McGILL®

ROLLWAY®

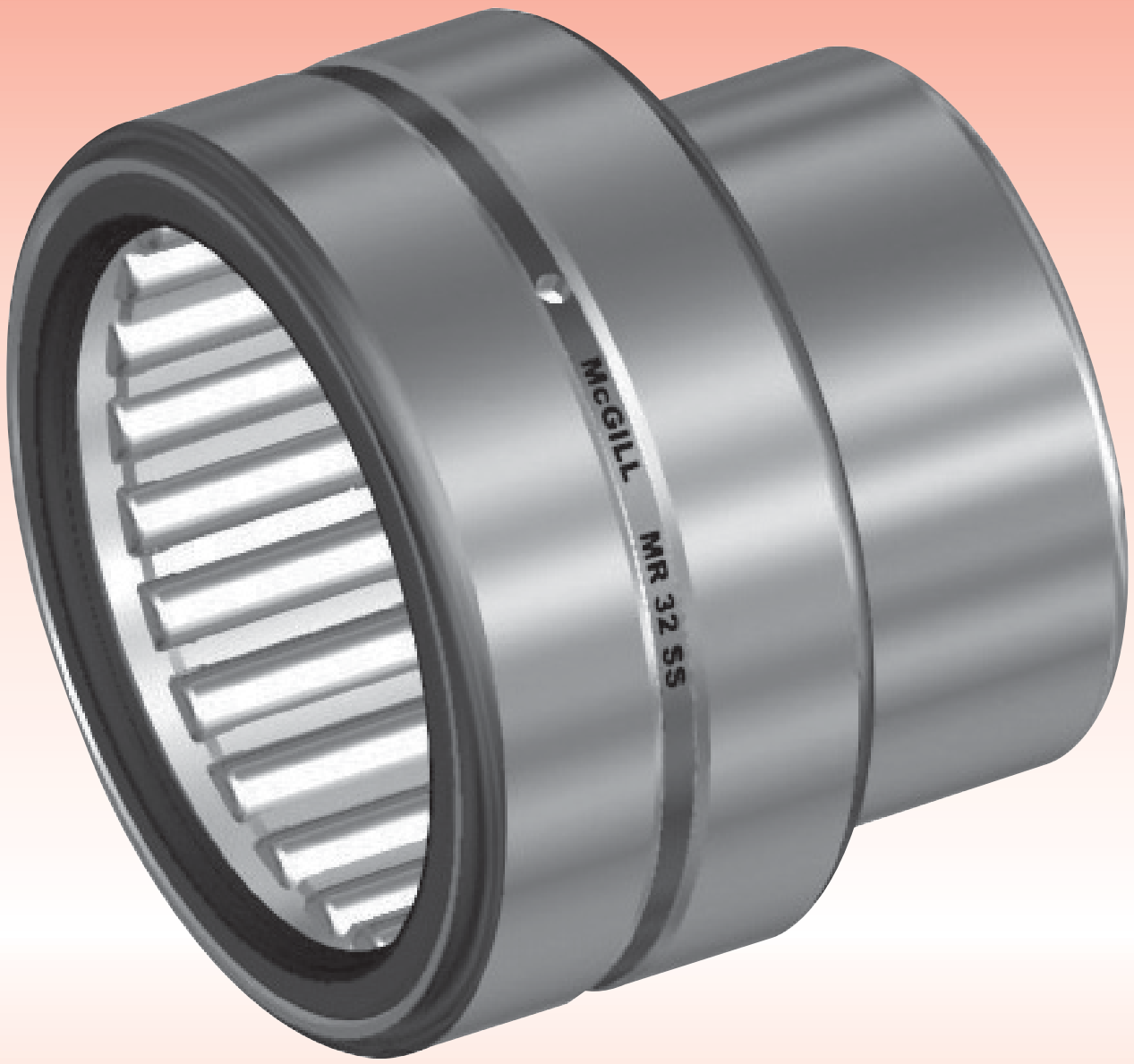
Browning®

SEALMASTER®

- *Cam Follower Bearings*
- *Needle Roller Bearings*
- *Cylindrical Roller Bearings*
- *Thrust Roller Bearings*
- *Mounted Ball Bearings*
- *Mounted Roller Bearings*
- *Rod End & Spherical Plain Bearings*
- *Corrosion Resistant Bearings*
- *Specialty & Aerospace Bearings*

EMERSON.
Industrial Automation

EMERSON. CONSIDER IT SOLVED.


McGILL MR 32 SS

Needle

Unmounted bearing assembly consisting of through hardened precision machined inner and outer raceways with either full complement or separated (cage) needle rolling elements. Depending on the bearing configuration the retainer can be land or roller riding and available with several seal options. Machined race needle bearings provide an antifriction solution when supporting rotating shafts with radial loads.

Bearing Configurations

Separable Or Non-Separable Inner/Outer Raceway

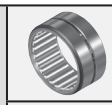
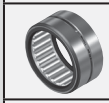
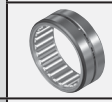
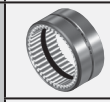
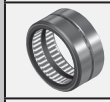
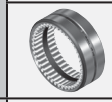
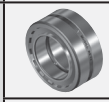
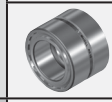
Shaft Diameter Range

1/2” To 9 1/4” And 15 mm To 235 mm

Materials

Bearing Quality Steel

Needle Selection Guide

		Product Series	Material / Roller Complement	Size Range: Inch	Size Range: Metric Equiv.
CAGEROL		MR	Bearing Steel Caged Needle Roller	5/8" - 9 1/4"	16 - 235
		MR Sealed		5/8" - 4 1/4"	16 - 108
		MR Narrow		5/8" - 6 1/2"	16 - 165
GUIDEROL		GR	Bearing Steel Full Complement Center Guided Needle Roller	1/2" - 9 1/4"	13 - 235
		GR Sealed		5/8" - 4 1/4"	16 - 108
		GR Narrow		5/8" - 6 1/2"	16 - 165
MULTI-ROL		RS	Bearing Steel Full Complement Needle Roller	3/4" - 3"	19 - 76
		RD		1 1/4" - 4"	32 - 102
Journal		200 Series	Bearing Steel Caged Roller	1 3/16" - 8 5/8"	30 - 220
		300 Series		1" - 5 3/16"	25 - 130

Metric dimensions are for reference only.
Listed needle roller bearings are manufactured to inch dimensions.

* For estimating purpose only, individually sizes may vary and are subject to change without notification

Design Characteristics						Features							
Limited Radial Space	Dynamic Load Rating	Static Load Rating	Oscillating Capability	High Speed	Relative Base Cost *	Separable Inner Race	Double Row	Oil Holes	Rubber Lip Seal	Metallic Shield	DS Matching	Separable Outer	Page No.
●	●	◒	◒	●	$	O	-	S	-	-	O	-	C-9
●	●	○	◒	○	$	O	-	S	S	-	O	-	C-9
●	◒	○	◒	●	$	O	-	S	-	-	O	-	C-9
●	◒	◒	●	◒	$$$	O	-	S	-	-	O	-	C-21
●	◒	◒	●	○	$$$	O	-	S	S	-	O	-	C-21
●	◒	◒	●	◒	$$$	O	-	S	-	-	O	-	C-21
●	●	●	●	◒	$$	-	-	S	-	S	O	-	C-33
●	◒	●	●	◒	$$	-	S	S	-	S	O	-	C-34
◒	●	●	◒	◒	$$$	O	-	S	-	-	-	S	C-37
◒	◒	●	◒	◒	$$$	O	-	S	-	-	-	S	C-37

Utilize Mi Inner Rings For Installations On Unhardened Shafts

Higher Radial Loads

Relubrication To Help Promote Long Operating Life

Contamination Barrier Lubrication Retention

Elevated Temperature Applications (When Applied With Suitable Lubricant)

Recommended For Load Sharing When Mounting Bearing Pairs

Available As Complete Assembly Or Individual Components

O = Optional

S = Standard

○ = Not Recommended

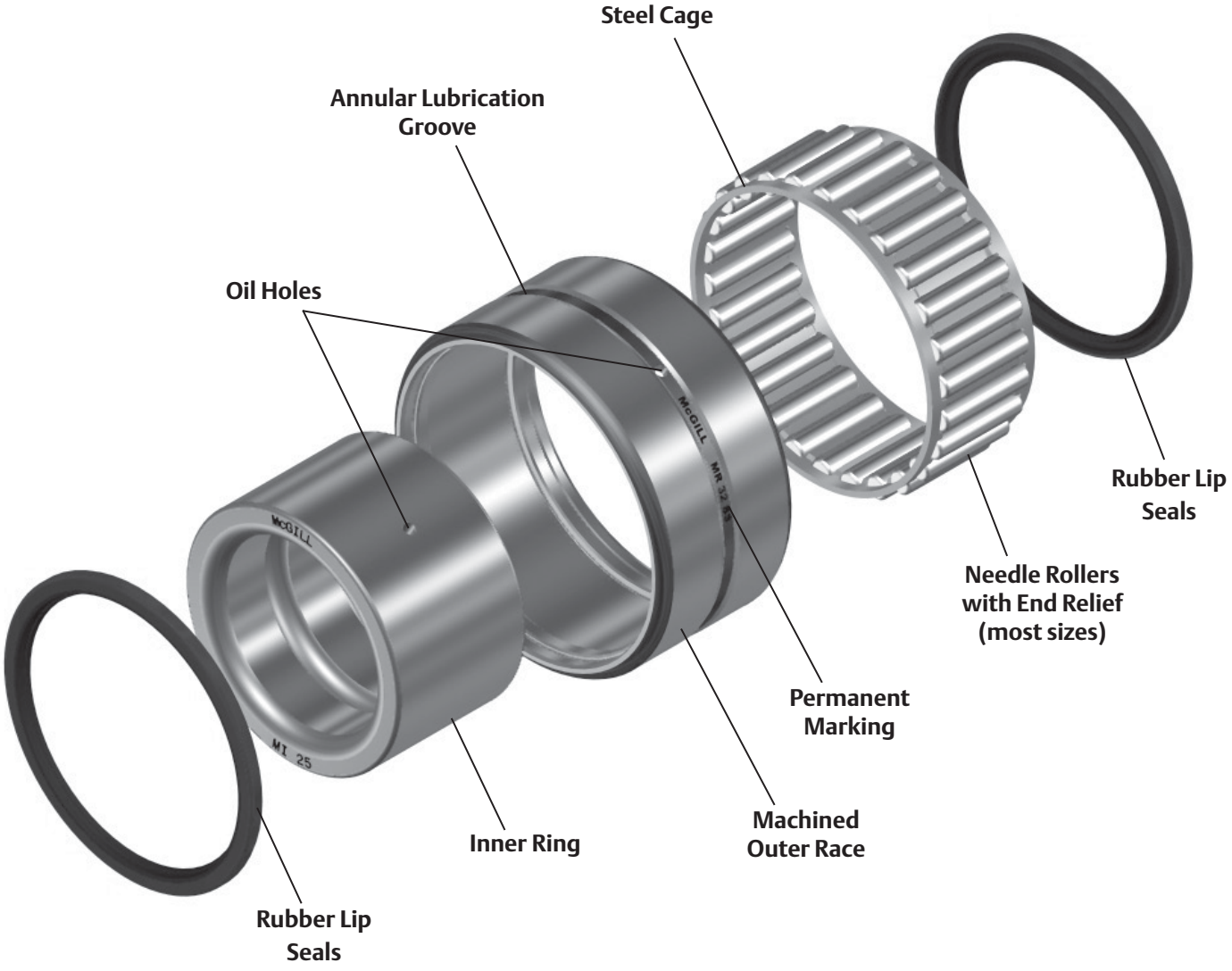
○ ◒ ◒ ◒ ●

Poor ⟷ Best

Note: Cost ranges are approximate in the secondary dimension

McGill CAGEROL®

McGill CAGEROL® machined race needle bearings are manufactured from bearing quality steel. Most sizes use crowned, or end relieved, rollers to help reduce end stresses and allows for greater misalignment. The rollers are separated by a steel retainer (cage) to help achieve higher speeds and provide a lubricant reservoir. CAGEROL® bearings are constructed with radial lubrication hole and groove on the outer and optional inner raceway (MI-series) for relubrication through the housing or shaft. Other options include a variety of seal configurations to either help prevent contaminant entry or contain the lubricant. Depending on your preference, these bearings are available in a wide variety of sizes and sealing options as illustrated on the pages to follow.



CAGEROL® Nomenclature

MR 18 N S DS

Basic Type
MR - CAGEROL® Bearing

Series Identifier
18 / 16 = 1.125” Bore Diameter

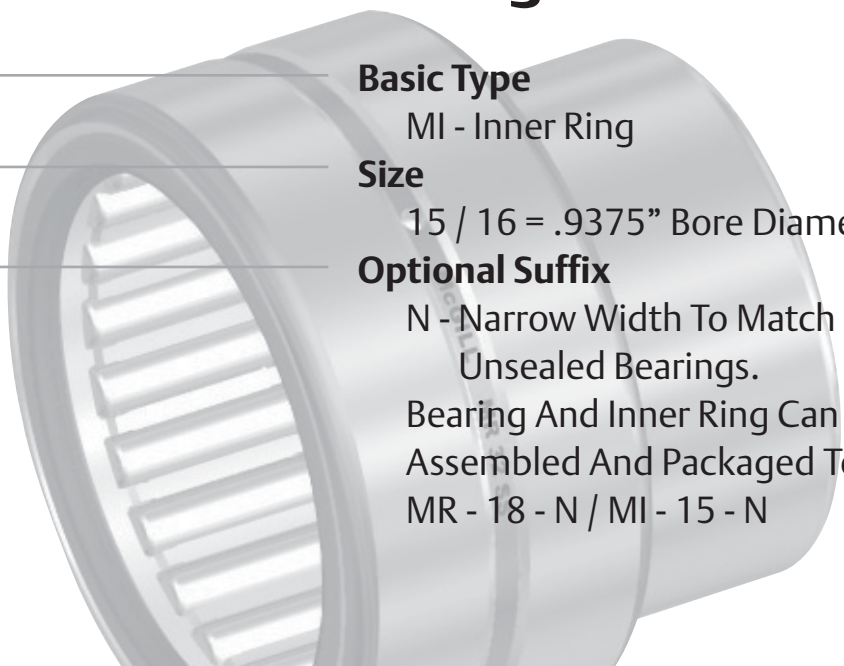
Optional Suffix
N - Narrow Width (Unsealed Only)
Typically .25” Narrower

Sealing
S - Single Seal With Lip Turned In
SS - Double Seal With Both Seal Lips Turned In
RSS – Double Seal With Both Seal Lips Turned Out
RS – Single Seal With Lip Turned Out
SRS – Double Seal With One Lip Turned In And One Lip Turned Out

Optional Suffix
DS - Matched Pair For Duplex Mounting

Inner Ring

MI 15 N

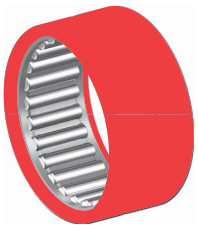


Basic Type
MI - Inner Ring

Size
15 / 16 = .9375” Bore Diameter

Optional Suffix
N - Narrow Width To Match Narrow Unsealed Bearings.
Bearing And Inner Ring Can Be Assembled And Packaged Together:
MR - 18 - N / MI - 15 - N

Features and Benefits



Machined Outer Race

Race manufactured from bearing quality steel and hardened to carry heavy dynamic and static loads.

Needle Rollers with End Relief (Most Sizes)

Precision Needle Rollers provide high radial load capabilities in small radial envelope dimension. End relief features help reduce raceway stress when shaft misalignment occurs.

Steel Cage

Welded construction minimizes roller radial play for ease of assembly and provides roller guidance helping to reduce friction. The spacing provided by the retainer contributes to the high speed capabilities and lubricant reservoir within the bearing envelope.

Annular Lubrication Groove

The groove provides a circumferential path to direct lubricant to the hole when lubricating through the housing.

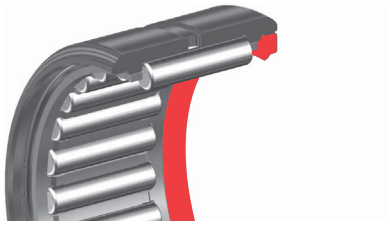
Factory Grease Fill

The Sealed CAGEROL bearings are factory lubricated with a medium temperature (-30° to 250°F, -34° to 121° C) NLGI 1 grease, unsealed bearings packaged with light oil film as a rust preventative. Contact Application Engineering when application conditions require special lubricants.

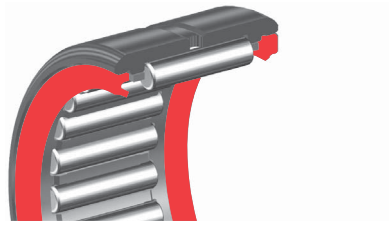
Options

Seals

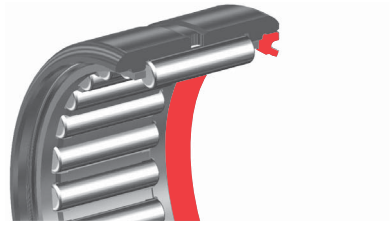
The rubber lip seal is capable of 250° F maximum temperature and is available in several different configurations.



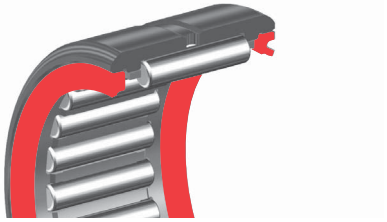
S



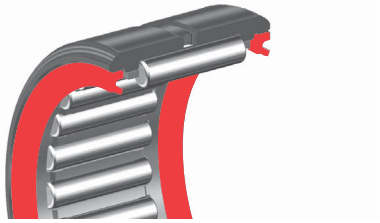
SS



RS



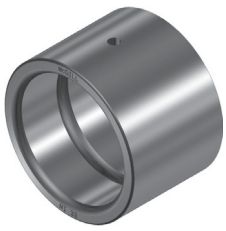
RSS



SRS

"DS" Matched Bearings – Load Sharing

When two bearings are installed with the distance between both bearing less than the width of one bearing, it is recommended the bearings be diametrically matched to prevent unequal load sharing. The option, when applicable matches OD and ID tolerances, diametrical clearance within 30% of the tolerance range and the radial runout within 20% of the tolerance range with high point of runout indicated on the bearing faces. For more information and matching factors please review the engineering section for matched bearings. Matched bearings are packaged as sets.



Machined Inner Ring (MI)

Precision ground inner ring provides a hardened raceway for the rollers when used with an unhardened shaft. The ring contains an oil hole and annular groove for relubrication of the bearing and can be used with both CAGEROL and GUIDEROL bearings or can be utilized as a bushing in plain bearing applications.

Grease Options

When requested, standard bearings can be factory filled with customer specified lubricant.

McGILL® CAGEROL® Bearings

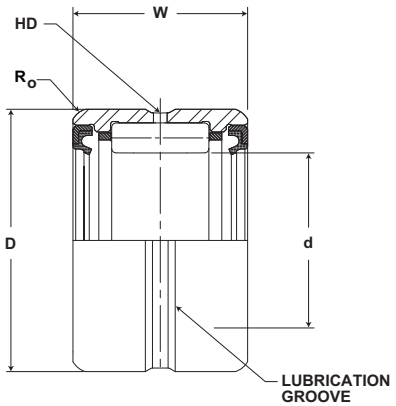
Basic Construction Type: Machined Race with Optional Separable Inner Ring

Rolling Elements: Cage Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

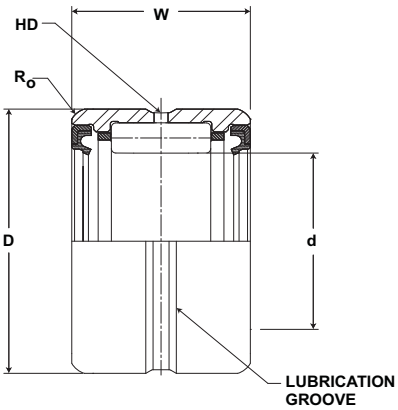
Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1
Unsealed Bearings: Rust Preventative

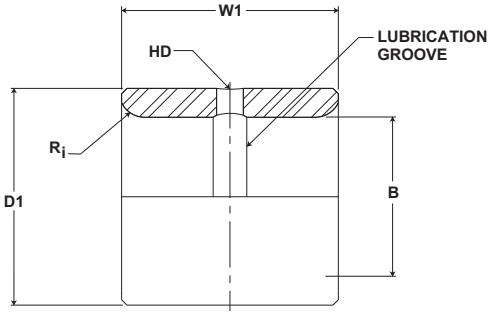


MR SERIES

Part No.		d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
McGill Outer Ring & Roller Assembly	Military No.	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
		inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
MR 10 N	MS 51961-1	.6250 15.9	+0/-.0005 +0/-.013	1.1250 28.6	+0/-.0005 +0/-.013	.750 19.05	1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	19250	4,320 19,215	4,300 19,126	.12 .05
	MS 51961-1						1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	19250	4,320 19,215	4,300 19,126	.12 .05
MR 10 SS, S, RS, SRS, RSS						1.000 25.40	1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	6100	4,320 19,215	4,300 19,126	.15 .07
MR 10							1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	19250	5,930 26,377	6,500 28,912	.15 .07
MR 12 N	MS 51961-2	.7500 19.1	+0/-.0005 +0/-.013	1.2500 31.8	+0/-.0005 +0/-.013	.750 19.05	1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	16000	4,990 22,196	5,400 24,019	.14 .06
	MS 51961-2						1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	16000	4,990 22,196	5,400 24,019	.14 .06
MR 12 SS, S, RS, SRS, RSS						1.000 25.40	1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	5100	4,990 22,196	5,400 24,019	.17 .08
MR 12	MS 51961-3						1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	16000	6,830 30,380	8,100 36,029	.17 .08
MR 14 N	MS 51961-5	.8750 22.2	+0/-.0005 +0/-.013	1.3750 34.9	+0/-.0005 +0/-.013	.750 19.05	1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	13750	5,280 23,485	6,000 26,688	.16 .07
	MS 51961-5						1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	13750	5,280 23,485	6,000 26,688	.16 .07
MR 14 SS, S, RS, SRS, RSS						1.000 25.40	1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	4400	5,280 23,485	6,000 26,688	.21 .09
MR 14	MS 51961-6						1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	13750	7,240 32,204	9,000 40,032	.21 .09
MR 16 N	MS 51961-8	1.0000 25.4	+0/-.0005 +0/-.013	1.5000 38.1	+0/-.0005 +0/-.013	.750 19.05	1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	12000	5,840 25,976	7,100 31,581	.20 .09
	MS 51961-8						1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	12000	5,840 25,976	7,100 31,581	.20 .09
MR 16 SS, S, RS, SRS, RSS						1.000 25.40	1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	3800	5,840 25,976	7,100 31,581	.23 .10
MR 16	MS 51961-9						1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	12000	8,000 35,584	10,600 47,149	.23 .10
MR 18 N	MS 51961-11	1.1250 28.6	+0/-.0005 +0/-.013	1.6250 41.3	+0/-.0005 +0/-.013	.750 19.05	1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	10700	8,720 38,787	12,200 54,266	.24 .11
	MS 51961-11						1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	10700	8,720 38,787	12,200 54,266	.24 .11
MR 18 SS, S, RS, SRS, RSS						1.000 25.40	1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	3400	8,720 38,787	12,200 54,266	.32 .15
MR 18	MS 51961-12						1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	10700	10,900 48,483	16,300 72,502	.32 .15
MR 20 N	MS 51961-14	1.2500 31.8	+0/-.0005 +0/-.013	1.7500 44.5	+0/-.0005 +0/-.013	1.000 25.40	1.7497 44.460	1.7507 44.485	+0/-.0007 +0/-.018	.09 2	0.04 1	9600	9,020 40,121	13,100 58,269	.27 .12
MR 20 SS, S, RS, SRS, RSS						1.250 31.75	1.7497 44.460	1.7507 44.485	+0/-.0007 +0/-.018	.09 2	0.04 1	3050	9,020 40,121	13,100 58,269	.34 .15
MR 20	MS 51961-15						1.7497 44.460	1.7507 44.485	+0/-.0007 +0/-.018	.09 2	0.04 1	9600	11,300 50,262	17,500 77,840	.34 .15

Metric dimensions for reference only.
For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%





MR SERIES

Part No.		Military No.	B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
McGill Outer Ring & Roller Assembly	Separable Inner Ring Only		Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
			inch mm		inch mm		inch mm			inch mm			lb kg
			Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
MR 10 N	MI 6 N	MS 500072-1	.3750 9.529	+0/-.0004 +0/-.010	.6245 15.9	+0/-.0004 +0/-.010	.760 19.3	.09 2.4	.25 6.4	.3755 9.541	.3747 9.521	+0/-.0005 +0/-.013	.05 .02
	MI 7 N		.4375 11.117	+0/-.0004 +0/-.010	.6245 15.9	+0/-.0004 +0/-.010	.760 19.3	.09 2.4	.25 6.4	.4380 11.130	.4372 11.109	+0/-.0005 +0/-.013	.04 .02
MR 10 SS, S, RS, SRS, RSS	MI 6		.3750 9.529	+0/-.0004 +0/-.010	.6245 15.9	+0/-.0004 +0/-.010	1.010 25.7	.09 2.4	.25 6.4	.3755 9.541	.3747 9.521	+0/-.0005 +0/-.013	.05 .02
MR 10			.3750 9.529	+0/-.0004 +0/-.010	.6245 15.9	+0/-.0004 +0/-.010	1.010 25.7	.09 2.4	.25 6.4	.3755 9.541	.3747 9.521	+0/-.0005 +0/-.013	.05 .02
MR 12 N	MI 8 N	MS 500072-2	.5000 12.705	+0/-.0004 +0/-.010	.7493 19.0	+0/-.0005 +0/-.013	.760 19.3	.13 3.2	.40 10.2	.5005 12.718	.4997 12.697	+0/-.0005 +0/-.013	.04 .02
	MI 9 N		.5625 14.293	+0/-.0004 +0/-.010	.7493 19.0	+0/-.0005 +0/-.013	.760 19.3	.13 3.2	.40 10.2	.5630 14.306	.5623 14.286	+0/-.0005 +0/-.013	.04 .02
MR 12 SS, S, RS, SRS, RSS	MI 8	MS 500072-3	.5000 12.705	+0/-.0004 +0/-.010	.7493 19.0	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.5005 12.718	.4997 12.697	+0/-.0005 +0/-.013	.06 .03
MR 12			.5000 12.705	+0/-.0004 +0/-.010	.7493 19.0	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.5005 12.718	.4997 12.697	+0/-.0005 +0/-.013	.06 .03
MR 14 N	MI 10 N	MS 500072-4	.6250 15.881	+0/-.0004 +0/-.010	.8743 22.2	+0/-.0005 +0/-.013	.760 19.3	.13 3.2	.40 10.2	.6255 15.894	.6247 15.874	+0/-.0005 +0/-.013	.06 .03
	MI 11 N		.6875 17.469	+0/-.0004 +0/-.010	.8743 22.2	+0/-.0005 +0/-.013	.760 19.3	.13 3.2	.40 10.2	.6880 17.482	.6872 17.462	+0/-.0005 +0/-.013	.05 .02
MR 14 SS, S, RS, SRS, RSS	MI 10		.6250 15.881	+0/-.0004 +0/-.010	.8743 22.2	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.6255 15.894	.6247 15.874	+0/-.0005 +0/-.013	.08 .04
MR 14			.6250 15.881	+0/-.0004 +0/-.010	.8743 22.2	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.6255 15.894	.6247 15.874	+0/-.0005 +0/-.013	.08 .04
MR 16 N	MI 12 N	MS 500072-5	.7500 19.058	+0/-.0004 +0/-.010	.9993 25.4	+0/-.0005 +0/-.013	.760 19.3	.13 3.2	.40 10.2	.7505 19.070	.7497 19.050	+0/-.0005 +0/-.013	.07 .03
	MI 13 N	MS 500072-6	.8125 20.646	+0/-.0005 +0/-.013	.9993 25.4	+0/-.0005 +0/-.013	.760 19.3	.13 3.2	.40 10.2	.8130 20.658	.8121 20.638	+0/-.0005 +0/-.013	.07 .03
MR 16 SS, S, RS, SRS, RSS	MI 12		.7500 19.058	+0/-.0004 +0/-.010	.9993 25.4	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.7505 19.070	.7497 19.050	+0/-.0005 +0/-.013	.10 .05
MR 16	MI 13	MS 500072-7	.8125 20.646	+0/-.0005 +0/-.013	.9993 25.4	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.8130 20.658	.8121 20.638	+0/-.0005 +0/-.013	.11 .05
MR 18 N	MI 14 N	MS 500072-8	.8750 22.234	+0/-.0005 +0/-.013	1.124 28.6	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.8755 22.246	.8746 22.226	+0/-.0005 +0/-.013	.11 .05
	MI 15 N	MS 500072-9	.9375 23.822	+0/-.0005 +0/-.013	1.124 28.6	+0/-.0005 +0/-.013	1.010 25.7	.13 3.2	.40 10.2	.9380 23.835	.9371 23.814	+0/-.0005 +0/-.013	.11 .05
MR 18 SS, S, RS, SRS, RSS	MI 14		.8750 22.234	+0/-.0005 +0/-.013	1.124 28.6	+0/-.0005 +0/-.013	1.260 32.0	.13 3.2	.40 10.2	.8755 22.246	.8746 22.226	+0/-.0005 +0/-.013	.13 .06
MR 18			.8750 22.234	+0/-.0005 +0/-.013	1.124 28.6	+0/-.0005 +0/-.013	1.260 32.0	.13 3.2	.40 10.2	.8755 22.246	.8746 22.226	+0/-.0005 +0/-.013	.13 .06
MR 20 N	MI 16 N	MS 500072-10	1.0000 25.410	+0/-.0005 +0/-.013	1.249 31.7	+0/-.0006 +0/-.015	1.010 25.7	.13 3.2	.40 10.2	1.0005 25.423	0.9996 25.402	+0/-.0005 +0/-.013	.13 .06
MR 20 SS, S, RS, SRS, RSS	MI 16		1.0000 25.410	+0/-.0005 +0/-.013	1.249 31.7	+0/-.0006 +0/-.015	1.260 32.0	0.13 3	0.40 10	1.001 25.4	1.000 25.4	+0/-.0005 +0/-.013	.16 .07
MR 20		MS 500072-11	1.0000 25.410	+0/-.0005 +0/-.013	1.249 31.7	+0/-.0006 +0/-.015	1.260 32.0	0.13 3	0.40 10	1.001 25.4	1.000 25.4	+0/-.0005 +0/-.013	.16 .07

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.

