INTERNATIONAL STANDARD

ISO 7129

Third edition
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Earth-moving machinery — Cutting edges used on tractor-dozers, graders and scrapers — Principal shapes and basic dimensions

Engins de terrassement — Bords coupants utilisés sur les tracteurs à lame, niveleuses et décapeuses — Principales formes et dimensions de base

Reference number
ISO 7129:1997(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 7129 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 3, *Operation and maintenance*.

This third edition cancels and replaces the second edition (ISO 7129:1989), which has been technically revised.

Annex A forms an integral part of this International Standard.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
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Earth-moving machinery — Cutting edges used on tractor-dozers, graders and scrapers — Principal shapes and basic dimensions

1 Scope

This International Standard specifies

— the principal shapes and dimensions of the cross-section,

— the hole location for the mounting bolts,

— the shapes and dimensions of holes for the mounting bolts,

for cutting used on tractor-dozers, graders and scrapers, as defined in ISO 6165, taking interchangeability into consideration.

NOTE — Some values in inches in this International Standard are not equivalent to the corresponding values in millimetres because widely used values have been adopted.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6165:1997, *Earth-moving machinery — Basic types — Vocabulary*.

3 Cross-sections of cutting edges — Principal shapes and basic dimensions

The principal shapes and basic dimensions of the cutting edge cross-section shall be as shown in figures 1 and 2 and given in tables 1 and 2.

Table 1 — Tractor-dozers and scrapers (see figure 1)

Dimensions in millimetres
(Inch values in parentheses)

Application [1]		Width, W		Thickness, T		Tip of chamfer, F	
Tractor with dozer	Tractor scraper	nom.	tol.	nom.	tol.	max.	min.
x		153 (6)		12,7 (0,5)		8 (0,32)	
x		153 (6)	± 3 (± 0,118)	16 (0,625)		10 (0,39)	
x		153 (6)		19 (0,75)		12 (0,47)	
x		160 (6,3)		16 (0,625)		10 (0,39)	
x		165 (6,5)		16 (0,625)		10 (0,39)	
x		204 (8)		16 (0,625)		10 (0,39)	
x		204 (8)		19 (0,75)		12 (0,47)	
x		204 (8)		22 (0,875)		13 (0,51)	
x		204 (8)		25,4 (1)		14 (0,55)	
x	x	254 (10)		19 (0,75)		12 (0,47)	
	x	254 (10)		22 (0,875)		13 (0,51)	
x	x	254 (10)		25,4 (1)		14 (0,55)	
x		254 (10)		32 (1,25)		20 (0,79)	
	x	254 (10)		41 (1,625)		25 (0,98)	
	x	305 (12)		19 (0,75)	For casting material:	12 (0,47)	
	x	305 (12)		22 (0,875)		13 (0,51)	
x		305 (12)		25,4 (1)	$^{+\ 2,4}_{-\ 0,6}$ $\left(^{+\ 0,095}_{-\ 0,025}\right)$	14 (0,55)	
x		305 (12)		28,6 (1,125)		18 (0,71)	
x		305 (12)		32 (1,25)		20 (0,79)	
	x	305 (12)		38 (1,5)		23 (0,91)	
	x	330 (13)		19 (0,75)		12 (0,47)	
	x	330 (13)	$^{+\ 1,5}_{-\ 4,5}$ $\left(^{+\ 0,059}_{-\ 0,177}\right)$	22 (0,875)		13 (0,51)	4 (0,16)
	x	330 (13)		25,4 (1)		14 (0,55)	
x	x	330 (13)		28,6 (1,125)	For material other than casting:	18 (0,71)	
x		330 (13)		32 (1,25)		20 (0,79)	
x	x	330 (13)		35 (1,375)		21 (0,83)	
	x	330 (13)		38 (1,5)	$^{+\ 0,8}_{-\ 1,2}$ $\left(^{+\ 0,032}_{-\ 0,047}\right)$	23 (0,91)	
	x	330 (13)		41 (1,625)		25 (0,98)	
	x	330 (13)		44,5 (1,75)		27 (1,06)	
	x	360 (14)		19 (0,75)		12 (0,47)	
	x	360 (14)		22 (0,875)		13 (0,51)	
	x	360 (14)		25,4 (1)		14 (0,55)	
x		360 (14)		28,6 (1,125)		18 (0,71)	
x		360 (14)		32 (1,25)		20 (0,79)	
x		360 (14)		35 (1,375)		21 (0,83)	
	x	406 (16)		22 (0,875)		13 (0,51)	
	x	406 (16)		25,4 (1)		14 (0,55)	
	x	406 (16)		28,6 (1,125)		18 (0,71)	
	x	406 (16)		32 (1,25)		20 (0,79)	
x	x	406 (16)		35 (1,375)		21 (0,83)	
x		406 (16)		38 (1,5)		23 (0,91)	
x		406 (16)		41 (1,625)		25 (0,98)	
	x	406 (16)		44,5 (1,75)		27 (1,06)	
	x	482 (19)		28,6 (1,125)		18 (0,71)	
	x	482 (19)		32 (1,25)		20 (0,79)	
	x	482 (19)		35 (1,375)		21 (0,83)	
	x	482 (19)		38 (1,5)		23 (0,91)	
	x	482 (19)		41 (1,625)		25 (0,98)	
	x	482 (19)		44,5 (1,75)		27 (1,06)	

