



NEEDLE ROLLER BEARINGS

INNER RINGS

INCH SERIES

- Check for availability.
- Ideal choice when shaft is not practical to use as inner raceway.
- Provided in inch nominal dimensions for use with inch series heavy-duty needle roller bearings.
- Designed to meet established inch tolerances.
- Selected size should be wider than matching needle roller bearing.
- Maximum shaft fillet radius ($r_{as \max}$) cannot exceed inner ring bore chamfer ($r_{s \min}$) as shown.
- Optional centralized lubrication groove (bore) or through-hole available. Specify when ordering.
- Designed to be axially clamped against shoulder for loose transition fit on shaft.
- After mounting, for tight transition fit (keeping inner ring from rotating relative to shaft), inner ring O.D. must not exceed raceway diameter on matching bearing. (See mounting

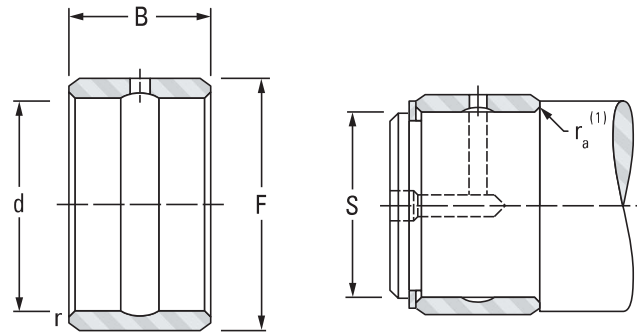
Shaft Dia.	d	F	B	r _s min	Bearing Designation	Approx. Wt.	S		S		Used With Bearing Designation
							Loose Transition Fit		Interference Fit		
							Max.	Min.	Max.	Min.	
in.	mm in.	mm in.	mm in.	mm in.		kg lbs.	mm in.	mm in.	mm in.	mm in.	
³ / ₈	9.525 0.3750	15.875 0.6250	19.05 0.750	0.64 0.025	IR-061012	0.018 0.040	9.520 0.3748	9.510 0.3744	9.538 0.3755	9.530 0.3752	HJ-101812
¹ / ₂	12.700 0.5000	19.050 0.7500	19.05 0.750	1.02 0.04	IR-081212	0.023 0.050	12.692 0.4997	12.682 0.4993	12.715 0.5006	12.708 0.5003	HJ-122012
	12.700 0.5000	19.050 0.7500	25.40 1.000	1.02 0.04	IR-081216	0.032 0.070	12.692 0.4997	12.682 0.4993	12.715 0.5006	12.708 0.5003	HJ-122016
⁵ / ₈	15.875 0.6250	22.225 0.8750	19.05 0.750	1.02 0.04	IR-101412	0.027 0.060	15.867 0.6247	15.857 0.6243	15.890 0.6256	15.883 0.6253	HJ-142212
	15.875 0.6250	22.225 0.8750	25.40 1.000	1.02 0.04	IR-101416	0.036 0.080	15.867 0.6247	15.857 0.6243	15.890 0.6256	15.883 0.6253	HJ-142216
¹¹ / ₁₆	17.463 0.6875	22.225 0.8750	19.05 0.750	1.02 0.04	IR-111412	0.023 0.050	17.455 0.6872	17.445 0.6868	17.478 0.6881	17.470 0.6878	HJ-142212