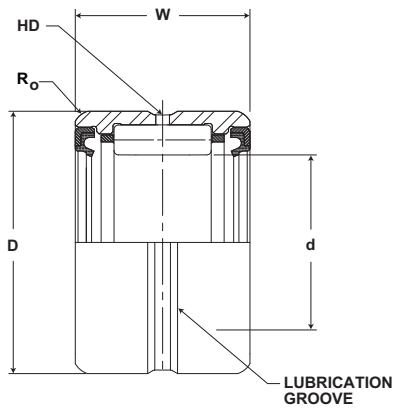
Basic Construction Type: Machined Race With Optional Separable Inner Ring

Rolling Elements: Cage Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

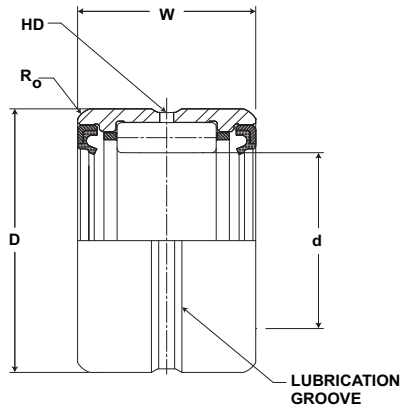
Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1 Unsealed Bearings: Rust Preventative

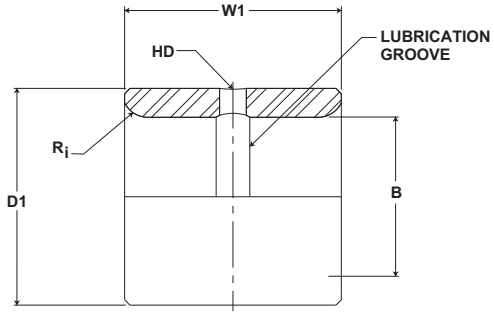


MR SERIES (continued)

Part No.		d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
McGill Outer Ring & Roller Assembly	Military No.	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
		inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
MR 22 N	MS 51961-18	1.3750 34.9	+0/-.0005 +0/-.013	1.8750 47.6	+0/-.0006 +0/-.015	1.000 25.40	1.8747 47.636	1.8757 47.662	+0/-.0007 +0/-.018	.09 2	0.04 1	8750	9,640 42,879	14,700 65,386	.31 .14
MR 22 SS, S, RS, SRS, RSS						1.250 31.75	1.8747 47.636	1.8757 47.662	+0/-.0007 +0/-.018	.09 2	0.04 1	2800	9,640 42,879	14,700 65,386	.36 .16
MR 22	MS 51961-19						1.8747 47.636	1.8757 47.662	+0/-.0007 +0/-.018	.09 2	0.04 1	8750	12,100 53,821	19,700 87,626	.36 .16
MR 24 N	MS 51961-21	1.5000 38.1	+0/-.0005 +0/-.013	2.0625 52.4	+0/-.0006 +0/-.015	1.000 25.40	2.0621 52.398	2.0632 52.426	+0/-.0007 +0/-.018	.09 2	0.06 2	8000	10,300 45,814	15,500 68,944	.41 .19
MR 24 SS, S, RS, SRS, RSS						1.250 31.75	2.0621 52.398	2.0632 52.426	+0/-.0007 +0/-.018	.09 2	0.06 2	2500	10,300 45,814	15,500 68,944	.47 .21
MR 24	MS 51961-22						2.0621 52.398	2.0632 52.426	+0/-.0007 +0/-.018	.09 2	0.06 2	8000	13,000 57,824	20,800 92,518	.47 .21
MR 26 N	MS 51961-24	1.6250 41.3	+0/-.0005 +0/-.013	2.1875 55.6	+0/-.0006 +0/-.015	1.000 25.40	2.1871 55.574	2.1882 55.602	+0/-.0007 +0/-.018	.09 2	0.06 2	7400	10,600 47,149	16,400 72,947	.46 .21
MR 26 SS, S, RS, SRS, RSS						1.250 31.75	2.1871 55.574	2.1882 55.602	+0/-.0007 +0/-.018	.09 2	0.06 2	2350	10,600 47,149	16,400 72,947	.51 .23
MR 26	MS 51961-25						2.1871 55.574	2.1882 55.602	+0/-.0007 +0/-.018	.09 2	0.06 2	7400	13,300 59,158	22,100 98,301	.51 .23
MR 28 N	MS 51961-27	1.7500 44.5	+0/-.0005 +0/-.013	2.3125 58.8	+0/-.0006 +0/-.015	1.000 25.40	2.3121 58.750	2.3132 58.778	+0/-.0007 +0/-.018	.09 2	0.06 2	6850	11,200 49,818	18,100 80,509	.47 .21
MR 28 SS, S, RS, SRS, RSS						1.250 31.75	2.3121 59	2.3132 59	+0/-.0007 +0/-.018	.09 2	0.06 2	2200	11,200 49,818	18,100 80,509	.55 .25
MR 28	MS 51961-28						2.3121 59	2.3132 59	+0/-.0007 +0/-.018	.09 2	0.06 2	6850	14,100 62,717	24,400 108,531	.55 .25
	MS 51961-28						2.3121 59	2.3132 59	+0/-.0007 +0/-.018	.09 2	0.06 2	6850	14,100 62,717	24,400 108,531	.55 .25
MR 30 SS, S, RS, SRS, RSS		1.8750 47.6	+0/-.0005 +0/-.013	2.4375 61.9	+0/-.0006 +0/-.015	1.250 31.75	2.4371 61.927	2.4382 61.955	+0/-.0007 +0/-.018	.09 2	0.06 2	2040	11,400 50,707	19,000 84,512	.59 .27
MR 30	MS 51961-29						2.4371 62	2.4382 62	+0/-.0007 +0/-.018	.09 2	0.06 2	6400	14,400 64,051	25,600 113,869	.59 .27
MR 31		1.9375 49.2	+0/-.0005 +0/-.013	2.5000 63.5	+0/-.0006 +0/-.015	1.250 31.75	2.4996 63.515	2.5007 63.543	+0/-.0007 +0/-.018	.09 2	0.06 2	6200	12,400 55,155	22,400 99,635	.60 .27
MR 32 N		2.0000 50.8	+0/-.0005 +0/-.013	2.5625 65.1	+0/-.0006 +0/-.015	1.000 25.40	2.5621 65.103	2.5632 65.131	+0/-.0007 +0/-.018	.09 2	0.06 2	6000	12,000 53,376	20,700 92,074	.55 .25
MR 32 SS, S, RS, SRS, RSS						1.250 31.75	2.5621 65	2.5632 65	+0/-.0007 +0/-.018	.09 2	0.06 2	1900	12,000 53,376	20,700 92,074	.61 .28
MR 32	MS 51961-30						2.5621 65	2.5632 65	+0/-.0007 +0/-.018	.09 2	0.06 2	6000	15,200 67,610	27,900 124,099	.61 .28
	MS 51961-30						2.5621 65	2.5632 65	+0/-.0007 +0/-.018	.09 2	0.06 2	6000	15,200 67,610	27,900 124,099	.61 .28
MR 36 N	MS 51961-31	2.2500 57.2	+0/-.0005 +0/-.013	3.0000 76.2	+0/-.0006 +0/-.015	1.500 38.10	2.9996 76.220	3.0007 76.248	+0/-.0007 +0/-.018	.13 3	0.08 2	5350	22,400 99,635	39,100 173,917	1.13 .51
MR 36 SS, S, RS, SRS, RSS						1.750 44.45	2.9996 76	3.0007 76	+0/-.0007 +0/-.018	.13 3	0.08 2	1700	22,400 99,635	39,100 173,917	1.32 .59
MR 36	MS 51961-32						2.9996 76	3.0007 76	+0/-.0007 +0/-.018	.13 3	0.08 2	5350	26,000 115,648	47,400 210,835	1.32 .59

Metric dimensions for reference only.
For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%





MR SERIES (continued)

Part No.		Military No.	B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
McGill Outer Ring & Roller Assembly	Separable Inner Ring Only		Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
			inch mm		inch mm		inch mm			inch mm			lb kg
			Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
MR 22 N	MI 18 N	MS 500072-12	1.1250 28.586	+0/-.0005 +0/-.013	1.374 34.9	+0/-.0006 +0/-.015	1.010 25.7	.13 3.2	.40 10.2	1.1255 28.599	1.1246 28.579	+0/-.0005 +0/-.013	.14 .06
MR 22 SS, S, RS, SRS, RSS	MI 17		1.0625 26.998	+0/-.0005 +0/-.013	1.374 34.9	+0/-.0006 +0/-.015	1.260 32.0	0.13 3	0.40 10	1.0630 27.011	1.0621 26.991	+0/-.0005 +0/-.013	.16 .07
MR 22	MI 18	MS 500072-13	1.1250 28.586	+0/-.0005 +0/-.013	1.374 34.9	+0/-.0006 +0/-.015	1.260 32.0	0.13 3	0.40 10	1.1255 28.599	1.1246 28.579	+0/-.0005 +0/-.013	.17 .08
MR 24 N	MI 20 N	MS 500072-15	1.2500 31.763	+0/-.0005 +0/-.013	1.499 38.1	+0/-.0006 +0/-.015	1.010 25.7	.13 3.2	.06 1.5	1.2505 31.775	1.2496 31.755	+0/-.0005 +0/-.013	.19 .09
MR 24 SS, S, RS, SRS, RSS	MI 19	MS 500072-16	1.250 31.8	+0/-.0005 +0/-.013	1.499 38.1	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	.06 1.5	1.2505 31.775	1.2497 31.755	+0/-.0005 +0/-.013	.24 .11
	MI 20	MS 500072-14	1.1875 30.174	+0/-.0005 +0/-.013	1.499 38.1	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	.06 1.5	1.1880 30.187	1.1871 30.167	+0/-.0005 +0/-.013	.22 .09
MR 26 N	MI 21 N	MS 500072-17	1.3125 33.351	+0/-.0005 +0/-.013	1.624 41.3	+0/-.0006 +0/-.015	1.010 25.7	.13 3.2	.06 1.5	1.3130 33.363	1.3121 33.343	+0/-.0005 +0/-.013	.20 .09
MR 26 SS, S, RS, SRS, RSS	MI 21		1.3125 33.351	+0/-.0005 +0/-.013	1.624 41.3	+0/-.0006 +0/-.015	1.260 32.0	0.13 3	0.06 2	1.3130 33.363	1.3122 33.343	+0/-.0005 +0/-.013	.26 .12
MR 26	MI 22 4S	MS 500072-18	1.3750 34.939	+0/-.0005 +0/-.013	1.624 41.3	+0/-.0006 +0/-.015	1.260 32.0	0.13 3	0.06 2	1.3755 34.951	1.3746 34.931	+0/-.0005 +0/-.013	.20 .09
MR 28 N	MI 24 N	MS 500072-21	1.5000 38.115	+0/-.0005 +0/-.013	1.749 44.4	+0/-.0006 +0/-.015	1.010 25.7	.13 3.2	.06 1.5	1.5005 38.128	1.4996 38.107	+0/-.0005 +0/-.013	.22 .09
MR 28 SS, S, RS, SRS, RSS	MI 22	MS 500072-19	1.3750 34.939	+0/-.0005 +0/-.013	1.749 44.4	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	.06 1.5	1.3755 34.951	1.3746 34.931	+0/-.0005 +0/-.013	.26 .12
	MI 23	MS 500072-20	1.4375 36.527	+0/-.0005 +0/-.013	1.749 44.4	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	.06 1.5	1.4380 36.540	1.4371 36.519	+0/-.0005 +0/-.013	.27 .12
	MI 24	MS 500072-22	1.5000 38.115	+0/-.0005 +0/-.013	1.749 44.4	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	.06 1.5	1.5005 38.128	1.4996 38.107	+0/-.0005 +0/-.013	.22 .09
MR 30 SS, S, RS, SRS, RSS	MI 25 4S		1.5625 39.703	+0/-.0005 +0/-.013	1.874 47.6	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	0.06 2	1.5630 39.716	1.5621 39.696	+0/-.0005 +0/-.013	.27 .12
MR 30			1.5625 39.703	+0/-.0005 +0/-.013	1.874 47.6	+0/-.0006 +0/-.015	1.260 32.0	.13 3.2	0.06 2	1.5630 39.716	1.5621 39.696	+0/-.0005 +0/-.013	.27 .12
MR 31	MI 26 2S		1.6250 41.291	+0/-.0005 +0/-.013	1.936 49.2	+0/-.0007 +0/-.018	1.260 32.0	.13 3.2	.06 1.5	1.6255 41.304	1.6246 41.284	+0/-.0005 +0/-.013	.30 .14
MR 32 N	MI 26 N		1.6250 41.291	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.010 25.7	.13 3.2	.06 1.5	1.6255 41.304	1.6246 41.284	+0/-.0005 +0/-.013	.30 .14
MR 32 SS, S, RS, SRS, RSS	MI 25		1.5625 39.703	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.260 32.0	.13 3.2	.06 1.5	1.5630 39.716	1.5621 39.696	+0/-.0005 +0/-.013	.30 .14
MR 32	MI 26	MS 500072-23	1.6250 41.291	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.260 32.0	.13 3.2	.06 1.5	1.6255 41.304	1.6246 41.284	+0/-.0005 +0/-.013	.38 .17
	MI 27		1.6875 42.879	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.260 32.0	.13 3.2	.06 1.5	1.6880 42.892	1.6871 42.872	+0/-.0005 +0/-.013	.32 .15
MR 36 N	MI 28 N	MS 500072-24	1.7500 44.468	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.510 38.4	.19 4.8	.06 1.5	1.7505 44.480	1.7496 44.460	+0/-.0005 +0/-.013	.63 .29
MR 36 SS, S, RS, SRS, RSS	MI 28	MS 500072-25	1.750 44.5	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.760 44.7	0.19 5	0.06 2	1.7505 44.480	1.7497 44.460	+0/-.0005 +0/-.013	.74 .34
	MI 30		1.8750 47.644	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.760 44.7	0.19 5	0.06 2	1.8755 47.656	1.8746 47.636	+0/-.0005 +0/-.013	.85 .39

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.

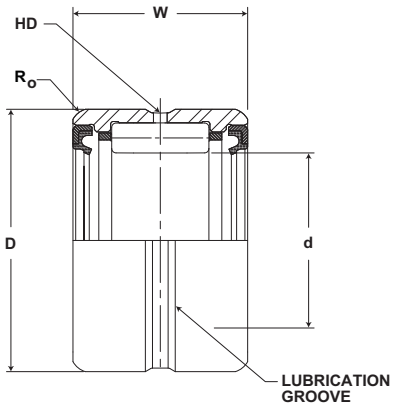
Basic Construction Type: Machined Race With Optional Separable Inner Ring

Rolling Elements: Cage Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1 Unsealed Bearings: Rust Preventative

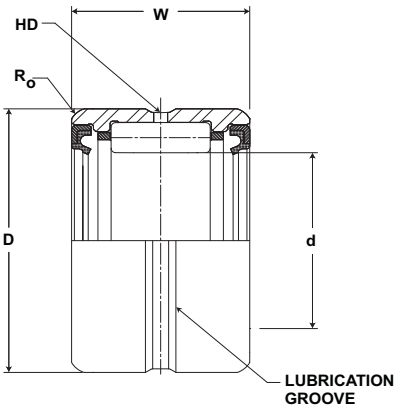


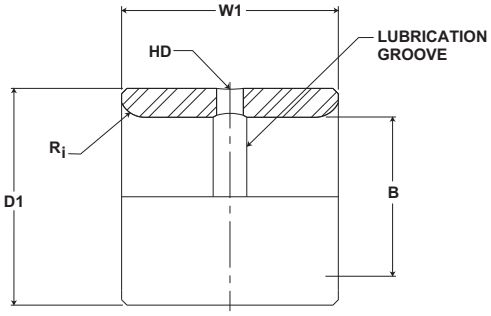
MR SERIES (continued)

Part No.		d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
McGill Outer Ring & Roller Assembly	Military No.	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
		inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
MR 40 N	MS 51961-33	2.5000 63.5	+0/-.0005 +0/-.013	3.2500 82.6	+0/-.0008 +0/-.020	1.500 38.10	3.2496 82.572	3.2507 82.600	+0/-.0007 +0/-.018	.13 3	0.08 2	4800	23,400 104,083	42,900 190,819	1.23 .56
MR 40 SS, S, RS, SRS, RSS						1.750 44.45	3.2496 83	3.2507 83	+0/-.0007 +0/-.018	.13 3	0.08 2	1530	23,400 104,083	42,900 190,819	1.44 .65
MR 40	MS 51961-34						3.2496 83	3.2507 83	+0/-.0007 +0/-.018	.13 3	0.08 2	4800	27,200 120,986	52,100 231,741	1.44 .65
MR 40	MS 51961-34						3.2496 83	3.2507 83	+0/-.0007 +0/-.018	.13 3	0.08 2	4800	27,200 120,986	52,100 231,741	1.44 .65
MR 44 N	MS 51961-35	2.7500 69.9	+0/-.0005 +0/-.013	3.5000 88.9	+0/-.0008 +0/-.020	1.500 38.10	3.4995 89	3.5008 89	+0/-.0010 +0/-.025	.13 3	0.08 2	4370	24,500 108,976	46,700 207,722	1.36 .62
MR 44 SS, S, RS, SRS, RSS						1.750 44.45	3.4995 89	3.5008 89	+0/-.0010 +0/-.025	.13 3	0.08 2	1390	24,500 108,976	46,700 207,722	1.59 .72
MR 44	MS 51961-36						3.4995 89	3.5008 89	+0/-.0010 +0/-.025	.13 3	0.08 2	4370	28,400 126,323	56,700 252,202	1.59 .72
MR 48 N	MS 51961-37	3.0000 76.2	+0/-.0005 +0/-.013	3.7500 95.3	+0/-.0008 +0/-.020	1.500 38.10	3.7495 95.275	3.7508 95.308	+0/-.0010 +0/-.025	.13 3	0.08 2	4000	26,100 116,093	52,300 232,630	1.53 .69
MR 48 SS, S, RS, SRS, RSS						1.750 44.45	3.7495 95	3.7508 95	+0/-.0010 +0/-.025	.13 3	0.08 2	1270	26,100 116,093	52,300 232,630	1.79 .77
MR 48	MS 51961-38						3.7495 95	3.7508 95	+0/-.0010 +0/-.025	.13 3	0.08 2	4000	30,300 134,774	63,400 282,003	1.79 .77
MR 48	MS 51961-38						3.7495 95	3.7508 95	+0/-.0010 +0/-.025	.13 3	0.08 2	4000	30,300 134,774	63,400 282,003	1.79 .77
MR 52 SS, S, RS, SRS, RSS		3.2500 82.6	+0/-.0005 +0/-.013	4.2500 108.0	+0/-.0008 +0/-.020	1.750 44.45	4.2495 107	4.2508 108	+0/-.0010 +0/-.025	.19 5	0.08 2	1175	25,100 111,645	54,300 241,526	2.64 1.19
MR 52	MS 51961-39						4.2495 108	4.2508 108	+0/-.0010 +0/-.025	.19 5	0.08 2	3700	29,900 132,995	64,400 286,451	2.64 1.19
MR 56 N	MS 51961-41	3.5000 88.9	+0/-.0005 +0/-.013	4.5000 114.3	+0/-.0008 +0/-.020	1.750 44.45	4.4995 114	4.5008 114	+0/-.0010 +0/-.025	.19 5	0.08 2	3440	31,300 139,222	71,600 318,477	2.88 1.31
MR 56 SS, S, RS, SRS, RSS						2.000 50.80	4.4995 114	4.5008 114	+0/-.0010 +0/-.025	.19 5	0.08 2	1090	31,300 139,222	71,600 318,477	3.18 1.44
MR 56	MS 51961-42						4.4995 114	4.5008 114	+0/-.0010 +0/-.025	.19 5	0.08 2	3440	35,900 159,683	83,500 371,408	3.18 1.44
MR 56	MS 51961-42						4.4995 114	4.5008 114	+0/-.0010 +0/-.025	.19 5	0.08 2	3440	35,900 159,683	83,500 371,408	3.18 1.44
MR 60 SS, S, RS, SRS, RSS		3.7500 95.3	+0/-.0005 +0/-.013	4.7500 120.7	+0/-.0008 +0/-.020	2.000 50.80	4.7495 121	4.7508 121	+0/-.0010 +0/-.025	.19 5	0.10 3	1020	31,600 140,557	74,700 332,266	3.38 1.53
MR 60	MS 51961-43						4.7495 121	4.7508 121	+0/-.0010 +0/-.025	.19 5	0.10 3	3200	36,500 162,352	87,100 387,421	3.38 1.53
MR 64 SS, S, RS, SRS, RSS		4.0000 101.6	+0/-.0007 +0/-.018	5.0000 127.1	+0/-.0010 +0/-.025	2.000 50.80	4.9999 127	5.0011 127	+0/-.0015 +0/-.038	.19 5	0.10 3	950	32,000 142,336	80,400 357,619	3.56 1.61
MR 64	MS 51961-45						4.9999 127	5.0011 127	+0/-.0015 +0/-.038	.19 5	0.10 3	3000	38,000 169,024	93,800 417,222	3.56 1.61

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.





