



METAL-CUTTING CIRCULAR SAW BLADES

Three generations

We are specialists in the production of cutting tools for the metallurgical and car industries. Since 1942 – and for three generations – we have worked with the same innovative spirit and an identical commitment to creating the finest cutting solutions at all times. At Jem we have an exceptional understanding and admiration for the mechanics, heat transfer and chemistry of iron and other metals.

Today Industrias Metalurgicas Jem S.A. is a major international company and a market leader. We export to five continents and continue to work as hard as we did at the start, so that you, our customers, will always find us your most reliable choice.

creating cutting solutions

The logo for JEM Excel-lent Steel, featuring the letters 'JEM' in a stylized font with a saw blade graphic integrated into the letter 'M', and the words 'Excel-lent Steel' in a smaller font below it.

JEM
Excel-lent
Steel

350x25x40

The logo for JEM, featuring the letters 'JEM' in a stylized font with a saw blade graphic integrated into the letter 'M'.

HSS

350x25x320

Z-140

TIN

Tooth types



A
S-110 S-150
S-160 S-201A

SHAPE A:
Small-pitch teeth, used mainly in fine machining tasks.



AW
SHAPE AW:
Small-pitch teeth, used mainly in fine machining tasks. Employed with series 110 and series ST-170 cut-off machines for high-speed cutting of brass. Teeth are bevelled with chip-breaking features.



B
S-120
S-202B
SHAPE B:
Medium- and large-pitch teeth without chip-breaking features for rough machining tasks. Good chip removal.



BW
S-130 ST-170
SHAPE BW:
Alternate bevelled teeth for pitches of under 5 mm; used for profiles that have several cutting interferences.



C
ST-170
SHAPE C:
Alternately high and low teeth, used for cutting large sections. For pitches of over 5 mm with high and low teeth, used in the cutting of large sections. The high teeth are bevelled with chip-breaking features.



BF
ST-170
SHAPE BF:
Teeth identical to Shape B, but equipped with chip-breaking features, making it possible to cut the chip into 3 sections of equal width. For cutting tubes with sections under 4 mm. Employed with series 170 for excellent results in high-speed tube cutting.

VARIDEN

This exclusive, variable tooth-pitch system ensures maximum performance in circular saws. Choice of B, BF, C and BW tooth shapes.

In order to improve and surpass the results of a cutting process with constant pitch adjustment, **Jem** has decided to incorporate an irregularity into the controlled, set pitch adjustment, combining this with machines where feeds are constant and revolutions are adjustable. The main advantages of this system are as follows:

- > It reduces the vibrations, noise and heat caused by all cutting processes.
- > It enables the user to increase the feeds of the machine, saving time and money with every cut.
- > It boosts performance and productivity.
- > It solves problems caused by uneven cutting thickness.
- > Improved performance in cuts with rectangular tube angles.

B, C, BW, BF

Ø		Average pitch							
		V3.5	V4	V5	V6	V8	V10	V12	V16
200	z	176	160	128	104	80	64	56	40
225	z	200	176	144	120	88	72	56	48
250	z	224	200	160	128	96	80	64	48
275	z	248	216	176	144	104	88	72	56
300	z	272	232	192	160	120	96	80	64
315	z	280	248	200	168	120	96	80	64
350	z	312	272	216	184	136	112	88	72
370	z	336	288	232	192	144	120	96	72
400	z	360	312	248	208	160	128	104	80
425	z	384	336	264	224	168	136	112	88

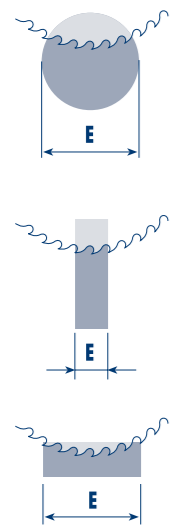


SAW BLADE SELECTION

1. Pitch selection

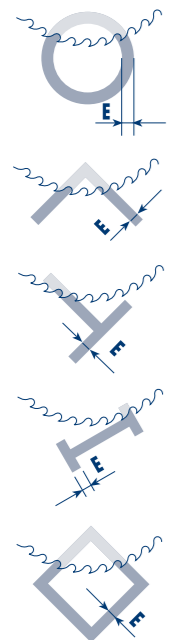
Reference pitch values for cutting steels with a hardness of < 600 N/mm²
Kindly inquire about other materials.

