

Wolferal Saw & Tool Selection Manual 2007

INDEX



Characteristics of Cutting Steels and Saw Tooth Forms	2-3
Wolferal Premium Quality Cutting-Off Saw Blades	4-14
Wolferal Cutting Performance and Life of the Tool	15
Wolferal HSS Metal Slitting Saws (coarse pitch)	16-17
Super Wolferal Heavy-Duty Saw Blades	17
Wolferal HSS Metal Slitting Saws (fine pitch)	18
Wolferal HSS Screw Slotting Saws	19
Wolferal HSS Slitting Saws, Metric (fine pitch)	20-21
Wolferal HSS Slitting Saws, Metric (coarse pitch)	22
Wolferal Commutator/Undercutting Saws	23
Wolferal Solid Carbide Saws, Metric	24-25
Wolferal HSS Extra Fine Pitch Saws	26
Wolferal Extra Fine Pitch Screw Slotting Saws	26
Wolferal High Production Screw Slotting Saws	26
Super Wolferal Weld Prep Cutters & Blades	27
Circular Knives	27
Wolferal M2 HSS Side Chip Clearance Saws (straight tooth)	28
Wolferal M2 HSS Side Chip Clearance Saws (staggered tooth)	29
Wolferal HSS Side and Face Cutters (straight teeth)	30-31
Wolferal HSS Side and Face Cutters (staggered teeth)	32-33
Wolferal Tungsten Carbide Tipped Milling Cutters	33
Wolferal HSS Concave Milling Cutters	34
Wolferal HSS Convex Milling Cutters	35
Wolferal HSS Equal Angle Milling Cutters	36
Wolferal HSS Single Angle Milling Cutters	37
Wolferal T.C.T. Saw Blades	38-41
Premium Wolferal Throw-Away Carbide-Tipped Saw Blades for Steel	42
Wolferal Friction Saws	43
Wolferal Segmental Saws	44
Wolferal Xtra-Wax	45
Wolferal Diamond Blades	46-47
Premium Wolferal HSS-E Single Flute Router Cutters	48

The Jones Tool Co Ltd Introduction

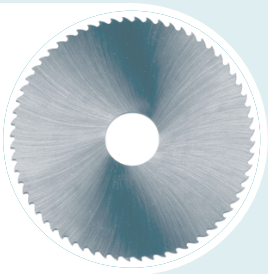
Established in 1993 as a manufacturer of tooling for the PVCu and aluminium window industries, our company has diversified over the past 10 years into a number of other strategically related market products.

More recently we have expanded yet further by acquiring the assets of Alexander S. Newall Machine Tool Co Ltd, most importantly the WOLFERAL trade name. This acquisition has substantially strengthened our position as a major supplier of saw blades and cutting tooling across a more diverse range of industries.

Our company has always endeavoured to provide customers with a combination of Quality Product, Competitive Pricing and Professional Service – this together with the availability of a wealth of technical expertise, we have achieved a loyal and ever-growing customer base.

We believe that the following pages will provide you with an insight into what our company is able to offer you and we look forward to being of service to you in the future, either as an existing customer or a new client.

Tim Jones
Managing Director



Characteristics of Cutting Steels and Saw Tooth Forms

Metal cutting circular saws vary in 7 aspects:

Material • Design • Tooth Pitch • Tooth Form • Diameter • Thickness • Bore

Every one of these aspects influences the performance of the tool. Choice depends on:

(A) THE MATERIAL OF THE WORKPIECE (B) THE NATURE OF THE CUT (C) MACHINE TOOL USED.

Consideration should also be given to such ancillary conditions as lubrication, holding method, etc.

MATERIAL

Saws are manufactured from (a) carbon (tool) steels, (b) high speed steels, and (c) various carbides. The various combinations of available material are discussed under point 2 (Design).

Tool steels are cutting materials with iron as chief constituent. When carbon is added up to 1.7% they are referred to as carbon steels. The result of chemical combination between iron and carbon is iron carbide or cementite.

The hardness obtainable in a carbon steel tool depends on its carbon content. Up to 65 RC can be achieved with 1% carbon.

LOWER CARBON STEELS

(0.9-1.10%) are suitable for work where toughness and high resistance to shock are of importance.

HIGHER CARBON STEELS

(1.1-1.3%) give higher resistance to wear, and hold a keen cutting edge longer. All carbon steels fail at high temperatures, and can generally be used only for work under 205°C. However, the addition of other metals such as tungsten, molybdenum, vanadium, chromium and cobalt—with carbon content held at around 0.8%—results in steels capable of retaining their cutting properties at high temperatures. Such temperatures occurring normally with high speed work, these steels are usually referred to as High Speed Steels. Theirs is the ability to retain at elevated temperatures a high degree of hardness, known as “red hardness”.

Tungsten, Molybdenum, Vanadium and Cobalt give the tool keenness of cutting edge and stability of structure at high temperatures. Chromium is responsible for high wear resistance and toughness. Carbon is the most important element in determining the hardness of high speed steels. The breakdown point—due to temperature—of HSS varies, according to the nature of the alloy, between 482°C and 593°C. The oldest alloy in this tungsten range is known as 18-4-1, the numbers referring to percentages of tungsten, chromium and vanadium respectively.

MOLYBDENUM HIGH SPEED STEELS

These are at least equal, and in many cases superior, to tungsten high speed steels, though their heat treatment is much more difficult. When hardened in free air, molybdenum produces a soft decarbonised skin of molybdenum oxide. This can of course be removed by grinding.

COBALT HIGH SPEED STEELS

Cobalt additive up to 12% results in increased hardness and red hardness of the tool. It makes the tool slightly more brittle, but it can be worked at higher speeds and is especially recommended for materials which are normally difficult to machine. Maximum advantage of cobalt steels is obtained when cutting hard materials with tensile strength over 900 N/mm².

Selected raw material specifications for WOLFERRAL Precision Cutting Tools

Material	Standard No.	AISI SPEC
HSS-DM05	1.3343	M2

Super high speed steel showing satisfactory toughness with normal cutting performance. Used for the manufacture of milling cutters and metal cutting circular saw blades. For cutting materials with a tensile strength up to 900 N/mm².

EM05C05	1.3243	M35
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Heavy duty cobalt steel showing satisfactory toughness and higher heat resisting characteristics. Used for the manufacture of high output cutting tools. For machining alloyed and austenitic steels with a tensile strength up to 1200 N/mm².

M42

1.3247

M42

Heavy duty cobalt steel with high wear resistance and notably higher heat resistant characteristics and satisfactory degree of toughness. Used for the manufacture of tools to cut high-tensile materials and austenitic steels with a tensile strength above 1200 N/mm².

SINTERED OR CEMENTED CARBIDES

These are a mixture of powdered tungsten carbide (sometimes with tantalum or titanium additive) with cobalt or nickel as binding material. Toughness increases with cobalt content at the expense (as in alloy steels) of hardness.

Sintered carbides are not affected by high temperatures. They retain their edge at about 66 RC at temperatures surpassing 700°C. Sintered carbides used to be very expensive, and were at one time used as tips only. Their use in the solid becomes more and more accepted with the considerable reduction in price today. Cutting speeds can be increased up to twofold, with corresponding increase in tool life. But these materials remain brittle and must be used with more care.

The desirability of sintered or cemented carbides for certain operations has now been fully recognised.

The Wolferral programme consists of three qualities. The first two being our basic qualities.

Quality K 10/K 20 with 94% WC, 6% Co, 14.9 g/cm density, 1600 hardness on HV 30 scale, 2000 N/mm² elasticity.

This combination affords through the high tungsten content a high resistance to wear and hardness of the tool. It is best applied to work on very hard steels, short chipping materials, iron materials, light metals, titanium alloys, nickel, cobalt alloys.

Quality P 25/P 40 with 72.5% WC, 10% Co, 17.5% TiC + TaC, 12.5 g/cm density, 1450 hardness on HV 30 scale, 2200 N/mm² elasticity.

This quality gives less resistance to wear but is more tough. It is suitable for work on unalloyed steel and cast steel. It is recommended especially for work at high feeds during coarse milling, for interrupted cuts as well as for work in high temperatures.

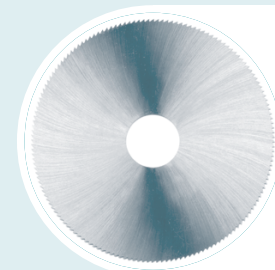
Quality G 10 - G 60 Cobalt content between 9% and 25%.

There is an increase of elasticity with a simultaneous loss of hardness and wear resistance. “G” quality material is recommended for manufacture of knives, dies, drawing dies, punches and wear components.

As mentioned above, sintered carbide tips are generally welded on to a suitably formed base blank. Minimum width of weld base to give safe tip support is generally accepted to be about 18°. With new techniques, widths of .080” or even .060” have been satisfactorily welded; but below .080” solid carbide saws are safer though more costly.

HERE, MENTION MUST BE MADE OF CHEMICAL OR PHYSICAL DEPOSITIONS OF HARDMETAL ON CUTTING EDGES. TIN AND TiCN COATING, NITRIDING, AND CHROMIUM PLATING DO INCREASE TOOL LIFE. VARIOUS COATING SYSTEMS HAVE ALSO BEEN DEVELOPED WITH TUNGSTEN AND TANTALUM CARBIDES BUT COATED TOOLS NEED TO BE CONSIDERED ON THEIR OVERALL COST EFFECTIVENESS.

WE WOULD BE ONLY TOO PLEASED TO GIVE YOU THE BENEFIT OF OUR EXPERIENCE.



DESIGN

Basically, the following variations in design are considered sufficiently standard to form part of our normal service programme:

Solid HSS Hollow ground saws, with or without keyway or pin holes.

Tipped saws with carbide welded on to tool steel blank.

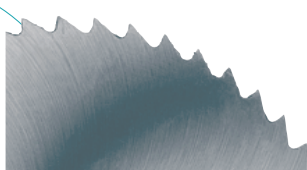
Segmental saws with 2 to 12 teeth segments rivetted on base.

Solid carbide saws Made wholly from carbide, if necessary to customer's specifications or requirements.

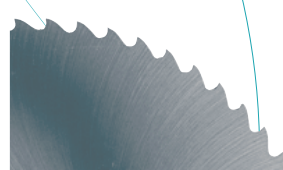
Circular knives and special application saws (copper cutting, etc.).

TOOTH FORM

The BSS dealing with saws is 122 PT. 1, 1953. It does not specify either the number or the form of tooth, limiting the specification to dimensions and tolerances of the saw and keyway. The SI standard (150 2296-1972) metric system, to which Britain declared its adherence, follows closely German DIN standards. These are 1837, 1838 and 1840 (tooth form). Wherever applicable the Wolfenal blade gives the user the benefit of the Parrot or Heller tooth:-



Conventional pointed tooth



Parrot or Heller tooth

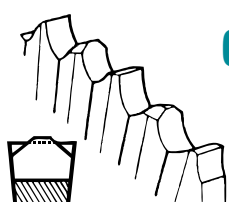
The Parrot tooth can be ground on the breast or on the top, in the former case allowing for a number of regrinds without materially reducing saw diameter. In action, the Parrot Tooth also shows considerably higher resistance to knock, and is generally used for coarse and semi-coarse pitches – very seldom in fine-pitch saws, which are usually finished with a pointed tooth.

It was stated above that the Parrot tooth increases resistance to shock. Carbide and carbide-tipped cutters are frequently designed with zero or negative rake, to increase still further the tooth angle with the same aim in view. Zero and negative rakes also permit the use of much higher speeds, and can give a very much superior finish.

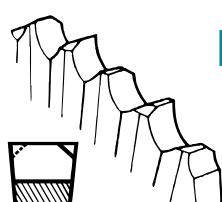
SPECIFICATIONS

All Wolfenal cutting tools are manufactured to the relevant Standard Specification (be it BSS or ISO) wherever such specifications apply. Where no approved standard exists, as in the case of Carbide and Carbide Tipped Saws, Wolfenal guarantee the highest possible standard according to latest engineering practice and usage.

Where saws are intended for high production, general practice allows for side relief of alternate teeth—the HZ tooth form. The geometry of the tooth (rakes, clearances, angles, etc.) depends on the nature of the material worked. Marked differences occur between HSS, solid carbide and carbide tipped saws. Segmental saws have their own geometry.



HZ tooth form, with alternate teeth relieved radially and on both sides axially.



All teeth relieved on alternate sides, for easier clearance with soft materials like bronze, copper and brass.

TOOTH PITCH

It is generally acknowledged that hard materials require fine pitch saws. In HSS metal cutting saws, the standard fine pitch is accepted to be 1/8" or 8TPI (eight teeth per inch) throughout the range of diameters. Finer pitches, e.g. 1/16" or 1/32", are sometimes called for. Coarse pitches vary with saw diameter.

Carbide tipped and solid carbide saws have no officially approved standard. Our price list shows the types available. In a tipped saw the number of teeth governs the price as much as performance.

DIAMETER

Saw blanks can obviously be made in any required diameter, subject to the limitation imposed by width; there is a maximum diameter-to-width ratio which – to avoid whipping and fracture – must not be exceeded

TOLERANCES

ALL **SUPER WOLFENAL SAW BLADES** ARE MADE TO BE WITHIN DIN TOLERANCES. **PREMIUM WOLFENAL BLADES** ARE MADE TO HALF DIN TOLERANCES ON SIDE RUN-OUT AND CONCENTRICITY.

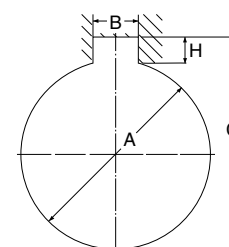
All **Standard Wolfenal Saws** are manufactured and finished to the following tolerances, as specified in B.S. 122, Part 1. 1953:-

Saw Diameter	Saw Width	Bore Diameter
+ .045"	+ .001"	+ .00075"
- .000"	- .001"	+ .00025"

Closer tolerances can be quoted for on request.

KEYWAYS

Dimensions and tolerances for the more common sizes of bore are as follows:-



A Diameter of Bore, Ins.	B Width of Keyway, Ins.	C Diameter plus Height of Keyway, Ins.
TOLERANCE		TOLERANCE
+ .00075"	+ .007"	+ .015"
+ .00025"	+ .002"	- .000"
1/2	.094	.557
3/4	.125	.698
1	.125	.698
1 1/4	.250	1.104
1 3/4	.312	1.385

Table of Weights for Cutting-Off Blades

Width mm. dia.	1.6	2	2.5	3	3.5	4
175		0.33				
200	0.38	0.48				
225	0.43	0.54				
250	0.53	0.66	0.85			
275		0.83	1.04			
300			1.23			
315			1.30	1.60		
350			1.71	2.06		
370				2.10		
400				2.30	2.90	
425				2.90	3.61	
450						4.60
500				4.28		5.71

Wolferal Premium Quality Cutting-Off Saw Blades

We hold in stock the following steel qualities:

- DM05 Super High-Speed Steel Slipslide-treated saw blades
- DM05 Super High-Speed Steel Slipslide-treated saw blanks
- EMo5Co5 5% Cobalt-bearing Steel Slipslide-treated saw blanks
- TiN, TiCN, TiAlN coated low run-out saw blanks



Wolferal Premium Quality Cutting-Off Saw Blades

STEEL QUALITIES

SHSS/DMo5 - DIN 1.3343 - JIS SKH51 - M2

High speed TUNGSTEN MOLYBDENUM STEEL.

High performance saw blades. Hardened and tempered to 64 +/- 1° HRC.

Used on all types of machines to cut tubes, pipes and solid sections made out of ferrous and non-ferrous metals with tensile strengths up to 900 N/mm² up to 160mm cross section

SUPER CX / EMo5Co5 - DIN 1.3243 - JIS SKH55 - M35

TUNGSTEN MOLYBDENUM COBALT bearing steel.

Special high performance saw blades. Hardened and tempered to 65 +/- 1° HRC.

Used mainly on Adige, Bewo and Sinico machines for cutting hard steels, titanium alloys and stainless steels with tensile strengths over 900 N/mm².

TOOTH FORMS FOR CUTTING-OFF SAW BLADES

B.W. With "BW" toothing. Alternate chamfered teeth; the chip is divided into two parts, 1/3rd and 2/3rd's of the blade width respectively. Supplied as standard on saw blades with a 3mm and 4mm tooth pitch.

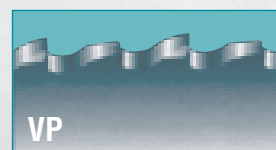
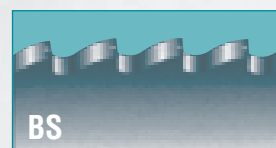
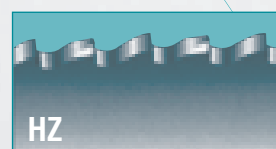
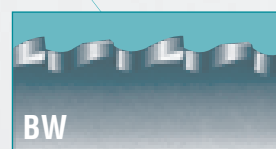
C. With HZ toothing, alternate "V and flat". The chip is split into three parts, each 1/3rd of the blade width. This improved swarf removal permits the use of higher cutting speeds and feeds on bigger sections and solids. Supplied as standard on saw blades with 5mm and coarser tooth pitches.

B.S. "CHIP BREAKER" TOOTHING. Chip breaker toothing is used mainly for cutting tubes. It gives a far significant improvement in performance and finish. Increased number of cutting edges engaged in the workpiece considerably reduces the side edge wear.

When used on coated saw blades, the number of cuts obtained can be outstanding.

We would be pleased to offer you the benefit of our many years of experience.

V.P. "VARIABLE PITCH" TOOTHING. Our advice on the suitability of this toothform is at your disposal.



SURFACE TREATMENT: SLIPSLIDE – STEAM-HOMO

Unless otherwise stated, all our cutting-off blades are supplied from stock with this special treatment. A controlled oxidation process produces a layer of iron oxide (Fe₃O₄) on the surface of a saw blade.

This increases its self-lubricating capability and greatly improves its resistance to "pick-up". Slipslide is a very low cost surface treatment suitable for most general cutting work.

PVD Physical Vapour Deposition COATINGS.

See *Surface Coating* Section on page 33 for further details on:

TiN Titanium Nitride / **TiCN** Titanium Carbo Nitride

TiAlN Titanium Aluminium Nitride / **CRN** Chrome Nitride.



Technical characteristics
Surface Hardness: 900 HV
Coefficient of friction : 0.65

Wolferal Premium Quality Cutting-Off Saw Blades

STANDARD PRODUCTION SIZES

The table on this page shows the dimensional characteristics of **WOLFERAL** saws: diameter, thickness, number and shape of teeth, centre hole and related driving holes.

Diameter mm	Width mm						Number of teeth and their shape – Pitch (mm)													
							T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T14	T16		
175		1.2	1.5	2.0			180BW	140BW	110HZ	90HZ			70HZ							
200	1.0	1.2	1.5	1.8	2.0	2.5	200BW	160BW	130HZ	100HZ			80HZ		64HZ					
210						2.0	210BW	160BW		110HZ			80HZ							
225	1.2	1.5	1.8	1.9	2.0	2.5	220BW	180BW	140HZ	120HZ			90HZ	80HZ						
250		1.2	1.6	2.0	2.5	3.0	250BW	200BW	160HZ	128HZ	110HZ	100HZ		80HZ		64HZ				
275			1.6	2.0	2.5	3.0	280BW	220BW	180HZ	140HZ	120HZ	110HZ		90HZ						
300			1.6	2.0	2.5	3.0	300BW	220BW	180HZ	160HZ	140HZ	120HZ		94HZ						
315			2.0	2.5	3.0	3.5	300BW	240BW	200HZ	160HZ	140HZ	120HZ		100HZ		80HZ	70HZ			
325				2.0	2.5	3.0	320BW	250BW	200HZ	170HZ		128HZ								
350			2.0	2.5	3.0	3.5	350BW	280BW	220HZ	180HZ	160HZ	140HZ	120HZ	110HZ		90HZ	80HZ			
370				2.5	3.0	3.5		280BW	220HZ	190HZ	160HZ	140HZ	120HZ	110HZ		100HZ	80HZ	70HZ		
400			2.5	3.0	3.5	4.0		310BW	250HZ	200HZ		160HZ		120HZ	110HZ	100HZ		80HZ		
425			2.5	3.0	3.5	4.0		320BW	260HZ	220HZ		160HZ		130HZ		110HZ		80HZ		
450				3.0	3.5	4.0		350BW		230HZ		180HZ		140HZ		120HZ		90HZ		
500			3.0	3.5	4.0	5.0			310HZ	260HZ		200HZ		160HZ		130HZ		100HZ		
525				3.5	4.0			410BW	330HZ	270HZ		210HZ		164HZ		140HZ		104HZ		
550				4.0	5.0			440BW	340HZ	280HZ		220HZ		170HZ		140HZ				
570				4.0	5.0			450BW	360HZ	300HZ		220HZ		180HZ		150HZ				
600				4.0	5.0			460BW	380HZ	320HZ		240HZ		190HZ		160HZ				

Bore	Driving Holes
Ø 32	2/8/45, 2/9/50 & 2/11/63
or Ø 32	2 slots 20/11.5 & 2 slots 15/9.5
Ø 40	2/8/55, 4/12/64 or 2/15/80
Ø 50	4/15/80 or 4/14/85
Ø 1"	1/7/16"/1"
Ø 1 1/8"	2/19/32"/2 1/4"

Why should you choose a CIRCULAR SAW?

Because:

- Better cut finishes
- Fewer burrs
- Lower cost per cut
- Higher cutting precision
- Available in a range of coatings
- THE TOOL CAN BE REGROUND MANY TIMES

PROBLEMS AND SOLUTIONS

Problem	Possible Causes	Solutions
Burrs	Tooth pitch too large Worn teeth	Reduce the pitch (see p.35) Regrind the saw
Build-up of chip in tooth gullet	Tooth pitch too small Incorrect tooth shape Speed too high	Increase the pitch (see p.35) (see p.34) (see p.34)
	Cutting speed too high Feed speed too high	(see p.34) (see p.34)
Blade breakage	Blade feed speed not constant Incorrect ratio between feed and cutting speeds Incorrect clamping of saw blade Incorrect clamping of the work piece	Correct (see p.34) Check flange Check clamping system
	Tooth pitch too large or too small Lubrication/cooling absent or inadequate	Check pitch (see p.35) Check the equipment
Poor surface finish of cut piece	Worn teeth Tooth pitch too coarse Incorrect type of tooth Incorrect cutting speed	Regrind the saw Reduce the pitch (see p.35) (see p.34) (see p.34)

Wolferal Quality Cutting-Off Saw Blades

HSS – DMo5 (M2 – W.Nr.1.3343) STANDARD CIRCULAR SAWS

Diameter	Bore	Thickness	Hub	Side Run Out	NEUTRO £	VAPO £	TIN £	TICN £	RED £	TIALN £	CRN £
160	32	1.2	75	0.20	64.00	65.20	82.90	84.20	85.60	87.80	91.60
160	32	1.5	75	0.20	60.00	61.20	79.00	80.30	81.70	83.80	87.60
160	32	2.0	75	0.20	61.10	62.30	80.10	81.40	82.80	84.90	88.70
175	32	1.2	75	0.20	64.90	66.20	83.80	85.10	86.50	88.70	92.50
175	32	1.5	75	0.20	60.80	62.00	79.80	81.10	82.50	84.60	88.40
175	32	2.0	75	0.20	61.90	63.10	80.90	82.20	83.60	85.70	89.50
200	32	1.0	100	0.20	82.70	84.40	105.90	107.40	109.20	111.30	116.40
200	32	1.2	100	0.20	74.90	76.40	98.10	99.60	101.40	103.50	108.60
200	32	1.5/1.6	90	0.20	60.70	61.90	83.80	85.30	87.10	89.20	94.30
200	32	1.8	90	0.20	57.90	59.10	81.10	82.60	84.40	86.50	91.60
200	25.4/32	2.0	90	0.20	62.30	63.60	85.50	87.00	88.80	90.90	96.00
200	32	2.5	90	0.20	75.90	77.40	99.00	100.60	102.30	104.50	109.60
210	32	2.0	90	0.20	80.80	82.40	104.00	105.50	107.30	109.40	114.50
225	32	1.2	100	0.20	77.90	79.50	105.30	107.10	109.20	112.30	117.70
225	32	1.5/1.6	90	0.20	71.50	72.90	98.80	100.60	102.70	105.90	111.20
225	32/40	1.8	90	0.20	69.30	70.70	96.60	98.40	100.50	103.70	109.00
225	32/40	1.9/2.0	90	0.20	63.10	64.40	90.40	92.30	94.30	97.50	102.90
225	32	2.5	90	0.20	86.60	88.30	113.90	115.70	117.80	121.00	126.30
250	32	1.0	100	0.20	98.10	100.10	127.70	129.70	132.00	135.70	141.20
250	32	1.2	100	0.20	78.20	79.80	107.80	109.80	112.10	115.80	121.30
250	32	1.5/1.6	100	0.20	68.20	69.60	97.80	99.80	102.10	105.80	111.30
250	25.4/32/40	2.0	100	0.20	70.30	71.70	99.90	101.90	104.10	107.80	113.40
250	25.4/32/40	2.5	100	0.20	78.60	80.20	108.30	110.20	112.50	116.20	121.70
250	32	3.0	100	0.20	110.90	113.10	140.50	142.50	144.70	148.40	154.00
275	32	1.2	100	0.25	91.10	92.90	125.40	127.60	130.30	135.00	140.90
275	32	1.6	100	0.25	83.00	84.70	117.30	119.60	122.20	126.90	132.80
275	32/40	2.0	100	0.25	83.50	85.20	117.80	120.00	122.70	127.40	133.30
275	25.4/32/40	2.5	100	0.25	92.50	94.30	126.70	129.00	131.60	136.40	142.30
275	32/40	3.0	100	0.25	122.70	125.10	156.90	159.20	161.80	166.60	172.50
300	32/40	1.6	100	0.25	115.80	118.10	154.70	157.30	160.30	165.60	172.40
300	32/40	2.0	100	0.25	110.90	113.10	149.80	152.40	155.30	160.60	167.40
300	32/38/40	2.5	100	0.25	112.40	114.60	151.30	153.90	156.80	162.10	169.00
300	32/40	3.0	100	0.25	130.40	133.00	169.20	171.80	174.80	180.10	186.90
315	32/40	1.6	100	0.25	148.70	151.70	189.90	192.70	195.80	201.10	208.60
315	32/40	2.0	100	0.25	123.40	125.80	164.60	167.30	170.50	175.70	183.30
315	32/40	2.5	100	0.25	124.90	127.40	166.10	168.80	172.00	177.20	184.80
315	32/40	3.0	100	0.25	140.40	143.20	181.60	184.30	187.50	192.80	200.30
315	32/40	3.5	100	0.25	148.90	151.90	190.10	192.80	196.00	201.30	208.80
325	32/40	2.0	120	0.25	138.50	141.30	180.60	183.40	186.70	191.90	199.80
325	32/40	2.5	120	0.25	142.60	145.40	184.70	187.50	190.70	196.00	203.90
325	40	3.0	120	0.25	160.50	163.80	202.70	205.50	208.70	214.00	221.80
350	32/40/50	1.8	120	0.25	175.10	178.60	220.50	223.50	227.00	233.80	241.10
350	32/40/50	2.0	120	0.25	147.50	150.50	192.90	195.90	199.40	206.20	213.50
350	32/40/50	2.5	120	0.25	147.50	150.50	192.90	195.90	199.40	206.20	213.50
350	32/40/50	3.0	120	0.25	163.30	166.60	208.70	211.70	215.10	222.00	229.30
350	32/40/50	3.5	120	0.25	186.80	190.50	232.10	235.20	238.60	245.50	252.70
370	40/50	2.5	120	0.30	211.50	215.70	264.30	267.80	271.80	279.80	288.30
370	32/40/50	3.0	120	0.30	211.50	215.70	264.30	267.80	271.80	279.80	288.30
370	40	3.5	120	0.30	244.70	249.50	297.40	301.00	305.00	312.90	321.40
400	40/50	2.5	120	0.30	249.00	254.00	315.20	319.70	324.70	333.20	345.30
400	40/50	3.0	120	0.30	240.50	245.30	306.70	311.10	316.20	324.60	336.80
400	40/50	3.5	120	0.30	253.70	258.80	319.90	324.40	329.40	337.80	350.00
400	50	4.0	120	0.30	292.70	298.60	358.90	363.30	368.40	376.80	389.00
425	40/50	2.5	120	0.30	298.40	304.40	369.20	374.00	379.40	390.50	401.40
425	40/50	3.0	120	0.30	277.40	283.00	348.20	353.00	358.40	369.50	380.40
425	50	3.5	120	0.30	302.50	308.60	373.30	378.10	383.50	394.60	405.50
425	50	4.0	120	0.30	327.50	334.10	398.30	403.10	408.50	419.60	430.50
450	40/50	2.5	130	0.30	391.00	398.80	476.70	482.40	488.90	498.90	515.60
450	40/50	3.0	130	0.30	357.50	364.70	443.20	448.90	455.40	465.40	482.10
450	40/50	3.5	130	0.30	384.50	392.20	470.20	475.90	482.40	492.40	509.10
450	40/50	4.0	130	0.30	418.50	426.90	504.20	509.90	516.40	526.40	543.10
500	40/50	3.0	130	0.30	449.00	458.00	539.30	545.30	552.20	562.80	580.30
500	40/50	3.5	130	0.30	495.50	505.40	585.80	591.80	598.70	609.30	626.80
500	40/50	4.0	130	0.30	537.60	548.40	627.90	633.90	640.80	651.40	668.90
500	40/50	5.0	130	0.30	609.50	621.70	699.80	705.80	712.70	723.30	740.80
525	50	3.5	140	0.35	558.00	569.20	651.10	657.30	664.40	676.00	693.40
525	50	4.0	140	0.35	610.50	622.70	703.60	709.80	716.90	728.50	745.90
550	50/90/140	4.0	140/200	0.35	642.50	655.40	740.70	747.20	754.70	766.80	785.30
550	50/90/140	5.0	140/200	0.35	743.50	758.40	841.70	848.20	855.70	867.80	886.30
570	50	4.0	150	0.35	705.70	719.80	803.80	810.40	817.90	830.00	848.50
570	50	5.0	150	0.35	808.20	824.40	906.30	912.90	920.40	932.50	951.00
600	50/90/140	4.0	150/200	0.35	765.50	780.80	877.10	884.50	893.00	909.40	927.80
600	50/90/140	5.0	150/200	0.35	853.00	870.10	964.60	972.00	980.50	996.90	1015.30
620	140	4.0	225	0.35	910.50	928.70	1022.10	1029.50	1038.00	1054.40	1072.80
620	140	5.0	225	0.35	1012.00	1032.20	1123.60	1131.00	1139.50	1155.90	1174.30

Prices subject to generous quantity and resale discounts.