MR SERIES (continued)

Part No.		Military No.	B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
McGill Outer Ring & Roller Assembly	Separable Inner Ring Only		Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
			inch mm		inch mm		inch mm			inch mm			lb kg
			Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
MR 40 N	MI 32 N	MS 500072-27	2.0000 50.820	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.510 38.4	.19 4.8	.08 2.0	2.0005 50.833	1.9996 50.812	+0/-.0005 +0/-.013	.74 .34
MR 40 SS, S, RS, SRS, RSS	MI 31	MS 500072-26	1.9375 49.232	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.510 38.4	.19 4.8	.08 2.0	1.9380 49.245	1.9371 49.224	+0/-.0005 +0/-.013	.97 .44
	MI 32		2.0000 50.820	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.760 44.7	.19 4.8	.08 2.0	2.0005 50.833	1.9996 50.812	+0/-.0005 +0/-.013	.87 .39
	MI 34		2.1250 53.996	+0/-.0006 +0/-.015	2.249 57.1	+0/-.0007 +0/-.018	1.760 44.7	.19 4.8	.08 2.0	2.1258 54.017	2.1247 53.989	+0/-.0008 +0/-.020	1.00 .45
MR 44 N	MI 36 N	MS 500072-29	2.2500 57.173	+0/-.0006 +0/-.015	2.749 69.8	+0/-.0007 +0/-.018	1.510 38.4	.19 4.8	.08 2.0	2.2508 57.193	2.2497 57.165	+0/-.0008 +0/-.020	.83 .37
MR 44 SS, S, RS, SRS, RSS	MI 35	MS 500072-28	2.1875 55.584	+0/-.0006 +0/-.015	2.749 69.8	+0/-.0007 +0/-.018	1.510 38.4	0.19 5	0.08 2	2.1883 55.605	2.1872 55.577	+0/-.0008 +0/-.020	1.06 .48
	MI 36		2.2500 57.173	+0/-.0006 +0/-.015	2.749 69.8	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.08 2	2.2508 57.193	2.2497 57.165	+0/-.0008 +0/-.020	.97 .44
MR 48 N	MI 40 N	MS 500072-31	2.5000 63.525	+0/-.0006 +0/-.015	2.9989 76.202	+0/-.0007 +0/-.018	1.510 38.37	.19 4.8	.08 2.0	2.5008 63.545	2.4997 63.517	+0/-.0008 +0/-.020	.92 .43
MR 48 SS, S, RS, SRS, RSS	MI 38	MS 500072-30	2.3750 60.349	+0/-.0006 +0/-.015	2.9989 76.202	+0/-.0007 +0/-.018	1.760 44.72	.19 4.8	.08 2.0	2.3758 60.369	2.3747 60.341	+0/-.0008 +0/-.020	1.28 .58
	MI 39		2.4375 61.937	+0/-.0006 +0/-.015	2.9989 76.202	+0/-.0007 +0/-.018	1.510 38.37	.19 4.8	.08 2.0	2.4383 61.957	2.4372 61.929	+0/-.0008 +0/-.020	1.05 .47
	MI 40		2.5000 63.525	+0/-.0006 +0/-.015	2.9989 76.202	+0/-.0007 +0/-.018	1.760 44.72	.19 4.8	.08 2.0	2.5008 63.545	2.4997 63.517	+0/-.0008 +0/-.020	1.07 .48
MR 52 SS, S, RS, SRS, RSS	MI 42		2.6250 66.701	+0/-.0006 +0/-.015	3.2487 82.549	+0/-.0009 +0/-.023	1.760 44.72	.19 4.8	0.08 2	2.6258 66.722	2.6247 66.694	+0/-.0008 +0/-.020	1.12 .51
MR 52	MI 44	MS 500072-32	2.7500 69.878	+0/-.0006 +0/-.015	3.2487 82.549	+0/-.0009 +0/-.023	1.760 44.72	0.19 5	0.08 2	2.7508 69.898	2.7497 69.870	+0/-.0008 +0/-.020	1.17 .53
MR 56 N	MI 48 N		3.0000 76.230	+0/-.0006 +0/-.015	3.4987 88.902	+0/-.0009 +0/-.023	1.760 44.72	.25 6.4	.08 2.0	3.0008 76.250	2.9997 76.222	+0/-.0008 +0/-.020	1.32 .59
MR 56 SS, S, RS, SRS, RSS	MI 46		2.8750 73.054	+0/-.0006 +0/-.015	3.4987 88.902	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.08 2	2.8758 73.074	2.8747 73.046	+0/-.0008 +0/-.020	1.30 .59
MR 56	MI 47	MS 500072-34	2.9375 74.642	+0/-.0006 +0/-.015	3.4987 88.902	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.08 2	2.9383 74.662	2.9372 74.634	+0/-.0008 +0/-.020	1.58 .72
	MI 48		3.0000 76.230	+0/-.0006 +0/-.015	3.4987 88.902	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.08 2	3.0008 76.250	2.9997 76.222	+0/-.0008 +0/-.020	1.43 .65
MR 60 SS, S, RS, SRS, RSS	MI 50	MS 500072-35	3.1250 79.406	+0/-.0006 +0/-.015	3.7487 95.254	+0/-.0009 +0/-.023	2.010 51.07	.25 6.4	.10 2.5	3.1260 79.432	3.1246 79.396	+0/-.0010 +0/-.025	1.88 .85
	MI 52	MS 500072-36	3.2500 82.583	+0/-.0006 +0/-.015	3.7487 95.254	+0/-.0009 +0/-.023	2.010 51.07	0.25 6.4	0.10 2.5	3.2510 82.608	3.2496 82.572	+0/-.0010 +0/-.025	1.52 .69
MR 64 SS, S, RS, SRS, RSS	MI 54	MS 500072-38	3.3750 85.759	+0/-.0008 +0/-.020	3.9985 101.602	+0/-.0009 +0/-.023	2.010 51.07	.25 6.4	.10 2.5	3.3760 85.784	3.3746 85.749	+0/-.0010 +0/-.025	2.04 .93
	MI 56		3.5000 88.935	+0/-.0008 +0/-.020	3.9985 101.602	+0/-.0009 +0/-.023	2.010 51.07	0.25 6.4	0.10 2.5	3.5010 88.960	3.4996 88.925	+0/-.0010 +0/-.025	1.63 .74

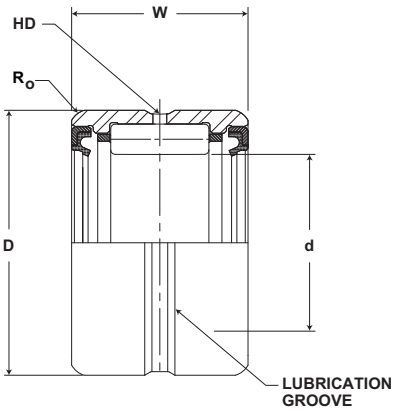
Basic Construction Type: Machined Race With Optional Separable Inner Ring

Rolling Elements: Cage Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1 Unsealed Bearings: Rust Preventative

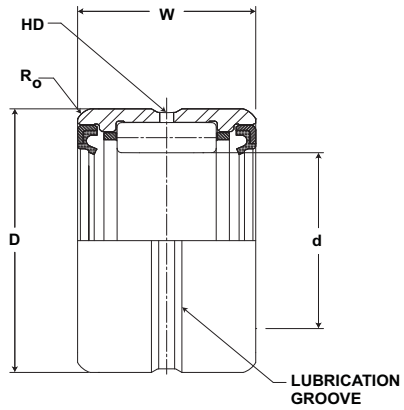


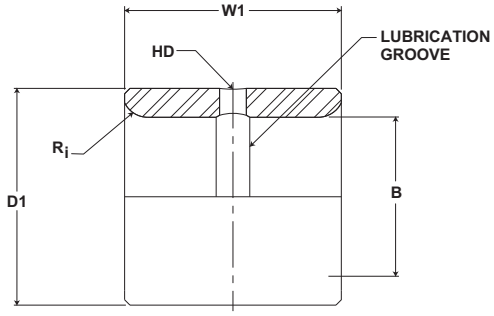
MR SERIES (continued)

Part No.		d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
McGill Outer Ring & Roller Assembly	Military No.	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
		inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
MR 68 SS, S, RS, SRS, RSS		4.2500 +0/-.0007 108.0 +0/-.018		5.2500 +0/-.0010 133.4 +0/-.025		2.000 50.80	5.2499 133	5.2511 133	+0/-.0015 +0/-.038	.19 5	0.10 3	900	34,000 151,232	86,200 383,418	3.74 1.69
MR 68	MS 51961-46						5.2499 133	5.2511 133	+0/-.0015 +0/-.038	.19 5	0.10 3	2820	39,500 175,696	101,000 449,248	3.74 1.69
MR 72	MS 51961-48	4.5000 +0/-.0007 114.3 +0/-.018		6.0000 +0/-.0010 152.5 +0/-.025		2.250 57.15	5.9999 152	6.0011 152	+0/-.0015 +0/-.038	.19 5	0.10 3	2660	60,300 268,214	130,000 578,240	7.13 3.23
MR 80		5.0000 +0/-.0007 127.1 +0/-.018		6.5000 +0/-.0010 165.2 +0/-.025		2.250 57.15	6.4999 165	6.5011 165	+0/-.0015 +0/-.038	.19 5	0.10 3	800	64,600 287,341	148,000 658,304	7.78 3.53
MR 88 N	MS 51961-52	5.5000 +0/-.0007 139.8 +0/-.018		7.0000 +0/-.0010 177.9 +0/-.025		2.500 63.50	6.9999 178	7.0011 178	+0/-.0015 +0/-.038	.25 6	0.10 3	2180	70,200 312,250	169,800 755,270	10.40 4.72
MR 88	MS 51961-53					3.000 76.20	6.9999 178	7.0011 178	+0/-.0015 +0/-.038	.25 6	0.10 3	2180	85,700 381,194	222,000 987,456	11.82 5.36
MR 96 N	MS 51961-55	6.0000 +0/-.0010 152.5 +0/-.025		7.5000 +0/-.0012 190.6 +0/-.030		2.500 63.50	7.4998 190	7.5011 190	+0/-.0015 +0/-.038	.25 6	0.12 3	2000	71,000 315,808	177,000 787,296	11.08 5.02
MR 96	MS 51961-56					3.000 76.20	7.4998 190	7.5011 190	+0/-.0015 +0/-.038	.25 6	0.12 3	2000	86,600 385,197	228,000 1,014,144	12.69 5.76
MR 104 N	MS 51961-57	6.5000 +0/-.0010 165.2 +0/-.025		8.0000 +0/-.0012 203.3 +0/-.030		2.500 63.50	7.9998 203	8.0011 203	+0/-.0015 +0/-.038	.25 6	0.12 3	1850	71,700 318,922	183,000 813,984	11.85 5.37
MR 104	MS 51961-58					3.000 76.20	7.9998 203	8.0011 203	+0/-.0015 +0/-.038	.25 6	0.12 3	1850	87,500 389,200	237,000 1,054,176	13.55 6.15
MR 116	MS 51961-59	7.2500 +0/-.0010 184.2 +0/-.025		9.1250 +0/-.0012 231.9 +0/-.030		3.000 76.20	9.1248 231	9.1261 231	+0/-.0015 +0/-.038	.25 6	0.12 3	1680	95,200 423,450	234,000 1,040,832	19.32 8.76
MR 124		7.7500 +0/-.0010 196.9 +0/-.025		9.6250 +0/-.0012 244.6 +0/-.030		3.000 76.20	9.6250 244	9.6265 244	+0/-.0020 +0/-.051	.25 6	0.12 3	1530	99,100 440,797	252,000 1,120,896	19.80 8.97
MR 132		8.2500 +0/-.0010 209.6 +0/-.025		10.1250 +0/-.0012 257.3 +0/-.030		3.000 76.20	10.1250 257	10.1265 257	+0/-.0020 +0/-.051	.25 6	0.12 3	1460	103,000 458,144	270,000 1,200,960	21.63 9.81
MR 140		8.7500 +0/-.0010 222.3 +0/-.025		10.6250 +0/-.0014 270.0 +0/-.036		3.000 76.20	10.6250 269	10.6265 270	+0/-.0020 +0/-.051	.25 6	0.16 4	1370	104,000 462,592	280,000 1,245,440	22.73 10.31
MR 148		9.2500 +0/-.0010 235.0 +0/-.025		11.1250 +0/-.0014 282.7 +0/-.036		3.000 76.20	11.1250 282	11.1265 282	+0/-.0020 +0/-.051	.25 6	0.16 4	1300	108,000 480,384	292,000 1,298,816	24.90 10.88

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



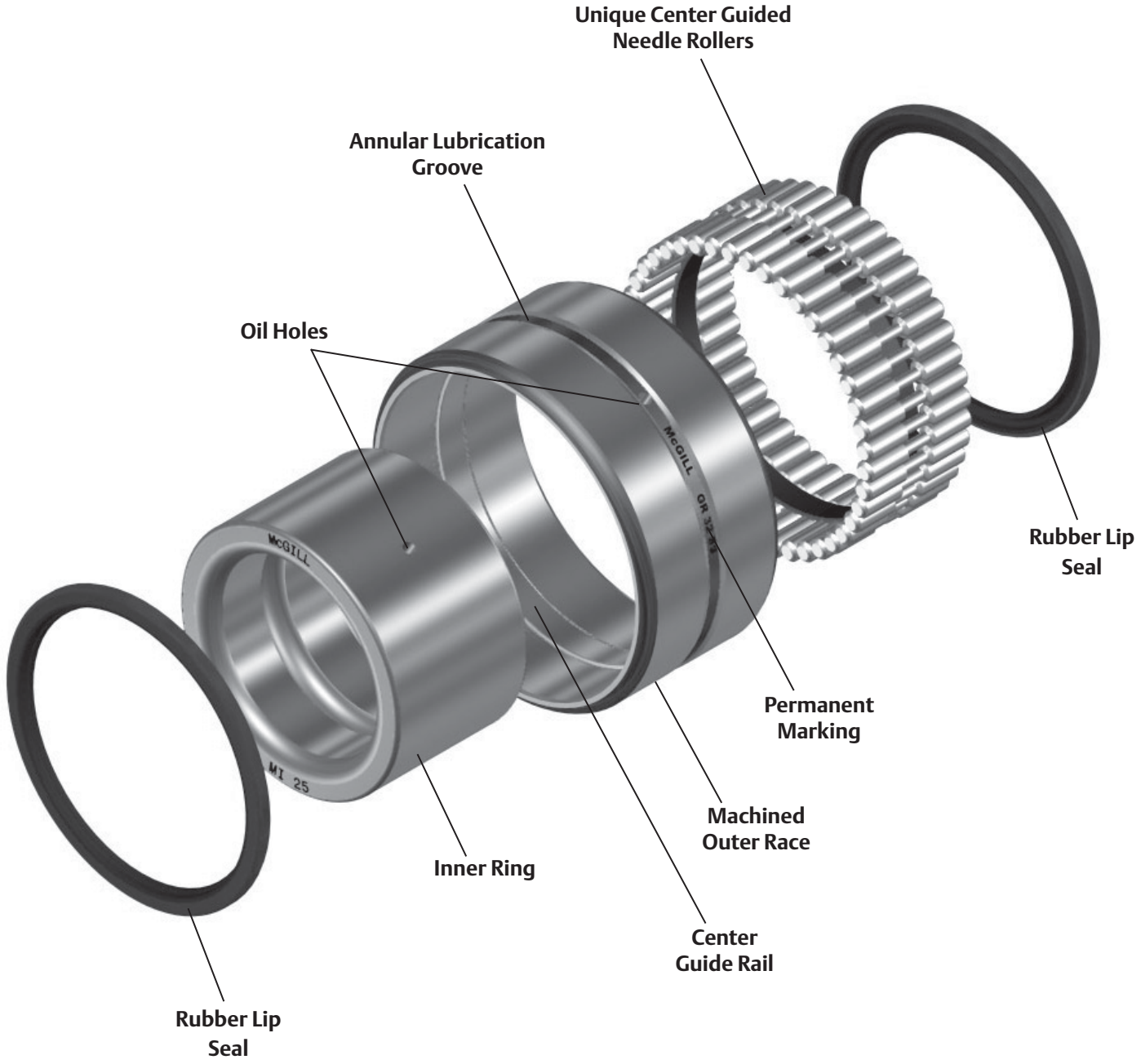


MR SERIES (continued)

Part No.		Military No.	B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
McGill Outer Ring & Roller Assembly	Separable Inner Ring Only		Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
			inch mm		inch mm		inch mm			inch mm			lb kg
			Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
MR 68 SS, S, RS, SRS, RSS	MI 58		3.6250 92.111	+0/-.0008 +0/-.020	4.2485 107.954	+0/-.0009 +0/-.023	2.010 51.07	.25 6.4	0.10 3	3.6260 92.137	3.6246 92.101	+0/-.0010 +0/-.025	1.70 .77
MR 68	MI 60	MS 500072-40	3.7500 95.288	+0/-.0008 +0/-.020	4.2485 107.954	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.7510 95.313	3.7496 95.277	+0/-.0010 +0/-.025	1.75 .79
MR 72	MI 62		3.8750 98.464	+0/-.0008 +0/-.020	4.4985 114.307	+0/-.0009 +0/-.023	2.260 57.43	.25 6.4	.10 2.5	3.8760 98.489	3.8746 98.454	+0/-.0010 +0/-.025	3.25 1.47
MR 80	MI 64		4.0000 101.640	+0/-.0008 +0/-.020	4.9985 127.012	+0/-.0010 +0/-.025	2.260 57.43	.25 6.4	0.10 3	4.0010 101.665	3.9996 101.630	+0/-.0010 +0/-.025	4.38 1.99
	MI 68		4.2500 107.993	+0/-.0008 +0/-.020	4.9985 127.012	+0/-.0010 +0/-.025	2.260 57.43	0.25 6	0.10 3	4.2510 108.018	4.2496 107.982	+0/-.0010 +0/-.025	5.24 2.37
MR 88 N	MI 72 N	MS 500072-43	4.5000 114.345	+0/-.0008 +0/-.020	5.4985 139.717	+0/-.0010 +0/-.025	2.515 63.91	.25 6.4	0.10 3	4.5010 114.370	4.4996 114.332	+0/-.0010 +0/-.025	5.43 2.47
MR 88	MI 72	MS 500072-44	4.5000 114.345	+0/-.0008 +0/-.020	5.4985 139.717	+0/-.0010 +0/-.025	3.015 76.61	0.25 6	0.10 3	4.5010 114.370	4.4995 114.332	+0/-.0010 +0/-.025	5.97 2.71
MR 96 N	MI 80 N	MS 500072-46	5.0000 127.050	+0/-.0010 +0/-.025	5.9983 152.417	+0/-.0010 +0/-.025	2.515 63.91	.31 7.9	0.12 3	5.0010 127.075	4.9995 127.037	+0/-.0010 +0/-.025	5.97 2.71
MR 96	MI 80	MS 500072-47	5.0000 127.050	+0/-.0010 +0/-.025	5.9983 152.417	+0/-.0010 +0/-.025	3.015 76.61	0.31 8	0.12 3	5.0010 127.075	4.9995 127.037	+0/-.0010 +0/-.025	7.12 3.23
MR 104 N	MI 88 N	MS 500072-48	5.5000 139.755	+0/-.0010 +0/-.025	6.4983 165.122	+0/-.0010 +0/-.025	2.515 63.91	.31 7.9	0.12 3	5.5010 139.780	5.4995 139.742	+0/-.0010 +0/-.025	6.30 2.88
MR 104	MI 88	MS 500072-49	5.5000 139.755	+0/-.0010 +0/-.025	6.4983 165.122	+0/-.0010 +0/-.025	3.015 76.61	0.31 8	0.12 3	5.5010 139.780	5.4995 139.742	+0/-.0010 +0/-.025	7.56 3.43
MR 116	MI 96	MS 500072-50	6.0000 152.460	+0/-.0010 +0/-.025	7.2481 184.174	+0/-.0012 +0/-.030	3.015 76.61	.31 7.9	.12 3.0	6.0012 152.490	5.9995 152.447	+0/-.0012 +0/-.030	11.06 5.03
MR 124	MI 104		6.5000 165.165	+0/-.0010 +0/-.025	7.7481 196.879	+0/-.0012 +0/-.030	3.015 76.61	.31 7.9	.12 3.0	6.5012 165.195	6.4995 165.152	+0/-.0012 +0/-.030	11.99 5.39
MR 132	MI 112		7.0000 177.870	+0/-.0010 +0/-.025	8.2481 209.584	+0/-.0012 +0/-.030	3.015 76.61	.31 7.9	.12 3.0	7.0012 177.900	6.9995 177.857	+0/-.0012 +0/-.030	12.70 5.77
MR 140	MI 120		7.5000 190.575	+0/-.0012 +0/-.030	8.7480 222.287	+0/-.0012 +0/-.030	3.015 76.61	.31 7.9	.16 4.1	7.5012 190.605	7.4995 190.562	+0/-.0012 +0/-.030	13.60 6.17
MR 148	MI 128		8.0000 203.280	+0/-.0012 +0/-.030	9.2480 234.992	+0/-.0012 +0/-.030	3.015 76.61	.31 7.9	.16 4.1	8.0012 203.310	7.9995 203.267	+0/-.0012 +0/-.030	14.40 6.55

McGill GUIDEROL® Bearings

McGill GUIDEROL® machined race full complement needle bearings are manufactured from bearing quality steel with unique roller and race design to provide center-guided rolling elements for higher radial load capacity and is well suited for oscillating applications. GUIDEROL® bearings are constructed with radial lubrication hole and groove on the outer and optional inner raceway (MI-series) for relubrication through the housing or shaft. Other options include a variety of seal configurations to either help prevent contaminant entry or contain the lubricant. Depending on your preference, these bearings are available in a wide variety of sizes and sealing options as illustrated on the pages to follow.

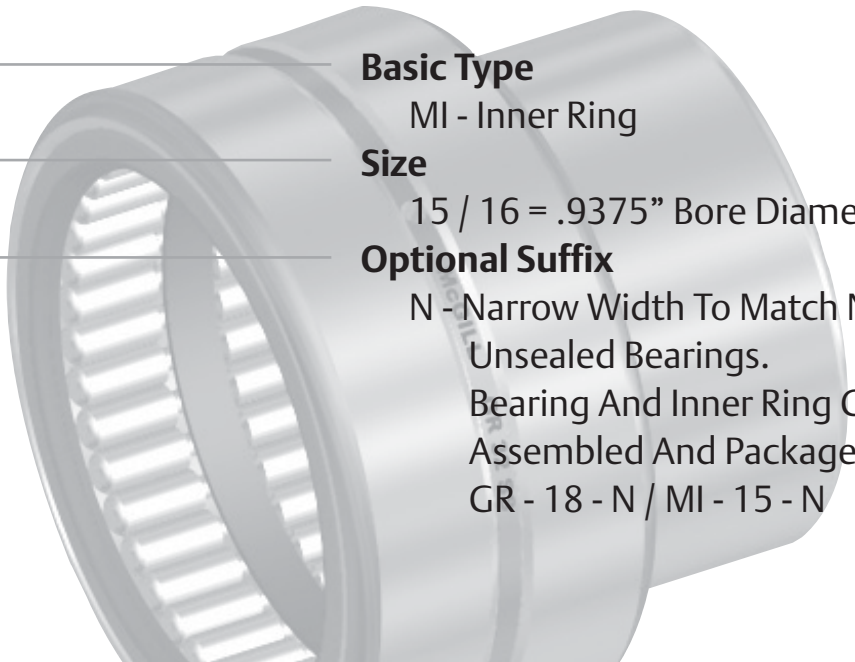


GUIDEROL® Nomenclature

Basic Type
GR - GUIDEROL® Bearing
Series Identifier
18 / 16 = 1.125" Bore Diameter
Optional Suffix
N - Narrow Width (Unsealed Only)
Typically .25" Narrower
Sealing
S - Single Seal With Lip Turned In
SS - Double Seal With Both Seal Lips Turned In
RSS – Double Seal With Both Seal Lips Turned Out
RS – Single Seal With Lip Turned Out
SRS – Double Seal With One Lip Turned In And One Lip Turned Out
Optional Suffix
DS - Matched Pair For Duplex Mounting

GR 18 N S DS

Inner Ring



Basic Type
MI - Inner Ring
Size
15 / 16 = .9375" Bore Diameter
Optional Suffix
N - Narrow Width To Match Narrow Unsealed Bearings.
Bearing And Inner Ring Can Be Assembled And Packaged Together:
GR - 18 - N / MI - 15 - N

MI 15 N

Features and Benefits

Machined Outer Race

Race manufactured from bearing quality steel and hardened to carry heavy dynamic and static loads.

Unique Center Guided Needle Rollers

Centered guided rollers designed to fit a mating guide rail and allow for maximum width of roller within the bearing.

Retaining Ring and Center Rail

Provides retention of needle rollers and helps guide rollers to prevent skewing.

Annular Lubrication Groove

The groove provides a circumferential path to direct lubricant to the oil hole, when lubricating through the housing.

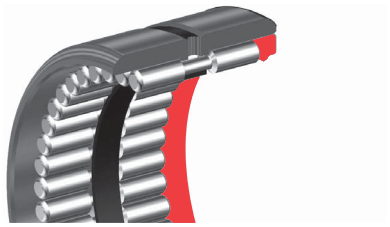
Factory Grease Fill

The sealed GUIDEROL® bearings are factory lubricated with a medium temperature (-30° to 250°F, -34° to 121° C) NLGI 1 grease, unsealed bearings packaged with light oil film as a rust preventative. Contact Application Engineering when application conditions require special lubricants.

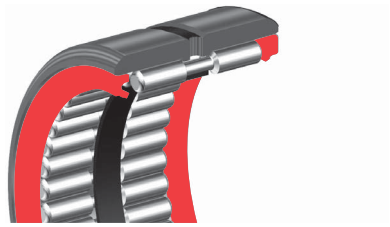
Options

Seals

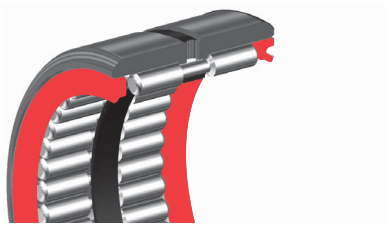
The rubber lip seal is capable of 250° F maximum temperature and is available in several different configurations on bearings capable being sealed.



S

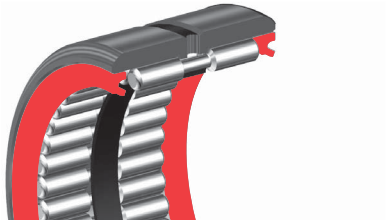


SS



RS

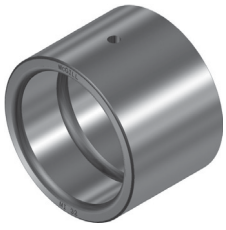
RSS



SRS

"DS" Matched Bearings – Load Sharing

When two bearings are installed with the distance between both bearing less than the width of one bearing, it is recommended the bearings be diametrically matched to prevent unequal load sharing. The option matches OD and ID tolerances, diametrical clearance within 30% of the tolerance range and the radial runout within 20% of the tolerance range with high point of runout indicated on the bearing faces. For more information and matching factors please review the engineering section for matched bearings. Matched bearings are packaged as sets, but can be used individually if desired.



Machined Inner Ring (MI)

Precision ground inner ring provides a hardened raceway for the rollers when used with an unhardened shaft. The ring contains an oil hole and annular groove for relubrication of the bearing and can be used with both CAGEROL and GUIDEROL bearings or can be utilized as a bushing in plain bearing applications.

Grease Options

When requested, standard bearings can be factory filled with customer specified lubricant.

