

Spherical Rod Ends Selection Guide

Rod ends provide a fixed point of contact between two components to allow rotational movement and to compensate for angular misalignment in industrial applications.

TYPES OF SPHERICAL ROD ENDS

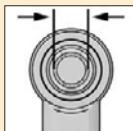
General Purpose—Have a precision ground, chrome-plated hardened 52100 steel spherical ball and 1045 carbon steel body.



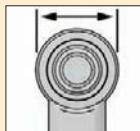
Male External Threading



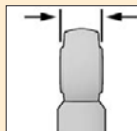
Female Internal Threading



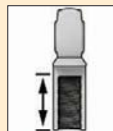
Bore Diameter



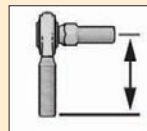
Head Outside Diameter



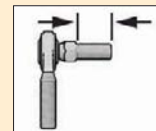
Head Width



Shank Thread Length



Ball Stud Center Length



Ball Stud Thread Length



Spherical Rod Ends

Models consist of a plain bearing in the eye-shaped head of the rod. They allow pivoting in the housing to compensate for misalignment in industrial applications.

Note: Not for automotive or aircraft use.



20F959



20F975



Spherical Rod Ends with Stud

Feature a threaded ball stud that can mount to a moving part. Rod ends are designed to pivot in the housing to compensate for misalignment in industrial applications.

Note: Not for automotive or aircraft use.

