

Engineering Data

Bore Sizes and Shaft Tolerances

English (inches)

Bore and shaft tolerances listed below will give the recommended fit for each size clutch. If a press fit is necessary, never exceed .001" (.025mm) interference fit. For all bore and shaft sizes not listed below use same tolerances and fits as next larger size.

Sleeve Bearing Clutches

Series	Nominal Bore	Bore Diameter	Shaft Diameter
FS	.250	.250/.252	.250/.249
	.375	.375/.377	.3745/.374
	.500	.500/.502	.4995/.499
	.625	.625/.626	.6245/.6240
	.750	.750/.751	.7495/.749
FSR	.875	.875/.876	.8745/.874
	1.000	1.000/1.001	.9995/.999
	1.125	1.125/1.126	1.1245/1.1235
	1.250	1.250/1.251	1.2495/1.2485
	1.375	1.375/1.376	1.3745/1.3735
	1.500	1.500/1.501	1.4995/1.4985
	1.625	1.625/1.626	1.6245/1.6235
	1.750	1.750/1.751	1.7495/1.7485
	1.875	1.875/1.876	1.8745/1.8735
	2.000	2.000/2.001	1.9995/1.9985
	2.187	2.187/2.188	2.1865/2.1855

* For LLH series, see page 78.

Ball Bearing Clutches (except LLH Series)

	Nominal Bore	Bore Diameter	Shaft Diameter		Nominal Bore	Bore Diameter	Shaft Diameter
	.500	.499/.500	.499/.498		7.000	7.000/6.998	6.997/6.998
	.625	.624/.625	.624/.623		7.500	7.504/7.506	7.503/7.502
	.750	.749/.750	.749/.748		7.750	7.754/7.756	7.753/7.752
	.875	.874/.875	.874/.873		8.000	8.004/8.006	8.003/8.002
	1.000	0.999/1.000	.999/.998		8.250	8.254/8.256	8.253/8.252
	1.125	1.124/1.125	1.124/1.123		8.500	8.504/8.506	8.503/8.502
	1.250	1.249/1.250	1.249/1.248		8.750	8.754/8.756	8.753/8.752
	1.312	1.311/1.312	1.311/1.310		9.000	9.004/9.006	9.003/9.002
	1.375	1.374/1.375	1.374/1.373		9.250	9.254/9.256	9.253/9.252
	1.500	1.499/1.500	1.499/1.498		9.500	9.504/9.506	9.503/9.502
	1.625	1.624/1.625	1.624/1.623		9.750	9.754/9.756	9.753/9.752
	1.750	1.749/1.750	1.749/1.748		10.000	10.004/10.006	10.003/10.002
	1.937	1.9365/1.9375	1.9365/1.9355		10.500	10.504/10.506	10.503/10.502
5	2.000	1.999/2.000	1.999/1.998		11.000	11.004/11.006	11.003/11.002
	2.125	2.124/2.125	2.124/2.123		11.500	11.504/11.506	11.503/11.502
	2.250	2.2485/2.2500	2.2485/2.2475		12.000	12.004/12.006	12.003/12.001
	2.375	2.375/2.376	2.375/2.374		12.250	12.254/12.256	12.253/12.251
1	2.437	2.436/2.4375	2.436/2.4350		12.500	12.504/12.506	12.503/12.501
	2.437	2.4365/2.4375	2.4365/2.4355		13.000	13.004/13.006	13.003/13.001
	2.500	2.4985/2.5000	2.4985/2.4975		13.250	13.254/13.256	13.253/13.251
	2.625	2.624/2.625	2.624/2.623		13.500	13.504/13.506	13.503/13.501
	2.750	2.7485/2.7500	2.7485/2.7475		13.750	13.754/13.756	13.753/13.751
	2.937	2.9360/2.9375	2.9360/2.9350		14.000	14.004/14.006	14.003/14.001
	3.000	2.9985/3.0000	2.9985/2.9975		14.250	14.254/14.256	14.253/14.251
	3.250	3.2485/3.2500	3.2485/3.2475		14.500	14.504/14.506	14.503/14.501
	3.437	3.4360/3.4375	3.4360/3.4350		14.750	14.754/14.756	14.753/14.751
	3.500	3.4985/3.5000	3.4985/3.4975		15.000	15.004/15.006	15.003/15.001
	3.750	3.7485/3.7500	3.7485/3.7475		15.250	15.254/15.256	15.253/15.251
	3.937	3.9360/3.9375	3.9360/3.9350		15.500	15.504/15.506	15.503/15.501
	3.937	3.9355/3.9370	3.9355/3.9345		15.750	15.754/15.756	15.753/15.751
	4.000	3.9985/4.0000	3.9985/3.9975		16.000	16.004/16.007	16.003/16.001
2,6	4.000	3.998/4.000	3.998/3.997		16.250	16.254/16.257	16.253/16.251
	4.250	4.248/4.250	4.248/4.247		16.500	16.504/16.507	16.503/16.501
2	4.250	4.2485/4.2500	4.2485/4.2470		16.750	16.754/16.757	16.753/16.751
	4.437	4.4355/4.4375	4.4355/4.4345		17.000	17.004/17.007	17.003/17.001
2	4.437	4.4360/4.4375	4.4360/4.4350		17.250	17.254/17.257	17.253/17.251
	4.500	4.498/4.500	4.498/4.497		17.500	17.504/17.507	17.503/17.501
	4.750	4.748/4.750	4.748/4.747		17.750	17.754/17.757	17.753/17.751
	4.937	4.9355/4.9375	4.9355/4.9345		18.000	18.004/18.007	18.003/18.001
2	4.937	4.9360/4.9375	4.9360/4.9345		18.250	18.254/18.257	18.253/18.251
	5.000	4.998/5.000	4.998/4.997		18.500	18.504/18.507	18.503/18.501
4	5.000	5.002/5.004	5.001/5.000		18.750	18.754/18.757	18.753/18.751
	5.250	5.248/5.250	5.248/5.247		19.000	19.004/19.007	19.003/19.001
	5.437	5.4355/5.4375	5.4355/5.4345		20.000	20.004/20.007	20.003/20.001
3	5.437	5.435/5.437	5.435/5.434				
	5.500	5.498/5.500	5.498/5.497				
	5.750	5.748/5.750	5.748/5.747				
	5.937	5.9355/5.9375	5.9355/5.9345				
3	5.937	5.9360/5.9375	5.9360/5.9350				
	6.000	5.998/6.000	5.998/5.997				
	6.250	6.248/6.250	6.248/6.247				
	6.437	6.4355/6.4375	6.4355/6.4345				
	6.437	6.436/6.438	6.436/6.435				
3	6.500	6.498/6.500	6.498/6.497				
	6.750	6.748/6.750	6.748/6.747				
	6.937	6.9355/6.9375	6.9355/6.9345				

