



# Feroball

Feroball® is a special designed self-lubricating spherical plain bearing for slow moving/oscillating applications. Feroball® bearings are designed for wet or humid situations, Feroball® bearings are also known for their specific low stick-slip limits. Feroball® spherical bearing are available in full composite (FBA series) and Steel or Stainless Steel (FBT and FBX series).

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## Product Description

Feroball® FBT-series (FBT Normal Duty Series and FBT Heavy Duty Series). The Feroball® FBT series is a product made of Ferroform T814 and Stainless Steel (1.4404). This combination means that the Feroball® has a superior corrosion resistance against other Cr-Ni steel materials.

Feroball® FBA-series (full composite). The Feroball® FBA series is a product made of Ferroform PR18. This means that the Feroball® FBA is a superior corrosion resistant spherical bearing. Although Feroball® bearings are a low stick-slip design, Feroball® FBA bearings have a higher coefficient of friction than Feroball FBT series. Feroball® FBA bearings are specially designed for applications where the use of metal parts must be avoided.

Feroball® FBK-series (full composite). The Feroball® FBK series is a product made of Railko NF22 (for shaft Ø16 and Ø20 mm) and Ferroform PR18 (for shaft Ø25 and bigger). Although Feroball® bearings are a low stick-slip design, Feroball® FBK bearings have a higher coefficient of friction than Feroball FBT series. Feroball® FBK bearings are specially designed for applications where the housing already has a spherical shape.

The Feroball® FBX series is a product made of Ferroform PR18 and Stainless Steel (1.4404). This makes the Feroball® FBX a superior corrosion resistant spherical bearing. Although Feroball® bearings are a low stick-slip design, Feroball® FBX bearings have a higher coefficient of friction than Feroball FBT series. Being able to offer a wide variety of different types of Feroball bearings ensures Tenmat can offer support across a wide range of demanding applications.

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## Product Advantages

- Very low stick-slip - High performance from the off
- Low maintenance - Fit and forget self lubricating solution
- Corrosion resistant - Non metallic components have no issues with corrosion
- Custom-made solutions - Bespoke solutions designed and manufactured outside of the standard size ranges

## Approved Applications

For slow moving/oscillating applications.

## Storage

- To be stored in a dry location
- Take care not to exceed safe working loads and heights for storage shelves and racks

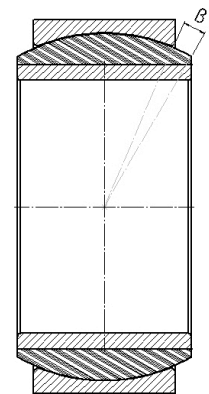
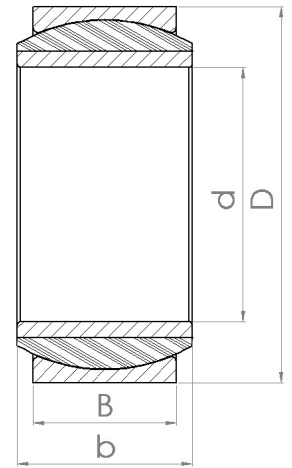
## Physical Properties

Property	Units	Grade		
		PR18	T814	NF
Density	g/cm <sup>3</sup>	1.26	1.31	1.64
Compressive Strength	MPa	260	310	190
Charpy Impact Notched	kJ/m <sup>2</sup>	30	75	30
Shear Strength	MPa	55	72	40
Compressive Yield @ 68.9 Mpa	%	2.5	3.8	2.0
Brinell Hardness			20	
Shore D Hardness		84		90
Swell in Water (24 hours)	%			
20 °C		0.2	0.2	0.2
80 °C		0.6	0.4	0.5
Coefficient of Thermal Expansion	x 10 <sup>-6</sup> /°C			
Parallel		40	36	43
Perpendicular		90	45	43
Coefficient of Friction (Unlubricated)		0.18-0.31	0.04-0.28	0.34-0.42
Scar Wear, Dry	mm	7.5-9.5	5.2-6.1	7.0-9.2
Maximum Operating Temperature	°C			
Continuous		100	100	120
Intermittent		120	120	140
Normal Working Pressure	MPa	87	75	55

