International Standard 6526

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Plain bearings — Pressed bimetallic half thrust washers — Features and tolerances

Paliers lisses — Demi-flasques de butée bimétalliques découpés à la presse — Caractéristiques et tolérances

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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 6526 was developed by Technical Committee ISO/TC 123, *Plain bearings*, and was circulated to the member bodies in May 1982.

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

Austria	Germany, F.R.	Sweden
Brazil	India	United Kingdom
Czechoslovakia	Italy	USA
Egypt, Arab Rep. of	Poland	USSR
France	Romania	

No member body expressed disapproval of the document.

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Plain bearings — Pressed bimetallic half thrust washers — Features and tolerances

1 Scope and field of application

This International Standard specifies the main features and lays down tolerances for pressed bimetallic half thrust washers having an outside diameter up to 160 mm.

NOTES

1 All the linear dimensions and tolerances are expressed in millimetres.

2 The main dimensions for the half thrust washers are not the subject of an International Standard.

2 Symbols

The following symbols are used in this International Standard:

D = outside diameter of the washer

d = inside diameter of the washer

H_D = washer height

e_T = total washer thickness

E_D = height at lug top

F_D = height at lug root

A = lug width

α = groove side angle

G_W = groove width

G_E = wall thickness at the back of the groove

G_X = distance between groove and the washer axis

r_1 = width of back chamfer or radius

r_2 = lug and joint face radius and lug fillet radius

r_3 = width of sliding surface chamfer or radius

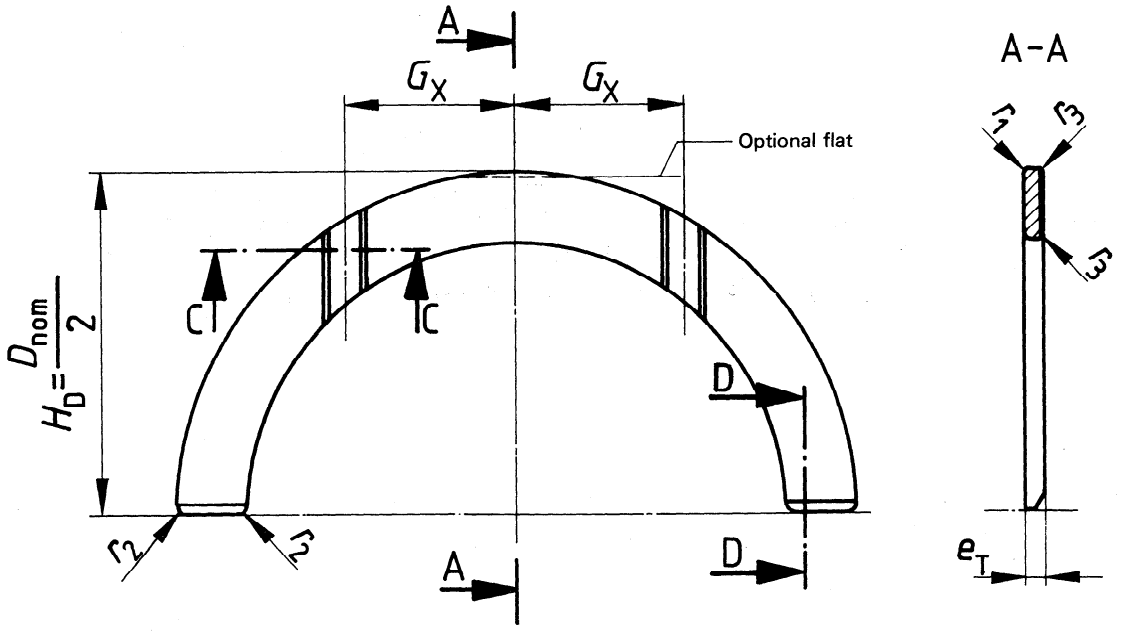
L_J = scalloped toe width at joint face

t = depth of the sliding surface relief

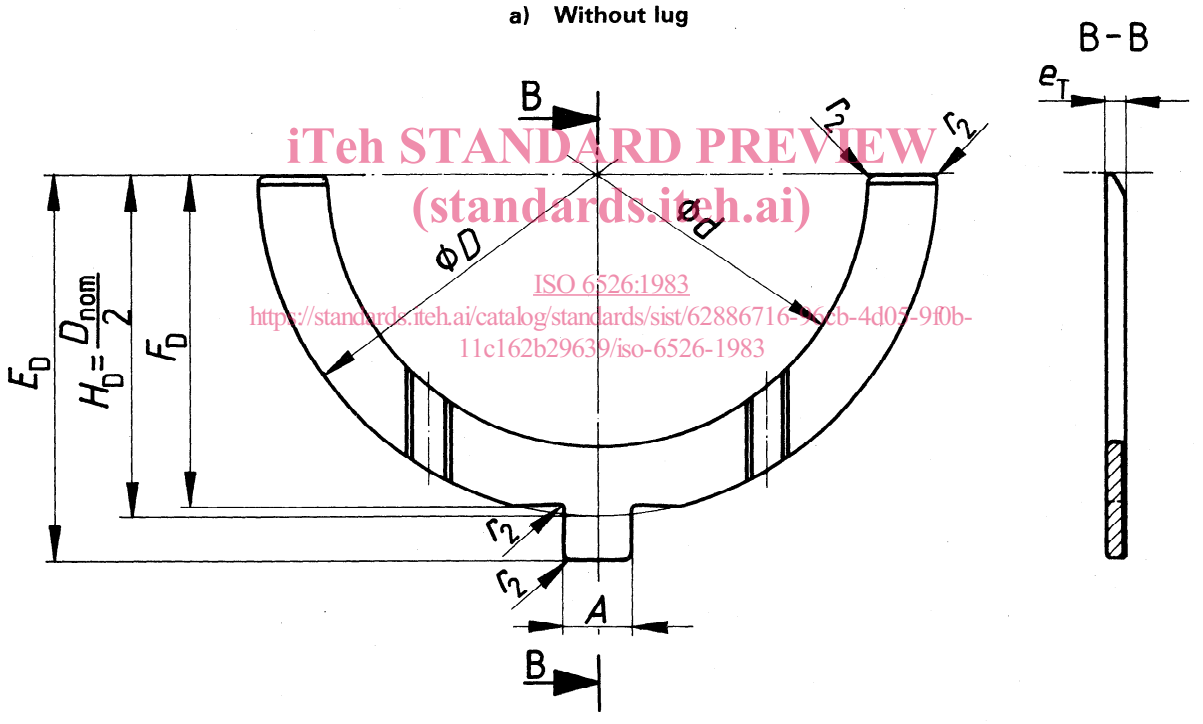
l = height of of the sliding relief

β = sliding surface relief angle at joint faces

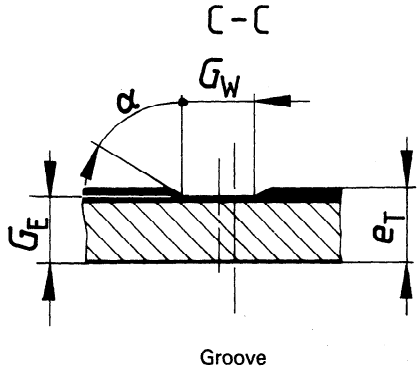
p = flatness limit



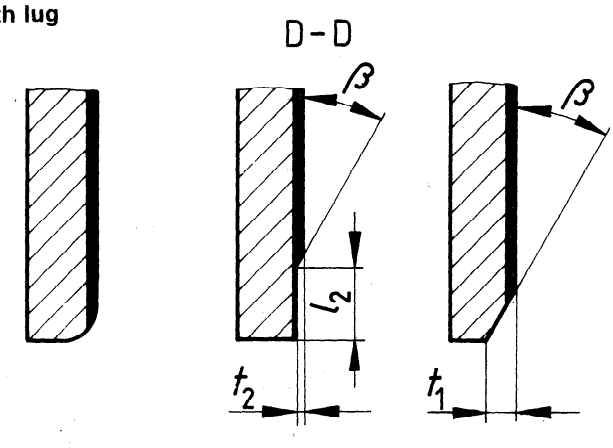
a) Without lug



b) With lug



Groove



Blanking radius and joint face sliding surface relief

Figure 1 — Half thrust washers with and without lug

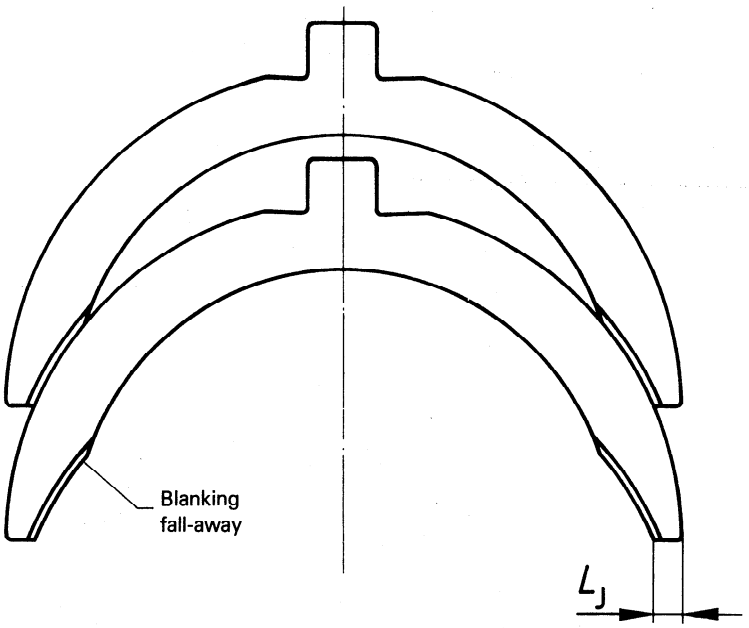


Figure 2 — Blanking fall-away for scalloped toe thrust washers

3 General tolerances

For dimensions without tolerance indication, the following values apply:

