

LINEAR MOTION SYSTEMS

Simplicity® Self-lubricated Bearings, Guides, Systems & Slides



800.962.8979 www.pacific-bearing.com



SMOOTH & QUIET LINEAR MOTION™

CONTENTS

MINI RAIL® • Miniature Linear Guides



Product Overview & Technical Information	4
Miniature Linear Guides	5-6
LS/MS Series Miniature Lead Screw Driven Slides	7

LS/MS Series Miniature Guide/Slide Motion Systems Specifications	8
LS/MS Series Miniature Guide/Slide Motion Systems Ordering Information	9

DOLPHIN GUIDES®



Product Overview

10



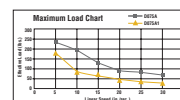
Standard Length or Cut-to-Length Rail & Carriage Assemblies

11



Standard Length Lead Screw Driven Guides

12



Load & Speed Data

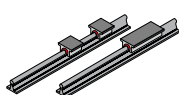
13-14

SIMPLICITY® • Inch Series



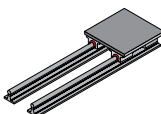
Linear Slide Overview

15-17



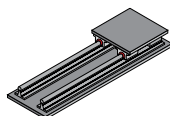
SRB

18



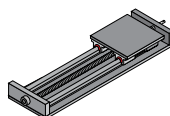
RS

19



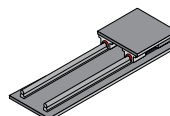
RPS

20-21



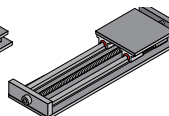
2RPS

22-23



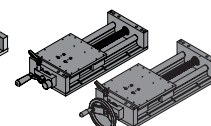
LRPS

24-25



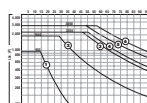
2LRPS

26-27



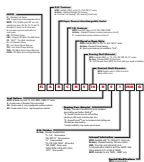
2HCR/2HWL

28-29



Column Load & Critical Speed

30-31



Ordering Information

32-33



FL

34



FLN

35



P

36



PN

36



PW

37



PWN

37



PS

38



PSF

39



SFP

40



DFP

40



SDS

41



DDS

41



PAC

42



Linear Shafting & Accessories

43



Stainless Steel Shafting

44



ISO Metric Shafting

45



Feather Shafting®

46



Feather Rails®

47

SIMPLICITY® • ISO Metric Series



FM

48



FMN

49



PM

50



PMN

51



FMT

52



FG

53



PSM

54



PSFM

55



PAC

56



SFPM
SFPMR

57



DFPM
DFPMR

58



CFPM
CFPMR

59



ISO Metric
Shafting

60

The data and specifications in this publication have been carefully compiled and are believed to be accurate and correct. However, it is the responsibility of the user to determine and ensure the suitability of Pacific Bearing products for a specific application. Pacific Bearing's only obligation will be to repair or replace without charge, any defective components if returned promptly. No liability is assumed beyond such replacement.

CONTENTS

SIMPLICITY® • JIS Metric Series



FJ

61



FJN

62



SFPJ, SFPJR

63



DFPJ, DFPJR

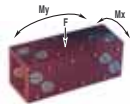
64



CFPJ, CFPJR

65

SIMPLICITY® SQUARE BEARINGS



Square Bearing
Technical Info

66-67



SB

SBL

68-69



Square Shafting &
Accessories

70



Hardened
Crown Roller

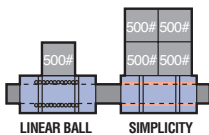
71

TECHNICAL Information



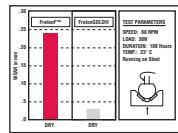
Product Overview &
Technical Introduction

72-84



PV & Load

85



Wear, Life
& Friction

86-88



Lubrication

88-89



Shaft
Deflection

90-91



Installing Simplicity
Bearings

92-95



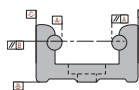
Chemical
Reaction

96

Notes
Pages

97-98

REDI-RAIL®



Product
Overview

99



Linear Guides
(Slides)
Metric Series

100



Linear Guides
(Rails)
Metric Series

101



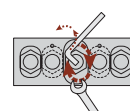
Linear Guides
(Slides)
Inch Series

102



Linear Guides
(Rails)
Inch Series

103



Technical Help &
Information

104-105



Drawer Slides
Product Selection &
Technical Information

106-108



Belt Drive System
Product Overview &
Specifications

109-110

NEW



Redi-Rail® V Introduction, Features & Benefits, Applications ..111

Redi-Rail® V Guide System:

3/4" Wheel Radial Loads to 100 lbs. (50 kg)112

1-1/4" Wheel Radial Loads to 251 lbs. (114 kg)113

1-3/4" Wheel Radial Loads to 1300 lbs. (591 kg)114

2-1/4" Wheel Radial Loads to 1980 lbs. (900 kg)115

Redi-Rail® V Guide System

Technical Information116-117

HEVI-RAIL®



Introduction, Features & Benefits, Applications118

Technical Specifications118 & 119

Linear Bearing System Selection119

HVB-053 System to 5.2 KN / 0.6 US Ton-Force119

HVB-054 / HVBEA-454 System to 7.2 KN / 0.8 US Ton-Force120

HVB-055 / HVBEA-455 System to 8.6 KN / 0.9 US Ton-Force121

HVB-056 / HVBEA-456 System to 8.9 KN / 1.0 US Ton-Force122

HVB-057 / HVBEA-457 System to 8.9 KN / 1.0 US Ton-Force123

HVB-058 / HVBEA-458 System to 5.6 KN / 1.7 US Ton-Force124

HVB-059 / HVBEA-459 System to 15.5 KN / 1.7 US Ton-Force ..125

HVB-060 / HVBEA-460 System to 16.5 KN / 1.8 US Ton-Force ..125

HVB-061 / HVBEA-461 System to 16.5 KN / 1.8 US Ton-Force ..125

HVB-062 / HVBEA-462 System to 23.5 KN / 2.6 US Ton-Force ..127

HVB-063 / HVBEA-463 System to 41.1 KN / 4.6 US Ton-Force ..128

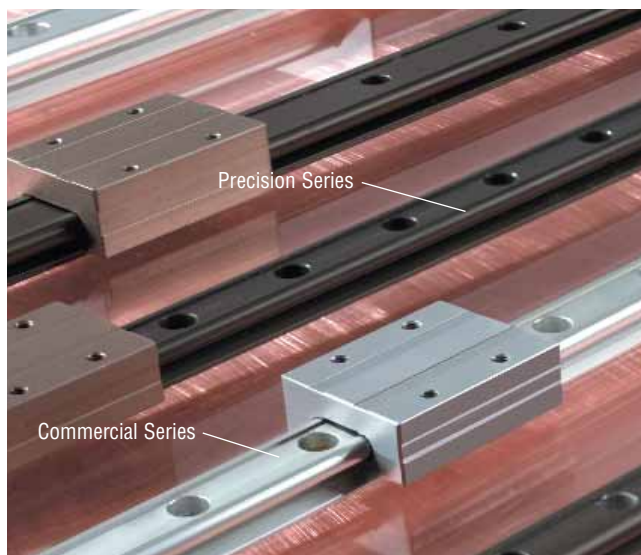
Calculation of F_{max} for Cantilevered Loads, Possible Mounting

Configurations, & System Design Suggestions129

Hevi-Rail Notes Page130

RETURN POLICY

Pacific Bearing Company will accept returns on Simplicity stock items **ONLY**. Shafting, slides, and special orders are **NOT** returnable. Items must be returned within 60 days of purchase. Products returned to Pacific Bearing Company must be issued a Return Authorization Number. Contact technical sales for RA#.



PRODUCT OVERVIEW

Based on Pacific Bearing Company's proven Simplicity technology, Mini-Rail miniature linear guides provide smooth and quiet linear motion. The self-lubricating design requires no sealing, emits virtually no particulates, tolerates high temperature extremes and has no rolling elements that can cause catastrophic failure.

Mini-Rail miniature linear guides are available in five sizes: 7, 9, 12, 15 and 20mm - in lengths up to 3600mm, meaning no cumbersome butt joints. These guides are precision manufactured out of lightweight aluminum alloys to ensure long life and corrosion resistance.

An economical alternative to conventional miniature linear guides, Mini-Rail requires no maintenance, is fully interchangeable with industry standard sizes and is maintained in stock for quick delivery.

TECHNICAL DATA

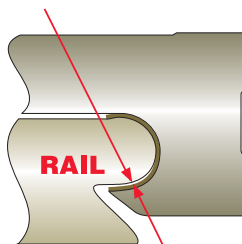
Mini-Rail is offered in three design configurations:

Precision Series: Ceramic coated rails and carriages are corrosion resistant. FrelonGold® self-lubricating liner delivers the best overall performance, the highest loads, the best wear life, and speeds. Most precise running clearance for high precision applications.

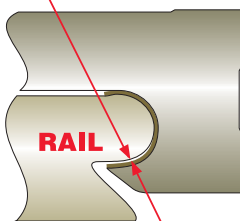
Compensated Precision Series: Same as Precision Series (above) except with additional clearance provided to tolerate misalignment.

Commercial Series: Best value for less demanding applications. Clear anodized coating provides a measure of corrosion resistance. FrelonJ® self-lubricating liner is great for washdown applications.

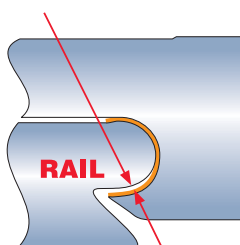
Precision Series
.025 - .051mm
Running Clearance
(CERAMIC COATED)



Compensated Precision Series
.064 - .089mm
Running Clearance
(CERAMIC COATED)



Commercial Series
.038 - .089mm
Running Clearance
(CLEAR ANODIZED)

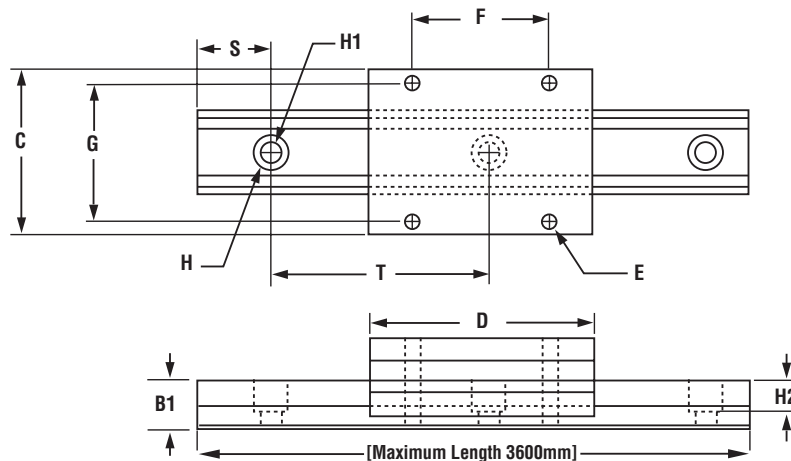




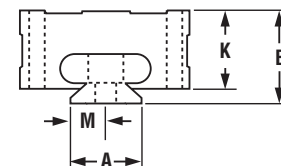
(Maximum Length 3600mm)

PART NUMBER	RUNNING CLEARANCE	A	B	B ₁	C	D	E	F	G	H	H ₁	H ₂	K	M	S	T	RAIL WT. gram/mm	CARRIAGE WT. gram/mm
		(mm) BASE WIDTH	OVERALL HEIGHT	RAIL HEIGHT	CARRIAGE WIDTH	CARRIAGE LENGTH	CARRIAGE HOLE SIZE	CARRIAGE HOLE CTR. TO CTR.		RAIL HOLE SIZE			CARRIAGE HEIGHT	CTR. MTG. HOLE TO QUALIFY EDGE	RAIL HOLE TO END	RAIL HOLE CTR. TO CTR.		
MR7-xxx	.025 - .051	7	8	6.1	17	24	M2 x 0.4	8	12	4.2	2.4	2.3	6.2	3.5	5	15	0.10	6.7
MRC7-xxx	.064 - .089	7	8	6.1	17	24	M2 x 0.4	8	12	4.2	2.4	2.3	6.2	3.5	5	15	0.10	6.7
MRE7-xxx	.038 - .089	7	8	6.1	17	24	M2 x 0.4	8	12	4.2	2.4	2.3	6.2	3.5	5	15	0.10	6.7
MR9-xxx	.025 - .051	9	10	7.1	20	30	M3 x 0.5	13	15	4.5	2.6	3	8.0	4.5	7.5	20	0.16	11.5
MRC9-xxx	.064 - .089	9	10	7.1	20	30	M3 x 0.5	13	15	4.5	2.6	3	8.0	4.5	7.5	20	0.16	11.5
MRE9-xxx	.038 - .089	9	10	7.1	20	30	M3 x 0.5	13	15	4.5	2.6	3	8.0	4.5	7.5	20	0.16	11.5
MR12-xxx	.025 - .051	12	13	8.0	27	34	M3 x 0.5	15	20	6	3.5	3.5	10.7	6	10	25	0.22	20.0
MRC12-xxx	.064 - .089	12	13	8.0	27	34	M3 x 0.5	15	20	6	3.5	3.5	10.7	6	10	25	0.22	20.0
MRE12-xxx	.038 - .089	12	13	8.0	27	34	M3 x 0.5	15	20	6	3.5	3.5	10.7	6	10	25	0.22	20.0
MR15-xxx	.025 - .051	15	16	9.2	32	42	M3 x 0.5	20	25	6	3.5	4.5	14.1	7.5	15	40	0.38	34.6
MRC15-xxx	.064 - .089	15	16	9.2	32	42	M3 x 0.5	20	25	6	3.5	4.5	14.1	7.5	15	40	0.38	34.6
MRE15-xxx	.038 - .089	15	16	9.2	32	42	M3 x 0.5	20	25	6	3.5	4.5	14.1	7.5	15	40	0.38	34.6
MR20-xxx	.025 - .051	20	25	13.4	46	62	M4 x 0.7	38	38	9.5	6	8.5	21.2	10	20	60	0.65	127.9
MRC20-xxx	.064 - .089	20	25	13.4	46	62	M4 x 0.7	38	38	9.5	6	8.5	21.2	10	20	60	0.65	127.9
MRE20-xxx	.038 - .089	20	25	13.4	46	62	M4 x 0.7	38	38	9.5	6	8.5	21.2	10	20	60	0.65	127.9

NOTES: Add the overall length of the rail to the part number,
 EXAMPLE "MR12-220" for a Precision Series assembly with a 220mm long rail.
 Cut-to-length rails are available up to 3600mm.
 The "S" dimension will remain constant at one end unless requested otherwise.
 Standard and cut-to-length rail ends are NOT coated. Fully coated rails are available upon request.



NOTE: CAD files can be downloaded from our website at www.pacific-bearing.com.





MINI RAIL® • Miniature Linear Guides

STATIC LOAD DATA

The numbers below are for rails in a static condition. Refer to the calculations below to establish dynamic parameters.

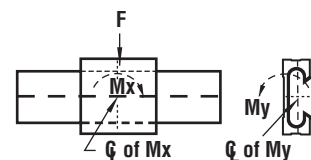
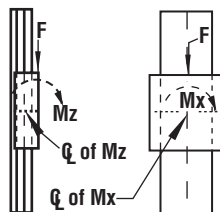
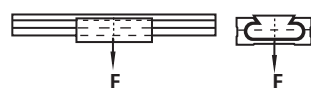
SIZE	F (N)	MSL (N)*
7	445	734
9	667	1557
12	1334	1957
15	2224	3114
20	3559	6005

*Max static load in Newtons.

SIZE	F (N)
7	89
9	125
12	222
15	356
20	578

SIZE	Mx (N-m)	My (N-m)	Mz (N-m)
7	2.3	1.8	1.8
9	5.0	3.2	3.2
12	9.0	5.6	5.6
15	15.1	9.0	9.0
20	24.9	14.7	14.7

SIZE	F (N)	Mx (N-m)	My (N-m)	Mz (N-m)
7	133	2.3	1.8	1.8
9	222	5.0	3.2	3.2
12	400	9.0	5.6	5.6
15	667	15.1	9.0	9.0
20	1112	24.9	14.7	14.7



PERFORMANCE RATINGS FOR LINEAR MOTION

Plane bearings are rated by their limiting PV, which is a combination of load over a given surface area and the velocity.

Bearing Material	Max. "PV"	Max. "P"	Max. "V" (No Lubrication)
FrelonGold®	20,000 (psi x ft/min) or 430 (kgf/cm² x m/min)	3000 psi or 210.9 kgf/cm²	300 sfm or 91.44 m/min.
FrelonJ®	10,000 (psi x ft/min) or 215 (kgf/cm² x m/min)	1500 psi or 105.45 kgf/cm²	140 sfm or 42.66 m/min.

PV = The performance measurement of plane bearings.

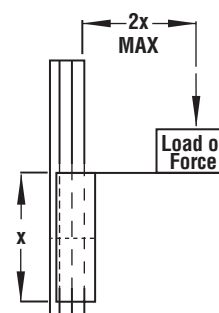
PV = P x V, where P = pressure (load) in psi (kgf/cm²)

V = velocity (speed) in sfm (m/min.)

NOTE: All three parameters must be met by an application for the bearing to perform properly.

CANTILEVERED LOADS

Binding of the carriage will occur if the 2:1 ratio for cantilevered loads and drive forces is exceeded. This principle is not load or force dependent. It is a product of the coefficient of frictions associated with plane bearings. Contact factory or website for additional information.



LOAD/MOMENT CONVERSION

$$N = 4.45 \times (\text{lbs})$$

$$N\text{-m} = 0.113 \times (\text{in-lbs})$$

ORDERING CODE



Standard Mini-Rail

Interchangeable with miniature rolling element profile rails

No Entry

Precision Series running clearance (.025 - .051mm)

FrelonGold® bearing material on RC70 ceramic-coated rail

C - Compensated Precision Series running clearance (.064 - .089mm)

FrelonGOLD® bearing material on RC70 ceramic-coated rail

E - Commercial Series running clearance (.038 - .089mm)

FrelonJ® bearing material on clear anodized rail

Number of Carriages

Length of Rail in mm

Nominal Sizes

(7, 9, 12, 15, 20mm)



PRODUCT OVERVIEW

Based on Pacific Bearing Company's proven Simplicity technology. Mini-Rail miniature linear guides provide smooth and quiet linear motion. The self-lubricating design requires no sealing, emits virtually no particulates, tolerates high temperature extremes and has no rolling elements that can cause catastrophic failure.

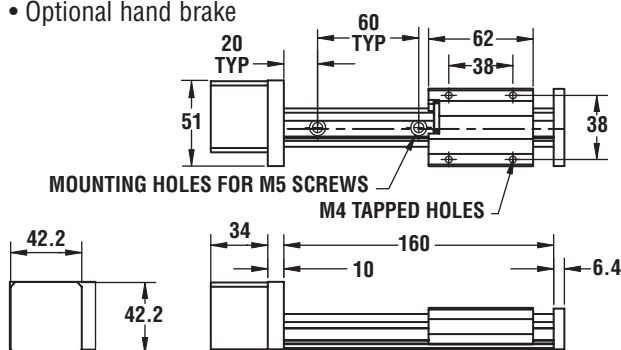
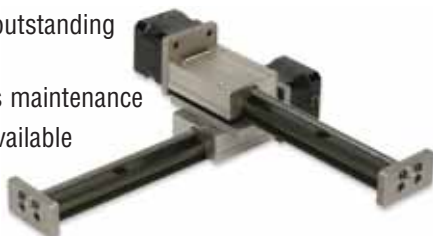
An economical alternative to conventional miniature linear guides, Mini-Rail requires no maintenance, is interchangeable with industry standard sizes.

TECHNICAL DATA

Ceramic coated rails and carriages are corrosion resistant. FrelonGold® self-lubricating liner delivers the best overall performance, the highest loads, the best wear life, and speeds.

