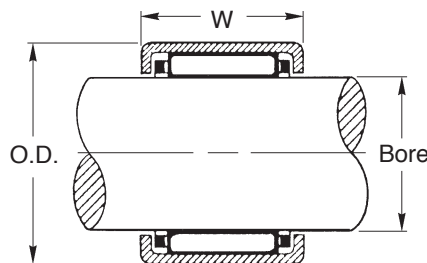




## Shell-Type NEEDLE ROLLER BEARINGS-OPEN END

- 52100 Hardened Chrome Steel Needle Bearing
- Low Carbon Steel Bearing Cage
- Case-Hardened Steel Roller Cup
- Drawn Cup
- Cage Guided



### Features:

- Extremely high speed
- High load capacity
- Low profile, lightweight caged
- Caged needle bearings offer up to 3X the speed of uncaged designs
- Extremely low rolling friction
- High lubrication capacity
- Low sensitivity to misalignment
- Needles have high length to diameter ratios

Catalog Number	Bore	O.D.	Shaft Diameter		W +.000 -.010	Limiting Speed* rpm	Load Capacities lbs.		Housing Diameter	
			Min.	Max.			Dynamic	Static	Min.	Max.
BNDSCE-24TN BNDSCE-21/24	.1250 .1562	.2500 .2812	.1247 .1560	.1250 .1563	.250	48000 44000	240 275	165 204	.2500 .2812	.2505 .2817
BNDSCE-34TN BNDSCE-36	.1875	.3438	.1872	.1875	.250 .375	40000	400 620	305 530	.3432	.3437
BNDSCE-44 BNDSCE-45 BNDSCE-47	.2500	.4375	.2495	.2500	.250 .312 .438	35000	360 570 920	260 470 870	.4370	.4380
BNDSCE-55 BNDSCE-57 BNDSCE-59	.3125	.5000	.3120	.3125	.312 .438 .562	29000	650 1060 1340	590 1090 1480	.4995	.5005
BNDSCE-65 BNDSCE-66	.3750	.5625	.3745	.3750	.312	25000	650	610	.5620	.5630
BNDSCE-67					.375		870	890		
BNDSCE-68 BNDSCE-610					.438 .500 .625		980 1300 1660	1030 1490 2040		
BNDSCE-78 BNDSCE-710	.4375	.6250	.4370	.4375	.500 .625	22000	1430 1830	1760 2410	.6245	.6255
BNDSCE-85 BNDSCE-86 BNDSCE-87	.5000	.6875	.4995	.5000	.312	19000	820	890	.6870	.6880
BNDSCE-88					.375		1040	1210		
BNDSCE-810 BNDSCE-812					.438 .500 .625 .750		1330 1550 1980 2230	1660 2030 2750 3200		

NOTES: 1. Hardened shafts required Rc 58 min.  
2. TN is for plastic cage

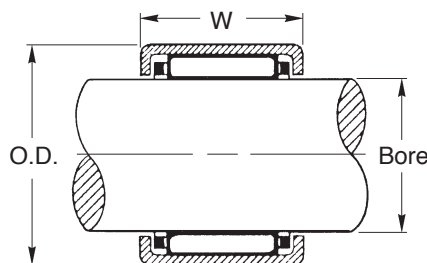
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\*Limiting speeds shown apply to oil lubrication. With grease, 60% of the given values are permissible.  
See following section for available inner rings. Closed end bearings available on special order.