1) Recommendation only.

NOTE — The shapes and dimensions of cutting edges with a 140 mm hole pitch are specified in annex A.

Table 2 — Graders (see figure 2)

Dimensions in millimetres
(Inch values in parentheses)

Width, W		Thickness, T		Radius of curvature, R		Chamfer	
nom.	tol.	nom.	tol.	nom.	tol.	E	F min.
152 (6) 152 (6) 152 (6) 204 (8) 204 (8)	+ 3 − 1,5 (+ 0,118 − 0,059)	13 (0,5) 16 (0,625) 19 (0,75) 16 (0,625) 19 (0,75)	± 0,6 (± 0,025)	273 (10,75) or 280 (11)	± 10 (± 0,394)	30 (1,18)	2,5 (0,1)
NOTE — The shapes and dimensions of cutting edges with 140 mm and 280 mm hole pitches are specified in annex A.							

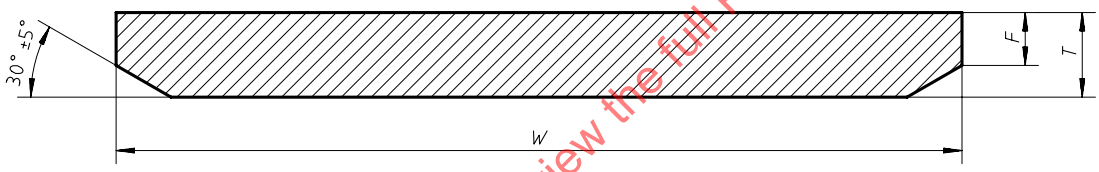


Figure 1 — Cutting edge for tractor-dozers and scrapers

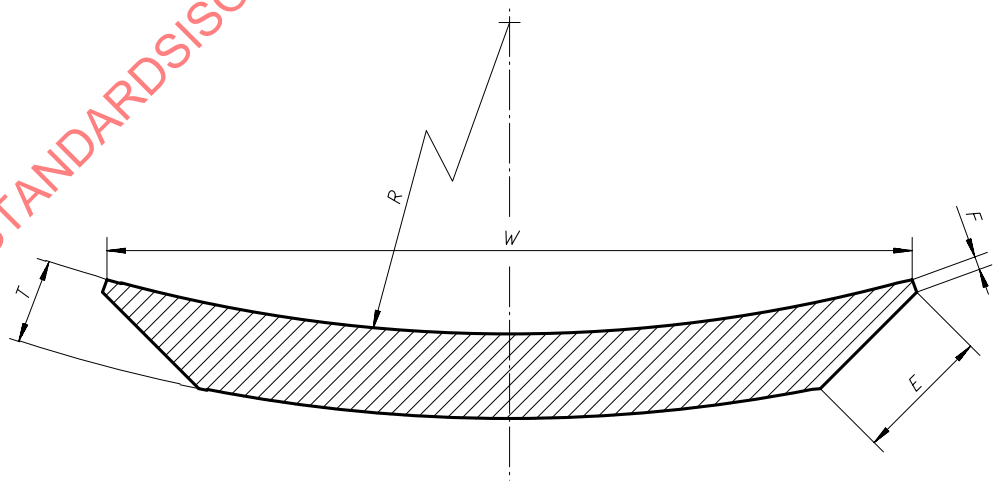


Figure 2 — Cutting edge for graders

4 Mounting bolts — Hole locations

4.1 The hole locations for the mounting bolts shall be as follows:

a) for tractor-dozers and scrapers:

