

EASY BEARING CLEARANCE ADJUSTMENT

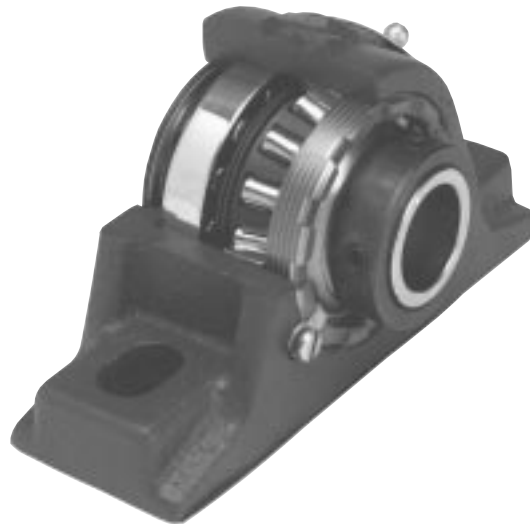
can be field adjusted to meet application needs.

REPLACEABLE BEARING

Available in Normal Duty, Medium Duty, Heavy Duty and Adapter Sleeve mounting to suit the load and installation requirements.

SHAFT READY

Prelubricated with our standard grease for normal operation; other lubricants available for special conditions.



FULLY SELF-ALIGNING

Spherical roller bearing to accommodate operational and installation misalignment.

RUGGED HOUSING

Standard material — cast iron. Steel or ductile iron available on request.

INTERCHANGEABLE SEALS

Three types of seals to match the application requirements: Z Seal, for the broad range of normal operating conditions; K Seal, for dusty, dirty conditions; M Seal, for protection against liquid contamination.

CARBURIZED RACEWAYS

Case-carburized inner races provide a hard, fatigue resistant surface, and a tough, crack resistant, ductile core.

MULTIPLE HOUSING STYLES

Providing mounting features to match the operational and structural requirements.

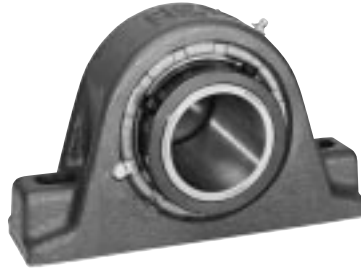
For extra protection under severe conditions, auxiliary caps are also available.

TABLE OF CONTENTS

ROLLER BEARINGS	Page Number	INTERCHANGEABILITY	Page Number
INTRODUCTION		Size Code — Inches	D-41
Rex Bearing Design	D-1	Size Code — Metric	D-44
Bearing Index	D-2 — D-3	ENGINEERING/SELECTION	
Nomenclature	D-4 — D-5	Bearing Considerations	D-45
Self-Alignment	D-6	Housing, Seal, Mounting Considerations	D-45 — D-46
Shaft Mounting	D-7	Shafting and Floating Units	D-47
Seals	D-8	Bearing Selection	D-48 — D-50
DIMENSIONS		Load Ratings	D-55 — D-56
Pillow Blocks	D-9 — D-16	Life Adjustment Factors	D-55
Flange Blocks	D-17 — D-22	Vibration Analysis	D-57
Flange Cartridge Blocks	D-23 — D-26	Seal Selection	D-58 — D-61
Cartridge Blocks	D-27 — D-30	INSTALLATION	D-62
Duplex Units	D-31 — D-32	LUBRICATION	D-63
Takeups	D-33 — D-39	ALPHABETICAL INDEX	D-64
Bearing Only	D-40		
Replacement Parts	D-42 — D-43		

PILLOW BLOCKS

	Page
Normal Duty ZEP 2000, 5000 Series	D-10
Medium Duty ZEP 3000	D-11
Normal Duty, Fixed ZA 2000 Series	D-12
Normal Duty, Floating ZAS 2000 Series ...	D-12
Medium Duty, ZA 3000 Series	D-13
Heavy Duty, Fixed ZP 5000 Series	D-14
Heavy Duty, Floating ZPS 5000 Series	D-14
Adapter, Fixed ZP 9000 Series	D-15
Adapter, Floating ZPS 9000 Series	D-15
Steel, Fixed ZA-72 2000 Series	D-16
Steel, Floating ZAS-72 2000 Series	D-16



FLANGE BLOCKS

	Page
Normal Duty ZB 2000 Series	D-18
Medium Duty ZB 3000 Series	D-19
Normal Duty ZEF 2000 Series	D-20
Heavy Duty, Fixed ZF 5000 Series	D-21
Heavy Duty, Floating ZFS 5000 Series	D-21
Adapter, Fixed ZF 9000 Series	D-22
Adapter, Floating ZFS 9000 Series	D-22



FLANGE CARTRIDGE BLOCKS

	Page
Normal Duty ZBR 2000 Series	D-24
Medium Duty ZBR 3000 Series	D-25
Heavy Duty ZBR 5000 Series	D-26



CARTRIDGE BLOCKS

	Page
Normal Duty ZCS 2000 Series	D-28
Heavy Duty ZCS 5000 Series	D-28
Normal Duty ZMC 2000 Series	D-29
Heavy Duty ZMC 5000 Series	D-29
Adapter ZMC 9000 Series	D-30



DUPLEX UNITS

	Page
Normal Duty ZD 2000 Series	D-32
Heavy Duty ZD 5000 Series	D-32



TAKE-UP BLOCKS



Center Pull ZT **Page** D-34

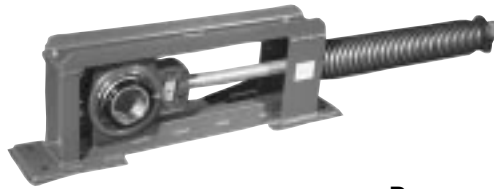


Protected Screw ZN **Page** D-38

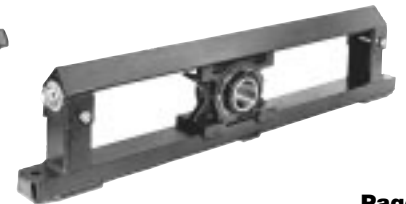
TAKE-UPS



Heavy Duty Center Pull ZHT **Page** D-36



Spring Loaded ZST **Page** D-37



Normal Duty Protected Screw ZNT **Page** D-38



Normal Duty ZAT **Page** D-39



Elevator Boot End ZFT **Page** D-39



Elevator Head End ZGT **Page** D-39

ALPHABETICAL INDEX

ZA	Pillow Block	D-12, 13	ZFS	Flange Block, Heavy Duty Floating	D-21, 22
ZAS	Pillow Block, Floating	D-12, 13	ZFT	Take-up, Elevator, Boot End	D-39
ZAT	Take-up	D-39	ZGT	Take-up, Elevator, Head End	D-39
ZB	Flange Block	D-18, 19	ZHT	Take-up, Heavy Duty	D-36
ZBR	Flange Cartridge Block	D-24, 25, 26	ZMC	Cartridge Block	D-29, 30
ZCS	Cartridge Block	D-28	ZNT	Take-up	D-38
ZD	Duplex Unit	D-32	ZP	Pillow Block, Heavy Duty	D-14, 15
ZEF	Flange Block	D-20	ZPS	Pillow Block, Floating	D-14, 15
ZEP	Pillow Block	D-10, 11	ZST	Take-up, Heavy Duty, Spring Loaded	D-37
ZF	Flange Block, Heavy Duty	D-21, 22	ZT	Take-up Block, Center pull	D-34

NOMENCLATURE

Rex' Roller Bearings

Z A - 2 207

Seal Type	Z	Clearance seal
	K	Light contact seal
	M	Heavy contact seal
Housing Type	A	Pillow block, normal duty
	AS	Pillow block, floating
	P	Pillow block, heavy duty
	PS	Pillow block, floating
	EP	Pillow block, normal duty
	B	Flange block, normal duty
	EF	Flange block normal duty
	F	Flange block, heavy duty
	FS	Flange block, floating
	BR	Flange cartridge block
	CS	Cartridge block
	MC	Cartridge block
	D	Duplex unit
Bearing Type	2	2000 Series, normal duty, single set collar
	3	3000 Series, medium duty, eccentric locking collar
	5	5000 Series, heavy duty, double set collar
	9	9000 Series, tapered adapter sleeve
Shaft Diameter	207	$2\frac{7}{16}$ — last two digits in 16th of an inch
	100MM	100 millimeter

STANDARD PREFIX AND SUFFIX IDENTIFICATION

A Z A - 2 207 F

Prefixes

- A- Two open auxiliary cap seals.
- B- Two auxiliary cap seals (open on housing side, closed on cover side).
- X- Designates SPECIAL UNITS and must be identified. Contact Rexnord Regional Sales Office.

Suffixes (Added after shaft size designation)

- A One open auxiliary cap seal (cover side)
 - B One closed auxiliary cap seal (cover side)
 - C Closed end shield
 - F Four bolt (pillow blocks only)
 - G Face-locked threaded cover
 - H Reverse assembly
 - R Interference fitup (bearing to housing bore)
 - S Machined pilot on face of flange units
 - Y Redesigned shaft size — Not interchangeable
 - 72 Steel housing
 - 82 Anti fretting bore
 - MM Metric bore size refer to page D-44.
- For identification of all other numerical suffixes, contact local Rexnord office

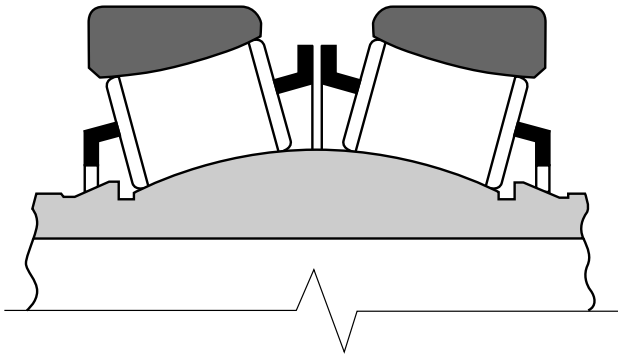
TAKE-UP NOMENCLATURE

Z HT 11 - 5 315 - 24

Seal Type	Z	Clearance seal
	K	Light contact seal
	M	Heavy contact seal
Housing Type	N	Block for protected screw frame
Frame Type	T	Block for center pull frame
	AT	Normal duty take-up
	NT	Protected screw take-up
	HT	Heavy duty center pull take-up
	FT	Elevator take-up, boot end
	GT	Elevator take-up, head end
	ST	Spring loaded take-up
Take-up Frame Size	11	Size code (from specification page)
Bearing Type	2	2000 Series, normal duty, single set collar
	3	3000 Series, medium duty, eccentric locking collar
	5	5000 Series, heavy duty, double set collar
	9	9000 Series, tapered adapter sleeve
Shaft Diameter	315	3 ¹⁵ / ₁₆ " — last two digits in 16th of an inch
	100MM	100 millimeter bore
Take-up Travel	24	Inches of take-up adjustment

OBSOLETE NOMENCLATURE		
Prefixes		
Obsolete Model #	Current Model #	Description
P	ZEP-2000 Series	Pillow block
PR	ZA-2000 Series	Pillow block
ZBT	ZBR-5000 Series	Flange cartridge block
ZC	ZT-2000 Series	Take-up block, center pull
ZES	ZFT-2000 Series	Take-up, elevator, boot end
ZET	ZFT-2000 Series	Take-up, elevator, boot end
ZFA	ZF-9000 Series	Flange block
ZFB	ZFS-9000 Series	Flange block, floating
ZGS	ZGT-5000 Series	Take-up, elevator, head end
ZL	ZMC-2000 Series	Cartridge block
ZMA	ZMC-9000 Series	Cartridge block
ZMB	ZMC-9000 Series	Cartridge block
ZMW	ZMC-5000 Series	Cartridge block
ZMX	ZMC-5000 Series	Cartridge block
ZPA	ZP-9000 Series	Pillow block
ZPB	ZPS-9000 Series	Pillow block, floating
ZRT	ZNT-5000 Series	Take-up, protected screw

Consult Rexnord for identification of other obsolete models.



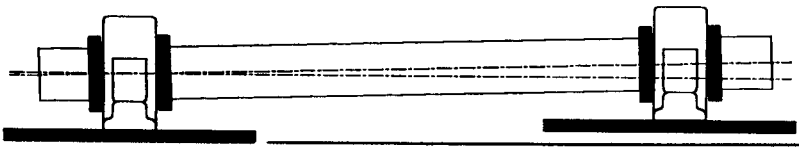
INTEGRAL SELF-ALIGNMENT

Rex® Roller Bearings represent the continuation of 80 years of bearing technology and experience built upon the original Shafer design, consisting of: an inner race

which forms a segment of a sphere; rollers shaped concave to run on the spherical surfaces of the inner and outer races; spherical outer races to contact the rollers. This design allows the inner race to misalign freely in any direction up to 1½° from center, 5/16" per foot of shaft length.

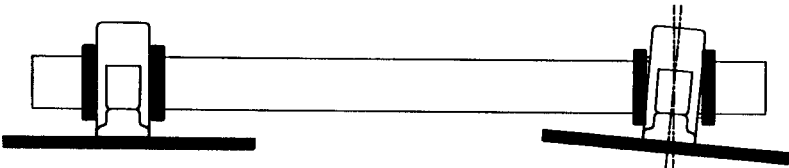
The rollers are aligned by the retainers and the outer races, so despite misalignment the roller load is always equally distributed. This prevents high edge load stresses on the rollers, which in turn means that **it is not necessary to derate Rex Bearings for misalignment conditions.**

By design, Rex Bearings accept both radial and thrust loads under static, oscillatory, or dynamic conditions. The load is taken on the roller raceways, not the roller ends. This means that when thrust loaded up to their allowable limit, **Rex Bearings do not exhibit roller end wear.**

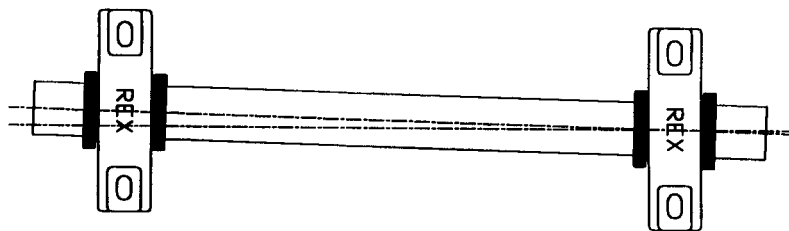


STATIC MISALIGNMENT

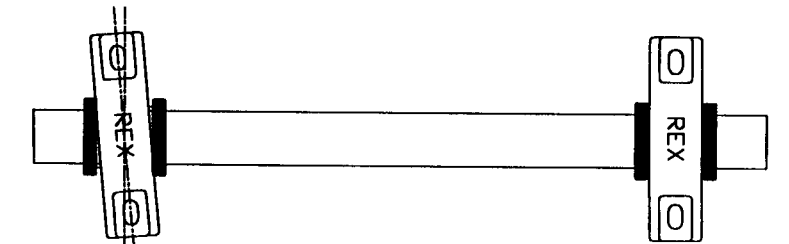
BASES NOT LEVEL



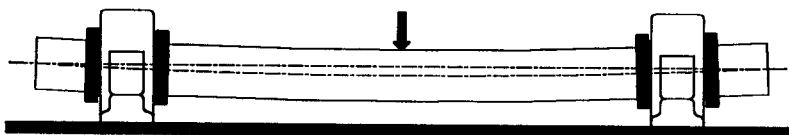
BASES NOT PARALLEL



BEARINGS HAVE HORIZONTAL MISALIGNMENT

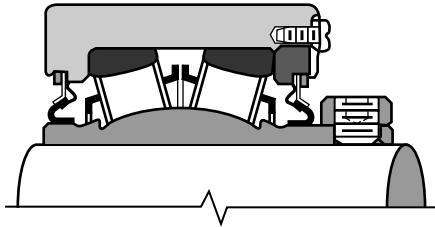


BOLTS ON LEFT BEARING ARE VERTICALLY MISALIGNED



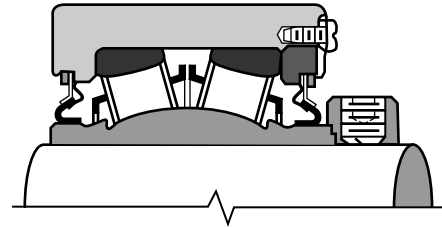
DYNAMIC MISALIGNMENT

BENT SHAFT OR SHAFT DEFLECTION FROM LOAD



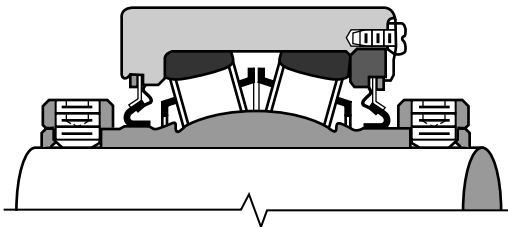
2000 SERIES
Single Set Collar

Normal Duty
Simplest installation
Most economical



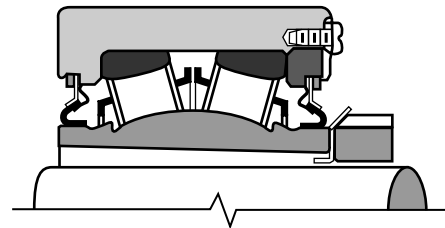
3000 SERIES TWIST LOCK™
Eccentric Locking Collar

Medium Duty
Additional shaft holding power
Accommodates undersized shafting
Economical



5000 SERIES
Double Set Collar

Heavy Duty
Increased shaft holding power and stability
Moderate cost



9000 SERIES
Adapter Sleeve

Extra Heavy Duty
Full bore contact for maximum shaft
holding power, concentricity
and running accuracy
Accommodates undersized shafting

All four of these shaft mounting styles are available in any Rex housing style. See page D-41 for interchange list.

Effective seals are essential to insure satisfactory bearing life in various application environments. Three interchangeable, standard seals are available to cover a broad range of conditions.

All Rex seals assure sealing protection up to 1½° misalignment in all directions. Sealing is on hardened and ground inner ring extensions. Rex seals cannot be forced out during relubrication yet can be easily removed when replacing or when inspecting grease.

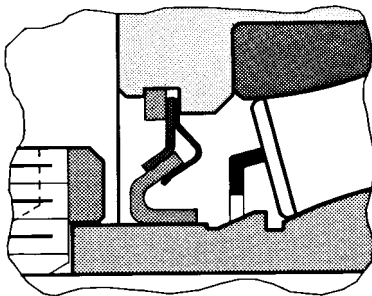
Additional seal data and selection assistance can be found on pages D58, D59.

All Rex interchangeable seals:

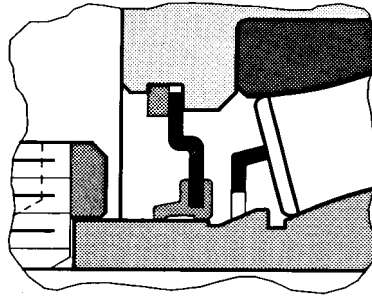
- provide sealing up to 1½° misalignment
- operate on hardened and ground inner ring extension
- cannot be forced out during relubrication
- can be easily removed without damage
- can be removed without bearing disassembly

SEAL TYPES

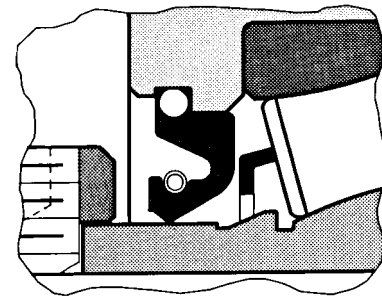
**“Z” Seal
Clearance**



**“K” Seal
Light Contact**



**“M” Seal
Heavy Contact**



Denoted with a “Z” prefix in the model number. The standard seal used in the majority of applications.

- No frictional drag — generates no heat
- No speed limitations
- All metal — no temperature limitations

Substitute prefix “K” for “Z” in model number. Molded nitrile rubber lip seals out contaminants.

- Protects against contaminants
- Handles high speeds
- Less drag and heat generation than heavy contact seals

Substitute prefix “M” for “Z” in model number. Premium elastomer, spring loaded contact lip.

- Protects against liquids and grit
- Spring loaded lip assures constant contact—even during misalignment
- Molded-in garter spring retains seal in housing
- Seals in lubricant on horizontal and vertical shafts

AUXILIARY CAP SEALS

Closed End Shield



Use C Suffix in model number

- Protects from rotating shaft exposure
- Protects from foreign material penetration

Auxiliary Cap Seals



See Standard Prefix and Suffix Identification, p. D-4.

Recommended for severe environments — they provide supplemental protection for the primary seal.

- Seals against liquids and gritty contaminants. Particularly effective against water washdown, taconite, cement, sand, or caking build-up.
- Provides safety, encloses rotating mounting hardware
- Protects primary seal from physical damage
- May be filled with grease to provide purging action
- Available as open or closed end cap

See pp. D-60, 61.

GENERAL INFORMATION

Pillow block units are widely used in diverse applications because of their variety of mounting methods, bearing assemblies and housing materials. They are the most popular and versatile of the mounted line.

Points to Consider in the Use of Pillow Blocks:

1. A pillow block must always be used where a mounting base is parallel to the shaft.
2. The pillow block can be used on a vertical base, on a horizontal base or on an inclined plane.
3. Pillow blocks are in their strongest position when the force is perpendicular to the shaft and in the direction of the base.

Two-Bolt Block Application

The two-bolt block is satisfactory for most applications as far as strength of housing and rigidity of base is concerned. It can be applied to a flat bed of either wood, metal or concrete. It's also adaptable to channel mounting since the base width is quite narrow and the channel projection is usually sufficient to provide space for drilling the mounting bolt holes.

Four-Bolt Application

The four-bolt base pillow block is ideally suited to many applications. It has a wider base and as a result stronger pads than the two-bolt base. The construction of the Rex ZP four-bolt housing is very rugged. A heavy ribbing completely surrounds the housing and supports the mounting pads. When the force is in a direction away from the base, the strength of the ribbing, plus pads, contributes additional support to the load. The four-bolt block is adaptable to I-beam construction, where bolt holes can be drilled on each side of the web of the I-beam.

ZEP Pillow Blocks - Normal Duty - Fixed

- 1 1/8" through 5" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-10
 - ✓ 3000 series page D-11
 - ✓ 5000 series page D-11
 - ✓ 9000 series available, see page D-41



ZA/ZAS Pillow Blocks - Normal Duty - Fixed & Expansion (uses ZCS cartridge page D-28)

- 3/4" through 4" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-12
 - ✓ 3000 series page D-13
 - ✓ 5000 series available, see page D-41
 - ✓ 9000 series available, see page D-41
- Steel housing (-72) Suffix page D-16



ZP/ZPS Pillow Blocks - Heavy Duty - Fixed & Expansion (uses ZMC cartridge page D-29)

- 1 1/4" through 7" shaft sizes
- Shaft mounting styles
 - ✓ 5000 series page D-14
 - ✓ 9000 series page D-15



Additional Information

2 or 4 bolt housings available in all styles.

Housing Material - Cast iron unless otherwise noted.

Other materials available on special order.

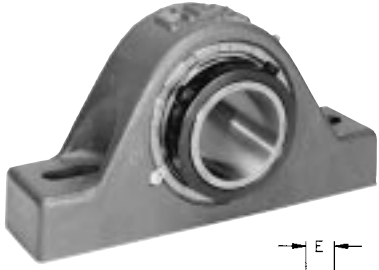
Bolt Holes - Cored 1/16" larger than bolt diameters.

Grease fitting is 1/8 NPT tapped holes with grease fittings thru size code 11, 1/4 NPT above.

Floating Blocks (expansion) - For amount of movement see page D-47.

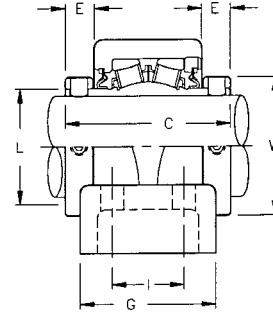
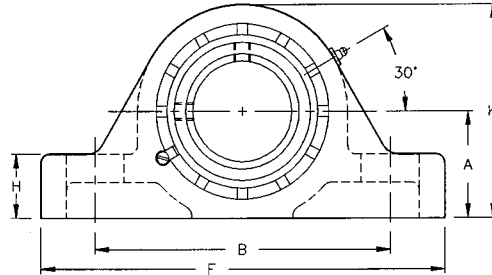
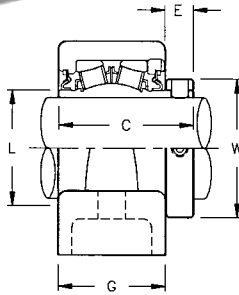
ZEP PILLOW BLOCKS

Rex' Roller Bearings



NORMAL DUTY 2000 Series Single Set Collar Thru 4" Shaft

HEAVY DUTY 5000 Series Double Set Collar Above 4" Shaft



Specifications . . . Radial load ratings are shown on pages D-56

Shaft Size Inches	Complete Block No.	Size Code	Dimensions in Inches													Bolts Req'd.		Complete Block Net Wt. Lbs.
			A +.005	B		C	E	F	G	H	I	K	L	W	No.	Size		
				Min.	Max.													
1 1/8 1 3/16 1 1/4	ZEP-2102 ZEP-2103 ZEP-2104	3	1 1/2	47/16	5	2 11/16	9/16	6 3/8	2 1/8	7/8	...	3/4	1 17/32	2	2	1/2	5.8 5.8 5.7	
1 7/16	ZEP-2107	4	1 7/8	4 11/16	6	2 7/8	1 1/16	7 3/8	2 3/16	1 1/8	...	3 11/16	1 3/4	2 5/16	2	1/2	6.9	
1 1/2	ZEP-2108	4	2 1/8	5 1/4	6 1/2	2 7/8	1 1/16	7 7/8	2 3/16	1 1/4	...	4 3/16	1 3/4	2 5/16	2	1/2	9.5	
1 11/16	ZEP-2111	5	2 1/8	5 1/4	6 1/2	3 3/8	1 1/16	7 7/8	2 7/16	1 1/4	...	4 3/16	2 1/32	2 5/8	2	1/2	9.9	
1 3/4	ZEP-2112	5	2 1/4	6	7 1/4	3 3/8	1 1/16	8 7/8	2 7/16	1 5/16	...	4 7/16	2 1/32	2 5/8	2	5/8	11.8	
1 15/16 2	ZEP-2115 ZEP-2200	6	2 1/4	6	7 1/4	3 3/8	1 1/16	8 7/8	2 7/16	1 5/16	...	4 7/16	2 5/16	2 15/16	2	5/8	11.5 11.4	
2 3/16	ZEP-2203	7	2 1/2	6 1/2	8	3 5/16	2 9/32	9 5/8	2 9/16	1 1/2	...	4 15/16	2 5/8	3 1/4	2	5/8	14.8	
2 1/4	ZEP-2204	7	2 3/4	6 7/8	8 3/4	3 5/16	3/4	10 1/2	2 9/16	1 5/8	...	5 7/16	2 5/8	3 1/4	2	5/8	18.6	
2 3/8 2 3/8 2 7/16 2 7/16 2 1/2 2 1/2	ZEP-2206 ZEP-2206-F ZEP-2207 ZEP-2207-F ZEP-2208 ZEP-2208-F	8	2 3/4	6 7/8 8 1/4 6 7/8 8 1/4 6 7/8 8 1/4	8 3/4	3 1/2	7/8	10 1/2	2 5/8 3 1/2 2 5/8 3 1/2 2 5/8 3 1/2	1 5/8	...	5 7/16 5 1/2 5 7/16 5 1/2 5 7/16 5 1/2	2 29/32	3 9/16	2 4 2 4 2 4	5/8	18.3 18.4 18.2 18.3 17.9 18.0	
2 11/16 2 11/16 2 3/4 2 3/4 2 15/16 2 15/16 3 3	ZEP-2211 ZEP-2211-F ZEP-2212 ZEP-2212-F ZEP-2215 ZEP-2215-F ZEP-2300 ZEP-2300-F	9	3 3/8	7 13/16 9 1/8 7 13/16 9 1/8 7 13/16 9 1/8 7 13/16 9 1/8	9 3/4 9 7/8 9 3/4 9 7/8 9 3/4 9 7/8 9 3/4 9 7/8	4	1 3/16	12	3 3/16 4 3 3/16 4 3 3/16 4 3 3/16 4	1 7/8	...	6 1/4	3 3/8	4 1/16	2 4 2 4 2 4 2 4	3/4 5/8 3/4 5/8 3/4 5/8 3/4 5/8	29.3 28.5 28.8 28.3 27.7 27.3 27.5 27.0	
3 3/16 3 3/16 3 7/16 3 7/16 3 1/2 3 1/2	ZEP-2303 ZEP-2303-F ZEP-2307 ZEP-2307-F ZEP-2308 ZEP-2308-F	10	3 3/4	9 1/4 10 9/16 9 1/4 10 9/16 9 1/4 10 9/16	11 5/16 11 7/16 11 5/16 11 7/16 11 5/16 11 7/16	4 3/8	1 5/16	14	3 7/16 4 1/2 3 7/16 4 1/2 3 7/16 4 1/2	2 1/4	...	7 3/8 7 1/2 7 3/8 7 1/2 7 3/8 7 1/2	3 31/32	4 15/16	2 4 2 4 2 4	7/8 3/4 7/8 3/4 7/8 3/4	44.5 45.0 42.5 43.0 42.0 42.5	
3 11/16 3 15/16 4	ZEP-2311-F ZEP-2315-F ZEP-2400-F	11	4 1/4	12	13	5 3/16	1 1/16	15 1/4	4 1/2	2 5/8	2 1/4	8 5/8	4 9/16	5 5/8	4	3/4	63.0 61.0 60.0	
4 3/16 4 7/16 4 1/2	ZEP-5403Y-F ZEP-5407Y-F ZEP-5408Y-F	12	4 3/4	12 7/8	14 1/8	6 1/4	1	16 1/2	4 5/8	2 3/4	2 1/2	9 3/8	5 1/32	6 3/16	4	3/4	81.0 78.0 76.0	
4 15/16 5	ZEP-5415-F ZEP-5500-F	13	5 1/2	14 7/8	16 1/8	7 3/8	1 3/16	18 1/2	5 9/16	3	2 3/4	11 1/8	5 3/4	7 1/16	4	7/8	150.0 147.0	

4-bolt block - Use suffix F

Bore Size=Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

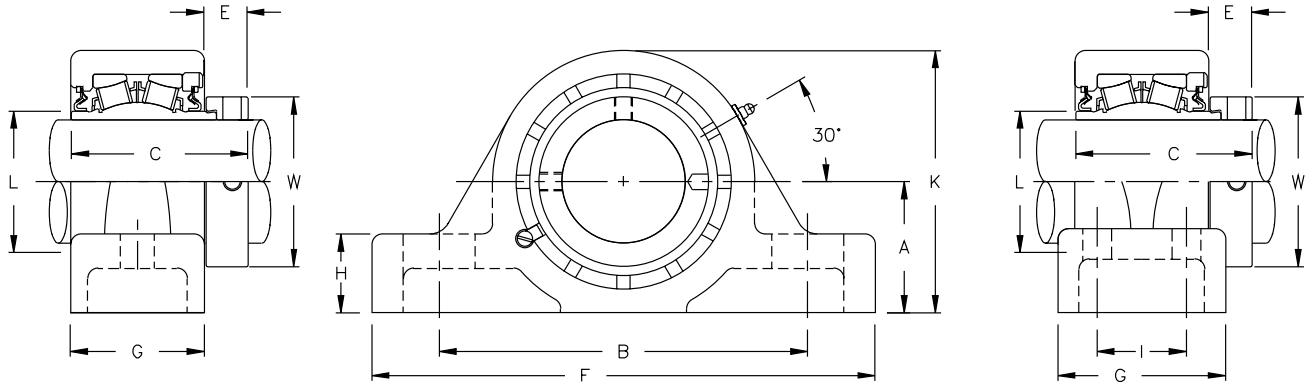
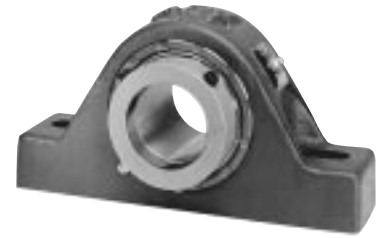
Auxiliary Caps - Not available in Size Code 3

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.

ZEP PILLOW BLOCKS

TWIST LOCK™ MEDIUM DUTY 3000 Series Eccentric Lock



Specifications . . . Radial load ratings are shown on pages D-56

Shaft Size Inches	Complete Block No.	Size Code	Dimensions in Inches													Bolts Req'd.		Complete Block Net Wt. Lbs.
			A +.005	B		C	E	F	G	H	I	K	L	W	No.	Size		
				Min.	Max.													
1 ⁷ / ₁₆	ZEP-3107	4	1 ⁷ / ₈	4 ¹¹ / ₁₆	6	2 ⁵⁹ / ₆₄	2 ⁵ / ₃₂	7 ³ / ₈	2 ³ / ₁₆	1 ¹ / ₈	...	3 ¹ / ₁₆	1 ³ / ₄	2 ⁵ / ₁₆	2	1/2	7.1	
1 ¹¹ / ₁₆	ZEP-3111	5	2 ¹ / ₈	5 ¹ / ₄	6 ¹ / ₂	3 ³ / ₁₆	3 ³ / ₄	7 ⁷ / ₈	2 ⁷ / ₁₆	1 ¹ / ₄	...	4 ³ / ₁₆	2 ¹ / ₃₂	2 ⁵ / ₈	2	1/2	10.1	
1 ¹⁵ / ₁₆	ZEP-3115	6	2 ¹ / ₄	6	7 ¹ / ₄	3 ³ / ₃₂	2 ⁷ / ₃₂	8 ⁷ / ₈	2 ⁷ / ₁₆	1 ⁵ / ₁₆	...	4 ⁷ / ₁₆	2 ⁵ / ₁₆	2 ³ / ₄	2	5/8	11.7	
2 ³ / ₁₆	ZEP-3203	7	2 ¹ / ₂	6 ¹ / ₂	8	3 ¹ / ₂	3 ¹ / ₃₂	9 ³ / ₈	2 ⁹ / ₁₆	1 ¹ / ₂	...	4 ¹⁵ / ₁₆	2 ⁵ / ₈	3 ¹ / ₄	2	5/8	15.1	
2 ⁷ / ₁₆	ZEP-3207	8	2 ³ / ₄	6 ⁷ / ₈	8 ³ / ₄	3 ² / ₃₂	1 ¹ / ₆₄	10 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	...	5 ⁷ / ₁₆	2 ²⁹ / ₃₂	3 ⁹ / ₁₆	2	5/8	18.4	
2 ⁷ / ₁₆	ZEP-3207F			8 ¹ / ₄					3 ¹ / ₂		1 ⁷ / ₈	5 ¹ / ₂		4			18.5	
2 ¹ / ₂	ZEP-3208			6 ⁷ / ₈					2 ⁵ / ₈		...	5 ⁷ / ₁₆		2			18.1	
2 ¹ / ₂	ZEP-3208F			8 ¹ / ₄					3 ¹ / ₂		1 ⁷ / ₈	5 ¹ / ₂		4			18.2	
2 ¹¹ / ₁₆	ZEP-3211	9	3 ³ / ₈	7 ¹³ / ₁₆	9 ³ / ₄	4 ¹⁹ / ₆₄	1 ¹ / ₆₄	12	3 ³ / ₁₆	1 ⁷ / ₈	...	6 ¹ / ₄	3 ³ / ₈	4 ¹ / ₁₆	2	3/4	29.5	
2 ¹¹ / ₁₆	ZEP-3211F			9 ¹ / ₈	9 ⁷ / ₈				4		2 ¹ / ₈	4					28.7	
2 ¹⁵ / ₁₆	ZEP-3215			7 ¹³ / ₁₆	9 ³ / ₄				3 ³ / ₁₆		...	2					28.1	
2 ¹⁵ / ₁₆	ZEP-3215F			9 ¹ / ₈	9 ⁷ / ₈				4		2 ¹ / ₈	4					27.7	
3 ⁷ / ₁₆	ZEP-3307	10	3 ³ / ₄	9 ¹ / ₄	11 ⁵ / ₁₆	4 ³⁷ / ₆₄	1 ¹ / ₆₄	14	3 ⁷ / ₁₆	2 ¹ / ₄	...	7 ³ / ₈	3 ³ / ₃₂	4 ¹⁵ / ₁₆	2	7/8	43.1	
3 ⁷ / ₁₆	ZEP-3307F			10 ⁹ / ₁₆	11 ⁷ / ₁₆				4 ¹ / ₂		7 ¹ / ₂	4					43.6	
3 ¹ / ₂	ZEP-3308			9 ¹ / ₄	11 ⁹ / ₁₆				3 ⁷ / ₁₆		...	2					42.2	
3 ¹ / ₂	ZEP-3308F			10 ⁹ / ₁₆	11 ⁷ / ₁₆				4 ¹ / ₂		7 ¹ / ₂	4					42.7	
3 ¹⁵ / ₁₆	ZEP-3315F	11	4 ¹ / ₄	12	13	5 ³ / ₁₆	1 ¹ / ₁₆	15 ¹ / ₄	4 ¹ / ₂	2 ⁵ / ₈	2 ¹ / ₄	8 ⁵ / ₈	4 ⁹ / ₁₆	5 ⁵ / ₈	2	3/4	61.0	

4-bolt block - Use suffix F

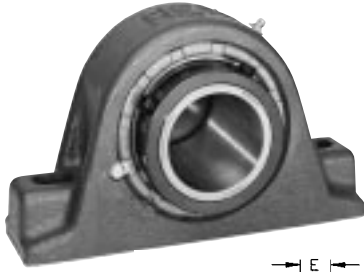
Bore Size=Nominal Shaft Size +.001 -.000

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" — see pages D-58 and D-59

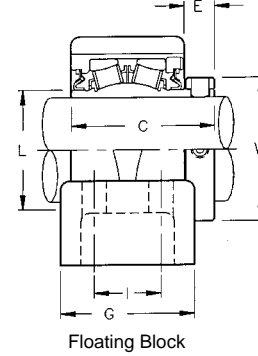
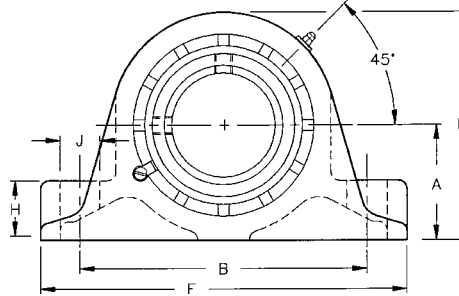
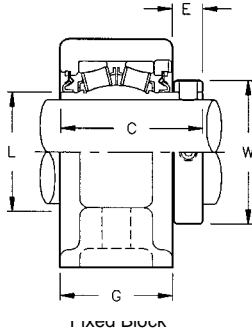
Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.

