Flange Bearings Type WF

Diameter Range 110...450 mm

Flange bearings type WF are general purpose bearing systems with housings according to DIN 31693.
They are mostly used in horizontal electrical machines such as generators and motors.

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Applications
Flange bearings type WF are usually applied in horizontal electrical machines such as generators and motors. They are mounted to the machine from outside the machine.

Materials
Housings are made of cast iron EN-GJS-300. For high thrust loads, EN-GJS-400-15 is available. Bearing shells are made of high quality steel lined with a layer of babbitt.

Seals
Different types of seals are available, ranging from protection class IP44 up to IP55 to suit your application. Seals are available as floating labyrinth seals for sizes 14 through 28 and as fixed labyrinth seals for sizes 22 through 35. Bearings type WF sizes 14 to 28 can be combined with a machine seal for pressure equalization. For size 35, a combined seal with an extra chamber for aeration is used. Special seals are also available.

Electric Insulation
Flange bearings type WF are available with electrical insulation between shell and housing. Insulation is ensured by a high-quality spray-cast layer of ECTFE with excellent long-term stability in the spherical seat of the housing.

Special Designs
Modifications to the bearings of the WF series are available to optimally suit your machine design and application. The majority of WF bearings is specially adapted to the customers' specifications.

Oil Supply
Depending upon the application, different modes of lubrication are available. Under most conditions, lubrication is achieved via an external oil circulation system. A loose oil ring may achieve lubrication in emergency run-down condition. For slow-running applications, lubrication may be achieved by a loose oil ring alone. Bearings supplied through a single oil pocket due to changing load angles are available.

Heat Dissipation
In case of an external oil circulation system, the friction heat is dissipated by convection via the same. For slow-running low-load applications, dissipation via the housing surface may be sufficient. Internal water coolers to increase heat dissipation are available.

Temperature Control
Provisions for temperature measurements in shell and oil sump are available on both sides of the bearing. In case of tilting pad thrust bearings, provision for axial bearing temperature measurement is also available on both sides. Additional measurement provisions are available on request. Temperature readings may help in determining bearing failure when evaluating transient temperature changes.

Bearing Selection
Calculation software based on E DIN 31652, DIN 31653 and DIN 31654 for bearing pre-selection is available on request. Specified load cases will be calculated by GTW with specialized calculation software able to model bearing behaviour more precisely.

Designation of Bearing Types

1.) Manufacturer

W	GTW

2.) Type

F	Flange housing according to DIN 31693

3.) Heat dissipation

N	Convection via the housing surface
W	Convection via the housing surface and water cooling in oil sump
Z	External oil circulation system with oil cooling
X	External oil circulation system with oil cooling and large oil throughput

4.) Shape of bore and ring lubrication

C	Cylindrical bore without oil ring
L	Cylindrical bore with loose oil ring
Y	Two lobe bore without oil ring
V	Four lobe bore without oil ring

5.) Thrust part

Q	Without thrust part
B	Babbitt-lined plain shoulders with oil grooves for small dynamic thrust loads
K	Taper land faces for both directions of rotation
D	Taper land faces for a single direction of rotation
A	Circular tilting pad thrust pads type WD

