International Standard ISO 7129

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Earth-moving machinery — Tractors with dozer, graders, tractor scrapers — Cutting edges — Principal shapes and basic dimensions

Engins de terrassement — Tracteurs à lame, niveleuses, décapeuses — Bords coupants — Formes principales et dimensions de base

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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 Standad ISO 7129 was developed by Technical Committee ISO/TC 127, *Earth-moving machinery*, and was circulated to the member bodies in June 1981.

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

Australia	France	South Africa, Rep. of
Austria	Ireland	Sweden
Belgium	Italy	United Kingdom
Czechoslovakia	Japan	USA
Egypt, Arab Rep. of	Poland	USSR
Finland	Romania	

The member body of the following country expressed disapproval of the document on technical grounds:

Germany, F.R.

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Earth-moving machinery — Tractors with dozer, graders, tractor scrapers — Cutting edges — Principal shapes and basic dimensions

1 Scope and field of application

This International Standard specifies the

- principal shapes and dimensions of the cross-section,
- hole location for the mounting bolts,
- shapes and dimensions of holes for the mounting bolts,

for cutting edges used on tractors with dozer, graders and tractor scrapers, as defined in ISO 6165, taking into consideration the interchangeability.

NOTE — Some inch figures in this International Standard are not equivalent to the corresponding millimetre figures because values which are widely used have been adopted.

2 Reference

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

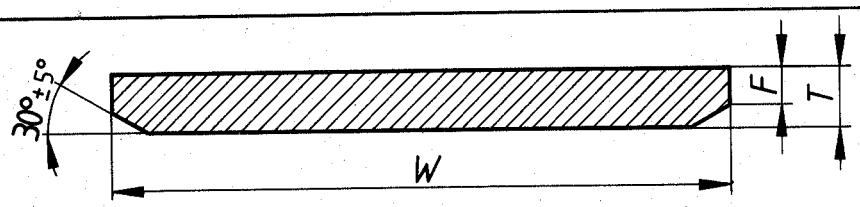
3 Cutting edges — Cross-sections — Principal shapes and basic dimensions

3.1 Principal shapes

The principal shapes of the cutting edge cross-section shall be as in tables 1 and 2.