Wolferal Quality Cutting-Off Saw Blades

HSS – DMo5 (M2 – W.Nr.1.3343) PREMIUM CIRCULAR SAWS

Diameter	Bore	Thickness	Hub	Side Run Out	NEUTRO £	VAPO £	TIN £	TICN £	RED £	TIALN £	CRN £
160	32	1.2	75	0.12	73.50	75.00	92.50	93.80	95.20	97.40	101.20
160	32	1.5	75	0.12	69.00	70.40	88.00	89.30	90.70	92.80	96.60
160	32	2.0	75	0.12	70.30	71.70	89.30	90.50	92.00	94.10	97.90
175	32	1.2	75	0.12	74.60	76.10	93.60	94.80	96.30	98.40	102.20
175	32	1.5	75	0.12	69.90	71.30	88.90	90.20	91.60	93.70	97.50
175	32	2.0	75	0.12	71.20	72.60	90.20	91.40	92.90	95.00	98.80
200	32	1.0	100	0.12	95.10	97.00	118.30	119.80	121.60	123.70	128.80
200	32	1.2	100	0.12	86.10	87.90	109.30	110.80	112.60	114.70	119.80
200	32	1.5/1.6	90	0.12	69.80	71.20	92.90	94.40	96.20	98.30	103.40
200	32	1.8	90	0.12	66.60	67.90	89.70	91.30	93.10	96.20	100.30
200	25.4/32	2.0	90	0.12	71.70	73.10	94.80	96.30	98.10	100.20	105.30
200	32	2.5	90	0.12	87.30	89.00	110.40	112.00	113.70	115.80	120.90
210	32	2.0	90	0.15	92.90	94.80	116.10	117.60	119.40	121.50	126.60
225	32	1.2	100	0.15	89.60	91.40	116.90	118.80	120.90	124.00	129.40
225	32	1.5/1.6	90	0.15	82.20	83.90	109.50	111.40	113.40	116.60	121.90
225	32/40	1.8	90	0.15	79.70	81.30	107.00	108.80	110.90	114.10	119.40
225	32/40	1.9/2.0	90	0.15	72.60	74.00	99.90	101.70	103.80	107.00	112.30
225	32	2.5	90	0.15	99.60	101.60	126.90	128.70	130.80	134.00	139.30
250	32	1.0	100	0.15	112.80	115.10	142.50	144.40	146.70	150.40	155.90
250	32	1.2	100	0.15	89.90	91.70	119.60	121.50	123.80	127.50	133.00
250	32	1.5/1.6	100	0.15	78.40	80.00	108.10	110.00	112.30	116.00	121.50
250	25.4/32/40	2.0	100	0.15	80.80	82.40	110.40	112.40	114.70	118.40	123.90
250	25.4/32/40	2.5	100	0.15	90.40	92.20	120.00	122.00	124.30	128.00	133.50
250	32	3.0	100	0.15	127.50	130.10	157.10	159.10	161.40	165.10	170.60
275	32	1.2	100	0.15	104.80	106.90	139.00	141.30	143.90	148.70	154.60
275	32	1.6	100	0.15	95.50	97.40	129.70	132.00	134.60	139.40	145.30
275	32/40	2.0	100	0.15	96.00	98.00	130.30	132.60	135.20	140.00	145.90
275	25.4/32/40	2.5	100	0.15	106.40	108.50	140.60	142.90	145.50	150.30	156.20
275	32/40	3.0	100	0.15	141.10	143.90	175.30	177.60	180.20	185.00	190.90
300	32/40	1.6	100	0.15	133.20	135.80	172.10	174.70	177.60	182.90	189.80
300	32/40	2.0	100	0.15	127.50	130.10	166.40	169.00	171.90	177.20	184.10
300	32/38/40	2.5	100	0.15	129.20	131.80	168.10	170.70	173.70	179.00	185.80
300	32/40	3.0	100	0.15	149.90	152.90	188.80	191.40	194.30	199.60	206.50
315	32/40	1.6	100	0.18	171.00	174.40	212.20	215.00	218.10	223.40	230.90
315	32/40	2.0	100	0.18	141.90	144.70	183.10	185.80	189.00	194.20	201.80
315	32/40	2.5	100	0.18	143.60	146.50	184.80	187.50	190.70	196.00	203.50
315	32/40	3.0	100	0.18	161.40	164.70	202.60	205.40	208.50	213.80	221.40
315	32/40	3.5	100	0.18	171.20	174.60	212.40	215.20	218.30	223.60	231.10
325	32/40	2.0	120	0.18	159.30	162.50	201.40	204.20	207.40	212.70	220.60
325	32/40	2.5	120	0.18	164.00	167.20	206.10	208.90	212.10	217.40	225.20
325	40	3.0	120	0.18	184.60	188.30	226.80	229.60	232.80	238.10	245.90
350	32/40/50	1.8	120	0.18	201.40	205.40	246.70	249.80	253.20	260.10	267.40
350	32/40/50	2.0	120	0.18	169.60	173.00	215.00	218.00	221.50	228.40	235.60
350	32/40/50	2.5	120	0.18	169.60	173.00	215.00	218.00	221.50	228.40	235.60
350	32/40/50	3.0	120	0.18	187.80	191.50	233.10	236.20	239.60	246.50	253.80
350	32/40/50	3.5	120	0.18	214.80	219.10	260.10	263.20	266.60	273.50	280.80
370	40/50	2.5	120	0.20	243.20	248.10	296.00	299.50	303.60	311.50	320.00
370	32/40/50	3.0	120	0.20	243.20	248.10	296.00	299.50	303.60	311.50	320.00
370	40	3.5	120	0.20	281.40	287.00	334.10	337.70	341.70	349.60	358.10
400	40/50	2.5	120	0.20	286.40	292.10	352.60	357.00	362.10	370.50	382.70
400	40/50	3.0	120	0.20	276.60	282.10	342.20	347.20	352.20	360.70	372.90
400	40/50	3.5	120	0.20	291.80	297.60	358.00	362.40	367.40	375.90	388.10
400	50	4.0	120	0.20	336.60	343.30	402.80	407.20	412.30	420.70	432.90
425	40/50	2.5	120	0.20	343.20	350.00	414.00	418.70	424.10	435.20	446.20
425	40/50	3.0	120	0.20	319.00	325.40	389.80	394.60	400.00	411.10	422.00
425	50	3.5	120	0.20	347.90	345.80	418.70	423.40	428.80	439.90	450.90
425	50	4.0	120	0.20	376.60	384.20	447.50	452.20	457.60	468.70	479.70
450	40/50	2.5	130	0.20	449.70	458.60	535.30	541.00	547.50	557.60	574.20
450	40/50	3.0	130	0.20	411.10	419.40	496.80	502.50	509.00	519.10	535.70
450	40/50	3.5	130	0.20	442.20	451.00	527.80	533.50	540.10	550.10	566.80
450	40/50	4.0	130	0.20	481.30	490.90	566.90	572.60	579.20	589.20	605.90
500	40/50	3.0	130	0.22	516.40	526.70	606.60	612.70	619.50	630.10	647.70
500	40/50	3.5	130	0.22	569.80	581.20	660.10	666.10	673.00	683.60	701.10
500	40/50	4.0	130	0.22	618.20	630.60	708.50	714.50	721.40	732.00	749.60
500	40/50	5.0	130	0.22	700.90	715.00	791.20	797.20	804.10	814.70	832.20
525	50	3.5	140	0.25	641.70	654.50	734.80	741.00	748.10	759.70	777.10
525	50	4.0	140	0.25	702.10	716.10	795.10	801.30	808.40	820.10	837.40
550	50/90/140	4.0	140/200	0.25	738.90	753.70	837.00	843.60	851.10	863.20	881.60
550	50/90/140	5.0	140/200	0.25	855.00	872.10	953.20	959.70	967.20	979.40	997.80
570	50	4.0	150	0.25	811.50	827.80	909.70	916.20	923.70	935.90	954.30
570	50	5.0	150	0.25	929.40	948.00	1027.60	1034.10	1041.60	1053.80	1072.20
600	50/90/140	4.0	150/200	0.25	880.30	897.90	991.90	999.30	1007.80	1024.30	1042.60
600	50/90/140	5.0	150/200	0.25	981.00	1000.60	1092.50	1100.00	1108.50	1124.90	1143.20
620	140	4.0	225	0.25	1047.10	1068.00	1158.70	1166.10	1174.60	1191.00	1209.40
620	140	5.0	225	0.25	1163.80	1187.10	1275.40	1282.80	1291.30	1307.70	1326.10

Prices subject to generous quantity and resale discounts.

Wolferal Quality Cutting-Off Saw Blades

HSS/E – Co5% (M35 – W.Nr.1.3243) STANDARD CIRCULAR SAWS

Diameter	Bore	Thickness	Hub	Side Run Out	NEUTRO £	VAPO £	TIN £	TICN £	RED £	TIALN £	CRN £
160	32	1.2	75	0.20	76.70	78.30	95.70	97.00	98.40	100.60	104.40
160	32	1.5	75	0.20	72.00	73.40	91.00	92.30	93.70	95.80	99.60
160	32	2.0	75	0.20	73.30	74.80	92.30	93.60	95.00	97.10	100.90
175	32	1.2	75	0.20	77.80	79.40	96.80	98.10	99.50	101.60	105.40
175	32	1.5	75	0.20	73.00	74.40	91.90	93.20	94.70	96.80	100.60
175	32	2.0	75	0.20	74.30	75.80	93.30	94.50	96.00	98.10	101.90
200	32	1.0	100	0.20	99.20	101.20	122.40	123.90	125.70	127.80	132.90
200	32	1.2	100	0.20	89.90	91.70	113.00	114.60	116.30	118.50	123.60
200	32	1.5/1.6	90	0.20	72.80	74.20	95.90	97.50	99.20	101.40	106.50
200	32	1.8	90	0.20	69.50	70.90	92.60	94.20	95.90	98.10	103.20
200	25.4/32	2.0	90	0.20	74.80	76.30	97.90	99.50	101.20	103.30	108.40
200	32	2.5	90	0.20	91.10	92.90	114.20	115.80	117.50	119.60	124.70
210	32	2.0	90	0.20	97.00	98.90	120.10	121.70	123.40	125.60	130.70
225	32	1.2	100	0.20	93.50	95.40	120.80	122.70	124.80	127.90	133.30
225	32	1.5/1.6	90	0.20	85.80	87.50	113.10	114.90	117.00	120.20	125.50
225	32/40	1.8	90	0.20	83.20	84.80	110.50	112.30	114.40	117.50	122.90
225	32/40	1.9/2.0	90	0.20	75.70	77.30	103.10	104.90	107.00	110.10	115.50
225	32	2.5	90	0.20	103.90	106.00	131.20	133.00	135.10	138.30	143.60
250	32	1.0	100	0.20	117.70	120.10	147.40	149.30	151.60	155.30	160.80
250	32	1.2	100	0.20	93.80	95.70	123.50	125.40	127.70	131.40	136.90
250	32	1.5/1.6	100	0.20	81.80	83.50	111.50	113.40	115.70	119.40	124.90
250	25.4/32/40	2.0	100	0.20	84.30	86.00	113.90	115.90	118.20	121.90	127.40
250	25.4/32/40	2.5	100	0.20	94.30	96.20	124.00	125.90	128.20	131.90	137.40
250	32	3.0	100	0.20	133.00	135.70	162.70	164.60	166.90	170.60	176.10
275	32	1.2	100	0.25	109.30	111.50	143.60	145.90	148.50	153.20	159.20
275	32	1.6	100	0.25	99.60	101.60	133.90	136.20	138.80	143.50	149.40
275	32/40	2.0	100	0.25	100.20	102.20	134.50	136.70	139.40	144.10	150.00
275	25.4/32/40	2.5	100	0.25	111.00	113.20	145.20	147.50	150.10	154.90	160.80
275	32/40	3.0	100	0.25	147.20	150.10	181.50	183.70	186.40	191.10	197.00
300	32/40	1.6	100	0.25	139.00	141.80	177.90	180.50	183.40	188.70	195.50
300	32/40	2.0	100	0.25	133.00	135.70	171.90	174.50	177.50	182.80	189.60
300	32/38/40	2.5	100	0.25	134.90	137.60	173.80	176.30	179.30	184.60	191.40
300	32/40	3.0	100	0.25	156.40	159.60	195.30	197.90	200.90	206.20	213.00
315	32/40	1.6	100	0.25	178.40	182.00	219.60	222.40	225.50	230.80	238.40
315	32/40	2.0	100	0.25	148.00	151.00	189.20	192.00	195.10	200.40	208.00
315	32/40	2.5	100	0.25	149.80	152.80	191.00	193.80	196.60	202.20	209.80
315	32/40	3.0	100	0.25	168.40	171.80	209.60	212.40	215.50	220.80	228.40
315	32/40	3.5	100	0.25	178.70	182.20	219.90	222.60	225.80	231.00	238.60
325	32/40	2.0	120	0.25	166.20	169.50	208.30	211.10	214.40	219.60	227.50
325	32/40	2.5	120	0.25	171.10	174.50	213.20	216.00	219.20	224.50	232.40
325	40	3.0	120	0.25	192.70	196.50	234.80	237.60	240.80	246.10	253.90
350	32/40/50	1.8	120	0.25	210.10	214.30	255.50	258.50	262.00	268.90	276.10
350	32/40/50	2.0	120	0.25	177.00	180.60	222.40	225.40	228.90	235.70	243.00
350	32/40/50	2.5	120	0.25	177.00	180.60	222.40	225.40	228.90	235.70	243.00
350	32/40/50	3.0	120	0.25	195.90	199.90	241.30	244.30	247.80	254.70	261.90
350	32/40/50	3.5	120	0.25	224.10	228.60	269.50	272.50	276.00	282.80	290.10
370	40/50	2.5	120	0.30	253.80	258.90	306.60	310.10	314.10	322.10	330.60
370	32/40/50	3.0	120	0.30	253.80	258.90	306.60	310.10	314.10	322.10	330.60
370	40	3.5	120	0.30	293.60	299.50	346.40	349.90	353.90	361.80	370.40
400	40/50	2.5	120	0.30	298.90	304.80	365.10	369.50	374.50	383.00	395.20
400	40/50	3.0	120	0.30	288.60	294.40	354.80	359.20	364.30	372.70	384.90
400	40/50	3.5	120	0.30	304.40	310.50	370.60	375.10	380.10	388.60	400.70
400	50	4.0	120	0.30	351.20	358.30	417.40	421.90	426.90	435.40	447.50
425	40/50	2.5	120	0.30	358.10	365.20	428.90	433.60	439.00	450.10	461.10
425	40/50	3.0	120	0.30	332.90	339.50	403.70	408.40	413.80	424.90	435.90
425	50	3.5	120	0.30	363.00	370.30	433.80	438.60	444.00	455.10	466.00
425	50	4.0	120	0.30	393.00	400.90	463.80	468.60	474.00	485.10	496.00
450	40/50	2.5	130	0.30	469.20	478.60	554.90	560.60	567.10	577.10	593.80
450	40/50	3.0	130	0.30	429.00	437.60	514.70	520.40	526.90	536.90	553.60
450	40/50	3.5	130	0.30	461.40	470.60	547.10	552.80	559.30	569.30	586.00
450	40/50	4.0	130	0.30	502.20	512.20	587.90	593.60	600.10	610.10	626.80
500	40/50	3.0	130	0.30	538.80	549.60	629.10	635.10	642.00	652.60	670.10
500	40/50	3.5	130	0.30	594.60	606.50	684.90	690.90	697.80	708.40	725.90
500	40/50	4.0	130	0.30	645.10	658.00	735.40	741.40	748.30	758.90	776.40
500	40/50	5.0	130	0.30	731.40	746.00	821.70	827.70	834.60	845.20	862.70
525	50	3.5	140	0.35	669.60	683.00	762.70	768.90	776.00	787.60	805.00
525	50	4.0	140	0.35	732.60	747.30	825.70	831.90	839.00	850.60	868.00
550	50/90/140	4.0	140/200	0.35	771.00	786.40	869.20	875.70	883.20	895.30	913.80
550	50/90/140	5.0	140/200	0.35	892.20	910.00	990.40	996.90	1004.40	1016.50	1035.00
570	50	4.0	150	0.35	846.80	863.80	945.00	951.50	959.00	971.20	989.60
570	50	5.0	150	0.35	969.80	989.20	1068.00	1074.50	1082.00	1094.20	1112.60
600	50/90/140	4.0	150/200	0.35	918.60	937.00	1030.20	1037.60	1046.10	1062.50	1080.90
600	50/90/140	5.0	150/200	0.35	1023.60	1044.10	1135.20	1142.60	1151.10	1167.50	1185.90
620	140	4.0	225	0.35	1092.60	1114.50	1204.20	1211.60	1220.10	1236.50	1254.90
620	140	5.0	225	0.35	1214.40	1238.70	1326.00	1333.40	1341.90	1358.30	1376.70

Prices subject to generous quantity and resale discounts.

Wolferal Quality Cutting-Off Saw Blades

HSS/E – Co5% (M35 – W.Nr.1.3243) PREMIUM CIRCULAR SAWS

Diameter	Bore	Thickness	Hub	Side Run Out	NEUTRO £	VAPO £	TIN £	TICN £	RED £	TIALN £	CRN £
160	32	1.2	75	0.12	88.30	90.00	107.20	108.50	109.90	112.10	115.90
160	32	1.5	75	0.12	82.80	84.50	101.80	103.10	104.50	106.60	110.40
160	32	2.0	75	0.12	84.30	86.00	103.30	104.60	106.00	108.10	111.90
175	32	1.2	75	0.12	89.50	91.30	108.50	109.70	111.20	113.30	117.10
175	32	1.5	75	0.12	83.90	85.60	102.90	104.20	105.60	107.70	111.50
175	32	2.0	75	0.12	85.40	87.10	104.40	105.70	107.10	109.20	113.00
200	32	1.0	100	0.12	114.10	116.40	137.30	138.80	140.60	142.70	147.80
200	32	1.2	100	0.12	103.40	105.40	126.50	128.10	129.80	131.90	137.00
200	32	1.5/1.6	90	0.12	83.70	85.40	106.90	108.40	110.20	112.30	117.40
200	32	1.8	90	0.12	79.90	81.50	103.10	104.60	106.40	108.50	113.60
200	25.4/32	2.0	90	0.12	86.00	87.70	109.10	110.70	112.40	114.50	119.60
200	32	2.5	90	0.12	104.70	106.80	127.90	129.40	131.20	133.30	138.40
210	32	2.0	90	0.15	111.50	113.80	134.70	136.20	138.00	140.10	145.20
225	32	1.2	100	0.15	107.60	109.70	134.90	136.70	138.80	142.00	147.30
225	32	1.5/1.6	90	0.15	98.70	100.60	126.00	127.80	129.90	133.10	138.40
225	32/40	1.8	90	0.15	95.60	97.50	122.90	124.80	126.80	130.00	135.40
225	32/40	1.9/2.0	90	0.15	87.10	88.80	114.40	116.20	118.30	121.50	126.80
225	32	2.5	90	0.15	119.50	121.90	146.80	148.60	150.70	153.90	159.20
250	32	1.0	100	0.15	135.40	138.10	165.00	167.00	169.20	173.00	178.50
250	32	1.2	100	0.15	107.90	110.10	137.60	139.50	141.80	145.50	151.00
250	32	1.5/1.6	100	0.15	94.10	96.00	123.80	125.70	128.00	131.70	137.20
250	25.4/32/40	2.0	100	0.15	97.00	98.90	126.60	128.60	130.80	134.50	140.10
250	25.4/32/40	2.5	100	0.15	108.50	110.70	138.10	140.10	142.40	146.10	151.60
250	32	3.0	100	0.15	153.00	156.10	182.60	184.60	186.90	190.60	196.10
275	32	1.2	100	0.15	125.70	128.20	160.00	162.30	164.90	169.60	175.60
275	32	1.6	100	0.15	114.60	116.80	148.80	151.10	153.70	158.50	164.40
275	32/40	2.0	100	0.15	115.20	117.50	149.50	151.80	154.40	159.20	165.10
275	25.4/32/40	2.5	100	0.15	127.60	130.20	161.90	164.20	166.80	171.60	177.50
275	32/40	3.0	100	0.15	169.30	172.70	203.50	205.80	208.40	213.20	219.10
300	32/40	1.6	100	0.15	159.80	163.00	198.70	201.30	204.30	209.60	216.40
300	32/40	2.0	100	0.15	153.00	156.10	191.90	194.50	197.40	202.70	209.60
300	32/38/40	2.5	100	0.15	155.10	158.20	194.00	196.60	199.50	204.80	211.70
300	32/40	3.0	100	0.15	179.90	183.50	218.80	221.40	224.30	229.60	236.50
315	32/40	1.6	100	0.18	205.50	209.30	246.40	249.20	252.30	257.60	265.10
315	32/40	2.0	100	0.18	170.20	173.60	211.40	214.20	217.30	222.60	230.20
315	32/40	2.5	100	0.18	172.30	175.80	213.50	216.30	219.40	224.70	232.20
315	32/40	3.0	100	0.18	193.70	197.60	234.90	237.70	240.80	246.10	253.60
315	32/40	3.5	100	0.18	205.50	209.60	246.70	249.40	252.60	257.80	265.40
325	32/40	2.0	120	0.18	191.10	195.00	233.30	236.10	239.30	244.60	252.40
325	32/40	2.5	120	0.18	196.70	200.70	238.90	241.70	244.90	250.20	258.00
325	40	3.0	120	0.18	221.60	226.00	263.70	266.50	269.70	275.00	282.80
350	32/40/50	1.8	120	0.18	241.60	246.50	287.00	290.00	293.50	300.40	307.60
350	32/40/50	2.0	120	0.18	203.60	207.60	248.90	252.00	255.40	262.30	269.60
350	32/40/50	2.5	120	0.18	203.60	207.60	248.90	252.00	255.40	262.30	269.60
350	32/40/50	3.0	120	0.18	225.30	229.80	270.70	273.70	277.20	284.10	291.30
350	32/40/50	3.5	120	0.18	257.70	262.90	303.10	306.10	309.60	316.50	323.70
370	40/50	2.5	120	0.20	291.90	297.70	344.70	348.20	352.20	360.10	368.60
370	32/40/50	3.0	120	0.20	291.90	297.70	344.70	348.20	352.20	360.10	368.60
370	40	3.5	120	0.20	337.60	344.40	390.40	393.90	397.90	405.90	414.40
400	40/50	2.5	120	0.20	343.70	350.60	409.90	414.30	419.30	427.80	440.00
400	40/50	3.0	120	0.20	331.90	338.50	398.10	402.50	407.60	416.00	428.20
400	40/50	3.5	120	0.20	350.10	357.10	416.30	420.70	425.80	434.20	446.40
400	50	4.0	120	0.20	403.90	412.00	470.10	474.60	479.60	488.10	500.20
425	40/50	2.5	120	0.20	411.80	420.00	482.60	487.40	492.70	503.90	514.80
425	40/50	3.0	120	0.20	382.80	390.50	453.60	458.40	463.80	474.90	485.80
425	50	3.5	120	0.20	417.50	425.80	488.30	493.00	498.40	509.50	520.50
425	50	4.0	120	0.20	452.00	461.00	522.80	527.50	532.90	544.00	555.00
450	40/50	2.5	130	0.20	539.60	550.40	625.20	630.90	637.50	647.50	664.20
450	40/50	3.0	130	0.20	493.40	503.20	579.00	584.70	591.20	601.30	617.90
450	40/50	3.5	130	0.20	530.60	541.20	616.30	622.00	628.50	638.60	655.20
450	40/50	4.0	130	0.20	577.50	589.10	663.20	668.90	675.40	685.50	702.10
500	40/50	3.0	130	0.22	619.60	632.00	709.90	715.90	722.80	733.40	750.90
500	40/50	3.5	130	0.22	683.80	697.50	774.10	780.10	787.00	797.60	815.10
500	40/50	4.0	130	0.22	741.90	756.70	832.20	838.20	845.10	855.70	873.20
500	40/50	5.0	130	0.22	841.10	857.90	931.40	937.40	944.30	954.90	972.40
525	50	3.5	140	0.25	770.00	785.40	863.10	869.30	876.40	888.00	905.40
525	50	4.0	140	0.25	842.50	859.30	935.60	941.80	948.80	960.50	977.80
550	50/90/140	4.0	140/200	0.25	886.70	904.40	984.80	991.30	998.80	1011.00	1029.40
550	50/90/140	5.0	140/200	0.25	1026.00	1046.60	1124.20	1130.70	1138.20	1150.40	1168.80
570	50	4.0	150	0.25	973.90	993.30	1072.00	1078.50	1086.00	1098.20	1116.60
570	50	5.0	150	0.25	1115.30	1137.60	1213.50	1220.00	1227.50	1239.60	1258.10
600	50/90/140	4.0	150/200	0.25	1056.40	1077.50	1168.00	1175.40	1183.90	1200.30	1218.70
600	50/90/140	5.0	150/200	0.25	1177.10	1200.70	1288.70	1296.20	1304.70	1321.10	1339.40
620	140	4.0	225	0.25	1256.50	1281.60	1368.10	1375.50	1384.00	1400.40	1418.80
620	140	5.0	225	0.25	1396.60	1424.50	1508.10	1515.60	1524.10	1540.50	1558.90

Prices subject to generous quantity and resale discounts.

Wolferal Premium Quality Cutting-Off Saw Blades

TECHNICAL CHARACTERISTICS AND TOLERANCES

The WOLFERAL range includes three basic types of saw blades: STANDARD, PREMIUM and SUPREME.

'STANDARD' is normally used for traditional type cutting on slow cutting-off machines with levels of precision that ensure even closer tolerances than those called for by UNI 4012.

