INTERNATIONAL STANDARD ISO 4875/III

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Metal cutting band saw blades — Part III : Characteristics relating to each type of blade

Lames de scies à ruban à métaux —
Partie III : Caractéristiques des différents types de lames

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4875/III was developed by Technical Committee ISO/TC 29, *Small tools*, and was circulated to the member bodies in August 1976.

It has been approved by the member bodies of the following countries :

Australia	India	Spain
Belgium	Israel	Sweden
Brazil	Italy	United Kingdom
Czechoslovakia	Korea, Rep. of	U.S.A.
Egypt, Arab Rep. of	Mexico	U.S.S.R.
France	Romania	Yugoslavia
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The member bodies of the following countries expressed disapproval of the document on technical grounds :

Germany, F.R.
Poland
Switzerland

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Metal cutting band saw blades — Part III : Characteristics relating to each type of blade

1 SCOPE AND FIELD OF APPLICATION

This International Standard defines the various types of blades for metal cutting band saws as a function of the materials used for their manufacture and indicates the dimensions selected from those ranges defined in ISO 4875/II.

The recommended blade hardnesses, together with the test methods, are given in an annex.

The terminology of blades is dealt with in ISO 4875/I.

2 REFERENCES

ISO 4875/I, *Metal cutting band saw blades — Part I : Definitions and terminology.*

ISO 4875/II, *Metal cutting band saw blades — Part II : Basic dimensions and tolerances.*

3 TYPES OF METAL CUTTING BAND SAW BLADES

3.1 Carbon steel band saw blades

Blades made of low alloy steel containing more than 1,0 and less than 1,5 % (*m/m*) of carbon. The combination of manganese, silicon and chromium contents shall not be less than 0,5 % (*m/m*).

3.2 Intermediate steel band saw blades

Blades made of steel which is between carbon and high speed steel in alloy content, i.e. a high carbon steel (0,8 to 1,25 % (*m/m*) C) alloyed with chromium, vanadium, molybdenum or tungsten in an amount totalling more than 8 but less than 14 % (*m/m*) of these carbide-forming elements.

3.3 High speed steel band saw blades

Blades made of high speed steel, which is a steel alloyed with chromium, vanadium, molybdenum or tungsten in an amount totalling at least 14 % (*m/m*) (excluding carbon) of these carbide-forming elements.

3.4 Composite steel band saw blades

Blades made with a cutting edge of different material (normally high speed steel) from that of the back, the edge being joined to a backing of low alloy steel.

3.5 Friction cutting band saw blades

Blades made of fatigue-resistant steel for cutting by heat resulting from friction. (The primary functions of the teeth are therefore to generate the heat needed and to scoop in the air needed to support combustion. Friction saws are usually run at speeds in excess of 40 m/s (8 000 ft/min) on machines with adequate shielding).

4 DIMENSIONS

Tolerances : see ISO 4875/II.

4.1 Carbon steel, hard-edge, flexible-back band saw blades

Dimensions (width × thickness)		Regular type tooth																Skip tooth				Hook tooth					
		Raker set								Wavy set																	
		Pitch, mm								Pitch, mm								Pitch, mm				Pitch, mm					
		6,3	4,0	3,0	2,5	1,8	1,4	1,0	2,5	1,8	1,0	0,8	8,0	6,3	4,0	12,5	8,0	6,3	4,0								
		Teeth/25 mm (1 in)							Teeth/25 mm (1 in)				Teeth/25 mm (1 in)			Teeth/25 mm (1 in)											
mm	in	4	6	8	10	14	18	24	10	14	24	32	3	4	6	2	3	4	6								
3,15 × 0,63	1/8 × 0.025					X	X																				
4,75 × 0,63	3/16 × 0.025				X	X	X																				
6,3 × 0,63	1/4 × 0.025				X	X	X	X			X	X		X	X			X	X								
8,0 × 0,63	5/16 × 0.025			X	X	X	X	X						X													
9,5 × 0,63	3/8 × 0.025			X	X	X	X	X			X		X	X				X	X								
12,5 × 0,63	1/2 × 0.025		X	X	X	X	X						X	X				X	X								
16,0 × 0,80	5/8 × 0.032			X	X	X																					
19,0 × 0,80	3/4 × 0.032		X	X	X	X			X	X			X	X			X	X									
25,0 × 0,90	1 × 0.035		X	X	X	X										X	X										
31,5 × 1,06	1 1/4 × 0.042		X	X	X																						
37,5 × 1,25	1 1/2 × 0.050	X	X														X										