Table 1 — Tractor with dozer and tractor scraper

Dimensions in millimetres
Inch values in parentheses



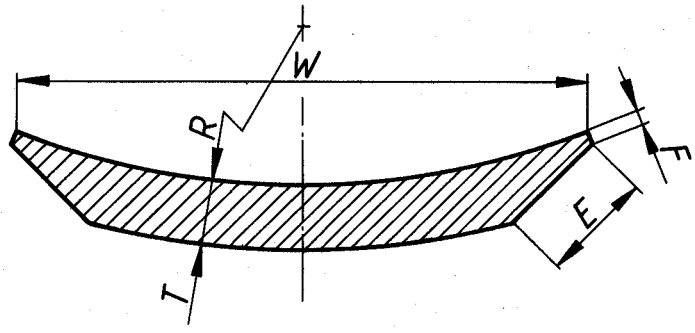
Application *		Width W		Thickness T		Tip of chamfer F	
Tractor with dozer	Tractor scraper	Basic dimensions	Tolerances	Basic dimensions	Tolerances	max.	min.
x		153 (6)	± 3,0 (± 0.118)	12,7 (0.500)		8 (0.32)	
x		153 (6)		16,0 (0.625)		10 (0.39)	
x		153 (6)		19,0 (0.750)		12 (0.47)	
x		165 (6.5)		16,0 (0.625)		10 (0.39)	
x		204 (8)		16,0 (0.625)		10 (0.39)	
x		204 (8)		19,0 (0.750)		12 (0.47)	
x		204 (8)		22,0 (0.875)		13 (0.51)	
x		204 (8)		25,4 (1.000)		14 (0.55)	
x	x	254 (10)		19,0 (0.750)		12 (0.47)	
	x	254 (10)		22,0 (0.875)		13 (0.51)	
x	x	254 (10)		25,4 (1.000)		14 (0.55)	
x		254 (10)		32,0 (1.250)		20 (0.79)	
	x	254 (10)		41,0 (1.625)		25 (0.98)	
	x	305 (12)		19,0 (0.750)	For casting material	12 (0.47)	
	x	305 (12)		22,0 (0.875)		13 (0.51)	
x		305 (12)		25,4 (1.000)	+ 2,4 − 0,6	14 (0.55)	
x		305 (12)		28,6 (1.125)		18 (0.71)	
x		305 (12)		32,0 (1.250)		20 (0.79)	
	x	305 (12)		38,0 (1.500)		23 (0.91)	
	x	330 (13)		19,0 (0.750)	(+ 0.095 − 0.025)	12 (0.47)	4 (0.16)
	x	330 (13)	+ 1,5 − 4,5	22,0 (0.875)		13 (0.51)	
	x	330 (13)		25,4 (1.000)		14 (0.55)	
x	x	330 (13)		28,6 (1.125)		18 (0.71)	
x		330 (13)	(+ 0.059 − 0.177)	32,0 (1.250)	For other material than casting	20 (0.79)	
x	x	330 (13)		35,0 (1.375)		21 (0.83)	
	x	330 (13)		38,0 (1.500)		23 (0.91)	
	x	330 (13)		41,0 (1.625)	+ 0,8 − 1,2	25 (0.98)	
	x	330 (13)		44,5 (1.750)		27 (1.06)	
	x	360 (14)		19,0 (0.750)		12 (0.47)	
	x	360 (14)		22,0 (0.875)		13 (0.51)	
	x	360 (14)		25,4 (1.000)	(+ 0.032 − 0.047)	14 (0.55)	
x		360 (14)		28,6 (1.125)		18 (0.71)	
x		360 (14)		32,0 (1.250)		20 (0.79)	
x		360 (14)		35,0 (1.375)		21 (0.83)	
	x	406 (16)		22,0 (0.875)		13 (0.51)	
	x	406 (16)		25,4 (1.000)		14 (0.55)	
	x	406 (16)		28,6 (1.125)		18 (0.71)	
	x	406 (16)		32,0 (1.250)		20 (0.79)	
x	x	406 (16)		35,0 (1.375)		21 (0.83)	
x		406 (16)		38,0 (1.500)		23 (0.91)	
x		406 (16)		41,0 (1.625)		25 (0.98)	
	x	406 (16)		44,5 (1.750)		27 (1.06)	
	x	482 (19)		28,6 (1.125)		18 (0.71)	
	x	482 (19)		32,0 (1.250)		20 (0.79)	
	x	482 (19)		35,0 (1.375)		21 (0.83)	
	x	482 (19)		38,0 (1.500)		23 (0.91)	
	x	482 (19)		41,0 (1.625)		25 (0.98)	
	x	482 (19)		44,5 (1.750)		27 (1.06)	

* Recommendation only.

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

Table 2 — Grader

Dimensions in millimetres
Inch values in parentheses



Width		Thickness		Radius of curvature		Chamfer	
W		*T*		*R*			
Basic dimensions	Tolerances	Basic dimensions	Tolerances	Basic dimensions	Tolerances	*E*	*F* (min.)
152 (6)		13 (0.500)					
152 (6)	+ 3,0 − 1,5	16 (0.625)					
152 (6)		19 (0.750)	± 0,6 (± 0.025)	280 (11)	± 10 (± 0.394)	30 (1.18)	2,5 (0.1)
204 (8)	(+ 0.118 − 0.059)	16 (0.625)					
204 (8)		19 (0.750)					