for cutting edge of width, W, of 330 mm or less, see figure 3 a),
for cutting edge of width, W, of over 330 mm, see figure 3 b);

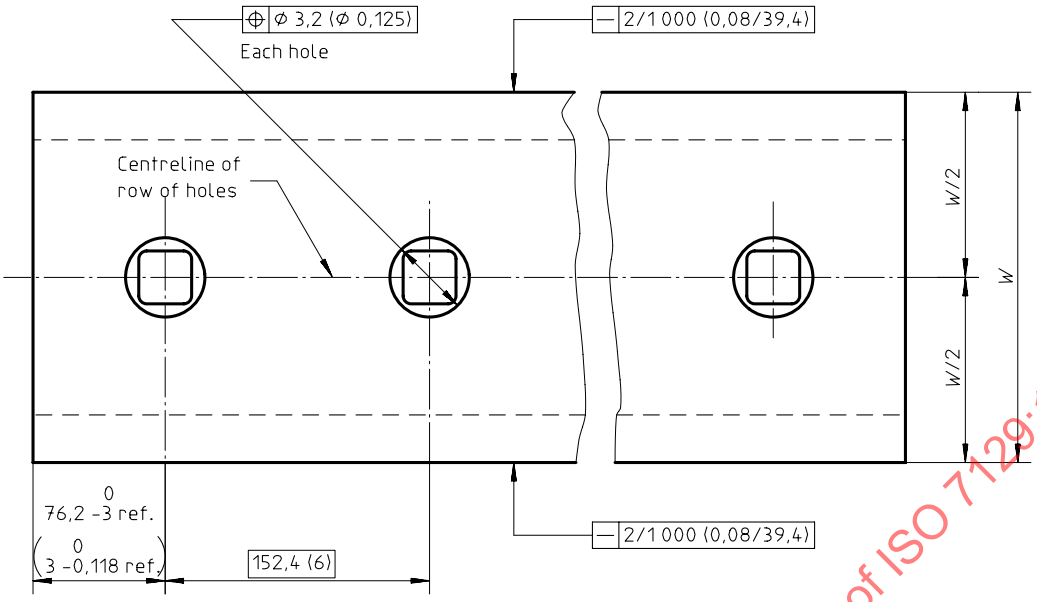
b) for graders, see table 3 and figure 4.

NOTE — The shapes and dimensions of cutting edges with a 140 mm hole pitch are specified in annex A.