Sizes

Feroball® ND-series

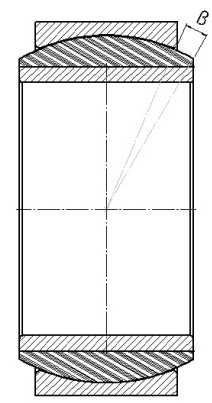
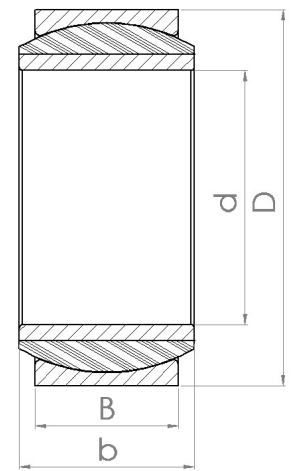
Art. Nr.	Sizes				Ang. of tilt	Dyn. load	Stat. load
	d	D	B	b	β	C	C0
	mm	mm	mm	mm	°	x10 <sup>3</sup> N	x10 <sup>3</sup> N
FBT-20	20	35	12	16	6	71	114
FBT-25	25	42	16	20	6	116	186
FBT-30	30	47	18	22	6	148	236
FBT-35	35	55	20	25	6	192	307
FBT-40	40	62	22	28	7	236	378
FBT-45	45	68	25	32	7	297	475
FBT-50	50	75	28	35	6	370	592
FBT-60	60	90	36	44	6	576	921
FBT-70	70	105	40	49	6	725	1159
FBT-80	80	120	45	55	6	947	1515
FBT-90	90	130	50	60	5	1156	1849
FBT-100	100	150	55	70	7	1432	2291
FBT-110	110	160	55	70	6	1547	2475
FBT-120	120	180	70	85	6	2157	3451
FBT-140	140	210	70	90	7	2508	4013
FBT-160	160	230	80	105	8	3167	5067
FBT-180	180	260	80	105	6	3532	5651
FBT-200	200	290	100	130	7	5042	8067
FBT-220	220	320	100	135	8	5498	8797
FBT-240	240	340	100	140	8	6034	9655
FBT-260	260	370	110	150	7	7234	11574
FBT-280	280	400	120	155	6	8393	13429
FBT-300	300	430	120	165	7	8985	14376
FBT-320	320	440	135	160	4	10205	16327
FBT-340	340	460	135	160	3	11039	17663
FBT-360	360	480	135	160	3	11594	18550
FBT-380	380	520	160	190	4	14591	23345
FBT-400	400	540	160	190	3	15250	24400
FBT-420	420	560	160	190	3	15908	25453
FBT-440	440	600	185	218	3	19757	31611
FBT-460	460	620	185	218	3	20519	32831
FBT-480	480	650	195	230	3	22363	35782
FBT-500	500	670	195	230	3	23166	37065
FBT-530	530	710	205	243	3	25549	40878
FBT-560	560	750	215	258	4	28048	44877
FBT-600	600	800	230	272	3	32252	51604
FBT-630	630	850	260	300	3	38328	61324
FBT-670	670	900	260	308	3	40471	64753
FBT-710	710	950	275	325	3	45493	72789
FBT-750	750	1000	280	335	3	49149	78639
FBT-800	800	1060	300	335	3	55542	88867
FBT-850	850	1120	310	365	3	61744	98791
FBT-900	900	1180	320	375	3	66913	107061
FBT-950	950	1250	340	400	3	75756	121210
FBT-1000	1000	1320	370	438	3	86637	138619



