1/8-2	DIN 382	6885
Hexagon Dienuts - Ground Thread - UNF		For general purpose repairing or cleaning of threads	HSS		1/4-1 1/2	DIN 382	6845
Hexagon Dienuts - Ground Thread - BSF		For general purpose repairing or cleaning of threads	HSS		1/4-2	DIN 382	6875
Hexagon Dienuts - Ground Thread Metric Coarse		For general purpose repairing or cleaning of threads	HSS	M3-M36		METRIC DIN 382	6815
Hexagon Dienuts - Ground Thread Metric Fine		For general purpose repairing or cleaning of threads	HSS	MF6-MF36		METRIC DIN 382	6825



# THREADING

## Taps

Type		Description	Material	Diameter		Finish	Series Range	Application								
				Metric (mm)	Imperial (")											
Straight Flute*		Metric Coarse	HSS	M1.6-M72		Bright		<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Straight Flute*		Metric Fine	HSS	M3-M40		Bright		<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Straight Flute*		UNC/UNF	HSS		UNC No 1-2 UNF No 1-1½	Bright		<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Straight Flute*		BSP	HSS		1/8-4	Bright		<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Straight Flute*		BSW/BSF	HSS		BSW 1/16-3 BSF 3/16-2½	Bright		<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													

\* Also available, an extensive range of Spiral Point, Spiral Flute, Left Hand and ISO Long Shank Machine Taps, please ask for details













Also available from stock: American Unified 8 Thread Series (8UN), NPT/API, NPTF, NPS, BSPT, Metric Conduit, BS Conduit, PG, BA/British Association, BS/Brass

## Dies and Dienuts

Type		Description	Material	Diameter		Finish
				Metric (mm)	Imperial (")	
Split Circular		Metric	HSS	M2-M42		Blue/ Bright
Hexagon Dienut		Metric	HSS	M3-M42		Blue/ Bright
Split Circular		Metric Fine	HSS	M3-M32		Blue/ Bright
Hexagon Dienut		Metric Fine	HSS	M3-M32		Blue/ Bright
Split Circular		BSW BSF	HSS		BSW 1/8-2 BSF 3/16-2	Blue/ Bright
Hexagon Dienut		BSW BSF	HSS		BSW 1/8-2 BSF 3/16-2	Blue/ Bright
Split Circular		BSP	HSS		1/8-2	Blue/ Bright
Hexagon Dienut		BSP	HSS		1/8-2	Blue/ Bright
Split Circular		UNC UNF	HSS		UNC No 2 UNF No 2-1½	Blue/ Bright
Hexagon Dienut		UNC UNF	HSS		UNC No10-2 UNF No 10-1½	Blue/ Bright

Also available from stock: Brass, BA, BSPT and NPT. BSPT and NPT supplied as solid non adjustable

**Superline Spiral Point and Spiral Flute Taps**

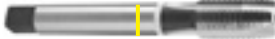
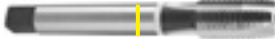



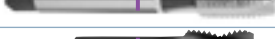





Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
General Purpose		Spiral Point	HSS-E	M3 - M10		Bright	5560	1
High Tensile Steel		Spiral Point	HSS-E	M3 - M10		Bright	5558	1
Pitch Controlled		Spiral Point	HSS-E	M3 - M10		Bright	5561	1 3
Al and Al Alloy		Spiral Point	HSS-E	M3 - M10		Bright	5557	7
Cast Materials		Straight Flute	HSS-E	M3 - M10		Nitrided	5550	3
Stainless Steel		Spiral Point	PM-HSS-E	M3 - M10		Bright	5559	2
General Purpose		Spiral Flute	HSS-E	M3 - M10		Bright	5554	1
High Tensile Steel		Spiral Flute	HSS-E	M3 - M10		Bright	5552	1
Stainless Steel		Spiral Flute	HSS-E	M3 - M10		Bright	5553	2
Pitch Controlled		Spiral Flute	HSS-E	M3 - M10		Bright	5555	1 3
Al and Al Alloy		Spiral Flute	HSS-E	M3 - M10		Bright	5551	7
Cast Material		Straight Flute	HSS-E	M3 - M10		Nitrided	5550	3



**CUTTING TOOLS**



**Taps**

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Metric Coarse Spiral Point		Wizard - Yellow Ring For Steels, Copper and Brass	HSSCo	3 - 20		DIN 371 DIN 376	FDY3/FDY4
Metric Coarse Spiral Flute		Merlin - Yellow Ring For Steels, Copper and Brass	HSSCo	3 - 20		DIN 371 DIN 376	FDY5/FDY6
Metric Coarse Spiral Point		Wizard - Red Ring Hard Steels and Nickel Alloys	HSS PM	3 - 20		DIN 371 DIN 376	FDR3/FDR4
Metric Coarse Spiral Flute		Merlin - Red Ring Hard Steels and Nickel Alloys	HSS PM	3 - 20		DIN 371 DIN 376	FDR5/FDR6
Metric Coarse Spiral Point		Wizard - Violet Ring For Stainless Steels	HSSCo	3 - 20		DIN 371 DIN 376	FDV3/FDV4
Metric Coarse Spiral Flute		Merlin - Violet Ring For Stainless Steels	HSSCo	3 - 20		DIN 371 DIN 376	FDV5/FDV6
Metric Coarse Spiral Point		Wizard - White Ring For Cast Irons	HSSCo	3 - 20		DIN 371 DIN 376	FDW1/FDW2
Metric Coarse Straight Flute		Warwick - Black Ring For Titanium Alloys, Silicone Aluminium Alloys etc	HSSCo	3 - 20		DIN 371 DIN 376	FDB1/FDB2
Metric Coarse Spiral Point		Wizard - Green Ring Interrupted thread For unalloyed Nickel Titanium and Thermo-Plastics	HSSCo	3 - 20		DIN 371 DIN 376	FDG3/FDG4
Metric Coarse Spiral Flute		Merlin - Green Ring For unalloyed Nickel Titanium and Thermo-Plastics	HSSCo	3 - 20		DIN 371 DIN 376	FDG5/FDG6

## Taps continued

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
NC Coarse Straight Flute		Warwick - Hand/machine taps for general use	HSS		No 1 - 2	ANSI B94.9	F181
NC Coarse Spiral Point		Wizard - for through holes general purpose application	HSS		No 1 - 1	ANSI B94.9	F183
NC Coarse Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		No 4 - 1	ANSI B94.9	F185
NF Fine Straight Flute		Warwick - Hand/Machine taps for general use	HSS		No 1 - 1 1/2	ANSI B94.9	F191
NF Fine Spiral Point		Wizard - for through holes general purpose application	HSS		No 0 - 1	ANSI B94.9	F193
NF Fine Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		No 4 - 1	ANSI B94.9	F195
BSW Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/16 - 2	ISO 529 BS 949 Part 2	F151
BSW Fluteless		Mercury - for ductile material Zincs, Aluminium Alloys	HSS		1/8	ISO 529 BS 949 Part 2	F158
BSW Spiral Point		Wizard - for through holes general purpose application	HSS		1/8 - 1	ISO 529 BS 949 Part 2	F153
BSW Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		1/8 - 3/4	ISO 529 BS 949 Part 2	F155
BSF Straight Flute		Warwick - Hand/machine taps for general use	HSS		3/16 - 2	ISO 529 BS 949 Part 2	F161
BSF Spiral Point		Wizard - for through holes general purpose application	HSS		3/16 - 1	ISO 529 BS 949 Part 2	F163
BSF Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		3/16 - 3/4	ISO 529 BS 949 Part 2	F165
BA Straight Flute		Warwick - Hand/machine taps for general use	HSS		No 12 - No 0	ISO 529 BS 949 Part 2	F171
BA Spiral Point		Wizard - for through holes general purpose application	HSS		No 10 - No 0	ISO 529 BS 949 Part 2	F173
BA Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		No 10 - No 0	ISO 529 BS 949 Part 2	F175
B.S.P.F. Par. Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/8 - 2	ISO 2284 BS 949 Part 3	F301
BSPF Par. Spiral Point		Wizard - for through holes general purpose application	HSS		1/8 - 3/4	ISO 2284 BS 949 Part 3	F303
BSPF Par. Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		1/8 - 3/4	ISO 2284 BS 949 Part 3	F305
BSPT (Rc) Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/8 - 2	ISO 2284 BS 949 Part 3	F311
NPT Tapered Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/16 - 2	ANSI B94.9	F261
NPTF Tapered Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/16 - 1 1/4	ANSI B94.9	F271
NPS Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/8 - 1	ANSI B94.9	F241
NPSF Straight Flute		Warwick - Hand/machine taps for general use	HSS		1/8 - 1	ANSI B94.9	F251
Metric Coarse Straight Flute		Warwick - Hand/machine taps for general use	HSS	1 - 56		ISO 529 BS 949 Part 1	F011
Metric Coarse Straight Flute		Ultra Warwick - for Cast Iron Brass, Bronze, Hard plastics	HSS PM	3 - 20		ISO 529 BS 949 Part 1	F511
Metric Coarse Fluteless		Mercury - for ductile material Zincs, Aluminium Alloys	HSS	3 - 12		ISO 529 BS 949 Part 1	F018
Metric Coarse Spiral Point		Wizard - for through holes general purpose application	HSS	1.6 - 24		ISO 529 BS 949 Part 1	F015
Metric Coarse Spiral Point		Ultra Wizard - for through holes in tougher materials	HSS PM	3 - 20		ISO 529 BS 949 Part 1	F513



## Taps continued

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Metric Coarse Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS	3 - 42		ISO 529 BS 949 Part 1	F015
Metric Coarse 15° Spiral Flute		Ultra Merlin - for blind holes in Stainless Steels	HSS PM	3 - 20		ISO 529 BS 949 Part 1	F517
Metric Coarse 45° Spiral Flute		Ultra Merlin - for blind holes in Aluminium Alloys	HSS PM	3 - 20		ISO 529 BS 949 Part 1	F515
Metric Fine Straight Flute		Warwick - Hand/machine taps for general use	HSS	3 - 30		ISO 529 BS 949 Part 1	F021/F031 F041
Metric Fine Straight Flute		Ultra Warwick - for Cast Iron Brass, Bronze, Hard plastics	HSS PM	3 - 16		ISO 529 BS 949 Part 1	F521
Metric Fine Spiral Point		Wizard - for through holes general purpose application	HSS	4 - 22		ISO 529 BS 949 Part 1	F023 F033
Metric Fine Spiral Point		Ultra Wizard - for through holes in tougher materials	HSS PM	4 - 16		ISO 529 BS 949 Part 1	F523 F533
Metric Fine Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS	4 - 22		ISO 529 BS 949 Part 1	F025 F035
Metric Fine 45° Spiral Flute		Ultra Merlin - for blind holes in Aluminium Alloys	HSS PM	4 - 16		ISO 529 BS 949 Part 1	F525 F535
UNC Coarse Straight Flute		Warwick - Hand/machine taps for general use	HSS		No 1 - 2	ISO 529 BS 949 Part 2	F091
UNC Coarse Straight Flute		Ultra Warwick - for Cast Iron Brass, Bronze, Hard plastics	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F591
UNC Coarse Fluteless		Mercury - for ductile material Zincs, Aluminium Alloys	HSS		No 4 - 3/8	ISO 529 BS 949 Part 2	F098
UNC Coarse Spiral Point		Wizard - for through holes general purpose application	HSS		No 1 - 1	ISO 529 BS 949 Part 2	F093
UNC Coarse Spiral Point		Ultra Wizard - for through holes in tougher materials	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F593
UNC Coarse Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		No 4 - 1	ISO 529 BS 949 Part 2	F095
UNC Coarse 15° Spiral Flute		Ultra Merlin - for blind holes in Stainless Steels	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F597
UNC Coarse 45° Spiral Flute		Ultra Merlin - for blind holes in Aluminium Alloys	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F595
UNF Fine Straight Flute		Warwick - Hand/machine taps for general use	HSS		No 0 - 11/12	ISO 529 BS 949 Part 2	F101
UNF Fine Straight Flute		Ultra Warwick - for Cast Iron Brass, Bronze, Hard plastics	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F601
UNF Fine Fluteless		Mercury - for ductile material Zincs, Aluminium Alloys	HSS		No 8 - 1/4	ISO 529 BS 949 Part 2	F108
UNF Fine Spiral Point		Wizard - for through holes general purpose application	HSS		No 0 - 1	ISO 529 BS949 Part 2	F103
UNF Fine Spiral Point		Ultra Wizard - for through holes in tougher materials	HSS PM		No 8 - 5/8	ISO529 BS949 Part 2	F603
UNF Fine Spiral Flute		Merlin - for blind holes in non-ferrous material	HSS		No 4 - 1	ISO 529 BS 949 Part 2	F105
UNF Fine 15° Spiral Flute		Ultra Merlin - for blind holes	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F607
UNF Fine 45° Spiral Flute		Ultra Merlin - for blind holes	HSS PM		No 8 - 5/8	ISO 529 BS 949 Part 2	F605



# THREADING



CUTTING TOOLS

## Circular Dies

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Split Metric Coarse Threads		Hand or machine cutting of external threads	HSS	1.4 - 39		BS 1127	J011 - J017
Split Metric Fine Threads		Hand or machine cutting of external threads	HSS	3 - 32		BS 1127	J011 - J017
Split UNC and NC		Hand or machine cutting of external threads	HSS		No 1 - 1 1/2	BS 1127	J091 - J097
Split UNF and NF		Hand or machine cutting of external threads	HSS		No 0 - 1 1/2	BS 1127	J101 - J107
Split BSW		Hand or machine cutting of external threads	HSS		1/16 - 1 1/2	BS 1127	J151 - J157
Split BA		Hand or machine cutting of external threads	HSS		No 12 - No 0	BS 1127	J171 - J172
Split BSF		Hand or machine cutting of external threads	HSS		3/16 - 1 1/2	BS 1127	J161 - J167
Split BSPF G Series		Hand or machine cutting of external threads	HSS		1/8 - 1 1/4	BS 1127	J302 - J307
Solid BSPF Rc Series		Hand or machine cutting of external threads	HSS		1/8 - 2	BS 1127	J5B2 - J5B8
Solid NPT		Hand or machine cutting of external threads	HSS		1/8 - 2	BS 1127	J562 - J568
Die Accessories		Distock	HSS			Works Standard	J895001 J8950008

FOR CUTTING FLUIDS  
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## Hexagonal Dienuts

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Metric Coarse Threads		General purpose repairing or cleaning of damaged threads	HSS	3 - 36		BS 1127	J611
Metric Fine Threads		General purpose repairing or cleaning of damaged threads	HSS	3 - 25		BS 1127	J612
UNC and NC		General purpose repairing or cleaning of damaged threads	HSS		1/4 - 2	BS 1127	J641
UNF and NF		General purpose repairing or cleaning of damaged threads	HSS		No 10 - 1 1/2	BS 1127	J651
BSW		General purpose repairing or cleaning of damaged threads	HSS		1/8 - 2	BS 1127	J661
BA		General purpose repairing or cleaning of damaged threads	HSS		No 0 - No 6	BS 1127	J681
BSF		General purpose repairing or cleaning of damaged threads	HSS		1/4 - 2	BS 1127	J671
BSPF G Series		General purpose repairing or cleaning of damaged threads	HSS		1/8 - 1 1/2	BS 1127	J701
BSPT Rc Series		General purpose repairing or cleaning of damaged threads	HSS		1/8 - 2	BS 1127	J711
NPT		General purpose repairing or cleaning of damaged threads	HSS		1/8 - 2	Works Standard	J761

## Taps

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Metric Coarse		Straight Flute	HSS	M1-M60		Bright	60000	
Metric Fine		Flute	HSS	MF3-MF40		Bright	60080	
Metric Coarse		Straight Flute	HSS	M3-M16		TiN	60005	
Metric Fine		Flute	HSS	MF3-MF16		TiN	60085	
Metric Coarse		Straight Flute Left Hand	HSS	M3-M24		Bright	60030	
Metric Coarse		Spiral Point	HSS	M1-M30		Steam Tempered	60010	
Metric Fine		Point	HSS	MF4-MF22		Steam Tempered	62810	
Metric Coarse		Spiral Point	HSS	M3-M16		TiN	60015	
Metric Coarse		Spiral Flute	HSS	M2-M30		Bright	60020	
Metric Fine		Flute	HSS	MF4-MF22		Bright	62820	
Metric Coarse		Spiral Flute	HSS	M2-M30		Steam Tempered	60027	
Metric Coarse		Spiral Flute	HSS	M3-M16		TiN	60025	
UNC		Straight Flute	HSS		UNC No 1-2	Bright	60100	
UNF		Flute	HSS		UNF No 0-1 1/2	Bright	60200	
UNC		Spiral Point	HSS		UNC No 1-1	Steam Tempered	60110	
UNF		Point	HSS		UNF No 4-1	Steam Tempered	60210	
UNC		Spiral Flute	HSS		UNC No 4-1	Bright	60120	
UNF		Flute	HSS		UNF No 10-1	Bright	60220	

## Taps

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
BSW BSF		Straight Flute	HSS		BSW 1/16-2 1/2 BSF 3/16-2 1/2	Bright	60300 60400	1 2 3 4 5 6 7 8
BSW BSF		Spiral Point	HSS		BSW 1/8-1 BSF 3/16-1	Steam Tempered	60310 60410	1 2 3 4 5
BSW BSF		Spiral Flute	HSS		BSW 1/8-1 BSF 3/16-1	Bright	60320 60420	1 4 5 6 7 8
BA		Straight Flute	HSS		BA 14-0	Bright	60500	1 2 3 4 5 6 7 8
BA		Spiral Point	HSS		BA 10-0	Steam Tempered	60510	1 2 3 4 5
BA		Spiral Flute	HSS		BA 6-0	Bright	60520	1 4 5 6 7 8

## Taps and Forming Taps

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Metric Coarse		Straight Flute long shank	HSS	M3-M24		Bright	61000	1 2 3 4 5 6 7 8
UNC UNF		Straight Flute long shank	HSS		UNC 1/4-3/4 UNF 1/4-3/4	Bright	61100 61180	1 2 3 4 5 6 7 8
Whitworth (BSPF)		Straight Flute	HSS		G 1/8-2 1/2	Bright	60600	1 2 3 4 5 6 7 8
Whitworth (BSPF)		Spiral Point	HSS		G 1/8-3/4	Steam Tempered	60610	1 2 3 4 5
Whitworth (BSPF)		Spiral Flute	HSS		G 1/8-3/4	Bright	60620	1 2 4 5 6 7 8
Whitworth (BSPF)		Taper	HSS		Rc 1/8-2	Bright	60680	1 2 3 4 5 6 7 8
NPT NPTF		Taper	HSS		NPT 1/16-2 NPTF 1/8-1 1/4	Bright	60750 60760	1 2 3 4 5 6 7 8
NPT		Taper Interrupted	HSS		NPT 1/16-2	Bright	60790	1 2 4 5
Metric Coarse		Fluteless Roll	HSS	M2 - M12		Bright	69000	1 2 4 5 6 7
UNC		Fluteless Roll	HSS		UNC No 2-1/2	Bright	69010	1 2 4 5 6 7
BSW		Fluteless Roll	HSS		BSW 1/4-3/8	Bright	69030	1 2 4 5 6 7
Whitworth (BSPF)		Fluteless Roll	HSS		G 1/8-1/2	Bright	69060	1 2 4 5 6 7
BA		Fluteless Roll	HSS		BA 10-0	Bright	69050	1 2 4 5 6 7

TAP WRENCHES ON PAGES 281 & 283









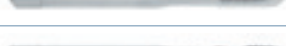









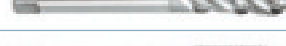








**Taps**

Type	Image	Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Metric Coarse Metric Fine		PRSGBN	HSS-E	M3-M52 MF3- MF42		Bright	60702 61032	1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		PRSGBVA	HSS-E	M3-M20 MF8- MF20		Bright	631103 632103	1 2 4 5
Metric Coarse		PRN	HSS-E	M3-M20		Bright	631105	1 2 3 6 7 8
Metric Coarse		PRBN	HSS-E	M3-M20		Bright	631132	1 2 3 4 5 6 7 8
Metric Coarse		PRR40N	HSS-E	M3-M20		Bright	631163	1 2 4 5 6 7 8
Metric Coarse Metric Fine		PRES	HSS-E	EGM2.5- EGM20		Bright	638122	1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		PRN	HSS-E	M3-M10 M6-M36 MF5-MF36		Bright/ TiN	631305 631405 632505	1 3 6
Metric Coarse Metric Fine		PRL15N	HSS-E	M3-M10 M6-M16		Bright	631345 631445	1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		PRR15GG	HSS-E	M3-M10 M6-M16 MF8-MF16		Bright/ TiCN	631311 631411 632511	3
Metric Coarse Metric Fine		PRGG	HSS-E	M3-M10 M6-M24 MF8-MF24		Bright/ TiCN/ TiAlN	631313 631413 632513	3
Metric Coarse Metric Fine		PRACO	HSS-E	M4-M10 M12-M24		Bright/TiCN/ Nitrided	631314 631414	3 6
Metric Coarse Metric Fine		PREMS	HSS-E	M3-M10		Bright	631317	3 6 8
Metric Coarse Metric Fine		PRR15H	HSS-E	M3-M10 M8-M24 MF8-MF24		Bright/ TiCN	631319 631419 632519	3 6 7
Metric Coarse Metric Fine		PRBLN	HSS-E	M3-M10 M8-M16		Bright/ TiN	631330 631430	1 2 4 5
Metric Coarse Metric Fine		PRBLNS	HSS-E	M3-M10 M8-M16		Bright/ TiN	631331 631431	1 2 4 5
Metric Coarse Metric Fine		PRBN	HSS-E	M3-M10 M6-M42 MF5-MF36		Bright/TiN/ Steam Tempered	631332 631432 632532	1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		PRBVA	HSS-E	M3-M10 M5-M36 MF8-MF36		Bright/TiN/ Steam Tempered	631334 631434 632534	1 2 4 5
Metric Coarse Metric Fine		PRBVA-AZ	HSS-E	M3-M10 M8-M16		Bright/Steam Tempered	631335 631435	2 4 5
Metric Coarse Metric Fine		PRBCN	HSS-E	M3-M10 M8-M24 MF8-MF24		Bright/ TiCN/ TiAlN	631343 631443 632543	1 3
Metric Coarse Metric Fine		Oil hole PRBCNIKS	HSS-E	M6-M10 M8-M24 MF10-MF16		Bright/ TiCN/ TiAlN	631333 631433 632533	1 3
Metric Coarse Metric Fine		PRBH	HSS-E	M3-M10 M6-M24 MF6-MF24		Bright/ TiCN	631336 631436 632536	2 3 4 6
Metric Coarse Metric Fine		PRBAI	HSS-E	M3-M10 M6-M16		Bright/ TiB	631337 631437	7
Metric Coarse Metric Fine		PRBHX	HSS-E	M6-M12 M14-M30		TiCN	631341 631441	1 4 5
Metric Coarse Metric Fine		PRR10DHX	HSS-E	M8-M12 M14-M24		TiCN	631361 631461	1 4 5

## Taps continued

Type	Image	Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Metric Coarse Metric Fine		PRBVAX	HSSE-PM	M3-M10 M6-M24 MF8-MF16		Bright/ TiCN/ HY	651346 651446 652546	2 4 5
Metric Coarse Metric Fine		Oil hole PRBVAX-IKS	HSSE-PM	M6-M10 M8-M16 MF10-MF16		Bright/ TiCN/ HY	651346K 651446K 652546K	2 4 5
Metric Coarse Metric Fine		PRR40N	HSS-E	M3-M10 M6-M48 MF8-MF36 MF6-MF10		Bright/ Steam Tempered/ TiN, HY	631363 631463 632563 632363	1 2 7 1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		PRR40NT	HSS-E	M3-M10 M8-M24 MF8-MF24		Bright/ TiN/Steam Tempered	631365 631465 632565	1 2 4 5
Metric Coarse Metric Fine		PRR15N	HSS-E	M3-M10 M5-M24		Bright/Steam Tempered/TiN	631367 631467	1 3
Metric Coarse Metric Fine		PRR40VA	HSS-E	M3-M10 M5-M36 MF8-MF36 MF6-MF10		Bright/ TiN/Moc/ Steam Tempered	631369 631469 632569 632369	1 2 4 5
Metric Coarse Metric Fine		PRR40VAT	HSS-E	M3-M10 M6-M24 MF8-MF24		Bright/TiN/ Moc/Steam Tempered	631370 631470 632570	1 2 4 5
Metric Coarse Metric Fine		PRR45AI	HSS-E	M3-M10 M8-M16 MF8-MF16		Bright/ TiB	631371 631471 632571	1 7
Metric Coarse Metric Fine		PRR40G	HSS-E	M3-M10 M8-M24 MF8-MF24		Bright/ TiCN/ TiAlN	631372 631472 632572	3
Metric Coarse Metric Fine		Oil hole PRR40GIK	HSS-E	M5-M10 M8-M24 MF8-MF16		Bright/ TiCN/ TiB	631373 631473 632573	3
Metric Coarse Metric Fine		PRR40VAX	HSSE-PM	M3-M10 M6-M24 MF8-MF16		Bright/ TiCN/ HY	651386 651486 652586	1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		Oil hole PRR40VAX-IK	HSSE-PM	M6-M10 M8-M16 MF10-MF16		Bright/ TiCN/ HY	651386K 651486K 652586K	1 2 4 5
Metric Coarse Metric Fine		PRBN	HSS-E	EGM2.5- EGM8 EGM10- EGM20		Bright	638332 638432	1 2 3 4 5 6 7 8
Metric Coarse Metric Fine		PRR40N	HSS-E	EGM2.5- EGM8 EGM10- EGM20		Bright	638363 638463	1 2 4 5 6 7
Metric Coarse Metric Fine		PRFC	HSS-E	M3-M10 M8-M12 MF5-MF10		Bright/ TiN	631375 631475 632375	1 6 7
Metric Coarse Metric Fine		PRFCS	HSS-E	M3-M10 M8-M12 MF5-MF10		Bright/ TiN	631377 631477 632377	1 2 4 5 6 7 8
Metric Coarse		Oil hole PRFCSIK	HSS-E	M6-M10		Bright/TiN	631379	1 2 4 5 6 7 8

**Taps continued**

Type		Description	Material	Diameter Imperial (")	Finish	Series Range	Application
UNC		PRSGBN	HSS-E	UNC No 5-UNC 2	Bright	62762	1 2 3 4 5 6 7 8
UNC		PRN	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 1 1/2	Bright	633305 633405	1 3
UNC		PRGG	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 1 1/2	Bright TiCN	633313 633413	3
UNC		PRBN	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 1 1/2	Bright/Steam Tempered/TiN	633332 633432	1 3 6 7 8
UNC		PRBVA	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 2	Bright/Steam Tempered/TiN	633334 633434	1 2 4 5
UNC		PRR40N	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 1 1/2	Bright/Steam Tempered/TiN	633363 633463	1 6 7 8
UNC		PRR40VA	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 2	Bright/Steam Tempered/TiN	633369 633469	1 2 4 5 7 8
UNC		PRR40VAT	HSS-E	UNC No 5-UNC 3/8 UNC 7/16-UNC 2	Bright/Steam Tempered/TiN	633370 633470	1 2 4 5
UNF		PRSGBN	HSS-E	UNF No 5-UNF 1 1/2	Bright	61332	1 2 3 4 5 6 7 8
UNF		PRN	HSS-E	UNF 1/4-UNF 1 1/2	Bright	634505	1 3
UNF		PRGG	HSS-E	UNF 1/4-UNF 1 1/2	Bright TiCN	634513	3
UNF		PRBN	HSS-E	UNF 1/4-UNF 1	Bright/Steam Tempered/TiN	634532	1 3 6 7 8
UNF		PRBVA	HSS-E	UNF 1/4-UNF 1 1/2	Bright/Steam Tempered/TiN	634534	1 2 4 5
UNF		PRR40N	HSS-E	UNF 1/4-UNF 1	Bright/Steam Tempered/TiN	634563	1 6 7 8
UNF		PRR40VA	HSS-E	UNF 1/4-UNF 1 1/2	Bright/Steam Tempered/TiN	634569	1 2 4 5 7
UNF		PRR40VAT	HSS-E	UNF 1/4-UNF 1 1/2	Bright/Steam Tempered/TiN	634570	1 2 4 5
Whitworth (BSPF)		PRSGBN	HSS-E	G 1/16-G3	Bright	62182	1 2 3 4 5 6 7 8
Whitworth (BSPF)		PRN	HSS-E	G 1/16-G2	Bright	635705	1 3
Whitworth (BSPF)		PRGG	HSS-E	G 1/16-G1TiCN	Bright	635713	3
Whitworth (BSPF)		PRBN	HSS-E	G 1/16-G1Bright		635732	1 3 6 7 8
Whitworth (BSPF)		PRBVA	HSS-E	G 1/16-G2	Bright/Steam Tempered/TiN	635734	1 2 4 5
Whitworth (BSPF)		PRR40N	HSS-E	G 1/16-G1	Bright/Steam Tempered/TiN	635763	1 6 7 8
Whitworth (BSPF)		PRR40VA	HSS-E	G 1/16-G2	Bright/Steam Tempered/TiN	635769	1 2 4 5 7