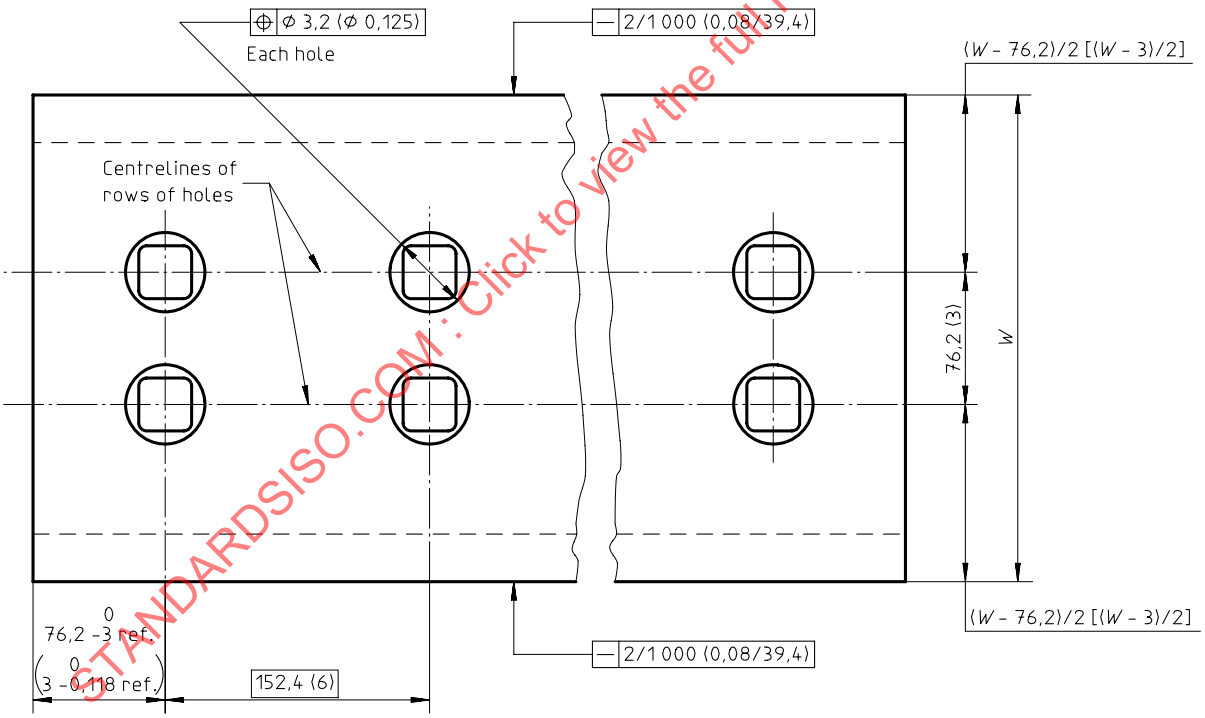
4.2 Each countersink shall be located within a 3,2 mm (0,125 in) diameter of the positional tolerance.

4.3 The camber of the cutting edge shall be within 2 mm/m (0,08 in/39,4 in).

Dimensions in millimetres
(Inch values in parentheses)



a) Width W is equal to or less than 330 mm



b) Width W is greater than 330 mm

Figure 3 — Hole locations for tractor-dozers and scrapers

Table 3 — Graders (see figure 4)

Dimensions in millimetres
(Inch values in parentheses)

Pitch		Distance from ends			
		A		*S*	
Centre portion, *P*	**Both sides,** *Q*[1)]	nom.	tol.	nom.	tol.
152,4 (6)	76,2 (3)	76,2 (3)	$^{0}_{-3}$ ($^{0}_{-0,118}$)	42 (1,65)	$^{0}_{-2}$ ($^{0}_{-0,079}$)
250 (10)	62,5 (2,5)	62,5 (2,5)			
304,8 (12)	76,2 (3)	76,2 (3)			

1) Can be omitted for small machines.

NOTE — The shapes and dimensions of cutting edges with 140 mm and 280 mm hole pitches are specified in annex A.

Dimensions in millimetres
(Inch values in parentheses)