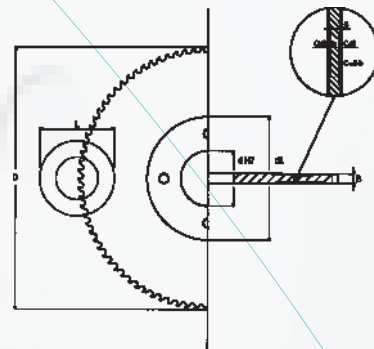
The grades of steel used are identical to those used for our PREMIUM and SUPREME types.

'PREMIUM' The premium saw blade is ideal where finer machining and greater cutting precision is required. The tolerances quoted for side run-out and flatness are reduced, giving better cutting results and unquestionable benefits in terms of reduced friction. The performance of the blades can be further enhanced when treated with a PVD surface coating.

'SUPREME' The supreme class achieves the maximum possible precision with a cutting tool; it is only recommended for use on fully automatic sawing machines which demand extremely close machining tolerances. The performance of the saw blades can be further enhanced if treated with a PVD surface coating.

The drawing opposite illustrates the main dimensions of a circular saw blade.

D = Diameter
B = Width
d = bore
dl = Boss
C = Taper
L = Maximum cross section



The table below shows the main characteristics and tolerances for popular sizes of STANDARD, PREMIUM and SUPREME qualities.

D	B	d	dl	L	C	STANDARD			PREMIUM		SUPREME	
Diameter	Width	Hole	Hub	Maximum recommended cross section	Taper	Max. conc.	Max. run out	Max. flatness	Max. run out	Max. flatness	Max. run out	Max. flatness
175	1.2	32	70	37	0.20	0.05	0.20	0.10	0.12	0.10	0.07	0.08
200	1.2	32	100	35	0.25	0.05	0.20	0.10	0.12	0.10	0.07	0.08
200	1.8	32	90	39	0.38	0.05	0.20	0.10	0.12	0.10	0.07	0.08
210	2.0	32	90	44	0.40	0.05	0.20	0.10	0.12	0.10	0.07	0.08
225	1.2	32	100	45	0.25	0.05	0.20	0.10	0.12	0.10	0.07	0.08
225	1.5-1.6	32	90	48	0.35	0.05	0.20	0.10	0.12	0.10	0.07	0.08
225		1.9	32/40	90	48	0.40	0.05	0.20	0.10	0.12	0.10	0.07
250	1.2	32	100	52	0.22	0.05	0.20	0.10	0.12	0.10	0.08	0.08
250	1.5-1.6	32	100	52	0.34	0.05	0.20	0.10	0.12	0.10	0.08	0.08
250		2.0	25.4/32/40	90	56	0.45	0.05	0.20	0.10	0.12	0.10	0.08
250	2.5	25.4/32/40	90	56	0.45	0.05	0.20	0.10	0.12	0.10	0.08	0.08
275	1.6	32	100	61	0.34	0.05	0.25	0.10	0.15	0.10	0.10	0.08
275	2.0	32/40	100	61	0.50	0.05	0.25	0.10	0.15	0.10	0.10	0.08
275	2.5	25.4/32/40	90	65	0.54	0.05	0.25	0.10	0.15	0.10	0.10	0.08
300	1.6	32/40	100	70	0.30	0.05	0.25	0.10	0.15	0.10	0.10	0.08
300	2.0	32/40	100	70	0.45	0.05	0.25	0.10	0.15	0.10	0.10	0.08
300	2.5	32/38/40	90	73	0.64	0.05	0.25	0.10	0.15	0.10	0.10	0.08
315	2.0	32/40	100	75	0.45	0.05	0.25	0.10	0.18	0.10	0.12	0.08
315	2.5	32/40	100	75	0.64	0.05	0.25	0.10	0.18	0.10	0.12	0.08
315	3.0	32/40	100	75	0.64	0.05	0.25	0.10	0.18	0.10	0.12	0.08
325	2.5	32/40	100	78	0.64	0.05	0.25	0.10	0.18	0.10	0.12	0.08
350	2.5	32/40/50	120	80	0.64	0.05	0.25	0.10	0.18	0.10	0.12	0.08
350	3.0	32/40/50	120	80	0.64	0.05	0.25	0.10	0.18	0.10	0.12	0.08
370	2.5	40/50	120	86	0.64	0.05	0.30	0.10	0.20	0.10	0.15	0.08
370	3.0	32/40/50	120	86	0.64	0.05	0.30	0.10	0.20	0.10	0.15	0.08
400	2.5	40/50	120	96	0.64	0.05	0.30	0.10	0.20	0.10	0.15	0.08
400	3.0	40/50	120	96	0.64	0.05	0.30	0.10	0.20	0.10	0.15	0.08
425	3.0	40/50	120	106	0.80	0.05	0.30	0.10	0.20	0.10	0.15	0.08
425	4.0	50	120	106	0.90	0.05	0.30	0.10	0.20	0.10	0.15	0.08
450	3.0	40/50	130	112	0.80	0.05	0.30	0.10	0.20	0.10	0.15	0.08
450	4.0	40/50	130	112	0.90	0.05	0.30	0.10	0.20	0.10	0.15	0.08
500	4.0	40/50	130	128	0.90	0.05	0.30	0.10	0.22	0.10	0.18	0.08
550	4.0	50	200	122	0.90	0.05	0.35	0.10	0.25	0.10	0.20	0.08
600	5.0	50	150	160	1.15	0.05	0.35	0.10	0.25	0.10	0.20	0.08

Prices subject to generous quantity and resale discounts.

Wolferal Premium Quality Cutting-Off Saw Blades

SURFACE COATINGS

Wolferal are equipped with their own latest PVD coating plant supplied by Platit of Switzerland. The Platit PVD process is a new type of arc source which has been developed to overcome the limitations of traditional PVD arc technologies. This process is carried out at temperatures lower than those of tempering temperature of HSS (< 500°C).

They achieve coating deposits with significantly reduced internal tensions in the saw blade and allow for higher thickness of deposit (between 3 and 5 microns).

These coatings result in:

Increased surface hardness • Reduced friction • Reduced heat induction • Reduced formation of "pick up" • The possibility of dry cutting • Big improvements in productivity • Great reductions in manufacturing costs • Huge savings in the cost per cut.

TiN Titanium Nitride

Technical characteristics:

PVD coating
Surface hardness: 2200-2400 HV
Oxidation temperature: 520°C
Coefficient of friction : 0.55

Applications:

Medium hard steel
Hard steels
Furniture tube and sections in general
Mixed, steel-plastic components

TiCN Titanium Carbo Nitride

This is a multi-layer coating with a very low coefficient of friction that allows cutting with an excellent finish, avoiding "pickup" on the edge of the blade teeth, even at very high cutting speeds and feed, both on very hard steels and when cutting copper and brass alloys or extremely abrasive materials, where the phenomenon of "pickup" is particularly frequent. The great surface hardness makes it possible to work at cutting speeds 100% higher than with normal blades and also increases the number of cuts between grinding operations.

Technical characteristics:

PVD coating
Surface hardness: 3000-3300 HV
Oxidation temperature: 450°C
Coefficient of friction : 0.35

Applications:

Very hard steels - Tempered steels
Stainless steel - Titanium Aviation Alloys

TiAlN Titanium Aluminium Nitride

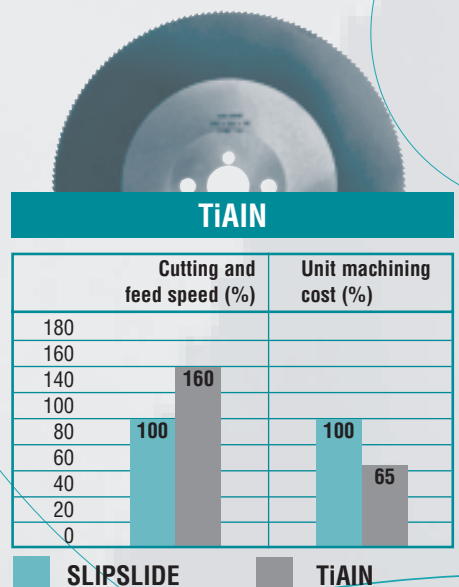
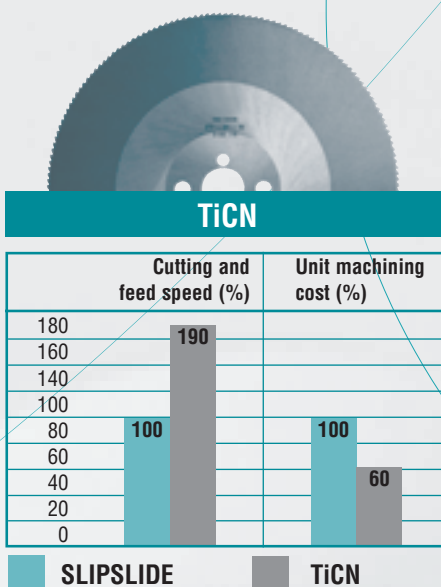
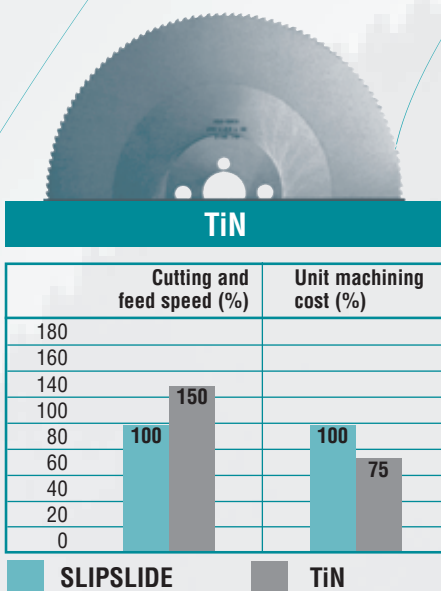
Suitable for cutting materials with very high tensile strength and stainless steels; also recommended for cutting abrasive materials such as cast iron, silicon aluminium alloy, brass and copper. Particularly suited to meeting the needs of dry cutting at relatively high cutting speeds, due to its low coefficient of friction. The high temperatures it can withstand, due to its low thermal conductivity, should also be emphasised.

Technical characteristics:

PVD coating
Surface hardness: 3300-3500 HV
Oxidation temperature: 875°C
Coefficient of friction : 0.45

Applications:

Hard steels - Stainless steels - Cast iron
High cutting speeds



COATING BAND WIDTHS		
Blade Diameter mm	Boss Diameter mm	Coated band width mm
225	90	37
250	100	40
275	100	52
300	100	50
315	100	57
325	100	62
350	120	60
370	120	70
400	120	70
425	120	73
450	130	85
500	130	95
525	130	88
550	150	100
570	150	110
600	150	115

COATING SUGGESTIONS	
MATERIAL TO BE CUT	SUGGESTED COATING
Mild Steels 500 – 750 N/mm ²	Slipslide / TiN
Hard Steels 800 – 1000 N/mm ²	Slipslide, TiCN or TiAlN
Very hard Steels, over 1000 N/mm ²	Slipslide, TiCN or TiAlN
Stainless Steels	TiZn, TiAlN, TiCN
Inconel	TiAlN, TiCN
Titanium	TiZn, TiAlN
Nickel Alloys	TiCN, TiAlN
Cast-iron	TiAlN, CrN
Magnesium	TiAlN, CrN
Aluminium	Polished, CrN, TiCN
Copper	Polished, CrN, TiCN
Brass	Polished, CrN, TiCN
Bronze	CrN

Our blades are coated to the minimum thickness point, usually two thirds of the way down the hollow ground section, thus ensuring that you can achieve the maximum depth of cut possible. It also gives you a greater number of regrinds.

Wolferal Premium Quality Cutting-Off Saw Blades

TOOTHING

The technical drawing below shows the correct tooth geometry and main characteristics of the three most commonly used toothforms on Wolferal cutting-off blades: Toothforms (BW, C and BS).

Symbol	Description
T	Tooth pitch
p	Tooth height
h	Difference HZ
γ	Cutting angle
α	Clearance angle
f	Clearance length
B	Blade thickness
d	Gullet diameter

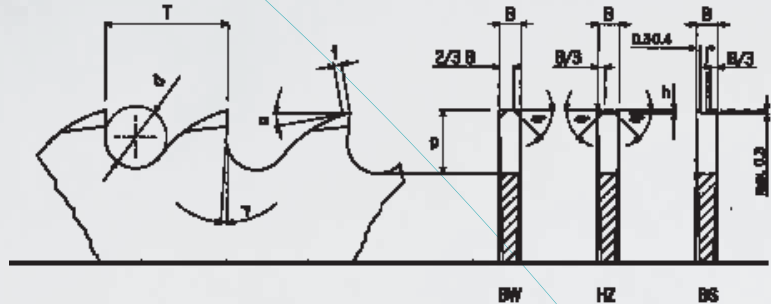


Table A shows the relationship between the pitch, height and diameter of the gullet space.

T	3	4	5	6	7	8	9	10	12	14	16
p	1,3	1,6	2,1	2,5	2,9	3,4	3,8	4,2	5,1	5,9	7,2
d	1,5	2	2,5	3	3,5	4	4,5	5	6	7	8
	h=0.2 mm						h=0.3 mm				

Table B shows the recommended cutting angle and clearance angle values for the most commonly used materials.

Materials	γ Cutting Angle	α Clearance Angle
Steel 350-900 N/mm ²	18°	12°
Steel 900-1200 N/mm ²	12°	6°
Stainless steel	12°	6°
Cast iron	12°	8°
Aluminium and its alloys	16°-22°	10°-18°
Copper	16°-20°	10°-18°
Bronze	12°	8°
Brass	15°	15°
Titanium	2°	15°

CBN Tothing

We are able to supply special tothing produced on high tech CNC machines using only borazon grinding wheels.

CBN generated tothing has a much finer ground finish, a more precise tooth geometry and the process reduces the thermal "shock" that can be caused with other types of grinding wheel during the tothing process.

Independent tests have shown that blades resharpened with CBN/BORAZON wheels can give up to 25% more cuts than blades resharpened with conventional grinding wheels.

Premium Wolferal saws are supplied with the following universal standard angle: Cutting angle $\gamma = 18^\circ$, clearance angle $A = 12^\circ$. These are an excellent compromise for the most common applications. For further detailed information please contact our engineering department.

CUTTING SPEEDS AND FEED RATES

It is essential that the rotation speed and feed speed (when automatic machines are involved) should be under control in order to optimise the cutting process. There is in fact a close relationship between the two speeds (rotation and feed) which must always be observed. For example, if the blade speed is too high in relation to the speed of the speed of engagement, there is more of a "rubbing" effect than a cutting action; the blade overheats and tends to wear without performing well.

If, on the other hand, the lowering speed is too high in relation to the rotation speed, the blade does not have enough time to clear away the chip, which can cause the blade to break.

In the table below, obtained from experimental data, we recommend the most suitable Cutting speed (V) and Feed/tooth (Az) values, according to the material to be cut.

Materials	(V) Cutting Speed (m/min)	(Az) Feed/Tooth (mm)
C10, C15, St34, St37, steels up to 500 N/mm ²	30 - 50	0,03 - 0,06
C20, C40, 15Cr3, 16MnCr5, steels up to 800 N/mm ²	20 - 40	0,03 - 0,04
38NCD4, 50CrV4, 14NiCr14, steels up to 1200 N/mm ²	15 - 25	0,02 - 0,03
Stainless steel	10 - 30	0,01 - 0,03
Cast iron	30 - 50	0,04 - 0,05
Aluminium (solid bar) and alloys	600 - 900	0,04 - 0,09
Aluminium (section) and alloys	800 - 1200	0,03 - 0,07
Bronze and Copper	200 - 300	0,04 - 0,06
Brass	400 - 600	0,04 - 0,08
Synthetic materials	60 - 150	0,04 - 0,08

Wolferal Premium Quality Cutting-Off Saw Blades

GUIDE TO TOOTH PITCH SELECTION AND CUTTING SPEEDS AND FEEDS

Many factors influence the choice of the right saw blades for a particular job, especially so on modern day automatic sawing machines such as Adige, Bewo, Sinico, Wagner and others where the cycle times and type of PVD coating and CBN chipbreaker toothing have such an important influence on the cutting rates and overall performance. In these cases we would be only too pleased to discuss your requirements and give you the benefits of over 50 years experience.

In general though our experience shows that the optimum cutting speed and feed has in most instances already been determined by the user to suit his local conditions.

However, where recommendations are required, we suggest the following factors are taken into account:

1. Material to be cut
2. Type and cross section of material to be cut
3. Type of lubrication
4. Tooth geometry
5. Toothform
6. Type of coating on saw blade

Following on from this, we suggest as a basis, the tooth pitches, feeds and speeds given below.

	Mild steel	Medium steel	Hard steel	Stainless steel	Cast iron	Aluminium	Bronze-Copper	Brass
Tube/Section (mm)	Pitch T (mm)							
<1	3	3	3	3	-	4	4	4
1-1,5	4	4	3	4	-	5	5	5
1,5-2	5	4	4	5	-	6	6	6
2-3	5	5	5	5	-	7	7	7
>3	6	6	5	6	-	8	8	8

Solid Section (mm)	Pitch T (mm)							
10-20	5	5	5	5	5	6	6	8
20-40	8	6	6	6	6	8	8	10
40-60	10	10	8	8	8	12	10	12
60-90	12	12	10	11	11	16	13	14
90-110	14	14	12	14	14	18	15	17
110-130	16	16	14	16	16	20	17	19
130-150	18	16	14	16	16	20	19	20

Pitch T (mm)	Feed Speed A (mm/min)							
3	350-450	250-350	90-160	70-150	350-550	-	-	-
4	300-400	200-300	80-140	60-130	280-440	-	-	-
5	250-350	150-250	70-130	55-110	210-350	-	-	-
6	200-300	100-180	60-120	50-90	180-300	-	1400-2000	2000-4000
8	150-250	80-130	45-90	40-75	140-250	4500-8500	1000-1600	1500-3200
10	100-200	70-100	40-80	35-60	120-180	3800-6000	700-1200	1000-2500
12	80-150	65-90	35-65	30-55	90-150	3000-5000	550-850	800-1800
14	70-130	60-80	25-50	20-50	75-125	2800-4600	500-700	700-1400
16	50-120	55-70	15-40	5-35	65-110	2500-3700	400-600	600-1000

Saw dia. (mm)	(R P M)							
200	45-80	30-65	25-40	15-35	45-80	950-1500	320-480	650-950
225	45-70	30-60	20-35	15-30	45-70	850-1250	300-430	550-850
250	40-65	25-50	20-30	15-25	40-65	750-1100	250-380	500-700
275	35-60	25-45	15-30	10-25	35-60	700-1050	230-350	450-700
300	30-55	20-45	15-25	10-20	30-55	650-950	210-320	430-640
315	30-50	20-40	15-25	10-20	30-50	600-900	200-300	400-600
350	25-45	20-35	15-25	10-20	25-45	550-820	180-270	350-550
370	25-45	15-35	15-20	10-15	25-45	520-770	170-260	350-520
400	20-40	15-30	10-20	8-15	20-40	470-720	160-240	300-480
500	18-35	13-26	10-16	6-12	18-35	380-570	130-190	250-380

Wolferal Cutting Performance and Life of the Tool

The most common reason for the failure of any circular saw blade is the lack of compatibility between the peripheral cutting speed applied to the blade and the nature of the material being cut.

Our experience shows that the optimum cutting speed and feed has in most instances already been determined by the user to suit his local conditions.

HOWEVER, WHERE RECOMMENDATIONS ARE REQUIRED WE SUGGEST AS A BASIS THE FOLLOWING CUTTING SPEEDS:

Material to be machined	Tensile Strength N/mm ² or Hardness Brinell HB	M2 High Speed Steel		Solid Carbide	
		Cutting Speed metres/min.	Feed per Tooth mm	Cutting Speed metres/min.	Feed per Tooth mm
Free cutting steel	350 - 500 N/mm ²	10 - 45	0.02 - 0.04	80 - 180	0.01 - 0.02
General structural steel	500 - 750 N/mm ²	15 - 50	0.02 - 0.03	90 - 200	0.005 - 0.02
Case hardening steel	500 - 800 N/mm ²	20 - 50	0.02 - 0.03	100 - 200	0.005 - 0.02
Stainless steel, cast steel	450 - 950 N/mm ²	10 - 20	0.01 - 0.02	60 - 180	0.01 - 0.02
Nitriding steel	700 - 1250 N/mm ²	5 - 20	0.005 - 0.02	20 - 120	0.005 - 0.02
Cast steel	400 - 1120 N/mm ²	10 - 15	0.01 - 0.02	30 - 150	0.005 - 0.02
Heat treated steel - annealed	500 - 750 N/mm ²	15 - 30	0.02 - 0.03	80 - 180	0.005 - 0.02
- tempered, unalloyed	700 - 1000 N/mm ²	10 - 20	0.01 - 0.02	30 - 130	0.003 - 0.01
- tempered, alloyed	700 - 1250 N/mm ²	5 - 20	0.005 - 0.02	20 - 120	0.003 - 0.01
Tool steel - alloyed, tempered	900 - 1250 N/mm ²	5 - 15	0.005 - 0.02	20 - 60	0.002 - 0.005
- unalloyed or alloyed					
soft annealed	HB 180 - 240	40 - 50	0.02 - 0.04	160 - 200	0.01 - 0.02
- carburised and/or					
highly alloyed, soft annealed	HB 220 - 300	40 - 45	0.02 - 0.04	160 - 180	0.01 - 0.02
Cast iron - nodular - globular	HB 100 - 320	15 - 35	0.02 - 0.05	40 - 90	0.005 - 0.02
Malleable cast iron	HB 100 - 270	15 - 45	0.02 - 0.05	40 - 100	0.005 - 0.02
Aluminium alloys	up to 250 N/mm ²	120 - 1000	0.02 - 0.10	400 - 2000	0.005 - 0.1
Copper	200 - 400 N/mm ²	100 - 400	0.02 - 0.08	200 - 500	0.01 - 0.03
Copper alloys	200 - 500 N/mm ²	100 - 300	0.02 - 0.08	200 - 500	0.01 - 0.03
Magnesium alloys	150 - 300 N/mm ²	200 - 300	0.02 - 0.05	500 - 800	0.01 - 0.03
Titanium	600 - 1100 N/mm ²	15 - 50	0.01 - 0.03	60 - 100	0.005 - 0.02
Plastics - Thermo plastic non laminated	Plexiglass etc.	≤ 3000	0.01 - 0.03		
- Thermo setting plastics	Organic	≤ 3000	0.01 - 0.03	≤ 5000	0.01 - 0.10
- Laminates	Inorganic			≤ 2000	0.01 - 0.10

USE LOWER SPEED RANGES FOR:

- Rough cast and abrasive materials - Tough and harder alloys.
- Heavy, deep and large cross section cuts - Where excessive wear of saw teeth is occurring.

USE HIGHER SPEED RANGES FOR:

- Free cutting alloys - Softer alloys - Better finishes - Small diameter saws.
- Profiles, thin walled sections - Where excessive chipping of saw teeth is occurring.

FEED

In most cases local conditions are the determining factor. Generally speaking the feed is increased for soft material and large cross section cuts and reduced for hard material. Experience shows that when trying to improve performance, users normally increase the speed. However, in many instances it is better to reduce the latter and to increase the feed. This ensures higher performance (shorter cycle time) and longer life.

CORRECT CUTTING LUBRICANTS

Optimal performance and tool life cannot be achieved without sufficient cooling and lubricating. As a general rule once you have selected the cutting oil, you should increase the speed and feed until the lubricant starts to emit a slight vapour (smoke).

USEFUL FORMULAE

Cutting Speed: v [m / min]

$$v = \frac{D \cdot \pi \cdot n}{1000}$$

D = Saw dia (mm)
 π = Constant 3.14
 N = rpm [1/min]

Feed: S [mm / min]

$$S = S_z \cdot Z \cdot n$$

S_z = Feed per tooth (mm/tooth)
 Z = Number of teeth
 n = rpm [1/min]

rpm : n [1 / min]

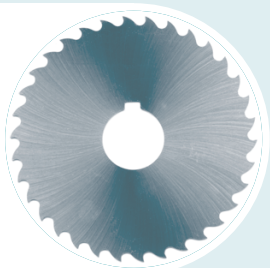
$$n = \frac{v \cdot 1000}{D \cdot \pi}$$

v = Cutting speed (M/min)
 D = Saw dia (mm)
 π = Constant 3.14

Feed per tooth: S_z [mm/tooth]

$$S_z = \frac{S}{Z \cdot n}$$

S = Feed (mm/min)
 Z = Number of teeth
 n = rpm [1/min]



Wolferal HSS Metal Slitting Saws

To BS 122, Part 1, 1953.

Stocked as standard with coarse teeth.