**IF YOU CAN'T FIND THE PRODUCT YOU'RE LOOKING FOR PLEASE GIVE OUR SALES OFFICE A CALL**

## Taps continued







Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Metric Coarse Metric Fine		SMN	HSSE-PMC	M3-M24 MF3-MF20		Nitrided	60052 63052	3
Metric Coarse Metric Fine		SMP	HSSE-PMC	M3-M24 MF3-MF20		Steam Tempered	60042 63042	1 2 3 4 5
Metric Coarse Metric Fine		SMQ	HSSE-PMC	M3 - M24 MF3-MF20		Steam Tempered	60062 63062	1 2 4 5
Metric Coarse Metric Fine		SMS	HSSE-PMC	M3-M24 MF3-MF20		Steam Tempered	60072 63072	1 2 3 4 5
UNC UNF		SMN	HSSE-PMC		UNC No 4-1 UNF No 4-1	Nitrided	60152 60252	3
UNC UNF		SMP	HSSE-PMC		UNC No 4-1 UNF No 4-1	Steam Tempered	60142 60242	1 2 3 4 5
UNC UNF		SMQ	HSSE-PMC		UNC No 4-1 UNF No 4-1	Steam Tempered	60162 60262	1 2 4 5
UNC UNF		SMS	HSSE-PMC		UNC No 4-1 UNF No 4-1	Steam Tempered	60172 60272	1 2 3 4 5
Whitworth (BSPF)		SMP	HSSE-PMC		G 1/8-G 3/4	Steam Tempered	60642	1 2 3 4 5
Whitworth (BSPF)		SMQ	HSSE-PMC		G 1/8-G 3/4	Steam Tempered	60662	1 2 4 5
Whitworth (BSPF)		SMS	HSSE-PMC		G 1/8-G 3/4	Steam Tempered	60672	1 2 3 4 5

## Circular Dies

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Metric Coarse Metric Fine		Solid Gun Nose	HSS	M3-M24 MF5-MF30		Bright	64000 64010
Metric Coarse Metric Fine		Split Adjustable	HSS	M1-M39 MF3-MF32		Bright	64100 64110
UNC UNF		Split Adjustable	HSS		UNC No 1-1 1/2 UNF No 0-1 1/2	Bright	64120 64130
BSW BSF		Split Adjustable	HSS		BSW 1/16-1 1/2 BSF 3/16-1 1/2	Bright	64140 64150
Whitworth (BSPF)		Split Adjustable	HSS		G 1/8-2	Bright	64160
BA		Split Adjustable	HSS		BA 16-0	Bright	64170













**Hexagon Dienuts**

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Metric Coarse Metric Fine		Solid	HSS	M3-M42 MF3-MF42		Bright	64400 64410
UNC UNF		Solid	HSS		UNC No 8-2 UNF No 8-1½	Bright	64420 64430
BSW BSF		Solid	HSS		BSW ½-2 BSF ¾-1¾	Bright	64440 64450
Whitworth (BSPF)		Solid	HSS		G ½-1½	Bright	64460
NPT		Solid	HSS		NPT ½-2	Bright	64490



**Taps**

Type		Description	Material	Diameter		Finish	Series Range	Application								
				Metric(mm)	Imperial(")											
Metric		Spiral Point	HSS/ 5% Cob	M2 - M48		Bright	105/4 Yellow Black/Red	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Metric		Spiral Point	5% Cob	M2 - M48		Steam Vapour	105/4 Blue	<table border="1"><tr><td>2</td><td>4</td><td>5</td></tr></table>	2	4	5					
2	4	5														
Metric		Spiral Flute	HSS/ 5% Cob	M2 - M42		Bright	131/3 Yellow Black/Red	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Metric		Spiral Flute	5% Cob	M2 - M42		Steam Vapour	131/3 Blue	<table border="1"><tr><td>2</td><td>4</td><td>5</td></tr></table>	2	4	5					
2	4	5														
Metric		Spiral Point/ Flute Duo	Powder Metallurgy Steel	M3 - M16		Special Geometry	105/4 - 131/3 Yellow/Black/ Blue/Red	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
	1							2	3	4						
5	6	7	8													
	<table border="1"><tr><td>3</td><td>7</td></tr></table>	3	7													
3	7															
Metric		Spiral Point Duo	Powder Metallurgy Steel	M2 - M20		Special Geometry	105/3 Green	<table border="1"><tr><td>3</td><td>7</td></tr></table>	3	7						
3	7															
Metric		Ground Thread Spiral Point/Flute	Powder Metallurgy Steel	M2 - M20		High Performance	105/4 - 131/3	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
1	2	3	4													
5	6	7	8													
Metric		Ground Thread Spiral Point/Flute	Ultra Titan	M2 - M12		Steam Vapour	103/3 - 132/3	<table border="1"><tr><td>4</td><td>5</td></tr></table>	4	5						
4	5															
Metric		Spiral Point/ Flute Interrupted Thread	5% Cob	M2 - M20		Bright Steam Vapour	103/4 Ultra 132/3 Ultra	<table border="1"><tr><td>6</td><td>7</td></tr></table>	6	7						
	6							7								
																





# THREADING



## Taps continued

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric(mm)	Imperial(°)			
Metric		Fluteless	5% Cob	M2 - M6		Steam Vapour	116/116a	2 7
Metric		Serial Hand Spiral Point	HSS	M1 - M48		Bright	101/1/2/3 101/4	1 3 6 7
Metric		Spiral Point/Flute Ultra EG	5% Cob	M2.5 - M20		Bright	105/4 Ultra 131/3 Ultra	1 3 6 7
Metric Fine		Spiral Point	5% Cob	MF4 - MF20		Steam Vapour	106/4 Ultra Inox Blue	2 4 5
Metric Fine		Spiral Point/Flute	8% Cob	MF4 - MF20		Special Geometry	106/4 Jet Red 131/3 Jet Red	1 8
Metric Fine		Spiral Point/Plug	5% Cob	MF5 - MF20		Bright	106/3 Green 106/4 Black	1 3 6 7
Metric Fine		Spiral Flute	5% Cob	MF4 - MF20		Steam Vapour	131/3 Ultra Inox Blue	2 4 5
Metric Fine		Spiral Flute	5% Cob	MF4 - MF20		Bright	131/3 Black	1 3 6 7
Metric Fine		Serial/Plug Spiral Point		MF2 - MF50		Bright	102/1 102/3/102/4	1 3 6 7
UNC		Ground Thread Spiral Point	5% Cob 8% Cob		1-64 - 1-8	Bright	105/4 Red/ Black/Blue	1 2 3 4 5 6 7 8
UNC		Ground Thread Spiral Flute	5% Cob		2-56 - 1-8	Bright	131/3 Black	1 3 6 7
UNC		Ground Thread Spiral Flute	5% Cob		2-56 - 1-8	Steam Vapour	131/3 Blue	2 4 5
UNC		Ground Thread Spiral Flute	8% Cob		2-56 - 1-8	Special Geometry	131/3 Red	1 8
UNF		Ground Thread Spiral Point	5% Cob		0-80 - 1-12	Bright	105/4 Black	1 3 6 7
UNF		Ground Thread Spiral Point	5% Cob		0-80 - 1-12	Steam Vapour	105/4 Blue	2 4 5
UNF		Ground Thread Spiral Flute	5% Cob		2-64 - 1-12	Bright	131/3 Black	1 3 6 7
UNF		Ground Thread EG Spiral Point/Flute	5% Cob		4-48 - 3/4-16	Use for wire inserts	105/4 131/3	1 3 6 7
ISO 529		Spiral Point BA			14BA - 0BA	Bright	101/4	1 3 6 7
Metric		Rolled Thread No 30/60	ASP 23	0.3 - 4		Bright	No 30/60	1 6 7
Metric		Fluteless	ASP 23	0.6 - 4		Bright	Fluteless	7
UNC/UNF		Rolled Thread No 30/60	ASP 23		00-96 - 8-32	Bright	No 30/60	6 7
UNC/UNF		Fluteless	ASP 23		00-96 - 8-32	Bright	Fluteless	1 7
BA		Spiral Flute Straight Flute	ASP 23		2BA - 19BA	Bright	No 30 No 60	1 6 7
BA		Fluteless	ASP 23		2BA - 16BA	Bright	Fluteless	1 7

## Dies

Type		Description	Material	Diameter		Finish	Series Range
				Metric(mm)	Imperial(°)		
Circular Metric		Solid Split Button	HSS 5% Cob	M1 – M39		Bright	501 502 503
Circular BA		Solid Split Button	HSS		14BA – 0BA	Bright	501 502 503



# THREADING

## Standard Bar Type Tap Wrenches

- Provides a comfortable and positive grip and the sensitivity required when tapping a blind hole

Code	Capacity (mm)	List Price (exc VAT)
E240	1.5-4.6	£14.88
E241	2-7.2	£20.95
E242	2.5-9	£33.19



## Chuck Type Tap Wrenches

- Stepped jaws greatly extend the range of taps for each wrench
- Adjustable tommy bar for tapping close to a shoulder
- Available in normal and long reach designs

Code	Length		Width		List Price (exc VAT)
	(mm)	(°)	(mm)	(°)	
E141	50	1 <sup>15</sup> / <sub>16</sub>	57	2 <sup>1</sup> / <sub>4</sub>	£10.80
E142	65	2 <sup>11</sup> / <sub>16</sub>	90	3 <sup>1</sup> / <sub>2</sub>	£11.46
E143	90	3 <sup>1</sup> / <sub>2</sub>	127	5	£15.54
E145	165	6 <sup>1</sup> / <sub>2</sub>	90	3 <sup>1</sup> / <sub>2</sub>	£34.30
E146	225	10	127	5	£43.90



# THREADING

## Carbon and High Speed Steel Hexagon Dienut Cased Sets

- General purpose repairing or cleaning threads

Code		Set Number		Description of Sets	List Price (exc VAT)	
Carbon Steel	High Speed Steel	Carbon Steel	High Speed Steel		Carbon Steel	High Speed Steel
7781-0060	6381-0060	H21	HH21	1/4, 5/16, 3/8, 7/16, 1/2 BSW	£108.41	£258.09
7781-0062	6381-0062	H23	HH23	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1 BSW	£233.94	£556.97
7781-0063	6381-0063	H51	HH51	1/4, 5/16, 3/8, 7/16, 1/2 BSF	£108.41	£258.09
7781-0065	6381-0065	H53	HH53	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1 BSF	£233.94	£556.97
7781-0066	6381-0066	H81	HH81	1/4, 5/16, 3/8, 7/16, 1/2 UNC	£108.41	£258.09
7781-0068	6381-0068	H83	HH83	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1 UNC	£233.94	£556.97
7781-0069	6381-0069	H91	HH91	1/4, 5/16, 3/8, 7/16, 1/2 UNF	£108.41	£258.09
7781-0071	6381-0071	H93	HH93	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1 UNF	£233.94	£556.97
7781-0072	6381-0072	H11	HH41	M6, 7, 8, 9, 10, 11, 12	£116.24	£381.90
7781-0074	6381-0074	H13	HH42	M6, 8, 10, 12, 14, 16, 18, 20, 24	£225.05	£535.80



CUTTING TOOLS



# THREADING

CUTTING TOOLS



## High Speed Steel Tap and Die Cased Sets

- For hand or machine tapping of through or blind holes

Code	Set Number	Description of Sets	List Price (exc VAT)
6380-0001	HC3	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 BA	£895.62
6380-0002	HC5	0, 1, 2, 3, 4, 5, 6, 7, 8 BA	£656.79
6380-0005	HC31	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2 BSW	£601.85
6380-0007	HC36	1/4, 5/16, 3/8, 7/16, 1/2 BSW	£440.64
6380-0008	HC37	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 BSW	£810.85
6380-0009	HC39	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 BSW	£1,356.55
6380-0010	HC52	3/16, 1/4, 5/16, 3/8, 7/16, 1/2 BSF	£523.04
6380-0011	HC56	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 BSF	£810.85
6380-0012	HC58	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 BSF	£1,356.55
6380-0015	HC82	1/4, 5/16, 3/8, 7/16, 1/2 UNC	£413.17
3680-0016	HC83	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 UNC	£745.15
6380-0017	HC85	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 UNC	£1,232.36
6380-0018	HC92	1/4, 5/16, 3/8, 7/16, 1/2 UNF	£413.17
6380-0019	HC93	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 UNF	£745.15
6380-0020	HC95	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 UNF	£1,232.36
6380-0023	HC111	M2, 3, 4, 5, 6	£291.37
6380-0025	HC114	M2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	£769.04
6380-0026	HC115	M3, 4, 5, 6, 7, 8, 9, 10	£484.82
6380-0027	HC118	M6, 7, 8, 9, 10, 11, 12	£537.38
6380-0028	HC119	M6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20	£1,166.67
6380-0029	HC120	M6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24	£1,547.59

## Carbon Steel Tap and Die Cased Sets

- For hand or machine tapping of through or blind holes



Code	Set Number	Description of Sets	List Price (exc VAT)
7780-0002	C3	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 BA	£284.66
7780-0014	C36	1/4, 5/16, 3/8, 7/16, 1/2 BSW	£266.86
7780-0015	C37	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 BSW	£461.51
7780-0017	C39	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 BSW	£760.10
7780-0020	C55	1/4, 5/16, 3/8, 7/16, 1/2, BSF	£271.69
7780-0021	C56	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, BSF	£461.51
7780-0023	C58	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 BSF	£760.10
7780-0025	C82	1/4, 5/16, 3/8, 7/16, 1/2 UNC	£266.86
7780-0026	C83	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 UNC	£459.62
7780-0028	C85	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 UNC	£760.10
7780-0030	C92	1/4, 5/16, 3/8, 7/16, 1/2, UNF	£266.86
7780-0031	C93	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 UNF	£495.62
7780-0033	C95	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 UNF	£760.10
7780-0040	C101	1/4, 5/16, 3/8, 7/16, 1/2, UNC/UNF/COMBI	£336.29
7780-0043	C108	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 UNC/UNF/COMBI	£615.83
7780-0044	C109	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 UNC/UNF/COMBI	£1,025.17
7780-0045	C111	M2, 3, 4, 5, 6	£174.97
7780-0046	C112	M2, 2.5, 3, 3.5, 4, 5, 6	£206.05
7780-0048	C115	M3, 4, 5, 6, 7, 8, 9, 10	£294.62
7780-0050	C118	M6, 7, 8, 9, 10, 11, 12	£297.33
7780-0051	C119	M6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20	£590.83
7780-0052	C120	M6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24	£877.37



## 52 Piece Combination Tap and Die Set - Metric, UNF and BSP

- High carbon steel
- Taps and dies suitable for cleaning and cutting threads on mild steel and aluminium
- Contents held in plastic insert within steel storage case

### Contents:-

- 7 metric dies: 3 x 0.5, 4 x 0.7, 5 x 0.8, 6 x 1, 8 x 1.25, 10 x 1.5 and 12 x 1.75 - 1" O/D
- 5 UNF dies: 1/4, 5/16, 3/8, 7/16 and 1/2 - 1" O/D
- 2 BSP dies: 1/8 and 1/4 - 1" O/D

- 14 metric taper taps: sizes same as dies
- Tap wrench-American pattern 1/2" capacity
- 'T' type tap wrench 1/4" capacity
- Die holder 1" O/D with guide
- 13 HSS twist drills: 2.5, 3.3, 4.2, 5, 5.5, 6.8, 6.9, 8.5, 8.8, 9.9, 10.3, 11.4 and 11.8mm
- Screwdriver
- Centre punch
- 5 screw extractors Nos 1, 2, 3, 4 and 5
- Screwpitch gauge

Code	Part No	List Price (exc VAT)
79204	52MU	£71.74



## 75 piece Combination Tap and Die Set - Metric and BSP

- High carbon steel
- Taps and dies suitable for cleaning and cutting threads on mild steel and aluminium
- Contents held in plastic insert within steel storage case

### Contents:-

- 9 metric coarse dies: 3 x 0.5, 3.5 x 0.6, 4 x 0.7, 4.5 x 0.75, 5 x 0.8, 6 x 1, 8 x 1.25, 10 x 1.5 and 12 x 1.75 - 1" O/D
- 8 metric fine dies: 2 x 0.25, 3 x 0.35, 4 x 0.5, 5 x 0.5, 6 x 0.75, 8 x 1, 10 x 1.25 and 12 x 1.25 - 1" O/D
- BSP die 1/8" BSP

- 17 metric taper taps: sizes same as dies
- 17 metric plug taps (bottoming): sizes same as dies
- Taper tap 1/8" BSP
- Tap wrench-American pattern 1/2" capacity
- 'T' type tap wrench 1/4" capacity
- Die holder 1" O/D with guide
- 17 HSS twist drills: 1.7, 2.5, 2.6, 2.9, 3.3, 3.5, 3.8, 4.2, 4.5, 5, 5.3, 6.8, 7, 8.5, 8.8, 10.3, and 10.7mm
- Screwpitch gauge
- Screwdriver

Code	Part No	List Price (exc VAT)
79205	75MM	£102.48



## Schroder Ratchet 'T' Type Tap Wrenches

- Expert quality
- Manufactured by Schröder in Germany
- Ratchet action with forward/reverse operation and lock
- Ideal for use in confined areas
- 2 hardened jaws and polished plated finish

Code	Part No	Capacity of Square (mm)	List Price (exc VAT)
45680	594	2-5	£13.72
80218	Y594	Spare 2.5 jaws	£2.22
45698	595	4.6-8	£17.70
80219	Y595	Spare 4.6-8 jaws	£2.22



# MILLING

## End Mills

Type	Image	Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
End Mills - 2 Flute Threaded Shank Regular length		Milling keyways and slots in one cut. Designed for plunging operations	HSS	6.5-50	1/16-2	BS 122 ISO 1641 DIN 327	5321 5323
End Mills - 2 Flute Threaded Shank Regular Length		Milling keyways and slots to size in one cut. Designed for plunging operations. High tensile steels and other difficult materials	Co8e/ HSS	2-30	3/32-1	DIN 327 BS 122	5348 5349
End Mills - 2 Flute Threaded Shank Long Series		Milling Keyways and slots in one cut. Designed for plunging operations	HSS	6.5-50	1/8-2	BS 122	5326 5328
End mills - 2 Flute Threaded Shank Long Series		Milling keyways and slots to size in one cut. Designed for plunging operations. High tensile steels and other difficult materials	Co8e	2-30	1/16-1	BS 122	5343 5350

Coated versions are also available on request, please ask for details



# MILLING

CUTTING TOOLS

## End Mills continued















Type	Image	Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
End Mills - 2 Flute Flatted Shank Regular Length		Milling keyways and slots to size in one cut. Designed for plunging operations. High tensile steels and other difficult materials	Co8e	1.5-35		DIN 327 ISO 164/1	5305
End Mills - 2 Flute Flatted Shank Long Series		Milling keyways and slots to size in one cut. Designed for plunging operations. High tensile steels and other difficult materials	Co8e	3-32		DIN 844 ISO 1641/1	5320
End Mills - 3 Flute Threaded Shank Regular Length		Multi-purpose tool used for slotting, plunging and profiling. High tensile steels and other difficult materials	Co8e	3-25	$\frac{3}{8}$ -1	BS 122/4	5342
End Mills - 3 Flute Threaded Shank long Series		Multi-purpose tool used for slotting, plunging and profiling. High tensile steels and other difficult materials	Co8e	3-25		BS 122/4	5355
End Mills - 3 Flute Flatted Shank Regular Length		Multi-purpose tool used for slotting, plunging and profiling. High tensile steels and other difficult materials	Co8e	3-25		DIN 844 ISO 1641/1	5325
End Mills - Multi-Flute Threaded Shank Regular Length		For profile milling	HSS	6.5-50	$\frac{3}{32}$ -2	BS 122 ISO 1641	5301 5303
End Mills - Multi-Flute Threaded Shank Regular Length		For profile milling, high tensile steels and other difficult materials	Co8e	3-32	$\frac{3}{32}$ -1	BS 122 ISO 1641	5344 5345
End Mills - Multi-Flute Threaded Shank Long Series		For profile milling	HSS	7-40	$\frac{1}{8}$ -2	BS 122 ISO 1641	5306 5308
End Mills - Multi-Flute Threaded Shank Long Series		For profile milling, high tensile steels and other difficult materials	Co8e	3-30	$\frac{3}{32}$ -2	BS 122 ISO 1641	5346 5347
End Mills - Multi-Flute Flatted Shank Regular Length		For profile milling, high tensile steels and other difficult materials	Co8e	3-32		DIN 844	5359
End Mills - Multi-Flute Flatted Shank Long Series		For profile milling, high tensile steels and other difficult materials	Co8e	6-32		DIN 844	5360

Coated versions are also available on request, please ask for details

MILLING MACHINES CAN BE FOUND  
ON PAGES 522-523



## End Mills, Slot Drills, Roughing Cutters and Other Milling Cutters


















Type	Image	Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
End Mill - 2 Flute Ball Nose - Threaded Shank Regular length		Milling keyways and slots to size in one cut. Designed for plunging operations. Produces a radius at the bottom of the cut.	Co8e	2-32	1/8 -1	BS 122	5334 5340
End Mill -2 Flute Ball Nose - Threaded Shank Long Series		Milling keyways and slots to size in one cut. Designed for plunging operations. Produces a radius at the bottom of the cut	Co8e	2-32	1/8-1	BS 122	5339 5341
End Mills - 2 Flute Ball Nose - Flatted Shank Regular Length		Milling keyways and slots to size in one cut. Designed for plunging operations. Produces a radius at the bottom of the cut	Co8e	3-20		DIN 327	5337
End Mills - 2 Flute Ball Nose - Flatted Shank Long Series		Milling keyways and slots to size in one cut. Designed for plunging operations. Produces a radius at the bottom of the cut	Co8e	3-20		DIN 844	5335
End Mill - roughing - Threaded Shank - coarse pitch and fine pitch - knuckle form - Regular Length		Maximum stock removal at high feed rates	Co8e	6-50	1/4-2	BS 122 ISO 1641	5316 5317
End Mill - roughing - Threaded Shank - Long Series - coarse pitch and fine pitch - knuckle form		Maximum stock removal at high feed rates	Co8e	10-50	1/2-2	BS 122 ISO 1641	5318 5319
End Mill - roughing - Flatted - coarse pitch and fine pitch - knuckle form - Regular Length		Maximum stock removal at high feed rates	Co8e	6-40		DIN 844	5330
End Mill - roughing - Flatted Shank - coarse pitch and fine pitch - knuckle form - Long Length		Maximum stock removal at high feed rates	Co8e	8-40		DIN 844	5331
Corner Rounding Cutters Threaded Shank		To produce a true radius up to a quarter of a circle application	Co8e	2-14		DIN 6518 FORM D	5363
T-Slot Cutters Threaded Shank		For opening out the bottom of previously milled slot to form a T-Slot.	Co8e HSS	6-22	1/4-1	BASED ON ISO 3337 DIN 851	5371 5372
Dovetail Cutters Threaded Shank		To produce dovetail slides for machine tool tables, jigs and fixtures	HSS	16-40		BASED ON DIN 1833 ISO 3859	5376
Inverted Dovetail Cutters Threaded Shank		To produce opposite section of dovetail slide to Dovetail cutter	HSS	16-40		BASED ON DIN 1833 ISO 3859	5378
Woodruff Cutters Threaded Shank		To produce a seat to suit woodruff keys	HSS	10.5-45.5		BASED ON DIN 850 TO SUIT DIN 6888 KEY	5366
Woodruff Cutters Threaded Shank		To produce a seat to suit woodruff keys	HSS		1/2-1 3/8	BASED ON BS 122	5367

Coated versions are also available on request, please ask for details









# MILLING

## Bore Type Milling Cutters







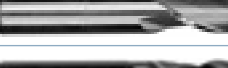






Type		Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Side and Face Cutters Straight Tooth		Designed with tooth form to give strength and more chip clearance	HSS		2½-10	BS 122	2001
Side and Face Cutters Staggered Tooth		Designed for deep slot operations in steel and in most soft materials	HSS		2½-10	BS 122	2003
Side and Face Cutters Staggered Tooth		Designed for deep slot operations in steel and in most soft materials	HSS	50-200		DIN 885A TYPE N	2005
Side and Face Cutters Staggered Tooth		Designed for Heavy Duty slotting operations in steel and in most soft materials	HSS-Co	50-250		DIN 885A TYPE N	2006
Plain Mills Right Hand Helix		Also known as slab mills or cylindrical cutters. Having no side teeth, these cutters are used mostly for surface cutting	HSS		2½-4½	BS 122	2010
Plain Mills Left Hand Helix		Also known as slab mills or cylindrical cutters. Having no side teeth, these cutters are used mostly for surface cutting	HSS	50-100		DIN 884 TYPE N	2011
Shell End Mills		Shell End Mills are made for right hand rotation with right hand helical cutting edges	HSS		1¼-6	BS 122	2013
Shell End Mills		Shell End Mills are made for right hand rotation with right hand helical cutting edges	HSS	40-125		DIN 1880 TYPE N	2014
Shell End Mills Right Hand/Left Hand		For end and face milling	HSS-Co	40-160		DIN 1880 TYPE N	2015
Face Mills - Plain Bore		For face milling, supplied with plain bore and transverse keyway	HSS		1¾-5	WORKS STANDARD	2016
Single Angle Cutters Right Hand/Left Hand		Used for milling dovetails, Serrations, angular slots or chamfers	HSS		2¾-4	DIN 842 TYPE 'H'	2030
Equal Angle Cutters		Used for milling Vee-shaped slots, serrations and chamfers	HSS		2¾-4	BS 122	2031
Single Angle Cutters Right Hand/ Left Hand		Used for milling dovetails, serrations, angular slots or chamfers	HSS	40-160		BS 122	2032
Double Equal Angle Cutters		Used for milling Vee-shaped slots, serrations and chamfers	HSS	50-100		DIN 847	2033
Convex Cutters		Convex and concave cutters have top relief only and will maintain their form throughout their life	HSS		2¼-4	BS 122	2020
Convex Cutters		Convex and concave cutters have top relief only and will maintain their form throughout their life	HSS		3-4	BS 122	2021
Concave Cutters		Convex and concave cutters have top relief only and will maintain their form throughout their life	HSS		2½-4	BS 122	2022



## Bore Type Milling Cutters

Type		Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Convex Cutters		Convex and concave cutters have top relief only and will maintain their form throughout their life	HSS	50-125		DIN 856	2023
Concave Cutters		Convex and concave cutters have top relief only and will maintain their form throughout their life	HSS	50-125		DIN 855	2024
Corner Rounding Cutters - Right Hand/ Left Hand		Corner Rounding Cutters have both top and side relief	HSS		2 <sup>1</sup> / <sub>4</sub> -3 <sup>3</sup> / <sub>4</sub>	BS 122	2025 2026
Corner Rounding Cutters		Corner Rounding Cutters have both top and side relief	HSS		2 <sup>1</sup> / <sub>4</sub> -3 <sup>3</sup> / <sub>4</sub>	BS 122	2027
Single Corner Rounding Cutters Right Hand		Corner Rounding Cutters have both top and side relief	HSS	50-100		DIN 6513	2028
High Speed Steel Gear Cutters		Selection of involute gear milling cutters for a given diametrical pitch and number of teeth	HSS	6-20		BS 2518 FORM TO DIN 3972	2040