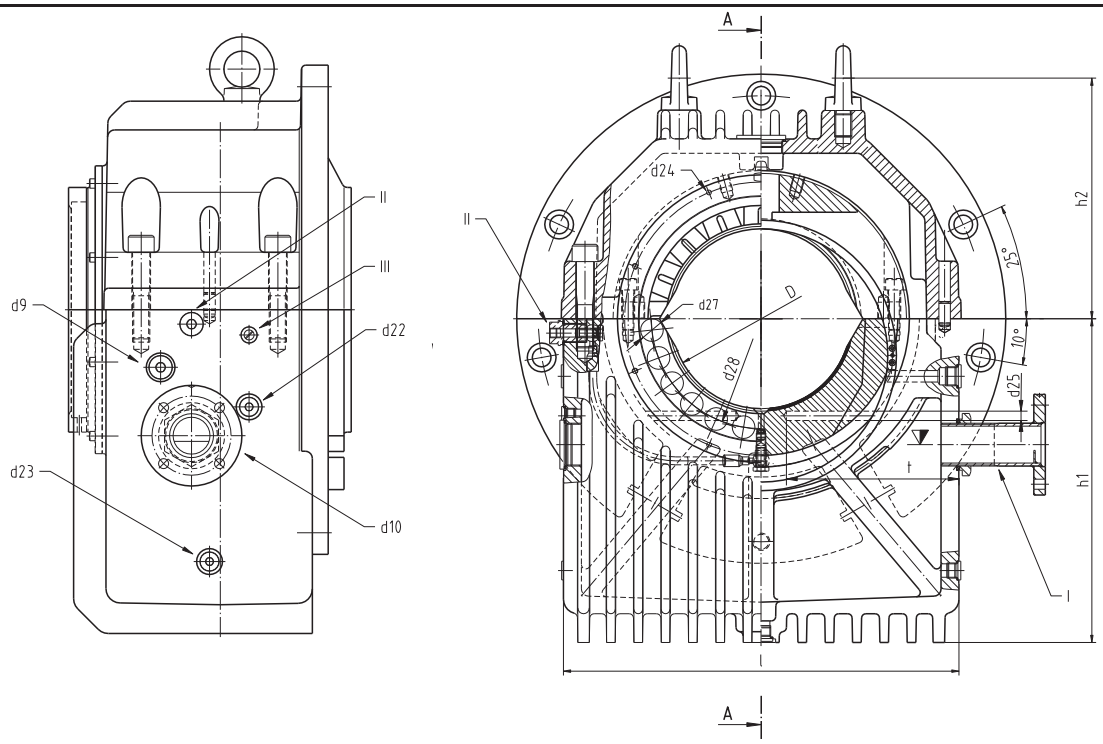
6.) Housing size

7.) Nominal bearing diameter

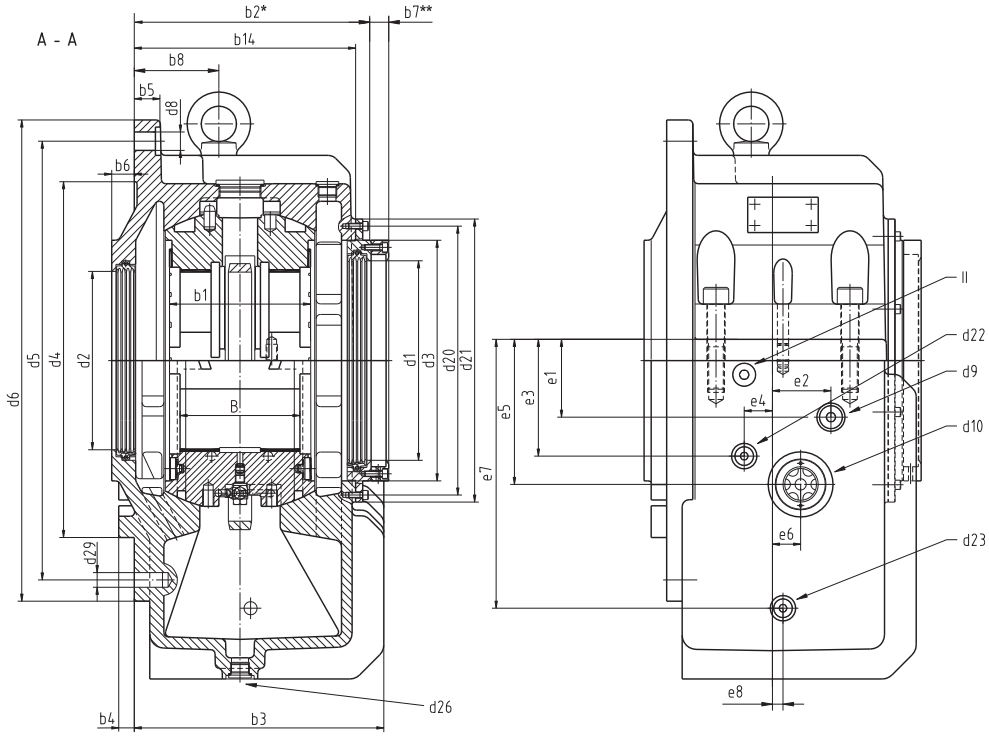
Example **Flange bearing, housing size 22, shaft diameter 200 mm, lubricated with loose oil ring, cooled with convection via the housing surface, cylindrical bore and without thrust part.**

