

PRECISION
QUALITY
INNOVATION

Starrett®

BAND SAW BLADES

BI-METAL

CARBIDE

HIGH CARBON

DIAMOND GRIT

WOOD CUTTING

FOOD
PROCESSING

POWER
HACKSAWS

BAND SAW
MACHINES

TECHNICAL
SERVICES &
SUPPORT

CATALOGUE 60E
REVISED 2020



PRECISION, QUALITY, INNOVATION

For more than 130 years, manufacturers, builders and craftsmen worldwide have depended upon saws and precision tools from the L.S. Starrett Company to ensure the consistent quality of their manufacturing processes.

They know that the Starrett name on saw blades, hand tools and measuring tools means exceptional quality, innovative products and expert technical assistance.

With strict quality control, state-of-the-art equipment and an ongoing commitment to producing products with superior quality, the 5,000 plus products in today's Starrett line continue to be the most accurate, robust and durable tools available.

This catalogue features Starrett Band Saw Blades, their applications and characteristics, Starrett Power Hacksaw Blades and Starrett Band Saw Machines.

TERMINOLOGY

A - WIDTH

Tip of the cutting edge to the back of the blade.

B - BLADE BODY

Distance between the back of the blade and the gullet.

C - LENGTH

Measurement along the back edge of the blade.

D - THICKNESS

Measurement of the body of the blade.

E - BACK EDGE

Opposite side of the blade from the teeth.

F - TOOTH PITCH

Distance from the tip of one tooth to the next tip.

G - TEETH PER INCH / 25MM

Number of teeth per inch (25.4mm).

H - GULLET

The curved area between two teeth, where the chips accumulate until being removed.

I - TOOTH FACE

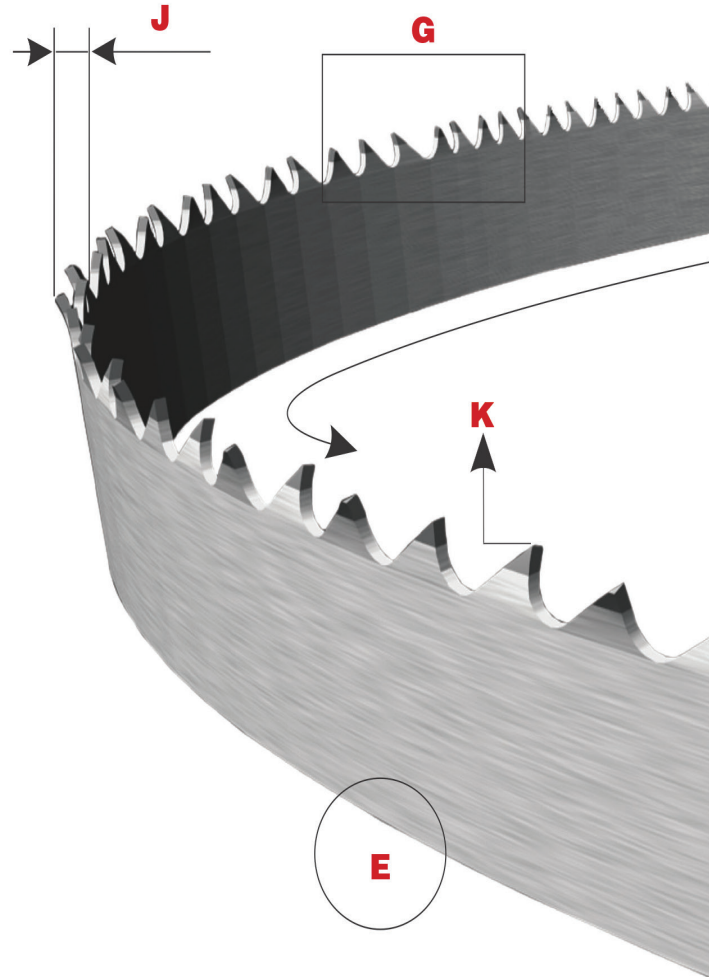
Surface of the tooth where the chip is formed. The tooth can have a positive, negative or straight angle. (Rake)

J - TOOTH SET

The bending of the teeth (right and left) to allow blade clearance through the cut.

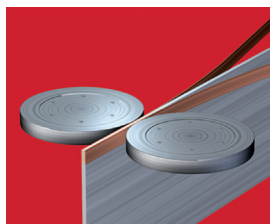
K - BACK ANGLE

Angle formed by the back of the teeth and a parallel line to the tip of the same.

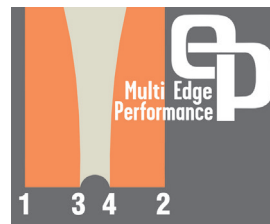


Starrett®
bi-metal unique®
saw technology

170% MORE WELD
CONTACT AREA

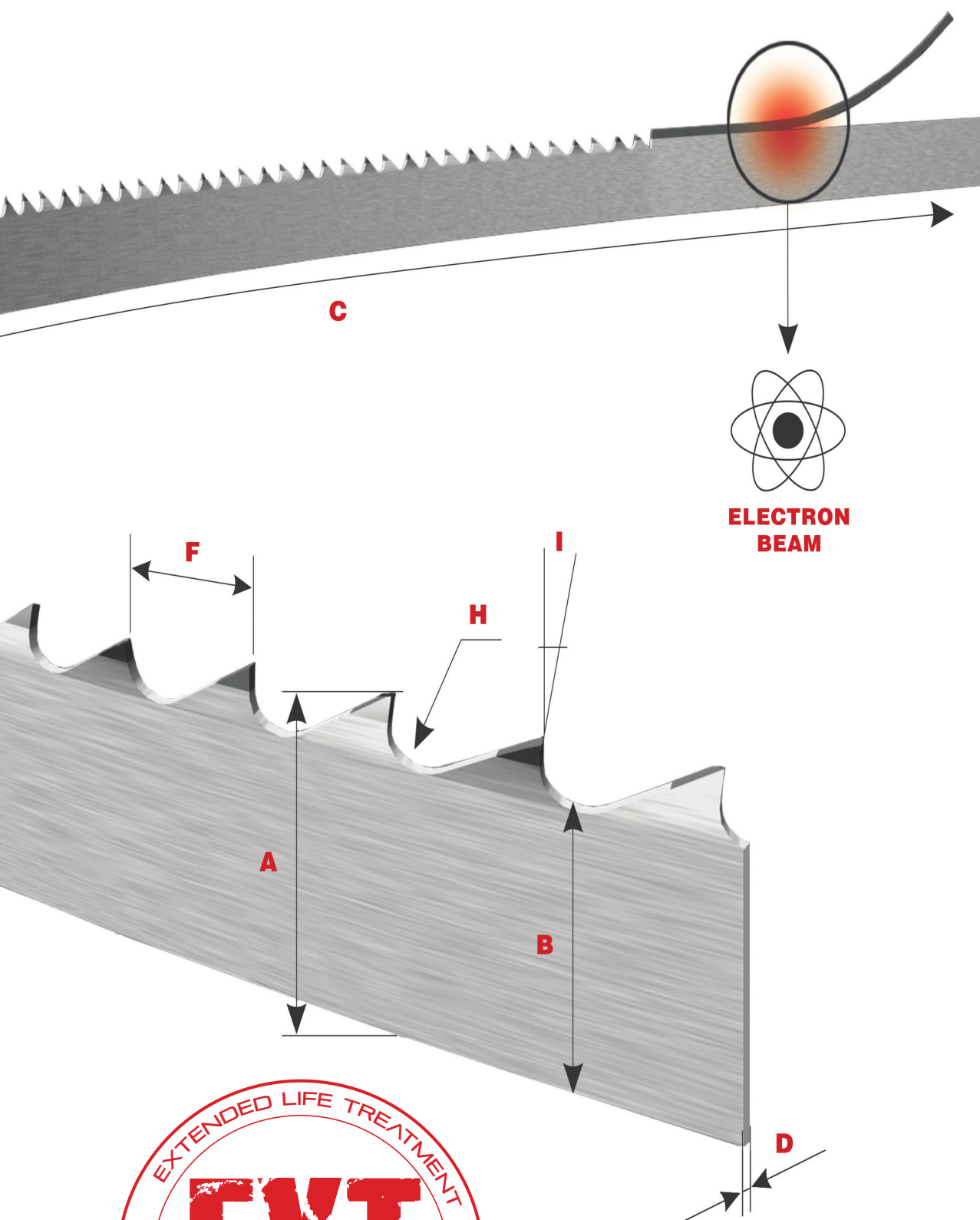


MULTIPLE CUTTING
EDGES



SPLIT CHIP
ADVANTAGE





The Starrett Prim alloy Band Saw product line applies a proprietary Extended Life Treatment (EXT) to its alloy steel backing material. This process, in addition to controlled blast peening, enhances the fatigue life of the blade, aiding in the reduction of fatigue cracks that originate along microscopic grain boundaries.

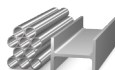
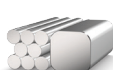
CHOOSING THE CORRECT BLADE

1 Quick Guide








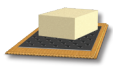


METALLICS

Aluminium

Tubes
and ProfilesCarbon
SteelCarbon
Steel AlloysCast
IronCopper
Alloys

		METALLICS					
		Aluminium	Tubes and Profiles	Carbon Steel	Carbon Steel Alloys	Cast Iron	Copper Alloys
BI-METAL	Primalloy™ Page 18				☆☆☆	☆☆☆	☆☆☆
	Intenss™ PRO-VTH Page 19				☆☆		
	Intenss™ PRO Page 20	☆☆	☆☆	☆☆☆	☆☆	☆☆	☆☆
	Versatix™ MP Page 21	☆	☆☆☆	☆☆			
	Intenss™ Page 22	☆☆	☆☆	☆☆	☆	☆☆	☆
	Intenss™ PRO-DIE Page 23	☆☆	☆☆	☆☆	☆☆		☆
	Univerz™ Page 24	☆	☆☆	☆			
CARBIDE	Advanz™ MC7 Page 26			☆☆☆	☆☆☆		
	Advanz™ MC5 Page 27	☆☆☆				☆☆☆	☆☆☆
	Advanz™ TS Page 28			☆☆☆	☆☆☆	☆	
	Advanz™ CS Page 29						
	Advanz™ FS Page 30	☆☆☆				☆☆☆	☆☆☆
	Advanz™ CG Page 31						
DIAMOND	Advanz™ DG Page 32						
HIGH CARBON	Duratec™ Super FB Page 34	☆	☆	☆			
	Duratec™ FC Page 36						
	Band Knives Page 37						
WOOD	Woodpecker™ Premium Page 39						
	Woodpecker™ Pro Page 39	☆☆☆					
FOOD PROCESSING	Meatkutter™ Premium Page 41						
	Meatkutter™ Stainless Page 41						
	Meatkutter™ Frozen Page 42						
	Carcasskutter™ Page 42						

CHOOSING THE CORRECT BLADE

METALLICS				NON METALLICS			
HSS, Nickel & Titanium Alloys	Stainless Steel	Tool Steel - Hot & Cold Work	Steel with hardness above 45 HRC	Composite materials and abrasives	Foam, Paper, Plastic & Rubber	Wood	Food
							