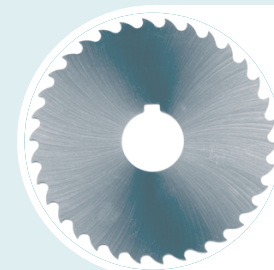
Used for medium deep cutting and cut-off operations. Hollow ground on both sides to prevent binding.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.1/2	1/32	1	28	E002	8.15
2.1/2	3/64	1	28	E004	8.83
2.1/2	1/16	1	28	E006	9.60
2.1/2	5/64	1	28	E008	10.48
2.1/2	3/32	1	28	E010	11.54
2.1/2	7/64	1	28	E012	12.29
2.1/2	1/8	1	28	E014	13.56
2.1/2	5/32	1	28	E016	15.65
2.1/2	3/16	1	28	E017	18.75
2.1/2	7/32	1	28	E019	28.21
2.1/2	1/4	1	28	E020	24.28
3	1/64	1	28	E022	10.46
3	1/32	1	28	E024	10.40
3	3/64	1	28	E026	11.32
3	1/16	1	28	E028	12.53
3	1/16	1	50	E029	12.53
3	1/16	1.1/4	28	E031	12.53
3	5/64	1	28	E032	13.38
3	3/32	1	28	E034	14.42
3	3/32	1.1/4	28	E036	14.42
3	7/64	1	28	E037	15.59
3	1/8	1	28	E039	16.77
3	1/8	1.1/4	28	E041	16.77
3	9/64	1	28	E042	22.22
3	5/32	1	28	E044	19.68
3	11/64	1	28	E046	26.54
3	3/16	1	28	E047	22.94
3	7/32	1	28	E049	26.54
3	1/4	1	28	E051	30.78
3.1/2	1/32	1	32	E053	12.08
3.1/2	3/64	1	32	E055	13.50
3.1/2	1/16	1	32	E057	14.38
3.1/2	1/16	1	44	E059	14.38
3.1/2	5/64	1	32	E060	15.87
3.1/2	3/32	1	32	E062	17.20
3.1/2	1/8	1	32	E065	20.11
3.1/2	5/32	1	32	E067	23.85
3.1/2	3/16	1	32	E069	28.02
3.1/2	1/4	1	32	E071	37.59
4	1/64	1	34	E072	15.92
4	1/32	1	34	E074	13.46
4	1/32	1.1/4	34	E076	13.46
4	3/64	1	34	E078	15.38
4	3/64	1.1/4	34	E079A	15.38
4	1/16	1	34	E080	15.08
4	1/16	1	68	E082	15.08
4	1/16	1.1/4	34	E083	15.08
4	5/64	1	34	E085	17.92
4	5/64	1.1/4	34	E270	17.92
4	3/32	1	34	E087	19.23
4	3/32	1.1/4	34	E090	19.23
4	3/32	1	76	E088	19.23
4	7/64	1	34	E091	21.18
4	7/64	1.1/4	34	E265	21.18
4	1/8	1	34	E093	22.70
4	1/8	1.1/4	34	E095	22.70

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
4	9/64	1	34	E097	32.50
4	5/32	1	34	E099	26.94
4	5/32	1.1/4	34	E101	26.94
4	3/16	1	34	E102	32.06
4	3/16	1.1/4	34	E104	32.06
4	7/32	1	34	E105	38.76
4	1/4	1	34	E107	44.44
4	1/4	1.1/4	34	E109	44.44
4.1/2	1/32	1	40	E110	19.72
4.1/2	1/16	1	40	E112	19.72
4.1/2	5/64	1	40	E114	26.98
4.1/2	3/32	1	40	E116	22.57
4.1/2	1/8	1	40	E117	29.65
4.1/2	5/32	1	40	E119	47.82
4.1/2	3/16	1	40	E121	55.55
5	1/32	1	42	E122	21.27
5	1/32	1.1/4	42	E124	21.27
5	3/64	1	42	E125	22.34
5	1/16	1	42	E127	21.85
5	1/16	1.1/4	42	E129	21.85
5	5/64	1	42	E131	25.90
5	5/64	1.1/4	42	E133	25.90
5	3/32	1	42	E134	27.64
5	3/32	1.1/4	42	E136	27.64
5	7/64	1	42	E137	38.22
5	7/64	1.1/4	42	E138	38.22
5	1/8	1	42	E139	32.06
5	1/8	1.1/4	42	E141	32.06
5	5/32	1	42	E142	38.22
5	5/32	1.1/4	42	E144	38.22
5	3/16	1	42	E145	44.36
5	3/16	1.1/4	42	E147	44.36
5	7/32	1	42	E148	53.19
5	1/4	1	42	E149	63.51
5	1/4	1.1/4	42	E151	63.51
6	1/32	1	46	E152	28.90
6	3/64	1	46	E153	31.32
6	3/64	1.1/4	46	E155	31.32
6	1/16	1	46	E157	32.16
6	1/16	1.1/4	46	E160	32.16
6	1/16	1	100	E159	32.16
6	5/64	1	46	E162	35.48
6	5/64	1.1/4	46	E164	35.48
6	3/32	1	46	E165	36.91
6	3/32	1.1/4	46	E167	36.91
6	7/64	1	46	E169	41.16
6	7/64	1.1/4	46	E171	41.16
6	1/8	1	46	E172	41.88
6	1/8	1.1/4	46	E174	41.88
6	9/64	1	46	E176	58.62
6	5/32	1	46	E178	46.81
6	5/32	1.1/4	46	E180	46.81
6	3/16	1	46	E181	65.15
6	3/16	1.1/4	46	E183	65.15
6	7/32	1	46	E184	72.16
6	7/32	1.1/4	46	E186	72.16

Wolferal HSS Metal Slitting Saws

– Continued



Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
6	1/4	1	46	E187	82.23
6	1/4	1.1/4	46	E189	82.23
7	1/16	1	48	E190	37.20
7	1/16	1.1/4	48	E192	37.20
7	3/32	1	48	E193	45.92
7	3/32	1.1/4	48	E195	45.92
7	1/8	1	48	E197	53.83
7	1/8	1.1/4	48	E199	53.83
7	5/32	1	48	E200	64.76
7	5/32	1.1/4	48	E201	64.76
7	3/16	1	48	E202	75.31
7	3/16	1.1/4	48	E203	75.31
7	1/4	1.1/4	48	E205	95.10
8	3/64	1	54	E207	64.15
8	1/16	1	54	E208	47.40
8	1/16	1.1/4	54	E210	47.40
8	5/64	1	54	E212	52.38
8	3/32	1	54	E215	57.19
8	3/32	1.1/4	54	E217	57.19
8	1/8	1	54	E219	67.92
8	1/8	1.1/4	54	E221	67.92
8	5/32	1	54	E222	81.19
8	5/32	1.1/4	54	E223	81.19
8	3/16	1	54	E224	97.97
8	3/16	1.1/4	54	E225	97.97
8	7/32	1	54	E227A	106.18
8	1/4	1	54	E228	114.27
8	1/4	1.1/4	54	E229	114.27

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
9	1/16	1	56	E230	71.25
9	3/32	1	56	E231	89.55
9	3/32	1.1/4	56	E231A	89.55
9	1/8	1	56	E232	96.19
9	1/8	1.1/4	56	E234	96.19
9	5/32	1	56	E234A	108.57
9	3/16	1	56	E235	131.43
9	3/16	1.1/4	56	E236	131.43
9	1/4	1	56	E237	162.15
9	1/4	1.1/4	56	E237A	162.15
10	1/16	1	62	E275	87.21
10	1/16	1.1/4	62	E276	87.21
10	3/32	1	62	E238	100.55
10	3/32	1.1/4	62	E240	100.55
10	1/8	1	62	E242	108.71
10	1/8	1.1/4	62	E244	108.71
10	5/32	1	62	E245	123.58
10	5/32	1.1/4	62	E246	123.58
10	3/16	1	62	E247	140.44
10	3/16	1.1/4	62	E248	140.44
10	1/4	1	62	E249	187.96
10	1/4	1.1/4	62	E250	187.96
12	3/32	1	100	E251	165.14
12	1/8	1	100	E255	147.28
12	1/8	1	70	E267	147.28
12	1/8	1.1/4	70	E266	147.28
12	3/16	1	70	E257	198.11
12	3/16	1.1/4	70	E258	198.11

Saw Arbor 5/8-1" – E260 – £60.00

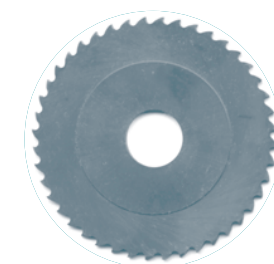
Super Wolferal Heavy-Duty Saw Blades

For use on pipe-cutting machines such as George Fischer, Axxair and others.

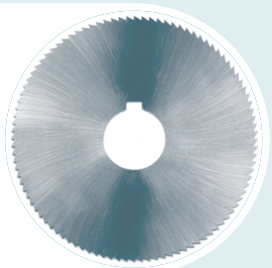
EMo5Co5 Cobalt bearing steel can be used on all pipes and tubes but especially recommended for chrome alloy and stainless steel pipes and tubes. DM05 SHSS recommended for cutting all pipes and tubes except those made out of chrome alloy steels and stainless steels.

Diameter	Width	Bore	No of Teeth	List Price £ Cobalt SHSS-E	List Price £ DM05 SHSS
63	1.6	16	44	19.25	16.05
63	1.6	16	64	19.25	16.05
68	1.6	16	44	21.00	17.50
68	1.6	16	64	21.00	17.50
68	2.0	16	44	22.55	18.80
68	2.0	16	64	22.55	18.80
75	2.0	16	32	25.25	21.05
160	1.0	32	160	56.00	–

Other sizes on request. Prices for TiN and TiCN coated blades on request.



Prices subject to generous quantity and resale discounts.



Wolferal HSS Metal Slitting Saws

To BS 122, Part 1, 1953.

Stocked as standard with fine pitch ($\frac{1}{8}$ ").

Used for shallow cutting and cut-off operations. Hollow ground on both sides to prevent binding.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.1/2	1/64	1	64	E001	9.38
2.1/2	1/32	1	64	E003	8.15
2.1/2	3/64	1	64	E005	8.83
2.1/2	1/16	1	64	E007	9.60
2.1/2	5/64	1	64	E009	10.48
2.1/2	3/32	1	64	E011	11.54
2.1/2	7/64	1	64	E013	12.29
2.1/2	1/8	1	64	E015	13.56
2.1/2	3/16	1	64	E018	18.75
2.1/2	1/4	1	64	E021	24.28
3	1/64	1	76	E023	10.46
3	1/32	1	76	E025	10.40
3	3/64	1	76	E027	11.32
3	1/16	1	50	E029	12.53
3	1/16	1	76	E030	12.53
3	5/64	1	76	E033	13.38
3	3/32	1	76	E035	14.42
3	7/64	1	76	E038	15.59
3	1/8	1	76	E040	16.77
3	9/64	1	76	E043	22.22
3	5/32	1	76	E045	19.68
3	3/16	1	76	E048	22.94
3	7/32	1	76	E050	26.54
3	1/4	1	76	E052	30.78
3.1/2	1/32	1	90	E054	12.08
3.1/2	3/64	1	90	E056	13.50
3.1/2	1/16	1	90	E058	14.38
3.1/2	5/64	1	90	E061	15.87
3.1/2	3/32	1	90	E063	17.20
3.1/2	7/64	1	90	E064	23.85
3.1/2	1/8	1	90	E066	20.11
3.1/2	5/32	1	90	E068	23.85
3.1/2	3/16	1	90	E070	28.02
4	1/64	1	100	E073	15.92
4	1/32	1	100	E075	13.46
4	1/32	1.1/4	100	E077	13.46
4	3/64	1	100	E079	15.38
4	1/16	1	100	E081	15.08
4	1/16	1.1/4	100	E084	15.08
4	5/64	1	100	E086	17.92
4	3/32	1	100	E089	19.23
4	7/64	1	100	E092	21.18
4	7/64	1.1/4	100	E265A	21.18
4	1/8	1	100	E094	22.70
4	1/8	1.1/4	100	E096	22.70
4	9/64	1	100	E098	32.50
4	5/32	1	100	E100	26.94
4	3/16	1	100	E103	32.06
4	7/32	1	100	E106	38.76
4	1/4	1	100	E108	44.44
4.1/2	1/32	1	110	E111	19.72

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
4.1/2	1/16	1	110	E113	19.72
4.1/2	5/64	1	110	E115	26.98
4.1/2	1/8	1	110	E118	26.63
5	1/32	1	128	E123	21.27
5	3/64	1	128	E126	22.34
5	1/16	1	128	E128	21.85
5	1/16	1.1/4	128	E130	21.85
5	5/64	1	128	E132	25.90
5	3/32	1	128	E135	27.64
5	1/8	1	128	E140	32.06
5	5/32	1	128	E143	38.22
5	3/16	1	128	E146	44.30
5	3/16	1.1/4	128	E147A	44.36
5	1/4	1	128	E150	63.51
6	1/32	1	150	E268	28.90
6	1/32	1.1/4	150	E269	28.90
6	3/64	1	150	E154	31.32
6	3/64	1.1/4	150	E156	31.32
6	1/16	1	150	E158	32.16
6	1/16	1.1/4	150	E161	32.16
6	5/64	1	150	E163	35.48
6	3/32	1	150	E166	36.91
6	3/32	1.1/4	150	E168	36.91
6	7/64	1	150	E170	41.16
6	1/8	1	150	E173	41.16
6	1/8	1.1/4	150	E175	41.16
6	9/64	1	150	E177	58.62
6	5/32	1	150	E179	46.81
6	5/32	1.1/4	150	E180A	46.81
6	3/16	1	150	E182	65.15
6	3/16	1.1/4	150	E183A	65.15
6	7/32	1	150	E185	72.16
6	1/4	1	150	E188	82.23
7	1/16	1	180	E191	37.20
7	3/32	1	180	E194	45.92
7	1/8	1	180	E198	53.83
8	1/16	1	200	E209	45.92
8	1/16	1.1/4	200	E211	45.92
8	5/64	1	200	E213	52.38
8	5/64	1.1/4	200	E214	52.38
8	3/32	1	200	E216	57.19
8	3/32	1.1/4	200	E218	57.19
8	1/8	1	200	E220	67.92
8	3/16	1.1/4	200	E227	96.19
10	1/16	1	250	E275A	87.21
10	3/32	1	250	E239	100.55
10	3/32	1.1/4	250	E241	100.55
10	1/8	1	250	E243	108.71
12	3/32	1	200	E253	165.14
12	1/8	1	200	E254	147.28
12	1/8	1.1/4	200	E256	147.28

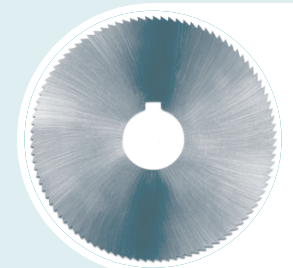
Wolferal HSS Screw Slotting Saws

To BS 122, Part 1, 1953

Stock Sizes.

Used mainly for slotting screw heads. They are hollow ground for shallow cuts.

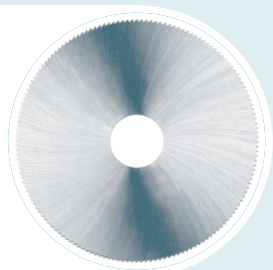
Not recommended for deep cuts



Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
1.3/4	.006	5/8	90	D001	10.10
1.3/4	.008	5/8	90	D002	9.62
1.3/4	.010	5/8	90	D003	8.11
1.3/4	.012	5/8	90	D004	8.04
1.3/4	.014	5/8	90	D005	7.46
1.3/4	.015	5/8	90	D006	7.46
1.3/4	.016	5/8	90	D007	7.46
1.3/4	.018	5/8	90	D008	7.46
1.3/4	.020	5/8	90	D009	7.46
1.3/4	.023	5/8	90	D010	7.46
1.3/4	.025	5/8	90	D011	7.46
1.3/4	.028	5/8	90	D012	7.46
1.3/4	.030	5/8	90	D013	7.46
1.3/4	.032	5/8	90	D014	7.46
1.3/4	.035	5/8	90	D015	7.06
1.3/4	.040	5/8	90	D016	7.06
1.3/4	.045	5/8	90	D017	7.14
1.3/4	.048	5/8	90	D018	7.14
1.3/4	.050	5/8	90	D019	7.14
1.3/4	.051	5/8	90	D020	7.14
1.3/4	.057	5/8	90	D021	7.14
1.3/4	.060	5/8	90	D022	7.14
1.3/4	.062	5/8	90	D023	7.14
1.3/4	.064	5/8	90	D024	7.89
1.3/4	.072	5/8	90	D025	7.89
1.3/4	.078	5/8	90	D026	8.89
1.3/4	.081	5/8	90	D027	8.79
1.3/4	.091	5/8	90	D028	8.79
1.3/4	.093	5/8	90	D029	13.09
1.3/4	.102	5/8	90	D030	13.09
1.3/4	.125	5/8	90	D031	11.96
2.1/4	.006	5/8	60	D031A	12.17
2.1/4	.008	5/8	60	D032	12.17
2.1/4	.010	5/8	60	D033	10.19
2.1/4	.012	5/8	60	D034	9.77
2.1/4	.014	5/8	60	D035	8.96
2.1/4	.016	5/8	60	D036	8.96
2.1/4	.018	5/8	60	D037	8.96
2.1/4	.020	5/8	60	D038	8.96
2.1/4	.023	5/8	60	D039	8.96
2.1/4	.025	5/8	60	D040	8.96
2.1/4	.028	5/8	60	D041	8.96
2.1/4	.030	5/8	60	D042	8.96
2.1/4	.032	5/8	60	D043	8.96
2.1/4	.035	5/8	60	D044	8.48
2.1/4	.036	5/8	60	D044A	8.48
2.1/4	.040	5/8	60	D045	8.48
2.1/4	.045	5/8	60	D046	9.25
2.1/4	.050	5/8	60	D047	9.25
2.1/4	.051	5/8	60	D048	9.25
2.1/4	.057	5/8	60	D049	8.83

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.1/4	.060	5/8	60	D050	10.76
2.1/4	.062	5/8	60	D051	9.20
2.1/4	.064	5/8	60	D052	9.20
2.1/4	.065	5/8	60	D053	9.20
2.1/4	.072	5/8	60	D054	9.20
2.1/4	.081	5/8	60	D055	9.66
2.1/4	.091	5/8	60	D056	9.66
2.1/4	.093	5/8	60	D057	12.78
2.1/4	.102	5/8	60	D058	10.32
2.1/4	.125	5/8	60	D058A	13.31
2.3/4	.006	1	72	D058B	13.20
2.3/4	.008	1	72	D059	13.20
2.3/4	.010	1	72	D060	10.96
2.3/4	.012	1	72	D061	10.96
2.3/4	.014	1	72	D062	9.59
2.3/4	.015	1	72	D063	11.20
2.3/4	.016	1	72	D064	9.59
2.3/4	.018	1	72	D065	9.59
2.3/4	.020	1	72	D066	9.59
2.3/4	.022	1	72	D066A	11.20
2.3/4	.023	1	72	D067	9.59
2.3/4	.024	1	72	D068	11.20
2.3/4	.025	1	72	D069	9.59
2.3/4	.028	1	72	D070	9.59
2.3/4	.030	1	72	D071	11.20
2.3/4	.032	1	72	D072	9.59
2.3/4	.035	1	72	D073	8.48
2.3/4	.036	1	72	D074	8.48
2.3/4	.040	1	72	D075	9.08
2.3/4	.045	1	72	D076	9.25
2.3/4	.048	1	72	D077	10.83
2.3/4	.050	1	72	D078	10.83
2.3/4	.051	1	72	D079	9.25
2.3/4	.055	1	72	D080	10.83
2.3/4	.057	1	72	D081	9.25
2.3/4	.060	1	72	D082	12.00
2.3/4	.062	1	72	D083	10.25
2.3/4	.064	1	72	D084	10.25
2.3/4	.068	1	72	D085	11.84
2.3/4	.072	1	72	D086	10.25
2.3/4	.078	1	72	D087	12.55
2.3/4	.081	1	72	D088	10.25
2.3/4	.091	1	72	D089	11.34
2.3/4	.093	1	72	D090	15.25
2.3/4	.102	1	72	D091	12.64
2.3/4	.114	1	72	D092	12.64
2.3/4	.125	1	72	D093	14.50
2.3/4	.128	1	72	D094	14.73
2.3/4	.144	1	72	D095	14.73
2.3/4	.162	1	72	D096	17.23
2.3/4	.182	1	72	D097	19.73

Prices subject to generous quantity and resale discounts.



Wolferal HSS Slitting Saws, Metric

With Fine Pitch as to DIN 1837 Toothform A DIN 1840.

Stock Sizes.

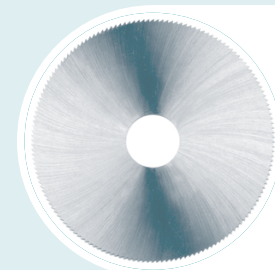
Dimensions in millimetres. Used for shallow cutting and cut-off operations. Hollow ground on both sides to prevent binding.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
20	0.2	5	80	H009	7.31
20	0.25	5	64	H010	6.95
20	0.3	5	64	H011	6.72
20	0.4	5	64	H012	6.97
20	0.5	5	48	H013	6.97
20	0.6	5	48	H014	5.89
20	0.8	5	48	H015	6.89
20	1	5	40	H016	7.36
20	1.2	5	40	H017	7.40
20	1.6	5	40	H018	8.10
20	2	5	32	H019	8.37
20	2.5	5	32	H019A	8.70
20	3	5	32	H019B	10.30
25	0.2	8	80	H020	6.33
25	0.25	8	80	H021	6.95
25	0.3	8	64	H021A	6.79
25	0.4	8	64	H023	7.01
25	0.5	8	64	H024	7.01
25	0.6	8	64	H025	5.95
25	0.8	8	48	H027	6.97
25	1.0	8	48	H029	7.49
25	1.2	8	48	H030	7.58
25	1.6	8	40	H032	6.35
25	2	8	40	H033	8.54
25	2.5	8	40	H034	8.71
25	3	8	32	H034A	10.30
25	4	8	32	H034B	11.04
25	5	8	32	H034C	13.23
25	6	8	24	H034D	15.94
32	0.2	8	100	H035	8.07
32	0.25	8	100	H036	7.62
32	0.3	8	80	H037A	7.36
32	0.4	8	80	H038A	7.32
32	0.5	8	80	H039A	7.33
32	0.6	8	64	H040	6.13
32	0.8	8	64	H041A	7.32
32	1	8	64	H044A	7.63
32	1.2	8	48	H045A	7.65
32	1.6	8	48	H046A	8.09
32	2	8	48	H047A	8.81
32	2.5	8	40	H048A	9.15
32	3	8	40	H049A	10.71
32	4	8	40	H049B	12.36
32	5	8	32	H049C	15.30
32	6	8	32	H049D	16.75
35	0.3	8	100	H050	10.01
35	0.32	8	100	H050A	10.01
35	0.4	8	100	H051	10.01
35	0.5	8	100	H052	8.82
35	0.6	8	100	H053	8.82
35	0.8	8	100	H054	8.82
35	1	8	120	H055	8.82
35	1.2	8	100	H056	8.82
40	0.2	8	100	H057	12.44
40	0.2	8	128	H058	9.02
40	0.25	8	100	H059	8.11

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
40	0.25	8	140	H059A	11.13
40	0.25	8	160	H060	10.15
40	0.3	8	160	H061A	10.01
40	0.4	8	100	H062	8.00
40	0.4	8	160	H063	10.01
40	0.5	8	80	H064	7.06
40	0.5	8	160	H065	8.82
40	0.6	8	80	H066	7.06
40	0.6	8	160	H067	8.82
40	0.7	8	80	H068	9.87
40	0.7	8	160	H069	9.87
40	0.8	8	80	H070	7.06
40	0.8	8	100	H071	8.82
40	0.8	8	160	H072	8.82
40	0.9	8	80	H073	8.82
40	1	8	64	H074	6.72
40	1	8	160	H075	8.48
40	1.2	8	64	H076	7.08
40	1.2	8	128	H076A	7.08
40	1.2	8	160	H077	8.85
40	1.25	8	80	H078	10.23
40	1.5	8	80	H079	10.23
40	1.6	8	80	H080	7.83
40	1.6	8	64	H080A	7.83
40	2	8	64	H082	8.62
40	2	8	48	H082A	8.62
40	2.5	8	80	H083	12.04
40	2.5	8	160	H083A	12.26
40	2.5	8	48	H084	9.63
40	3	8	80	H085	9.63
40	3	8	48	H085A	12.04
40	0.125	8	80	H086	14.94
40	4	8	40	H086A	11.32
40	0.2	10	128	H087	9.39
40	0.25	10	100	H088	8.48
40	0.3	10	100	H089	7.67
40	0.4	10	100	H090A	7.67
40	0.5	10	80	H092	6.77
40	0.6	10	80	H093	6.84
40	0.8	10	80	H095	6.77
40	1	10	64	H097	6.42
40	1.2	10	64	H098A	6.84
40	1.6	10	64	H101	7.54
40	2	10	48	H102	8.25
40	2.5	10	48	H104	9.95
40	3	10	48	H105A	10.05
40	4	10	40	H106	16.10
40	5	10	40	H106A	13.42
50	0.2	13	128	H108	10.77
50	0.25	13	128	H109	10.49
50	0.3	13	128	H110	9.01
50	0.4	13	100	H111	7.54
50	0.5	13	100	H112	7.54
50	0.6	13	100	H113	7.54
50	0.8	13	80	H114	7.54
50	1	13	80	H115	7.54

Wolferal HSS Slitting Saws, Metric

– Continued



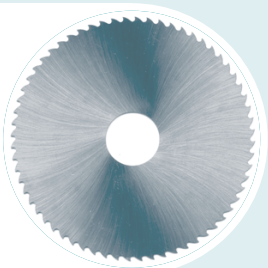
Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
50	1.2	13	80	H116	7.90
50	1.6	13	64	H118	7.90
50	2	13	64	H120	8.66
50	2.5	13	64	H121	9.16
50	3	13	48	H122	10.66
50	4	13	48	H122B	13.51
50	5	13	48	H123	18.05
63	0.25	16	160	H128	11.29
63	0.3	16	128	H129	10.25
63	0.4	16	128	H132	7.60
63	0.5	16	128	H133	7.60
63	0.6	16	100	H134	7.60
63	0.8	16	100	H136	7.60
63	1	16	100	H138	7.60
63	1.2	16	80	H140	7.60
63	1.5	16	80	H143	8.95
63	1.6	16	80	H145	8.95
63	2	16	80	H147	9.78
63	2.5	16	64	H148	10.78
63	3	16	64	H149	12.61
63	4	16	64	H151	15.54
63	5	16	48	H151C	21.47
63	6	16	48	H151E	24.88
80	0.3	22	160	H152	11.67
80	0.4	22	160	H153	9.83
80	0.5	22	128	H154	9.73
80	0.6	22	128	H155B	9.73
80	0.8	22	128	H156	9.67
80	1	22	100	H159	9.67
80	1.2	22	100	H161	9.67
80	1.5	22	100	H163	11.67
80	1.6	22	100	H164	11.67
80	2	22	80	H165	12.44
80	2.5	22	80	H166	13.43
80	3	22	80	H167	15.68
80	4	22	64	H168	18.85
80	5	22	64	H168C	22.68
80	6	22	64	H169	29.70
100	0.5	22	160	H170	14.08
100	0.6	22	160	H171	13.13
100	0.8	22	128	H172	12.73
100	1	22	128	H174	12.73
100	1.2	22	128	H176	12.73
100	1.5	22	128	H177	14.22

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
100	1.6	22	100	H179	14.08
100	2	22	100	H182	16.67
100	2.5	22	100	H183B	17.91
100	3	22	80	H184	21.16
100	4	22	80	H185	27.26
100	5	22	80	H186	36.31
100	6	22	64	H187	43.86
125	0.6	22	160	H187B	20.77
125	0.8	22	160	H188A	19.80
125	1	22	160	H190	19.80
125	1.2	22	128	H191B	20.80
125	1.6	22	128	H192B	20.51
125	2	22	128	H193A	24.17
125	2.5	22	100	H193C	26.01
125	3	22	100	H194B	29.87
125	4	22	100	H194D	36.79
125	5	22	80	H194F	50.12
125	6	22	80	H194H	62.70
160	1	32	160	H199	29.87
160	1.2	32	160	H200	29.87
160	1.6	32	160	H201	31.53
160	2	32	128	H203	31.53
160	2.5	32	128	H205	39.71
160	3	32	128	H208	42.14
160	4	32	100	H209	52.35
160	5	32	100	H210	63.50
160	6	32	100	H211	72.65
200	1	32	200	H212A	48.45
200	1.2	32	100	H213	52.19
200	1.6	32	160	-	44.59
200	2	32	160	-	49.28
200	2.5	32	160	-	55.15
200	3	32	128	H216	69.37
200	4	32	64	H217	84.88
200	5	32	128	H218A	108.71
200	6	32	100	H219A	119.43
250	1.6	32	200	-	61.50
250	2	32	100	H220	76.00
250	2.5	32	160	-	77.15
250	3	32	160	H221	98.23
250	4	32	160	-	113.28
250	5	32	128	H222	147.96
250	6	32	128	-	162.41

Saw Arbor 16ml to 25.4ml – H260 – £60.00

*** * * SPECIAL SAWS ON REQUEST * * ***

Prices subject to generous quantity and resale discounts.



Woferal HSS Slitting Saws, Metric

With Coarse Pitch as to DIN 1838 Toothform B DIN 1840.
Stock Sizes.

Dimensions in millimetres. Used for medium deep cutting and cut-off operations.
Hollow ground on both sides to prevent binding.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
50	0.5	13	48	H112A	7.54
50	0.6	13	48	H113A	7.54
50	0.8	13	40	H114B	7.54
50	1	13	40	H115A	7.54
50	1.2	13	40	H116A	7.90
50	1.6	13	32	H118A	7.90
50	2	13	32	H120A	8.66
50	2.5	13	32	H121A	9.16
50	3	13	24	H122A	10.66
50	4	13	24	H122C	13.51
50	5	13	24	H123A	18.05
50	6	13	20	-	16.67
63	0.5	16	64	H133A	7.60
63	0.6	16	48	H134A	7.60
63	0.8	16	48	H136A	7.60
63	1	16	48	H137	7.60
63	1.2	16	40	-	7.60
63	1.5	16	40	-	8.95
63	1.6	16	40	H145A	8.95
63	2	16	40	H147A	9.78
63	2.5	16	32	H147B	10.78
63	3	16	32	H149B	12.61
63	4	16	32	H151A	15.54
63	5	16	24	H151B	21.47
63	6	16	24	H151D	24.88
80	0.5	22	64	H154A	9.73
80	0.6	22	64	H155A	9.73
80	0.8	22	64	H156A	9.67
80	1	22	48	H159A	9.67
80	1.2	22	48	H160A	9.67
80	1.6	22	48	H163A	11.67
80	2	22	40	H165A	12.44
80	2.5	22	40	H166A	13.43
80	3	22	40	H167A	15.68
80	4	22	32	H168A	18.85
80	5	22	32	H168B	22.68
80	6	22	32	H169A	29.70
100	0.5	22	80	H170A	14.08
100	0.6	22	80	H171B	13.13
100	0.8	22	64	H172A	12.73
100	1	22	64	H173	12.73
100	1.2	22	64	H175A	12.73
100	1.6	22	48	H179A	14.08

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
100	2	22	48	H181	16.67
100	2.5	22	48	H183A	17.91
100	3	22	40	H184A	21.16
100	4	22	40	H185A	27.26
100	5	22	40	H186A	36.31
100	6	22	32	H187A	43.86
125	0.6	22	80	H187C	20.77
125	0.8	22	80	H188	19.80
125	1	22	80	H189	19.80
125	1.2	22	64	H191	20.80
125	1.6	22	64	H192A	20.51
125	2	22	64	H193	24.17
125	2.5	22	48	H193B	26.01
125	3	22	48	H194	29.87
125	4	22	48	H194C	36.79
125	5	22	40	H194E	50.12
125	6	22	40	H194G	62.70
160	1	32	80	H199A	29.87
160	1.2	32	80	H200A	29.87
160	1.6	32	80	H201A	31.53
160	2	32	64	H202A	31.53
160	2.5	32	64	H204	39.71
160	3	32	64	H206	42.14
160	4	32	50	H209A	52.35
160	5	32	50	H210A	63.50
160	6	32	50	-	72.65
200	1	32	100	H212	48.45
200	1.2	32	100	H213	49.28
200	1.6	32	80	-	44.59
200	2	32	80	-	49.28
200	2.5	32	80	-	55.15
200	3	32	64	-	65.51
200	4	32	64	-	80.16
200	5	32	64	-	102.66
200	6	32	50	-	112.79
250	1.6	32	100	-	61.50
250	2	32	100	-	69.96
250	2.5	32	80	-	77.15
250	3	32	80	-	90.42
250	4	32	80	-	113.28
250	5	32	64	-	136.20
250	6	32	64	-	162.41

MIXED INCH/METRIC DIMENSIONS

WE CAN SUPPLY ANY CUTTING TOOL TO MIXED DIMENSIONS. WE OPERATE A 7-DAY COMPLETE MODIFICATION SERVICE.