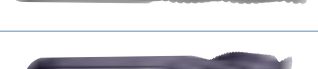




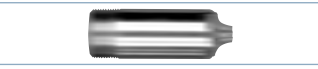


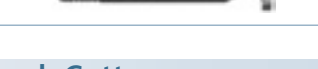

## Autolock Threaded Slot Drills and Shank Cutters

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Slot Drill Short		For accurate closed slotting, plunge feeding and sinking	HSS	6.5 - 50	1 <sup>7</sup> / <sub>64</sub> - 2	BS 122 Part 4 (1980)	8242 8241
Slot Drill Short		For accurate closed slotting, plunge feeding and sinking	HSSCo	1.5 - 50	1 <sup>1</sup> / <sub>16</sub> - 2	BS 122 Part 4 (1980)	8272 8271
Slot Drill Long		For accurate closed slotting, plunge feeding and sinking	HSS	6.5 - 50	9 <sup>3</sup> / <sub>32</sub> - 2	BS 122 Part 4 (1980)	8252 8251
Slot Drill Long		For accurate closed slotting, plunge feeding and sinking	HSSCo	2 - 32	1 <sup>1</sup> / <sub>16</sub> - 1	BS 122 Part 4 (1980)	8282 8281
Ball Nose Slot Drill-Short		For mould/die making and plunge feeding and sinking	HSS	7 - 32	9 <sup>3</sup> / <sub>32</sub> - 1 <sup>1</sup> / <sub>2</sub>	BS 122 Part 4 (1980)	8332 8331
Ball Nose Slot Drill-Short		For mould/die making and plunge feeding and sinking	HSSCo	2 - 20	1 <sup>1</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>4</sub>	BS 122 Part 4 (1980)	8352 8351
Ball Nose Slot Drill-Long		For accurate closed slotting, plunge feeding and sinking	HSS	8 - 20	5 <sup>1</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>2</sub>	BS 122 Part 4 (1980)	8342 8341
Ball Nose Slot Drill-Long		For accurate closed slotting, plunge feeding and sinking	HSSCo	3 - 20	1 <sup>1</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>4</sub>	BS 122 Part 4 (1980)	8362 8361
Alimills Short		Multi-purpose 3 flute cutter for use on light alloys	HSSCo	6 - 25		ISO 1641 DIN 844 BS 122 Part 3	8462
Alimills Long		Multi-purpose 3 flute cutter for use on light alloys	HSSCo	6 - 25		ISO 1641 DIN 844 BS 122 Part 3	8464
Supermills Short		3 Flute cutter for CNC and multi-purpose machining	HSSCo	3 - 50	1 <sup>1</sup> / <sub>8</sub> - 2	ISO 1641 DIN 844 BS 122 Part 3	84E2 8411
Supermills Long		3 Flute cutter for CNC and multi-purpose machining	HSSCo	3 - 40	1 <sup>1</sup> / <sub>8</sub> - 2	ISO 1641 DIN 844 BS 122 Part 3	84F2 8421
Supercuts Short		As supermill but with flat crest serrations for elevated stock removal rates	HSSCo	6 - 25	1 <sup>1</sup> / <sub>4</sub> - 1	ISO 1641 DIN 844 BS 122 Part 3	8432 8431








# MILLING

## Autolock Threaded Shank Cutters

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Supercuts Long		As supermill but with flat crest serrations for elevated stock removal rates	HSSCo	6 - 25	1/4 - 1	ISO 1641 DIN 844 BS 122 Part 3	8442 8441
End Mills Short		For profiling, finishing and open ended slots	HSS	6.5 - 50	9/32 - 2	BS 122 Part 4 (1980)	8002 8001
End Mills Short		For profiling, finishing and open ended slots	HSSCo	2.5 - 50	3/32 - 2	BS 122 Part 4 (1980)	8022 8021
End Mills Long		For profiling, finishing and open ended slots	HSS	6.5 - 50	9/32 - 2	BS 122 Part 4 (1980)	8012 8011
End Mills Long		For profiling, finishing and open ended slots	HSSCo	3 - 50	3/32 - 2	BS 122 Part 4 (1980)	8032 8031
Rippers Short		For high stock-removal rates in profiling and open ended slotting operations	HSSCo	6 - 50	1/4 - 2	ISO 164 DIN 844 BS 122 Part 3	8622 8621
Rippers Long		For high stock-removal rates in profiling and open ended slotting operations	HSSCo	10 - 50	3/8 - 2	ISO 164 DIN 844 BS 122 Part 3	8632 8631
Rippers Fine Pitch-Short		For high stock-removal rates in profiling and open ended slotting operations	HSSCo	6 - 50		ISO 164 DIN 844 BS 122 Part 3	8642 8622
Rippers Fine Pitch-Long		For high stock-removal rates in profiling and open ended slotting operations	HSSCo	8 - 32		ISO 164 DIN 844 BS 122 Part 3	8652
T-Slot		For producing T-slots and in recessing applications	HSSCo	6 - 22	1/4 - 1	Works Standard	8472 8471
T-Slot (DIN)		For producing T-slots and in recessing applications	HSSCo	5 - 36		Works Standard	8474
Corner Rounding		For convex corners and producing radii	HSS	1 - 20	1/16 - 1/2	Works Standard	8522 8521
Corner Rounding		For convex corners and producing radii	HSSCo		1/8 - 1/2	Works Standard	8531
Corner Rounding		For convex corners and producing radii	HSSCo	1 - 20		DIN 6518	8532
Dovetail		For dovetail slides, angular recesses and chamfers	HSS	16 - 32	1/2 - 1 1/2	Works Standard	849
Inverted Dovetail		For dovetail slides, angular recesses and chamfers	HSS	13 - 50		Works Standard	8498 8497
Woodruff		For Woodruff key seating and general purpose slotting	HSS	10.5 - 45.5	1/2 - 1 1/2	DIN 850	8512 8511

## Flatted Shank Cutters





Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Slot Drill Short		For accurate closed slotting, plunge feeding and sinking	HSSCo	1.5 - 50		ISO 1641 DIN 327 BS 122 Part 3	82J2
Slot Drill Long		For accurate closed slotting, plunge feeding and sinking	HSSCo	2 - 22		ISO 1641 DIN 327 BS 122 Part 3	82K2
Ball Nose Slot Drill Short		For Mould/Die Making and plunge feeding and sinking	HSSCo	2 - 20		ISO 1641 DIN 327 BS 122 Part 3	83D2
Ball Nose Slot Drill Long		For Mould/Die Making and plunge feeding and sinking	HSSCo	3 - 30		ISO 1641 DIN 327 BS 122 Part 3	83E3



## Flatted Shank Cutters continued

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Supermills Short		For CNC and multi-purpose Machining	HSSCo	3 - 50		ISO1641 DIN 844 BS122 Part 3	84H2
Supermills Long		For CNC and Multi-purpose Machining	HSSCo	3 - 32		ISO1641 DIN 844 BS122 Part 3	84L2
Supercuts Short		As Supermill but with flat crest serrations for elevated stock removal rates	HSSCo	6 - 25		ISO1641 DIN 844 BS122 Part 3	8436
Supercuts Long		As Supermill but with flat crest serrations for elevated stock removal rates	HSSCo	6 - 20		ISO1641 DIN 844 BS122 Part 3	8438
Alimills Short		For Multi-purpose use on Light alloys	HSSCo	6 - 25		ISO1641 DIN 844 BS122 Part 3	8452
Alimills Long		For Multi-purpose use on Light alloys	HSSCo	6 - 25		ISO1641 DIN 844 BS122 Part 3	8468
End Mills Short		For Profiling, Finishing and Open ended slots	HSSCo	3 - 50		ISO1641 DIN 844 BS122 Part 3	81D2
End Mills Long		For Profiling, Finishing and Open ended slots	HSSCo	3 - 40		ISO1641 DIN 844 BS122 Part 3	81E2
Rippers Short		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSSCo	6 - 50	1/4 - 2	ISO1641 DIN 844 BS122 Part 3	86A2
Rippers Long		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSSCo	8 - 50	3/8 - 2	ISO1641 DIN 844 BS122 Part 3	86C2
Rippers Fine Pitch - Short		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSSCo	6 - 50		ISO1641 DIN 844 BS122 Part 3	86A2
Rippers Fine Pitch - Long		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSSCo	8 - 32		ISO1641 DIN 844 BS122 Part 3	86D2
T-Slot		For producing T-slots and in recessing applications	HSSCo	5 - 36		DIN 851	8476
Corner Rounding		For convex corners and producing radii	HSSCo	1 - 20		DIN 651B	8542
Dovetail		For dovetail slides, angular recesses and chamfers	HSSCo	16 - 32		DIN 1833	8482 8484
Inverted Dovetail		For dovetail slides, angular recesses and chamfers	HSSCo	16 - 32		DIN 1833	8486 8488

## HYDRA Threaded Shank Cutters

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Threaded Bore Shell End Mills Short		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSS	50 - 150	2 - 6	Works Standard	811
Threaded Bore Shell End Mills Long		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSS	50 - 75	2 - 3	Works Standard	812
Slotted Drive Shell End Mills		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	HSS	40 - 160	1 1/4 - 6	Works Standard	820



# MILLING

## Other Milling Cutters

Type	Image	Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
FC3 Cutters Standard		For use where small diameter cutters are needed radial relief - improve cutting	HSSCo	1 - 10	1/16 - 1/4	Works Standard	24M 245
FC3 Cutters Long		For use where small diameter cutters are needed radial relief - improve cutting	HSSCo	1.5 - 10	1/16 - 1/4	Works Standard	24L 246
FC3 Cutters Ball Nose		For use where small diameter cutters are needed radial relief - improve cutting	HSSCo	2 - 6	1/16 - 1/4	Works Standard	24N 247
FC3 Cutters Standard		For use where small diameter cutters are needed radial relief - improve cutting	HSSCo	1 - 10		ISO 3338 DIN 1835	824M
FC3 Cutters Long		For use where small diameter cutters are needed radial relief - improve cutting	HSSCo	1.5 - 10		ISO3338 DIN 1835	824L
FC3 Cutters Ball Nose		For use where small diameter cutters are needed radial relief - improve cutting	HSSCo	2 - 10		ISO 3338 DIN 1835	824N
Die-Sinking Cutters Standard		Mould and Die Making	HSSCo	6 - 10		Works Standard	AS12
Die-Sinking Cutters Ball Nose		Mould and Die Making	HSSCo	6 - 10		Works Standard	AS12
Taper Ball Nose Cutters and Taurus Cutters		Cutters to customers requirements					Please ask for details

# MILLING



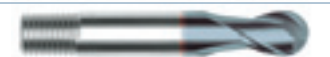
















## Slot Drills and End Mills - DIN





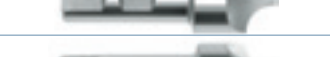
Type	Image	Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
2-Flute Slot Drills		N Short Series 30°	HSCo-8	2 - 40		Bright	30011
2-Flute Slot Drills		N Short Series 30°	HSCo-8	2 - 40		TiCN	30016
2-Flute Slot Drills		N Short Series 30°	HSCo-8	2 - 36		Bright	30021
2-Flute Slot Drills		N Short Series 30°	HSCo-8	2 - 36		TiCN	30026
2-Flute Slot Drills		N Long Series 30°	HSCo-8	3 - 25		Bright	31211
2-Flute Slot Drills		N Long Series 30°	HSCo-8	3 - 25		TiCN	31216
2-Flute Slot Drills		N Long Series 30°	HSCo-8	3 - 20		Bright	31221
2-Flute Slot Drills		N Long Series 30°	HSCo-8	3 - 20		TiCN	31226
ALI-quick End Mills		W Short Series 42°	HSCo-8	2 - 20		Bright	40541
ALI-quick End Mills		W Short Series 42°	HSCo-8	2 - 20		TiCN	40546
ALI-quick End Mills		W Short Series 42°	HSCo-8	3 - 20		Bright	40551
ALI-quick End Mills		W Short Series 42°	HSCo-8	3 - 20		TiCN	40556
2-Flute Ball Nose Slot Drills		N Short Series 30°	HSCo-8	3 - 25		Bright	48011
2-Flute Ball Nose Slot Drills		N Short Series 30°	HSCo-8	3 - 25		TiCN	48016



**Slot Drills, Tri-Cutters and End Mills - DIN**

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
2-Flute Ball Nose Slot Drills		N Short Series 30°	HSCo-8	3 - 20		Bright	48021
2-Flute Ball Nose Slot Drills		N Short Series 30°	HSCo-8	3 - 20		TiCN	48026
TRI-Cutters		N Short Series 30°	HSCo-8	3 - 25		Bright	36011
TRI-Cutters		N Short Series 30°	HSCo-8	3 - 25		TiCN	36016
TRI-Cutters		N Short Series 30°	HSCo-8	3 - 20		Bright	36021
TRI-Cutters		N Short Series 30°	HSCo-8	3 - 20		TiCN	36026
Multi-Flute End-Mills		N-HD Short Series 45°	HSCo-8	6 - 25		Bright	40733
Multi-Flute End-Mills		N-HD Short Series 45°	HSCo-8	6 - 25		TiCN	40736
Multi-Flute End-Mills		N Short Series 30°	HSCo-8	2 - 40		Bright	40011
Multi-Flute End-Mills		N Short Series 30°	HSCo-8	2 - 40		TiCN	40016
Multi-Flute End-Mills		N Short Series 30°	HSCo-8	2 - 36		Bright	40021
Multi-Flute End-Mills		N Short Series 30°	HSCo-8	2 - 36		TiCN	40026
Multi-Flute End-Mills		N Long Series 30°	HSCo-8	3 - 40		Bright	41011
Multi-Flute End-Mills		N Long Series 30°	HSCo-8	3 - 40		TiCN	41016
Multi-Flute End-Mills		N Long Series 30°	HSCo-8	3 - 40		Bright	41021
Multi-Flute End-Mills		N Long Series 30°	HSCo-8	3 - 40		TiCN	41026

**End Mills and Corner Rounding Cutters - DIN**

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Multi-Flute Ball Nose End Mills		N Short Series 30°	HSCo-8	3 - 20		Bright	48031
Multi-Flute Ball Nose End Mills		N Short Series 30°	HSCo-8	3 - 20		TiCN	48036
Multi-Flute Corner Rounding Cutters		Concave	HSCo-8	R=1 - R=16		Bright	48711
Multi-Flute Corner Rounding Cutters		Concave	HSCo-8	R=1 - R=16		Bright	48721

**Ripping Cutters**

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
3-Flute ALI quick Ripping Cutters		Extra Coarse Pitch Short Series 35°	HSCo-8	6 - 32		Bright	46071
3-Flute ALI quick Ripping Cutters		Extra Coarse Pitch Short Series 35°	HSCo-8	6 - 32		TiCN	46076
3-Flute ALI quick Ripping Cutters		Extra Coarse Pitch Long Series 35°	HSCo-8	12 - 32		Bright	47071
3-Flute ALI quick Ripping Cutters		Extra Coarse Pitch Long Series 35°	HSCo-8	12 - 32		TiCN	47076
Multi-Flute Ripping Cutters		Coarse Pitch Short Series 30°	HSCo-8	6 - 40		Bright	46081

## Ripping and Combi Cutters

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Multi-Flute Ripping Cutters		Coarse Pitch Short Series 30°	HSCo-8	6 - 40		TiAlN	46088
Multi-Flute Ripping Cutters		Coarse Pitch Short Series 30°	HSCo-8	6 - 40		Bright	46091
Multi-Flute Ripping Cutters		Coarse Pitch Short Series 30°	HSCo-8	6 - 40		TiAlN	46098
Multi-Flute Ripping Cutters		Coarse Pitch Long Series 30°	HSCo-8	10 - 40		Bright	47081
Multi-Flute Ripping Cutters		Coarse Pitch Long Series 30°	HSCo-8	10 - 40		TiAlN	47088
Multi-Flute Ripping Cutters		Coarse Pitch Long Series 30°	HSCo-8	10 - 40		Bright	47091
Multi-Flute Ripping Cutters		Coarse Pitch Long Series 30°	HSCo-8	10 - 40		TiAlN	47098
Multi-Flute Ripping Cutters		Fine Pitch Short Series 30°	HSCo-8	6 - 25		Bright	46481
Multi-Flute Ripping Cutters		Fine Pitch Short Series 30°	HSCo-8	6 - 25		TiAlN	46488
Multi-Flute Ripping Cutters		Fine Pitch Short Series 30°	HSCo-8	6 - 25		Bright	46491
Multi-Flute Ripping Cutters		Fine Pitch Short Series 30°	HSCo-8	6 - 25		TiAlN	46498
Combi Cutters		Extra fine Pitch Short Series 30°	HSSE-PM	6 - 25		TiAlN	47588

## Slot Drills, Tri-Cutters, End Mills and Woodruff Cutters - BS









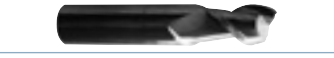













Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
2-Flute Slot Drills		N-Normal Series 30°	HSCo-8	1.5 - 40	1/16 - 1 1/2	Bright	30201
2-Flute Slot Drills		N-Normal Series 30°	HSCo-8	1.5 - 40	1/16 - 1 1/2	TiCN	30206
2-Flute Slot Drills		N-Normal Series 30°	HSCo-8	1.5 - 40	1/16 - 1 1/2	Bright	30221
2-Flute Slot Drills		N-Normal Series 30°	HSCo-8	1.5 - 40	1/16 - 1 1/2	TiCN	30226
2-Flute Slot Drills		N-Long Series 30°	HSCo-8	2 - 32	1/16 - 1 1/4	Bright	31301
2-Flute Slot Drills		N-Long Series 30°	HSCo-8	2 - 32	1/16 - 1 1/4	Bright	31321
2-Flute Ball Nose Slot Drills		N-Normal Series 30°	HSCo	2 - 25	1/16 - 1	Bright	48131
2-Flute Ball Nose Slot Drills		N-Normal Series 30°	HSCo	2 - 25	1/16 - 1	Bright	48151
TRI-cutters		N-Short Series 30°	HSCo-8		1/8 - 1	Bright	35131
Multi-Flute End Mills		N-Short Series 30°	HSCo-8	2 - 4	1/16 - 1 1/2	Bright	40221
Multi-Flute End Mills		N-Short Series 30°	HSCo-8	2 - 4	1/16 - 1 1/2	TiCN	40226
Multi-Flute End Mills		N-Long Series 30°	HSCo-8	3 - 4	1/16 - 1 1/2	Bright	41221
Woodruff Keyseat Cutters		Staggered Teeth	HSS		1/2 - 1 1/2	Bright	48231
Woodruff Keyseat Cutters		Staggered Teeth	HSS	10.5 - 45.5		Bright	48211
Woodruff Keyseat Cutters		Staggered Teeth	HSS	10.5 - 45.5		Bright	48231

**Throwaway End Mills**

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Throwaway TRI-Cutters		N-Short Series	HSCo	1 - 6	1/16 - 1/4	Bright	33011
Throwaway TRI-Cutters		N-Short Series	HSCo	1 - 6	1/16 - 1/4	TiCN	33016
Throwaway TRI-Cutters		N-Long Series	HSCo	1.5 - 6	1/16 - 1/4	Bright	33111
Throwaway TRI-Cutters		N-Long Series	HSCo	1.5 - 6	1/16 - 1/4	TiCN	33116



**Slot Drills, End Mills and Corner Rounding Cutters**

Type		Description	Material	Diameter		Series Range
				Metric (mm)	Imperial (")	
2 Flute End Mill		Standard/Long/Extra Long	Carbide	2 - 20		MS122 L/XL
2 Flute Ball Nose		Standard/Long/Extra Long	Carbide	2 - 20		MS123 L/XL
2 Flute End Mill		For plastic or Aluminium	Carbide	2 - 20		MS 124 MS 125
3 Flute End Mill		Standard/Long/Extra Long	Carbide	2 - 20		MS 131 L/XL
4 Flute End Mill		Standard	Carbide	2 - 20		MS 141 L/XL
4 Flute Ball Nose		Standard	Carbide	2 - 20		MS 142 L/XL
2 Flute End Mill		For Steel	Carbide	3 - 12		MX 122
2/4 Flute Ball Nose		For Steel	Carbide	6 - 12		MX 123 MX 141
2/3 Flute End Mill		For Aluminium	Carbide	3 - 12		MA 125 MA 135
2 Flute Slot Drill		Standard	5% Cob Carbide	0.3 - 14 0.05 - 5.9		500 8500
2 Flute Ball Nose		Standard	5% Cob Carbide	0.4 - 20 0.1 - 5.5		529 8529
2 Flute End Mill		Stub	Carbide	0.1 - 2		8507
3 Flute End Mill		Standard	8% Cob	1.5 - 20		BPL
2/3 Flute Slot Drill		Short	8% Cob	1 - 32		523/533
2/3/4 Flute Slot Drill		Long	8%	1 - 32		524/534/544
2 Flute End Mill		Extra Long	5% Cob Carbide	1 - 10		510/8510/8509
2/3/4 Flute End Mill		Extra Long	8% Cob	3 - 20		527/537/547
2 Flute Ball Nose		Long/Extra Long	5% Cob	1 - 10		520/521
Single Flute		Router	Carbide	0.5 - 3		8515
3 Flute End Mill		Miniature	Carbide	0.5 - 3		8533
Multi V		60°, 90°, 120°	Carbide	0.5 - 20		8088/8090/8092

## MILLING





















## Slot Drills, End Mills and Corner Rounding Cutters continued

Type	Image	Description	Material	Diameter		Series Range
				Metric(mm)	Imperial(“)	
4/6 Flute Ball Nose		Copying Mill	Carbide	1 - 3		8549/8569
Ball Nose Taper End Mill		Short/Long	Carbide	0.5 - 2 1 - 2		8501/03/05 8502/04/06
2 Flute Ball Nose		With Back Clearance	Carbide	0.4 x 2 - 3 x 15		8527D
Corner Rounding Cutter		Standard	Carbide	0.1 - 4		8555/8550

## REAMING



## Reamers, Countersinks and Counterbores

Type	Image	Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Parallel Shank Counterbores		For counterboring holes to suit capscrew heads	HSS		1/4-3/4	BS 122	1050
Parallel Shank Counterbores		For counterboring holes to suit capscrew heads	HSS	M3-M12		BS 328 ISO 4206 DIN 373	5774
MTS Counterbores with Detachable Pilots		For counterboring holes to suit capscrew heads	HSS		1/2-2	BS 122	1051
Pilots for MTS Counterbores		Pilot for MTS counterbores	HSS	1-4		BS 122	1052
MTS Counterbores		For counterboring holes to suit capscrew heads	HSS	M8-M24		ISO 4207 DIN 375 BS 328	5775
MTS Counterbores with Detachable Pilots		For counterboring holes to suit capscrew heads	HSS	15-40		DIN 375	1054
Pilots to suit MTS Counterbores		Pilot for MTS counterbores	HSS	6.8-25		DIN 375	1055
MTS Countersinks		To produce a countersink suitable for countersink head screws, also used as a deburring tool	HSS-Co5	16-80		60° DIN 334D 90° DIN 335D	5771 5773
Straight Shank Countersinks		To produce a countersink suitable for countersink head screws, also used as a deburring tool	HSS-Co5	6.3-25		60° DIN 334C 90° DIN 335C	5761 5763
MTS Countersinks		To produce a countersink suitable for countersink head screws, also used as a deburring tool	HSS		1/2-1 1/2		1062
Parallel Hand Reamers		General hand reaming	HSS	1.5-50	1/16-2	BS 328 ISO 236/1 DIN 206	5701
MTS Parallel Machine Reamers		General machine reaming	HSS	3-50	1/8-2	ISO 236/1 BS 328	5711
MTS Machine Chucking Reamers		General machine reaming	HSS-Co	4-50		ISO 521 DIN 208	5741
Parallel Shank Machine Chucking Reamers		General machine reaming	HSS-Co	2-16	1/8-9/16	ISO 236/11 BS 328	5751
Hand Taper Pin Reamers Straight Flute		Reaming holes to suit standard taper pins	HSS	2-20		BS 328 ISO 3465 DIN 9	5731
Hand Taper Pin Reamers Straight Flute		Reaming holes to suit standard taper pins	HSS		1/16-7/8	BS 328	5732
MTS Taper Bridge Machine Reamers		For opening out existing holes for alignment on structural steelwork and fabrications	HSS	6-29	9/16-1 1/4	BS 328 ISO 2238 DIN 311	5721
Adjustable Reamer		Expandable reamer	HSS	9.5-56.3	3/8-27/32	WORKS STANDARD	5755



**Machine Reamers and Countersinks**

Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Machine Reamers Straight Shank		Left Hand Spiral	HSS-E	0.95 - 12.05	$\frac{3}{64}$ - $\frac{15}{32}$	Bright	496	1 3 6 7
Machine Reamers Straight Shank		Left Hand Spiral	HSS-E	3.8 - 20		Bright	468	1 3 6 7
Machine Reamers Taper Shank		Left Hand Spiral	HSS-E	3 - 50		Bright	405	1 3 6 7
Countersinks 90° Straight Shank		Standard	HSS	4.3 - 31		Bright	476	1 2 3 6 7
Countersinks 90° Taper Shank		Standard	HSS	15 - 100		Bright	477	1 2 3 6 7



**Reamers, Countersinks and Counterbore Cutters**

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
MTS Machine Standard		Precise hole sizing in Machining operations	HSS	3 - 50	$\frac{1}{8}$ - 2	ISO 236 BS 328 DIN 338	6012/6011
MTS Chucking Standard		Precise hole sizing in Lathe operations	HSSCo	5 - 38	$\frac{3}{16}$ - $1\frac{1}{12}$	ISO 236 BS 328 DIN 338	6052/6051
SS Chucking Standard		Precise hole sizing in Lathe operations	HSSCo	3 - 16	$\frac{3}{32}$ - $\frac{5}{8}$	ISO 521 BS 328 DIN 212	6062/6061
Hand Reamers Standard		Precise hole sizing by machine or hand	HSS	2 - 40	$\frac{1}{16}$ - 2	ISO 236 BS 328 DIN 212	6002/6001
Taper Pin Standard		Precise tapered holes by machine or hand	HSS	2 - 20	$\frac{5}{64}$ - $\frac{3}{4}$	ISO 3465 BS 328 DIN 9	6042/6041
Adjustable Standard		Economic hole sizing on small batches	HSS	6.35 - 84.39	$\frac{1}{4}$ - $3\frac{11}{32}$	Works Standard	5461/5441
Adjustable Blade Sets			HSS	6.35 - 84.39	$\frac{1}{4}$ - $3\frac{11}{32}$	Works Standard	5464/5444
Pilots Adjusting Nuts							
Countersinks MTS		For 60° or 90° conical chamfers	HSSCo	15 - 80		DIN 334 DIN 335	5164/5194
Countersinks Par. Shank		For 60° or 90° conical chamfers	HSSCo	6.3 - 31		DIN 334 DIN 335	5162/5192
Counterbore Cutters		For recessing holes - take cap headed screws	HSSCo	4 - 20	2BA - 1	Works Standard	8551