★★★★	★★★★	★★★★					
★★	★★	★★					
★★	★★	★★				★	
						★★	
★	★★	★				★★	
						★	
★★★★	★★★★	★★★★	★★★★				
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				★★	★	★★	
					★★★★		★★
					★★★★	★★★★	★
					★★	★★★★	
					★★	★	★★★★
							★★★★
						★	★★★★
							★★

CHOOSING THE CORRECT BLADE

2 Tooth Shapes



Intenss™ PRO-VTH

- Variable tooth height providing pulsating action
- Easy penetration
- Ideal for cutting hard and difficult to machine materials



Primalloy™ / Intenss™ PRO / Intenss™ PRO-DIE / Univerz™

- Positive Rake angle
- Double back angle
- Fast and efficient chip clearance
- Excellent choice for a wide range of cuts



Versatix™ MP

- Extremely robust, shockproof
- Positive Rake angle
- Ideal for cutting tubes and profiles



Intenss™ / Duratec™ Super FB / Duratec™ FC / Univerz™

- Standard 0° Rake
- Shock resistant
- Excellent choice for a wide range of cuts
- Suitable for all types of machines



Intenss™ PRO

- Unique profile, patented by Starrett®
- Extremely robust
- Positive Rake angle
- Fast and efficient chip clearance



Duratec™ Super FB / Intenss™ PRO-DIE / Woodpecker™ Premium

- Positive Rake angle, extremely aggressive
- Faster cuts
- Suitable for cutting non-ferrous and non-metallic metals



Duratec™ Super FB / Woodpecker™ Premium

- Standard 0° Rake
- Shock resistant
- Suitable for cutting non-ferrous and non-metallic metals



Advanz™ MC7 / Advanz™ MC5 / Advanz™ TS / Advanz™ CS / Advanz™ FS

- Differential tooth design, accurately ground
- Faster cuts
- Ideal for cutting hard and difficult to machine materials



Advanz™ CG / Advanz™ DG

- Cutting edge coated with grains, continuous or with gullet
- Suitable for cutting abrasive or hardened materials

CHOOSING THE CORRECT BLADE

TOOTH



Constant Pitch

All teeth on the blade have uniform spacing. The tooth is defined through the number of teeth per inch (25.4mm).

Example: 4 TPI.



Variable Pitch

Variable distance between the tips of the teeth on the blade. Size of tooth and depth of gullet varies to substantially reduce noise levels and vibrations.

Example: 4-6 TPI.

SETS



Raker

A recurring sequence of teeth set left and right, followed by one tooth unset.



Progressive

Groups of teeth set to each side of the blade, with progressive set followed by one tooth unset.



Wavy

Groups of teeth set to each side of the blade, with varying amounts of set in a controlled pattern.



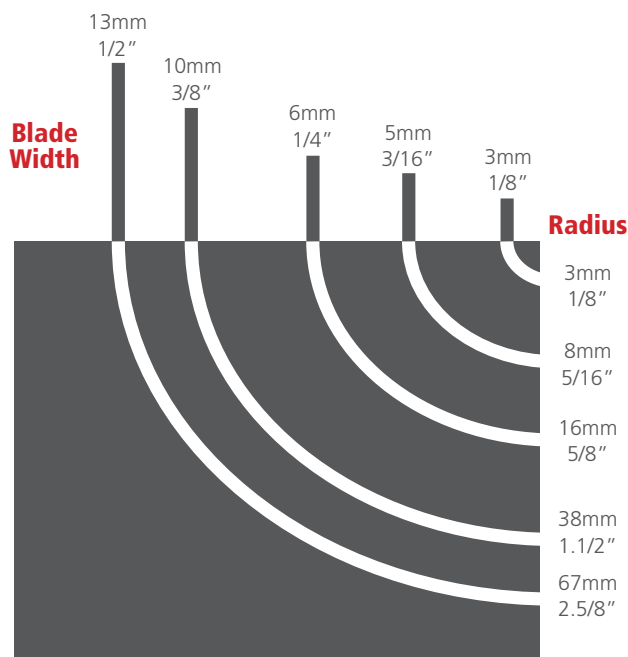
Trapezoidal

Special carbide cylinder welded in the tooth edge, being slightly thicker than the blade, and triple chip grind.

CHOOSING THE CORRECT BLADE

3 Blade Width

Use the blade width recommended by the machine manufacturer, except for contour cutting in vertical machines when you should use the chart below.



4 Pitch

Pitch is the number of teeth per inch or 25.4mm. Cutting thinner sections requires a finer pitch (more teeth per inch/25mm). Thick sections require coarser pitches (fewer teeth per inch/25mm).

The charts are good guidelines. Because the cross section limits in the chart are broad and overlap, choose a coarser pitch if the speed of cut is most important. Choose a finer pitch if finish is most important.

MASSIVE		
Section to be cut (mm)	Constant Pitch (TPI)	Variable Pitch
4 to 10	32 or 24	14-18
6 to 13	18 or 14	10-14
13 to 19	14 or 10	8-12
19 to 25	10 or 8	6-10
25 to 38	8 or 6	5-8
38 to 88	6 or 4	4-6
88 to 180	4 or 3	3-4
180 to 250	3	2-3
250 to 400	—	1.4-2
350 to 500	1.3	1-2
400 to 800	1.3	1-1.2
Above 750	1	.8-1.3 / .9-1.1

For cutting tubes and profiles, use the horizontal line to find the outside diameter (tube) or the largest section (profile). Find the thickness (tube/profile) using the vertical column. With that information, cross them to find the recommended pitch. (chart below).

TUBES AND PROFILES													
Wall thickness	Outside diameter of tube or maximum profile section length (mm)												
(mm)	10	20	40	60	80	100	120	150	200	300	400	500	600
2	14-18	14-18	10-14	10-14	10-14	10-14	8-12	8-12	8-12	8-12	6-10	6-10	5-8
3	10-14	10-14	10-14	10-14	10-14	8-12	8-12	8-12	6-10	6-10	6-10	5-8	5-8
4		8-12	8-12	8-12	8-12	6-10	6-10	6-10	5-8	5-8	4-6	4-6	4-6
5		6-10	6-10	6-10	6-10	5-8	5-8	5-8	5-8	4-6	4-6	4-6	4-6
6		5-8	5-8	5-8	5-8	5-8	5-8	5-8	4-6	4-6	4-6	4-6	3-4
8			4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	3-4	3-4	3-4
10			4-6	4-6	3-4	3-4	3-4	3-4	3-4	3-4	3-4	2-3	2-3
12				4-6	3-4	3-4	3-4	3-4	3-4	3-4	2-3	2-3	2-3
15				4-6	3-4	3-4	3-4	3-4	3-4	2-3	2-3	2-3	2-3
20				4-6	3-4	3-4	3-4	3-4	3-4	2-3	2-3	2-3	2-3
25					3-4	3-4	3-4	3-4	2-3	2-3	2-3	1.4-2	1.4-2
30					3-4	3-4	3-4	3-4	2-3	2-3	2-3	1.4-2	1.4-2
40						3-4	3-4	3-4	2-3	2-3	2-3	1.4-2	1.4-2
50							3-4	3-4	2-3	2-3	1.4-2	1.4-2	1-1.2
60									2-3	2-3	1.4-2	1.4-2	1-1.2

CHOOSING THE CORRECT BLADE

5 Blade Length

The blade length varies according to the band saw machine type and specifications. Please find the correct blade length on your band saw machine user manual.





POWERCALC

The online PowerCalc Software helps you to choose the correct Band Saw Blade:

- Assistance in choosing the correct Starrett Blade
- Calculating blade speed and cutting rate for a better performance
- Recommendations of the correct coolant ratio for longer life

POWERCALC DIFFERENTIALS

- The database includes the world's leading band saw machine manufacturers
- PowerCalc generates cutting data reports to improve production performance
- The simulations are recorded in the programme, and can be accessed at any time

HOW TO USE POWERCALC

- The online software is free.
- Access:
info.starrett.com/powercalc-download

Starrett®

PowerCALC

Simulation Results Report

PART TO CUT

ROUND
Carbon Steels - 1020 (ABNT / AISI / SAE)
Hardness = 150 HB
PART DIMENSIONS:
A = 100mm

BANDSAW MACHINE
Manufacturer: STARRETT
Model: S 3720

RESULTS

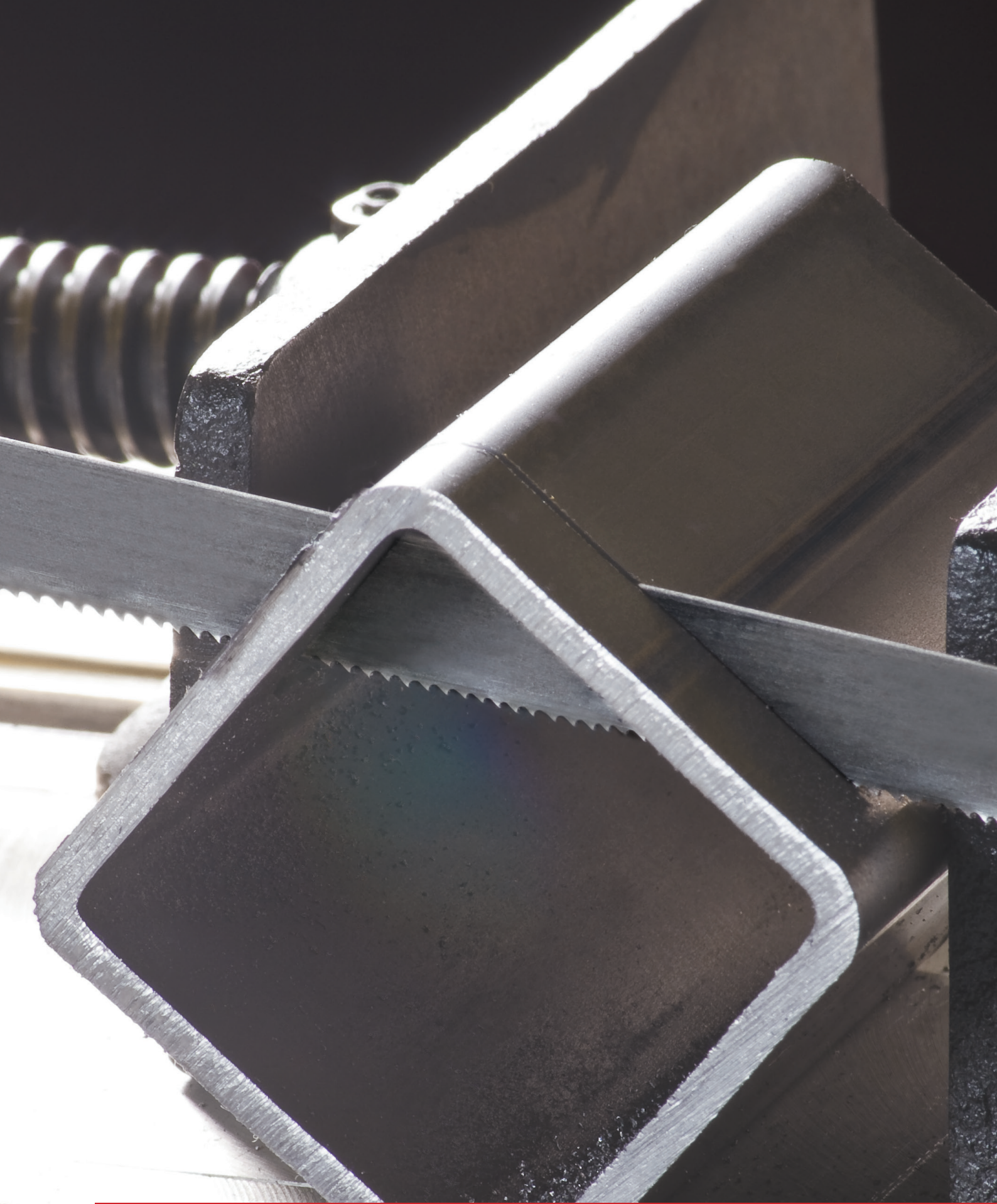
Parts per Cut	1
Recommended Cooling	1:10 - 10%
Cut Area	78.54 cm ²
Number of Break-in Cuts	6