³ / ₄	19.050 0.7500	25.400 1.0000	19.05 0.750	1.02 0.04	IR-121612	0.032 0.070	19.042 0.7497	19.030 0.7492	19.068 0.7507	19.058 0.7503	HJ-162412
	19.050 0.7500	25.400 1.0000	25.40 1.000	1.02 0.04	IR-121616	0.041 0.090	19.042 0.7497	19.030 0.7492	19.068 0.7507	19.058 0.7503	HJ-162416
¹³ / ₁₆	20.638 0.8125	25.400 1.0000	25.40 1.000	1.02 0.04	IR-131616	0.032 0.070	20.630 0.8122	20.617 0.8117	20.655 0.8132	20.645 0.8128	HJ-162416
⁷ / ₈	22.225 0.8750	28.575 1.1250	25.40 1.000	1.02 0.04	IR-141816	0.050 0.110	22.217 0.8747	22.205 0.8742	22.243 0.8757	22.233 0.8753	HJ-182616
	22.225 0.8750	28.575 1.1250	31.75 1.250	1.02 0.04	IR-141820	0.059 0.130	22.217 0.8747	22.205 0.8742	22.243 0.8757	22.233 0.8753	HJ-182620
¹⁵ / ₁₆	23.813 0.9375	28.575 1.1250	25.40 1.000	1.02 0.04	IR-151816	0.036 0.080	23.805 0.9372	23.792 0.9367	23.830 0.9382	23.820 0.9378	HJ-182616
	23.813 0.9375	28.575 1.1250	31.75 1.250	1.02 0.04	IR-151820	0.045 0.100	23.805 0.9372	23.792 0.9367	23.830 0.9382	23.820 0.9378	HJ-182620
1	25.400 1.0000	31.750 1.2500	25.40 1.000	1.02 0.04	IR-162016	0.054 0.120	25.392 0.9997	25.380 0.9992	25.418 1.0007	25.408 1.0003	HJ-202816
	25.400 1.0000	31.750 1.2500	31.75 1.250	1.02 0.04	IR-162020	0.068 0.150	25.392 0.9997	25.380 0.9992	25.418 1.0007	25.408 1.0003	HJ-202820
^{1 1} / ₈	28.575 1.1250	34.925 1.3750	25.40 1.000	1.02 0.04	IR-182216	0.059 0.130	28.567 1.1247	28.555 1.1242	28.593 1.1257	28.583 1.1253	HJ-223016
	28.575 1.1250	34.925 1.3750	31.75 1.250	1.02 0.04	IR-182220	0.077 0.170	28.567 1.1247	28.555 1.1242	28.593 1.1257	28.583 1.1253	HJ-223020
^{1 1} / ₁₆	30.163 1.1875	38.100 1.5000	31.75 1.250	1.52 0.06	IR-192420	0.100 0.220	30.155 1.1872	30.142 1.1867	30.180 1.1882	30.170 1.1878	HJ-243320
^{1 1} / ₄	31.750 1.2500	38.100 1.5000	25.40 1.000	1.52 0.06	IR-202416	0.068 0.150	31.740 1.2496	31.725 1.2490	31.770 1.2508	31.760 1.2504	HJ-243316