MINI RAIL® MS SERIES

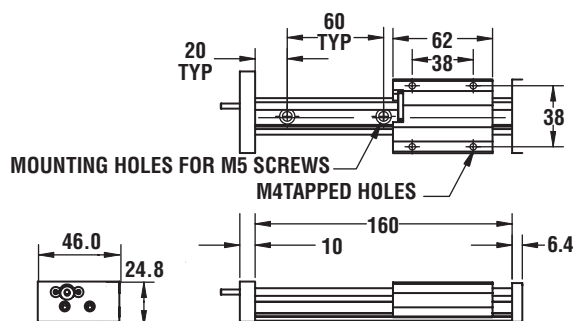
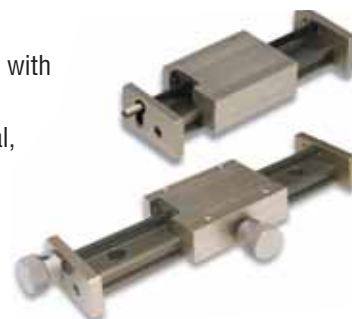
- Robust design - outstanding reliability
- Fewer parts - less maintenance
- Three (3) leads available
- Integral screw
- Low cost
- High torque stepper motor (NEMA 17)
- Preloaded drive nut - eliminates backlash
- Lengths up to 640 mm
- Ball bearing supports
- Optional hand brake



NOTE: Unless otherwise specified, mounting holes will be centered.

MINI RAIL® LS SERIES

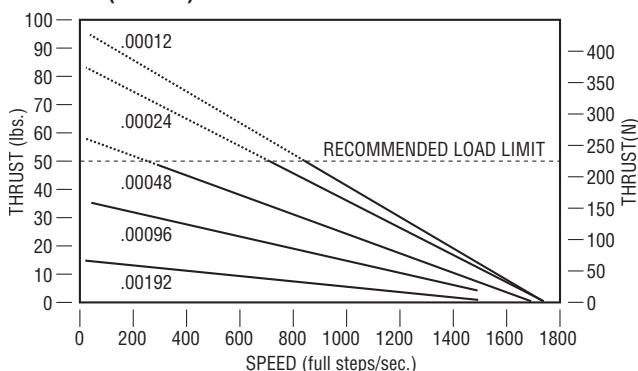
- Right hand rolled thread
- 303 stainless steel screw with TFE coating
- Self-lubricating Polyacetal, anti-backlash nut
- Lengths up to 640 mm
- Three (3) leads available
- Optional hand brake



NOTE: Unless otherwise specified, mounting holes will be centered.

MINI RAIL® LS/MS SPECIFICATIONS

**Bipolar • Chopper Drive • 100% Duty Cycle,
5.54mm (0.218") Lead Screw**



Size 17 Stepper Motor with 5.54mm (0.218") Screw

LINEAR TRAVEL PER STEP
.001524 mm (.00006")
.003048 mm (.00012")
.006096 mm (.00024")
.012192 mm (.00048")
.024384 mm (.00096")
.048768 mm (.00192")

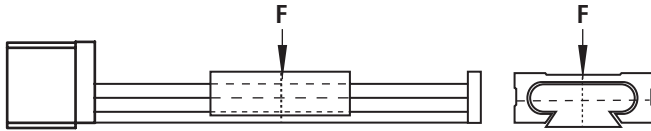
NOTES: Rail ends are NOT coated. Fully coated rails are available upon request. CAD files can be downloaded from our website at www.pacific-bearing.com.



MINI RAIL® LS/MS SERIES • Miniature Guide/Slide Motion Systems Specifications

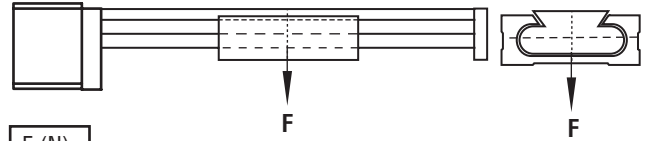
STATIC LOAD DATA FOR MINI RAIL® LS/MS

The numbers below are for rails in a static condition. Refer to the calculations below to establish dynamic parameters.

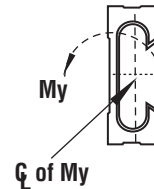
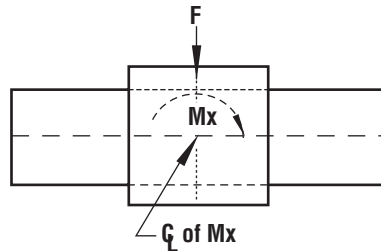
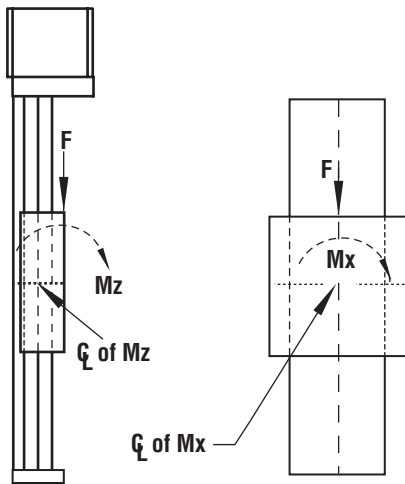


F (N)	MSL (N)*
3559	6005

*Max static load in Newtons.



F (N)
578



F (N)	Mx (N-m)	My (N-m)	Mz (N-m)
1112	24.9	14.7	14.7

PERFORMANCE RATINGS FOR LINEAR MOTION

Plane bearings are rated by their limiting PV, which is a combination of load over a given surface area and the velocity.

BEARING MATERIAL	MAX. "PV"	MAX. "P"	MAX. "V" (NO LUBRICATION)
	20,000 (psi x ft/min.)	3000 psi	300 sfm
FrelonGold®	or	or	or
	430 (kgf/cm² x m/min.)	210.9 kgf/cm²	91.44 m/min.

PV = The performance measurement of plane bearings

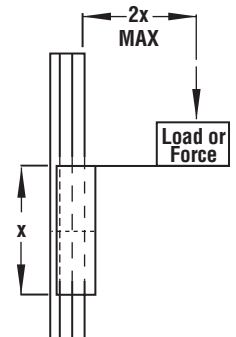
PV = P x V where P = pressure (load) in psi (kgf/cm²)

V = velocity (speed) in sfm (m/min.)

NOTE: All three parameters must be met by an application for the bearing to perform properly.

CANTILEVERED LOADS

Binding of the carriage will occur if the 2:1 ratio for cantilevered loads and drive forces is exceeded. This principle is not load or force dependent. It is a product of the coefficient of frictions associated with plane bearings. Contact factory or website for additional information.



LOAD/MOMENT CONVERSION

N = 4.45 x (lbs)

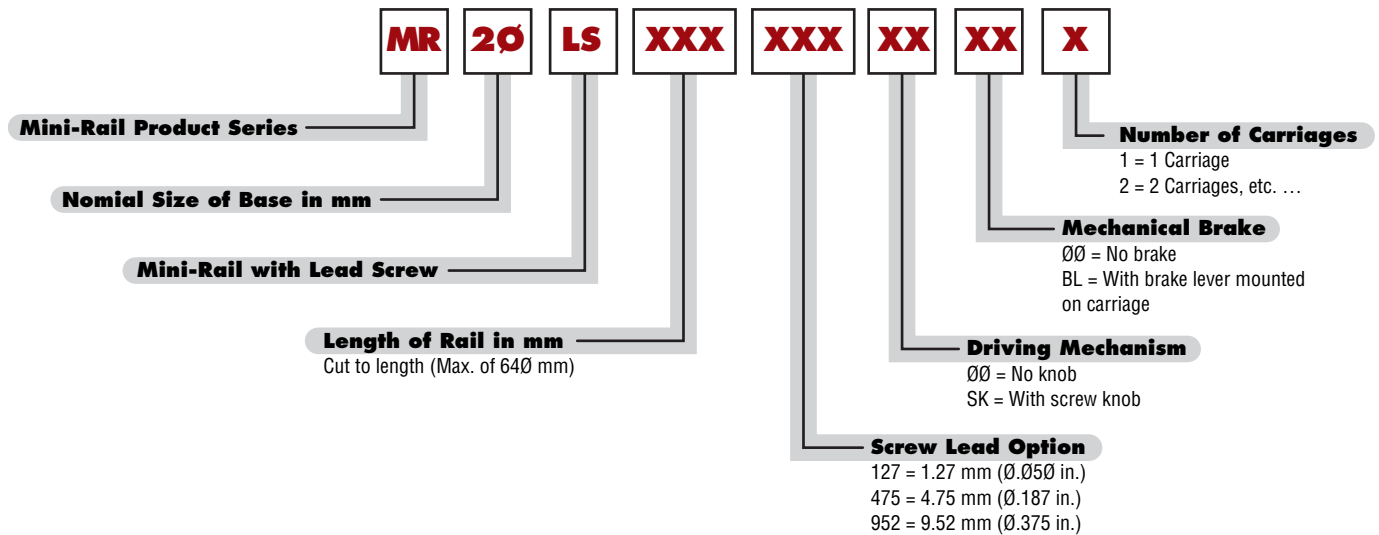
N-m = 0.113 x (in-lbs)

MINI RAIL® LS/MS SERIES • Miniature Guide/Slide Motion Systems

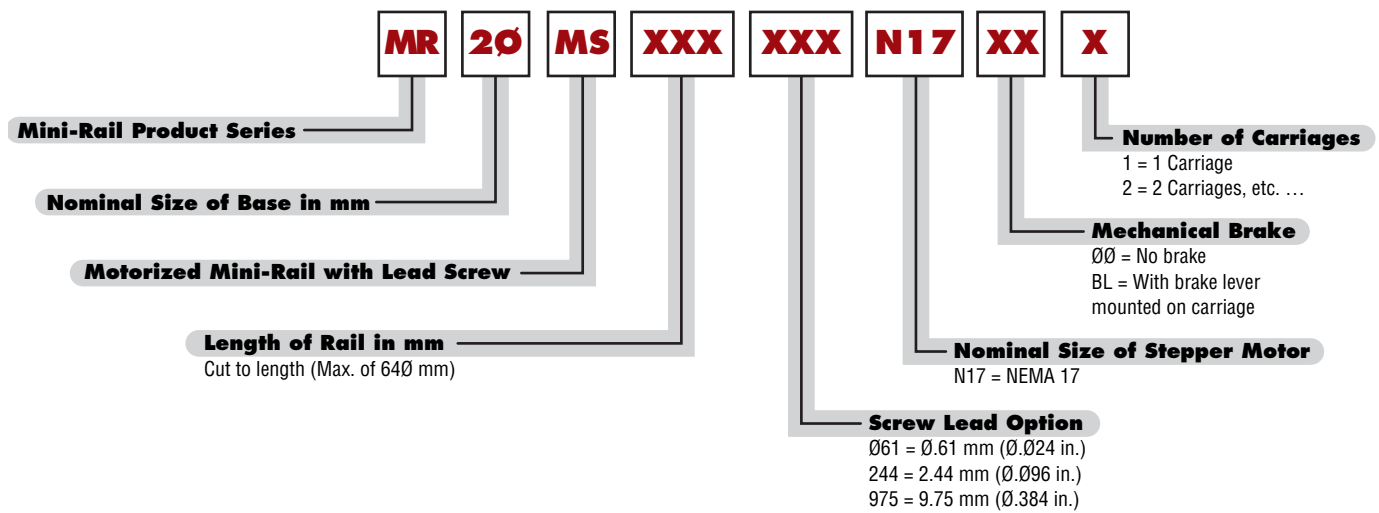
Ordering Information



MINI RAIL® LS



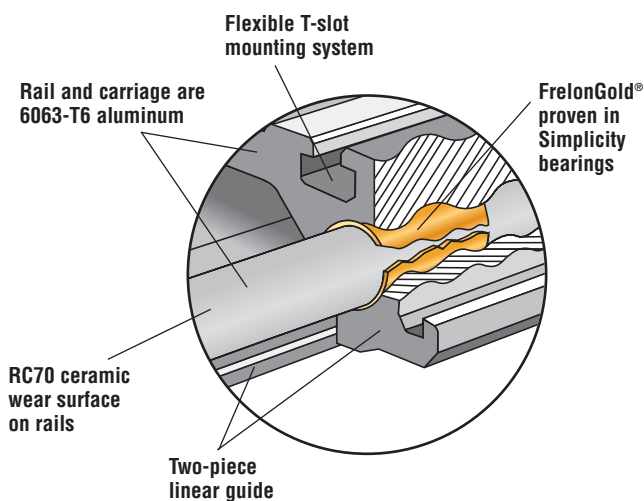
MINI RAIL® MS





DOLPHIN GUIDES®

- Based on proven Simplicity® linear bearing technology
- Two-piece assembly eliminates tolerance stack up
- No metal-to-metal contact
- Dampens vibration and shock loads
- FrelonGOLD® bearing material is self-lubricating
- RC70 ceramic coating withstands contamination
- Lightweight
- Easy to install
- Integrated packages can drop into existing applications
- Plug and Play controls



THREE SIMPLE OPTIONS MAKE SELECTION EASY...

1



Carriages with standard length rails or cut-to-length rails. Install your own choice of drive mechanisms.

2



Lead screw driven carriage with standard length rail is ready to drop into your existing application.

3



Lead screw driven package including motor and drive providing plug-n-play linear motion.

Introducing a New Class of Slide Dolphin Guides

2-Piece Design

Our DFA design delivers a unique two-piece slide vs. hundreds of components in competitive units.

Drive Options

Choose from ball or lead screws, belt drives, etc. Integrate your own or consult the factory for assistance.

Mounting Flexibility

Rails are pre-drilled for mounting ease. The carriage provides side or top mounting.

FrelonGOLD® Liner

- 60% less friction
- 60% less wear
- 100% increased load capacity
- 110% increased speed limits
- 100% increased PV limits

Feather Shaft™

Our new ceramic-coated shaft is 66% lighter than steel.

Sample Program

We know that if you try this product you will love it. Call to discuss our Sample Program.

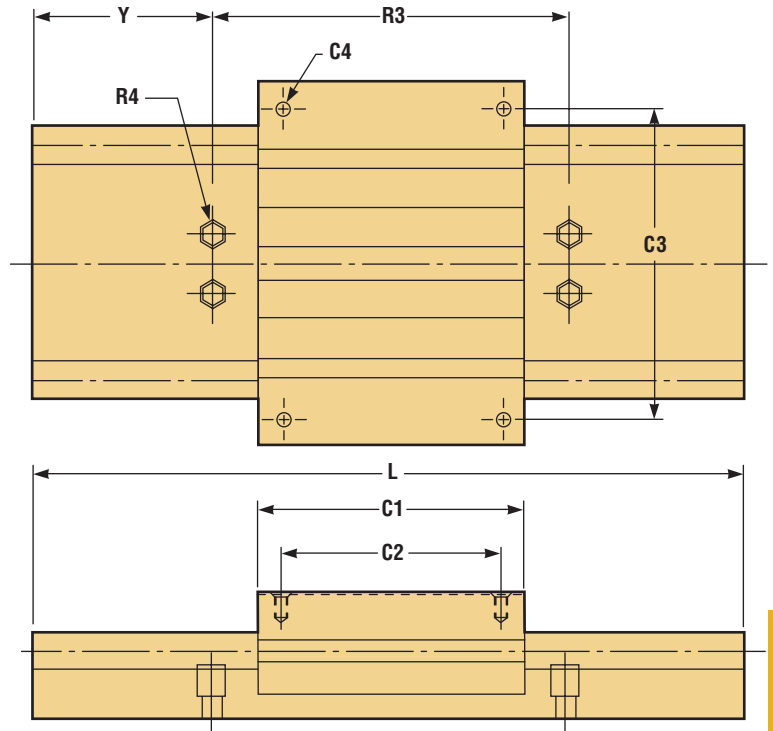
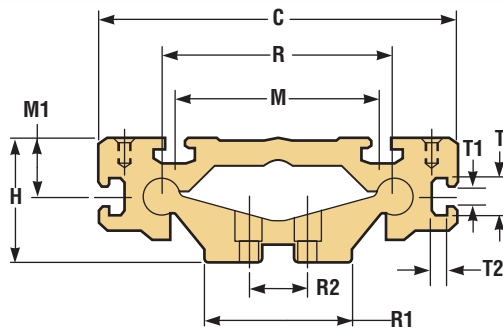


Save Time and Money with Dolphin Guides



Standard Length or Cut-to-Length Rail & Carriage Assemblies.....	11
Standard Length Lead Screw Driven Guides	12
Load & Speed Data.....	13-14

DOLPHIN GUIDES® • Standard Length or Cut-to-Length Rail & Carriage Assemblies



STANDARD INCH SERIES DOLPHIN GUIDE WITH NO DRIVE MECHANISM (Dimensions in Inches)

PART NO.	R	R1	R2	R3	R4 BOLT SIZE	Y	H	C	C1 STANDARD	C2 STANDARD	C1 EXTENDED	C2 EXTENDED	C3	C4 BOLT SIZE	M	M1	L MAX-FEET
D075-xxx	2.95	2	0.75	4	1/4	2	1.625	4.6	3.5	3	4.5	4	4	10-32	2.6	.819	12'
D100-xxx	3.94	2.6	1	6	5/16	3	2.125	6.1	4.5	3.75	6	5.25	5.25	1/4-20	3.5	1.02	12'
D125-xxx	4.92	3.3	1.25	6	3/8	3	2.625	7.6	6	5.25	7.5	6.75	6.75	5/16-18	4.33	1.30	12'

T-SLOT INFORMATION (Inches)

PART NO.	T	T1	T2
D075-xxx	.590	.256	.236
D100-xxx	.661	.319	.268
D125-xxx	.661	.319	.268

METRIC SERIES DOLPHIN GUIDE WITH NO DRIVE MECHANISM (Dimensions in mm)

PART NO.	R	R1	R2	R3	R4 BOLT SIZE	Y	H	C	C1 STANDARD	C2 STANDARD	C1 EXTENDED	C2 EXTENDED	C3	C4 BOLT SIZE	M	M1	L MAX-METER
DM075-xxx	75	51	20	120	M 6	60	41.3	117	85	73	110	98	105	M 5	66	16.5	3.66m
DM100-xxx	100	66	25	150	M 8	75	54	155	115	95	150	130	135	M 6	89	26	3.66m
DM125-xxx	125	84	30	200	M 10	100	66.7	193	150	130	190	170	175	M 8	110	33	3.66m

T-SLOT INFORMATION (mm)

PART NO.	T	T1	T2
DM075-xxx	15.0	6.5	6.0
DM100-xxx	16.8	8.1	6.8
DM125-xxx	16.8	8.1	6.8

STANDARD LENGTHS CHART (Dimensions in Inches)

PART NO.	8"	12"	16"	18"	20"	24"	28"	30"	32"	36"	40"	42"	48"
D075-xxx	X	X	X		X	X	X		X	X	X		X
D100-xxx		X		X		X		X		X		X	X
D125-xxx		X		X		X		X		X		X	X

WEIGHTS

PART NO.	RAIL PER INCH (LBS.)	STANDARD CARRIAGE (LBS.)	EXTENDED CARRIAGE (LBS.)
D075-xxx	0.19	0.98	1.26
D100-xxx	0.32	2.12	2.82
D125-xxx	0.48	4.56	5.7

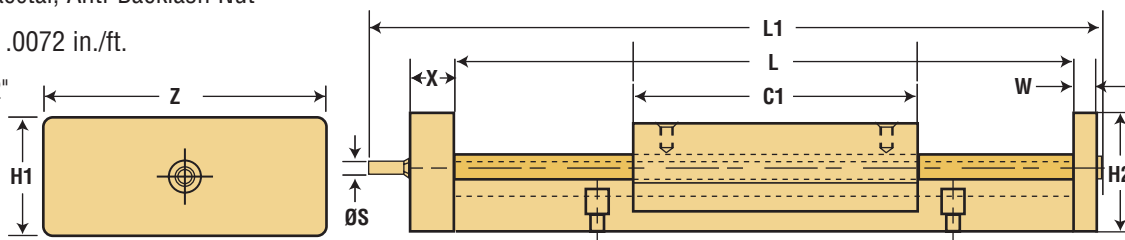
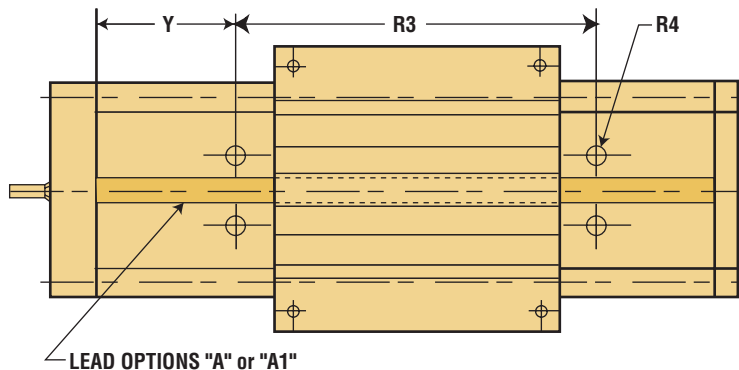


DOLPHIN GUIDES® • Standard Length Lead Screw Driven Guides



Standard Lead Screw Specifications:

- Right Hand Rolled Thread
- 303 Stainless Steel with TFE Coating
- Self-lubricating Polyacetal, Anti-Backlash Nut
- Standard Accuracy = .0072 in./ft.
- Repeatability = .0002"

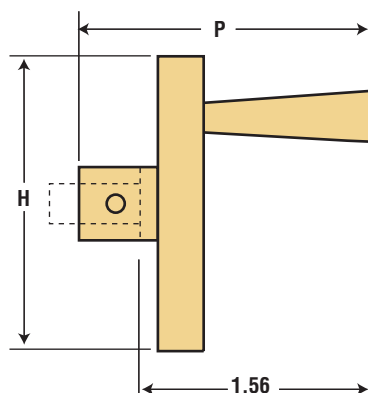


REFER TO PAGE 13 FOR DIMENSIONS NOT SHOWN. CALL THE FACTORY FOR NON-STANDARD LENGTHS.