We offer a complete service for all tools and saw blades of the types we sell.

WE DO OUR BEST TO GIVE YOU SAME DAY DELIVERY SERVICE AND OPERATE A "DIRECT TO USER" DELIVERY SERVICE WHICH SAVES YOU TIME, PACKING AND POSTAGE.
PLEASE ASK FOR DETAILS.

Wolferal Commutator/Undercutting Saws

GENERAL

Wolferal Undercutting Saws and V-Cutters are available in High-Speed Steel or Tungsten Carbide. Both types are carefully designed as to tooth form, hollow grind, hardness etc., and are manufactured to close tolerances.

While used primarily for undercutting mica and slotting risers of commutators, Wolferal Undercutting Saws and V-Cutters are also used for cutting steel, aluminium, plastics and other materials not requiring set teeth.

Undercutting differs from ordinary machining in that, instead of shearing, it is a combination of crushing, grinding and conveying. Mica is very abrasive and varies in hardness, making necessary the very best design and production controls in the manufacture of undercutting saws.

HIGH SPEED STEEL SAWS AND V-CUTTERS

These may be used on either portable or stationary equipment with spindle speeds of 1,500 to 5,000 r.p.m.

SAWS ('U'-SLOT)

Actual size illustrations at right; specifications and quantity discounts below. Saws in these thicknesses:-

.015"	.023"	.028"	.035"	.043"	.053"	.060"
.018"	.025"	.030"	.038"	.045"	.055"	.063"
.020"	.026"	.032"	.040"	.050"	.058"	.065"

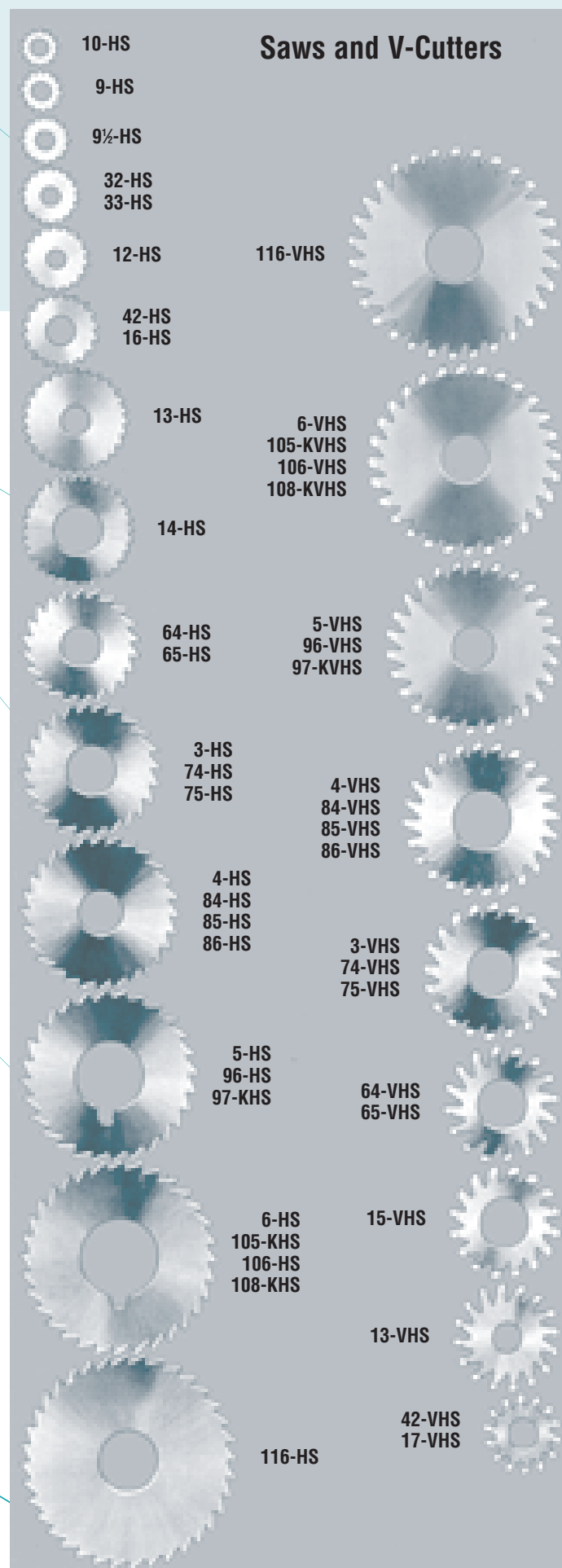
Other thicknesses available at extra cost. **Be sure to specify thicknesses.**

'U' Slot Type No.	O.D.	Bore	No of Teeth	List Price £	'U' Slot Type No.	O.D.	Bore	No of Teeth	List Price £
10-HS	1/4"	1/8"	14	POA	75-HS	7/8"	5/16"	24	POA
9-HS	9/32"	1/8"	14	POA	84-HS	1"	1/4"	28	POA
9.5-HS	5/16"	1/8"	16	POA	4-HS	1"	9/32"	28	POA
32-HS	3/8"	1/8"	18	POA	85-HS	1"	5/16"	28	POA
33-HS	3/8"	3/16"	18	POA	86-HS	1"	3/8"	28	POA
12-HS	7/16"	1/8"	18	POA	5-HS	1.1/8"	9/32"	28	POA
42-HS	1/2"	1/8"	18	POA	96-HS	1.1/8"	3/8"	28	POA
16-HS	1/2"	3/16"	18	POA	97-KHS	1.1/8"	7/16"	28	POA
13-HS	11/16"	3/16"	28	POA	6-HS	1.1/4"	9/32"	32	POA
14-HS	23/32"	5/16"	32	POA	105-KHS	1.1/4"	5/16"	32	POA
64-HS	3/4"	1/4"	22	POA	106-HS	1.1/4"	3/8"	32	POA
65-HS	3/4"	5/16"	22	POA	108-KHS	1.1/4"	1/2"	32	POA
74-HS	7/8"	1/4"	24	POA	116-HS	1.3/8"	3/8"	36	POA
3-HS	7/8"	9/32"	24	POA					

V-CUTTERS ('V'-SLOT)

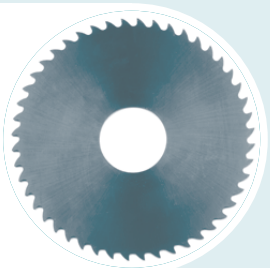
Actual size illustrations at right; specifications and quantity discounts below. These cutters are all .045" thick and stocked with 40°, 50° and 60° angles between cutting edges. 40° V-cutters are for thin mica, 50° for medium mica and 60° for thick mica. **Be sure to specify angle (40°, 50° or 60°).**

'V' Slot Type No.	O.D.	Bore	No of Teeth	List Price £	'V' Slot Type No.	O.D.	Bore	No of Teeth	List Price £
42-VHS	1/2"	1/8"	12	POA	85-VHS	1"	5/16"	22	POA
17-VHS	1/2"	3/16"	12	POA	86-VHS	1"	3/8"	22	POA
13-VHS	11/16"	3/16"	14	POA	5-VHS	1.1/8"	9/32"	24	POA
15-VHS	23/32"	5/16"	14	POA	96-VHS	1.1/8"	3/8"	24	POA
64-VHS	3/4"	1/4"	14	POA	97-KVHS	1.1/8"	7/16"	24	POA
65-VHS	3/4"	5/16"	14	POA	6-VHS	1.1/4"	9/32"	24	POA
74-VHS	7/8"	1/4"	18	POA	105-KVHS	1.1/4"	5/16"	24	POA
3-VHS	7/8"	9/32"	18	POA	106-VHS	1.1/4"	3/8"	24	POA
75-VHS	7/8"	5/16"	18	POA	108-KVHS	1.1/4"	1/2"	24	POA
84-VHS	1"	1/4"	22	POA	116-VHS	1.3/8"	3/8"	26	POA
4-VHS	1"	9/32"	22	POA					



HIGH-SPEED STEEL AND SOLID CARBIDE

Prices subject to generous quantity and resale discounts.



Wolferal Solid Carbide Saws, Metric

Precision ground all over, highly polished finish.

Stocked with toothforms A (fine) and B (coarse) to DIN 1840.

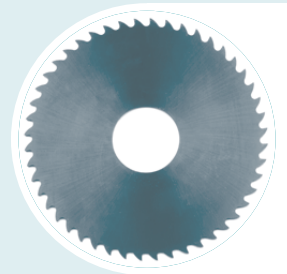
Dimensions in millimetres to DIN 1837 and 1838. Used for longer life, less down-time and better quality finishes. Also available with toothforms AW, BW and C to DIN 1840.

Diameter	Width	Bore	No of Teeth Toothform A	Toothform B	List Price £
15	0.1	5	64	24	10.00
15	0.15	5	64	24	10.00
15	0.2	5	64	24	7.00
15	0.25	5	64	24	7.00
15	0.3	5	64	24	7.00
15	0.4	5	64	24	7.00
15	0.5	5	48	20	7.00
15	0.6	5	48	20	8.00
15	0.7	5	48	20	8.00
15	0.8	5	40	20	8.00
15	1	5	40	16	9.00
15	2	5	28	12	12.00
20	0.1	5	80	32	12.00
20	0.15	5	80	32	10.00
20	0.2	5	80	32	8.00
20	0.25	5	64	32	7.00
20	0.3	5	64	32	8.00
20	0.4	5	64	32	8.00
20	0.5	5	48	24	8.00
20	0.6	5	48	24	9.00
20	0.7	5	48	24	9.00
20	0.8	5	40	24	10.00
20	1	5	40	20	11.00
20	1.2	5	40	20	11.00
20	1.5	5	40	20	12.00
20	1.6	5	40	20	13.00
20	2	5	32	16	14.00
20	2.5	5	32	16	18.00
20	3	5	32	16	20.00
25	0.1	8	80	32	12.00
25	0.15	8	80	32	11.00
25	0.2	8	80	32	8.00
25	0.25	8	80	32	8.00
25	0.3	8	80	32	8.00
25	0.4	8	64	32	8.00
25	0.5	8	64	24	9.00
25	0.6	8	64	24	10.00
25	0.8	8	48	24	12.00
25	1	8	48	20	12.00
25	1.2	8	48	20	14.00
25	1.5	8	40	20	16.00
25	1.6	8	40	20	16.00
25	2	8	40	16	19.00
25	2.5	8	40	16	23.00
25	3	8	32	16	28.00
32	0.15	8	100	32	14.00
32	0.2	8	100	32	13.00
32	0.25	8	100	32	13.00
32	0.3	8	80	32	13.00
32	0.4	8	80	32	13.00
32	0.5	8	80	24	13.00
32	0.6	8	64	24	14.00
32	0.8	8	64	24	17.00
32	1	8	64	24	18.00
32	1.2	8	48	24	20.00
32	1.5	8	48	20	22.00

Diameter	Width	Bore	No of Teeth Toothform A	Toothform B	List Price £
32	1.6	8	48	20	23.00
32	2	8	48	20	26.00
32	2.5	8	40	20	29.00
32	3	8	40	20	33.00
40	0.2	10	128	48	15.00
40	0.25	10	100	48	14.00
40	0.3	10	100	48	15.00
40	0.4	10	100	48	14.00
40	0.5	10	80	40	15.00
40	0.6	10	80	40	15.00
40	0.8	10	80	40	17.00
40	1	10	64	32	19.00
40	1.2	10	64	32	19.00
40	1.5	10	64	32	21.00
40	1.6	10	64	32	22.00
40	2	10	48	24	24.00
40	2.5	10	48	24	31.60
40	3	10	48	24	36.00
40	4	10	40	20	44.00
40	5	10	40	20	53.00
40	6	10	40	20	63.00
50	0.2	13	128	48	21.00
50	0.25	13	128	48	20.00
50	0.3	13	128	48	18.00
50	0.4	13	100	48	18.00
50	0.5	13	100	48	18.00
50	0.6	13	100	48	18.00
50	0.8	13	80	40	20.00
50	1	13	80	40	21.00
50	1.2	13	80	40	22.00
50	1.5	13	64	32	27.00
50	1.6	13	64	32	27.00
50	2	13	64	32	31.00
50	2.5	13	64	32	37.00
50	3	13	48	24	43.00
50	4	13	48	24	52.00
50	5	13	48	24	64.00
50	6	13	40	20	73.00
63	0.2	16	160	64	28.00
63	0.25	16	128	64	28.00
63	0.3	16	128	64	28.00
63	0.4	16	128	64	25.00
63	0.5	16	128	64	24.00
63	0.6	16	100	48	25.00
63	0.8	16	100	48	30.00
63	0.9	16	100	48	30.00
63	1	16	100	48	31.00
63	1.2	16	80	40	33.00
63	1.5	16	80	40	36.00
63	1.6	16	80	40	37.00
63	2	16	80	40	43.00
63	2.5	16	80	32	50.00
63	3	16	64	32	57.00
63	4	16	64	32	72.00
63	5	16	48	24	86.00
63	6	16	48	24	99.00

Wolferal Solid Carbide Saws, Metric

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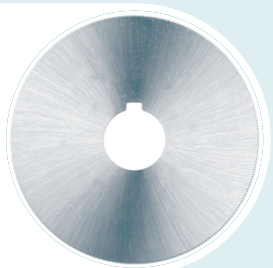


Diameter	Width	Bore	No of Teeth		List Price £
			Toothform A	Toothform B	
80	0.3	22	160	64	54.00
80	0.4	22	160	64	51.00
80	0.5	22	128	64	39.00
80	0.6	22	128	64	37.00
80	0.8	22	128	64	42.00
80	1	22	100	64	44.00
80	1.2	22	100	48	46.00
80	1.5	22	100	48	53.00
80	1.6	22	100	48	52.00
80	2	22	80	40	60.00
80	2.5	22	80	40	70.00
80	3	22	80	40	83.00
80	4	22	64	32	100.00
80	5	22	64	32	122.00
80	6	22	64	32	139.00
100	0.4	22	160	80	72.00
100	0.5	22	160	80	72.00
100	0.6	22	160	80	69.00
100	0.8	22	128	64	59.00
100	1	22	128	64	55.00
100	1.2	22	128	64	61.00
100	1.5	22	100	48	69.00
100	1.6	22	100	48	73.00
100	2	22	100	48	86.00
100	2.5	22	100	48	99.00
100	3	22	100	40	112.00
100	4	22	80	40	141.00
100	5	22	80	40	171.00
100	6	22	64	32	197.00
125	0.5	22	160	80	126.00
125	0.6	22	160	80	118.00
125	0.8	22	160	80	101.00
125	1	22	160	80	90.00
125	1.2	22	128	64	98.00

Diameter	Width	Bore	No of Teeth		List Price £
			Toothform A	Toothform B	
125	1.5	22	128	64	112.00
125	1.6	22	128	64	116.00
125	2	22	128	64	138.00
125	2.5	22	100	48	162.00
125	3	22	100	48	186.00
125	4	22	100	48	245.00
125	5	22	80	40	280.00
125	6	22	80	40	343.00
160	0.8	32	160	80	195.00
160	1.0	32	160	80	176.00
160	1.2	32	160	80	158.00
160	1.5	32	160	80	157.00
160	1.6	32	160	80	158.00
160	2	32	128	64	236.00
160	2.5	32	128	64	270.00
160	3	32	128	64	290.00
160	4	32	100	64	381.00
160	5	32	100	64	476.00
160	6	32	100	48	581.00
200	1.2	32	100	80	440.00
200	1.5	32	200	80	337.00
200	2	32	160	80	409.00
200	2.5	32	160	80	471.00
200	3	32	128	64	534.00
200	4	32	128	64	664.00
200	5	32	128	64	813.00
200	6	32	128	64	860.00
250	1.6	32	250	128	929.00
250	2	32	200	100	860.00
250	2.5	32	160	80	511.00
250	3	32	160	80	883.00
250	4	32	160	80	1022.00
250	5	32	128	80	1162.00
250	6	32	128	80	1300.00

Other sizes available on request – Imperial & Metric

Prices subject to generous quantity and resale discounts.



Wolferal HSS Extra Fine Pitch Saws

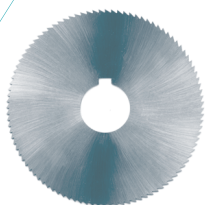
12,18 and 24 teeth per inch.

Stock sizes.

Used extensively throughout the USA. This type of saw is used for slotting thin material for cut-off operations such as wire, thin tubing, extrusions, etc.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
3	.010	1	280	X087	20.28
3	.012	1	280	X088	20.28
3	.014	1	230	X089	17.88
3	.016	1	230	X090	17.88
3	.018	1	230	X091	17.88
3	.020	1	230	X092	17.88
3	.023	1	230	X093	17.88
3	.025	1	230	X094	17.88
3	.028	1	230	X095	17.88
3	.032	1	170	X096	17.88
3	.035	1	170	X097	17.88
3	.040	1	170	X098	19.44
3	.045	1	170	X099	19.44
3	.051	1	170	X100	21.52
3	.057	1	170	X101	21.52
3	.081	1	230	X101A	20.46
4	.016	1	300	X102	28.18
4	.020	1	300	X103	28.18

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
4	.023	1	300	X104	28.18
4	.025	1	300	X105	23.88
4	.028	1	300	X106	23.88
4	.032	1	220	X107	23.88
4	.035	1	220	X108	23.88
4	.040	1	220	X109	26.41
4	.045	1	220	X110	26.41
4	.051	1	220	X111	25.90
4	.057	1	220	X112	25.90
4	.062	1	220	X113	25.90
5	.031	1	280	X114	38.40
5	.035	1	280	X114A	38.40
5	.045	1	280	X114B	38.40
5	.051	1	280	X114C	38.40
6	.040	1	340	X114D	52.08
6	.045	1	340	X114E	52.08
6	.051	1	230	X114F	53.50
6	.064	1	230	X115	53.50



Wolferal Extra Fine Pitch Screw Slotting Saws

This is only a small selection of our special stock sizes.
Other sizes on request.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.1/4	.020	5/8	120	X071	13.44
2.1/4	.025	5/8	120	X073	13.44
2.1/4	.032	5/8	120	X075	13.44
2.1/4	.040	5/8	120	X078	13.44
2.1/4	.062	5/8	120	X082	14.82
2.1/4	.064	5/8	120	X083	14.82
2.1/4	.125	5/8	120	X086	21.06

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.3/4	.010	1	144	X119	16.48
2.3/4	.020	1	144	X127	14.16
2.3/4	.023	1	144	X129A	14.32
2.3/4	.025	1	144	X131	14.19
2.3/4	.032	1	144	X136	14.47
2.3/4	.040	1	144	X141	14.47
2.3/4	.062	1	144	X148	16.48

Wolferal High Production Screw Slotting Saws

This is only a small selection of our special stock sizes.
Other sizes on request.

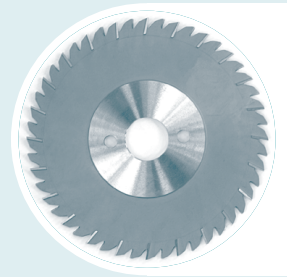
Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.3/4	.040	1	44	X166B	11.10
2.3/4	.045	1	44	X166C	11.32
2.3/4	.051	1	44	X166D	11.32
2.3/4	.057	1	44	X166E	11.32
2.3/4	.062	1	44	X166F	12.54
2.3/4	.064	1	44	X166G	12.54
2.3/4	.072	1	44	X166H	12.54
2.3/4	.081	1	44	X166I	12.54
2.3/4	.085	1	44	X166K	13.40
2.3/4	.091	1	44	X166M	13.40

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
3	.028	1	44	X167A	12.76
3	.032	1	44	X167B	12.76
3	.036	1	44	X159A	13.92
3	.040	1	44	X168	13.92
3	.045	1	44	X169	13.92
3	.051	1	44	X170	15.40
3	.057	1	44	X171	15.40
3	.064	1	44	X173	16.42
3	.072	1	44	X174	16.42
3	.081	1	44	X174A	17.72
3	.125	1	44	X174B	20.62

Super Wolferal Weld Prep Cutters & Blades

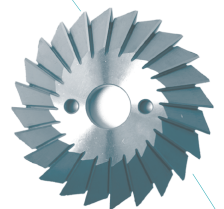
For use on EH WACHS type machines.

Wolferal supply a wide variety of cutting blades for pipe materials and bevelling cutters for 37.5° and 30° weld prep configurations. We can supply further products relating to tooling for these types of machines on request.



SLITTING BLADES

Diameter mm	Bore mm	Kerf mm	Toothform	Price £	Order Ref.
6	1.1/4	3/16	HSS	POA	W 601-00
7	1.1/4	3/16	HSS	POA	W 602-00
7	1.1/4	9.32	HSS	POA	W 603-00
8	1.1/4	3/16	HSS	POA	W 604-00
6	1.1/4	—	TCT	POA	W 605-00
7	1.1/4	—	TCT	POA	W 606-00
8	1.1/4	—	TCT	POA	W 607-00
6	1.1/4	3/16	HTCT	POA	W 653-01
7	1.1/4	3/16	HTCT	POA	W 653-02
8	1.1/4	3/16	HTCT	POA	W 653-03



BEVELLING BLADES

Diameter mm	Bore mm	Kerf mm	Toothform	Price £	Order Ref.
5	1.1/4	—	30° LH	POA	W 608-LH
5	1.1/4	—	30° RH	POA	W 608-RH
5	1.1/4	—	37½° LH	POA	W 609-LH
5	1.1/4	—	37½° RH	POA	W 609-RH
6	1.1/4	—	30° LH	POA	W 610-LH
6	1.1/4	—	30° RH	POA	W 610-RH
6	1.1/4	—	37½° LH	POA	W 611-LH
6	1.1/4	—	37½° RH	POA	W 611-RH

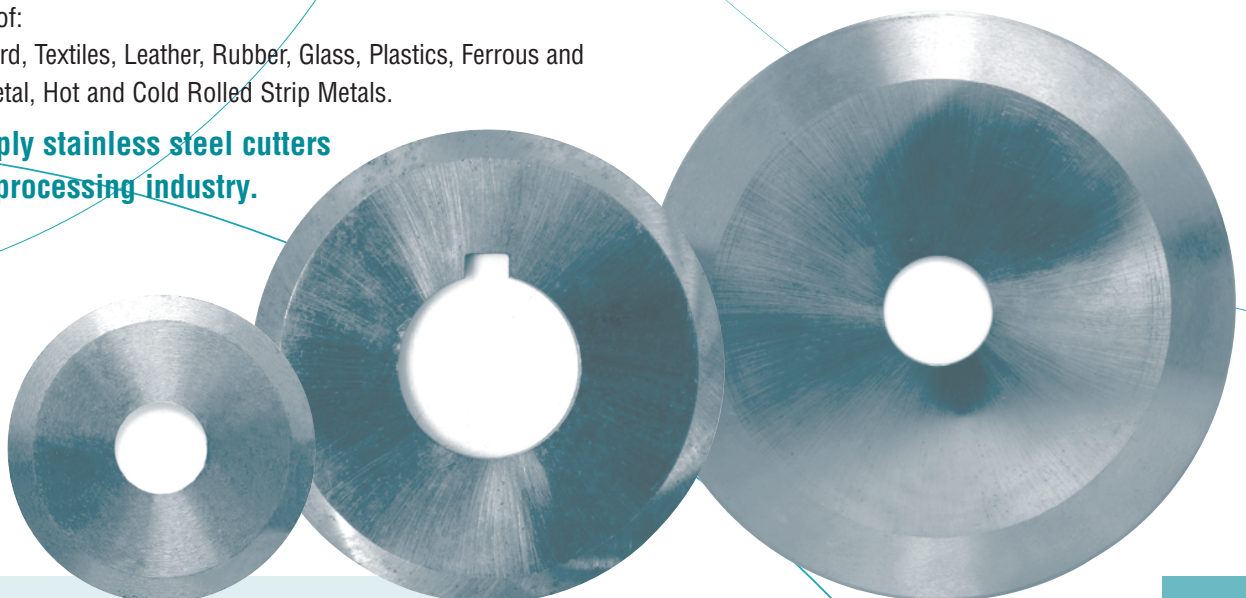
Circular Knives

Highest Quality and Precision for all Industrial purposes.

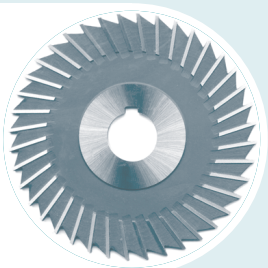
For the cutting of:

Paper, Pasteboard, Textiles, Leather, Rubber, Glass, Plastics, Ferrous and Non-Ferrous Metal, Hot and Cold Rolled Strip Metals.

We also supply stainless steel cutters for the food processing industry.



Prices subject to generous quantity and resale discounts.



Woferal M2 HSS Side Chip Clearance Saws

Straight Tooth Type B. Imperial Range.
Stock Sizes.

Used for deep-slotting and cut-off operations.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
3	1/16	1	32	F002	35.08
3	1/16	1.1/4	32	F003	35.08
3	5/64	1	32	F004	37.66
3	3/32	1	32	F005	37.66
3	3/32	1.1/4	32	F006	37.66
3	7/64	1	32	F007	36.01
3	1/8	1	32	F008	36.63
3	9/64	1	32	F010	36.63
3	5/32	1	32	F012	41.56
3	3/16	1	32	F014	44.57
3	1/4	1	32	F018	45.30
4	3/64	1	36	F019	68.57
4	1/16	1	36	F020	45.18
4	1/16	1.1/4	36	F021	45.18
4	5/64	1	36	F022	48.10
4	3/32	1	36	F023	48.10
4	7/64	1	36	F024	64.99
4	1/8	1	36	F025	48.10
4	1/8	1.1/4	36	F027	48.10
4	9/64	1	36	F029	54.30
4	5/32	1	36	F031	54.30
4	3/16	1	36	F033	58.73
4	7/32	1	36	F035	63.70
4	1/4	1	36	F036A	63.70
5	1/16	1	40	F037	58.55
5	1/16	1.1/4	40	F038	58.55
5	5/64	1	40	F039	61.57

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
5	3/32	1	40	F040	61.57
5	3/32	1.1/4	40	F042	61.57
5	7/64	1	40	F043	64.44
5	1/8	1	40	F044	60.17
5	1/8	1.1/4	40	F046	60.17
5	9/64	1	40	F047	85.61
5	5/32	1	40	F049	78.09
5	5/32	1.1/4	40	F050	78.09
5	3/16	1	40	F053	83.85
5	3/16	1.1/4	40	F054A	83.85
5	1/4	1	40	F059	96.14
5	1/4	1.1/4	40	F061	96.14
6	1/16	1	42	F062	89.99
6	3/32	1	42	F064	85.42
6	3/32	1.1/4	42	F065	85.42
6	7/64	1	42	F066	88.42
6	1/8	1	42	F067	88.98
6	1/8	1.1/4	42	F069	88.98
6	5/32	1	42	F072	104.35
6	5/32	1.1/4	42	F074	104.35
6	3/16	1	42	F076	109.30
6	3/16	1.1/4	42	F078	109.03
7	1/8	1	56	F087	108.30
7	1/8	1.1/4	56	F088	108.30
8	1/8	1	48	F103	144.43
8	1/8	1.1/4	48	F105	144.43
8	3/16	1.1/4	48	F111	174.41

Woferal M2 HSS Side Chip Clearance Saws

Straight Tooth Type B. Metric Range. DIN 1834.

