SELMACH™ MACHINERY

Making Metal Work

GoldCut™

BANDSAW BLADE SELECTION & TROUBLESHOOTING GUIDE

"Very rapid supply of band saw blades despite them being made to order. Prices are competitive."

Colin Wallace-Stock

The GoldCut™ Bandsaw Blade Range
The range of blades we offer ensures you can cut with confidence, no matter what material you are working with. This guide should help you to identify the best blades for your needs, but if you're unsure our experienced consumables team is on hand to offer technical support to help you find the correct pitch for your cutting requirements.

With on-site facilities we are able to manufacture your GoldCut™ bandsaw blades at our Hereford branch, and even offer next day delivery on all blades ordered before 3pm.

We also offer a 30 day trade account on all of our consumables and free delivery on orders over £100.

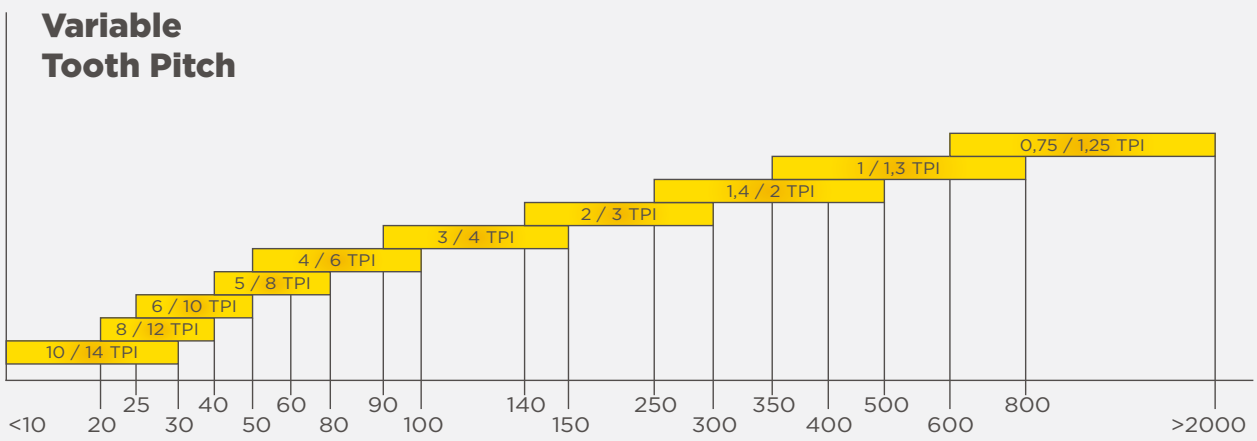
The right blade for the right job
In this guide we help you to work out the correct blades for the material you're cutting, as well as how to tackle the most common issues that bandsaw users experience. On the following pages we provide;

- **Toothpitch Selector Guide** - Helping you to pick the correct tooth pitch for solids and tubes.
- **Bandsaw Blade Guide** - Pick the right blade for the profile of material you are cutting.
- **Trouble-shooting guide** - We highlight the variety of different potential problems you could experience when using your saw, and the solutions available to fix it.
- **Coolants & Lubricants** - See our range of coolants and lubricants.
- **Roller Track & Measuring Systems** - Increase your workshop efficiency!
- **Bi-Metal Cutting Speeds** - See the ideal cutting speeds for assorted materials.

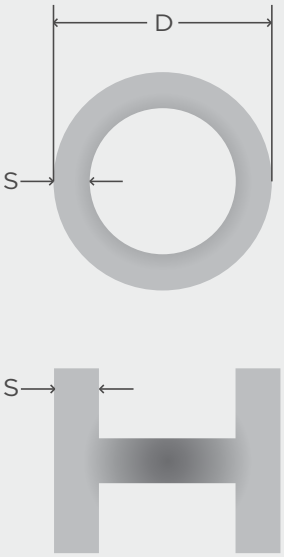
Tooth Pitch Selector Guide

Guide based on Mild Steel. For all other materials, please contact Selmach Machinery for expert advice.