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

4 Mounting bolts — Hole location

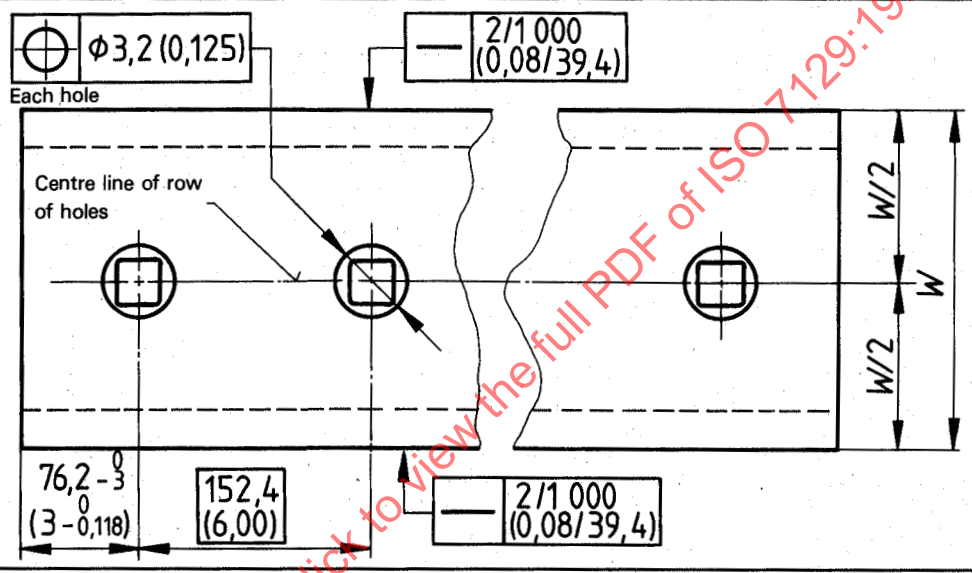
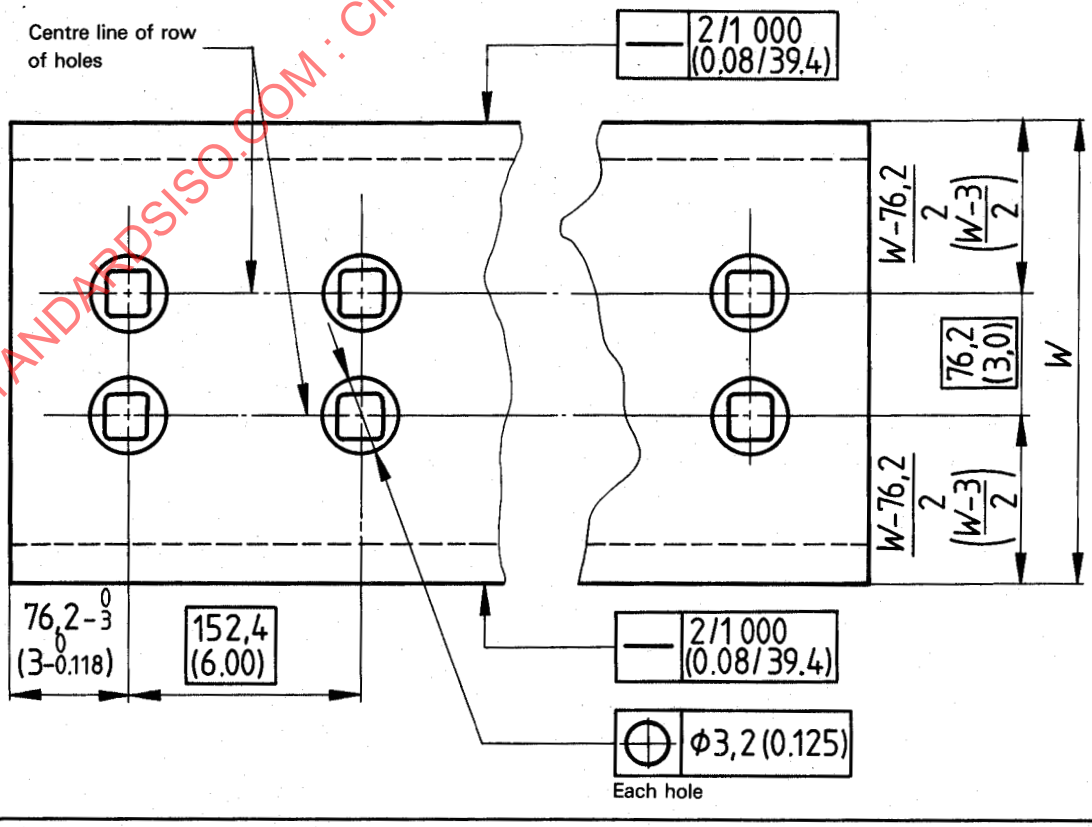
4.1 The hole location for the mounting bolts shall be those presented in tables 3 and 4.