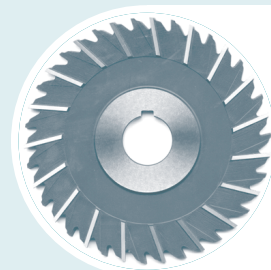
Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
63	1.6	22	32	F136	34.57
63	2.0	22	32	F137	34.57
63	2.5	22	32	F138	37.10
63	3.0	22	32	F139	37.00
63	4.0	22	32	F140	39.60
63	5.0	22	32	-	43.06
80	1.6	27	36	F141	POA
80	2.0	27	36	F142	POA
80	2.5	27	36	F143	POA
80	3.0	27	36	F144	POA
80	4.0	27	36	F145	POA
80	5.0	27	36	F146	POA
100	1.6	32	40	F205A	46.97
100	2.0	32	40	F147	45.37
100	2.5	32	40	F148	48.70

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
100	3.0	32	40	F149	51.84
100	4.0	32	40	F150	57.78
100	5.0	32	40	-	61.82
100	6.0	32	40	-	74.92
125	2.0	32	40	F192	60.18
125	2.5	32	40	F151	64.65
125	3.0	32	40	F152	65.38
125	4.0	32	40	-	80.26
125	5.0	32	40	-	84.24
125	6.0	32	40	F152A	104.69
160	2.0	40	48	-	85.08
160	3.0	40	48	-	98.21
160	4.0	40	48	-	111.04
160	5.0	40	48	-	114.84
160	6.0	40	48	-	134.99

Wolferal M2 HSS Side Chip Clearance Saws

Staggered Tooth Type A. Imperial Range. Stock Sizes.

Staggered teeth are especially recommended for deep-slotting and heavy-duty cutting. The alternate helical teeth give a shearing action without chatter.



Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
3	5/32	1	32	F011	41.56
3	3/16	1	32	F013	44.57
3	3/16	1.1/4	32	F015	44.57
3	7/32	1	32	F016	44.57
3	1/4	1	32	F017	45.30
4	1/8	1	34	F026	48.10
4	1/8	1.1/4	34	F028	48.10
4	5/32	1	34	F030	54.30
4	3/16	1	34	F032	58.73
4	3/16	1.1/4	34	F033A	58.73
4	7/32	1	34	F034	63.70
4	1/4	1	34	F036	63.70
5	1/8	1	38	F045	60.17
5	5/32	1	38	F048	78.09
5	5/32	1.1/4	38	F051	78.09
5	3/16	1	38	F052	68.48
5	3/16	1.1/4	38	F054	83.85
5	7/32	1	38	F055	83.85
5	7/32	1.1/4	38	F057	83.85
5	1/4	1	38	F058	96.14
5	1/4	1.1/4	38	F060	96.14
6	1/8	1	42	F068	83.85
6	1/8	1.1/4	42	F070	83.85
6	5/32	1	42	F071	104.35
6	5/32	1.1/4	42	F073	104.35
6	3/16	1	42	F075	104.35
6	3/16	1.1/4	42	F077	104.35
6	7/32	1	42	F079	121.79
6	7/32	1.1/4	42	F080	121.79
6	1/4	1	42	F081	121.79

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
6	1/4	1.1/4	42	F082	129.84
6	5/16	1	42	F083	153.01
6	5/16	1.1/4	42	F084	153.01
6	3/8	1	42	F085	153.01
7	5/32	1	46	F089	121.79
7	5/32	1.1/4	46	F090	121.79
7	3/16	1	46	F091	128.57
7	3/16	1.1/4	46	F092	128.57
7	7/32	1.1/4	46	F094	151.83
7	1/4	1	46	F095	156.09
7	1/4	1.1/4	46	F096	156.09
7	5/16	1	46	F098	182.08
7	5/16	1.1/4	46	F099	182.08
7	3/8	1	46	F100	213.82
8	1/8	1	50	F104	144.43
8	1/8	1.1/4	50	F106	144.83
8	5/32	1	50	F107	164.41
8	5/32	1.1/4	50	F108	164.41
8	3/16	1	50	F109	174.41
8	7/32	1	50	F112	230.38
8	1/4	1	50	F113	203.94
8	1/4	1.1/4	50	F114	203.94
8	3/8	1	50	F117	276.22
9	3/16	1	54	F121	230.47
9	1/4	1	54	F122	280.15
9	1/4	1.1/4	54	F123	280.15
10	5/32	1.1/4	60	F128	262.33
10	3/16	1.1/4	60	F131	283.15
10	1/4	1	60	F133	306.98
10	1/4	1.1/4	60	F134	306.98

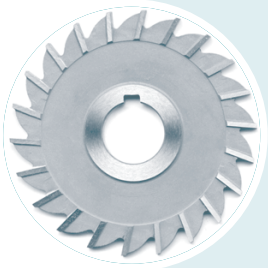
Wolferal M2 HSS Side Chip Clearance Saws

Staggered Tooth Type A. Metric Range. DIN 1834.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
63	1.6	22	28	F153	34.57
63	2.0	22	28	F154	34.57
63	2.5	22	28	F155	37.10
63	3.0	22	28	F156	37.00
63	4.0	22	28	F157	39.60
63	5.0	22	28	F158	43.06
80	2.0	27	32	F160	34.98
80	2.5	27	32	F161	37.68
80	3.0	27	32	F162	49.82
80	4.0	27	32	F163	44.18
80	5.0	27	32	F164	49.22
80	6.0	27	32	F165	50.44
100	1.6	32	36	F166	46.97
100	2.0	32	36	F167	45.37
100	2.5	32	36	F168	48.70
100	3.0	32	36	F169	51.84
100	4.0	32	36	F170	57.78
100	5.0	32	36	F171	61.82
100	6.0	32	36	F172	74.92

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
125	2.0	32	40	F174	70.25
125	2.5	32	40	F175	64.65
125	3.0	32	40	F176	65.38
125	4.0	32	40	F177	80.26
125	5.0	32	40	F178	84.24
125	6.0	32	40	F216A	99.95
160	2.0	40	44	F179	85.08
160	2.5	40	44	F180	91.97
160	3.0	40	44	F181	98.21
160	4.0	40	44	F182	111.04
160	5.0	40	44	F183	114.84
160	6.0	40	44	F184	134.99
200	2.5	40	52	-	148.63
200	3.0	40	52	-	153.83
200	4.0	40	52	-	170.63
200	5.0	40	52	-	182.90
200	6.0	40	52	-	206.92
200	8.0	40	52	-	249.26

Prices subject to generous quantity and resale discounts.



Wolferal HSS Side and Face Cutters

Straight Teeth, Stock Sizes. Imperial Range.

Straight teeth are used for slotting and light-duty side milling. These cutters can be ganged and used as straddle mills.

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.1/2	3/16	1	16	K001	34.69
2.1/2	1/4	1	16	K002	37.02
2.1/2	5/16	1	16	K003	39.43
2.1/2	3/8	1	16	K004	40.05
2.1/2	7/16	1	16	K005	41.38
2.1/2	1/2	1	16	K006	42.20
3	3/16	1	18	K007	42.56
3	7/32	1	18	K206	42.73
3	1/4	1	18	K008	42.73
3	9/32	1	18	K009	44.80
3	5/16	1	18	K010	44.80
3	3/8	1	18	K011	45.85
3	7/16	1	18	K012	48.09
3	1/2	1	18	K013	49.14
3	9/16	1	18	K014	50.90
3	5/8	1	18	K015	52.36
3	3/4	1	18	K016	56.73
3	7/8	1	18	K017	65.25
3	1	1	18	K018	65.76
3.1/2	3/16	1	20	K019	51.27
3.1/2	1/4	1	20	K020	53.02
3.1/2	5/16	1	20	K021	55.64
3.1/2	3/8	1	20	K022	58.38
3.1/2	7/16	1	20	K023	59.71
3.1/2	1/2	1	20	K024	62.13
3.1/2	5/8	1	20	K025	67.25
3.1/2	3/4	1	20	K026	71.16
4	3/16	1	22	K027	52.26
4	7/32	1	22	K027A	54.87
4	1/4	1	22	K028	54.87
4	1/4	1.1/4	22	K029	54.87
4	9/32	1	22	K029A	60.65
4	5/16	1	22	K030	60.65
4	5/16	1.1/4	22	K031	60.65
4	3/8	1	22	K032	61.59
4	3/8	1.1/4	22	K033	61.59
4	7/16	1	22	K035	64.76
4	7/16	1.1/4	22	K036	64.76
4	1/2	1	22	K037	66.23
4	1/2	1.1/4	22	K038	66.23
4	9/16	1	22	K039	71.16
4	5/8	1	22	K040	74.26
4	5/8	1.1/4	22	K041	74.26
4	3/4	1	22	K042	80.95
4	3/4	1.1/4	22	K043	80.95
4	7/8	1	22	K044	90.27
4	7/8	1.1/4	22	K045	90.27
4	1	1	22	K046	95.82
4	1	1.1/4	22	K047	95.82
4.1/2	1/2	1	22	K048	104.93
5	3/16	1	24	K049A	79.49
5	1/4	1	24	K050	71.47
5	1/4	1.1/4	24	K051	71.47
5	5/16	1	24	K052	77.10

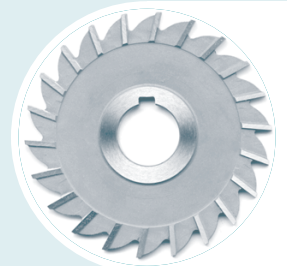
Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
5	5/16	1.1/4	24	K053	77.10
5	3/8	1	24	K054	88.61
5	3/8	1.1/4	24	K055	88.61
5	7/16	1	24	K056	92.86
5	7/16	1.1/4	24	K057	92.86
5	1/2	1	24	K058	97.16
5	1/2	1.1/4	24	K059	97.16
5	9/16	1	24	K060	103.04
5	9/16	1.1/4	24	K061	103.04
5	5/8	1	24	K062	106.37
5	5/8	1.1/4	24	K063	106.37
5	3/4	1	24	K064	115.26
5	3/4	1.1/4	24	K065	115.26
5	7/8	1	24	K066	126.81
5	7/8	1.1/4	24	K067	126.81
5	1	1	24	K068	135.81
5	1	1.1/4	24	K069	135.81
6	1/4	1	26	K070	102.00
6	1/4	1.1/4	26	K071	102.00
6	5/16	1	26	K072	108.69
6	5/16	1.1/4	26	K073	108.69
6	3/8	1	26	K074	114.13
6	3/8	1.1/4	26	K075	114.13
6	7/16	1	26	K076	120.30
6	7/16	1.1/4	26	K077	120.30
6	1/2	1	26	K078	123.42
6	1/2	1.1/4	26	K079	123.42
6	9/16	1	26	K080	131.09
6	5/8	1	26	K081	137.65
6	5/8	1.1/4	26	K082	137.65
6	3/4	1	26	K083	156.27
6	3/4	1.1/4	26	K084	156.27
6	7/8	1	26	K085	178.04
6	7/8	1.1/4	26	K086	178.04
6	1	1	26	K087	190.81
6	1	1.1/4	26	K088	190.81
7	1/2	1	28	K211	178.01
7	1/2	1.1/4	28	K211A	178.01
8	1/4	1	32	K208	173.22
8	1/4	1.1/4	32	K208B	173.22
8	5/16	1	32	K208C	184.87
8	3/8	1	32	K091	201.87
8	3/8	1.1/4	32	K092	201.87
8	1/2	1	32	K093	236.46
8	1/2	1.1/4	32	K094	236.46
8	5/8	1	32	K095	p.o.a.
8	3/4	1	32	K097	p.o.a.
8	3/4	1.1/4	32	K098	280.80
8	1	1	32	K099	358.75
8	1	1.1/4	32	K100	358.75
10	3/8	1.1/4	36	K209	p.o.a.
10	1/2	1.1/4	36	K102	p.o.a.
10	5/8	1	36	K102A	479.22
10	5/8	1.1/4	36	K103	479.22

Prices subject to generous quantity and resale discounts.

Wolferal HSS Side and Face Cutters

Straight Teeth, Stock Sizes. Metric Range.

Straight teeth are used for slotting and light-duty side milling. These cutters can be ganged and used as straddle mills.

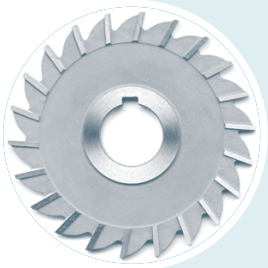


Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
50	4	16	14	M001	34.66
50	5	16	14	M002	36.48
50	6	16	14	M003	38.40
50	8	16	14	M004	40.42
50	10	16	14	M005	42.55
63	4	22	16	M006	44.79
63	5	22	16	M007	47.15
63	6	22	16	M008	49.63
63	8	22	16	M009	52.24
63	10	22	16	M010	55.12
63	12	22	16	M011	52.93
63	14	22	16	M012	59.65
63	16	22	16	M013	61.19
63	18	22	16	M014	64.87
80	5	27	18	M015	64.27
80	6	27	18	M016	62.72
80	8	27	18	M017	67.40
80	10	27	18	M018	68.74
80	12	27	18	M019	70.91
80	14	27	18	M020	73.88
80	16	27	18	M021	78.13
80	18	27	18	M022	83.38
80	20	27	18	M023	87.25
100	6	27	20	M024	82.81
100	8	27	20	M025	85.76
100	10	27	20	M026	87.35
100	12	27	20	M027	93.38
100	14	27	20	M028	99.48
100	16	27	20	M029	102.26
100	18	27	20	M030	110.20
100	20	27	20	M031	116.39

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
100	22	27	20	M032	123.91
100	25	27	20	M033	128.59
125	10	32	22	M034	125.54
125	12	32	22	M035	127.81
125	14	32	22	M036	136.73
125	16	32	22	M037	148.57
125	18	32	22	M038	156.54
125	20	32	22	M039	167.49
125	22	32	22	M040	173.68
125	25	32	22	M041	190.98
125	28	32	22	M042	190.98
160	10	40	24	M043	190.98
160	12	40	24	M044	197.15
160	14	40	24	M045	205.08
160	16	40	24	M046	216.44
160	18	40	24	M047	231.69
160	20	40	24	M048	259.86
160	22	40	24	M049	284.84
160	25	40	24	M050	319.35
160	28	40	24	M051	342.82
160	32	40	24	M052	342.82
200	8	40	30	M053	284.84
200	10	40	30	M054	292.67
200	12	40	30	M055	298.93
200	14	40	30	M056	306.76
200	16	40	30	M057	319.35
200	18	40	30	M058	338.06
200	20	40	30	M059	361.53
200	225	40	30	M060	407.03
200	25	40	30	M061	438.63

Other sizes available on request including HSS-Co5 Cutters

Prices subject to generous quantity and resale discounts.



Woferal HSS Side and Face Cutters

Staggered Teeth, Stock Sizes. Imperial Range.

Staggered teeth are used for deep slotting and heavy-duty side milling.
The alternate spiral effectively counteracts all tendency to chatter.

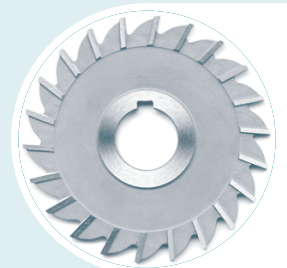
Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
2.1/2	3/16	1	16	K204	38.15
2.1/2	1/4	1	16	K205	40.66
2.1/2	5/16	1	16	K209A	41.32
2.1/2	3/8	1	16	K210	43.95
2.1/2	1/2	1	16	K107	46.35
3	3/16	1	16	K109	48.65
3	7/32	1	16	K110	56.81
3	1/4	1	16	K111	50.23
3	9/32	1	16	K112	52.36
3	5/16	1	16	K113	52.36
3	3/8	1	16	K114	54.33
3	7/16	1	16	K115	56.73
3	1/2	1	16	K116	57.78
3	9/16	1	16	K117	62.35
3	5/8	1	16	K118	62.35
3	3/4	1	16	K119	65.75
3	1	1	16	K120	76.43
3.1/2	1/4	1	18	K120A	65.25
3.1/2	5/16	1	18	K121	68.07
3.1/2	3/8	1	18	K122	68.07
3.1/2	1/2	1	18	K123	71.47
3.1/2	3/4	1	18	K125	81.47
4	3/16	1	18	K126	64.76
4	1/4	1	18	K127	68.25
4	1/4	1.1/4	18	K128	68.25
4	9/32	1	18	K129	72.02
4	5/16	1	18	K130	72.02
4	5/16	1.1/4	18	K131	72.02
4	3/8	1	18	K132	74.74
4	3/8	1.1/4	18	K133	74.74
4	7/16	1	18	K134	77.95
4	7/16	1.1/4	18	K135	77.95
4	1/2	1	18	K136	77.95
4	1/2	1.1/4	18	K137	77.95
4	9/16	1	18	K138	87.04
4	5/8	1	18	K139	87.77
4	5/8	1.1/4	18	K140	87.77
4	3/4	1	18	K141	94.08
4	3/4	1.1/4	18	K142	94.08
4	7/8	1	18	K143	102.51
4	7/8	1.1/4	18	K143A	102.51
4	1	1	18	K144	110.61
4	1	1.1/4	18	K145	110.61
5	3/16	1	22	K146A	91.80
5	1/4	1	22	K147	85.81
5	1/4	1.1/4	22	K148	85.81
5	9/32	1	22	K149	99.25
5	5/16	1	22	K150	91.64

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
5	5/16	1.1/4	22	K151	91.64
5	3/8	1	22	K152	95.12
5	3/8	1.1/4	22	K153	95.12
5	7/16	1	22	K154	99.16
5	7/16	1.1/4	22	K154A	99.16
5	1/2	1	22	K155	103.04
5	1/2	1.1/4	22	K156	103.04
5	9/16	1	22	K157	112.08
5	5/8	1	22	K158	112.08
5	5/8	1.1/4	22	K159	112.08
5	3/4	1	22	K160	125.85
5	3/4	1.1/4	22	K161	125.85
5	7/8	1	22	K162	139.51
5	1	1	22	K163	160.96
5	1	1.1/4	22	K164	160.96
6	1/4	1	24	K165	118.08
6	1/4	1.1/4	24	K166	118.08
6	9/32	1.1/4	24	K166A	152.04
6	5/16	1	24	K167	123.33
6	5/16	1.1/4	24	K168	123.33
6	3/8	1	24	K169	126.27
6	3/8	1.1/4	24	K170	126.27
6	7/16	1	24	K171	132.08
6	7/16	1.1/4	24	K173	132.08
6	1/2	1	24	K174	137.17
6	1/2	1.1/4	24	K175	137.17
6	9/16	1	24	K176	149.65
6	5/8	1	24	K177	149.65
6	5/8	1.1/4	24	K178	149.65
6	3/4	1	24	K179	176.04
6	3/4	1.1/4	24	K180	176.04
6	7/8	1	24	K181	198.02
6	7/8	1.1/4	24	K182	198.02
6	1	1	24	K183	214.94
6	1	1.1/4	24	K184	214.94
7	1/4	1.1/4	26	K184A	164.84
7	1/2	1	26	K185	190.90
7	1/2	1.1/4	26	K186	190.90
7	5/8	1.1/4	26	K186A	201.66
8	3/8	1	28	K187	215.22
8	3/8	1.1/4	28	K188	215.22
8	1/2	1	28	K190	243.25
8	1/2	1.1/4	28	K191	243.25
8	5/8	1	28	K192	261.88
8	5/8	1.1/4	28	K193	261.88
8	3/4	1	28	K194	296.11
8	3/4	1.1/4	28	K195	296.11
10	1/2	1.1/4	32	K199	399.28

Wolferal HSS Side and Face Cutters

Staggered Teeth, Stock Sizes. Metric Range.

Staggered teeth are used for deep slotting and heavy-duty side milling. The alternate spiral effectively counteracts all tendency to chatter.



Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
50	4	16	10	M071	36.86
50	5	16	10	M072	38.80
50	6	16	10	M073	40.85
50	8	16	10	M074	42.99
50	10	16	10	M075	45.26
63	4	22	12	M076	47.64
63	5	22	12	M077	49.62
63	6	22	12	M078	52.24
63	8	22	12	M079	54.99
63	10	22	12	M080	58.02
63	12	22	12	M081	55.72
63	14	22	12	M082	62.79
63	16	22	12	M083	64.42
63	18	22	12	M084	68.29
80	5	27	14	M085	67.65
80	6	27	14	M086	66.02
80	8	27	14	M087	70.95
80	10	27	14	M088	72.36
80	12	27	14	M089	74.67
80	14	27	14	M090	77.77
80	16	27	14	M091	82.24
80	18	27	14	M092	87.77
80	20	27	14	M093	91.84
100	6	27	16	M094	87.17
100	8	27	16	M095	90.27
100	10	27	16	M096	91.95
100	12	27	16	M097	98.29
100	14	27	16	M098	104.72
100	16	27	16	M099	107.64
100	18	27	16	M100	116.00

Diameter	Width	Bore	No of Teeth	Ordering Code	List Price £
100	20	27	16	M101	122.52
100	22	27	16	M102	130.43
100	25	27	16	M103	135.36
125	10	32	16	M104	132.15
125	12	32	16	M105	134.54
125	14	32	16	M106	143.93
125	16	32	16	M107	156.39
125	18	32	16	M108	164.78
125	20	32	16	M109	176.31
125	22	32	16	M110	182.82
125	28	32	16	M111	201.03
160	10	40	18	M112	201.03
160	12	40	18	M113	207.53
160	14	40	18	M114	215.87
160	16	40	18	M115	227.83
160	18	40	18	M116	243.89
160	20	40	18	M117	273.54
160	22	40	18	M118	299.83
160	25	40	18	M119	336.16
160	38	40	18	M120	360.86
200	8	40	22	M121	299.83
200	10	40	22	M122	308.07
200	12	40	22	M123	314.66
200	14	40	22	M124	322.91
200	16	40	22	M125	336.16
200	18	40	22	M126	355.85
200	20	40	22	M127	380.56
200	22	40	22	M128	428.45
200	25	40	22	M129	461.72

Wolferal Tungsten Carbide Tipped Milling Cutters

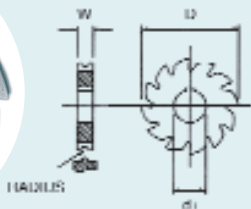
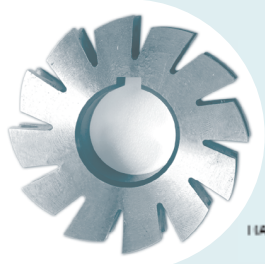
Used for deep-slotting and cut-off operations. Either for high production work or cutting difficult-to-machine materials.



Diameter	Cutting Width	No of Teeth	List Price £
4"	1/8"	14	94.66
4"	5/32"	14	94.66
4"	3/16"	14	94.66
4"	1/4"	14	105.00
4"	5/16"	14	105.00
4"	3/8"	14	112.39
4"	7/16"	14	122.14
4"	1/2"	14	130.12
4"	9/16"	14	130.12
4"	5/8"	14	139.90
4"	3/4"	14	159.73
4"	7/8"	14	173.04
4"	1"	14	201.14
6"	1/8"	24	130.14
6"	5/32"	24	130.14
6"	3/16"	24	130.14

Diameter	Cutting Width	No of Teeth	List Price £
6"	1/4"	24	142.86
6"	5/16"	24	142.86
6"	3/8"	24	153.80
6"	7/16"	24	164.15
6"	1/2"	24	177.46
6"	9/16"	24	177.46
6"	5/8"	24	190.77
6"	3/4"	24	221.84
6"	7/8"	24	239.57
6"	1"	24	258.22
8"	1/8"	28	188.24
8"	5/32"	28	188.24
8"	3/16"	28	188.24
8"	1/4"	28	207.00
8"	5/16"	28	207.00
8"	3/8"	28	222.56

Prices subject to generous quantity and resale discounts.



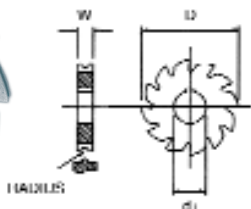
Wolferal HSS Concave Milling Cutters

To DIN 855A. METRIC.

Application – Convex and Concave Cutters have top relief only and will maintain their form throughout their life, provided that on resharpening, the face of the tooth is ground Radial-to-Centre.

Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
50	6	16	14	1	CA001	85.80
50	8	16	14	1.25	CA002	81.55
50	8	16	14	1.5	CA003	81.55
50	8	16	14	1.6	CA004	90.08
50	8	16	14	1.75	CA005	81.55
50	9	16	14	2	CA006	85.59
63	10	22	12	2.25	CA007	83.28
63	10	22	12	2.5	CA008	83.28
63	12	22	12	2.75	CA009	82.43
63	12	22	12	3	CA010	82.43
63	12	22	12	3.15	CA011	97.66
63	12	22	12	3.25	CA012	97.66
63	16	22	12	3.5	CA013	97.66
63	16	22	12	3.75	CA014	97.66
63	16	22	12	4	CA015	97.66
63	18	22	12	4.25	CA016	111.88
63	18	22	12	4.5	CA017	111.88
63	20	22	12	4.75	CA018	111.88
63	20	22	12	5	CA019	106.27
80	22	27	12	5.5	CA020	147.94
80	24	27	12	6	CA021	129.17

Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
80	24	27	12	6.3	CA022	160.25
80	28	27	12	6.5	CA023	160.25
80	32	27	12	7	CA024	155.49
80	32	27	12	7.5	CA025	176.36
80	32	27	12	8	CA026	173.52
100	36	32	12	8.5	CA027	241.78
100	36	32	12	9	CA028	246.51
100	36	32	12	9.5	CA0297	241.78
100	36	32	12	10	CA030	241.78
100	40	32	12	11	CA031	241.78
100	40	32	12	12	CA032	284.44
100	40	32	12	12.5	CA033	283.20
125	48	32	10	13	CA034	436.16
125	48	32	10	14	CA035	436.16
125	50	32	10	15	CA036	436.16
125	50	32	10	16	CA037	480.25
125	56	32	10	17	CA038	480.25
125	56	32	10	18	CA039	480.25
125	60	32	10	19	CA040	480.25
125	60	32	10	20	CA041	480.25



Wolferal HSS Concave Milling Cutters

TO BS122. IMPERIAL.

Application – Convex and Concave Cutters have top relief only and will maintain their form throughout their life, provided that on resharpening, the face of the tooth is ground Radial-to-Centre.

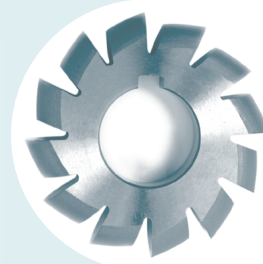
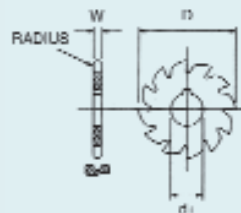
Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
2.1/4	5/16	1	12	3/64	CA042	–
2.1/4	5/16	1	12	1/16	CA043	–
2.1/4	3/8	1	12	5/64	CA044	–
2.1/4	3/8	1	12	3/32	CA045	100.91
2.1/4	1/2	1	12	7/64	CA046	–
2.1/4	1/2	1	12	1/8	CA047	98.47
2.1/2	5/8	1	12	5/32	CA048	100.91
2.1/2	3/4	1	12	3/16	CA049	98.47
2.1/2	7/8	1	10	7/32	CA050	101.54

Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
2.1/2	1	1	10	1/4	CA051	102.02
2.3/4	1.3/16	1	10	9/32	CA052	–
2.3/4	1.3/16	1	10	5/16	CA053	115.67
3	1.3/8	1	10	3/8	CA054	120.06
3.1/4	1.9/16	1	10	7/16	CA055	144.06
3.1/2	1.3/4	1	10	1/2	CA056	143.39
4	1.15/16	1	10	9/16	CA057	176.65
4	2.1/8	1	10	5/8	CA058	177.31

Wolferal HSS Convex Milling Cutters

To DIN 856. METRIC.