Cutting Recommendations for Solid Material



Cutting Recommendations for Tubes and Profiles



D mm	20	40	60	80	100	150	200	300	400	500	> 700
S mm	Teeth Per Inch (TPI)										
2	14	14	14	14	10/14	10/14	10/14	10/14	8/12	8/12	6/10
3	14	10/14	10/14	8/12	8/12	8/12	6/10	6/10	6/10	6/10	6/10
4	14	10/14	10/14	8/12	8/12	6/10	6/10	5/8	5/8	4/6	4/6
5	14	10/14	10/14	8/12	6/10	6/10	5/8	4/6	4/6	4/6	4/6
6	14	10/14	8/12	8/12	6/10	5/8	5/8	4/6	4/6	4/6	4/6
8	14	8/12	6/10	6/10	6/10	5/8	5/8	4/6	4/6	4/6	4/6
10		6/10	6/10	5/8	5/8	4/6	4/6	4/6	4/6	3/4	3/4
12		6/10	5/8	4/6	4/6	4/6	4/6	3/4	3/4	3/4	3/4
15				4/6	4/6	3/4	3/4	3/4	3/4	2/3	2/3
20				4/6	4/6	3/4	3/4	3/4	3/4	2/3	2/3
30				3/4	3/4	3/4	2/3	2/3	2/3	2/3	1,4/2
50						2/3	2/3	2/3	2/3	1,4/2	1,4/2
80							2/3	1,4/2	1,4/2	1,4/2	1/1,3
100								1,4/2	1,4/2	1/1,3	0,75/1,25
150										0,75/1,25	0,75/1,25
> 250										0,75/1,25	0,75/1,25

We offer a range of different GoldCut™ blades to suit cutting different materials, shapes and bundles. Use this key on the following pages to see which blade is suitable for the material you need to cut.

Square Steel
- square bar
- flat bar
- bundle single-layer
- bundle multiple-layer

Profile
- beams
- special profiles

Round Steel
- round bar
- bundle single-layer
- bundle round bars

Tube
- thin-walled
- thick-walled
- bundle tubes

GoldCut™ m42

The GoldCut™ Durable M42 bandsaw blade boats a high speed steel cutting edge giving superior heat and wear resistance for cutting a variety of profile and solid materials.

Unique tooth form and set pattern give excellent performance on interrupted cuts.

This blade cuts a wide variety of materials from low carbon steels to high quality materials.

Area of Application

Work pieces:

Tooth top view:

Blade-Pitch availability

	0.72/ 1.25	1.1/ 1.6	1.5/ 2	2/ 3	3/ 4	4/ 5	4/ 6	5/ 6	5/ 8	6/ 10	8/ 12	10/ 14	
13 x 0.6											x	x	1/2 x .025
13 x 0.9									x	x	x	x	1/2 x .035
20 x 0.9							x		x	x	x	x	3/4 x .035
27 x 0.9				x	x		x		x	x	x	x	1 x .035
34 x 1.1			x	x	x		x		x	x			1 1/4 x .042
41 x 1.3			x	x	x		x		x				1 1/2 x .050
54 x 1.3			x	x	x		x						2 x .050
54 x 1.6	x	x	x	x	x		x						2 x .063
67 x 1.6	x	x	x	x	x								2 5/8 x .063
80 x 1.6	x	x	x	x	x								3 1/3 x .063
Width x Thickness (mm)													Width x Thickness (inch)

GoldCut™ 424

The GoldCut™ bi-alfa cobalt 424 bandsaw blade has HSS-M42 tooth tips. The High wear resistance of the saw blade results from the very hard and evenly distributed carbides in the tooth tips, formed during the hardening and tempering process.

The martensitic structure of the tooth tips and high cobalt content create excellent hot hardness and toughness reducing wear rates at high sawing speeds. With a high chromium backing strip, the saw blade can withstand the considerable flexing stresses, tension and blade guide pressure present in modern sawing machines.