4.2 Each countersink shall be located within a 3,2 mm (0.125 in) diameter true position circle.

4.3 The camber of cutting edge shall be within 2 mm/m (0.08 in/39.4 in).

Table 3 — Tractor with dozer and tractor scraper

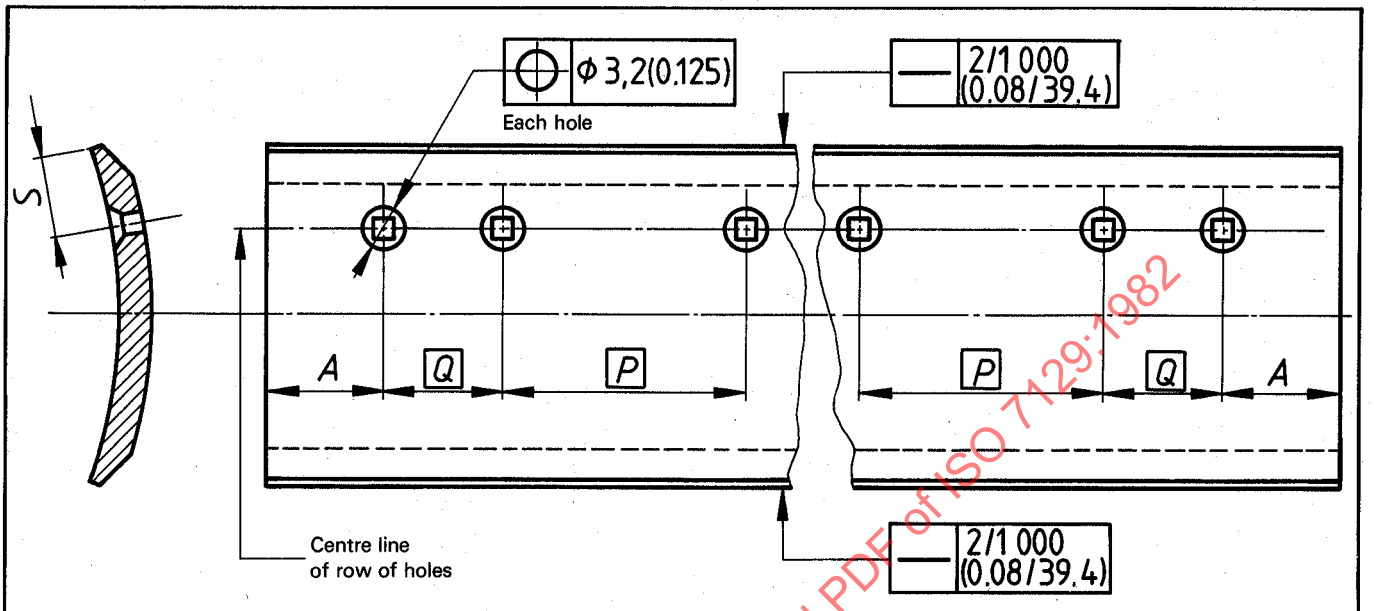
Dimensions in millimetres
Inch values in parentheses

Width *W*	Hole location
330 and less	
330 and over	

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

Table 4 — Grader

Dimensions in millimetres
Inch values in parentheses



Pitch		Distance from the ends			
Centre portion	Both sides	*A*		*S*	
P	*Q**	Basic dimensions	Tolerances	Basic dimensions	Tolerances
152,4 (6)	76,2 (3)	76,2 (3)	$^{0}_{-3}\left(^{0}_{-0.118}\right)$	42 (1.65)	$^{0}_{-2}\left(^{0}_{-0.079}\right)$
250 (10)	62,5 (2.5)	62,5 (2.5)			
304,8 (12)	76,2 (3)	76,2 (3)			

* Can be omitted for small machines.