Slide bearing WFNLQ 22-200

Dimensions of Bearings Type WF



Size	D H7	B	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	b_{14}	d_1/d_2	d_3	d_4	d_5	d_6	d_8	d_9	d_{10}	d_{18}	d_{19}	d_{20}
	110											110								120	155	
	125											125								135	170	
14	140	105	125	229	232	15	23	26	20	100	207	140	230	355	415	460	18 for M16	G⅜	G1½	150	190	270
	160											160								170	200	
	180											180								190	220	
	140											140								152	195	
	160											160								172	215	
18	180	135	160	263	271	18	25	31	25	116	241	180	275	400	490	540	22 for M22	G½	G1½	192	240	320
	200											200								212	250	
	225											225								237	275	
	180											180								194	245	
	200											200								214	265	
22	225	170	200	332	355	20	37	32	25	150	310	225	340	500	620	680	26 for M24	G¾	G2	239	290	380
	250											250								264	315	
	280											280								294	345	
	225											225								241	300	
	250											250								266	325	
	280											280								296	355	
28	300	215	250	387	410	24	42	43	25	170	365	300	440	600	770	850	33 for M30	G¾	G2½	316	375	500
	315											315								331	390	
	335											335								351	410	
	355											355								371	430	
	280											280								300	365	
	300											300								320	385	
	315											315								335	400	
	335											335								355	425	
35	355	260	300	465	485	30	50	75	20	170	430	355	530	850	950	1060	39 for M36	G1	G3	375	450	580
	375											375								395	470	
	400											400								420	495	
	425											425								445	520	
	450											450								470	520	