	Cutting Time		
	Speed	Break in	Normal Condition
INTENS PRO (IP)	88 m/min	01min 36s	00min 48s
INTENS (IT)	76 m/min	02min 10s	01min 06s

Recommended

INTENS PRO 3-4 POSITIVE RAKE
INTENS PRO 3-BEARCAT
INTENS 3-4 STRAIGHT (ZERO) RAKE

United States: www.starrett.com | general@starrett.com | Phone (378) 249 3551
Important: The results presented by PowerCalc are calculated assuming ideal conditions of operation of all elements informed.



BI-METAL BAND SAW BLADES

BI-METAL

PRIMALLOY™



FEATURES

- Special high-speed steel edge
- Exclusive tooth geometry with positive rake angle
- Extended Life Treatment (EXT) functionality - ensures maximum fatigue life
- Ground teeth

BENEFITS

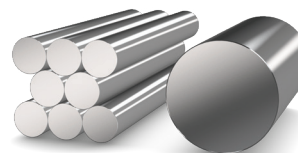
High Cobalt and Vanadium content on teeth guarantees:

- Longer blade life with high quality surface finish
- Increased wear and heat resistance
- Easy penetration in hard and difficult to machine materials, increasing the blade performance
- Cost-effective over conventional bi-metal blades



APPLICATIONS

- Tool steel and high speed steel
- Stainless steels
- Nickel and titanium alloys
- Hardened steel
- For machines with hydraulic feed control



Width x Thickness		Pitch
mm	inches	
27 x 0.90	1 x .035	3 - 4
34 x 1.10	1.1/4 x .042	2 - 3
		3 - 4
		1.4 - 2
41 x 1.30	1.1/2 x .050	2 - 3
		3 - 4
		1 - 1.2
54 x 1.60	2 x .063	1.4 - 2
		2 - 3
		3 - 4
		1 - 1.2
67 x 1.60	2.5/8 x .063	1.4 - 2
		2 - 3

Available as welded bands and random length coils.
Note: Special products on request.



BI-METAL

INTENSS™ PRO-VTH

Starrett® Intenss™ PRO-VTH

FEATURES

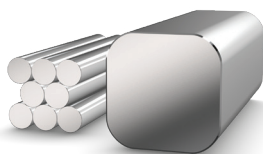
- Uniquely designed tooth edge with variable height and set
- Ground Teeth with positive rake angle

BENEFITS

- Easy penetration with faster cuts
- Excellent heat and wear resistance
- Pulsating action allows the teeth to cut in a fast action

APPLICATIONS

- Tool steel and high speed steel
- Stainless steels
- Hardened Copper and aluminium Bronze Alloys
- For machines with hydraulic feed control
- Ideal for cutting all steels and non-ferrous metals up to 40 HRC

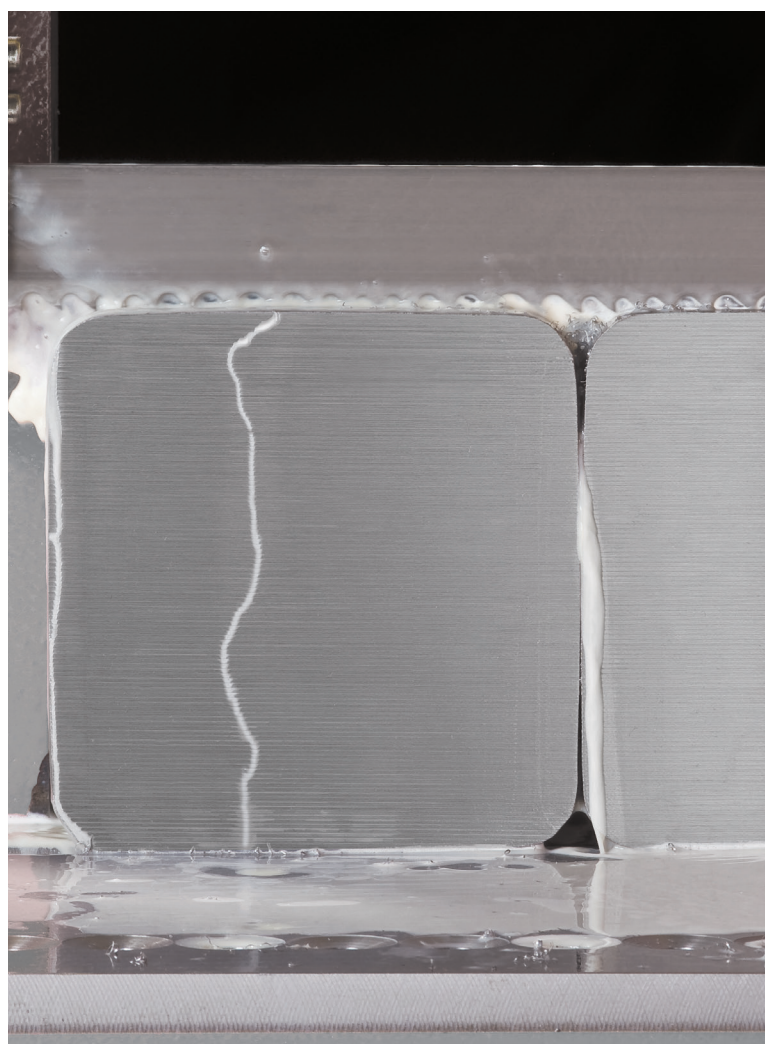
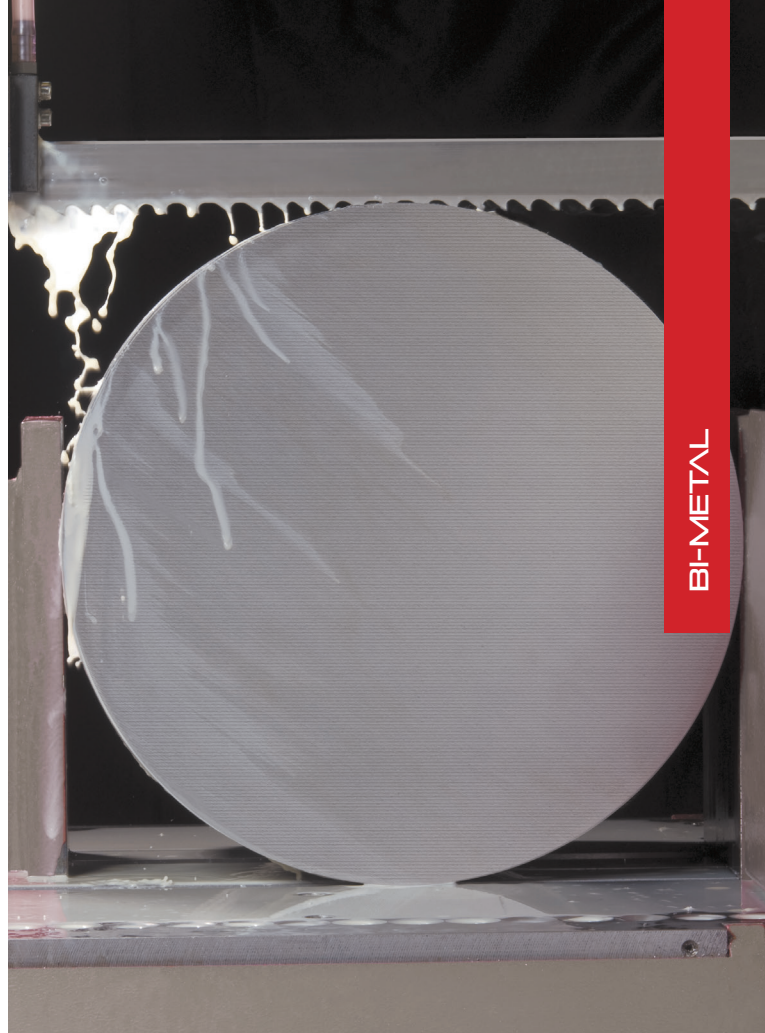


Width x Thickness		Pitch
mm	inches	
27 x 0.90	1 x .035	2 - 3
		3 - 4
		4 - 6
34 x 1.10	1.1/4 x .042	2 - 3
		3 - 4
		4 - 6
41 x 1.30	1.1/2 x .050	2 - 3
		3 - 4
54 x 1.60	2 x .063	1 - 1.2
		1.4 - 2
67 x 1.60	2.5/8 x .063	1.4 - 2
80 x 1.60	3.1/8 x .063	1 - 1.2
		1.4 - 2

Raker Tooth Set

Furnished in welded bands and in random length coils.

Note: Special products on request.



BI-METAL

INTENSTM PRO

Starrett[®] IntensTM PRO

FEATURES

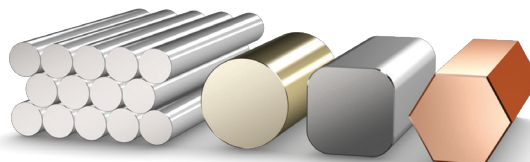
- Complete line with a wide range of widths and pitches to suit a huge variety of cutting needs
- Unique tooth geometry provides intense production cutting in ferrous and non-ferrous metals

BENEFITS

- Faster and straighter cuts
- Improved fatigue and wear resistance

APPLICATIONS

- Ideal for production cutting across a wide range of metals
- For solids and thick wall tubes



Width x Thickness		Pitch
mm	inches	
19 x 0.90	3/4 x .035	3 - 4
		4 - 6
		5 - 8
		6 - 10
27 x 0.90	1 x .035	2 - 3
		3 - 4
		4 - 6
		5 - 8
		6 - 10
34 x 1.10	1.1/4 x .042	3*
		2 - 3
		3 - 4
		4 - 6
		5 - 8
41 x 1.30	1.1/2 x .050	6 - 10
		1 - 1.2
		1.4 - 2
		2 - 3
		3 - 4
54 x 1.60	2 x .063	4 - 6
		5 - 8
		0.8 - 1.3
		1 - 1.2
		1.4 - 2
67 x 1.60	2.5/8 x .063	2 - 3
		3 - 4
		0.8 - 1.3
		1 - 1.2
80 x 1.60	3.1/8 x .063	1.4 - 2
		0.8 - 1.3
		1 - 1.2

PS Tooth Shape * = BR Tooth Shape

Raker Tooth Set

Furnished in welded bands and random length coils.

