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Metal cutting band saw blades — Part I : Definitions and terminology

Lames de scies à ruban à métaux — Partie I : Définitions et terminologie

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FOREWORD

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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 4875/1 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	Switzerland
Chile	Korea, Rep. of	Turkey
Czechoslovakia	Mexico	United Kingdom
France	Poland	U.S.A.
Germany	Romania	U.S.S.R.
Hungary	South Africa, Rep. of	Yugoslavia

No member body expressed disapproval of the document.

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Metal cutting band saw blades — Part I : Definitions and terminology

1 SCOPE AND FIELD OF APPLICATION

This International Standard gives definitions relating to metal cutting band saw blades.

The definitions are arranged as follows :

- elements of the blade and characteristics of the teeth (clause 3);
- tooth shapes (clause 4);
- types of set (tooth offset) (clause 5).

The other characteristics of metal cutting band saw blades are the subject of ISO 4875/II and ISO 4875/III.

NOTE — Annex A gives equivalent French and Italian terms for the English terms defined in this International Standard. The French and Italian terms are also listed in their respective alphabetical orders in annexes B and C. The Italian terms have been included at the request of ISO Technical Committee 29, and are published under the responsibility of the member body for Italy (UNI). However, only the terms given in official ISO languages (English and French) can be considered as ISO terms.

2 REFERENCES

ISO 3002/I, *Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles.*

ISO 4875/II, *Metal cutting band saw blades — Part II : Basic dimensions and tolerances.* [1)]

ISO 4875/III, *Metal cutting band saw blades — Part III : Characteristics relating to each type of blade.* [1)]

3 ELEMENTS OF THE BLADE AND CHARACTERISTICS OF THE TEETH

3.0 band saw blade : An endless blade manufactured of a continuous strip of steel having one toothed edge, as shown in figure 1.

3.1 Elements of the blade

3.1.1 body : That part of the blade between the bottom of the gullet and the back edge (figures 1 and 2).

3.1.2 teeth : The serrations formed across the thickness of the blade to provide cutting edges (figure 1).

3.1.3 toothed edge : The longitudinal edge along which the teeth have been formed (figure 1).

3.1.4 back edge : The longitudinal edge parallel to the toothed edge (figure 1).

3.1.5 side : The flat surface between the toothed edge and the back edge (figures 1 and 5).

3.1.6 width : The overall distance between the point of the tooth and the back edge (figure 2).

3.1.7 thickness : The distance between the two sides of the body (figure 5).

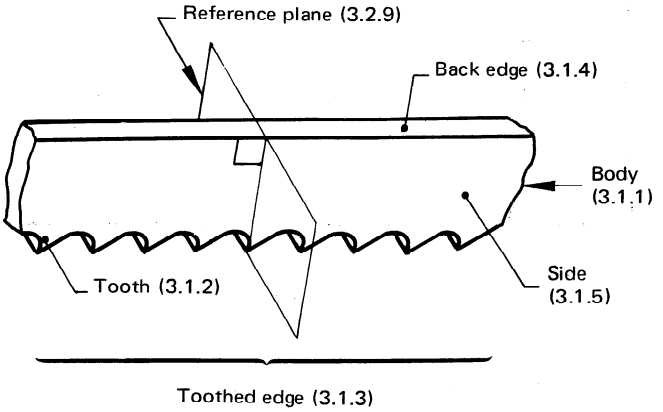

FIGURE 1

1) At present at the stage of draft.

3.2 Characteristics of the teeth

3.2.1 *Pitch and teeth per unit length*

3.2.1.1 pitch : The distance between the apices of adjacent teeth, measured in millimetres (figure 2).

3.2.1.2 teeth per unit length : The number of complete teeth per 25 mm (1 in) length (figure 2).

NOTE – Pitch and teeth per unit length are mutual reciprocals.

3.2.2 cutting edge : That edge of the face which is intended to perform cutting. It is formed by the intersection of the flank and the face (figure 3).

3.2.3 depth : The distance from the point of the tooth to the deepest portion of the gullet (figure 3).

3.2.4 face : That surface of the tooth over which the chip flows (figure 3).

3.2.5 flank : That surface over which the surfaces produced on the workpiece pass. It extends to the root radius (figure 3).

3.2.6 gullet : The space bounded by the face, root radius and flank of a tooth which permits chip removal (figure 3).

3.2.7 root radius : The radius connecting the face of one tooth and the flank of the preceding one (figure 3).

3.2.8 wedge angle : The included angle between the face and the flank of the non-set tooth (figure 3).

3.2.9 reference plane : The plane through the selected point on the cutting edge chosen so as to be perpendicular to the blade back edge (figure 1).

3.2.10 rake : The angle between the face and the reference plane of the assumed non-set tooth (figure 4).

3.3 Tooth set and overall set

3.3.1 tooth set : The projection of the teeth from the side of the blade to provide cutting clearance (figure 5).

3.3.2 overall set : The total thickness of the blade between two opposite teeth taking into account the set on either side of the blade which determines the overall width of cut (figure 5).