PART NO.	Stroke (L-C1)	L	L1	C1	Nominal Screw Dia.	A	A1	S	Y	R3	R4	W	X	Z	H1	H2
						Standard Lead	Optional Lead									
D075xx-12	8.5	12	13.93	3.5	3/8"	0.250	0.500	0.187	2	4	1/4	0.375	0.625	3.42	1.75	1.625
D075xx-16	12.5	16	17.93	3.5	3/8"	0.250	0.500	0.187	2	4	1/4	0.375	0.625	3.42	1.75	1.625
D075xx-20	16.5	20	21.93	3.5	3/8"	0.250	0.500	0.187	2	4	1/4	0.375	0.625	3.42	1.75	1.625
D075xx-24	20.5	24	25.93	3.5	3/8"	0.250	0.500	0.187	2	4	1/4	0.375	0.625	3.42	1.75	1.625
D100xx-12	7.5	12	14.61	4.5	1/2"	0.250	0.500	0.314	3	6	5/16	0.5	1	4.56	2.5	2.500
D100xx-18	13.5	18	20.61	4.5	1/2"	0.250	0.500	0.314	3	6	5/16	0.5	1	4.56	2.5	2.500
D100xx-24	19.5	24	26.61	4.5	1/2"	0.250	0.500	0.314	3	6	5/16	0.5	1	4.56	2.5	2.500
D100xx-30	25.5	30	32.61	4.5	1/2"	0.250	0.500	0.314	3	6	5/16	0.5	1	4.56	2.5	2.500
D125xx-12	6	12	14.85	6	5/8"	0.250	0.500	0.314	3	6	3/8	0.5	1	5.78	3.5	2.500
D125xx-18	12	18	20.85	6	5/8"	0.250	0.500	0.314	3	6	3/8	0.5	1	5.78	3.5	2.500
D125xx-24	18	24	26.85	6	5/8"	0.250	0.500	0.314	3	6	3/8	0.5	1	5.78	3.5	2.500
D125xx-30	24	30	32.85	6	5/8"	0.250	0.500	0.314	3	6	3/8	0.5	1	5.78	3.5	2.500
D125xx-36	30	36	38.85	6	5/8"	0.250	0.500	0.314	3	6	3/8	0.5	1	5.78	3.5	2.500

"xx" – Insert lead screw selection in Part Number. Example: D100A-18

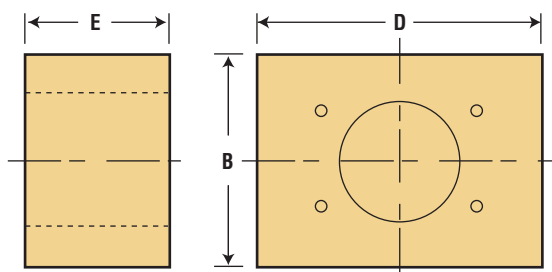
OPTIONAL HAND CRANK



PART NO.	P	H
75H	2.31	1.75
100H	2.31	2.25
125H	2.31	3.25

To integrate with option #2 on page 10, see order codes on page 14.

OPTIONAL MOTOR MOUNT ATTACHMENT



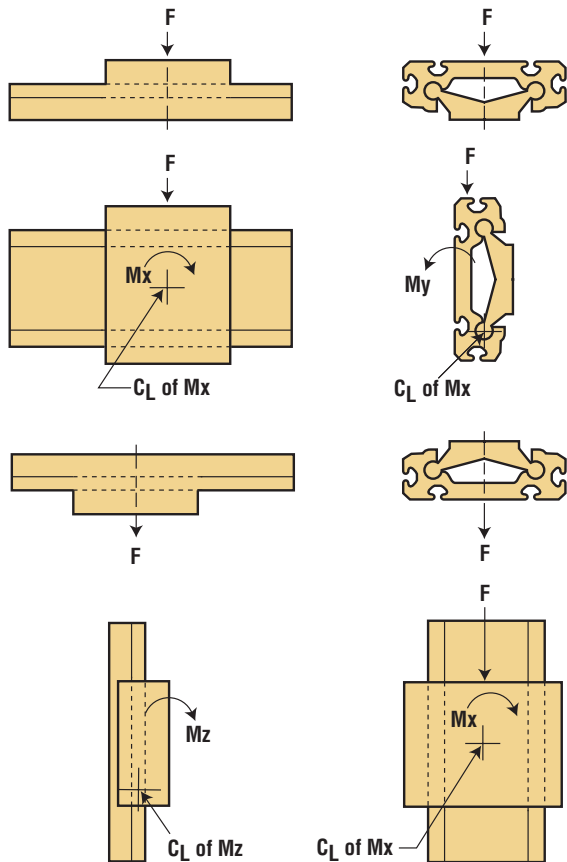
PART NO.	MOTOR MOUNT	B	E	D
75N	NEMA 17	2	1.81	3.25
100N	NEMA 23	2.5	1.81	3.25
125N	NEMA 34	3.5	2.30	4.25

To integrate with option #2 or #3 on page 10, see order codes on page 14.



STATIC LOADS WITH NO DRIVE MECHANISM

The numbers below are for guides only in a static condition. The drive mechanism selected (lead screw, ball screw, cylinder, etc.) becomes the limiting factor when calculating maximum load and speed capacities. The user is responsible for determining the maximum capacity for the complete system based on the manufacturer's data for their drive configuration.

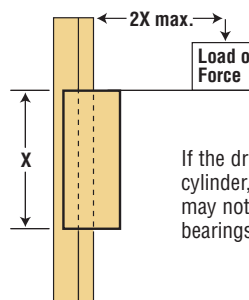


SIZE	F MAX LOAD (LBS.)
D075	500
D100	750
D125	1,000

SIZE	F MAX LOAD (LBS.)	Mx (IN-LBS.)	My (IN-LBS.)
D075	250	340	350
D100	375	650	730
D125	500	1,200	1,225

SIZE	F MAX LOAD (LBS.)
D075	125
D100	190
D125	250

SIZE	Mx (IN-LBS.)	Mz (IN-LBS.)
D075	340	350
D100	650	730
D125	1,200	1,225



If the drive mechanism (lead screw, ball screw, cylinder, etc.) is centered on the carriage, the load may not exceed a 2:1 ratio to the length of the bearings or binding will occur.

Designs must also operate within the following dynamic parameters:

- Maximum Loads (P) = from charts above
- Maximum Speed Dry (V) = 300 ft./min.
- Maximum PV (pressure x velocity) = 20,000
- PV Example: Load = 85 psi

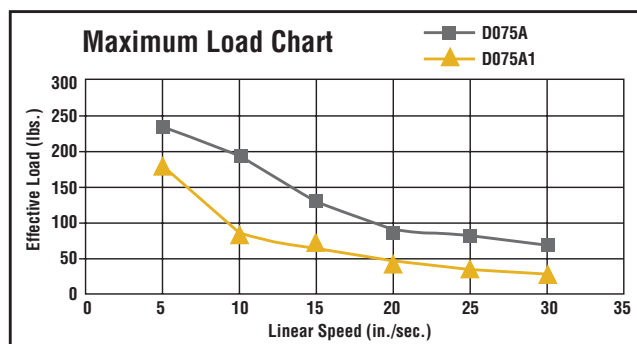
Speed = 180 ft./min.

PV = 85 x 180 = 15,300 PV

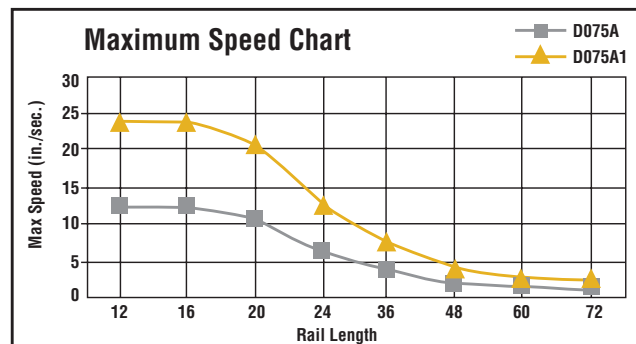
NOTE: FrelonGold® bearing material coefficient of friction is 0.125.

LOAD & SPEED DATA FOR STANDARD LEAD SCREW DRIVEN DOLPHIN GUIDES (Horizontal Orientation)

D075A-xxx



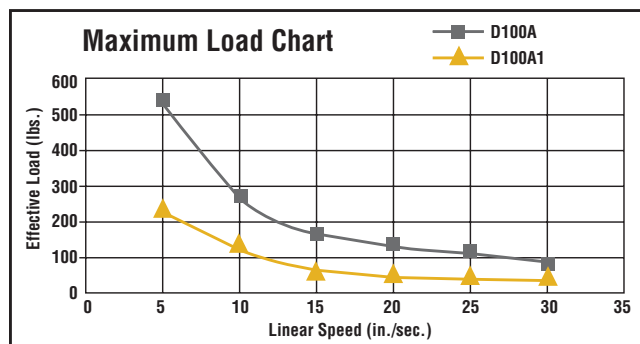
D075A-xxx



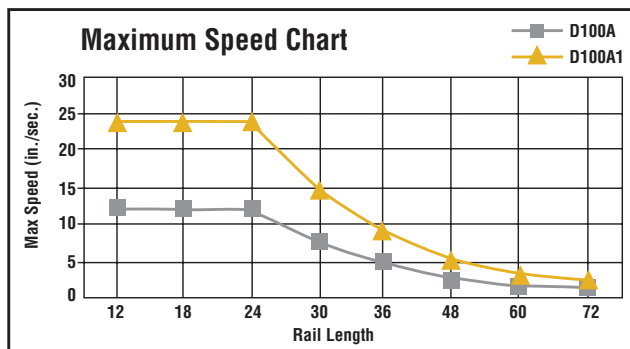


LOAD & SPEED DATA FOR STANDARD LEAD SCREW DRIVEN DOLPHIN GUIDES (Horizontal Orientation)

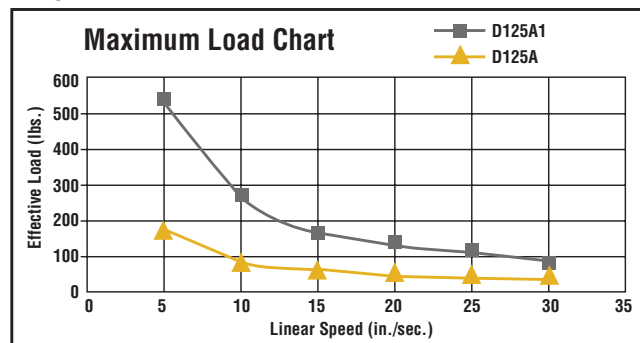
D100A-xxx



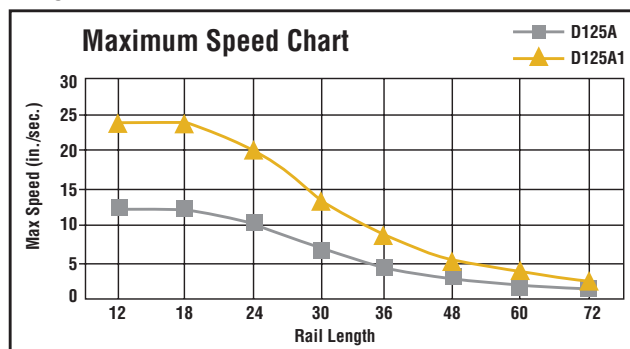
D100A-xxx



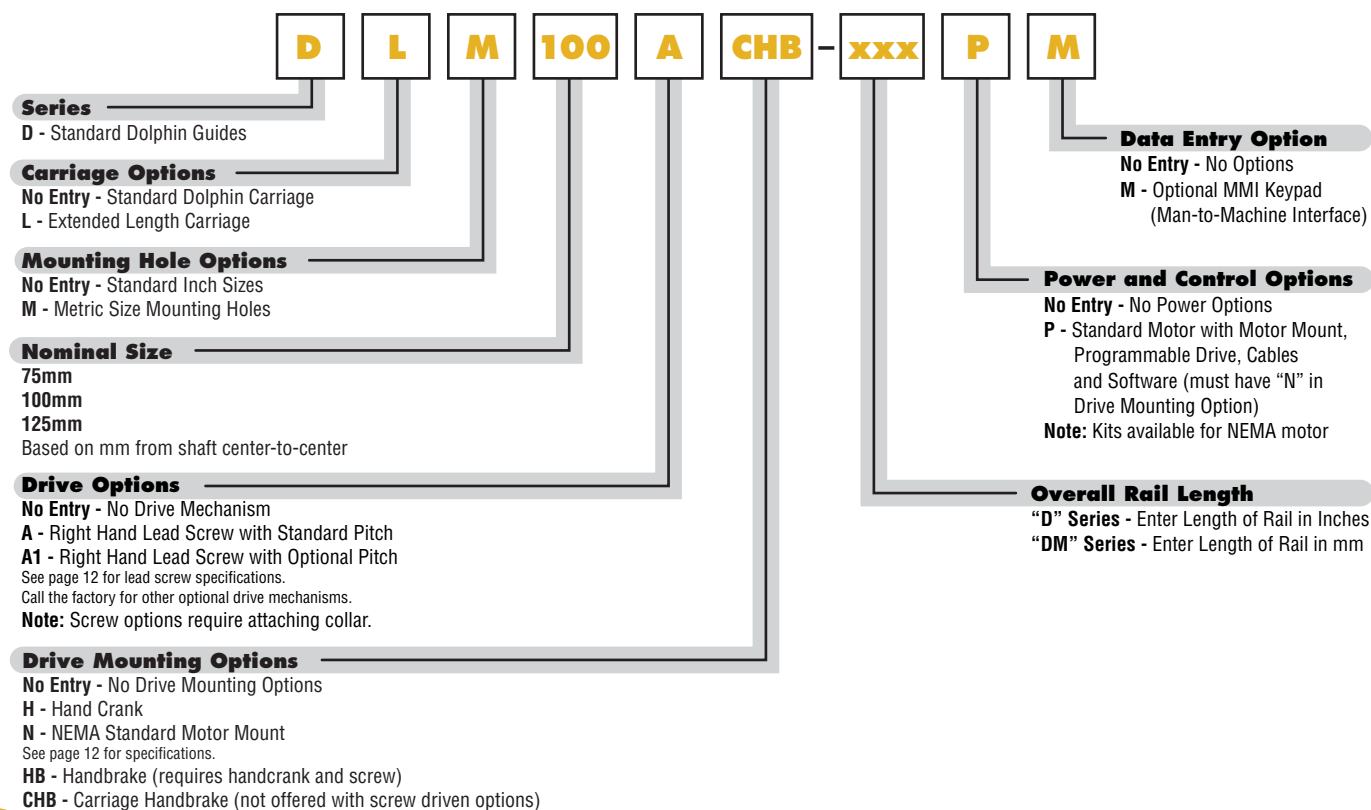
D125A-xxx



D125A-xxx



DOLPHIN GUIDES ORDERING CODE





SIMPLICITY LINEAR SLIDES WILL EXCEL IN HARSH, CONTAMINATED ENVIRONMENTS

Simplicity slides are working effectively today in some of the toughest environments industry has to offer:

- Fiberglass manufacturing and processing plants
- Stone cutters and other quarry applications
- Auto manufacturing facilities
- Welding and assembly lines
- Foundries
- Machine Tools

THREE BASIC DESIGNS FOR SIMPLICITY® LINEAR SLIDES

NOTE: All slides come standard with mounting plate, four pillow block assemblies, two steel shafts with corrosion resistant finish, two aluminum support rails.

HIGH PROFILE:

RS - comes with standard components

RPS - comes with standard components and includes bottom support plate with precision alignment

2RPS - same as “RPS” with ball screw and two ends supported with end plates

LOW PROFILE:

LRPS - low profile support rail version of a standard RPS

2LRPS - low profile support rail version of a standard 2RPS

MODULAR COMPONENTS:

SRB2 - support rail, guide bar, and two standard Simplicity pillow blocks

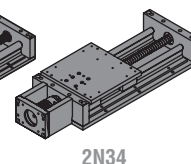
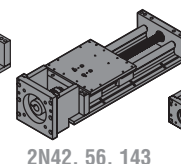
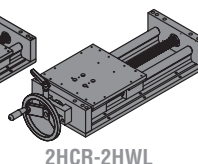
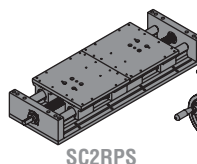
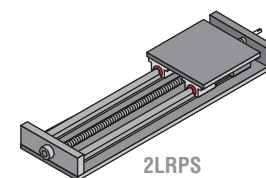
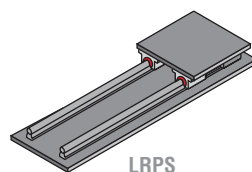
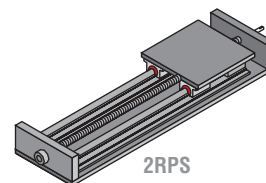
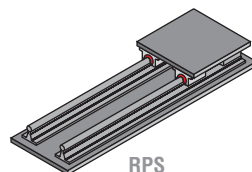
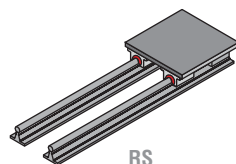
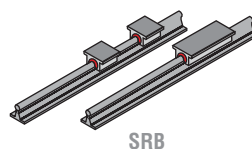
SRBT - support rail, guide bar, and one standard Simplicity pillow block

ACCESSORIES AVAILABLE:

Hand crank with ball screw lock, direct drive NEMA 23 & 34 motor bracket with constant velocity coupling, etc.

Call for more information. Special quotation requests for your specific application are welcome!