# REAMING

## Reamers and Countersinks

● Precision Machining ● Assembly, Maintenance, Repair ● Construction ● Specials

Type	Image	Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
T/S Machine Reamers ●		Spiral Flute	HSS	3 - 50	1/8 - 2	Black	B055
S/S Machine Reamers ●		Spiral Flute	HSS	1.5 - 16	1/16 - 5/8	Black	B066
T/S Machine Reamers ●		Spiral Flute St./QSp.Flute	HSS-E	3 - 50 3 - 25/3 - 32		Bright	B208 A208/Q208
S/S Machine Reamers ●		Spiral/ St. Flute QSp.Flute	HSS-E	1.4 - 20 2 - 20	1/16 - 5/8	Bright	B212/A212 Q212
T/S Machine XL Reamers ●		Spiral Flute	HSS	6 x 203 - 25 x 381	1/4 x 8 - 1 1/4 x 15	Black	B057
T/S Machine Reamers ●		Spiral Flute Regrindable	HSS	10 - 50	3/8 - 2	Bright	B009
T/S Machine Reamers ●		Adjustable Floating	Blades HSS	S 12.7 -101.6 SL 19 -101.6	1/2 - 4 3/4 - 4	Bright	FRSHR
S/S 3 Flute Countersinks ●		90°/60°	HSS-E	8 - 25		Bright	SSCS
T/S Machine Reamers ●		Spiral Flute	Carbide Slug K15	6 - 16	1/4 - 1 1/4	Black	B058
S/S Machine Reamers ●		Spiral Flute	Solid Carbide K15	3 - 12	1/8 - 1/2	Bright	SCAR
T/S Machine XL Reamers ●		Spiral Flute	Carbide Slug K15		1/4 - 1 1/4	Black	B059
T/S Machine Reamers ●		Straight Flute Regrindable	Carbide Tipped K15	10 - 50	3/8 - 2	Bright	B010
T/S Machine Reamers ●		Adjustable Floating	Blades TCT K15	S 12.7 - 101.6 SL 19 - 101.6	1/2 - 4 3/4 - 4	Bright	FRSCR
Hand Reamers ●		Spiral Flute	HSS	1.5 - 50	1/16 - 2	Black	B051
Hand Taper Pin Reamers ●		Straight Flute Taper 1:50	HSS	1.5 - 20		Black	A052
Hand Taper Pin Reamers ●		Straight Flute Taper 1:48	HSS		1/16 - 7/8	Black	A053
Hand Socket Finishing Reamers ●		Straight Flute	HSS	MT0 - MT6		Black	A054
T/S Socket Reamers ●		Straight Flute Rough/Finish	HSS	MT0 - MT6		Black	B063
Adjustable Hand Reamers ●		Straight Blade B33	HSS	6.35 - 84.93	1/4 - 3 11/32	Black	A001R
Adjustable Hand Reamers ●		Straight Blade B47	HSS	9.52 - 84.93	3/8 - 3 11/32	Black	B003
Pilots ●				HV - 18		Bright	A001P
Adjustable Hand Reamers ●		Straight Blade Metric	HSS	6.4 - 45		Black	A002
Adjustable Hand Reamers ●		Straight Blade French	HSS	9 - 75		Black	A006
T/S Machine Bridge Reamer ●		Quick Spiral Flutes 1:10	HSS	8.4 - 40	3/8 - 1 9/16	Black	B065
Magna-Cut Reamers ●		Quick Spiral Flutes 1:10	HSS	10 - 26	3/8 - 1	Black	M097
Power Tool Reamers ●		Quick Spiral Flutes	HSS	14 - 22		Black	PTR
Ex Stock Intermediates ●		Spiral Flute DIN 212B	HSS-E	1.00 - 12.00 0.01 INCS.		Bright	CSSP
T/S Machine Reamers ●		Spiral Flute Blanks	HSS	3 - 50 Any size/tolerance	1/8 - 2	Black	S055
S/S Machine Reamers ●		Spiral Flute Blanks	HSS	1.5 - 16 Any size/tolerance	1/16 - 5/8	Black	S066
Parallel Hand Reamers ●		Spiral Flute Blanks	HSS	1.5 - 50 Any size/tolerance	1/16 - 2	Black	S051

● Bespoke Specials service to customer drawing available, please ask for details



**Reamers**

Type	Image	Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Hand Reamers		Straight Spiral	HSS	1.5 - 40	1/16 - 1	Bright	73050 73060
Hand Reamers Adjustable		Straight Spiral	HSS	4 - 40		Bright	75060 75070
Hand Reamers Adjustable		Adjustable	Special Steel	8 - 65		Bright	75090
Hand Reamers Adjustable		Set of Blades	Special Steel	8 - 65		Bright	75290
Machine Reamers with Straight Shank		Straight Spiral Quick Spiral	HSS-E	1.4 - 20		Bright/TiN	75201 75211 75215
Machine Reamers with Straight Shank		Quick Spiral	HSS-E	2 - 20		Bright	75221
Machine Reamers with Straight Shank		Standard Spiral	HSS	1.5 - 16	1/16 - 1/2	Bright	73000
Machine Reamers with Taper Shank		Straight Spiral Quick Spiral	HSS-E	3 - 50		Bright/TiN	75101 75111 75115
Machine Reamers with Taper Shank		Quick Spiral	HSS-E	5 - 32		Bright	75121
Machine Reamers with Taper Shank		Spiral	HSS	3 - 40	1/8 - 1 1/2	Bright	72000
Shell Reamers		Spiral Straight	HSS	20 - 100		Bright	76010 76020
Shell Reamers		Quick Spiral	HSS	20 - 100		Bright	76030
Arbors		Shell Taper 1:30				Bright	76040
Bridge Reamers			HSS	6.4 - 40		Bright	72050
Taper Pin Reamers with Straight Shank		Finishing, Taper 1:50	HSS	1.5 - 50		Bright	75040 75050
Taper Pin Reamers with Straight Shank		Finishing, Taper 1:48	HSS		1/16 - 1	Bright	75020
Socket Reamers		Finishing	HSS	MT1 - MT6		Bright	73080
Socket Reamers		Finishing	HSS	MT1 - MT6		Bright	72080
Taper Pin Reamers		Quick Spiral Style, Taper 1:50	HSS	2 - 20		Bright	75030
Taper Pin Reamers		Quick Spiral Style, Taper 1:50	HSS	4 - 50		Bright	75080
Pipe Reamers		Finishing, Taper 1:16	HSS		1/8 - 2	Bright	73200
Solid Carbide Machine Reamers		Straight Spiral	K10	4 - 20		Bright	77000 77010
Carbide Tipped Machine Reamers		Straight Spiral	K10	5 - 40		Bright	77020 77030
Carbide Tipped Shell Reamers		Straight	K10	30 - 75		Bright	77040



# REAMING



## Counterbores, Countersinks and Pilots

Type	Image	Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Counterbores with Straight Shank		Fine Medium Tapping hole	HSS	M3 - M12		Bright	57010 57020 57030
Counterbores with Taper Shank		Medium	HSS	M10 - M30		Bright	57008
Counterbores with Taper Shank		For detachable pilots	HSS	15 - 57		Bright	57004
Detachable Pilots		Fine, Medium Tapping hole	HSS	M8 - M30		Bright	57310 57320 57330
Countersinks with Straight Shank		60° Form C	HSS	6.3 - 25		Bright	78011
Countersinks with Straight Shank		90° Form C	HSS	4.3 - 31		Bright	78010
Countersinks with Straight Shank		90° Form C	HSS	4.3 - 20.5		TiN	78015
Countersinks with Taper Shank		90° Form D	HSS	16.5 - 80		Bright	78020

# REAMING



## Reamers, Countersinks and Counterbores

Type	Image	Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Straight Shank Machine Reamers		Spiral Flute	HSS-E	0.6 - 13.2	1/32 - 1/2	Bright/ TiALN	AAR CAR
Straight Shank Machine Reamers		Stub	HSS-E	3.76 - 13.2		Bright	8090
Straight Shank Machine Reamers		Spiral Flute	HSS	13.2 - 30.25		Bright	AAG
Straight Shank Chucking Reamers		Long Series Super Long	8% Cob	1.5 - 12		Bright	680-683
Taper Shank Machine Reamers		Spiral Flute	HSS	4.75 - 50.25	1/4 - 2	Bright	ABB
Taper Shank Machine Reamers		Long Series	HSS	5.26 - 32.25		Bright	AMG - ANG
Straight Shank Machine Reamers		Spiral Flute	Carbide	0.6 - 13.25			8600
Taper Shank Chucking Reamers		Spiral Flute	Carbide	9.26 - 32.25			DDE
Hand Reamers		Spiral Flute	HSS	4.25 - 30.99		Bright	ACB
Die Maker Taper Reamers		Spiral Flute	5% Cob	6 - 30		Bright	740-750-760 745-755-765
Countersinks		Hole Type 90°	5% Cob		0 - 4	Bright	0411
Countersinks		Hole Type 82°	5% Cob		0 - 4	Bright	0414
Countersinks		Hole Type 60°	5% Cob		0 - 4	Bright	0412
Countersinks		Hole Type 90°	5% Cob	5 - 80		Bright	0411
Countersinks		Hole Type 90°	5% Cob TiN	5 - 80		TiN	4811
Countersinks		3 Flute 90°	5% Cob	4.3 - 80		Bright/ TiN	0431 4831

## Reamers, Countersinks and Counterbores continued

Type	Image	Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Countersinks		3 Flute 90°	8% Cob	4.3 - 80		Bright/ Futura	0436 4936
Countersinks		Single Flute 30°/45°/60°/82°	5% Cob	10 - 30		Bright	0426/0427 0422/0424
Countersinks		Single Flute 90°/100°/120°	5% Cob	4 - 50		Bright	0421/0425
Countersinks		3 Flute 90°	Carbide	4.3 - 31		Bright	8431
Countersinks		Piloted	5% Cob	M1 - M10		Bright	032
Counterbores		Piloted	5% Cob	M1 - M10		Bright	031

## Tungsten Carbide Burrs – Cylinder

- Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT1100C		SA-63M	2.4	13	2.4	38	<b>£6.98</b>
GT1240C	A061303	SA-51M	6	13	3	45	<b>£13.17</b>
<b>Double/Diamond Cut – D Cut</b>							
GT1100D		SA-63M	2.4	13	2.4	38	<b>£7.22</b>
GT1240D	A061303	SA-51M	6	13	3	45	<b>£13.17</b>
GT1200D	A031303	SA-43M	3	13	3	38	<b>£8.03</b>
GT1300D	A041304		4	13	4	50	<b>£13.71</b>
GT1400D	A061906	SA-1M	6	19	6	50	<b>£13.88</b>
GT1500D	A081906	SA-2M	8	19	6	65	<b>£17.91</b>
GT1700D	A121906		12	19	6	65	<b>£30.04</b>
<b>1" HD</b>							
GT1700D-1	A122506	SA-5M	12	25	6	70	<b>£25.35</b>
GT1800D	A162508	SA-6M8	16	25	8	70	<b>£37.80</b>
<b>Extra Long Standard Cut – S Cut</b>							
GT1600XL		SA-3ML6	10	19	6	169	<b>£26.92</b>
GT1700-1XL		SA-5ML6	12	25	6	175	<b>£41.99</b>



## Tungsten Carbide Burrs – Cylinder with End Cut

- Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT1102C		SB-63M	2.4	13	2.4	63	<b>£7.75</b>
GT1202C	B031303	SB-43M	3	13	3	38	<b>£8.03</b>
GT1242C	B061303	SB-51M	6	13	3	45	<b>£13.17</b>
<b>Double/Diamond Cut – D Cut</b>							
GT1102D		SB-63M	2.4	13	2.4	63	<b>£8.05</b>
GT1202D	B031303	SB-43M	3	13	3	38	<b>£8.03</b>
GT1242D	B061303	SB-51M	6	13	3	45	<b>£13.17</b>
GT1302D	B041304		4	13	4	50	<b>£11.95</b>
GT1402D	B061906	SB-1M	6	19	6	50	<b>£16.66</b>
GT1502D	B081906	SB-2M	8	19	6	65	<b>£19.73</b>
GT1602D	B101906	SB-3M	10	19	6	65	<b>£21.44</b>
GT1702D	B121906		12	19	6	65	<b>£29.70</b>
GT1702D-1	B122506	SB-5M	12	25	6	70	<b>£29.95</b>
GT1802D	B162508	SB-6M8	16	25	8	70	<b>£41.53</b>





# CARBIDE

## Tungsten Carbide Burrs – Flame



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT5200C	H030803	SH-41M	3	8	3	38	<b>£8.03</b>
<b>Double/Diamond Cut – D Cut</b>							
GT5200D	H030803	SH-41M	3	8	3	38	<b>£8.03</b>
GT5400D	H061406	SH-1M	6	14	6	50	<b>£17.65</b>
GT5550D	H081906	SH-2M	8	19	6	65	<b>£22.03</b>
GT5600D	H123206	SH-5M	12	32	6	77	<b>£40.46</b>

## Tungsten Carbide Burrs – Inverted Cone



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT8200C	N030703	SN-42M	3	7	3	38	<b>£8.03</b>
<b>Standard Cut – S Cut</b>							
GT8200	N030703	SN-42M	3	7	3	38	<b>£8.03</b>
GT8400	N060706	SN-1M	6	7	6	50	<b>£16.28</b>
GT8500	N121306	SN-4M	12	13	6	58	<b>£33.47</b>

## Tungsten Carbide Burrs – Oval



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT5220C	E030603	SE-41M	3	6	3	38	<b>£8.03</b>
GT5240C	E061003	SE-51M	6	10	3	42	<b>£8.03</b>
<b>Double/Diamond Cut – D Cut</b>							
GT5220D	E030603	SE-41M	3	6	3	38	<b>£8.03</b>
GT5240D	E061003	SE-51M	6	10	3	42	<b>£13.17</b>
GT5300D	E081306	SE-2M	8	13	6	58	<b>£19.15</b>
GT5500D	E101606	SE-3M	10	16	6	60	<b>£21.46</b>
GT5700D	E122206	SE-5M	12	22	6	67	<b>£26.70</b>
GT5800D	E122206	SE-5M	12	22	6	70	<b>£43.55</b>

## Tungsten Carbide Burrs – Rim



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT8240C	N060706	SN-1M	6	7	6	50	<b>£14.50</b>

## Tungsten Carbide Burrs – Tree



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT6200C	G031303	SG-44M	3	13	3	38	<b>£8.03</b>
GT6240C	G061303	SG-51M	6	13	3	45	<b>£13.17</b>
<b>Double/Diamond Cut – D Cut</b>							
GT6200D	G031303	SG-44M	3	13	3	38	<b>£8.03</b>
GT6240D	G061303	SG-51M	6	13	3	45	<b>£13.17</b>
GT6400D	G061606	SG-1M	6	16	6	50	<b>£18.20</b>
GT6500D	G101906	SG-3M	10	19	6	65	<b>£19.02</b>
GT6700D	G121906	SG-13M	12	19	6	65	<b>£30.40</b>
GT6800D	G122508	SG-5M8	12	25	6	70	<b>£25.35</b>
GT6900D	G162506	SG-6M	16	25	6	70	<b>£40.75</b>
<b>Extra Long Standard Cut – S Cut</b>							
GT6500XL	G101906	SG-3M	10	19	6	169	<b>£31.22</b>
GT6800XL	G122506	SG-5M	12	25	6	175	<b>£42.65</b>

## Tungsten Carbide Burrs – Ball

- Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT7200C	D030303	SD-42M	3	2.7	3	38	<b>£8.03</b>
<b>Double/Diamond Cut – D Cut</b>							
GT7200D	D030303	SD-42M	3	2.7	3	38	<b>£8.03</b>
GT7240D	D060603	SD-51M	6	5.4	3	38	<b>£15.75</b>
GT7300D	D040403	SD-52M	4	3.6	3	45	<b>£19.30</b>
GT7400D	D060606	SD-1M	6	5.4	6	50	<b>£17.20</b>
GT7500D	D080806	SD-2M	8	7.2	6	52	<b>£15.71</b>
GT7600D	D101006	SD-3M	10	9	6	53	<b>£14.55</b>
GT7700D	D121206	SD-5M	12	10.8	6	55	<b>£23.72</b>
GT7800D	D161606	SD-6M	16	14.4	6	60	<b>£29.41</b>
GT7900D	D191908		19	17.1	8	63	<b>£40.53</b>
<b>Standard Cut – S Cut</b>							
GT7240	D060603	SD-51M	6	5.4	3	38	<b>£15.75</b>
<b>Extra Long Standard Cut – S Cut</b>							
GT7600XL		SD-3ML6	10	9	6	159	<b>£24.66</b>
GT770XL		SD-5ML6	12	10.8	6	160.8	<b>£33.22</b>



## Tungsten Carbide Burrs – Ball Nosed Cone

- Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT4200C	L030803		3	8	3	38	<b>£9.65</b>
GT4240C	L061303	SL-51M	6	13	3	45	<b>£16.65</b>
<b>Double/Diamond Cut – D Cut</b>							
GT4200D	L030803		3	8	3	38	<b>£9.65</b>
GT4240D	L061303	SL-51M	6	13	3	45	<b>£16.65</b>
GT4600D	L101906		10	19	6	65	<b>£23.20</b>
GT4600D-1	L102706	SL-3M	10	27	6	75	<b>£23.35</b>
GT4700D	L123006	SL-4M	12	30	6	75	<b>£30.84</b>
GT4800D	L163308	SL-5M8	16	33	8	78	<b>£37.38</b>



## Tungsten Carbide Burrs – Ball Nosed Cylinder

- Other cuts are available, please ask for details

Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT3200C	C031303	SC-42M	3	13	3	38	<b>£8.03</b>
GT3240C	C061303	SC-51M	6	19	6	50	<b>£13.17</b>
<b>Double/Diamond Cut – D Cut</b>							
GT3200D		SC-42M	3	13	3	38	<b>£8.03</b>
GT3400D	C061906	SC-1M	6	19	6	50	<b>£15.88</b>
GT3500D	C081906	SC-2M	8	19	6	65	<b>£17.20</b>
GT3600D	C101906	SC-3M	10	19	6	65	<b>£18.75</b>
GT3700D	C121906		12	19	6	65	<b>£24.85</b>
GT3700D-1	C122506	SC-5M	12	25	6	70	<b>£25.70</b>
GT3800D	C162508	SC-6M8	16	25	8	70	<b>£37.90</b>
<b>Extra Long Standard Cut – S Cut</b>							
GT3600XL		SC-3ML6	10	19	6	169	<b>£29.97</b>
GT3700XL		SC-5ML6	12	25	6	175	<b>£47.11</b>



## Tungsten Carbide Burrs – Ball Nosed Tree

• Other cuts are available, please ask for details



Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT9200C	F031303	SF-42M	3	13	3	38	£8.03
GT9240C	F061303	SF-51M	6	13	3	45	£16.65
<b>Double/Diamond Cut – D Cut</b>							
GT9200D	F031303	SF-42M8	3	13	3	38	£8.03
GT9240D	F061303	SF-51M	6	13	3	45	£16.65
GT9400D	F061606	SF-1M	6	19	6	50	£19.03
GT9600D	F101906	SF-3M	10	19	6	65	£20.57
GT9800D	F162508	SF-6M8	16	25	8	70	£42.77
GT9700D	F122506	SF-5M	12	25	6	70	£26.99
<b>Extra Long Standard Cut – S Cut</b>							
GT9600XL		SF-3ML6	10	19	6	169	£29.41
GT9700XL		SF-5ML6	12	25	6	175	£43.20

## Tungsten Carbide Burrs – Cone

• Other cuts are available, please ask for details



Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Chip Break/Cross Cut – C Cut</b>							
GT2200C	M031103	SM-42M	3	11	3	38	£8.03
GT2240C	M061303	SM-51M	6	13	3	45	£13.17
<b>Standard Cut – S Cut</b>							
GT2200	M031103	SM-42M	3	11	3	38	£8.03
GT2240	M061303	SM-51M	6	13	3	45	£16.17
GT2400	M061906	SM-2M	6	19	6	50	£17.04
GT2600	M101606	SM-4M	10	16	6	65	£26.85
GT2700	M121906	SM-13M	12	19	6	65	£25.70
GT2700-1	M122206	SM-5M	12	22	6	70	£25.92
<b>Extra Long Standard Cut – S Cut</b>							
GT4600-1XL		SL-3ML6	10	27	6	177	£37.48
GT4700XL		SL-4ML6	12	30	6	180	£45.83

## Tungsten Carbide Burrs – Countersink 60

• Other cuts are available, please ask for details



Code	ISO Ref	SCTI Nr	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut – D Cut</b>							
GT2900D	J121106	SJ-5M	12	11	6	60	£23.30

## Rapide Coated Burrs – Cylinder

• Other cuts are available, please ask for details



Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ1400D	A061906	SA-1M	6	19	6	50	£16.43
GCZ1600D	A101906	SA-3M	10	19	6	65	£23.14
GCZ1700D	A121906		12	19	6	65	£28.38
<b>Aluminium Cut</b>							
GCZTA260	A101906	SA-3M	10	19	6	65	£33.39
GCZTA270	A122506	SA-5M	12	25	6	70	£48.93





## Rapide Coated Burrs – Cylinder with End Cut

• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ1602D	B101906	SB-3M	10	19	6	65	<b>£25.38</b>
GCZ1702D-1	B122506	SB-5M	12	25	6	70	<b>£39.62</b>
<b>D-Max/Coarse Cut</b>							
GCZDX162	B101906	SB-3M	10	19	6	65	<b>£25.40</b>
GCZDX172-1	B122506	SB-5M	12	25	6	70	<b>£39.63</b>
<b>Aluminium Cut</b>							
GCZTA160	B101906	SB-3M	10	19	6	65	<b>£40.06</b>
GCZTA170	B122506	SB-5M	12	25	6	70	<b>£58.70</b>



## Rapide Coated Burrs – Ball Nosed Cylinder

• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ3400D	C061906	SC-1M	6	19	6	50	<b>£19.06</b>
GCZ3600D	C101906	SC-3M	10	19	6	65	<b>£22.50</b>
GCZ3700D-1	C122506	SC-5M	12	25	6	70	<b>£40.38</b>
<b>D-Max/Coarse Cut</b>							
GCZDX360	C101906	SC-3M	10	19	6	65	<b>£25.75</b>
GCZDX370-1	C122506	SC-5M	12	25	6	70	<b>£40.40</b>
<b>Aluminium Cut</b>							
GCZTA370	C122506	SC-5M	12	25	6	70	<b>£48.93</b>



## Rapide Coated Burrs – Ball

• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ7600D	D101006	SD-3M	10	9	6	53	<b>£21.16</b>
GCZ7700D	D121206	SD-5M	12	10.8	6	55	<b>£28.44</b>
<b>D-Max/Coarse Cut</b>							
GCZDX770	D121206	SD-5M	12	10.8	6	55	<b>£28.46</b>
<b>Aluminium Cut</b>							
GCZTA760	D101006	SD-3M	10	9	6	53	<b>£27.57</b>
GCZTA770	D121206	SD-5M	12	10.8	6	55	<b>£48.93</b>



## Rapide Coated Burrs – Oval

• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ5500D	E081306	SE-2M	10	16	6	60	<b>£25.73</b>
GCZ5700D	E101606	SE-3M	10	16	6	60	<b>£37.61</b>
<b>D-Max/Coarse Cut</b>							
GCZDX550	E162508	SE-6M8	10	16	6	60	<b>£25.75</b>



## Rapide Coated Burrs – Ball Nosed Tree

• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ9400D	F061606	SF-1M	6	19	6	50	<b>£20.00</b>
GCZ9600D	F101906	SF-3M	10	19	6	65	<b>£25.13</b>
GCZ9700D	F122506	SF-5M	12	25	6	70	<b>£37.12</b>
<b>D-Max/Coarse Cut</b>							
GCZDX970	F122506	SF-5M	12	25	6	70	<b>£32.38</b>
<b>Aluminium Cut</b>							
GCZTA960	F101906	SF-3M	10	19	6	65	<b>£35.34</b>
GCZTA970	F122506	SF-5M	12	25	6	70	<b>£49.61</b>





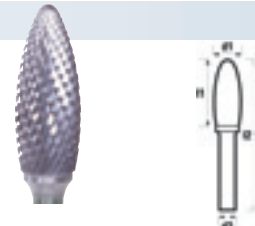
## Rapide Coated Burrs – Tree



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ6400D	G061303	SG-51M	6	13	3	45	£20.00
GCZ6500D	G081006	SG-2M	10	19	6	65	£26.79
GCZ6800D	G121906	SG-13M	12	25	6	70	£36.46
<b>D-Max/Coarse Cut</b>							
GCZDX650	G162506	SG-6M	10	19	6	65	£22.82
GCZDX680	G101906	SG-3M	12	25	6	70	£30.42

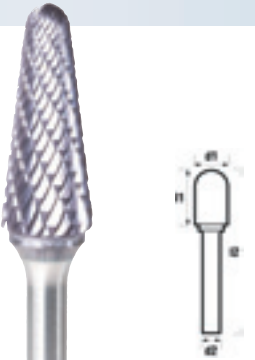
## Rapide Coated Burrs – Flame



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ5600D	H123206	SH-5M	12	32	6	77	£53.70

## Rapide Coated Burrs – Ball Nosed Cone



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ4400D	L061606	SL-1M	6	19	6	50	£20.43
GCZ4600D	L101906		10	19	6	65	£27.84
GCZ4700D	L123006	SL-4M	12	30	6	75	£39.23
<b>D-Max/Coarse Cut</b>							
GCZDX470	L123006	SL-4M	12	30	6	75	£30.84
<b>Aluminium Cut</b>							
GCZTA460	L102706	SL-3M	10	27	6	75	£45.24
GCZTA470	L123006	SL-4M	12	30	6	75	£31.14

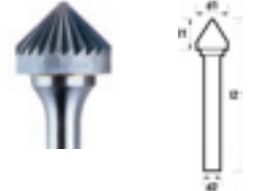
## Rapide Coated Burrs – Cone



• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ2400D	M061906	SM-2M	6	19	6	50	£20.43
GCZ2400D-1	M062506	SM-3M	6	25	6	50	£21.77

## Rapide Coated Burrs – Countersink 90°



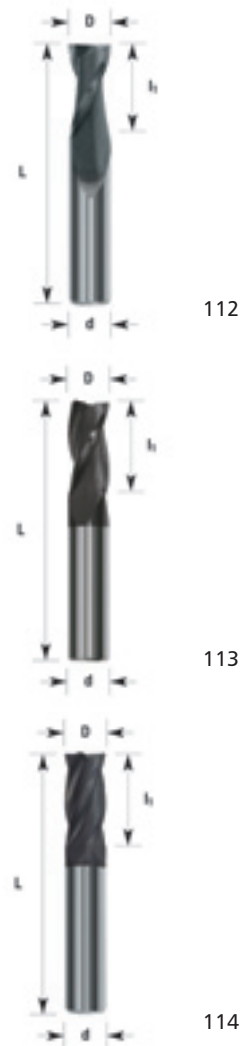
• Other cuts are available, please ask for details

Code	ISO Ref	SCTI Code	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)	List Price (exc VAT)
<b>Double/Diamond Cut</b>							
GCZ2000D	K100506	SK-3M	10	5	6	55	£22.96
GCZ2800D	K160806	SK-6M	16	8	6	60	£37.12

**Coated – Solid Carbide Standard Length Slot Drills**

• Other sizes and un-coated range available, please ask for details

Code	D (mm)	d (mm)	L (mm)	l1 (mm)	List Price (exc VAT)
<b>2 Flutes: 112 standard</b>					
11203940TE	1	3	38	3	<b>£23.40</b>
11207870TE	2	3	38	6	<b>£26.65</b>
11211810TE	3	3	38	12	<b>£23.35</b>
11215750TE	4	4	50	14	<b>£25.80</b>
11219680TE	5	5	50	16	<b>£30.95</b>
11223620TE	6	6	63	19	<b>£34.70</b>
11231500TE	8	8	63	19	<b>£45.05</b>
11239370TE	10	10	70	22	<b>£65.25</b>
11247240TE	12	12	75	25	<b>£95.80</b>
11262990TE	16	16	88	32	<b>£132.75</b>
<b>3 Flutes: 113 standard</b>					
11303940TE	1	3	38	3	<b>£23.40</b>
11307870TE	2	3	38	6	<b>£26.65</b>
11311810TE	3	3	38	12	<b>£23.35</b>
11315750TE	4	4	50	14	<b>£25.80</b>
11319680TE	5	5	50	16	<b>£30.95</b>
11323620TE	6	6	63	19	<b>£34.70</b>
11331500TE	8	8	63	19	<b>£45.05</b>
11339370TE	10	10	70	22	<b>£65.25</b>
11347240TE	12	12	75	25	<b>£95.80</b>
11362990TE	16	16	88	32	<b>£132.75</b>
<b>4 Flutes: 114 standard</b>					
11403940TE	1	3	38	3	<b>£23.40</b>
11407870TE	2	3	38	6	<b>£26.65</b>
11411810TE	3	3	38	12	<b>£23.35</b>
11415750TE	4	4	50	14	<b>£25.80</b>
11419680TE	5	5	50	16	<b>£30.95</b>
11423620TE	6	6	63	19	<b>£34.70</b>
11431500TE	8	8	63	19	<b>£45.05</b>
11439370TE	10	10	70	22	<b>£65.25</b>
11447240TE	12	12	75	25	<b>£95.80</b>
11462990TE	16	16	88	32	<b>£132.75</b>



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## Coated - Solid Carbide Standard Length Ball Nosed Slot Drills

- Other sizes and uncoated range available on request, please ask for details
- Also available uncoated, please ask for details