## Shell-Type NEEDLE ROLLER BEARINGS-OPEN END

- 52100 Hardened Chrome Steel Needle Bearing
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Catalog Number	Bore	O.D.	Shaft Diameter		W +.000 -.010	Limiting Speed* rpm	Load Capacities lbs.		Housing Diameter	
			Min.	Max.			Dynamic	Static	Min.	Max.
BNDSCE-96 BNDSCE-98 BNDSCE-910 BNDSCE-912	.5625	.7500	.5620	.5625	.375 .500 .625 .750	18000	1160 1730 2120 2050	1440 2420 3150 2380	.7495	.7505
BNDSCE-105 BNDSCE-107 BNDSCE-1071/2 BNDSCE-108 BNDSCE-1010 BNDSCE-1012	.6250	.8125	.6245	.6250	.312 .438 .469 .500 .625 .750	17000 16000 16000	3250 970 1480 1600 1830 2330	4300 1180 2100 2320 2700 3650	.8120	.8130
BNDSCE-116 BNDSCE-118 BNDSCE-1110 BNDSCE-1112	.6875	.8750	.6870	.6875	.375 .500 .375 .500	15000	1290 1930 1290 1930	1770 2950 1770 2950	.8745	.8755
BNDSCE-126 BNDSCE-128 BNDSCE-1210 BNDSCE-1212	.7500	1.0000	.7495	.7500	.375 .500 .625 .750	13000	1600 2210 2850 3450	1860 2800 3950 5000	.9995	1.0005
BNDSCE-138 BNDSCE-1314	.8125	1.0625	.8120	.8125	.500 .875	12000	2420 4150	3200 6500	1.0620	1.0630
BNDSCE-146 BNDSCE-148 BNDSCE-1412 BNDSCE-1416	.8750	1.1250	.8745	.8750	.375 .500 .750 1.000	11000	1850 2500 3800 4950	2400 3550 6100 8500	1.1245	1.1255
BNDSCE-168 BNDSCE-1612 BNDSCE-1616	1.0000	1.2500	.9995	1.000	.500 .750 1.000	10000	2850 4050 5600	4300 6800 10200	1.2495	1.2505

NOTE: Hardened shafts required Rc 58 min.

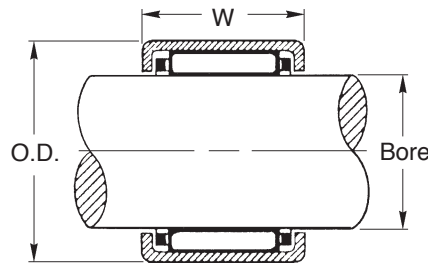
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Catalog Number	Bore	O.D.	Shaft Diameter		W +0.000 -0.010	Limiting Speed* rpm	Load Capacities lbs.		Housing Diameter							
			Min.	Max.			Dynamic	Static	Min.	Max.						
BNDSCE-188 BNDSCE-1812 BNDSCE-1816	1.1250	1.3750	1.1245	1.1250	.500 .750 1.000	9000	2900 4250 5800	4550 7500 11100	1.3745	1.3755						
BNDSCE-208 BNDSCE-2012 BNDSCE-2016 BNDSCE-2020	1.2500	1.5000	1.2495	1.2500	.500 .750 1.000 1.250	8000	3000 4750 6100 7500	4950 8900 12300 16100	1.4995	1.5005						
BNDSCE-2110	1.3125	1.6250	1.3120	1.3125	.625	7600	4750	7600	1.6245	1.6255						
BNDSCE-228 BNDSCE-2212	1.3750		1.3745	1.3750	.500 .750	5300 9600	3050 4800	5300 9600								
BNDSCE-248 BNDSCE-2410 BNDSCE-2412	1.5000	1.8750	1.4995	1.5000	.500	5800	4200	5800	1.8745	1.8755						
BNDSCE-2414 BNDSCE-2416 BNDSCE-2420					.625 .750 .875 1.000 1.250	8300 10900 13500 14900 19200	5500 6800 8100 8700 10600	8300 10900 13500 14900 19200								
BNDSCE-2610 BNDSCE-2620					1.6250	2.0000	1.6245	1.6250			.625 1.250	8900 21900	5700 11400	8900 21900	1.9995	2.0005
BNDSCE-2816 BNDSCE-3216					1.7500 2.0000	2.1250 2.3750	1.7495 1.9995	1.7500 2.0000			1.000	17000 17900	9300	17000 17900	2.1245 2.3745	2.1255 2.3755
BNDSCE-3612 BNDSCE-3616	2.2500	2.6250	2.2494	2.2500	.750 1.000	16200 24000	8400 11300	16200 24000	2.6245	2.6255						

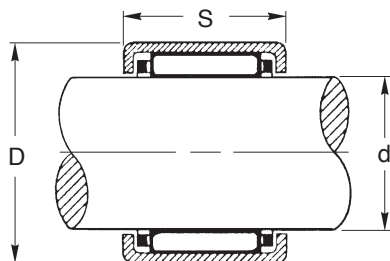
**NOTE:** Hardened shafts required Rc 58 min.