Many of the toughest applications and environments do not use standard off-the-shelf components. We excel at these challenges. Call our application engineers for an evaluation and quotation on a slide for your needs.



Full product specifications are available at www.pacific-bearing.com



SIMPLICITY® LINEAR SLIDES • Inch Series

SLIDE SELECTION INFORMATION

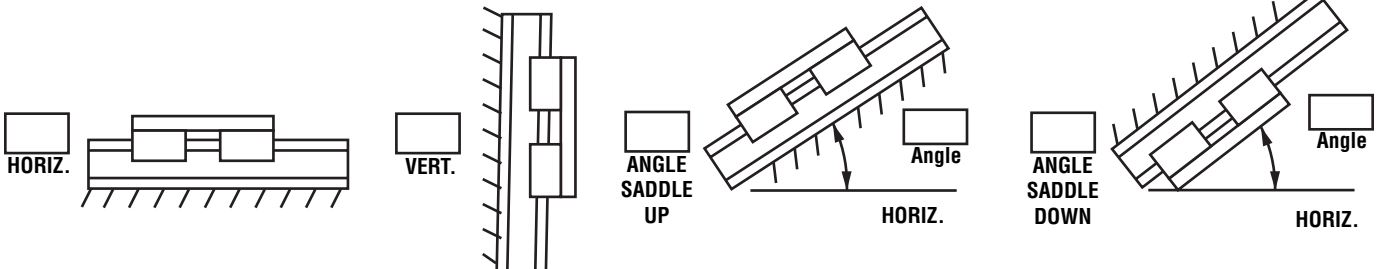
1. Determine the size and stroke of slide.
2. Is a lube system required?
3. Please furnish the following to the factory:
 - a. Model designation
 - b. Lube system requirements
 - c. Mounting orientation, saddle position if mounted at an angle
 - d. Load to be carried and approximate center of gravity from saddle center
 - e. Location and magnitude of any force which resists the motion of the slide
 - f. Acceleration rate and maximum velocity of the saddle
 - g. Deceleration rate
 - h. Service life requirements
 - i. Type of environment the slide will operate in

MODEL NUMBER

Series Code Size Code Length Code Ball Screw Lead Code

MOUNTING ORIENTATION

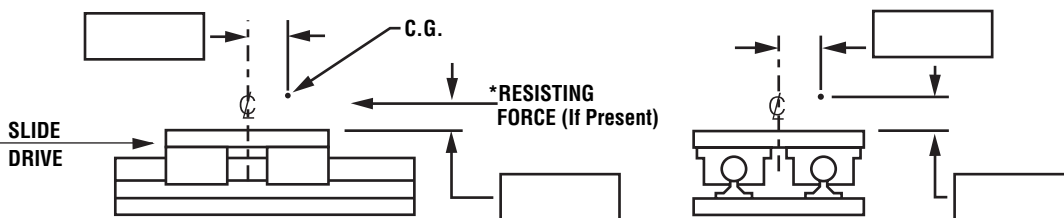
Please indicate the parameters of your application in the boxes below.



Cycle Rate:	<input type="text"/>	Per Hour:	<input type="text"/>	Per Minute:	<input type="text"/>
Max. Saddle Velocity:	<input type="text"/>	Inch/Second:	<input type="text"/>		
Acceleration Rate:	<input type="text"/>	Inches/Second ² :	<input type="text"/>		
Deceleration Rate:	<input type="text"/>	Inches/Second ² :	<input type="text"/>		
Load:	<input type="text"/>	lbs.	<input type="text"/>		

LOCATION OF CENTER OF GRAVITY FROM SADDLE CENTER

Please indicate the parameters of your application in the boxes below.



*Example of "Resisting Force" would be tool thrust for a drill head mounted on slide.

Resisting Force:	<input type="text"/>	lbs.
Life Requirement:	<input type="text"/>	Strokes <input type="text"/> Hours

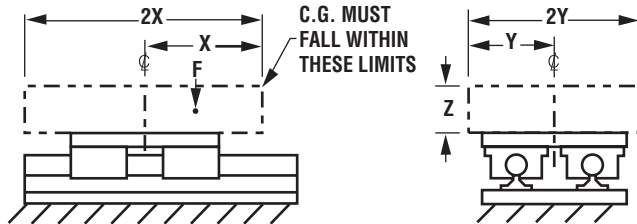


LOAD CAPACITIES

For non-lubricated slide applications where speeds are less than 90 feet/minute (18 inches/seconds).

All slides are to be fully supported and rigidly mounted.

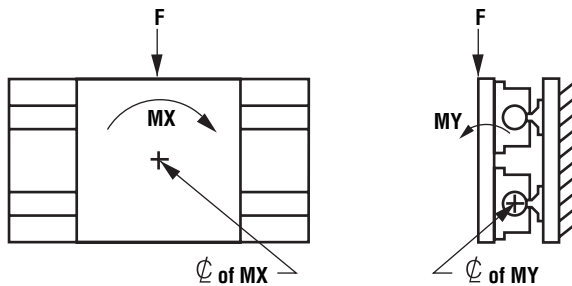
STANDARD MOUNTING



Recommended Safe Loading

SIZE	F MAX. (LBS.)	X (IN.)	Y (IN.)	Z (IN.)
08	1450	4.00	2.37	3.00
10	2200	4.75	2.76	3.50
12	2850	5.00	2.85	4.00
16	5275	5.50	3.37	4.50
20	7750	6.75	4.05	5.50
24	10600	7.86	4.90	6.50
32	18750	10.75	6.00	9.00

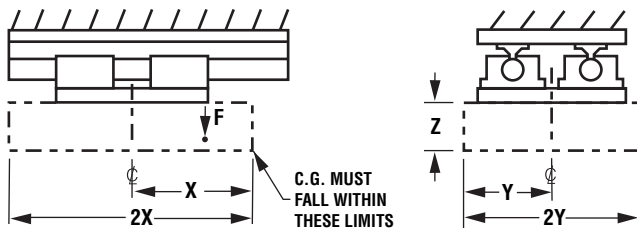
SIDE MOUNTING



Recommended Safe Loading

SIZE	F MAX. (LBS.)	Mx (IN.-LBS.)	My (IN.-LBS.)
08	540	910	1500
10	760	1680	2750
12	840	1710	2875
16	1050	3300	4430
20	1750	6175	8750
24	2100	9600	12600
32	3300	19000	28050

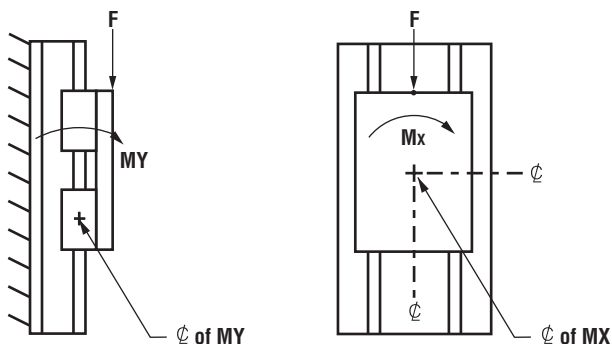
INVERTED MOUNTING



Recommended Safe Loading

SIZE	F MAX. (LBS.)	X (IN.)	Y (IN.)	Z (IN.)
08	195	4.85	2.91	3.00
10	285	5.69	3.33	3.50
12	315	6.52	3.75	4.00
16	450	7.31	4.58	4.50
20	712	8.84	5.42	5.50
24	900	10.50	6.67	6.50
32	1425	14.67	8.33	9.00

VERTICAL MOUNTING



Recommended Safe Loading

SIZE	F MAX. (LBS.) ^{1,2}	Mx (IN.-LBS.)	My (IN.-LBS.)
08	260	1445	1500
10	300	2750	2750
12	300	2875	2875
16	600	5000	4430
20	675	9500	8750
24	710	14400	12600
32	900	32300	28050

¹Applies only when using 2RPS & 2LRPS slides

²If "F" is exceeded consult factory.

Footnote: w/RPS, FMAX is dependent upon customer's method of moving the slide.



SRB - Preassembled Shaft, Rail, and Bearing

PART NUMBER

DIMENSIONS

PART NUMBER						TRANSISTORS																	
SERIES		SIZE			L	GUIDE BAR DIA.	A	B	C	D	E _T	F _T	E ₂	F ₂	G	H	J	K	M	N	P	R	S
SRB Y	X	08	-	XX	- XXX	.500	1.125	2.00	1.688	1.50	2.500	3.500	1.000	1.687	.250	1.812	4.000	2.00	1.125	.156	.169	1.000	.188
SRB Y	X	10	-	XX	- XXX	.625	1.125	2.50	2.125	1.62	3.000	4.000	1.125	1.937	.281	2.000	4.000	2.00	1.437	.188	.193	1.125	.250
SRB Y	X	12	-	XX	- XXX	.750	1.500	2.75	2.375	1.75	3.500	4.500	1.250	2.062	.312	2.438	6.000	3.00	1.562	.188	.221	1.250	.250
SRB Y	X	16	-	XX	- XXX	1.000	1.750	3.25	2.875	2.12	4.500	6.000	1.750	2.812	.375	2.938	6.000	3.00	1.937	.219	.281	1.500	.250
SRB Y	X	20	-	XX	- XXX	1.250	2.125	4.00	3.500	2.50	5.500	7.500	2.000	3.625	.437	3.625	6.000	3.00	2.500	.219	.343	1.875	.312
SRB Y	X	24	-	XX	- XXX	1.500	2.500	4.75	4.125	3.00	6.500	9.000	2.500	4.000	.500	4.250	8.000	4.00	2.875	.281	.343	2.250	.375
SRB Y	X	32	-	XX	- XXX	2.000	3.250	6.00	5.250	3.75	8.250	10.000	3.250	5.000	.625	5.375	8.000	4.00	3.625	.406	.406	2.750	.500

- Substitute "L" from standard length table for "XXX"
- *Substitute "00" - Alloy Steel, or "CR" - Chrome Plated 303 SST for "XX"
- Guide bar diameter dimension in 1/16" increments
- Enter "S" for single seals or "D" for double seals or leave blank for no seals
- Pillow block style - substitute "2" for two single PN bearings or "T" for one twin PWN bearing for "Y"

All tabulated dimensions are in inches.

MATERIAL:

T-Rail supports - aluminum alloy

***Shafting** - Hardened steel alloy or chrome plated 303 SST

Simplicity Bearings - composite teflon and aluminum alloy

Simplicity Pillow Blocks - aluminum alloy

Screws, retaining rings, spring pins - steel alloy

NOTE: For lengths over 48", guide bars will be continuous, but rail supports will have a minimum of one break every 48".

ORDERING EXAMPLE:

To order an assembly with a .750 diameter guide bar, support rail and one twin double sealed Simplicity bearing, with a length overall of 96.00", specify part number SRBTD-12-096.

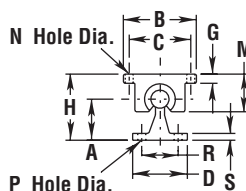
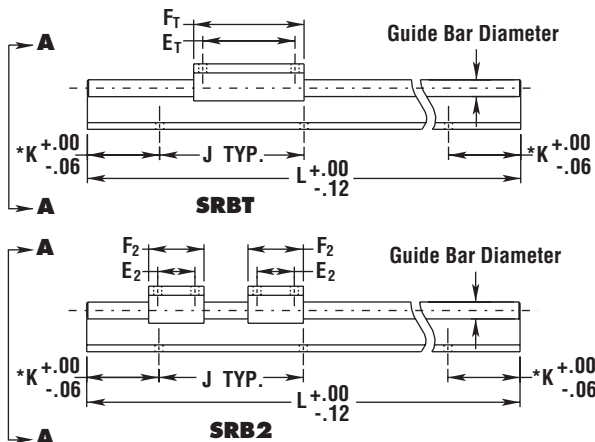
To order an assembly with a .625 diameter guide bar, support rail and two single open Simplicity bearings without seals, with a length overall of 73.25", specify part number SRB2-10-073.25.

NOTE: Carry out all fractional lengths to two decimal places.

STANDARD LENGTH TABLE (Inches)

SIZE	AVAILABLE LENGTHS - L* (in inches)																							
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076	080
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076	080
12		012		018		024		030		036		042		048		054		060		066		072		078
16		012		018		024		030		036		042		048		054		060		066		072		078
20		012		018		024		030		036		042		048		054		060		066		072		078
24			016			024			032		040			048			056		064			072		080
32						024			032		040			048			056		064			072		080

*Non-standard lengths are also available - see non-standard lengths ordering example.



VIEW A-A

*For standard length dimensions consult chart for "K" dimension.

*For non-standard length dimensions "K" can be calculated with the following formula (in all cases equal on both ends).

$$K(\text{non-std}) = (K(\text{from chart}) - (\Delta L / 2)).$$

Where ΔL = next longer standard length - desired length.

NOTES: Longer lengths are available - Consult Factory.
For Full Slide Assemblies, refer to www.pacific-bearing.com



RS - Rail Mounted Slide Assembly

PART NUMBER DIMENSIONS

SERIES	SIZE			L	GUIDE BAR DIA.	W	H	A	B	C	D	E	G	J	R	TAP	HOLE DIA.
RS	- 08	- XX	- XXX		.500	6.000	2.188	1.125	2.00	3.500	1.500	.375	5.500	4.000	1.000	10-24	.17
RS	- 10	- XX	- XXX		.625	7.000	2.375	1.125	2.50	4.000	1.625	.375	6.312	4.000	1.125	1/4-20	.19
RS	- 12	- XX	- XXX		.750	8.000	2.938	1.500	2.75	4.500	1.750	.500	7.125	6.000	1.250	1/4-20	.22
RS	- 16	- XX	- XXX		1.000	9.000	3.438	1.750	3.25	5.500	2.125	.500	8.312	6.000	1.500	1/4-20	.28
RS	- 20	- XX	- XXX		1.250	11.000	4.375	2.125	4.00	6.500	2.500	.750	10.000	6.000	1.875	5/16-18	.34
RS	- 24	- XX	- XXX		1.500	13.000	5.000	2.500	4.75	8.000	3.000	.750	12.000	8.000	2.250	5/16-18	.34
RS	- 32	- XX	- XXX		2.000	18.000	6.375	3.250	6.00	10.000	3.750	1.000	15.880	8.000	2.750	3/8-16	.41

Substitute "L" from standard length table for "XXX"
 *Substitute "00" - Alloy Steel, or "CR" - Chrome Plated 303 SST for "XX"
 Guide bar diameter dimension in 1/16" in increments

Lengths and mounting provisions to your specifications are available - consult factory.

All tabulated dimensions are in inches.

MATERIAL:

Aluminum Alloy - Top Plate, Rail Supports, Pillow Blocks

***Shafting** - Hardened steel alloy or chrome plated 303 SST

NOTE: For lengths over 48", guide bars will be continuous, but rail supports will have a minimum of one break every 48".

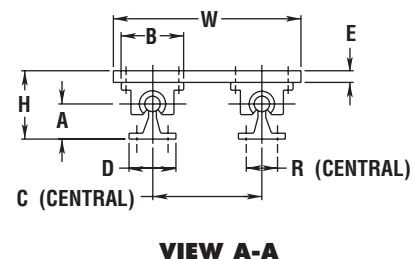
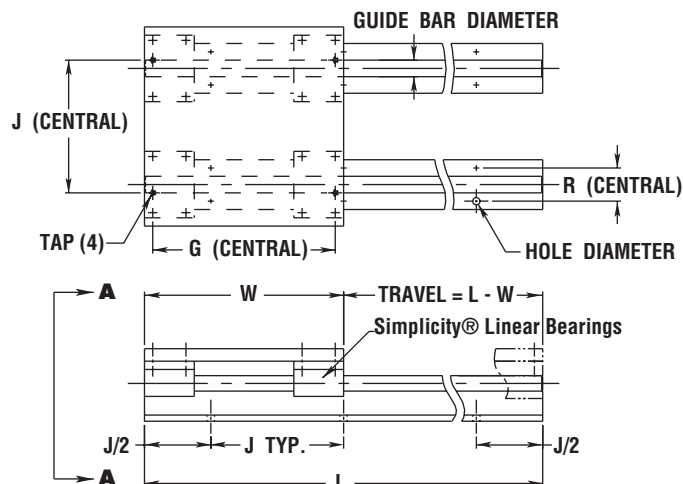
ORDERING EXAMPLE:

To order a slide with a .625 diameter guide bar, and 28" travel, specify part number RS-10-028.

STANDARD LENGTH TABLE (Inches)

SIZE	AVAILABLE LENGTHS - L* (in inches)																													
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076		080	084	088		092	096
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076		080	084	088		092	096
12		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
16		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
20		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
24			016			024			032		040			048			056		064			072			080		088			096
32						024			032		040			048			056		064			072			080		088			096

*NOTE: Longer lengths are available - consult factory.





SIMPLICITY® LINEAR SLIDES • Inch Series

RPS - Rail Mounted & Plate Supported Slide Assembly

PART NUMBER

DIMENSIONS

SERIES	SIZE	W	H	A	B	C	D	E	F	G	J	TAP	HOLE
RPS	- 08 - XX - XXX	.500	6.000	2.562	1.125	2.00	3.500	1.500	.375	1.00	5.500	4.000	10-24 .22
RPS	- 08 - XX - XXX	.625	7.000	2.750	1.125	2.50	4.000	1.625	.375	1.00	6.312	4.000	1/4-20 .28
RPS	- 08 - XX - XXX	.750	8.000	3.438	1.500	2.75	4.500	1.750	.500	1.25	7.125	6.000	1/4-20 .28
RPS	- 08 - XX - XXX	1.000	9.000	3.938	1.750	3.25	5.500	2.125	.500	1.25	8.312	6.000	1/4-20 .28
RPS	- 08 - XX - XXX	1.250	11.000	5.125	2.125	4.00	6.500	2.500	.750	1.50	10.000	6.000	5/16-18 .34
RPS	- 08 - XX - XXX	1.500	13.000	5.750	2.500	4.75	8.000	3.000	.750	1.50	12.000	8.000	5/16-18 .34
RPS	- 08 - XX - XXX	2.000	18.000	7.375	3.250	6.00	10.000	3.750	1.000	1.75	15.875	8.000	3/8-16 .41

Substitute "L" from standard length table for "XXX"
 Substitute "00"- Alloy Steel, or "CR" - Chrome Plated 303 SST for "XX"
 Guide bar diameter dimension in 1/16" increments

Lengths and mounting provisions to your specifications are available - consult factory.

All tabulated dimensions are in inches.

MATERIAL:

Aluminum Alloy - Top Plate, Bottom Plate, Rail Supports, Pillow Blocks.

Steel Alloy - Guide shafts with proprietary low friction corrosion resistant surface treatment.

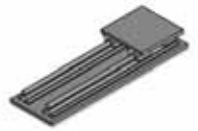
ORDERING EXAMPLE:

To order a slide with a .625 diameter guide bar, and 28" travel, specify part number RPS-10-028.