Code	D (mm)	d (mm)	L (mm)	l1 (mm)	List Price (exc VAT)
<b>2 Flutes: 122 standard</b>					
12203940E	1	3	38	3	£30.20
12207870E	2	3	38	6	£31.60
12211810E	3	3	38	12	£26.90
12215750E	4	4	50	14	£29.40
12219680E	5	5	50	16	£34.55
12223620E	6	6	63	19	£39.55
12231500E	8	8	63	19	£48.60
12239370E	10	10	70	22	£81.85
12247240E	12	12	75	25	£103.90
12262990E	16	16	88	32	£153.40
<b>3 Flutes: 123 standard</b>					
12307870E	2	3	38	6	£27.60
12311810E	3	3	38	12	£26.90
12315750E	4	4	50	14	£29.40
12319680E	5	5	50	16	£34.60
12323620E	6	6	63	19	£39.55
12331500E	8	8	63	19	£48.60
12339370E	10	10	70	22	£81.85
12347240E	12	12	75	25	£103.90
12362990E	16	16	88	32	£153.40
<b>4 Flutes: 124 standard</b>					
12403940E	1	3	38	3	£30.20
12407870E	2	3	38	6	£31.60
12411810E	3	3	38	12	£26.90
12415750E	4	4	50	14	£26.90
12419680E	5	5	50	16	£34.55
12423620E	6	6	63	19	£39.55
12431500E	8	8	63	19	£48.60
12439370E	10	10	70	22	£81.85
12447240E	12	12	75	25	£103.90
12462990E	16	16	88	32	£153.40

## Jobber, Stub and Slot Drills

Type	Description	Material	Diameter		Standards	Series Range
			Metric (mm)	Imperial (")		
Jobber Drills	For drilling difficult materials where rigid fixing is possible. Hole depths up to 4 x diameter	Sub Micro Grain Carbide	1-12		BS 328 DIN 338 RN 235/1	5124
Stub Drills	For drilling difficult materials where rigid fixing is possible. Hole depths up to 2-5 x diameter	Sub Micro Grain Carbide	1-10		DIN 1897	5126
Solid Carbide Slot Drills - 2 Flute - Regular Length	For soft steel, aluminium, A1 alloys and plastics	Sub Micro Grain Carbide	1-25	$\frac{3}{32}$ - $\frac{3}{4}$	WORKS STANDARD	5002
Solid Carbide Slot Drills - 2 Flute - Long Series	For soft steel, aluminium, A1 alloys and plastics	Sub Micro Grain Carbide	4-25		WORKS STANDARD	5032
Solid Carbide Slot Drills - 3 Flute - Regular Length	For sinking pocketing and channelling in soft steel, aluminium and A1 alloys	Sub Micro Grain Carbide	1-25	$\frac{3}{64}$ - $\frac{3}{4}$	WORKS STANDARD	5003
Solid Carbide Slot Drills - 3 Flute - Long Series	For sinking pocketing and channelling in aluminium plastics and soft materials	Sub Micro Grain Carbide	4-25		WORKS STANDARD	5023

Coated versions are also available on request, please ask for details


## End Mills, Ball Nose, Jobber, Stub and Slot Drills

Type	Image	Description	Material	Diameter		Standards	Series Range
				Metric (mm)	Imperial (")		
Solid Carbide End Mills - Multi Flute Regular Length		For general machining	Sub Micro Grain Carbide	1-25	$\frac{3}{32}$ - $\frac{3}{4}$	WORKS STANDARD	5004
Solid Carbide End Mills - Multi Flute - Long Series		For general machining	Sub Micro Grain Carbide	3-20		WORKS STANDARD	5034
Solid Carbide Ball Nose Cutters - 2 Flute Regular Length and Long Series		For milling slots and profiling in soft steel, aluminium and plastics	Sub Micro Grain Carbide	1-20		WORKS STANDARD	5012
Solid Carbide Ball Nose Cutters - 3 Flute Regular Length and Long Series		For milling slots and profiling in soft steel, aluminium and plastics	Sub Micro Grain Carbide	1-20		WORKS STANDARD	5013
Solid Carbide Ball Nose Cutters - Multi Flute Regular Length and Long Series		For milling and profiling in most materials	Sub Micro Grain Carbide	1-20	$\frac{1}{16}$ - $\frac{1}{2}$	WORKS STANDARD	5014
Solid Carbide Double Ended End Mills 2 Flute - Regular Length		For general purpose milling	Sub Micro Grain Carbide	2-10		WORKS STANDARD	5022
Solid Carbide Double Ended End Mills - Multi Flute - Regular Length		For general purpose milling	Sub Micro Grain Carbide	2-10		WORKS STANDARD	5024
Rotary Solid Carbide Fine Pitch Roughing Cutters Kombat		For maximum stock removal on Titanium, Inconel, Waspalloy and other advanced materials	Sub Micro Grain Carbide	6-20		WORKS STANDARD	5030
Solid Carbide End Mills - 2 Flute - High Helix Kombat		For high speed machining of aluminium aerospace and brass	Sub Micro Grain Carbide	3-20		WORKS STANDARD	5399
3 Flute 60° Helix Kombat Solid Cutters		Designed for high speed milling Inconel, Titanium, Stainless and Steel Alloys	Sub Micro Grain Carbide	6-20		WORKS STANDARD	5053

Coated versions are also available on request, please ask for details.



## Solid Carbide Machine Reamers

Type	Image	Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Machine Reamers LH		for precise hole sizing in machining operation	Carbide	3 - 12	$\frac{1}{8}$ - $\frac{1}{2}$	Works Standard	Scr4/Scr6

**FOR OUR EXTENSIVE RANGE OF MACHINE TOOLS GO TO PAGES 521-566**






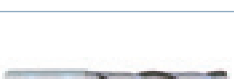




# CARBIDE



## Solid Carbide Stub, Short, Long, Extra Long, Jobber, 90° and 120° Drills

• Point geometry eliminates the need for centre drilling, bushing and reaming

Type		Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Parallel shanks with 2 flutes, RH spiral, RH cutting - Extra Stub Length		Available with TiN, TiCN, and Hard Lube coatings Cutting depth 3 x Diameter	Carbide	3 - 20		DIN 338 DIN 6537 DIN 6539	DH404030 DH404200	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - Stub Length		Available with TiN, TiCN, and Hard Lube coatings Cutting depth 3 x Diameter	Carbide	3 - 20		DIN 338 DIN 6537 DIN 6539	DH423030 DH423200	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - Long Length		Available with TiN, TiCN, and Hard Lube coatings Cutting depth 5 x Diameter	Carbide	3 - 20		DIN 338 DIN 6537 DIN 6539	DH424030 DH424200	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - Short Length		Available with TiN, TiCN, and Hard Lube coatings Cutting depth 3 x Diameter Through Coolant Holes	Carbide	3 - 20		DIN 338 DIN 6537 DIN 6539	DH406030 DH406200	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - Long Length		Available with TiN, TiCN, and Hard Lube coatings Cutting depth 5 x Diameter Through Coolant Holes	Carbide	3 - 20		DIN 338 DIN 6537 DIN 6539	DH408030 DH408200	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - Extra long Length		Available with TiN, TiCN, and Hard Lube coatings Cutting depth 8 x Diameter Through Coolant Holes	Carbide	3 - 12		DIN 338 DIN 6537 DIN 6539	DH421030 DH421120	1 3 8









# CARBIDE



















## Solid Carbide, Stub, Short, Long, Extra Long, Jobber, 90° and 120° Drills

Type		Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Parallel shanks with 2 flutes, RH spiral, RH cutting - Stub Length		Available with TiN, TiCN and TiAlN coatings	Carbide	2 - 13		DIN 6539	D5405020 D5405130	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - Jobber Length		Available with TiN, TiCN, TiAlN coatings	Carbide	2 - 10.2		DIN 338	D5407020 D5407102	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - 90° Point		Available with TiN, TiCN and TiAlN coatings	Carbide	6 - 20		Works Standard	D5306060 D5306200	1 3 8
Parallel shanks with 2 flutes, RH spiral, RH cutting - 120° Point		Available with TiN, TiCN and TiAlN coatings	Carbide	6 - 20		Works Standard	D5307060 D5307200	1 3 8
Parallel shanks with 3 flutes, RH spiral, RH cutting		Available with TiN, TiCN and TiAlN coatings	Carbide		1/8 - 3/4	Works Standard	9005	1 3 8

Solid Carbide Square End, Ball Nose Whisper Milling Cutters

Type		Description	Material	Diameter		Standard	Series Range	Application
				Metric (mm)	Imperial (")			
Whisper Mill, - Square End		2 Flute, High Speed Machining Cutter	Carbide	3 - 25		Works Standard	HSC	1
Whisper Mill, - Square End		3 Flute, High Speed Machining Cutter	Carbide	6 - 25		Works Standard	HSC	1
Whisper Mill, - Square End		4 Flute, High Speed Machining Cutter	Carbide	3 - 25		Works Standard	HSC	1
Whisper Mill, Hardcut-Square End		6 Flute, High Speed Machining Cutter	Carbide	6 - 20		Works Standard	HSC	1
Whisper Mill - Ball Nose		2-4 Flute, High Speed Machining Cutter	Carbide	3 - 16		Works Standard	HSC	1
Whisper Mill, Hardcut		2-5 Flute, High Speed Machining Cutter	Carbide	6 - 20		Works Standard	HSC	7
Whisper Mill - Ball Nose		3-4 Flute, High Speed Machining Cutter	Carbide	3 - 12		Works Standard	HSC	1






Solid Carbide Cutters and Routers

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
2 Flute Cutters Short		For Profiling and Slot Milling applications	Carbide	1 - 12	1/32 - 3/4	Works Standard	EMS2 BMS2
2 Flute Cutters Standard		For Profiling and Slot Milling applications	Carbide	1 - 25	1/32 - 1	Works Standard	EML2 BML2
2 Flute Cutters Long		For Profiling and Slot Milling applications	Carbide	3 - 25	1/8 - 1	Works Standard	EME2 BME2
2 Flute Cutters Extra Long		For Profiling and Slot Milling applications	Carbide	12 - 25	1/2 - 1	Works Standard	EME2(L) BME2(L)
3 Flute Cutters Short		For Profiling and Slot Milling applications	Carbide	1 - 12	1/32 - 3/4	Works Standard	EMS3 BMS3
3 Flute Cutters Standard		For Profiling and Slot Milling applications	Carbide	1 - 25	1/32 - 1	Works Standard	EML3 BML3
3 Flute Cutters Long		For Profiling and Slot Milling applications	Carbide	3 - 25	1/8 - 1	Works Standard	EME3 BME3
3 Flute Cutters Extra Long		For Profiling and Slot Milling applications	Carbide	12 - 25	1/2 - 1	Works Standard	EME3L BME3L
4 Flute Cutters Short		For Profiling and Slot Milling applications	Carbide	1 - 12	1/32 - 3/4	Works Standard	EMS4 BMS4
4 Flute Cutters Standard		For Profiling and Slot Milling applications	Carbide	1 - 25	1/32 - 1	Works Standard	EML4 BML4
4 Flute Cutters Long		For Profiling and Slot Milling applications	Carbide	3 - 25	1/8 - 1	Works Standard	EME4 BME4
4 Flute Cutters Extra Long		For Profiling and Slot Milling applications	Carbide	12 - 25	1/2 - 1	Works Standard	EME4L BME4L
60° High Helix Cutters		For use on Titanium, Inconel, Stainless and High Alloy Steels	Carbide	6 - 20	1/4 - 1	Works Standard	9472 9471
2 Flute Ali-carb		For use on Non-Ferrous and Non-Metallic materials	Carbide	3 - 20		Works Standard	9122 9142
Roughing Cutters Normal Pitch		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	Carbide	6 - 25		Works Standard	961

## CARBIDE





## Solid Carbide Cutters and Routers continued

Type	Image	Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
Roughing Cutters Fine Pitch		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	Carbide	6 - 25		Works Standard	964
Roughing Cutters Coarse Pitch		For High Stock-removal rates in Profiling and Open Ended Slotting Operations	Carbide	6 - 25		Works Standard	967
2 Flute Routers RH Helix		For routing, grooving and slotting at high removal rate	Carbide	3 - 12	1/8 - 3/4	Works Standard	9502-RH 9501
2 Flute Routers LH Helix		For routing, grooving and slotting at high removal rate	Carbide	3 - 12	1/8 - 3/4	Works Standard	9502-LH 9521
Single Flute Compression Routers		For use on solid wood, composites and laminates	Carbide		3/8 - 3/4		9541

## CARBIDE










## Solid Carbide Cutters

Type	Image	Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
FC3 Cutters Short		For Slotting and Profiling where small diameters are needed	Carbide	2 - 6	1/8 - 1/4	Works Standard	24MX/245X
FC3 Cutters Long		For Slotting and Profiling where small diameters are needed	Carbide	2 - 6	1/8 - 1/4	Works Standard	24LX/246X

## CARBIDE



## Helical Brazed Carbide Cutters

Type	Image	Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
MAX - e - flow End Mills Combination Shank Short RH		For Profiling and Finishing on a wide range of materials including exotics	Carbide	12 - 50	1/2 - 2	Works Standard	MFS
MAX - e - flow End Mills Combination Shank Long LH		For Profiling and Finishing on a wide range of materials including exotics	Carbide	25 - 50	1 - 2	Works Standard	MFL
Tapered Shank - LH		Multi-purpose cutters for slot milling using side lock	Carbide	40 - 63		Works Standard	MTL
High Helix Short RH Helix		Multi-purpose cutters for slot milling using side lock	Carbide	20 - 50		Works Standard	RHR/RWR
High Helix Short LH Helix		Multi-purpose cutters for slot milling using side lock	Carbide	20 - 50		Works Standard	HHR/HWR
High Helix Standard RH Helix		Multi-purpose cutters for slot milling using side lock	Carbide	20 - 50		Works Standard	RHS/RWS
High Helix Standard LH Helix		Multi-purpose cutters for slot milling using side lock	Carbide	20 - 50		Works Standard	HHS/HWS



## Helical Brazed Carbide Cutters continued

Type		Description	Material	Diameter		Standard	Series Range
				Metric (mm)	Imperial (")		
NC Cutters Standard		Multi-purpose cutters for slot milling using side lock	Carbide	12 - 32		Works Standard	NCS
NC Cutters Long		Multi-purpose cutters for slot milling using side lock	Carbide	12 - 32		Works Standard	NCL
Helicon Cutters		Multi-purpose cutters for profile and slot milling using threaded shank	Carbide	6 - 32	1/4 - 1 1/4	Works Standard	HEL-Steel HEA- Aluminium
Super Router Combination Shank Standard		Multi-purpose cutters for use on Aluminium and Light Alloys	Carbide	12 - 25	1/2 - 2	Works Standard	VPS
Model Making Cutters Finishing Cut		Square and Ball Nosed for use on composite materials	Carbide	3 - 40		Works Standard	FMS/FMB

## GUHRING

















# CARBIDE

## Superline Carbide Milling Cutters

Type		Flute Type	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
End Mills Short, Whistle Notch		4 Flute Unequal Helix	Carbide	6 - 20		Fire	5534
End Mills Long, Plain Shank		4 Flute Unequal Helix	Carbide	6 - 20		Fire	5735
End Mills Long, Whistle Notch		4 Flute Unequal Helix	Carbide	6 - 20		Fire	5535
Mini Slot Drills Short, Whistle Notch		3 Flute Standard	Carbide	0.50 - 20		Fire	5573
Mini Slot Drills Long, Whistle Notch		3 Flute Standard	Carbide	1 - 10		Fire	5574
Ball Nose Slot Drills Long, Whistle Notch		2 Flute Standard	Carbide	2 - 12		Fire	5533
Slot Drills Long, Plain Shank		2 Flute Standard	Carbide	4 - 20		Fire	5730
Slot Drills Long, Whistle Notch		2 Flute Standard	Carbide	2 - 20		Fire	5530
Slot Drills Extra Long, Plain Shank		2 Flute Standard	Carbide	3 - 20		Fire	5549
Slot Drills Short, Plain Shank		2 Flute 45° Helix	Carbide	3 - 20		Bright	5742
Slot Drills Long, Plain Shank		2 Flute 45° Helix	Carbide	3 - 20		Bright	5743
Slot Drills Short, Plain Shank		3 Flute 45° Helix	Carbide	3 - 20		Fire	5505
Slot Drills Long, Plain Shank		3 Flute 45° Helix	Carbide	3 - 20		Fire	5507
Slot Drills Long, Plain Shank		3 Flute 45° Helix	Carbide	3 - 20		Fire	5506
Slot Drills Long, Whistle Notch		3 Flute Roughing	Carbide	8 - 20		Bright	5544
End Mills Short, Whistle Notch		4 Flute Standard	Carbide	2 - 20		Fire	5532
End Mills Long, Plain Shank		4 Flute Standard	Carbide	3 - 20		Fire	5556
End Mills Long, Plain Shank		Multi-Fluted 45°	Carbide	6 - 20		Fire	5745
End Mills Long, Plain Shank		Multi-Fluted 45°	Carbide	6 - 20		Fire	5729
End Mills Whistle Notch		4 Flute Finishing	Carbide	6 - 20		Fire	5504

# CARBIDE

## Superline Carbide Drills





Type		Flute Type	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
3XD Plain Shank		Spiral RT100 U	Carbide	3 - 20	1/8 - 5/8	Fire Coated	5514	1 2 3 4 5 6 7
3XD Whistle Notch		Spiral RT100 U	Carbide	3 - 16	1/8 - 25/64	Fire Coated	5614	1 2 3 4 5 6 7
3XD Oil Feed Plain Shank		Spiral RT100 U	Carbide	3 - 20	1/8 - 9/16	Fire Coated	5510	1 2 3 4 5 6 7
3XD Oil Feed Whistle Notch		Spiral RT100 U	Carbide	3 - 20	1/8 - 9/16	Fire Coated	5610	1 2 3 4 5 6 7
5XD Plain Shank		Spiral RT100 U	Carbide	3 - 20	1/8 - 5/8	Fire Coated	5515	1 2 3 4 5 6 7
5XD Whistle Notch		Spiral RT100 U	Carbide	3 - 16	1/8 - 25/64	Fire Coated	5615	1 2 3 4 5 6 7
5XD Oil Feed Plain Shank		Spiral RT100 U	Carbide	3 - 20	1/8 - 5/8	Fire Coated	5511	1 2 3 4 5 6 7
5XD Oil Feed Whistle Notch		Spiral RT100 U	Carbide	3 - 20	1/8 - 9/16	Fire Coated	5611	1 2 3 4 5 6 7
7XD Oil Feed Plain Shank		Spiral RT100 U	Carbide	4 - 20	11/64 - 3/4	Fire Coated	5512	1 2 3 4 5 6 7
7XD Oil Feed Whistle Notch		Spiral RT100 U	Carbide	4 - 20	11/64 - 3/4	Fire Coated	5612	1 2 3 4 5 6 7
12XD Oil Feed Plain Shank		Straight RT100	Carbide	4 - 20	1/4 - 3/4	Fire Coated	5525	1 2 3 4 5 6 7
10XD Oil Feed Carbide Drills		3 Flute RT150 GG	Carbide	3 - 16	1/8 - 1/2	Bright	5513	1 2 3 4 5 6 7
5XD Carbide Drills		3 Flute FT200	Carbide	3 - 20		Bright	5518	3
3XD Carbide Drills		Standard	Carbide	2 - 12	3/32 - 15/32	Bright	5516	1 2 3 4 5 6 7 8
5XD Carbide Drills		Standard	Carbide	2 - 12	3/32 - 15/32	Bright	5517	1 2 3 4 5 6 7 8

**CUTTING TOOLS**



























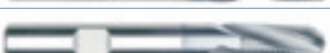
# CARBIDE



## Solid Carbide Drills

Type		Description	Material	Diameter		Finish	Series Range	Application
				Metric (mm)	Imperial (")			
Solid Carbide Twist Drills		2 Flutes	K10/20	1 - 12		Bright	20000	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		3 Flutes	UF	3 - 20		Bright	21000	3 6 7
Solid Carbide Twist Drills		Shank Plain	UF	3 - 20		TiAIN	23008	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		Shank Whistle Notch	UF	3 - 20		TiAIN	23018	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		Shank Plain	UF	5 - 20		TiAIN	25008	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		Shank Whistle Notch	UF	5 - 20		TiAIN	25018	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		Long Plain	UF	3 - 20		TiAIN	26008	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		Long Whistle Notch	UF	3 - 20		TiAIN	26018	1 2 3 4 5 6 7 8
Solid Carbide Twist Drills		XL-Plain	UF	3 - 16		TiAIN	26012	1 3
Solid Carbide Twist Drills		Standard Helix	K10/20	1 - 12		Bright	20100	1 3 6 7 8

**Solid Carbide Slot Drills, Tri-Cutters, End Mills, Ripping and Combi Cutters**

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
2-Flute Slot Drills		N-Long Series 30°	UF	2 - 20		Bright	31921
2-Flute Slot Drills		N-Long Series 30°	UF	2 - 20		TiAIN	31928
2-Flute Slot Drills		N-30°	UF	2 - 20		Bright	31901
2-Flute Slot Drills		N-30°	UF	2 - 20		TiAIN	31908
ALL-quick Plus		W-45°	UF	3 - 20		Bright	31911
ALL-quick Plus		W-45°	UF	3 - 20		TiAIN	31918
2-Flute Ball-Nose Slot Drills		N-Long Series 30°	UF	3 - 20		Bright	48911
2-Flute Ball-Nose Slot Drills		N-Long Series 30°	UF	3 - 20		TiAIN	48918
2-Flute Ball-Nose Slot Drills		N-30°	UF	4 - 20		Bright	48901
2-Flute Ball-Nose Slot Drills		N-30°	UF	4 - 20		TiAIN	48908
TRI-Cutters		N-Long Series 30°	UF	2 - 20		Bright	36901
TRI-Cutters		N-Long Series 30°	UF	2 - 20		TiAIN	36908
TRI-Cutters		N-HD Long Series 45°	UF	3 - 20		Bright	36911
TRI-Cutters		N-HD Long Series 45°	UF	3 - 20		TiAIN	36918
Ball-Nose TRI-Cutters		N-Long Series 35°	UF	3 - 20		TiAIN	48808
Multi-Flute End-Mills		N-Long Series 30°	UF	2 - 20		Bright	40911
Multi-Flute End-Mills		N-Long Series 30°	UF	2 - 20		TiAIN	40918
Multi-Flute End-Mills		N-30°	UF	2 - 20		Bright	40901
Multi-Flute End-Mills		N-30°	UF	2 - 20		TiAIN	40908
Multi-Flute End-Mills		N-Long Series 45°	UF	6 - 20		Bright	40921
Multi-Flute End-Mills		N-Long Series 45°	UF	6 - 20		TiAIN	40928
Multi-Flute End-Mills		N-Long Series 50°	UF	4 - 20		TiAIN	40938
Ripping Cutters		Fine Pitch Long Series 20°	UF	6 - 20		TiAIN	40948
Ball-Nose Ripping Cutters		Fine Pitch Long Series 20°	UF	6 - 20		TiAIN	48708
Combi-Cutter Plus		Extra fine Pitch 45°	UF	6 - 20		TiAIN	40958
Combi-Cutter Plus		Extra fine Pitch 45°	UF	6 - 20		TiAIN	40968



**CUTTING TOOLS**

## Carbide Rotary Burrs

Type		Description	Material	Diameter		Finish	Series Range
				Metric (mm)	Imperial (")		
Cylindrical		Express cut	Carbide	1.6 - 25.4	1/16 - 1	Bright	27400
Cylindrical		Standard cut	Carbide	1.6 - 25.4	1/16 - 1	Bright	27401
Cylindrical		Aluminium cut	Carbide	6 - 19	5/16 - 3/4	Bright	27403
Cylindrical End Cut		Express cut	Carbide	1.6 - 19	1/16 - 3/4	Bright	27410
Cylindrical End Cut		Standard cut	Carbide	1.6 - 19	1/16 - 3/4	Bright	27411
Cylindrical Ball Nose		Express cut	Carbide	2.4 - 19	3/32 - 3/4	Bright	27420
Cylindrical Ball Nose		Standard cut	Carbide	2.4 - 19	3/32 - 3/4	Bright	27421
Cylindrical Ball Nose		Aluminium cut	Carbide	6 - 19	5/16 - 3/4	Bright	27423
Flame Shape		Express cut	Carbide	3 - 19	3/16 - 3/4	Bright	27470
Flame Shape		Standard cut	Carbide	3 - 19	3/16 - 3/4	Bright	27471
Tree Pointed Nose		Express cut	Carbide	3 - 19	3/16 - 3/4	Bright	27460
Tree Pointed Nose		Standard Cut	Carbide	3 - 19	3/16 - 3/4	Bright	27461
Tree Radius Nose		Express cut	Carbide	3 - 19	3/16 - 3/4	Bright	27450
Tree Radius Nose		Standard cut	Carbide	3 - 19	3/16 - 3/4	Bright	27451
Tree Radius Nose		Aluminium cut	Carbide	6 - 12.7	3/8 - 1/2	Bright	27453
Pointed Cone		Express cut	Carbide	3 - 15.8	3/16 - 5/8	Bright	27510
Pointed Cone		Standard cut	Carbide	3 - 15.8	3/16 - 5/8	Bright	27511
14° Included Angle		Express cut	Carbide	3 - 19	3/16 - 3/4	Bright	27500
14° Included Angle		Standard cut	Carbide	3 - 19	3/16 - 3/4	Bright	27501
14° Included Angle		Aluminium cut	Carbide	9.5 - 15.8	3/8 - 5/8	Bright	27503
Ball Shape		Express cut	Carbide	2.4 - 19	3/32 - 3/4	Bright	27430
Ball Shape		Standard cut	Carbide	1.6 - 19	1/16 - 3/4	Bright	27431
Ball Shape		Aluminium cut	Carbide	6 - 15.8	5/16 - 5/8	Bright	27433
Oval Shape		Express cut	Carbide	3 - 19	3/16 - 3/4	Bright	27440
Oval Shape		Standard cut	Carbide	3 - 19	3/16 - 3/4	Bright	27441
Oval Shape		Aluminium cut	Carbide	9.5 - 15.8	3/8 - 5/8	Bright	27443
Inverted Taper		Express cut	Carbide	3 - 19	3/16 - 3/4	Bright	27520
Inverted Taper		Standard cut	Carbide	3 - 19	3/16 - 3/4	Bright	27521
Spiral Included Angle 60°		Standard cut	Carbide	6.4 - 19	1/4 - 3/4	Bright	27481
Spiral Included Angle 90°		Standard cut	Carbide	6.4 - 25.4	1/4 - 1	Bright	27491

## 10 Piece D-Cut Burr Kit

Code	Shape	Head Diameter (mm)	Head Length (mm)	Shank Diameter (mm)	Overall Length (mm)	List Price Per Kit (exc VAT)
GGBKIT1						<b>£256.45</b>
<b>Contents of Burr Kit No 1</b>						
GGT1602D	Cylinder with end cut	10	19	6	65	
GGT1702D-1	Cylinder with end cut	12	25	6	70	
GGT3600D	Ball nosed cylinder	10	19	6	65	
GGT3700D-1	Ball nosed cylinder	12	25	6	70	
GGT4700D	Ball nosed cone	12	30	6	75	
GGT5500D	Oval	10	16	6	60	
GGT6500D	Tree	10	19	6	65	
GGT6800D	Tree	12	25	6	70	
GGT7700D	Ball	12	10.8	6	55	
GGT9700D	Ball nosed tree	12	25	6	70	



## 4 Piece D-Cut Burr Kit

Code	Shape	Head Diameter (mm)	Head Length (mm)	Shank Diameter (mm)	Overall Length (mm)	List Price Per Kit (exc VAT)
GGBKIT2						<b>£121.00</b>
<b>Contents of Burr Kit No 2</b>						
GGT1702D-1	Cylinder with end cut	12	25	6	70	
GGT3700D-1	Ball nosed cylinder	12	25	6	70	
GGT4700D	Ball nosed cone	12	30	6	75	
GGT6800D	Tree	12	25	6	70	



## 5 Piece D-Cut Burr Kit

Code	Shape	Head Diameter (mm)	Head Length (mm)	Shank Diameter (mm)	Overall Length (mm)	List Price Per Kit (exc VAT)
GGBKIT3						<b>£137.40</b>
<b>Contents of Burr Kit No 3</b>						
GGT1702D-1	Cylinder with end cut	12	25	6	70	
GGT2700D-1	Cone	12	22	6	70	
GGT3700D-1	Ball nosed cylinder	12	25	6	70	
GGT7700D	Ball	12	10.8	6	55	
GGT9700D	Ball nosed tree	12	25	6	70	