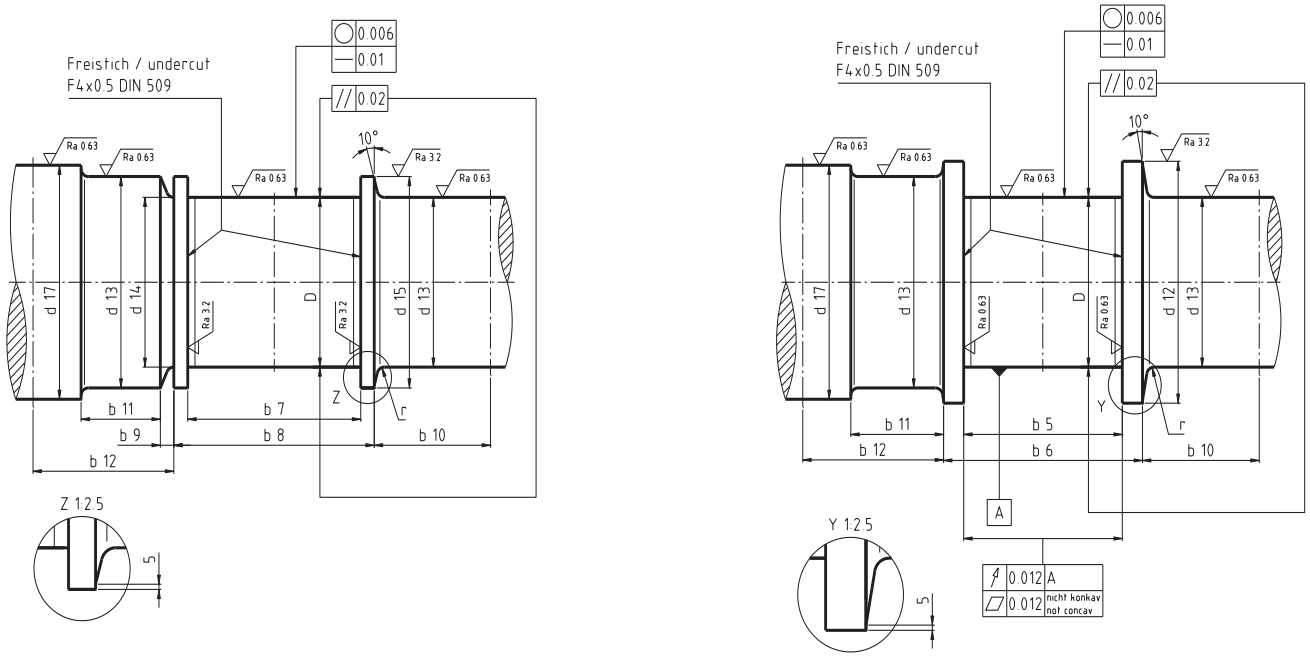


d_{21}	d_{22}	d_{23}	d_{24}	d_{25}	d_{26}	d_{27}	d_{28}	d_{29}	e_1	e_2	e_3	e_4	e_5	e_6	e_7	h_1	h_2	l	k h6	z	m [kg]	V [l]
290	G½	G½	8x M6	11	G½	25/31.5/40	150/160/170	M16	60	55	85	27	125	27	180	340	185	370	280	16/14/12	122	8
						25/31.5/40	165/175/180													18/14/12		
						25/31.5	180/190													20/16		
						25	200													22		
						-	-													-		
340	G½	G½	8x M8	13	G½	31.5/40/50	190/200/210	M20	70	68	105	30	155	30	215	400	225	440	335	16/14/12	195	13
						31.5/40	210/220													18/14		
						31.5	230													20		
						-	-													-		
						-	-													-		
400	G½	G½	8x M8	13	G¾	40/50/63	245/255/270	M24	80	83	135	40	175	40	245	450	275	550	425	16/14/12	430	24
						40/50	265/275													18/16		
						40/50	285/295													20/16		
						-	-													-		
						-	-													-		
525	G½	G½	8x M8	13	G¾	50/63/80	295/315/335	M30	95	106	155	50	220	50	310	500	325	690	530	16/14/12	750	35
						50/63/80	325/345/355													18/16/12		
						50/63	355/375													20/16		
						50	380													22		
						50	390													22		
						-	-													-		
						-	-													-		
640	G½	G½	12x M10	18	G1	63/80/100	370/390/410	M36	120	100	210	65	295	75	500	705	530	850	630	16/14/12	1600	50
						63/80/100	390/405/425													16/14/12		
						63/80	405/425													18/14		
						63/80	425/440													18/16		
						63	445													20		
						63	460													20		
						-	-													-		
						-	-													-		
						-	-													-		