SOLID SECTIONS



E	NOMINAL PITCH									
	2,5	3	4	5	6	8	10	12	16	
4		Reference	Accepted							
6		Accepted	Reference	Accepted						
8			Accepted	Reference	Accepted					
10				Accepted	Reference	Accepted				
15					Accepted	Reference	Accepted			
20						Accepted	Reference	Accepted		
30							Accepted	Reference	Accepted	
40								Accepted	Reference	Accepted
60									Accepted	Reference
80										Accepted
100										Accepted

PROFILES AND TUBES



E	NOMINAL PITCH									
	2,5	3	4	5	6	8	10	12	16	
1		Reference	Accepted							
1,5		Accepted	Reference	Accepted						
2			Accepted	Reference	Accepted					
3				Accepted	Reference	Accepted				
4					Accepted	Reference	Accepted			
5						Accepted	Reference	Accepted		
6							Accepted	Reference	Accepted	
8								Accepted	Reference	Accepted
10									Accepted	Reference
12										Accepted

Values accepted with caution
 Reference values

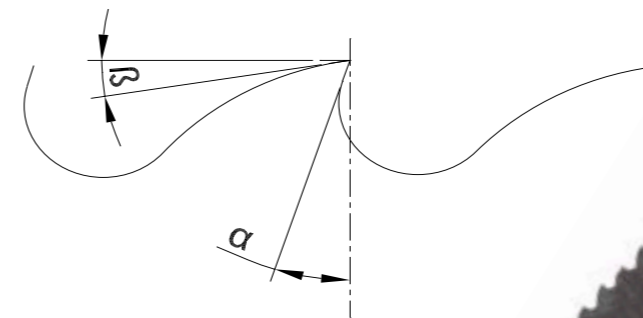
N.B.:

Using a larger pitch requires increasing the rpm of the machine.
A small pitch requires decreasing both feed rate and revolutions.