McGILL® GUIDEROL® Bearings

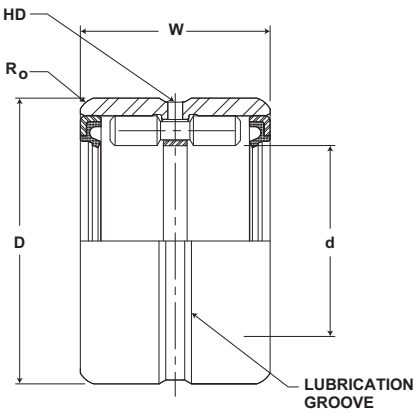
Basic Construction Type: Machined Race with full Complement of Needles

Rolling Elements: Center Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1
Unsealed Bearings: Rust Preventative

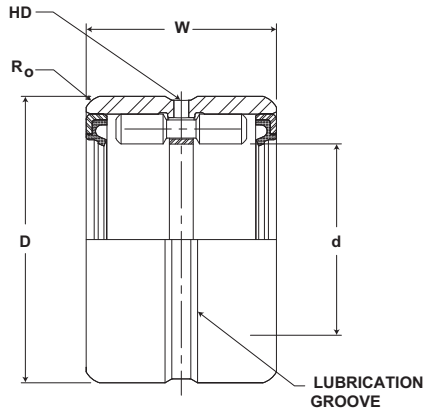


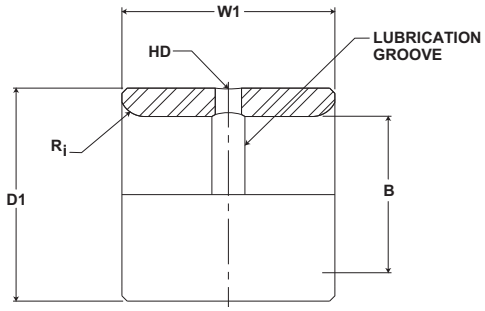
GR SERIES

Part No.	d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
Outer Ring & Roller Assembly	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
	inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
	Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
GR 8 N	.5000 12.7	+0/-.0005 +0/-.013	1.0000 25.4	+0/-.0005 +0/-.013	.750 19.05	0.9997 25.402	1.0070 25.588	+0/-.0007 +0/-.018	.08 2	0.03 1	TBD	2,600 11,565	4,500 20,016	.12 .05
GR 10 N	.6250 15.9	+0/-.0005 +0/-.013	1.1250 28.6	+0/-.0005 +0/-.013	.750 19.05	1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	9,600	3,400 15,123	6,400 28,467	.12 .05
						1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	9,600	3,400 15,123	6,400 28,467	.12 .05
GR 10 SS, S, RS, SRS, RSS					1.000 25.40	1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	6,100	3,400 15,123	6,400 28,467	.15 .07
GR 10						1.1247 28.579	1.1257 28.604	+0/-.0007 +0/-.018	.08 2	0.03 1	9,600	4,700 20,906	9,100 40,477	.15 .07
GR 12 N	.7500 19.1	+0/-.0005 +0/-.013	1.2500 31.8	+0/-.0005 +0/-.013	.750 19.05	1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	8,000	3,700 16,458	7,200 32,026	.14 .06
						1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	8,000	3,700 16,458	7,200 32,026	.14 .06
GR 12 SS, S, RS, SRS, RSS					1.000 25.40	1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	5,100	3,700 16,458	7,200 32,026	.17 .08
GR 12						1.2497 31.755	1.2507 31.780	+0/-.0007 +0/-.018	.08 2	0.04 1	8,000	5,100 22,685	10,900 48,483	.17 .08
GR 14 N	.8750 22.2	+0/-.0005 +0/-.013	1.3750 34.9	+0/-.0005 +0/-.013	.750 19.05	1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	6,800	4,150 18,459	8,400 37,363	.16 .07
						1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	6,800	4,150 18,459	8,400 37,363	.16 .07
GR 14 SS, S, RS, SRS, RSS					1.000 25.40	1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	4,400	4,150 18,459	8,400 37,363	.21 .09
GR 14						1.3747 34.931	1.3757 34.957	+0/-.0007 +0/-.018	.08 2	0.04 1	6,800	5,700 25,354	12,800 56,934	.21 .09
GR 16 N	1.0000 25.4	+0/-.0005 +0/-.013	1.5000 38.1	+0/-.0005 +0/-.013	.750 19.05	1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	6,000	4,350 19,349	9,600 42,701	.20 .09
						1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	6,000	4,350 19,349	9,600 42,701	.20 .09
GR 16 SS, S, RS, SRS, RSS					1.000 25.40	1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	3,800	4,350 19,349	9,600 42,701	.23 .10
GR 16						1.4997 38.107	1.5007 38.133	+0/-.0007 +0/-.018	.08 2	0.04 1	6,000	6,050 26,910	14,500 64,496	.23 .10
GR 18 N	1.1250 28.6	+0/-.0005 +0/-.013	1.6250 41.3	+0/-.0005 +0/-.013	.750 19.05	1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	5,300	6,250 27,800	15,200 67,610	.24 .11
						1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	5,300	6,250 27,800	15,200 67,610	.24 .11
GR 18 SS, S, RS, SRS, RSS					1.000 25.40	1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	3,400	6,250 27,800	15,200 67,610	.3 .14
GR 18						1.6247 41.284	1.6257 41.309	+0/-.0007 +0/-.018	.09 2	0.04 1	5,300	7,900 35,139	20,900 92,963	.3 .14

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.





GR SERIES

Part No.		B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
Outer Ring & Roller Assembly	Separable Inner Ring Only	Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
		inch mm		inch mm		inch mm			inch mm			lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
GR 8 N	-	-	-	-	-	-	-	-	-	-	-	-
GR 10 N	MI 6 N	.3750 9.529	+0/-.0004 +0/-.010	.6245 15.869	+0/-.0004 +0/-.010	.760 19.31	0.09 2	0.25 6	.3755 9.5	.3747 9.5	+0/-.0005 +0/-.013	.05 .02
	MI 7 N	.4375 11.117	+0/-.0004 +0/-.010	.6245 15.869	+0/-.0004 +0/-.010	.760 19.31	0.09 2	0.25 6	.4380 11.1	.4372 11.1	+0/-.0005 +0/-.013	.04 .02
GR 10 SS, S, RS, SRS, RSS	MI 6	.3750 9.529	+0/-.0004 +0/-.010	.6245 15.869	+0/-.0004 +0/-.010	1.010 25.66	0.09 2	0.25 6	.3755 9.5	.3747 9.5	+0/-.0005 +0/-.013	.05 .02
GR 10	MI 6	.3750 9.529	+0/-.0004 +0/-.010	.3750 9.530	+0/-.0004 +0/-.010	1.010 25.66	0.09 2	0.25 6	.3755 9.5	.3747 9.5	+0/-.0005 +0/-.013	.05 .02
GR 12 N	MI 8 N	.5000 12.705	+0/-.0004 +0/-.010	.7493 19.040	+0/-.0005 +0/-.013	.760 19.31	0.13 3	0.40 10	.5005 12.7	.4997 12.7	+0/-.0005 +0/-.013	.04 .02
	MI 9 N	.5625 14.293	+0/-.0004 +0/-.010	.7493 19.040	+0/-.0005 +0/-.013	.760 19.31	0.13 3	0.40 10	.5630 14.3	.5623 14.3	+0/-.0005 +0/-.013	.04 .02
GR 12 SS, S, RS, SRS, RSS	MI 8	.5000 12.705	+0/-.0004 +0/-.010	.7493 19.040	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.5005 12.7	.4997 12.7	+0/-.0005 +0/-.013	.06 .03
GR 12	MI 8	.5000 12.705	+0/-.0004 +0/-.010	.7493 19.040	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.5005 12.7	.4997 12.7	+0/-.0005 +0/-.013	.06 .03
GR 14 N	MI 10 N	.6250 15.881	+0/-.0004 +0/-.010	.8743 22.216	+0/-.0005 +0/-.013	.760 19.31	0.13 3	0.40 10	.6255 15.9	.6247 15.9	+0/-.0005 +0/-.013	.06 .03
	MI 11 N	.6875 17.469	+0/-.0004 +0/-.010	.8743 22.216	+0/-.0005 +0/-.013	.760 19.31	0.13 3	0.40 10	.6880 17.5	.6872 17.5	+0/-.0005 +0/-.013	.05 .02
GR 14 SS, S, RS, SRS, RSS	MI 10	.6250 15.881	+0/-.0004 +0/-.010	.8743 22.216	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.6255 15.9	.6247 15.9	+0/-.0005 +0/-.013	.08 .04
GR 14	MI 10	.6250 15.881	+0/-.0004 +0/-.010	.8743 22.216	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.6255 15.9	.6247 15.9	+0/-.0005 +0/-.013	.08 .04
GR 16 N	MI 12 N	.7500 19.058	+0/-.0004 +0/-.010	.9993 25.392	+0/-.0005 +0/-.013	.760 19.31	0.13 3	0.40 10	.7505 19.1	.7497 19.0	+0/-.0005 +0/-.013	.07 .03
	MI 13 N	.8125 20.646	+0/-.0004 +0/-.010	.9993 25.392	+0/-.0005 +0/-.013	.760 19.31	0.13 3	0.40 10	.8130 20.7	.8121 20.6	+0/-.0005 +0/-.013	.07 .03
GR 16 SS, S, RS, SRS, RSS	MI 12	.7500 19.058	+0/-.0004 +0/-.010	.9993 25.392	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.7505 19.1	.7497 19.0	+0/-.0005 +0/-.013	.10 .05
GR 16	MI 13	.8125 20.646	+0/-.0004 +0/-.010	.9993 25.392	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.8130 20.7	.8121 20.6	+0/-.0005 +0/-.013	.11 .05
GR 18 N	MI 14 N	.8750 22.234	+0/-.0005 +0/-.013	1.124 28.563	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.8755 22.2	.8746 22.2	+0/-.0005 +0/-.013	.11 .05
	MI 15 N	.9375 23.822	+0/-.0005 +0/-.013	1.124 28.563	+0/-.0005 +0/-.013	1.010 25.66	0.13 3	0.40 10	.9380 23.8	.9371 23.8	+0/-.0005 +0/-.013	.11 .05
GR 18 SS, S, RS, SRS, RSS	MI 14	.8750 22.234	+0/-.0005 +0/-.013	1.124 28.563	+0/-.0005 +0/-.013	1.260 32.02	0.13 3	0.40 10	.8755 22.2	.8746 22.2	+0/-.0005 +0/-.013	.13 .06
GR 18	MI 15	.9375 23.822	+0/-.0005 +0/-.013	1.124 28.563	+0/-.0005 +0/-.013	1.260 32.02	0.13 3	0.40 10	.9380 23.8	.9371 23.8	+0/-.0005 +0/-.013	.12 .06

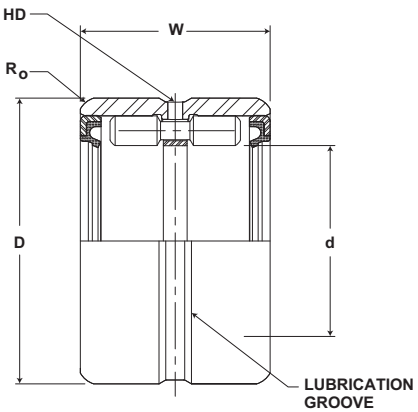
Basic Construction Type: Machined Race with full Complement of Needles

Rolling Elements: Center Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1
Unsealed Bearings: Rust Preventative

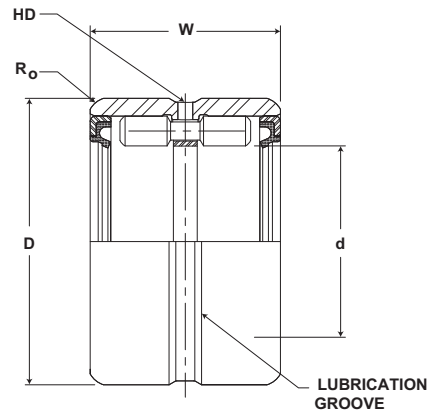


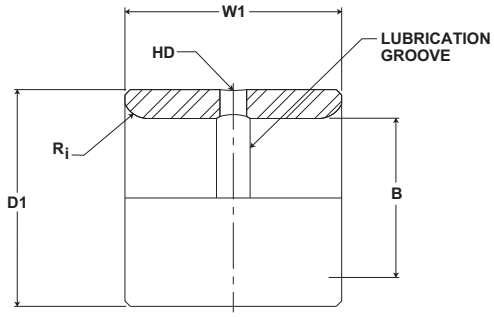
GR SERIES (continued)

Part No.	d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
Outer Ring & Roller Assembly	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
	inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
	Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
GR 20 N	1.2500 31.8	+0/-.0005 +0/-.013	1.7500 44.5	+0/-.0005 +0/-.013	1.000 25.40	1.7497 44.460	1.7507 44.485	+0/-.0007 +0/-.018	.09 2	0.04 1	4,800	6,500 28,912	17,000 75,616	.27 .12
GR 20 SS, S, RS, SRS, RSS					1.250 31.75	1.7497 44.460	1.7507 44.485	+0/-.0007 +0/-.018	.09 2	0.04 1	3,050	6,500 28,912	17,000 75,616	.39 .15
GR 20						1.7497 44.460	1.7507 44.485	+0/-.0007 +0/-.018	.09 2	0.04 1	4,800	8,300 36,918	23,100 102,749	.39 .15
GR 22 N	1.3750 34.9	+0/-.0005 +0/-.013	1.8750 47.6	+0/-.0006 +0/-.015	1.000 25.40	1.8747 47.636	1.8757 47.662	+0/-.0007 +0/-.018	.09 2	0.04 1	4,400	7,100 31,581	18,600 82,733	.31 .14
GR 22 SS, S, RS, SRS, RSS					1.250 31.75	1.8747 47.636	1.8757 47.662	+0/-.0007 +0/-.018	.09 2	0.04 1	2,800	7,100 31,581	18,600 82,733	.36 .16
GR 22						1.8747 47.636	1.8757 47.662	+0/-.0007 +0/-.018	.09 2	0.04 1	4,400	9,050 40,254	25,500 113,424	.36 .16
GR 24 N	1.5000 38.1	+0/-.0005 +0/-.013	2.0625 52.4	+0/-.0006 +0/-.015	1.000 25.40	2.0621 52.398	2.0632 52.426	+0/-.0007 +0/-.018	.09 2	0.06 2	4,000	7,150 31,803	20,200 89,850	.41 .19
GR 24 SS, S, RS, SRS, RSS					1.250 31.75	2.0621 52.398	2.0632 52.426	+0/-.0007 +0/-.018	.09 2	0.06 2	2,500	7,150 31,803	20,200 89,850	.47 .21
GR 24						2.0621 52.398	2.0632 52.426	+0/-.0007 +0/-.018	.09 2	0.06 2	4,000	9,150 40,699	27,800 123,654	.47 .21
GR 26 N	1.6250 41.3	+0/-.0005 +0/-.013	2.1875 55.6	+0/-.0006 +0/-.015	1.000 25.40	2.1871 55.574	2.1882 55.602	+0/-.0007 +0/-.018	.09 2	0.06 2	3,700	7,500 33,360	21,700 96,522	.46 .21
GR 26 SS, S, RS, SRS, RSS					1.250 31.75	2.1871 55.574	2.1882 55.602	+0/-.0007 +0/-.018	.09 2	0.06 2	2,350	7,500 33,360	21,700 96,522	.51 .23
GR 26						2.1871 55.574	2.1882 55.602	+0/-.0007 +0/-.018	.09 2	0.06 2	3,700	9,600 42,701	29,800 132,550	.51 .23
GR 28 N	1.7500 44.5	+0/-.0005 +0/-.013	2.3125 58.8	+0/-.0006 +0/-.015	1.000 25.40	2.3121 58.750	2.3132 58.778	+0/-.0007 +0/-.018	.09 2	0.06 2	3,400	7,750 34,472	23,300 103,638	.47 .21
GR 28 SS, S, RS, SRS, RSS					1.250 31.75	2.3121 58.750	2.3132 58.778	+0/-.0007 +0/-.018	.09 2	0.06 2	2,200	7,750 34,472	23,300 103,638	.55 .25
GR 28						2.3121 58.750	2.3132 58.778	+0/-.0007 +0/-.018	.09 2	0.06 2	3,400	9,850 43,813	32,100 142,781	.55 .25
						2.3121 58.750	2.3132 58.778	+0/-.0007 +0/-.018	.09 2	0.06 2	3,400	9,850 43,813	32,100 142,781	.55 .25
GR 30 SS, S, RS, SRS, RSS	1.8750 47.6	+0/-.0005 +0/-.013	2.4375 61.9	+0/-.0006 +0/-.015	1.250 31.75	2.4371 61.927	2.4382 61.955	+0/-.0007 +0/-.018	.09 2	0.06 2	2,040	8,150 36,251	25,200 112,090	.59 .27
GR 30						2.4371 61.927	2.4382 61.955	+0/-.0007 +0/-.018	.09 2	0.06 2	3,100	8,150 36,251	25,200 112,090	.59 .27
GR 32 N	2.0000 50.8	+0/-.0005 +0/-.013	2.5625 65.1	+0/-.0006 +0/-.015	1.000 25.40	2.5621 65.103	2.5632 65.131	+0/-.0007 +0/-.018	.09 2	0.06 2	3,000	8,000 35,584	26,700 118,762	.55 .25
GR 32 SS, S, RS, SRS, RSS					1.250 31.75	2.5621 65.103	2.5632 65.131	+0/-.0007 +0/-.018	.09 2	0.06 2	1,900	8,000 35,584	26,700 118,762	.61 .28
GR 32						2.5621 65.103	2.5632 65.131	+0/-.0007 +0/-.018	.09 2	0.06 2	3,000	10,250 45,592	36,700 163,242	.61 .28
						2.5621 65.103	2.5632 65.131	+0/-.0007 +0/-.018	.09 2	0.06 2	3,000	10,250 45,592	36,700 163,242	.61 .28

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.





GR SERIES (continued)

Part No.		B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
Outer Ring & Roller Assembly	Separable Inner Ring Only	Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
		inch mm		inch mm		inch mm			inch mm			lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
GR 20 N	MI 16 N	1.0000 25.410	+0/-.0005 +0/-.013	1.2491 31.740	+0/-.0006 +0/-.015	1.010 25.66	0.13 3	0.40 10	1.0005 25.4	0.9996 25.4	+0/-.0005 +0/-.013	.13 .06
GR 20 SS, S, RS, SRS, RSS	MI 16	1.0000 25.410	+0/-.0005 +0/-.013	1.2491 31.740	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.40 10	1.0005 25.4	0.9996 25.4	+0/-.0005 +0/-.013	.16 .07
GR 20	MI 16	1.0000 25.410	+0/-.0005 +0/-.013	1.2491 31.740	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.40 10	1.0005 25.4	0.9996 25.4	+0/-.0005 +0/-.013	.16 .07
GR 22 N	MI 18 N	1.1250 28.586	+0/-.0005 +0/-.013	1.3741 34.916	+0/-.0006 +0/-.015	1.010 25.66	0.13 3	0.40 10	1.1255 28.6	1.1246 28.6	+0/-.0005 +0/-.013	.14 .06
GR 22 SS, S, RS, SRS, RSS	MI 18	1.1250 28.586	+0/-.0005 +0/-.013	1.3741 34.916	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.40 10	1.1255 28.6	1.1246 28.6	+0/-.0005 +0/-.013	.17 .08
GR 22	MI 17	1.0625 26.998	+0/-.0005 +0/-.013	1.3741 34.916	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.40 10	1.0630 27.0	1.0621 27.0	+0/-.0005 +0/-.013	.16 .07
GR 24 N	MI 20 N	1.2500 31.763	+0/-.0005 +0/-.013	1.4990 38.090	+0/-.0006 +0/-.015	1.010 25.66	0.13 3	0.06 2	1.2505 31.8	1.2496 31.8	+0/-.0005 +0/-.013	.19 .09
GR 24 SS, S, RS, SRS, RSS	MI 20	1.2500 31.763	+0/-.0005 +0/-.013	1.4990 38.090	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.2505 31.8	1.2496 31.8	+0/-.0005 +0/-.013	.22 .09
GR 24	MI 19	1.1875 30.174	+0/-.0005 +0/-.013	1.4990 38.090	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.1880 30.2	1.1871 30.2	+0/-.0005 +0/-.013	.24 .11
GR 26 N	MI 21 N	1.3125 33.351	+0/-.0005 +0/-.013	1.6240 41.266	+0/-.0006 +0/-.015	1.010 25.66	0.13 3	0.06 2	1.3130 33.4	1.3121 33.3	+0/-.0005 +0/-.013	.20 .09
GR 26 SS, S, RS, SRS, RSS	MI 21	1.3125 33.351	+0/-.0005 +0/-.013	1.6240 41.266	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.3130 33.4	1.3121 33.3	+0/-.0005 +0/-.013	.26 .12
GR 26	MI 22 4S	1.3750 34.939	+0/-.0005 +0/-.013	1.6240 41.266	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.3755 35.0	1.3746 34.9	+0/-.0005 +0/-.013	.20 .09
GR 28 N	MI 24 N	1.5000 38.115	+0/-.0005 +0/-.013	1.7490 44.442	+0/-.0006 +0/-.015	1.010 25.66	0.13 3	0.06 2	1.5005 38.1	1.4996 38.1	+0/-.0005 +0/-.013	.22 .09
GR 28 SS, S, RS, SRS, RSS	MI 22	1.3750 34.939	+0/-.0005 +0/-.013	1.7490 44.442	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.3755 35.0	1.3746 34.9	+0/-.0005 +0/-.013	.26 .12
GR 28	MI 23	1.4375 36.527	+0/-.0005 +0/-.013	1.7490 44.442	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.4380 36.5	1.4371 36.5	+0/-.0005 +0/-.013	.27 .12
	MI 24	1.5000 38.115	+0/-.0005 +0/-.013	1.7490 44.442	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.5005 38.1	1.4996 38.1	+0/-.0005 +0/-.013	.22 .09
GR 30 SS, S, RS, SRS, RSS	MI 25 4S	1.5625 39.703	+0/-.0005 +0/-.013	1.8740 47.618	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.5630 39.7	1.5621 39.7	+0/-.0005 +0/-.013	.27 .12
GR 30	MI 25 4S	1.5625 39.703	+0/-.0005 +0/-.013	1.8740 47.618	+0/-.0006 +0/-.015	1.260 32.02	0.13 3	0.06 2	1.5630 39.7	1.5621 39.7	+0/-.0005 +0/-.013	.27 .12
GR 32 N	MI 26 N	1.6250 41.291	+0/-.0005 +0/-.013	1.9989 50.792	+0/-.0007 +0/-.018	1.010 25.66	0.13 3	0.06 2	1.6255 41.3	1.6246 41.3	+0/-.0005 +0/-.013	.30 .14
GR 32 SS, S, RS, SRS, RSS	MI 25	1.5625 39.703	+0/-.0005 +0/-.013	1.9989 50.792	+0/-.0007 +0/-.018	1.260 32.02	0.13 3	0.06 2	1.5630 39.7	1.5621 39.7	+0/-.0005 +0/-.013	.30 .14
GR 32	MI 26	1.6250 41.291	+0/-.0005 +0/-.013	1.9989 50.792	+0/-.0007 +0/-.018	1.260 32.0	0.13 3	0.06 2	1.6255 41.3	1.6246 41.3	+0/-.0005 +0/-.013	.38 .17
	MI 27	1.6875 42.879	+0/-.0005 +0/-.013	1.9989 50.792	+0/-.0007 +0/-.018	1.260 32.0	0.13 3	0.06 2	1.6880 42.9	1.6871 42.9	+0/-.0005 +0/-.013	.32 .15

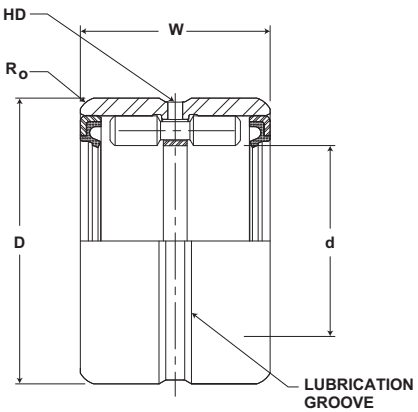
Basic Construction Type: Machined Race with full Complement of Needles

Rolling Elements: Center Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1
Unsealed Bearings: Rust Preventative

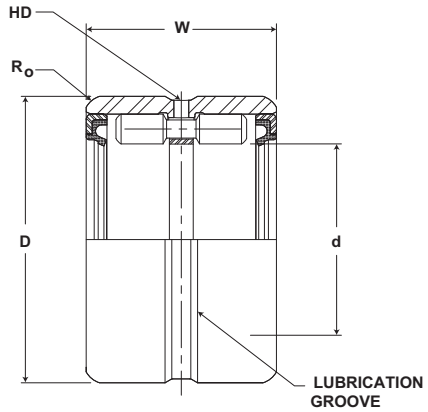


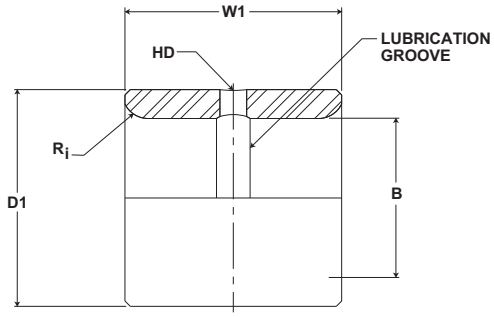
GR SERIES (continued)

Part No.	d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
Outer Ring & Roller Assembly	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
	inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
	Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
GR 36 N	2.2500 57.2	+0/-.0005 +0/-.013	3.0000 76.2	+0/-.0006 +0/-.015	1.500 38.10	2.9996 76.220	3.0007 76.248	+0/-.0007 +0/-.018	.13 3	0.08 2	2,700	15,250 67,832	49,100 218,397	1.13 .51
GR 36 SS, S, RS, SRS, RSS					1.750 44.45	2.9996 76.220	3.0007 76.248	+0/-.0007 +0/-.018	.13 3	0.08 2	1,700	15,250 67,832	49,100 218,397	1.32 .59
GR 36						2.9996 76.220	3.0007 76.248	+0/-.0007 +0/-.018	.13 3	0.08 2	2,700	18,450 82,066	60,200 267,770	1.32 .59
GR 40 N	2.5000 63.5	+0/-.0005 +0/-.013	3.2500 82.6	+0/-.0008 +0/-.020	1.500 38.10	3.2496 82.572	3.2507 82.600	+0/-.0007 +0/-.018	.13 3	0.08 2	2,400	16,200 72,058	54,500 242,416	1.23 .56
GR 40 SS, S, RS, SRS, RSS					1.750 44.45	3.2496 82.572	3.2507 82.600	+0/-.0007 +0/-.018	.13 3	0.08 2	1,530	16,200 72,058	54,500 242,416	1.44 .65
GR 40						3.2496 82.572	3.2507 82.600	+0/-.0007 +0/-.018	.13 3	0.08 2	2,400	19,800 88,070	66,800 297,126	1.44 .65
						3.2496 82.572	3.2507 82.600	+0/-.0007 +0/-.018	.13 3	0.08 2	2,400	19,800 88,070	66,800 297,126	1.44 .65
GR 44 N	2.7500 69.9	+0/-.0005 +0/-.013	3.5000 88.9	+0/-.0008 +0/-.020	1.500 38.10	3.4995 88.922	3.5008 88.955	+0/-.0010 +0/-.025	.13 3	0.08 2	2,200	16,800 74,726	59,900 266,435	1.36 .62
GR 44 SS, S, RS, SRS, RSS					1.750 44.45	3.4995 88.922	3.5008 88.955	+0/-.0010 +0/-.025	.13 3	0.08 2	1,390	16,800 74,726	59,900 266,435	1.59 .72
GR 44						3.4995 88.922	3.5008 88.955	+0/-.0010 +0/-.025	.13 3	0.08 2	2,200	20,350 90,517	73,400 326,483	1.59 .72
GR 48 N	3.0000 76.2	+0/-.0005 +0/-.013	3.7500 95.3	+0/-.0008 +0/-.020	1.500 38.10	3.7495 95.275	3.7508 95.308	+0/-.0010 +0/-.025	.13 3	0.08 2	2,000	20,500 91,184	65,400 290,899	1.53 .69
GR 48 SS, S, RS, SRS, RSS					1.750 44.45	3.7495 95.275	3.7508 95.308	+0/-.0010 +0/-.025	.13 3	0.08 2	1,270	20,500 91,184	65,400 290,899	1.70 .77
GR 48						3.7495 95.275	3.7508 95.308	+0/-.0010 +0/-.025	.13 3	0.08 2	2,000	20,600 91,629	80,200 356,730	1.70 .77
						3.7495 95.275	3.7508 95.308	+0/-.0010 +0/-.025	.13 3	0.08 2	2,000	20,600 91,629	80,200 356,730	1.70 .77
GR 52 SS, S, RS, SRS, RSS	3.2500 82.6	+0/-.0005 +0/-.013	4.2500 108.0	+0/-.0008 +0/-.020	1.750 44.45	4.2495 107.980	4.2508 108.013	+0/-.0010 +0/-.025	.19 5	0.08 2	1,175	25,100 111,645	63,800 283,782	2.64 1.19
GR 52						4.2495 107.980	4.2508 108.013	+0/-.0010 +0/-.025	.19 5	0.08 2	1,850	23,950 106,530	80,100 356,285	2.64 1.19
GR 56 N	3.5000 88.9	+0/-.0005 +0/-.013	4.5000 114.3	+0/-.0008 +0/-.020	1.750 44.45	3.2496 82.572	3.2507 82.600	+0/-.0010 +0/-.025	.19 5	0.08 2	1,700	25,100 111,645	86,500 384,752	2.88 1.31
GR 56 SS, S, RS, SRS, RSS					2.000 50.80	3.4995 88.922	3.5008 88.955	+0/-.0010 +0/-.025	.19 5	0.08 2	1,090	25,100 111,645	86,500 384,752	3.18 1.44
GR 56						3.4995 88.922	3.5008 88.955	+0/-.0010 +0/-.025	.19 5	0.08 2	1,700	28,900 128,547	104,000 462,592	3.18 1.44
						3.4995 88.922	3.5008 88.955	+0/-.0010 +0/-.025	.19 5	0.08 2	1,700	28,900 128,547	104,000 462,592	3.18 1.44
GR 60 SS, S, RS, SRS, RSS	3.7500 95.3	+0/-.0005 +0/-.013	4.7500 120.7	+0/-.0008 +0/-.020	2.000 50.80	4.7495 120.685	4.7508 120.718	+0/-.0010 +0/-.025	.19 5	0.10 3	1,020	25,450 113,202	92,300 410,550	3.38 1.53
GR 60						4.7495 120.685	4.7508 120.718	+0/-.0010 +0/-.025	.19 5	0.10 3	1,600	29,300 130,326	111,000 493,728	3.38 1.53

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.