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

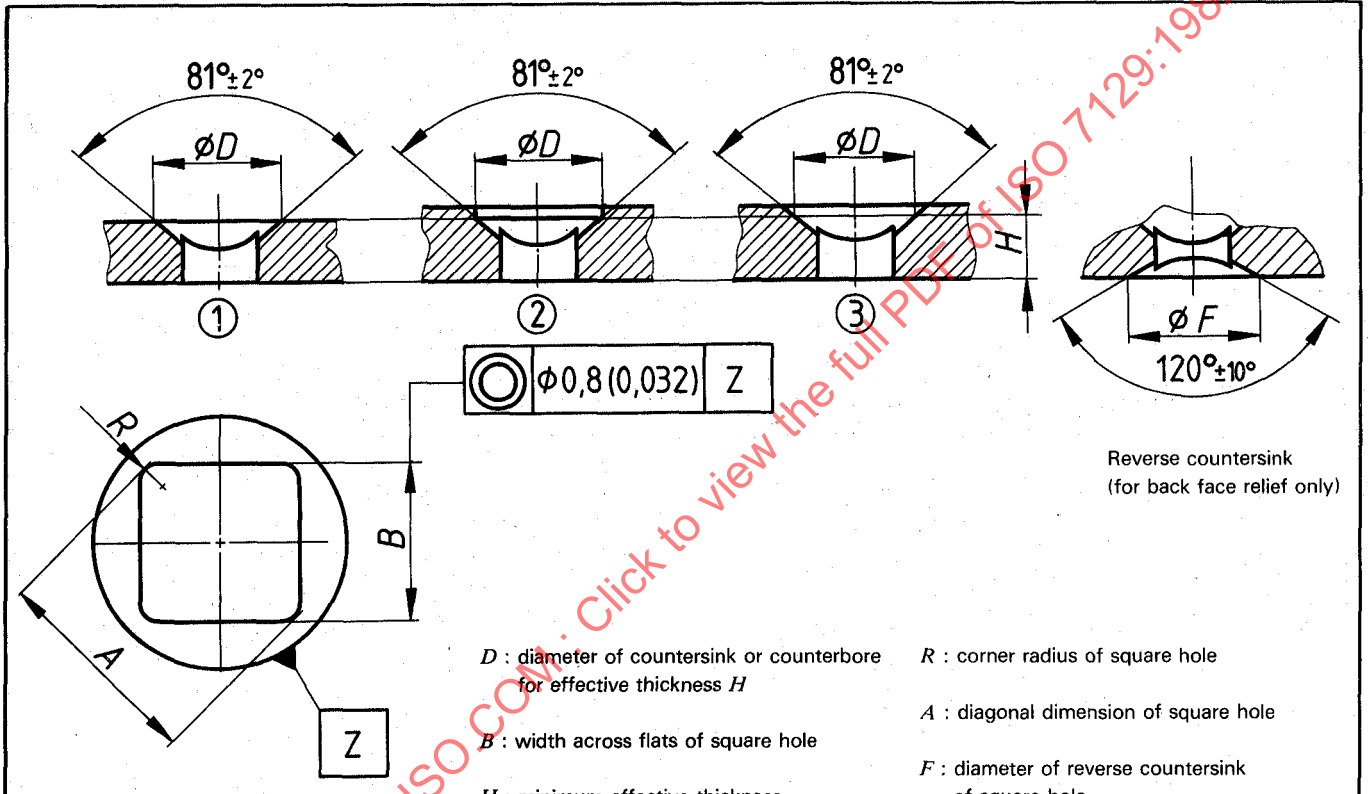
5 Mounting bolt hole — Shapes and dimensions

5.1 The shape and dimension of the holes for the mounting bolts shall be those presented in table 5.

5.2 The inscribed circles of the square holes shall be concentric with the countersink to within 0,8 mm (0.032 in).

Table 5 — Mounting bolt hole

Dimensions in millimetres
Inch values in parentheses



Reverse countersink
(for back face relief only)

D : diameter of countersink or counterbore for effective thickness *H*

B : width across flats of square hole

H : minimum effective thickness

R : corner radius of square hole

A : diagonal dimension of square hole

F : diameter of reverse countersink of square hole

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	Basic dimensions	14,3 (0.563)	17,5 (0.689)	20,6 (0.811)	24,2 (0.953)	27,4 (1.08)	34,0 (1.34)
	Tolerances	$^{+0,8}_{0}$ ($^{+0.032}_{0}$)	$^{+1,5}_{0}$ ($^{+0.059}_{0}$)	$^{+1,6}_{0}$ ($^{+0.063}_{0}$)	$^{+2,0}_{0}$ ($^{+0.079}_{0}$)	$^{+2,4}_{0}$ ($^{+0.095}_{0}$)	$^{+2,9}_{0}$ ($^{+0.114}_{0}$)
H	(with reverse countersink)	12,7 (0.500)	16 (0.625)	19 (0.750)		25,4 (1.000)	28,6 (1.125)
	(without reverse countersink)	12,7 (0.500)		16 (0.625)		19 (0.750)	25,4 (1.000)
R (approx.)		2,5 (0.098)				3,0 (0.118)	
A (min.)		18,0 (0.709)	22,0 (0.866)	26,5 (1.04)	31,0 (1.22)	36,0 (1.42)	45,0 (1.77)
F	Basic dimensions	27 (1.06)	32 (1.25)	37 (1.45)	41 (1.60)	47 (1.84)	56 (2.20)
	Tolerances	± 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 hole with 140 and/or 280 mm hole pitches are specified in the annex.