\*Limiting speeds shown apply to oil lubrication. With grease, 60% of the given values are permissible. See following section for available inner rings. Closed end bearings available on special order.



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- 52100 Hardened Chrome Steel Needle Bearing
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- Case-Hardened Steel Roller Cup



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Catalog Number	d Shaft Dia.	D	S Face Width (-0.2)	Limiting Speed* rpm	Load Capacity N	
					Dynamic	Static
BNDHKXM0306	3	6.5	6	46000	1230	840
BNDHKXM0408	4	8	8	41000	1780	1310
BNDHKXM0509	5	9	9	38000	2400	1990
BNDHKXM0608	6	10	8	35000	2030	1650
BNDHKXM0609			9		2850	2600
BNDHKXM0709	7	11	9	31000	3100	2950
BNDHKXM0808	8	12	8	28000	2750	2600
BNDHKXM0810			10		3400	3950
BNDHKXM0908	9	13	8	25000	3850	4150
BNDHKXM0910			10		4250	4650
BNDHKXM0912			12		5300	6300
BNDHKXM1010	10	14	10	23000	4400	5100
BNDHKXM1012			12		5500	6800
BNDHKXM1015			15		6800	8800
BNDHKXM1210	12	16	10	20000	4950	6200
BNDHKXM1212		18	12	19000	6500	7300
BNDHKXM1312	13	19	12	18000	6800	7900
BNDHKXM1412	14	20	12	16000	7100	8500
BNDHKXM1512	15	21	12	16000	7900	9400
BNDHKXM1516			16		10500	14400
BNDHKXM1522			22		13400	19500

**NOTE:** Hardened shafts required HRC 58 min.

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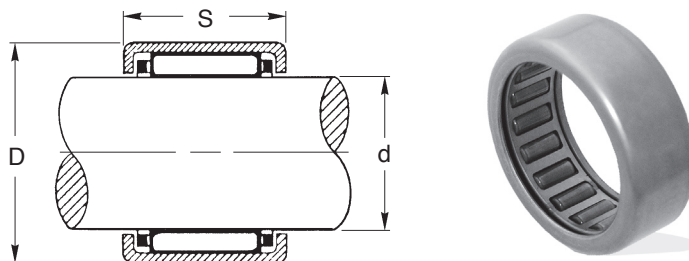
See following section for available inner rings.

Closed-end bearings available on special order.



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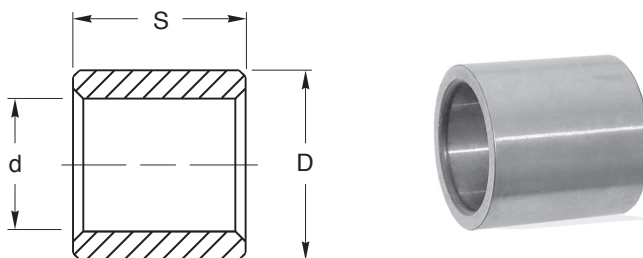
Catalog Number	d Shaft Dia.	D	S Face Width (-0.2)	Limiting Speed* rpm	Load Capacity N	
					Dynamic	Static
BNDHKXM1612	16	22	12	15000	7600	9700
BNDHKXM1616			16		10900	15300
BNDHKXM1622			22		13100	19400
BNDHKXM1712	17	23	12	14000	7900	10300
BNDHKXM1812	18	24	12	13000	8100	10900
BNDHKXM1816			16		11600	17300
BNDHKXM2010	20	26	10	12000	6400	8200
BNDHKXM2012			12		8600	12100
BNDHKXM2016			16		12700	20100
BNDHKXM2020			20		15700	26000
BNDHKXM2030			30		21800	40000
BNDHKXM2210	22	28	10	11000	7500	10500
BNDHKXM2212			12		9100	13400
BNDHKXM2216			16		13400	22100
BNDHKXM2220			20		16500	29000
BNDHKXM2512	25	32	12	10000	11000	15200
BNDHKXM2516			16		15600	24000
BNDHKXM2520			20		19900	33000
BNDHKXM2526			26		25500	45000
BNDHKXM2538			38		34000	66000

**NOTE:** Hardened shafts required HRC 58 min.

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See following section for available inner rings.  
Closed-end bearings available on special order.