20F991



Bore Dia.	Head Outside Dia.	Head Width	Shank Thread Size	Shank Thread Length	Static Radial Load Capacity	Shank Thread Right Hand Item No.	Shank Thread Left Hand Item No.
General Purpose Spherical Rod Ends							
Female Plain Ball, Carbon Steel Housing with Alloy Steel Ball							
3/8 in	3/8 in	0.234 in	#10-32	1/2 in	2,079 lbf	20F959	20F960
1/4 in	3/4 in	0.25 in	1/4"-28	3/4 in	3,820 lbf	20F961	20F962
3/8 in	1 in	0.312 in	3/8"-24	3/4 in	5,110 lbf	20F963	20F964
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 in	7,897 lbf	20F967	20F968
1/2 in	1 1/4 in	0.453 in	1/2"-20	1 in	10,046 lbf	20F969	20F970
3/8 in	1 1/2 in	0.484 in	3/8"-18	1 3/8 in	11,385 lbf	20F971	20F972
3/4 in	1 3/4 in	0.593 in	3/4"-16	1 1/2 in	15,894 lbf	20F973	20F974
6 mm	19 mm	6.25 mm	M6-1	14 mm	11,895 N	39N425	39N426
8 mm	22.25 mm	8 mm	M8-1.25	17 mm	15,190 N	39N427	39N428
10 mm	27 mm	9.5 mm	M10-1.5	21 mm	22,750 N	39N429	39N430
12 mm	30 mm	10.75 mm	M12-1.75	24 mm	25,819 N	39N431	39N432
16 mm	38 mm	12.75 mm	M16-2	33 mm	37,391 N	39N435	39N436
Male Plain Ball, Carbon Steel Housing with Alloy Steel Ball							
3/8 in	3/8 in	0.234 in	#10-32	3/4 in	1,558 lbf	20F975	20F976
1/4 in	3/4 in	0.25 in	1/4"-28	1 in	2,835 lbf	20F977	20F978
3/8 in	1 in	0.312 in	3/8"-24	1 1/4 in	4,517 lbf	20F979	20F980
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 1/2 in	7,897 lbf	20F981	20F982
1/2 in	1 1/4 in	0.453 in	1/2"-20	1 1/2 in	10,046 lbf	20F985	20F986
3/8 in	1 1/2 in	0.484 in	3/8"-18	1 3/8 in	11,385 lbf	20F987	20F988
3/4 in	1 3/4 in	0.593 in	3/4"-16	1 3/4 in	15,894 lbf	20F989	20F990
5 mm	16 mm	5.75 mm	M5-0.8	20 mm	5,168 N	39N437	39N438
6 mm	19 mm	6.25 mm	M6-1	22 mm	7,296 N	39N439	39N440
8 mm	22.25 mm	8 mm	M8-1.25	25 mm	13,591 N	39N441	39N442
10 mm	27 mm	9.5 mm	M10-1.5	29 mm	21,024 N	39N443	39N444
12 mm	30 mm	10.75 mm	M12-1.75	33 mm	25,819 N	39N445	39N446
14 mm	34.75 mm	12.25 mm	M14-2	36 mm	35,214 N	39N447	39N448
16 mm	38 mm	12.75 mm	M16-2	40 mm	37,391 N	39N449	39N450
Corrosion-Resistant Spherical Rod Ends							
Female Plain Ball, Stainless Steel Housing with Stainless Steel Ball							
3/8 in	3/8 in	0.25 in	1/4"-28	3/4 in	2,165 lbf	20G026	20G027
1/4 in	1 in	0.359 in	3/8"-24	3/4 in	4,527 lbf	20G030	20G031
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 1/4 in	5,689 lbf	20G032	20G033
1/2 in	1 1/4 in	0.453 in	1/2"-20	1 in	7,352 lbf	20G034	20G035
3/8 in	1 1/2 in	0.484 in	3/8"-18	1 3/8 in	8,200 lbf	20G036	20G037
3/4 in	1 3/4 in	0.593 in	3/4"-16	1 1/2 in	11,595 lbf	20G038	20G039
6 mm	19 mm	6.25 mm	M6-1	14 mm	6,138 N	39N481	39N482
8 mm	22.25 mm	8 mm	M8-1.25	17 mm	9,340 N	39N483	39N484
10 mm	27 mm	9.5 mm	M10-1.5	21 mm	15,310 N	39N485	39N486
Male Plain Ball, Stainless Steel Housing with Stainless Steel Ball							
3/8 in	3/8 in	0.25 in	1/4"-28	1 in	2,165 lbf	20G042	20G043
1/4 in	1 in	0.312 in	3/8"-24	1 1/4 in	3,278 lbf	20G044	20G045
1/2 in	1 1/8 in	0.359 in	3/8"-24	1 1/4 in	4,527 lbf	20G046	20G047
1/2 in	1 1/4 in	0.406 in	1/2"-20	1 1/2 in	5,689 lbf	20G048	20G049
1/2 in	1 1/2 in	0.453 in	1/2"-20	1 1/2 in	7,352 lbf	20G050	20G051
3/8 in	1 1/2 in	0.484 in	3/8"-18	1 3/8 in	8,200 lbf	20G052	20G053
3/4 in	1 3/4 in	0.593 in	3/4"-16	1 3/4 in	11,595 lbf	20G054	20G055
10 mm	27 mm	9.5 mm	M10-1.5	29 mm	14,144 N	39N499	39N501
Wear-Resistant Spherical Rod Ends							
Female Plain Ball, Carbon Steel Housing with Alloy Steel Ball							
1/4 in	3/4 in	0.281 in	1/4"-28	3/4 in	2,470 lbf	20F896	20F897
3/8 in	1 in	0.344 in	3/8"-24	3/4 in	2,740 lbf	20F898	20F899
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 in	4,100 lbf	20F901	20F902
1/2 in	1 1/4 in	0.437 in	1/2"-20	1 in	5,350 lbf	20F903	20F904
1/2 in	1 1/2 in	0.5 in	1/2"-20	1 1/8 in	6,430 lbf	20F905	20F906
3/8 in	1 1/2 in	0.562 in	3/8"-18	1 1/2 in	8,300 lbf	20F907	20F908
3/4 in	1 3/4 in	0.687 in	3/4"-16	1 3/4 in	10,900 lbf	20F909	20F910
Male Plain Ball, Carbon Steel Housing with Alloy Steel Ball							
1/4 in	3/4 in	0.281 in	1/4"-28	1 in	2,470 lbf	20F913	20F914
3/8 in	1 in	0.344 in	3/8"-24	1 1/4 in	2,740 lbf	20F915	20F916
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 1/4 in	4,210 lbf	20F917	20F918
1/2 in	1 1/4 in	0.437 in	1/2"-20	1 1/2 in	5,350 lbf	20F919	20F920
1/2 in	1 1/2 in	0.5 in	1/2"-20	1 1/2 in	6,430 lbf	20F921	20F922
3/8 in	1 1/2 in	0.562 in	3/8"-18	1 3/8 in	8,300 lbf	20F923	20F924
3/4 in	1 3/4 in	0.687 in	3/4"-16	1 3/4 in	10,900 lbf	20F925	20F926