STANDARD LENGTH TABLE (Inches)

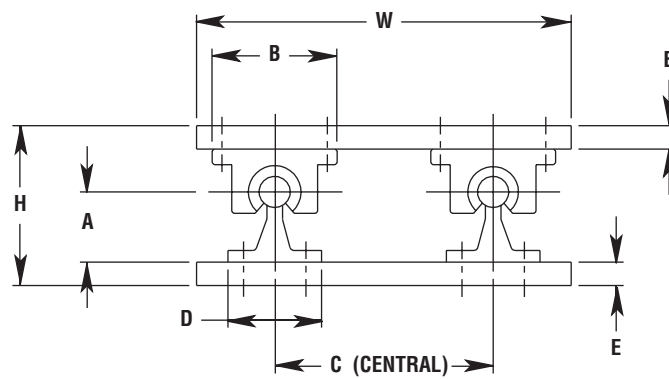
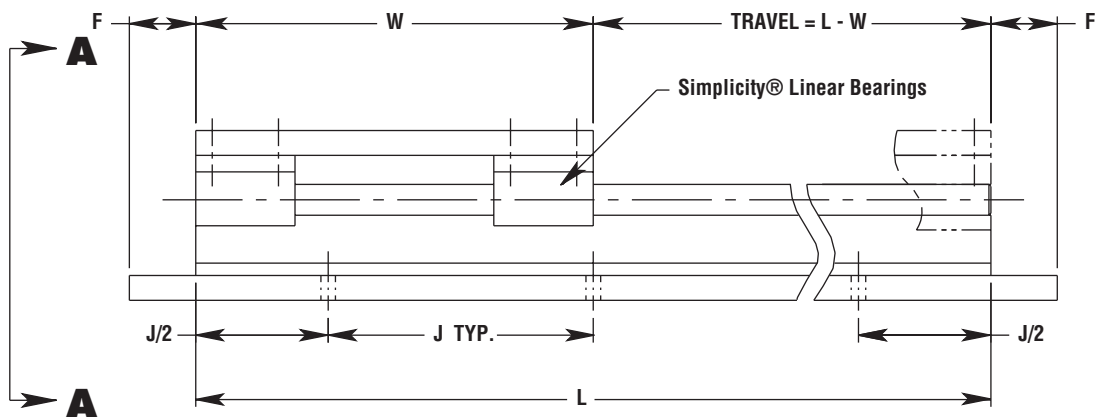
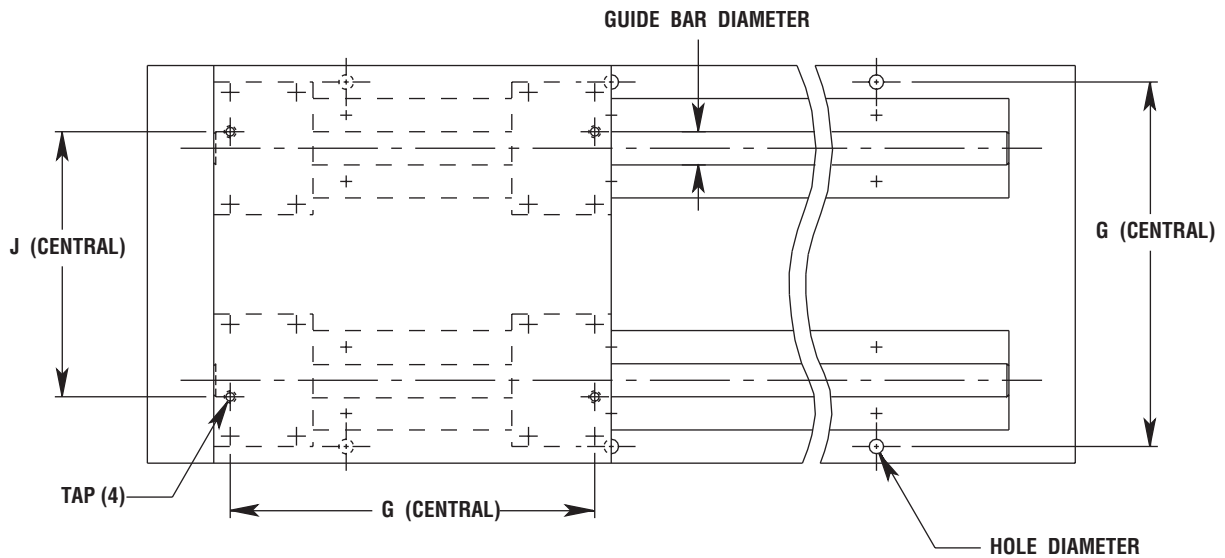
SIZE	AVAILABLE LENGTHS - L* (in inches)																													
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076		080	084	088		092	096
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076		080	084	088		092	096
12		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
16		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
20		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
24			016			024			032		040			048			056		064			072			080		088			096
32						024			032		040			048			056		064			072			080		088			096

*NOTE: Longer lengths are available - consult factory.

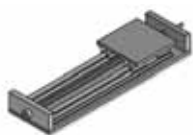


Rail Mounted & Plate Supported Slide Assembly

RPS



VIEW A-A



SIMPLICITY® LINEAR SLIDES • Inch Series

2RPS - Rail Mounted & Plate Supported Ball Screw Driven Slide Assembly (Supported on Both Ends)

DIMENSIONAL INFORMATION

GUIDE BAR DIA.	W	H	A	B	C	D	E	F	G	J	K	M	N	O	TAP	HOLE DIA.	KEY
.500	6.000	2.562	1.125	2.00	3.500	1.500	.375	1.00	5.500	4.000	1.375	.375	1.45	.63	10-24	.22	3/32 sq X 5/8 lg
.625	7.000	2.750	1.125	2.50	4.000	1.625	.375	1.00	6.312	4.000	1.375	.375	1.45	.63	1/4-20	.28	3/32 sq X 5/8 lg
.750	8.000	3.438	1.500	2.75	4.500	1.750	.500	1.25	7.125	6.000	1.500	.375	1.45	.63	1/4-20	.28	3/32 sq X 5/8 lg
1.000	9.000	3.938	1.750	3.25	5.500	2.125	.500	1.25	8.312	6.000	2.125	.625	1.76	1.00	1/4-20	.28	3/16 sq X 1" lg
1.250	11.000	5.125	2.125	4.00	6.500	2.500	.750	1.50	10.000	6.000	2.375	.625	1.76	1.00	5/16-18	.34	3/16 sq X 1" lg
1.500	13.000	5.750	2.500	4.75	8.000	3.000	.750	1.50	12.000	8.000	2.875	1.000	2.31	1.50	5/16-18	.34	1/4 sq X 1.62 lg
2.000	18.000	7.375	3.250	6.00	10.000	3.750	1.000	1.75	15.875	8.000	3.875	1.000	2.31	1.50	3/8-16	.41	1/4 sq X 1.62 lg

PART NUMBER

SERIES	SIZE			L	LEAD
2RPS	- 08	- XX	- XXX	- YYY	
2RPS	- 10	- XX	- XXX	- YYY	
2RPS	- 12	- XX	- XXX	- YYY	
2RPS	- 16	- XX	- XXX	- YYY	
2RPS	- 20	- XX	- XXX	- YYY	
2RPS	- 24	- XX	- XXX	- YYY	
2RPS	- 32	- XX	- XXX	- YYY	

MATERIAL:

Aluminum Alloy - Top Plate, Bottom Plate, Rail Supports, Pillow Blocks.

Alloy Steel - Guide shafts with proprietary low friction corrosion resistant surface treatment.

ORDERING EXAMPLE:

To order a slide with a Ø.625 diameter guide bar, 21.00" travel, .200" right hand select ball screw - specify part number, 2RPS-10-028-AR1.

Substitute standard or select lead code from table for "YYY"

Substitute "L" from standard length table for "XXX"

Substitute "00"- Alloy Steel, or "CR" - Chrome Plated 303 SST for "XX"

Guide bar diameter dimension in 1/16" increments

STANDARD LEAD TABLE

SIZE	AVAILABLE LEAD CODES							LEAD CODES
08	ARO	ALO						ARO = .200 Right Hand
10	ARO	ALO						ALO = .200 Left Hand
12	ARO	ALO						BRO = .250 Right Hand
16			BRO	BLO	CRO	DRO		BLO = .250 Left Hand
20			BRO	BLO	CRO	DRO		CRO = .500 Right Hand
24			BRO	BLO	CRO	DRO	DLO	DRO = 1.000 Right Hand
32			BRO	BLO	CRO	DRO	DLO	DLO = 1.000 Left Hand
							ERO	ERO = 1.875 Right Hand

NOTE: Standard leads are accurate to less than .007" per foot accumulative.

SELECT LEAD TABLE

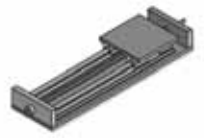
SIZE	AVAILABLE LEAD CODES							LEAD CODES
08	AR1	AL1						AR1 = .200 Right Hand
10	AR1	AL1						AL1 = .200 Left Hand
12	AR1	AL1						BR1 = .250 Right Hand
16			BR1	BL1	CR1	DR1		BL1 = .250 Left Hand
20			BR1	BL1	CR1	DR1		CR1 = .500 Right Hand
24			BR1	BL1	CR1	DR1	DL1	DR1 = 1.000 Right Hand
32			BR1	BL1	CR1	DR1	DL1	DL1 = 1.000 Left Hand
							ER1	ER1 = 1.875 Right Hand

NOTE: Select leads are accurate to less than .003" per foot accumulative.

STANDARD LENGTH TABLE (Inches)

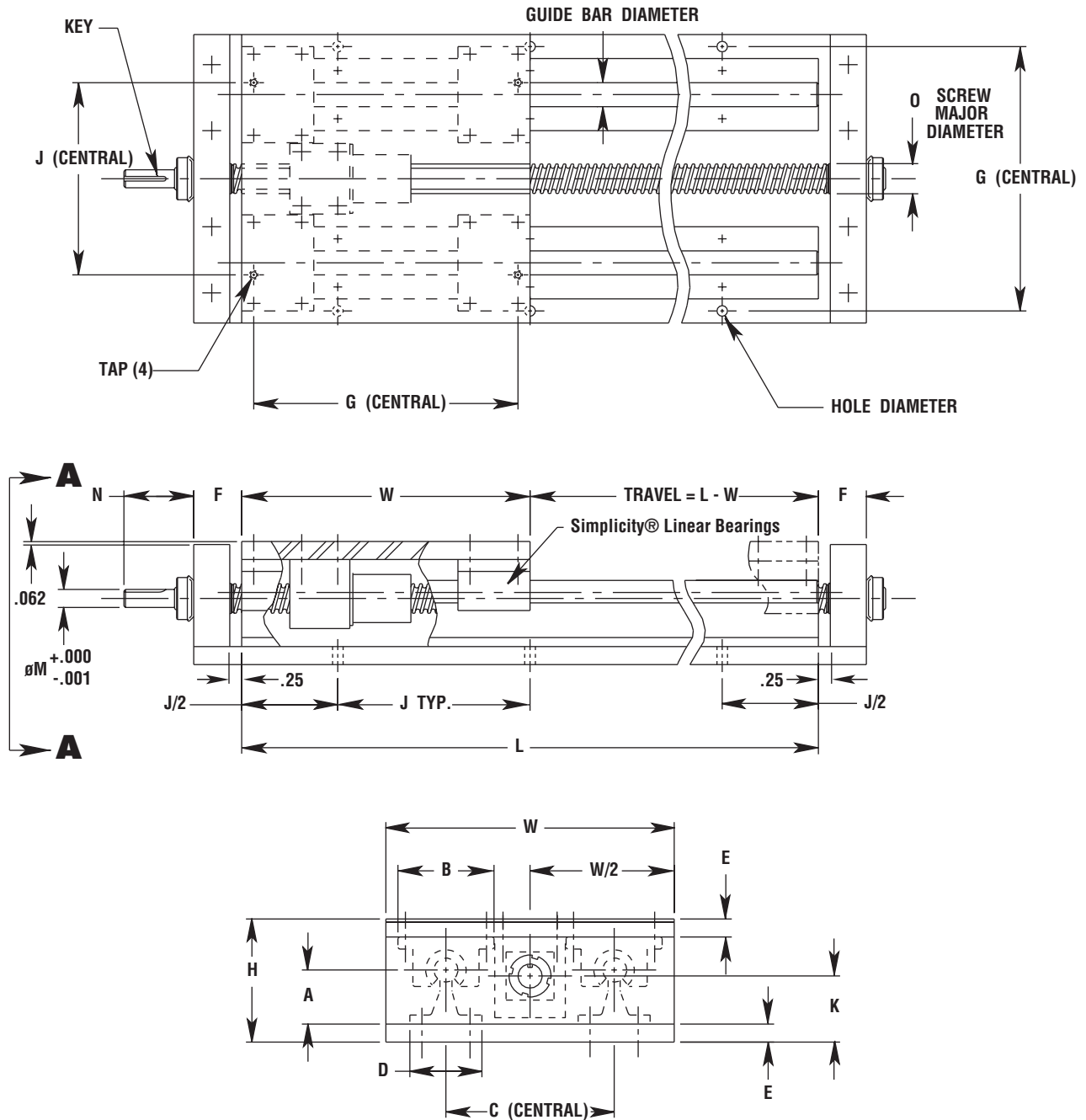
SIZE	AVAILABLE LENGTHS - L* (in inches)																			
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064	
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064	
12		012		018		024		030		036		042		048		054		060		066
16		012		018		024		030		036		042		048		054		060		066
20		012		018		024		030		036		042		048		054		060		066
24			016			024			032		040			048			056		064	
32						024			032		040			048			056		064	

*NOTE: Longer lengths are available - consult factory.

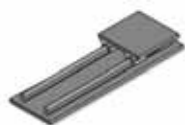


Rail Mounted & Plate Supported Ball Screw Driven Slide Assembly (Supported on Both Ends)

2RPS



VIEW A-A



LRPS - Low Profile Rail Mounted & Plate Supported Slide Assembly

PART NUMBER DIMENSIONS

SERIES	SIZE			L	GUIDE BAR DIA.	W	H	A	B	C	D	E	F	G	J	TAP	HOLE DIA.
LRPS	- 08	- XX	- XXX		.500	6.000	2.000	.563	2.00	3.500	.37	.375	1.00	5.500	4.000	10-24	.22
LRPS	- 10	- XX	- XXX		.625	7.000	2.313	.688	2.50	4.000	.45	.375	1.00	6.312	4.000	1/4-20	.28
LRPS	- 12	- XX	- XXX		.750	8.000	2.688	.750	2.75	4.500	.51	.500	1.25	7.125	6.000	1/4-20	.28
LRPS	- 16	- XX	- XXX		1.000	9.000	3.188	1.000	3.25	5.500	.69	.500	1.25	8.312	6.000	1/4-20	.28
LRPS	- 20	- XX	- XXX		1.250	11.000	4.188	1.188	4.00	6.500	.78	.750	1.50	10.000	6.000	5/16-18	.34
LRPS	- 24	- XX	- XXX		1.500	13.000	4.625	1.375	4.75	8.000	.93	.750	1.50	12.000	8.000	5/16-18	.34
LRPS	- 32	- XX	- XXX		2.000	18.000	5.875	1.750	6.00	10.000	1.18	1.000	1.75	15.875	8.000	3/8-16	.41

- Substitute "L" from standard length table for "XXX"
- Substitute "00" - Alloy Steel, or "CR" - Chrome Plated 303 SST for "XX"
- Guide bar diameter dimension in 1/16" increments

Lengths and mounting provisions to your specifications are available - consult factory.

All tabulated dimensions are in inches.

MATERIAL:

Aluminum Alloy - Top Plate, Bottom Plate, Rail Supports, Pillow Blocks.

Steel Alloy - Guide shafts with proprietary low friction corrosion resistant surface treatment.

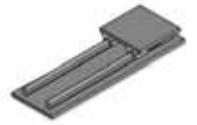
ORDERING EXAMPLE:

To order a slide with a .625 diameter guide bar, and 28" travel, specify part number LRPS-10-028.

STANDARD LENGTH TABLE (Inches)

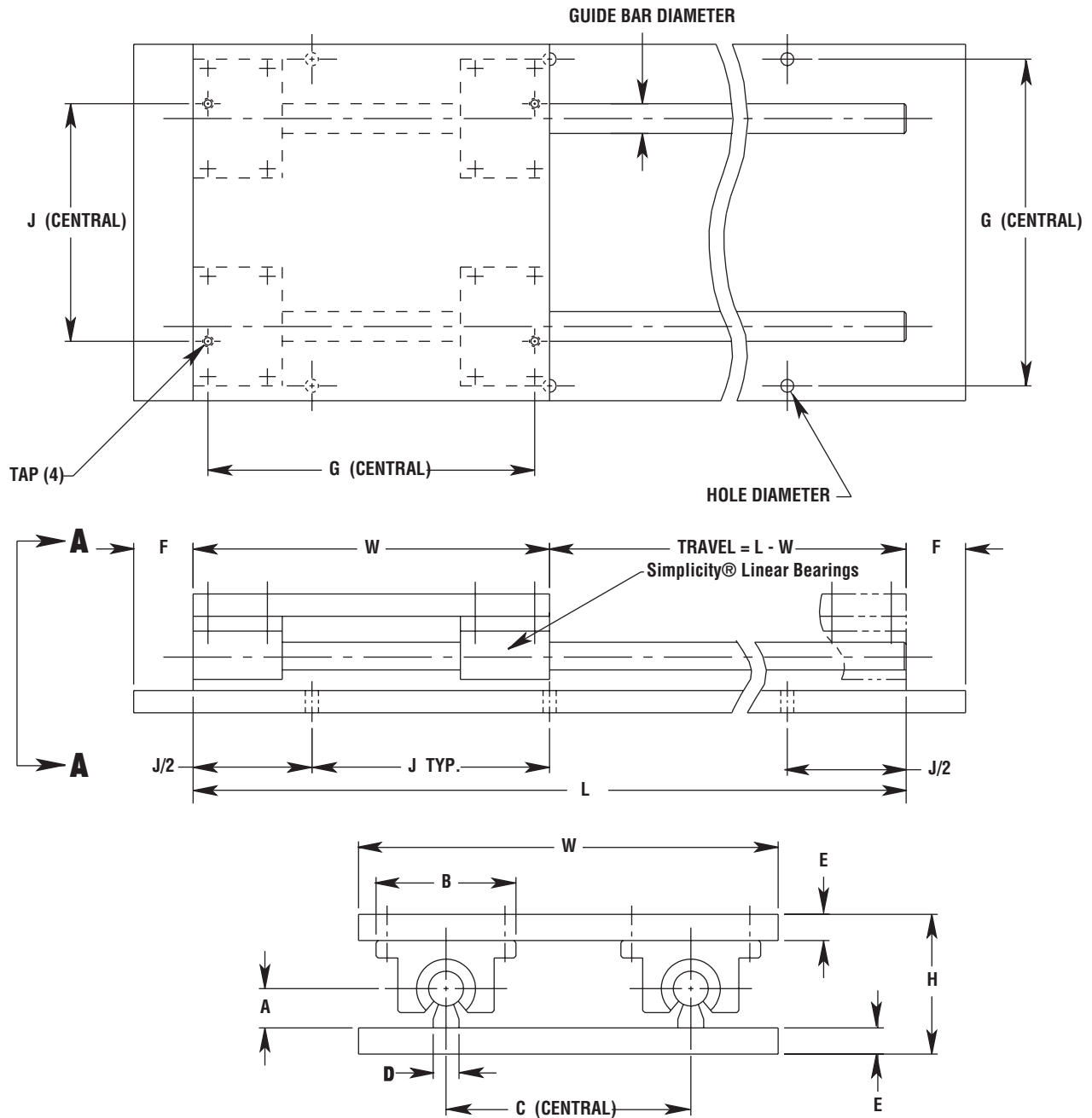
SIZE	AVAILABLE LENGTHS - L* (in inches)																													
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076		080	084	088		092	096
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064		068	072	076		080	084	088		092	096
12		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
16		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
20		012		018		024		030		036		042		048		054		060		066		072		078		084		090		096
24			016			024			032		040			048			056		064			072			080		088			096
32						024			032		040			048			056		064			072			080		088			096

*NOTE: Longer lengths are available - consult factory.