Note: Special products on request.



BI-METAL

VERSATIX™ MP

Starrett® Versatix™ MP

FEATURES

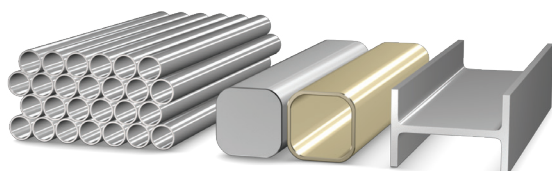
- Special tooth geometry developed for cutting structural materials
- Increased tooth strength

BENEFITS

- Faster and straighter cuts
- Less tooth breakage

APPLICATIONS

- Tubes and structurals
- Small solids
- Bundles
- For all machines: manual, hydraulic, gravitational etc.



BI-METAL

Width x Thickness		Pitch
mm	inches	
19 x 0.90	3/4 x .035	4 - 6
		5 - 8
		6 - 10
		8 - 12
		10 - 14
27 x 0.90	1 x .035	3 - 4
		4 - 6
		5 - 8
		6 - 10
		8 - 12
34 x 1.10	1.1/4 x .042	10 - 14
		2 - 3
		3 - 4
		4 - 6
		5 - 8
		6 - 10

Width x Thickness		Pitch
mm	inches	
41 x 1.30	1.1/2 x .050	2 - 3
		3 - 4
		4 - 6
		5 - 8
54 x 1.60	2 x .063	2 - 3
		3 - 4
		4 - 6
67 x 1.60	2.5/8 x .063	2 - 3
		3 - 4

Raker Tooth Set
Furnished in welded bands and random length coils.
Note: Special products on request.

BI-METAL

INTENSS™



FEATURES

- Strong tooth geometry
- M42 high speed steel teeth combined with a fatigue resistant alloy backing material

BENEFITS

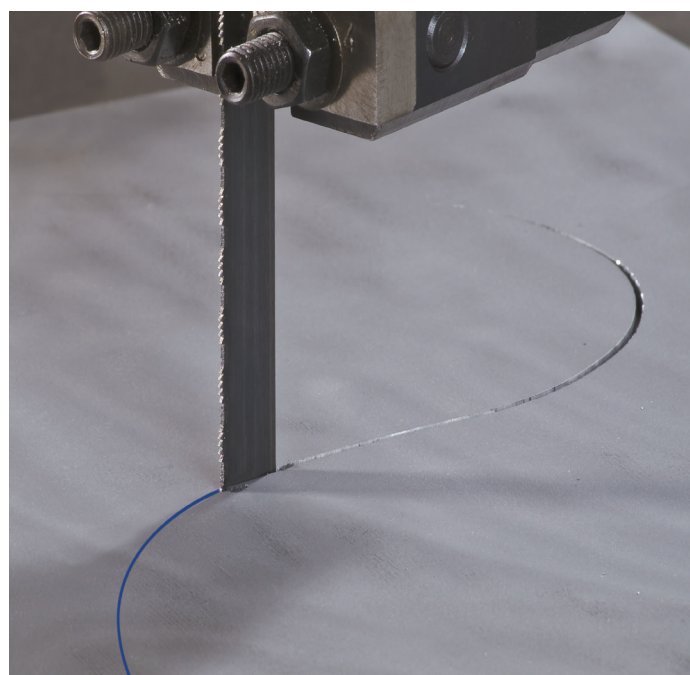
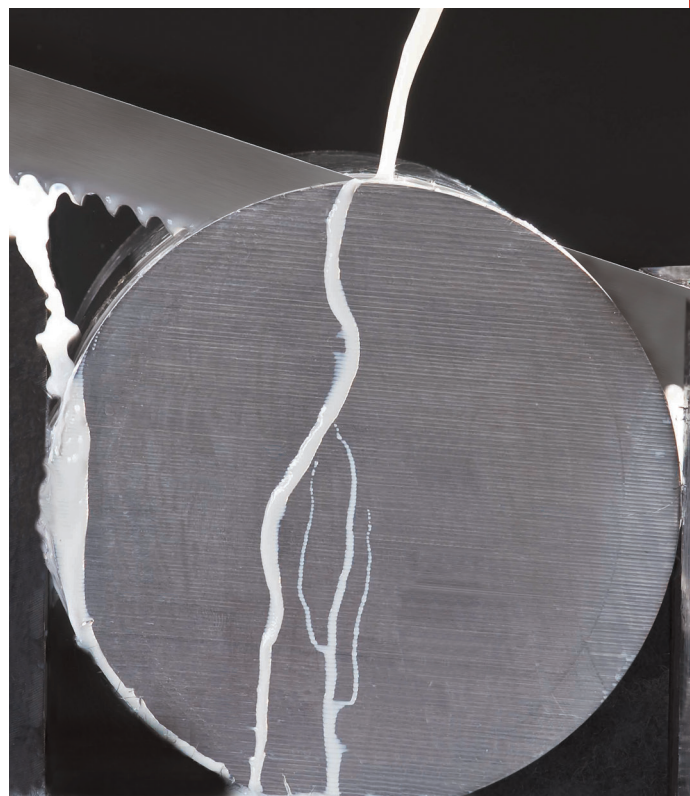
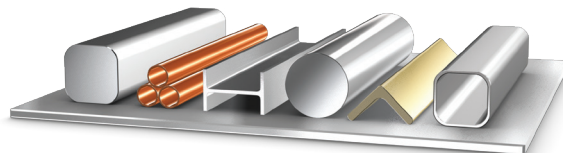
- Ideal for using with manual feed and vertical band saw machines, as well as conventional machines with gravitational feed
- Ideal for tool rooms, service and maintenance and small machine shops

Width x Thickness		Pitch
mm	inches	
13 x 0.65	1/2 x .025	14
		18
13 x 0.90	1/2 x .035	10
		14
19 x 0.90	3/4 x .035	3 - 4
		4 - 6
		5 - 8
		6 - 10
		8 - 12
		10 - 14
		14
		3 - 4
27 x 0.90	1 x .035	4 - 6
		5 - 8
		6 - 10
		8 - 12
		10 - 14
		14
		2 - 3
		3 - 4
34 x 1.10	1.1/4 x .042	4 - 6
		5 - 8
		6 - 10
		8 - 12

Furnished in welded bands and random length coils.
Note: Special products on request.

APPLICATIONS

- Cut steel sheets, carbon steel solids and structurals, aluminium, copper, brass, cast iron, alloy steel, stainless steel etc.
- Cut small and medium solids



BI-METAL

INTENSS™ PRO-DIE

Starrett® Intenss™ PRO-DIE

FEATURES

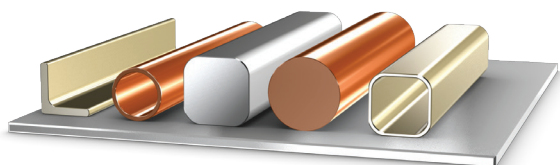
- Split Chip Advantage Technology
- Multiple cutting edges - Multi Edge Performance

BENEFITS

- Technology that allows faster cutting rates for longer blade life
- Cost-effective over conventional carbon steel blades
- Excellent fatigue, abrasion and shock resistance

APPLICATIONS

- Ideal for contour cutting on vertical machines
- Carbon steel and low alloy steels
- Sheet metal
- Die and Mould steel
- Stainless steel



Width x Thickness		Pitch
mm	inches	
6 x 0.65	1/4 x .025	10 - 14
		14 - 18
6 x 0.90	1/4 x .035	10 - 14
		8 - 12
10 x 0.65	3/8 x .025	10 - 14
		14 - 18
		4*
		6*
13 x 0.65	1/2 x .025	6 - 10
		8 - 12
		10 - 14
		14 - 18
		4*
		6 - 10
13 x 0.90	1/2 x .035	8 - 12
		10 - 14

PS Tooth (Variable Pitch)

* = HK Tooth (Constant Pitch)

All Raker Tooth Set apart from 14-18 TPI (Wavy Tooth Set)

Furnished in welded bands, random length coils and 30 metre (100') coils

Note: Special products on request

BI-METAL

UNIVERZ™



FEATURES

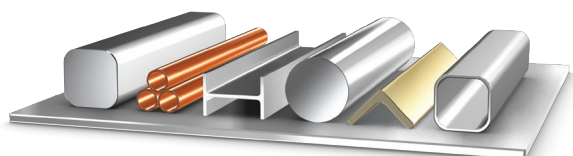
- Split Chip Advantage Technology
- Multiple cutting edges - Multiple Edge Performance
- Blade thickness: 0.50mm (0.020")

BENEFITS

- Technology that allows faster cutting rates, increasing the blade life
- Cost-effective over conventional carbon steel blades
- Excellent fatigue, abrasion and shock resistance
- For contour cuts