Bore Dia.	Head Outside Dia.	Head Width	Shank Thread Size	Shank Thread Length	Ball Stud Thread Size	Ball Stud Thread Length	Static Radial Load Capacity	Shank Thread Right Hand Item No.	Shank Thread Left Hand Item No.
General Purpose Spherical Rod Ends									
Female Stud Ball, Carbon Steel Housing with Alloy Steel Ball									
3/8 in	3/8 in	0.234 in	#10-32	1/2 in	#10-32	3/4 in	2,079 lbf	20F991	20F992
1/4 in	3/4 in	0.25 in	1/4"-28	3/4 in	1/4"-28	1/2 in	3,820 lbf	20F993	20F994
3/8 in	1 in	0.312 in	3/8"-24	3/4 in	3/8"-24	3/4 in	5,110 lbf	20F995	20F996
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 in	1/2"-20	1 in	7,897 lbf	20F999	20G001
1/2 in	1 1/4 in	0.453 in	1/2"-20	1 in	1/2"-20	1 in	10,046 lbf	20G002	20G003
6 mm	19 mm	6.25 mm	M6-1	14 mm	M6-1.0	11 mm	11,895 N	39N453	39N454
8 mm	22.25 mm	8 mm	M8-1.25	17 mm	M8-1.25	14 mm	15,190 N	39N455	39N456
10 mm	27 mm	9.5 mm	M10-1.5	21 mm	M10-1.5	19.5 mm	22,750 N	39N457	39N458
16 mm	38 mm	12.75 mm	M16-2	33 mm	M16-2.0	34 mm	37,391 N	39N463	39N464
Male Stud Ball, Carbon Steel Housing with Alloy Steel Ball									
3/8 in	1 in	0.359 in	3/8"-24	1 1/4 in	3/8"-24	3/4 in	6,323 lbf	20G014	20G015
Corrosion-Resistant Spherical Rod Ends									
Female Stud Ball, Stainless Steel Housing with Stainless Steel Ball									
3/8 in	3/8 in	0.234 in	#10-32	1/2 in	#10-32	3/4 in	1,190 lbf	20G056	20G057
1/4 in	3/4 in	0.25 in	1/4"-28	3/4 in	1/4"-28	1/2 in	2,165 lbf	20G058	20G059
3/8 in	1 1/2 in	0.484 in	3/8"-18	1 3/8 in	3/8"-18	1 3/8 in	8,200 lbf	20G068	20G069
6 mm	19 mm	6.25 mm	M6-1	14 mm	M6-1.0	11 mm	6,138 N	39N510	39N511
16 mm	38 mm	12.75 mm	M16-2	33 mm	M16-2.0	34 mm	25,162 N	39N520	39N521
Male Stud Ball, Stainless Steel Housing with Stainless Steel Ball									
3/8 in	1 1/8 in	0.406 in	1/2"-20	1 3/8 in	1/2"-20	1 in	5,689 lbf	20G080	20G081
1/2 in	1 1/4 in	0.453 in	1/2"-20	1 1/2 in	1/2"-20	1 in	7,352 lbf	20G082	20G083
Wear-Resistant Spherical Rod Ends									
Female Stud Ball, Carbon Steel Housing with Alloy Steel Ball									
3/8 in	1 in	0.344 in	3/8"-24	3/4 in	3/8"-24	3/4 in	2,740 lbf	20F931	20F932
1/2 in	1 1/8 in	0.406 in	1/2"-20	1 in	1/2"-20	1 in	4,100 lbf	20F933	20F934
1/2 in	1 1/4 in	0.5 in	1/2"-20	1 1/8 in	1/2"-20	1 in	6,430 lbf	20F937	20F938
3/4 in	1 3/4 in	0.687 in	3/4"-16	1 3/4 in	3/4"-16	1 3/4 in	10,900 lbf	20F941	20F942
Male Stud Ball, Carbon Steel Housing with Alloy Steel Ball									
3/8 in	1 in	0.406 in	3/8"-24	1 1/4 in	3/8"-24	3/4 in	4,210 lbf	20F949	20F950



Spherical Bearings

Compact size and can join moving parts in confined spaces. Alloy steel outer ring. **Heavy-Duty** for high load applications where there is increased demand and wear on the bearing. **Self-Lubricating** has a PTFE-lined raceway that is self-lubricating to reduce wear on the bearing.



45GY14

Bore Dia.	Outside Dia.	Outer Ring Width	Ball Dia.	Open Item No.	Closure Double Sealed Item No.
Heavy-Duty Spherical Bearings					
1/2 in	3/4 in	0.375 in	0.709 in	45GY14	—
3/8 in	1 3/4 in	0.469 in	0.906 in	45GY15	—
1 in	1 1/8 in	0.75 in	1.437 in	45GY18	45GY19
1 1/4 in	2 in	0.937 in	1.791 in	45GY20	45GY21
1 1/2 in	2 1/4 in	1.125 in	2.154 in	45GY24	45GY25
2 in	3 3/8 in	1.5 in	2.874 in	45GY28	45GY29
2 1/2 in	3 1/2 in	1.875 in	3.622 in	45GY32	45GY33
Self-Lubricating Spherical Bearings					
1 in	2 in	0.781 in	1.687 in	19RT80	—
1 1/2 in	2 3/4 in	1.094 in	2.312 in	19RT83	—
2 in	3 1/2 in	1.375 in	2.937 in	19RT85	—