Application – Convex and Concave Cutters have top relief only and will maintain their form throughout their life, provided that on resharpening, the face of the tooth is ground Radial-to-Centre.



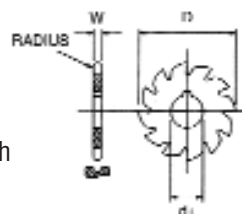
Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
50	2	16	14	1	CE001	58.63
50	2.5	16	14	1.25	CE002	58.63
50	3	16	14	1.5	CE003	63.39
50	3.2	16	14	1.6	CE004	70.18
50	3.5	16	14	1.75	CE005	70.63
50	4	16	14	2	CE006	65.96
63	4.5	22	12	2.25	CE007	85.33
63	5	22	12	2.5	CE008	81.10
63	5.5	22	12	2.75	CE009	91.02
63	6	22	12	3	CE010	83.94
63	6.3	22	12	3.15	CE011	83.94
63	6.5	22	12	3.25	CE012	96.73
63	7	22	12	3.5	CE013	92.43
63	7.5	22	12	3.75	CE014	92.43
63	8	22	12	4	CE015	88.40
63	8.5	22	12	4.25	CE016	88.40
63	9	22	12	4.5	CE017	103.36
63	9.5	22	12	4.75	CE018	103.36
63	10	22	12	5	CE019	97.06
80	10.5	27	12	5.25	CE020	97.06
80	11	27	12	5.5	CE021	129.90

Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
80	12	27	12	6	CE022	120.95
80	12.6	27	12	6.3	CE023	120.95
80	13	27	12	6.5	CE024	140.32
80	14	27	12	7	CE025	140.32
80	15	27	12	7.5	CE026	155.50
80	16	27	12	8	CE027	141.98
100	17	32	12	8.5	CE028	201.03
100	18	32	12	9	CE029	201.03
100	19	32	12	9.5	CE030	201.03
100	20	32	12	10	CE031	201.03
100	22	32	12	11	CE032	201.03
100	24	32	12	12	CE033	201.03
100	25	32	12	12.5	CE034	201.03
125	26	32	12	13	CE035	293.93
125	28	32	12	14	CE036	331.87
125	30	32	12	15	CE037	331.87
125	32	32	12	16	CE038	331.87
125	34	32	12	17	CE039	420.78
125	36	32	12	18	CE040	431.41
125	38	32	12	20	CE041	431.41
125	40	32	12	22	CE042	431.41

Wolferal HSS Convex Milling Cutters

TO BS122. IMPERIAL.

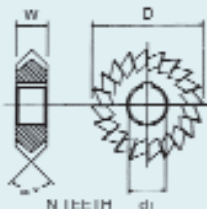
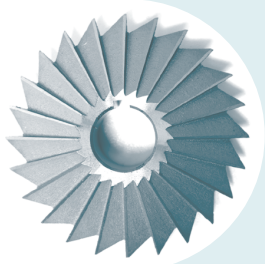
Application – Convex and Concave Cutters have top relief only and will maintain their form throughout their life, provided that on resharpening, the face of the tooth is ground Radial-to-Centre.



Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
2.1/4	1/16	1	16	1/32	CE043	–
2.1/4	3/32	1	12	3/64	CE044	–
2.1/4	1/8	1	12	1/16	CE045	–
2.1/4	5/32	1	12	5/64	CE046	76.03
2.1/4	3/16	1	12	5/32	CE047	75.28
2.1/4	7/32	1	12	7/64	CE048	85.25
2.1/2	1/4	1	12	1/8	CE049	84.40
2.1/2	9/32	1	12	9/64	CE050	87.52
2.1/2	5/16	1	12	5/32	CE051	87.52
2.1/2	3/8	1	12	3/16	CE052	92.21
2.1/2	7/16	1	10	7/32	CE053	75.84
2.1/2	1/2	1	10	1/4	CE054	97.70
2.3/4	9/16	1	10	9/32	CE055	114.62
2.3/4	5/16	1	10	5/8	CE056	131.53

Diameter	Width	Bore	No of Teeth	Radius	Ordering Code	List Price £
3	1/8	1	12	1/16	CE057	–
3	3/16	1	12	3/32	CE058	–
3	1/4	1	12	1/8	CE059	–
3	5/16	1	12	5/32	CE060	–
3	3/8	1	12	3/16	CE061	–
3	1/2	1	12	1/4	CE062	–
3	3/4	1	10	3/8	CE063	158.25
4	1/8	1	12	1/16	CE064	142.24
4	3/16	1	12	3/32	CE065	153.62
4	1/4	1	12	1/8	CE066	165.57
4	5/16	1	12	5/32	CE067	175.47
4	3/8	1	12	3/16	CE068	180.49
4	7/16	1	12	7/32	CE069	191.97
4	1/2	1	12	1/4	CE070	204.30

Prices subject to generous quantity and resale discounts.



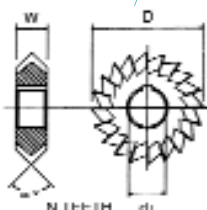
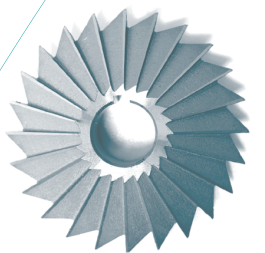
Wolferal HSS Equal Angle Cutters

To DIN 847. METRIC.

Application – Used for milling Vee-shaped slots, serrations and chamfers.

Note: a 1mm flat may be added to maintain integrity of the cutting point on certain angle and diameter combinations.

Diameter	Width	Bore	No of Teeth	Angle	Ordering Code	List Price £
50	8	16	22	45°	EA001	72.68
50	10	16	20	60°	EA002	77.77
50	14	16	16	90°	EA003	76.65
50	14	16	16	120°	EA004	77.41
63	10	22	24	60°	EA005	94.09
63	20	22	18	90°	EA006	105.02
63	20	22	16	120°	EA007	105.02
80	12	27	26	45°	EA008	131.79
80	18	27	24	60°	EA009	141.00
80	22	27	20	90°	EA010	145.27
80	25	27	20	120°	EA011	154.00
100	18	32	30	45°	EA012	213.73
100	25	32	28	60°	EA013	230.83
100	32	32	22	90°	EA014	255.47



Wolferal HSS Equal Angle Cutters

To BS122. IMPERIAL.

Application – Used for milling Vee-shaped slots, serrations and chamfers.

Note: a 1mm flat may be added to maintain integrity of the cutting point on certain angle and diameter combinations.

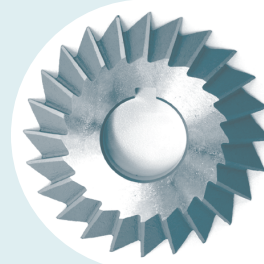
Diameter	Width	Bore	No of Teeth	Angle	Ordering Code	List Price £
2.3/4	5/16	1	28	30°	EA015	95.24
2.3/4	1/2	1	24	45°	EA016	90.13
2.3/4	1/2	1	20	60°	EA017	90.13
2.3/4	1/2	1	18	90°	EA018	90.13
3	5/16	1	32	30°	EA019	110.17
3	1/2	1	24	45°	EA020	102.83
3	1/2	1	20	60°	EA021	102.83
3	1/2	1.1/4	20	60°	EA022	103.85
3	1/2	1	20	90°	EA023	102.83
3	5/8	1	20	60°	EA024	117.01
3	5/8	1	20	90°	EA025	113.06
3	3/4	1	18	60°	EA026	124.88
3	3/4	1	18	90°	EA027	120.65
4	3/4	1	20	45°	EA028	187.25
4	3/4	1	20	60°	EA029	187.25
4	3/4	1	20	90°	EA030	182.71

Wolferal HSS Single Angle Milling Cutters

To DIN 1823A R/L. METRIC.

Application – Used for milling Dovetails, Serrations, Angular Slots or Chamfers.

Note: a 1mm flat may be added to maintain integrity of the cutting point on certain angle and diameter combinations.



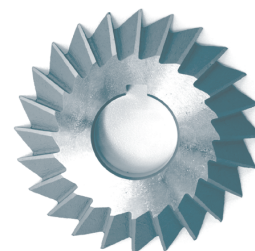
Diameter	Width	Bore	No of Teeth	Angle	Ordering Code	List Price £
50	12	16	18	60°	SA001	76.67
50	12	16	18	65°	SA002	76.67
50	12	16	18	70°	SA003	76.67
50	12	16	18	75°	SA004	76.67
50	12	16	18	80°	SA005	76.67
50	12	16	18	85°	SA006	76.67
50	12	16	18	90°	SA007	76.67
63	18	22	20	60°	SA008	96.60
63	18	22	20	65°	SA009	96.60
63	18	22	20	70°	SA010	96.60
63	18	22	20	75°	SA011	96.60
63	18	22	20	80°	SA012	96.60
63	18	22	20	85°	SA013	96.60
63	18	22	20	90°	SA014	96.60
80	16	27	20	45°	SA015	137.38
80	20	27	18	60°	SA016	137.38
100	22	32	22	45°	SA017	209.12
100	25	32	20	60°	SA018	209.12

Wolferal HSS Single Angle Milling Cutters

To BS122 R/L. IMPERIAL.

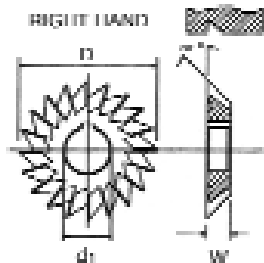
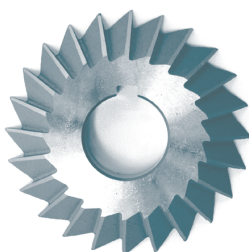
Application – Used for milling Dovetails, Serrations, Angular Slots or Chamfers.

Note: a 1mm flat may be added to maintain integrity of the cutting point on certain angle and diameter combinations.

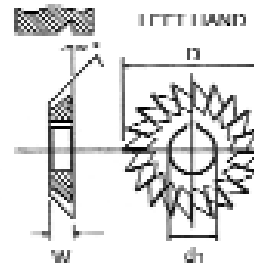
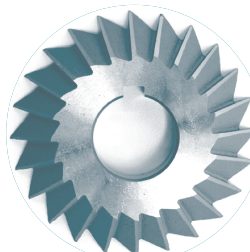


Diameter	Width	Bore	No of Teeth	Angle	Ordering Code	List Price £
2.3/4	1/2	1	20	45°	SA019	81.50
2.3/4	1/2	1	20	60°	SA020	81.50
3	5/16	1	24	30°	SA021	84.24
3	1/2	1	20	45°	SA022	98.21
3	1/2	1.1/4	20	45°	SA023	98.21
3	1/2	1	20	60°	SA024	98.21
3	5/8	1	20	45°	SA025	107.96
3	5/8	1	20	60°	SA026	109.96
3	3/4	1	20	60°	SA027	116.35
3.1/2	1/2	1	20	30°	SA028	124.88
4	3/4	1	20	45°	SA029	—
4	3/4	1	20	60°	SA030	—

RIGHT HAND



LEFT HAND



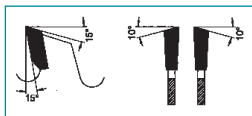
Wolferal T.C.T. Saw Blades

The Wolferal range of T.C.T. saw blades is made to be used on the most demanding industrial applications.

The blades are laser-cut from high quality chrome vanadium plate which is then hardened and tempered, straightened and tensioned.

The tips are made from the finest quality micro-grain carbides, the grades of which are selected to be the best for different applications, with the size of tip chosen to give the maximum number of regrinds.

TYPE: HARPOON

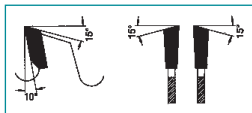
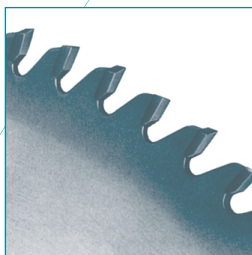


For normal ripping applications. An economical rip saw for hard/soft woods.

Finish: COARSE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
230	28	30	3.2	2.0	A.T.B.	51.05	HAR001
250	24	30	3.2	2.0	A.T.B.	51.05	HAR002
300	36	30	3.2	2.2	A.T.B.	63.77	HAR003
315	30	30	3.2	2.2	A.T.B.	63.74	HAR004
350	42	30	3.4	2.5	A.T.B.	81.02	HAR005
400	40	30	4.0	2.8	A.T.B.	90.62	HAR006

TYPE: GENERAL

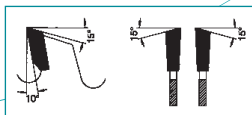
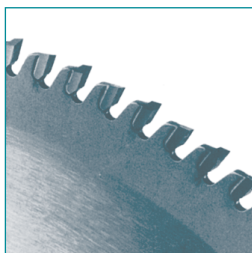


For general purpose work. An excellent combination blade, popular with builders and joiners. Also good for production cutting.

Finish: MEDIUM to COARSE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
150	24	16	3.0	2.0	A.T.B.	49.27	GEN001
180	30	30	3.2	2.0	A.T.B.	50.46	GEN002
190	24	16	3.2	2.0	A.T.B.	49.13	GEN003
200	34	30	3.2	2.0	A.T.B.	52.47	GEN004
230	34	30	3.2	2.0	A.T.B.	58.37	GEN005
235	34	30	3.2	2.0	A.T.B.	58.37	GEN006
250	40	30	3.2	2.0	A.T.B.	58.37	GEN007
300	48	30	3.2	2.0	A.T.B.	70.08	GEN008
350	54	30	3.4	2.5	A.T.B.	85.80	GEN009
400	60	30	3.6	2.5	A.T.B.	101.99	GEN010

TYPE: HICKORY



For crosscut and trimming work. These blades are designed for crosscutting, trimming and mitre sawing of plywood, chipboard, high density plastic and synthetic materials.

Finish: MEDIUM to FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
150	36	20	3.2	2.0	A.T.B.	49.85	HIC001
180	42	30	3.2	2.0	A.T.B.	56.95	HIC002
180	48	30	3.2	2.0	A.T.B.	64.26	HIC003
184	42	16	3.2	2.0	A.T.B.	64.26	HIC004
190	48	20	3.2	2.0	A.T.B.	64.26	HIC005
200	48	30	3.2	2.0	A.T.B.	62.73	HIC006
210	48	30	3.2	2.0	A.T.B.	62.73	HIC007
216	48	30	3.2	2.0	A.T.B.	62.73	HIC008
230	54	30	3.2	2.0	A.T.B.	62.73	HIC009
250	60	30	3.2	2.0	A.T.B.	69.15	HIC010
300	72	30	3.2	2.2	A.T.B.	80.03	HIC011
350	84	30	3.4	2.5	A.T.B.	98.42	HIC012
400	96	30	3.5	2.6	A.T.B.	123.36	HIC013

Wolferal T.C.T. Saw Blades

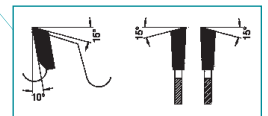
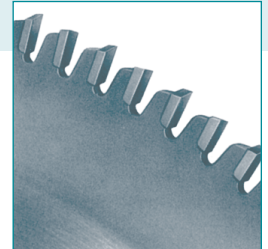
– Continued

A fine trimming and finishing saw blade. Ideal for finishing or fine trimming and cutting of formica, veneers, plastics, perspex and plywoods.

Finish: EXTRA FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
150	48	15.87	3.2	2.0	A.T.B.	55.51	PRE001
160	48	20	3.2	2.0	A.T.B.	55.51	PRE002
180	56	30	3.2	2.0	A.T.B.	64.26	PRE003
200	64	30	3.2	2.0	A.T.B.	70.26	PRE004
210	64	30	3.2	2.0	A.T.B.	70.06	PRE005
220	64	30	3.2	2.0	A.T.B.	80.01	PRE006
250	80	30	3.2	2.0	A.T.B.	80.51	PRE007
300	96	30	3.2	2.0	A.T.B.	89.33	PRE008
350	108	30	3.4	2.5	A.T.B.	105.98	PRE009
400	120	30	3.5	2.5	A.T.B.	140.12	PRE0010
450	132	30	3.6	2.6	A.T.B.	168.04	PRE0011

TYPE: PRECISE

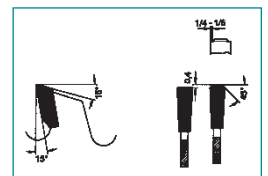


For crosscut and trimming work. Ideal for trimming panels where a chip-free cut is desired, in formica, veneers, plastics, perspex and plywoods.

Finish: SUPER FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
150	48	20	3.2	2.0	T.C.P.	55.51	SPR001
180	56	30	3.2	2.0	T.C.P.	64.26	SPR002
200	64	30	3.2	2.0	T.C.P.	70.06	SPR003
220	64	30	3.2	2.0	T.C.P.	80.01	SPR004
230	72	30	3.2	2.0	T.C.P.	80.01	SPR005
250	80	30	3.2	2.0	T.C.P.	80.51	SPR006
300	96	30	3.2	2.2	T.C.P.	89.33	SPR007
350	108	30	3.4	2.5	T.C.P.	105.98	SPR008
400	120	30	3.5	2.6	T.C.P.	140.12	SPR009
450	132	30	3.5	2.6	T.C.P.	168.04	SPR0010

TYPE: SUPER PRECISE

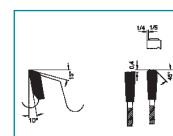
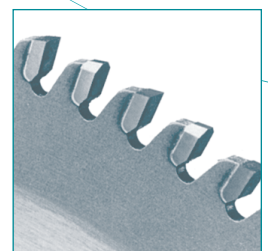


Can reduce noise by up to 10d(BA) on many wood and plastic sawing applications by means of laser-cut copper-filled slots.

Finish: MEDIUM to FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
250	80	30	3.3	2.6	T.C.P.	130.70	QC001
300	100	30	3.3	2.6	T.C.P.	149.82	QC002
330	110	30	3.4	2.6	T.C.P.	187.71	QC003
350	110	30	3.4	2.6	T.C.P.	187.71	QC004

TYPE: QUIET CUT for wood

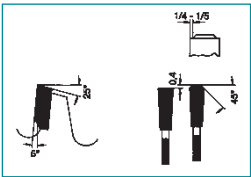
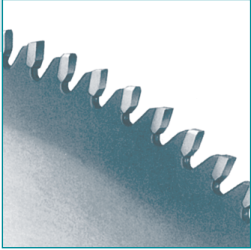


Prices subject to generous quantity and resale discounts.

Wolferal T.C.T. Saw Blades

– Continued

TYPE: SALDO

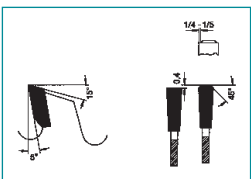
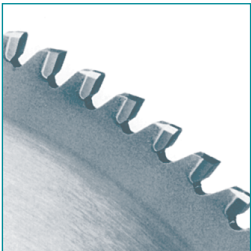


For cutting non-ferrous solid metals. Robust blades for aluminium, copper and brass solid bar. Material must be firmly clamped, preferably both sides, whilst cutting.

Finish: MEDIUM to FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
200	48	30	3.2	2.2	T.CP.	75.04	SAL001
230	54	30	3.2	2.2	T.CP.	85.32	SAL002
250	60	30	3.2	2.5	T.CP.	85.32	SAL003
275	72	32	3.4	2.6	T.CP.	106.45	SAL004
300	48	30	3.4	2.6	T.CP.	94.66	SAL005
300	72	30	3.4	2.6	T.CP.	101.98	SAL006
350	54	30	3.4	2.6	T.CP.	110.84	SAL007
350	84	30	3.4	2.6	T.CP.	116.74	SAL008
400	60	50	4.0	3.2	T.CP.	123.13	SAL009
400	66	50	4.0	3.2	T.CP.	123.13	SAL010
450	96	30	4.4	3.2	T.CP.	168.16	SAL011
500	60	30	4.4	3.2	T.CP.	185.47	SAL012
600	96	30	4.4	3.2	T.CP.	301.84	SAL013

TYPE: ALEX

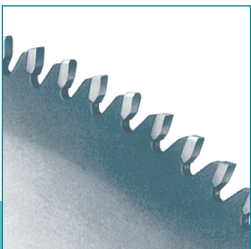


For cutting uPVC and aluminium extrusions. Fast, clean cutting blades used extensively in the window fabricating industry on uPVC and aluminium. Supplied with a negative hook angle. They can also be used on some DeWalt and Elu snap-off mitre saws. On Aluminium can reduce noise up to 50%.

Finish: FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
125	36	30	3.2	2.0	T.CP.	70.30	AL001
150	48	30	3.2	2.2	T.CP.	70.30	AL002
180	56	30	3.2	2.2	T.CP.	70.45	AL003
200	64	30	3.2	2.2	T.CP.	80.95	AL004
216	60	30	3.2	2.0	T.CP.	88.27	AL005
220	64	30	3.2	2.2	T.CP.	95.60	AL006
230	72	30	3.2	2.2	T.CP.	95.60	AL007
250	80	30	3.2	2.6	T.CP.	95.60	AL008
300	96	30	3.2	2.6	T.CP.	121.12	AL009
330	102	30	3.3	2.6	T.CP.	131.41	AL0010
350	108	30	3.3	2.6	T.CP.	131.41	AL0011
380	110	32	3.4	2.8	T.CP.	151.02	AL0012
400	96	30	4.0	3.2	T.CP.	137.78	AL0013
420	96	30	4.0	3.2	T.CP.	168.16	AL0014
450	108	30	4.0	3.2	T.CP.	168.16	AL0015
500	120	30	4.2	3.7	T.CP.	187.78	AL0016

TYPE: SUE



For external corner cleaning. Recommended for use on many STUGA, URBAN and ROTOX type machines. Corner cleaning uPVC window profile.

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
250	80 Radius	32	5	-	T.CT.	450.00	SUE001
170	18	19-78	3	-	T.CT.	380.00	SUE002
150	42	20	3	-	T.CT.	150.00	SUE003

Wolferal T.C.T. Saw Blades

– Continued

For cutting uPVC bead. Fast clean cutting used extensively in trimming chamferring and angling uPVC bead. To suit Wegoma, Haffner and Pertichi.

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
95	20/45°	20	2	-	T.C.T.	POA	CHR001
95	20/45°	20	2	-	T.C.T.	POA	CHR002
175	20/45°	20	2	-	T.C.T.	POA	CHR003
103	RH60/45°	32	2	-	HSS	POA	JT16001
103	LH60/45°	32	2	-	HSS	POA	JT16002
180	180	32	2	-	HSS	POA	JT16003
95	LH70/45°	20	2	-	HSS	POA	JT16004
95	RH70/45°	20	2	-	HSS	POA	JT16005
175	170	20	2	-	HSS	POA	JT16009
225	80	32	2	-	HSS	POA	JT16010
225	220	32	2	-	HSS	POA	JT16011
250	80	32	2	-	HSS	POA	JT16012
250	100	32	2	-	HSS	POA	JT16013
250	200	32	2	-	HSS	POA	JT16014
*250	200	32	2	-	Millenium	POA	JT16015
*250	200/220	32	2	-	Millenium	POA	JT16016
*300	200/220	32	2.5	-	Millenium	POA	JT16017
*350	240	32	2.5	-	Millenium	POA	JT16018

*Low Rockwell

For crosscutting work. Supplied with a negative hook angle to minimise 'pick-up' and 'snatching', these blades will, where required, give a better cut finish than our type *General*. Recommended for use on many Elu and Dewalt machines.

Finish: MEDIUM to FINE

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
200	48	30	3.2	2.2	A.T.B.	62.73	PEN001
250	40	30	3.2	2.0	A.T.B.	66.19	PEN002
300	72	30	3.2	2.5	A.T.B.	80.03	PEN003

STEEL CUTTING

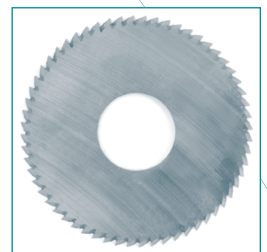
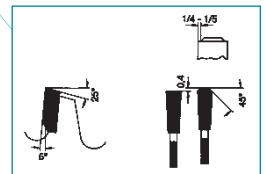
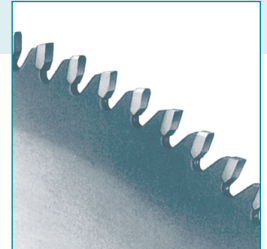
Fast, dry-cutting saw blades. The bigger blades are used on dry-cutting machines made by Jepson. Rigid and Draper. They give clean, burr-free cuts in steel, copper and aluminium, pipes, flats, angles, small solids, sheets and cable. The teeth and the back of the teeth and the saw body are designed to withstand heavy cutting forces whilst cutting different kinds of material. Toothform ATB, chamfered, special universal geometry.

Finish: BURR-FREE

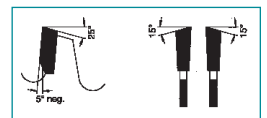
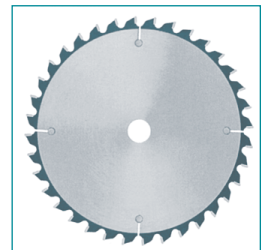
For use on dry-cutting machines such as Draper, Jepson etc.

Diameter mm	No of Teeth	Bore mm	Kerf mm	Plate mm	Toothform	Price £	Order Ref.
305	60 for steel	25.4	2.35	-	A.T.B.	93.09	UNI001
305	80 for s/steel	25.4	2.35	-	A.T.B.	114.52	UNI002
355	84 for steel	25.4	2.6	-	A.T.B.	99.00	UNI003
355	84 for s/steel	25.4	2.6	-	A.T.B.	124.47	UNI004
355	66 for steel	25.4	2.4	-	A.T.B.	99.00	UNI005

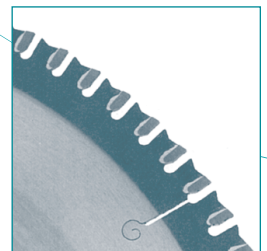
TYPE: CHRISTINE



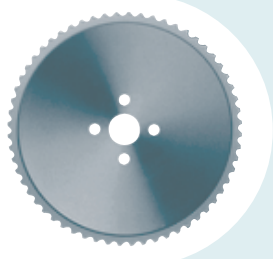
TYPE: PENDULUM



TYPE: UNIMET



Prices subject to generous quantity and resale discounts.



Premium Woferal

Throw-Away Carbide-Tipped Saw Blades for cutting steel.

The latest cutting technology, giving outstanding quality-of-cut surface. The tables below give the most common cutting-off machines.

These blades are used to cut solid bar made out of mild steels, hard steels and stainless steels. They can also be TiN, TiCN or TiAlN coated.

250mm dia. For use on the following machines: ADIGE TP103, BEHRINGER-EISELE HCS-90, EXACT-CUT MAC 60, NISHIJIMA 050N, RHOB/TSUNE TK5C-50GL and WAGNER-KASTO WAC70.

Diameter	Width	Bore	Pinholes	No of Teeth	Pitch mm	Cutting Range Dia. of Material
250	2.0	32	4/9/50+4/11/63	40	19.6	40 - 75
250	2.0	32	4/9/50+4/11/63	54	14.5	30 - 65
250	2.0	32	4/9/50+4/11/63	60	13.1	25 - 60
250	2.0	32	4/9/50+4/11/63	72	10.9	20 - 50
250	2.0	32	4/9/50+4/11/63	80	9.8	15 - 45

285mm dia. For use on the following machines: ADIGE TP103, AMADA CM 65 AN, EVERISING P-65A, EXACT-CUT MAC 60, RHOB/TSUNE TK5C-50GL and WAGNER-KASTO WAC70.