ZA/ZAS PILLOW BLOCKS



NORMAL DUTY 2000 Series Single Set Collar Fixed and Floating



Specifications . . . Radial load ratings are shown on pages D-56 — Floating units allow for 3/8" axial movement

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches														Bolts Req'd.		Complete Block Net Wt. Lbs.
	Fixed	Floating		A ±.005	B	C	E	F	G	H	I	J	K	L	W	No.	Size			
3/4 19/16 1	ZA-2012 ZA-2015 ZA-2100	...	2	1 1/16	4 3/8	2 9/16	9/16	5 7/8	2	3/4	...	7/8	3 1/16	1 5/16	1 3/4	2	1/2	4.4 4.3 4.2		
1 1/8 1 3/16 1 1/4	ZA-2102 ZA-2103 ZA-2104	...	3	1 3/4	4 3/4	2 11/16	9/16	6 5/16	2 1/8	7/8	...	7/8	3 7/16	1 17/32	2	2	1/2	5.5 5.4 5.4		
1 7/16 1 1/2	ZA-2107 ZA-2108	ZAS-2107 ZAS-2108	4	1 7/8	5	2 7/8	1 1/16	6 9/16	2 3/16	1	...	7/8	3 7/8	1 3/4	2 5/16	2	1/2	7.0 6.9		
1 11/16 1 3/4	ZA-2111 ZA-2112	ZAS-2111 ZAS-2112	5	2 1/8	5 1/2	3 3/8	1 1/16	7 7/8	2 7/16	1 1/8	...	7/8	4 3/8	2 1/32	2 5/8	2	1/2	9.5 9.4		
1 15/16 1 15/16 2 2	ZA-2115 ZA-2115-F ZA-2200 ZA-2200-F	ZAS-2115 ZAS-2115-F ZAS-2200 ZAS-2200-F	6	2 1/4	6 1/4	3 3/8	1 1/16	8 1/8 8 7/8 8 1/8 8 3/8	2 7/16 3 3/16 2 7/16 3 3/16	1 1/4 1 3/8 1 1/4 1 3/8	...	1 15/16 1 13/16 1 15/16 1 13/16	4 9/16	2 5/16	2 15/16	2 2 2 4	5/8 1/2 5/8 1/2	10.9 13.2 10.7 13.1		
2 3/16 2 3/16 2 1/4 2 1/4	ZA-2203 ZA-2203-F ZA-2204 ZA-2204-F	ZAS-2203 ZAS-2203-F ZAS-2204 ZAS-2204-F	7	2 1/2	6 3/4	3 3/16	2 5/32	8 9/8 8 7/8 8 3/8 8 7/8	2 9/16 3 1/4 2 9/16 3 1/4	1 3/8 1 1/2 1 3/8 1 1/2	...	1 11/16 1 13/16 1 11/16 1 13/16	5	2 5/8	3 1/4	2 4 2 4	5/8 1/2 5/8 1/2	13.5 15.3 13.3 15.1		
2 3/8 2 3/8 2 7/16 2 7/16 2 1/2 2 1/2	ZA-2206 ZA-2206-F ZA-2207 ZA-2207-F ZA-2208 ZA-2208-F	ZAS-2206 ZAS-2206-F ZAS-2207 ZAS-2207-F ZAS-2208 ZAS-2208-F	8	2 3/4	7 1/8	3 1/2	7/8	9 1/8 9 1/4 9 1/8 9 1/4 9 1/8 9 1/4	2 5/8 3 3/8 2 5/8 3 3/8 2 5/8 3 3/8	1 3/4 1 3/4 1 3/4 1 3/4 1 3/4 1 3/4	...	1 13/16 1 13/16 1 13/16 1 13/16 1 13/16 1 13/16	5 1/2	2 29/32	3 9/16	2 4 2 4 2 4	5/8 1/2 5/8 1/2 5/8 1/2	16.1 16.9 16.3 16.6 16.6 16.4		
2 11/16 2 11/16 2 3/4 2 3/4 2 19/16 2 19/16 3 3	ZA-2211 ZA-2211-F ZA-2212 ZA-2212-F ZA-2215 ZA-2215-F ZA-2300 ZA-2300-F	ZAS-2211 ZAS-2211-F ZAS-2212 ZAS-2212-F ZAS-2215 ZAS-2215-F ZAS-2300 ZAS-2300-F	9	3 1/4	8 1/8	4	1 3/16	10 3/8 10 7/16 10 3/8 10 7/16 10 3/8 10 7/16 10 3/8 10 7/16	3 3/16 3 3/4 3 3/16 3 3/4 3 3/16 3 3/4 3 3/16 3 3/4	1 11/16 2 1/4 1 11/16 2 1/4 1 11/16 2 1/4 1 11/16 2 1/4	...	1 1/8 1 15/16 1 1/8 1 15/16 1 1/8 1 15/16 1 1/8 1 15/16	6 7/16	3 3/8	4 1/16	2 4 2 4 2 4 2 4	3/4 5/8 3/4 5/8 3/4 5/8 3/4 5/8	27.3 28.0 26.9 27.8 26.0 26.8 25.6 26.5		
3 3/16 3 3/16 3 3/16 3 7/16 3 1/2 3 1/2	ZA-2303 ZA-2303-F ZA-2307 ZA-2307-F ZA-2308 ZA-2308-F	ZAS-2303 ZAS-2303-F ZAS-2307 ZAS-2307-F ZAS-2308 ZAS-2308-F	10	3 3/4	10	4 3/8	1 5/16	13 3/16 13 13 3/16 13 13 3/16 13	3 7/16 4 1/8 3 7/16 4 1/8 3 7/16 4 1/8	1 7/8 2 1/4 1 7/8 2 1/4 1 7/8 2 1/4	...	1 5/8 1 1/2 1 5/8 1 1/2 1 5/8 1 1/2	7 1/2	3 31/32	4 15/16	2 4 2 4 2 4	7/8 3/4 7/8 3/4 7/8 3/4	41.8 42.1 40.3 40.6 39.8 40.1		
3 11/16 3 11/16 3 19/16 3 19/16 4 4	ZA-2311 ZA-2311-F ZA-2315 ZA-2315-F ZA-2400 ZA-2400-F	ZAS-2311 ZAS-2311-F ZAS-2315 ZAS-2315-F ZAS-2400 ZAS-2400-F	11	4 1/8 4 1/4 4 1/8 4 1/4 4 1/8 4 1/4	10 7/8 12 1/2 10 7/8 12 1/2 10 7/8 12 1/2	5 3/16	1 1/16	14 1/4 15 1/4 14 1/4 15 1/4 14 1/4 15 1/4	4 7/8 4 1/2 4 7/8 4 1/2 4 7/8 4 1/2	2 1/8 2 1/2 2 1/8 2 1/2 2 1/8 2 1/2	...	1 3/4 2 1/4 1 3/4 2 1/4 1 3/4 2 1/4	8 1/2 8 9/8 8 1/2 8 9/8 8 1/2 8 9/8	4 9/16	5 5/8	2 4 2 4 2 4	1 3/4 1 3/4 1 3/4	58.0 63.0 56.0 61.0 55.0 60.0		

4-bolt block - Use suffix F Steel Housings - See Page D-16 Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

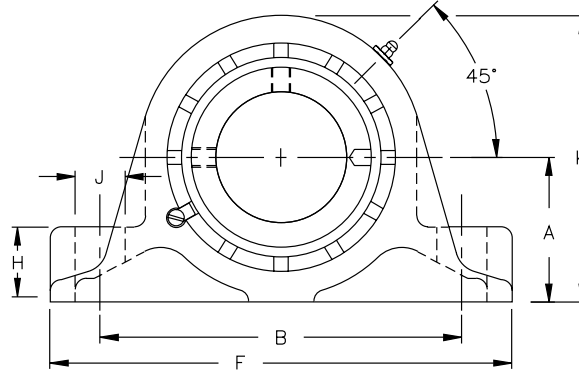
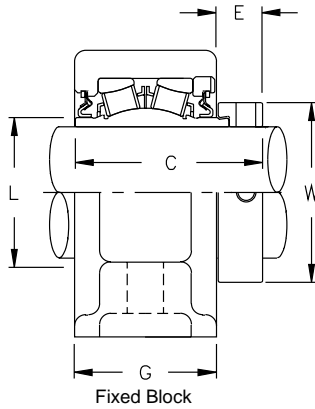
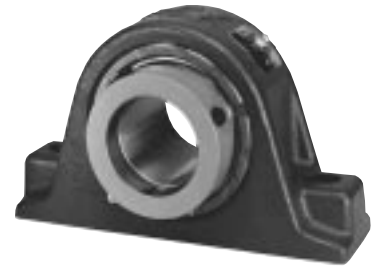
Auxiliary Caps - Not available in Size Codes 2 & 3, and ZAS Series.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.

ZA/ZAS PILLOW BLOCKS

**TWIST LOCK™
MEDIUM DUTY
3000 Series
Eccentric Lock**



Radial load ratings are shown on pages D-56 — Floating units allow for 3/8" axial movement

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches											Bolts Req'd.		Complete Block Net Wt. Lbs.		
	Fixed	Floating		A ±.005	B	C	E	F	G	H	I	J	K	L	W	No.		Size	
1 7/16	ZA-3107	ZAS-3107	4	1 7/8	5	2 59/64	2 5/32	6 9/16	2 3/16	1	...	7/8	3 7/8	1 3/4	2 5/16	2	1/2	7.2	
1 11/16	ZA-3111	ZAS-3111	5	2 1/8	5 1/2	3 3/16	3/4	7 1/8	2 7/16	1 1/8	...	7/8	4 3/8	2 1/32	2 5/8	2	1/2	9.7	
1 15/16	ZA-3115	ZAS-3115	6	2 1/4	6 1/4	3 39/32	2 7/32	8 1/8	2 7/16	1 1/4	...	1 9/16	1 9/16	4 9/16	2 5/16	2 3/4	2	5/8	11.1
	ZA-3115-F	ZAS-3115-F															4	1/2	13.4
2 3/16	ZA-3203	ZAS-3203	7	2 1/2	6 3/4	3 1/2	3 1/32	8 5/8	2 9/16	1 3/8	...	1 13/16	1 13/16	5	2 5/8	3 1/4	2	5/8	13.8
	ZA-3203-F	ZAS-3203-F															4	1/2	15.6
2 7/16	ZA-3207	ZAS-3207	8	2 3/4	7 1/8	3 2 1/32	1 1/64	9 1/8	2 5/8	1 5/8	...	1 13/16	1 13/16	5 1/2	2 29/32	3 9/16	2	5/8	16.5
	ZA-3207-F	ZAS-3207-F															4	1/2	16.8
	ZA-3208	ZAS-3208															2	5/8	16.5
	ZA-3208-F	ZAS-3208-F															4	1/2	16.8
2 11/16	ZA-3211	ZAS-3211	9	3 1/4	8 1/8	4 13/64	1 1/64	10 9/16	3 3/16	1 11/16	...	1 1/8	1 5/16	6 7/16	3 3/8	4 1/16	2	3/4	27.7
	ZA-3211-F	ZAS-3211-F															4	5/8	28.4
	ZA-3215	ZAS-3215															2	3/4	26.4
	ZA-3215-F	ZAS-3215-F															4	5/8	27.2
3 7/16	ZA-3307	ZAS-3307	10	3 3/4	10	4 37/64	1 5/64	13 3/16	3 7/16	1 7/8	...	1 5/8	1 1/2	7 1/2	3 31/32	4 15/16	2	7/8	40.9
	ZA-3307-F	ZAS-3307-F															4	3/4	41.2
	ZA-3308	ZAS-3308															2	7/8	40.4
	ZA-3308-F	ZAS-3308-F															4	3/4	40.7
3 15/16	ZA-3315	ZAS-3315	11	4 1/8	10 7/8	5 3/16	1 1/16	14 1/4	4 1/8	2 1/8	...	1 3/4	8 1/2	4 9/16	5 5/8	2	1	56.0	
	ZA-3315-F	ZAS-3315-F														4	3/4	61.0	

4-bolt block - Use suffix F

Bore Size = Nominal Shaft Size +.001 -.000

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

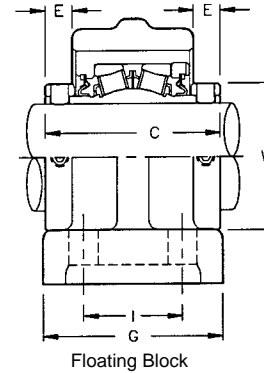
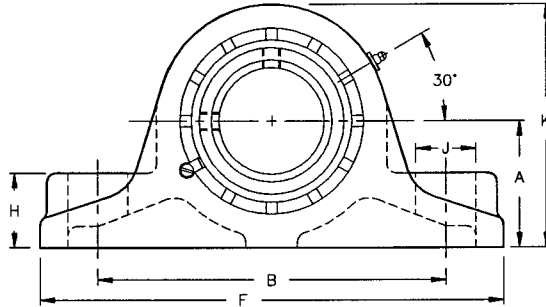
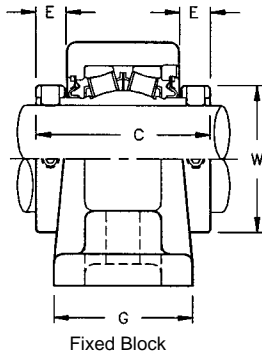
Auxiliary Caps - Not available in ZAS series

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.



HEAVY DUTY 5000 Series Double Set Collar Fixed and Floating



Specifications . . . Radial load ratings are shown on pages D-56 — For available expansion, see page D-47

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches													Bolts Req'd.		Complete Block Net Wt. Lbs.		
	Fixed	Floating		A ±.005	B	C	E		F	G	H	I	J	K		W	No.	Size	Fixed	Float.	
							Fixed	Float.						Fixed	Float.						
1 7/16	ZP-5107	ZPS-5107	4	2 1/8	5 7/8	3 3/16	1 1/16	9/16	8 1/8	2 7/16	1 1/8	...	1 1/8	3 3/32	4 11/32	2 5/16	2	1/2	8.1	10.7	
1 1/2	ZP-5108	ZPS-5108	5	2 3/16	6 1/2	3 13/16	1 1/16	1/2	9	2 13/16	1 5/16	...	1 1/4	4 7/16	4 13/16	2 5/8	2	1/2	11.9	15.7	
1 11/16	ZP-5111	ZPS-5111																	11.6	15.1	
1 15/16	ZP-5115	ZPS-5115	6	2 1/2	7	3 3/16	1 1/16	9/16	9 3/4	2 7/8	1 1/16	...	2 1/4	1 1/4	4 3/4	4 15/16	2 15/16	2	5/8	13.4	16.1
1 11/16	ZP-5115-F	ZPS-5115-F																		15.8	17.7
2	ZP-5200	ZPS-5200	7	2 3/4	7 1/2	4 1/8	1 3/16	1 1/16	10 1/4	3 1/8	1 1/8	...	2 1/4	1 1/4	5 1/4	5 5/32	2 3/4	2	5/8	17.5	21.8
2	ZP-5200-F	ZPS-5200-F																		19.6	22.1
2 3/16	ZP-5203	ZPS-5203																		16.9	21.6
2 3/16	ZP-5203-F	ZPS-5203-F																		18.8	21.7
2 1/16	ZP-5207	ZPS-5207	8	3	8 1/4	4 3/8	7/8	3/4	11 1/4	3 3/8	1 3/4	...	2 5/8	1 3/8	5 3/4	6 3/16	3 3/16	2	3/4	21.2	25.9
2 7/16	ZP-5207-F	ZPS-5207-F																		24.4	27.4
2 1/2	ZP-5208	ZPS-5208	9	3 1/2	9 3/4	4 7/8	7/8	3/4	13	3 7/8	2 1/16	...	2 3/4	1 5/8	6 23/32	7 3/16	4 1/16	2	7/8	35.2	43.4
2 1/2	ZP-5208-F	ZPS-5208-F																		38.2	44.2
2 11/16	ZP-5211	ZPS-5211																		33.9	42.5
2 11/16	ZP-5211-F	ZPS-5211-F																		37.2	43.4
2 15/16	ZP-5215	ZPS-5215																		32.6	40.4
2 15/16	ZP-5215-F	ZPS-5215-F																		35.1	41.8
3 3/16	ZP-5303-F	ZPS-5303-F	10	4	11 1/2	5 5/16	1 5/16	1 3/16	15	5	1 1/2	3	1 1/2	8 1/8	8 3/8	4 15/16	4	3/4	52.0	59.0	
3 7/16	ZP-5307-F	ZPS-5307-F																	51.0	57.0	
3 11/16	ZP-5311-F	ZPS-5311-F	11	5	13 1/4	6 1/4	1 1/16	1 5/16	16 3/4	6	1 1/2	3 1/2	1 1/2	9 7/8	10 1/4	5 5/8	4	7/8	86.0	98.0	
3 15/16	ZP-5315-F	ZPS-5315-F																	84.0	96.0	
4	ZP-5400-F	ZPS-5400-F																	83.0	95.0	
4 3/16	ZP-5403Y-F	ZPS-5403Y-F	12	5 3/4	14 3/4	6 1/4	1	7/8	18 1/2	6 3/4	1 3/4	4	1 13/16	11 1/4	11 5/8	6 3/16	4	1	110.0	122.0	
4 7/16	ZP-5407Y-F	ZPS-5407Y-F																	108.0	119.0	
4 1/2	ZP-5408Y-F	ZPS-5408Y-F																	107.0	118.0	
4 15/16	ZP-5415-F	ZPS-5415-F	13	6 1/8	16	7 7/8	1 5/32	1 5/16	20 1/4	7 1/2	1 7/8	4 1/4	2	12 1/2	13 3/8	7 1/16	4	1 1/8	171.0	206.0	
5	ZP-5500-F	ZPS-5500-F																	168.0	203.0	
5 7/16	ZP-5507-F	ZPS-5507-F	14	6 1/16	18 5/16	8	1 1/32	1 1/32	22	6 1/4	2	3 1/16	2 1/16	14	14 3/8	8 3/16	4	1 1/8	211.0	226.0	
5 15/16	ZP-5515-F	ZPS-5515-F	15	7 1/16	20 1/2	8 1/8	1 5/32	1 1/16	24 3/4	6 3/4	2 1/8	4 3/16	2 1/4	14 3/4	15 3/32	8 11/16	4	1 1/8	255.0	274.0	
6	ZP-5600-F	ZPS-5600-F																	254.0	273.0	
6 7/16	ZP-5607-F	ZPS-5607-F	16	7 7/8	23	8 3/4	1 5/32	1 3/16	28	7 1/2	2 3/8	4 7/16	2 5/16	16 5/16	16 3/4	9 3/4	4	1 1/4	339.0	366.0	
6 11/16	ZP-5615-F	ZPS-5615-F																	328.0	352.0	
7	ZP-5700-F	ZPS-5700-F																	326.0	348.0	

4-bolt block - Use suffix F

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

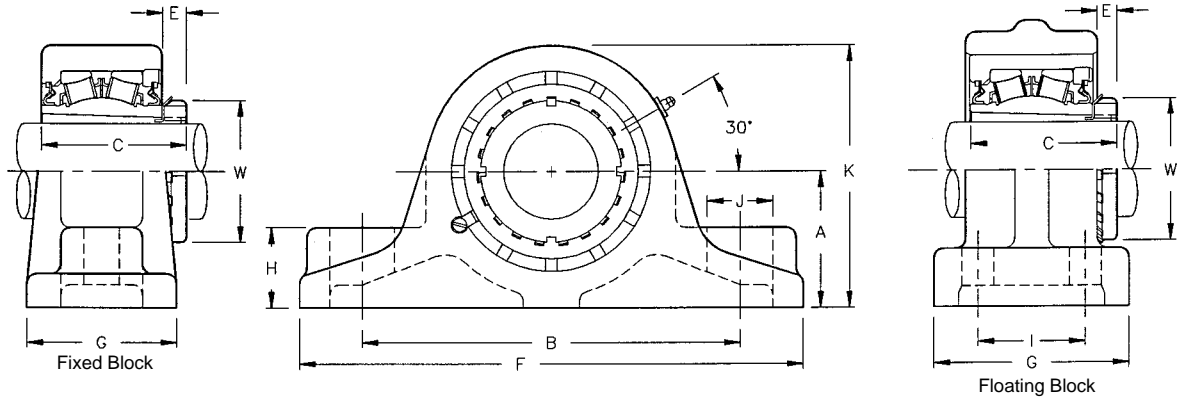
Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.

ZP/ZPS PILLOW BLOCKS

ADAPTER 9000 Series Fixed and Floating



Specifications . . . Radial load ratings are shown on pages D-56 — For available expansion, see page D-47

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches													Bolts Req'd.		Complete Block Net Wt. Lbs.		
				A ±.005	B	C		E		F	G	H	I	J	K						W
	Fixed	Float.				Fixed	Float.	Fixed	Float.												
1 ¹⁵ / ₁₆ 1 ¹⁵ / ₁₆ 2 2	ZP-9115 ZP-9115-F ZP-9200 ZP-9200-F	ZPS-9115 ZPS-9115-F ZPS-9200 ZPS-9200-F	7	2 ³ / ₄	7 ¹ / ₂	3 ⁵ / ₃₂	3 ⁵ / ₃₂	1 ⁹ / ₃₂	1 ¹ / ₂	10 ¹ / ₄	3 ¹ / ₈ 4 ¹ / ₈ 3 ¹ / ₈ 4 ¹ / ₈	1 ¹ / ₈ 1 1 ¹ / ₈ 1	... 2 ¹ / ₄ ... 2 ¹ / ₄	1 ¹ / ₄	5 ¹ / ₄ 5 ¹ / ₂ 5 ¹ / ₄ 5 ¹ / ₂	5 ²³ / ₃₂	2 ³¹ / ₃₂	2 4 2 4	5/8 5/8 5/8 5/8	16.0 18.1 15.9 17.9	20.5 20.5 20.3 20.3
2 ³ / ₁₆ 2 ³ / ₁₆	ZP-9203 ZP-9203-F	ZPS-9203 ZPS-9203-F	8	3	8 ¹ / ₄	3 ¹¹ / ₃₂	3 ¹¹ / ₃₂	2 ³ / ₃₂	1 ⁹ / ₃₂	11 ¹ / ₄	3 ³ / ₈ 4 ¹ / ₂	1 ³ / ₄ 1 ¹ / ₈	... 2 ⁵ / ₈	1 ³ / ₈ 1 ¹ / ₄	5 ³ / ₄ 6	6 ³ / ₁₆ 6 ⁷ / ₃₂	3 ³ / ₈	2 4	3/4 5/8	20.1 22.8	24.8 26.7
2 ⁷ / ₁₆ 2 ⁷ / ₁₆ 2 ¹ / ₂ 2 ¹ / ₂	ZP-9207 ZP-9207-F ZP-9208 ZP-9208-F	ZPS-9207 ZPS-9207-F ZPS-9208 ZPS-9208-F	9	3 ¹ / ₂	9 ³ / ₄	3 ²⁷ / ₃₂	3 ³ / ₄	2 ³ / ₃₂	1 ⁹ / ₃₂	13	3 ⁷ / ₈ 5 3 ⁷ / ₈ 5	2 ¹ / ₁₆ 1 ³ / ₈ 2 ¹ / ₁₆ 1 ³ / ₈	... 2 ³ / ₄ ... 2 ³ / ₄	1 ¹ / ₈ 1 ¹ / ₂ 1 ¹ / ₈ 1 ¹ / ₂	6 ²³ / ₃₂ 7 ¹ / ₁₆ 6 ²³ / ₃₂ 7 ¹ / ₁₆	7 ³ / ₁₆ 7 ³ / ₁₆ 7 ³ / ₁₆ 7 ³ / ₁₆	3 ⁵ / ₈	2 4 2 4	7/8 3/4 7/8 3/4	32.2 35.4 31.9 34.6	40.6 41.8 40.5 41.7
2 ¹¹ / ₁₆ 2 ¹¹ / ₁₆	ZP-9211-F ZP-9215-F	ZPS-9211-F ZPS-9215-F	10	4	11 ¹ / ₂	4 ¹ / ₄	4 ¹ / ₄	1 ³ / ₁₆	1 ¹ / ₁₆	15	5	1 ¹ / ₂	3	1 ¹ / ₂	8 ¹ / ₈	8 ³ / ₈	4 ¹³ / ₃₂	4	3/4	51.2 50.0	56.0 55.0
3 ³ / ₁₆ 3 ⁷ / ₁₆	ZP-9303-F ZP-9307-F	ZPS-9303-F ZPS-9307-F	11	5	13 ³ / ₄	5 ¹ / ₁₆	5 ¹ / ₁₆	1 ⁵ / ₁₆	1 ³ / ₁₆	16 ³ / ₄	6	1 ¹ / ₂	3 ¹ / ₂	1 ¹ / ₂	9 ⁷ / ₈	10 ¹ / ₄	5 ⁵ / ₁₆	4	7/8	83.0 81.0	95.0 93.0
3 ¹¹ / ₁₆ 3 ¹⁵ / ₁₆ 4	ZP-9311Y-F ZP-9315Y-F ZP-9400Y-F	ZPS-9311Y-F ZPS-9315Y-F ZPS-9400Y-F	12	5 ³ / ₄	14 ³ / ₄	5 ⁹ / ₃₂	5 ¹³ / ₃₂	1 ¹ / ₃₂	2 ⁹ / ₃₂	18 ¹ / ₂	6 ³ / ₄	1 ³ / ₄	4	1 ⁷ / ₈	11 ¹ / ₄	11 ⁵ / ₈	5 ²³ / ₃₂	4	1	110.0 108.0 107.0	121.0 119.0 118.0
4 ³ / ₁₆ 4 ⁷ / ₁₆	ZP-9403-F ZP-9407-F	ZPS-9403-F ZPS-9407-F	13	6 ¹ / ₈	16	6 ¹³ / ₁₆	6 ³ / ₄	1 ¹ / ₈	2 ⁹ / ₃₂	20 ¹ / ₄	7 ¹ / ₂	1 ⁷ / ₈	4 ¹ / ₄	2	12 ¹ / ₂	13 ¹ / ₈	6 ¹ / ₈	4	1 ¹ / ₈	174.0 168.0	204.0 202.0
4 ¹⁵ / ₁₆ 5	ZP-9415-F ZP-9500-F	ZPS-9415-F ZPS-9500-F	14	6 ¹¹ / ₁₆	18 ⁵ / ₁₆	7	7 ³ / ₁₆	1 ¹ / ₈	1 ⁵ / ₃₂	22	6 ¹ / ₄	2	3 ¹¹ / ₁₆	2 ¹ / ₁₆	14	14 ³ / ₈	7 ³ / ₃₂	4	1 ¹ / ₈	202.0 201.0	222.0 220.0
5 ³ / ₁₆ 5 ⁷ / ₁₆	ZP-9503-F ZP-9507-F	ZPS-9503-F ZPS-9507-F	15	7 ¹ / ₁₆	20 ¹ / ₂	7 ¹ / ₁₆	7 ³ / ₁₆	1 ⁹ / ₁₆	1 ³ / ₈	24 ³ / ₄	6 ³ / ₄	2 ¹ / ₈	4 ³ / ₁₆	2 ¹ / ₁₆	14 ³ / ₄	15 ⁵ / ₃₂	8 ¹ / ₁₆	4	1 ¹ / ₈	254.0 250.0	273.0 269.0
5 ¹⁵ / ₁₆ 6 6 ¹ / ₁₆	ZP-9515-F ZP-9600-F ZP-9607-F	ZPS-9515-F ZPS-9600-F ZPS-9607-F	16	7 ⁷ / ₈	23	7 ³ / ₄	7 ³ / ₄	1 ¹¹ / ₁₆	1 ³ / ₄	28	7 ¹ / ₂	2 ³ / ₈	4 ⁷ / ₁₆	2 ⁹ / ₁₆	16 ⁹ / ₁₆	16 ³ / ₄	9 ¹ / ₁₆	4	1 ¹ / ₄	328.0 327.0 320.0	350.0 349.0 342.0

4-bolt block - Use suffix F

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

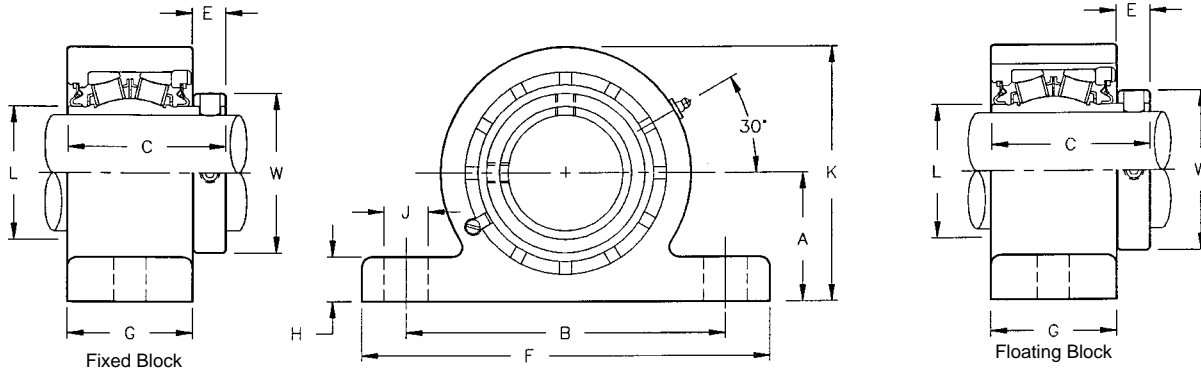
Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.



STEEL HOUSING NORMAL DUTY 2000 Series Fixed and Floating Single Set Collar



Specifications . . . Radial load ratings are shown on pages D-56 — Floating units allow 3/8" axial movement

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches												Bolt Size	Complete Block Net Wt. Lbs.	
				A ±.005		B	C	E	F	G	H	J	K		L		W	Fixed	Float.
	Fixed	Floating										Fixed	Float.					
1 7/16 1 1/2	ZA-2107-72 ZA-2108-72	ZAS-2107-72 ZAS-2108-72	4	1 7/8	5	2 7/8	1 1/16	6 9/16	2 3/16	1	7/8	3 3/8	3 7/8	1 3/4	2 5/16	1/2	6.8 6.7	8.0 7.9
1 11/16 1 3/4	ZA-2111-72 ZA-2112-72	ZAS-2111-72 ZAS-2112-72	5	2 1/8	5 1/2	3 3/8	1 1/16	7 1/8	2 7/16	1 1/8	7/8	4 3/16	4 3/8	2 1/32	2 5/8	1/2	9.7 9.5	11.1 10.9
1 15/16 2	ZA-2115-72 ZA-2200-72	ZAS-2115-72 ZAS-2200-72	6	2 1/4	6 1/4	3 3/8	1 1/16	8 1/8	2 7/16	1 1/4	1 5/16	4 3/8	4 9/16	2 5/16	2 15/16	5/8	11.3 11.1	12.2 12.0
2 3/16 2 1/4	ZA-2203-72 ZA-2204-72	ZAS-2203-72 ZAS-2204-72	7	2 1/2	6 3/4	3 5/16	1 3/16	8 5/8	2 9/16	1 1/16	1	4 15/16	5	2 5/8	3 1/4	5/8	14.3 14.1	14.8 14.6
2 3/8 2 7/16 2 1/2	ZA-2206-72 ZA-2207-72 ZA-2208-72	ZAS-2206-72 ZAS-2207-72 ZAS-2208-72	8	2 3/4	7 1/8	3 1/2	7/8	9 1/8	2 5/8	1 1/2	1	5 13/32	5 1/2	2 29/32	3 9/16	5/8	17.7 17.6 17.4	18.5 18.4 18.2
2 11/16 2 3/4 2 15/16 3	ZA-2211-72 ZA-2212-72 ZA-2215-72 ZA-2300-72	ZAS-2211-72 ZAS-2212-72 ZAS-2215-72 ZAS-2300-72	9	3 1/4	8 1/8	4	7/8	10 3/8	3 1/8	1 1/8	1 1/8	6 3/8	6 7/16	3 3/8	4 1/16	3/4	26.2 25.8 24.7 24.4	27.0 26.6 25.5 25.2
3 3/16 3 7/16 3 1/2	ZA-2303-72 ZA-2307-72 ZA-2308-72	ZAS-2303-72 ZAS-2307-72 ZAS-2308-72	10	3 3/4	10	4 3/8	1 5/16	13 3/16	3 7/16	1 7/8	1 5/8	7 13/32	7 1/2	3 31/32	4 15/16	7/8	43.0 41.5 41.0	44.0 42.5 42.0
3 11/16 3 9/16 4	ZA-2311-72 ZA-2315-72 ZA-2400-72	ZAS-2311-72 ZAS-2315-72 ZAS-2400-72	11	4 1/8	10 7/8	5 3/16	1 1/16	14 1/4	4 1/8	2 1/8	1 3/4	8 3/16	8 1/2	4 9/16	5 5/8	1	48.3 46.3 45.4	57.0 55.0 54.0

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in ZAS Series

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-9.

GENERAL INFORMATION

Flange blocks are well suited to thin wall mounting members. The only requirement for installation is that a hole be bored large enough to accept the shaft or collar. Mounting bolt holes are simply drilled into the framework.

The flange block may be installed in any position. However, it has been designed for quick and easy vertical mounting.

For Large Pilots, See Flange Cartridge Units on Page D-23

Flange blocks are available with $\frac{3}{16}$ " flange pilot primarily for locating on mounting structure. It can also aid in reducing the shear stresses on the mounting bolts if there is proper fit up between the pilot and mounting structure.

Points to consider in the Use of Flange Blocks:

1. In flange blocks, the flange and mounting bolts support the bearing, shaft, and all other forces that may be exerted upon the shaft.
2. Since the center of the bearing in a flange block projects beyond the flange, a bending movement may produce an additional load which must also be carried by the flange and mounting bolts. Proper fit up and tightening of mounting bolts is important to realize full housing strength.
3. Flange blocks are in their strongest position when the force is parallel with the shaft and in the direction of the base.

ZB Flange Blocks - Normal Duty - Fixed

- $\frac{3}{4}$ " through 4" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-18
 - ✓ 3000 series page D-19
 - ✓ 5000 series available, page D-41
 - ✓ 9000 series available, see page D-41



ZEF Flange Blocks - Normal Duty - Fixed

- $1\frac{1}{16}$ " through 4" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-20
 - ✓ 3000 series available, page D-41
 - ✓ 5000 series available, see page D-41
 - ✓ 9000 series available, see page D-41



ZF/ZFS Flange Blocks - Heavy Duty

Fixed & Expansion (uses ZMC cartridge page D-29)

- $1\frac{1}{16}$ " through 5" shaft sizes
- Shaft mounting styles
 - ✓ 5000 series, page D-21
 - ✓ 9000 series, page D-22



Additional Information

Housing Material — Cast iron unless otherwise noted. Other materials available on special order.

Bolt Holes - Cored $\frac{1}{32}$ " larger than bolt diameters.

Grease fittings $\frac{1}{8}$ NPT tapped holes with grease fittings thru size code 11, $\frac{1}{4}$ NPT above.

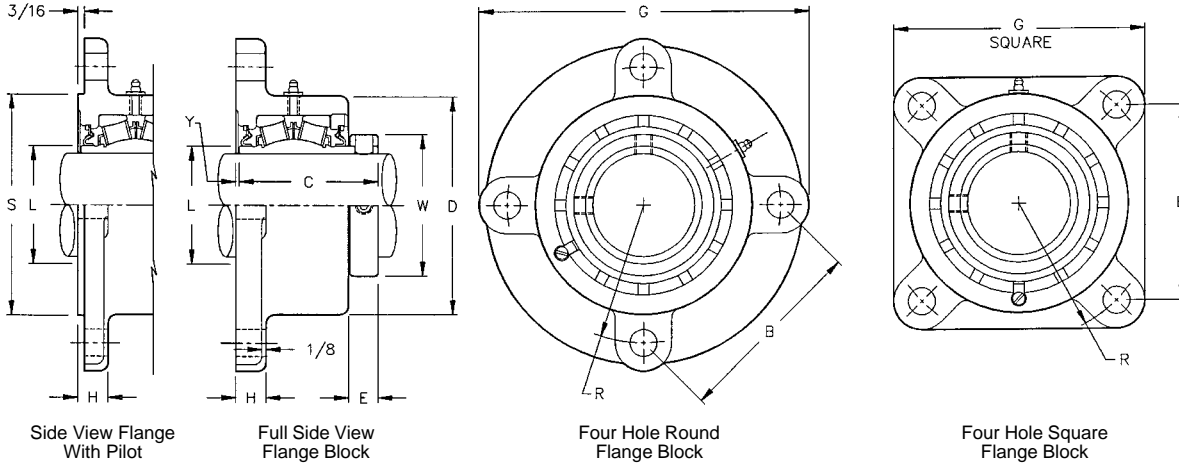
Floating Blocks (expansion) For amount of axial movement see page D-47. ZFS blocks use ZMC cartridge.

ZB FLANGE BLOCKS

Rex' Roller Bearings



NORMAL DUTY 2000 Series Single Set Collar



Specifications . . . Radial load ratings are shown on pages D-56

Shaft Size Inches	Complete Block No. ♦	Size Code	Dimensions in Inches											Bolts Req'd.		Complete Block Net Wt. Lbs.	
			B	C	D	E	G	H	L	R	S +.000 -.003	W	Y	No.	Size		
3/4 15/16 1	ZB-2012 ZB-2015 ZB-2100	2	3 ³⁷ / ₆₄	2 ⁹ / ₁₆	2 ¹⁵ / ₁₆	9/16	5 1/8	1 ⁹ / ₃₂	1 ⁵ / ₁₆	2 ¹ / ₁₆	3	1 3/4	1/16	3	3/8	4.3 4.2 4.2	
1 1/8 1 3/16 1 1/4	ZB-2102 ZB-2103 ZB-2104	3	3 ⁵⁷ / ₆₄	2 ¹¹ / ₁₆	3 ³ / ₁₆	9/16	5 1/2	5/8	1 ¹⁷ / ₃₂	2 1/4	3 1/4	2	1/16	3	3/8	5.2 5.1 5.0	
1 7/16 1 1/2	ZB-2107 ZB-2108	4	4 ²¹ / ₆₄	2 ⁷ / ₈	3 ⁷ / ₁₆	1 ¹ / ₁₆	6 1/4	2 ¹ / ₃₂	1 3/4	2 1/2	3 ⁹ / ₁₆	2 ⁵ / ₁₆	1/16	3	1/2	6.8 6.7	
1 11/16 1 3/4	ZB-2111 ZB-2112	5	3 ⁵⁷ / ₆₄	3 1/8	3 ¹⁵ / ₁₆	1 ¹ / ₁₆	6 3/4	2 ¹ / ₃₂	2 ¹ / ₃₂	2 3/4	4 ¹ / ₁₆	2 ⁵ / ₈	3/32	4	1/2	8.6 8.4	
1 15/16 2	ZB-2115 ZB-2200	6	4 ¹ / ₁₆	3 1/8	4 1/4	1 ¹ / ₁₆	7	1 ¹ / ₁₆	2 ⁵ / ₁₆	2 ⁷ / ₈	4 ³ / ₈	2 ¹⁵ / ₁₆	3/32	4	1/2	9.8 9.6	
2 3/16 2 1/4	ZB-2203 ZB-2204	7	4 1/2	3 ⁵ / ₁₆	4 ⁷ / ₈	1 ³ / ₁₆	7 3/4	1 ¹ / ₁₆	2 ⁵ / ₈	3 ³ / ₁₆	5	3 1/4	1/8	4	5/8	13.3 13.1	
2 3/8 2 7/16 2 1/2	ZB-2206 ZB-2207 ZB-2208	8	4 ⁴⁹ / ₆₄	3 1/2	5 ³ / ₈	7/8	8 1/8	3/4	2 ²⁹ / ₃₂	3 ³ / ₈	5 ⁷ / ₁₆	3 ⁹ / ₁₆	1/8	4	5/8	16.7 16.6 16.4	
2 11/16 2 3/4 2 19/16 3	ZB-2211 ZB-2212 ZB-2215 ZB-2300	9	5 ⁹ / ₁₆	4	6 1/4	7/8	9 1/2	7/8	3 ³ / ₈	3 ¹⁵ / ₁₆	6 ⁹ / ₁₆	4 ¹ / ₁₆	1/8	4	3/4	26.5 26.1 25.6 25.1	
3 3/16 3 7/16 3 1/2	ZB-2303 ZB-2307 ZB-2308	10	6 ²³ / ₃₂	4 ³ / ₈	7 ³ / ₈	1 ⁵ / ₁₆	8 ⁷ / ₁₆	1	3 ³¹ / ₃₂	4 ³ / ₄	7 ³ / ₈	4 ¹⁵ / ₁₆	1/4	4	3/4	37.0 34.6 34.1	
3 11/16 3 15/16 4	ZB-2311 ZB-2315 ZB-2400	11	7 ¹⁹ / ₃₂	5 ³ / ₁₆	8 1/2	1 ¹ / ₁₆	9 ³ / ₄	1 1/8	4 ⁹ / ₁₆	5 ³ / ₈	8 1/2	5 ⁵ / ₈	1/4	4	7/8	59.0 56.0 56.0	

♦ Pilot - Use suffix S

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

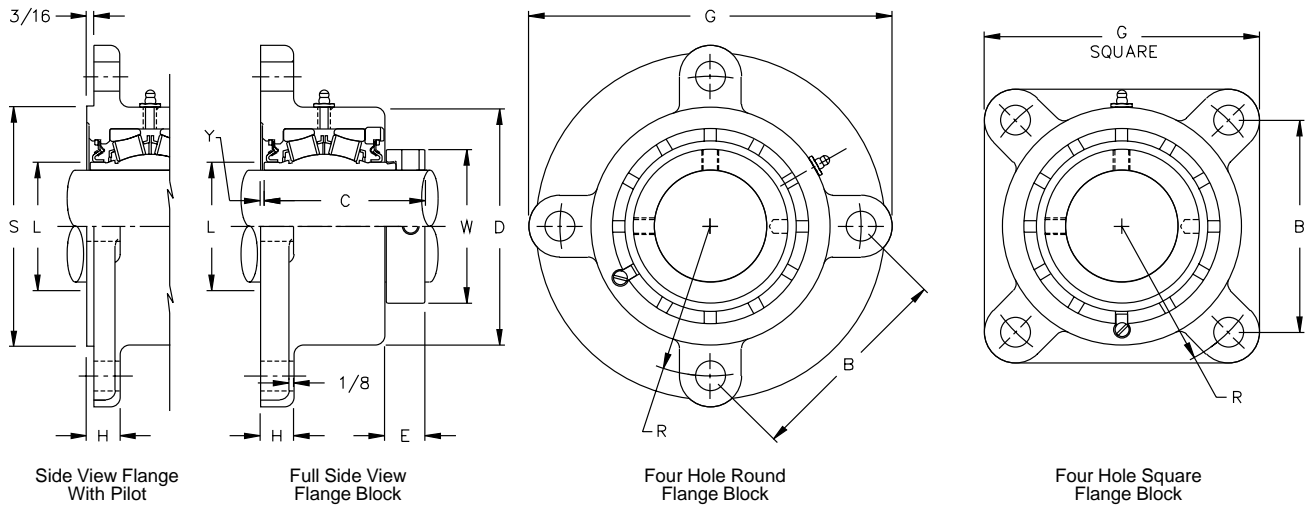
Auxiliary Caps - Not available in Size Codes 2-6, and Size Code 7 on flange side of non-piloted bearings

Not available in Size Codes 2-6, and Size Codes 7-9 on flange side of piloted bearings

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-17.