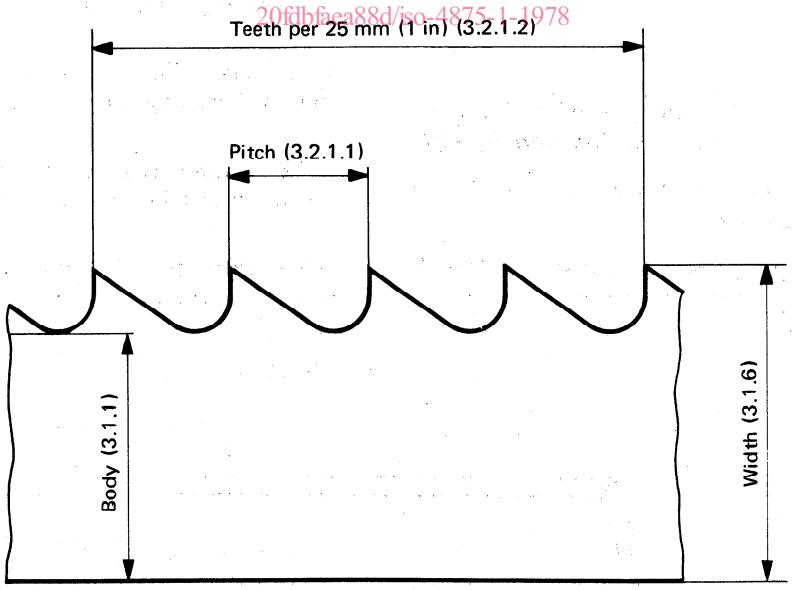

FIGURE 2

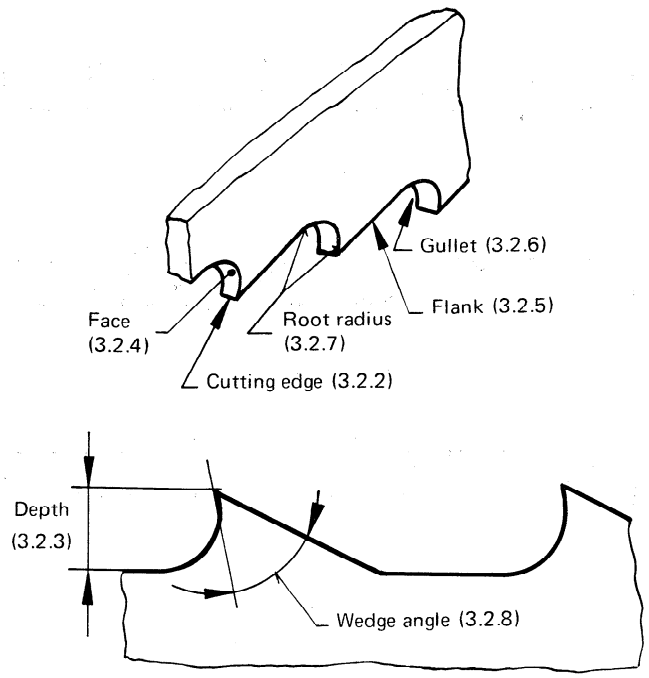

FIGURE 3

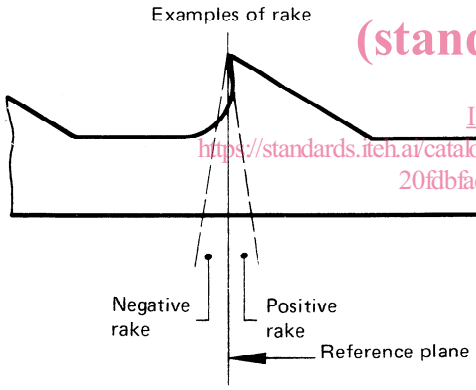

FIGURE 4

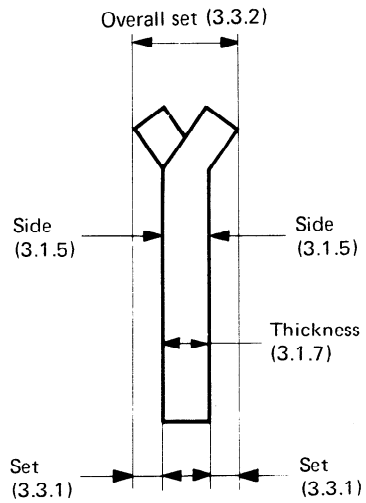

FIGURE 5

4 TOOTH SHAPES

Tooth shape may vary according to manufacture and use. The basic tooth shapes are listed below.

4.1 regular or standard tooth : A tooth having zero degree rake angle and full round gullets (figure 6). This type of tooth may be furnished in alternate, raker and wavy set (see clause 5).