Diameter	Width	Bore	Pinholes	No of Teeth	Pitch mm	Cutting Range Dia. of Material
285	2.0	32	4/9/50+4/11/63	54	16.6	35 - 70
285	2.0	32	4/9/50+4/11/63	60	14.9	30 - 65
285	2.0	32	4/9/50+4/11/63	72	12.4	25 - 55
285	2.0	32	4/9/50+4/11/63	80	11.2	20 - 50
285	2.0	40	2/12/80	54	16.6	35 - 70
285	2.0	40	2/12/80	60	14.9	30 - 65
285	2.0	40	2/12/80	72	12.4	25 - 55
285	2.0	40	2/12/80	80	11.2	20 - 50

360mm dia. For use on the following machines: AMADA CM 100 AN, BEHRINGER-EISELE HCS-90, EVERISING P-100A, NISHIJIMA HIGH-CUT 100, RHOB/TSUNE TK5C-101GL, SINICO TOP2000 and WAGNER-KASTO KASTOSPEED C14.

Diameter	Width	Bore	Pinholes	No of Teeth	Pitch mm	Cutting Range Dia. of Material
360	2.6	40	4/12/90	60	18.8	40 - 100
360	2.6	40	4/12/90	80	14.1	30 - 75
360	2.6	40	4/12/90	100	11.3	15 - 50
360	2.6	50	4/15/80	60	18.8	40 - 100
360	2.6	50	4/15/80	80	14.1	30 - 75
360	2.6	50	4/15/80	100	11.3	15 - 50

420mm dia. For use on the following machines: RHOB/TSUNE TK5C-101GL, SINICO TOP2000 and WAGNER-KASTO KASTOSPEED C14.

Diameter	Width	Bore	Pinholes	No of Teeth	Pitch mm	Cutting Range Dia. of Material
420	2.6	50	4/15/80	60	22.0	50 - 120
420	2.6	50	4/15/80	80	16.5	35 - 85

460mm dia. For use on the following machines: AMADA CM 150 AN and EVERISING P-150A.

Diameter	Width	Bore	Pinholes	No of Teeth	Pitch mm	Cutting Range Dia. of Material
460	2.7	50	4/12/90	40	36.1	80 - 150
460	2.7	50	4/12/90	60	24.1	50 - 110
460	2.7	50	4/12/90	80	18.1	35 - 80
460	2.7	50	4/12/90	100	14.5	30 - 65

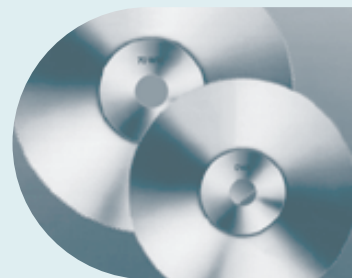
CUTTING PARAMETERS FOR SOLID MATERIAL

Material	Cutting Speed (m/min)	Feed per tooth (mm)
Mild Steel 400-800 N/mm ²	100 - 140	0.07 - 0.10
Hard Steel 900-1300 N/mm ²	70 - 110	0.05 - 0.07
Stainless Steel	60 - 90	0.05 - 0.07

Wolferal Friction Saws

Made of high quality special steels, hardened in accordance with latest technical findings.

They have milled special teeth and are hollow ground on both sides in modern precision grinding machines. All Wolferal blades are piece-by-piece examined for hardness, side run-out and concentricity. They can be mounted on all high-speed machines at recommended peripheral cutting speeds of 80-125 m/s. The ideal speed for cutting iron and steel is 125 m/s. For aluminium and other non-ferrous metals, special designs are available.



C.V.A. QUALITY

Recommended for casual and intermittent cutting.

Recommended for blades over 700mm diameter.

70WM QUALITY

Recommended for continuous production.

Especially recommended for use on flying saws in tubing and profile mills.

Some efficiency examples:

Minimum cutting speed 80 m/sec.

Motor of at least 5 hp, Blade 520 mm Ø x 3 mm.

L-shape iron bars (angle iron) up to 80 x 80 x 8mm.

Tubes up to 80 Ø x 4mm thickness.

Normal sections (profiles) up to 16mm build. height.

Solid material up to 20mm Ø.

Sheets up to 6mm thickness.

Recommended blade thickness: 4mm.

Motor of 12 to 15 hp, blade 560mm Ø x 4mm.

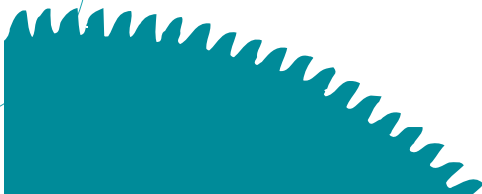
L-shape iron bars (angle iron) up to 150 x 150 x 12mm.

Tubes up to 150mm Ø.

Solid material up to 40mm Ø.

Normal sections up to 32mm build height.

Sheets up to 15mm thickness.



HOT SAW BLADES

up to 2000mm diameter

of tried and proven special alloy steels of various strengths:

- natural hardness up to 1100 N/mm²
- tempered up to RC 48
- black rolled
- taper ground
- conically ground
- hollow ground

straightened and tensioned with milled teeth.

Examples of tooth styles:



PENDULUM TOOTH STYLE



CASTELLATED TOOTH STYLE

We supply a full range of thicknesses and are always pleased to offer advice on specific applications.

STANDARD SIZES

PRICE PER BLADE

Size mm	No of Teeth	Chrome Vanadium-Steel. Steel No. 2235	Tungsten-Molybdenum-Steel. Steel No. 2604	approx weight each Kg
400 x 3.0 x 40	240	POA	POA	2.6
400 x 4.0 x 40	240	POA	POA	3.4
450 x 3.0 x 40	240	POA	POA	3.1
450 x 4.0 x 40	240	POA	POA	4.2
500 x 3.0 x 40	300	POA	POA	4.2
500 x 4.0 x 40	300	POA	POA	5.0
520 x 3.0 x 40	300	POA	POA	4.4
520 x 4.0 x 40	300	POA	POA	5.4
550 x 3.0 x 40	300	POA	POA	5.2
550 x 4.0 x 40	300	POA	POA	6.2
550 x 5.0 x 40	300	POA	POA	7.5
560 x 3.0 x 40	300	POA	POA	5.5
560 x 4.0 x 40	300	POA	POA	6.4
560 x 5.0 x 40	300	POA	POA	7.8
580 x 4.0 x 40	300	POA	POA	7.4
580 x 5.0 x 40	300	POA	POA	9.0
580 x 6.0 x 40	300	POA	POA	11.0
600 x 4.0 x 40	300	POA	POA	7.4
600 x 5.0 x 40	300	POA	POA	10.0
600 x 6.0 x 40	300	POA	POA	12.0
700 x 4.0 x 40	300	POA	POA	10.9
700 x 5.0 x 40	300	POA	POA	13.5
700 x 6.0 x 40	300	POA	POA	15.9
700 x 7.0 x 40	300	POA	POA	18.6
750 x 5.0 x 40	350	POA	POA	16.5
750 x 6.0 x 40	350	POA	POA	18.5
750 x 7.0 x 40	350	POA	POA	20.5
800 x 5.0 x 65	350	POA	POA	19.0
800 x 6.0 x 65	350	POA	POA	21.2
800 x 7.0 x 65	350	POA	POA	23.0
800 x 8.0 x 65	350	POA	POA	25.0
850 x 6.0 x 65	350	POA	POA	23.0
850 x 8.0 x 65	350	POA	POA	29.0
900 x 7.0 x 65	350	POA	POA	35.0
1000 x 7.0 x 65	350	POA	POA	38.0
1000 x 8.0 x 65	350	POA	POA	43.0
1000 x 10.0 x 65	350	POA	POA	55.0

HARD CHROMIUM PLATING

We would be pleased to quote you costs on request.

Surcharge for special toothform for aluminium 20%.

OTHER SIZES AVAILABLE.

PRICES ON REQUEST.

Wolferal Segmental Saws

Designed to meet the requirements of present-day high speed cold saws.

The segments are made from specially-treated high speed steel and form a closed ring around the saw plate. The saw plates are hardened and tempered to maintain accuracy throughout the working life of the saw.

Segment Life. The Wolferal segment has maximum usable height, allowing for more regrinds and longer life.

Dimensions			Number of Segments	Price for Blade	Price for Segments	Teeth per segment Approximate tooth pitch in mm							
Diameter mm	Approx. Inch	Cutting Width mm				2	3	4	5	6	8	10	12
250	10	3.0	12	POA	POA	-	22	16	13	11	8	6	5
275	11	3.0	12	POA	POA	-	24	18	14	12	9	7	6
320	12½	3.6	16	POA	POA	-	21	16	13	10	8	6	5
355	14	3.6	16	POA	POA	-	23	17	14	12	9	7	6
370	14½	3.6	16	POA	POA	-	23	17	14	12	9	7	6
400	15¾	4.0	16	POA	POA	-	26	20	16	13	10	8	7
425	16½	4.0	16	POA	POA	-	27	21	16	14	10	8	7
450	18	4.0	18	POA	POA	-	27	21	16	14	10	8	7
500	19¾	5.2	18	POA	POA	-	29	22	17	15	11	9	7
520	20½	5.7	18	POA	POA	-	30	23	18	15	11	9	8
570	22½	5.7	18	POA	POA	-	33	25	20	17	12	10	8
630	24¾	6.0	20	POA	POA	-	33	24	20	14	12	10	8
670	26½	6.2	20	POA	POA	-	35	26	21	18	13	11	9
710	28	6.2	24	POA	POA	-	31	24	19	16	12	9	8
770	30¾	6.7	24	POA	POA	-	34	25	20	17	13	10	8
800	31½	7.2	24	POA	POA	-	35	26	21	17	13	10	9
820	32¾	7.2	24	POA	POA	-	36	27	22	18	14	11	9
910	36	7.0	30	POA	POA	-	32	24	19	16	12	10	8
970	38	7.7	30	POA	POA	-	34	25	20	17	13	10	8
1020	40¾	8.2	30	POA	POA	53	36	27	21	18	13	11	9
1120	44	8.2	36	POA	POA	49	33	24	20	16	12	10	8
1250	49¾	9.5	36	POA	POA	55	36	27	22	18	14	11	9
1320	52	9.5	36	POA	POA	58	38	29	23	19	14	12	10
1420	56	10.2	36	POA	POA	62	41	31	25	21	16	12	10

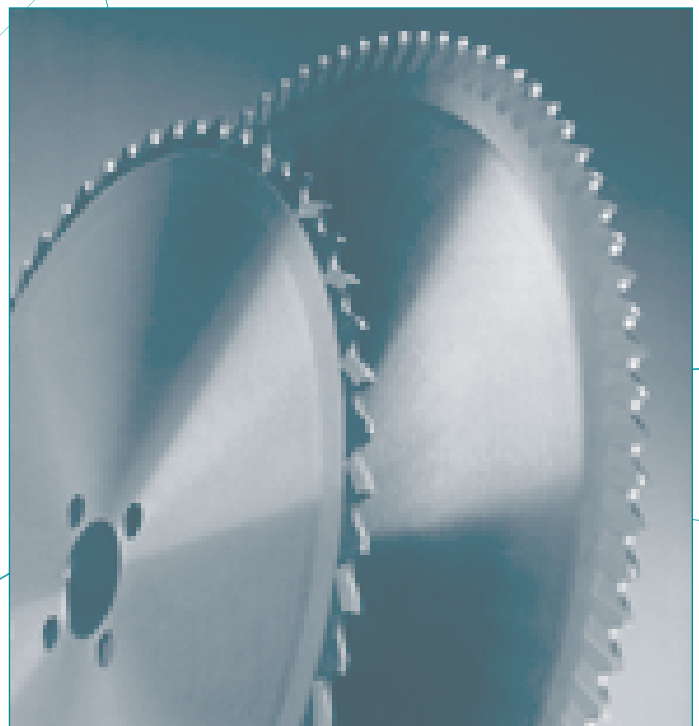
We hold in stock segmental saw blades with British Standard drive and DIN Standard drive (see tables below). Other bores and drive holes can be supplied on request.

British Standard Drive Details (inches)

Drive No.	Range of Saw Diameters	Bore Diameter	No of Driveholes	Drivehole Diameter	P.C.D. of Driveholes
1	11" and 12½"	1¾"	2	17/32"	2¼"
2	14" up to and including 28"	2¼"	2	51/64"	4"
3	22" up to and including 28"	3"	2	59/64"	5"
4	30" up to and including 38"	4"	4	59/64"	7¼"
5	40" up to and including 48"	4½"	4	1½"	87/8"
6	54" and 60"	5¼"	4	1¾"	11¾"
7	72"	6"	6	1½"	13¼"

DIN Standard Drive Details (mm)

Nominal Diameter J15	Bore Diameter H7	No. of Driveholes	Drivehole Diameter J14	Drivehole P.C.D. J12
250	32	4	9	50
315	40	4	11	63
400	50	4	14	80
500	50	4	18	100
630	80	4	22	120
800	80	4	27	160
1000	100	4	30	200
1250	100	4	30	250
1600	100	4	33	300



We also supply Carbide Tipped circular saw blades for steel and non-ferrous metals up to 2000mm diameter.

Wolferal Xtra-Wax

CHLORINE-FREE
FOR ALL MACHINING OPERATIONS
EASY IN APPLICATION AND MOST EFFECTIVE IN PERFORMANCE

XTRA-WAX Stick Lubricant

Apply this useful stick lubricant directly to the cutting tool. Prevents binding, greatly extends tool life and provides a much cleaner and smoother cut.

XTRA-WAX

is especially effective at lubricating and cooling HSS circular saws, T.C.T. circular saws, band saws, router cutters, drills, end mills, taps etc., wherever non-circulating lubricant is required. No solvent waste.

XTRA-WAX

works on ferrous metals, non-ferrous metals and plastic. Does not stain aluminium. On copper gives supreme results.

XTRA-WAX

is safe, cost effective and clean. The tubular dispenser permits safe application. Adhering to the cutting edges it requires only occasional use. XTRA-WAX does not splash or spill. It does not pollute the air as with a mist coolant.

XTRA-WAX

helps to achieve optimum performance in manual tapping and screwing operations, in drilling and tapping blind holes and finish boring fine orifices.

Used throughout Europe, a very high quality low melting point solid lubricant. Supplied in a handy push-up dispenser. Wolferal Xtra-Wax is available, mainly for circular saws: in sticks 55mm dia. approx. 350 gr weight.



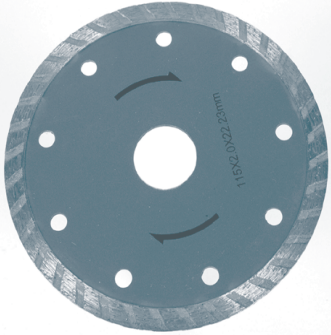
DIN SAFETY FORMULA **WOLFERAL XTRA-WAX**

Mineral oil, high molecular hydrocarbon, grease, sulphur compounds.

- 2.1 SOFTENING TEMPERATURE 88°C.
- 2.5 NOT SOLUBLE IN WATER.
- 2.7 FLASH POINT 270°C.
- 2.10 THERMAL DECOMPOSITION ABOVE 150°C.
- 2.11 DANGEROUS DECOMPOSITION PRODUCTS: H₂S DEVELOPMENT (SEE 2.13).
- 2.12 DANGEROUS REACTIONS: NONE
- 2.13 NO DECOMPOSITION IN NORMAL HANDLING AND STORAGE.
- 3. NO SPECIAL TRANSPORT INSTRUCTIONS.
- 4. THE PRODUCT DOES NOT CONTAIN ANY CHLORINE COMPOUNDS. THE PRODUCT DOES NOT REQUIRE SPECIAL MARKING.
- 5.3 CONTINUOUS HAND CONTACT SHOULD BE AVOIDED UNLESS USUAL HYGIENE MEASURES, SUCH AS WHEN DEALING WITH ANY OIL PRODUCT, ARE OBSERVED.
- 7. AFTER MANY YEARS OF USAGE NO HARMFUL OCCURRENCE HAS BEEN NOTED IN TOXICITY.

Wolferal Diamond Blades

WOLFERAL DIAMOND – FE



Sintered Diamond blade for cutting concrete, reinforced concrete, granite, natural stone, bricks, roof tiles and tiles. High cutting speed and long life, 8mm segments. Continuous segments on the steel core offers extra stability. Dry use.

Dimensions	Standard Colour	Arborholes	Order Code
107 x 2.2 x 8	Metallic Green	20.0/22.2	FE4
115 x 2.2 x 8	Metallic Green	22.2	FE4.5
125 x 2.2 x 8	Metallic Green	22.2	FE5
150 x 2.4 x 8	Metallic Green	22.2	FE6
180 x 2.4 x 8	Metallic Green	22.2	FE7
230 x 2.6 x 8	Metallic Green	22.2/70.0	FE9
305 x 2.9 x 8	Metallic Green	20.0/22.2/25.4	FE12

WOLFERAL DIAMOND – SC



Sintered Diamond blade for cutting marble, tiles, ceramic tiles. Good cutting speed and precise finish. Dry use.

Dimensions	Standard Colour	Arborholes	Order Code
80 x 1.4 x 5	Metallic Green	15.0/22.2	SC3
110 x 1.4 x 5	Metallic Green	22.2	SC4.5
125 x 1.4 x 5	Metallic Green	22.2	SC5
150 x 1.4 x 5	Metallic Green	22.2	SC6
180 x 1.6 x 5	Metallic Green	22.2/30.0	SC7
204 x 1.6 x 5	Metallic Green	22.2/25.4/30.0	SC8
230 x 2.0 x 5	Metallic Green	22.2/25.4/30.0	SC9
250 x 2 x 5	Metallic Green	25.4/30.0	SC10
305 x 2.0 x 5	Metallic Green	20.0/25.4/30.0	SC12

WOLFERAL DIAMOND – RI



Sintered Diamond blade for cutting granite and natural stone. Premium quality, fast cutting, quality finish. Dry use.

Dimensions	Standard Colour	Arborholes	Order Code
115 x 2.0 x 6	Black	22.2	RI4.5
125 x 2.0 x 6	Black	22.2	RI5
175 x 2.2 x 6	Black	22.2	RI7
203 x 2.2 x 6	Black	22.2	RI8
230 x 2.4 x 6	Black	22.2/70.0	RI9

WOLFERAL DIAMOND – SEKR



Sintered Diamond blade for cutting concrete, reinforced concrete, bricks and roof tiles. Fast cutting and a long life. High diamond concentration. Dry use.

Dimensions	Standard Colour	Arborholes	Order Code
115 x 1.8 x 6	White	22.2	SEKR4.5
125 x 2.0 x 6	White	22.2	SEKR5
150 x 2.0 x 6	White	22.2	SEKR6
175 x 2.0 x 6	White	22.2	SEKR7
230 x 2.2 x 6	White	22.2	SEKR9

Wolferal Diamond Blades

– Continued

Laser Welded Diamond Blades for all types of concrete (with the exception of green concrete) and bricks. High cutting speed and long life. Dry use.

Dimensions	Standard Colour	Arborholes	Order Code
115 x 2.2 x 7	Clear Gold	22.2	LW4.5
125 x 2.2 x 7	Clear Gold	22.2	LW5
150 x 2.5 x 7	Clear Gold	22.2	LW6
175 x 2.2 x 7	Clear Gold	22.2	LW7
230 x 2.2 x 7	Clear Gold	22.2	LW9

Laser Welded Diamond Blades, super premium, for very hard compressed concrete, reinforced concrete and bricks. Due to its unique shape and quality of diamond and bond, it is the market-leading concrete cutting blade. Excellent performance on petrol saw machines. Segment height 11mm. Dry use.

Dimensions	Standard Colour	Arborholes	Order Code
308 x 3.0 x 11	Metallic Green	20.0/22.2/25.4	LWGH12
358 x 3.2 x 11	Metallic Green	20.0/25.4	LWGH14

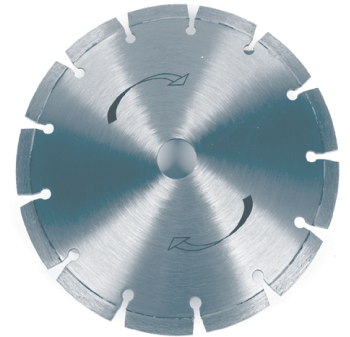
Sintered Diamond Blades for cutting tiles and marble. Excellent cutting speed and long life. Wet use.

Dimensions	Standard Colour	Arborholes	Order Code
110 x 1.4 x 5	Hi Clear	20.0/22.2	SMT4.5
125 x 1.4 x 5	Hi Clear	22.2	SMT5
150 x 1.4 x 6	Hi Clear	22.2	SMT6
180 x 1.6 x 5	Hi Clear	22.2/25.4	SMT7
201 x 1.6 x 5	Hi Clear	22.2/25.4	SMT8
230 x 1.6 x 5	Hi Clear	25.4/30.0	SMT9
250 x 1.6 x 5	Hi Clear	25.4/30.0	SMT10
305 x 2.0 x 5	Hi Clear	20.0/25.4/30.0	SMT12
355 x 2.0 x 5	Hi Clear	25.4	SMT14

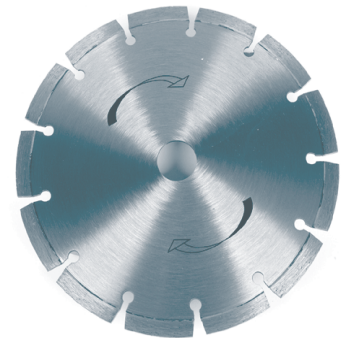
Tuck Point premium quality blade for mortar raking. For removal of joints. Excellent performance.

Dimensions	Standard Colour	Arborholes	Order Code
115 x 6.0 x 6	Hi Clear	22.2	TP4.5
125 x 6.0 x 6	Hi Clear	22.2	TP5

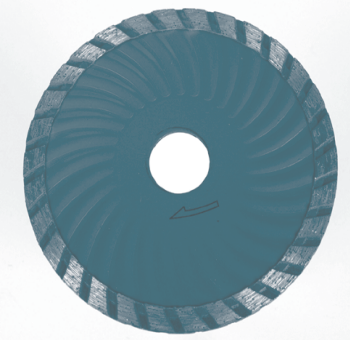
WOLFERAL DIAMOND – LW



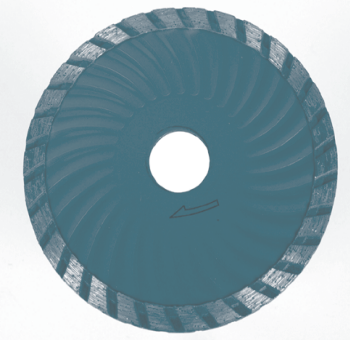
WOLFERAL DIAMOND – LWGH



WOLFERAL DIAMOND – SMT



WOLFERAL DIAMOND – TP



Prices subject to generous quantity and resale discounts.

Premium Wolferal HSS-E Single Flute Router Cutters

TOOLING FOR WINDOW FABRICATORS

Precision ground all over, hardened and tempered to perfection to give longest possible tool life and lowest machining cost when drilling, slotting or cutting aluminium, anodised duralium and uPVC. HSS-E EMO5V3 is a special heavy-duty cobalt-bearing steel.

Cutter Diameter D mm	Cutting Cut Depth C mm	Reach Narrow Neck CC mm	Overall Length OL mm	Order Ref.	Shank Diameter		
					1/4" £	8mm £	10mm £
3	12	-	60	100/03	13.00	11.40	-
4	12	-	60	100/04	14.00	11.90	-
5	12	-	60	100/05	12.70	10.60	-
5	14	-	120	100/50	-	17.40	-
5	18	-	60	100/25	-	12.50	-
5	35	-	80	100/26	-	24.50	-
5	40	-	100	100/27	-	27.00	-
6	14	-	60	100/06	14.00	11.90	-
7	14	-	60	100/07	17.20	12.80	-
8	14	-	80	100/08	12.60	10.60	-
8	14	-	120	100/51	-	17.50	-
9	14	-	80	100/09	18.30	14.40	-
10	14	-	80	100/10	17.70	14.20	-
10	14	-	120	100/14	-	-	20.50
12	14	-	80	100/12	-	17.80	-
12	14	-	80	100/13	-	-	20.50

Cutter Diameter D mm	Cutting Cut Depth C mm	Reach Narrow Neck CC mm	Overall Length OL mm	Order Ref.	Shank Diameter		
					1/4" £	8mm £	10mm £
4	16	45	90	100/15	-	18.50	-
5	18	35	80	100/19	17.70	16.30	-
5	16	45	90	100/17	-	18.50	-
6	16	45	90	100/52	-	16.30	-
8	14	54	80	10/18	-	17.40	-
8	14	68	100	100/20	-	28.00	-
10	14	65	85	100/21	-	-	25.00
10	14	75	96	100/22	-	-	28.00
10	14	95	120	100/23	-	-	28.00

Cutter Diameter D mm	Cutting Cut Depth C mm	Reach Narrow Neck CC mm	Overall Length OL mm	Order Ref.	Shank Diameter		
					1/4" £	8mm £	10mm £
4	25	-	100	100/34	-	24.00	-
5	35	-	80	100/35	-	25.00	-
5	30	-	100	100/36	-	25.00	-
5	45	-	100	100/37	-	25.00	-
5	55	-	100	100/38	-	25.00	-
6	48	-	90	100/39	-	25.00	-
6	30	-	100	100/40	-	23.40	-

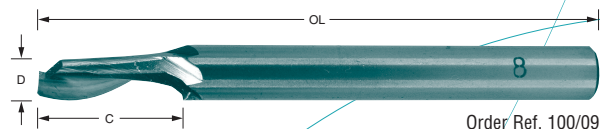
Cutter Diameter D mm	Cutting Cut Depth C mm	Reach Narrow Neck CC mm	Overall Length OL mm	Order Ref.	Shank Diameter		
					1/4" £	8mm £	10mm £
4	40	-	100	100/30	-	23.50	-
5	40	-	100	100/27	-	27.00	-
6	40	-	100	100/31	-	22.50	-

Cutter Diameter D mm	Cutting Cut Depth C mm	Reach Narrow Neck CC mm	Overall Length OL mm	Order Ref.	Shank Diameter		
					1/4" £	8mm £	10mm £
5	40	-	100	100/32	-	23.40	-

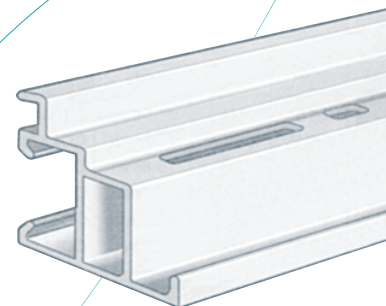
PLUNGE SLOTTING/ROUTING

⚠ 10,000 - 12,000 rpm

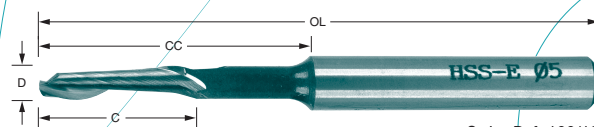
One Flute Helical for drilling, slotting and cutting aluminium, anodised duralium and uPVC. Ideal for recessing and slotting extrusions.



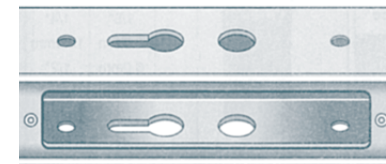
Order Ref. 100/09



One Flute Helical with narrow neck for deep entry into second web of extrusions.



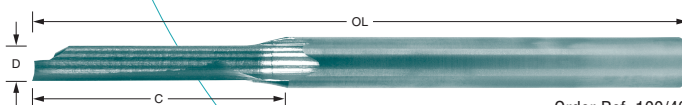
Order Ref. 100/19



WATER SLOT CUTTER – STRAIGHT

⚠ 10,000 - 12,000 rpm

One Flute Straight for plastics only.

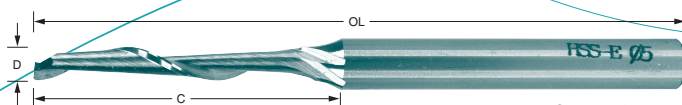


Order Ref. 100/40

WATER SLOT CUTTERS

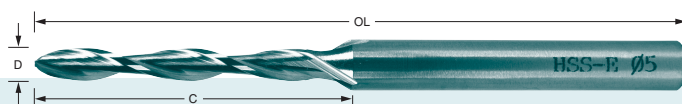
⚠ 10,000 - 12,000 rpm

One Flute Helical with normal neck but long shank and cutting length.



Order Ref. 100/31

Two Flute Helical for plastic with long shank.



Order Ref. 100/32

When cutting aluminium, use a lubricant or XTRA-WAX wax stick (see page 45) and ensure section is securely clamped.

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