## 10 Piece D-Cut Mini Burr Kit

Code	Shape	Head Diameter (mm)	Head Length (mm)	Shank Diameter (mm)	Overall Length (mm)	List Price Per Kit (exc VAT)
GGBKIT4						<b>£84.00</b>
<b>Contents of Burr Kit No 4</b>						
GGT1200D	Cylinder	3	13	3	38	
GGT1202D	Cylinder with end cut	3	13	3	38	
GGT2200D	Cone	3	11	3	38	
GGT3200D	Ball nosed cylinder	3	13	3	38	
GGT4200D	Ball nosed cone	3	8	3	38	
GGT5200D	Flame	3	8	3	38	
GGT5220D	Oval	3	6	3	38	
GGT6200D	Tree	3	13	3	38	
GGT7200D	Ball	3	2.7	3	39	
GGT9200D	Ball nosed tree	3	13	3	38	





# CARBIDE

## 10 Piece Rapide Coated Carbide Burr Kits



• Other coated burr kits are available, please ask for details

Code	Description	List Price Per Kit (exc VAT)
GGB Kit 9	Double/diamond D – cut	<b>£307.75</b>
GGB Kit 10	D-max/coarse cut	<b>£338.52</b>

Contents D-Cut	Contents D-Max	Shape	Diameter 1 (mm)	Length 1 (mm)	Diameter 2 (mm)	Length 2 (mm)
GGCZ1602D	GGCZDX162	Cylinder with end cut	10	19	6	65
GGCZ1702D-1	GGCZDX172-1	Cylinder with end cut	12	25	6	70
GGCZ3600D	GGCZDX360	Ball nosed cylinder	10	19	6	65
GGCZ3700D-1	GGCZDX370-1	Ball nosed cylinder	12	25	6	70
GGCZ4700D	GGCZDX470	Ball nosed cone	12	30	6	75
GGCZ5500D	GGCZDX550	Oval	10	16	6	60
GGCZ6500D	GGCZDX650	Tree	10	19	6	65
GGCZ6800D	GGCZDX680	Tree	12	25	6	70
GGCZ7700D	GGCZDX770	Ball	12	10.8	6	55
GGCZ9700D	GGCZDX970	Ball nosed tree	12	25	6	70

# ROUTERS

## 2 Flute Up Cut Routers



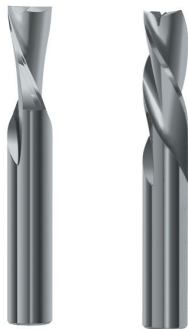
Code	Diameter 1	Diameter 2	Length 1	Length 2	List Price Each (exc VAT)
G25411810	3mm	3mm	13mm	38mm	<b>£15.81</b>
G25415750	3mm	3mm	13mm	50mm	<b>£19.76</b>
G25423620	6mm	6mm	19mm	63mm	<b>£29.28</b>
G5431500	8mm	8mm	19mm	63mm	<b>£36.66</b>
G25406250	1/16"	1/8"	3/16"	1 1/2"	<b>£16.64</b>
G25412500	1/8"	1/8"	1/2"	1 1/2"	<b>£15.81</b>
G25425000	1/4"	3/4"	1/4"	2 1/2"	<b>£30.84</b>

## Single Flute Up Cut Routers



Code	Diameter 1 (")	Diameter 2 (")	Length 1 (")	Length 2 (")	List Price Each (exc VAT)
G25612500	1/8	1/8	1/2	1 1/2	<b>£25.12</b>
G25625000	1/4	1/4	3/4	2 1/2	<b>£43.37</b>
G25637500	3/8	3/8	7/8	2 1/2	<b>£62.45</b>

## Down Cut Routers



Diameter 1	Diameter 2	Length 1	Length 2	Code 2 Flute	Code 3 Flute	List Price Each (exc VAT)
3mm	3mm	13mm	38mm	G25811810	G25911810	<b>£18.15</b>
6mm	6mm	19mm	63mm	G25823620	G25923620	<b>£34.58</b>
8mm	8mm	19mm	63mm	G25931500	G25931500	<b>£43.38</b>
10mm	10mm	22mm	70mm	G25839370	G25939370	<b>£67.50</b>
1/16"	1/16"	3/16"	1 1/2"	G25806250	G25906250	<b>£18.15</b>
1/8"	1/8"	1/2"	1 1/2"	G25812500	G25912500	<b>£18.15</b>
3/16"	3/16"	5/8"	2"	G25818750	G25918750	<b>£24.34</b>
1/4"	1/4"	3/4"	2 1/2"	G25825000	G25925000	<b>£84.03</b>
5/16"	5/16"	13/16"	2 1/2"	G25831250	G25931250	<b>£46.23</b>
3/8"	3/8"	7/8"	2 1/2"	G25837500	G25937500	<b>£56.26</b>
1/2"	1/2"	1"	3"	G25850000	G25950000	<b>£84.03</b>

## 260 Safe End Diamond Cut Routers

Code	Diameter 1	Length 1	Length 2	List Price Each (exc VAT)
G26011810	3mm	13mm	45mm	£9.36
G26015750	4mm	16mm	50mm	£13.99
G26023620	6mm	19mm	50mm	£19.97
G26023620L	6mm	19mm	63mm	£22.26
G26031500	8mm	25mm	63mm	£32.29
G26039370	10mm	25mm	63mm	£47.94
G26047240	12mm	25mm	75mm	£65.31
G26006250	1/16"	3/16"	1 1/2"	£6.81
G26009370	3/32"	3/8"	1 1/2"	£7.23
G26012500	1/8"	1/2"	1 3/4"	£9.52
G26018750	3/16"	5/8"	2"	£14.82
G26025000	1/4"	3/4"	2"	£21.48
G26025000L	1/4"	3/4"	2 1/2"	£24.23
G26037500	3/8"	1"	2 1/2"	£46.18
G26050000	1/2"	1"	3"	£77.06



## 261 Burr End Cut Diamond Cut Routers

Code	Diameter 1	Length 1	Length 2	List Price Each (exc VAT)
G26111810	3mm	13mm	45mm	£9.98
G26115750	4mm	16mm	50mm	£14.77
G26123620	6mm	19mm	50mm	£22.36
G26123620L	6mm	19mm	63mm	£24.49
G26131500	8mm	25mm	63mm	£34.11
G26139370	10mm	25mm	63mm	£50.02
G26147240	12mm	25mm	75mm	£67.39
G26112500	1/4"	1/2"	1 3/4"	£10.04
G26118750	2/16"	5/8"	2"	£15.91
G26125000	1/4"	3/4"	2"	£23.82
G26125000L	1/4"	3/4"	2 1/2"	£26.36
G26137500	3/8"	1"	2 1/2"	£48.36
G26150000	1/2"	1"	3"	£78.94



## 262 Two Flute Diamond Cut Routers

Code	Diameter 1 (mm)	Length 1 (mm)	Length 2 (mm)	List Price Each (exc VAT)
G26211810	3mm	13mm	45mm	£11.65
G26215750	4mm	16mm	50mm	£16.43
G26223620	6mm	19mm	50mm	£22.36
G26223620L	6mm	19mm	63mm	£26.10
G26231500	8mm	25mm	63mm	£35.57
G26239370	10mm	25mm	63mm	£51.38
G26247240	12mm	25mm	75mm	£68.85
G26206250	1/16"	3/16"	1 1/2"	£8.01
G26209370	3/32"	3/8"	1 1/2"	£8.22
G26212500	1/8"	1/2"	1 3/4"	£11.70
G26218750	3/15"	5/8"	2"	£17.37
G26225000	1/4"	3/4"	2"	£25.53
G26225000L	1/4"	3/4"	2 1/2"	£28.13
G26237500	3/8"	1"	2 1/2"	£49.66
G26250000	1/2"	1"	3"	£25.53





# ROUTERS

## 263 Two Flute Drill Point Diamond Cut Routers



Code	Diameter 1	Length 1	Length 2	List Price Each (exc VAT)
G26311810	3	13	45	£11.65
G26315750	4	16	50	£16.43
G26323620	6	19	50	£23.82
G26323620L	6	19	63	£26.10
G26331500	8	25	63	£35.57
G26339370	10	25	63	£51.38
G26347240	12	25	75	£68.85
G26309370	3/32"	3/8"	1 1/2"	£8.22
G26312500	1/8"	1/2"	1 3/4"	£11.70
G26318750	3/16"	5/8"	2"	£17.37
G26325000	1/4"	3/4"	2"	£80.39
G26325000L	1/4"	3/4"	2 1/2"	£28.13
G26337500	3/8"	1"	2 1/2"	£49.66
G26350000	1/2"	1"	3"	£25.53

## 266 Straight Flute Routers Z = 2 & 3



Diameter 1	Diameter 2	Length 1	Length 2	Code 2 Flute	List Price Each (exc VAT)	Code 3 Flute	List Price Each (exc VAT)
3mm	3mm	13mm	38mm	G26611810	£17.26	G26711810	£16.64
6mm	6mm	19mm	63mm	G26623620	£41.55	G26723620	£41.55
8mm	8mm	19mm	63mm	G26631500	£47.27	G26731500	£46.23
10mm	10mm	22mm	70mm	G26639370	£56.26	G26739370	£56.26
1/8"	1/8"	1/2"	1 1/2"	G26612500	£17.26	G26712500	£17.26
3/16"	3/16"	5/8"	2"	G26618750	£24.34	G26718750	£56.26
1/4"	1/4"	3/4"	2 1/2"	G26625000	£84.03	G26725000	£41.55
5/16"	5/16"	1 3/16"	2 1/2"	G26631250	£47.27	G26731250	£46.23
3/8"	3/8"	7/8"	2 1/2"	G26637500	£56.26	G26737500	£56.26
1/2"	1/2"	1"	3"	G26650000	£84.03	G26750000	£58.76

# SAWING















## Slitting and Cut-off Saws

Type	Image	Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Slitting Saws (small circular saws)		Hollow ground to give the clearance necessary for deep cutting	HSS		3/4-2	BS 122	1000	1
Screw Slotting Saws		Metal screw slotting saws are Fine Pitch and are primarily used for slotting screw heads	HSS		1 3/4-2 3/4	BS 122	1001	1
Slitting Saws Fine Pitch		Narrow slotting and sawing applications in thin materials	HSS		2 1/2-10	BS 122	1002	1
Slitting Saws Coarse Pitch		Narrow slotting and sawing applications in thin materials	HSS		2 1/2-12	BS 122	1003	1
Slitting Saws Fine Pitch		Narrow slotting and sawing applications in thin materials	HSS	20-250		DIN 1837A	1004	1
Slitting Saws Coarse Pitch		General slotting and sawing applications	HSS	50-250		DIN 1838B	1005	1
Slitting Saws Coarse Pitch		General slotting and sawing applications	HSS	50-315		DIN 1838C	1006	1





















## Slitting and Cut-off Saws continued

Type		Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Carbide Slitting Saws Fine Pitch		For increased production rates, especially on harder and abrasive materials or thin section components	Grade K10 Carbide	20-160		DIN 1837A TYPE N	1204	
Side/Chip/Clearance Saws Straight Tooth		The teeth are designed to give maximum support to the cutting edges and provide sufficient swarf clearance	HSS		2 1/2-10	BS 122 TYPE B	1011	
Side/Chip/Clearance Saws Staggered Tooth		Designed for taking moderately deep cuts in steel where more clearance is provided on the peripheral cut than on ordinary slitting saws	HSS		3-10	BS 122 TYPE 'A'	1012	
Side/Chip/Clearance Saws Staggered Tooth		Designed for taking moderately deep cuts in steel where more clearance is provided on the peripheral cut than on ordinary slitting saws	HSS	63-250		DIN 1834A	1014	
Side/Chip/Clearance Saws Staggered Tooth		Designed for taking moderately deep cuts in steel where more clearance is provided on the peripheral cut than on ordinary slitting saws	HSS-Co5	63-200		DIN 1834A	1015	
Standard Cut-Off Saws		For use with most cut-off machines with a 32mm bore	HSS	200-350		DIN 1834A	1020	
Standard Cut-Off Saws		For use on most cut-off machines with a 40mm bore	HSS	250-315		DIN 1834A	1023	

## Cut-off Saw Blanks, Bandsaws, and Hacksaw Blades

Type		Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Standard Cut-Off Saws Blanks		Designed for taking moderately deep cuts in steel where more clearance is provided on the peripheral cut than on ordinary slitting saws	HSS	200-370		DIN 1834A	1024	
TiN coated cut-off Saw Blanks		Suitable for most cut-off machines for applications where speed and durability are key	HSS	250-350		DIN 1834A	1021	
Carbon hard edge flexible back bandsaw strip		For general purpose and profile sawing. The teeth are supported by a sturdy, yet flexible back	Carbon Steel	6-25	1/4-1	BS 970 PART 1	5890	
Carbon flexible hobby thin gauge bandsaw strip		For cutting intricate shapes in wood and thin metal sheets	Carbon Steel	6-12.5	1/4-1/2	BS 970 PART 1	5891	
Carbon hard edge flexible back bandsaw in welded loops		For general purpose and profile sawing. The teeth are supported by a sturdy, yet flexible back	Carbon Steel	6-25	1/4-1	BS 970 PART 1	5886	
Matrix II Bi-metal Bandsaw strip		A special high Cobalt HSS material suitable for cutting all types of sections, ie. tubes, angle iron, channels and rough surface conditions	Bi-metal Steel	13-34	1/2 -1 1/4	BS 970 PART 1	5893	
Matrix II Bi-metal Bandsaw strip in welded loops		A special high Cobalt HSS material suitable for cutting all types of sections, ie. tubes, angle iron, channels and rough surface conditions	Bi-metal Steel	34	1 1/4	BS 970 PART 1	5887	
Cobalt (M42) Bi-metal strip		For very difficult to cut materials which are securely held	Cobalt M42 Steel	25-40	1-1 1/2	BS 970 PART 1	5894	



# SAWING

## Cut-off Saws, Bandsaws, Hand and Powersaw Blades continued

Type	Image	Description	Material	Diameter		Standards	Series Range	Application
				Metric (mm)	Imperial (")			
Cobalt (M42) Bi-metal Bandsaw in welded loops		For very difficult to cut materials which are securely held	Cobalt M42 Steel	25-40		BS 970 PART 1	5888	1 2 3 5 6 7
Hand Hacksaw Blades		Designed to cut all types of materials including stainless steels and alloy steels	HSS	250-300	10-12	BS 1919 ISO 2336	5895	1 2 3 4 5 6 7 8
Power Hacksaw Blades		Manufactured from M2 HSS. Saw Blades are capable of cutting the more difficult materials accurately	HSS	300-450	12-18	BS 1919 ISO 2336	5896	1 2 3 4 5 6 7 8

# TURNING TOOLS

## Superweld, Toolbits, Parting Blades and Carbide Tipped Tools

Type	Image	Description	Material
Superweld Butt-Welded Tools		Light turning and facing tools	HSS
Superweld Butt-Welded Tools		Straight nosed roughing tools	HSS
Superweld Butt-Welded Tools		Knife or side cutting tools	HSS
Superweld Butt-Welded Tools		External screw cutting tools	HSS
Superweld Butt-Welded Tools		Through boring tools and internal threading tools	HSS
Superweld Butt-Welded Tools		Swan necked finishing tool, cuts in either direction	HSS
Superweld Butt-Welded Tools		Boring tools	HSS
Superweld Butt-Welded Tools		Parting tools	HSS
Square Toolbits		Blanks for the manufacture of tools for high tensile and heat resistant steels	HSS
Round Toolbits		Blanks for the manufacture of tools for high tensile and heat resistant steels	HSS
Square Toolbits		Blanks for the manufacture of tools for high tensile and heat resistant steels	HSS-Co
Double Bevel Parting Blades		For parting off and slotting applications, with increased wear resistance	HSS-Co
Carbide Tipped Tools		Straight and round nosed turning tools	Carbide Tipped
Carbide Tipped Tools		Cranked round nosed turning tools	Carbide Tipped
Carbide Tipped Tools		Crank turning and facing tools and offset turning tools	Carbide Tipped
Carbide Tipped Tools		Straight recessing tools	Carbide Tipped
Carbide Tipped Tools		Square shank 80°, point boring tools	Carbide Tipped
Carbide Tipped Tools		Parting tools	Carbide Tipped
Carbide Tipped Tools		Boring bars on a square	Carbide Tipped

Please contact us for details on the entire range of HSS and carbide tipped lathe tools

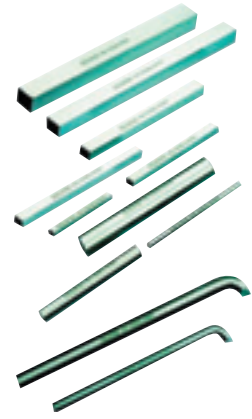
For the application guide see page 248

## Toolbits

- Manufactured to ISO 5421
- Made from H5 steel for optimum hardness, grindability and cutting performance
- Square toolbits can be used in lathes and shaping machines
- Round toolbits are used in internal boring bars and slotting machines

Code	Type	— Size — (mm) (")		— Length — (mm) (")		List Price Each (exc VAT)
TD70W	Square	4.8	$\frac{3}{16}$	51	2	£5.14
TE70D	Round	4.8	$\frac{3}{16}$	51	2	£3.35
TD72X	Square	4.8	$\frac{3}{16}$	64	2.5	£5.45
TD74A	Square	4.8	$\frac{3}{16}$	76	3	£6.61
TE74B	Round	4.8	$\frac{3}{16}$	76	3	£5.67
TD109R	Square	6.4	$\frac{1}{4}$	76	3	£7.24
TD111M	Square	6.4	$\frac{1}{4}$	102	4	£9.45
TE111C	Round	6.4	$\frac{1}{4}$	102	4	£7.97
TD147R	Square	7.9	$\frac{5}{16}$	64	2.5	£6.50
TD149M	Square	7.9	$\frac{5}{16}$	76	3	£8.71
TE149K	Round	7.9	$\frac{5}{16}$	76	3	£5.87
TD151N	Square	7.9	$\frac{5}{16}$	102	4	£11.34
TE151D	Round	7.9	$\frac{5}{16}$	102	4	£9.55

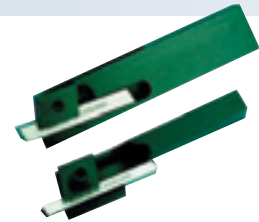
Code	Type	— Size — (mm) (")		— Length — (mm) (")		List Price Each (exc VAT)
TD189N	Square	9.5	$\frac{3}{8}$	76	3	£9.87
TE189J	Round	9.5	$\frac{3}{8}$	76	3	£9.24
TD191W	Square	9.5	$\frac{3}{8}$	102	4	£12.80
TD270M	Square	12.7	$\frac{1}{2}$	3.5		£13.02
TE270K	Round	12.7	$\frac{1}{2}$	3.5		£12.80
TD271F	Square	12.7	$\frac{1}{2}$	102	4	£19.11
TE271E	Round	12.7	$\frac{1}{2}$	102	4	£16.80
TD275B	Square	12.7	$\frac{1}{2}$	153	6	£29.83
TD311E	Square	15.9	$\frac{5}{8}$	102	4	£28.56
TE311L	Round	15.9	$\frac{5}{8}$	102	4	£26.15
TD315M	Square	15.9	$\frac{5}{8}$	153	6	£44.11
TD351R	Square	19	$\frac{3}{4}$	102	4	£38.86
TD355N	Square	19	$\frac{3}{4}$	153	6	£52.73



## Toolbit Holders

- Designed to optimise toolbit performance, by clamping the toolbit securely and rigidly
- Supplied complete with an Allen Key and H5 Eclipse toolbit

Code	— Sizes — (mm) (")	List Price Each (exc VAT)
524SL	5-7 $\frac{3}{16}$ - $\frac{1}{4}$	£64.92
534SL	8-10 $\frac{5}{16}$ - $\frac{3}{8}$	£79.94
544SL	10-12.7 $\frac{3}{8}$ - $\frac{1}{2}$	£99.27
533S	5-7 $\frac{5}{16}$ - $\frac{3}{8}$	£87.19
523S	8-10 $\frac{3}{16}$ - $\frac{1}{4}$	£84.46



**ECLIPSE**

## Square, Round and Rectangular Toolbits



Type	Material	— Diameter —		Finish	Series Range
		Metric (mm)	Imperial (")		
Square	HSS	4 - 20	$\frac{3}{16}$ - 1	Bright	70000
Square	HSCo-8	4 - 25	$\frac{3}{16}$ - 1	Bright	70001
Square	HSCo-11	6 - 25	$\frac{1}{4}$ - 1	Bright	70002
Round	HSS	4 - 12	$\frac{3}{16}$ - 1	Bright	70020
Round	HSCo-8	4 - 20	$\frac{1}{8}$ - 1	Bright	70021
Flat	HSS		$\frac{1}{2}$ - 1	Bright	70040



# TURNING TOOLS



## Rectangular Toolbits and Parting Off Blades

Type		Material	Diameter		Finish	Series Range
			Metric (mm)	Imperial (")		
Flat		HSCo-8	6 - 32	1/2 - 1	Bright	70041
Parting Off Blades		HSCo-8	3 - 4.5	3/32 - 1/4	Bright	70051

# TURNING TOOLS



## Square and Round Toolbits

Type		Material	Metric (mm)	Imperial (")	Finish	Series Range
Square		HSS	4 - 20	3/16 - 1	Bright	3080 HSSS
Square		HSCo	4 - 25	3/16 - 1	Bright	3080 C <sup>0</sup> S
Round		HSS	4 - 12	3/16 - 1	Bright	3080 HSSR
Round		HSCo	4 - 20	1/8 - 1	Bright	3080 C <sup>0</sup> R

CUTTING TOOLS

**FOR OUR EXTENSIVE RANGE  
OF MACHINE TOOLS  
GO TO PAGES 521-566**

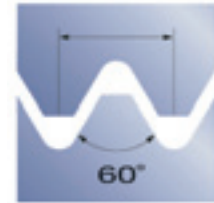


## Threading Inserts – ISO Metric Coated – Grade SFZ

- Internal/External ISO Standard reference: ISO 262 (DIN 13)
- Tolerance class: 6g / 6H"
- Right hand inserts



Code	Pitch (mm)	Nose Radius (mm)	X (mm)	Y (mm)	List Price Each (exc VAT)
<b>Size 16 - External</b>					
16ER0,35ISO	0.35	0.06	0.8	0.4	£12.80
16ER0,4ISO	0.4	0.07	0.7	0.4	£12.80
16ER0,45ISO	0.45	0.08	0.7	0.4	£12.80
16ER0,5ISO	0.5	0.08	0.6	0.6	£12.80
16ER0,6ISO	0.6	0.09	0.6	0.6	£12.80
16ER0,7ISO	0.7	0.10	0.6	0.6	£12.80
16ER0,75ISO	0.75	0.10	0.6	0.6	£12.80
16ER0,8ISO	0.8	0.13	0.6	0.6	£12.80
16ER1,0ISO	1	0.14	0.7	0.7	£12.80
16ER1,25ISO	1.25	0.18	0.8	0.9	£12.80
16ER1,5ISO	1.5	0.22	0.8	1	£12.80
16ER1,75ISO	1.75	0.25	0.9	1.2	£12.80
16ER2,0ISO	2	0.29	1	1.3	£12.80
16ER2,5ISO	2.5	0.36	1.1	1.5	£12.80
16ER3,0ISO	3	0.46	1.2	1.6	£12.80
<b>Size 16 - Internal</b>					
16IRO.35ISO	0.35	0.03	0.8	0.3	£12.80
16IRO.4ISO	0.4	0.04	0.8	0.4	£12.80
16IRO.45ISO	0.45	0.04	0.8	0.4	£12.80
16IRO.5ISO	0.5	0.04	0.6	0.6	£12.80
16IRO.6ISO	0.6	0.05	0.6	0.6	£12.80
16IRO.7ISO	0.7	0.06	0.6	0.6	£12.80
16IRO.75ISO	0.75	0.06	0.6	0.6	£12.80
16IRO.8ISO	0.8	0.06	0.6	0.6	£12.80
16IR1.0ISO	1	0.08	0.6	0.7	£12.80
16IR1.25ISO	1.25	0.10	0.8	0.9	£12.80
16IR1.5ISO	1.5	0.11	0.8	1	£12.80
16IR1.75ISO	1.75	0.13	0.9	1.2	£12.80
16IR2.0ISO	2	0.14	1	1.3	£12.80
16IR2.5ISO	2.5	0.18	1.1	1.5	£12.80
16IR3.0ISO	3	0.23	1.1	1.5	£12.80
16IR3.5ISO	3.5	0.25	1.2	1.8	£12.80



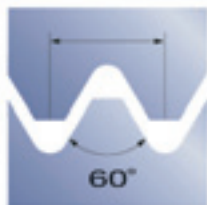
CUTTING TOOLS

**IF YOU CAN'T FIND THE PRODUCT YOU'RE LOOKING FOR PLEASE GIVE OUR SALES OFFICE A CALL**



## Threading Inserts UN – American Unified – Coated – Grade SFZ

- Standard reference: ANSI B1.1:74
- Tolerance class: 2A / 2B
- Right hand inserts



Code	T.P.I	Nose Radius (mm)	X (mm)	Y (mm)	List Price Each (exc VAT)
<b>Size 16 - External</b>					
16ER40UN	40	0.09	0.6	0.6	£12.80
16ER36UN	36	0.11	0.6	0.6	£12.80
16ER32UN	32	0.13	0.6	0.6	£12.80
16ER28UN	28	0.14	0.6	0.7	£12.80
16ER27UN	27	0.15	0.7	0.8	£12.80
16ER24UN	24	0.17	0.7	0.8	£12.80
16ER20UN	20	0.18	0.8	0.9	£12.80
16ER18UN	18	0.20	0.8	1	£12.80
16ER16UN	16	0.22	0.9	1.1	£12.80
16ER14UN	14	0.25	1	1.2	£12.80
16ER13UN	13	0.28	1	1.3	£12.80
16ER12UN	12	0.29	1.1	1.4	£12.80
16ER11UN	11	0.33	1.1	1.5	£12.80
16ER10UN	10	0.38	1.1	1.5	£12.80
16ER9UN	9	0.38	1.2	1.7	£12.80
16ER8UN	8	0.48	1.2	1.6	£12.80
<b>Size 16 - Internal</b>					
16IR40UN	40	0.05	0.6	0.6	£12.80
16IR36UN	36	0.05	0.6	0.6	£12.80
16IR32UN	32	0.06	0.6	0.6	£12.80
16IR28UN	28	0.09	0.6	0.7	£12.80
16IR26UN	26	0.09	0.7	0.8	£12.80
16IR24UN	24	0.09	0.7	0.8	£12.80
16IR20UN	20	0.10	0.8	0.9	£12.80
16IR18UN	18	0.11	0.8	1	£12.80
16IR16UN	16	0.11	0.9	1.1	£12.80
16IR14UN	14	0.15	0.9	1.1	£12.80
16IR13UN	13	0.17	1	1.3	£12.80
16IR12UN	12	0.18	1.1	1.4	£12.80
16IR11UN	11	0.18	1.1	1.5	£12.80
16IR10UN	10	0.20	1.1	1.5	£12.80
16IR9UN	9	0.20	1.2	1.7	£12.80
16IR8UN	8	0.24	1.1	1.5	£12.80

**FOR SAFETY SPECTACLES  
& VISORS  
GO TO PAGES 669-676**

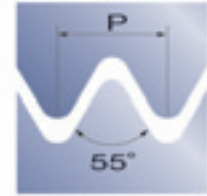


## Threading Inserts – Whitworth – Coated – Grade SFZ

- Standard reference: I.S.O 228/1: 1982, B.S. 84:1956, DIN 259
- Tolerance class: Medium class A
- Right hand inserts