This universal blade is suitable for material with a high carbon content (such as case iron), for material with small cross sections and for thin-wall profiles and tubes.

Area of Application

Work pieces:

Tooth top view:

Blade-Pitch availability

	0.72/ 1.25	1.1/ 1.6	1.5/ 2	2/ 3	3/ 4	4/ 5	4/ 6	5/ 6	5/ 8	6/ 10	8/ 12	10/ 14	
13 x 0.6											x	x	1/2 x .025
13 x 0.9									x	x	x	x	1/2 x .035
20 x 0.9							x		x	x	x	x	3/4 x .035
27 x 0.9				x	x		x		x	x	x	x	1 x .035
34 x 1.1			x	x	x		x		x	x			1 1/4 x .042
41 x 1.3			x	x	x		x		x				1 1/2 x .050
54 x 1.3			x	x	x		x						2 x .050
54 x 1.6	x	x	x	x	x		x						2 x .063
67 x 1.6	x	x	x	x	x								2 5/8 x .063
80 x 1.6	x	x	x	x	x								3 1/3 x .063
Width x Thickness (mm)													Width x Thickness (inch)

GoldCut™ Beam Master

The GoldCut™ Beam-Master bi-alfa cobalt WS bandsaw blade is produced with a HSS M42 cutting edge. The saw blade benefits from wider set to create a larger kerf. The larger cutting channel helps to prevent blade binding. The blade is suitable for all large H beam section cutting.

This tooth form is particularly well suited for solid, thick-walled tubes and all large H beam cutting applications, and all higher-grade alloy material.

Area of Application

Work pieces:

Tooth top view:

Blade-Pitch availability

	2/3	3/4	4/6	
27 x 0.9		X	X	1 x .035
34 x 1.1	X	X	X	1 1/4 x .042
41 x 1.3	X	X	X	1 1/2 x .050
54 x 1.3		X		2 x .050
54 x 1.6	X	X	X	2 x .063
67 x 1.6	X	X		2 5/8 x .063
Width x Thickness (mm)				Width x Thickness (inch)

GoldCut™ Boxer

The all new GoldCut™ Boxer blade is an excellent choice for all small profile cutting applications with its low vibration in cut. Vibrations during cutting of tubes, beams and profiles reduce the blade life. For this kind of application GoldCut™ offers the perfect blade solution.

The reinforced tooth increases the strength to withstand vibrations during interrupted cutting and protects the bandsaw blade against losing teeth in a row. The tooth tip consists of proven HSS-M42, which has good mechanical features. The Boxer is the bandsaw blade having best results in cutting round and square tubes as well as beams.

Area of Application

Work pieces:

Tooth top view:

Blade-Pitch availability

	3/4	4/6	5/7	8/11	12/16	
13 x 0.6				X		1/2 x .025
20 x 0.9				X	X	3/4 x .035
27 x 0.9	X/----	X	X	X	X	1 x .035
34 x 1.1	X/X	X	X	X		1 1/4 x .042
41 x 1.3	X/X	X	X			1 1/2 x .050
54 x 1.6	X/X	X				2 x .063
67 x 1.6	X/X					2 5/8 x .063
Width x Thickness (mm)						Width x Thickness (inch)

GoldCut™ Successor

The GoldCut™ Successor bandsaw blade boasts of the benefits from a 'triple chip' tooth geometry, widely recognised as the optimal form for production cutting. The M42 Tooth tips have a height difference calculated to suit typical chip load characteristics for different blade widths and pitch combinations. High cutting rates will be achieved without compromising blade life or cut finish.

The GoldCut™ Successor blade is produced to cope with the demands of a wide range of difficult steel and exotic alloys, providing an excellent finish and improved cut times.