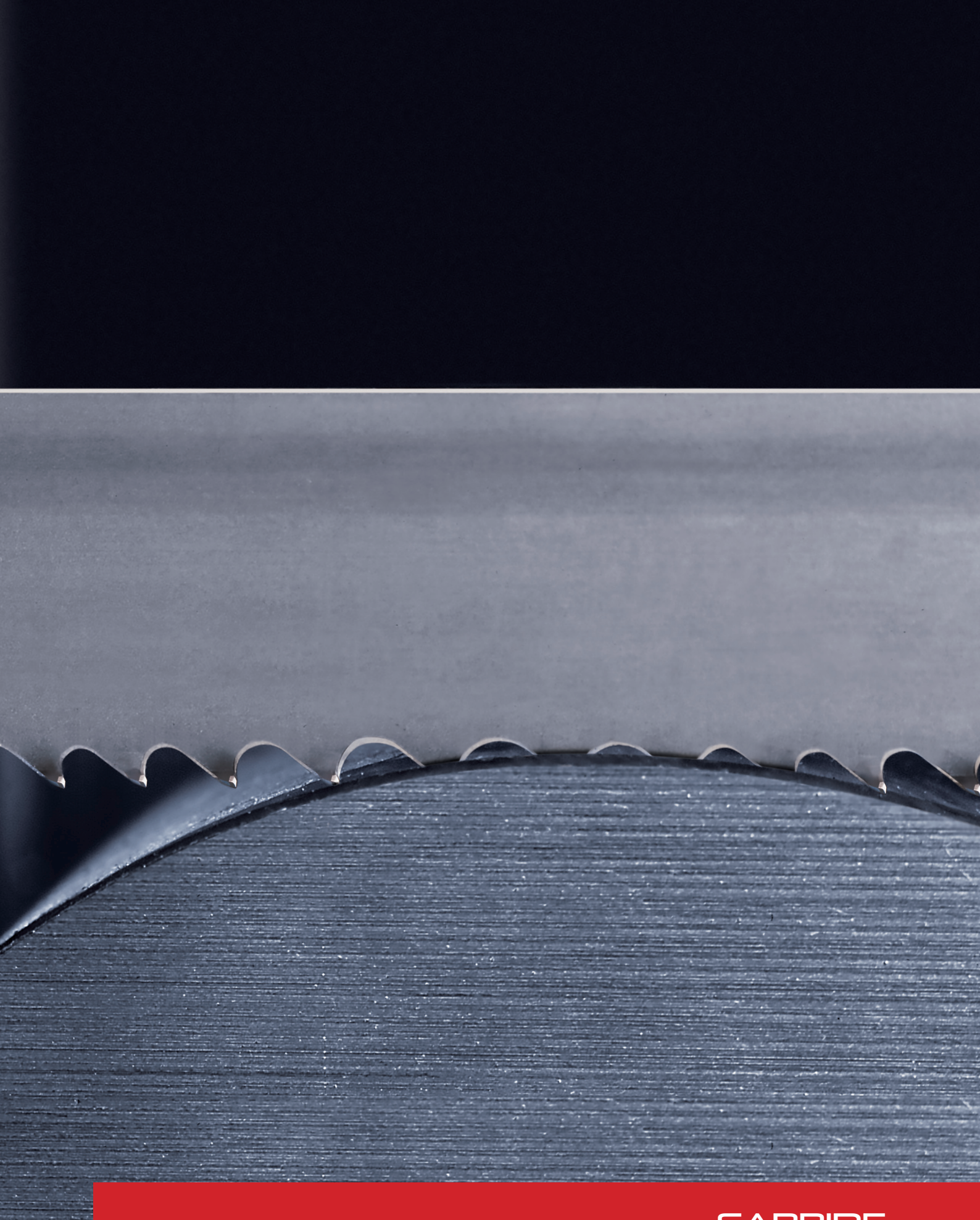
APPLICATIONS

- Portable machines
- Vertical machines with reduced wheel diameter
- Ideal for metal work shops, construction and hobbyists
- Steel, iron, aluminium, metalon



Width x Thickness		Pitch
mm	inches	
13 x 0.35	1/2 x .014	10 - 14*
		14 - 18*
		24
13 x 0.50	1/2 x .020	10 - 14*
		14 - 18*
		10
		14
		18
		24

Regular Tooth Shape * = PS Tooth Shape
 Furnished in 30 metre coils and welded bands.
 Note: Special products on request.



CARBIDE

CARBIDE

ADVANZ™ MC7

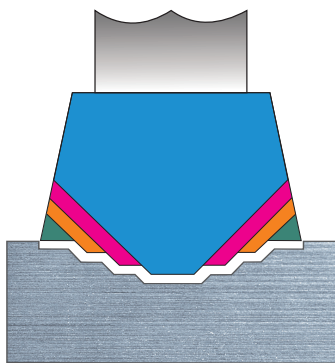


FEATURES

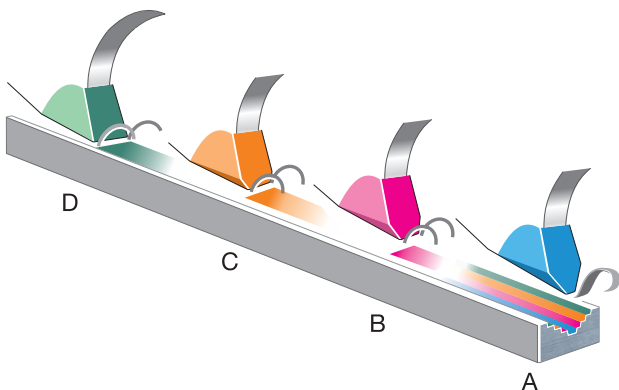
- Carbide tipped teeth
- Trapezoidal teeth with progressive grinding
- Ground Teeth forming 7 chips
- Positive Rake angle
- Dedicated geometry

BENEFITS

- Ideal for cutting ferrous metals
- Reduced cutting time
- Higher productivity
- Precise cuts and excellent finish
- Excellent cost-benefit ratio for production cutting

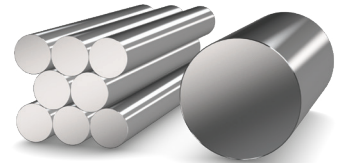


MC7 (Seven Multiple Chips)



APPLICATIONS

- Mechanical construction steels
- Tool steels, stainless steels
- Inconel
- Titanium
- For machines with hydraulic feed control



Width x Thickness		Pitch
mm	inches	
34 x 1.10	1.1/4 x .042	2 - 3
41 x 1.30	1.1/2 x .050	1.4 - 2
		2 - 3
54 x 1.60	2 x .063	1.4 - 2
		2 - 3
67 x 1.60	2.5/8 x .063	.9 - 1.1
		1.4 - 2

All blades are Trapezoidal Tooth Set
Furnished in welded bands and random length coils.
Note: Special products on request.



CARBIDE

ADVANZ™ MC5

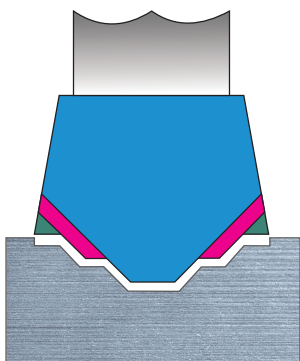


FEATURES

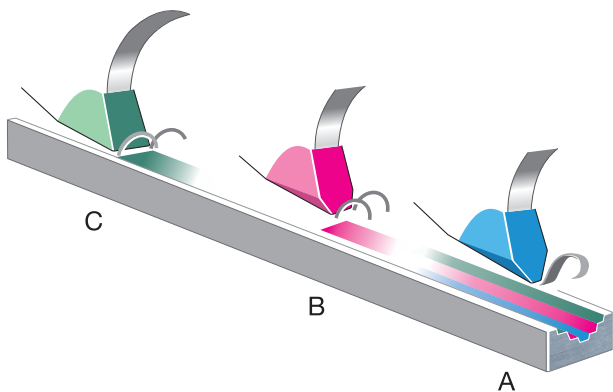
- Carbide tipped teeth
- Ground Teeth forming 5 chips
- Positive Rake angle
- Dedicated geometry

BENEFITS

- Ideal for cutting ferrous metals
- Reduced cutting time
- Higher productivity
- Precise cuts and excellent finishing
- Excellent cost-benefit ratio for production cutting

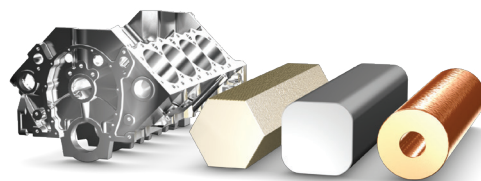


MC5 (Five Multiple Chips)



APPLICATIONS

- Automotive aluminium casting blocks
- Cast iron
- Bronze
- Copper
- For machines with hydraulic feed control



Width x Thickness		Pitch
mm	inches	
34 x 1.10	1.1/4 x .042	2 - 3
41 x 1.30	1.1/2 x .050	1.4 - 2
		2 - 3
54 x 1.60	2 x .063	1.4 - 2
		2 - 3

All blades are Trapezoidal Tooth Set
Furnished in welded bands and random length coils.
Note: Special products on request.



CARBIDE

ADVANZ™ TS

Starrett® Advanz™ TS

FEATURES

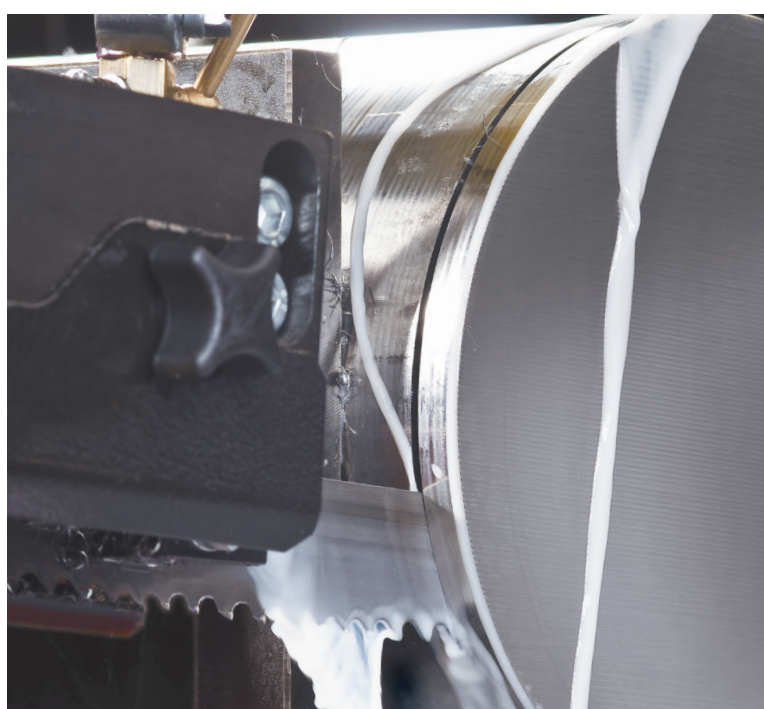
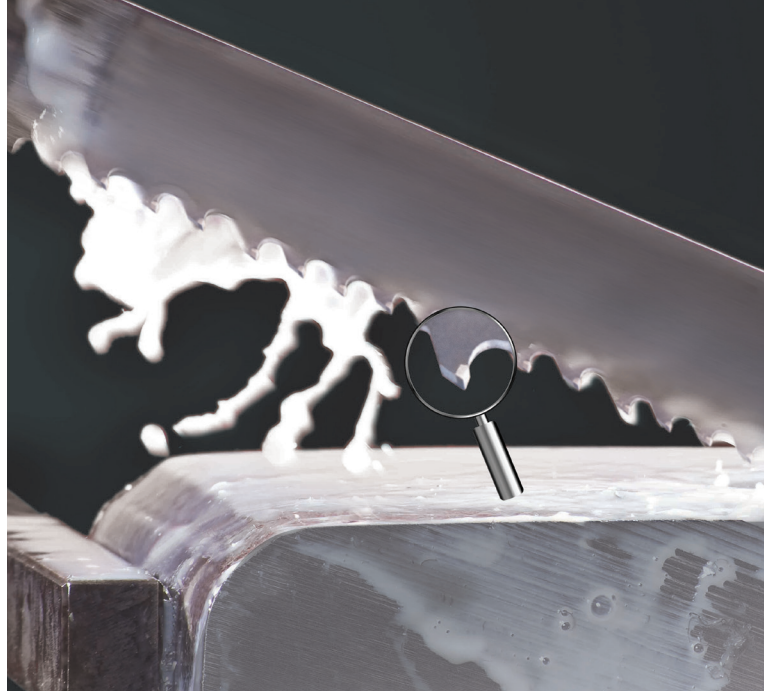
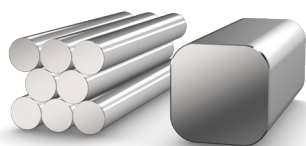
- Carbide tipped teeth
- Triple chip tooth geometry
- Aggressive Rake angle

BENEFITS

- Ideal for cutting hard materials that bi-metal blades cannot cut
- Extreme resistance to wear when cutting difficult to machine steels
- Reduced cutting time-higher productivity
- Precise cuts and excellent finish

APPLICATIONS

- High-alloy metals
- Aerospace alloys
- Stainless steel
- Nickel alloys
- Hard and abrasive materials
- For machines with hydraulic feed control



Width x Thickness		Pitch
mm	inches	
19 x 0.90	3/4 x .035	3 - 4
		3
19 x 1.30	3/4 x .050	3
27 x 0.90	1 x .035	3 - 4
		3
34 x 1.10	1.1/4 x .042	2 - 3
		3 - 4
34 x 1.30	1.1/4 x .050	2 - 3
		3
41 x 1.30	1.1/2 x .050	1.4 - 2
		2 - 3
		3 - 4
		1
		1.3

Width x Thickness		Pitch
mm	inches	
41 x 1.30	1.1/2 x .050	3
		1.4 - 2
54 x 1.60	2 x .063	2 - 3
		1
67 x 1.60	2.5/8 x .063	1.3
		.9 - 1.1
80 x 1.60	3.1/8 x .063	1.4 - 2
		2 - 3
		.9 - 1.1
		1.4 - 2
		2 - 3
		1

All blades are Trapezoidal Tooth Set

Furnished in welded bands, random length coils, 40 metre coils (54mm - 80mm width blades only) and 45 metre coils (19mm - 41mm width blades only).