Code	T.P.I	X (mm)	Y (mm)	List Price Each (exc VAT)
<b>Size 16 - External</b>				
16ER40W	40	0.6	0.6	£12.80
16ER36W	36	0.6	0.6	£12.80
16ER32W	32	0.6	0.6	£12.80
16ER28W	28	0.6	0.7	£12.80
16ER26W	26	0.7	0.8	£12.80
16ER24W	24	0.7	0.8	£12.80
16ER22W	22	0.8	0.9	£12.80
16ER20W	20	0.8	0.9	£12.80
16ER19W	19	0.8	1	£12.80
16ER18W	18	0.8	1	£12.80
16ER16W	16	0.9	1.1	£12.80
16ER14W	14	1	1.2	£12.80
16ER12W	12	1.1	1.4	£12.80
16ER11W	11	1.1	1.5	£12.80
16ER10W	10	1.1	1.5	£12.80
16ER9W	9	1.2	1.7	£12.80
16ER8W	8	1.2	1.5	£12.80
<b>Size 16 - Internal</b>				
16IR40W	40	0.6	0.6	£12.80
16IR36W	36	0.6	0.6	£12.80
16IR32W	32	0.6	0.6	£12.80
16IR28W	28	0.6	0.7	£12.80
16IR26W	26	0.7	0.8	£12.80
16IR24W	24	0.7	0.8	£12.80
16IR22W	22	0.8	0.9	£12.80
16IR20W	20	0.8	0.9	£12.80
16IR19W	19	0.8	1	£12.80
16IR18W	18	0.8	1	£12.80
16IR16W	16	0.9	1.1	£12.80
16IR14W	14	1	1.2	£12.80
16IR12W	12	1.1	1.4	£12.80
16IR11W	11	1.1	1.5	£12.80
16IR10W	10	1.1	1.5	£12.80
16IR9W	9	1.2	1.7	£12.80
16IR8W	8	1.2	1.5	£12.80



CUTTING TOOLS

## External Threading Toolholders and Spares

- Right hand tools
- For left hand replace R with L ie EL/ (prices on request)

Code	Dimensions (mm)						Inserts	List Price Each (exc VAT)
	b	l1	l2	f	h	h1		
ER/L1616H16	16	100	22	20	16	16	16E_	£80.75
ER/L2020K16	20	125	27	25	20	20	16E_	£80.75
ER/L2525M16	25	150	27	32	25	25	16E_	£85.30
ER/L2525M22	25	150	30	32	25	25	22E_	£88.75



Spares	Insert Screw	List Price Each (exc VAT)	Key	List Price Each (exc VAT)	Anvil	List Price Each (exc VAT)	Anvil Screw	List Price Each (exc VAT)
E_1616H16 to E_2525M16	SA3T	£1.15	T10F	£4.20	YE3/YI3	£8.75	SY3T	£2.10
E_2525M22	SA4T	£2.75	T20F	£3.85	YE4/YI4	£13.55	SY4T	£3.25





# TOOLHOLDERS AND INSERTS

## Internal Threading Toolholders and Spares



- Right hand tools

- For left hand replace R with L ie ILN (prices on request)

Code	Dimensions (mm)					Min. Minor Thread Diameter	Inserts	List Price Each (exc VAT)
	d	d1	l1	l2	f			
IRN1013K11	10	9.5	125	25	7.3	13	11I	<b>£78.45</b>
IRN1616M11	16	12.5	150	40	8.9	16	11I	<b>£78.45</b>
IRN2013M11	20	10	150	25	7.3	13	11IR	<b>£78.45</b>
IRN1618M16	16	12	150	40	9.4	18	16I	<b>£78.45</b>
IRN2021Q16	20	15.8	180	40	12.4	21	16I	<b>£81.85</b>
IR2024Q16	20	18.5	180	50	13	24	16I	<b>£88.75</b>

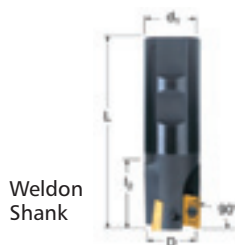


Spares	Insert Screw	List Price Each (exc VAT)	Key	List Price Each (exc VAT)
I_N1013K11 to I_N1616M11	SN2T	<b>£2.20</b>	T8F	<b>£3.85</b>
I_N1618M16 to I_N2021M16	SA3T	<b>£1.15</b>	T10F	<b>£4.20</b>

## 7690VA12: 90° End Mills, taking 12mm Inserts

- For Side Milling, Slotting and Face Milling

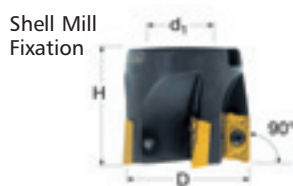
- Spares included: Screw-F3007T T8 Screwdriver 022157



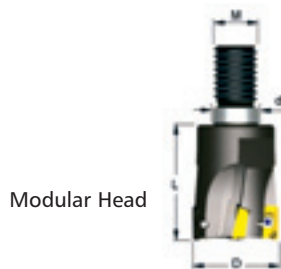
Weldon Shank



Cylindrical Shank



Shell Mill Fixation



Modular Head

Code	Part Number	D	Dimensions (mm)			Max Depth of Cut (mm)	No. of Teeth	Type	List Price Each (exc VAT)
		L/H	l2/M	d1					
<b>7690 VA 12 Weldon Shank Medium Pitch</b>									
027917	7690VA12WA020Z02R032	20	82	32	20	11	2	T8	<b>£169.35</b>
027918	7690VA12WA025Z02R040	25	96	40	25	11	2	T8	<b>£181.30</b>
027919	7690VA12WA032Z03R040	32	100	40	32	11	3	T8	<b>£187.20</b>
027920	7690VA12WA040Z04R050	40	110	50	32	11	4	T8	<b>£199.10</b>
<b>7690 VA 12 Weldon Shank Fine Pitch</b>									
027921	7690VA12WA025Z03R040	25	96	40	25	11	3	T8	<b>£199.00</b>
027922	7690VA12WA032Z04R040	32	100	40	32	11	4	T8	<b>£204.80</b>
027923	7690VA12WA040Z05R050	40	110	50	32	11	5	T8	<b>£210.60</b>
<b>7690 VA 12 Long Version Cylindrical Shank</b>									
027924	7690VA12CA020Z02R154	20	204	154	20	11	2	T8	<b>£161.65</b>
027925	7690VA12CA025Z03R154	25	210	154	25	11	3	T8	<b>£172.55</b>
027926	7690VA12CA032Z04R190	32	250	190	32	11	4	T8	<b>£190.95</b>
029453	7690VA12CA020Z02R065	20	115	65	20	11	2	T8	<b>£188.60</b>
029454	7690VA12CA025Z03R074	25	130	74	25	11	3	T8	<b>£219.25</b>
<b>7690 VA 12 Shell Mill Fixation Medium Pitch</b>									
027927	7690VA12-A040Z04R	40	32		16	11	4	T8	<b>£218.85</b>
027928	7690VA12-A050Z05R	50	40		22	11	5	T8	<b>£225.25</b>
027929	7690VA12-A063Z06R	63	40		22	11	6	T8	<b>£303.90</b>
027930	7690VA12-A080Z07R	80	50		27	11	7	T8	<b>£352.50</b>
<b>7690 VA 12 Shell Mill Fixation Fine Pitch</b>									
027931	7690VA12-A040Z05R	40	32		16	11	5	T8	<b>£250.90</b>
027932	7690VA12-A050Z06R	50	40		22	11	6	T8	<b>£303.90</b>
027933	7690VA12-A063Z08R	63	40		22	11	8	T8	<b>£388.90</b>
027934	7690VA12-A080Z10R	80	50		27	11	10	T8	<b>£370.70</b>
<b>7690 VA 12 Modular Head</b>									
029134	7690VA12S020R35	20	35	M10	10,5	11	2	T8	<b>£146.85</b>
029135	7690VA12S025R35	25	35	M12	12,5	11	3	T8	<b>£150.60</b>
029136	7690VA12S032R43	32	43	M16	17,0	11	4	T8	<b>£169.35</b>



## 12mm Inserts

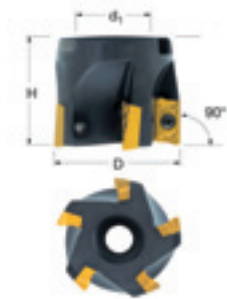
- For Side Milling, Slotting and Face Milling



Code	Part Number	Grade	Application and Material			Dimensions (mm)				Min Average Chip Thickness	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
027915	ADKT12T3PDER-45	MP91M	■	■	■	7.87	12.7	3.97	Facet	0.05	£7.65
027916	ADKT12T3PDER-45	SC3025	■	■	■	7.87	12.7	3.97	Facet	0.05	£7.65
027914	ADKT12T3PDER-45	SP6564	■	■	■	7.87	12.7	3.97	Facet	0.05	£8.70
027913	ADKT12T3PDER-45	X500	■	■	■	7.87	12.7	3.97	Facet	0.05	£9.75
029098	ADGT12T3PDFR-721	GH1	■	■	■	7.96	12.9	3.97	Facet	0.05	£7.45
029326	ADHT12T3PDER-46	SP6564	■	■	■	8	12.9	3.97	Facet	0.05	£9.40
029327	ADHT12T3PDER-46	X500	■	■	■	8	12.9	3.97	Facet	0.05	£10.55
029328	ADHT12T308ER-46	SP6564	■	■	■	8	12.9	3.97	0.8	0.05	£9.40
029329	ADHT12T308ER-46	X500	■	■	■	8	12.9	3.97	0.8	0.05	£10.55
029330	ADHT12T316ER-46	SP6564	■	■	■	8	12.9	3.97	1.6	0.05	£9.40
029331	ADHT12T316ER-46	X500	■	■	■	8	12.9	3.97	1.6	0.05	£10.55
029336	ADHT12T320ER-46	SP6564	■	■	■	8	12.9	3.97	2	0.05	£9.40
029337	ADHT12T320ER-46	X500	■	■	■	8	12.9	3.97	2	0.05	£10.55
029332	ADHT12T324ER-46	SP6564	■	■	■	8	12.9	3.97	2.4	0.05	£9.40
029333	ADHT12T324ER-46	X500	■	■	■	8	12.9	3.97	2.4	0.05	£10.55
029338	ADHT12T330ER-46	SP6564	■	■	■	8	12.9	3.97	3	0.05	£9.40
029339	ADHT12T330ER-46	X500	■	■	■	8	12.9	3.97	3	0.05	£10.55
029037	ADHT12T332ER-46	SP6564	■	■	■	8	12.9	3.97	3.2	0.05	£9.40
029036	ADHT12T332ER-46	X500	■	■	■	8	12.9	3.97	3.2	0.05	£10.55
029334	ADHT12T340ER-46	SP6564	■	■	■	8	12.9	3.97	4	0.05	£9.40
029335	ADHT12T340ER-46	X500	■	■	■	8	12.9	3.97	4	0.05	£10.55

## 7690VA16: 90° End Mills, taking 16mm Inserts

- For Side Milling, Slotting and Face Milling
- Weldon Shank and Morse Taper Shank also available, please as for details
- Spare included: Screw D4010T TIS Screwdriver - 015240



Code	Part Number	Dimensions (mm)			Max Depth of Cut (mm)	No. of Teeth	List Price Each (exc VAT)
		D	H	d1			
<b>7690 VA 16 Shell Mill Fixation</b>							
017985	7690VA 16 -A040R	40	40	16	16	4	£168.10
021700	7690VA 16 -A050R	50	40	22	16	5	£193.90
021701	7690VA 16 -A063R	63	40	22	16	5	£254.35
021702	7690VA 16 -A080R	80	50	27	16	6	£280.35
021703	7690VA 16 -A100R	100	50	32	16	7	£334.90
021704	7690VA 16 -A125R	125	63	40	16	8	£361.85

## 16mm Inserts



Code	Number	Grade	Application and Material			Dimensions (mm)			Min Average Chip Thickness	List Price Each (exc VAT)	
			Roughing	Semi-Finishing	Finishing	d	l	s			
017632	APHT 16 04PDER	SF30				9.52	16.66	4.76	Facet	0.05	£8.70
017633	APHT 16 04PDFR	SFZ	■	■	■	9.52	16.66	4.76	Facet	0.05	£9.60
015154	APHT 16 04PDFR	GH1				9.52	16.66	4.76	Facet	0.02	£8.70
017293	APHT 16 04PDTR-42	MP91M				9.52	16.66	4.76	Facet	0.1	£9.60
017634	APHT 16 04PDTR-42	PFZ				9.52	16.66	4.76	Facet	0.1	£9.60
015155	APHT 16 04PDTR-42	X500				9.52	16.66	4.76	Facet	0.1	£12.45
027718	APHT 16 04PDTR-42	SP6564				9.52	16.66	4.76	Facet	0.1	£10.10
011649	APKT 16 04PDER-3M	MP91M				9.52	16.66	4.76	Facet	0.1	£8.70
017294	APKT 16 04PDER-43	MP91M	■			9.52	16.66	4.76	Facet	0.08	£8.70
014067	APKT 16 04PDER-43	PFZ				9.52	16.66	4.76	Facet	0.08	£8.70
015156	APKT 16 04PDER-43	X500				9.52	16.66	4.76	Facet	0.08	£9.75

- - Unalloyed Steels   ■ - Stainless Steels   ■ - Cast Irons   ■ - High Temp. Alloys
- - Alloyed Steels   ■ - PH Stainless   ■ - Aluminium & Alloys   ■ - Hard Materials



# TOOLHOLDERS AND INSERTS

## 16mm Inserts continued

Code	Number	Grade	Application and Material			Dimensions (mm)				Min Average Chip Thickness	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
027887	APKT 16 04PDER-43	SC3025	■	■	■	9.52	16.66	4.76	Facet	0.08	£8.70
027720	APKT 16 04PDER-43	SP6564	■	■		9.52	16.66	4.76	Facet	0.08	£9.75
023115	APKT 16 04PDER-45	X500				9.52	16.66	4.76	Facet	0.06	£9.75
023114	APKT 16 04PDER-45	MP91M				9.52	16.66	4.76	Facet	0.06	£8.70
0277721	APKT 16 04PDER-45	SP6564		■	■	9.52	16.66	4.76	Facet	0.06	£9.75
027863	APHT 16 0408ER-46	SP6564		■	■	9.52	16.66	4.76	0.8	0.1	£10.10
027869	APHT 16 0408ER-46	X500	■	■		9.52	16.66	4.76	0.8	0.1	£12.45
027864	APHT 16 0416ER-46	SP6564		■	■	9.52	16.66	4.76	1.6	0.1	£10.10
027870	APHT 16 0416ER-46	X500	■	■		9.52	16.66	4.76	1.6	0.1	£12.45
027865	APHT 16 0424ER-46	SP6564		■	■	9.52	16.66	4.76	2.4	0.1	£10.10
027871	APHT 16 0424ER-46	X500	■	■		9.52	16.66	4.76	2.4	0.1	£12.45
027862	APHT 16 0432ER-46	SP6564		■	■	9.52	16.66	4.76	3.2	0.1	£10.10
027872	APHT 16 0432ER-46	X500	■	■		9.52	16.66	4.76	3.2	0.1	£12.45
027866	APHT 16 0440ER-46	SP6564		■	■	9.52	16.66	4.76	4	0.1	£10.10
027873	APHT 16 0440ER-46	X500	■	■		9.52	16.66	4.76	4	0.1	£12.45
027867	APHT 16 0450ER-46	SP6564		■	■	9.52	16.66	4.76	5	0.1	£10.10
027874	APHT 16 0450ER-46	X500	■	■		9.52	16.66	4.76	5	0.1	£12.45
027868	APHT 16 0464ER-46	SP6564		■	■	9.52	16.66	4.76	6.4	0.1	£10.10
027875	APHT 16 0464ER-46	X500	■	■		9.52	16.66	4.76	6.4	0.1	£12.45
017228	APMT 16 0412E-2C	MP91M				9.52	16.66	4.76	1.2	0.1	£8.60
013944	APMT 16 0416E-2C	MP91M				9.52	16.66	4.76	1.6	0.1	£8.60
013945	APMT 16 0424E-2C	MP91M				9.52	16.66	4.76	2.4	0.1	£8.60
013946	APMT 16 0432E-2C	MP91M				9.52	16.66	4.76	3.2	0.1	£8.60
017229	APMT 16 0440E-2C	MP91M				9.52	16.66	4.76	4	0.1	£8.60
017230	APMT 16 0448E-2C	MP91M				9.52	16.66	4.76	4.8	0.1	£8.60
013947	APMT 16 0464E-2C	MP91M				9.52	16.66	4.76	6.4	0.1	£8.60

## 7745VOD04: 45° Face Mill taking 8 Sided, taking Size 04 Inserts



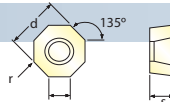
Shell Mill

Weldon Shank

- Spares Included: Screw-F4011T T20 Screwdriver-015241

Code	Part Number	Dimensions (mm)				Max Depth of Cut (mm)	No. of Teeth	Screwdriver Type	List Price Each (exc VAT)
		D	L/H	l2	d1				
<b>7745 VOD 04 Weldon Shank</b>									
021758	7745VOD 04 WA025R	25	90	40	20	3.5	2	T20	£154.80
025379	7745VOD 04 WA025R095	25	145	95	20	3.5	2	T20	£175.80
021759	7745VOD 04 WA032R	32	96	40	25	3.5	3	T20	£182.15
025380	7745VOD 04 WA032R095	32	151	95	25	3.5	3	T20	£196.05
021760	7745VOD 04 WA040R	40	110	50	32	3.5	4	T20	£202.70
025381	7745VOD 04 WA040R095	40	155	95	32	3.5	4	T20	£222.00
<b>7745 VOD 04 Shell Mill Fixation Medium Pitch</b>									
021754	7745VOD 04 -A040R	40	35		16	3.5	4	T20	£203.85
021755	7745VOD 04 -A050R	50	40		22	3.5	4	T20	£236.90
021756	7745VOD 04 -A063R	63	40		22	3.5	5	T20	£269.90
017907	7745VOD 04 -A080R	80	50		27	3.5	6	T20	£330.95
021757	7745VOD 04 -A100R	100	55		32	3.5	7	T20	£406.45
023062	7745VOD 04 -A125R	125	63		40	3.5	8	T20	£506.30
025382	7745VOD 04 -160Z10R	160	63		40	3.5	10	T20	£588.50

Shell Mill Fixation Fine Pitch also available, please ask for details



### Size 04 Inserts

- For Side Milling, Slotting and Face Milling

Code	Number	Grade	Application and Material			Dimensions (mm)				hm min	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
022199	ODET 04 04APEN-44	MP91M			■	12.7	4	4.76	Facet	0.04	£10.05
022198	ODET 04 04APEN-44	X500			■	12.7	4	4.76	Facet	0.04	£12.25
027722	ODET 04 04APEN-44	SP6564			■	12.7	4	4.76	Facet	0.04	£11.30
024911	ODET 04 04APFN-441	GH1	■	■	■	12.7	4	4.76	Facet	0.02	£9.50
027884	ODEW 04 04APTR-RA	SC3025	■	■	■	12.7	4	4.76	Facet	0.19	£10.05
017775	ODMT 04 04APEN-41	MP91M		■		12.7	4	4.76	Facet	0.04	£8.35
022061	ODMT 04 04APEN-41	X500		■		12.7	4	4.76	Facet	0.04	£11.45
027724	ODMT 04 04APEN-41	SP6564		■	■	12.7	4	4.76	Facet	0.04	£9.50
017303	ODMT 04 0408EN-41	MP91M				12.7	4	4.76	0.8	0.04	£8.35
015143	ODMT 04 0408EN-41	X500	■	■		12.7	4	4.76	0.8	0.04	£11.45
027723	ODMT 04 0408EN-41	SP6564	■			12.7	4	4.76	0.8	0.04	£9.50

## 7745VOD06 45° Face Mill, taking 8 Sided Size 06 Inserts

- Milling cutters with through coolant except 160 diameter (026586)
- Spares Included: Screw - F4011T T20 Screwdriver-15241



Code	Part Number	Dimensions (mm)			Max Depth of Cut (mm)	No. of Teeth	List Price Each (exc VAT)
		D	H	d1			
<b>7745 VOD 06 Shell Mill Fixation Medium Pitch</b>							
026581	7745VOD 06 -A050R	50	40	22	4.5	4	<b>£236.50</b>
026582	7745VOD 06 -A063R	63	40	22	4.5	5	<b>£260.90</b>
026583	7745VOD 06 -A080R	80	50	27	4.5	6	<b>£330.65</b>
026584	7745VOD 06 -A100R	100	55	32	4.5	7	<b>£406.05</b>
026585	7745VOD 06 -A125R	125	63	40	4.5	8	<b>£506.50</b>
026586	7745VOD 06 -160R	160	63	40	4.5	10	<b>£567.05</b>

Fine Pitch also available, please ask for details

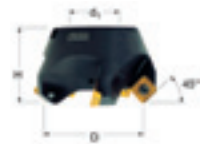
## Size 06 Inserts



Code	Number	Grade	Application and Material			Dimensions (mm)				Min Average Chip Thickness	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
026591	OJET 06 05APEN-44	MP91M			■	16	6	5.55	Facet	0.04	<b>£10.85</b>
026598	OJET 06 05APEN-44	SP4036			■ ■ ■	16	6	5.55	Facet	0.04	<b>£10.85</b>
027891	OJET 06 05APEN-44	SP6564				16	6	5.55	Facet	0.04	<b>£12.15</b>
026592	OJET 06 05APEN-44	X500			■ ■	16	6	5.55	Facet	0.04	<b>£13.15</b>
026588	OJET 06 05APFN-441	GH1	■	■	■	16	6	5.55	Facet	0.02	<b>£10.20</b>
027885	OJET 06 05APTR-RA	SC3025	■	■	■	16	6	5.55	Facet	0.19	<b>£10.85</b>
026589	ODMT 06 05APEN-41	MP91M			■	16	6	5.55	Facet	0.04	<b>£9.00</b>
026597	ODMT 06 05APEN-41	SP4036			■ ■	16	6	5.55	Facet	0.04	<b>£8.90</b>
027892	ODMT 06 05APEN-41	SP6564				16	6	5.55	Facet	0.04	<b>£10.75</b>
026590	ODMT 06 05APEN-41	X500			■ ■	16	6	5.55	Facet	0.04	<b>£12.25</b>

## 7745VSE12 45° Cutters, taking Square Size 12 Inserts

- For Shoulder Milling, Face Milling and Slotting
- Spares Included: Screw - 015241 T20 Screwdriver-015241



Code	Part Number	Dimensions (mm)			Max Depth Of Cut (mm)	Plunge max	No. of Teeth	List Price Each (exc VAT)
		D	H	d1				
<b>7745 VSE 12 Shell Mill Fixation</b>								
021788	7745VSE 12 -A050Z04R	50	45	22	7	6	4	<b>£211.25</b>
021789	7745VSE 12 -A063Z05R	63	45	22	7	6	5	<b>£249.85</b>
021790	7745VSE 12 -A080Z06R	80	50	27	7	6	6	<b>£279.45</b>
021791	7745VSE 12 -A100Z07R	100	55	32	7	6	7	<b>£306.60</b>
021792	7745VSE 12 -A125Z08R	125	63	40	7	6	8	<b>£396.35</b>

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# TOOLHOLDERS AND INSERTS

## Size 12 Inserts



Code	Number	Grade	Application and Material			Dimensions (mm)				hm min	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
017321	SDHT 12 04AEEN-421	MP91M				12.7	12.7	4.76	Facet	0.04	£9.95
015133	SDHT 12 04AEEN-421	PFZ				12.7	12.7	4.76	Facet	0.04	£9.95
015187	SDHT 12 04AEEN-421	X500	■		■ ■	12.7	12.7	4.76	Facet	0.04	£12.45
027734	SDHT 12 04AEEN-421	SP6564				12.7	12.7	4.76	Facet	0.04	£11.10
017322	SDHT 12 04AETN-42	MP91M				12.7	12.7	4.76	Facet	0.15	£9.95
017728	SDHT 12 04AETN-42	PFZ				12.7	12.7	4.76	Facet	0.15	£9.95
027735	SDHT 12 04AETN-42	SP6564				12.7	12.7	4.76	Facet	0.15	£11.10
017729	SDHT 12 04AETN-42	X500	■			12.7	12.7	4.76	Facet	0.10	£12.45
017324	SDHW 12 04AETN	MP91M				12.7	12.7	4.76	Facet	0.15	£9.95
015134	SDHW 12 04AETN	PFZ				12.7	12.7	4.76	Facet	0.15	£9.95
017730	SDHW 12 04AETN	X500				12.7	12.7	4.76	Facet	0.15	£12.45
029456	SDKT 12 04AEEN-45	MP91M		■	■	12.7	12.7	4.76	Facet	0.05	£10.65
029457	SDKT 12 04AEEN-45	X500		■ ■		12.7	12.7	4.76	Facet	0.05	£12.35
029455	SDKT 12 04AEEN-45	SP6564		■ ■	■ ■	12.7	12.7	4.76	Facet	0.05	£11.00

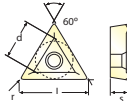
## 7745VT 45° Chamfering Cutters, taking Size 11 Inserts



- Spares Included:  
Screw - F2505T; T7F Screwdriver - 015069

Code	Part Number	Dimensions (mm)				Maximum Depth Of Cut	No. of Teeth	List Price (exc VAT)	
		D	L	l1	d1				d2
023065	7745VT 11 WA016R	16	90	40	16	4	7.7	1	£117.00

## Size 11 Inserts



Code	Number	Grade	Application and Material			Dimensions (mm)				Minimum Average Chip Thickness	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
024948	TPMT 11 0204E-M	GH1	■			6.35	11	2.38	0.4	0.03	£4.10
023503	TPMT 11 0204E-M	SFZ	■ ■			6.35	11	2.38	0.4	0.03	£4.10
023504	TPMT 11 0204E-M	X44	■			6.35	11	2.38	0.4	0.03	£5.80

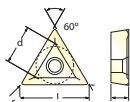
## 7745UT16 45° Chamfering and Spot Drill Cutter, taking Size 16 Inserts



- Spares Included:  
Screw - D4008T; T15 Screwdriver - 015240

Code	Part Number	Dimensions (mm)				Maximum Depth Of Cut Linear	Spot	No. of Teeth	List Price (exc VAT)	
		D	L	l1	d1					d2
023066	7745VT 16 WA0Z0R	20	110	50	20	0	11	6	1	£130.75

## Size 16 Inserts



Code	Number	Grade	Application and Material			Dimensions (mm)				Minimum Average Chip Thickness	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
023395	TCMX 16 T308E-ZR	SFZ	■ ■ ■			9.52	16.5	3.97	0.8	0.05	£13.15

## 7745VT16 45° Chamfering Cutters, taking Size 16 Inserts

- For spot drilling operations
- Spares Included: Screw - D4008T T115  
Screwdriver - 015240



Code	Part Number	Dimensions (mm)			d1	d2	ap max Linear	No. of Teeth	Type	List Price Each (exc VAT)
		D	L	l1						
<b>7745 VT 16 Weldon Shank</b>										
023067	7745VT 16 WA030R	30	100	32	20	12	11.3	1	T15	<b>£130.75</b>

## Size 16 Inserts



Code	Number	Grade	Application and Material			Dimensions (mm)				Min Average Chip Thickness	List Price Each (exc VAT)
			Roughing	Semi-Finishing	Finishing	d	l	s	r		
024139	TCMT 16 T308E	MP91M		■		9.52	16.5	3.97	0.8	0.05	<b>£6.65</b>
023388	TCMT 16 T308E	PFZ	■	■		9.52	16.5	3.97	0.8	0.05	<b>£6.65</b>
017743	TCMT 16 T308E	SF30				9.52	16.5	3.97	0.8	0.05	<b>£4.85</b>
014852	TCMT 16 T308E	X44				9.52	16.5	3.97	0.8	0.07	<b>£9.65</b>
024140	TCMT 16 T308E	X500		■		9.52	16.5	3.97	0.8	0.05	<b>£8.80</b>
014399	TCMT 16 T308T	PFZ				9.52	16.5	3.97	0.8	0.15	<b>£6.65</b>