Area of Application

Work pieces:

Tooth top view:

Blade-Pitch availability

	1.5/2	2/3	3/4	
27 x 0.9			X	1 x .035
34 x 1.1		X	X	1 1/4 x .042
41 x 1.3	X	X	X	1 1/2 x .050
Width x Thickness (mm)				Width x Thickness (inch)

GoldCut™ Boxer Pro

The GoldCut BoxerPro™ is an innovative blade designed for versatility and optimum cutting performance in solids and profiles. It features an aggressive yet stable cutting edge with a chip former and a cutting depth limiter which protects the blade against premature tooth breakage. This results in a faster cut speed, longer blade life, less down time (changing blades) and lower production costs!

An integrated chip former ensures optimum chip removal, and a cutting depth limiter protects against tooth breakages. The oversized gullet increases chip space volume, ideal for cutting solid materials.

Area of Application

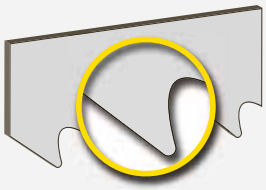
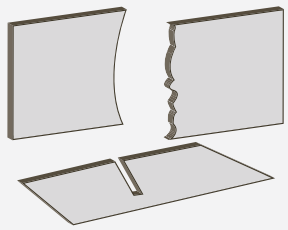
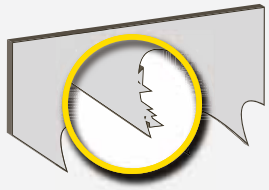
Work pieces:

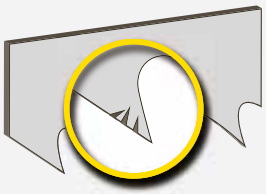
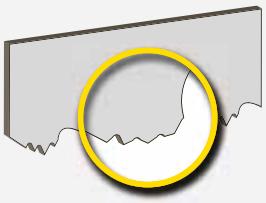
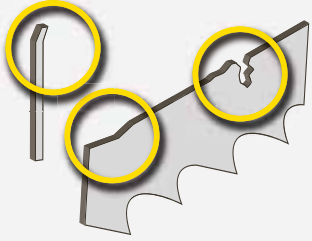
Tooth top view:

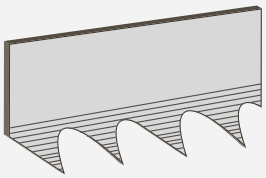
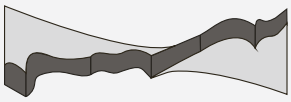
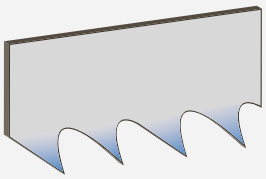
Blade-Pitch availability

	2/3	3/4	4/5	4/6	
27 x 0.9	X	X	X	X	1 x .035
34 x 1.1				X	1 1/4 x .042
41 x 1.3		X		X	1 1/2 x .050
54 x 1.6		X			2 x .063
67 x 1.6	X				2 5/8 x .063
Width x Thickness (mm)					Width x Thickness (inch)

GoldCut™ Bandsaw Blades - Problem Solving

PROBLEM	PROBLEM CAUSE	SOLUTION
PREMATURE BLADE BREAKAGE Straight break indicates failure 	• Incorrect band saw blade - teeth too coarse • Blade tension too high • Side guides too tight • Damaged or miss adjusted band saw blade guides • Excessive feed • Incorrect cutting fluid • Wheel diameter too small for band saw blade • Band saw blade rubbing on wheel flanges • Teeth in contact with work before starting saw • Incorrect blade speed	• Use finer tooth pitch • Reduce band saw blade tension • Check side guide clearance • Check all guides for alignment/damage • Reduce feed pressure • Check coolant • Use thinner blade • Adjust wheel alignment • Allow clearance before starting cut • Increase or decrease blade speed.
PREMATURE DULLING OF TEETH 	• Teeth pointing in the wrong direction/ band saw blade mounted backwards • Improper or no blade break-in • Hard spots in material • Material work hardened • Improper coolant or coolant concentration • Speed too high • Feed too light • Teeth too small	• Install band saw blade correctly. If teeth are facing the wrong direction, flip blade inside out. • Break in blade properly • Check for hardness, or hard spots like scale or flame cut areas • Increase feed pressure or feed rate • Check coolant type and coolant mixture • Check recommended blade speed • Select proper tooth size
CROOKED OR OUT OF SQUARE CUTS 	• Tooth set damage • Excessive feed pressure • Improper tooth size • Cutting fluid not applied evenly • Guides worn loose • Insufficient blade tension • Guide arms loose or set too far apart • Chips not being cleaned from gullets	• Check for worn set on one side of blade • Reduce feed pressure • Check Tooth size chart (Tooth Size chart) • Check coolant nozzles • Tighten or replace guides, check for proper alignment • Adjust to recommended tension • Adjust recommended tension • Position arms as close to work as possible and tighten • Check chip brush
SWARF WELDING ONTO BLADE 	• Insufficient coolant flow • Wrong coolant concentration • Excessive speed and/ or pressure • Tooth size too small • Chip brush not working	• Check coolant level and flow • Check coolant ratio • Reduce speed and/or pressure • Use coarse tooth pitch • Repair or replace chip brush