**TWIST LOCK™
MEDIUM DUTY
3000 Series
Eccentric Lock**



Specifications . . . Radial load ratings are shown on pages D-56

Shaft Size Inches	Complete Block No. ◆	Size Code	Dimensions in Inches											Bolts Req'd.		Net Wt. Lbs.	
			B	C	D	E	G	H	L	R	S +.000 -.003	W	Y	No.	Size		
1 ⁷ / ₁₆	ZB-3107	4	4 ² / ₁₆	2 ⁵ / ₁₆	3 ⁷ / ₁₆	2 ⁵ / ₃₂	6 ¹ / ₄	2 ¹ / ₃₂	1 ³ / ₄	2 ¹ / ₂	3 ⁹ / ₁₆	2 ⁵ / ₁₆	1 ¹ / ₁₆	3	1 ¹ / ₂	7.0	
1 ¹¹ / ₁₆	ZB-3111	5	3 ⁵ / ₁₆	3 ³ / ₁₆	3 ¹ / ₁₆	3 ⁴ / ₁₆	6 ³ / ₄	2 ¹ / ₃₂	2 ¹ / ₃₂	2 ³ / ₄	4 ¹ / ₁₆	2 ⁵ / ₁₆	3 ³ / ₃₂	4	1 ¹ / ₂	8.8	
1 ¹⁵ / ₁₆	ZB-3115	6	4 ¹ / ₁₆	3 ³ / ₃₂	4 ¹ / ₄	2 ⁷ / ₃₂	7	1 ¹ / ₁₆	2 ⁵ / ₁₆	2 ⁷ / ₈	4 ³ / ₈	2 ³ / ₄	3 ³ / ₃₂	4	1 ¹ / ₂	10.0	
2 ³ / ₁₆	ZB-3203	7	4 ¹ / ₂	3 ¹ / ₂	4 ⁷ / ₈	3 ¹ / ₃₂	7 ³ / ₄	1 ¹ / ₁₆	2 ⁵ / ₈	3 ³ / ₁₆	5	3 ¹ / ₄	1 ¹ / ₈	4	5 ⁸ / ₁₆	13.6	
2 ⁷ / ₁₆ 2 ¹ / ₂	ZB-3207 ZB-3208	8	4 ⁹ / ₁₆	3 ² / ₃₂	5 ³ / ₈	1 ¹ / ₁₆	8 ¹ / ₈	3 ⁴ / ₁₆	2 ²⁹ / ₃₂	3 ³ / ₈	5 ⁷ / ₁₆	3 ³ / ₁₆	1 ¹ / ₈	4	5 ⁸ / ₁₆	16.8 16.6	
2 ¹¹ / ₁₆ 2 ¹⁵ / ₁₆	ZB-3211 ZB-3215	9	5 ⁹ / ₁₆	4 ¹³ / ₁₆	6 ¹ / ₄	1 ¹ / ₁₆	9 ¹ / ₂	7 ⁸ / ₁₆	3 ³ / ₈	3 ¹⁵ / ₁₆	6 ⁵ / ₁₆	4 ¹ / ₁₆	1 ¹ / ₈	4	3 ⁴ / ₁₆	27.1 26.0	
3 ⁷ / ₁₆ 3 ¹ / ₂	ZB-3307 ZB-3308	10	6 ²³ / ₃₂	4 ³⁷ / ₆₄	7 ³ / ₈	1 ¹ / ₁₆	8 ⁷ / ₁₆	1	3 ³ / ₃₂	4 ³ / ₄	7 ³ / ₈	4 ¹⁵ / ₁₆	1 ¹ / ₄	4	3 ⁴ / ₁₆	35.7 35.2	
3 ¹⁵ / ₁₆	ZB-3315	11	7 ¹⁹ / ₃₂	5 ³ / ₁₆	8 ¹ / ₂	1 ¹ / ₁₆	9 ³ / ₄	1 ¹ / ₈	4 ⁹ / ₁₆	5 ³ / ₈	8 ¹ / ₂	5 ⁵ / ₁₆	1 ¹ / ₄	4	7 ⁸ / ₁₆	56.0	

◆ Pilot - Use suffix S

Bore Size = Nominal Shaft Size +.001 -.000

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in Size Codes 4-6 and Size Code 7 on flange side of non-piloted bearings

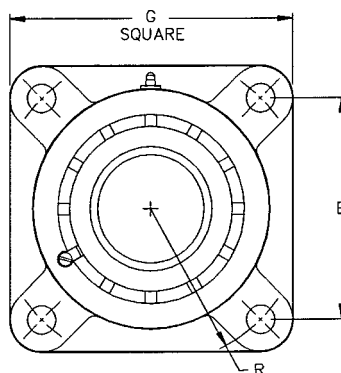
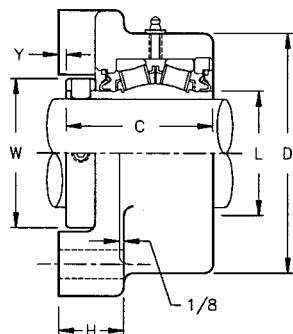
Not available in Size Codes 4-6 and Size Codes 7-9 on flange side of piloted bearings

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-17.



**NORMAL DUTY
2000 Series
Single Set Collar**



Specifications . . . Radial load ratings are shown on pages D-56

Shaft Size Inches	Complete Block No.	Size Code	Dimensions in Inches									Bolts Req'd.		Complete Block Net Wt. Lbs.
			B	C	D	G	H	L	R	W	Y	No.	Size	
1 ⁷ / ₁₆	ZEF-2107	4	3 ¹ / ₂	2 ⁷ / ₈	3 ¹¹ / ₁₆	4 ⁵ / ₈	1 ³ / ₈	1 ³ / ₄	2 ¹⁵ / ₃₂	2 ⁵ / ₁₆	1 ¹ / ₁₆	4	1 ¹ / ₂	7.2
1 ¹ / ₂	ZEF-2108	4	4 ¹ / ₈	2 ⁷ / ₈	4 ¹ / ₄	5 ³ / ₈	1 ⁷ / ₁₆	1 ³ / ₄	2 ⁵⁹ / ₆₄	2 ⁵ / ₁₆	1 ¹ / ₈	4	1 ¹ / ₂	10.0
1 ¹¹ / ₁₆	ZEF-2111	5	4 ¹ / ₈	3 ³ / ₈	4 ¹ / ₄	5 ³ / ₈	1 ⁷ / ₁₆	2 ¹ / ₃₂	2 ⁵⁹ / ₆₄	2 ⁵ / ₈	1 ¹ / ₈	4	1 ¹ / ₂	10.0
1 ³ / ₄	ZEF-2112	5	4 ³ / ₈	3 ¹ / ₈	4 ¹ / ₂	5 ³ / ₈	1 ¹ / ₂	2 ¹ / ₃₂	3 ³ / ₃₂	2 ⁵ / ₈	1 ¹ / ₈	4	1 ¹ / ₂	11.2
1 ¹⁵ / ₁₆ 2	ZEF-2115 ZEF-2200	6	4 ³ / ₈	3 ¹ / ₈	4 ¹ / ₂	5 ³ / ₈	1 ¹ / ₂	2 ⁵ / ₁₆	3 ³ / ₃₂	2 ¹⁵ / ₁₆	1 ¹ / ₈	4	1 ¹ / ₂	11.0 10.8
2 ³ / ₁₆	ZEF-2203	7	4 ⁷ / ₈	3 ⁵ / ₁₆	5	6 ¹ / ₄	1 ¹ / ₂	2 ⁵ / ₈	3 ²⁹ / ₆₄	3 ¹ / ₄	1 ¹ / ₈	4	5 ⁸ / ₁₆	14.1
2 ⁷ / ₁₆ 2 ¹ / ₂	ZEF-2207 ZEF-2208	8	5 ³ / ₈	3 ¹ / ₂	5 ¹ / ₂	6 ⁷ / ₈	1 ¹¹ / ₁₆	2 ²⁹ / ₃₂	3 ⁵ / ₆₄	3 ⁹ / ₁₆	3 ¹ / ₁₆	4	5 ⁸ / ₁₆	17.3 17.1
2 ¹ / ₁₆ 2 ³ / ₄ 2 ¹⁹ / ₁₆ 3	ZEF-2211 ZEF-2212 ZEF-2215 ZEF-2300	9	6	4	6 ¹ / ₂	7 ³ / ₄	1 ¹³ / ₁₆	3 ³ / ₈	4 ¹ / ₄	4 ¹ / ₁₆	3 ¹ / ₁₆	4	3 ⁴ / ₁₆	28.4 28.2 27.2 26.9
3 ³ / ₁₆ 3 ⁷ / ₁₆ 3 ¹ / ₂	ZEF-2303 ZEF-2307 ZEF-2308	10	7	4 ³ / ₈	7 ³ / ₈	9 ¹ / ₄	1 ¹⁵ / ₁₆	3 ³¹ / ₃₂	4 ⁶ / ₆₄	4 ¹⁵ / ₁₆	1 ¹ / ₄	4	3 ⁴ / ₁₆	42.0 40.5 40.0
3 ¹¹ / ₁₆ 3 ¹³ / ₁₆ 4	ZEF-2311 ZEF-2315 ZEF-2400	11	7 ³ / ₄	5 ⁵ / ₁₆	8 ⁷ / ₈	10 ¹ / ₄	2 ³ / ₁₆	4 ⁹ / ₁₆	5 ³ / ₆₄	5 ⁵ / ₈	1 ¹ / ₄	4	7 ⁸ / ₁₆	64.0 69.0 68.0

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

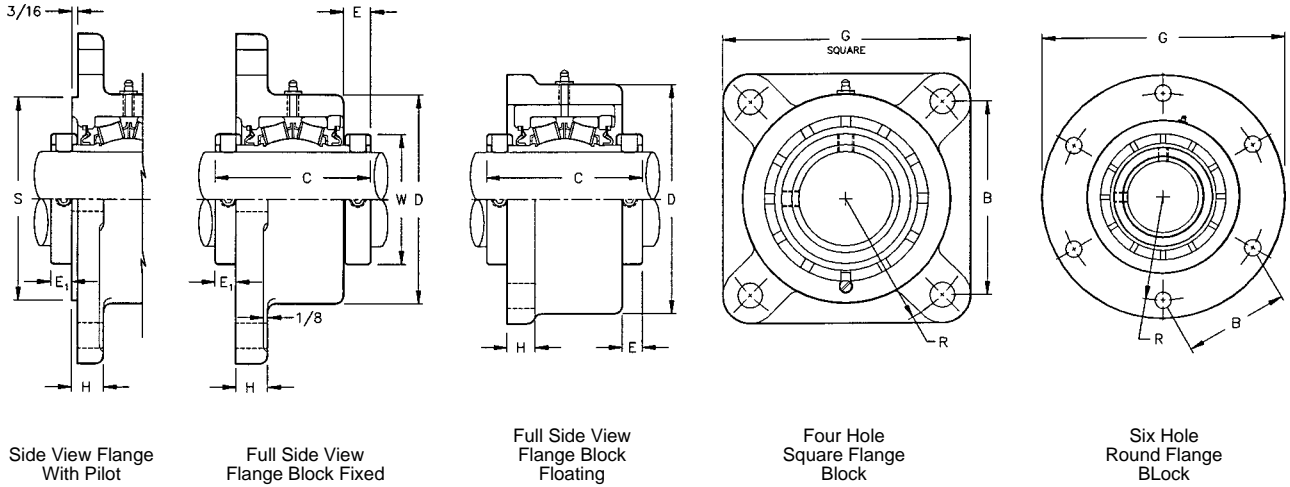
3000 Series Twist Lock collar will be on side opposite the flange.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-17.

ZF/ZFS FLANGE BLOCKS

HEAVY DUTY 5000 Series Double Set Collar Fixed & Floating



Specifications . . . Radial load ratings are shown on page D-56 — For available expansion see page D-47

Shaft Size Inches	Complete Block No. ◆		Size Code	Dimensions in Inches											Bolts Req'd.		Complete Block Net Wt. Lbs.			
				B	C	D		E		E ₁	G	H	R	S +.000 - .003		W	No.	Size	Fixed	Float.
						Fixed	Float.	Fixed	Float.					Fixed	Float.					

4-Bolt Square

1/16	ZF-5107	ZFS-5107	4	3 ³ / ₃₂	3 ⁹ / ₁₆	3 ¹ / ₁₆	4 ⁷ / ₁₆	1 ¹ / ₁₆	1 ⁵ / ₃₂	1/2	4 ¹⁵ / ₁₆	5/8	2 ⁵ / ₈	3 ⁹ / ₁₆	4 ⁷ / ₁₆	2 ⁵ / ₁₆	4	1/2	7.6	9.6
1/2	ZF-5108	ZFS-5108	5	3 ⁹ / ₆₄	3 ¹ / ₁₆	4 ¹ / ₄	5	2 ³ / ₃₂	1 ³ / ₃₂	1 ⁵ / ₃₂	5 ¹ / ₈	5/8	2 ³ / ₄	4 ¹ / ₁₆	4 ³ / ₄	2 ⁵ / ₈	4	1/2	10.4	12.6
1 ¹ / ₁₆	ZF-5111	ZFS-5111																	9.7	12.3
1 ⁹ / ₁₆	ZF-5115	ZFS-5115	6	4 ¹ / ₁₆	3 ¹ / ₁₆	4 ¹ / ₂	5 ¹ / ₈	1 ¹ / ₁₆	1 ³ / ₃₂	1 ⁹ / ₃₂	5 ⁵ / ₁₆	5/8	2 ⁷ / ₈	4 ³ / ₈	5 ¹ / ₈	2 ¹⁵ / ₁₆	4	1/2	10.4	12.8
2	ZF-5200	ZFS-5200	7	4 ¹ / ₂	4 ¹ / ₈	5	5 ³ / ₄	5 ¹ / ₆₄	1/2	2 ¹ / ₃₂	5 ⁷ / ₈	1 ¹ / ₁₆	3 ³ / ₁₆	5	5 ⁵ / ₈	3 ³ / ₄	4	5/8	14.4	18.0
2 ³ / ₁₆	ZF-5203	ZFS-5203																	13.7	17.3
2 ⁷ / ₁₆	ZF-5207	ZFS-5207	8	5 ¹ / ₃₂	4 ³ / ₈	5 ¹ / ₂	6	7 ¹ / ₈	9 ¹ / ₁₆	5/8	6 ⁷ / ₁₆	3/4	3 ⁹ / ₁₆	5 ⁷ / ₁₆	6	3 ⁹ / ₁₆	4	5/8	17.5	20.3
2 ¹ / ₂	ZF-5208	ZFS-5208	9	6 ¹ / ₆₄	4 ⁷ / ₈	6 ¹ / ₂	7 ¹ / ₈	7 ¹ / ₈	5/8	2 ¹ / ₃₂	7 ³ / ₄	7 ¹ / ₈	4 ¹ / ₄	6 ⁵ / ₁₆	7 ¹ / ₈	4 ¹ / ₁₆	4	3/4	29.9	35.4
2 ¹ / ₁₆	ZF-5211	ZFS-5211																	28.9	34.1
2 ¹ / ₁₆	ZF-5215	ZFS-5215																	26.9	33.2
3 ³ / ₁₆	ZF-5303	ZFS-5303	10	6 ²³ / ₃₂	5 ⁵ / ₁₆	7 ³ / ₈	8	1 ⁵ / ₁₆	9 ¹ / ₁₆	1 ¹ / ₁₆	8 ⁷ / ₁₆	1	4 ³ / ₄	7 ³ / ₈	8	4 ¹⁵ / ₁₆	4	3/4	40.0	47.0
3 ⁷ / ₁₆	ZF-5307	ZFS-5307																	38.0	45.5
3 ¹ / ₁₆	ZF-5311	ZFS-5311	11	8 ⁵ / ₁₆	6 ¹ / ₄	8 ⁷ / ₈	9 ¹ / ₂	1 ¹ / ₁₆	1 ¹ / ₁₆	1 ³ / ₁₆	10 ⁹ / ₁₆	1 ¹ / ₈	5 ⁷ / ₈	8 ⁷ / ₈	9 ¹ / ₂	5 ⁵ / ₈	4	1	71.0	80.0
3 ¹ / ₁₆	ZF-5315	ZFS-5315																	69.0	77.0
4	ZF-5400	ZFS-5400																	68.0	76.0

6-Bolt Round, (Holes at 60°.)

4 ³ / ₁₆	ZF-5403Y	ZFS-5403Y	12	6 ⁷ / ₁₆	6 ¹ / ₄	9 ¹ / ₂	11 ⁵ / ₈	1	1 ¹ / ₁₆	3/4	15 ¹ / ₈	1 ¹ / ₄	6 ⁷ / ₁₆	10 ⁹ / ₁₆	11 ¹ / ₈	6 ³ / ₁₆	6	1	98.0	127.0
4 ⁷ / ₁₆	ZF-5407Y	ZFS-5407Y																	96.0	124.0
4 ¹ / ₂	ZF-5408Y	ZFS-5408Y																	95.0	123.0
4 ¹⁵ / ₁₆	ZF-5415	...	13	7	7 ¹ / ₈	11 ¹ / ₁₆	12 ⁹ / ₁₆	1 ³ / ₁₆	2 ³ / ₃₂	3/4	16 ¹ / ₂	1 ¹ / ₂	7	11 ¹ / ₁₆	12 ⁹ / ₁₆	7 ¹ / ₁₆	6	1 ¹ / ₈	159.0	184.0
5	ZF-5500	...																	156.0	
4 ¹⁵ / ₁₆	...	ZFS-5415																	1	
5	...	ZFS-5500																			183.0

◆ Pilot - Use suffix S

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

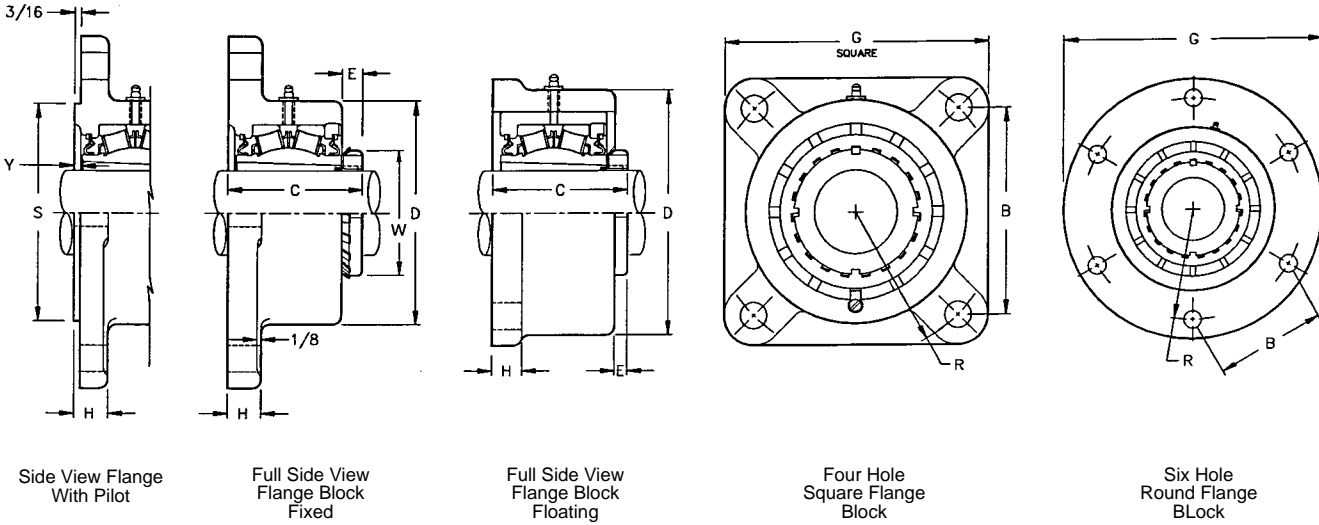
Auxiliary Caps - Not available in Size Code 12 ZFS bearings. Also not available in Size Codes 4-6 on flange side of piloted bearings.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-17.



ADAPTER 9000 Series Fixed and Floating



Specifications . . . Radial load ratings are shown on page D-56 — For available expansion see page D-47

Shaft Size Inches	Complete Block No. ◆		Size Code	Dimensions in Inches											Bolt Size	Complete Block Net Wt. Lbs.					
	Fixed	Floating		B	C		D		E		G	H	R	S +.000 -.003		W	Y		Fixed	Float.	
					Fixed	Float.	Fixed	Float.	Fixed	Float.				Fixed			Float.	Fixed			Float.

 **4 Bolt Square**

1 ¹⁵ / ₁₆ 2	ZF-9115 ZF-9200	ZFS-9115 ZFS-9200	7	4 ¹ / ₂	3 ¹ / ₄	3 ⁷ / ₁₆	5	5 ³ / ₄	9 ¹ / ₁₆	5 ¹ / ₁₆	5 ⁷ / ₈	1 ¹ / ₁₆	3 ³ / ₁₆	5	5 ⁵ / ₈	2 ³¹ / ₃₂	1 ¹ / ₆₄	9 ¹ / ₁₆	5 ⁵ / ₈	12.9 12.7	16.0 15.0
2 ³ / ₁₆	ZF-9203	ZFS-9203	8	5 ¹ / ₃₂	3 ¹⁹ / ₃₂	3 ²¹ / ₃₂	5 ¹ / ₂	6	2 ³ / ₃₂	1 ¹ / ₃₂	6 ⁷ / ₁₆	3 ¹ / ₄	3 ⁹ / ₁₆	5 ⁷ / ₁₆	6	3 ³ / ₈	1 ¹ / ₄	5 ¹ / ₁₆	5 ⁵ / ₈	16.4	19.0
2 ⁷ / ₁₆ 2 ¹ / ₂	ZF-9207 ZF-9208	ZFS-9207 ZFS-9208	9	6 ¹ / ₆₄	4 ³ / ₃₂	4 ³ / ₃₂	6 ¹ / ₂	7 ¹ / ₈	2 ³ / ₃₂	1 ⁵ / ₃₂	7 ³ / ₄	7 ¹ / ₈	4 ¹ / ₄	6 ⁵ / ₁₆	7 ¹ / ₈	3 ⁵ / ₈	1 ⁵ / ₆₄	1 ¹ / ₄	3 ³ / ₄	26.6 26.4	31.0 31.0
2 ¹ / ₁₆ 2 ¹⁵ / ₁₆ 3	ZF-9211 ZF-9215 ZF-9300	ZFS-9211 ZFS-9215 ZFS-9300	10	6 ²³ / ₃₂	4 ¹ / ₂	4 ⁵ / ₈	7 ³ / ₈	8	1 ³ / ₁₆	7 ¹ / ₁₆	8 ⁷ / ₁₆	1	4 ³ / ₄	7 ³ / ₈	8	4 ¹³ / ₃₂	1 ¹ / ₄	3 ³ / ₈	3 ³ / ₄	37.6 37.0	45.0 44.0
3 ³ / ₁₆ 3 ⁷ / ₁₆	ZF-9303 ZF-9307	ZFS-9303 ZFS-9307	11	8 ⁹ / ₁₆	5 ⁵ / ₁₆	5 ⁷ / ₁₆	8 ⁷ / ₈	9 ¹ / ₂	1 ⁵ / ₁₆	9 ¹ / ₁₆	10 ⁹ / ₁₆	1 ¹ / ₈	5 ⁷ / ₈	8 ⁷ / ₈	9 ¹ / ₂	5 ³ / ₁₆	1 ¹ / ₄	3 ³ / ₈	1	66.0 65.0	79.0 76.0

 **6 Bolt Round, (Holes at 60°.)**

3 ¹ / ₁₆ 3 ³ / ₁₆ 4	ZF-9311Y ZF-9315Y ZF-9400Y	ZFS-9311Y ZFS-9315Y ZFS-9400Y	12	6 ⁷ / ₁₆	5 ¹⁷ / ₃₂	5 ¹⁹ / ₃₂	9 ¹ / ₂	11 ⁵ / ₈	1 ¹ / ₃₂	2 ³ / ₃₂	15 ¹ / ₈	1 ¹ / ₄	6 ⁷ / ₁₆	10 ³ / ₈	11 ⁵ / ₈	5 ²³ / ₃₂	1 ¹ / ₈	3 ¹ / ₁₆	1	96.0 94.0 93.0	126.0 124.0 123.0
4 ³ / ₁₆ 4 ⁷ / ₁₆ 4 ³ / ₁₆ 4 ⁷ / ₁₆	ZF-9403 ZF-9407 ZFS-9403 ZFS-9407	... ... ... ... ... ... ZFS-9403 ZFS-9407	13	7	7 ¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₁₆	12 ⁹ / ₁₆	1 ¹ / ₁₆	5 ¹ / ₈	16 ¹ / ₂	1 ¹ / ₂	7	11 ³ / ₁₆	12 ⁹ / ₁₆	6 ¹ / ₈	9 ³ / ₃₂	5 ¹ / ₁₆	1 ¹ / ₈ 1	159.0 157.0	184.0 182.0

◆ Pilot - Use suffix S
Bore Size = Nominal Shaft Size +.001 -.000
Metric Bore Sizes Available - See Page D-44
Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.
Auxiliary Caps - Not available in Size Code 12 ZFS bearings.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-17.

GENERAL INFORMATION

The flange cartridge block, while similar to flange blocks, has its greatest application in machines where the bulk of the housing is buried in the structural members. It is applied to its best advantage when mounted in a cast iron or steel base — such as on compactors, machine tools, grinders, etc.

Unlike the flange block which is supported by mounting bolts, the flange cartridge block is supported entirely on the pilot of the block. The function of the mounting bolts is merely to stabilize the unit.

Points to consider in the use of flange cartridge blocks:

1. A flange cartridge block is designed to have its mounting base perpendicular to the shaft.
2. Flange cartridge blocks rank very high in housing strength because loads are transmitted from the cartridge to the wall of the mounting support member.
3. Flange cartridge blocks are in their strongest position when the force is perpendicular to the shaft and in the direction of the cartridge O.D.

ZBR Flange Cartridge Blocks

2000 Series Single Set Collar

- 3/4" through 4" shaft sizes
- ✓ page D-24

3000 Series Twist Lock™

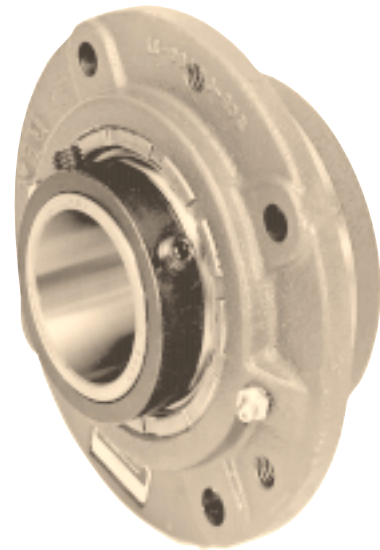
- 1 1/16" through 3 15/16" shaft sizes
- Eccentric Locking Collar
- ✓ page D-25

5000 Series Double Set Collar

- 1 7/16" through 7" shaft sizes
- ✓ page D-26

9000 Series Tapered Adapter Sleeve

- 1 15/16" through 6 7/16" shaft sizes
- ✓ page D-41



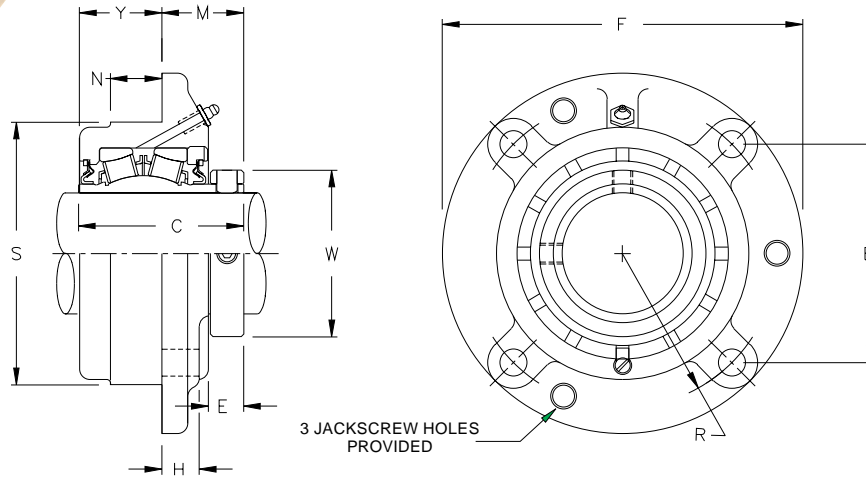
Note: All ZBR Flange Cartridges are supplied with jack screw holes for easy removal.

Additional Information	
<p>Housing Material - Cast iron unless otherwise noted. Other materials available on special order.</p> <p>Bolt Holes - Drilled 1/32" larger than bolt diameters.</p>	<p>Grease fittings 1/8 NPT tapped holes with grease fittings thru size code 11, 1/4 NPT above.</p> <p>Mounting Bore Diameter - +.002-.000 from Maximum "S" dimension is recommended.</p>

ZBR FLANGE CARTRIDGE BLOCKS *Rex' Roller Bearings*



NORMAL DUTY 2000 Series Single Set Collar



Specifications . . . Radial load ratings are shown on page D-56

Shaft Size Inches	Complete Block No.	Size Code	Dimensions in Inches											Bolt Size	Complete Block Net Wt. Lbs.
			B	C	E	F	H	M	N	R	S +.000 -.002	W	Y Flange- I.R. End		
3/4 19/16 1	ZBR-2012 ZBR-2015 ZBR-2100	2	29/16	29/16	9/16	43/8	7/16	15/16	5/8	113/16	3.000	13/4	13/4	5/16	3.7 3.6 3.5
11/8 13/16 11/4	ZBR-2102 ZBR-2103 ZBR-2104	3	259/64	211/16	9/16	5	7/16	15/16	3/4	21/16	3.375	2	13/8	3/8	4.9 4.8 4.6
17/16 11/2	ZBR-2107 ZBR-2108	4	33/32	27/8	11/16	51/4	1/2	11/2	3/4	23/16	3.625	25/16	13/8	3/8	5.4 5.2
111/16 13/4	ZBR-2111 ZBR-2112	5	35/8	33/8	11/16	61/8	1/2	119/32	7/8	29/16	4.250	25/8	117/32	7/16	8.4 8.1
119/16 2	ZBR-2115 ZBR-2200	6	351/64	33/8	11/16	63/8	9/16	19/16	7/8	211/16	4.500	215/16	19/16	7/16	8.8 8.7
23/16 21/4	ZBR-2203 ZBR-2204	7	41/4	351/16	13/16	71/8	9/16	13/4	1	3	5.000	33/4	19/16	1/2	13.8 13.7
23/8 27/16 21/2	ZBR-2206 ZBR-2207 ZBR-2208	8	419/32	31/2	7/8	75/8	5/8	113/16	1	31/4	5.500	33/16	111/16	1/2	14.9 14.8 14.4
211/16 23/4 215/16 3	ZBR-2211 ZBR-2212 ZBR-2215 ZBR-2300	9	519/64	4	7/8	83/4	3/4	2	11/4	33/4	6.375	41/16	2	5/8	23.4 23.0 22.3 21.8
33/16 37/16 31/2	ZBR-2303 ZBR-2307 ZBR-2308	10	63/32	43/8	15/16	101/4	15/16	23/8	11/4	45/16	7.375	415/16	2	3/4	35.5 34.0 33.5
311/16 315/16 4	ZBR-2311 ZBR-2315 ZBR-2400	11	65/8	53/16	11/16	107/8	11/8	211/16	11/2	411/16	8.125	55/8	21/2	3/4	52.0 49.0 48.5

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

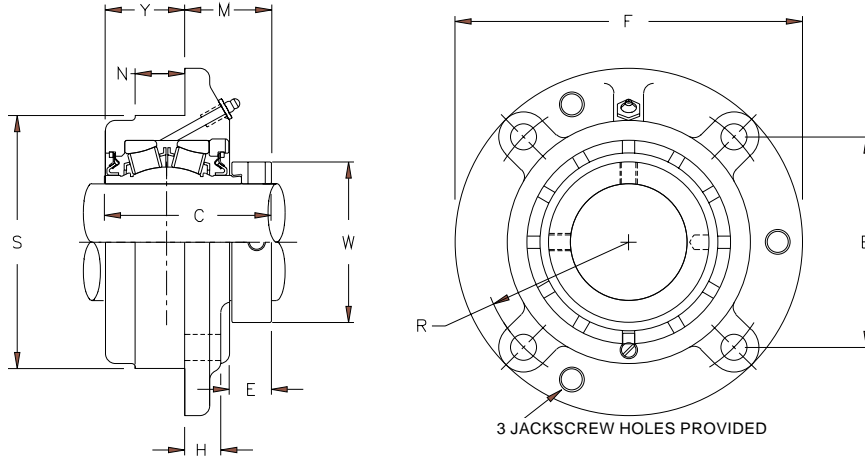
Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in Size Codes 2 & 3

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-23.

**TWIST LOCK™
MEDIUM DUTY
3000 Series
Eccentric Lock**



Specifications . . . Radial load ratings are shown on page D-56

Shaft Size Inches	Complete Block No.	Size Code	Dimensions in Inches											Bolt Size	Net Wt. Lbs.
			B	C	E	F	H	M	N	R	S +.000 -.002	W	Y Flange- I.R. End		
1 ⁷ / ₁₆	ZBR-3107	4	3 ³ / ₃₂	2 ⁵⁹ / ₆₄	2 ⁵ / ₃₂	5 ¹ / ₄	1/2	1 ¹ / ₂	3/4	2 ³ / ₁₆	3.625	2 ⁵ / ₁₆	1 ³ / ₈	3/8	5.6
1 ¹¹ / ₁₆	ZBR-3111	5	3 ⁵ / ₈	3 ³ / ₁₆	3/4	6 ¹ / ₈	1/2	1 ¹⁹ / ₃₂	7/8	2 ⁹ / ₁₆	4.250	2 ⁵ / ₈	1 ¹⁷ / ₃₂	7/16	8.6
1 ¹⁵ / ₁₆	ZBR-3115	6	3 ⁵¹ / ₆₄	3 ⁹ / ₃₂	2 ⁷ / ₃₂	6 ³ / ₈	9/16	1 ²³ / ₃₂	7/8	2 ¹¹ / ₁₆	4.500	2 ¹⁵ / ₁₆	1 ⁹ / ₁₆	7/16	9.0
2 ³ / ₁₆	ZBR-3203	7	4 ¹ / ₄	3 ¹ / ₂	3 ¹ / ₃₂	7 ¹ / ₈	9/16	1 ¹⁵ / ₁₆	1	3	5.000	3 ¹ / ₄	1 ⁹ / ₁₆	1/2	14.1
2 ⁷ / ₁₆ 2 ¹ / ₂	ZBR-3207 ZBR-3208	8	4 ¹⁹ / ₃₂	3 ²¹ / ₃₂	1 ¹ / ₆₄	7 ⁵ / ₈	5/8	1 ³¹ / ₃₂	1	3 ¹ / ₄	5.500	3 ⁹ / ₁₆	1 ¹¹ / ₁₆	1/2	15.0 14.6
2 ¹¹ / ₁₆ 2 ¹⁵ / ₁₆	ZBR-3211 ZBR-3215	9	5 ¹⁹ / ₆₄	4 ¹³ / ₆₄	1 ¹ / ₆₄	8 ³ / ₄	3/4	2 ¹³ / ₆₄	1 ¹ / ₄	3 ³ / ₄	6.375	4 ¹ / ₁₆	2	5/8	23.8 22.7
3 ⁷ / ₁₆ 3 ¹ / ₂	ZBR-3307 ZBR-3308	10	6 ³ / ₃₂	4 ³⁷ / ₆₄	1 ⁹ / ₆₄	10 ¹ / ₄	1 ⁵ / ₁₆	2 ³⁷ / ₆₄	1 ¹ / ₄	4 ⁵ / ₁₆	7.375	4 ¹⁵ / ₁₆	2	3/4	34.4 33.9
3 ¹⁵ / ₁₆	ZBR-3315	11	6 ⁵ / ₈	5 ³ / ₁₆	1 ¹ / ₁₆	10 ⁷ / ₈	1 ¹ / ₈	2 ¹¹ / ₁₆	1 ¹ / ₂	4 ¹¹ / ₁₆	8.125	5 ⁵ / ₈	2 ¹ / ₂	3/4	49.0

Bore Size = Nominal Shaft Size +.001 -.000

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M". See pages D-58 and D-59.

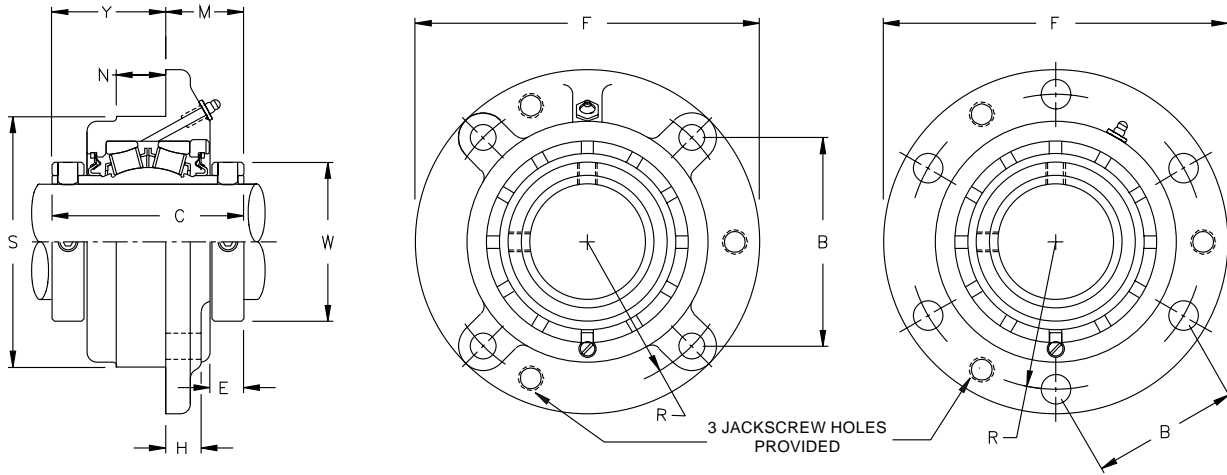
Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-23.