All dimensions in mm

We reserve the right to introduce modifications

Shaft Dimensions

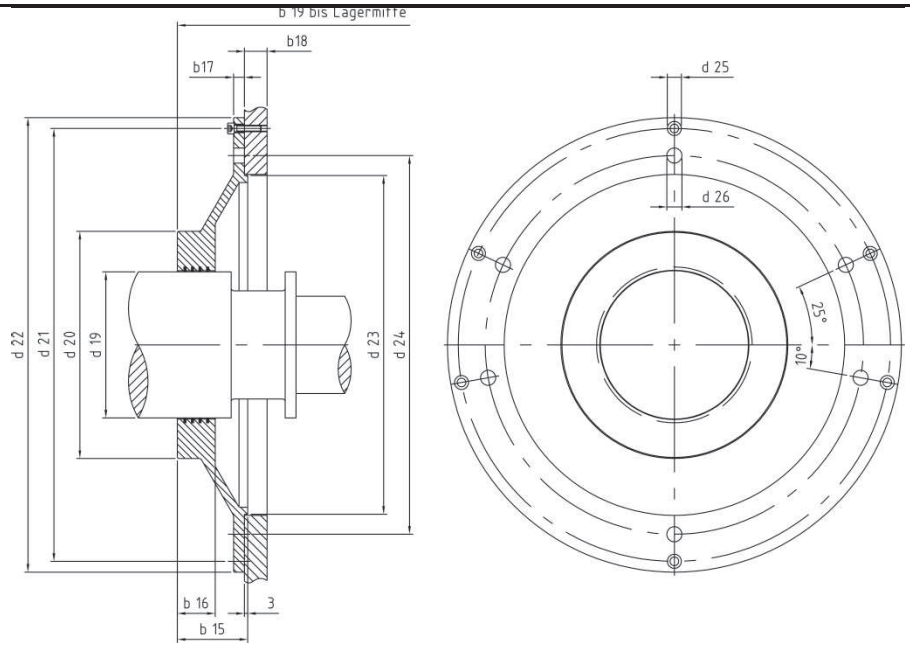


Size	D	b_5 (±0.1)	b_6	b_7	b_8	b_9	b_{10}	b_{11}	b_{12}	d_{12}		$d_{13(e8)}/d_{14}$	d_{15}	d_{16} (e8)	d_{17} (e8)	r
										B,K,D	A					
	110									155	177/194/212	125/110	140	110	140	
	125									170	192/209/222	140/125	160	125	160	
14	140	125.4	150	140	150	8.5	60	60	123	190	207/224	160/140	180	140	180	6
	160									200	227	180/160	200	160	200	
	180									220	-	180/180	220	180	225	
	140									195	224/242/262	160/140	180	140	180	
	160									215	244/262	180/160	200	160	215	
18	180	160.4	190	180	190	10	60	65	127	240	264	200/180	225	180	240	6
	200									250	-	225/200	250	200	250	
	225									275	-	225/225	265	225	280	
	180									245	288/308/336	200/180	225	180	225	
	200									265	308/328	225/200	250	200	265	
22	225	200.4	240	220	240	13.5	70	70	140	290	328/348	250/225	280	225	280	10
	250									315	-	280/250	300	250	290	
	280									345	-	280/280	315	280	315	
	225									300	348/380/418	250/225	280	225	280	
	250									325	378/411/438	280/250	300	250	290	
	280									355	408/441	300/280	315	280	315	
28	300	250.4	300	280	300	19	70	75	140	375	433	315/300	335	300	325	10
	315									390	443	335/315	355	315	355	
	335									410	-	355/335	375	335	375	
	355									430	-	355/355	400	355	390	
	280									365	435/472/512	300/280	315	280	315	
	300									385	455/487/527	315/300	335	300	325	
	315									400	470/507	335/315	355	315	355	
	335									425	490/522	355/335	375	335	375	
35	355	300.5	360	315	335	10	145	120	195	450	510	375/355	400	355	390	12
	375									470	525	400/375	425	375	425	
	400									495	-	425/400	450	400	450	
	425									520	-	450/425	475	425		
	450									520	-	450/450	500	450		

All dimensions in mm

We reserve the right to introduce modifications

Machine Seal Dimensions



Size	b_{15}	b_{16}	b_{17}	b_{18}	b_{19}	d_{19} +0.8 +0.4	d_{20}	d_{21}	d_{22}	d_{23}	d_{24}	d_{25}	d_{26}	m [kg]
14	70	35	10	21	188	170	230	375	395	355	-	7	-	5
						190								
						200								
18	75	40	10	26	214	215	290	430	460	400	-	9	-	6
						240								
						250								
22	80	40	10	28	255	250	360	535	570	500	-	9	-	10
						265	375							
						280								
						290								
						315								
						335	385							
28	85	50	10	36	288	280	440	640	680	600	-	9	-	15
						325								
						355								
						375								
						390								
						410	460							

All dimensions in mm

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