PROBLEM	PROBLEM CAUSE	SOLUTION
TEETH FRACTURE Back of tooth indicates work spinning in clamps 	• Incorrect speed and/or feed • Incorrect blade pitch • Saw guides not adjusted properly • Chip brush not working • Work spinning or moving in vice	• Check the cutting chart • Check tooth size chart • Adjust or replace saw guides • Repair or replace chip brush • Check bundle configuration/adjust vice pressure
IRREGULAR BREAK Indicates material movement 	• Indexing out of sequence • Material loose in vice	• Check proper machine movement • Check vice or clamp
TEETH STRIPPING 	• Feed pressure too high • Tooth stuck in cut • Improper or insufficient coolant • Incorrect tooth size • Hard spots in material • Work spinning in vice - loose nest or bundle • Blade speed too slow • Blade teeth running backwards • Chip brush not working	• Reduce feed pressure • Do not enter old cut with a new blade • Check coolant flow and concentration • Check tooth size chart • Check material for hard inclusions • Check clamping pressure - be sure work is held firmly • Increase blade speed • Reverse blade (turn inside out) • Repair or replace chip brush
WEAR ON BACK OF BLADES 	• Excessive feed pressure • Insufficient blade tension • Back-up guide frozen, damaged or worn • Blade rubbing on wheel flange	• Decrease feed pressure • Increase blade tension and readjust guides • Repair or replace back-up roll or guide • Adjust wheel alignment

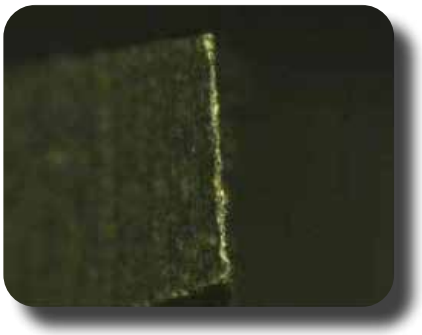
PROBLEM	PROBLEM CAUSE	SOLUTION
ROUGH CUT Washboard surface vibration and or chatter 	• Dull or damaged blade • Incorrect speed or feed • Insufficient blade support • Incorrect tooth pitch • Insufficient coolant	• Replace with new blade • Increase speed or decrease feed • Move guide arms as close as possible to the work • Use finer pitch band saw blade • Check coolant flow
WEAR LINES, LOSS OF SET 	• Saw guide inserts or wheel flange are riding on teeth • Insufficient blade tension • Hard spots in material • Back-up guide worn	• Check machine manual for correct blade width • Tension blade properly • Check material for inclusions • Replace guide
TWISTED BLADE Profile sawing 	• Blade binding in cut • Side guides too tight • Radius too small for blade width • Work not firmly held • Erratic coolant flow • Excessive blade tension	• Decrease feed pressure • Adjust side guide gap • Use narrower blade • Check clamping pressure • Check coolant nozzles • Decrease blade tension
BLADE WEAR Teeth Blued 	• Incorrect blade • Incorrect feed or speed • Improper or insufficient coolant • “Blueing” caused by excessive heat	• Use a coarser tooth pitch • Use the correct feed and speed • Check the coolant flow is sufficient and there is enough coolant inside the machine’s coolant reservoir

Blade Break-In is Extremely Important!