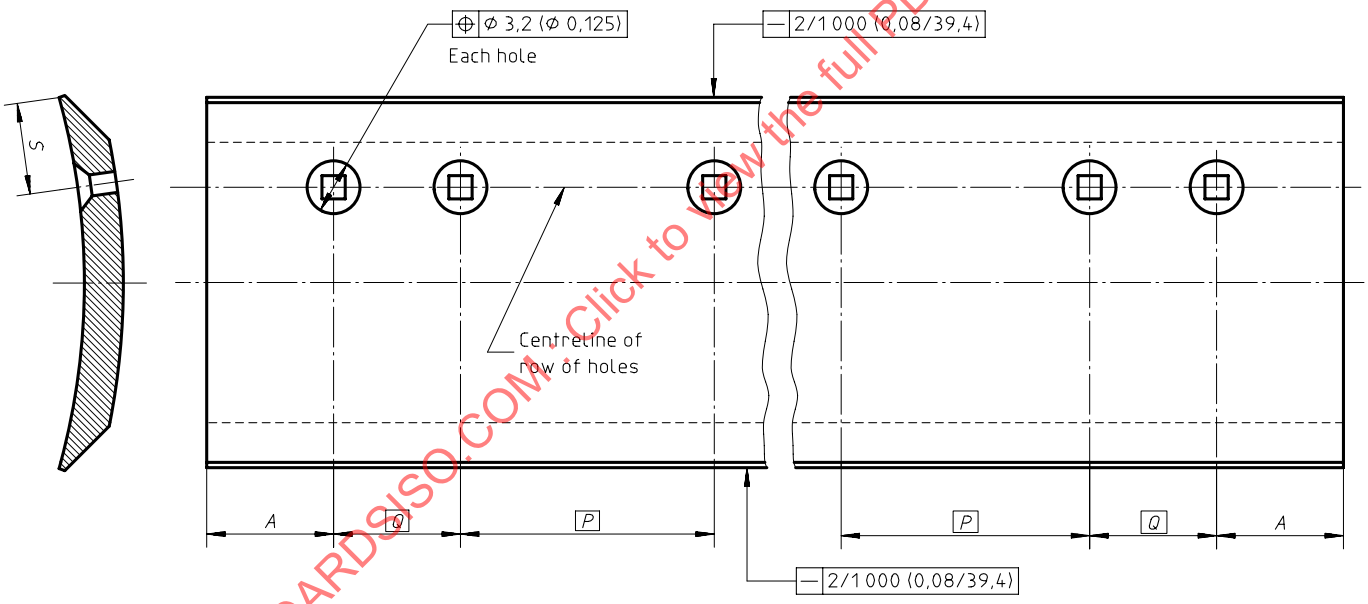


Figure 4 — Hole locations for graders

5 Mounting bolt holes — Shapes and dimensions

5.1 The shapes and dimensions of mounting bolts holes shall be those shown in figure 5 and given in table 4.

5.2 The inscribed circles of the square holes shall be concentric with the countersink to within 0,8 mm (0,032 in).

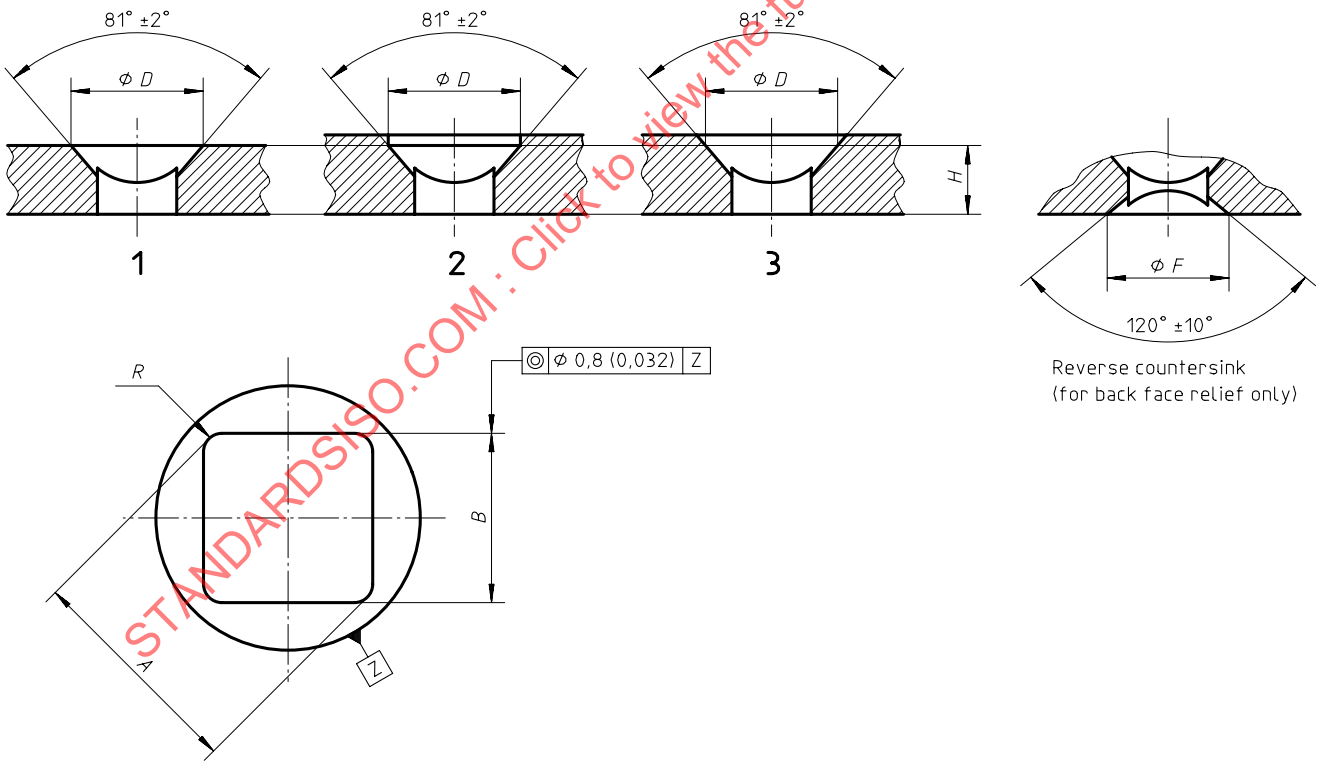
Table 4 — Mounting bolt holes

Dimensions in millimetres
(Inch values in parentheses)

D	min.	24,5 (0,965)	29,3 (1,15)	33,3 (1,31)	38,8 (1,53)	46,6 (1,83)	58,7 (2,31)
B	nom.	14,3 (0,563)	17,5 (0,689)	20,6 (0,811)	24,2 (0,953)	27,4 (1,08)	34,0 (1,34)
	tol.	$^{+0,8}_{0}$ ($^{+0,032}_{0}$)	$^{+1,5}_{0}$ ($^{+0,059}_{0}$)	$^{+1,6}_{0}$ ($^{+0,063}_{0}$)	$^{+2}_{0}$ ($^{+0,079}_{0}$)	$^{+2,4}_{0}$ ($^{+0,095}_{0}$)	$^{+2,9}_{0}$ ($^{+0,114}_{0}$)
H	(with reverse countersink)	12,7 (0,5)	16 (0,625)	19 (0,75)		25,4 (1)	28,6 (1,25)
	(without reverse countersink)	12,7 (0,5)		16 (0,625)		19 (0,75)	25,4 (1)
R	≈	2,5 (0,098)			3 (0,118)		
A	min.	18 (0,709)	22 (0,866)	26,5 (1,04)	31 (1,22)	36 (1,42)	45 (1,77)
F	nom.	27 (1,06)	32 (1,25)	37 (1,45)	41 (1,6)	47 (1,84)	56 (2,2)
	tol.	± 0,8 (± 0,032)					
Reference	Bolt size	12,7 (1/2)	15,88 (5/8)	19,05 (3/4)	22,22 (7/8)	25,4 (1)	31,75 (1 1/4)

NOTE — The shapes and dimensions of mounting bolt holes with 140 mm and/or 280 mm hole pitches are specified in annex A.

Dimensions in millimetres
(Inch values in parentheses)



Key

D is the diameter of countersink or counterbore for effective thickness H

B is the width across flats of square hole

H is the minimum effective thickness

R is the corner radius of square hole

A is the diagonal dimension of square hole

F is the diameter of reverse countersink of square hole

Figure 5 — Dimensions of mounting bolt holes

Annex A
(normative)

Principal shapes and basic dimensions of cutting edges with 140 mm and 280 mm hole pitch

A.1 Field of application

This annex is applicable in those countries using 140 mm and 280 mm pitch for mounting bolts.

A.2 Cross-sections of cutting edges — Principal and basic dimensions

The principal shapes and basic dimensions of the cutting edge cross-section shall be as shown in figures A.1 and A.2 and given in tables A.1 and A.2.