ZBR FLANGE CARTRIDGE BLOCKS *Rex' Roller Bearings*



HEAVY DUTY 5000 Series Double Set Collar



Specifications . . . Radial load ratings are shown on page D-56

Shaft Size Inches	Complete Block No.	Size Codes	Dimensions in Inches											Bolts Req'd.		Complete Block Net Wt. Lbs.
			B	C	E	F	H	M	N	R	SA	W	Y	No.	Size	
1 ⁷ / ₁₆	ZBR-5107	4	3 ³ / ₃₂	3 ⁹ / ₁₆	1 ¹ / ₁₆	5 ¹ / ₄	1/2	1 ¹ / ₂	3/4	2 ³ / ₁₆	3.625	2 ⁵ / ₁₆	2 ¹ / ₁₆	4	3/8	5.9
1 ¹ / ₂ 1 ¹¹ / ₁₆	ZBR-5108 ZBR-5111	5	3 ⁵ / ₈	3 ¹³ / ₁₆	1 ¹ / ₁₆	6 ¹ / ₈	1/2	1 ¹⁹ / ₃₂	7/8	2 ⁹ / ₁₆	4.250	2 ⁵ / ₈	2 ⁷ / ₃₂	4	7/16	9.1 8.7
1 ⁹ / ₁₆	ZBR-5115	6	3 ⁵¹ / ₆₄	3 ¹³ / ₁₆	1 ¹ / ₁₆	6 ³ / ₈	9/16	1 ⁹ / ₁₆	7/8	2 ¹¹ / ₁₆	4.500	2 ¹⁹ / ₁₆	2 ¹ / ₄	4	7/16	9.6
2 2 ³ / ₁₆	ZBR-5200 ZBR-5203	7	4 ¹ / ₄	4 ¹ / ₈	1 ³ / ₁₆	7 ¹ / ₈	9/16	1 ³ / ₄	1	3	5.000	3 ¹ / ₄	2 ³ / ₈	4	1/2	13.7 13.0
2 ⁷ / ₁₆	ZBR-5207	8	4 ¹⁹ / ₃₂	4 ³ / ₈	7/8	7 ⁵ / ₈	5/8	1 ¹³ / ₁₆	1	3 ¹ / ₄	5.500	3 ³ / ₁₆	2 ⁹ / ₁₆	4	1/2	15.9
2 ¹ / ₂ 2 ¹¹ / ₁₆ 2 ¹⁵ / ₁₆	ZBR-5208 ZBR-5211 ZBR-5215	9	5 ¹⁹ / ₆₄	4 ⁷ / ₈	7/8	8 ³ / ₄	3/4	2	1 ¹ / ₄	3 ³ / ₄	6.375	4 ¹ / ₁₆	2 ⁷ / ₈	4	5/8	26.1 24.8 22.7
3 ³ / ₁₆ 3 ⁷ / ₁₆	ZBR-5303 ZBR-5307	10	6 ³ / ₃₂	5 ⁵ / ₁₆	1 ⁵ / ₁₆	10 ¹ / ₄	1 ⁵ / ₁₆	2 ³ / ₈	1 ¹ / ₄	4 ⁵ / ₁₆	7.375	4 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	4	3/4	38.0 36.5
3 ¹¹ / ₁₆ 3 ¹⁹ / ₁₆ 4	ZBR-5311 ZBR-5315 ZBR-5400	11	6 ⁵ / ₈	6 ¹ / ₄	1 ¹ / ₁₆	10 ⁷ / ₈	1 ¹ / ₈	2 ¹¹ / ₁₆	1 ¹ / ₂	4 ¹¹ / ₁₆	8.125	5 ⁵ / ₈	3 ⁹ / ₁₆	4	3/4	56.0 53.0 52.0
4 ⁷ / ₁₆ 4 ¹ / ₂	ZBR-5407Y ZBR-5408Y	12	5 ⁷ / ₈	6 ¹ / ₄	1	13 ¹ / ₂	1	2 ⁵ / ₁₆	2	5 ⁷ / ₈	10.250	6 ³ / ₁₆	3 ¹⁵ / ₁₆	6	3/4	84.0 83.0
4 ¹⁵ / ₁₆ 5	ZBR-5415 ZBR-5500	13	6 ³ / ₈	7 ⁷ / ₈	1 ⁵ / ₃₂	14 ³ / ₄	1 ¹ / ₄	2 ³¹ / ₃₂	2 ¹ / ₄	6 ³ / ₈	11.000	7 ¹ / ₁₆	4 ²⁹ / ₃₂	6	7/8	128.0 125.0
5 ⁷ / ₁₆	ZBR-5507	14	7 ¹ / ₄	8	1 ⁷ / ₃₂	17	1 ³ / ₈	3 ⁷ / ₃₂	2	7 ¹ / ₄	13.000	8 ³ / ₁₆	4 ²⁵ / ₃₂	6	7/8	184.0
5 ¹⁵ / ₁₆ 6	ZBR-5515 ZBR-5600	15	8 ¹ / ₄	8 ¹ / ₈	1 ⁵ / ₃₂	19	1	3 ¹ / ₁₆	1 ³ / ₈	8 ¹ / ₄	14.000	8 ¹¹ / ₁₆	5 ¹ / ₁₆	6	7/8	214.0 213.0
6 ⁷ / ₁₆ 6 ¹⁵ / ₁₆ 7	ZBR-5607 ZBR-5615 ZBR-5700	16	8 ¹ / ₂	8 ³ / ₄	1 ⁹ / ₃₂	19	1	3 ³ / ₈	1 ¹ / ₂	8 ¹ / ₂	15.000	9 ³ / ₄	5 ³ / ₈	6	1	246.0 241.0 239.0

Bore Size = Normal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

▲ Outside Diameter Tolerance: Size Codes 4-13 = +.000,-.002 and Size Codes 14-16 = +.000,-.005

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-23.

GENERAL INFORMATION

Unlike naked bearings, Rex cartridge blocks come completely factory assembled, adjusted, lubricated, and sealed against contamination. They provide a simple method for securing the bearing to the shaft.

The cartridge block presents a real opportunity to the imaginative designer as it can be mounted in any type of equipment that has a thick wall support member. For example, it can be used where special, costly housings would normally be necessary. This means not only important initial savings, but also savings over the expensive replacement of special housings.

Cartridge blocks may be adapted to particular needs by the use of a fabricated base which is cut to the desired contour and then simply bored - with the cartridge then added to this assembly.

Points to consider when using cartridge blocks:

1. A means must be provided for locking the cartridge in the mounting structure to prevent lateral movement. Dog point set screws that protrude into the counterbored holes in the housing are good means of locking.
2. Provision for relubrication must be made. Often, locking and relubrication can be combined with a common fitting. A special locking pin which allows this is provided with the ZCS series.
3. Cartridge blocks are in the strongest position when the force is perpendicular to the shaft and stationary relative to the cartridge outside diameter.

ZMC Thick Wall Cast Type

- ¾" through 7" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-29
 - ✓ 3000 series available, page D-41
 - ✓ 5000 series, page D-29
 - ✓ 9000 series, see page D-30



ZCS Thin Wall Steel Type

- 1 7/16" through 4" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-28
 - ✓ 3000 series available, page D-41
 - ✓ 5000 series, page D-28
 - ✓ 9000 series, see page D-41



Additional Information

Housing Material - Cast iron for ZMC, Steel for ZCS. Other materials available on special order.

Grease fittings 1/8" NPT tapped holes with grease fittings thru size code 11, 1/4" NPT above.

Floating Unit Design - Cartridge blocks may be installed as floating or expansion units. See page D-47 for available movement.

ZCS CARTRIDGE BLOCKS

Rex' Roller Bearings

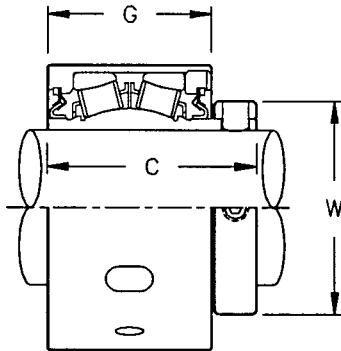


**NORMAL DUTY
2000 Series
Single Set Collar**

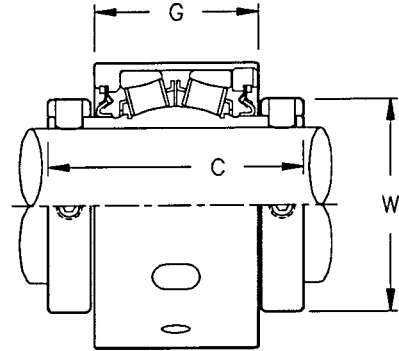
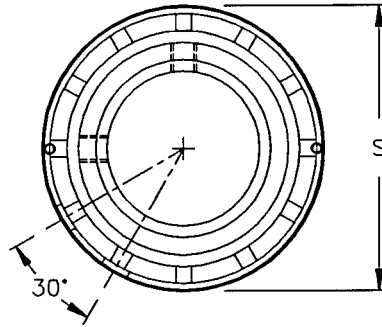


**HEAVY DUTY
5000 Series
Double Set Collar**

MAY BE USED AS FIXED OR FLOATING* DESIGN



NORMAL DUTY
2000 Series



HEAVY DUTY
5000 Series

Specifications . . . Radial load ratings are shown on page D-56

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches								Complete Block Net Wt., Lbs.	
	2000 Series	5000 Series		C		G	J	K	L	S +.000 -.002	W	2000 Series	5000 Series
				2000 Series	5000 Series								
1 7/16 1 1/2	ZCS-2107 ZCS-2108	ZCS-5107 ...	4	2 7/8	3 1/16	2.203	.460	.535	.760	3.124	2 5/16	2.9 2.8	3.3 ...
1 1/2 1 11/16 1 3/4	... ZCS-2111 ZCS-2112	ZCS-5108 ZCS-5111 ...	5	3 1/8	3 13/16	2.453	.460	.535	.760	3.636	2 5/8	... 4.5 4.4	5.7 5.1 ...
1 15/16 2	ZCS-2115 ZCS-2200	ZCS-5115 ...	6	3 1/8	3 13/16	2.453	.460	.535	.760	3.833	2 15/16	5.0 4.8	5.3 ...
2 2 3/16 2 1/4	... ZCS-2203 ZCS-2204	ZCS-5200 ZCS-5203 ...	7	3 3/16	4 1/8	2.578	.460	.535	.760	4.227	3 1/4	... 6.4 6.3	8.1 7.5 ...
2 3/8 2 7/16 2 1/2	ZCS-2206 ZCS-2207 ZCS-2208	ZCS-5207 ...	8	3 1/2	4 3/8	2.640	.460	.535	.760	4.621	3 3/16	7.6 7.5 7.3	... 8.7 ...
2 1/2 2 11/16 2 3/4 2 15/16 3	... ZCS-2211 ZCS-2212 ZCS-2215 ZCS-2300	ZCS-5208 ZCS-5211 ... ZCS-5215 ...	9	4	4 7/8	3.140	.460	.535	.760	5.407	4 1/16	... 12.3 11.9 10.8 10.5	15.1 14.1 ... 12.1 ...
3 3/16 3 7/16 3 1/2	ZCS-2303 ZCS-2307 ZCS-2308	ZCS-5303 ZCS-5307 ...	10	4 3/8	5 1/16	3.453	.600	.675	.930	6.194	4 15/16	17.9 16.4 15.9	19.8 17.9 ...
3 11/16 3 15/16 4	ZCS-2311 ZCS-2315 ZCS-2400	ZCS-5311 ZCS-5315 ZCS-5400	11	5 3/16	6 1/4	4.000	.600	.675	.930	7.375	5 5/8	31.1 28.8 28.1	33.6 32.6 31.6

Bore Size = Nominal Shaft Size +.001 -.000

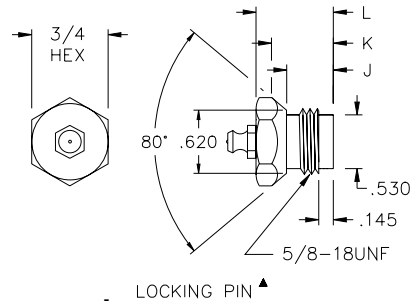
Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in ZCS Series

* Expansion slot allows 3/8" float

▲ A locking pin and grease fitting is supplied with each unit as a means to lubricate and secure the bearing. Recommended engagement of the locking pin into the cartridge slot is .125" +/- .015"



**Note: Dimensions subject to change.
Certified dimensions of ordered material furnished on request.
OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-27.**

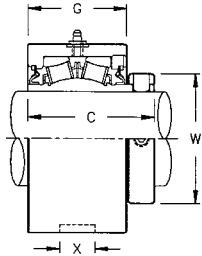
ZMC CARTRIDGE BLOCKS



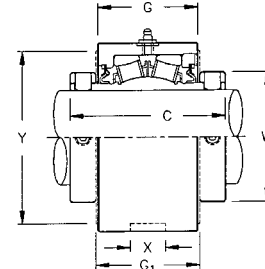
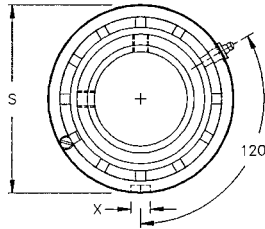
NORMAL DUTY
2000 Series Single Set Collar



HEAVY DUTY
5000 Series
Double Set Collar



NORMAL DUTY 2000 Series



HEAVY DUTY 5000 Series

Specifications . . . Radial load ratings are shown on page D-56 — For available float see page D-47

Shaft Size Inches	Complete Block No.		Size Code	Dimensions in Inches										Complete Block Net Wt., Lbs.	
	2000 Series	5000 Series		C		G	G ₁	SA	X Slot Dimensions			W	Y	2000 Series	5000 Series
				2000 Series	5000 Series				Length	Width +.041 - .000	Depth				
3/4	ZMC-2012	...	2	2 9/16	...	2	...	3.000	...	...	...	1 3/4	...	3.1	...
1 5/16	ZMC-2015	...												2.9	...
1	ZMC-2100	...												2.9	...
1 1/8	ZMC-2102	...	3	2 1 1/16	...	2 1/8	...	3.219	...	...	...	2	...	3.5	...
1 3/16	ZMC-2103	...												3.4	...
1 1/4	ZMC-2104	...												3.3	...
1 7/16	ZMC-2107	ZMC-5107	4	2 7/8	3 9/16	2 3/16	...	3.437	29/32	.531	3/16	2 5/16	...	3.9	4.3
1 1/2	ZMC-2108	...												3.8	...
1 1/2	...	ZMC-5108	5	3 1/8	3 13/16	2 7/16	...	3.937	29/32	.531	3/16	2 5/8	...	...	6.5
1 11/16	ZMC-2111	ZMC-5111												5.6	5.9
1 3/4	ZMC-2112	...												5.4	...
1 15/16	ZMC-2115	ZMC-5115	6	3 1/8	3 13/16	2 7/16	...	4.125	29/32	.531	3/16	2 15/16	...	5.8	6.5
2	ZMC-2200	...												5.6	...
2	...	ZMC-5200	7	3 5/16	4 1/8	2 9/16	...	4.531	29/32	.531	3/16	3 1/4	...	...	9.5
2 3/16	ZMC-2203	ZMC-5203												7.5	8.8
2 1/4	ZMC-2204	...												7.3	...
2 3/8	ZMC-2206	...	8	3 1/2	4 3/8	2 5/8	...	5.000	29/32	.531	3/16	3 3/16	...	9.5	...
2 7/16	ZMC-2207	ZMC-5207												9.4	10.6
2 1/2	ZMC-2208	...												9.2	...
2 1/2	...	ZMC-5208	9	4	4 7/8	3 1/8	...	5.875	1 1/32	.594	1/4	4 1/16	...	...	18.7
2 11/16	ZMC-2211	ZMC-5211												15.9	17.7
2 3/4	ZMC-2212	...												15.5	...
2 15/16	ZMC-2215	ZMC-5215												14.4	15.7
3	ZMC-2300	...												14.1	...
3 3/16	ZMC-2303	ZMC-5303	10	4 3/8	5 1/16	3 7/16	...	6.750	1 1/16	.594	9/32	4 15/16	...	22.5	24.7
3 7/16	ZMC-2307	ZMC-5307												20.5	22.8
3 1/2	ZMC-2308	...												20.0	...
3 11/16	ZMC-2311	ZMC-5311	11	5 3/16	6 1/4	4 1/8	...	8.125	1 9/32	.781	5/16	5 5/8	...	38.5	44.0
3 15/16	ZMC-2315	ZMC-5315												36.5	41.5
4	ZMC-2400	ZMC-5400												35.8	41.0
4 3/16	...	ZMC-5403Y	12	...	6 1/4	4 1/4	...	8.750	1 1/2	.781	5/16	6 3/16	...	...	50.0
4 7/16	...	ZMC-5407Y												...	47.0
4 1/2	...	ZMC-5408Y												...	46.0
4 15/16	...	ZMC-5415	13	...	7 7/8	5 9/16	6	10.437	1 1/2	.781	5/16	7 1/16	7 25/32	...	95.0
5	...	ZMC-5500												...	92.0
5 7/16	...	ZMC-5507	14	...	8	5 9/16	5 7/8	11.500	1 1/2	.781	7/32	8 3/16	9 9/16	...	114.0
5 15/16	...	ZMC-5515	15	...	8 1/8	5 7/8	6 1/8	12.250	1 1/2	.781	7/32	8 21/32	10 3/8	...	134.0
6	...	ZMC-5600												...	133.0
6 7/16	...	ZMC-5607	16	...	8 3/4	6 3/16	6 1/2	13.563	1 1/2	.781	7/32	9 23/32	11 3/8	...	180.0
6 15/16	...	ZMC-5615												...	167.0
7	...	ZMC-5700												...	166.0

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

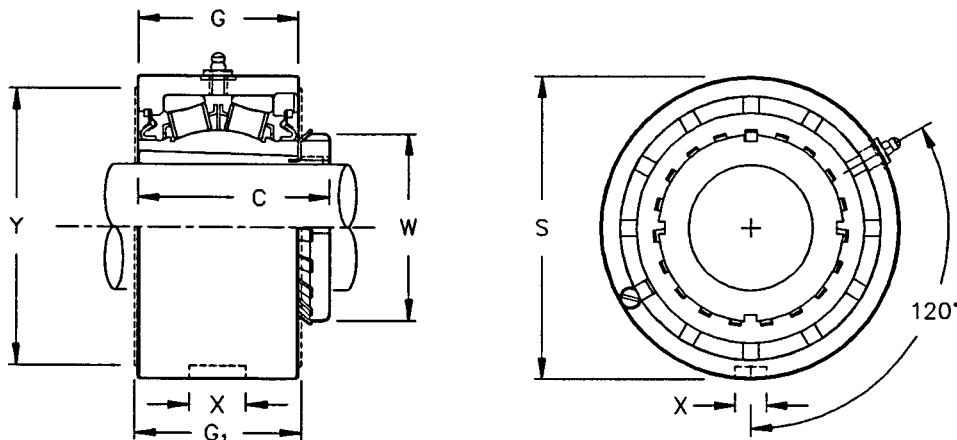
Auxiliary Caps - Not available in ZMC Series

▲ Outside Diameter Tolerance: Size Code 2-11 = +.000, -.002 and Size Code 12-16 = +.000, -.003

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request. OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-27.



ADAPTER 9000 Series



Specifications . . . Radial load ratings are shown on page D-56 — For available float see page D-47

Shaft Size Inches	Complete Block No.	Size Code	Dimensions in Inches										Complete Block Net Wt. Lbs.
			C	G	G ₁	SA	X Slot Dimensions			W	Y		
							Length	Width +.041 -.000	Depth				
1 ¹⁵ / ₁₆ 2	ZMC-9115 ZMC-9200	7	3 ⁵ / ₃₂	2 ⁹ / ₁₆	...	4.531	²⁹ / ₃₂	.531	³ / ₁₆	2 ³¹ / ₃₂	...	7.6 7.4	
2 ³ / ₁₆	ZMC-9203	8	3 ¹¹ / ₃₂	2 ⁵ / ₈	...	5.000	²⁹ / ₃₂	.531	³ / ₁₆	3 ³ / ₈	...	9.6	
2 ⁷ / ₁₆ 2 ¹ / ₂	ZMC-9207 ZMC-9208	9	3 ²⁷ / ₃₂	3 ¹ / ₈	...	5.875	1 ¹ / ₃₂	.594	¹ / ₄	3 ³ / ₈	...	15.6 15.2	
2 ¹ / ₁₆ 2 ¹⁵ / ₁₆ 3	ZMC-9211 ZMC-9215 ZMC-9300	10	4 ¹ / ₄	3 ⁷ / ₁₆	...	6.750	1 ¹ / ₁₆	.594	⁹ / ₃₂	4 ¹³ / ₃₂	...	23.8 22.5 22.1	
3 ³ / ₁₆ 3 ⁷ / ₁₆	ZMC-9303 ZMC-9307	11	5 ³ / ₃₂	4 ¹ / ₈	...	8.125	1 ⁹ / ₃₂	.781	⁵ / ₁₆	5 ³ / ₁₆	...	41.0 39.4	
3 ¹ / ₁₆ 3 ¹⁵ / ₁₆ 4	ZMC-9311Y ZMC-9315Y ZMC-9400Y	12	5 ¹³ / ₃₂	4 ¹ / ₄	...	8.750	1 ¹ / ₂	.781	⁵ / ₁₆	5 ²³ / ₃₂	...	48.5 46.2 45.7	
4 ³ / ₁₆ 4 ⁷ / ₁₆	ZMC-9403 ZMC-9407	13	6 ¹³ / ₁₆	5 ⁹ / ₁₆	6	10.437	1 ¹ / ₂	.781	⁵ / ₁₆	6 ¹ / ₈	7 ²⁵ / ₃₂	92.0 90.0	
4 ¹⁵ / ₁₆ 5	ZMC-9415 ZMC-9500	14	7 ³ / ₁₆	5 ⁹ / ₁₆	5 ⁷ / ₈	11.500	1 ¹ / ₂	.781	⁷ / ₃₂	7 ³ / ₃₂	9 ⁹ / ₁₆	115.0 108.0	
5 ⁷ / ₁₆	ZMC-9507	15	7 ⁷ / ₁₆	5 ⁷ / ₈	6 ¹ / ₈	12.250	1 ¹ / ₂	.781	⁷ / ₃₂	8 ¹ / ₁₆	10 ³ / ₈	130.0	
5 ¹⁵ / ₁₆ 6 6 ⁷ / ₁₆	ZMC-9515 ZMC-9600 ZMC-9607	16	7 ³ / ₄	6 ³ / ₁₆	6 ¹ / ₂	13.563	1 ¹ / ₂	.781	⁷ / ₃₂	9 ¹ / ₁₆	11 ³ / ₈	178.0 177.0 170.0	

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in ZMC Series

▲ Outside Diameter Tolerance: Size Code 2-11 = +.000, -.002 and Size Code 12-16 = +.000, -.003

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-27.

GENERAL INFORMATION

These units consist of bearing assemblies with mounting covers, seals and adjustment shims. They also include a simple method for securing the bearing to the shaft.

Though similar to cartridge blocks, the bearing O.D. of duplex units determines the size of the mounting hole bore dimension, therefore requiring less space. Cover plates secure the bearing in the mounting.

Points to consider in the use of duplex units:

1. Provision must be made for lubrication.
2. Duplex units require a close tolerance mounting bore and mounting wall dimensions.
3. Duplex units are in the strongest position when the force is perpendicular to the shaft.

ZD Duplex Unit

- 1⁷/₁₆" through 4" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series page D-32
 - ✓ 3000 series available, page D-41
 - ✓ 5000 series, page D-32
 - ✓ 9000 series available, see page D-41



**Normal Duty
2000 Series**



**Heavy Duty
5000 Series**

Additional Information

Housing Material - Cast iron unless otherwise noted. Other materials available on special order.

Grease fittings - Customer devises lubrication method and fittings.

Bolt Holes - Drilled $\frac{1}{32}$ " larger than cap screw diameters listed in Specification tables.

Lubrication - Bearings supplied with protective coating, see INSTRUCTION TAG, which is packaged with each unit.

Shims - Furnished with each unit.

Packaging - Units are usually stocked and shipped in separate cartons. Therefore a ZD2107 unit may be shipped as a 2107U bearing replacement kit and a ZD-4 kit.

ZD DUPLEX UNITS

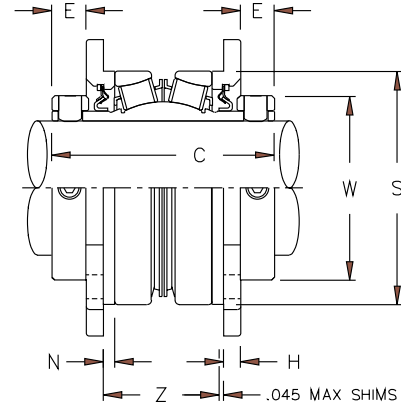
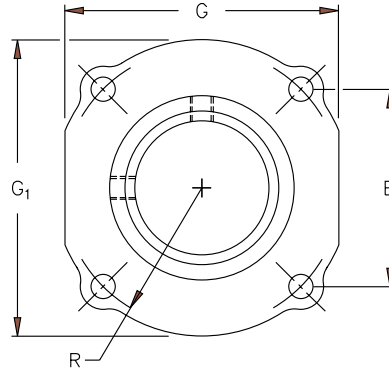
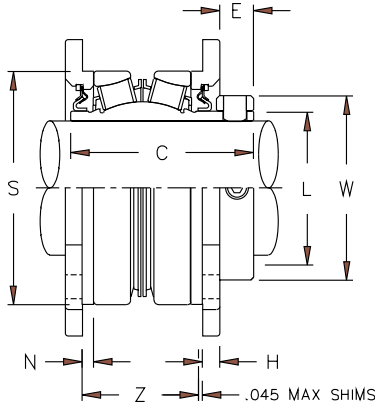
Rex' Roller Bearings



**NORMAL DUTY
2000 Series
Single Set Collar**



**HEAVY DUTY
5000 Series
Double Set Collar**



Specifications . . . Radial load ratings are shown on page D-56

Shaft Size Inches	Complete Unit No.		Size Code	Dimensions in Inches														Complete Unit Net Wt., Lbs.		
	2000 Series	5000 Series		B	C		E	G	G ₁	H	L	N	R	S +.000 -.001 Outer Race Diam.	Bolt Size	W	Recom. Housing Bore		Series	
					Series												Diam. +.002 -.000	Z ±.010	2000	5000
					2000	5000														
1 ¹ / ₁₆ 1 ¹ / ₂	ZD-2107 ZD-2108	ZD-5107 ...	4	2 ⁹ / ₁₆	2 ⁷ / ₈	3 ³ / ₁₆	5/8	3 ⁵ / ₁₆	3 ³ / ₄	5/16	1 ³ / ₄	7/32	1 ¹ / ₁₆	2.8375	3/8	2 ⁵ / ₁₆	2.8360	1.725	3.0 2.9	3.4 ...
1 ¹ / ₂ 1 ¹¹ / ₁₆ 1 ³ / ₄	... ZD-2111 ZD-2112	ZD-5108 ZD-5111 ...	5	2 ⁷ / ₈	3 ¹ / ₈	3 ¹³ / ₁₆	5/8	3 ³ / ₄	4 ¹ / ₄	9/16	2 ¹ / ₃₂	3/16	2 ¹ / ₃₂	3.3495	3/8	2 ⁵ / ₈	3.3480	1.930	... 4.2 4.0	5.4 4.8 ...
1 ¹⁵ / ₁₆ 2	ZD-2115 ZD-2200	ZD-5115 ...	6	3	3 ¹ / ₈	3 ¹³ / ₁₆	2 ¹ / ₃₂	4	4 ¹ / ₂	5/16	2 ⁵ / ₁₆	3/16	2 ¹ / ₈	3.5465	3/8	2 ¹⁵ / ₁₆	3.5450	1.875	4.6 4.5	5.2 ...
2 2 ³ / ₁₆ 2 ¹ / ₄	... ZD-2203 ZD-2204	ZD-5200 ZD-5203 ...	7	3 ¹³ / ₃₂	3 ⁵ / ₁₆	4 ¹ / ₈	1 ¹ / ₁₆	4 ⁹ / ₁₆	5 ¹ / ₈	5/16	2 ⁵ / ₈	1/8	2 ¹³ / ₃₂	3.9400	7/16	3 ¹ / ₄	3.9385	1.880	... 6.2 6.1	7.9 7.3 ...
2 ³ / ₈ 2 ⁷ / ₁₆ 2 ¹ / ₂	ZD-2206 ZD-2207 ZD-2208	... ZD-5207 ...	8	3 ²⁹ / ₃₂	3 ¹ / ₂	4 ³ / ₈	3/4	4 ¹⁵ / ₁₆	5 ¹ / ₂	5/16	2 ²⁹ / ₃₂	1/4	2 ⁵ / ₈	4.3337	1/2	3 ³ / ₁₆	4.3322	2.225	7.8 7.7 7.5	... 8.8 ...
2 ¹ / ₂ 2 ¹ / ₁₆ 2 ³ / ₄ 2 ¹⁵ / ₁₆ 3	... ZD-2211 ZD-2212 ... ZD-2215 ZD-2300	ZD-5208 ZD-5211 ... ZD-5215 ...	9	4 ²¹ / ₆₄	4	4 ⁷ / ₈	3/4	6	6 ¹ / ₂	3/8	3 ³ / ₈	1/4	3 ¹ / ₁₆	5.1202	1/2	4 ¹ / ₁₆	5.1187	2.600	... 13.3 13.1 12.1 11.6	16.6 15.3 ... 13.2 ...
3 ³ / ₁₆ 3 ⁷ / ₁₆ 3 ¹ / ₂	ZD-2303 ZD-2307 ZD-2308	ZD-5303 ZD-5307 ...	10	4 ⁶¹ / ₆₄	4 ³ / ₈	5 ⁵ / ₁₆	7/8	6 ¹³ / ₁₆	7 ³ / ₈	7/16	3 ³¹ / ₃₂	3/16	3 ¹ / ₂	5.9075	5/8	4 ¹⁵ / ₁₆	5.9060	2.664	18.7 17.2 16.8	21.2 19.4 ...
3 ¹ / ₁₆ 3 ⁹ / ₁₆ 4	ZD-2311 ZD-2315 ZD-2400	ZD-5311 ZD-5315 ZD-5400	11	6 ³ / ₁₆	5 ³ / ₁₆	6 ¹ / ₄	1	8 ⁵ / ₈	9 ¹ / ₈	1 ⁷ / ₃₂	4 ⁹ / ₁₆	1 ⁵ / ₆₄	4 ³ / ₈	7.0890	5/8	5 ⁵ / ₈	7.0875	3.190	35.5 31.2 30.5	38.0 35.0 34.0

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in ZD Series

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-31.

GENERAL INFORMATION

Rex ZT takeup blocks are designed for applications requiring a change in center distance between two shafts. The housings are mounted between two parallel guide rails. They are normally adjusted by use of a threaded rod that is held in the eye of the block with a pinned square or hex nut. All ZT blocks offer the same Rex features as other mounted units, including seal interchangeability and high quality, self-aligning, double row, roller bearings. These blocks can also be applied when the engineer wishes to design his own frame. ZT blocks fit into frames which are simple in both design, fabrication, and use. The blocks may also be purchased in ZHT, ZFT, ZAT, ZST, or ZGT frames.

Points to consider in using takeup blocks:

1. Take-up blocks can be installed in any position.
2. Expansion units are not usually required due to clearances between guide bars and slots.

ZT - Center Pull Take-up Blocks - Normal Duty

- ¾" through 7" shaft sizes
- Shaft mounting styles
 - ✓ 2000 series, see page D-34
 - ✓ 3000 series available, see page D-41
 - ✓ 5000 series, see page D-34
 - ✓ 9000 series available, see page D-41



**Normal Duty
2000 Series**



**Heavy Duty
5000 Series**

Additional Information

Housing Material - Cast iron unless otherwise noted. Other materials available on special order.

Grease fittings - ⅛ NPT tapped holes with grease fittings thru size code 11, ¼ NPT above.

Slot Width - Milled with sufficient clearance to operate on hot rolled guide bars.

Guide Bar Spacing - Should be ½" to ¼" greater than "K" dimension shown on Specification Pages.

Threaded Rod Hole - Cored larger than "J" dimension shown on Specification Pages.

Auxiliary Caps - All blocks can be furnished with caps.

ZT TAKE-UP BLOCKS

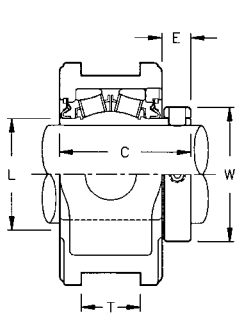
Rex' Roller Bearings



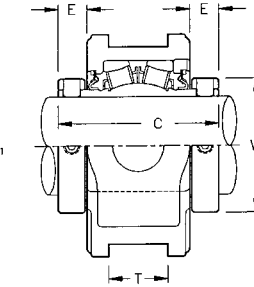
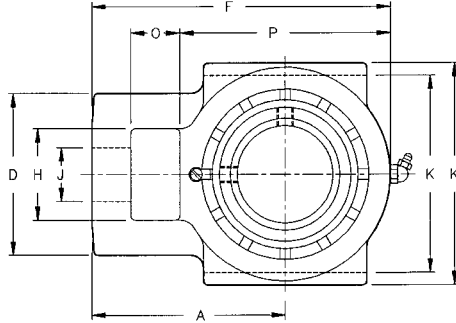
NORMAL DUTY 2000 Series Single Set Collar

HEAVY DUTY 5000 Series Double Set Collar

Take-up Blocks Listed on this Page may be used with any ZHT, ZST, ZFT, ZAT or ZGT Frame Assembly shown on Pages D-36, D-37 and D-39 that use the Same Size Code.



NORMAL DUTY — 2000 Series



HEAVY DUTY — 5000 Series

Specifications . . . Radial load ratings are shown on page D-56

Shaft Size Inches	Complete Block No.		Allowable Working Load* lbs.	Size Code	Dimension in Inches															Complete Block Weight, Lbs.	
	2000 Series	5000 Series			A	C		D	E	F	H	J	K +.005 -.015	K ₁	L	O	P	T +.005 -.015	W	With 2000 Series Bearing	With 5000 Series Bearing
						2000 Series	5000 Series														
3/4	ZT2-2012	...	4,400	2	2 9/16	2 9/16	...	2	9/16	4 1/16	1 1/4	3/4	3	3 5/8	1 5/16	5/8	3	1 7/32	1 3/4	4.0	...
1 1/16	ZT2-2015	...																		4.0	...
1	ZT2-2100	...																		3.9	...
1 1/8	ZT3-2102	...	5,700	3	2 7/8	2 11/16	...	2 5/16	9/16	4 9/16	1 7/16	7/8	3 1/2	4 1/8	1 11/32	5/8	3 3/8	1 7/32	2	5.5	...
1 9/16	ZT3-2103	...																		5.4	...
1 1/4	ZT3-2104	...																		5.3	...
1 7/16	ZT4-2107	ZT4-5107	7,600	4	3 1/4	2 7/8	3 3/16	2 7/16	1 1/16	5 1/16	1 7/16	7/8	3 1/2	4 1/8	1 3/4	5/8	3 3/4	1 7/32	2 5/16	6.4	6.8
1 1/2	ZT4-2108	...																		6.3	...
1 1/2	...	ZT5-5108	12,300	5	3 3/16	3 3/8	3 3/16	3 3/16	1 1/16	5 1/16	1 15/16	1 1/8	4	4 3/4	2 1/32	3/4	4 1/4	1 1/16	2 5/8	...	10.9
1 3/4	ZT5-2112	...																		9.8	10.2
1 11/16	ZT5-2111	ZT5-5111																		9.7	...
1 15/16	ZT6-2115	ZT6-5115	12,300	6	3 15/16	3 1/8	3 13/16	3 5/16	1 1/16	6 3/16	1 15/16	1 1/8	4	4 1/2	2 5/16	3/4	4 1/2	1 1/16	2 15/16	10.1	10.8
2	ZT6-2200	...																		9.9	...
2	...	ZT7-5200	13,500	7	4 5/8	3 5/16	4 1/8	3 7/8	1 9/16	7 1/8	2 1/4	1 1/8	4 1/2	5 1/4	2 5/8	1 1/4	5	1 9/16	3 3/4	...	15.2
2 9/16	ZT7-2203	ZT7-5203																		13.6	14.5
2 1/4	ZT7-2204	...																		13.4	...
2 3/8	ZT8-2206	...	20,900	8	5 1/16	3 1/2	4 3/8	4 1/4	7/8	7 13/16	2 1/4	1 1/8	5 5/8	5 7/8	2 29/32	1 1/4	5 1/2	1 1/16	3 3/16	18.3	...
2 7/16	ZT8-2207	ZT8-5207																		18.2	19.4
2 1/2	ZT8-2208	...																		17.9	...
2 1/2	...	ZT9-5208	26,800	9	5 15/16	4	4 7/8	4 7/8	7/8	9 1/8	2 3/4	1 5/8	5 15/16	6 11/16	3 3/8	1 1/2	6 7/16	1 13/16	4 1/16	...	31.5
2 11/16	ZT9-2211	ZT9-5211																		28.8	30.1
2 3/4	ZT9-2212	...																		28.4	...
2 15/16	ZT9-2215	ZT9-5215																		27.6	28.8
3	ZT9-2300	...																		27.0	...
3 3/16	ZT10-2303	ZT10-5303	27,300	10	6 5/16	4 3/8	5 5/16	5 3/8	1 5/16	10	2 7/8	1 7/8	6 13/16	7 13/16	3 31/32	1 5/8	7 3/8	1 13/16	4 15/16	42.5	44.0
3 7/16	ZT10-2307	ZT10-5307																		40.5	42.0
3 1/2	ZT10-2308	...																		40.0	...
3 11/16	ZT11-2311	ZT11-5311																		71.0	75.0
3 15/16	ZT11-2315	ZT11-5315	45,400	11	7 11/16	5 3/16	6 1/4	5 3/8	1 11/16	12 1/8	3 3/8	2 1/8	8 5/8	9 7/16	4 9/16	2 1/8	8 7/8	2 1/16	5 5/8	68.0	72.0
4	ZT11-2400	ZT11-5400																		67.0	71.0
4 3/16	...	ZT12-5403Y	53,700	12	8 11/16	...	6 1/4	6 3/8	1	13 7/16	3 3/8	2 1/8	9 1/2	10 3/8	5 1/32	2 1/8	9 13/16	2 1/16	6 3/16	...	94.0
4 7/16	...	ZT12-5407Y																		91.0	...
4 1/2	...	ZT12-5408Y																		90.0	...
4 15/16	...	ZT13-5415	68,000	13	9 7/16	...	7 7/8	6 1/4	1 1/32	14 7/8	3 3/4	2 3/8	10 1/4	11 1/4	5 3/4	2 1/2	10 7/8	2 1/16	7 1/16	...	130
5	...	ZT13-5500																		127	...
5 7/16	...	ZT14-5507	140,900	14	12 7/16	...	8	8	1 1/32	20 5/8	5	3 3/8	14 1/8	16	6 1/2	3 1/2	15 5/8	2 9/16	8 3/16	...	417
5 15/16	...	ZT15-5515	140,900	15	12 15/16	...	8 1/8	8	1 1/32	20 5/8	5	3 3/8	14 1/8	16	7 7/32	3 1/2	15 5/8	2 9/16	8 11/16	...	426
6	...	ZT15-5600																		424	...
6 7/16	...	ZT16-5607	165,300	16	12 15/16	...	8 3/4	8	1 1/32	20 5/8	5	3 3/8	14 1/8	16	8 1/16	3 1/2	15 5/8	2 9/16	9 3/4	...	433
6 15/16	...	ZT16-5615																		428	...
7	...	ZT16-5700																		426	...