Dimensions (width × thickness)		Regular type tooth									Skip tooth			Hook tooth			
		Raker set						Wavy set									
		Pitch, mm						Pitch, mm			Pitch, mm			Pitch, mm			
		4,0	3,0	2,5	1,8	1,4	1,0	2,5	1,8	1,0	8,0	6,3	4,0	12,5	8,0	6,3	4,0
mm	in	Teeth/25 mm (1 in)						Teeth/25 mm (1 in)			Teeth/25 mm (1 in)			Teeth/25 mm (1 in)			
		6	8	10	14	18	24	10	14	24	3	4	6	2	3	4	6
4,75 × 0,63	3/16 × 0.025			X	X	X											
6,3 × 0,63	1/4 × 0.025			X	X	X	X			X		X	X			X	X
9,5 × 0,63	3/8 × 0.025		X	X	X	X					X	X			X	X	X
12,5 × 0,63	1/2 × 0.025	X	X	X	X	X					X	X			X	X	X
16,0 × 0,80	5/8 × 0.032		X	X	X												
19,0 × 0,80	3/4 × 0.032	X	X	X	X			X	X		X				X		
25,0 × 0,90	1 × 0.035	X	X	X	X						X			X	X		

4.3 Intermediate steel band saw blades

Dimensions (width X thickness)		Regular type tooth					
		Raker set					Wavy set
		Pitch, mm					Pitch, mm
		6,3	4,0	3,0	2,5	1,4	2,5
mm	in	Teeth/25 mm (1 in)					Teeth/ 25 mm (1 in)
		4	6	8	10	14	10
12,5 X 0,63	1/2 X 0.025				X	X	
19,0 X 0,80	3/4 X 0.032		X	X	X	X	X
25,0 X 0,90	1 X 0.035	X	X	X	X		

4.4 High speed steel band saw blades

Dimensions (width X thickness)		Regular type tooth				Hook tooth	
		Raker set					
		Pitch, mm				Pitch, mm	
		6,3	4,0	3,0	2,5	8,0	6,3
mm	in	Teeth/25 mm (1 in)				Teeth/25 mm (1 in)	
		4	6	8	10	3	4
19,0 X 0,80	3/4 X 0.032		X	X	X		
25,0 X 0,90	1 X 0.035	X	X	X	X	X	X
31,5 X 1,06	1 1/4 X 0.042		X			X	

4.5 Composite steel band saw blades

Dimensions (width X thickness)		Regular type tooth			
		Raker set			
		Pitch, mm			
		6,3	4,0	3,0	2,5
mm	in	Teeth/25 mm (1 in)			
		4	6	8	10
19,0 X 0,80	3/4 X 0.032		X	X	X
25,0 X 0,90	1 X 0.035	X	X	X	X
31,5 X 1,06	1 1/4 X 0.042	X	X		
37,5 X 1,25	1 1/2 X 0.050	X	X		
50,0 X 1,25	2 X 0.050	X	X		

4.6 Friction cutting band saw blades

Dimensions (width X thickness)		Regular type tooth	
		Raker set	
		Pitch, mm	
		2,5	1,4
mm	in	Teeth/25 mm (1 in)	
		10	14
12,5 X 0,80	1/2 X 0.032	X	X
16,0 X 0,90	5/8 X 0.035	X	X
19,0 X 0,90	3/4 X 0.035	X	X
25,0 X 0,90	1 X 0.035	X	X

ANNEX A

HARDNESS*

A.1 HARDNESS TESTS

Hardness testing of band saw blades is a specialized technique which can be accomplished by the following methods :

- Vickers hardness testing;
- superficial Rockwell hardness 15 N testing;
- micro-hardness testing.

Any of the readings taken from the above methods can be converted to Rockwell C equivalent hardness, by using an approximate conversion table (see annex B).

A.2 HARDNESS OF VARIOUS BLADE TYPES

Carbon steel, intermediate steel, high speed steel and composite steel band saw blades have a toothed edge which is harder than the body below the gullets of the teeth, having a minimum hardness at the point of the tooth not less than 62 Rockwell C.

The hardness of the blade body after heat treatment shall not be less than :

- 264 Vickers (25 Rockwell C) for carbon steel, hard-edge, flexible-back band saw blades;
- 373 Vickers (38 Rockwell C) for carbon steel, hard-edge, tempered-back band saw blades;
- 363 Vickers (37 Rockwell C) for intermediate steel, high speed steel and composite steel band saw blades.

ANNEX B
(for information)

HARDNESS CONVERSION TABLE
(see annex A, clause A.1)

Vickers 10 kgf scale	RC scale	R 15 N scale
264	25	72
363	37	79
373	38	79,5
739	62	91

* Given for information only as these specifications are to be co-ordinated in a future document.