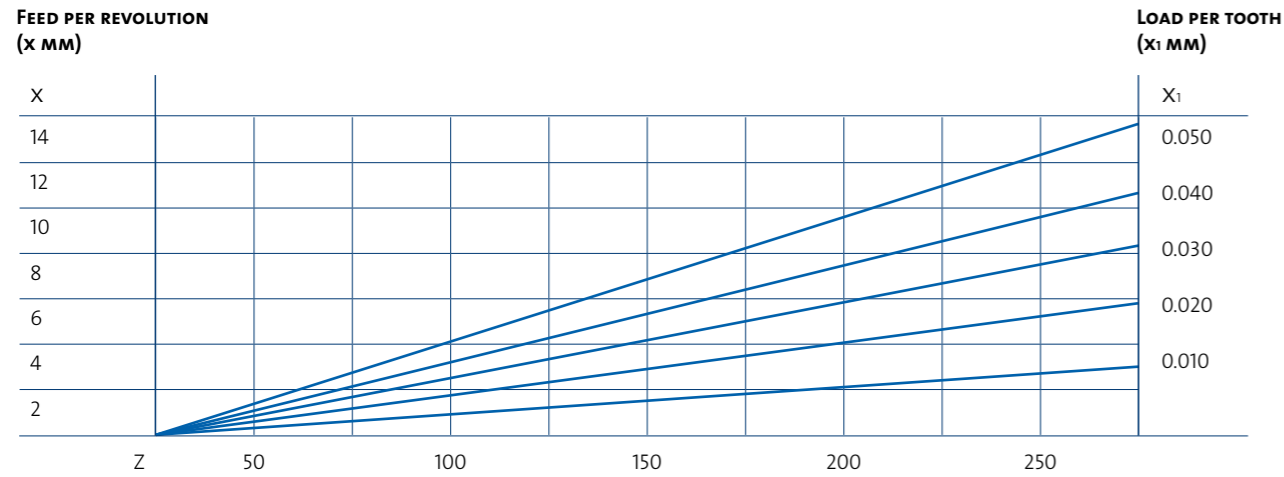
2. Cutting angles

Type of material	Cut (α)	Movement (β)	Feed mm/Z	Speed m/min. ⁽¹⁾
Steel de 50 kg/mm ²	18	8	0.030	40
Steel de 75 kg/mm ²	15	6	0.020	30
Steel de 100 kg/mm ²	10	6	0.015	20
Cast iron	10	6	0.030	40
Stainless steel	12	6	0.010	15
Cooper / Bronze	18	8	0.035	200
Brass	10	6	0.035	400
Light alloys	25	10	0.050	750
Light alloys, profiles	25	10	0.040	1300
Ebonite and similar materials	0	12	0.040	60
PVC and similar materials	12	25	0.050	130

⁽¹⁾ The cutting speed can be increased depending on the coating of the saw blade used.



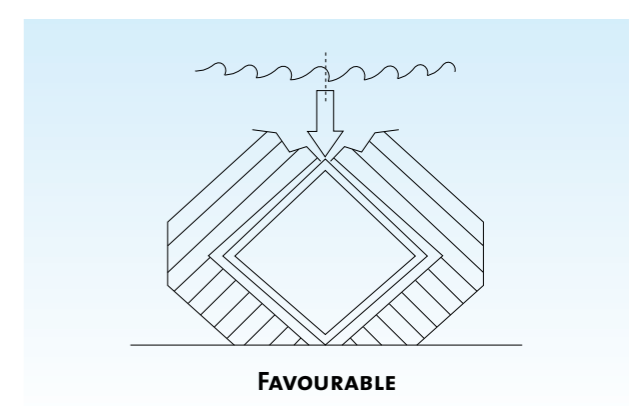
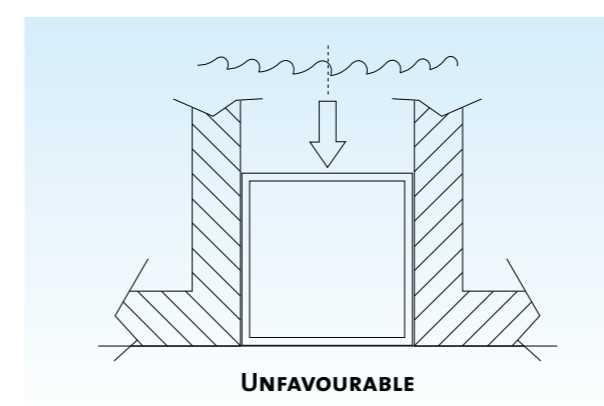
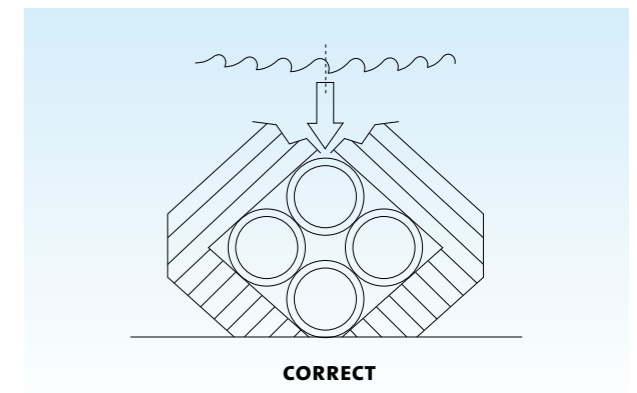
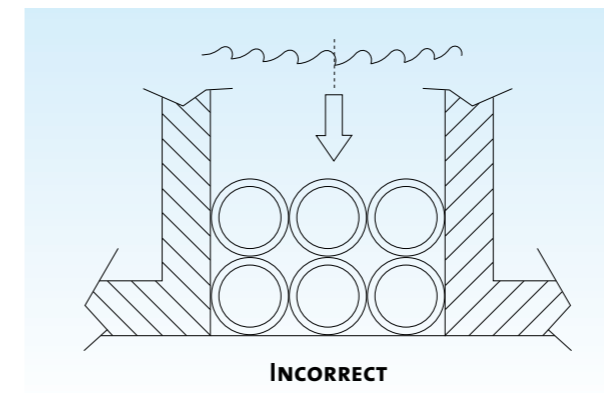
3. Cutting conditions



Feed (mm/min) = Feed (mm/revolution) x revolutions per minute.