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

Auxiliary Caps - Not available in Size Code 2 & 3

*Allowable Working load is 2/3 yield strength

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request. OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-33.

**ZHT Center Pull Type
Heavy Duty - 5000 Series**

For shaft sizes 1¹⁵/₁₆" through 7", 12" through 42" travel. Dimensions, page D-36.

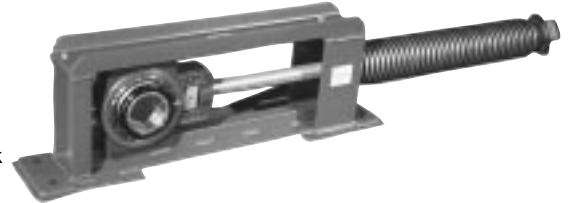
Channel frame center pull construction floats the housing between the guide bars to eliminate binding. Capstan nut on the screw assures ease of movement in either direction under load. Can also be used with ZT-2000 or ZT-3000 Series Take-Up Blocks.



**ZST Spring Loaded Take Up
Heavy Duty - 5000 Series**

For shaft sizes 1¹⁵/₁₆" to 5", with 18" of travel. Dimensions, page D-37.

Utilizes the ZHT frame with dual rate springs which are designed to absorb shock and to preload the system. This reduces maintenance and extends system life (chain, belt, sprockets, drives, motor, etc. . . .).



**ZNT Protected Screw Type
Normal Duty - 2000 Series or 3000 Series Twist Lock**

For shaft sizes 1¹⁵/₁₆" through 4", 12" through 36" travel. Dimensions, page D-38.

Top angle member can be easily removed from channel base. Can be used with 3000 or 5000 Series bearings in ZN blocks.



**ZAT - Center Pull - Side Mounted
Normal Duty - 2000 Series or 3000 Series Twist Lock**

For shaft sizes 1⁷/₁₆" through 2¹⁵/₁₆".

Dimensions, page D-39.

Designed for light duty service in take-up applications. The frame has been designed to be readily adaptable for horizontal or vertical movement, and for easy mounting on fabricated structures. Designed for 2000 or 3000 Series only. Auxiliary caps fit outboard side only.



ZFT Elevator Boot - Heavy Duty - 5000 Series

For shaft sizes 1¹⁵/₁₆" through 2¹⁵/₁₆".

For 9" through 12" travel.

Dimensions, page D-39.

Felt-faced sliding back plate makes elevator casing dust tight. Can also be used with ZT-2000 or ZT-3000 Series Take-Up Blocks.



**ZGT Elevator Head
Heavy Duty - 5000 Series**

For shaft sizes 1¹⁵/₁₆" through 7". For 6" through 10" travel. Dimensions, page D-39.

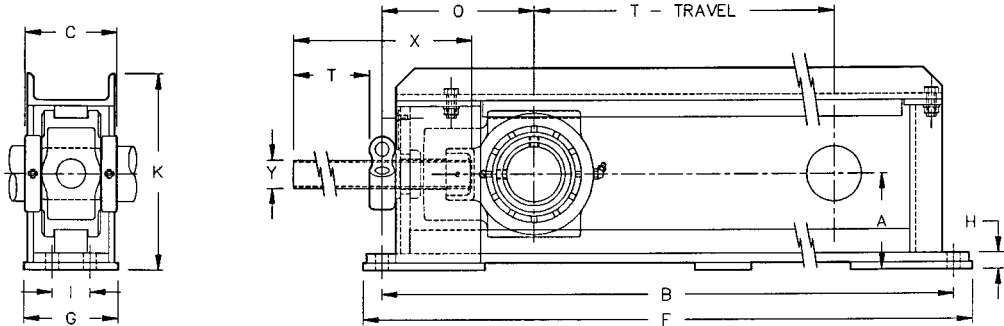
Assembled by removing top frame member and sliding block in place. Designed for downward loads only. Can also be used with ZT-2000 or ZT-3000 Series Take-Up Blocks.



OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-33.



CENTER PULL TYPE HEAVY DUTY 5000 Series — Double Set Collar



Specifications . . . Radial load ratings of Bearings— see pages D-56

Shaft Size Inches	5000 Series		Frame Only	Allowable Working Load† Lbs.	Size Code	Dimensions in Inches										Bolts Req'd		Complete Take-up Net Wt. Lbs.				
	Complete Take-up Assembly	Take-up Block Only*				A	B	C	F	G	H	I	K	T Travel	O	X	Y Thread		No.	Size		
1½ 1⅞ 1⅝	ZHT5-5108 ZHT5-5111 ZHT6-5115	{ -12 -18 -24 -30 -36	ZT5-5108 ZT5-5111 ZT6-5115	{ -12 -18 -24 -30 -36	ZHT6	12,300	...	3⅞	27½ 33½ 39½ 45½ 51½	3⅞	29½ 35½ 41½ 47½ 53½	4	⅞	...	8⅞	15 21 27 33 39	6⅞	19½ 25½ 31½ 37½ 43½	1 8NC	2	⅝	59 69 77 86 95
2 2⅞	ZHT7-5200 ZHT7-5203	{ -12 -18 -24 -30 -36	ZT7-5200 ZT7-5203	{ -12 -18 -24 -30 -36	ZHT7	13,000	7	4⅞	27½ 33½ 39½ 45½ 51½	4⅞	29½ 35½ 41½ 47½ 53½	4	1⅞	...	9	15 21 27 33 39	6⅞	20 26 32 38 44	1¼ 7NC	2	⅝	70 81 90 98 108
2⅞	ZHT8-5207	{ -12 -18 -24 -30 -36	ZT8-5207	{ -12 -18 -24 -30 -36	ZHT8	16,300	8	4⅞	28½ 34½ 40½ 46½ 52½	4⅞	30½ 36½ 42½ 48½ 54½	4	¾	...	9⅞	15 21 27 33 39	7½	20 26 32 38 44	1¼ 7NC	2	¾	77 86 96 107 119
2½ 2⅞ 2⅝	ZHT9-5208 ZHT9-5211 ZHT9-5215	{ -12 -18 -24 -30 -36	ZT9-5208 ZT9-5211 ZT9-5215	{ -12 -18 -24 -30 -36	ZHT9	26,800	9	5⅞	30½ 36½ 42½ 48½ 54½	4⅞	32½ 38½ 44½ 50½ 56½	5	⅞	2	10¼	16 22 28 34 40	8⅞	21¼ 27¼ 33¼ 39¼ 45¼	1½ 6NC	4	⅝	128 142 159 174 191
3⅞ 3⅝	ZHT10-5303 ZHT10-5307	{ -12 -18 -24 -30 -36	ZT10-5303 ZT10-5307	{ -12 -18 -24 -30 -36	ZHT10	27,300	10	5⅞	32 38 44 50 56	5⅞	34¼ 40¼ 46¼ 52¼ 58¼	5	⅞	2	11⅞	16¼ 22¼ 28¼ 34¼ 40¼	8¾	22 28 34 40 46	1¾ 5NC	4	¾	152 177 186 205 224
3⅞ 3⅝ 4	ZHT11-5311 ZHT11-5315 ZHT11-5400	{ -12 -18 -24 -30 -36	ZT11-5311 ZT11-5315 ZT11-5400	{ -12 -18 -24 -30 -36	ZHT11	38,400	11	7	36 42 48 54 60	6¼	38½ 44½ 50½ 56½ 62½	6	⅞	2½	14⅞	17½ 23½ 29½ 35½ 41½	10⅞	26 32 38 44 50	2 4½NC	4	¾	241 270 290 311 337
4⅞ 4⅝	ZHT12-5403Y ZHT12-5407Y	{ -12 -18 -24 -30 -36 -42	ZT12-5403Y ZT12-5407Y	{ -12 -18 -24 -30 -36 -42	ZHT12	53,300	12	7½	40¼ 46¼ 52¼ 58¼ 64¼ 70¼	6¼	45¼ 51¼ 57¼ 63¼ 69¼ 75¼	8⅞	1	5	15½	19 25 31 37 43 49	12¼	26 32 38 44 50 56	2 4½NC	4	1⅞	331 362 391 410 433 461
4⅞ 5	ZHT13-5415 ZHT13-5500	{ -12 -18 -24 -30 -36 -42	ZT13-5415 ZT13-5500	{ -12 -18 -24 -30 -36 -42	ZHT13	68,000	13	8⅞	44½ 50½ 56½ 62½ 68½ 74½	7⅞	49½ 55½ 61½ 67½ 73½ 79½	9⅞	1	5½	16¼	20¼ 26¼ 32¼ 38¼ 44¼ 50¼	13½	29 35 41 47 53 59	2¼ 4½NC	4	1⅞	440 460 496 527 555 587
5⅞	ZHT14-5507	{ -18 -30 -42	ZT14-5507	{ -18 -30 -42	ZHT14	136,700	14	10⅞	55 67 79	8	61 73 85	12	1½	7	22½	18 30 42	23½	36 48 60	3 4NC	4	1¾	1293 1420 1547
5⅞ 6	ZHT15-5515 ZHT15-5600	{ -18 -30 -42	ZT15-5515 ZT15-5600	{ -18 -30 -42	ZHT15	136,700	15	10⅞	55 67 79	8⅞	61 73 85	12	1½	7	22½	18 30 42	23½	36 48 60	3 4NC	4	1¾	1300 1427 1554
6⅞ 6⅝ 7	ZHT16-5607 ZHT16-5615 ZHT16-5700	{ -18 -30 -42	ZT16-5607 ZT16-5615 ZT16-5700	{ -18 -30 -42	ZHT16	136,700	16	10⅞	55 67 79	8¾	61 73 85	12	1½	7	22½	18 30 42	23½	36 48 60	3 4NC	4	1¾	1304 1431 1558

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

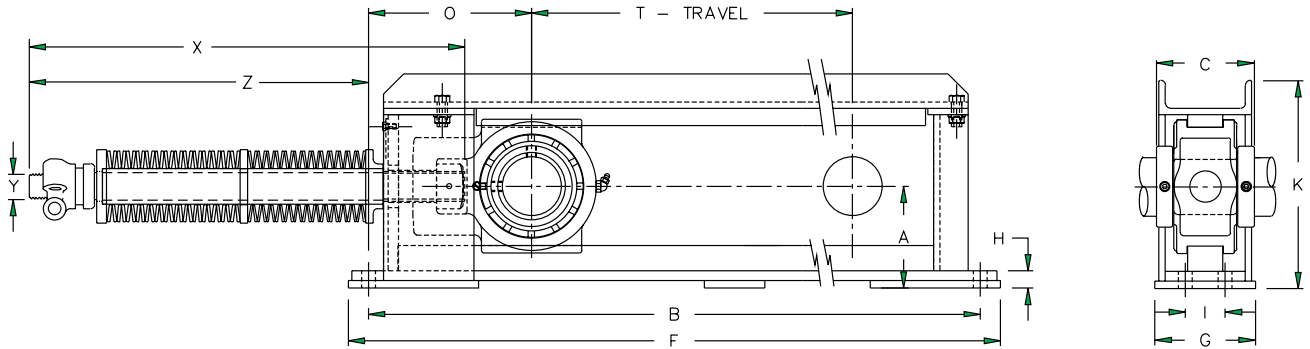
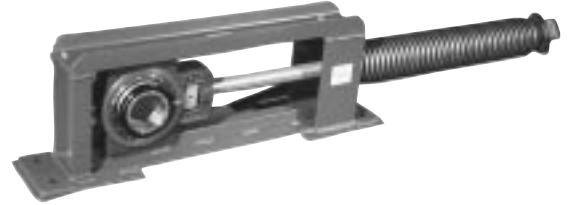
† Allowable Working load is 2/3 yield strength

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-33.

ZST TAKE-UP ASSEMBLIES

**CENTER PULL
HEAVY DUTY
SPRING LOADED
5000 Series
Double Set Collar**
Utilizes ZHT Frame
Absorbs Shock
Reduces Maintenance
Extends System Life
Compact - Reliable



Specifications . . . Radial load ratings of Bearings are shown on page D-56 — Frame capacity listed in table below

Shaft Size	Size Code	Complete Spring Frame Assembly	Frame & Spring Assembly	Working Loads Lbs for Each Take-up			Allow Frame Load	A	B	C	F	G	H	I	K	T Travel	O	X	Y Thread	Z Max	Bolts	
				Inches of Spring Deflection																	No.	Size
				1	3	5																
1½	5	ZST5-5108-18	ZST6-18	870	1800	3400	12,300	3½	33½	3½	35½	4	¾	...	87/16	21	6¾	43	1 8NC	39	2	¾
1½		ZST5-5111-18																				
1½		ZST6-5115-18																				
2	7	ZST7-5200-18	ZST7-18	870	1800	3400	13,000	47/16	33½	4½	35½	4	1¾	...	9	21	6¾	43	1¼ 7NC	39	2	¾
2		ZST7-5203-18																				
2		ZST8-5207-18																				
2½	8	ZST8-5207-18	ZST8-18	870	1800	3400	16,300	4%	34½	4%	36½	4	¾	...	9¾	21	7½	43	1¼ 7NC	39	2	¾
2½		ZST9-5208-18																				
2½		ZST9-5211-18																				
2½	9	ZST9-5215-18	ZST9-18	1300	3400	5250	26,800	5½	36½	4%	38½	5	¾	2	10¾	22	8½	45	1½ 6NC	40¼	4	¾
2½		ZST10-5303-18																				
2½		ZST10-5307-18																				
3½	10	ZST10-5303-18	ZST10-18	1800	3700	6800	27,300	5%	38	5½	40¼	5	¾	2	11¾	22¼	8¾	45	1¾ 5NC	40¼	4	¾
3½		ZST11-5311-18																				
3½		ZST11-5400-18																				
4	11	ZST11-5311-18	ZST11-18	2600	5200	9400	38,400	7	42	6¼	44½	6	¾	2½	14¾	23½	10%	48½	2 4½NC	41	4	¾
4		ZST11-5315-18																				
4		ZST11-5400-18																				
4¾	12	ZST12-5403Y-18	ZST12-18	2600	5200	9400	53,300	7½	46¾	6¼	51¾	8%	1	5	15½	25	12¼	48½	2 4½NC	41	4	1½
4¾		ZST12-5407Y-18																				
4¾		ZST13-5415-18																				
4¾	13	ZST13-5415-18	ZST13-18	4475	11200	18000	68,000	8%	50½	7%	55½	9%	1	5½	16¾	26¼	13½	52	2¼ 4½NC	45½	4	1½
4¾		ZST13-5500-18																				
4¾		ZST13-5500-18																				

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

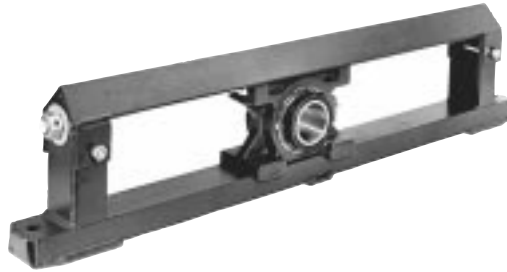
* Allowable Frame load is 2/3 yield strength.

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

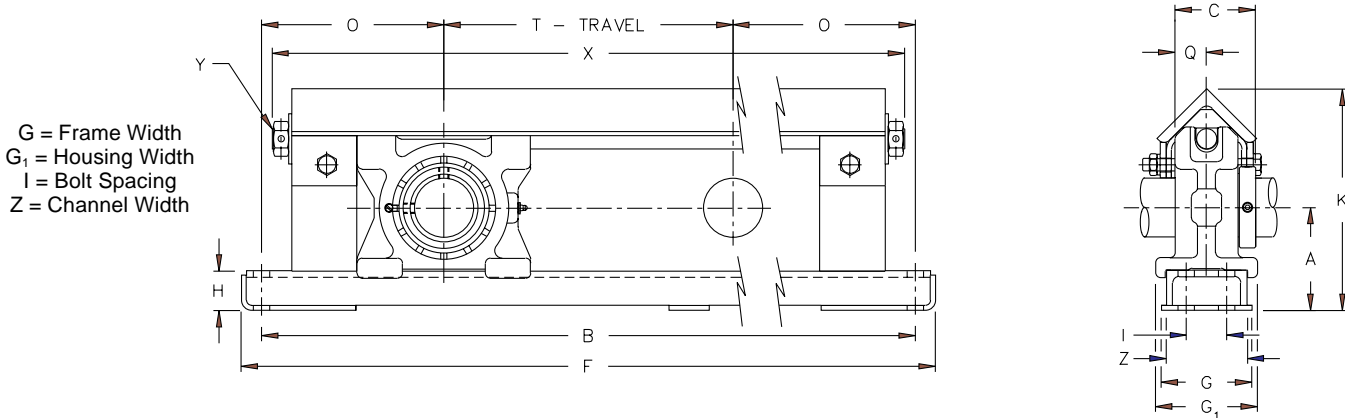
OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-33.

PROTECTED SCREW TYPE NORMAL DUTY

2000 Series — Single Set Collar



U.S. Patent No. 4,867,580



Specifications . . . Radial load ratings of Bearings are shown on page D-56 — Frame capacity listed in table below

Shaft Size Inches	Complete Assembly No.	Take-up Blocks Only	Block Wt.	Frame Assemblies Only	Allowable Working Load* Lbs.	Size Code	Dimensions in Inches														Bolts Req'd		Complete Take-up Wt. Lbs.	
							A	B	C	F	G	G ₁	H	I	K	T Travel	O	Q	X	Y	Z	No.		Size
1 ⁵ / ₁₆ 2	ZNT6-2115 ZNT6-2200	ZNG-2115 ZNG-2200	13.0 12.8	ZNT6	3,000	6	3 ⁵ / ₁₆	-12	26 ¹ / ₂	28 ¹ / ₂	3 ¹ / ₂	3 ³ / ₁₆	1 ³ / ₄	...	8 ¹ / ₄	12	7 ¹ / ₄	1 ⁷ / ₃₂	25 ³ / ₁₆	10 NC	3	2	5 ⁸ / ₁₆	45
								-18	32 ¹ / ₂	34 ¹ / ₂						18			31 ³ / ₁₆					50
								-24	38 ¹ / ₂	40 ¹ / ₂						24			37 ³ / ₁₆					56
								-30	44 ¹ / ₂	46 ¹ / ₂						30			43 ³ / ₁₆					63
								-36	50 ¹ / ₂	52 ¹ / ₂						36			49 ³ / ₁₆					70
2 ³ / ₁₆ 2 ¹ / ₄	ZNT7-2203 ZNT7-2204	ZNG-2203 ZNG-2204	17.3 17.1	ZNT7	3,600	7	4 ⁹ / ₁₆	-12	27 ¹ / ₂	29 ¹ / ₂	3 ¹ / ₂	3 ³ / ₁₆	1 ³ / ₄	...	8 ¹ / ₁₆	12	7 ³ / ₄	1 ¹ / ₃₂	26 ³ / ₁₆	10 NC	3	2	5 ⁸ / ₁₆	49
								-18	33 ¹ / ₂	35 ¹ / ₂						18			32 ³ / ₁₆					54
								-24	39 ¹ / ₂	41 ¹ / ₂						24			38 ³ / ₁₆					66
								-30	45 ¹ / ₂	47 ¹ / ₂						30			44 ³ / ₁₆					73
								-36	51 ¹ / ₂	53 ¹ / ₂						36			50 ³ / ₁₆					78
2 ³ / ₁₆ 2 ⁷ / ₁₆ 2 ¹ / ₂	ZNT8-2206 ZNT8-2207 ZNT8-2208	ZNG-2206 ZNG-2207 ZNG-2208	21.5 21.4 21.1	ZNT8	4,400	8	4 ³ / ₈	-12	28 ¹ / ₂	30 ¹ / ₂	3 ¹ / ₂	3 ³ / ₁₆	1 ³ / ₄	...	9 ¹ / ₈	12	8 ¹ / ₄	1 ¹ / ₁₆	27 ³ / ₁₆	9 NC	3	2	3 ⁴ / ₈	59
								-18	34 ¹ / ₂	36 ¹ / ₂						18			33 ³ / ₁₆					63
								-24	40 ¹ / ₂	42 ¹ / ₂						24			39 ³ / ₁₆					74
								-30	46 ¹ / ₂	48 ¹ / ₂						30			45 ³ / ₁₆					79
								-36	52 ¹ / ₂	54 ¹ / ₂						36			51 ³ / ₁₆					85
2 ¹ / ₁₆ 2 ¹ / ₁₆ 3	ZNT9-2211 ZNT9-2215 ZNT9-2300	ZNG-2211 ZNG-2215 ZNG-2300	31.0 29.8 29.2	ZNT9	6,800	9	5 ¹ / ₈	-12	30 ¹ / ₂	32 ¹ / ₂	4	5 ¹ / ₁₆	2	2	10 ⁵ / ₁₆	12	9 ¹ / ₄	1 ¹ / ₁₆	30	8 NC	4	4	3 ⁴ / ₈	85
								-18	36 ¹ / ₂	38 ¹ / ₂						18			36					93
								-24	42 ¹ / ₂	44 ¹ / ₂						24			42					113
								-30	48 ¹ / ₂	50 ¹ / ₂						30			48					120
								-36	54 ¹ / ₂	56 ¹ / ₂						36			54					128
3 ³ / ₁₆ 3 ¹ / ₁₆ 3 ¹ / ₂	ZNT10-2303 ZNT10-2307 ZNT10-2308	ZNG-2303 ZNG-2307 ZNG-2308	46.0 44.0 43.5	ZNT10	8,400	10	5 ¹ / ₈	-12	32	34 ¹ / ₄	4 ¹ / ₂	5 ³ / ₁₆	2	2	11 ¹ / ₄	12	10	1 ² / ₃₂	32	7 NC	4	4	3 ⁴ / ₈	118
								-18	38	40 ¹ / ₄						18			38					127
								-24	44	46 ¹ / ₄						24			44					145
								-30	50	52 ¹ / ₄						30			50					154
								-36	56	58 ¹ / ₄						36			56					166
3 ¹ / ₁₆ 3 ¹ / ₁₆ 4	ZNT11-2311 ZNT11-2315 ZNT11-2400	ZNG-2311 ZNG-2315 ZNG-2400	85.0 83.0 82.0	ZNT11	15,600	11	7	-12	36	38 ¹ / ₂	5 ¹ / ₁₆	6 ¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₂	14 ¹ / ₂	12	12	2 ¹ / ₁₆	36 ⁵ / ₁₆	1 ¹ / ₄ 7 NC	5	4	3 ⁴ / ₈	209
								-18	42	44 ¹ / ₂						18			42 ⁵ / ₁₆					217
								-24	48	50 ¹ / ₂						24			48 ⁵ / ₁₆					249
								-30	54	56 ¹ / ₂						30			54 ⁵ / ₁₆					269
								-36	60	62 ¹ / ₂						36			60 ⁵ / ₁₆					279

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See Page D-44

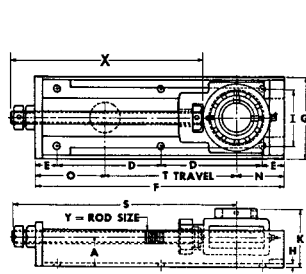
Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

*Allowable Working load is 2/3 yield strength

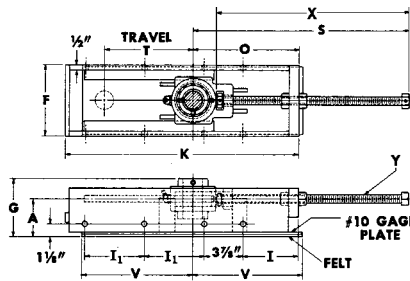
Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-33.

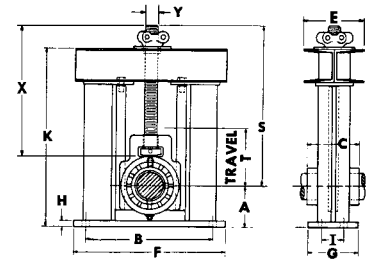
Rex' Roller Bearings ZAT, ZFT, ZGT TAKE-UP ASSEMBLIES



ZAT



Boot End — ZFT



Head End — ZGT

ZAT TAKE-UP ASSEMBLIES - NORMAL DUTY 2000 & 3000 Series — Single Set Collar Only

Shaft Size Inches	Complete Assembly No.	Take-Up Blocks Only *	Frame Assemblies Only	Size Code	Dimensions in Inches													Bolts Req'd. No. Size	Complete Take-Up Wt. Lbs.	
					A	D	E	F	G	H	I	K	T Travel	N	O	S	X			Y Thread
17/16	ZAT4-2107-9 ZAT4-3107-9	ZT4-2107 ZT4-3107	ZAT4-9	4	1 7/8	6 7/16	1 1/2	15 7/8	5 3/16	3/16	3 3/16	3 3/8	9	3	3 3/8	15	13 1/2	3/4-10NC	6 1/2	18.4
1 11/16	ZAT5-2111-9 ZAT5-3111-9	ZT5-2111 ZT5-3111	ZAT6-9	...	2	7	1 1/2	17	5 1/16	1/4	4 1/16	3 3/8	9	3 3/4	4 3/4	16	13 1/2	7/8-9NC	6 1/2	26.8
1 15/16	ZAT6-2115-9 ZAT6-3115-9	ZT6-2115 ZT6-3115	ZAT6-9	...	2	7	1 1/2	17	5 1/16	1/4	4 1/16	3 3/8	9	3 3/4	4 3/4	16	13 1/2	7/8-9NC	6 1/2	27.1
2 3/16	ZAT7-2203-9 ZAT7-3203-9	ZT7-2203 ZT7-3203	ZAT7-9	7	2	7 1/2	1 1/2	18	6 9/16	1/4	4 13/16	4	9	3 3/16	5 7/16	16 15/16	14 3/16	1-8NC	6 1/2	33.7
2 7/16	ZAT8-2207-12 ZAT8-3207-12	ZT8-2207 ZT8-3207	ZAT8-12	8	2 1/4	6 1/16	1 3/4	21 11/16	7 7/16	5/16	5 1/16	4 7/16	12	3 13/16	5 7/8	20 3/4	18	1 1/8-7NC	8 1/2	51.0
2 15/16	ZAT9-2215-12 ZAT9-3215-12	ZT9-2215 ZT9-3215	ZAT9-12	9	2 7/16	6 1/2	1 3/4	23	8 1/8	5/16	5 31/32	4 7/8	12	4 1/4	6 3/4	21 1/4	18 1/2	1 1/4-7NC	8 1/2	75.0

Bore Size = Nominal Shaft Size +.001 -.000
Metric Bore Sizes Available - See page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59. Auxiliary Caps - Available on outboard side only.

ZFT BOOT END — HEAVY DUTY 5000 Series — Double Set Collar Only

Shaft Size Inches	Complete Assembly No.	Take-Up Blocks Only *	Frame Assemblies Only	Size Code	Dimensions in Inches											Bolt Size	Complete Take-Up Wt. Lbs.	
					A	F	G	I	I ₁	K	T Travel	O	S	V	X			Y Thread
1 15/16	ZFT6-5115-9	ZT6-5115	ZFT6-9	6	3 11/16	7 3/16	5 5/8	5 1/2	6	23 1/2	9	10 5/8	21 3/4	11	19 1/2	7/8-9NC	1/2	63
2 7/16	ZFT8-5207-12	ZT8-5207	ZFT8-12	8	3 1/16	8 5/16	6 1/8	7 5/16	7 1/2	28 5/8	12	12 7/16	27	14	24 1/4	1 1/8-7NC	1/2	88
2 1/2	ZFT9-5208-12	ZT9-5208	ZFT9-12	9	4 3/8	8 5/8	6 13/16	8 3/4	7 1/2	30 3/8	12	13 7/8	28 5/8	14	25 3/8	1 1/4-7NC	1/2	117
2 11/16	ZFT9-5211-12	ZT9-5211																115
2 15/16	ZFT9-5215-12	ZT9-5215																114

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

ZGT HEAD END — HEAVY DUTY 5000 Series — Double Set Collar

Shaft Size Inches	Complete Assembly No.	Take-Up Blocks Only *	Frame Assemblies Only	Allowable Working Load Lbs. †	Size Code	Dimensions in Inches											Bolt Size	Complete Take-Up Wt. Lbs.		
						A	B	C	E	F	G	H	I	K	T Travel	S			X	Y Thread
1 15/16	ZGT6-5115-6	ZT6-5115	ZGT6-6	12,300	6	3 3/16	10	3 13/16	4 1/16	12	3 1/2	1/2	1 1/4	16 1/2	6	15 7/8	13 3/8	1-8NC	1/2	50
2 7/16	ZGT8-5207-7	ZT8-5207	ZGT8-7	20,900	8	4 1/8	11	4 3/8	4 1/16	13 1/2	4	3/4	2	19 7/16	7	18 3/4	13 3/8	1 1/4-7NC	5/8	74
2 1/2	ZGT9-5208-7	ZT9-5208	ZGT9-7	26,800	9	4 5/8	12	4 7/8	5 1/4	14 1/2	5	3/4	2 1/2	20 7/8	7	17 7/8	15 1/2	1 1/2-6NC	5/8	103
2 11/16	ZGT9-5211-7	ZT9-5211																		101
2 15/16	ZGT9-5215-7	ZT9-5215																		100
3 3/16	ZGT10-5303-10	ZT10-5303	ZGT10-10	27,300	10	5 1/8	13	5 5/16	6	16	5	3/4	3	25 1/16	10	23 3/16	19 1/2	1 3/4-5NC	3/4	140
3 7/16	ZGT10-5307-10	ZT10-5307																		138
3 11/16	ZGT11-5311-10	ZT11-5311	ZGT11-10	45,400	11	5 13/16	14	6 1/4	8 3/4	17	5	3/4	3	27 3/4	10	26 7/16	22	2-4 1/2NC	3/4	214
3 13/16	ZGT11-5315-10	ZT11-5315																		211
4	ZGT11-5400-10	ZT11-5400																		210
4 7/16	ZGT12-5407Y-10	ZT12-5407Y	ZGT12-10	53,700	12	6 13/16	17	6 1/4	9 3/4	20	6	3/4	3 1/2	32 1/4	10 1/2	29 1/2	24 1/2	2-4 1/2NC	7/8	260
4 15/16	ZGT13-5415-10	ZT13-5415	ZGT13-10	68,000	13	7 3/16	18	7 7/8	9 7/16	21	6	3/4	3 1/2	34 5/8	10 1/2	31 3/4	26 5/16	2 1/4-4 1/2NC	7/8	329
5	ZGT13-5500-10	ZT13-5500																		326
5 7/16	ZGT14-5507-10	ZT14-5507	ZGT16-10	125,000	...	9 11/16	23	8 3/4	10 1/2	31	10	1	7	44 7/8	10 1/2	42 1/4	35	3-4NC	1 1/8	1200
5 15/16	ZGT15-5515-10	ZT15-5515																		
6	ZGT15-5600-10	ZT15-5600																		
6 1/16	ZGT16-5607-10	ZT16-5607																		
6 15/16	ZGT16-5615-10	ZT16-5615																		
7	ZGT16-5700-10	ZT16-5700																		

Bore Size = Nominal Shaft Size +.001 -.000

Metric Bore Sizes Available - See page D-44

Seals - To specify K or M seal, replace "Z" in model number with "K" or "M" - See Pages D-58 and D-59.

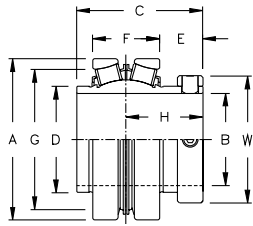
† Allowable Working load is 2/3 yield strength

* See page D-34 for take-up block dimensions

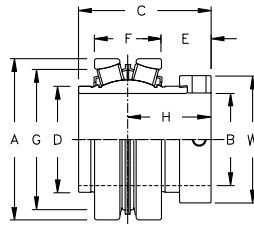
Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request. OTHER SHAFT MOUNTING STYLES AVAILABLE. REFER TO PAGE D-33.

BEARING ONLY DIMENSIONS

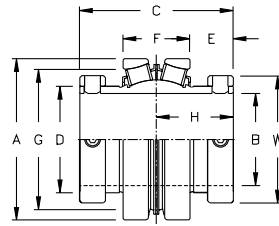
Rex[®] Roller Bearings



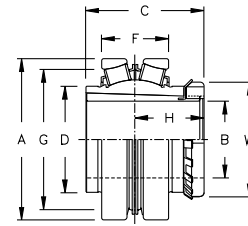
Normal Duty — 2000 Series



Medium Duty — 3000 Series



Heavy Duty — 5000 Series



Adapter — 9000 Series

Dimensions — Inches

Size Code	Bearing Number				A*	B		C				E			D	F	G	H			W										
	2000	3000	5000	9000		2000† 3000 5000	9000	2000	3000	5000	9000	2000 5000	3000	9000				2000 5000	3000	9000	2000 3000 5000	9000									
2	2012	...	...	...	2.3780	.7500	...	2.57	...	...	...	...	...	.98	1.31	1.12	1.93	1.57	...	...	1.74	...								
	2015	...	...	...		.9375	...	...	...	...	...	...	...					...	...	...	...	...	...	...	...	...
	2100	...	...	...		1.0000	...	...	...	...	...	...	...					...	...	...	...	...	...	...	...	...	...
3	2102	...	...	...	2.6280	1.1250	...	2.69	...	...	...	...	...	.97	1.53	1.31	2.18	1.62	...	...	1.96	...								
	2103	...	...	...		1.1875	...	...	...	...	...	...	...					...	...	...	...	...	...	...	...	...	...
	2104	...	...	...		1.2500	...	...	...	...	...	...	...					...	...	...	...	...	...	...	...	...	...
4	2107	3107	5107	...	2.8375	1.4375	...	2.92	3.56	...	...	...	...	1.12	1.17	...	1.75	1.31	2.38	1.78	1.83	...	2.30	...						
	2108	...	...	...		1.5000	...	2.88	...	...	...	...	...							...	...	...	...	...	...	...	...	...	...	...
5	...	...	5108	...	3.3495	1.5000	...	...	3.81	...	...	...	...	1.12	1.17	...	2.02	1.58	2.78	1.91	1.95	...	2.58	...						
	2111	3111	5111	...		1.6875	...	3.13	3.18	3.81
6	...	...	...	...	3.5465	1.7500	...	...	...	...	...	...	...	1.14	1.29	...	2.31	1.53	3.04	1.91	2.06	...	2.89	...						
	2115	3115	5115	...		1.9375	...	3.13	3.28	3.81
7	...	...	...	9115	3.9400	...	1.94	...	...	...	3.14	...	...	1.24	1.42	1.06	2.62	1.66	3.38	...	...	1.89	...	2.97						
	...	...	5200	9200		2.0000	2.00	...	...	4.13	3.14	...	...							...	...	...	...	...	...	2.06	...	1.89	...	3.25
	2203	3203	5203	...		2.1875	...	3.32	3.50	4.13	2.06	2.24	3.25	...
	2204		2.2500	...	3.32	2.06	3.25	...
8	...	...	...	9203	4.3337	...	2.19	...	...	...	3.34	...	...	1.31	1.45	1.15	2.90	1.75	3.76	...	...	2.03	...	3.38						
	2206	...	...	...		2.3750	...	3.51	...	...	...	...	...							...	...	...	...	...	...	2.19	...	...	...	3.56
	2207	3207	5207	...		2.4375	...	3.51	3.65	4.37	...	...	...							...	...	...	...	...	...	2.19	2.33	...	...	3.56
	2208	3208	...	...		2.5000	...	3.51	3.65	...	...	...	...							...	...	...	...	...	...	2.19	...	...	...	3.56
9	...	...	...	9207	5.1202	...	2.44	...	...	...	3.74	...	...	1.37	1.57	1.11	3.37	2.13	4.45	...	...	2.18	...	3.63						
	...	...	5208	9208		2.5000	2.50	...	...	4.87	3.74	...	...							...	...	...	...	...	...	2.44	...	2.18	...	4.05
	2211	3211	5211	...		2.6875	...	4.00	4.20	4.87	...	...	...							...	...	...	...	...	...	2.44	2.63	...	...	4.05
	2212	...	...	...		2.7500	...	4.00	...	...	...	...	...							...	...	...	...	...	...	2.44	...	...	...	4.05
	2215	3215	5215	...		2.9375	...	4.00	4.20	4.87	...	...	...							...	...	...	...	...	...	2.44	2.63	...	...	4.05
2300	...	...	...	3.0000	...	4.00	...	...	...	...	...	...	...	...	...	...	...	2.44	...	...	...	4.05								
10	...	...	...	9211	5.9075	...	2.69	...	...	...	4.25	...	...	1.50	1.68	1.37	3.97	2.31	5.11	...	...	2.53	...	4.41						
	...	...	...	9215		...	2.94	...	...	...	4.25	...	...							...	...	...	...	...	...	...	...	2.53	...	4.41
	2303	...	5303	9300		3.1875	...	4.39	...	5.32	...	...	...							...	...	...	...	...	...	2.66	...	...	...	4.91
	2307	3307	5307	...		3.4375	...	4.39	4.57	5.32	...	...	...							...	...	...	...	...	...	2.66	2.84	...	...	4.91
2308	3308	...	...	3.5000	...	4.39	4.57	...	...	...	...	...	...	...	...	...	...	2.66	2.84	...	...	4.91								
11	...	...	...	9303	7.0890	...	3.19	...	...	...	5.07	...	...	1.75	1.75	1.63	4.56	2.75	6.16	...	...	3.01	...	5.19						
	...	...	...	9307		...	3.44	...	...	...	5.07	...	...							...	...	...	...	...	...	...	...	3.01	...	5.19
	2311	...	5311	...		3.6875	...	5.20	...	6.25	...	...	...							...	...	...	...	...	...	3.13	...	...	...	5.63
	2315	3315	5315	...		3.9375	...	5.20	5.19	6.25	...	...	...							...	...	...	...	...	...	3.13	3.13	...	...	5.63
2400	...	5400	...	4.0000	...	5.20	...	6.25	...	...	...	...	...	...	...	...	...	3.13	...	...	...	5.63								
12	...	...	...	9311Y	7.6820	...	3.69	...	...	...	5.41	...	...	1.78	1.82	5.03	2.68	6.80	...	...	3.16	...	5.72							
	...	...	...	9315Y		...	3.94	...	...	...	5.41	...	...						...	...	...	...	...	...	...	...	3.16	...	5.72	
	...	...	...	9400Y		...	4.00	...	...	...	5.41	...	...						...	...	...	...	...	...	...	...	3.16	...	5.72	
	...	...	5403Y	...		4.1875	...	...	...	6.25	...	...	...						...	...	...	...	...	...	3.12	...	...	...	6.19	
	...	...	5407Y	...		4.4375	...	...	...	6.25	...	...	...						...	...	...	...	...	...	3.12	...	...	...	6.19	
...	...	5408Y	...	4.5000	...	...	...	6.25	...	...	...	...	...	...	...	...	...	3.12	...	...	...	6.19								
13	...	...	...	9403	9.0579	...	4.19	...	...	...	6.76	...	...	2.10	2.07	5.75	3.56	7.87	...	...	3.85	...	6.13							
	...	...	...	9407		...	4.44	...	...	...	6.76	...	...						...	...	...	...	...	...	...	3.85	...	6.13		
	...	...	5415	...		4.9375	...	...	...	7.88	...	...	...						...	...	...	...	...	...	3.94	...	...	...	7.05	
	...	...	5500	...		5.0000	...	...	...	7.88	...	...	...						...	...	...	...	...	...	3.94	...	...	...	7.05	
14	...	...	...	9415	10.6329	...	4.94	...	...	...	7.19	...	...	2.00	2.13	6.50	4.00	9.18	...	...	4.13	...	7.09							
	...	...	...	9500		...	5.00	...	...	...	7.19	...	...						...	...	...	...	...	...	...	4.13	...	7.09		
	...	...	5507	...		5.4375	...	...	...	8.00	...	...	...						...	...	...	...	...	...	4.00	...	...	...	8.18	
15	...	...	...	9503	11.4203	...	5.19	...	...	...	7.57	...	...	2.06	2.38	7.20	4.00	9.86	...	...	4.38	...	8.06							
	...	...	...	9507		...	5.44	...	...	...	7.57	...	...						...	...	...	...	...	...	...	...	4.38	...	8.06	
	...	...	5515	...		5.9375	...	...	...	8.13	...	...	...						...	...	...	...	...	...	4.07	...	...	...	8.64	
	...	...	5600	...		6.0000	...	...	...	8.13	...	...	...						...	...	...	...	...	...	4.07	...	...	...	8.64	
16	...	...	...	9515	12.6014	...	5.94	...	...	...	7.75	...	...	2.25	2.37	8.05	4.25	10.88	...	...	4.50	...	9.06							
	...	...	...	9600		...	6.00	...	...	...	7.75	...	...						...	...	...	...	...	...	...	...	4.50	...	9.06	
	...	...	5607	9607		6.4375	...	6.44	...	...	8.75	7.75	...						...	...	...	...	...	...	4.38	...	4.50	...	9.72	
	...	...	5615	...		6.9375	...	...	...	...	8.75	...	...						...	...	...	...	...	...	4.38	...	...	...	9.72	
	...	...	5700	...		7.0000	...	...	...	...	8.75	...	...						...	...	...	...	...	...	4.38	...	...	...	9.72	

*Outside Diameter Tolerance: Series Size Code 2-13 = +.0000/-.0010 And Size Code 14-16 = +.0000/-.0015

†Bore Tolerance: +.0010/-.0000

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

REX BEARING LINE INTERCHANGEABILITY

The standard units listed in this catalog will normally be the most readily available and the most balanced design. However, alternate shaft mounting designs can be supplied with any housing style to suit application needs.

