

Clamping bushes for bearings

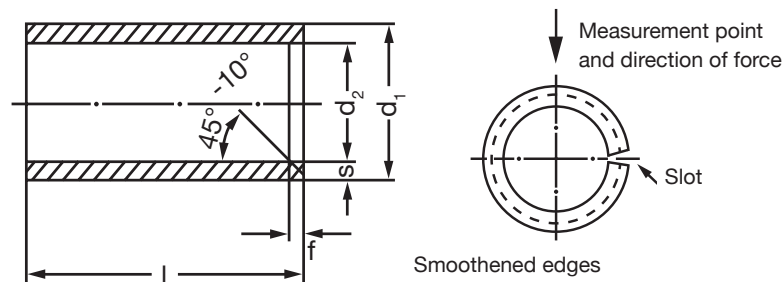
„WN 2001“

Dimensions in mm | Page 1

The clamping bushes must be pressed on the corresponding journal so that the slot is not located in the loaded area. but at an angle of about 90° to the direction of the applied force instead. See footnotes ¹⁾ through ³⁾ on page 2 for the installation tolerances.

Unspecified details must be selected according to the intended purpose.

Shape A Clamping bush with chamfer



Shape of the slot (shown using a diagram of the top view)

G with straight slot



P with arrow-shaped slot



S with angled slot



Designation of a clamping bush with a chamfer (A), a straight slot (G), an outer diameter $d_1 = 40$ mm, an inner diameter (nominal diameter) $d_2 = 30$ mm, and a length = 25 mm:

Clamping Bush AG 40/30 x 25 FS 2001

Material: Spring band steel according to EN 10132-4 : 2000, tempered to HV = 420 to 500 N/mm²
Other types of steel and hardnesses must be agreed to by the manufacturer.

Design: Rolled from band, calibrated, black

See FS 2000 for tension bushes for bearings

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/	Perm. Dev.	Weight (7.85 kg/dm³) kg/1000 piece ≈																											
		20	22	25	(27)	28	30	32	(33)	(35)	36	40	(42)	45	(45)	50	(50)	55	60	65	70	75	80	85	90	100	105		
d_1	a12	³⁾ 20	³⁾ 22	³⁾ 25	(27)	³⁾ 28	³⁾ 30	³⁾ 32	(33)	(35)	³⁾ 36	³⁾ 40	(42)	³⁾ 45	(45)	³⁾ 50	(50)	³⁾ 55	³⁾ 60	³⁾ 65	³⁾ 70	³⁾ 75	³⁾ 80	³⁾ 85	³⁾ 90	³⁾ 100	³⁾ 105		
d_2	Nominal diameter	³⁾ 14	³⁾ 16	³⁾ 18	(20)	³⁾ 20	³⁾ 22	³⁾ 24	(25)	(27)	³⁾ 28	³⁾ 30	(33)	³⁾ 35	(36)	³⁾ 40	(42)	³⁾ 45	³⁾ 50	³⁾ 55	³⁾ 60	³⁾ 65	³⁾ 70	³⁾ 75	³⁾ 80	³⁾ 85	³⁾ 90		
	Maximum dimension before installation	³⁾ 13,7	³⁾ 15,6	³⁾ 17,5	19,5	³⁾ 19,5	³⁾ 21,5	³⁾ 23,5	³⁾ 24,5	³⁾ 26,5	³⁾ 27,5	³⁾ 29,5	³⁾ 32,5	³⁾ 34,2	³⁾ 35,2	³⁾ 39,2	³⁾ 41,2	³⁾ 44,2	³⁾ 49,2	³⁾ 49,2	³⁾ 54	³⁾ 59	³⁾ 64	³⁾ 69	³⁾ 74	³⁾ 79	³⁾ 84	³⁾ 88,7	
	s	3		3,5			4					5	4,5	5	4,5	5	4	5						7,5					
f		1,5 ± 0,2		2 ± 0,5					2,5 ± 0,5																			3,5 ± 1,0	
							Weight (7.85 kg/dm³) kg/1000 piece ≈										Weight (7.85 kg/dm³) kg/1000 piece ≈												
12		16,8	19	24,7	27,6	27,8																							
14																													
16																													
18		21,6					44	47,5	49,8	53,2	54,9																		
20			27,2	35,1	39,4	39,7						83,2																	
22												89	105	95,8															
25	-0,8						61,2	66	69,1	74	76,2					134	111	150	166	260	281	306							
28		33,6	38	49,4	55,2	55,6																							
32																													
36							88	95	99,6	106	109																		
40							70,2	78,8	79,4			166	162	191	174								526	562					
45																									675	715	757		
50							122	132	138	148	152					268	222	300	332	520	562	612						890	
55																													
60												269	243	286	262									790	843	900	953	1010	
70															375	311	420	465	728	786	857								
80												332	324	382	348													1245	
90																													
100															536	444	600	664	1040	1124	1224	1318	1402	1500	1589	1685	1780		
110	-0,8																												
120																									1590	1686	1800	1906	2020
140																												2360	
160																													
180																													
200																													

¹⁾ After the clamping the clamping bush on a ground and hardened calliper gauge with the nominal diameter d_2 (inner diameter of the clamping bush), the outer diameter d_1 of the clamping bush may not exceed the ISA tolerance zone a12 at any location.

²⁾ The nominal diameter d_2 for the inner diameter of the clamping bush is simultaneously the nominal diameter of the corresponding journal with ISA tolerance zone h8.

³⁾ The clamping dimension for the inner diameter d_2 (before installation), measured perpendicular to the slot (measurement point), is selected by the manufacturer so that the clamping bush sits tightly after pressing it on a journal with ISA tolerance zone h8.

WN 2001*Explanatory notes*

Clamping bushes made of rolled, tempered spring band steel can be suitable for use as bearings, especially for applications with high bearing pressures and low oscillatory motions in rough operating conditions that usually do not have adequate lubrication or lubrication capabilities but with loose fits and larger clearances (which enhances wear). Due to these properties, clamping bushes are used as easy-to-replace wear protection elements for bearings on journals, shafts, etc.

We therefore considered it sensible to manufacture a corresponding clamping bush for every FS 2000 tension bush. For this reason, the nominal diameter d_1 of a tension bush designed according to FS 2000 is also used as the nominal diameter for the corresponding clamping bush, for example:

Tension bush EP 40/50 x 60 FS 2000
Clamping bush AG 40/30 x 60 FS 2001

In terms of the type of slot, there are three particularly suitable designs suitable for various purposes that are also suitable to some extent for applications with circumferential rotational motion.

Before pressing into the inner diameter, measured at a 90° angle to the slot (measurement point), the bushings are one minimum clamping dimension smaller than in the mounted state. The journal on which it is mounted should be designed with ISA tolerance zone h8. The outer diameter of the bush after installation is in tolerance zone a12, which guarantees that parts with tension and clamping bushes will work together. The chamfer f is dimensioned so that an appropriately rounded transition between the head and the shaft of the bolt is possible.

In contrast to tension bushes designed according to FS 2000, the clamping bushes, which are used much less frequently, are only available in one wall thickness.

Clamping bushes with d_1 less than 20 mm were not considered for manufacture because they are never used according to our experience.