4. Cutting tips

1. Choose the right pitch for the material to be cut (see page 6).
2. Select the optimum saw blade for the material or machine and the needs of the cutting process.
3. To ensure that the tool is in proper running order, adjust the machine's cutting speed (rpm) and feed to the needs of the form to be cut.
4. Ensure that the pieces are properly fastened (see pictures).
5. Check to ensure that the lubrication/cooling are adequate for the cutting process. In the cutting area, cooling must include both the teeth and sides of the saw blade.
6. When using automatic machines it is highly recommended perform about 10 trial cuts with the saw blade, adjusting the machine to 50% of speed and feed.
7. Paying attention to the type of chip released during a cutting process enables the user to assess how well adjusted the machine conditions are (see pictures on page 10).



PAY ATTENTION TO CHIPS

SHORT, BROKEN CHIPS:



This indicates low load per tooth. To solve this problem, either increase the feed to the machine or decrease the number of revolutions.

CURLED CHIPS:



This indicates an appropriate cutting process and a good relation between the saw blade's revolutions and the machine's feed. Maximum saw blade performance will be attained under such conditions.

BURNED CHIPS:



This indicates that the load per tooth is very high, putting too much strain on the saw blade. To solve this problem, it is essential to reduce the feed on the machine.

N.B.:

A saw blade must be sharpened when:

- > The piece being cut has dark burrs that are stuck to the material.
- > The noise of the cutting process has increased considerably.
- > The cut does not form a 90° angle to the figure of the piece.
- > The piece does not have a clean finish in the area that has been cut.

It is vitally important to have the saw blade sharpened as soon as the need arises, since overuse means that the tool will have to be sharpened much more in order to compensate for the damage caused.

COATINGS

COATING	IMAGE	APPLICATION
JemNogrip		<ul style="list-style-type: none"> > Steels, 500 to 750 N/mm². > Tube profiles and ferrous materials
JemNogripII		<ul style="list-style-type: none"> > Stainless steels and steels that are difficult to machine
Vipal		<ul style="list-style-type: none"> > Non-ferric materials > Mixed plastic – metal materials
JemTin		<ul style="list-style-type: none"> > Steels 750 to 1000 N/mm². > Mixed plastic – metal materials
JemTicn		<ul style="list-style-type: none"> > Aluminium alloys and cast iron. > Steels of over 1000 N/mm².
JemAlTin		<ul style="list-style-type: none"> > Stainless steels > Titanium alloys with high surface hardness
JemCrn		<ul style="list-style-type: none"> > Very abrasive aluminiums > Hard-to-machine non-ferric materials

Jem develops products adapted to your needs, so that you can achieve optimum cutting (see Excel-lent range).