The following mounting designs are available in sizes indicated in the interchange table:

- ... 2000 Series - normal duty - single set collar provides most economical design.
- ... 3000 Series - medium duty - additional shaft holding capacity.
- ... 5000 Series - heavy duty - double set collar provides greater stability and shaft contact area.
- ... 9000 Series - tapered adapter sleeve provides greatest capacity, stability and concentricity

The interchange table at the right lists all standard bearing inserts. (See Page 40) Those bearings with the same size code have identical housing fitup dimensions and can be substituted interchangeably.

ZA2203 pillow block contains 2203 bearing insert (single set collar, 2³/₁₆" shaft). The interchange table shows the 2203 bearing in size code 7.

2204, 5200, 5203, 9115 and 9200 bearings also are size code 7 units and can be substituted in the same housing.

Example 1 - Can ZA2203 pillow block be supplied with two set collars?

Yes - 5203 bearing insert (double set collar, 2³/₁₆" shaft size) is the same size code (7) as the 2203 bearing. Model number becomes ZA5203.

Example 2 - Can ZA2203 pillow block be supplied with tapered adapter sleeve mounting?

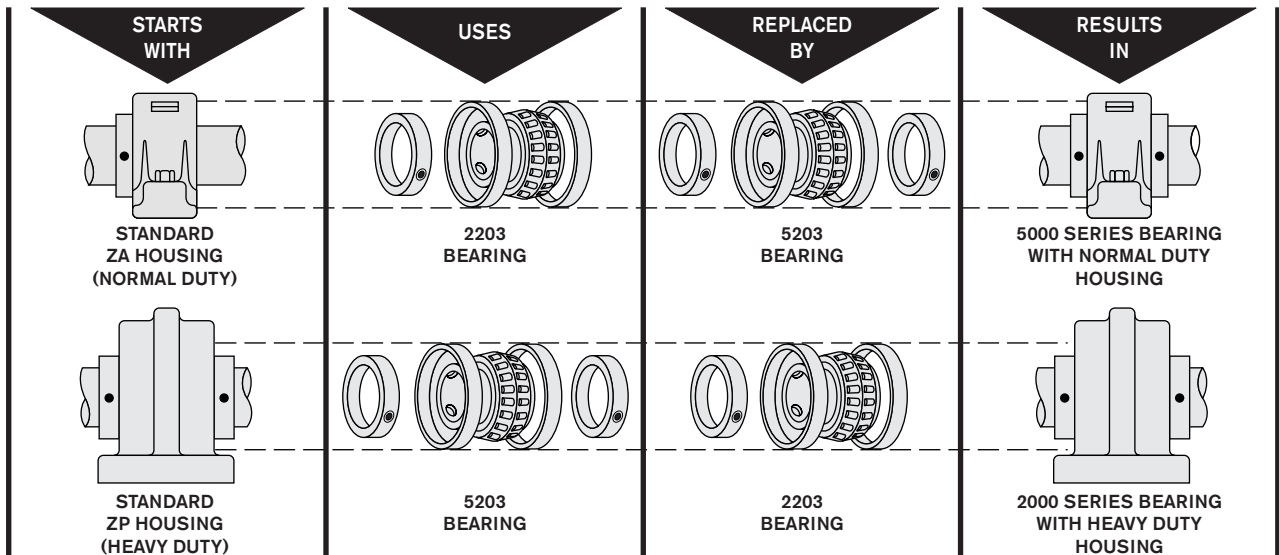
Only the 9115 (1¹/₁₆" shaft size) and 9200 (2" shaft size) tapered adapter sleeve bearings use the size code 7 housing. Either could be substituted resulting in model number ZA9115 or ZA9200. (Note that the shaft size becomes smaller than the original 2³/₁₆" in this example.)

The 9203 insert (2³/₁₆" shaft size) is a size code 8 unit and would interchange with similar size code inserts (2206, 2207, 2208). Model number ZA9203 would use the size code 8 housing shown on Page D-12 (ZA-2207 housing dimensions).

Rex Bearing Assembly Interchange

2000 Series Normal Duty Single Set Collar		3000 Series Medium Duty Increased Shaft Holding Capacity		5000 Series Heavy Duty Double Set Collar		9000 Series Adapter Sleeve		Size Code	Approx. Outer Race Dia.
Shaft Size Inches	Bearing Number	Shaft Size Inches	Bearing Number	Shaft Size Inches	Bearing Number	Shaft Size Inches	Bearing Number		
3/4 15/16 1	2012 2015 2100			...	...	...	...	2	2.37
1/8 1/16 1/4	2102 2103 2104			...	...	...	...	3	2.63
1/16 1/2	2107 2108	1/16 ...	3107 ...	1/16 ...	5107 ...	...	...	4	2.83
1 ¹ / ₁₆ 1/4	2111 2112	1 ¹ / ₁₆ ...	3111 ...	1/2 1 ¹ / ₁₆	5108 5111	...	...	5	3.34
1 ¹ / ₁₆ 2	2115 2200	1 ¹ / ₁₆ ...	3115 ...	1 ¹ / ₁₆ ...	5115 ...	...	...	6	3.54
2 ³ / ₁₆ 2/4	2203 2204	...	...	2 2 ³ / ₁₆	5200 5203	1 ¹ / ₁₆ 2	9115 9200	7	3.94
2 ³ / ₁₆ 2/16 2/2	2206 2207 2208	...	...	...	...	2 ³ / ₁₆ ...	9203 ...	8	4.32
2 ¹ / ₁₆ 2 ³ / ₄ 2 ¹⁵ / ₁₆ 3	2211 2212 2215 2300	...	...	2 ¹ / ₁₆ 2 ¹ / ₁₆ 2 ¹⁵ / ₁₆ ...	5208 5211 5215 ...	2 ⁷ / ₁₆ 2 ¹ / ₂ ...	9207 9208 ...	9	5.12
3 ³ / ₁₆ 3/16 3/2	2303 2307 2308	...	...	3 ³ / ₁₆ 3 ³ / ₁₆ 3 ¹ / ₂	5303 5307 ...	2 ¹ / ₁₆ 2 ³ / ₁₆ 3	9211 9215 9300	10	5.90
3 ¹ / ₁₆ 3 ¹⁵ / ₁₆ 4	2311 2315 2400	...	...	3 ¹ / ₁₆ 3 ¹⁵ / ₁₆ ...	5311 5315 5400	3 ³ / ₁₆ 3 ⁷ / ₁₆ ...	9303 9307 ...	11	7.09
...	...	...	...	4 ³ / ₁₆ 4 ⁷ / ₁₆ 4 ¹ / ₂	5403Y 5407Y 5408Y	3 ¹ / ₁₆ 3 ¹⁵ / ₁₆ 4	9311Y 9315Y 9400Y	12	7.68
...	...	...	...	4 ¹⁵ / ₁₆ 5	5415 5500	4 ⁹ / ₁₆ 4 ⁷ / ₁₆	9403 9407	13	9.05
...	...	...	...	5 ⁷ / ₁₆ ...	5507 ...	4 ¹⁵ / ₁₆ 5	9415 9500	14	10.63
...	...	...	...	5 ¹⁵ / ₁₆ 6	5515 5600	5 ³ / ₁₆ 5 ⁷ / ₁₆	9503 9507	15	11.42
...	...	...	...	6 ⁷ / ₁₆ 6 ¹⁵ / ₁₆ 7	5607 5615 5700	5 ¹⁵ / ₁₆ 6 6 ⁷ / ₁₆	9515 9600 9607	16	12.60

REX BEARING LINE INTERCHANGEABILITY



BEARING REPLACEMENT KITS

Rex' Roller Bearings

2000 Series



Kit contains: One inner race and roller assembly, two outer races, one set collar.

3000 Series



Kit contains: One inner race and roller assembly, two outer races, one set collar.

5000 Series



Kit contains: One inner race and roller assembly, two outer races, two set collars.

9000 Series



Kit contains: One inner race and roller assembly, two outer races, one adapter sleeve, one nut, one lock washer.

Size Code	Shaft Size, Inches	Bearing Replacement Kit		Bearing Replacement Kit		Shaft Size, Inches	Bearing Replacement Kit		Shaft Size, Inches	Bearing Replacement Kit	
		No.	Wt., Lbs.	No.	Wt., Lbs.		No.	Wt., Lbs.		No.	Wt., Lbs.
2	3/4	2012U	1.3	...	...	...	...	...	...	...	...
	15/16	2015U	1.2	...	...	...	...	...	...	...	...
	1	2100U	1.2	...	...	...	...	...	...	...	...
3	1 1/8	2102U	1.6	...	...	...	...	...	...	...	...
	1 9/16	2103U	1.6	...	...	...	...	...	...	...	...
	1 1/4	2104U	1.5	...	...	...	...	...	...	...	...
4	1 7/16	2107U	1.7	3107U	1.9	1 7/16	5107U	2.2	...	...	...
	1 1/2	2108U	1.6	...	...	...	...	...	...	...	...
5	1 11/16	2111U	2.7	3111U	2.9	1 1/2	5108U	3.7	...	...	...
	1 3/4	2112U	2.6	...	...	1 11/16	5111U	3.3	...	...	...
6	1 15/16	2115U	3.1	3115U	3.3	1 15/16	5115U	3.7	...	...	...
	2	2200U	2.9	...	...	...	...	...	...	...	...
7	2 3/16	2203U	4.0	3203U	4.3	2	5200U	5.7	1 15/16	9115U	4.2
	2 1/4	2204U	3.9	...	...	2 3/16	5203U	5.1	2	9200U	4.1
8	2 3/8	2206U	5.0	...	...	...	...	...	2 3/16	9203U	5.3
	2 7/16	2207U	5.0	3207U	5.2	2 7/16	5207U	6.0	...	...	...
	2 1/2	2208U	4.9	3208U	5.1	...	...	...	...	...	...
9	2 11/16	2211U	8.7	3211U	8.9	2 1/2	5208U	11.4	2 7/16	9207U	8.0
	2 3/4	2212U	8.5	...	...	2 11/16	5211U	10.4	2 1/2	9208U	7.6
	2 5/8	2215U	7.5	3215U	7.9	2 15/16	5215U	9.9	...	...	...
	3	2300U	7.2	...	...	...	...	...	...	...	...
10	3 3/16	2303U	12.9	...	...	3 3/16	5303U	15.5	2 11/16	9211U	14.1
	3 7/16	2307U	11.4	3307U	12	3 7/16	5307U	13.6	2 15/16	9215U	12.9
	3 1/2	2308U	10.9	3308U	11.1	...	...	...	3	9300U	12.2
11	3 11/16	2311U	23.0	...	...	3 11/16	5311U	25.5	3 3/16	9303U	26.0
	3 15/16	2315U	20.7	3315U	20.7	3 15/16	5315U	24.5	3 7/16	9307U	24.0
	4	2400U	20.0	...	...	4	5400U	23.5	...	...	...
12	...	...	...	...	...	4 3/16	5403YU	29.6	3 11/16	9311YU	26.8
	...	...	...	...	...	4 7/16	5407YU	26.6	3 15/16	9315YU	24.5
	...	...	...	...	...	4 1/2	5408YU	25.8	4	9400YU	24.0
13	...	...	...	...	...	4 15/16	5415U	58.0	4 3/16	9403U	58.0
	...	...	...	...	...	5	5500U	57.0	4 7/16	9407U	56.0
14	...	...	...	...	...	5 7/16	5507U	75.0	4 15/16	9415U	69.0
	...	...	...	...	...	...	...	...	5	9500U	68.0
15	...	...	...	...	...	5 15/16	5515U	88.0	5 3/16	9503U	87.0
	...	...	...	...	...	6	5600U	86.0	5 7/16	9507U	83.0
16	...	...	...	...	...	6 7/16	5607U	111	5 15/16	9515U	106
	...	...	...	...	...	6 15/16	5615U	106	6	9600U	105
	...	...	...	...	...	7	5700U	104	6 7/16	9607U	98.0

Adapter sleeve is not A.F.B.M.A. standard and must be purchased as a kit.

Seal Kits (2 Seals per kit)



(K) Seal Kit
Contains 2
Seal Assemblies



(M) Seal Kit
Contains 2
Seal Assemblies

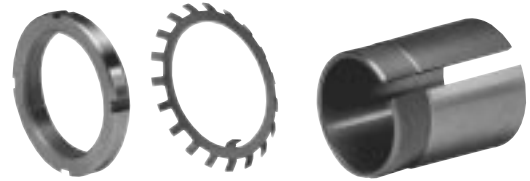
Threaded Cover Kit



Threaded Cover Kit



Set Collar Kit



Adapter Sleeve Kit

Seal Kits (2 Seals Per Kit)			Threaded Cover Kit (Threaded Cover and Microlock)	Set Collar Kit	Microlock Assembly Kit	Adapter Sleeve Kit
Z	K	M				
ZS-2	KS-2	MS-2	TC-2	SC-2	ML-2	...
ZS-3	KS-3	MS-3	TC-3	SC-3	ML-2	...
ZS-4	KS-4	MS-4	TC-4	SC-4◆	ML-2	...
ZS-5	KS-5	MS-5	TC-5	SC-5◆	ML-2	...
ZS-6	KS-6	MS-6	TC-6	SC-6◆	ML-2	...
ZS-7	KS-7	MS-7	TC-7	SC-7◆	ML-2	AK7-115 AK7-200
ZS-8	KS-8	MS-8	TC-8	SC-8◆	ML-3	AK8-203
ZS-9	KS-9	MS-9	TC-9	SC-9◆	ML-3	AK9-207 AK9-208
ZS-10	KS-10	MS-10	TC-10*	SC-10◆	ML-4*	AK10-211 AK10-215 AK10-300
ZS-11	KS-11	MS-11	TC-11	SC-11◆	ML-4	AK11-303 AK11-307
ZS-12Y	...	MS-12Y	TC-12Y	SC-12Y	ML-4	AK12-311Y AK12-315Y AK12-400Y
ZS-13	...	MS-13	TC-13	SC-13	ML-4	AK13-403 AK13-407
ZS-14	...	MS-14	TC-14	SC-14	ML-4	AK14-415 AK14-500
ZS-15	...	MS-15	TC-15	SC-15	ML-4	AK15-503 AK15-507
ZS-16	...	MS-16	TC-16	SC-16	ML-4	AK16-515 AK16-600 AK16-607

* Floating units require ML-3

◆ NOTE: Twist Lock 3000 series set collar kits can be ordered by using SC and the series and shaft size designation, i.e. SC3207.

METRIC SIZES

The first digit of the metric bearing number indicates mounting type (2000 Series Normal duty single set collar, or 5000 Series heavy duty double set collar - the last 3 digits indicate shaft size in millimeters).

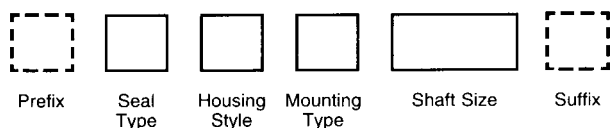
Standard metric bearings are single set collar 2000 series.

Any unit with the same size code can be supplied with a metric bore. Substitute metric bearing number for standard 4 digit bearing number.

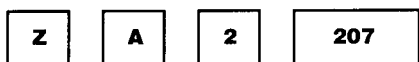
.... ZA2107 with 35 millimeter bore becomes ZA2035MM

.... ZP5307F with 90 millimeter bore becomes ZP5090MMF

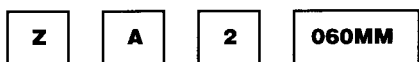
Basic Nomenclature Format



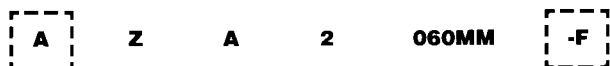
Inch Example



Metric Example



Metric Example with Prefix & Suffix



Example 1 - Flange cartridge bearing with Z seals and 60 millimeter shaft size - Model Number ZBR2060MM.

From interchange table above, 60MM shaft size is a size code 8 unit and will fit in any size code 8 housing. Dimensions for flange cartridges are found on Page D-24. The 2060MM bearing will fit in the size code 8 housing and the dimensions for the ZBR2206, ZBR2207 and ZBR2208 can be used.

Example 2 - ZA pillow block with 80 millimeter shaft size - Model Number ZA2080MM.

From interchange table above 80MM shaft size is size code 10. ZA dimensions are found on Page D-12. Use size code 10 dimensions (ZA2303 etc.)

Example 3 - What metric bore sizes can be supplied with ZEP2215F pillow block?

From Page D-10 the ZEP 2215F unit has a 9 size code. In the table above it is seen that a 70 or 75 millimeter size bearing could be used in this pillow block. The model number would become ZEP2070MMF or ZEP2075MMF.

Rex Bearing Assembly Interchange

2000 Series Normal Duty Single Set Collar		5000 Series Heavy Duty Double Set Collar		9000 Series Adapter Sleeve		Size Code
Shaft Size mm	Bearing Number	Shaft Size mm	Bearing Number	Shaft Size mm	Bearing Number	
25	2025MM*	...	...	...	...	2
30	2030MM*	...	...	...	...	3
35	2035MM	35	5035MM	...	...	4
40	2040MM	40	5040MM*	...	...	5
45	2045MM*	...	...	...	...
50	2050MM*	45	5045MM	...	...	6
55	2055MM	50	5050MM*	...	...
60	2060MM	55	5055MM*	50	9050MM	7
65	2065MM*	60	5060MM	55	9055MM	
70	2070MM*	65	5065MM*	...	...	8
75	2075MM*	70	5070MM*	60	9060MM	
80	2080MM	75	5075MM*	65	9065MM	9
85	2085MM*	80	5080MM	70	9070MM	
90	2090MM*	85	5085MM*	75	9075MM	10
...	...	90	5090MM*	...	...
100	2100MM*	...	...	80	9080MM	11
...	...	...	...	85	9085MM	
...	...	...	...	90	9090MM	12
...	...	110	5110MM*	...	...
...	...	115	5115MM*	100	9100MM	
...	...	125	5125MM	...	...	13
...	...	130	5130MM*	110	9110MM	
...	...	135	5135MM	...	...	14
...	...	140	5140MM*	125	9125MM	
...	...	150	5150MM	130	9130MM	15
...	...	160	5160MM*	135	9135MM	
...	...	170	5170MM	140	9140MM	16
...	...	180	5180MM*	145	9145MM	

*Most Readily Available Sizes

The following information is to assist the designer to obtain the full application potential offered by the Rex Bearing line.

The load ratings and life expectancy in the Load Rating Table are derived from empirical formula and are obtainable only under ideal operating conditions. The actual life may not correspond to the theoretical life due to the actual application conditions. To bring the designed life as close to the theoretical life as possible, the specific application conditions should be evaluated as they effect the bearing, housing, seals and mounting.

Application conditions which affect the bearing are high speed, high or low ambient temperature, vibration, and runout. Housings are affected by shock loads, shaft expansion or deflection (floating), and mounting structure. Foreign materials, high speed, vibration, liquids, and ambient temperature must all be considered when selecting the correct seal. And when determining the mounting method, the ease of installation, holding power, running accuracy, and shaft requirements must be considered. Each of these possible application conditions is discussed in detail below.

BEARINGS

INTERNAL BEARING ADJUSTMENT

Internal adjustment is critical to the performance of anti-friction bearings because of the friction of inter-acting parts developing low, normal, or high temperature. Catalog bearings are furnished with standard adjustment to cover the majority of applications. This adjustment is based on operating housing temperatures of approximately 160°F. The factory adjustment permits bearing components to change their dimensions and achieve the proper internal operating clearance under this temperature range without seizing.

HIGH SPEED OR HIGH LOAD

High speed, particularly when coupled with high load, produces an elevated temperature. This temperature may cause rapid expansion of internal bearing components which may result in bearing seizure and premature failure. To prevent the occurrence of this condition, the initial internal clearance should be increased. (See Adjustment Procedure.) Also consider high temperature grease or more frequent relubes.

TEMPERATURE CONDITIONS

High ambient temperatures will limit dissipation of heat to the level of the ambient temperature. It may then be necessary to increase the initial clearance to compensate for internal conditions as discussed under, "High Speed." Also, consider special lubrication and more frequent relubes.

Under very low temperatures special bearing adjustments and special lubricants may be necessary. For conditions involving start up and operating conditions below 0°F consult Rexnord Engineers.

VIBRATION

Vibration by itself does not necessarily require the increase or decrease of internal operating clearances. When the cycles of shock loads (vibration) are increased within a bearing operating at low speed and normal temperatures, they can result in an increase in operating temperature. If the temperature rise becomes significant, it may be necessary to increase the internal operating clearance as described under "High Speed."

Where vibration of either high or low cycles are imposed on a bearing operating at a reduced temperature, the resultant effect could be brinnelling of the race surfaces. To reduce the magnitude of impact between the rolling member and the race surfaces, it is recommended that reduction of the internal operating clearance of the bearing be considered. See "Adjustment Procedure."

In addition to changes in internal operating clearance, a vibration resistant locking feature for the threaded cover is recommended. This involves the use of set screws that are inserted into the face of the bearing, between the threaded cover threads and the housing threads. This prevents the threaded cover from loosening when exposed to extreme vibration. To specify the face locking feature, a -G suffix is added to any of the model numbers listed in the catalog.

ADJUSTMENT PROCEDURE

In some anti-friction bearings internal clearances are measured radially while others are measured axially. The internal clearance of Rex Industrial Bearings is measured axially (see Adjustment Table) and produces a 3 or 4 to one ratio to radial clearance.

The internal clearance adjustment is accomplished by turning the threaded cover clockwise until the bearing inner race resists misalignment and rotation. This removes all axial clearance. The threaded cover is then turned counter-clockwise one quarter turn until one of the slots in the cover is aligned with the nearest counterbored hole in the housing. The Micro-lock key assembly is then secured. Next, rap the end face of the inner race on the side opposite the threaded cover until the bearing rotates and misaligns freely. This will produce the standard clearance shown in the Adjustment Table below.

SPECIAL TOLERANCE BEARINGS

Rex Bearings are manufactured to close tolerances and incorporate selective assembly procedures to produce a high quality product. In certain applications, tighter tolerances than standard are necessary. Tighter tolerances may be required to control radial runout, to handle extreme loads, to operate under severe vibration, or to provide a more controlled range of press fit to the shaft. For these applications, special tolerance bearings or "Precision" bearings will improve the bearing's performance.

Precision bearings provide reduced tolerances for the inner race bore diameter, bore roundness, and bore-to-race concentricity. A precision bearing can be specified by adding a -PL suffix to any of the Rex 2000, 3000 and 5000 model numbers listed in the catalog. Consult the Rex Engineering Department for additional information on Precision Bearings.

HOUSINGS

The housing types and styles in this catalog have been designed to cover the majority of application requirements. The catalog is arranged by groups of housing types. Preceding each type of housing style is a general information page describing the strongest mounting position and other important points for each style. Often the selection of the proper type or style of housing is more important than selection of the housing material itself. The type and magnitude of forces as well as their direction and other circumstances may dictate the proper housing to meet the requirements.

Adjustment Table

Size Code	Shaft Size, Inches				Factory Adjustment (Average Speeds)		Recommended Adjustment high Speeds			Clearance Adjustment Inches Per 1/2 Turn	
	Normal Duty 2000 Series	Medium Duty 3000 Series	Heavy Duty 5000 Series	Adapter 9000 Series	Standard Axial Clearance Inches	Standard Radial Clearance Inches	Speeds Over	Axial Clearance, Inches	Radial Clearance, Inches	Axial	Radial
2 thru 4	3/4 thru 1 1/2	1 1/16	1 1/16	...	.007-.012	.0022-.0037	2000 RPM	.012-.017	.0037-.0053	0.005	0.0016
5 thru 6	1 1/16 thru 2	1 1/16 thru 1 15/16	1 1/2 thru 1 15/16	...	.007-.012	.0020-.0034	1500 RPM	.012-.017	.0034-.0049	0.005	0.0014
7 thru 9	2 3/16 thru 3	2 3/16 thru 2 15/16	2 thru 2 15/16	1 15/16 thru 2 1/2	.010-.017	.0026-.0044	1250 RPM	.017-.024	.0044-.0062	0.007	0.0018
10 and 11	3 3/16 thru 4	3 7/16 thru 3 15/16	3 3/16 thru 4	2 11/16 thru 3 7/16	.010-.017	.0025-.0043	1000 RPM	.017-.024	.0043-.0060	0.007	0.0018
12 and 13	...	...	4 3/16 thru 5	3 11/16 thru 4 7/16	.010-.020	.0022-.0043	750 RPM	.020-.030	.0043-.0065	.010	0.0022
14 thru 16	...	...	5 7/16 thru 7	4 15/16 thru 6 7/16	.015-.025	.0032-.0054	500 RPM	.025-.035	.0054-.0076	.010	0.0022

SHOCK LOAD

To withstand severe shock, consider alternate housing materials, e.g. malleable iron or cast steel. Consideration should be given to the housing configuration in case the shock loading is through the support structure rather than the shaft. Then two bolt versus four bolt mounting should be evaluated. Often it is advantageous to consider a close fit-up between the housing and its support member utilizing the flange cartridge or cartridge unit rather than depending strictly on bolts for security and mounting as in the case of pillow blocks.

FLOATING

Floating units are designed to accommodate relative changes in axial location. They are required due to certain temperature changes, fixing location of thrust loads, and/or certain mounting and installation techniques. In the case of an adapter mounted unit the inherent inability to determine final location of the bearing in relation to the mounting structure, make it necessary to utilize a floating unit on all shafts equipped with 9000 Series units. However, the need for floating in set collar mounted units relates directly to application conditions. See Shaft Floating and Shafting Considerations on Page D-47.

MOUNTING STRUCTURE

A very important area of housing consideration is that of the bearing housing in relation to the support or mounting structure. Factors such as ease of access, overall appearance, structural modification for support and others should be reviewed to determine the best housing style for a given application. See descriptive page preceding each housing style listing.

SEALS

(See Pages D-58, D-59)

The Radial Load Rating Table (page D-56) rates a given bearing for load, speed and life under ideal conditions. When the complete mounted block is subjected to specific environmental conditions the life may be reduced drastically depending upon the foreign material exclusion capability of the seals. The designer should determine the severity and characteristics of the operational and environmental conditions when selecting a seal best suited for a specific application. The Seal Selection Guide, Page D-58, relates various application conditions against the individual Rex seal performance. This aids in the choice of the seal type best suited to particular application conditions.

FOREIGN MATERIAL

Exclusion of foreign material from the bearing is quite often the major purpose in seal selection. The size and type of foreign material will give an indication as to the type of seal required. Extremely fine material may not be excluded by a clearance type seal such as the Z seal. Contact seals such as the M or K provide better protection. The caking of foreign material may damage the sealing lip of a contact seal in which case a radial floating seal such as a K seal offers an advantage.

SPEED

Certain seal construction, particularly contact seals made of rubber compounds, are limited in their ability to withstand temperature; thus speed limitations are imposed. See Page D-58.

VIBRATION

Certain seal constructions are adversely affected by vibration. Other constructions lend themselves readily to this type of environment. Under vibratory conditions the K seal is normally preferred over the Z seal. For specific advantages and limitations of the seals refer to Page D-58.

LIQUIDS

Exposure to moisture or liquids provides a severe test for any seal. Positive pressure at the sealing lip is necessary and consequently the M seal is normally recommended.

TEMPERATURE

The materials used in a given seal may limit its exposure to temperature whether it be ambient temperature or generated frictional heat. Temperature limits are imposed on seals containing rubber elements. Consequently the all metal Z seal is normally preferred in higher temperature applications.

NOTE: In applications where multiple environmental conditions exist, seal selection must be made to combat the most severe condition.

MOUNTING

The choice of mounting method utilized to secure the bearing inner ring to the shaft can be important both from an economic and performance standpoint. The various mounting methods available in conjunction with the Rex bearing line provide flexibility in areas such as ease of installation, holding power requirements, running accuracy, and the complexity of equipment or shaft conditions necessary to install the bearing and are all considerations in selection of a basic mounting type.

SET COLLAR

The set collar method of mounting offers a very simple and quick installation method. The basic principle of holding relates to set screws "springing" the collar such that three point contact is established. This contact, however, does relate directly to the two prime limitations of the set collar mount - that is, limited holding power and a built-in eccentricity. The Rex single set collar design (2000 Series) offers the greatest economy in terms of installation time, but with limited holding power. The Rex 3000 Series "Twist Lock™" bearing has an eccentric locking collar that offers additional shaft holding power. The double set collar design (5000 Series) increases the holding power by offering two pairs of set screws and a complete line contact on the inner race opposite the set screws for added stability and shaft contact area.

ADAPTER

The adapter mounting method offers the advantage of a full contact with shaft through a tapered sleeve clamping action, even with a variety of shaft tolerance sizes. This additional contact area does increase the holding power and also controls the concentricity between bearing bore and shaft much more closely; however, this unit does require some additional time to install and is somewhat more expensive.

PRESS FIT

The ultimate in holding power, concentricity and positioning is obtained through the use of a press fit mounting between the inner race bore and shaft. Rex catalog bearings can be press fit onto the shaft even though a hub extension is present. However, this style of mounting does require closely controlled shaft tolerances (see Shafting Considerations Page D-47), carefully controlled installation procedure and perhaps special equipment. The expense involved in both shaft and installation should be considered when evaluating this style of mounting versus other types.

SHAFT - BEARING FIT-UP

It is desirable to have a snug fit between shaft and inner ring bore to improve performance and running accuracy. (See Page D-47 for shaft tolerances and shafting considerations.) It is recommended that a precision bore bearing be utilized, with a shaft having close tolerance control, such that a snug fit will be obtained.

In situations where shaft damage or ease of bearing removal are of extreme importance, consideration should be given to prevention of fretting corrosion between the shaft and inner ring bore. This may be accomplished through the use of a Rexlon lined inner ring bore or other anti-fretting devices (-82 suffix).

THRUST LOADING

On heavy thrust loads it is desirable to include a shaft shoulder, snap ring or thrust collar to allow transfer of thrust loads from the shaft directly to the inner ring rather than relying on an adapter sleeve or set collar mount to withstand the axial loading. (See Installation on Page D-62.)

SHAFT CONDITION

The condition of the shafting utilized should be straight and provide a good mounting surface free of burrs, scale, etc., to achieve maximum holding power and best bearing performance.

SHAFT SIZE TOLERANCE

A snug fit-up between shaft and bearing inner race is required for proper bearing performance. In fact, a press fit is necessary to obtain full basic dynamic capacity as is explained on Page D-55 under Introduction to Load Ratings. As application conditions and requirements vary, fit-up and mounting requirements change as well.

If a special toleranced shaft is to be used, consideration should be given to the use of a precision tolerance bearing, particularly in the case of severe loading or high speed applications to obtain optimum bearing performance. Precision bore tolerance should always be used in conjunction with press fit or direct shaft mountings.

The table below lists shaft size tolerance information for various types of mounting and application conditions.

Shaft Tolerance Table - Inches

Nominal Shaft Size		Commercial Shaft Tolerance* (Cold Finished Steel, Low Carbon)	Recommended Shaft Tolerances		
over	incl.		Set Collar Mounting	Adapter Mounting	Press Fit Mounting▲
			Severe Loading or High Speed		
-	1½	+0.000 -0.002	+0.000 -0.001	- -	+0.0005 +0.0015
1½	2	+0.000 -0.003	+0.000 -0.001	+0.000 -0.003	+0.0005 +0.0015
2	2½	+0.000 -0.003	+0.000 -0.001	+0.000 -0.003	+0.0010 +0.0020
2½	3	+0.000 -0.004	+0.000 -0.001	+0.000 -0.004	+0.0010 +0.0020
3	4	+0.000 -0.004	+0.000 -0.001	+0.000 -0.004	+0.0015 +0.0025
4	5	+0.000 -0.005	+0.000 -0.0015	+0.000 -0.005	+0.0020 +0.0030
5	6	+0.000 -0.005	+0.000 -0.0015	+0.000 -0.005	+0.0025 +0.0035
6	7	+0.000 -0.006	+0.000 -0.0015	+0.000 -0.006	+0.0030 +0.0040

* Commercial shafting tolerances are normally satisfactory for loads up to 20% of C Rating and in slow to moderate speed applications.

▲ Consult Rexnord for special instructions.

SHAFTS FOR THRUST LOADS

Thrust loads often require modified shafting. When shaft shoulders are utilized, inside corner radius must clear chamber on inner race bore. Shoulder height or other retaining devices should not extend above inner race hub diameter. Snap rings may also be used to accept thrust; however, snap ring grooves do increase shaft stress levels.

In the case of light thrust loads, or requirement for positive shaft location, a spot drill under the set screw points is helpful. In some instances, milling of a flat on the shaft is also beneficial to provide additional seating area for the set screw.

SHAFT EXPANSION

The term shaft expansion refers to the fact that all materials, including steel shafting, change size to some degree when exposed to temperature variations. Although this growth occurs in all directions, it is most noticeable in the length of the shafting, and if the resulting change in size is significant, accommodations must be included in the unit selection or supporting structure to accept this variation.

Where shaft and framework are exposed to the same conditions, and the machine or framework is made of iron and steel, the expansion of shaft and machine or framework will be practically the same. The 2000 Series, 3000 Series and 5000 Series set collar mounted units are designed to operate under these conditions.

However, when a shaft is subjected to a temperature different from that of its supporting members, such as in applications handling hot

or cold materials, or where the material of supporting members is something other than iron or steel, shaft floating should be considered. Where a separate mounting structure is involved, the same considerations should be made. Shaft floating should also be considered where bearings are spaced on long shaft centers.

Differential of temperature should be considered since steel expands or contracts .000076" per foot for every 1°F difference in temperature.

When calculating shaft elongation or growth, consider the temperature differential to which shaft versus mounting is exposed. Also, consider what portion of shaft is exposed to full temperature differential and any modifying effects which might be present.

In most applications with similar materials in support structure and shafting being exposed to the same temperatures, the resulting differential in floating is almost negligible. Small amounts (a few thousandths) of shaft floating between bearings can be accommodated by available axial clearance in the bearing without adversely affecting its performance under normal load-speed conditions. Thus, most shafts of moderate length, exposed to normal temperature variations are easily handled with two non-floating units. Proper installation techniques are important to the axial freedom and satisfactory operation of the bearing.

Not all housing styles are available with floating units. In some instances, such as take-up units, the play between housing slots of take-up blocks and take-up frame is sufficient for normal shaft floating.

In other styles, such as flange cartridge and duplex, alternate housing styles or special units must be given consideration, if floating is actually required during operation. In some rare instances, special mountings can be designed such that floating takes place through the bore of the bearing rather than within the housing. Selection of the correct housing style and/or mounting method can be the key to satisfactory performance.

FLOATING UNIT DESIGN

A floating unit is a housing design in which the bearing (which is fixed to the shaft) is free to move axially within the outer housing which is fixed to the support structure. This is normally accomplished through the use of a "cartridge," which contains the basic bearing, with a pin projecting into a milled slot to limit axial movement within specified limits. One fixed unit must be used on each shaft to provide axial location, the remaining units however, should be of the floating type.

Since factors such as economy and ease of installation may affect final selection, careful evaluation of the need for floating units is advisable. Floating may be required because of:

1. Mounting inaccuracies.
2. Shaft expansion.
3. Positioning thrust loads on a particular unit.

While the adapter mounting arrangement provides positive holding power and fine running accuracy, the 9000 Series blocks must be added with one fixed block, and the remaining floating blocks on a shaft. This is done because the final location of the bearing race and adapter sleeve cannot be controlled during tightening of the nut on the sleeve. In these cases, floating does not actually take place, but the axial freedom must be available to compensate for variations between final position of bearing centers on the shaft in relation to the center distance of the installed housing, as determined by the mounting holes in the support structure.

ZMC Allowable Float

Shaft Size — Inches		Size Code	Total Float Inches
Heavy Duty 5000 Series	Adapter 9000 Series		
1⅞ Thru 2⅞	1⅞ Thru 2⅞	4 Thru 8	⅜
2⅞ Thru 4	2⅞ Thru 3⅞	9 Thru 11	½
4⅞ Thru 7	3⅞ Thru 6⅞	12 Thru 16	¾

Optimum bearing performance is the result of selecting the bearing and the shaft to suit the particular application. Bearing size is often controlled by a shaft size selection, based on shaft bending and torsional stresses. In other applications, bearing load capacity is the determining design factor. In either case, the selection procedure outlined below is used to determine the bearing capacity required to meet the application requirements.

Bearing Selection Procedure

This procedure involves conversion of all forces and conditions into one resultant equivalent radial load on each bearing and utilization of the bearing load rating table.

STEP 1. Determine all forces acting on the bearings. The following types of loading must be considered.

- A. Static loads - weight of shaft assembly and other equipment supported by the bearings. (When these are small in relation to applied loads they are often disregarded).
- B. Applied loads - forces applied on shaft during normal function of equipment and are determined prior to bearing selection.
- C. Drive loads - forces transmitted from power source to the shaft through belts, chains, gears, etc. (see Drive Load).
- D. Eccentric loads - centripetal force due to a designed unbalanced load rotating with shaft (see Eccentric Loads).

STEP 2. Resolve the radial forces acting on the shaft into radial loads on each bearing (see Translation of Shaft Forces into Bearing Loads Page D-49).

STEP 3. Combine the radial forces vectorially to obtain a resultant radial load (P_r) at each bearing (see combining radial loads Page D-49).

STEP 4. Add or subtract all thrust forces (if any) to determine the total thrust load (P_t) acting on the shaft. Assume this thrust load is acting at the bearing with the greatest radial load (P_r).

STEP 5. Calculate the equivalent radial load (P_e) using the applicable thrust formula (see page D-50). If no thrust is present, then $P_e = P_r$.

STEP 6. Apply the modification factors (M) and obtain a required radial capacity (P) to reflect actual application conditions (see Page D-51).

$$P = P_e \times M$$

STEP 7. Select a bearing size from the load rating table on Page D-56. Use the largest calculated Required Radial Capacity value (P) and the application speed and life requirements in making the optimum selection.