Annex

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

A.1 Field of application

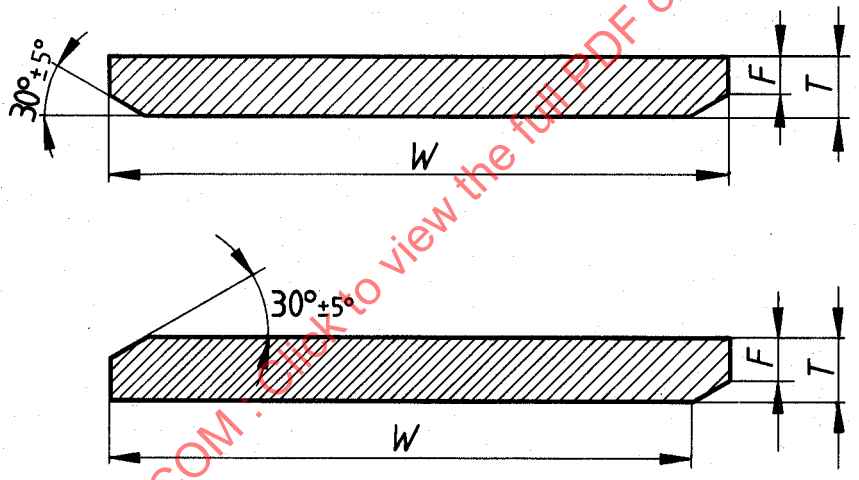
This annex is applicable in those countries using 140 and 280 mm pitch for mounting bolts.

A.2 Cutting edges — Cross-sections — Principal shapes and basic dimensions

The principal shapes and basic dimensions of the cutting edge cross-section shall be as in tables 6 and 7.

Table 6 — Tractor with dozer and tractor scraper

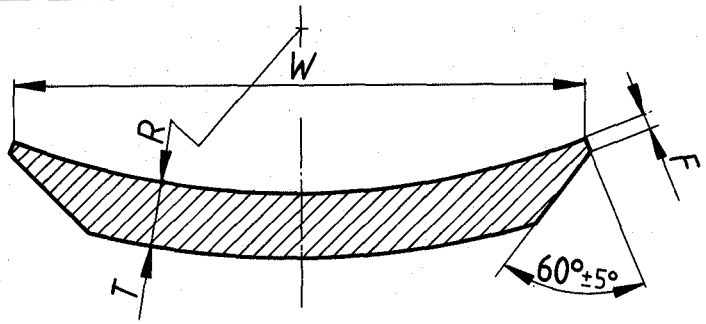
Dimensions in millimetres



Width		Thickness		Tip of chamfer	
W		*T*		*F*	
Basic dimensions	Tolerances	Basic dimensions	Tolerances	max.	min.
150	+ 2,0 − 4,5	12	+ 1,0 − 2,0	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 − 5,0	30		20	

Table 7 — Grader

Dimensions in millimetres



Width		Thickness		Radius of curvature		Tip of chamfer
W		*T*		*R*		*F*
Basic dimensions	Tolerances	Basic dimensions	Tolerances	Basic dimensions	Tolerances	min.
180 180	+ 2,5 − 4,5	12 18	±1,0	350 ; 440	±30	2