## Inner Races FOR NEEDLE BEARINGS

- Alloy Steel Hardened to HRC 58 Min.



### Features:

- O.D. ground to 0.4  $\mu\text{m}$  AA surface roughness
- Press-fit onto shaft
- All corners chamfered for easy assembly
- Wider units to accommodate shaft translation
- Used as inner race on soft shafts
- Can be used as hardened bushings

Catalog Number	Bore Nominal	Shaft Size h5	d H6	D h5	S h6
BNDIRXM050812	5	5.006	5	7.997	12
BNDIRXM060912	6	6.006	6	8.997	12
BNDIRXM0710105	7	7.006	7	9.997	10.5
BNDIRXM071012					12
BNDIRXM071016					16
BNDIRXM0812105	8	8.007	8	12.001	10.5
BNDIRXM0812125					12.5
BNDIRXM1013125	10	10.007	10	13.001	12.5
BNDIRXM101413					13
BNDIRXM1215125	12	12.009	12	15.001	12.5
BNDIRXM1215165					16.5
BNDIRXM1215225					22.5
BNDIRXM121613				16.001	13
BNDIRXM121616					16
BNDIRXM121622					22
BNDIRXM1518165	15	15.009	15	18.001	16.5
BNDIRXM152013					13
BNDIRXM1720165	17	17.009	17	20.007	16.5
BNDIRXM1720205					20.5
BNDIRXM1720305					30.5
BNDIRXM172213				22.007	13
BNDIRXM172216					16
BNDIRXM172223					23
BNDIRXM202517	20	20.011	20	25.007	17
BNDIRXM2025205					20.5
BNDIRXM2025265					26.5
BNDIRXM2025385					38.5

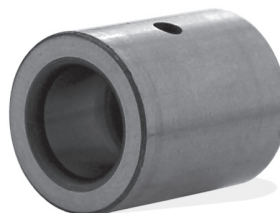
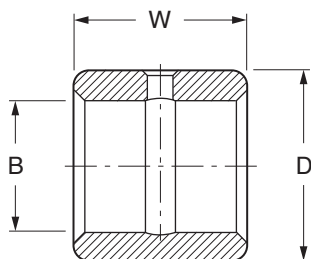
### Tolerance Chart

Dimensions		H6	h5	h6
Over	Incl.			
3	6	+0.008	-0.005	-0.008
6	10	+0.009	-0.006	-0.009
10	18	+0.011	-0.008	-0.011
18	30	+0.013	-0.009	-0.013
30	40	+0.016	-0.011	-0.016



## Inner Races FOR NEEDLE BEARINGS

- Alloy Steel Hardened to Rc 58 Min.
- Oil Hole and Groove
- Precision Ground



### Features:

- O.D. ground to 16  $\mu$ in. AA surface roughness
- All corners chamfered for easy assembly
- Wider units to accommodate shaft translation
- Used as inner race on soft shafts
- Can be used as hardened bushings

Catalog Number	B +.0000 -.0005	D +.0000 -.0005	W +.015 -.005	Shaft Diameter			
				Press Fit		Slip Fit	
				Min.	Max.	Min.	Max.
BNDIRX-060912 BNDIRX-061012	.3750	.5625 .6250	.750	.3752	.3755	.3744	.3748
BNDIRX-081208 BNDIRX-081212 BNDIRX-081216	.5000	.7500	.500 .750 1.000	.5003	.5006	.4993	.4998
BNDIRX-101412 BNDIRX-101416	.6250	.8750	.750 1.000	.6253	.6256	.6243	.6248
BNDIRX-121608 BNDIRX-121612 BNDIRX-121616	.7500	1.0000	.500 .750 1.000	.7503	.7507	.7492	.7497
BNDIRX-141812 BNDIRX-141816 BNDIRX-141820	.8750	1.1250	.750 1.000 1.125	.8753	.8757	.8742	.8747
BNDIRX-162012 BNDIRX-162016 BNDIRX-162020	1.0000	1.2500	.750 1.000 1.250	1.0003	1.0007	.9992	.9997
BNDIRX-182216 BNDIRX-202416	1.1250 1.2500	1.3750 1.5000	1.000	1.1253 1.2504	1.1257 1.2508	1.1242 1.2490	1.1247 1.2496