Table A.1 — Tractor-dozers and scrapers (see figure A.1)

Dimensions in millimetres

Width, *W*		**Thickness, *T***		**Tip of chamfer, *F***	
nom.	tol.	nom.	tol.	max.	min.
150	+ 2 − 4,5	12	+ 1 − 2	8	4
150		16		10	
180		12		8	
180		16		10	
250		18		12	
300		18		12	
300		25	+ 1,5 − 2,5	16	
360		25		16	
400		25		16	
470	+ 2,5 − 5	30		20	

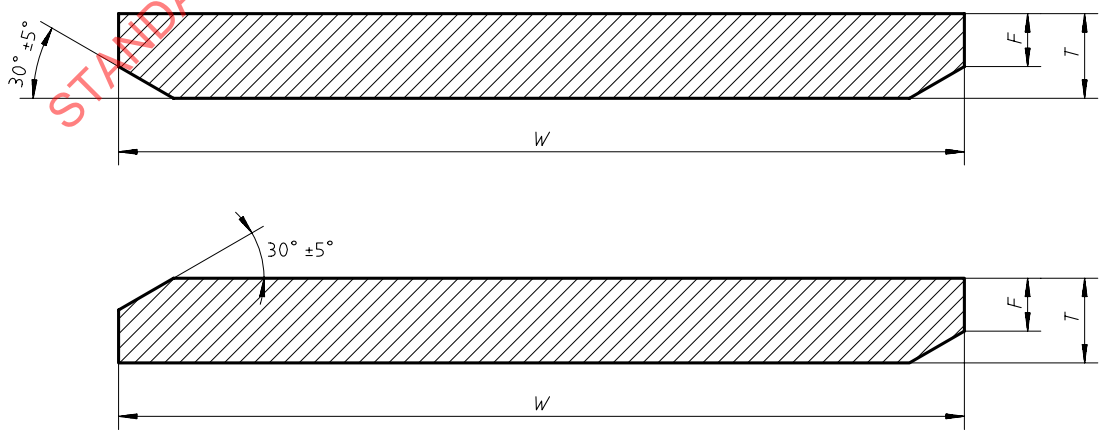


Figure A.1 — Cutting edge for tractor-dozers and scrapers

Table A.2 — Graders (see figure A.2)

Dimensions in millimetres

Width, W		Thickness, T		Radius of curvature, R		Tip of chamfer, F
nom.	tol.	nom.	tol.	nom.	tol.	min.
180 180	+ 2,5 − 4,5	12 18	± 1	350; 440	± 30	2

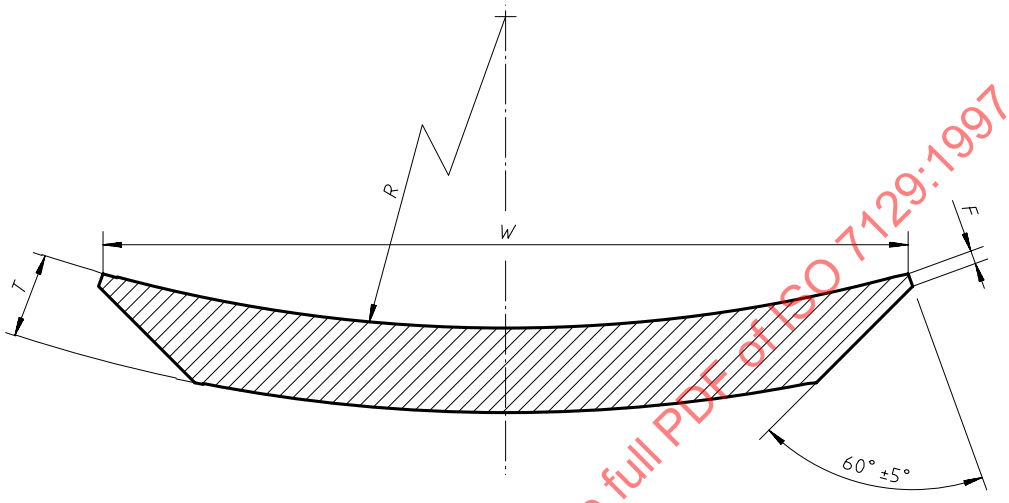


Figure A.2 — Cutting edge for graders

Table A.3 — Tractor-dozers (see figure A.3)

Dimensions in millimetres

No. of rows	Hole locations	
1	1)	
2	A 2)	B 2)
	26	62; 77
	34	58; 72
	36	107; 132
	44	128
	48	156; 176
	66	202

1) See figure A.3 a).

2) See figure A.3 b).

A.3 Mounting bolts — Hole locations

A.3.1 The hole locations for the mounting bolts shall be those shown in figures A.3 to A.5 and given in tables A.3 and A.4.