Note: On Models 750 thru 5000, Formsprag may elect to supply a stepped key in the event of keyseat distortion during heat treat of inner race.



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Bore Sizes and Shaft Tolerances

Metric (millimeters)

Bore and shaft tolerances listed below will give the recommended fit for each size clutch. If a press fit is necessary, never exceed .001" (.025mm) interference fit.

For all bore and shaft sizes not listed below use same tolerances and fits as next larger size.

For Metric bores the recommended bore tolerances are H7.

Sleeve Bearing Clutches

Series	Nominal Bore	Bore Diameter	Shaft Diameter
FS	6.35	6.35/6.401	6.35/6.325
	9.525	9.525/9.576	9.512/9.500
	12.70	12.70/12.751	12.687/12.675
	15.875	15.875/15.900	15.862/15.850
	19.05	19.05/19.075	19.037/19.025
FSR	25.400	25.400/25.425	25.387/25.375
	28.575	28.575/28.600	28.562/28.537
	31.75	31.75/31.775	31.737/31.712
	34.925	34.925/34.950	34.912/34.887
	38.1	38.1/38.125	38.087/38.062
	41.275	41.275/41.300	41.262/41.237
	44.45	44.45/44.475	44.437/44.412
	47.625	47.625/47.650	47.612/47.587
	50.8	50.8/50.825	50.787/50.762
	55.550	55.550/55.575	55.537/55.512

* For LLH series, see page 79.