A.3 Mounting bolts — Hole location

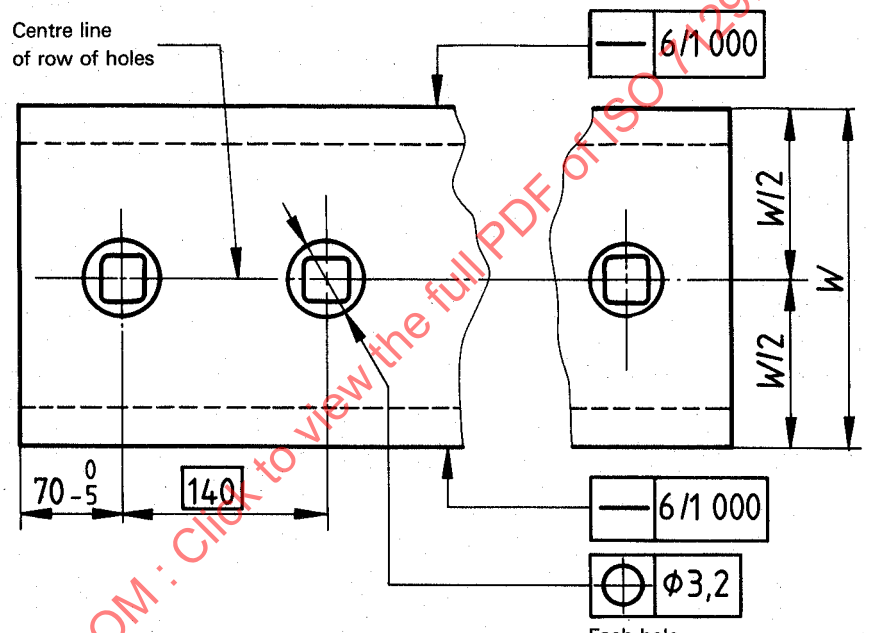
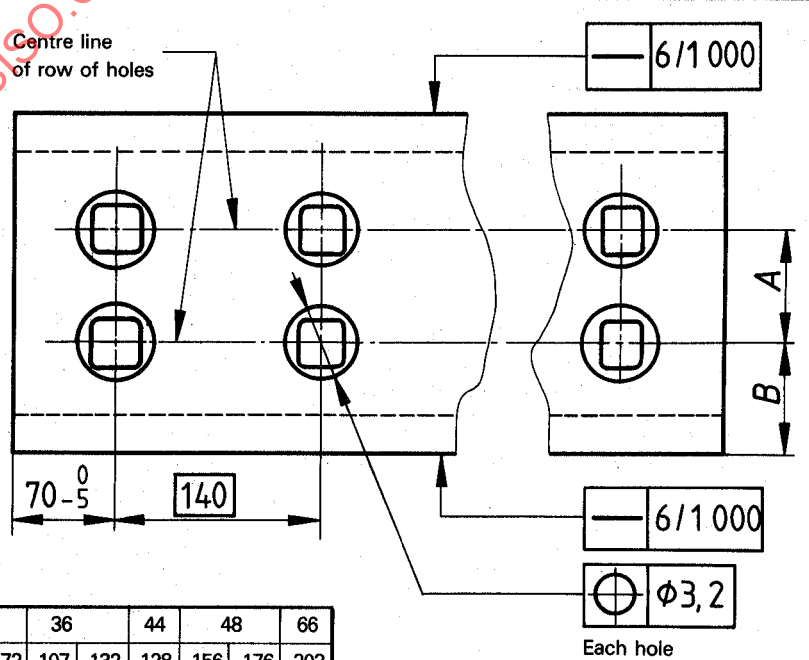
A.3.1 The hole location for the mounting bolts shall be those presented in tables 8, 9 and 10

A.3.2 Each countersink shall be located within a 3,2 mm diameter true position circle.