⁽¹⁾ $r_a \max$ is equal to the minimum bearing chamfer ($r_{s \min}$) at unmarked end.

Continued on next page.

dimensions in the bearing table for the required raceway diameter.)

- After mounting, if O.D. of inner ring exceeds the required raceway diameter for matching bearing, ring should be ground to proper diameter while mounted on shaft.
- Unmarked end of inner ring to be assembled against the shaft shoulder to assure clearing the maximum allowable shaft fillet ($r_{a \max}$) as indicated in tables shown.
- Meets ASTM F-2431.



Shaft Dia.	d	F	B	r _s min	Bearing Designation	Approx. Wt.	S		S		Used With Bearing Designation
							Loose Transition Fit		Interference Fit		
							Max.	Min.	Max.	Min.	
in.	mm in.	mm in.	mm in.	mm in.		kg lbs.	mm in.	mm in.	mm in.	mm in.	
1 1/4	31.750 1.2500	38.100 1.5000	31.75 1.250	1.52 0.06	IR-202420	0.082 0.180	31.740 1.2496	31.725 1.2490	31.770 1.2508	31.760 1.2504	HJ-243320
1 5/16	33.338 1.3125	41.275 1.6250	25.40 1.000	1.52 0.06	IR-212616	0.086 0.190	33.327 1.3121	33.312 1.3115	33.358 1.3133	33.348 1.3129	HJ-263516
	33.338 1.3125	41.275 1.6250	31.75 1.250	1.52 0.06	IR-212620	0.109 0.240	33.327 1.3121	33.312 1.3115	33.358 1.3133	33.348 1.3129	HJ-263520
1 3/8	34.925 1.3750	41.275 1.6250	31.75 1.250	1.52 0.06	IR-222620	0.091 0.200	34.915 1.3746	34.900 1.3740	34.945 1.3758	34.935 1.3754	HJ-263520
	34.925 1.3750	44.450 1.7500	31.75 1.250	1.52 0.06	IR-222820	0.141 0.310	34.915 1.3746	34.900 1.3740	34.945 1.3758	34.935 1.3754	HJ-283720
1 7/16	36.513 1.4375	44.450 1.7500	25.40 1.000	1.52 0.06	IR-232816	0.095 0.210	36.502 1.4371	36.487 1.4365	36.533 1.4383	36.523 1.4379	HJ-283716
	36.513 1.4375	44.450 1.7500	31.75 1.250	1.52 0.06	IR-232820	0.118 0.260	36.502 1.4371	36.487 1.4365	36.533 1.4383	36.523 1.4379	HJ-283720
1 1/2	38.100 1.5000	44.450 1.7500	25.40 1.000	1.52 0.06	IR-242816	0.077 0.170	38.090 1.4996	38.075 1.4990	38.120 1.5008	38.110 1.5004	HJ-283716
	38.100 1.5000	44.450 1.7500	31.75 1.250	1.52 0.06	IR-242820	0.095 0.210	38.090 1.4996	38.075 1.4990	38.120 1.5008	38.110 1.5004	HJ-283720
	38.100 1.5000	50.800 2.0000	31.75 1.250	1.52 0.06	IR-243220	0.209 0.460	38.090 1.4996	38.075 1.4990	38.120 1.5008	38.110 1.5004	HJ-324120
1 9/16	39.688 1.5625	47.625 1.8750	31.75 1.250	1.52 0.06	IR-253020	0.127 0.280	39.677 1.5621	39.662 1.5615	39.708 1.5633	39.698 1.5629	HJ-303920
	39.688 1.5625	50.800 2.0000	31.75 1.250	1.52 0.06	IR-253220	0.186 0.410	39.677 1.5621	39.662 1.5615	39.708 1.5633	39.698 1.5629	HJ-324120
1 5/8	41.275 1.6250	50.800 2.0000	31.75 1.250	1.52 0.06	IR-263220	0.163 0.360	41.265 1.6246	41.250 1.6240	41.295 1.6258	41.285 1.6254	HJ-324120
1 11/16	42.863 1.6875	50.800 2.0000	25.40 1.000	1.52 0.06	IR-273216	0.109 0.240	42.852 1.6871	42.837 1.6865	42.883 1.6883	42.873 1.6879	HJ-324116
	42.863 1.6875	50.800 2.0000	31.75 1.250	1.52 0.06	IR-273220	0.136 0.300	42.852 1.6871	42.837 1.6865	42.883 1.6883	42.873 1.6879	HJ-324120
1 3/4	44.450 1.7500	57.150 2.2500	38.10 1.500	1.52 0.06	IR-283624	0.286 0.630	44.440 1.7496	44.425 1.7490	44.470 1.7508	44.460 1.7504	HJ-364824
	44.450 1.7500	57.150 2.2500	44.45 1.750	1.52 0.06	IR-283628	0.336 0.740	44.440 1.7496	44.425 1.7490	44.470 1.7508	44.460 1.7504	HJ-364828
1 15/16	49.213 1.9375	63.500 2.5000	38.10 1.500	2.03 0.08	IR-314024	0.358 0.790	49.202 1.9371	49.187 1.9365	49.233 1.9383	49.223 1.9379	HJ-405224
	49.213 1.9375	63.500 2.5000	44.45 1.750	2.03 0.08	IR-314028	0.417 0.920	49.202 1.9371	49.187 1.9365	49.233 1.9383	49.223 1.9379	HJ-405228

⁽¹⁾ $r_a \max$ is equal to the minimum bearing chamfer ($r_s \min$) at unmarked end.