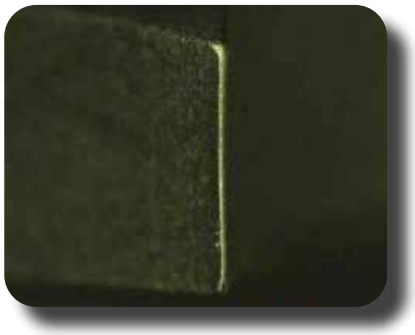
A new band saw blade has razor-sharp teeth, due to the production of the band saw blade. This razor-sharpness must be honed carefully to form a micro fine radius on the cutting edge. Using the blade without breaking-in the cutting edge gets micro damages and it will reduce lifetime and performance.

A good analogy is that of writing with a freshly sharpened wooden pencil.

New Cutting Edge



Cutting Edge after breaking-in



Recommended Break-In Procedure

- Maintain proper blade speed for the material to be cut.
- Reduce blade feed pressure or feed rate by 50% for the first 50 to 100 square inches of material cut.
- Gradually increase feed pressure or feed rate after break-in to target pressure or rate.

Using Metal Chips to Troubleshoot

You can improve the productivity of your metal cutting operation by paying close attention to the chips made by the blade cutting through metal.

This chart shows some of the common problems that can be discovered and solved by paying attention to the chips.

Chip Form	Chip Condition	Chip Colour	Blade Speed	Blade Feed Rate	Other
	Thick, Hard and Short	Blue or Brown	Decrease ↓	Decrease ↓	Check Coolant Fluid & Mix
	Thin and Curled	Silver	Suitable ✓	Suitable ✓	
	Powder	Silver	Decrease ↓	Increase ↑	
	Thin and Tightly Curled	Silver	Suitable ✓	Decrease ↓	Check Tooth Pitch

CUTTING FLUIDS / CUTTING OILS

SuperCut Red General Cutting Fluid

A modern biostable semi-synthetic metalworking fluid suitable for all general machining operations on general carbon steels. Supercut Red is widely used in smaller sawing operations. Mix 1/8

Stock Code	Size
10197	5ltr
10220R	25ltr

Spraymist Coolant

Oil used on spraymist coolant systems on saws etc. A highly treated neat cutting oil with low viscosity extreme pressure treatment assists good tool life and a cleaner working environment.

Stock Code	Size
10206-5	5ltr
10206-25	25ltr

SuperCut Blue HD Cutting Fluid

A modern biostable semi-synthetic metalworking fluid suitable for all general machining operations on ferrous materials and high carbon steels. Supercut Blue is widely used in sawing operations. Mix 1/8.

Stock Code	Size
10200	5ltr
10201	25ltr

SC System Cleaner

GoldCut™ SC is a professional system cleaner which can be used to flush out your current contaminated coolant sump mixture ready for new coolant.

Stock Code	Size
10262	5ltr

Mecut Wax High Performance Cooling Lubricant Stick

Premium wax lubricant stick for working under difficult circumstances. The wax sticks to the tool preventing dripping or splashing. For all machining and cutting applications on all materials.

Stock Code	Size
10196	500ml

Universal Cutting Paste

Premium paste ideal for working under difficult circumstances. The Paste sticks to the tool preventing dripping or splashing. For all machining applications on standard and difficult materials.

Stock Code	Size
10194	125g
10195	750g

Bandsaw Add-Ons & Extras

Roller track, measurement systems and auto-feeds, all of these systems can increase your efficiency and ease of use of your bandsaw. Speak to the sales team at Selmach for further information on these affordable and invaluable add-on equipment items, and how they can improve your work flow.