Note: Special products on request.

CARBIDE

ADVANZ™ CS



FEATURES

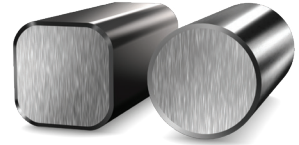
- Carbide tipped teeth
- Triple chip tooth geometry
- Negative Rake angle

BENEFITS

- Ideal for cutting hardened materials
- High resistance to abrasion
- Reduced cutting time-higher productivity
- Precise cuts and excellent finish

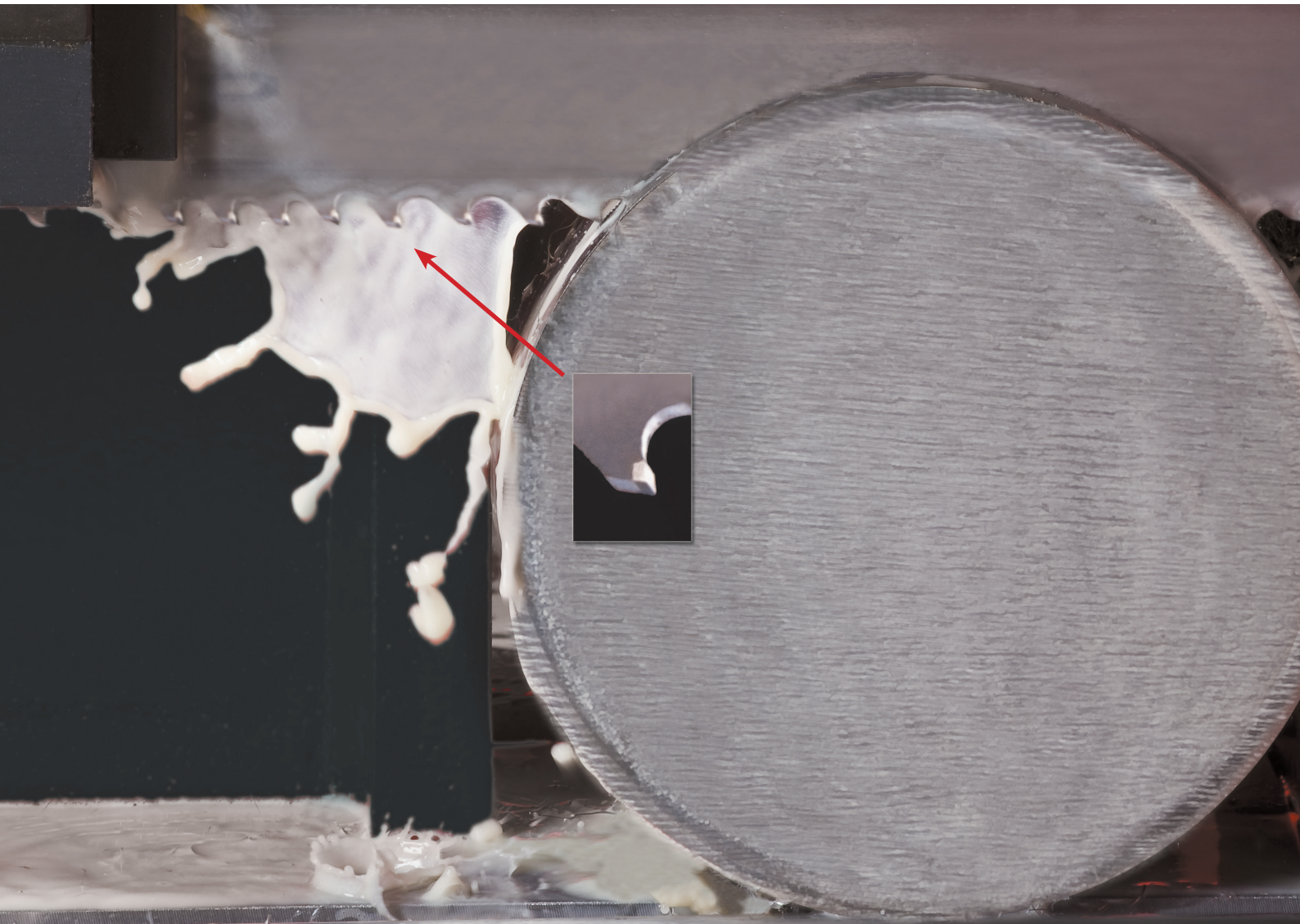
APPLICATIONS

- Case hardened steel
- Steel for shafts and linear guides
- Case hardened materials up to 60 HRC
- For machines with hydraulic feed control



Width x Thickness		Pitch
mm	inches	
27 x 0.90	1 x .035	3 - 4
34 x 1.10	1.1/4 x .042	3 - 4
41 x 1.30	1.1/2 x .050	2 - 3
		3 - 4

All blades are Trapezoidal Tooth Set
Furnished in welded bands, random length coils and 45 metre coils.
Note: Special products on request.





CARBIDE

ADVANZ™ FS



FEATURES

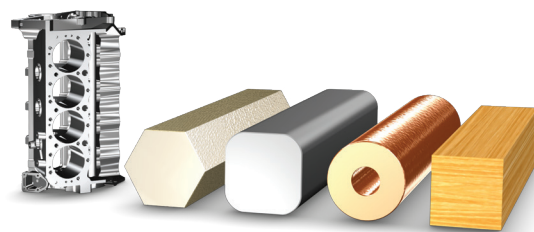
- Carbide tipped teeth
- Triple chip tooth geometry
- Positive Rake angle

BENEFITS

- Ideal for cutting abrasive materials that bi-metal blades cannot cut
- Exceptional resistance to fatigue, abrasion and shocks
- Reduced cutting time - Higher productivity
- Precise cuts and excellent finish

APPLICATIONS

- Abrasive non-ferrous metals
- Cast materials and risers
- Composite materials
- Fibreglass
- Graphite
- Abrasive hard woods
- Suitable for robust vertical machines and horizontal machines with hydraulic feed control



Width x Thickness		Pitch
mm	inches	
19 x 0.90	3/4 x .035	3
27 x 0.90	1 x .035	2 - 3
		3
27 x 1.30	1 x .050	2 - 3
		3
34 x 1.10	1.1/4 x .042	3
34 x 1.30	1.1/4 x .050	3
41 x 1.30	1.1/2 x .050	2 - 3

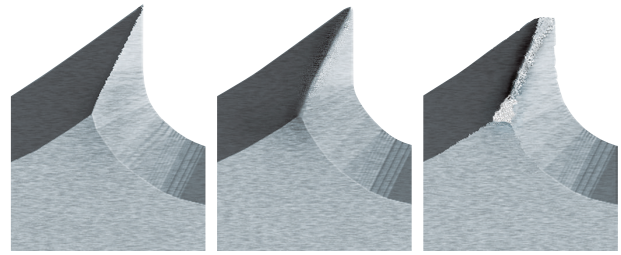
All blades are Trapezoidal Tooth Set
Furnished in welded bands, random length coils and 45 metre coils.
Note: Special products on request.

RECOMMENDATIONS

USING THE RIGHT BREAK-IN PROCEDURES FOR A NEW BLADE ASSURES LONGER BLADE LIFE

All new saws should be broken-in. This procedure ensures longer blade life, faster cuts and consistent performance.

Attention! Conversely, blade life can be significantly compromised if the proper break-in procedures are not followed.



New blade with razor sharp teeth

Tooth correctly broken in

Tooth incorrectly broken in

HOW TO USE THE RIGHT BREAK-IN AND ENSURE LONGER BLADE LIFE

The teeth of a new band saw blade are razor sharp. To withstand the cutting pressure of band sawing, the tip of each tooth should be honed to create an extremely small radius on its tip.

Easy-to-cut materials (with cutting rate over 38 cm²) e.g. carbon steel

- Adjust the recommended cutting rate for the material to be cut
- Adjust the feed pressure to about one-half the normal cutting rate for the first 30 minutes
- Gradually Increase to the normal cutting rate
- Ensure there is chip removal
- Avoid vibration

Hard-to-cut materials (with cutting rate below 38 cm²) e.g. nickel-based alloys like inconel, hardened steels, tool steels and stainless steels

- Adjust the recommended cutting rate for the material to be cut
- Adjust the feed pressure to about 30% the normal cutting rate for the first 20-30 minutes
- Gradually Increase to the normal cutting rate
- Ensure there is chip removal
- Avoid vibration



Start to cut material at reduced cutting rate



After break-in when the blade has fully entered the work-piece, increase the feed rate over a series of cuts until the recommended cutting rate is achieved

RECOMMENDATIONS

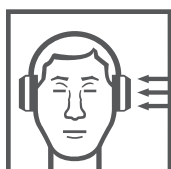
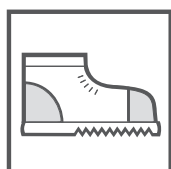
BAND SAW BLADE INSTALLATION GUIDELINES

Always follow the machine manufacturer's instruction and recommendations for blade changes and the safe operation for the band saw machine. The general information contained in the guidelines is intended to assist in the proper installation of band saw blades, however Starrett® nor its employees shall not be held responsible for the accuracy or completeness of these guidelines. Proper blade installation achieves more efficient blade performance.