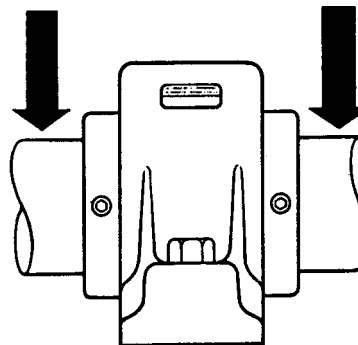
Usually, a 2000 Series bearing provides an adequate, economic selection. However, in applications involving shock and vibration, increased rigidity, or when shaft locking or housing strength is desired, a 5000 or 9000 Series unit should be specified. (See Page D-45, D-46).

NOTE: If bearing selection has been made without consideration of shaft strength, shaft size (as indicated by bearing bore) should be checked.

Applied Loads

Each shaft performs a basic work function in a system, regardless of the type or style of equipment. The forces relating to this work function normally represent the primary load on the shaft and are most accurately determined by those responsible for total equipment design. When this load information is supplied, these loads are combined with other loadings to determine a bearing selection.

Radial Loads



Drive Loads

To determine the radial force on a shaft from a belt or chain drive where the horsepower being transmitted is known, the following formula should be used:

$$F = \frac{HP \times 126,000 \times K}{PD \times RPM} \quad \text{Formula (1)}$$

Where:

- F - Radial Force on Shaft
- HP - Horsepower transmitted
- PD - Pulley diameter or pitch diameter of sprocket or sheave in inches.
- RPM - Revolutions per minute
- K - See Drive Tension Factors (below)
- 126,000 - A constant for conversion of horsepower, speed and pulley diameter to radial pounds of force.

Drive Tension Factors - K:

While subject to considerable variations due to different installation and maintenance practice, the following Drive Tension Factors "K" are recommended for normal applications:

"K" Factors

Type of Drive	Normal Tension	4 or more V-belts, Tight Belts, Short Centers, High Ratios
Chain	1.0	1.0
V-belts (1 to 3 belts)	1.5	2.0
Flat Belts	2	3

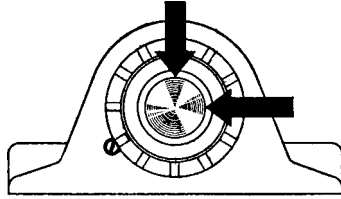
Eccentric Loads

An unbalanced shaft generates a centripetal force which acts radially on the shaft per the following formula:

$$C.F. = .000028 \times r \times W \times (RPM)^2 \quad \text{Formula (2)}$$

C.F. = Centripetal Force (Lbs.)
 r = Radius of rotation of unbalanced load in inches
 W = Weight of unbalanced load in lbs.
 RPM = Revolutions per minute

Since the centripetal force varies in direction it should be added to the maximum combined load from other sources. A modification factor (see page D-51) must also be included on this type loading.

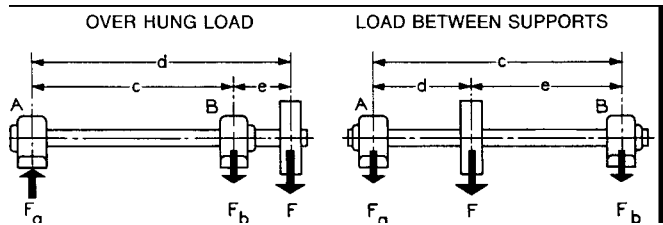


Translation of Shaft Forces into Bearing Loads

Any radial force (F) can be resolved into individual loads on each bearing. The amount of load supported by each bearing is determined from the summation of moments using the following formulas.

When the load (F) is between supports, it produces bearing loads (F_a, F_b) in same direction on both bearings (A & B), and equal to the applied load. (F = F_a + F_b).

An overhung load produces a bearing load (F_a) in the opposite direction of the far bearing (A); and since a lever arm is involved, the magnitude of load (F_b) on nearest bearing (B) will be greater than the overhung load (F), by the amount of load (F_a) on far bearing (A). (F = F_b - F_a)



$$F_a = \frac{F \times e}{c} \quad \text{Formula (3)}$$

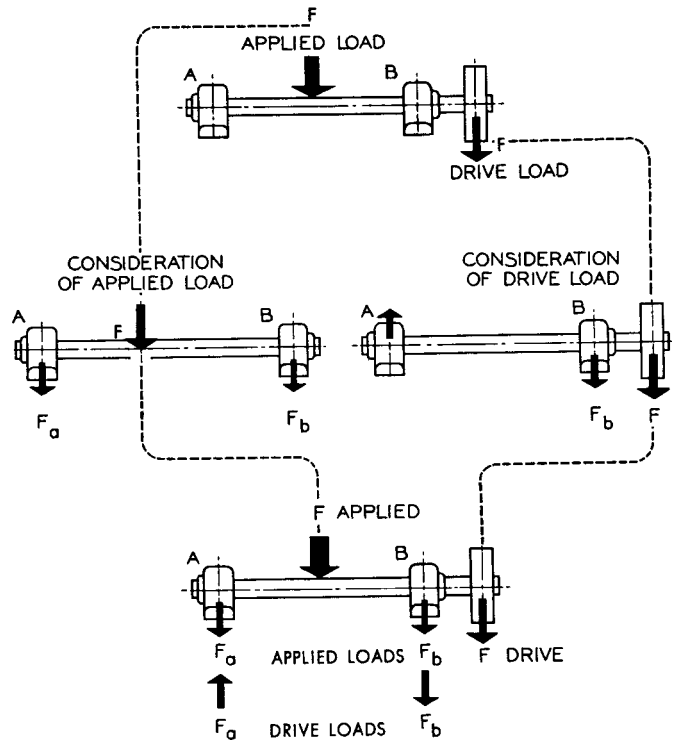
$$F_b = \frac{F \times d}{c} \quad \text{Formula (4)}$$

Note Direction of Forces F_a, F_b

- F - Force on shaft required to transmit power and/or other radial forces acting on shaft from one point
- F_a - Radial force on bearing "A"
- F_b - Radial force on bearing "B"
- c - Distance between bearing centerlines in inches
- d - Distance between centerline of bearing "A" and force "F" in inches
- e - Distance between centerline of bearing "B" and force "F" in inches

Combining Radial Loads

Typical applications involve both an applied load and a drive load. Normal Engineering Procedure would be to treat each load source separately, but to ultimately combine these loads as shown below:



In applications where all loads are in the same plane, the forces can be added or subtracted. However, in most applications, all radial forces are not in the same direction. Where two or more radial forces are not in the same plane, these forces should be changed to vertical and horizontal components as shown by the following formulae:

$$F_v = \text{Force } F \times \text{Sine } \angle \quad \text{Formula (5)}$$

$$F_h = \text{Force } F \times \text{Cos } \angle \quad \text{Formula (6)}$$

Where:

- F_v = Vertical component in lbs.
- F_h = Horizontal component in lbs.
- Sine ∠ = Sine of angle between force "F" and horizontal
- Cos ∠ = Cos of angle between force "F" and horizontal

These horizontal and vertical components are combined to obtain a net horizontal force (P_h) and a net vertical force (P_v).

The resultant radial force on a bearing is determined as follows:

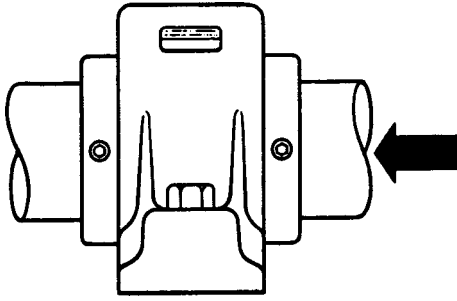
$$P_r = \sqrt{P_v^2 + P_h^2} \quad \text{Formula (7)}$$

Where:

- P_r = Resultant radial load
- P_v = Total vertical radial load
- P_h = Total horizontal radial load

Resultant radial loads (P_r) can also be determined graphically, using vectors representing both size and direction of imposed loads.

Pure Thrust Loads



Centrifugal pumps, propellers, drilling equipment, vertical shafts and screw conveyors represent types of equipment where one of the bearings supporting the shaft may be required to take primarily thrust loads. Rex units are capable of taking thrust loads in either direction.

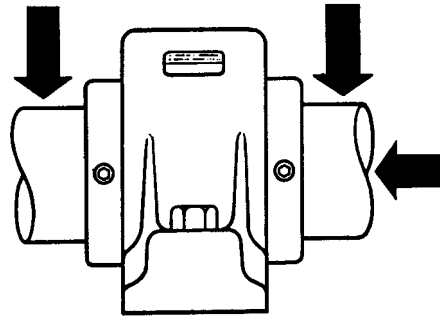
Thrust load ratings for units may be obtained as follows:

$$\text{Formula (8) Thrust Rating} = \frac{\text{Catalog Radial Load Rating}}{\text{Maximum Thrust Factor (from Thrust Table below.)}}$$

The "Thrust Rating" is the maximum thrust load a bearing can withstand at the selected RPM and L10 Life.

NOTE: Assume thrust load is supported by one bearing only. High thrust loads require special shaft and mounting considerations. See page D-46. Installation must also be considered to assure maximum performance. See page D-62.

Combined Radial and Thrust Loads



In many applications such as, helical, bevel or spiral-bevel gears the bearings are required to carry combined radial and thrust loads. Rex Bearings are in effect two single-row angular contact bearings having a common inner race with a spherical surface. They are, therefore, capable of carrying both radial and thrust loads in either direction.

For purposes of selection, it is always advisable to assume that, if any thrust loading is present, it is carried by the bearing with the heaviest radial load. (In most applications it is almost impossible to split a thrust load between two or more bearings. Also, unless floating units are used, it is difficult to mount bearings so that only one specific bearing carries all the thrust load imposed on a shaft.)

When both thrust and radial loads are involved, the formulas in the Thrust Table are used. The formulae combine both loads into an equivalent radial load for which a bearing may be selected from the Load Rating Table. The correct formula is selected based upon size of the unit and percentage of thrust to radial load involved.

Equivalent Radial Load

When selecting a bearing for an application involving thrust loading, a shaft size range must be determined or estimated and bearing series decided to obtain a formula from the Thrust Table below. When a specific bearing has been selected from the Radial Load Rating Table as a result of the use of this formula from the Thrust Table,

and its shaft size or style is outside the range of the original formula, the selection is not valid and the equivalent radial load (P_e) must be recalculated using the new formula related to that shaft size and bearing series.

Thrust Table

Shaft Size				Size Code	Maximum Thrust Factor	Combined Radial and Thrust Rating	Formula Number
Normal Duty 2000 Series	Medium Duty 3000 Series	Heavy Duty 5000 Series	Adapter 9000 Series				
3/4" thru 1 3/4"	1 7/16" thru 1 11/16"	1 1/16" thru 1 11/16"	None	2 thru 5	2.2	Thrust Load less than 46% of Radial Load. Equivalent Radial Load $P_e = P_r + 1.47 P_t$	Formula (9)
						Thrust Load more than 46% of Radial Load. Equivalent Radial Load $P_e = 0.67 P_r + 2.2 P_t$	Formula (10)
1 15/16" thru 4"	1 15/16" thru 3 15/16"	1 15/16" thru 4"	1 15/16" thru 3 7/16"	6 thru 11	2.6	Thrust Load less than 39% of Radial Load. Equivalent Radial Load $P_e = P_r + 1.75 P_t$	Formula (11)
						Thrust Load 39% - 60% of Radial Load. Equivalent Radial Load $P_e = 0.67 P_r + 2.60 P_t$	Formula (12)
None	None	4 3/16" thru 7"	3 11/16" thru 6 7/16"	12 thru 16	Consult Rexnord	Thrust Load less than 33% of Radial Load. Equivalent Radial Load $P_e = P_r + 2.00 P_t$	Formula (13)
						Thrust Load 33% - 50% of Radial Load. Equivalent Radial Load $P_e = 0.67 P_r + 3.00 P_t$	Formula (14)

LOAD MODIFICATION FACTORS

Normal calculations of bearing loads do not take into consideration special load conditions such as oscillatory, shock, or variable loads. To take such conditions into account, load modification factors are applied to the calculated load. These factors, whether termed load modification factors, application factors, or service factors, are all intended to allow extra bearing capacity to offset inordinate loading conditions.

Since factor selection is always a matter of judgement, even personnel experienced in bearing selection and application vary in their assessment of factors for individual application conditions.

The factors listed below are intended only as a general guide and may be adjusted for particular situations.

OSCILLATORY LOADS

Some bearing applications involve shaft oscillation instead of complete rotation. The table below lists the M factors corresponding to the maximum included angle of oscillation. The applied load is multiplied by this M factor to determine the equivalent radial load. When using the load rating tables, the vertical column headings represent cycles per minute instead of RPM.

Basic failure mode changes at oscillation angles below 30° - consult Rexnord.

Oscillation Factors

φ	30	60	90	120	150	180
M	.58	.72	.81	.89	.95	1.00

φ = Included oscillation angle - degrees

M = Modifying factor.

SHOCK LOADS

Shock is an actual dynamic load on the bearing. Consequently capacity must be allocated to handle shock loading in addition to the basic dynamic loading normally calculated or analyzed in an application.

Shock Factors

Operating Condition	FREQUENCY OVERLOAD		
	Occasional 33%	Frequent 67%	Continuous 100%
No Shock	1.00	1.00	1.00
Light Shock	1.14	1.24	1.33
Moderate Shock	1.32	1.52	1.67
Heavy Shock or Extreme Vibration	1.52	1.80	2.00

RESULTANT LOAD

The Resultant Radial Load P_r or Equivalent Radial Load P_e multiplied by selected Modifying Factors will give the Required Radial Capacity P in terms of catalog load rating tables.

For Radial Load Only:

$$P = P_r \times M \quad \text{Formula (15)}$$

For combined Radial and Thrust Loads as well as Thrust Loads:

$$P = P_e \times M \quad \text{Formula (16)}$$

If safety factors or other allowances have been included in the initial bearing loads to reflect application conditions, then do not duplicate those factors from the following table to avoid exaggerating bearing loads.

In case two or more factors are involved, the values should be multiplied together to obtain the combined "M" Factor.

VARIABLE LOADS

In many cases, a bearing is subjected to varying loads and speeds. The following formula calculates the equivalent load on the bearing when this occurs.

$$P_e = \sqrt[3.33]{\frac{P_1^{3.33}n_1t_1 + P_2^{3.33}n_2t_2 + \dots + P_n^{3.33}n_nt_n}{N}} \quad \text{Formula (17)}$$

where P_1, P_2, P_n are the loads (in lbf) acting at speeds n_1, n_2, n_n (in rpm)

t_1, t_2, t_n are the durations (in decimal percentage) of each load and speed

$$N = t_1n_1 + t_2n_2 + \dots + t_nn_n$$

For cases where the load is variable but the speed is constant, the following simplified formula is used.

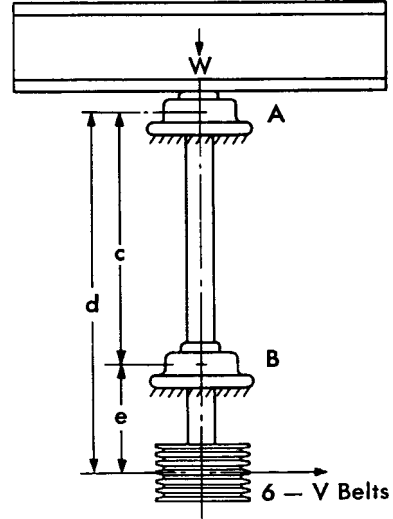
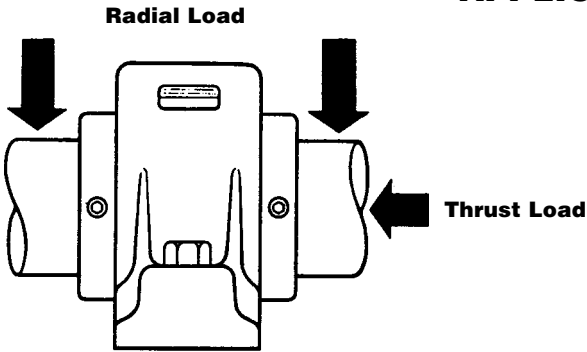
$$P_e = \sqrt[3.33]{P_1^{3.33}t_1 + P_2^{3.33}t_2 + \dots + P_n^{3.33}t_n} \quad \text{Formula (18)}$$

When the load varies from a minimum to a maximum load and is a continuous and gradual change, the equivalent load is calculated using the following formula.

$$P_e = \frac{P_{\min} + 2P_{\max}}{3} \quad \text{Formula (19)}$$

For calculations of more complex loading conditions, consult the Rex Engineering Department.

APPLICATION EXAMPLE



Determine the Flange Block Requirements for the Mixing Tub as shown:

Operating Data	Symbol	Value
Wt. of mixing tub and load	W	2400 lbs.
Horsepower	HP	10
Speed	RPM	200
"K" Factor (table page D-50)	K	2
Sheave Pitch Dia.	PD	14"
Bearing "A" to "B"	c	24"
Bearing "A" to Sheave	d	32"
Bearing "B" to Sheave	e	8"
L-10 Life required	-	15,000 Hrs.

Radial force on shaft from V-Belt drive (F) is calculated by using formula (1), page D-50.

$$F = \frac{HP \times 126,000 \times K}{PD \times RPM} = \frac{10 \times 126,000 \times 2}{14 \times 200} = 900 \text{ lbs.}$$

F1 load from drive, will produce radial loads on bearings "A" and "B." These radial loads are determined by using formulae (3) and (4) page D-49.

Bearing "A"

$$F_a = \frac{F \times e}{c} = \frac{900 \times 8}{24} = 300 \text{ lbs.}$$

$$F_b = \frac{F \times d}{c} = \frac{900 \times 32}{24} = 1200 \text{ lbs.}$$

A bearing selection is made based upon bearing "B" because it carries the greater radial load. The total thrust load, 2400 lbs. from the weight of the mixing tub and load should also be considered as acting on that bearing.

The thrust and radial loads are combined to an equivalent radial

load by selecting the proper formula in the Thrust Table on page D-45. In this case Formula (12) is used where:

$$P_e = .67 P_r + 2.60 P_t = .67 (1200) + 2.60 (2400) = 804 + 6240 = 7044$$

Referring to the Radial Load Rating Table on page D-56, a size code 9 bearing has a rating of 8555 lbs. at 200 rpm and 15,000 hours life. Using the derating factor at the bottom of the table, a Normal Duty 2211 bearing has a rating of $(1-.15) \times 8555 = 7272$ lbs. This exceeds the 7044 lbs. of equivalent radial load that was calculated so the 2211 is satisfactory. Therefore, a ZB2211 Normal Duty Flange Block would be selected.

Using the formula and C Rating on Page D-56, the bearings L_{10} life would be:

$$L_{10} = \frac{1 \times 106}{60 \times 200} \left[\frac{40,600 \times .85}{7044} \right]^{10/3} = 16,643 \text{ hours}$$

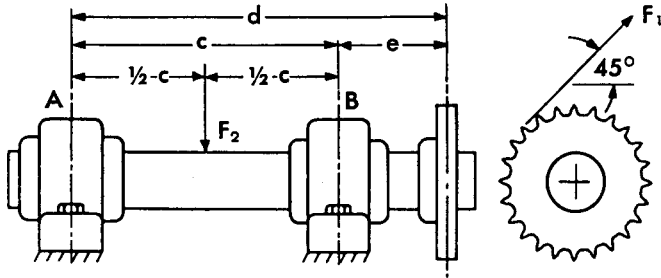
Size Code	2000 Series Bearings	3000 Series Bearings	5000 Series Bearings	9000 Series Bearings	C Rating	C _r Rating	Life (hrs)	RADIAL LOAD RATING TABLE (LBS.)															
								SPEED (rpm)															
								50	100	200	300	400	500	750	1000	1250	1500	1750	2000	2500	3000	3500	

9	2211 2212 2215 2300	3211 3215	5208 5211 5215	9207 9208	40,600	55,700	5000 15000 80000	*	*	*	9661	9036	8001	7339	6864	6499	*	*	8555	7575	6949	6499	5754	5278	4937	4674	4463	7847	6374	5177	4584	4205	3933	3482	3194	2987	2828	2701	2594
---	------------------------------	--------------	----------------------	--------------	--------	--------	------------------------	---	---	---	------	------	------	------	------	------	---	---	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

*Load exceeds 25% of C rating, consult Rexnord.

Values in the table represent the 9000 series bearing or press fit mounting of the 2000, 3000 and 5000 series bearings. When commercial shafting and clearance mounting are used, the table value should be reduced up to 5% for the 5000 series, 10% reduction for 3000 and reduced up to 15% for the 2000 series.

APPLICATION EXAMPLE



Determine the pillow block requirements for the application shown below:

Operating Data	Symbol	Value
Load from drive	F1	1200 lbs.
Dead load on shaft	F2	1000 lbs.
Speed	RPM	1000
L-10 Life required	-	15,000 Hrs.
Bearing "A" to "B"	c	90"
Bearing "A" to sprocket	d	100"
Bearing "B" to sprocket	e	10"
Sin 45° .....		.707
Cos 45° .....		.707

Radial load on bearings consist of two parts: from the dead load and from the drive. Because these loads act in different directions, they will have to be combined by using formulae 5, 6 and 7.

Bearing "A"

Load from weight in center of shaft:

$$F_{2a} = \frac{1000}{2} = 500 \text{ lbs. because weight is centered between both bearings. Load is downward.}$$

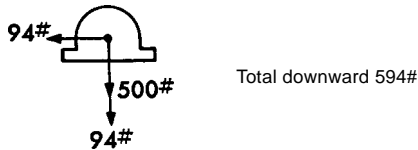
Load from drive:

$$F_{1a} = \frac{F_1 \times e}{c} = \frac{1200 \times 10}{90} = 133 \text{ lbs. at } 45^\circ \text{ downward}$$

To combine the loads, the 133 lb. load must be broken up into vertical and horizontal loads.

$$F_v = F_{1a} \times \sin 45^\circ = 133 \times .707 = 94 \text{ lb. vertical downward}$$

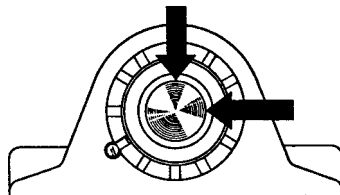
$$F_h = F_{1a} \times \cos 45^\circ = 133 \times .707 = 94 \text{ lb. horizontal}$$



Now combine the total downward load and horizontal load.

$$P_r = \sqrt{(94)^2 + (594)^2} = 602 \text{ lbs. radial load on "A"}$$

Combined Radial Loads



Bearing "B"

Load from weight in center of shaft:

$$F_{2b} = \frac{1000}{2} = 500 \text{ lbs. downward}$$

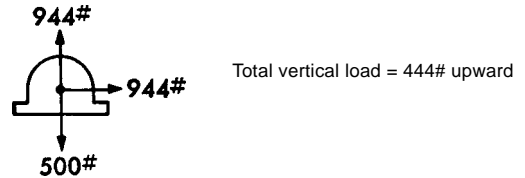
Load from drive:

$$F_{1b} = \frac{F_1 \times d}{c} = \frac{1200 \times 100}{90} = 1333 \text{ lbs. at } 45^\circ \text{ upward}$$

Now break up the 1333 lb. load into horizontal and vertical loads:

$$F_v = F_{1b} \times \sin 45^\circ = 1333 \times .707 = 944 \text{ lbs. vertical upward}$$

$$F_h = F_{1b} \times \cos 45^\circ = 1333 \times .707 = 944 \text{ lbs. horizontal}$$



Now combining the total upward load and horizontal load

$$P_r = \sqrt{(444)^2 + (944)^2} = 1042 \text{ lbs. radial load on "B"}$$

Bearing selection will be based on Bearing "B" because it has the highest load of the two bearings. Referring to the Radial Load Rating Table on page D-56, a size code 3 bearing has a rating of 1614 lbs. at 1000 rpm and 15,000 hours life. Using the derating factor at the bottom of the table, a Normal Duty 2102 bearing has a rating of $(1.15) \times 1614 = 1876$ lbs. This exceeds the 1042 lbs. of equivalent radial load that was calculated for Bearing "B" so the 2102 is satisfactory. Therefore, a ZA2102 Normal Duty Pillow Block would be selected.

Using the formula and the C Rating on Page D-56, the bearings L₁₀ life would be:

$$L_{10} = \frac{1 \times 10^6}{60 \times 1000} \left[\frac{12,400 \times .85}{1042} \right]^{10/3} = 37,304 \text{ hours}$$

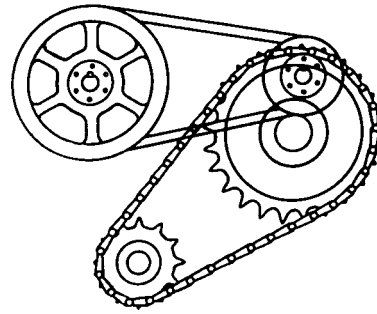
Size Code	2000 Series Bearings	3000 Series Bearings	5000 Series Bearings	9000 Series Bearings	C Rating	C _r Rating	Life (hrs)	RADIAL LOAD RATING TABLE (LBS.)																		
								SPEED (rpm)																		
								50	100	200	300	400	500	750	1000	1250	1500	1750	2000	2500	3000	3500				
3	2102 2103 2104				12,400	14,200	5000 15000 80000	*	*	*	*	2954	2763	2446	2244	2099	1987	1897	1823	1705	1614					
												2399	1949	1583	1402	1286	1202	1065	976	913	865	825	793	742	702	670

*Load exceeds 25% of C rating, consult Rexnord.

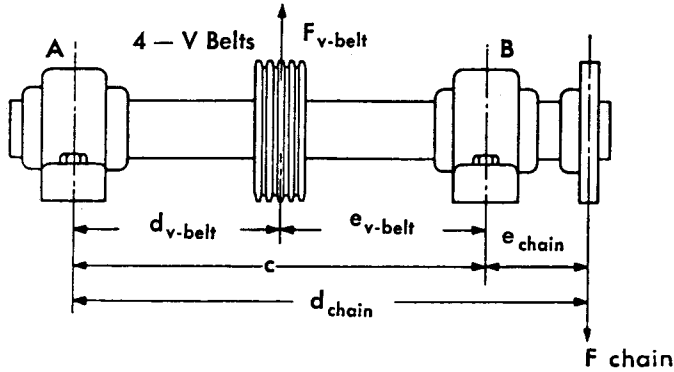
Values in the table represent the 9000 series bearing or press fit mounting of the 2000, 3000 and 5000 series bearings. When commercial shafting and clearance mounting are used, the table value should be reduced up to 5% for the 5000 series, 10% reduction for 3000 and reduced up to 15% for the 2000 series.

APPLICATION EXAMPLE

Chain and Belt Drives



Determine the pillow block requirements for the jack shaft driven by a chain sprocket and power take-off through a 4-V Belt Sheave as shown:



Bearing "A"

Load from chain pull

$$F_a = \frac{F_{chain} \times e_{chain}}{c} = \frac{1890 \times 10}{20} = 945 \text{ lbs.}$$

(NOTE: F_a from chain pull is upward)

Load from V-Belt pull

$$F_a = \frac{F_{v-belt} \times e_{v-belt}}{c} = \frac{2520 \times 10}{20} = 1260 \text{ lbs.}$$

(NOTE: F_a from V-Belt is upward)

Combining both F_a 's and because both loads are upward add both loads to get total:

$$\text{Total load on "A"} = 945 \text{ lbs.} + 1260 \text{ lbs.} = \underline{2205 \text{ lbs.}}$$

Bearing "B"

Load from chain pull

$$F_b = \frac{F_{chain} \times d_{chain}}{c} = \frac{1890 \times 30}{20} = 2835 \text{ lbs.}$$

(NOTE: F_b from chain pull is downward)

Load from V-Belt pull

$$F_b = \frac{F_{v-belt} \times d_{v-belt}}{c} = \frac{2520 \times 10}{20} = 1260 \text{ lbs.}$$

(NOTE: F_b from V-Belt is upward)

Combining both F_b 's and because one load is upward and one is downward, subtract to get total:

$$\text{Total load on "B"} = 2835 \text{ lbs.} - 1260 \text{ lbs.} = \underline{1575 \text{ lbs.}}$$

Bearing selection will be based on Bearing "A" because it has the highest load of the two bearings. Referring to the Radial Load Rating Table on page D-56, a size code 7 bearing has a rating of 3009 lbs. at 200 rpm and 80,000 hours life. Using the derating factor at the bottom of the table, a Normal Duty 2203 bearing has a rating of $(1-.15) \times 3009 = 2558 \text{ lbs.}$ This exceeds the 2205 lbs. of equivalent radial load that was calculated for Bearing "A" so the 2203 is satisfactory. Therefore, a ZA2203 Normal Duty Pillow Block would be selected.

Using the formula and the C Rating on Page D-56, the bearings L_{10} life would be:

$$L_{10} = \frac{1 \times 106}{60 \times 200} \left[\frac{23,600 \times .85}{2205} \right]^{10/3} = 130,986 \text{ hours}$$

Operating Data	Symbol	Value
Horsepower	HP	30
Speed	RPM	200
L-10 Life required	-	80,000 Hrs.
"K" Factor, page D-45	K_{v-belt}	2
"K" Factor, page D-45	K_{chain}	1
Sprocket Pitch Dia.	PD_{chain}	10"
Sheave Pitch Dia.	PD_{v-belt}	15"
Bearing "A" to "B"	c	20"
Bearing "A" to sheave	d_{v-belt}	10"
Bearing "A" to sprocket	d_{chain}	30"
Bearing "B" to sheave	e_{v-belt}	10"
Bearing "B" to sprocket	e_{chain}	10"

Radial force on shaft from chain drive (f_{chain}) is calculated by using Formula (1) page D-48.

$$F_{chain} = \frac{HP \times 126,000 \times K}{PD \times RPM} = \frac{30 \times 126,000 \times 1}{10 \times 200} = 1890 \text{ lbs.}$$

(NOTE: Chain pull in this case is downward)

Radial force on shaft from V-Belt power take-off (F_{v-belt}) is calculated by using Formula (1), page D-48.

$$F_{v-belt} = \frac{HP \times 126,000 \times K}{PD \times RPM} = \frac{30 \times 126,000 \times 2}{15 \times 200} = 2520 \text{ lbs.}$$

(NOTE: V-belt pull in this case is upward)

Radial load on bearings is now determined by combining resulting loads from both chain pull and V-Belt pull using Formula (3) and (4) page D-49.

Size Code	2000 Series Bearings	3000 Series Bearings	5000 Series Bearings	9000 Series Bearings	C Rating	C _s Rating	Life (hrs)	RADIAL LOAD RATING TABLE (LBS.)														
								SPEED (rpm)														
								50	100	200	300	400	500	750	1000	1250	1500	1750	2000	2500	3000	3500

7	2203 2204	3203	5200 5203	9115 9200	23,600	31,800	5000 15000 80000	*	*	*	*	5616	5253	4651	4266	3990	3778	3607	*	*	4973	4403	4039	3778	3345	3068	2870	2717	2594	2492	4562	3705	3009	2665	2444	2286	2024	1857	1736	1644	1570	1508	1410
---	--------------	------	--------------	--------------	--------	--------	------------------------	---	---	---	---	------	------	------	------	------	------	------	---	---	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

*Load exceeds 25% of C rating, consult Rexnord.

Values in the table represent the 9000 series bearing or press fit mounting of the 2000, 3000 and 5000 series bearings. When commercial shafting and clearance mounting are used, the table value should be reduced up to 5% for the 5000 series, 10% reduction for 3000 and reduced up to 15% for the 2000 series.

The values shown in the following RADIAL LOAD RATING TABLE are used to select the most economical bearing capable of sustaining the required speed and load for the desired life. Do not depend entirely on the rated capacity to judge how well the complete mounted unit will perform. Environmental and maintenance conditions can detract from this performance.

The realistic approach to mounted bearing application is to consider "theoretical" rated capacity of the base bearing plus the housing design, seals, method of securing to shaft, lubrication, etc., as they effect the desired life expectancy and the economics of overall equipment design.

BASIS OF LOAD RATINGS - The Anti-Friction Bearing Manufacturer's Association (AFBMA), recommends the use of a standard formula for determining the basic rating of anti-friction bearings. The use of the formula determines the rating for any given bearing and is based upon failure from surface contact fatigue of the roller or race material.

The AFBMA Basic Load Rating definition may be thought of as having two basic principles involved; one being of a physical nature relating to a load carrying ability (Basic Load Rating) and the other taking into consideration failure level or probability of bearing survival (Rating Life).

The definitions of these principles are:

1. The "Basic Load Rating" of a bearing is that consistent stationary equivalent radial load which a group of apparently identical roller bearings with stationary outer ring can endure for one million revolutions of the inner ring.
2. The "Rating Life" of a group of apparently identical bearings is defined as "the number of revolutions that 90% of a group of bearings will complete or exceed before first evidence of fatigue develops." This is often referred to as L-10 or B-10 Life.

C RATING

The common industry term "C" Rating inter-relates these two rating conditions. The "C" Rating is defined as "the equivalent radial load which may be imposed on the bearings to give an L-10 (B-10) life of one million revolutions" (500 hours at 33 $\frac{1}{3}$ rpm). The "C" Rating is calculated from an empirical formula based on size and geometry.

The empirical relationship is based on assumptions in several important areas; i.e., press fit mounting to shaft, adequate mineral oil lubrication, no misalignment, uniform loading, moderate speed and temperature, absolute cleanliness, etc.

While it would appear logical that all bearings of identical geometry, dimensions and material should produce identical results under identical conditions, in reality, due to variations within specified tolerances of material and manufacturing, failures will occur at random periods of life. Ideally these failures should still result from metal fatigue rather than physical wear of the components.

The "C" Rating can be expanded into combinations of load and speed to life hours by utilizing specified load-life relationships. These may then be referred to as the capacity ratings for any speed and life hours with the implied "L-10" survival probability consideration. This load rating for a given life condition is often termed CAPACITY RATING OR RATED CAPACITY and are shown in the Load Rating Table.

C. RATING

The Basic Static Capacity (Co) is that amount of radial or equivalent radial load that can be imposed on a non-rotating bearing without producing excessive brinelling. This rating applies to the performance of the internal parts of the roller bearing. For the vast majority of applications, a bearing can be run normally after sustaining a static load of Co. First fracture of primary race components does not occur until well above the Co Rating. Co does not necessarily represent static strength of the housing or structure in which the bearing is mounted.

CONDITIONS AFFECTING RATED LIFE

When the bearings are mounted in commercial housings and offered as a "package" to the user it should then be understood that the values shown in the catalog Load Rating Tables apply only to the base bearing under laboratory conditions. Common application factors which have an adverse effect on rated life are:

- 1 - Improper mounting (alignments, fit up to shaft)
- 2 - Contamination by abrasive or corrosive material
- 3 - Non-uniform load or vibration
- 4 - Inadequate or improper lubrication
- 5 - Excessive temperature or temperature change
- 6 - Excessive speed

The base bearing when mounted in a commercial housing frequently fails from other causes before it reaches the theoretical basis for the rated life. Thus, selection of housing style, seal type, mounting method, specific lubricant, etc., must also be considered to optimize life on the actual application.

ADJUSTED RATING LIFE

While actual results or "usable" bearing life is the primary interest of both those who design and those who utilize bearings, a great many factors impact the translation of "theoretical" rated capacity into actual performance. Once the theoretical bearing L₁₀ life has been calculated, it can be adjusted for higher reliability, special bearing material properties, and/or operating condition effects on lubrication. Detailed information can be obtained from the Rex Engineering Department.

RADIAL LOAD RATING TABLE

The following Radial Load Rating Table is for the 2000 Series Normal Duty, 3000 Series Medium Duty, 5000 Series Heavy Duty, and 9000 Series Adapter Sleeve Bearings. The Radial Load Rating Table contains rated load capacities for various combinations of bearing L₁₀ life and speed. These capacities are derived from the L₁₀ life formula and C Rating.

For the 2000, 3000 and 5000 Series only, the values in the Radial Load Rating Table must be derated to reflect their slide fit to the shaft. If a 2000 Series bearing has a slide fit to the shaft, the radial loads in the table should be reduced by up to 15%. If a 3000 Series bearing has a slide fit to the shaft, the radial loads in the table should be reduced by up to 10%. If a 5000 Series bearing has a slide fit to the shaft, the radial loads in the table should be reduced by up to 5%. However, if these bearings are press fit to the shaft, then the full rated loads in the table may be used.

The 9000 Series Adapter Sleeve Bearing load capacities are as given in the Radial Load Rating Table because it has full contact to the shaft.

Size Code	2000 Series Bearings	3000 Series Bearings	5000 Series Bearings	9000 Series Bearings	C Rating	C _r Rating	Life (hrs)	RADIAL LOAD RATING TABLE (LBS.)															
								SPEED (rpm)															
								50	100	200	300	400	500	750	1000	1250	1500	1750	2000	2500	3000	3500	
2	2012				8,600	9,100	5000	*	*	*	*	2039	1907	1688	1548	1448	1371	1309	1258	1176	1114	1063	
	2015						15000	*	*	1805	1598	1466	1371	1214	1114	1041	986	941	904	846	801	765	
	2100						80000	1656	1345	1092	967	887	830	735	674	630	597	570	547	512	484	463	
3	2102				12,400	14,200	5000	*	*	*	*	2954	2763	2446	2244	2099	1987	1897	1823	1705	1614		
	2103						15000	*	*	2616	2316	2125	1987	1759	1614	1509	1429	1364	1311	1226	1161	1108	
	2104						80000	2399	1949	1583	1402	1286	1202	1065	976	913	865	825	793	742	702	670	
4	2107	3107	5107		13,800	16,000	5000	*	*	*	*	3272	3060	2709	2485	2324	2201	2101	2019	1888			
	2108						15000	*	*	2897	2565	2353	2201	1949	1787	1672	1583	1511	1452	1358	1285		
							80000	2658	2158	1753	1552	1424	1332	1179	1082	1011	958	914	878	821	778	743	
5	2111	3111	5108	5111	17,500	21,300	5000	*	*	*	*	4172	3902	3455	3169	2964	2806	2679	2574				
	2112						15000	*	*	3694	3271	3001	2806	2485	2279	2132	2018	1927	1851	1731			
							80000	3389	2752	2236	1980	1816	1698	1504	1379	1290	1221	1166	1120	1048	992		
6	2115	3115	5115		20,300	26,200	5000	*	*	*	*	4822	4510	3993	3663	3426	3243	3097	2975				
	2200						15000	*	*	4270	3781	3468	3243	2872	2634	2464	2333	2227	2140	2001			
							80000	3917	3181	2584	2288	2099	1963	1738	1594	1491	1411	1348	1295	1211	1146		
7	2203	3203	5200	5203	23,600	31,800	5000	*	*	*	*	5616	5253	4651	4266	3990	3778	3607					
	2204						15000	*	*	4973	4403	4039	3778	3345	3068	2870	2717	2594	2492				
							80000	4562	3705	3009	2665	2444	2286	2024	1857	1736	1644	1570	1508	1410			
8	2206	3207	5207	9203	28,100	37,500	5000	*	*	*	*	6671	6239	5525	5068	4740	4487						
	2207	3208					15000	*	*	5907	5231	4798	4487	3973	3645	3409	3227	3081					
	2208						80000	5419	4401	3575	3165	2904	2716	2405	2206	2063	1953	1865	1791				
9	2211	3211	5208	5211	40,600	55,700	5000	*	*	*	*	9661	9036	8001	7339	6864	6499						
	2212	3215	5211	5215			15000	*	*	8555	7575	6949	6499	5754	5278	4937	4674	4463					
	2215						80000	7847	6374	5177	4584	4205	3933	3482	3194	2987	2828	2701	2594				
10	2303	3307	5303	5307	51,100	75,200	5000	*	*	*	*	12141	11355	10054	9223	8626							
	2307	3308					15000	*	*	10750	9519	8732	8166	7231	6633	6204	5873						
	2308						80000	9861	8010	6506	5761	5284	4942	4376	4014	3754	3554	3394					
11	2311	3315	5311	5315	89,600	127,500	5000	*	*	*	*	21301	19921	17640	16181								
	2315						15000	*	*	18861	16701	15320	14328	12687	11638	10884							
	2400						80000	17301	14053	11415	10107	9271	8671	7678	7043	6587	6236						
12	5403Y	9311Y	9315Y	9400Y	101,300	144,800	5000	*	*	*	*	24081	22522	19943									
	5407Y	9315Y	9400Y				15000	*	*	21323	18881	17320	16198	14343	13157								
	5408Y						80000	19560	15888	12905	11427	10482	9803	8680	7962	7447							
13	5415	9403	9407		133,800	221,700	5000	*	*	*	*	31802	29743										
	5500						15000	*	*	28160	24935	22873	21392	18942									
							80000	25831	20981	17042	15090	13842	12946	11463	10515								
14	5507	9415	9407		171,500	282,400	5000	*	*	*	*	40785	38144										
							15000	*	*	36114	31978	29334	27434	24292									
							80000	33128	26908	21856	19353	17753	16603	14701	13486								
15	5515	9503	9507		184,500	310,600	5000	*	*	*	*	43888	41046										
	5600						15000	*	*	38861	34410	31565	29521	26140									
							80000	35648	28955	23519	20825	19103	17866	15820	14512								
16	5607	9515	9600	9607	210,800	361,500	5000	*	*	*	*	50144											
	5615						15000	*	*	44400	39315	36064	33729										
	5700						80000	40729	33082	26871	23793	21826	20413	18075									

*Load exceeds 25% of C rating, consult Rexnord.