GR SERIES (continued)

Part No.		B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
Outer Ring & Roller Assembly	Separable Inner Ring Only	Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
		inch mm		inch mm		inch mm			inch mm			lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
GR 36 N	MI 28 N	1.7500 44.468	+0/-.0005 +0/-.013	2.2489 57.145	+0/-.0007 +0/-.018	1.510 38.37	0.19 5	0.06 2	1.7505 44.5	1.7496 44.5	+0/-.0005 +0/-.013	.63 .29
GR 36 SS, S, RS, SRS, RSS	MI 28	1.7500 44.468	+0/-.0005 +0/-.013	2.2489 57.1	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.06 2	1.7505 44.5	1.7497 44.5	+0/-.0005 +0/-.013	.74 .34
GR 36	MI 30	1.8750 47.644	+0/-.0005 +0/-.013	2.2489 57.1	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.06 2	1.8755 47.7	1.8746 47.6	+0/-.0005 +0/-.013	.85 .39
GR 40 N	MI 32 N	2.0000 50.820	+0/-.0005 +0/-.013	2.2489 57.145	+0/-.0007 +0/-.018	1.510 38.37	0.19 5	0.08 2	2.0005 50.8	1.9996 50.8	+0/-.0005 +0/-.013	.74 .34
GR 40 SS, S, RS, SRS, RSS	MI 31	1.9375 49.232	+0/-.0005 +0/-.013	2.2489 57.1	+0/-.0007 +0/-.018	1.510 38.4	0.19 5	0.08 2	1.9380 49.2	1.9371 49.2	+0/-.0005 +0/-.013	.97 .44
GR 40	MI 32	2.0000 50.820	+0/-.0005 +0/-.013	2.2489 57.1	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.08 2	2.0005 50.8	1.9996 50.8	+0/-.0005 +0/-.013	.87 .39
	MI 34	2.1250 53.996	+0/-.0006 +0/-.015	2.2489 57.1	+0/-.0007 +0/-.018	1.760 44.7	0.19 5	0.08 2	2.1258 54.0	2.1247 54.0	+0/-.0008 +0/-.020	1.00 .45
GR 44 N	MI 36 N	2.2500 57.173	+0/-.0006 +0/-.015	2.7489 69.850	+0/-.0007 +0/-.018	1.510 38.37	0.19 5	0.08 2	2.2508 57.2	2.2497 57.2	+0/-.0008 +0/-.020	.83 .36
GR 44 SS, S, RS, SRS, RSS	MI 35	2.1875 55.584	+0/-.0006 +0/-.015	2.7489 69.8	+0/-.0007 +0/-.018	1.510 38.4	0.19 5	0.08 2	2.1883 55.6	2.1872 55.6	+0/-.0008 +0/-.020	1.06 .48
GR 44	MI 36	2.2500 57.173	+0/-.0006 +0/-.015	2.7489 69.8	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.08 2	2.2508 57.2	2.2497 57.2	+0/-.0008 +0/-.020	.97 .44
GR 48 N	MI 40 N	2.5000 63.525	+0/-.0006 +0/-.015	2.9989 76.202	+0/-.0007 +0/-.018	1.510 38.37	0.19 5	0.08 2	2.5008 63.5	2.4997 63.5	+0/-.0008 +0/-.020	.92 .43
GR 48 SS, S, RS, SRS, RSS	MI 38	2.3750 60.349	+0/-.0006 +0/-.015	2.9989 76.2	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.08 2	2.3758 60.4	2.3747 60.3	+0/-.0008 +0/-.020	1.28 .58
GR 48	MI 39	2.4375 61.937	+0/-.0006 +0/-.015	2.9989 76.2	+0/-.0007 +0/-.018	1.510 38.37	0.19 5	0.08 2	2.4383 62.0	2.4372 61.9	+0/-.0008 +0/-.020	1.05 .47
	MI 40	2.5000 63.525	+0/-.0006 +0/-.015	2.9989 76.2	+0/-.0007 +0/-.018	1.760 44.72	0.19 5	0.08 2	2.5008 63.5	2.4997 63.5	+0/-.0008 +0/-.020	1.07 .48
GR 52 SS, S, RS, SRS, RSS	MI 42	2.6250 66.701	+0/-.0006 +0/-.015	3.2487 82.549	+0/-.0009 +0/-.023	1.760 44.72	0.19 5	0.08 2	2.6258 66.7	2.6247 66.7	+0/-.0008 +0/-.020	1.12 .51
GR 52	MI 44	2.7500 69.878	+0/-.0006 +0/-.015	3.2487 82.549	+0/-.0009 +0/-.023	1.760 44.72	0.19 5	0.08 2	2.7508 69.9	2.7497 69.9	+0/-.0008 +0/-.020	1.17 .53
GR 56 N	MI 48 N	3.0000 76.230	+0/-.0006 +0/-.015	3.4987 88.902	+0/-.0009 +0/-.023	1.760 44.72	0.25 6	0.08 2	3.0008 76.3	2.9997 76.2	+0/-.0008 +0/-.020	1.32 .55
GR 56 SS, S, RS, SRS, RSS	MI 46	2.8750 73.054	+0/-.0006 +0/-.015	3.4987 88.9	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.08 2	2.8758 73.1	2.8747 73.0	+0/-.0008 +0/-.020	1.30 .59
GR 56	MI 47	2.9375 74.642	+0/-.0006 +0/-.015	3.4987 88.9	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.08 2	2.9383 74.7	2.9372 74.6	+0/-.0008 +0/-.020	1.58 .72
	MI 48	3.0000 76.230	+0/-.0006 +0/-.015	3.4987 88.9	+0/-.0009 +0/-.023	2.010 51.1	0.25 6	0.08 2	3.0008 76.3	2.9997 76.2	+0/-.0008 +0/-.020	1.43 .65
GR 60 SS, S, RS, SRS, RSS	MI 50	3.1250 79.406	+0/-.0006 +0/-.015	3.7487 95.254	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.1260 79.4	3.1246 79.4	+0/-.0010 +0/-.025	1.88 .85
GR 60	MI 52	3.2500 82.583	+0/-.0006 +0/-.015	3.7487 95.254	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.2510 82.6	3.2496 82.6	+0/-.0010 +0/-.025	1.52 .69

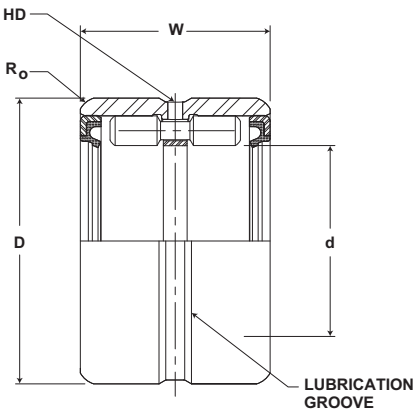
Basic Construction Type: Machined Race with full Complement of Needles

Rolling Elements: Center Guided Precision Needles

Bearing Material: Bearing Quality Steel

Seal Type: Rubber Lip

Lubrication: Sealed Bearings: Lithium Soap Grease NLGI #1
Unsealed Bearings: Rust Preventative

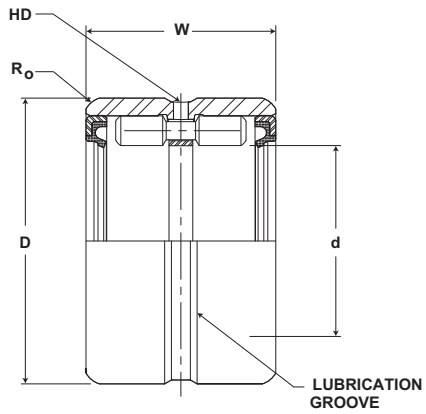


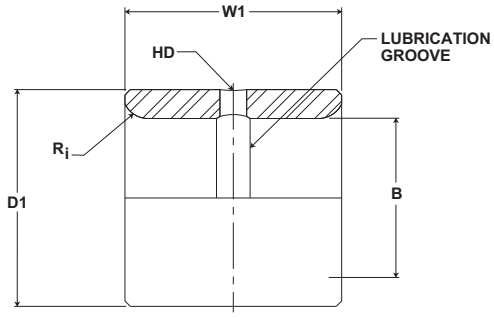
GR SERIES (continued)

Part No.	d		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Outer & Roller Assembly Weight
Outer Ring & Roller Assembly	Shaft Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
	inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
	Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
GR 64 SS, S, RS, SRS, RSS	4.0000	+0/-.0007	5.0000	+0/-.0010	2.000	4.9999	5.0011	+0/-.0015	.19	0.10	950	26,750	98,800	3.56
	101.6	+0/-.018	127.1	+0/-.025	50.80	127.047	127.078	+0/-.038	5	3		118,984	439,462	1.61
GR 64						4.9999	5.0011	+0/-.0015	.19	0.10	1,500	30,900	119,000	3.56
						127.047	127.078	+0/-.038	5	3		137,443	529,312	1.61
GR 68 SS, S, RS, SRS, RSS	4.2500	+0/-.0007	5.2500	+0/-.0010	2.000	5.2499	5.2511	+0/-.0015	.19	0.10	900	27,400	104,000	3.74
	108.0	+0/-.018	133.4	+0/-.025	50.80	133.400	133.430	+0/-.038	5	3		121,875	462,592	1.69
GR 68						5.2499	5.2511	+0/-.0015	.19	0.10	1,410	31,500	126,000	3.74
						133.400	133.430	+0/-.038	5	3		140,112	560,448	1.69
GR 72	4.5000	+0/-.0007	6.0000	+0/-.0010	2.250	5.9999	6.0011	+0/-.0015	.19	0.10	1,330	43,400	145,000	7.13
	114.3	+0/-.018	152.5	+0/-.025	57.15	152.457	152.488	+0/-.038	5	3		193,043	644,960	3.23
GR 80	5.0000	+0/-.0007	6.5000	+0/-.0010	2.250	6.4999	6.5011	+0/-.0015	.19	0.10	1,200	48,800	161,000	7.78
	127.1	+0/-.018	165.2	+0/-.025	57.15	165.162	165.193	+0/-.038	5	3		217,062	716,128	3.53
						6.4999	6.5011	+0/-.0015	.19	0.10	1,200	48,800	161,000	7.78
						165.162	165.193	+0/-.038	5	3		217,062	716,128	3.53
GR 88 N	5.5000	+0/-.0007	7.0000	+0/-.0010	2.500	4.7495	4.7508	+0/-.0015	.25	0.10	1,090	60,700	171,000	10.40
	139.8	+0/-.018	177.9	+0/-.025	63.50	120.685	120.718	+0/-.038	6	3		269,994	760,608	4.73
GR 88					3.000	4.7495	4.7508	+0/-.0015	.25	0.10	1,090	65,000	205,000	11.82
					76.20	120.685	120.718	+0/-.038	6	3		289,120	911,840	5.36
GR 96 N	6.0000	+0/-.0010	7.5000	+0/-.0012	2.500	5.2499	5.2511	+0/-.0015	.25	0.12	1,000	65,700	223,000	11.08
	152.5	+0/-.025	190.6	+0/-.030	63.50	133.400	133.430	+0/-.038	6	3		292,234	991,904	5.02
GR 96					3.000	5.2499	5.2511	+0/-.0015	.25	0.12	1,000	71,400	283,000	12.69
					76.20	133.400	133.430	+0/-.038	6	3		317,587	1,258,784	5.76
GR 104 N	6.5000	+0/-.0010	8.0000	+0/-.0012	2.500	5.9999	6.0011	+0/-.0015	.25	0.12	930	68,900	242,000	11.85
	165.2	+0/-.025	203.3	+0/-.030	63.50	152.457	152.488	+0/-.038	6	3		306,467	1,076,416	5.37
GR 104					3.000	5.9999	6.0011	+0/-.0015	.25	0.12	930	75,000	308,000	13.55
					76.20	152.457	152.488	+0/-.038	6	3		333,600	1,369,984	6.15
GR 116	7.2500	+0/-.0010	9.1250	+0/-.0012	3.000	9.1248	9.1261	+0/-.0015	.25	0.12	840	83,900	332,000	19.32
	184.2	+0/-.025	231.9	+0/-.030	76.20	231.861	231.894	+0/-.038	6	3		373,187	1,476,736	8.76
GR 124	7.7500	+0/-.0010	9.6250	+0/-.0012	3.000	6.6250	6.6265	+0/-.0020	.25	0.12	770	86,200	355,000	19.80
	196.9	+0/-.025	244.6	+0/-.030	76.20	168.341	168.379	+0/-.051	6	3		383,418	1,579,040	8.97
GR 132	8.2500	+0/-.0010	10.1250	+0/-.0012	3.000	10.1250	10.1265	+0/-.0020	.25	0.12	730	88,700	378,000	21.63
	209.6	+0/-.025	257.3	+0/-.030	76.20	257.276	257.314	+0/-.051	6	3		394,538	1,681,344	9.81
GR 140	8.7500	+0/-.0010	10.6250	+0/-.0014	3.000	10.6250	10.6265	+0/-.0020	.25	0.16	690	91,500	401,000	22.73
	222.3	+0/-.025	270.0	+0/-.036	76.20	269.981	270.019	+0/-.051	6	4		406,992	1,783,648	10.31
GR 148	9.2500	+0/-.0010	11.1250	+0/-.0014	3.000	11.1250	11.1265	+0/-.0020	.25	0.16	650	93,500	423,000	24.00
	235.0	+0/-.025	282.7	+0/-.036	76.20	282.686	282.724	+0/-.051	6	4		415,888	1,881,504	10.88

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
For DS matching as DS suffix to part number
* For bearing properly filled with #1 grease reduce speed by 50%

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



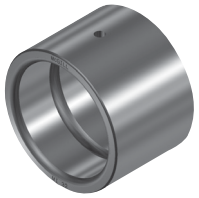


GR SERIES (continued)

Part No.		B		D1		W1	HD	Ri	Recommended Shaft Diameter with inner ring			Inner Weight
Outer Ring & Roller Assembly	Separable Inner Ring Only	Bore Diameter		Outside Diameter		Width	Radial Lub. Hole Diameter	Max Shaft Radius to Clear				
		inch mm		inch mm		inch mm			inch mm			lb kg
		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	(Ref)	Rotating	Stationary	Tol.	
GR 64 SS, S, RS, SRS, RSS	MI 54	3.3750 85.759	+0/-.0008 +0/-.020	3.9985 101.602	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.3760 85.8	3.3746 85.7	+0/-.0010 +0/-.025	2.04 .93
GR 64	MI 56	3.5000 88.935	+0/-.0008 +0/-.020	3.9985 101.602	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.5010 89.0	3.4996 88.9	+0/-.0010 +0/-.025	1.63 .74
GR 68 SS, S, RS, SRS, RSS	MI 58	3.6250 92.111	+0/-.0008 +0/-.020	4.2485 107.954	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.6260 92.1	3.6246 92.1	+0/-.0010 +0/-.025	1.70 .77
GR 68	MI 60	3.7500 95.288	+0/-.0008 +0/-.020	4.2485 107.954	+0/-.0009 +0/-.023	2.010 51.07	0.25 6	0.10 3	3.7510 95.3	3.7496 95.3	+0/-.0010 +0/-.025	1.75 .79
GR 72	MI 62	3.8750 98.464	+0/-.0008 +0/-.020	4.4985 114.307	+0/-.0009 +0/-.023	2.260 57.43	0.25 6	0.10 3	3.8760 98.5	3.8746 98.5	+0/-.0010 +0/-.025	3.25 1.47
GR 80	MI 64	4.0000 101.640	+0/-.0008 +0/-.020	4.9985 127.012	+0/-.0010 +0/-.025	2.260 57.43	0.25 6	0.10 3	4.0010 101.7	3.9996 101.6	+0/-.0010 +0/-.025	4.38 1.99
	MI 68	4.2500 107.993	+0/-.0008 +0/-.020	4.9985 127.012	+0/-.0010 +0/-.025	2.260 57.43	0.25 6	0.10 3	4.2510 108.0	4.2496 108.0	+0/-.0010 +0/-.025	5.24 2.37
GR 88 N	MI 72 N	4.5000 114.345	+0/-.0008 +0/-.020	5.4985 139.717	+0/-.0010 +0/-.025	2.515 63.91	0.25 6	0.10 3	4.5010 114.4	4.4996 114.3	+0/-.0010 +0/-.025	5.43 2.47
GR 88	MI 72	4.5000 114.345	+0/-.0008 +0/-.020	5.4985 139.717	+0/-.0010 +0/-.025	3.015 76.61	0.25 6	0.10 3	4.5010 114.4	4.4996 114.3	+0/-.0010 +0/-.025	5.97 2.71
GR 96 N	MI 80 N	5.0000 127.050	+0/-.0010 +0/-.025	5.9983 152.417	+0/-.0010 +0/-.025	2.515 63.91	0.31 8	0.12 3	5.0010 127.1	4.9995 127.0	+0/-.0010 +0/-.025	5.97 2.71
GR 96	MI 80	5.0000 127.050	+0/-.0010 +0/-.025	5.9983 152.417	+0/-.0010 +0/-.025	3.015 76.61	0.31 8	0.12 3	5.0010 127.1	4.9995 127.0	+0/-.0010 +0/-.025	7.12 3.23
GR 104 N	MI 88 N	5.5000 139.755	+0/-.0010 +0/-.025	6.4983 165.122	+0/-.0010 +0/-.025	2.515 63.91	0.31 8	0.12 3	5.5010 139.8	5.4995 139.7	+0/-.0010 +0/-.025	6.30 2.88
GR 104	MI 88	5.5000 139.755	+0/-.0010 +0/-.025	6.4983 165.122	+0/-.0010 +0/-.025	3.015 76.61	0.31 8	0.12 3	5.5010 139.8	5.4995 139.7	+0/-.0010 +0/-.025	7.56 3.43
GR 116	MI 96	6.0000 152.460	+0/-.0010 +0/-.025	7.2481 184.174	+0/-.0012 +0/-.030	3.015 76.61	0.31 8	0.12 3	6.0012 152.5	5.9995 152.4	+0/-.0012 +0/-.030	11.06 5.03
GR 124	MI 104	6.5000 165.165	+0/-.0010 +0/-.025	7.7481 196.879	+0/-.0012 +0/-.030	3.015 76.61	0.31 8	0.12 3	6.5012 165.2	6.4995 165.2	+0/-.0012 +0/-.030	11.99 5.39
GR 132	MI 112	7.0000 177.870	+0/-.0010 +0/-.025	8.2481 209.584	+0/-.0012 +0/-.030	3.015 76.61	0.31 8	0.12 3	7.0012 177.9	6.9995 177.9	+0/-.0012 +0/-.030	12.70 5.77
GR 140	MI 120	7.5000 190.575	+0/-.0012 +0/-.030	8.7480 222.287	+0/-.0012 +0/-.030	3.015 76.61	0.31 8	0.16 4	7.5012 190.6	7.4995 190.6	+0/-.0012 +0/-.030	13.60 6.17
GR 148	MI 128	8.0000 203.280	+0/-.0012 +0/-.030	9.2480 234.992	+0/-.0012 +0/-.030	3.015 76.61	0.31 8	0.16 4	8.0012 203.3	7.9995 203.3	+0/-.0012 +0/-.030	14.40 6.55

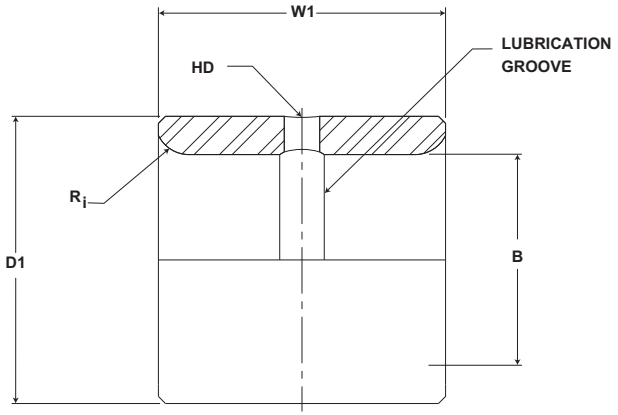
McGill Machined Inner Ring

Precision ground inner ring provides a hardened raceway for the rollers when used with an unhardened shaft. The ring contains an oil hole and annular groove for relubrication of the bearing and can be used with both CAGEROL and GUIDEROL bearings or can be utilized as a bushing in plain bearing applications.



Basic Construction Type: Thru Hardened Precision Ground Rings

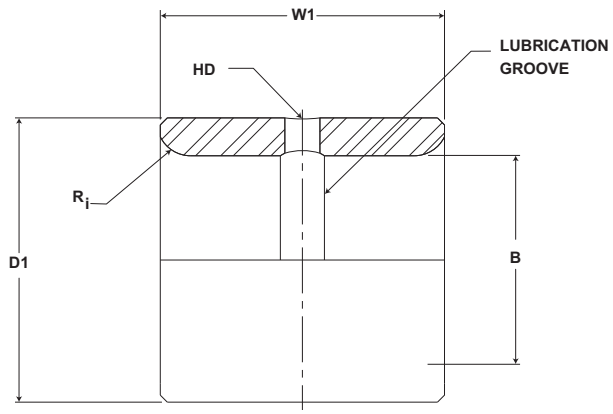
Ring Material: Bearing Quality Steel



MI Series

Part No.	Military No.	B		D1		W1	Ri	Recommended Shaft Diameter with Inner Ring			Inner Weight
		Bore Diameter		Outside Diameter		Width	Inner Ring Corner				
		inch mm		inch mm		inch mm		inch mm			lb kg
Inner Ring		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	Rotating	Stationary	Tol.	
MI 6 N	MS 51962-1	.3750 9.5	+0/-.0004 +0/-.010	.6245 15.9	+0/-.0004 +0/-.010	.760 19.3	.25 6	.3755 9.5	.3747 9.5	+0/-.0005 +0/-.013	.05 .02
MI 6						1.010 25.7	.25 6	.3755 9.5	.3747 9.5	+0/-.0005 +0/-.013	.05 .02
MI 7 N		.4375 11.1	+0/-.0004 +0/-.010	.6245 15.9	+0/-.0004 +0/-.010	.760 19.3	.25 6	.4380 11.1	.4372 11.1	+0/-.0005 +0/-.013	.04 .02
MI 8 N	MS 51962-2	.5000 12.7	+0/-.0004 +0/-.010	.7493 19.0	+0/-.0005 +0/-.013	.760 19.3	.40 10	.5005 12.7	.4997 12.7	+0/-.0005 +0/-.013	.04 .02
MI 8	MS 51962-3					1.010 25.7	.40 10	.5005 12.7	.4997 12.7	+0/-.0005 +0/-.013	.06 .03
MI 9 N		.5625 14.3	+0/-.0004 +0/-.010	.7493 19.0	+0/-.0005 +0/-.013	.760 19.3	.40 10	.5630 14.3	.5622 14.3	+0/-.0005 +0/-.013	.04 .02
MI 10		.6250 15.9	+0/-.0004 +0/-.010	.8743 22.2	+0/-.0005 +0/-.013	1.010 25.7	.40 10	.6255 15.9	.6247 15.9	+0/-.0005 +0/-.013	.08 .04
MI 10 N	MS 51962-4					.760 19.3	.40 10	.6255 15.9	.6247 15.9	+0/-.0005 +0/-.013	.06 .03
MI 11 N		.6875 17.5	+0/-.0004 +0/-.010	.8743 22.2	+0/-.0005 +0/-.013	.760 19.3	.40 10	.6880 17.5	.6872 17.5	+0/-.0005 +0/-.013	.05 .02
MI 12 N	MS 51962-5	.7500 19.1	+0/-.0004 +0/-.010	.9993 25.4	+0/-.0005 +0/-.013	.760 19.3	.40 10	.7505 19.1	.7497 19.0	+0/-.0005 +0/-.013	.07 .03
MI 12						1.010 25.7	.40 10	.7505 19.1	.7497 19.0	+0/-.0005 +0/-.013	.10 .05
MI 13 N	MS 51962-6	.8125 20.6	+0/-.0005 +0/-.013	.9993 25.4	+0/-.0005 +0/-.013	.760 19.3	.40 10	.8129 20.7	.8121 20.6	+0/-.0005 +0/-.013	.07 .03
MI 13	MS 51962-7					1.010 25.7	.40 10	.8130 20.7	.8122 20.6	+0/-.0005 +0/-.013	.11 .05
MI 14 N	MS 51962-8	.8750 22.2	+0/-.0005 +0/-.013	1.124 28.6	+0/-.0005 +0/-.013	1.010 25.7	.40 10	.8754 22.2	.8746 22.2	+0/-.0005 +0/-.013	.11 .05
MI 14						1.260 32.0	.40 10	.8755 22.2	.8747 22.2	+0/-.0005 +0/-.013	.13 .06
MI 14 N	MS 51962-8	.8750 22.2	+0/-.0005 +0/-.013	1.124 28.6	+0/-.0005 +0/-.013	1.010 25.7	.40 10	.9379 23.8	.9371 23.8	+0/-.0005 +0/-.013	.11 .05
MI 15						1.260 32.0	.40 10	.9380 23.8	.9372 23.8	+0/-.0005 +0/-.013	.12 .05

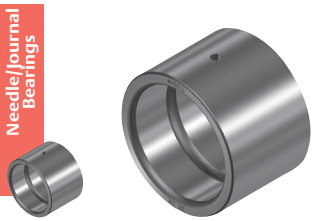
Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