SERIE ST-170

Excel-lent

Dimensions			Number of teeth and Shapes											Pinholes	
Diameter	Width	Bore	t 2.5	t 3	t 4	t 5	t 6	t 7	t 8	t 9	t 10	t 11	t 12	Type(*)	Dimensions
175	1,2	32	220 Bw	180 Bw	140 Bw	110 C	90 C	80 C	70 C	60 C	54 C	48 C	44 C	F (32)	2/8,5/45 + 2/11/63
	1,5 / 1,6														
	2														
200	1	32	250 Bw	200 Bw	160 Bw	128 C	100 C	90 C	80 C	70 C	64 C	60 C	54 C	F (32)	2/8,5/45 + 2/11/63
	1,2														
	1,5 / 1,6														
	1,8														
	2														
2,5															
210	2	32	260 Bw	210 Bw	160 Bw	128 C	110 C	96 C	80 C	72 C	64 C	60 C	54 C	F (32)	2/8,5/45 + 2/11/63
225	1,2	32 o 40	280 Bw	250 Bw	180 Bw	140 C	120 C	100 C	90 C	80 C	72 C	64 C	60 C	F (32)	2/8,5/45 + 2/11/63
	1,5 / 1,6														
	1,8														
	1,9														
	2														
2,5															
250	1	32 o 40	310 Bw	250 Bw	200 Bw	160 C	128 C	110 C	100 C	84 C	80 C	72 C	64 C	F (32)	2/8,5/45 + 2/11/63
	1,2														
	1,5 / 1,6 / 1,8														
	2														
	2,5														
3															
275	1,6	32 o 40	340 Bw	280 Bw	220 Bw	180 C	140 C	120 C	110 C	96 C	90 C	80 C	70 C	F (32)	2/8,5/45 + 2/11/63
	1,8														
	2														
	2,5														
	3														
300	1,6	32 o 40	340 Bw	300 Bw	220 Bw	190 C	160 C	128 C	120 C	110 C	90 C	84 C	80 C	F (32)	2/8,5/45 + 2/11/63
	1,8														
	2														
	2,5														
	3														
315	1,6	32 o 40	320 Bw	250 Bw	200 C	160 C	140 C	120 C	110 C	100 C	90 C	80 C	80 C	F (32)	2/8,5/45 + 2/11/63
	1,8														
	2														
	2,5														
	3														
3,5															
325	2	32 o 40	340 Bw	260 Bw	200 C	180 C	144 C	128 C	114 C	100 C	94 C	84 C	84 C	F (32)	2/8,5/45 + 2/11/63
	2,5														
	3														
350	1,8	32 o 40	350 Bw	280 Bw	220 Bw	180 C	160 C	140 C	120 C	110 C	90 C	90 C	90 C	Q (32)	2/8,5/45 + 2/11/63 + 2/11/80 + 2/12/75
	2														
	2,5														
	3														
	3,5														
50															
370	2,5	40 o 50	400 Bw	280 Bw	220 Bw	200 C	160 C	140 C	120 C	110 C	100 C	90 C	90 C	H (40)	2/8,5/55 + 4/12/64
	3														
	3,5														
400	2,5	40 o 50	310 Bw	250 Bw	200 C	180 C	160 C	140 C	128 C	114 C	100 C	100 C	100 C	T (40)	2/8,5/55 + 4/12/64 + 2/15/80
	3														
	3,5														
	4														
425	2,5	40 o 50	340 Bw	260 Bw	220 C	180 C	160 C	140 C	128 C	120 C	110 C	110 C	110 C	T (40)	2/8,5/55 + 4/12/64 + 2/15/80
	3														
	3,5														
	4														
450	2,5	40 o 50	350 Bw	280 Bw	230 Bw	200 Bw	180 C	160 C	140 C	128 C	120 C	120 C	120 C	T (40)	2/8,5/55 + 4/12/64 + 2/15/80
	3														
	3,5														
	4														
500	3	40 o 50	400 Bw	310 Bw	260 C	220 C	200 C	180 C	160 C	144 C	128 C	128 C	128 C	T (40)	2/8,5/55 + 4/12/64 + 2/15/80
	3,5														
	4														
	5														

* Saw blade bore

The market is constantly evolving and greater technical demands imply that tools have to adapt more and more to automatic processes. For this reason, Jem has developed a new service with its customers in mind. We have devised an "Excel-lent" PRODUCT RANGE with the aim of providing optimized, high-performance cutting solutions.

EXCEL-LENT OFFERS YOU 3 CUTTING SOLUTIONS:

FERRIC MATERIALS: EXCEL-LENT STEEL

STAINLESS MATERIALS: EXCEL-LENT INOX

NON-FERROUS MATERIALS: EXCEL-LENT NON-FERROUS ALLOYS

Excel-lent saw blades and their associated features provide clean cuts, maximum performance and minimum waste of material, perfectly adapting state-of-the-art technology to our customers' current cutting process needs.



Devised for high-production cutting of ferric materials (ST-37, ST-44, ST-52...). Excellent results with automatic machines. Very quick, smooth cuts.