Sizes

Feroball® HD-series

Art. Nr.	Sizes				Ang. of tilt	Dyn. load	Stat. load
	d	D	B	b	$\beta$	C	C0
	mm	mm	mm	mm	°	$\times 10^3$ N	$\times 10^3$ N
FBT-100HD	100	150	67	71	2	1675	2681
FBT-110HD	110	160	74	78	2	2012	3219
FBT-120HD	120	180	80	85	2	2423	3877
FBT-140HD	140	210	95	100	2	3286	5258
FBT-160HD	160	230	109	115	2	4246	6793
FBT-180HD	180	260	122	128	2	5344	8550
FBT-200HD	200	290	134	140	2	6528	10444
FBT-220HD	220	320	148	155	2	7855	12568
FBT-240HD	240	340	162	170	2	9304	14886
FBT-260HD	260	370	175	185	2	10975	17561
FBT-280HD	280	400	190	200	2	12815	20504
FBT-300HD	300	430	200	212	2	14410	23055
FBT-320HD	320	460	218	230	2	16698	26716
FBT-340HD	340	480	230	243	2	18747	29996
FBT-360HD	360	520	243	258	2	21197	33915
FBT-380HD	380	540	258	272	2	23614	37783
FBT-400HD	400	580	265	280	2	25522	40835
FBT-420HD	420	600	280	300	2	28413	45460
FBT-440HD	440	630	300	315	2	32031	51250
FBT-460HD	460	650	308	325	2	34072	54516
FBT-480HD	480	680	320	340	2	37249	59598
FBT-500HD	500	710	335	355	2	40870	65393
FBT-530HD	530	750	355	375	2	45499	72799
FBT-560HD	560	800	380	400	2	51425	82280
FBT-600HD	600	850	400	425	2	57985	92776
FBT-630HD	630	900	425	450	2	64654	103446
FBT-670HD	670	950	450	475	2	72656	116250
FBT-710HD	710	1000	475	500	2	81125	129800
FBT-750HD	750	1060	500	530	2	90060	144096
FBT-800HD	800	1120	530	565	2	102545	164073
FBT-850HD	850	1220	565	600	2	117918	188669
FBT-900HD	900	1250	600	635	2	129166	206666
FBT-950HD	950	1360	635	670	2	147745	236392
FBT-1000HD	1000	1450	670	710	2	166087	265739



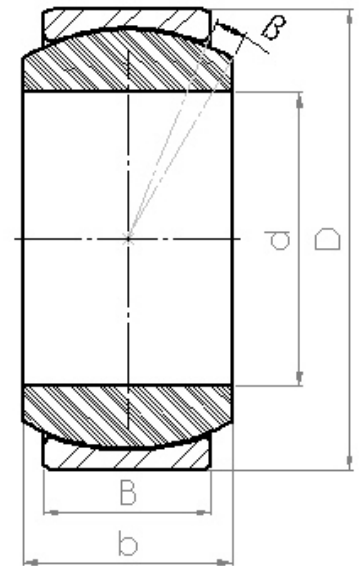
Remark

- ND-series  $\varnothing 20$  to  $\varnothing 140$ mm contain a single-piece design outer-ring
- ND-series  $\varnothing 150$  and bigger contain a split-piece design outer-ring
- HD-series contain a split-piece design outer-ring

Sizes

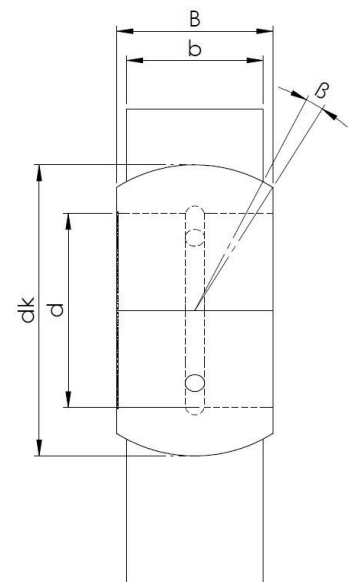
Feroball® FBA-series

Art. Nr.	Sizes				Ang. of tilt $\beta$ °	Dyn. load C $\times 10^3$ N	Stat. load C0 $\times 10^3$ N
	d mm	D mm	B mm	b mm			
FBA-25	25	42	16	20	6	43	157
FBA-30	30	47	18	22	6	55	199
FBA-35	35	55	20	25	6	72	259
FBA-40	40	62	22	28	7	89	319
FBA-45	45	68	25	32	7	111	401
FBA-50	50	75	28	35	6	139	499
FBA-60	60	90	36	44	6	216	777
FBA-70	70	105	40	49	6	272	978
FBA-80	80	120	45	55	6	355	1278
FBA-90	90	130	50	60	5	433	1561
FBA-100	100	150	55	70	7	537	1933
FBA-110	110	160	55	70	6	580	2088
FBA-120	120	180	70	85	6	809	2912
FBA-140	140	210	70	90	7	941	3386