MI Series

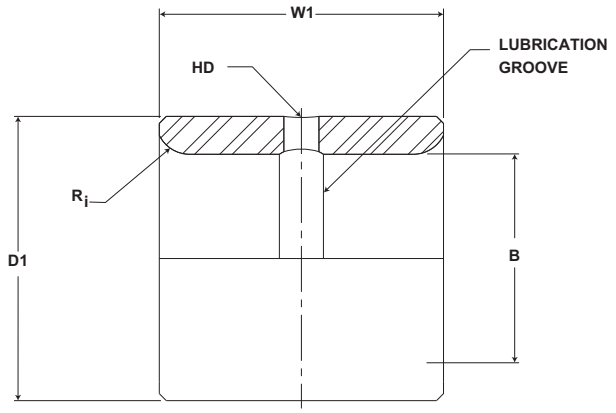
Part No.	Military No.	B Bore Diameter inch mm		D1 Outside Diameter inch mm		W1 Width inch mm	Ri Inner Ring Corner inch mm	Recommended Shaft Diameter with Inner Ring inch mm			Inner Weight lb kg
Inner Ring		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	Rotating	Stationary	Tol.	
MI 16 N	MS 51962-10	1.000 25.4	+0/-.0005 +0/-.013	1.249 31.7	+0/-.0006 +0/-.015	1.010 25.7	.40 10	1.0004 25.4	.9996 25.4	+0/-.0005 +0/-.013	.13 .06
MI 16	MS 51962-11					1.260 32.0	.40 10	1.001 25.4	1.000 25.4	+0/-.0005 +0/-.013	.16 .07
MI 17		1.063 27.0	+0/-.0005 +0/-.013	1.374 34.9	+0/-.0006 +0/-.015	1.260 32.0	.40 10	1.063 27.0	1.0621 27.0	+0/-.0005 +0/-.013	.16 .07
MI 18 N	MS 51962-12	1.125 28.6	+0/-.0005 +0/-.013	1.374 34.9	+0/-.0006 +0/-.015	1.010 25.7	.40 10	1.1255 28.6	1.1246 28.6	+0/-.0005 +0/-.013	.14 .06
MI 18	MS 51962-13					1.260 32.0	.40 10	1.126 28.6	1.125 28.6	+0/-.0005 +0/-.013	.17 .08
MI 19	MS 51962-14	1.188 30.2	+0/-.0005 +0/-.013	1.499 38.1	+0/-.0006 +0/-.015	1.260 32.0	.06 2	1.188 30.2	1.1871 30.2	+0/-.0005 +0/-.013	.24 .11
MI 20 N	MS 51962-15	1.250 31.8	+0/-.0005 +0/-.013	1.499 38.1	+0/-.0006 +0/-.015	1.010 25.7	.06 2	1.2505 31.8	1.2496 31.8	+0/-.0005 +0/-.013	.19 .09
MI 20	MS 51962-16					1.260 32.0	.06 2	1.251 31.8	1.250 31.8	+0/-.0005 +0/-.013	.22 .09
MI 21 N	MS 51962-17	1.313 33.4	+0/-.0005 +0/-.013	1.624 41.3	+0/-.0006 +0/-.015	1.010 25.7	.06 2	1.313 33.4	1.3121 33.3	+0/-.0005 +0/-.013	.20 .09
MI 21						1.260 32.0	.06 2	1.313 33.4	1.312 33.3	+0/-.0005 +0/-.013	.26 .12
MI 22 4S	MS 51962-18	1.375 34.9	+0/-.0005 +0/-.013	1.624 41.3	+0/-.0006 +0/-.015	1.260 32.0	.06 2	1.3755 35.0	1.3746 34.9	+0/-.0005 +0/-.013	.20 .09
MI 22	MS 51962-19			1.749 44.4	+0/-.0006 +0/-.015	1.260 32.0	.06 2	1.376 35.0	1.375 34.9	+0/-.0005 +0/-.013	.26 .12
MI 23	MS 51962-20	1.438 36.5	+0/-.0005 +0/-.013	1.749 44.4	+0/-.0006 +0/-.015	1.260 32.0	.06 2	1.438 36.5	1.4371 36.5	+0/-.0005 +0/-.013	.27 .12
MI 24 N	MS 51962-21	1.500 38.1	+0/-.0005 +0/-.013	1.749 44.4	+0/-.0006 +0/-.015	1.010 25.7	.06 2	1.5005 38.1	1.4996 38.1	+0/-.0005 +0/-.013	.22 .09
MI 24	MS 51962-22					1.260 32.0	.06 2	1.501 38.1	1.500 38.1	+0/-.0005 +0/-.013	.22 .09
MI 25 4S		1.563 39.7	+0/-.0005 +0/-.013	1.874 47.6	+0/-.0006 +0/-.015	1.260 32.0	.06 2	1.563 39.7	1.5621 39.7	+0/-.0005 +0/-.013	.27 .12
MI 25				1.999 50.8	+0/-.0007 +0/-.018	1.260 32.0	.06 2	1.563 39.7	1.562 39.7	+0/-.0005 +0/-.013	.30 .14
MI 26 N	MS 51962-23	1.625 41.3	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.010 25.7	.06 2	1.6255 41.3	1.6246 41.3	+0/-.0005 +0/-.013	.30 .14
MI 26						1.260 32.0	.06 2	1.6255 41.3	1.6246 41.3	+0/-.0005 +0/-.013	.38 .17
MI 26 2S				1.936 49.2	0/-.0007 +0/-.018	1.260 32.0	.06 2	1.6255 41.3	1.625 41.3	+0/-.0005 +0/-.013	.30 .14
MI 27 N		1.688 42.9	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.010 25.7	.06 2	1.688 42.9	1.6871 42.9	+0/-.0005 +0/-.013	.30 .14
MI 27						1.260 32.0	.06 2	1.688 42.9	1.687 42.9	+0/-.0005 +0/-.013	.32 .15

McGILL® Machined Inner Rings



Basic Construction Type: Thru Hardened Precision Ground Rings

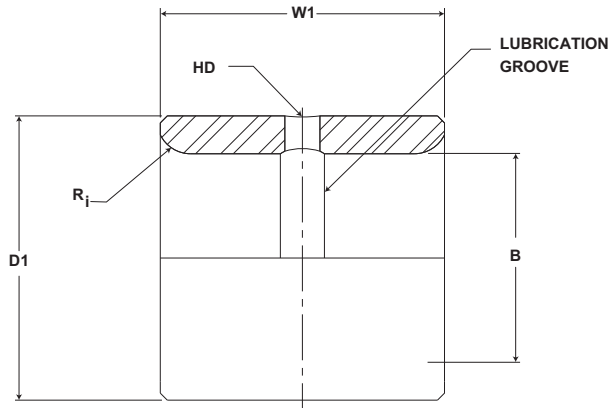
Bearing Material: Bearing Quality Steel



MI Series (continued)

Part No.	Military No.	B Bore Diameter inch mm		D1 Outside Diameter inch mm		W1 Width inch mm	Ri Inner Ring Corner inch mm	Recommended Shaft Diameter with Inner Ring inch mm			Inner Weight lb kg
Inner Ring		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	Rotating	Stationary	Tol.	
MI 27 N		1.688 42.9	+0/-.0005 +0/-.013	1.999 50.8	+0/-.0007 +0/-.018	1.010 25.7	.06 2	1.688 42.9	1.6871 42.9	+0/-.0005 +0/-.013	.32 .15
MI 28	MS 51962-25					1.760 44.7	.06 2	1.751 44.5	1.750 44.5	+0/-.0005 +0/-.013	.63 .29
MI 30		1.875 47.6	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.760 44.7	.06 2	1.8755 47.7	1.8746 47.6	+0/-.0005 +0/-.013	.85 .39
MI 31	MS 51962-26	1.938 49.2	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.510 38.4	.08 2	1.938 49.2	1.9371 49.2	+0/-.0005 +0/-.013	.97 .43
MI 32 N	MS 51962-27	2.000 50.8	+0/-.0005 +0/-.013	2.249 57.1	+0/-.0007 +0/-.018	1.510 38.4	.08 2	2.0005 50.8	1.9996 50.8	+0/-.0005 +0/-.013	.74 .33
MI 32						1.760 44.7	.08 2	2.001 50.8	2.000 50.8	+0/-.0005 +0/-.013	.87 .39
MI 34		2.125 54.0	+0/-.0006 +0/-.015	2.249 57.1	+0/-.0007 +0/-.018	1.760 44.7	.08 2	2.1258 54.0	2.1247 54.0	+0/-.0008 +0/-.020	1.00 .45
MI 35	MS 51962-28	2.188 55.6	+0/-.0006 +0/-.015	2.749 69.8	+0/-.0007 +0/-.018	1.510 38.4	.08 2	2.1883 55.6	2.1872 55.6	+0/-.0008 +0/-.020	1.06 .48
MI 36 N	MS 51962-29	2.250 57.2	+0/-.0006 +0/-.015	2.749 69.8	+0/-.0007 +0/-.018	1.510 38.4	.08 2	2.2508 57.2	2.2497 57.2	+0/-.0008 +0/-.020	.83 .37
MI 36						1.760 44.7	.08 2	2.2508 57.2	2.2497 57.2	+0/-.0008 +0/-.020	.97 .44
MI 38	MS 51962-30	2.375 60.3	+0/-.0006 +0/-.015	2.999 76.2	+0/-.0007 +0/-.018	1.760 44.7	.08 2	2.3758 60.4	2.3747 60.3	+0/-.0008 +0/-.020	1.28 .58
MI 39		2.438 61.9	+0/-.0006 +0/-.015	2.999 76.2	+0/-.0007 +0/-.018	1.510 38.4	.08 2	2.4383 62.0	2.4372 61.9	+0/-.0008 +0/-.020	1.05 .47
MI 40 N	MS 51962-31	2.500 63.5	+0/-.0006 +0/-.015	2.999 76.2	+0/-.0007 +0/-.018	1.510 38.4	.08 2	2.5008 63.5	2.4997 63.5	+0/-.0008 +0/-.020	.92 .43
MI 40						1.760 44.7	.08 2	2.501 63.5	2.500 63.5	+0/-.0008 +0/-.020	1.07 .48
MI 42		2.625 66.7	+0/-.0006 +0/-.015	3.249 82.5	+0/-.0009 +0/-.023	1.760 44.7	.08 2	2.6258 66.7	2.6247 66.7	+0/-.0008 +0/-.020	1.12 .51
MI 44	MS 51962-32	2.750 69.9	+0/-.0006 +0/-.015	3.249 82.5	+0/-.0009 +0/-.023	1.760 44.7	.08 2	2.7508 69.9	2.7497 69.9	+0/-.0008 +0/-.020	1.17 .53
MI 46		2.875 73.1	+0/-.0006 +0/-.015	3.499 88.9	+0/-.0009 +0/-.023	2.010 51.1	.08 2	2.8758 73.1	2.8747 73.0	+0/-.0008 +0/-.020	1.30 .59
MI 47	MS 51962-34	2.938 74.6	+0/-.0006 +0/-.015	3.499 88.9	+0/-.0009 +0/-.023	2.010 51.1	.08 2	2.9383 74.7	2.9372 74.6	+0/-.0008 +0/-.020	1.58 .72
MI 48 N		3.000 76.2	+0/-.0006 +0/-.015	3.499 88.9	+0/-.0009 +0/-.023	1.760 44.7	.08 2	3.0008 76.3	2.9997 76.2	+0/-.0008 +0/-.020	1.32 .59
MI 48						2.010 51.1	.08 2	3.001 76.3	3.000 76.2	+0/-.0008 +0/-.020	1.43 .65
MI 50	MS 51962-35	3.125 79.4	+0/-.0006 +0/-.015	3.749 95.3	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.126 79.4	3.1246 79.4	+0/-.0010 +0/-.025	1.88 .85
MI 52	MS 51962-36	3.250 82.6	+0/-.0006 +0/-.015	3.749 95.3	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.251 82.6	3.2496 82.6	+0/-.0010 +0/-.025	1.52 .69

Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



MI Series (continued)

Part No.	Military No.	B		D1		W1	Ri	Recommended Shaft Diameter with Inner Ring			Inner Weight
		Bore Diameter		Outside Diameter		Width	Inner Ring Corner				
		inch mm		inch mm		inch mm		inch mm			lb kg
Inner Ring		Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	(Ref)	Rotating	Stationary	Tol.	
MI 54	MS 51962-38	3.375 85.8	+0/-.0008 +0/-.020	3.999 101.6	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.3758 85.8	3.3746 85.7	+0/-.0010 +0/-.025	2.04 .93
MI 56		3.500 88.9	+0/-.0008 +0/-.020	3.999 101.6	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.5008 89.0	3.4996 88.9	+0/-.0010 +0/-.025	1.63 .74
MI 56 8G				4.249 108.0	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.501 89.0	3.500 88.9	+0/-.0010 +0/-.025	1.67 .75
MI 58		3.625 92.1	+0/-.0008 +0/-.020	4.249 108.0	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.6258 92.1	3.6246 92.1	+0/-.0010 +0/-.025	1.70 .77
MI 60	MS 51962-40	3.750 95.3	+0/-.0008 +0/-.020	4.249 108.0	+0/-.0009 +0/-.023	2.010 51.1	.10 3	3.7508 95.3	3.7496 95.3	+0/-.0010 +0/-.025	1.75 .79
MI 62		3.875 98.5	+0/-.0008 +0/-.020	4.499 114.3	+0/-.0009 +0/-.023	2.260 57.4	.10 3	3.876 98.5	3.875 98.5	+0/-.0010 +0/-.025	3.25 1.47
MI 64		4.000 101.6	+0/-.0008 +0/-.020	4.999 127.0	+0/-.0010 +0/-.025	2.260 57.4	.10 3	4.001 101.7	4.000 101.6	+0/-.0010 +0/-.025	4.38 1.99
MI 68		4.250 108.0	+0/-.0008 +0/-.020	4.999 127.0	+0/-.0010 +0/-.025	2.260 57.4	.10 3	4.251 108.0	4.250 108.0	+0/-.0010 +0/-.025	5.24 2.37
MI 72 N	MS 51962-43	4.500 114.3	+0/-.0008 +0/-.020	5.499 139.7	+0/-.0010 +0/-.025	2.515 63.9	.10 3	4.501 114.4	4.500 114.3	+0/-.0010 +0/-.025	5.43 2.47
MI 72	MS 51962-44					3.015 76.6	.10 3	4.501 114.4	4.500 114.3	+0/-.0010 +0/-.025	5.97 2.71
MI 80 N	MS 51962-46	5.000 127.1	+0/-.0010 +0/-.025	5.998 152.4	+0/-.0010 +0/-.025	2.515 63.9	.12 3	5.001 127.1	5.000 127.0	+0/-.0010 +0/-.025	5.97 2.71
MI 80						2.010 51.1	.10 3	3.501 89.0	3.500 88.9	+0/-.0010 +0/-.025	7.12 3.23
MI 88 N	MS 51962-48	5.500 139.8	+0/-.0010 +0/-.025	6.498 165.1	+0/-.0010 +0/-.025	2.515 63.9	.12 3	5.501 139.8	5.500 139.7	+0/-.0010 +0/-.025	6.30 2.88
MI 88	MS 51962-49					3.015 76.6	.12 3	5.501 139.8	5.500 139.7	+0/-.0010 +0/-.025	7.56 3.54
MI 96	MS 51962-50	6.000 152.5	+0/-.0010 +0/-.025	7.248 184.2	+0/-.0012 +0/-.030	3.015 76.6	.12 3	6.001 152.5	6.000 152.4	+0/-.0012 +0/-.030	11.06 5.03
MI 104		6.500 165.2	+0/-.0010 +0/-.025	7.748 196.9	+0/-.0012 +0/-.030	3.015 76.6	.12 3	6.501 165.2	6.500 165.2	+0/-.0012 +0/-.030	11.90 5.39
MI 112		7.000 177.9	+0/-.0010 +0/-.025	8.248 209.6	+0/-.0012 +0/-.030	3.015 76.6	.12 3	7.001 177.9	7.000 177.9	+0/-.0012 +0/-.030	12.70 5.77
MI 120		7.500 190.6	+0/-.0012 +0/-.030	8.748 222.3	+0/-.0012 +0/-.030	3.015 76.6	.16 4	7.501 190.6	7.500 190.6	+0/-.0012 +0/-.030	13.60 6.17
MI 128		8.000 203.3	+0/-.0012 +0/-.030	9.248 235.0	+0/-.0012 +0/-.030	3.015 76.6	.16 4	8.001 203.3	8.000 203.3	+0/-.0012 +0/-.030	14.40 6.55

McGill MULTI-ROL Needle Bearings

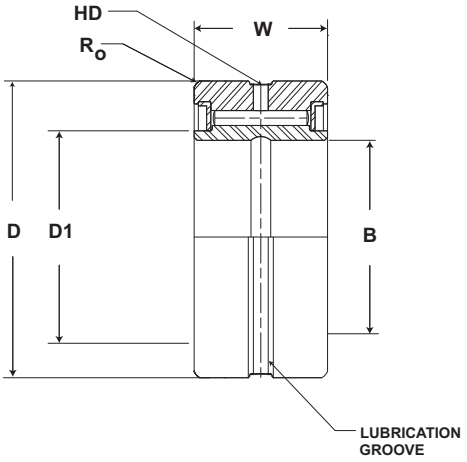
Full complement needle bearing provides high radial load rating with good shaft support, angular rigidity, and is dimensionally equivalent to most plain bearings with bronze or babbitt bushing. Available in both single and two row designs with non separable inner race and metallic shields for pure radial load applications. The angular lube groove provides a circumferential path to direct lubricant to the oil hole.

Basic Construction Type: Full Complement Machined Race Needle Bearing and Non Separable Inner Ring

Rolling Elements: Single Row Precision Ground Needle

Bearing Material: Bearing Quality Steel

Seal Type: Metallic Shield



RS Series

Part No.	B		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Weight
Single Row	Bore Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
	inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
	Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
RS 6	.7500 19.058	+0/-.0004 +0/-.010	1.5000 38.115	+0/-.0005 +0/-.013	.8750 22.234	1.5000 38.115	1.5005 38.128	.0007 0.018	.1250 3.176	.0313 0.794	5,000	3850 17,125	11500 51,152	.26 .12
RS 7	.8750 22.234	+0/-.0005 +0/-.013	1.6250 41.291	+0/-.0005 +0/-.013	1.0000 25.410	1.6250 41.291	1.6255 41.304	.0007 0.018	.1250 3.176	.0313 0.794	4,400	5560 24,731	15550 69,166	.34 .15
RS 8	1.0000 25.410	+0/-.0005 +0/-.013	1.8125 46.056	+0/-.0005 +0/-.013	1.0625 26.998	1.8125 46.056	1.8130 46.068	.0007 0.018	.1250 3.176	.0313 0.794	4,000	6170 27,444	18700 83,178	.42 .19
RS 9	1.1250 28.586	+0/-.0005 +0/-.013	1.9375 49.232	+0/-.0005 +0/-.013	1.0625 26.998	1.9375 49.232	1.9875 50.502	.0007 0.018	.1250 3.176	.0313 0.794	3,600	6500 28,912	20500 91,184	.46 .21
RS 10	1.2500 31.763	+0/-.0005 +0/-.013	2.0625 52.408	+0/-.0006 +0/-.015	1.0625 26.998	2.0625 52.408	2.0630 52.421	.0007 0.018	.1250 3.176	.0313 0.794	3,300	6830 30,380	22400 99,635	.49 .22
RS 12	1.5000 38.115	+0/-.0005 +0/-.013	2.5000 63.525	+0/-.0006 +0/-.015	1.1250 28.586	2.5000 63.525	2.5005 63.538	.0007 0.018	.1250 3.176	.0625 1.588	2,900	7740 34,428	27500 122,320	.83 .37
RS 14	1.7500 44.468	+0/-.0005 +0/-.013	2.7500 69.878	+0/-.0006 +0/-.015	1.1250 28.586	2.7500 69.878	2.7505 69.890	.0007 0.018	.1250 3.176	.0625 1.588	2,500	8330 37,052	31400 139,667	.93 .42
RS 16	2.0000 50.820	+0/-.0005 +0/-.013	3.2500 82.583	+0/-.0006 +0/-.015	1.1875 30.174	3.2499 82.580	3.2505 82.595	.0007 0.018	.1250 3.176	.0625 1.588	2,000	9820 43,679	42200 187,706	1.45 .66
RS 20	2.5000 63.525	+0/-.0006 +0/-.015	3.7500 95.288	+0/-.0008 +0/-.020	1.2500 31.763	3.7498 95.282	3.7507 95.305	.0010 0.025	.1875 4.764	.0938 2.382	1,700	11200 49,818	52900 235,299	1.79 .81
RS 22	2.7500 69.878	+0/-.0006 +0/-.015	4.0000 101.640	+0/-.0008 +0/-.020	1.2500 31.763	3.9998 101.635	4.0007 101.658	.0010 0.025	.1875 4.764	.0938 2.382	1,500	9920 44,124	46700 207,722	2.00 .91
RS 24	3.0000 76.230	+0/-.0006 +0/-.015	4.5000 114.345	+0/-.0008 +0/-.020	1.3750 34.939	4.4998 114.340	4.5007 114.363	.0010 0.025	.1875 4.764	.0938 2.382	1,400	14500 64,496	58100 258,429	2.88 1.31

* For bearing properly filled with #1 grease reduce speed by 50%

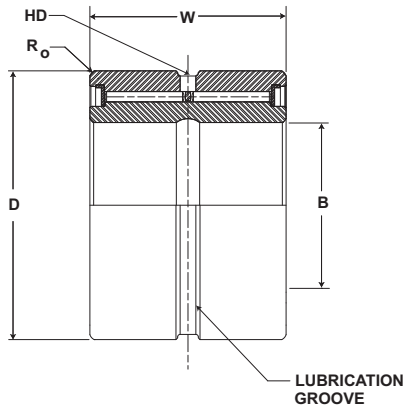
Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.

Basic Construction Type: Full Complement Machined Race Needle Bearing and Non Separable Inner Ring

Rolling Elements: Double Row Precision Ground Needle

Bearing Material: Bearing Quality Steel

Seal Type: Metallic Shield



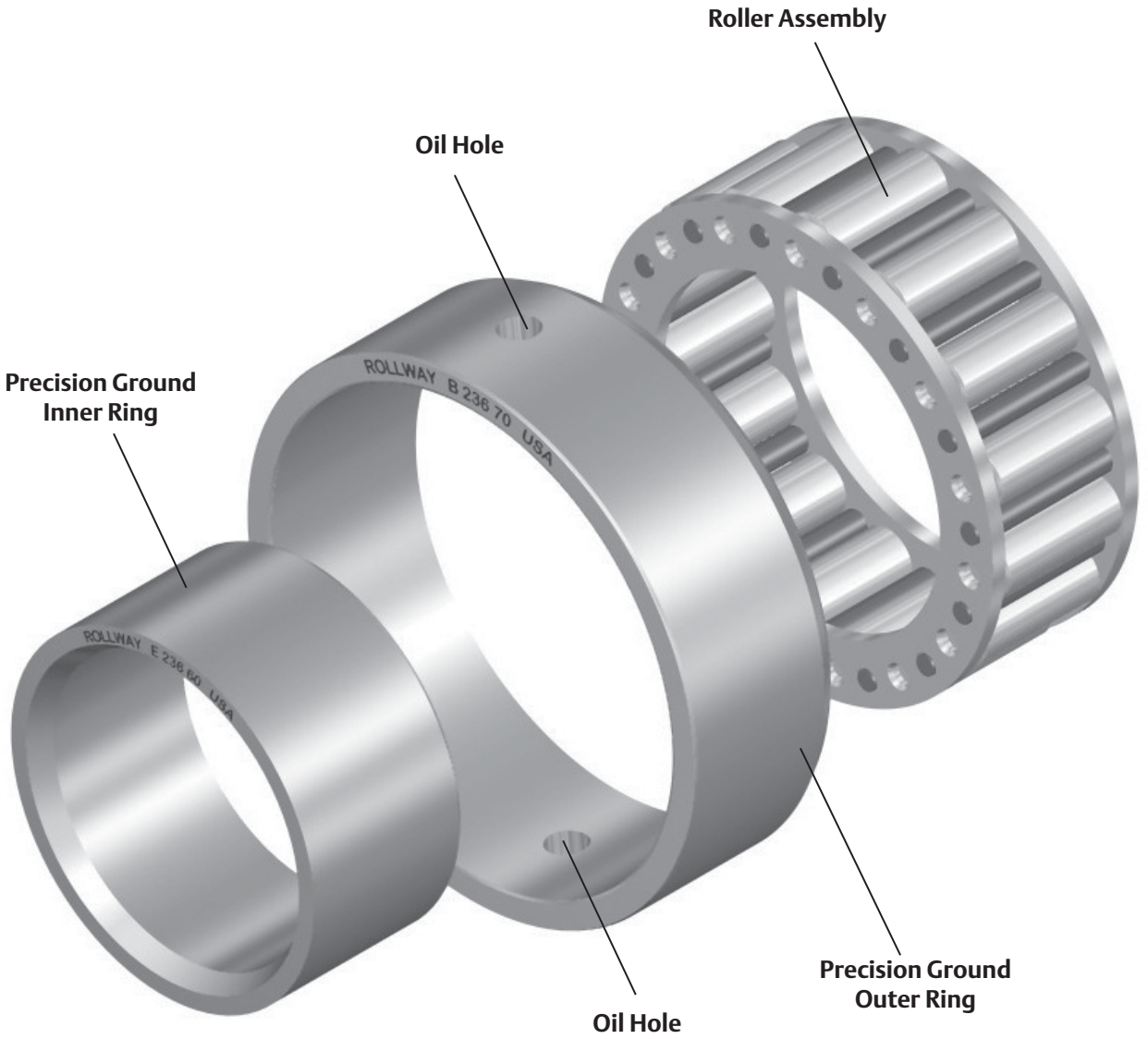
RD Series

Part No.	B		D		W	Housing Bore Diameter			HD	Ro	Limiting Speed (In Oil)*	Basic Dynamic Rating	Basic Static Rating	Weight
Single Row	Bore Diameter		Outside Diameter		Width				Radial Lub. Hole Diameter	Max Hsg Radius to Clear				
	inch mm		inch mm		inch mm	inch mm			inch mm		RPM	lb/N	lb/N	lb kg
	Nom	Tol.	Nom	Tol.	Tol +0/-.005 (+0/.13)	Rotating	Stationary	Tol.	(Ref)	(Ref)				
RD 10	1.2500 31.763	+0/-.0005 +0/-.013	2.0625 52.408	+0/-.0006 +0/-.015	2.2500 57.173	2.0625 52.408	2.0630 52.421	.0007 0.018	.1875 4.764	.0313 0.794	3,300	13600 60,493	54300 241,526	1.16 .53
RD 12	1.5000 38.115	+0/-.0005 +0/-.013	2.5000 63.525	+0/-.0006 +0/-.015	2.3750 60.349	2.5000 63.525	2.5005 63.538	.0007 0.018	.1875 4.764	.0625 1.588	2,900	15200 67,610	65700 292,234	1.83 .83
RD 14	1.7500 44.468	+0/-.0005 +0/-.013	2.7500 69.878	+0/-.0006 +0/-.015	2.3750 60.349	2.7500 69.878	2.7505 69.890	.0007 0.018	.1875 4.764	.0625 1.588	2,500	16400 72,947	75100 334,045	2.06 .93
RD 16	2.0000 50.820	+0/-.0005 +0/-.013	3.2500 82.583	+0/-.0006 +0/-.015	2.3750 60.349	3.2499 82.580	3.2505 82.595	.0007 0.018	.1875 4.764	.0625 1.588	2,000	18300 81,398	94000 418,112	3.09 1.40
RD 18	2.2500 57.173	+0/-.0005 +0/-.013	3.5000 88.935	+0/-.0008 +0/-.020	2.5000 63.525	3.4998 88.930	3.5007 88.953	.0010 0.025	.1875 4.764	.0625 1.588	1,800	19200 85,402	102600 456,365	3.57 1.62
RD 20	2.5000 63.525	+0/-.0006 +0/-.015	3.7500 95.288	+0/-.0008 +0/-.020	2.5000 63.525	3.7498 95.282	3.7507 95.305	.0010 0.025	.1875 4.764	.0938 2.382	1,700	20800 92,518	117000 520,416	3.8 1.72
RD 24	3.0000 76.230	+0/-.0006 +0/-.015	4.5000 114.345	+0/-.0008 +0/-.020	2.7500 69.878	4.4998 114.340	4.5007 114.363	.0010 0.025	.1875 4.764	.0938 2.382	1,400	29400 130,771	144500 642,736	6.14 2.78
RD 28	3.5000 88.935	+0/-.0008 +0/-.020	5.0000 127.050	+0/-.0010 +0/-.025	3.0000 76.230	5.0003 127.058	5.0011 127.078	.0015 0.038	.1875 4.764	.0938 2.382	1,250	34400 153,011	184900 822,435	7.54 3.42
RD 32	4.0000 101.640	+0/-.0008 +0/-.020	5.5000 139.755	+0/-.0010 +0/-.025	3.0000 76.230	5.5003 139.763	5.5011 139.783	.0015 0.038	.1875 4.764	.0938 2.382	1,100	34600 153,901	194600 865,581	8.29 3.76

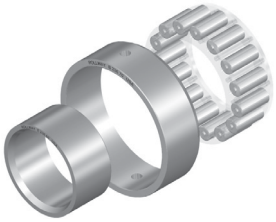
* For bearing properly filled with #1 grease reduce speed by 50%

Rollway Journal Roller Bearings

Rollway Journal bearings feature through hardened bearing quality steel raceways, with an oil hole in the outer raceway, “trunion style” rollers, and a non-separable steel retainer (cage) assembly. The bearing design is well suited for high radial load, low speed applications. Rollway Journal bearings are available as components or complete assemblies and conform to industry dimensions and manufactured with Rollway quality standards. Depending on your preference, these bearings are available in a wide variety of sizes and options as illustrated on the pages to follow.