A.3.2 Each countersink shall be located within a 3,2 mm diameter of the positional tolerance.

A.3.3 The camber of the cutting edge shall be within 6 mm/m.

Dimensions in millimetres

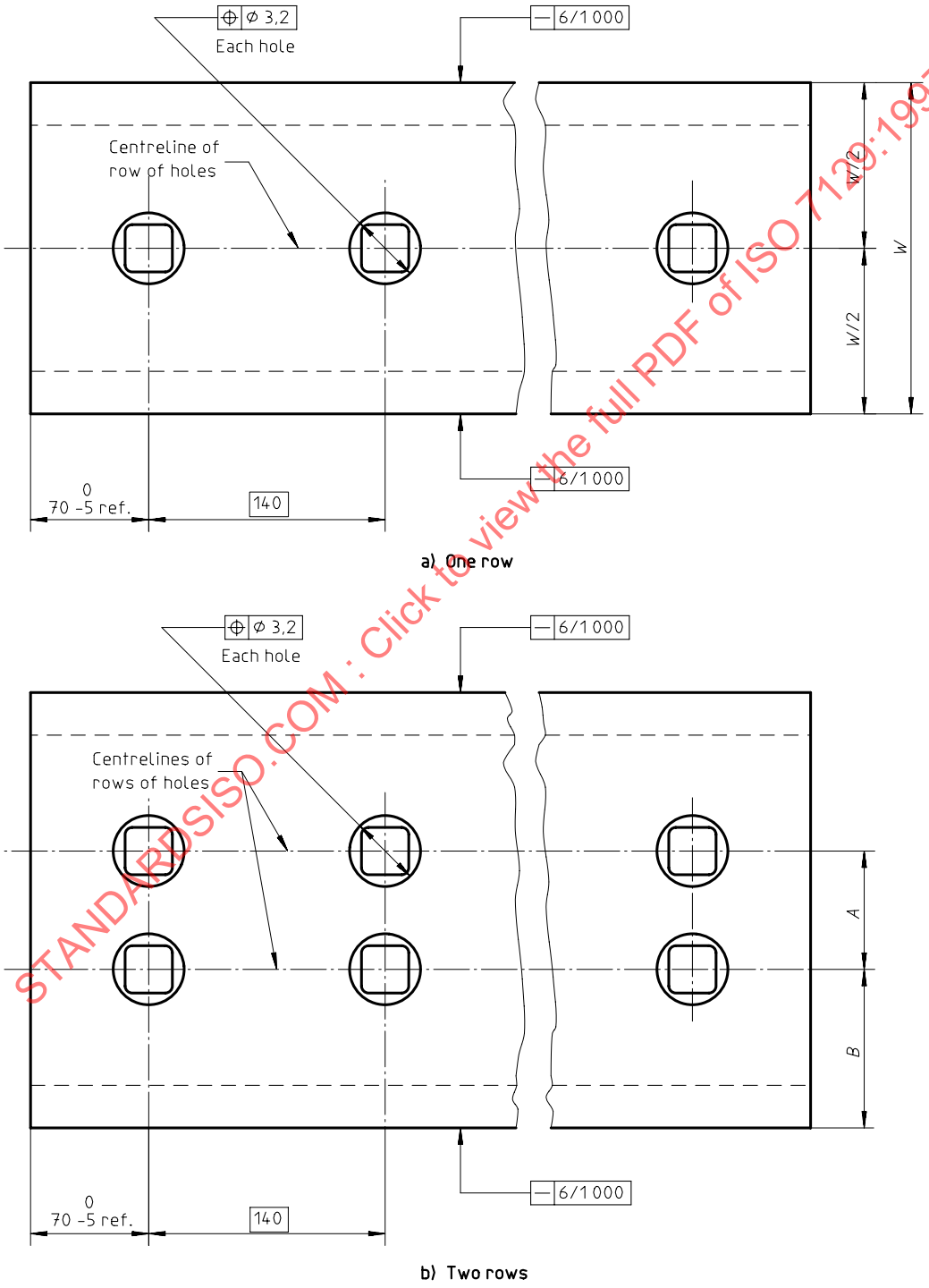


Figure A.3 — Hole locations for tractor-dozers