Continued on next page.



NEEDLE ROLLER BEARINGS

INNER RINGS — continued

INCH SERIES

- Check for availability.
- Ideal choice when shaft is not practical to use as inner raceway.
- Provided in inch nominal dimensions for use with inch series heavy-duty needle roller bearings.
- Designed to meet established inch tolerances.
- Selected size should be wider than matching needle roller bearing.
- Maximum shaft fillet radius ($r_{a \max}$) cannot exceed inner ring bore chamfer ($r_{s \min}$) as shown.
- Optional centralized lubrication groove (bore) or through-hole available. Specify when ordering.
- Designed to be axially clamped against shoulder for loose transition fit on shaft.
- After mounting, for tight transition fit (keeping inner ring from rotating relative to shaft), inner ring O.D. must not exceed raceway diameter on matching bearing. (See mounting

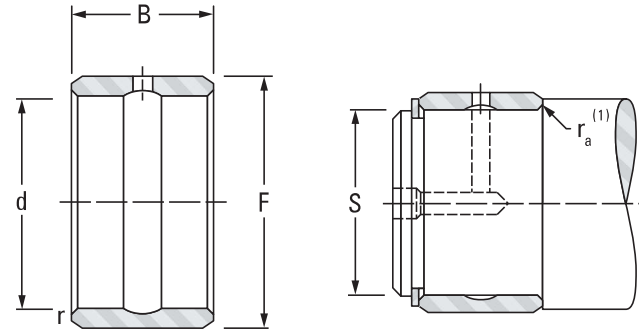
Shaft Dia, in.	d mm in.	F mm in.	B mm in.	r _s min mm in.	Bearing Designation	Approx. Wt. kg lbs.	S		S		Used With Bearing Designation
							Loose Transition Fit		Interference Fit		
							Max. mm in.	Min. mm in.	Max. mm in.	Min. mm in.	
2	50.800 2.0000	63.500 2.5000	38.10 1.500	2.03 0.08	IR-324024	0.322 0.710	50.790 1.9996	50.772 1.9989	50.823 2.0009	50.810 2.0004	HJ-405224
	50.800 2.0000	63.500 2.5000	44.45 1.750	2.03 0.08	IR-324028	0.376 0.830	50.790 1.9996	50.772 1.9989	50.823 2.0009	50.810 2.0004	HJ-405228
2 3⁄16	55.563 2.1875	69.850 2.7500	44.45 1.750	2.03 0.08	IR-354428	0.467 1.030	55.552 2.1871	55.535 2.1864	55.585 2.1884	55.573 2.1879	HJ-445628
2 1⁄4	57.150 2.2500	69.850 2.7500	38.10 1.500	2.03 0.08	IR-364424	0.358 0.790	57.140 2.2496	57.122 2.2489	57.173 2.2509	57.160 2.2504	HJ-445624
	57.150 2.2500	69.850 2.7500	44.45 1.750	2.03 0.08	IR-364428	0.417 0.920	57.140 2.2496	57.122 2.2489	57.173 2.2509	57.160 2.2504	HJ-445628