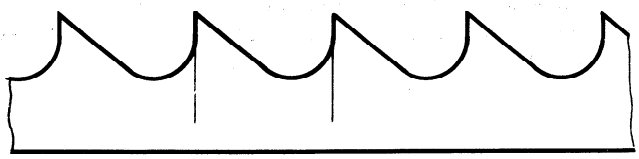

FIGURE 6

4.2 skip tooth : A tooth of basically regular tooth shape, every alternate tooth being removed.

A large pitch is thus obtained, giving a longer gullet without making the tooth depth too great at the expense of blade strength (figure 7).

FIGURE 7

4.3 hook tooth : A tooth similar to a skip tooth except that the rake of the tooth is positive (figure 8).

FIGURE 8

5 TYPES OF SET (TOOTH OFFSET)

5.1 alternate set : The transverse setting of individual teeth, alternately set to the right and to the left (figure 9).

NOTE — For metal (ferrous) working band saw blades, this type of set is not standard.

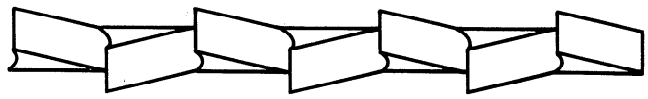

FIGURE 9

5.2 raker set : The transverse setting of individual teeth, one set to the right, one set to the left, and one unset (figure 10).

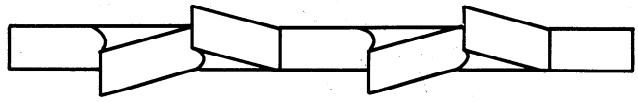

FIGURE 10

5.3 wavy set : The transverse setting of groups of teeth, set to the right and to the left, with set regularly varying (figure 11).

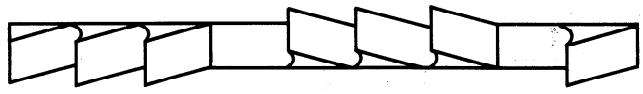

FIGURE 11

ANNEX A

ALPHABETICAL LIST : ENGLISH-FRENCH-ITALIAN

English	French	Italian	Sub-clause No.
A			
alternate set	avoyage toutes dents	allicciatura alternata	5.1
B			
back edge	dos	dorso	3.1.4
band saw blade	lame de scie à ruban	lama da sega a nastro	3.0
body	corps	corpo	3.1.1
C			
cutting edge	arête	tagliente	3.2.2
D			
depth	profondeur de la dent	profondità del dente	3.2.3
F			
face	face de coupe	faccia	3.2.4
flank	face de dépouille	fianco	3.2.5
G			
gullet	creux	vano	3.2.6
H			
hook tooth	denture à crochet	dentatura a gancio	4.3
O			
overall set	avoyage total (déport total)	allicciatura totale	3.3.2
P			
pitch	pas	passo	3.2.1.1
R			
rake (angle)	angle de coupe	angolo di spoglia	3.2.10
reference plane	plan de référence	piano di riferimento	3.2.9
regular tooth	denture normale	dentatura normale	4.1
root radius	rayon de pied	raggio di fondo	3.2.7
S			
set			
— alternate set	— avoyage toutes dents	allicciatura alternata	5.1
— raker set	— avoyage par groupes	allicciatura a gruppi	5.2
— wavy set	— avoyage ondulé	allicciatura ondulata	5.3
skip tooth	denture évidée	dentatura a gancio	4.2
side	côté	lato	3.1.5
standard tooth	denture conventionnelle	dentatura convenzionale	4.1

English	French	Italian	No. of sub-clause
T			
teeth	dents	denti	3.1.2
teeth per unit length	nombre de dents par unité de longueur	denti per unità di lunghezza (numero di)	3.2.1.2
thickness	épaisseur	spessore	3.1.7
toothed edge	partie dentée	parte dentata	3.1.3
tooth offset	déport de denture	allicciatura della dentatura	3.3.1
tooth set	voie à gauche ou à droite	allicciatura a sinistra e a destra	3.3.1
W			
wedge angle	angle de taillant	angolo del cuneo	3.2.8
width	largeur	larghezza	3.1.6

ANNEX B

ALPHABETICAL LIST OF EQUIVALENT FRENCH TERMS

A

angle de coupe 3.2.10
angle de taillant 3.2.8
arête 3.2.2
avoyage ondulé 5.3
avoyage par groupes 5.2
avoyage total 3.3.2
avoyage toutes dents 5.1

C

corps 3.1.1
côté 3.1.5
creux 3.2.6

D

dents 3.1.2
dents par unité de longueur (nombre de) 3.2.1.2
denture conventionnelle 4.1
denture à crochet 4.3
denture évidée 4.2
denture normale 4.1
déport de denture 3.3.1
déport total 3.3.2
dos 3.1.4

E

épaisseur 3.1.7

F

face de coupe 3.2.4
face de dépouille 3.2.5

L

lame de scie à ruban 3.0
largeur 3.1.6

P

partie dentée 3.1.3
pas 3.2.1.1
plan de référence 3.2.9
profondeur de la dent 3.2.3

R

rayon de pied 3.2.7

V

voie à gauche ou à droite 3.3.1