Roller Track

Roller Track is essentially for any bandsaw that is in regular use. This allows material to be fed in and out of the saw with minimal exertion of the operator, increases efficiency and ease of use.

Measuring Systems

The Pehu LMS measuring systems allow operators to consistently cut material to specified lengths without measuring manually.

The powered models allow for NC control programmes for multiple lengths to be arranged.

Find out more information about Roller Track and Measuring Systems on our website

GOLDCUT™ TECHNICAL BI-METAL BLADE SPEED CHART

	Materials		Band Speed	
	Type	Grade	Feet / min	Meter / min
Aluminium / Non-Ferrous	Aluminium Alloys	2024, 5052, 6061, 7075	300+	85+
	Copper Alloys	CDA 220 CDA 360 Cu Ni (30%) Be Cu	210 295 200 160	65 90 60 50
	Bronze Alloys	AMPCO 18 AMPCO 21 AMPCO 25 Leaded Tin Bronze Al Bronze 865 Mn Bronze 932 937	180 160 110 290 150 215 280 250	55 50 35 90 45 65 85 75
	Brass Alloys	Cartridge Brass, Red Brass (85%) Naval Brass	220 200	65 60
Carbon Steels	Leaded, Free Machining Low Carbon Steels	1145 1215 12L14	270 325 350	80 100 105
	Low Carbon Steels	1008, 1018 1030	270 250	80 75
	Medium Carbon Steels	1035 1045	240 230	75 70
	High Carbon Steels	1060 1080 1095	200 195 185	60 60 55
Structural Steel	Structural Steel	A36	250	75
Alloy Steel	Mn Steels	1541 1524	200 170	60 50
	CR-Mo Steels	4140 41L50 4150H	225 235 200	70 70 60
	Cr Alloy Steels	6150 5160	190 195	60 60
	Ni-Cr-Mo Steels	4340 8620 8640 E9310	195 215 185 160	60 65 55 50
Bearing Steel	Cr Alloy Steels	52100	160	50
Mold Steel	Mold Steels	P-3 P-20	180 165	55 50
Stainless Steel	Stainless Steels	304 316 410, 420 440A 440C	115 90 135 80 70	35 25 40 25 20
	Precipitation Hardening Stainless Steels	17-4 PH 15-5 PH	70 70	20 20
	Free Machining Stainless Steels	420F 301	150 125	45 40
Tool Steel	Low Alloy Tool Stools	L-6	145	45
	Water-Hardening Tool Steel	W-1	145	45
	Cold-Work Tool Steel	D-2	90	25
	Air-Hardening Tool Steel	A-2 A-6 A-10	150 135 100	45 40 30
	Hot-Work Tool Steels	H-13 H-25	140 90	40 25
	Oil-Hardening Tool Steels	O-1 O-2	140 135	40 40
	High Speed Tool Steels	M-2, M-10 M-4, M-42 T-1 T-15	105 95 90 60	30 30 25 20
	Shock Resistance Tool Steels	S-1 S-5, S-7	140 125	40 40
Titanium Alloy	Titanium Alloys	CP Titanium Ti-6AL-4V	85 65	25 20
Nickel Based Alloy	Nickel Alloys	Monel® K-500 Duranickel 301	70 55	20 15
	Iron-Based Super Alloys	A286, Incoloy® 285 Incoloy® 600 Pyromet X-15	80 55 70	25 15 20
	Nickel-Based Alloys	Inconel® 600, Inconel® 718, Nimonic 90 NI-SPAN-C 902, RENE 41 Inconel® 625 Hastalloy B, Waspalloy Nimonic 75, RENE 88	60 60 80 55 50	20 20 25 15 15
Other	Cast Irons	A536 (60-40-18) A536 (120-90-02) A48 (Class 20) A48 (Class 40) A48 (Class 60)	225 110 160 115 95	70 35 50 35 30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To order additional Bandsaw Blades, Coolants and Spare parts, visit our consumables website - www.selmachtooling.co.uk, or scan this QR code.

GoldCut™

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