EXAMPLE: Tube cutting

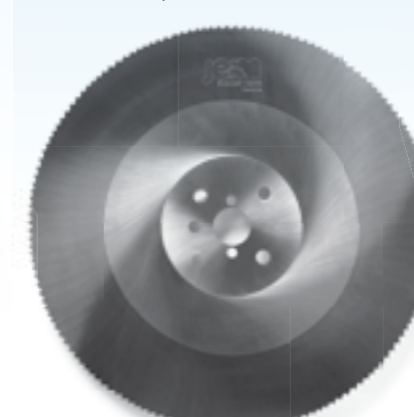
Material	ST-44
Section	ø 50 x 2,5 mm
Machine	BEWO FCH 90M
Cutting time	3,1 seconds
Number of pieces	9.900



Devised for high-production cutting of stainless, hard-to-machine materials (AISI 304, AISI 306...). Excellent results with automatic machines. Very quick, smooth, low-cost cuts. Superb finish.

EXAMPLE: Tube cutting

Material	AISI 304L
Section	ø 14 x 1,5 mm
Machine	BEWO FCH 90M
Cutting time (two tubes)	3 seconds
Number of pieces	11.000



Devised for high-production cutting of non-ferrous materials (aluminium, brass, copper...). Excellent results have been obtained with automatic machines. Very quick, smooth, low-cost cuts. Superb finish. Can compete with blades equipped with hard metal plates.

EXAMPLE: Tube cutting

Material	Copper
Section	ø 16 x 2 mm
Machine	ADIGEE
Cutting time	0,9 seconds
Number of pieces	25.000



SERIES S-110 and S-120

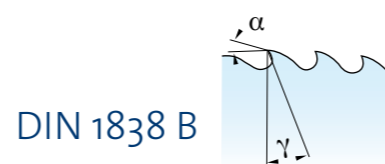
S-110



Diameter	Hole	Thickness															
		0,2	0,25	0,3	0,4	0,5	0,6	0,8	1	1,2	1,6	2	2,5	3	4	5	6
20	5	80	64	64	64	48	48	48	40	40	40	32	32	32	24	24	24
25	8	80	80	80	64	64	64	48	48	48	40	40	40	32	32	32	24
32	8	100	100	80	80	80	64	64	64	48	48	48	40	40	40	32	32
40	10	128	100	100	100	80	80	80	64	64	64	48	48	48	40	40	40
50	13	128	128	128	100	100	100	80	80	80	64	64	64	48	48	48	40
63	16		160	128	128	128	100	100	100	80	80	80	64	64	64	48	48
80	22			160	160	128	128	128	100	100	100	80	80	80	64	64	64
100	22					160	160	128	128	128	100	100	100	80	80	80	64
125	22						160	160	160	128	128	128	100	100	100	80	80
160	32									160	160	160	128	128	128	100	100
200	32										200	200	160	160	160	128	128
250	32											200	200	160	160	160	128
315	40												200	200	160	160	160

NUMBER OF TEETH DEPENDING ON DIAMETER, HOLE AND THICKNESS

S-120



Diameter	Hole	Thickness											
		0,5	0,6	0,8	1	1,2	1,6	2	2,5	3	4	5	6
50	13	48	48	40	40	40	32	32	32	24	24	24	20
63	16	64	48	48	48	40	40	40	32	32	32	24	24
80	22		64	64	48	48	48	40	40	40	32	32	32
100	22			80	64	64	64	48	48	48	40	40	32
125	22				80	80	64	64	64	48	48	48	40
160	32					80	80	80	64	64	64	48	48
200	32						100	80	80	80	64	64	48
250	32							100	100	80	80	80	64
315	40								100	100	80	80	80