Features and Benefits



Precision Ground Races and Rollers

Races and Rollers are manufactured from high quality, bearing grade steel and are hardened to Rc 58 minimum.

Roller Assembly

Roller assemblies have flush ground ends and heavy duty built-up retainers featuring steel stay rods rigidly held between stamped steel endplates.

Oil Holes

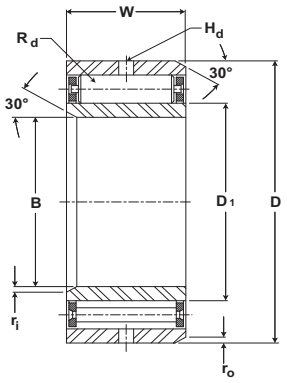
All outer rings are supplied with oil holes in the outer race to allow lubrication.

Basic Construction Type: Journal Roller Bearing

Rolling Elements: Trunion Style Cylindrical Rollers

Bearing Material: Bearing Grade Quality Steel

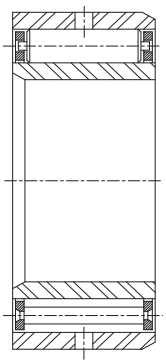
Retainer Type: Steel Cage With Flush Ground Ends



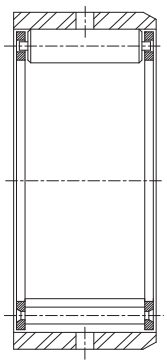
Journals

Complete Assembly Nomenclature	B	D	W	Recommended Shaft Diameter		Housing Bore Diameter	
	Bore Diameter	Outside Diameter	Width	Max	Min	Max	Min
	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
D-305-18	0.9843 25	2.441 62	1.125 28.58	0.9850 25.02	0.9845 25.01	2.4419 62.024	2.4409 61.999
D-206-13	1.1811 30	2.441 62	0.813 20.64	1.1819 30.02	1.1814 30.01	2.4419 62.024	2.4409 61.999
D-206-18			1.125 28.58	1.1819 30.02	1.1814 30.01	2.4419 62.024	2.4409 61.999
D-207-15	1.3779 35	2.835 72.00	0.938 23.81	1.3788 35.02	1.3783 35.01	2.8357 72.027	2.8346 71.999
D-207-19			1.188 30.16	1.3788 35.02	1.3783 35.01	2.8357 72.027	2.8346 71.999
D-307		3.15 80	1.375 34.93	1.3788 35.02	1.3783 35.01	3.1508 80.030	3.1496 80.000
D-208-16	1.5748 40	3.15 80	1 25.4	1.5758 40.03	1.5752 40.01	3.1508 80.030	3.1496 80.000
D-208-22			1.375 34.93	1.5758 40.03	1.5752 40.01	3.1508 80.030	3.1496 80.000
D-209-18	1.7717 45	3.347 85	1.125 28.58	1.7728 45.03	1.7722 45.01	3.3478 85.034	3.3465 85.001
D-209-25			1.563 39.69	1.7728 45.03	1.7722 45.01	3.3478 85.034	3.3465 85.001
D-309		3.937 100	1.563 39.69	1.7728 45.03	1.7722 45.01	3.9384 100.035	3.9369 99.997
D-210-20	1.9685 50	3.543 90	1.25 31.75	1.9697 50.03	1.9691 50.02	3.5446 90.033	3.5432 89.997
D-210-28			1.75 44.45	1.9697 50.03	1.9691 50.02	3.5446 90.033	3.5432 89.997
D-210-56			3.5 88.90	1.9697 50.03	1.9691 50.02	3.5446 90.033	3.5432 89.997
D-211	2.1654 55	3.937 100	1.313 33.34	2.1666 55.03	2.1660 55.02	3.9384 100.035	3.9369 99.997
D-211-29			1.813 46.04	2.1666 55.03	2.1660 55.02	3.9384 100.035	3.9369 99.997
D-211-58			3.625 92.08	2.1666 55.03	2.1660 55.02	3.9384 100.035	3.9369 99.997
D-311		4.724 120	1.938 49.21	2.1666 55.03	2.1660 55.02	4.726 120.040	4.7243 119.997
D-212	2.3622 60	4.331 110	1.438 36.51	2.3635 60.03	2.3628 60.02	4.3322 110.038	4.3306 109.997
D-212-31			1.938 49.21	2.3635 60.03	2.3628 60.02	4.3322 110.038	4.3306 109.997
D-212-62			3.875 98.43	2.3635 60.03	2.3628 60.02	4.3322 110.038	4.3306 109.997

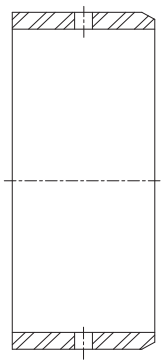
For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
Journal bearings and manufactured to the ABMA RBEC-1 tolerance class.
Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



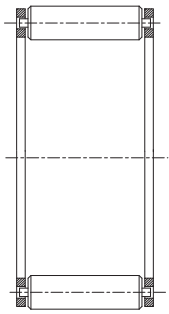
Assembly
D-XXX



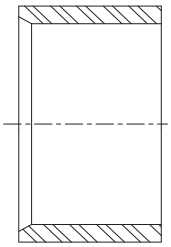
Outer Ring and Roller Assembly
B-XXX



Outer Ring
B-XXX-70



Roller Assembly
WS-XXX



Inner Ring
E-XXX-60

Journals

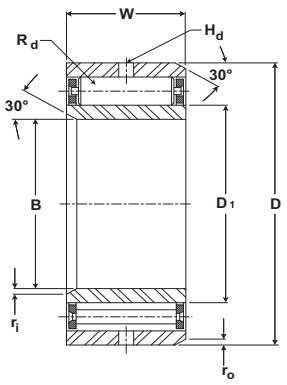
D1	Rd	ri	ro	Hd	Components			Assembly Basic Dynamic Rating	Assembly Basic Static Rating	Assembly weight
				Oil Hole Dia	Component Nomenclature					
inch mm	inch mm	inch mm	inch mm	inch mm	Inner Ring	Outer Ring	Roller Assembly	lb/N	lb/N	lb kg
1.2500 31.75	0.4375 11.11	0.062 1.57	0.062 1.57	0.250 6.35	E-305-18-60	B-305-18-70	WS-305-18	8,000 35,900	12,200 54,200	1.0 0.5
1.5000 38.10	0.3125 7.94	0.062 1.57	0.062 1.57	0.265 6.73	E-206-13-60	B-206-13-70	WS-206-13	6,900 30,900	13,000 58,100	0.7 0.3
1.5000 38.10	0.3125 7.94	0.062 1.57	0.062 1.57	0.265 6.73	E-206-18-60	B-206-18-70	WS-206-18	10,000 44,400	20,800 92,700	1.0 0.5
1.7500 44.45	0.3750 9.53	0.062 1.57	0.062 1.57	0.250 6.35	E-207-15-60	B-207-15-70	WS-207-15	9,600 42,700	18,000 80,200	1.0 0.5
1.7500 44.45	0.3750 9.53	0.062 1.57	0.062 1.57	0.250 6.35	E-207-19-60	B-207-19-70	WS-207-19	12,400 55,100	24,900 111,100	1.3 0.6
1.7500 44.45	0.5000 12.75	0.062 1.57	0.078 1.98	0.250 6.35	E-307-60	B-307-70	WS-307	12,900 57,600	24,500 108,900	2.0 0.9
2.0000 50.8	0.3750 9.53	0.078 1.98	0.078 1.98	0.250 6.35	E-208-16-60	B-208-16-70	WS-208-16	10,000 44,600	19,300 85,800	1.5 0.7
2.0000 50.8	0.3750 9.53	0.078 1.98	0.078 1.98	0.250 6.35	E-208-22-60	B-208-22-70	WS-208-22	14,100 62,900	29,900 133,400	2.0 0.9
2.1870 55.55	0.3750 9.53	0.078 1.98	0.078 1.98	0.250 6.35	E-209-18-60	B-209-18-70	WS-209-18	12,600 56,000	26,500 117,900	1.8 0.8
2.1870 55.55	0.3750 9.53	0.078 1.98	0.078 1.98	0.250 6.35	E-209-25-60	B-209-25-70	WS-209-25	17,600 78,500	40,900 182,300	2.5 1.1
2.2490 57.12	0.6250 15.88	0.094 2.39	0.078 1.98	0.328 8.33	E-309-60	B-309-70	WS-309	20,200 90,200	35,500 158,200	3.6 1.6
2.3750 60.33	0.3750 9.53	0.078 1.98	0.078 1.98	0.312 7.92	E-210-20-60	B-210-20-70	WS-210-20	14,500 64,500	32,500 144,500	2.1 0.9
2.3750 60.33	0.3750 9.53	0.078 1.98	0.078 1.98	0.312 7.92	E-210-28-60	B-210-28-70	WS-210-28	20460 91011	49,400 219,900	3.0 1.4
2.3750 60.33	0.3750 9.53	0.078 1.98	0.078 1.98	0.312 7.92	E-210-56-60	B-210-56-70	WS-210-28 (X2)	35,400 157,600	102,400 455,800	5.9 2.7
2.6250 66.68	0.4375 11.11	0.078 1.98	0.078 1.98	0.312 7.92	E-211-60	B-211-70	WS-211	18,200 81,100	40,600 180,900	2.7 1.2
2.6250 66.68	0.4375 11.11	0.078 1.98	0.078 1.98	0.312 7.92	E-211-29-60	B-211-29-70	WS-211-29	25,200 112,100	61,600 274,100	3.9 1.8
2.6250 66.68	0.4375 11.11	0.078 1.98	0.078 1.98	0.312 7.92	E-211-58-60	B-211-58-70	WS-211-58	43,200 192,300	123,200 548,200	7.8 3.5
2.7500 69.85	0.6875 17.46	0.109 2.77	0.109 2.77	0.375 9.53	E-311-60	B-311-70	WS-311	31,400 139,700	62,500 278,000	6.6 3.0
2.8750 73.03	0.5000 12.75	0.094 2.39	0.094 2.39	0.312 7.92	E-212-60	B-212-70	WS-212	21,000 93,700	45,700 203,600	3.7 1.7
2.8750 73.03	0.5000 12.75	0.094 2.39	0.094 2.39	0.312 7.92	E-212-31-60	B-212-31-70	WS-212-31			5.0 2.0
2.8750 73.03	0.5000 12.75	0.094 2.39	0.094 2.39	0.328 8.33	E-212-62-60	B-212-62-70	WS-212-31 (X2)	48,900 217,700	135,400 602,200	9.9 4.5

Basic Construction Type: Journal Roller Bearing

Rolling Elements: Trunion Style Cylindrical Rollers

Bearing Material: Bearing Grade Quality Steel

Retainer Type: Steel Cage With Flush Ground Ends



Journals (continued)

Complete Assembly Nomenclature	B	D	W	Recommended Shaft Diameter		Housing Bore Diameter	
	Bore Diameter	Outside Diameter	Width	Max	Min	Max	Min
	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
D-213	2.5591 65	4.7244 120	1.5 38.10	2.5605 65.04	2.5598 65.02	4.726 120.040	4.7243 119.997
D-213-33			2.063 52.40	2.5605 65.04	2.5598 65.02	4.726 120.040	4.7243 119.997
D-313-35		5.5118 140	2.188 55.58	2.5605 65.04	2.5598 65.02	5.5135 140.043	5.5116 139.995
D-313			2.313 58.74	2.5605 65.04	2.5598 65.02	5.5135 140.043	5.5116 139.995
D-214-26	2.7559 70	4.921 125	1.625 41.28	2.7574 70.04	2.7566 70.02	4.9229 125.042	4.9212 124.998
D-214-38			2.375 60.33	2.7574 70.04	2.7566 70.02	4.9229 125.042	4.9212 124.998
D-214-76			4.75 120.65	2.7574 70.04	2.7566 70.02	4.9229 125.042	4.9212 124.998
D-215	2.9528 75	5.118 130	1.625 41.28	2.9544 75.04	2.9536 75.02	5.1197 130.040	5.1179 129.995
D-215-28			1.75 44.45	2.9544 75.04	2.9536 75.02	5.1197 130.040	5.1179 129.995
D-215-42			2.625 66.68	2.9544 75.04	2.9536 75.02	5.1197 130.040	5.1179 129.995
D-215-84			5.25 133.35	2.9544 75.04	2.9536 75.02	5.1197 130.040	5.1179 129.995
D-315-39		6.299 160	2.438 61.91	2.9544 75.04	2.9536 75.02	6.3011 160.048	6.299 159.995
D-216	3.1496 80	5.512 140	1.75 44.45	3.1512 80.04	3.1504 80.02	5.5135 140.043	5.5116 139.995
D-216-29			1.813 46.04	3.1512 80.04	3.1504 80.02	5.5135 140.043	5.5116 139.995
D-216-42			2.625 66.68	3.1512 80.04	3.1504 80.02	5.5135 140.043	5.5116 139.995
D-216-84			5.25 133.35	3.1512 80.04	3.1504 80.02	5.5135 140.043	5.5116 139.995
D-316		6.693 170	2.688 68.26	3.1512 80.04	3.1504 80.02	6.6948 170.048	6.6926 169.992
D-217	3.3465 85	5.906 150	1.938 49.21	3.3482 85.04	3.3474 85.02	5.9073 150.045	5.9053 149.995
D-217-44			2.75 69.85	3.3482 85.04	3.3474 85.02	5.9073 150.045	5.9053 149.995
D-317		7.087 180	2.875 73.03	3.3482 85.04	3.3474 85.02	7.0886 180.050	7.0863 179.992

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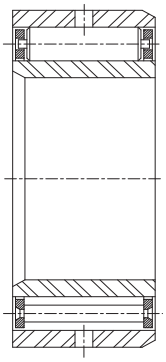
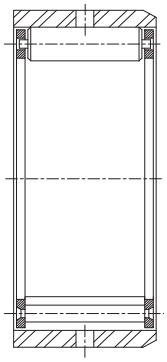
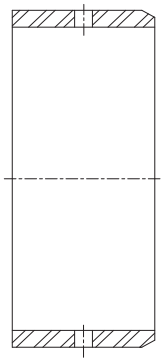


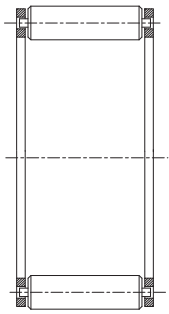
Assembly
D-XXX



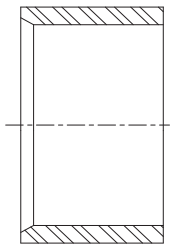
Outer Ring and Roller Assembly
B-XXX



Outer Ring
B-XXX-70



Roller Assembly
WS-XXX



Inner Ring
E-XXX-60

Journals (continued)

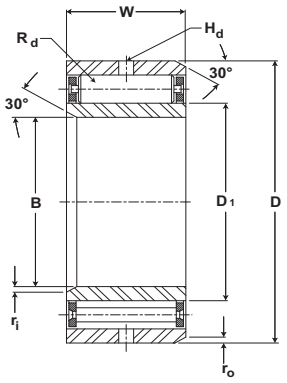
D1	Rd	ri	ro	Hd	Components			Assembly Basic Dynamic Rating	Assembly Basic Static Rating	Assembly weight
				Oil Hole Dia	Component Nomenclature					
inch mm	inch mm	inch mm	inch mm	inch mm	Inner Ring	Outer Ring	Roller Assembly	lb/N	lb/N	lb kg
3.1250 79.38	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-213-60	B-213-70	WS-213	20,800 92,800	46,000 204,600	4.7 2.1
3.1250 79.38	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-213-33-60	B-213-33-70	WS-213-33	28,700 127,700	69,400 308,800	6.4 2.9
3.2500 82.55	0.8125 20.64	0.125 3.18	0.125 3.18	0.437 11.11	E-313-35-60	B-313-35-70	WS-313-35	40,800 181,800	82,000 365,000	9.9 4.5
3.2500 82.55	0.8125 20.64	0.125 3.18	0.125 3.18	0.468 11.89	E-313-60	B-313-70	WS-313	42,900 190,900	87,300 388,500	10.0 4.5
3.3120 84.12	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-214-26-60	B-214-26-70	WS-214-26	25,800 115,100	62,000 275,700	5.3 2.4
3.3120 84.12	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-214-38-60	B-214-38-70	WS-214-38	37,400 166,500	99,600 443,300	7.6 3.5
3.3120 84.12	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-214-76-60	B-214-76-70	WS-214-38 (X2)	64,200 285,500	199,300 886,600	15.0 7.0
3.5000 88.90	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-215-60	B-215-70	WS-215	25,700 114,500	62,400 277,700	5.6 2.5
3.5000 88.90	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-215-28-60	B-215-28-70	WS-215-28	27,700 123,400	68,700 305,600	6.0 2.7
3.5000 88.90	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-215-42-60	B-215-42-70	WS-215-42	40,800 181,800	113,000 502,700	9.1 4.0
3.5000 88.90	0.5000 12.75	0.109 2.77	0.109 2.77	0.375 9.53	E-215-84-60	B-215-84-70	WS-215-42 (X2)	84,700 376,900	288,600 1,283,800	18.0 8.2
3.7500 95.25	0.9375 23.81	0.156 3.96	0.125 3.18	0.437 11.11	E-315-39-60	B-315-39-70	WS-315-39	50,200 223,500	101,300 450,700	14.0 6.4
3.7500 95.25	0.5625 14.29	0.125 3.18	0.125 3.18	0.438 11.13	E-216-60	B-216-70	WS-216	31,600 140,700	76,800 341,900	7.0 3.2
3.7500 95.25	0.5625 14.29	0.125 3.18	0.125 3.18	0.438 11.13	E-216-29-60	B-216-29-70	WS-216-29	52,700 234,400	79,200 352,500	7.6 3.5
3.7500 95.25	0.5625 14.29	0.125 3.18	0.125 3.18	0.438 11.13	E-216-42-60	B-216-42-70	WS-216-42	46,600 207,200	126,400 562,300	10.0 5.0
3.7500 95.25	0.5625 14.29	0.125 3.18	0.125 3.18	0.438 11.13	E-216-84-60	B-216-84-70	WS-216-42 (X2)	79,900 355,400	252,800 1,124,600	20.0 9.0
4.000 101.6	1.0000 25.40	0.156 3.96	0.125 3.18	0.438 11.13	E-316-60	B-316-70	WS-316	57,930 257,600	118,600 527,800	17.0 7.7
4.0000 101.6	0.6250 15.88	0.125 3.18	0.125 3.18	0.438 11.13	E-217-60	B-217-70	WS-217	34,100 151,700	80,000 355,900	9.0 4.1
4.0000 101.6	0.6250 15.88	0.125 3.18	0.125 3.18	0.438 11.13	E-217-44-60	B-217-44-70	WS-217-44	47,400 211,100	122,300 544,200	13.0 5.9
4.2500 107.95	1.0000 25.40	0.156 3.96	0.156 3.96	0.562 14.27	E-314-60	B-317-70	WS-317	57,900 257,900	120,000 533,800	21.0 9.5

Basic Construction Type: Journal Roller Bearing

Rolling Elements: Trunion Style Cylindrical Rollers

Bearing Material: Bearing Grade Quality Steel

Retainer Type: Steel Cage With Flush Ground Ends



Journals (continued)

Complete Assembly Nomenclature	B	D	W	Recommended Shaft Diameter		Housing Bore Diameter	
	Bore Diameter	Outside Diameter	Width	Max	Min	Max	Min
	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
D-218	3.5433 90	6.299 160	2.063 52.39	3.5450 90.04	3.5442 90.02	6.3011 160.048	6.299 159.995
D-218-45			2.8125 71.44	3.5450 90.04	3.5442 90.02	6.3011 160.048	6.299 159.995
D-219	3.7402 95	6.693 170	2.188 55.56	3.7420 95.05	3.7412 95.03	6.6948 170.048	6.6926 169.992
D-219-48			3.000 76.2	3.7420 95.05	3.7412 95.03	6.6948 170.048	6.6926 169.992
D-319		7.874 200	3.063 77.79	3.7420 95.05	3.7412 95.03	7.8762 200.055	7.8737 199.992
D-319-50			3.125 79.38	3.7420 95.05	3.7412 95.03	7.8762 200.055	7.8737 199.992
D-220-37	3.9370 100	7.087 180	2.313 58.74	3.9389 100.05	3.9380 100.03	7.0886 180.050	7.0863 179.992
D-220			2.375 60.33	3.9389 100.05	3.9380 100.03	7.0886 180.050	7.0863 179.992
D-220-52			3.25 82.55	3.9389 100.05	3.9380 100.03	7.0886 180.050	7.0863 179.992
D-220-104			6.5 165.10	3.9389 100.05	3.9380 100.03	7.0886 180.050	7.0863 179.992
D-320		8.465 215	3.25 82.55	3.9389 100.05	3.9380 100.03	8.4669 215.059	8.4643 214.993
D-222-41	4.3307 110	7.874 200	2.563 65.09	4.3328 110.05	4.3318 110.03	7.8762 200.055	7.8737 199.992
D-222			2.75 69.85	4.3328 110.05	4.3318 110.03	7.8762 200.055	7.8737 199.992
D-222-56			3.5 88.90	4.3328 110.05	4.3318 110.03	7.8762 200.055	7.8737 199.992
D-222-112			7 177.80	4.3328 110.05	4.3318 110.03	7.8762 200.055	7.8737 199.992
D-322		9.449 240	3.625 92.08	4.3328 110.05	4.3318 110.03	9.4512 240.060	9.4484 239.989
D-322-60			3.75 95.25	4.3328 110.05	4.3318 110.03	9.4512 240.060	9.4484 239.989
D-224-45	4.7244 120	8.465 215	2.813 71.44	4.7266 120.06	4.7256 120.03	8.4669 215.059	8.4643 214.993
D-224			3.00 76.2	4.7266 120.06	4.7256 120.03	8.4669 215.059	8.4643 214.993
D-224-62			3.875 98.425	4.7266 120.06	4.7256 120.03	8.4669 215.059	8.4643 214.993
D-324		10.236 260	4.125 104.78	4.7266 120.06	4.7256 120.03	10.2388 260.066	10.2358 259.989

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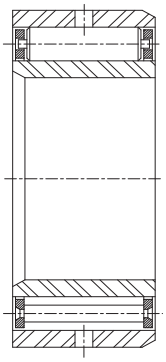
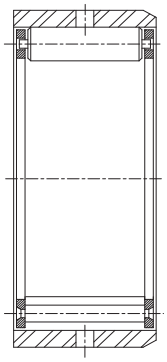
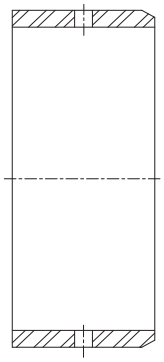


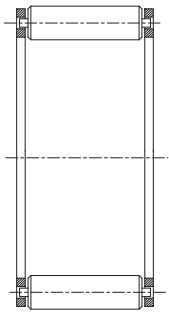
Assembly
D-XXX



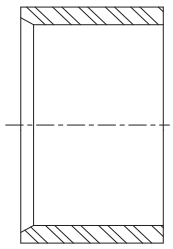
Outer Ring and Roller Assembly
B-XXX



Outer Ring
B-XXX-70



Roller Assembly
WS-XXX



Inner Ring
E-XXX-60

Journals (continued)