Nominal Bore	Bore Diameter	Shaft Diameter
12.700	12.675/12.700	12.675/12.649
15.875	15.850/15.875	15.850/15.824
19.050	19.025/19.050	19.025/18.999
22.225	22.200/22.225	22.200/22.174
25.400	25.375/25.400	25.375/25.349
28.575	28.550/28.575	28.550/28.524
31.750	31.725/31.750	31.725/31.699
33.325	33.299/33.325	33.299/33.274
34.925	34.900/34.925	34.900/34.874
38.100	38.075/38.100	38.075/38.049
41.275	41.250/41.275	41.250/41.224
44.450	44.425/44.45	44.425/44.399
49.200	49.187/49.213	49.187/49.162
50.800	50.775/50.800	50.775/50.749
53.975	53.950/53.975	53.950/53.924
57.150	57.112/57.150	57.112/57.087
61.900	61.874/61.913	61.874/61.849
61.900	61.887/61.913	61.887/61.862
63.500	63.462/63.500	63.462/63.437
66.675	66.650/66.675	66.650/66.624
69.850	69.812/69.850	69.812/69.787
74.600	74.574/74.613	74.574/74.549
76.200	76.162/76.200	76.162/76.137
82.550	82.512/82.550	82.512/82.487
87.300	87.274/87.313	87.274/87.249
88.900	88.862/88.900	88.862/88.837
95.250	95.212/95.250	95.212/95.187
100.000	99.974/100.013	99.974/99.949
100.000	99.962/100.000	99.962/99.936
101.600	101.562/101.600	101.562/101.537
101.600	101.549/101.600	101.549/101.524
107.950	107.899/107.950	107.899/107.874
107.950	107.912/107.950	107.912/107.874
112.700	112.662/112.713	112.662/112.636
112.700	112.674/112.713	112.674/112.649
114.300	114.249/114.300	114.249/114.224
120.650	120.599/120.650	120.599/120.574
125.400	125.362/125.413	125.362/125.336
125.400	125.374/125.413	125.374/125.336
127.000	126.949/127.000	126.949/126.924
127.000	127.051/127.102	127.025/127.000
133.350	133.299/133.350	133.299/133.274
138.100	138.062/138.113	138.062/138.036
138.100	138.049/138.100	138.049/138.024
139.700	139.649/139.700	139.649/139.624
146.050	145.999/146.050	145.999/145.974
150.800	150.762/150.813	150.762/150.736
150.800	150.774/150.813	150.774/150.749
152.400	152.349/152.400	152.349/152.324
158.750	158.699/158.750	158.699/158.674
163.500	163.462/163.513	163.462/163.436
163.500	163.474/163.525	163.474/163.449
165.100	165.049/165.100	165.049/165.024
171.450	171.399/171.450	171.399/171.374
176.200	176.162/176.213	176.162/176.136

Nominal Bore	Bore Diameter	Shaft Diameter
177.800	177.800/177.749	177.724/177.749
190.500	190.602/190.652	190.576/190.551
196.850	196.952/197.002	196.926/196.901
203.200	203.302/203.352	203.276/203.251
209.550	209.652/209.702	209.626/209.601
215.900	216.002/216.052	215.976/215.951
222.250	222.352/222.402	222.326/222.301
228.600	228.702/228.752	228.676/228.651
234.950	235.052/235.102	235.026/235.001
241.300	241.402/241.452	241.376/241.351
247.650	247.752/247.802	247.726/247.701
254.000	254.102/254.152	254.076/254.051
266.700	266.802/266.852	266.776/266.751
279.400	279.502/279.552	279.476/279.451
292.100	292.202/292.252	292.176/292.151
304.800	304.902/304.952	304.876/304.825
311.150	311.252/311.302	311.226/311.175
317.500	317.602/317.652	317.576/317.525
330.200	330.302/330.352	330.276/330.225
336.550	336.652/336.702	336.626/336.575
342.900	343.002/343.052	342.976/342.925
349.250	349.352/349.402	349.326/349.275
355.600	355.702/355.752	355.676/355.625
361.950	362.052/362.102	362.026/361.975
368.300	368.402/368.452	368.376/368.325
374.650	374.752/374.802	374.726/374.675
381.000	381.102/381.152	381.076/381.025
387.350	387.452/387.502	387.426/387.375
393.700	393.802/393.852	393.776/393.725
400.050	400.152/400.202	400.126/400.075
406.400	406.502/406.578	406.476/406.425
412.750	412.852/412.928	412.826/412.775
419.100	419.202/419.278	419.176/419.125
425.450	425.552/425.628	425.526/425.475
431.800	431.902/431.978	431.876/431.825
438.150	438.252/438.328	438.226/438.175
444.500	444.602/444.678	444.576/444.525
450.850	450.952/451.028	450.926/450.875
457.200	457.302/457.378	457.276/457.225
463.550	463.652/463.728	463.626/463.575
469.900	470.002/470.078	469.976/469.925
476.250	476.352/476.428	476.326/476.275
482.600	482.702/482.778	482.676/482.625
508.000	508.102/508.178	508.076/508.025

- ¹ Model 750 only
- ² Model 900 only
- ³ Model 1027 only
- ⁴ Model 1051 only
- ⁵ FSO 600/50.8 tolerance 50.800/50.825
- ⁶ Model 800 only

Note: On Models 750 thru 5000, Formsprag may elect to supply a stepped key in the event of keyseat distortion during heat treat of inner race.