NUMBER OF TEETH DEPENDING ON DIAMETER, HOLE AND THICKNESS

SERIES S-130 and S-140

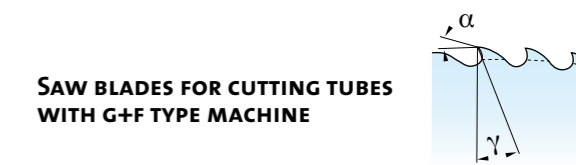
S-130



Diameter	Hole	Thickness						
		1,6	2	2,5	3	4	5	6
50	13	32	32	32	24	24	24	20
63	16	40	40	32	32	32	24	24
80	22	48	40	40	40	32	32	32
100	22	48	48	48	40	40	40	32
125	22	64	64	48	48	48	40	40
160	32	80	64	64	64	48	48	48
200	32	80	80	80	64	64	64	48
250	32	100	100	80	80	80	64	64
315	40			100	100	80	80	80

NUMBER OF TEETH DEPENDING ON DIAMETER, HOLE AND THICKNESS

S-140



Diameter	Hole	Z	Thickness
63	16	100	1,2
63	16	44	1,6
63	16	64	1,6
63	16	80	1,6
63	16	100	1,6
68	16	44	1,6
68	16	64	1,6
68	16	72	1,6
68	16	84	1,6
68	16	100	1,6
68	16	44	2
68	16	64	2

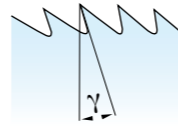
Diameter	Hole	Z	Thickness
75	16	44	1,6
75	16	76	1,6
75	16	32	2
80	16	72	1,6
80	16	84	1,6
80	16	120	1,6
90	16	80	1,6
90	16	100	1,6

N.B.: Inquire about dimensions and number of special teeth for all series.

SERIES S-150 and S-160

S-150

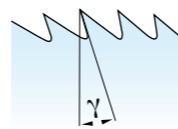
SAW BLADES FOR BOLTS AND SCREWS



Diameter	Hole	Z	Thickness													
80	22	48	0,7	0,8	0,9	1	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	2	
100	22	64	0,7	0,8	0,9	1	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	2	
125	22	64	0,7	0,8	0,9	1	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	2	