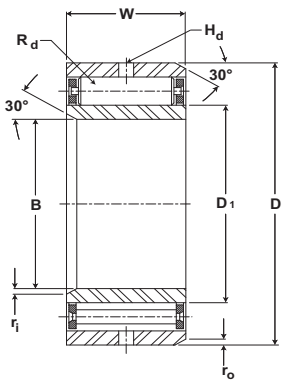
D1	Rd	ri	ro	Hd	Components			Assembly Basic Dynamic Rating	Assembly Basic Static Rating	Assembly weight
				Oil Hole Dia	Component Nomenclature					
inch mm	inch mm	inch mm	inch mm	inch mm	Inner Ring	Outer Ring	Roller Assembly	lb/N	lb/N	lb kg
4.2480 107.90	0.6875 17.46	0.125 3.18	0.125 3.18	0.438 11.13	E-218-60	B-218-70	WS-218	37,900 168,500	87,600 389,700	11.0 5.0
4.2480 107.90	0.6875 17.46	0.125 3.18	0.125 3.18	0.438 11.13	E-218-45-60	B-218-45-70	WS-218-45	51,600 229,700	130,400 580,100	15.0 6.8
4.5000 114.30	0.7500 19.05	0.125 3.18	0.125 3.18	0.438 11.13	E-219-60	B-219-70	WS-219	46,500 206,900	109,700 488,300	15.0 6.8
4.5000 114.30	0.7500 19.05	0.125 3.18	0.125 3.18	0.438 11.13	E-219-48-60	B-219-48-70	WS-219-48	63,400 282,100	163,500 727,500	18.0 8.2
4.7500 120.65	1.1250 28.58	0.187 4.75	0.156 3.96	0.562 14.27	E-319-60	B-319-70	WS-319	66,000 293,800	135,500 602,900	28.0 12.7
4.7500 120.65	1.1250 28.58	0.187 4.75	0.156 3.96	0.562 14.27	E-319-50-60	B-319-50-70	WS-319-50	67,500 300,500	139,500 620,700	29.0 13.2
4.7500 120.65	0.7500 19.05	0.156 3.96	0.156 3.96	0.562 14.27	E-220-37-60	B-220-37-70	WS-220-37	49,000 218,000	118,000 529,100	16.0 7.3
4.7500 120.65	0.7500 19.05	0.156 3.96	0.156 3.96	0.562 14.27	E-220-60	B-220-70	WS-220	50,300 223,800	123,000 547,500	17.0 7.7
4.7500 120.65	0.7500 19.05	0.156 3.96	0.156 3.96	0.562 14.27	E-220-52-60	B-220-52-70	WS-220-52	68,000 302,700	181,300 806,800	23.0 10.5
4.7500 120.65	0.7500 19.05	0.156 3.96	0.156 3.96	0.562 14.27	E-220-104-60	B-220-104-70	WS-220-52 (X2)	116,600 519,000	362,700 1,613,700	45.0 20.5
5.0000 127.0	1.2500 31.75	0.187 4.75	0.187 4.75	0.562 14.27	E-320-60	B-320-70	WS-320	92,800 412,800	200,400 891,400	34.0 15.5
5.2500 133.35	0.8750 22.23	0.156 3.96	0.156 3.96	0.562 14.27	E-222-41-60	B-222-41-70	WS-222-41	59,800 266,300	142,800 635,500	22.0 10.0
5.2500 133.35	0.8750 22.23	0.156 3.96	0.156 3.96	0.562 14.27	E-222-60	B-222-70	WS-222	64,200 285,600	156,300 695,300	23.0 10.5
5.2500 133.35	0.8750 22.23	0.156 3.96	0.156 3.96	0.562 14.27	E-222-56-60	B-222-56-70	WS-222-56	80,900 359,900	210,500 936,300	30.0 13.6
5.2500 133.35	0.8750 22.23	0.156 3.96	0.156 3.96	0.562 14.27	E-222-112-60	B-222-112-70	WS-222-56 (X2)	138,700 617,100	421,000 1,872,700	59.0 26.8
5.5000 139.70	1.3750 34.93	0.219 5.56	0.219 5.56	0.562 14.27	E-322-60	B-322-70	WS-322	101,600 452,300	216,600 963,800	49.0 22.3
5.5000 139.70	1.3750 34.93	0.219 5.56	0.219 5.56	0.562 14.27	E-322-60-60	B-322-60-70	WS-322-60	105,000 467,400	226,020 1,005,300	51.0 23.2
5.6250 142.88	0.9375 23.81	0.156 3.96	0.187 4.75	0.562 14.27	E-224-45-60	B-224-45-70	WS-224-45	72,200 321,200	177,100 787,700	28.0 12.7
5.6250 142.88	0.9375 23.81	0.156 3.96	0.187 4.75	0.562 14.27	E-224-60	B-224-70	WS-224	76,700 341,400	191,500 852,200	29.0 13.2
5.6250 142.88	0.9375 23.81	0.156 3.96	0.187 4.75	0.562 14.27	E-224-62-60	B-224-62-70	WS-224-62	95,600 425,500	254,200 1,130,800	38.0 17.0
6.0620 153.97	1.3750 34.93	0.250 6.35	0.250 6.35	0.562 14.27	E-324-60	B-324-70	WS-324	123,400 549,000	283,600 1,261,700	67.0 30.0

Basic Construction Type: Journal Roller Bearing

Rolling Elements: Trunion Style Cylindrical Rollers

Bearing Material: Bearing Grade Quality Steel

Retainer Type: Steel Cage With Flush Ground Ends

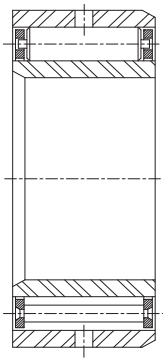


Journals (continued)

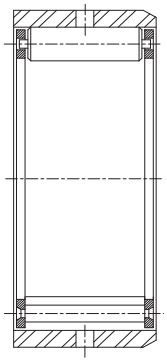
Complete Assembly Nomenclature	B	D	W	Recommended Shaft Diameter		Housing Bore Diameter	
	Bore Diameter	Outside Diameter	Width	Max	Min	Max	Min
	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
D-226	5.1181 130	9.055 230	3.125 79.38	5.1204 130.06	5.1194 130.03	9.0574 230.058	9.0547 229.989
D-226-68			4.25 107.95	5.1204 130.06	5.1194 130.03	9.0574 230.058	9.0547 229.989
D-226-136			8.5 215.90	5.1204 130.06	5.1194 130.03	9.0574 230.058	9.0547 229.989
D-326		11.024 280	4.375 111.13	5.1204 130.06	5.1194 130.03	11.0263 280.068	11.0231 279.987
D-228	5.5118 140	9.843 250	3.25 82.55	5.5142 140.06	5.5131 140.03	9.845 250.063	9.8421 249.989
D-228-76			4.75 120.65	5.5142 140.06	5.5131 140.03	9.845 250.063	9.8421 249.989
D-228-152			9.5 241.3	5.5142 140.06	5.5131 140.03	9.845 250.063	9.8421 249.989
D-230	5.9055 150	10.63 270	3.5 88.90	5.9080 150.06	5.9069 150.04	10.6326 270.068	10.6295 269.989
D-230-76			4.75 120.65	5.9080 150.06	5.9069 150.04	10.6326 270.068	10.6295 269.989
D-232	6.2992 160	11.417 290	3.875 98.43	6.3019 160.07	6.3007 160.04	11.4201 290.071	11.4168 289.987
D-232-78			4.875 123.83	6.3019 160.07	6.3007 160.04	11.4201 290.071	11.4168 289.987
D-232-156			9.75 247.65	6.3019 160.07	6.3007 160.04	11.4201 290.071	11.4168 289.987
D-234-86	6.6929 170	12.205 310	5.375 136.53	6.6957 170.07	6.6944 170.04	12.2076 310.073	12.2042 309.987
D-234-172			10.75 273.05	6.6957 170.07	6.6944 170.04	12.2076 310.073	12.2042 309.987
D-236-94	7.0866 180	12.598 320	5.875 149.23	7.0895 180.07	7.0882 180.04	12.6013 320.073	12.5978 319.984
SD-240	7.8740 200	13.386 340	4.75 120.65	7.8770 200.08	7.8757 200.04	13.3888 340.076	13.3852 339.984
SD240-110			6.875 174.63	7.8770 200.08	7.8757 200.04	13.3888 340.076	13.3852 339.984
SD-244-110	8.6614 220	14.961 380	6.875 174.63	8.6644 220.08	8.6631 220.04	14.9637 380.078	14.9599 379.981

For sealed bearings, Outside diameter may be slightly oversize due to seal press fit.
Journal bearings and manufactured to the ABMA RBEC-1 tolerance class.

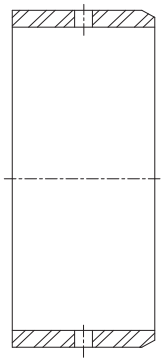
Metric dimensions for reference only.
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.
For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



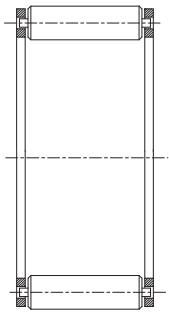
Assembly
D-XXX



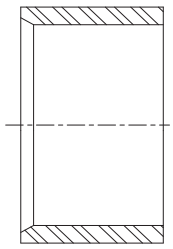
Outer Ring and Roller Assembly
B-XXX



Outer Ring
B-XXX-70



Roller Assembly
WS-XXX



Inner Ring
E-XXX-60

Journals (continued)

D1	Rd	ri	ro	Hd	Components			Assembly Basic Dynamic Rating	Assembly Basic Static Rating	Assembly weight
				Oil Hole Dia	Component Nomenclature					
inch mm	inch mm	inch mm	inch mm	inch mm	Inner Ring	Outer Ring	Roller Assembly	lb/N	lb/N	lb kg
6.062 153.97	1.0000 25.40	0.156 3.96	0.187 4.75	0.562 14.27	E-226-60	B-226-70	WS-226	89,600 398,800	229,300 1,020,200	33.0 15.0
6.062 153.97	1.0000 25.40	0.156 3.96	0.187 4.75	0.562 14.27	E-226-68-60	B-226-68-70	WS-226-68	117,100 520,800	323,200 1,437,700	45.0 20.0
6.062 153.97	1.0000 25.40	0.156 3.96	0.187 4.75	0.562 14.27	E-226-136-60	B-226-136-70	WS-226-68 (X2)	200,700 893,000	646,400 2,875,500	90.0 41.0
6.5580 166.57	1.5000 38.10	0.250 6.35	0.250 6.35	0.562 14.27	E-326-60	B-326-70	WS-326	143,500 638,300	332,500 1,479,300	80.0 36.0
6.6250 168.28	1.0625 26.99	0.219 5.56	0.219 5.56	0.562 14.27	E-228-60	B-228-70	WS-228	99,000 440,500	256,400 1,140,600	43.0 20.0
6.6250 168.28	1.0625 26.99	0.219 5.56	0.219 5.56	0.562 14.27	E-228-76-60	B-228-76-70	WS-228-76	137,700 612,800	391,800 1,743,200	63.0 29.0
6.6250 168.28	1.0625 26.99	0.219 5.56	0.219 5.56	0.563 14.30	E-228-152-60	B-228-152-70	WS-228-76 (X2)	236,200 1,050,600	783,800 3,486,500	125.0 57.0
7.0620 179.37	1.1875 30.16	0.219 5.56	0.219 5.56	0.625 15.88	E-230-60	B-230-70	WS-230	128,500 571,700	341,200 1,517,700	52.0 24.0
7.0620 179.37	1.1875 30.16	0.219 5.56	0.250 6.35	0.625 15.88	E-230-76-60	B-230-76-70	WS-230-76	169,800 755,500	488,290 2,172,000	70.0 32.0
7.6250 193.68	1.2500 31.75	0.250 6.35	0.250 6.35	0.625 15.88	E-232-60	B-232-70	WS-232	149,000 662,900	407,000 1,810,700	67.0 30.0
7.6250 193.68	1.2500 31.75	0.250 6.35	0.250 6.35	0.625 15.88	E-232-78-60	B-323-78-70	WS-232-78	183,300 815,500	531,300 2,363,600	85.0 39.0
7.6250 193.68	1.2500 31.75	0.250 6.35	0.250 6.35	0.625 15.88	E-232-156-60	B-232-156-70	WS-232-78 (X2)	314,300 1,398,200	1,062,700 4,727,300	169.0 77.0
8.0620 204.77	1.3750 34.93	0.250 6.35	0.250 6.35	0.687 17.45	E-234-86-60	B-234-86-70	WS-234-86	185,900 827,300	513,800 2,285,600	108.0 49.0
8.0625 204.79	1.3750 34.93	0.250 6.35	0.250 6.35	0.688 17.48	E-234-172-60	B-234-172-70	WS-234-86 (X2)	318,900 1,418,800	1,027,100 4,569,000	217.0 99.0
8.4680 215.09	1.3750 34.93	0.250 6.35	0.250 6.35	0.687 17.45	E-236-94-60	B-236-94-70	WS-236-94	220,500 980,800	649,700 2,890,200	125.0 57.0
9.2500 234.95	1.3750 34.93	0.250 6.35	0.250 6.35	0.687 17.45	SE-240-60	SB-240-70	SWS-240	187,840 835,500	540,900 2,406,400	132.0 60.0
9.2500 234.95	1.3750 34.93	0.250 6.35	0.250 6.35	0.687 17.45	SE-240-110-60	SB-240-110-70	SWS-240-110	261,900 1,165,000	842,100 3,746,100	190.0 86.0
10.4370 265.10	1.3750 34.93	0.250 6.35	0.250 6.35	0.687 17.45	SE-244-110-60	SB-244-110-70	SWS-244-110	272,700 1,213,200	888,900 3,954,400	137.0 62.0

Load Ratings and Life

Life Calculations

The L10 (rating) life for any given application and bearing selection can be calculated in terms of millions of revolutions by using the bearing Basic Dynamic Rating and applied radial load (or, equivalent radial load in the case of radial bearing applications having combined radial and thrust loads). The L10 life for any given application can be calculated in terms of hours, using the bearing Basic Dynamic Rating, applied load (or equivalent radial load) and suitable speed factors, by the following equation:

$$L_{10} = \left(\frac{C}{P}\right) x \frac{1{,}000{,}000}{60 \times n} = \left(\frac{C}{P}\right)^{10/3} x \frac{16667}{n}$$

Where:

L_{10} = The # of hours that 90% of identical bearings under ideal conditions will operate at a specific speed and condition before fatigue is expected to occur.

C = Basic Dynamic Rating (lbs) 1,000,000 Revolutions

P = Constant Equivalent Radial Load (lbs)

n = Speed (RPM)

Additionally, the ABMA provides application factors for all types of bearings which need to be considered to determine an adjusted Rated Life (Lna). L10 life rating is based on laboratory conditions yet other factors are encountered in actual bearing application that will reduce bearing life. Lna life rating takes into account reliability factors, material type, and operating conditions.

$$L_{na} = a_1 \times a_2 \times a_3 \times L_{10}$$

Where:

L_{na} = Adjusted Rated Life.

a_1 = Reliability Factor. Adjustment factor applied where estimated fatigue life is based on reliability other than 90% (See Table No 1).

Table No. 1 Life Adjustment Factor for Reliability

Reliability %	L_{na}	a_1
90	L10	1
95	L5	0.62
96	L4	0.53
97	L3	0.44
98	L2	0.33
99	L1	0.21
50	L50	5

a_2 =Material Factor. Life adjustment for bearing race material. Power Transmission Solutions bearing races are manufactured from bearing quality steel. Therefore the a_2 factor is 1.0.

a_3 = Life Adjustment Factor for Operating Conditions. This factor should take into account the adequacy of lubricant, presence of foreign matter, conditions causing changes in material properties, and unusual loading or mounting conditions. Assuming a properly selected and mounted bearing having adequate seals and lubricant operating below 250°F and tight fitted to the shaft, the a3 factor should be 1.0.

Load Ratings and Life Continued

Vibration and shock loading can act as an additional loading to the steady expected applied load. When shock or vibration is present, an a3 Life Adjustment Factor can be applied. Shock loading has many variables which often are not easily determined. Typically, it is best to rely on one's experience with the particular application. Consult Application Engineering for assistance with applications involving shock or vibration loading.

The a3 factor takes into account a wide range of application and mounting conditions as well as bearing features and design. Accurate determination of this factor is normally achieved through testing and in-field experience. Power Transmission Solutions offers a wide range of options which can maximize bearing performance. Consult Application Engineering for more information.

Variable Load Formula

Root mean load (RML) is to be used when a number of varying loads are applied to a bearing for varying time limits. Maximum loading still must be considered for bearing size selection.

$$RML^{*} = \sqrt[10/3]{\frac{(L_1^{10/3}N_1)+(L_2^{10/3}N_2)+(L_3^{10/3}N_3)}{100}}$$

Where:

RML = Root Mean Load (lbs.)

L_1, L_2, etc. = Load in pounds

N_1, N_2, etc. = Percent of total time operated at loads L_1, L_2, etc.

* Apply RML to rating at mean speed to determine resultant life.

Mean Speed Formula

The following formula is to be used when operating speed varies over time.

$$\text{Mean Speed} = \frac{S_1N_1+S_2N_2+S_3N_3}{100}$$

S_1S_2, etc = Speeds in RPM

N_1N_2, etc = Percentage of total time operated at speeds S_1S_2, etc

Load Ratings and Life Continued

Bearing Life In Oscillating Applications

The equivalent rotative speed (ERS) is used in life calculations when the bearing does not make complete revolutions during operation. The ERS is then used as the bearing operating speed in the calculation of the L10 (Rating) Life. The formula is based on sufficient angular rotation to have roller paths overlap.

ERS = Equivalent Rotative Speed

N = Total number of degrees per minute through which the bearing will rotate.

$$ERS = \frac{N}{360}$$

In the above formula, allowance is made for the total number of stress applications on the weakest race per unit time, which, in turn, determines fatigue life and the speed factors. The theory behind fretting corrosion is best explained by the fact that the rolling elements in small angles of oscillation retrace a path over an unchanging area of the inner or outer races where the lubricant is prevented by inertia from flowing in behind the roller as the bearing oscillates in one direction. Upon reversal, this small area of rolling contact is traversed by the same roller in the dry state. The friction of the two unlubricated surfaces causes fretting corrosion and produces failures which are unpredictable from a normal life standpoint.

With a given bearing selected for an oscillating application, the best lubrication means is a light mineral oil under positive flow conditions. With a light oil, there is a tendency for all areas in the bearing load zone to be immersed in lubricant at all times. The full flow lubrication dictates that any oxidized material which may form is immediately carried away by the lubricant, and since these oxides are abrasive, further wear tends to be avoided. If grease lubrication must be used, it is best to consult with either the bearing manufacturer or the lubricant manufacturer to determine the best possible type of lubricant. Greases have been compounded to resist the detrimental effect of fretting corrosion for such applications.

Static Load Rating

The “static load rating” for rolling element bearings is that uniformly distributed static radial load acting on a non-rotating bearing, which produces a contact stress of 580,000 psi (roller bearings) or 607,000 psi (ball bearings) at the center of the most heavily loaded rolling element. At this stress level, plastic deformation begins to be significant. Experience has shown that the plastic deformation at this stress level can be tolerated in most bearing applications without impairment of subsequent bearing operation. In certain applications where subsequent rotation of the bearing is slow and where smoothness and friction requirements are not too exacting, a higher static load limit can be tolerated. Where extreme smoothness is required or friction requirements are critical, a lower static load limit may be necessary.

Minimum Bearing Load

Skidding, or sliding, of the rolling elements on the raceway instead of a true rolling motion can cause excessive wear. Applications with high speeds and light loading are particularly prone to skidding. As a general guideline, rolling element bearings should be radially loaded at least 2% of Basic Dynamic Rating. For applications where load is light relative to the bearings dynamic load rating, consult Application Engineering for assistance.

Load Ratings and Life Continued

Needle Roller Bearings Selection - New Applications:

Example #1:
To find theoretical L10 life of an MR 16 bearing operating at a speed of 500 RPM and under a load of 1000 lbs.

Basic Dynamic Rating of MR-16 = 8000 lbs. Use Formula:

$$L_{10} = \frac{16{,}666}{N} \left(\frac{BDR}{P} \right)^{10/3}$$

$$L_{10} = \frac{16{,}666}{500} \left(\frac{8000}{1000} \right)^{10/3}$$

L_{10} = 34,132 hours

Example #2:
Find the Basic Dynamic Rating required for a CAGEROL® bearing operating at 1000 RPM, with a load of 700 pounds. The required L10 life will be 20,000 hours. Use the Formula:

$BDR = .054 \times P \times (L_{10} \times N)^{.3}$

$BDR = .054 \times 700 \times (20{,}000 \times 1000)^{.3}$

$BDR = .054 \times 700 \times 155$

BDR = 5859 lbs.

Needle Engineering Section

Type of Load

The load ratings in this catalog are based on uniform and steady loading. When the loading is of a shock nature and/or vibration is present, or the loading is indeterminate, a bearing of greater rating must be selected. If such conditions exist, it is advisable to use the application Type of Load Factor as shown in the table below.

Type of Load Factors

The actual bearing load should be multiplied by the appropriate load factor and the resultant value used to calculate the bearing life or to determine the required basic dynamic rating (BDR).

Type of Load	Factor C
Uniform and Constant	1.0
Light Shock	1.5
Moderate Shock	2.0
Heavy Shock	3.0

Matched Bearings (MR, GR, RS, RD series only)

Where bearings are mounted so that the distance between them is less than the width of one bearing, it is recommended under heavy loading conditions to provide some degree of diametral matching in order to prevent unequal sharing of the applied load. Matching procedures have been developed to provide super precision matching of bearings. Bearings matched in this category are identified by "-DS" suffix for super precision.

A. O.D. and I.D., where applicable, of matched bearings same diameters within 30% of the respective O.D. or I.D. tolerance.

B. I.D. of rollers or diametral clearance, where applicable, of matched bearings same within 30% of the tolerance range.

C. Radial runout of matched bearings same within 20% of the tolerance range.

D. High point of radial runout marked on the face of each outer and inner ring.

E. Matched bearings to be packaged as a unit.

Matching Factor	Matching Suffix
1 .37	None
1 .65	“-DS”

Multiply Matching Factor by rating of single bearing to obtain resultant rating for pair of bearings.

Needle Engineering Section continued

Shaft Materials and Their Treatment

In order to obtain the performance built into needle and radial roller bearings when applied without inner races, it is important that the bearing user employ the best possible shaft material and heat treatment.

This is especially critical in cases of outer race rotation where the shaft becomes the weakest member of the bearing assembly.

Manufacturing simplicity as well as reduced operating clearances can be obtained by omission of inner races with their extra expense, as well as build-up of tolerances. This construction is employed frequently in the application of needle bearings and to a somewhat lesser degree in radial roller bearings.

With the conventional application using inner races, the selection of shaft material is principally a matter of manufacturing economy coupled with proper bending and tensile strength, and in most cases surface heat treatments of shafts are dispensed with. However, when the inner race is eliminated, the shaft then becomes an integral member of the bearing and the three following areas must be accurately and correctly covered for best bearing performance:

1. Shaft material selection.
2. Shaft heat treatment.
3. Shaft surface finish.

Under item 1, there are a number of satisfactory shaft materials which can be employed and they can be broken down into two groups as follows:

1. Thru-hardening or induction hardening material.
2. Case hardening material.

Where thru-hardening or induction hardening materials are employed, a sound material would be SAE 52100 steel, such as employed by the bearing manufacturers. This material may be induction zone hardened, or thru-hardened in accordance with the dictates of the application. However, as shaft material in the thru-hardened state, the high core hardness of the 52100 steel causes brittleness that may be objectionable.

Zone hardening or induction hardening that provides a tougher core is usually more satisfactory for shaft applications. Alternate materials, such as SAE 1050, SAE 1150 may be used, employing the induction or flame hardening process. While these steels will induction harden satisfactorily to give the proper hardness ranges, they will not offer the fatigue resistance of the higher alloy content steels.

Examples of higher alloy steels are SAE 4650, SAE 8650, etc. These materials do not require carburization for induction hardening. However, as mentioned above, the absence of excess carbides in the surface structure of the material after heat treatment reduces the fatigue life of the material correspondingly. Hardnesses in the range of 60 HRC should be maintained under all circumstances.

Needle Engineering Section continued

For case hardening, any number of materials can be employed, ranging from the plain carbon SAE 1010 to 1020 up through SAE 4615, 4620, 8615 and 8620. Shafts can be completely carburized and case hardened or zone hardened by masking or copper plating areas desired left in soft state. A minimum hardness of 58 HRC should be employed. For the best quality of heat treatment, it is imperative that the hardening temperature in both the induction and thru-hardening process be held to rather close limits, in order to avoid the formation of retained austenite. In water quenching of induction hardened steels, the cracking of shafts after treatment should be avoided by immediate tempering. Contact Application Engineering for assistance in determining minimum required case depths.

A practical maximum surface finish for shafts being used as inner races would be 12 micro inches RA. Rougher surface finishes can be employed; however, the user will run the risk of more erratic performance due to the wearing in of the shaft as well as a lesser control of dimensional accuracy of the mounted bearing. All bearings wear in to a certain extent and the amount of "wear-in" depends directly upon the surface finish of the mating parts. The rougher the surface the greater the "wear-in" and the greater range of resultant clearance which would ensue.

MR and GR Series Bearing Lubrication

Sealed MR and GR series bearings are factory filled with an NLGI 1 lithium soap thickened grease suitable for operating temperatures of -20°F to +250°F. Unsealed MR, GR, RS, RD and MI inner rings are coated with a corrosion preventive oil. Consult Application Engineering regarding grease compatibility issues.

MR and GR series bearings have a lubrication hole and annular groove centered on the outside diameter to allow relubrication of the bearing through the housing member. The MI inner ring has a lubrication hole and annular groove centered in the bore diameter to allow relubrication of the bearing through the shaft member.

When sealed MR and GR series bearings are to be relubricated, it is recommended that the RS, SRS or RSS seal arrangement is used. These arrangements locate a seal lip outward and allows excess and used grease to vent during relubrication.

Frequency of lubrication depends primarily upon the speed of rotation of the bearing, the type of lubrication employed and the amount of contamination present in the application. For continuously rotating applications, it is necessary to either provide continuous oil lubrication or else frequent grease lubrication, depending upon the severity of service. Automatic lubrication devices are ideal for intermittent lubrication, since accurate metering of grease and consistent relubrication is maintained through the use of these devices. Best determination of relubrication interval can be made by testing or experience in the application. Contact Application Engineering for assistance in determining relubrication interval.

Mounting Details - Heavy-Duty Needle Roller Bearings Series McGill MR, GR, MI, RS, RD, and Rollway Journal Bearings

Proper mounting of CAGEROL® and GUIDEROL® heavy-duty needle roller bearings generally require a press fit of the ring rotating relative to the radial load. A close to loose fit is used for the ring stationary relative to the radial load. Specific shaft and housing diameters are listed in the respective series dimension tables.

Needle Engineering Section continued

For Rollway Journal bearing applications, a rotating shaft is the predominant method of operation. Therefore, recommended shaft and housing tolerances are provided for applications with a rotating shaft only. For Journal applications which require a rotating housing, please consult Application Engineering for specific Journal bearing shaft and housing fits.

The following are some general guidelines and details to bear in mind when installing these bearing series:

1. **Inspect housing and shaft.**
   - Clean, remove burrs and shaft edges.
   - If any damage has occurred to the bearing seat in the housing or on the shaft, repair that damage to bring the seat surfaces back to its original condition.
2. **Determine which member, shaft or housing, has an interference fit with the bearing.**
   - In general, the ring rotating relative to the radial load has an interference fit.
   - Refer to dimension tables for specific shaft and housing diameters.
3. **Install the bearing onto the press-fitted member by applying force against the bearing ring that is press-fitted.**
   - For a press-fitted inner ring, apply the force required to assemble the bearing onto the shaft against the face of the bearing inner ring.
   - For a press-fitted outer ring, apply the force required to assemble the bearing into the housing against the face of the bearing outer ring.
   - Care should be exercised to assure that the bearing starts onto the press-fitted member as squarely as possible.
   - Use arbor press whenever possible.
   - Do not hammer on bearing ring face.
4. **Inner rings press-fitted on the shaft may be more easily installed onto the shaft by heating the ring and causing it to shrink-fit.**
   - Normally, heating the ring to 175°F to 212°F (70°C to 100°C) will be sufficient to allow the ring to slide over the interference fit shaft seat.
   - Heating the ring should be accomplished with an induction heater or in an oil bath. Never use a torch to heat a bearing for assembly purposes.
5. **When outer rings are to be press-fitted into a housing, it is desirable to heat the housing to allow it shrink-fit onto the outer ring outside diameter.**
   - Freezing the bearing to shrink it for easy assembly into a press-fitted housing is not recommended. Water condensation can form inside the bearing upon its return to room temperature, which can lead to corrosion. Exposure to extreme cold can also affect the metallurgical structure of the bearing.
6. **After mounting is complete, the assembly should be inspected to insure that it rotates freely, without unusual drag or noise.**