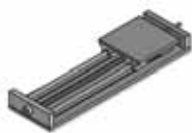


Low Profile Rail Mounted & Plate Supported Slide Assembly

LRPS



VIEW A-A



SIMPLICITY® LINEAR SLIDES • Inch Series

2LRPS - Low Profile Rail Mounted & Plate Supported Ball Screw Driven Slide Assembly (Supported on Both Ends)

DIMENSIONAL INFORMATION

GUIDE BAR DIA.	W	H	A	B	C	D	E	F	G	J	K	M	N	O	P	TAP	HOLE DIA.	KEY
0.500	6.0	2.000	0.563	2.00	3.5	0.37	0.375	1.00	5.50	4.0	1.000	0.38	1.45	0.63	0.031	10-24	.22	3/32 sq X 5/8 lg
0.625	7.0	2.313	0.688	2.50	4.0	0.45	0.375	1.00	6.31	4.0	1.156	0.38	1.45	0.63	0.031	1/4-20	.28	3/32 sq X 5/8 lg
0.750	8.0	2.688	0.750	2.75	4.5	0.51	0.500	1.25	7.13	6.0	1.344	0.38	1.45	0.63	0.031	1/4-20	.28	3/32 sq X 5/8 lg
1.000	9.0	3.188	1.000	3.25	5.5	0.69	0.500	1.25	8.31	6.0	1.594	0.63	1.76	1.00	0.062	1/4-20	.28	3/16 sq X 1" lg
1.250	11.0	4.188	1.188	4.00	6.5	0.78	0.750	1.50	10.00	6.0	2.094	0.63	1.76	1.00	0.062	5/16-18	.34	3/16 sq X 1" lg
1.500	13.0	4.625	1.375	4.75	8.0	0.93	0.750	1.50	12.00	8.0	2.312	1.00	2.31	1.50	0.062	5/16-18	.34	1/4 sq X 1.62 lg
2.000	18.0	5.875	1.750	6.00	10.0	1.18	1.000	1.75	15.88	8.0	2.937	1.00	2.31	1.50	0.062	3/8-16	.41	1/4 sq X 1.62 lg

PART NUMBER

SERIES	SIZE	L	LEAD
2LRPS	- 08	- XXX	- YYY
2LRPS	- 10	- XXX	- YYY
2LRPS	- 12	- XXX	- YYY
2LRPS	- 16	- XXX	- YYY
2LRPS	- 20	- XXX	- YYY
2LRPS	- 24	- XXX	- YYY
2LRPS	- 32	- XXX	- YYY

MATERIAL:

Aluminum Alloy - Top Plate, Bottom Plate, Rail Supports, Pillow Blocks.

Alloy Steel - Guide shafts with proprietary low friction corrosion resistant surface treatment.

ORDERING EXAMPLE:

To order a slide with a Ø.625 diameter guide bar, 28" travel, .200" right hand select ball screw - specify part number, 2LRPS-10-028-AR1.

Substitute standard or select lead code from table for "YYY"

Substitute "L" from standard length table for "XXX"

Guide bar diameter dimension in 1/16" increments

STANDARD LEAD TABLE

SIZE	AVAILABLE LEAD CODES							LEAD CODES
08	ARO	ALO						ARO = .200 Right Hand
10	ARO	ALO						ALO = .200 Left Hand
12	ARO	ALO						BRO = .250 Right Hand
16			BRO	BLO	CRO	DRO		BLO = .250 Left Hand
20			BRO	BLO	CRO	DRO		CRO = .500 Right Hand
24			BRO	BLO	CRO	DRO	DLO	DRO = 1.000 Right Hand
32			BRO	BLO	CRO	DRO	DLO	DLO = 1.000 Left Hand
								ERO = 1.875 Right Hand

NOTE: Standard leads are accurate to less than .007" per foot accumulative.

SELECT LEAD TABLE

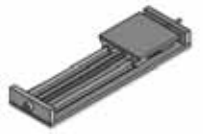
SIZE	AVAILABLE LEAD CODES							LEAD CODES
08	AR1	AL1						AR1 = .200 Right Hand
10	AR1	AL1						AL1 = .200 Left Hand
12	AR1	AL1						BR1 = .250 Right Hand
16			BR1	BL1	CR1	DR1		BL1 = .250 Left Hand
20			BR1	BL1	CR1	DR1		CR1 = .500 Right Hand
24			BR1	BL1	CR1	DR1	DL1	DR1 = 1.000 Right Hand
32			BR1	BL1	CR1	DR1	DL1	DL1 = 1.000 Left Hand
								ER1 = 1.875 Right Hand

NOTE: Select leads are accurate to less than .003" per foot accumulative.

STANDARD LENGTH TABLE (Inches)

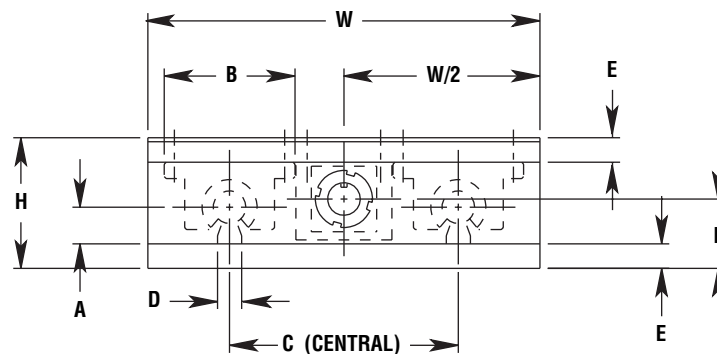
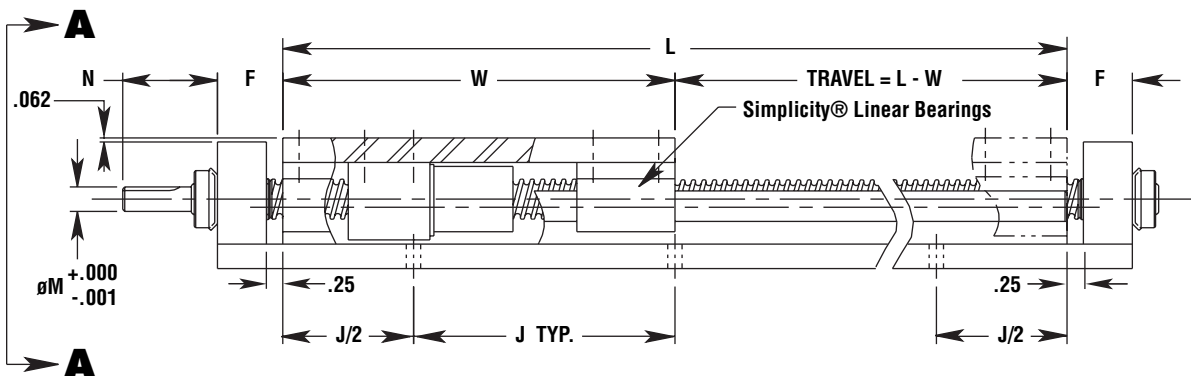
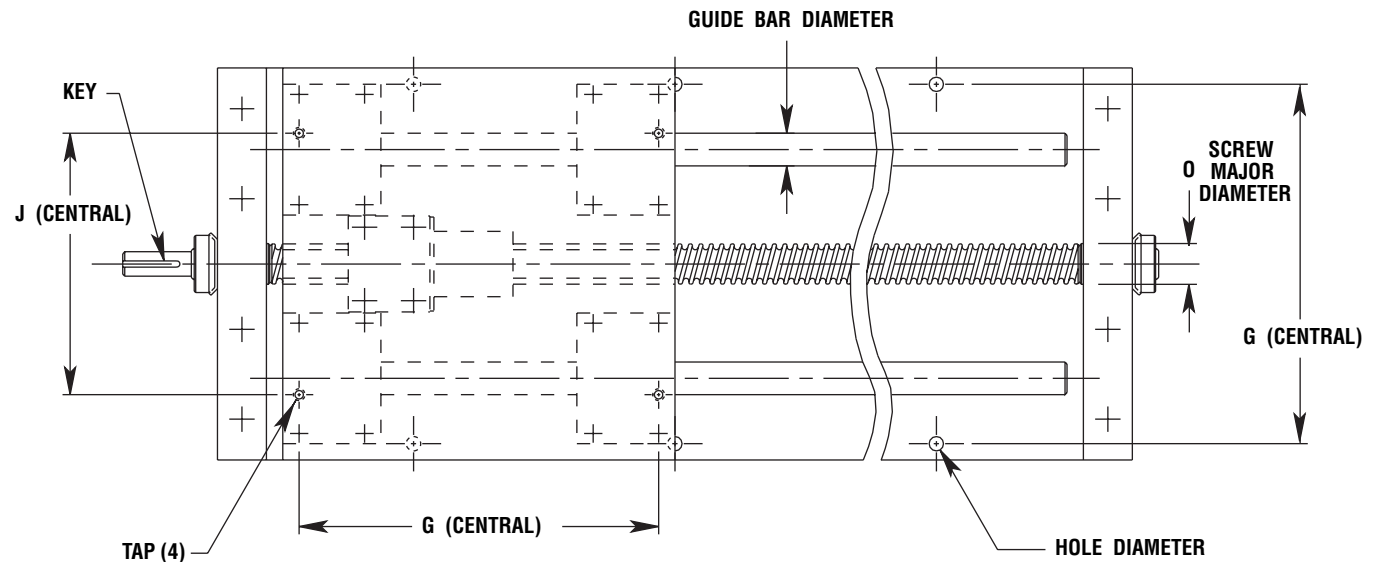
SIZE	AVAILABLE LENGTHS - L* (in inches)																			
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064	
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064	
12		012		018		024		030		036		042		048		054		060		066
16		012		018		024		030		036		042		048		054		060		066
20		012		018		024		030		036		042		048		054		060		066
24			016			024			032		040			048			056		064	
32						024			032		040			048			056		064	

*NOTE: Longer lengths are available - consult factory.

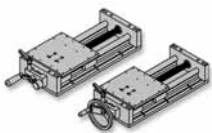


Low Profile Rail Mounted & Plate Supported Ball Screw Driven Slide Assembly (Supported on Both Ends)

2LRPS



VIEW A-A



2HCR/2HWL - Slide Assembly with Handcrank and Ball Screw Rotational Lock

PART NUMBER

SERIES		SIZE		L		LEAD
2HXX	-	08	-	XXX	-	YYY
2HXX	-	10	-	XXX	-	YYY
2HXX	-	12	-	XXX	-	YYY
2HXX	-	16	-	XXX	-	YYY
2HXX	-	20	-	XXX	-	YYY
2HXX	-	24	-	XXX	-	YYY
2HXX	-	32	-	XXX	-	YYY

DIMENSIONS

GUIDE BAR DIA	W	H	A	B	C	D	E	F	G	J
.500	6.000	2.562	1.125	2.00	3.500	1.50	.375	.75	5.500	4.000
.625	7.000	2.750	1.125	2.50	4.000	1.62	.375	.75	6.312	4.000
.750	8.000	3.438	1.500	2.75	4.500	1.75	.500	1.00	7.125	6.000
1.000	9.000	3.938	1.750	3.25	5.500	2.12	.500	1.00	8.312	6.000
1.250	11.000	5.125	2.125	4.00	6.500	2.50	.750	1.25	10.000	6.000
1.500	13.000	5.750	2.500	4.75	8.000	3.00	.750	1.25	12.000	8.000
2.000	18.000	7.375	3.250	6.00	10.000	3.75	1.000	1.50	15.875	8.000

ORDERING EXAMPLE: 2HWL-10-056-AR1

MATERIAL:

Aluminum Alloy - Top and bottom plates, rail supports, and pillow blocks.

Alloy Steel - Guide bar shafts with proprietary low friction corrosion resistant surface treatment. Rolled ball screw and ball nut assembly.

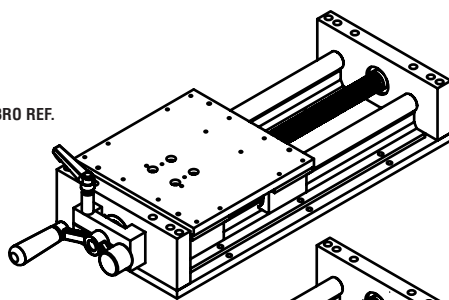
Guide bar diameter in 1/16" increments (10/16 = .625")

SERIES

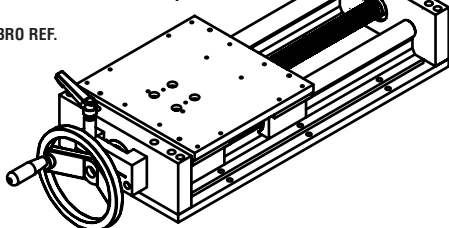
HANDLE DESCRIPTION

CR	Standard Model Cast Aluminum Counterbalanced Hand Crank 24 and 32 (ONLY) Spoked Cast Iron Handwheel with Rigid, Revolving Crank Handle
WL	Deluxe Model Aluminum Handwheel with Fold-Away Composite Handle

2HCR-16-018-BRO REF.



2HWL-16-018-BRO REF.



STANDARD & SELECT - BALL SCREW LEAD CODE TABLE

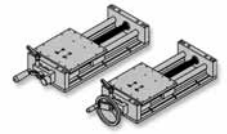
SIZE	AVAILABLE LEAD CODE						LEAD CODES
08	ARX	ALX					ARX = .200 Right Hand
10	ARX	ALX					ALX = .200 Left Hand
12	ARX	ALX					BRX = .250 Right Hand
16			BRX	BLX	CRX	DRX	BLX = .250 Left Hand
20			BRX	BLX	CRX	DRX	CRX = .500 Right Hand
24			BRX	BLX	CRX	DRX	DRX = 1.000 Right Hand
32			BRX	BLX	CRX	DRX	DLX = 1.000 Left Hand
						DLX	ERX = 1.875 Right Hand

Replace X with 0 for standard lead accurate to less than .007" per foot accumulative

Replace X with 1 for standard lead accurate to less than .003" per foot accumulative

STANDARD LENGTH TABLE (Inches)

SIZE	AVAILABLE LENGTHS - L* (in inches)																			
08	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064	
10	008	012	016		020	024	028		032	036	040		044	048	052		056	060	064	
12		012		018		024		030		036		042		048		054		060		066
16		012		018		024		030		036		042		048		054		060		066
20		012		018		024		030		036		042		048		054		060		066
24			016			024			032		040			048			056		064	
32						024			032		040			048			056		064	

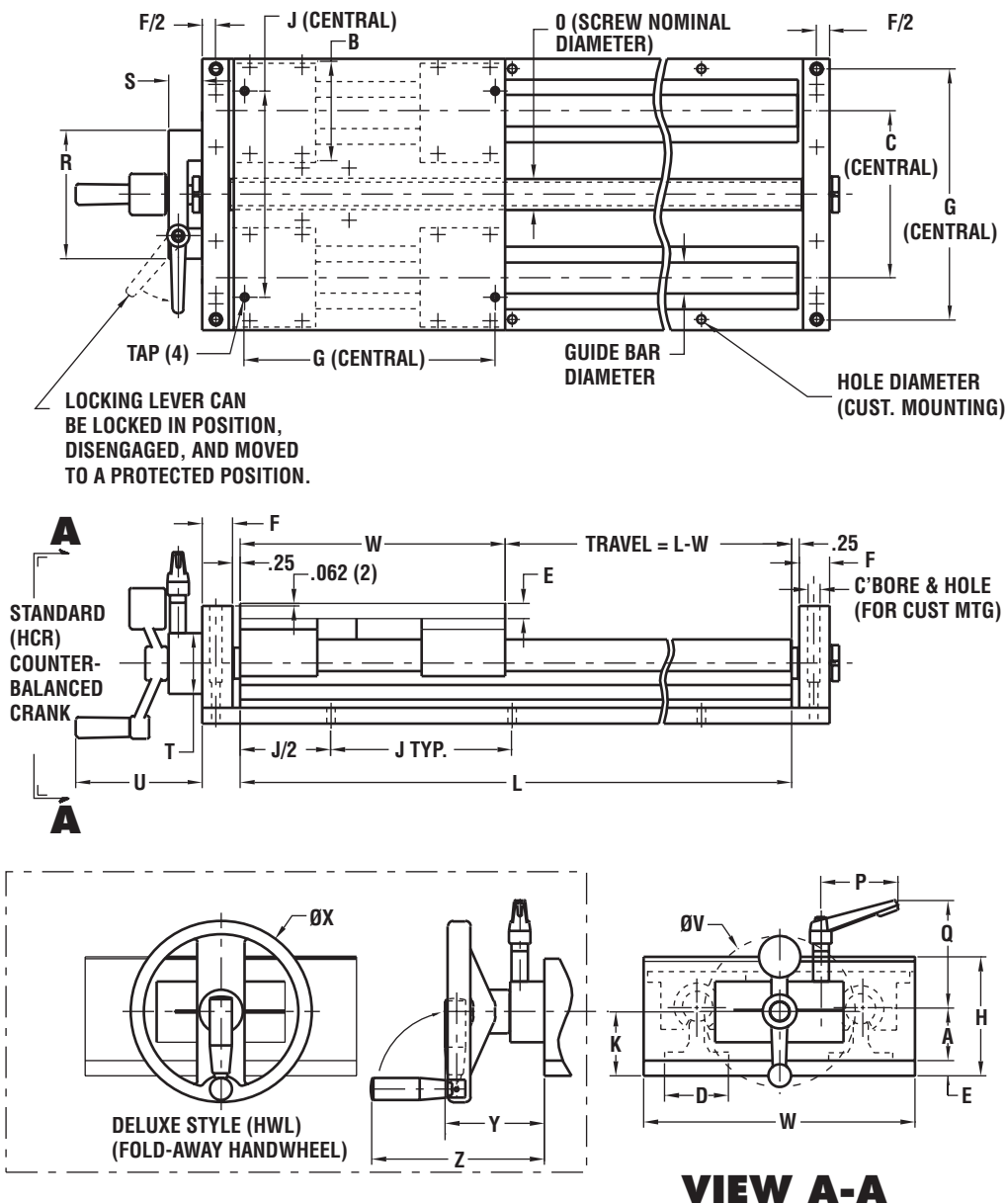


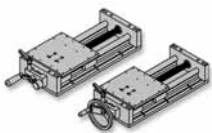
Slide Assembly with Handcrank and Ball Screw Rotational Lock

2HCR/2HWL

DIMENSIONS (Continued)

K	O	P	Q	R	S	T	U	V	X	Y	Z	TAP	HOLE DIA.	SIZE
1.38	.631	2.56	3.85	3.000	.875	1.312	4.000	4.000	4.00	2.655	4.855	10-24	.22	08
1.38	.631	2.56	3.85	3.000	.875	1.312	4.000	4.000	4.00	2.655	4.855	1/4-20	.28	10
1.50	.631	2.56	3.85	3.000	.875	1.312	4.000	4.000	4.00	2.655	4.855	1/4-20	.28	12
2.12	1.000	2.56	3.69	4.250	1.125	2.000	4.250	5.000	6.00	3.185	5.745	1/4-20	.28	16
2.38	1.000	2.56	3.69	4.250	1.125	2.000	4.250	5.000	6.00	3.185	5.745	5/16-18	.34	20
2.88	1.500	3.15	5.81	6.500	1.500	3.000	6.900	8.000	8.00	4.310	7.460	5/16-18	.34	24
3.88	1.500	3.15	5.81	6.500	1.500	3.000	6.900	8.000	8.00	4.310	7.460	3/8-16	.41	32





COLUMN LOAD CHART (Ball Screw)

COMPRESSION (COLUMN) LOAD: A load that tends to buckle or compress the screw shaft.

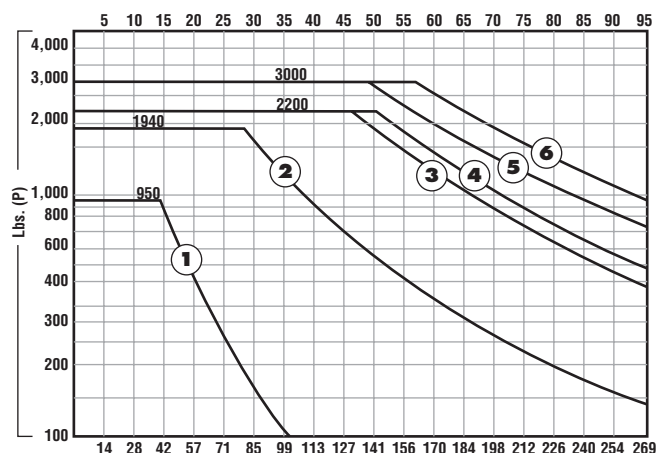
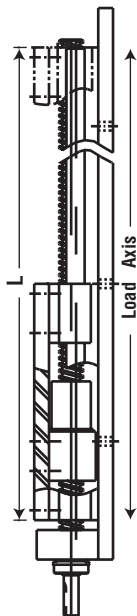
HOW TO USE CHART:

1. Determine maximum compression load (lbs.)
2. Determine slide length. ("L" dimension)
3. Determine end fixity and slide designation (2RPS & 2LRPS).
4. Find the point at which load and length intersect.
5. Select a slide above or to the right of the intersecting point.