S-160

SAW BLADES FOR JEWELLERY

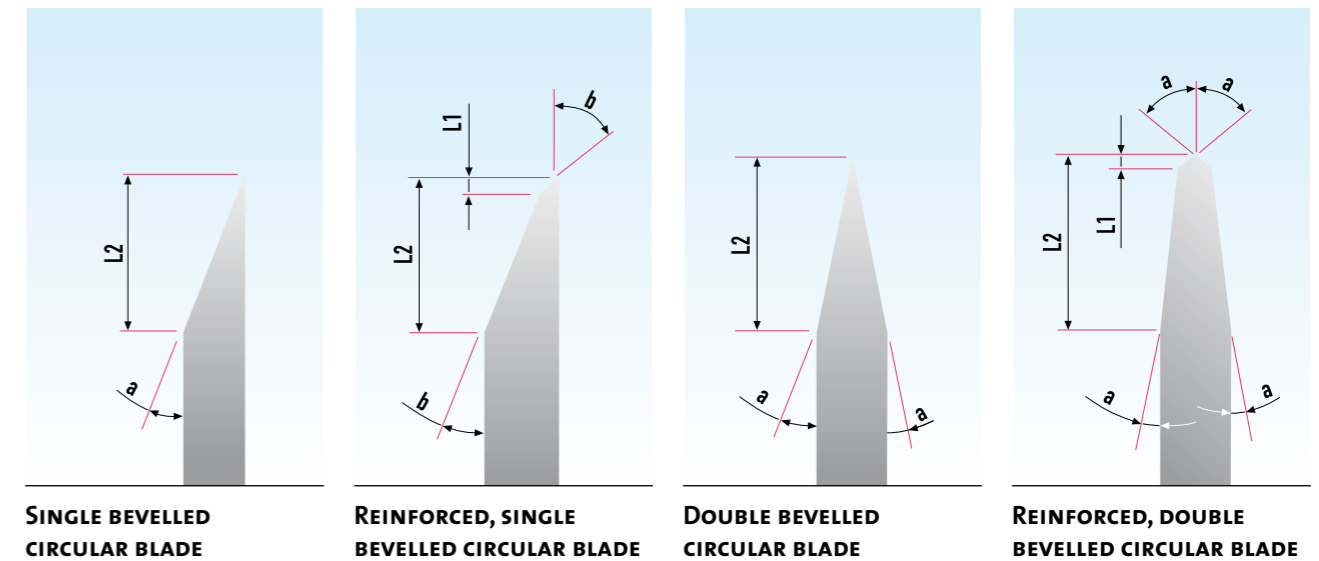


Diameter	Hole	Cube	Z	Thickness													
40	8/10	18	140	0,15	0,2	0,25	0,3	0,35	0,4	0,45	0,5	0,6	0,7	0,8	0,9	1	
50	8/10	25	180	0,15	0,2	0,25	0,3	0,35	0,4	0,45	0,5	0,6	0,7	0,8	0,9	1	
63	8/10	32	200	0,15	0,2	0,25	0,3	0,35	0,4	0,45	0,5	0,6	0,7	0,8	0,9	1	

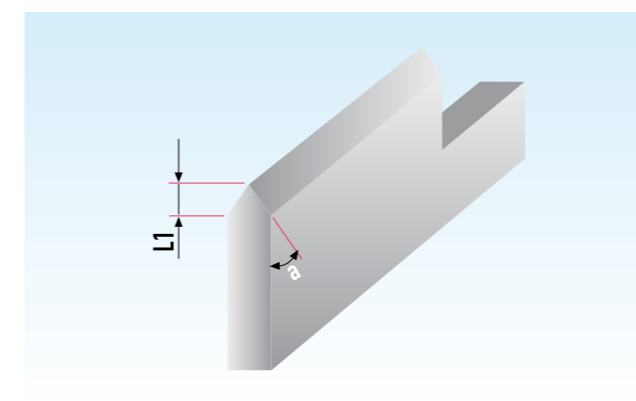


BLADES

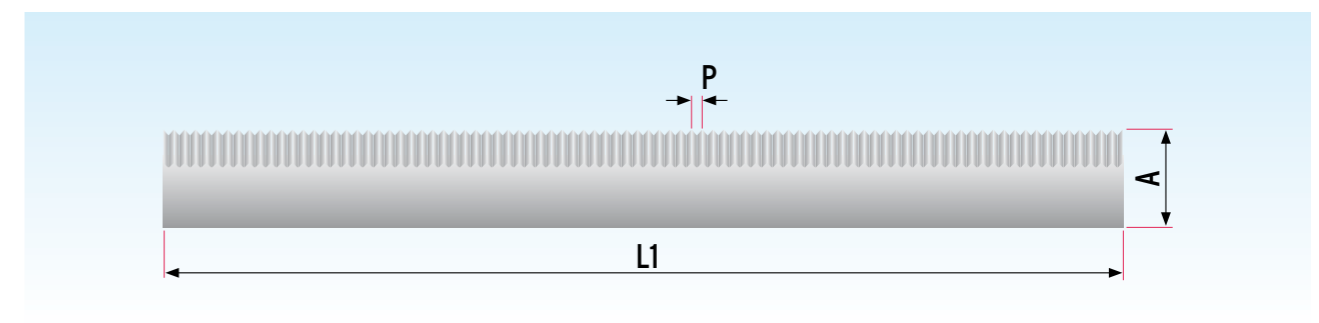
Industrial, circular and rectangular blades



SINGLE BEVELLED CIRCULAR BLADE REINFORCED, SINGLE BEVELLED CIRCULAR BLADE DOUBLE BEVELLED CIRCULAR BLADE REINFORCED, DOUBLE BEVELLED CIRCULAR BLADE



TOOTHLESS RECTANGULAR BLADES



TOOTHED RECTANGULAR BLADES (for this type of manufacture, kindly inquire about stock)

OUR SAW BLADES



nt
eel

JEM

JEM

HSS
350x2.5x320
V10
TIN

INDUSTRIAS METALÚRGICAS JEM, S.A.

Cutting tools factory

Gorg s/n - Polígono Industrial Martorelles
08107 Martorelles (Barcelona) ESPAÑA

Tel.: +34 93 544 00 90

Fax: +34 93 593 82 51

E-mail: comercial@jem.es

www.jem.es

JEM saw blades
division