2 3⁄8	60.325 2.3750	76.200 3.0000	44.45 1.750	2.03 0.08	IR-384828	0.562 1.240	60.315 2.3746	60.297 2.3739	60.348 2.3759	60.335 2.3754	HJ-486028
2 1⁄2	63.500 2.5000	76.200 3.0000	38.10 1.500	2.03 0.08	IR-404824	0.395 0.870	63.490 2.4996	63.472 2.4989	63.523 2.5009	63.510 2.5004	HJ-486024
	63.500 2.5000	76.200 3.0000	44.45 1.750	2.03 0.08	IR-404828	0.463 1.020	63.490 2.4996	63.472 2.4989	63.523 2.5009	63.510 2.5004	HJ-486028
2 3⁄4	69.850 2.7500	82.550 3.2500	44.45 1.750	2.03 0.08	IR-445228	0.503 1.110	69.840 2.7496	69.822 2.7489	69.873 2.7509	69.860 2.7504	HJ-526828
	69.850 2.7500	82.550 3.2500	50.80 2.000	2.03 0.08	IR-445232	0.576 1.270	69.840 2.7496	69.822 2.7489	69.873 2.7509	69.860 2.7504	HJ-526832
2 15⁄16	74.613 2.9375	88.900 3.5000	50.80 2.000	2.03 0.08	IR-475632	0.694 1.530	74.602 2.9371	74.585 2.9364	74.635 2.9384	74.623 2.9379	HJ-567232
3	76.200 3.0000	88.900 3.5000	50.80 2.000	2.03 0.08	IR-485632	0.621 1.370	76.190 2.9996	76.172 2.9989	76.223 3.0009	76.210 3.0004	HJ-567232
3 1⁄8	79.375 3.1250	95.250 3.7500	50.80 2.000	2.54 0.1	IR-506032	0.880 1.940	79.365 3.1246	79.347 3.1239	79.398 3.1259	79.385 3.1254	HJ-607632
3 1⁄4	82.550 3.2500	95.250 3.7500	50.80 2.000	2.54 0.1	IR-526032	0.708 1.560	82.537 3.2495	82.517 3.2487	82.578 3.2511	82.563 3.2505	HJ-607632
	82.550 3.2500	101.600 4.0000	50.80 2.000	2.54 0.1	IR-526432	1.089 2.400	82.537 3.2495	82.517 3.2487	82.578 3.2511	82.563 3.2505	HJ-648032
3 3⁄8	85.725 3.3750	101.600 4.0000	50.80 2.000	2.54 0.1	IR-546432	0.930 2.050	85.712 3.3745	85.692 3.3737	85.753 3.3761	85.738 3.3755	HJ-648032
3 1⁄2	88.900 3.5000	101.600 4.0000	50.80 2.000	2.54 0.1	IR-566432	0.757 1.670	88.887 3.4995	88.867 3.4987	88.928 3.5011	88.913 3.5005	HJ-648032
	88.900 3.5000	107.950 4.2500	50.80 2.000	2.54 0.1	IR-566832	1.179 2.600	88.887 3.4995	88.867 3.4987	88.928 3.5011	88.913 3.5005	HJ-688432
3 3⁄4	95.250 3.7500	107.950 4.2500	50.80 2.000	2.54 0.1	IR-606832	1.012 2.230	95.237 3.7495	95.217 3.7487	95.278 3.7511	95.263 3.7505	HJ-688432