Feroball® FBK-series

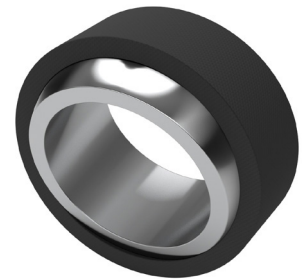
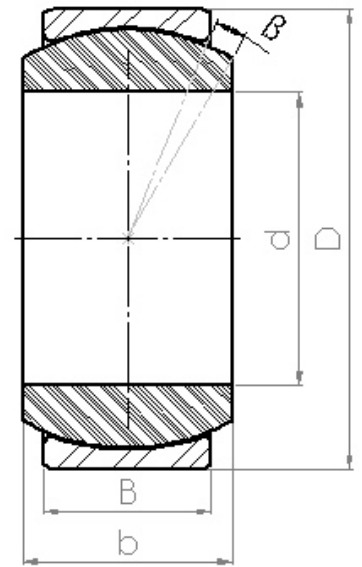
Art. Nr.	Ball sizes			Housing		Ang. of tilt $\beta$ °	Dyn. load C $\times 10^3$ N	Stat. load C0 $\times 10^3$ N
	d mm	B mm	dk mm	b mm	dk C9 Mm			
FBK-16S	16	16	28	14	28	4	17	65
FBK-20S	20	20	33	18	33	4	28	108
FBK-25S	25	26	44	22	44	6	77	256
FBK-32S	32	26	48	22	48	5	85	282
FBK-35S	35	32	55	26	55	5	120	397
FBK-40S	40	32	60	28	60	4	131	433
FBK-50S	50	50	75	45	75	5	244	809
FBK-60S	60	60	90	50	90	8	357	1185
FBK-70S	70	65	100	60	100	3	422	1402
FBK-80S	80	70	110	60	110	6	511	1695
FBK-90S	90	80	125	70	125	5	660	2190
FBK-100S	100	90	140	80	140	5	828	2748
FBK-110S	110	100	155	90	155	4	1015	3368
FBK-125S	125	100	166	90	166	4	1103	3659
FBK-140S	140	125	194	110	194	5	1596	5298
FBK-150S	150	140	210	130	210	3	1895	6288
FBK-160S	160	150	225	140	225	3	2172	7208
FBK-180S	180	160	250	150	250	3	2599	8625
FBK-200S	200	190	290	180	290	2	3548	11775



Sizes

Feroball® FBX-series

Art. Nr.	Sizes				Ang. of tilt $\beta$ °	Dyn. load C x10 <sup>3</sup> N	Stat. load C0 x10 <sup>3</sup> N
	d mm	D mm	B mm	b mm			
FBX-20	20	35	12	16	6	30	88
FBX-25	25	42	16	20	6	48	143
FBX-30	30	47	18	22	6	61	182
FBX-35	35	55	20	25	6	80	236
FBX-40	40	62	22	28	7	98	291
FBX-45	45	68	25	32	7	123	365
FBX-50	50	75	28	35	6	154	455
FBX-60	60	90	36	44	6	239	708
FBX-70	70	105	40	49	6	301	892
FBX-80	80	120	45	55	6	393	1165
FBX-90	90	130	50	60	5	480	1422
FBX-100	100	150	55	70	7	595	1762
FBX-110	110	160	55	70	6	643	1903
FBX-120	120	180	70	85	6	896	2653
FBX-140	140	210	70	90	7	1043	3086
FBX-160	160	230	80	105	8	1316	3896
FBX-180	180	260	80	105	6	1468	4345
FBX-200	200	290	100	130	7	2095	6202



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**Advanced materials.**  
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The information contained in Tenmat Wear data sheets is presented in good faith. The values are "typical only" and are based on test results generally in accordance with BS2782, ASTM, a variety of other main test bodies along with Tenmat Wear internal test methods. These values should not be relied upon for specification purposes or the primary selection of materials. As the data sheet values are typical only, Tenmat Wear does not warrant the conformity of its materials to these properties or the suitability of its materials for any particular purpose. It is the responsibility of the customer to do the necessary testing and satisfy themselves the product is suitable for the intended application.