## External Toolholders

Code	Dimensions (mm)								Inserts	Gauge Insert Radius	List Price Each (exc VAT)
	b	l1	l2	f	h	h1	k	z			
<b>PCLN 95° - Lever Lock System</b>											
PCLNR/L2020K12	20	125	28	25	20	20	5°	5°	CN_1204	0.8	<b>£51.20</b>
PCLNR/L2525M12	25	150	28	32	25	25	5°	5°	CN_1204	0.8	<b>£54.60</b>
PCLNR/L2525M16	25	150	34	32	25	25	5°	5°	CN_1606	1.2	<b>£54.60</b>
<b>PCJN 93° - Lever Lock System</b>											
PDJNR/L2020K15	20	125	34	25	20	20	5°	5°	DN_1506	0.8	<b>£51.20</b>
PDJNR/L2525M15	25	150	34	32	25	25	5°	5°	DN_1506	0.8	<b>£54.60</b>
<b>PDNN 63° - Lever Lock System</b>											
PDNNN2525M15	25	150	34	12.5	25	32		10°	DN_1506	0.8	<b>£54.60</b>
<b>MWLN 95° - Clamp Lock System</b>											
MWLN/L2020K08-N	20	125	34	25	20	20	7°	7°	WN_0804	0.8	<b>£51.20</b>
MWLN/L2525M08-N	25	150	34	32	25	25	7°	7°	WN_0804	0.8	<b>£54.60</b>
<b>MTJN 93° - Clamp Lock System</b>											
MTJNR/L2020K16-N	20	125	34	25	20	20	3°	5°	TN_1604	0.8	<b>£51.20</b>
MTJNR/L2525M16-N	25	150	34	32	25	25	3°	5°	TN_1604	0.8	<b>£54.60</b>
<b>PSSN 45° - Lever Lock System</b>											
PSSNR/L2020K12	20	125	28	25	20	20	8°	5°	SN_1204	0.8	<b>£51.20</b>
PSSNR/L2525M12	25	150	28	32	25	25	8°	5°	SN_1204	0.8	<b>£54.60</b>
<b>SDJC 93° - Posicut® Lock System</b>											
SDJCR/L1616H11	16	100	22	20	16	16			DC_11T3	0.8	<b>£51.20</b>
SDJCR/L2020K11	20	125	22	25	20	20			DC_11T3	0.8	<b>£51.20</b>
SDJCR/L2525M11	25	150	22	32	25	25			DC_11T3	0.8	<b>£54.60</b>

PCLN



PCJN



PDNN



MWLN



MTJN



PSSN



SDJN



## Internal Boring Bars

Code	Min Bore Diameter (mm)	Dimensions (mm)						Inserts	Gauge Insert Radius	List Price Each (exc VAT)
		d	l1	f	h1	k	z			
<b>PCLN 95° - Lever Lock System</b>										
A25R-PCLNR/L12	31	25	200	17	12.5	14°	5°	CN_1204	0.8	<b>£139.30</b>
A32S-PCLNR/L12	39	32	250	22	16	14°	5°	CN_1204	0.8	<b>£145.85</b>
<b>SDXC 100° - Posicut® System</b>										
A16M-SDXCR/L11	20	16	150	11	8	5°	3°	DC_11T3	0.8	<b>£78.45</b>
A20Q-SDXCR/L11	25	20	180	13	10	5°	5°	DC_11T3	0.8	<b>£83.00</b>
A25R-SDXCR/L11	32	25	200	17	12.5	5°	5°	DC_11T3	0.8	<b>£91.15</b>
<b>STUC 93° - Posicut® System</b>										
A16R-STUCR/L16	20	16	200	11	8.0	5°	3°	TC_16T3	0.8	<b>£78.45</b>
A20S-STUCR/L16	25	20	250	13	10.0	5°	3°	TC_16T3	0.8	<b>£83.00</b>

PCLN



SDXC



STUC

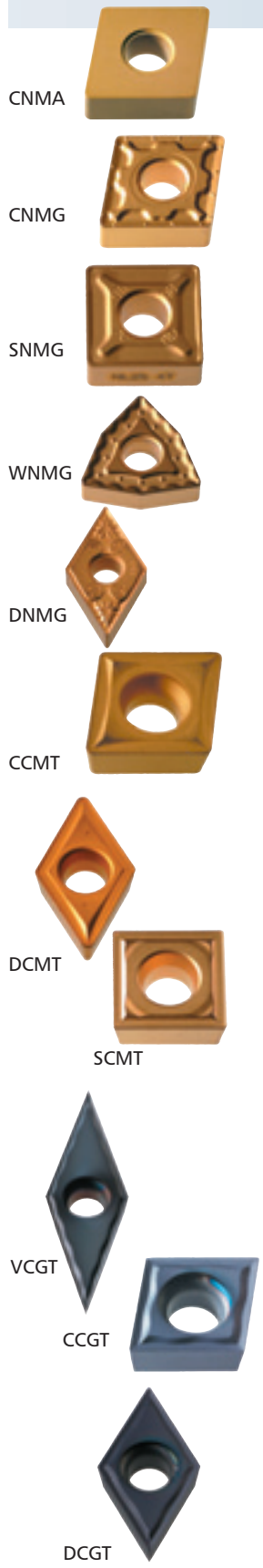




# TOOLHOLDERS AND INSERTS

## Turning Tool Inserts

• Other sizes and uncoated range available on request, please ask for details



Code	Description	Grade	App	List Price Each (exc VAT)	Code	Description	Grade	App	List Price Each (exc VAT)
027744	CNMA120404E	SC1519	■	£6.20	029677	VNMG160404E-3G	NL37	■ ■	£12.55
027745	CNMA120408E	SC1519	■	£6.20	029678	VNMG160408E-3G	NL37	■ ■	£12.55
027747	CNMA120412E	SC1519	■	£6.20	029679	VNMG160412E-3G	NL37	■ ■	£12.55
027749	CNMA120416E	SC1519	■	£6.20	029667	VBMT160404E-3G	NL37	■ ■	£8.60
027751	CNMA160612E	SC1519	■	£9.65	029668	VBMT160408E-3G	NL37	■ ■	£8.60
027754	CNMA190612E	SC1519	■	£15.50	018031	CCMT060202E-73	NL30	■ ■ ■	£4.30
027756	CNMA190616E	SC1519	■	£15.50	017884	CCMT060204E-73	NL30	■ ■ ■	£4.30
027746	CNMG120408E-4U	SC1519	■	£6.20	017886	CCMT060208E-73	NL30	■ ■ ■	£4.30
027748	CNMG120412E-4U	SC1519	■	£6.20	017888	CCMT09T304E-73	NL30	■ ■ ■	£4.85
027750	CNMG120416E-4U	SC1519	■	£6.20	017890	CCMT09T308E-73	NL30	■ ■ ■	£4.85
027752	CNMG160612E-4U	SC1519	■	£9.65	017892	CCMT120404E-73	NL30	■ ■ ■	£6.80
027827	CNMG120408E-4T	NL40	■ ■	£6.20	017894	CCMT120408E-73	NL30	■ ■ ■	£6.80
027828	CNMG120412E-4T	NL40	■ ■	£6.20	017901	DCMT11T304E-73	NL30	■ ■ ■	£5.65
027829	CNMG120416E-4T	NL40	■ ■	£6.20	017903	DCMT11T308E-73	NL30	■ ■ ■	£5.65
027830	CNMG160608E-4T	NL40	■ ■	£9.75	017915	SCMT09T304E-73	NL30	■ ■ ■	£4.95
027831	CNMG160612E-4T	NL40	■ ■	£9.75	017917	SCMT09T308E-73	NL30	■ ■ ■	£4.95
027832	CNMG160616E-4T	NL40	■ ■	£9.75	017919	SCMT12M504E-73	NL30	■ ■ ■	£6.90
027833	CNMG190608E-4T	NL40	■ ■	£13.10	017922	SCMT12M508E-73	NL30	■ ■ ■	£6.90
027834	CNMG190612E-4T	NL40	■ ■	£13.10	017924	TCMT16T304E-73	NL30	■ ■ ■	£6.00
027840	SNMG120408E-4T	NL40	■ ■	£6.20	017926	TCMT16T308E-73	NL30	■ ■ ■	£6.00
027841	SNMG120412E-4T	NL40	■ ■	£6.20	025403	CCGT060201E-62	SP4036	■ ■ ■ ■	£7.20
027842	SNMG150612E-4T	NL40	■ ■	£9.75	025405	CCGT060202E-62	SP4036	■ ■ ■ ■	£7.20
027843	SNMG150616E-4T	NL40	■ ■	£9.75	025407	CCGT060204E-62	SP4036	■ ■ ■ ■	£7.20
027844	SNMG190612E-4T	NL40	■ ■	£13.75	025409	CCGT09T300E-62	SP4036	■ ■ ■ ■	£8.50
027845	SNMG190616E-4T	NL40	■ ■	£13.75	025411	CCGT09T301E-62	SP4036	■ ■ ■ ■	£8.50
027858	WNMG080408E-4T	NL40	■ ■	£6.80	025413	CCGT09T302E-62	SP4036	■ ■ ■ ■	£8.50
027859	WNMG080412E-4T	NL40	■ ■	£6.80	025415	CCGT09T304E-62	SP4036	■ ■ ■ ■	£8.50
017552	CNMG120404E-2N	NL30	■ ■	£6.20	025417	CCGT09T308E-62	SP4036	■ ■ ■ ■	£8.50
017039	CNMG120408E-2N	NL30	■ ■	£6.20	025419	DCGT070200E-62	SP4036	■ ■ ■ ■	£7.80
017042	CNMG120412E-2N	NL30	■ ■	£6.20	025421	DCGT070201E-62	SP4036	■ ■ ■ ■	£7.80
017465	CNMG160612E-2N	NL30	■ ■	£9.75	025423	DCGT070202E-62	SP4036	■ ■ ■ ■	£7.80
017557	DNMG110408E-2N	NL30	■ ■	£6.60	025425	DCGT070204E-62	SP4036	■ ■ ■ ■	£7.80
017048	DNMG150608E-2N	NL30	■ ■	£8.60	025427	DCGT11T300E-62	SP4036	■ ■ ■ ■	£9.95
017051	DNMG150612E-2N	NL30	■ ■	£8.60	025429	DCGT11T301E-62	SP4036	■ ■ ■ ■	£9.95
017058	TNMG160408E-2N	NL30	■ ■	£5.90	025431	DCGT11T302E-62	SP4036	■ ■ ■ ■	£9.95
017061	TNMG220408E-2N	NL30	■ ■	£7.55	025433	DCGT11T304E-62	SP4036	■ ■ ■ ■	£9.95
017566	WNMG060408E-2N	NL30	■ ■	£5.55	025435	DCGT11T308E-62	SP4036	■ ■ ■ ■	£9.95
018610	WNMG080404E-2N	NL30	■ ■	£6.80	025465	VCGT130301E-62	SP4036	■ ■ ■ ■	£9.00
017067	WNMG080408E-2N	NL30	■ ■	£6.80	025467	VCGT130302E-62	SP4036	■ ■ ■ ■	£9.00
026697	CNMG120404E-3J	SP4036	■ ■	£6.20	025469	VCGT130304E-62	SP4036	■ ■ ■ ■	£9.00
026701	CNMG120408E-3J	SP4036	■ ■	£6.20					
026705	CNMG120412E-3J	SP4036	■ ■	£6.20					
026709	CNMG120416E-3J	SP4036	■ ■	£6.20					
026751	DNMG150604E-3J	SP4036	■ ■	£8.60					
026755	DNMG150608E-3J	SP4036	■ ■	£8.60					
026808	TNMG160404E-3J	SP4036	■ ■	£5.40					
026812	TNMG160408E-3J	SP4036	■ ■	£5.40					
026850	WNMG060404E-3J	SP4036	■ ■	£5.55					
026854	WNMG060408E-3J	SP4036	■ ■	£5.55					
026858	WNMG080404E-3J	SP4036	■ ■	£6.80					
026862	WNMG080408E-3J	SP4036	■ ■	£6.80					

■ - Unalloyed Steels   ■ - Stainless Steels   ■ - Cast Irons   ■ - High Temp. Alloys  
 ■ - Alloyed Steels   ■ - PH Stainless   ■ - Aluminium & Alloys   ■ - Hard Materials

## Lathe Tool – External Turning

- Many more inserts and sizes available, please ask for details

Code	Shank Size (mm)	Overall Length (mm)	Insert Required	Angle	List Price Each (exc VAT)
PCLNR 1616 H12	16	100	CNMG 1204	95°	£43.00
PCLNR 2020 K12	20	120	CNMG 1204	95°	£48.00
PCLNR 2525 M12	25	150	CNMG 1204	95°	£50.00
PDJNR 2020 K15	20	120	DNMG 1506	93°	£48.00
PDJNR 2525 M15	25	150	DNMG 1506	93°	£50.00
SCLCR 1212 F09	12	80	CCMT 09T3	95°	£42.00
SCLCR 1616 H09	16	100	CCMT 09T3	95°	£43.00
SCLCR 2020 K09	20	120	CCMT 09T3	95°	£46.00
SDJCR 1212 F11	12	80	DCMT 11T3	93°	£42.00
SDJCR 1616 H11	16	100	DCMT 11T3	93°	£43.00
SDJCR 2020 K11	20	120	DCMT 11T3	93°	£46.00



## Lathe Tool – Internal Boring

- Many more inserts and sizes available, please ask for details

Code	Shank Diameter (mm)	Overall Length (mm)	Insert Required	Angle	List Price Each (exc VAT)
S25T PCLN R12	25	300	CNMG 1204	95°	£103.00
S32U PCLN R12	32	350	CNMG 1204	95°	£133.00
S40V PCLN R12	40	400	CNMG 1204	95°	£151.00
S32U PDUN R15	32	350	DNMG 1506	93°	£133.00
S40V PDUN R15	40	400	DNMG 1506	93°	£151.00
S12M SCLC R09	12	150	CCMT 09T3	95°	£55.00
S16R SCLC R09	16	200	CCMT 09T3	95°	£57.00
S20S SCLC R09	20	250	CCMT 09T3	95°	£72.00
S25T SCLC R09	25	300	CCMT 09T3	95°	£79.00
S20S SDUC R11	20	250	DCMT 11T3	93°	£72.00
S25T SDUC R11	25	300	DCMT 11T3	93°	£79.00
S32U SDUC R11	32	350	DCMT 11T3	93°	£103.00



## Lathe Tool Inserts – Turning and Facing

- This is just a selection of turning and boring tools available, please ask for details
- All tools also available in left hand

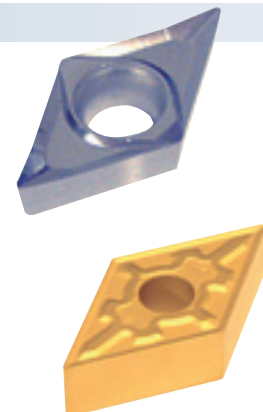
Code	Size (mm)	Coating Description	Function/ Application	List Price Each (exc VAT)
CCGT 09T302 AL AK15	9	Ground and polished	Aluminum, non-ferrous	£5.70
CCGT 09T304 AL AK15	9	Ground and polished	Aluminum, non-ferrous	£5.70
CCMT 09T304 MX APT30	9	MT-CVD	Steel and stainless steel	£4.40
CCMT 09T308 MX APT30	9	MT-CVD	Steel and stainless steel	£4.40
CNMG 120404 MP APT30	12	MT-CVD	Carbon, alloy steel	£4.80
CNMG 120404 MM APT30	12	MT-CVD	Stainless steel, high alloy steel	£4.80
CNMG 120408 MP APT30	12	MT-CVD	Carbon, alloy steel	£4.80
CNMG 120408 MM APT30	12	MT-CVD	Stainless steel, high alloy steel	£4.80



## Lathe Tool Inserts – Copy and Profile

- This is just a selection of turning and boring tools available, please ask for details
- All tools also available in left hand

Code	Size (mm)	Coating Description	Function/ Application	List Price Each (exc VAT)
DCGT 11T302 AL AK15	11	Ground and polished	Aluminium, non-ferrous	£7.90
DCGT 11T304 AL AK15	11	Ground and polished	Aluminium, non-ferrous	£6.10
DCMT 11T304 MX APT30	11	MT-CVD	Steel and stainless steel	£4.80
DCMT 11T308 MX APT30	11	MT-CVD	Steel and stainless steel	£4.80
DNMG 150604 MP APT30	15	MT-CVD	Carbon, alloy steel	£7.20
DNMG 150604 MM APT30	15	MT-CVD	Stainless steel, high alloy steel	£7.20
DNMG 150608 MP APT30	15	MT-CVD	Carbon, alloy steel	£7.20
DNMG 150608 MM APT30	15	MT-CVD	Stainless steel, high alloy steel	£7.20





# TOOLHOLDERS AND INSERTS



## End Mills – Straight Shank



• Many more inserts and sizes available, please ask for details

Code	Diameter (mm)	Shank Diameter (mm)	Overall Length (mm)	No of Teeth	Insert Required	Angle	List Price Each (exc VAT)
122002016	16	20	175	2	APKT 1003	90°	<b>£86.00</b>
122002020	20	20	200	3	APKT 1003	90°	<b>£108.00</b>
123002020	20	20	200	1	APKT 1604	90°	<b>£108.00</b>
123002025	25	25	200	2	APKT 1604	90°	<b>£123.00</b>
123002032	32	32	250	3	APKT 1604	90°	<b>£129.00</b>
123002040	40	32	250	4	APKT 1604	90°	<b>£141.00</b>

## End Mills – Weldon Shank



Code	Diameter (mm)	Shank Diameter (mm)	Overall Length (mm)	No of Teeth	Insert Required	Angle	List Price Each (exc VAT)
122007012	12	16	90	1	APKT 1003	90°	<b>£73.00</b>
122007016	16	20	90	2	APKT 1003	90°	<b>£73.00</b>
122007020	20	20	95	3	APKT 1003	90°	<b>£84.00</b>
122007025	25	25	95	4	APKT 1003	90°	<b>£94.00</b>
123007020	20	20	100	1	APKT 1604	90°	<b>£84.00</b>
123007025	25	25	100	2	APKT 1604	90°	<b>£94.00</b>
123007032	32	32	110	3	APKT 1604	90°	<b>£100.00</b>
123007040	40	32	110	4	APKT 1604	90°	<b>£108.00</b>

## Face Mills – Arbor Mount



Code	Diameter (mm)	Bore Diameter (mm)	No of Teeth	Insert Required	Angle	List Price Each (exc VAT)
122090040	40	16	6	APKT 1003	90°	<b>£141.00</b>
122090050	50	22	7	APKT 1003	90°	<b>£151.00</b>
122090063	63	22	9	APKT 1003	90°	<b>£186.00</b>
123090040	40	16	4	APKT 1604	90°	<b>£104.00</b>
123090050	50	22	5	APKT 1604	90°	<b>£111.00</b>
123090063	63	27	6	APKT 1604	90°	<b>£137.00</b>
123090080	80	27	7	APKT 1604	90°	<b>£188.00</b>
123090100	100	32	8	APKT 1604	90°	<b>£241.00</b>

## Thru' Coolant Arbor Mount



Code	Diameter (mm)	Bore Diameter (mm)	No of Teeth	Insert Required	Angle	List Price Each (exc VAT)
BT880 50 Z5	50	22	5	Thru' coolant – OFEX	43°	<b>£160.00</b>
BT880 63 Z6	63	22	6	Thru' coolant – OFEX	43°	<b>£182.00</b>
BT880 80 Z7	80	27	7	Thru' coolant – OFEX	43°	<b>£220.00</b>
BT880 100 Z8	100	32	8	Thru' coolant – OFEX	43°	<b>£264.00</b>

## Milling Inserts

• Many more inserts and sizes available, please ask for details



Code	Insert Fixing/Type	Size (mm)	Coating Description	Function/ Application	List Price Each (exc VAT)
APHT 1003 PDFR AL AK15	Screw	10	Ground and polished	For Aluminium	<b>£7.70</b>
APKT 1003 PDR V234	Screw	10	Multi CVD Coated	General Purpose	<b>£6.00</b>
APKT 1003 PDRS NK135	Screw	10	Multi PVD Coated	For Alloyed Steel	<b>£6.60</b>
APKT 1003 PDRS NK235	Screw	10	Multi PVD Coated	For Stainless Steel	<b>£6.60</b>
APHT 1604 PDFRAL AK15	Screw	16	Ground and polished	For Aluminium	<b>£9.30</b>
APKT 1604 PDR HM 8040	Screw	16	Multi PVD Coated	For Stainless Steel	<b>£10.70</b>
APKT 160404 HM 8040	Screw	16	Multi PVD Coated	0.4mm Radius	<b>£10.70</b>
APKT 160416 HM 8040	Screw	16	Multi PVD Coated	1.6mm Radius	<b>£10.70</b>
APKT 160431 HM 8040	Screw	16	Multi PVD Coated	3.2mm Radius	<b>£10.70</b>
APKT 1604 PDR V234	Screw	16	Multi CVD Coated	General Purpose	<b>£6.50</b>
APKT 1604 PDRS NK135	Screw	16	Multi PVD Coated	For Alloyed Steel	<b>£7.80</b>
APKT 1604 PDRS NK234	Screw	16	Multi PVD Coated	For Stainless Steel	<b>£7.80</b>
OFEX 05T305 V234	Screw	5	Multi CVD Coated	General Purpose	<b>£5.90</b>
OFEX 05T305 VP20F	Screw	5	Multi PVD Coated	For Alloyed Steel	<b>£5.90</b>





## Pow-R-Drills - MTS Shanks

- For higher performance, improved tool life, reduced set-up times and easier tool changes

Description		Shank Range	Maximum Drilling Depth (")	Diameter	
				Metric (mm)	Imperial (")
Straight Flutes Short Series		No 2 - No 5 MTS	1 1/4 - 6 3/4	9.5 - 114	3/8 - 3 17/32
Straight Flutes Standard Series		No 2 - No 5 MTS	2 3/8 - 10 3/4	9.5 - 114	3/8 - 4 1/2
Straight Flutes Intermediate Series		No 3 - No 4 MTS	4 3/4 - 6 1/2	18 - 47	45/64 - 1 7/8
Straight Flutes Extended Series		No 4 - No 5 MTS	4 3/8 - 21 7/8	36 - 114	3/8 - 4 1/2
Spiral Flutes Standard Series		No 2 - No 4 MTS	2 3/8 - 7 3/8	9.5 - 114	3/8 - 1 3/8
Spiral Flutes Intermediate Series		No 3 - No 4 MTS	4 3/4 - 5 3/8	18 - 47	45/64 - 1 3/8
Spiral Flutes Extended Series		No 2 - No 4 MTS	4 3/8 - 11 3/8	35	3/8 - 1 3/8

## Pow-R-Drills - Flanged Shanks/Straight Shanks

Description		Shank Range Diameter		Maximum Drilling Depth (mm)	Diameter	
		Metric (mm)	Imperial (")		Metric (mm)	Imperial (")
Straight Flutes Stub Series		16 - 32	5/8 - 1 1/2	3/4 to 3	9.5 - 35	3/8 - 1 7/8
Straight Flutes Short Series		20 - 40	3/4 - 1 1/2	1 1/4 - 5 1/8	9.5 - 65	3/8 - 2 9/16
Straight Flutes Standard Series		20 - 40	3/4 - 1 1/2	2 3/8 - 9 1/8	9.5 - 65	3/8 - 2 9/16
Straight Flutes Extended Series		40	3/4 - 1 1/4	4 3/8 - 11 3/8	36 - 65	3/8 - 1 3/8
Spiral Flutes Standard Series		20 - 40	3/4 - 1/2	2 3/8 - 9 1/8	9.5 - 65	3/8 - 2 9/16
Spiral Flutes Intermediate Series		25 - 40	1 - 1 1/2	4 5/8 - 6 1/2	18 - 47	45/64 - 1 7/8
Spiral Flutes Extended Series		20 - 32	3/4 - 1 1/4	4 3/8 - 11 3/8	9.5 - 35	3/8 - 1 3/8

## Pow-R-Drill Inserts

- Disposable inserts in HSS and Carbide with a choice of TiN, TiCN and TiAlN coatings

Description	Material	Size Imperial (")	Range Metric (mm)
For Steels and Cast Iron	HSS M4	45/64 - 4 1/2	18 - 114
Nickel Alloy and Materials over 280 Brinell	Super HSS T15	3/8 - 2 9/16	9.5 - 65
High Temperature Alloys over 350 Brinell	Premium HSS M48	3/8 - 1 3/8	9.5 - 35
Grey Cast Iron over 220 Brinell, Copper Alloy Silico Aluminium etc	Carbide K10	3/8 - 1 3/8	9.5 - 35
Grey Cast Iron up to 220 Brinell, Aluminium, Copper, Brass etc	Carbide K20	3/8 - 1 7/8	9.5 - 47
Carbon and Alloy Steels	Carbide P40	3/8 - 1 7/8	9.5 - 47



## DEBURRING



## Deburring Tool

## 9350 De-burring Tool

- For scraping trimming or chamfering with swivelling HSS blade

## DB1 Heavy Duty HSS blade

- Used for steel and aluminium

## DB2 Heavy Duty HSS blade

- Used for brass and cast iron
- For both Right and Left Hand, cuts both ways

## DB3 Heavy Duty HSS blade

- For removing external and internal burrs simultaneously from holes drilled into tubing and thin sheets

## DB4 Extra Fine Point HSS blade

- Used for steel and aluminium

Code	Description	List Price Each (exc VAT)
9350	De-burring tool	£11.02
DB1	Heavy duty HSS blade	£4.19
DB2	Heavy duty HSS blade	£4.30
DB3	Heavy duty HSS blade	£4.19
DB4	Extra fine point HSS blade	£4.09

## CONVERSION TABLES

## Metric and Imperial Conversions

(Key: 1 inch = 25.4 millimetres, 1 millimetre – 0.0394 inches etc)

Inches	Millimetres	Sq Feet	Sq Metres	Pints	Litres
0.039	1	10.764	0.093	1.761	0.568
0.079	2	21.528	0.186	3.521	1.136
0.118	3	32.292	0.279	5.282	1.704
0.157	4	43.056	0.372	7.043	2.272
0.197	5	53.819	0.465	8.804	2.840
Feet	Metres	Sq Yards	Sq Metres	Gallons	Litres
3.281	1	1.196	0.836	0.220	4.546
6.562	2	2.392	1.672	0.440	9.092
9.843	3	3.588	2.508	0.660	13.638
13.123	4	4.784	3.345	0.880	18.184
16.404	5	5.980	4.181	1.101	22.730
Yards	Metres	Cu Feet	Cu Metres	Ounces	Grams
1.094	1	35.315	0.028	0.035	28.350
2.187	2	70.629	0.057	0.071	56.699
3.281	3	105.943	0.085	0.106	85.049
4.375	4	141.258	0.113	0.141	113.398
5.468	5	176.572	0.142	0.176	141.748
Miles	Kilometres	Cu Yards	Cu Metres	Pounds	Kilograms
0.621	1	1.308	0.765	2.205	0.454
1.243	2	2.616	1.529	4.409	0.907
1.864	3	3.924	2.294	6.614	1.361
2.485	4	5.232	3.058	8.819	1.814
3.107	5	6.540	3.823	11.023	2.268

## Multiplications

To Convert	Multiply By	To Convert	Multiply By	To Convert	Multiply By
Inches to Centimetres	2.5400	Sq Yards to Sq Metres	0.8361	Gallons to Litres	4.5460
Centimetres to Inches	0.3937	Sq Metres to Sq Yards	1.1960	Litres to Gallons	0.2200
Feet to Metres	0.3048	Sq Miles to Sq Kilometres	2.5900	Ounces to Grams	28.3500
Metres to Feet	3.2810	Sq Kilometres to Sq Miles	0.3861	Grams to Ounces	0.0352
Yards to Metres	0.9144	Cu Inches to Cu Centimetres	16.3900	Pounds to Grams	453.6000
Metres to Yards	1.0940	Cu Centimetres to Cu Inches	0.0610	Grams to Pounds	0.0022
Miles to Kilometres	1.6090	Cu Feet to Cu Metres	0.0283	Pounds to Kilograms	0.4536
Kilometres to Miles	0.6214	Cu Metres to Cu Feet	35.3100	Kilograms to Pounds	2.2050
Sq Inches to Sq Centimetres	6.4520	Cu Yards to Cu Metres	0.7646	Tons to Kilograms	1016.0000
Sq Centimetres to Sq Inches	0.1550	Cu Metres to Cu Yards	1.3080	Kilograms to Tons	0.0009
Sq Metres to Sq Feet	10.7600	Cu Inches to Litres	0.0163		
Sq Feet to Sq Metres	0.0929	Litres to Cu Inches	61.0300		



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