- Wear gloves when handling a band saw blade



- Use eye protection, safety shoes, and hearing protection



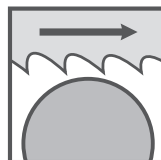
FOLLOW THESE INSTRUCTIONS CAREFULLY

- Follow all the safety instructions shown in the band saw machine operator's manual and on the machine labels. Recognize and read safety and warning signs such as Danger, Warning and Caution
- Follow the saw blade installation instructions on the specific make and model of the band saw machine requiring a blade change

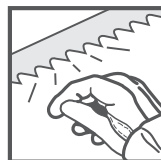
BASIC BLADE CHANGE GUIDELINES

- Remove any chips from saw guides and band wheels
- Position chip brush away from saw
- Relieve saw blade tension and remove blade

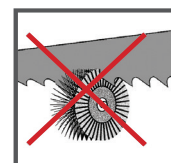
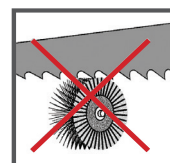
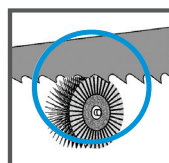
- Select appropriate blade for cutting application
- Unfold blade properly. Do not throw. Throwing the blade will result in tooth damage that will reduce saw blade performance
- Install blade with saw teeth pointing in proper direction



- Apply appropriate tension to the blade
- Be aware of pinch points and keep hands and clothing clear of rotating blade



- Adjust guide arms to appropriate positions to workpiece
- Adjust blade guides for proper blade support
- Adjust chip brush to fully engage saw blade teeth to ensure proper chip removal



- Check hydraulic fluid levels when applicable
- Ensure appropriate cutting fluid placement and mix ratios as applicable per machine, cutting fluid, and blade manufacturer's recommendations

CUTTING TABLE / BI-METAL

CUTTING TABLE FOR BI-METAL BAND SAW BLADES				
Work Material Type	Work piece dimension (mm) 50-125mm		50-125mm	
	Speed/Cutting Rate		Blade Speed m/min.	Cutting Rate cm ² /min.
	ABNT/AISI/SAE	Hardness		
Carbon Steels	1005-1012	150HB	79 - 91	77 - 103
	1015-1026	150HB	76 - 88	71 - 97
	1030-1055, A36	175HB	55 - 67	52 - 58
	1060-1095	200HB	49 - 61	39 - 52
Easy-to-machine carbon Steels	1110-1117-1118	150HB	79 - 98	77 - 103
	1137-1151	175HB	67 - 79	52 - 77
	1211-1215	150HB	79 - 98	97 - 120
Manganese steels	1330-1345	200HB	55 - 67	39 - 52
	1513-1527	150HB	79 - 91	77 - 103
	1536-1552	175HB	61 - 79	52 - 65
	1561-1572	200HB	49 - 61	39 - 52
Molybdenum steels	4012-4024	175HB	61 - 73	45 - 58
	4030-4042	175HB	58 - 70	45 - 52
	4047-4068	175HB	55 - 67	39 - 52
Chrome Moly Steels	4130-4140	200HB	55 - 67	39 - 52
	4142-4161	200HB	52 - 64	32 - 45
Nickel Chrome Moly Steels	4320	175HB	61 - 73	45 - 58
	4340	200HB	55 - 67	39 - 52
	8115, 8615-8622, 8145, 8625-8637	175HB	61 - 73	45 - 58
	8640-8660, 8740	200HB	55 - 67	39 - 52
	8720, 8822	200HB	61 - 73	45 - 58
	9310	175HB	49 - 58	19 - 26
	9430-9445	200HB	55 - 67	39 - 52
	4625-4626, 4815-4820	175HB	61 - 73	45 - 58
Chrome Steels	5040-5060	200HB	55 - 67	39 - 52
	5115-5120	175HB	61 - 73	45 - 58
	5130-5160	200HB	55 - 67	39 - 52
	50100, 51100, 52100	225HB	40 - 49	26 - 32
Chrome Vanadium Steel	6118	175HB	61 - 73	45 - 58
	6150	200HB	55 - 67	39 - 52
Silicon steels	9255-9262	200HB	55 - 67	39 - 52
Tool steels - Cold work	A2-A6, A8-A10	200HB	55 - 67	19 - 26
	D2-D7, A7	250HB	20 - 30	13 - 19
	O1, O2, O6, O7	200HB	55 - 67	26 - 39
Tool steels - Hot work	H10-H19, H21-H42, P20	200HB	40 - 49	19 - 26
	L2, L6	200HB	52 - 64	19 - 26
	S1-S7	200HB	40 - 49	19 - 26
Carbon tool steels	W1-W5	200HB	55 - 67	26 - 39
Ferritic stainless steels	405, 409, 430, 434, 436, 442, 446	175HB	24 - 30	19 - 26

CUTTING TABLE / BI-METAL

CUTTING TABLE FOR BI-METAL BAND SAW BLADES				
Work Material Type	Work piece dimension (mm) 50-125mm		50-125mm	
	Speed/Cutting Rate		Blade Speed m/min.	Cutting Rate cm ² /min.
	ABNT/AISI/SAE	Hardness		
High speed steels	M1, M2, M7, M10	225HB	34 - 40	19 - 26
	M3, M4, M30-M47	225HB	20 - 30	13 - 19
	T1, T2, T6	250HB	34 - 40	19 - 26
	T15	250HB	18 - 27	13 - 19
	T4, T5	250HB	27 - 37	13 - 19
Austenitic stainless steels	201, 202, 301-305, 308, 321, 347	150HB	30 - 37	19 - 26
	A286, 309, 310, 314, 316, 317, 330	175HB	21 - 24	10 - 13
Easy-to-machine Stainless Steels	330	150HB	30 - 43	26 - 32
	416, 420F, 430F	150HB	43 - 55	32 - 39
Martensitic stainless steels	403, 410, 420, 422, 501, 502	175HB	30 - 40	19 - 26
	440A-C, 414, 431	225HB	27 - 30	19 - 26
Hardened Stainless Steel	15-5PH, 17-4PH, 17-7PH	200HB	21 - 27	13 - 19
Cast iron	Class 20	125HB	49 - 61	71 - 97
	Class 40	200HB	37 - 49	52 - 77
	Malleable 60-40-18	150HB	61 - 76	52 - 65
	Malleable 80-55-06	225HB	37 - 49	32 - 45
Nickel alloys	Hastelloy, Rene 41	250HB	15 - 21	6 - 6
	Inconel 600, 601	250HB	18 - 24	13 - 19
	Inconel 625, 718, Waspaloy	250HB	18 - 24	6 - 6
	Monel 400, 401	250HB	21 - 27	13 - 19
	Monel K500	250HB	18 - 24	6 - 13
Titanium alloys	Alpha, Alpha-Beta, Beta	325HB	14 - 18	6 - 6
	Titanium 99%	150HB	21 - 27	6 - 13
Refractory metals	Columbium	-	18 - 24	6 - 6
	Molybdenum	-	24 - 30	6 - 6
	Tantalum	-	15 - 18	6 - 6
Copper alloys	Tempered Aluminium Bronze	30HRC	24 - 30	10 - 14
	Tempered Beryllium Copper	38HRC	12 - 17	3 - 6
	Aluminium Bronze	70HRB	50 - 58	39 - 52
	Phosphor Bronze	70HRB	46 - 58	52 - 65
	Copper 99%	50HRB	43 - 55	45 - 58
	Copper Belirio	70HRB	52 - 58	26 - 39
	Yellow/Red Brass	70HRB	61 - 79	52 - 65
	Easy machining brass	70HRB	67 - 76	65 - 77
Aluminium Alloys	1200	30HB	120 - 135	77 - 110
	2024	120HB		
	5052	50HB		
	6061	110HB		
	7075	160HB		

CUT-OFF CALCULATION

The calculations set out below are intended as guidance for band saw machine operators. There are a number of different opinions that exist as to the correct calculations for different material types, and this guidance does not attempt to disprove other opinions. The guidance is offered as a reference rather than as strict technical instructions.

CUTTING CALCULATION:

Use all the measures in centimetres to get the area in **cm²**.

SQUARE

$$\text{area} = L^2$$



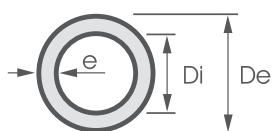
ROUND

$$\text{area} = D^2 \times 0.7854$$



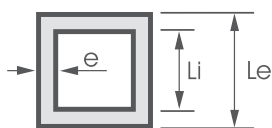
ROUND TUBE

$$\text{area} = (De^2 - Di^2) \times 0.7854$$



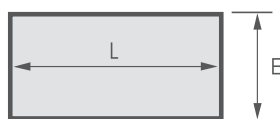
SQUARE TUBE

$$\text{area} = Le^2 - Li^2$$



RECTANGLE

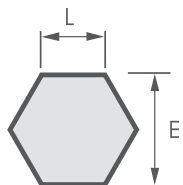
$$\text{area} = E \times L$$



HEXAGON

$$\text{area} = L^2 \times 2.598$$

$$E^2 \times 0.866$$



EXAMPLE OF CUTTING CALCULATION

Material: Austenitic stainless steel (SAE 316)

Format: Round

Dimension: 101.6mm (4")

Speed: 21 to 24 m/min.*

Cutting Rate: 10 to 13cm² min*

*according to the chart on page 55

$$CT = \frac{A}{CR}$$

CT = Cutting Time
A = Material Area
CR = Cutting Rate

Cutting Time = 81.07cm² ÷ 13cm²/min.

Cutting Time = 6:14 minutes

Band saw machine used: S6330

(page 49)

Blade to be used: Primalloy™ (page 18)

Tooth: Variable Pitch 3-4/P (page 14)

Catalogue No.: 3920 x 34 x3-4 Primalloy

CUTTING OF OTHER DIMENSIONS

Multiply the speed indicated in the tables - pages 54 and 55 by the following factors.

Dimension / mm	Factor
< 13	1.20
13 - 25	1.10
25 - 50	1.07
50 - 125	1
125 - 250	0.92
250 - 600	0.85
> 600	0.75

HARDENED MATERIAL CUTTING

If the material to be cut has hardness above that specified in the tables (pages 54 and 55), multiply the speed and the cutting rate (decreasing speed and increasing cutting time) by the factors below.

Difference between expected and found hardness	Factors	
	Blade Speed	Cutting Rate
Up to 40%	0.75	0.75
From 40% to 75%	0.60	0.54
From 75% to 100% (max. 40HRC)	0.50	0.40

TUBE OR STRUCTURAL MATERIAL CUTTING

Do the same, calculating the material area, choosing the tooth (page 14), speed and cutting rate (pages 54 and 55), however correct the cutting time, by multiplying the time calculated by the correction factor, according to the table below.

Cutting Time Correction Factor	Thickness (e) mm
2.5	2 to 5
2	6 to 10
1.7	12 to 15
1.4	20 to 25
1.2	30 to 60

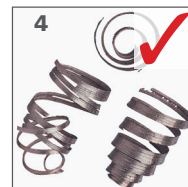
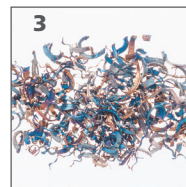
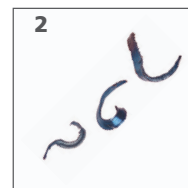
Note: when dry cutting, adjust the feed pressure to about 40%-50% of the normal cutting rate (use data on pages 54 and 55).