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

Table 8 — Tractor with dozer

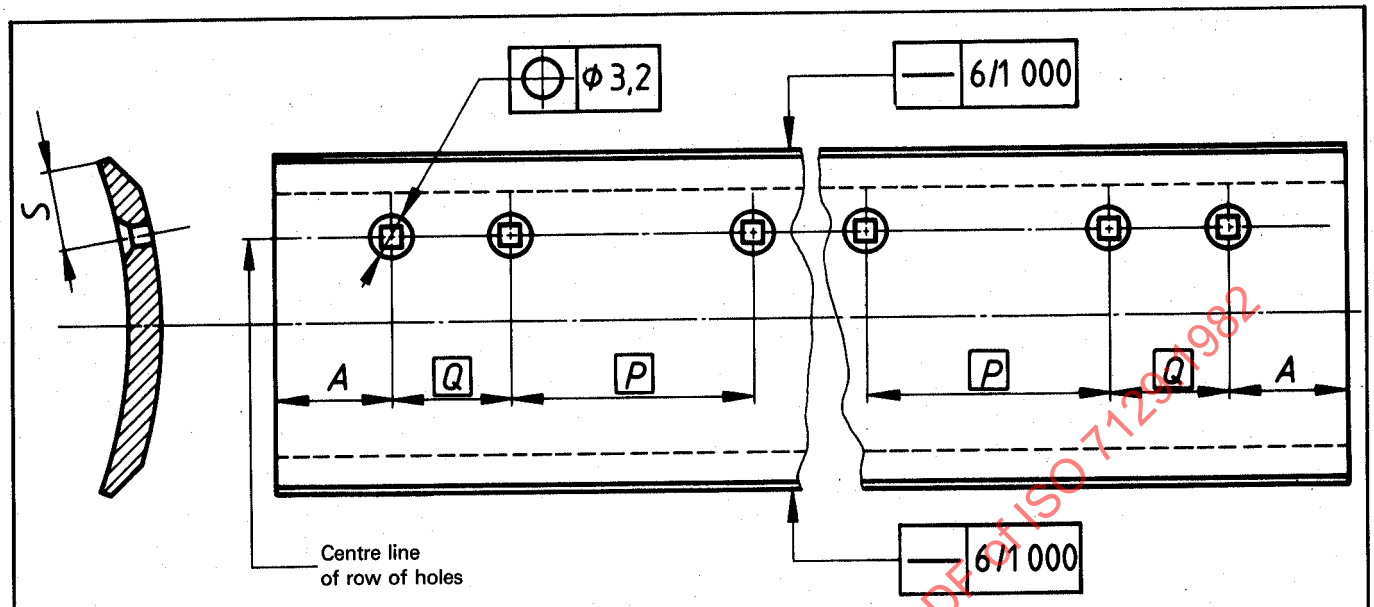
Dimensions in millimetres

No. of row	Hole location
1	
2	

A	26	34		36		44	48		66
B	62	77	58	72	107	132	128	156	176	202

Table 9 — Grader

Dimensions in millimetres

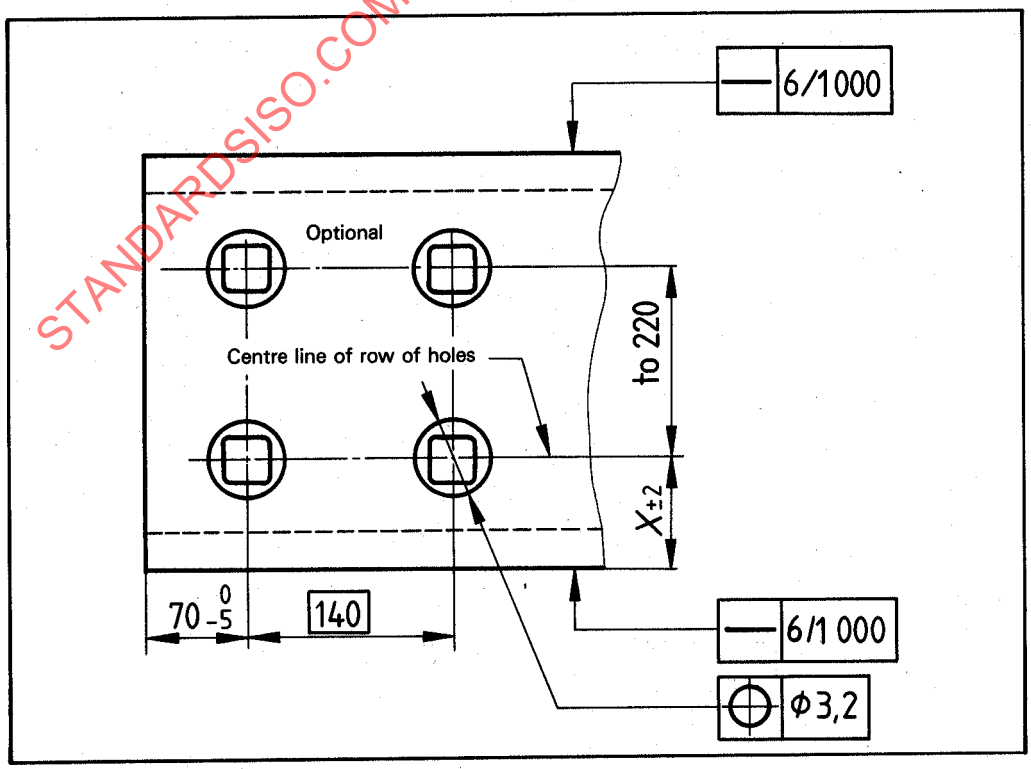


Pitch		Distance from the ends			
		A		S	
Centre portion	Both sides				
P	Q*	Basic dimensions	Tolerances	Basic dimensions	Tolerances
140	70	70	0 − 5	40 ; 75	0 − 5
280		50;60;70			

* This dimension is specified for auxiliary holes which can be made without countersinking and may be omitted.

Table 10 — Tractor scraper

Dimensions in millimetres



NOTE — Number of rows of holes is optional.