— linear dimensions: ± 0,25 mm

— angular dimensions: ± 5°

4 Tolerances for diameters and for heights

4.1 Tolerance for the outside diameter, D

Table 1

D		Tolerance
Above	Up to and including	
—	120	$^{0}_{-0,25}$
120	160	$^{0}_{-0,35}$

4.2 Tolerance for the inside diameter, d

Table 2

D		Tolerance for d
Above	Up to and including	
—	120	$^{+0,25}_{0}$
120	160	$^{+0,35}_{0}$

NOTE — The difference $D - d$ should be greater than $7 \times e_T$

4.3 Tolerances for heights H_D and F_D

Table 3

D		Tolerance for H_D	Tolerance for $F_D = H_{Dmin} - (r_{2max} + 0,5)$
Above	Up to and including		
–	120	$^{0}_{-0,20}$	$^{0}_{-0,5}$
120	160	$^{0}_{-0,25}$	

5 Total thickness, e_T

Table 4

D		e_T Preferred dimensions (original size)				Tolerance for e_T
Above	Up to and including	1,75	2	2,5	3	
–	80	x	x			$^{0}_{-0,05}$
80	120		x	x		$^{0}_{-0,06}$
120	160			x	x	$^{0}_{-0,07}$

NOTE — For over-sizes it is recommended to increase the total thickness by a 0,10 step to which the same tolerance as for the corresponding original size is applied.

6 Locating lug

6.1 Lug width, A

Table 5

D		A	
Above	Up to and including	Preferred dimension	Tolerance
–	80	8	$^{-0,25}_{-0,50}$
80	120	10	
120	160	12	

6.2 Notch recess

The notch recesses to be mostly manufactured with a tolerance J_s13.

6.3 Lug length

The length of the lug is determined by dimension E_D given in table 6.

Table 6

D		E_D
Above	Up to and including	Preferred dimension*
–	80	$H_D + 5$
80	160	$H_D + 8$

* Dimension E_D is left without a tolerance because it is the difference of two dimensions for which the normal tolerance of ± 0,25 mm would apply.

NOTE — Lug design is usually as shown in figure 1 b), but washers can also be provided with an offset locating lug in order to avoid incorrect assembly.

7 Grooves

7.1 Groove width, G_W

Table 7

D		G_W	
Above	Up to and including	Preferred dimension	Tolerance
–	60	3,5	$^{+0,50}_{0}$
60	160	4,5	

7.2 Wall thickness at the back of the groove, G_E

Tolerance for G_E: $^{0}_{-0,30}$

7.3 Groove position (with respect to the axis), G_X

Table 8

D		Tolerance for G_X
Above	Up to and including	
–	60	± 1,5
60	160	± 2,5

8 Joint faces

Joint face forms are shown in figure 1 and also in figure 2 for scalloped toe where $L_{Jmin} = \frac{D - d}{4}$ or 3 mm whichever is the wider.

9 Fillet radii and chamfers

9.1 Radius on lug and joint faces and lug fillet radius, r_2

Table 9

e_T		Preferred maximum radius r_{2max}
Above	Up to and including	
–	2,59	1
2,59	–	1,5

9.2 Joint face relief (Figure 1, section D-D)

It can be either a blanking radius or a relief the depth of which, t, should not exceed 30 % of the total thickness e_T. Another design is shown in figure 1 (centre, section D-D).

The angle β should not exceed 30°.

9.3 Chamfer or radius between the sliding surface and side faces, r_3

Table 10

e_T		Maximum width of chamfer or radius on sliding surface, r_{3max}
Above	Up to and including	
—	2,59	$0,1 \times \frac{(D - d)}{2}$
2,59	—	$0,15 \times \frac{(D - d)}{2}$

9.4 Chamfer or radius between back and external side face, r_1

It can be either a blanking radius or a chamfer whose sharp edges shall be free of burrs. The latter can be at 45° and its width range can be $0,3 < r_1 < 0,6$ with a tolerance of ± 0,20.

NOTES

1 Tool scoring due to chamfering operation is permissible on the lug and its depth can be equal to 0,15 mm over the maximum chamfer height.

2 The chamfer between the back and the inside face is not specified. It shall only be free of burrs.

10 Flatness

Half washers shall slide (under gravity) between parallel plates set at $e_{T\,max} + p$ where p is given in table 11.

Table 11

D		Flatness limit p
Above	Up to and including	
—	80	0,10
80	120	0,12
120	160	0,15

11 Surface roughness

No mention is made of surface roughness due to the wide range of materials used.