Values in the table represent the 9000 series bearing or press fit mounting of the 2000, 3000 and 5000 series bearings. When commercial shafting and clearance mounting are used, the table value should be reduced up to 5% for the 5000 series, 10% reduction for 3000 and reduced up to 15% for the 2000 series.

Ratings in bold type may require additional axial clearance and/or high speed temperature lubricant due to higher operating temperatures. Also, check seal speed limit table on page D-58.

THEORETICAL BEARING L₁₀ LIFE CALCULATION

While bearings are usually selected on the basis of capacity, there are occasions when they are selected based on calculated L₁₀ life. The L₁₀ life is defined as the number of revolutions (or hours) that 90% of a group of bearings will meet or exceed before evidence of raceway spalling fatigue occurs. The L₁₀ life can be calculated using the following empirical formula:

$$L_{10} = \frac{1 \times 10^6}{60 \times \text{RPM}} \left[\frac{C}{P_e} \right]^{10/3} = \text{life in hours}$$

where C = C Rating
P_e = Equivalent Radial Load or Req'd Radial Capacity

The basic dynamic load ratings, C, in this catalog have been increased significantly compared to previous values. Improved surface characteristics have been produced primarily by improving manufacturing and measuring techniques for the race surfaces. Along with the capability to rotate under higher loads, the static load ratings, C₀, have also been increased.

With the larger load ratings it may be possible to use smaller bearings (size code) for a given application. Caution is advised in such cases to consider the strength of the shaft and housing-especially when the applied load is not aimed directly into the machined mounting surface.

VIBRATION ANALYSIS AND DEFECT FREQUENCY INFORMATION

Vibration analysis equipment is used to chart the amplitude and frequency of vibration on key areas of a machine. The theory behind predictive maintenance programs is to predict failures in order to reduce downtime costs. This way parts can be ordered and replaced on scheduled downtime without interrupting production.

Instructions: To determine the defect frequency for the inner race, outer race, roller, or retainer of any Rex industrial roller bearing follow these steps:

- 1) Determine the size code of the bearing in question. The size code may be found on Page D-40.
- 2) Refer to the table below. Locate the correct size code (2-16) in the first column. Look horizontally across the table to determine the defect frequency constant (Cdf) for each component.
- 3) Substitute the defect frequency constant into Equation 1, found below, to determine the defect frequency in Hertz.

Defect Frequency Constant (Cdf)

SIZE CODE	OUTER RACE	INNER RACE	ROLLER	RETAINER
2	0.0865	0.1135	0.1150	0.0072
3	0.0940	0.1226	0.1185	0.0072
4	0.0945	0.1222	0.1233	0.0073
5	0.1024	0.1309	0.1290	0.0073
6	0.1182	0.1484	0.1402	0.0074
7	0.1192	0.1475	0.1499	0.0074
8	0.1186	0.1480	0.1442	0.0074
9	0.1183	0.1483	0.1412	0.0074
10	0.1345	0.1655	0.1543	0.0075
11	0.1167	0.1499	0.1278	0.0073
12	0.1238	0.1595	0.1269	0.0073
13	0.1158	0.1509	0.1212	0.0072
14	0.1080	0.1420	0.1171	0.0072
15	0.1158	0.1509	0.1213	0.0072
16	0.1162	0.1505	0.1248	0.0073

Equation 1: Df = Cdf X (RPM)
 Df = Defect frequency measured in Hertz
 Cdf = Defect frequency constant found in table
 RPM = Operating speed of the bearing in revolutions per minute

NOTE: Vibration analysis is only effective as a trend analysis tool. It must be part of a thoroughly planned program that establishes "norms" for each individual piece of equipment. Significant variations from these norms may then point to a problem. The problems must then be sized accordingly; does something need to be replaced, does it just need to be greased or adjusted? The "norms" must be well established in order to recognize an abnormal condition.

The choice of the seal for a mounted bearing is often the key to successful bearing operation and long service life. This SEAL SELECTION GUIDE incorporates years of Rex experience against the wide variety of conditions encountered on actual applications. Following the simple selection procedure outlined can translate the benefits of that broad experience to individual applications through the choice of the most effective seal.

How to Use the Selection Guide

- The appropriate seal for a given application may be selected by comparing the job application conditions against those listed in the SEAL RATING GUIDE on this page.
- When more than one application condition is present, the most appropriate seal may be selected based on prime sealing for the most detrimental condition, and secondary consideration given to the other application conditions.
- If further evaluation of the seals must be made, then refer to the GENERAL DESIGN AND CHARACTERISTIC GUIDE on Page D-59. The details of design, principle of operation, benefits and limitations, as well as shaft size range are described as a further aid to final selection.
- Addition of auxiliary caps will enhance the primary seal performance shown in the chart.

Considerations in Addition to Seal Selection

Under certain adverse conditions, other changes should be considered to achieve maximum bearing life:

- High temperature lubricants where housing or ambient temperatures exceed +200°F.
- Special greases for additional bearing protection where excessive water, solvents or chemicals are present.
- EP (extreme pressure) greases where high load, high shock load, or continuous vibration is present.
- Changes in amount of lubricant and cycles for relubrication periods. Consult "Lubrication Table" on Page D-64.
- Readjustment of internal operating clearance of bearing where extreme high or low temperature conditions exist.

Seal Rating Guide

Application Conditions	Seals Rating		
	Clearance	Light Contact	Heavy Contact
	Z	K	M
SHAFT POSITION			
Horizontal Shaft	4	4	4
Vertical Shaft	1	3	4
OPERATING TEMPERATURE			
Below -40°F	4	1	1
-40° to 0°F	4	3	3
0° to +250°F	4	4	4
+250° to +300°F	4	2	2
Over 300°F	4	0	0
SPEED			
Equal to / Less than limit below	4	4	4
More than limit below	4	2	1
VIBRATION/SHOCK			
Occasional - Mild	3	4	4
Occasional - Severe	2	4	4
Continuous - Mild	1	4	3
Continuous - Severe	0	4	3
ABRASIVE MATERIAL			
Coarse - Over #10 Mesh	4	4	3
Small - #10 to #50 Mesh	3	4	4
Fine - #50 to #200 Mesh	1	3	4
Very fine - Under #200 Mesh	0	3	4
"Caking or buildup" (cement, etc.)	2	4	3
MOISTURE			
Splash	2	3	4
Rain	2	3	4
Saturated Atmosphere	1	3	4
Flooding	0	1	3
Pressure Wash	0	1	4
FIBROUS MATERIAL			
Short Fibers (lint, etc.)	1	3	4
Long Fibers (grass, etc.)	1	3	2
CHEMICAL			
Acid Fumes and Liquids	1	1	1
Alkaline Fumes and Liquids	1	1	1

Application experiences indicate that special consideration should be given to the addition of Auxiliary Cap Seals in the shaded areas on the chart.

Rating Code

- 4 - Excellent - Best seal for conditions listed.
- 3 - Good - Sealability is above average.
- 2 - Fair - Seal performs under intermittent conditions.
- 1 - Limited - Actual conditions must be known to evaluate sealability. Check "General Characteristic Guide" page D-59 for construction as well as benefits and limitations for further evaluation.
- 0 - Not acceptable - Will not effectively perform seal functions. Contact Rexnord for special assistance in the realm of materials and designs.

Seal Speed Limit Table

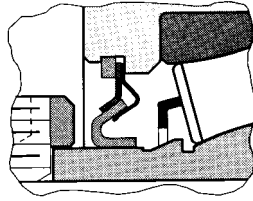
Size Code	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Bearing Number	2000	2012 2015 2100	2102 2103 2104	2107 2108	2111 2112	2115 2200	2203 2204	2206 2207 2208	2211 2212 2215 2300	2303 2307 2308	2311 2315 2400					
	3000			3107	3111	3115	3203	3207 3208	3211 3215	3307 3308	3315					
	5000			5107	5108 5111	5115	5200 5203	5207	5208 5211 5215	5303 5307	5311 5315 5400	5403Y 5407Y	5415 5500	5507	5515 5600	5607 5615 5700
	9000							9115 9200	9203	9207 9208	9211 9215 9300	9303 9307	9311Y 9315Y 9400Y	9403 9407	9415 9500	9503 9507	9515 9600 9607
(RPM)	Z	4500	4000	3600	3100	2800	2500	2300	1900	1700	1400	1300	1100	1000	900	800
	K	4500	4000	3600	3100	2800	2500	2300	1900	1700	1400					
	M	4400	3700	3300	2800	2500	2200	2000	1700	1400	1200	1100	1000	900	800	700
Size Code	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

Refer to Seal Rating Guide shown above for speeds in excess of those listed in this table.

GENERAL DESIGN AND CHARACTERISTIC GUIDE

“Z” SEAL

Clearance Type - Single Labyrinth



Furnished as standard, is all metal and accommodates misalignment up to 3° included angle. Seal composed of retaining ring, seal centering ring, seal element and spring washer.

Size Range: All sizes.

Prefix “Z” in model number denotes this seal.

Design Advantages

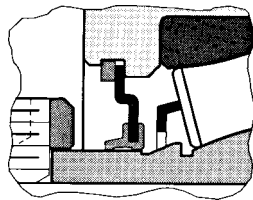
- Continual compensating self-alignment.
- No seal drag.
- No speed limitations within range of bearing.
- No temperature limitations within range of bearing.

Design Limitations

- Clearance type - fine materials; liquids can pass.
- Long fibrous materials can catch in seal clearance area causing seal element to rotate, resulting in possible seal failure.
- May be affected by chemicals.
- Vibration may cause parts to wear.

“K” SEAL

Light Contact Type - Cantilevered Lip



Available as alternate, can be field installed in any style housing. Accommodates misalignment up to 3° included angle. Seal composed of nitrile rubber and steel in one piece assembly.

Size Range: 2000, 3000, 5000 Series through 4" shaft size, 9000 Series through 37/16" shaft size.

Prefix “K” in model number denotes seal.

Design Advantages

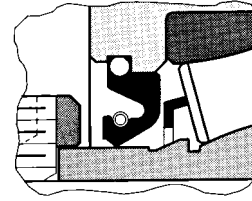
- Continual compensating self-alignment.
- No speed limitations within range of bearing.
- Contact lip seal.
- Seals against contaminants.

Design Limitations

- Temperature limit -40° to +250°F continuous, 300°F intermittent.
- Seal lip pressure on inner race hub results in higher operating temperature of complete unit than with “Z” seal.
- Some chemicals can affect nitrile rubber.

“M” SEAL

Heavy Contact Type - Spring Loaded Lip



Available as alternate, can be field installed in any style housing. Accommodates misalignment up to 3° included angle. Seal composed of nitrile rubber with compression spring on O.D. for retention in housing groove, and tension spring on lip for positive sealing.

Size Range: All sizes.

Prefix “M” in model number denotes this seal.

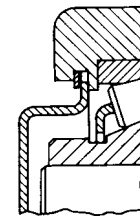
Design Advantages

- Continual compensating self-alignment.
- Continual spring pressure contact.
- Seals against liquids.
- Seals against fine material.
- Seals on vertical shafts.

Design Limitations

- Temperature limit -40° to 250°F continuous, 300°F intermittent.
- Constant seal lip pressure on inner race hub results in higher operating temperature of complete unit than with “Z” seal.
- Speed limit = 1500 SFM.
- Some chemicals can affect nitrile rubber.

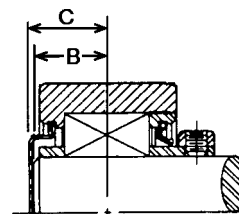
CLOSED END SHIELD



Steel stamping mounts in seal groove and completely encloses all rotating parts.

Size Range: For use on non-collar end of the 2000 or 3000 Series or the non-nut end of the 9000 Series thru size code 11.

Suffix “C” after model number denotes closed end shield.



Size Code	B	C
4	1 1/16	1 3/8
5	1 1/16	1 1/2
6	1 1/16	1 7/16
7	1 1/16	1 1/2
8	1 7/16	1 3/8
9	1 3/8	1 3/8
10	1 13/16	2
11	2 1/8	2 5/16

AUXILIARY CAP SEALS

Rex[®] Roller Bearings



Open End Cap Seal

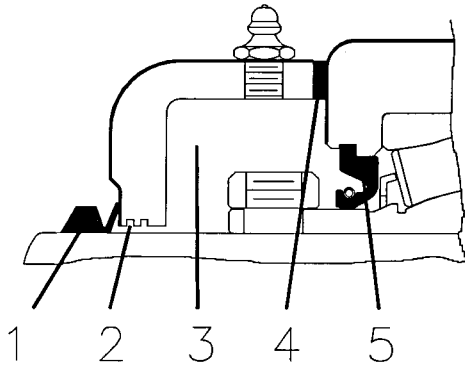
Rex auxiliary cap seals are designed for optimum protection of the bearing against harsh environments. The heavy cast iron cap shields the bearing components and primary seal from flying debris. The V-ring face seal, labyrinth and grease cavity provide added sealing capability against all types of contamination. The caps also enclose all rotating parts of the bearing in a rugged protective case for safer operation.

Open style caps are utilized most often because they allow for the shaft to pass through the cap. Closed style caps should be used whenever the shaft ends at the bearing. The closed cap completely seals off one side of the bearing.



Closed End Cap Seal

The Rex auxiliary cap 5-point protection plan.



Rex auxiliary caps increase the life of critical bearings and reduce costly downtime by sealing out harmful contaminants. Auxiliary caps provide five independent barriers to exclude all types of contamination.

Seal 1. A Nitrile rubber V-ring seal is press fit onto the shaft against the machined face of the auxiliary cap. The V-ring seal rotates with the shaft to act as a slinger as well as a contact seal.

Seal 2. The machined multi-groove labyrinth provides a second barrier without damaging expensive shafts.

Seal 3. The large cavity can be left empty to trap dry contaminants or filled with grease to repel moisture.

Seal 4. A pliable neoprene gasket provides a positive static seal between the cap and the housing.

Seal 5. The primary bearing seal is left in position to provide a final barrier. The Z, K, or M seal may be chosen to best fit the application.

Things to know About Auxiliary Caps

- All caps are made from cast iron and are securely bolted to the housing.
- The cap shields the primary seal from falling debris and high pressure washdowns.
- The set screws in the set collar can be accessed through the grease fitting hole in the cap for mounting in tight spaces.
- The caps are self cleaning. As clean grease is purged from the bearing to the cap old grease is cleared away from the primary seal lip. The old grease is then purged from the cap when fresh grease is pumped into the cap fitting.
- Rex caps allow for dynamic misalignment up to 2° included angle.
- Mounting of the auxiliary caps requires that the housings be drilled and tapped.
- The V-ring seals are available in Viton material for high temperature and harsh chemical environments.
- Auxiliary caps are available on all Rex bearings unless specially foot-noted on the bearing dimension page.
- Auxiliary caps may be purchased in kits separate from the bearings. (See below)

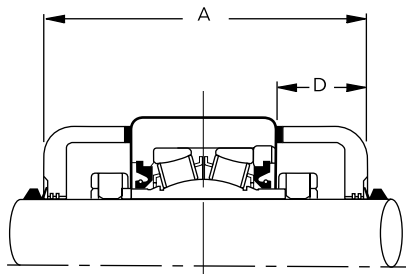
Auxiliary Cap Kits

Auxiliary caps can be purchased in kits to replace existing caps or mount to any pre-drilled and tapped housing. Each closed cap kit includes: one closed cap, one neoprene gasket, one pipe plug in the grease fitting hole, and the mounting cap screws. Each open cap kit replaces the pipe plug with a grease fitting and adds a V-ring seal.

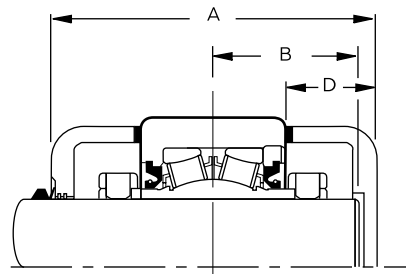
Kit Nomenclature

		A	S	9	-	2	1	5
CAP STYLE	A OPEN CAP B CLOSED CAP							
HOUSING TYPE	S FLOATING TYPE * LEAVE BLANK FOR FIXED TYPE							
SIZE CODE	4-16 BEARING SIZE CODE FROM DIMENSION PAGE							
SHAFT DIAMETER	215 * 2 ¹⁵ / ₁₆ " LAST TWO DIGITS IN 16TH OF AN INCH NOT REQUIRED FOR CLOSED STYLE CAPS							

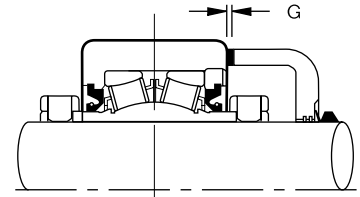
AUXILIARY CAP SEALS



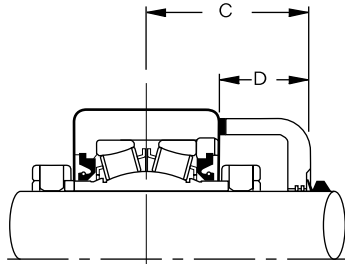
"A" Prefix
(Two Open Caps)
Example: AMA5207▲



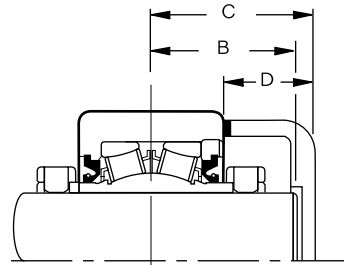
"B" Prefix
(1 Open & 1 Closed Cap)
Example: BMA5207▲



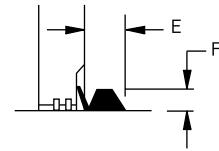
Gasket
Thickness



"A" Suffix
(One Open Cap)
Example: MA5207A▲



"B" Suffix
(One Closed Cap)
Example: MA5207B▲



V-Ring Seal Detail

DIMENSIONS

Bearing Number				Size Code	Cast Iron Auxiliary Cap										V-Ring Seal		Gasket
					Fixed Bearings Only				Floating (Expansion) Bearings Only								
2000	3000	5000	9000		A	B	C	D*	A	B	C	D*	E	F	G		
2107 2108	3107	5107		4	5 ⁵ / ₁₆	2 ⁵ / ₁₆	2 ¹¹ / ₁₆	1 ¹ / ₁₆	5 ¹ / ₂	2 ³ / ₈	2 ³ / ₄	1 ¹⁷ / ₃₂	5 ⁵ / ₁₆	3 ³ / ₁₆			
2111 2112	3111	5108 5111		5	5 ¹ / ₂	2 ⁷ / ₁₆	2 ³ / ₄	1 ¹⁷ / ₃₂	5 ³ / ₄	2 ¹ / ₂	2 ⁷ / ₈	1 ¹⁵ / ₃₂					
2115 2200	3115	5115		6	5 ⁵ / ₁₆	2 ⁷ / ₁₆	2 ¹³ / ₁₆	1 ¹ / ₁₆	5 ³ / ₄	2 ¹ / ₂	2 ⁷ / ₈	1 ¹⁷ / ₃₂					
2203 2204	3203	5200 5203	9115 9200	7	5 ³ / ₄	2 ¹ / ₂	2 ⁷ / ₈	1 ¹⁹ / ₃₂	6 ¹ / ₁₆	2 ⁵ / ₈	3 ¹ / ₁₆	1 ²¹ / ₃₂	3 ³ / ₈	3 ³ / ₁₆			
2206 2207 2208	3207 3208	5207	9203	8	6 ¹ / ₁₆	2 ³ / ₄	3 ¹ / ₁₆	1 ²³ / ₃₂	6 ⁵ / ₁₆	2 ³ / ₄	3 ³ / ₁₆	1 ²³ / ₃₂					
2211 2212 2215 2300	3211 3215	5208 5211 5215	9207 9208	9	7	3 ¹ / ₈	3 ¹ / ₂	1 ¹⁵ / ₁₆	6 ¹⁵ / ₁₆	3 ¹ / ₁₆	3 ¹ / ₂	1 ²⁵ / ₃₂					
2303 2307 2308	3307 3308	5303 5307	9211 9215 9300	10	6 ¹ / ₁₆	3 ¹ / ₁₆	3 ¹ / ₂	1 ¹³ / ₁₆	7 ³ / ₈	3 ⁵ / ₁₆	3 ¹¹ / ₁₆	1 ²⁹ / ₃₂	7 ¹ / ₁₆	1 ¹ / ₄	3 ³ / ₁₆		
2311 2315 2400	3315	5311 5315 5400	9303 9307	11	8 ⁵ / ₁₆	3 ³ / ₈	4 ³ / ₁₆	2 ⁵ / ₃₂	8 ⁵ / ₁₆	3 ³ / ₄	4 ⁵ / ₁₆	2 ⁵ / ₃₂					
		5403Y 5407Y 5408Y	9311Y 9315Y 9400Y	12	8 ¹ / ₂	3 ³ / ₄	4 ¹ / ₄	2 ³ / ₁₆	9 ⁵ / ₁₆	4 ⁵ / ₁₆	4 ¹¹ / ₁₆	2 ¹ / ₂					
		5415 5500	9403 9407	13	10 ¹ / ₈	4 ¹ / ₂	5 ¹ / ₁₆	2 ²⁹ / ₃₂	10 ⁹ / ₁₆	4 ³ / ₄	5 ⁵ / ₁₆	2 ²⁹ / ₃₂	9 ¹ / ₁₆	5 ¹ / ₁₆			
		5507	9415 9500	14	10 ¹ / ₈	4 ¹ / ₂	5 ¹ / ₁₆	2 ²⁹ / ₃₂	11 ¹ / ₁₆	5	5 ⁵ / ₁₆	2 ⁵ / ₈					
		5515 5600	9503 9507	15	11 ¹ / ₁₆	4 ¹⁵ / ₁₆	5 ⁵ / ₁₆	2 ⁵ / ₈	11 ¹ / ₂	4 ¹⁵ / ₁₆	5 ³ / ₄	2 ³ / ₄					
		5607 5615 5700	9515 9600 9607	16	11 ³ / ₁₆	5	5 ⁵ / ₈	2 ¹ / ₂	11 ⁵ / ₈	5 ¹ / ₄	5 ¹³ / ₁₆	2 ⁵ / ₈	5 ⁵ / ₈	3 ³ / ₈			

Note: Dimensions subject to change. Certified dimensions of ordered material furnished on request.

*D Dimension includes cap height and gasket thickness less 1/16" for gasket compression.

▲See Page D-4 for complete nomenclature information.

INTRODUCTION TO INSTALLATION

To assure the satisfactory performance of units carefully selected for particular job requirements, a few simple installation and maintenance practices should be followed.

A prerequisite to proper installation is a straight, clean shaft, free of burrs, and within specified tolerances at the bearing journal areas.

Also, since units are prelubricated at the factory, no additional lubricant needs to be added at time of installation.

Set Collar Bearings - Fixed Units Only

STEP 1. Slide and position all bearings on the shaft applying all driving pressure to the FACE of the inner race.

STEP 2. Align each bearing housing as accurately as possible to its mounting base or frame, by measuring from the face of the inner race to the face of the threaded cover.

Where shimming is required - use full shims across housing base - not just at bolt holes.

STEP 3. Bolt housing securely to mounting base.

STEP 4. Tighten the set collar set screws of bearing closest to drive (or most important to axial location of shaft.) **The remaining bearings should not be secured to the shaft at this time.**

Proper tightening torque can be found in the Set Screw Torque Table. This will distort the set collars and spring load the set screws to prevent their loosening during operation. Alternate torquing of the screws to prevent unequal loading of the set screws. If an Allen wrench is used as torque wrench - place length of pipe over long end and pull until wrench begins to twist.

Step 4a. **Twist Lock Only.** Slide collar over the shaft until it nests over the cam on the inner ring. Do this on the bearing closest to the drive (or the most important to axial location of the shaft). Now rotate the collar in the direction of normal shaft rotation until snug. Utilizing a hammer and punch, rotate the collar until tight.

STEP 5. Rotate shaft under power to permit the remaining bearings to seek their natural running position on the shaft.

STEP 6. Shut off the power and torque down all set screws in remaining bearings using procedure in STEP 4.

Floating Units Only

STEP 1. Center cartridge in outer housing. However, if maximum floating provision is required to allow for elongation of shaft due to wide temperature differential, place cartridge in extreme position of outer housing to permit full movement of cartridge in direction of floating unit.

STEP 2. The remainder of the installation procedure is the same as fixed units, follow STEPS 2, 3, and 4 above.

Set Screw Torque Table

Shaft Size - Inches			Size Code	Set Screw Size - Inches	Tightening Torque Inch Pounds
Normal Duty Series 2000	Medium Duty Series 3000	Heavy Duty Series 5000			
3/4-1 1/4	...	...	2 thru 3	5/16	125
1 7/16-2	1 7/16 thru 1 15/16	1 7/16-1 15/16	4 thru 6	3/8	225
2 3/16-2 1/4	2 3/16	2-2 3/16	7	7/16	325
2 3/8-3 1/2	2 7/16 thru 3 1/2	2 7/16-3 1/8	8 thru 10	1/2	475
3 1/16-4	3 1/16	3 1/16-5 7/16	11 thru 14	5/8	1150
...	...	5 15/16-7	15 and 16	3/4	1600

Adapter Bearings

STEP 1.

A. Free tapered split sleeve in bore of bearing by backing off lock nut and rapping face of lock nut. Coat o.d. of sleeve and shaft with anti-fretting compound (recommended to aid removal from shaft.)

B. Slide and position all bearings on shaft with FIXED bearing closest to drive (or most important to axial location of shaft).

STEP 2. Position and loosely bolt housing to mounting base.

STEP 3. Secure fixed bearing to shaft by tightening lock nut until sleeve grips shaft, then give 1/2-3/4 more turn and bend one of the tongs of the lock washer into one of the slots on the O.D. of lock nut.

STEP 4. Center cartridge in FLOATING housing. However, if maximum floating provision is required to allow for elongation of shaft due to wide temperature differential, place cartridge in extreme position of outer housing to permit full movement of cartridge in direction of floating. Secure bearing to shaft as in STEP 3.

STEP 5. Align each bearing housing as accurately as possible, to its mounting base or frame, by measuring from the face of the inner race to the face of the threaded cover.

STEP 6. Bolt housing securely to mounting base.

Where shimming is required - use full shims across housing base - not just at bolt holes.

STEP 7. Operate bearing under full load for several days to permit seating of bearing and sleeve on the shaft then shutdown the system. Re-tighten lock nuts on all bearings.

Other Installation Comments

In some applications, additional installation considerations should be made to obtain maximum benefit from basic selection.

Units should be mounted such that grease fittings are readily accessible.

When used, the thrust collar or shoulder should contact the inner ring hub extension, not the set collar or adapter lock nut. If extremely large thrust loads are encountered, it is often best to arrange the housing such that the thrust load is transferred into the housing toward the shoulder side opposite the threaded cover - this is particularly important if there is a variation in the magnitude of the thrust loading.

Frequently, when mounting a set screw type holding device, it is best to seat the set screw, tap it tightly, and then retighten, since this additional effort will improve "seating" of the set screw against the shaft surface.

Also, spot drilling or milling of flats on the shaft may be used to increase holding power.

Many special arrangements can aid in holding set screws in position such as locking wire, upsetting of threads in collar after seating, etc., if application conditions are severe enough to cause set screws to loosen.

Also, when set screws are used in conjunction with an eccentric load condition, the set screws should be positioned directly opposite from eccentric weight to assure placing maximum load against inner race bore - not set screw points.

When mounted on an inclined plane, lateral bolts or welded "stops" are often added to aid in positioning blocks and to prevent shifting.

Duplex Units

When mounting Duplex Units, place end plate (bolted cover with pilot) into bore of housing; press first outer race until it seats against this pilot; insert inner race assembly and turn to free rollers; press in second outer race; turn inner race assembly so rollers are free, then seat second outer race.

Using shims as a feeler, determine exact amount required to fill space between housing face and bolted cover, adding .010-inch shims for bearing adjustment on units through 3 1/2" shaft size and .015-inch shims on larger units. After unit is bolted together, free the bearing by pressing or striking inner race on the side opposite the shim adjustment.

GENERAL INFORMATION AND SELECTION

The information given here will aid proper lubrication for the great majority of Rexnord applications. For special service conditions not covered, consult the Rex Engineering Department.

It is very important that a properly selected bearing for a given application also be properly lubricated. The lubricant in a bearing must reduce friction, protect against corrosion, and seal out contamination.

The four basic factors which govern the choice of a grease are: speed, load, ambient temperature, and operating conditions such as acids, water, fumes, etc.

STANDARD GREASE

All standard Rex factory units except Duplex Units are prelubricated with Mobilith AW2, Grade 2, Lithium complex grease. Under normal operating conditions, a grease of NLGI No. 2 consistency, having a drop point of 150°F above the bearing unit housing temperature, is generally satisfactory.

STANDARD GREASE FILL

Rex Bearings to be applied under average operating conditions should be filled with the amount of grease by weight as shown in the LUBRICATION TABLE using either a grease gun or hand packing operation which will be approximately 1/3 housing capacity.

SPECIAL GREASE APPLICATIONS

For unusual conditions where bearings experience extremes of loads, speeds and/or temperature, special lubricants may be necessary. Various combinations of load-speed-temperature produce widely different effects, but "normal" operation can be expected to result in a housing temperature 30°-60° above ambient. Unusual conditions may increase this temperature differential.

Stated as "Rules of Thumb", the following are guides to the definition of "unusual" conditions:

- HEAVY LOAD - Greater than .25 x C Rating
- HIGH SPEED - Bold Type Ratings in Capacity Table
- HIGH TEMPERATURE - Housing temperature 200°F +
- LOW TEMPERATURE - Housing temperature below 0°F

Choice of a specific type of lubrication, like any selection, should be a joint selection determined by handling most severe requirement first, then accommodating as many other desired results as is possible within the confines of the original selection. Consult the Rex Engineering Department for assistance involving the conditions above.

RELUBRICATION

Bearings should be re-lubricated at regular intervals. The frequency and amount of lubrication will be determined by the RPM, load, operating temperature, contamination level, and the type of service.

Any grease used for relubrication must be compatible with a lithium complex thickener.

When equipment will be idle for sometime, addition of fresh grease before shutting down will assure maximum protection to the bearing races. This is particularly important for equipment exposed to weather.

Mounted units are provided with hydraulic grease fittings to allow periodic relubrication as required. Units for size codes 2-11 are tapped for 1/8-inch pipe tap and units above size code 11 are tapped for 1/4-inch pipe tap.

To insure accurate measurement of the grease required for re-lubrication, a metering grease gun can be used. If a booster type is available determine the number of strokes per ounce of grease by pumping grease onto a sensitive scale. The given number of strokes will give you the required amount of grease.

General guidelines for relubrication procedures i.e., frequency and amount shown in the Lubrication Tables are based upon the average application conditions with standard clearances, moderate loads, etc., which yield housing temperatures of 150°F or less. Lubrication practices indicate that the relubrication frequency should be doubled for every 20°F increase above that level. Individual experience plus specific application conditions i.e., ambient temperature, operating temperature, exposure to fluids, fumes, etc., should be used to develop particular relubrication programs.

CAUTION CONCERNING MIXING OF GREASES

The components within any one good grease (oil, soap, additives) are mutually compatible. However, this does not mean that any two greases, even if apparently of the same type, can be mixed without some physical or performance change. The mixing of any two specific greases should be checked with the lubricant manufacturer.

It is recommended that before changing to a grease with a different base, the original grease should be completely removed with a solvent before re-lubricating.

SOLVENTS

When cleaning bearings, the heavier petroleum solvents, such as kerosene, should be used with caution because they do not evaporate readily. Any small amount left in the bearing cavity will dissolve the new lubricant and change its properties.

OIL LUBRICATION

Rex housing designs do not include oil sumps, thus are not readily used with static oil lubrication. However, recirculating oil systems can be adapted, providing adequate drain size is present and oil tight seals incorporated.

Oils used for adjacent gears are generally suitable for bearings, but the oil should flow freely at all operating temperatures to provide good lubrication. Where necessary, channels or flingers should be provided to insure a continuous supply of oil to the bearings.

LUBRICATION TABLE (Based on 40-hour week)

Shaft Size — Inches				Size Code	Lube Amount		Recommended Number of Months Between Relubrication					
Normal Duty Series 2000	Medium Duty Series 3000	Heavy Duty Series 5000	Adapter Series 9000		To Lubricate Rebuilt Units	To Relubricate Units	RPM					
							100	300	500	1000	1750	3000
3/4-1	2	0.4	0.1	12	8	5	2	1	1/2
1 1/8-1 1/4	...	...	...	thru	0.5	0.1			
1 7/16-1 1/2	1 7/16 - 1 1/2	1 7/16	...	4	0.6	0.1						
1 11/16-1 3/4	1 11/16 - 1 3/4	1 1/2-1 11/16	...	5	0.8	0.2	8	5	3	1	1/2	...
1 15/16-2	1 15/16 - 2	1 15/16	...		0.9	0.2						
2 3/16-2 1/4	2 3/16 - 2 1/4	2-2 3/16	1 15/16-2		1.1	0.2						
2 3/8-2 1/2	2 3/8 - 2 1/2	2 7/16	2 3/16	9	1.5	0.3	6	4	2	1	1/2	...
2 11/16-3	2 11/16 - 3	2 1/2-2 15/16	2 7/16-2 1/2	2.8	0.5							
3 3/16-3 1/2	3 3/16 - 3 1/2	3 3/16-3 7/16	2 11/16-3	10	3.7	0.6						
3 11/16-4	3 11/16 - 4	3 11/16-4	3 3/16-3 7/16	thru	6.9	1.1	4	2	1	1	1/2	...
...	...	4 3/16-4 7/16	3 11/16-4	12	8.4	1.5						
...	...	4 15/16-5	4 3/16-4 7/16	13	14.3	2.5						
...	...	5 7/16	4 15/16-5	thru	22.1	4.0	4	2	1	1/2
...	...	5 15/16-6	5 7/16-5 11/16	16	25.3	4.5						
...	...	6 15/16-7	5 15/16-6 1/16	16	33.0	6.0						

Note: Greases degrade more rapidly at higher operating temperatures. Relubricate more frequently if bearing operating temperature is high, or if severe contamination is present.

A

Adapter Units

- ZP Specifications, Pillow Blocks D15
- ZF Specifications, Flange Blocks D22
- ZMC Specifications, Cartridge Block D30
- Adjustment-Internal Bearing Clearance D45
- Alignment D6, D62
- Application Examples-Bearing Selection D52-D54
- Application, Highspeed D45, D56, D63
- Auxiliary Caps D60, D61
- Axial Clearance D45

B

- Bearing Dimensions D40
- Bearing/Housing Interchangeability D41
- Bearing Replacement Parts D42
- Bearing Retention to Shaft D46, D47
- Bearing Selection D50, D51
- Bearings - Special Tolerance D45

C

- Calculation-Bearing Loads D48, D51
- Cap Seals, Auxiliary D8, D60, D61
- Capacity, Load Rating Table D56
- Cartridge Blocks D27-D30
- Clearance-Internal Bearing D45
- Closed End Shields D8, D59

D

- Dimensions (2000, 3000, 5000, 9000) Series Bearings D40
- Duplex Units D31, D32
- Design Features D1

E

- Eccentric Loads D48
- Elevator Take-Ups D39
- End Shields D8, D59
- Engineering General Information D45-D47
- Examples of Bearing Selection D52-D54
- Expansion Considerations D47

F

Factors

- Drive Belt/Chain Tension D48
- Eccentric Loads D48
- Life Expectancy D55
- Modification D51
- Operation (Shock) D51
- Seal Speed D58
- Thrust D50
- Fit-Up (Bearing to Shaft) D45-D47
- Flange Blocks D17-D22
- Flange Cartridge Blocks D23-D26
- Floating Housings D47

G

- Grease Fitting D63
- Grease-Lubrication D63

H

- High Speed Applications D45, D56, D63
- High Temperature Consideration D45, D63
- Housing Styles D2, D3

I

- Identification, Prefix/Suffix D4
- Installation D62
- Internal Bearing Adjustment D45
- Interchangeability-Bearing/Housings D41

K

- "K" Seal D8, D42, D58, D59
- Kits-Replacement D42, D43

L

- Life Expectancy D55
- Liquid Sealing D58, D59

- Load Calculations D48-D51
- Load Rating, Definition D55
- Load Rating Table D56
- Lubrication D63
- Lubrication Fitting D63

M

- "M" Seal D8, D43, D58, D59
- Maintenance D62, D63
- Metric Bearings D44
- Misalignment D6
- Model Number Identification D4, D5
- Mounting Procedures D62
- Mounting Types D7, D46

N

- Nomenclature D4, D5

O

- Oil Lubrication D63
- Obsolete Nomenclature D5

P

- Parts Kit D42, D43
- Pillow Blocks D9-D16
- Piloted Flange D18, D21, D22
- Precision Bearings D45
- Prefix/Suffix-Identification D4
- Press Fitting Bearings to Shaft D46, D47

R

- Rating Definitions D55
- Rating Tables D56
- Relubrication D63
- Replacement Parts D42, D43
- Retention to Shaft D46, D47
- Run-Out-Radial D45

S

- Seals D8, D58-D61
 - Auxiliary and Closed End Shield D8, D60, D61
 - Replacement Kits (Z, K, M) D43
 - Selection Chart D58

Selection Procedure

- Bearings D48
- Seals D58-D61
- Set Collar Considerations D46, D47, D62
- Set Screw Torque Tables D62
- Shaft Expansion D47
- Shaft Locking Devices D7, D47
- Shaft Tolerance D47
- Shields, End D59
- Shock Considerations D45, D46
- Small Parts Kits D42, D43
- Special Bearings D45
- Steel Pillow Blocks D16
- Suffix/Prefix-Identification D4

T

- Taconite Seal (Auxiliary Caps) D8, D60, D61
- Take-Up Units D33-D39

Temperature Considerations

- Bearings D45
- Lubrication D63
- Seals D58, D59
- Shaft Expansions D47
- Thrust Considerations D50
- Tolerance, Shafting D47
- Torque Table (Set Screw) D62
- Trouble Shooting D45-D47, D62, D63

V

- Vibration Considerations D45, D46, D51

Z

- "Z" Seal D8, D43, D58, D59