⁽¹⁾ $r_{a \max}$ is equal to the minimum bearing chamfer ($r_{s \min}$) at unmarked end.

Continued on next page.

dimensions in the bearing table for the required raceway diameter).

- After mounting, if O.D. of inner ring exceeds the required raceway diameter for matching bearing, ring should be ground to proper diameter while mounted on shaft.
- Unmarked end of inner ring to be assembled against the shaft shoulder to assure clearing the maximum allowable shaft fillet ($r_{as \max}$) as indicated in tables shown.
- Meets ASTM F-2431.



Shaft Dia.	d	F	B	r _s min	Bearing Designation	Approx. Wt.	S		S		Used With Bearing Designation
							Loose Transition Fit		Interference Fit		
							Max.	Min.	Max.	Min.	
in.	mm in.	mm in.	mm in.	mm in.		kg lbs.	mm in.	mm in.	mm in.	mm in.	
3 3/4	95.250 3.7500	114.300 4.5000	57.15 2.250	2.54 0.1	IR-607236	1.406 3.100	95.237 3.7495	95.217 3.7487	95.278 3.7511	95.263 3.7505	HJ-729636
	95.250 3.7500	114.300 4.5000	63.50 2.500	2.54 0.1	IR-607240	1.565 3.450	95.237 3.7495	95.217 3.7487	95.278 3.7511	95.263 3.7505	HJ-729640
4	101.600 4.0000	127.000 5.0000	57.15 2.250	2.54 0.1	IR-648036	2.046 4.510	101.587 3.9995	101.567 3.9987	101.628 4.0011	101.613 4.0005	HJ-8010436
	101.600 4.0000	127.000 5.0000	63.50 2.500	2.54 0.1	IR-648040	2.272 5.010	101.587 3.9995	101.567 3.9987	101.628 4.0011	101.613 4.0005	HJ-8010440
4 1/4	107.950 4.2500	127.000 5.0000	57.15 2.250	2.54 0.1	IR-688036	1.565 3.450	107.937 4.2495	107.917 4.2487	107.978 4.2511	107.963 4.2505	HJ-8010436
4 1/2	114.300 4.5000	139.700 5.5000	63.50 2.500	2.54 0.1	IR-728840	2.495 5.500	114.287 4.4995	114.267 4.4987	114.328 4.5011	114.313 4.5005	HJ-8811240
	114.300 4.5000	139.700 5.5000	76.20 3.000	2.54 0.1	IR-728848	2.989 6.590	114.287 4.4995	114.267 4.4987	114.328 4.5011	114.313 4.5005	HJ-8811248
4 3/4	120.650 4.7500	146.050 5.7500	76.20 3.000	3.05 0.12	IR-769248	3.180 7.010	120.635 4.7494	120.612 4.7485	120.683 4.7513	120.665 4.7506	HJ-9211648
5	127.000 5.0000	152.400 6.0000	63.50 2.500	3.05 0.12	IR-809640	2.781 6.130	126.985 4.9994	126.962 4.9985	127.033 5.0013	127.015 5.0006	HJ-9612040
	127.000 5.0000	152.400 6.0000	76.20 3.000	3.05 0.12	IR-809648	3.325 7.330	126.985 4.9994	126.962 4.9985	127.033 5.0013	127.015 5.0006	HJ-9612048
5 1/2	139.700 5.5000	165.100 6.5000	63.50 2.500	3.05 0.12	IR-8810440	3.035 6.690	139.685 5.4994	139.662 5.4985	139.733 5.5013	139.715 5.5006	HJ-10412840
	139.700 5.5000	165.100 6.5000	76.20 3.000	3.05 0.12	IR-8810448	3.629 8.000	139.685 5.4994	139.662 5.4985	139.733 5.5013	139.715 5.5006	HJ-10412848
6	152.400 6.0000	184.150 7.2500	76.20 3.000	3.05 0.12	IR-9611648	4.935 10.880	152.385 5.9994	152.362 5.9985	152.433 6.0013	152.415 6.0006	HJ-11614648
6 1/2	165.100 6.5000	196.850 7.7500	76.20 3.000	3.05 0.12	IR-10412448	5.343 11.780	165.085 6.4994	165.062 6.4985	165.133 6.5013	165.115 6.5006	HJ-12415448
7	177.800 7.0000	209.550 8.2500	76.20 3.000	3.05 0.12	IR-11213248	5.389 11.880	177.785 6.9994	177.762 6.9985	177.833 7.0013	177.815 7.0006	HJ-13216248
7 1/2	190.500 7.5000	222.250 8.7500	76.20 3.000	4.06 0.16	IR-12014048	6.110 13.470	190.485 7.4994	190.454 7.4982	190.536 7.5014	190.515 7.5006	HJ-14017048
8	203.200 8.0000	234.950 9.2500	76.20 3.000	4.06 0.16	IR-12814848	6.518 14.370	203.185 7.9994	203.154 7.9982	203.236 8.0014	203.215 8.0006	HJ-14817848

(1) $r_a \max$ is equal to the minimum bearing chamfer ($r_s \min$) at unmarked end.