Note: dry cutting reduces the blade life

For Duratec™ Super FB Carbon Steel Blades: adjust the feed pressure to 50% of the normal cutting pressure and the Cutting Rate to 85%.

CHIP ANALYSIS

1. Thick and heavy chips with normal material colour indicate high cutting feed
2. Thick and blue chips indicate high speed and cutting feed
3. Thin chips with dark coloration indicate low feed and high cutting speed
4. **Flexible chips, spring type, with clear material colour indicate ideal cutting condition.**



ACCESSORIES

POCKET LASER TACHOMETER KIT WITH CASE N° S7793Z

- Powerful tachometer with 32 functions for measurements with or without contact
- Optical range 5 - 200,000 RPM
- Contact range 0.5 - 20,000 RPM
- Measurement with contact 0.050 - 2,000 m/min. (linear speed)
- Different measurement units: RPM, cm, inches, feet, yards etc.



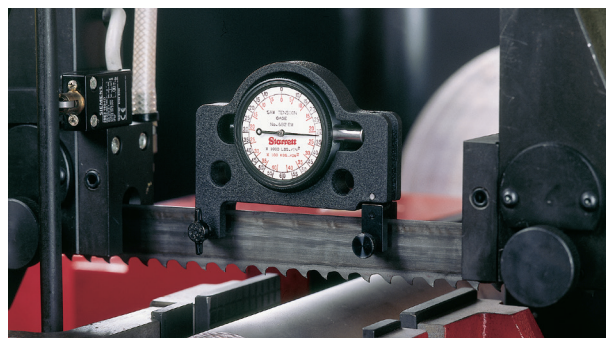
BAND SAW BLADE SERVICE KIT (ITEM NO. AU500)

- For checking and adjusting band saw blades
- Supplied with the key tools needed to maintain a band saw machine at optimum performance:
- Tachometer, Saw tension gauge, stopwatch, square, level, Refractometer, caliper, Band saw blade alignment gauge etc.



SAW TENSION GAUGE FOR BAND SAW BLADES N° 682EMZ

- Check for proper tension in either English or metric
- Graduated in kg/cm² (0 to 4.000) and in pounds/in² (0 to 60.000)
- Supplied in a case with instructions

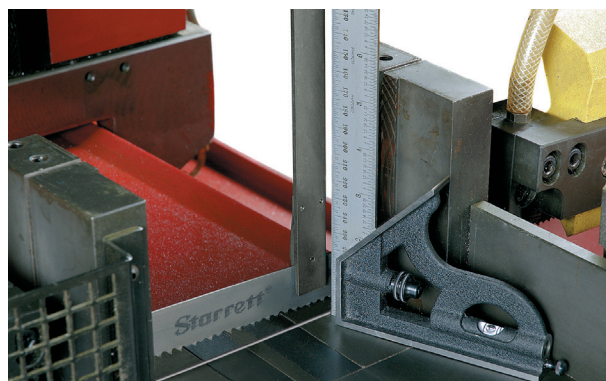


Saw blades	Width (mm)	English System lb/in ² (PSI)	Metric System (Kg/cm ²)
Primalloy™; Intenss™ PRO-VTH; Intenss™ PRO; Versatix™ MP; Intenss™; Advanz™ MC7, Advanz™ MC5, TS, CS, FS and CG	19, 27 and 34	20.000 - 35.000	1.400 - 2.500
Primalloy™; Intenss™ PRO-VTH; Intenss™ PRO; Versatix™ MP; Intenss™; Advanz™ MC7, MC5, Advanz™ TS, CS and FS	41 or greater	30.000 - 40.000	2.100 - 2.800
Intenss™; Intenss™ PRO-DIE; Univerz™; Duratec™ Super FB; Band Knives High-carbon Steel	Up to 16	20.000 - 25.000	1.400 - 1.800
Duratec™ Super FB; Duratec™ FC; Band Knives High-carbon Steel	19 or greater	20.000 - 30.000	1.400 - 2.100
Machine Saw Blades RS and BS	41 or less	20.000 - 30.000	1.400 - 2.100
Machine Saw Blades RS and BS	45 or greater	25.000 - 35.000	1.800 - 2.500

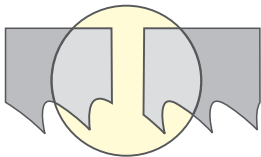
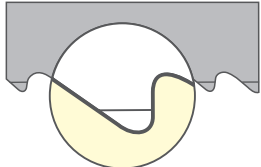
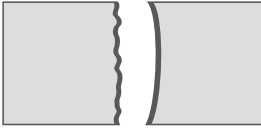
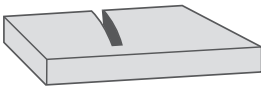





BAND SAW BLADE ALIGNMENT GAUGE N° PT92925

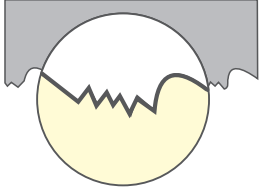
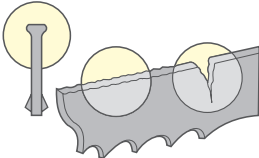
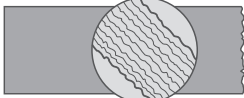
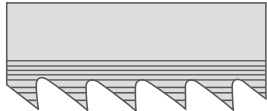

Gauge to ensure that the blade is running square to the cut.



TROUBLESHOOTING

Blade Effect	Probable Cause	Solution
BLADE BREAKAGE  (straight break indicates fatigue)	Incorrect blade.	Check tooth selection.
	Incorrect blade tension.	Adjust the blade tension, refer to operator's manual.
	Excessive feed.	Reduce feed pressure.
	Incorrect cutting fluid.	Check coolant recommendations.
	Pressure blocks too tight.	Adjust the guides.
	Blade rubbing on wheel flange.	Adjust wheel alignment.
	Guide arms too far apart.	Adjust guide arms closer to material.
	Side guides too tight.	Adjust guides.
PREMATURE TOOTH WEAR 	Blade on machine backwards.	Install blade correctly.
	Improper blade break-in procedure.	Refer to recommended procedures.
	Hard Material or heavy surface scale.	Check material hardness and surface conditions.
	Hard Material.	Increase feed pressure.
	Improper cutting fluid or mix ratio.	Follow coolant mixing procedures.
	Speed or feed too high.	Check cutting recommendations.
INACCURATE CUT 	Guide arms too far apart.	Adjust guide arms closer to material.
	Blade worn out.	Replace blade.
	Over or under feeding.	Check cutting recommendations.
	Improper tooth pitch.	Use proper tooth selection.
	Cutting fluid not applied properly.	Adjust coolant nozzles.
	Guides worn or loose.	Tighten or replace guides.
CUTTING DEVIATION 	Over feeding.	Check cutting recommendations.
	Low band tension.	Refer to operator's manual.
	Tooth set damaged.	Check material hardness, replace blade.
	Guide arms loose or space too wide.	Adjust guides and guide arms.
CHIPS RESIDUES IN THE TEETH 	Worn or missing chip brush.	Replace or adjust chip brush.
	Improper or lack of cutting fluid.	Check coolant flow and fluid type.
	Wrong coolant rate.	Check coolant type and ratio.
	Excessive feed or speed.	Reduce speed or feed.
	Incorrect blade pitch.	Use proper tooth selection.
TOOTH - BREAKING AWAY 	Saw guides not properly adjusted.	Align or adjust saw guides.
	Incorrect feed or speed.	Refer to cutting recommendations.
	Incorrect blade.	Use proper blade type and pitch.
	Material moved in vise.	Inspect and adjust vise.
WEAR ON ONLY ONE SIDE OF THE TEETH 	Material with impurities.	Replace material.
	Wheel with worn flange and band rising out of the track.	Align or replace wheel.
	Guide rubbing on set.	Adjust and align guide.
	Chipping teeth and embedding within the material.	Replace blade and apply correct break-in.

TROUBLESHOOTING

Blade Effect	Probable Cause	Solution
BREAKS OF THE TEETH 	Improper blade break-in procedure.	Follow proper break-in procedure.
	Speed too slow.	Refer to cutting recommendations.
	Feed pressure too high.	Reduce feed pressure.
	Tooth jammed in cut.	Low speed and high cutting pressure.
	Poor cutting fluid application or ratio.	Adjust coolant flow and ratio.
	Hard material or heavy scale.	Check material or surface hardness.
	Wrong blade pitch.	Use proper tooth selection.
	Work spinning or loose nested bundles.	Tighten vise or use nesting clamps.
	Cut beginning over the corner of the material.	Start the cut slowly.
	Excessive back-up guide preload.	Adjust pressure block.
WEAR ON THE BACK OF THE BLADE 	Low blade tension.	Refer to operator's manual.
	Blade worn out.	Replace blade.
	Excessive feed rate or pressure.	Reduce feed rate or pressure.
	Damaged or worn pressure block.	Replace pressure block.
	Guide arms spaced too far apart or too tight.	Adjust guides.
	Blade rubbing band wheel flanges.	Adjust wheel alignment.
	Incorrect guide alignment.	Align guides.
	Dull or damaged blade.	Install new blade.
	Incorrect feed or speed.	Refer to cutting recommendations.
	Blade not supported properly.	Adjust or tighten guide arms.
WAVY CUT  (cardboard surface, vibration and/or risks)	Low blade tension.	Refer to operator's manual.
	Incorrect tooth pitch.	Use proper tooth selection.
	Guide arms too far apart.	Adjust guide arms closer to material.
	Saw side guides too tight.	Adjust guides properly.
	Blade riding too high in guide.	Adjust rollers or pressure blocks.
	Blade teeth riding on band wheel surface.	Adjusting tracking or replace wheel.
	Wrong blade width for machine.	Refer to operator's manual.
	Chips being carried back into cut.	Replace or adjust chip brush.
	Worn or damaged guides.	Replace guides.
	Insufficient cooling flow.	Adjust coolant flow.
FRAYED LINES - LOSS OF SET 	Blade binding in cut.	Adjust feed.
	Guides misaligned.	Adjust and align guides.
	Side guides are too tight.	Adjust guides.
	Work loose in vice.	Adjust vice.
	Feed too heavy.	Reduce feed pressure.
	High blade tension.	Refer to operator's manual.
	Worn wheels.	Machine or replace wheels.
	Guides arms too far apart.	Adjust guide arms closer to material.
	Blade twisted.	Refer to operator's manual.
	Work loose in vice.	Adjust vice.
BLADE TWISTED 	Feed too heavy.	Reduce feed pressure.
	High blade tension.	Refer to operator's manual.
	Worn wheels.	Machine or replace wheels.
	Guides arms too far apart.	Adjust guide arms closer to material.
	Blade twisted.	Refer to operator's manual.
	Work loose in vice.	Adjust vice.
	Feed too heavy.	Reduce feed pressure.
	High blade tension.	Refer to operator's manual.
	Worn wheels.	Machine or replace wheels.
	Guides arms too far apart.	Adjust guide arms closer to material.

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