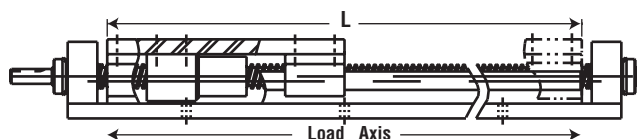
Applies Primarily to Vertical Application

***NOTE:** Chart figures at 80% of actual load.

DO NOT EXCEED THESE FIGURES.



2RPS & 2LRPS (See Chart on pages 22, 23, 26 and 27)-(L)



CURVE NUMBER	SLICE SERIES SIZE, LEAD
1	2RPS-08-(AR OR AL) 2LRPS-08-(AR OR AL) 2RPS-10-(AR OR AL) 2LRPS-10-(AR OR AL) 2RPS-12-(AR OR AL) 2LRPS-12-(AR OR AL) D = .500
2	2RPS-16-(BR OR BL) 2LRPS-16-(BR OR BL) 2RPS-20-(BR OR BL) 2LRPS-20-(BR OR BL) 2RPS-16-DR 2LRPS-16-DR 2RPS-20-DR 2LRPS-20-DR D = .840 2RPS-16-CR 2LRPS-16-CR 2RPS-20-CR 2LRPS-20-CR D = .870
3	2RPS-24-(DR OR DL) 2LRPS-24-(DR OR DL) 2RPS-32-(DR OR DL) 2LRPS-32-(DR OR DL) D = 1.140
4	2RPS-24-ER 2LRPS-24-ER 2RPS-32-ER 2LRPS-32-ER D = 1.190
5	2RPS-24-CR 2LRPS-24-CR 2RPS-32-CR 2LRPS-32-CR D = 1.260
6	2RPS-24-(BR OR BL) 2LRPS-24-(BR OR BL) 2RPS-32-(BR OR BL) 2LRPS-32-(BR OR BL) D = 1.375

COLUMN LOAD FORMULAS*:

$$N = C_s \cdot 14.03 \times 10^6 \cdot \left(\frac{D^4}{L^2} \right)$$

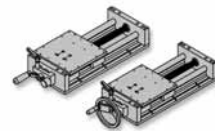
P = Critical column load (lbs.)

D = Root diameter of screw (See chart) (In.)

L = Slide length (In.)

C_c = End fixity factor

C_c = 2.0 2RPS & 2LRPS

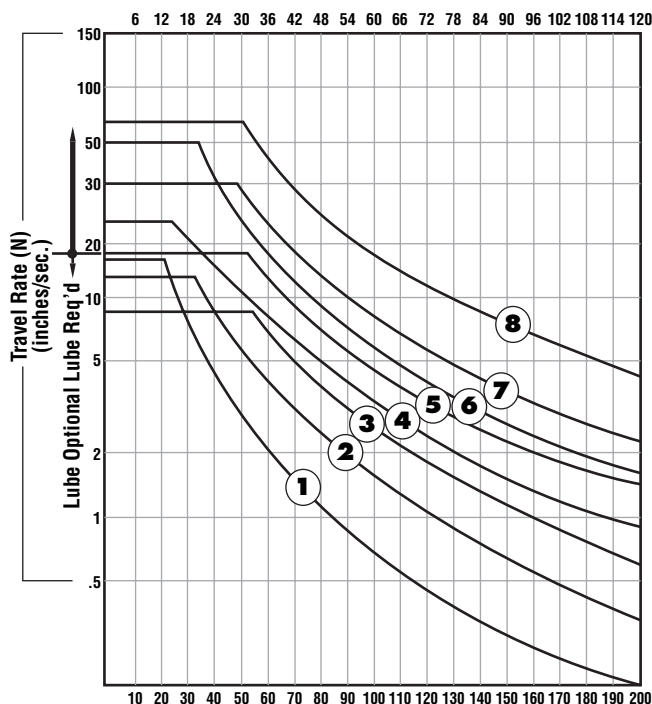
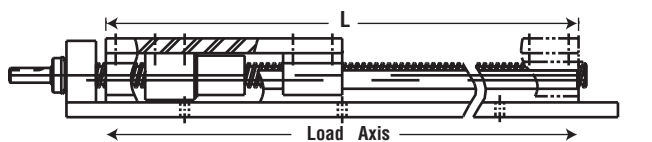


CRITICAL SPEED CHART (Ball Screw)

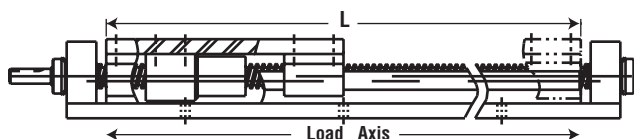
CRITICAL SPEED: The maximum speed at which a ball screw or ball nut can rotate without producing destructive resonant vibrations. The critical speed is a function of the ball screw diameter, the unsupported length of screw, rigidity of bearing supports, and RPM.

HOW TO USE CHART:

1. Determine end fixity. How many ends are fixed?
(Slide designation, 2RPS & 2LRPS)
2. Determine slide length. ("L" dimension)
3. Find the length – fixity vertical line, read up to find the intersecting, at the required travel rate.
4. Select a slide above or to the right of the intersection point.
5. Higher speeds and/or longer lengths are available as cost effective specials, having a larger ball screw and bearings. (Consult Pacific Bearing)



2RPS & 2LRPS (See Chart on pages 22, 23, 26 and 27)-(L)



CURVE NUMBER	SLICE SERIES SIZE, LEAD	
1	2RPS-08-(AR or AL) 2LPS-08-(AR or AL) 2RPS-10-(AR or AL) 2LPS-10-(AR or AL) D = .500 H = .200	2RPS-12-(AR or AL) 2LPS-12-(AR or AL)
2	2RPS-16-(BR or BL) 2LPS-16-(BR or BL) D = .840 H = .250	2RPS-20-(BR or BL) 2LPS-20-(BR or BL)
3	2RPS-24-(BR or BL) 2LPS-24-(BR or BL) D = 1.375 H = .250	2RPS-32-(BR or BL) 2LPS-32-(BR or BL)
4	2RPS-16-(CR) 2LPS-16-(CR) D = .870 H = .500	2RPS-20-(CR) 2LPS-20-(CR)
5	2RPS-24-(CR) 2LPS-24-(CR) D = 1.260 H = .500	2RPS-32-(CR) 2LPS-32-(CR)
6	2RPS-16-(DR) 2LPS-16-(DR) D = .840 H = 1.000	2RPS-20-(DR) 2LPS-20-(DR)
7	2RPS-24-(DR or DL) 2LPS-24-(DR or DL) D = 1.140 H = 1.000	2RPS-32-(DR or DL) 2LPS-32-(DR or DL)
8	2RPS-24-(ER) 2LPS-24-(ER) D = 1.190 H = 1.875	2RPS-32-(ER) 2LPS-32-(ER)

CRITICAL SPEED FORMULAS*:

N = Critical speed (Maximum) (expressed in inches/sec.)

D = Root diameter of screw (See chart) (In./Rev.)

H = Lead of screw (See chart) (In.)

$$N = C_s \cdot 14.03 \times 10^6 \cdot \left(\frac{D^4}{L^2} \right)$$

L = Slide length (In.)

C_s = End fixity factor

C_s = 1.47 2RPS & 2LRPS

*NOTE: Chart figures at 80% of actual load.

DO NOT EXCEED THESE FIGURES.

SERIES

FL - Standard Inch Series
FLR - Super Groove Interchangeable Series
NOTE: "FLR, FLCNR and FLCR" are only available for sizes: 06, 08, 10, 12, and 16. Standard FL Series for all other sizes do not require groove modification to meet specs.
FM - ISO Metric Series
FMT - Compact ISO Metric Thin Wall Series
FG - "FAG™" Thin Wall Interchange
FJ - JIS Standard Series
PS - Inch Series Sleeve Bearings
PSF - Inch Series Flange Bearings
PSM - ISO Metric Series Sleeve Bearings
PSFM - ISO Metric Series Flange Bearings

O.D. Features

NOTE: Available ONLY on the "FL, FLR, FM, FJ" series
No Entry - Standard Straight O.D. bearing
A - Crowned "self-aligning" O.D. bearing (closed only)

Super Groove Interchangeable Series

I.D. Features

NOTE: Does NOT apply to "PS, PSF, PSM, PSFM"
No Entry - Standard Precision running clearance on the I.D.
C - Compensated running clearance on the I.D.

Closed or Open Style

NOTE: Available ONLY on the "FL, FLR, FM, FJ" series
No Entry - Standard Closed bearing
N - Open series bearing (not available in "FLA")

Bearing Shell Material

NOTE: Available ONLY on "FL, FLR, FM, FMT, FG, FJ" series
No Entry - Standard 6061-T6 Aluminum
***S** - 316 Stainless Steel (**NOTE:** No finish plating or anodize available)

Nominal Shaft Diameter

NOTE: English units in 16ths of an inch
Metric units in mm

FL A R C N S 16 - D E I JKM Q

Seal Options

NOTE: Available only with "FL, FLR, FM20 - FM80, FJ" series.
D - Double seals of Standard Polymod material
DU - Double seals of moly impregnated urethane material
DV - Double seals of viton - high temperature material

Bearing Liner Material

No Entry - Standard FrelonGOLD® liner for hardened steel shafting and Feather Shafting®
***E** - Special FrelonJ® liner for soft shafting (aluminum, 300 series stainless steel, etc.)
***F** - Original FrelonF® liner for hardened steel shafting and 440 stainless steel shafting
***Limited availability may require special quote**

O.D. Finishes

No Entry - Standard anodized finish
"FL, FLR" - Red anodized
"FM, FMT, FG" - Blue anodized
"FJ" - Green anodized
"PS, PSF, PSM, PSFM" - NO anodize
"PAC, PACM" - Black oxide
"SFPM, DFPM, CFPM, SFPJ, DFPJ, CFPJ" - Clear anodize

Internal Lubrication

NOTE: Available with "FL, FM and FJ" series only.
No Entry - Standard bearing - NO lube system
JKM - Thru hole, and internal felt wick to help lubrication retention and flow. (**NOTE:** Zerk fitting added to O.D. of PAC & PACM)
NOTE: Available for size "FM12 - FM80" only.

Special Modifications

NOTE: Consult Factory
No Entry - Standard Options
Q - Shipped Oil Free (Consult Factory)

*Non-standard features are NOT in-stock items.
8 weeks lead time may be required.
FAG® is a trademark of the FAG Bearing Corporation.

SERIES

NOTE: Standard Simplicity bearings are installed in housings

P - Standard Inch Series Pillow Blocks (FL)

PW - Inch Series Twin Pillow Blocks (FL)

PM - ISO Metric Pillow Blocks (FM)

SDS - Single Steel Flange Mount Die Set Series (FL)

DDS - Double Steel Flange Mount Die Set Series (FL)

SFP - Inch Series Single Aluminum

Flange Mounts (FL)

DFP - Inch Series Double Aluminum

Flange Mounts (FL)

PAC - Inch Series Die Set Bushings

PACM - ISO Metric Series Die Set Bushings

SFPM - ISO Metric Series Single Aluminum

Flange Mounts

DFPM - ISO Metric Series Double Aluminum

Flange Mounts

CFPM - ISO Metric Series Double Aluminum

Center Flange Mounts

SFPJ - JIS Metric Series Single Aluminum

Flange Mounts

DFPJ - JIS Metric Series Double Aluminum

Flange Mounts

CFPJ - JIS Metric Series Double Aluminum

Center Flange Mounts

Closed or Open Style

NOTE: Available ONLY on "P, PW, PM" series

No Entry - Standard Closed Series

N - Open Series

Housing I.D. Features

No Entry - Standard Spherical "self-aligning" I.D. in the housing.
(Uses standard straight O.D. bearings)

B - Straight I.D. housing. (For rigid fit use standard bearing.

For self-alignment use "FLA" bearings.)

NOTE: Available ONLY on "SFPM, DFPM, CFPM, SFPJ, DFPJ, CFPJ" series

No Entry - Standard Square Flange

R - Available Round Flange

Housings Only

No Entry - Housings with bearing included

E - Empty Housings with NO bearing included

Nominal Shaft Diameter

NOTE: English units in 16ths of an inch

Metric units in mm

P

N

B

E

16

-

C

D

E

I

JKM

Q

Bearing I.D. Features

No Entry - Standard Precision running clearance on the I.D.

C - Compensated running clearance on the I.D.

Seal Options

NOTE: "PAC" and "PACM" available ONLY as "S, SU, or SV"

D - Double seals of Standard Polymod material

SU - Single seal of moly impregnated urethane material

DU - Double seals of moly impregnated urethane material

SV - Single seal of viton - high temperature material

DV - Double seals of viton - high temperature material

Bearing Liner Material

No Entry - Standard FrelonGOLD® liner for hardened steel shafting and Feather Shafting®

E - Special FrelonJ® liner for soft shafting
(aluminum, 300 series stainless steel, etc.)

F - Original FrelonF® liner for hardened steel shafting and 440 stainless steel shafting

Finishes

No Entry - Standard anodized finish

"DFP, DFPJ, DFPM, CFPM, P, PW, PM,

SFP, SFPJ, SFPM, CFPJ" - Clear anodized

"PAC, PACM, SDS, DDS"

NOTE: Applies to both housing and bearing

Internal Lubrication

No Entry - Standard pillowblock assembly with NO lubrication system

JKM - Thru holes, and internal felt wick to help lubrication retention and flow.

Special Modifications

NOTE: Consult Factory

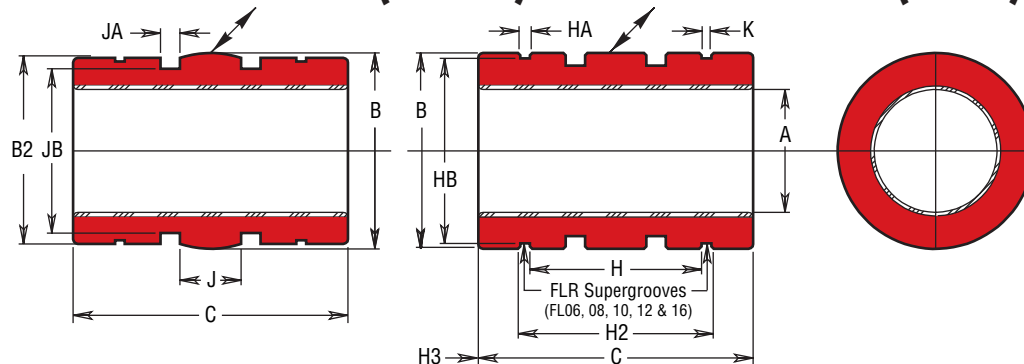
No Entry - Standard Options

Q - Shipped Oil Free (Consult Factory)



*SELF-ALIGNING O.D. (FLA-XX)

STANDARD O.D. (FL-XX)



*Except for the O.D., bearings with the self-aligning feature have the same dimensions and tolerances as the standard bearing. There is a spherical crown on the O.D. to create the self-aligning feature. They are for use in a straight bore housing. Add an "A" to the part number per the example. More information on self-aligning bearings is on pages 75-76.

BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Allows additional running clearance				STANDARD		SELF-ALIGNING FLA B2 O.D.		C LENGTH		CONCENTRIC MAX.	BEARING WEIGHT (LBS.)	FLR RET. RING GR K
PART NO.		NOMINAL SIZE	A BEARING I.D.		PART NO.		A BEARING I.D.		B O.D.		MIN. MAX.		MIN. MAX.				
CLOSED	OPEN	INCHES	MIN.	MAX.	CLOSED	OPEN	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MAX.		
FL 03	N / A	3/16"	0.1877	0.1884	FLC 03	FLCN 03	0.1897	0.1904	0.3740	0.3750	.3725	.3735	0.547	0.562	0.0010	0.003	N / A
FL 04	FLN 04	1/4"	0.2502	0.2511	FLC 04	FLCN 04	0.2522	0.2531	0.4990	0.5000	.4975	.4985	0.735	0.750	0.0010	0.009	N / A
FL 06	FLN 06	3/8"	0.3752	0.3761	FLC 06	FLCN 06	0.3772	0.3781	0.6240	0.6250	.6225	.6235	0.860	0.875	0.0010	0.016	0.072
FL 08	FLN 08	1/2"	0.5002	0.5013	FLC 08	FLCN 08	0.5022	0.5033	0.8740	0.8750	.8725	.8735	1.235	1.250	0.0010	0.041	0.080
FL 10	FLN 10	5/8"	0.6252	0.6263	FLC 10	FLCN 10	0.6272	0.6283	1.1240	1.1250	1.1225	1.1235	1.485	1.500	0.0010	0.091	N / A
FL 12	FLN 12	3/4"	0.7503	0.7516	FLC 12	FLCN 12	0.7533	0.7546	1.2490	1.2500	1.2475	1.2485	1.610	1.625	0.0010	0.109	0.171
FL 16	FLN 16	1"	1.0003	1.0016	FLC 16	FLCN 16	1.0033	1.0046	1.5613	1.5625	1.5599	1.5609	2.235	2.250	0.0010	0.228	0.133
FL 20	FLN 20	1-1/4"	1.2504	1.2519	FLC 20	FLCN 20	1.2544	1.2559	1.9988	2.0000	1.9974	1.9984	2.605	2.625	0.0010	0.459	N / A
FL 24	FLN 24	1-1/2"	1.5004	1.5019	FLC 24	FLCN 24	1.5044	1.5059	2.3738	2.3750	2.3724	2.3734	2.980	3.000	0.0010	0.725	N / A
FL 32	FLN 32	2"	2.0004	2.0022	FLC 32	FLCN 32	2.0054	2.0072	2.9986	3.0000	2.9614	2.9586	3.980	4.000	0.0010	1.442	N / A
FL 40	FLN 40	2-1/2"	2.5004	2.5022	FLC 40	FLCN 40	2.5054	2.5072	3.7484	3.7500	3.7472	3.7482	4.975	5.000	0.0013	2.816	N / A
FL 48	FLN 48	3"	3.0004	3.0022	FLC 48	FLCN 48	3.0064	3.0082	4.4980	4.5000	4.4970	4.4980	5.970	6.000	0.0015	4.914	N / A
FL 64	FLN 64	4"	4.0005	4.0026	FLC 64	FLCN 64	4.0065	4.0086	5.9980	6.0000	5.9970	5.9980	7.960	8.000	0.0020	11.836	N / A

MOUNTING DIMENSIONAL INFORMATION

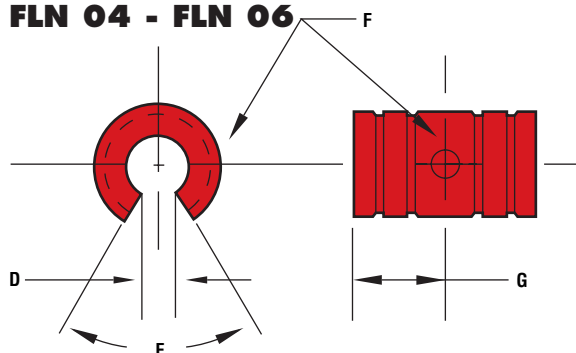
PART NO.		NOMINAL SIZE	H BETWEEN RET. RINGS	HA RET. RING GRV. WIDTH	HB RET. RING GRV. DIA.	TRUARC RET. RING PART NO.	J BETWEEN O-RING GRVS.	JA O-RING GRV. WIDTH	JB O-RING GRV. DIA.	PARKER O-RING PART NO.	FLR	
CLOSED	OPEN										H2 BETWEEN RINGS	H3 RING EDGE
FL 03	N / A	3/16"	0.375	0.030	0.352	N 5100-37	N / A	N / A	N / A	N / A	N / A	N / A
FL 04	FLN 04	1/4"	0.437	0.041	0.467	N 5100-50	0.125	0.080	0.399	2-010	N / A	N / A
FL 06	FLN 06	3/8"	0.562	0.041	0.587	N 5100-62	0.187	0.080	0.524	2-012	.711/.701	0.081
FL 08	FLN 08	1/2"	0.875	0.048	0.820	N 5100-87	0.250	0.125	0.712	2-113	1.042/1.032	0.103
FL 10	FLN 10	5/8"	1.000	0.058	1.060	N 5100-112	0.312	0.125	0.962	2-117	N / A	N / A
FL 12	FLN 12	3/4"	1.062	0.058	1.177	N 5100-125	0.312	0.125	1.087	2-119	1.281/1.271	0.171
FL 16	FLN 16	1"	1.625	0.070	1.471	N 5100-156	0.500	0.125	1.399	2-123	1.895/1.885	0.176
FL 20	FLN 20	1-1/4"	1.875	0.070	1.889	N 5100-200	0.625	0.125	1.837	2-129	N / A	N / A
FL 24	FLN 24	1-1/2"	2.250	0.089	2.241	N 5100-237	0.750	0.162	2.152	2-225	N / A	N / A
FL 32	FLN 32	2"	3.000	0.105	2.839	N 5100-300	1.000	0.189	2.775	2-229	N / A	N / A
FL 40	FLN 40	2-1/2"	3.750	0.123	3.553	N 5100-375	1.250	0.250	3.408	2-340	N / A	N / A
FL 48	FLN 48	3"	4.500	0.123	4.309	N 5100-450	1.500	0.287	4.158	2-346	N / A	N / A
FL 64	FLN 64	4"	6.000	0.145	5.748	N 5100-600	2.000	0.287	5.660	2-356	N / A	N / A

NOTES: FLR is not available on FL03 and FL04.

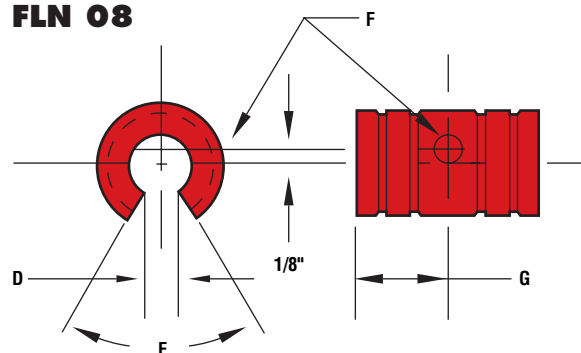
FLR is only available on FL06, FL08, FL10, FL12 and FL16.



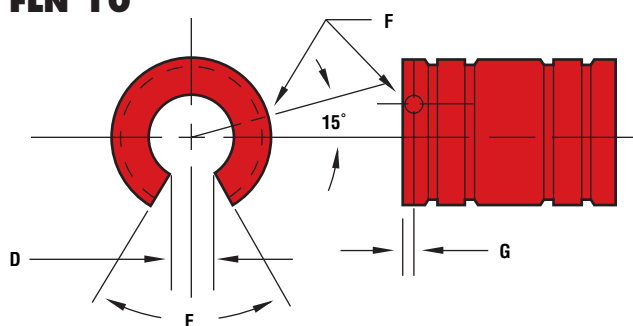
FLN 04 - FLN 06



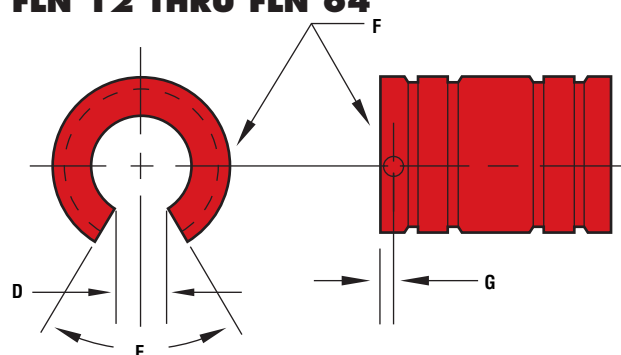
FLN 08



FLN 10



FLN 12 THRU FLN 64



OPEN DIMENSIONAL INFORMATION

PART NO.		NOMINAL SIZE	D SLOT WIDTH MIN.	E SLOT ANGLE	F RETAINING HOLE DIA.	G RETAINING HOLE LOC.	BEARINGS WEIGHTS LBS.
PRECISION	COMPENSATED						
FLN 04	FLCN 04	1/4"	0.188	60°	0.094	3/8"	0.008
FLN 06	FLCN 06	3/8"	0.250	60°	0.094	7/16"	0.013
FLN 08	FLCN 08	1/2"	0.313	60°	0.136	5/8"	0.034
FLN 10	FLCN 10	5/8"	0.375	60°	0.136	1/8"	0.072
FLN 12	FLCN 12	3/4"	0.438	60°	0.136	1/8"	0.091
FLN 16	FLCN 16	1"	0.563	60°	0.136	1/8"	0.184
FLN 20	FLCN 20	1-1/4"	0.625	60°	0.201	3/16"	0.381
FLN 24	FLCN 24	1-1/2"	0.750	60°	0.201	3/16"	0.603
FLN 32	FLCN 32	2"	1.000	60°	0.265	5/16"	1.192
FLN 40	FLCN 40	2-1/2"	1.250	60°	0.265	5/16"	2.334
FLN 48	FLCN 48	3"	1.500	60°	0.265	5/16"	4.080
FLN 64	FLCN 64	4"	2.000	60°	0.265	5/16"	9.870

NOTE: All other dimensions same as closed bearing.

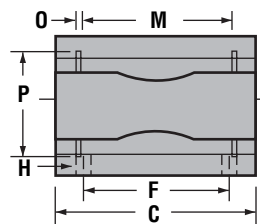
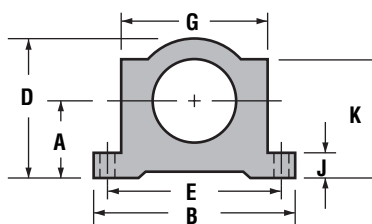
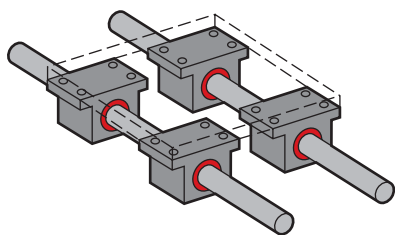
LOAD & SPEED DATA

PART NO.	EFFECTIVE SURFACE AREA (SQ. IN.)	MAX. STATIC LOAD (LBS.) FRELON		
		GOLD	F & J	
FL 03	0.110	220	100	• MAX. PV (ft./min. *psi) FrelonGOLD = 20,000 PV FrelonF & FrelonJ = 10,000 PV
FL 04	0.200	600	300	
FL 06	0.340	1020	510	
FL 08	0.650	1950	975	• MAX. Speed Running Dry (ft./min.) FrelonGOLD = 300 sfm FrelonF & FrelonJ = 140 sfm
FL 10	0.980	2940	1470	
FL 12	1.270	3810	1905	
FL 16	2.350	7050	3525	• MAX. Speed Running with Lubrication (ft./min.) FrelonGOLD = 825 sfm FrelonF & FrelonJ = 400 sfm
FL 20	3.430	10830	5415	
FL 24	4.700	14100	7050	
FL 32	8.350	25050	12525	
FL 40	13.000	39000	19500	
FL 48	18.800	56400	28200	
FL 64	33.500	100500	50250	

Retaining Ring Grooves	34
Pillow Block Information.....	36-37
Sleeve Bearings	38-39
Flange Mount Housing Information	40
Flange Mount Die Sets	41
Die Set Bushings	42
Shafting, Support Blocks and Rails	43



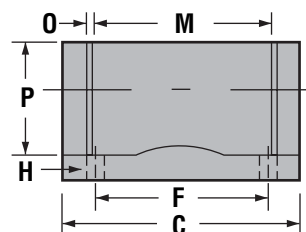
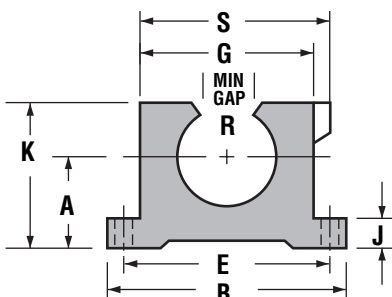
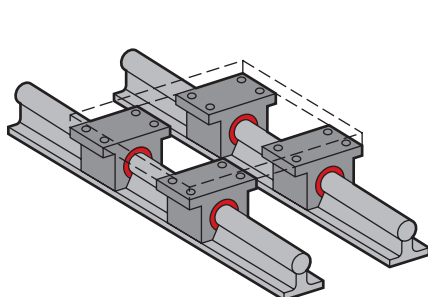
SIMPLICITY® SPECIFICATIONS • Standard Inch Pillow Blocks



CLOSED PILLOW BLOCKS

PART NO. CLOSED		NOM. BRG. I.D.	A CENTERLINE +/- .001	B	C	D	E	F	G BODY WIDTH	H		J FLNG THICK	K	M GRV. SPACE	O GRV. WIDTH	P GRV. DIA.	SMALLEY RET. RING PART NO.	MAX. STATIC LOAD (LBS.) FRELON		ASSEM. WT. LBS.
										BOLT	HOLE							GOLD	F & J	
P 04	P 04C	1/4"	0.437	1.625	1.188	0.813	1.3120	0.7500	1.000	#6	5/32"	0.188	0.750	0.750	0.039	0.532	WH-51	600	300	0.099
P 06	P 06C	3/8"	0.500	1.750	1.313	0.938	1.4370	0.8750	1.125	#6	5/32"	0.188	0.875	0.875	0.039	0.665	WH-65	1020	510	0.129
P 08	P 08C	1/2"	0.687	2.000	1.688	1.250	1.6880	1.0000	1.375	#6	5/32"	0.250	1.125	1.250	0.046	0.931	WH-90	1950	975	0.250
P 10	P 10C	5/8"	0.875	2.500	1.938	1.625	2.1250	1.1250	1.750	#8	3/16"	0.281	1.438	1.500	0.056	1.197	WH-115	2940	1470	0.500
P 12	P 12C	3/4"	0.937	2.750	2.063	1.750	2.3750	1.2500	1.875	#8	3/16"	0.313	1.563	1.625	0.056	1.330	WH-128	3810	1905	0.580
P 16	P 16C	1"	1.187	3.250	2.813	2.188	2.8750	1.7500	2.375	#10	7/32"	0.375	1.938	2.250	0.068	1.671	WH-156	7050	3525	1.000
P 20	P 20C	1-1/4"	1.500	4.000	3.625	2.813	3.5000	2.0000	3.000	#10	7/32"	0.438	2.500	2.625	0.068	2.122	WH-200	10290	5145	2.000
P 24	P 24C	1-1/2"	1.750	4.750	4.000	3.250	4.1250	2.5000	3.500	1/4"	9/32"	0.500	2.875	3.000	0.086	2.519	WH-237	14100	7050	3.000
P 32	P 32C	2"	2.125	6.000	5.000	4.063	5.2500	3.2500	4.500	3/8"	13/32"	0.625	3.625	4.000	0.103	3.182	WH-300	25050	12525	6.500

- NOTES:** (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.
 (2) All standard pillow blocks use standard "FL" series bearings found on page 34.
 (3) Straight bore, pre-assembled pillow blocks use standard "FL" series bearing.



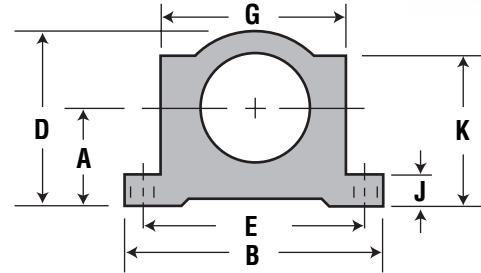
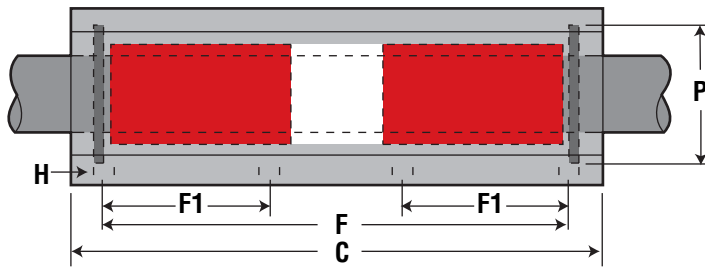
OPEN PILLOW BLOCKS

PART NO. OPEN		NOM. BRG. I.D.	A CENTERLINE +/- .001	B WIDTH	C LENGTH	E +/- .010	F +/- .010	G BODY WIDTH	H		J FLNG THICK	K HEIGHT	M GRV. SPACE	O GRV. WIDTH	P GRV. DIA.	R MIN. OPEN	EATON RET. RING PART NO.	MAX. STATIC LOAD (LBS.) FRELON		ASSEM. WT. LBS.	S OVERALL WIDTH
									BOLT	HOLE								GOLD	F & J		
PN 08	PN 08C	1/2"	0.687	2.000	1.5	1.6880	1.0000	1.375	#6	5/32"	0.250	1.125	1.250	0.046	0.931	0.313	MNAN-87	1950	975	0.250	1.438
PN 10	PN 10C	5/8"	0.875	2.500	1.75	2.1250	1.1250	1.750	#8	3/16"	0.281	1.438	1.500	0.056	1.197	0.375	MNAN-112	2940	1470	0.500	1.813
PN 12	PN 12C	3/4"	0.937	2.750	1.88	2.3750	1.2500	1.875	#8	3/16"	0.313	1.563	1.625	0.056	1.330	0.438	MNAN-125	3810	1905	0.580	1.938
PN 16	PN 16C	1"	1.187	3.250	2.63	2.8750	1.7500	2.375	#10	7/32"	0.375	1.938	2.250	0.068	1.671	0.563	MNAN-156	7050	3525	1.000	2.438
PN 20	PN 20C	1-1/4"	1.500	4.000	3.38	3.5000	2.0000	3.000	#10	7/32"	0.438	2.500	2.625	0.068	2.122	0.625	MNAN-200	10290	5145	2.000	3.125
PN 24	PN 24C	1-1/2"	1.750	4.750	3.75	4.1250	2.5000	3.500	1/4"	9/32"	0.500	2.875	3.000	0.086	2.519	0.750	MNAN-237	14100	7050	3.000	3.625
PN 32	PN 32C	2"	2.125	6.000	4.75	5.2500	3.2500	4.500	3/8"	13/32"	0.625	3.625	4.000	0.103	3.182	1.000	MNAN-300	25050	12525	6.500	4.688

- NOTES:** (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.
 (2) All standard pillow blocks use standard "FL" series bearings found on page 34.
 (3) All open pillow blocks have "notch".

FrelonGOLD®, FrelonJ® and FrelonF® are registered trademarks of Pacific Bearing.

See Page 18 for SRB Series – Preassembled Pillow Block, Shaft and Support Rail.



TWIN CLOSED PILLOW BLOCKS

PART NO. CLOSED	PRECISION	COMPEN.	NOM. BRG. I.D.	A CENTERLINE +/- .001	B WIDTH	C LENGTH	D HEIGHT	E +/- .010	F +/- .010	F1 +/- .010	G BODY WIDTH	H		J FLNG THICK	K	P GRV. DIA.	SMALLEY RET. RING PART NO.	MAX. STATIC LOAD (LBS.) FRELON		ASSEM. WT. (LBS.)
												BOLT	HOLE					GOLD	F & J	
PW 04	PW 04C		1/4"	0.437	1.625	2.500	0.813	1.3120	2.0000	.750	1.000	#6	5/32"	0.188	0.750	0.532	WH-51	1200	600	0.197
PW 06	PW 06C		3/8"	0.500	1.750	2.750	0.938	1.4370	2.2500	.875	1.125	#6	5/32"	0.188	0.875	0.665	WH-65	2040	1020	0.258
PW 08	PW 08C		1/2"	0.687	2.000	3.500	1.250	1.6880	2.5000	1.000	1.375	#6	5/32"	0.250	1.125	0.931	WH-90	3900	1950	0.500
PW 10	PW 10C		5/8"	0.875	2.500	4.000	1.625	2.1250	3.0000	1.125	1.750	#8	3/16"	0.281	1.438	1.197	WH-115	5880	2940	1.000
PW 12	PW 12C		3/4"	0.937	2.750	4.500	1.750	2.3750	3.5000	1.250	1.875	#8	3/16"	0.313	1.563	1.330	WH-128	7620	3810	1.125
PW 16	PW 16C		1"	1.187	3.250	6.000	2.188	2.8750	4.5000	1.750	2.375	#10	7/32"	0.375	1.938	1.671	WH-156	14100	7050	2.188
PW 20	PW 20C		1-1/4"	1.500	4.000	7.500	2.813	3.5000	5.5000	2.000	3.000	#10	7/32"	0.438	2.500	2.122	WH-200	20580	10290	4.250
PW 24	PW 24C		1-1/2"	1.750	4.750	9.000	3.250	4.1250	6.5000	2.500	3.500	1/4"	9/32"	0.500	2.875	2.519	WH-237	28200	14100	6.375
PW 32	PW 32C		2"	2.125	6.000	10.000	4.063	5.2500	8.2500	3.250	4.500	3/8"	13/32"	0.625	3.625	3.182	WH-300	50100	25050	13.500

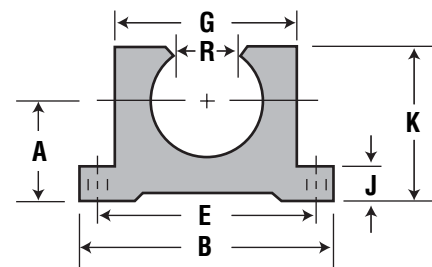
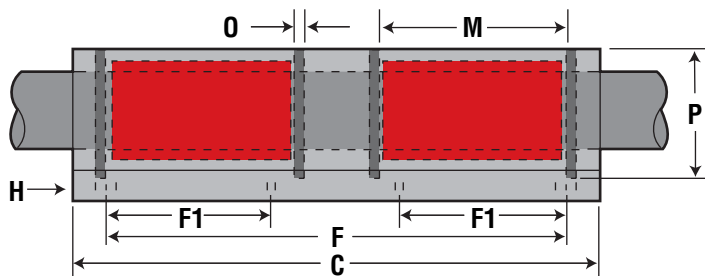
NOTES: (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.

(2) All standard pillow blocks use standard "FL" series bearings found on page 34.

(3) Twin Closed Pillow Blocks use a spacer to separate the bearings.

(4) Twin pillow blocks, closed, with no seal option: Use (2) standard bearings, based on compensated or std option.

(5) Twin pillow blocks, closed, with double seal option: Use (2) single seal bearings.



TWIN OPEN PILLOW BLOCKS

PART NO. OPEN	PRECISION	COMPEN.	NOM. BRG. I.D.	A CENTERLINE +/- .001	B WIDTH	C LENGTH	E +/- .010	F +/- .010	F1 +/- .010	G BODY WIDTH	H		J FLNG THICK	K HEIGHT	M GRV. SPACE	O GRV. WIDE	P GRV. DIA.	R MIN. OPEN	EATON RET. RING PART NO.	MAX. STATIC LOAD (LBS.) FRELON		ASSEM. WT. (LBS.)
											BOLT	HOLE								GOLD	F & J	
PWN 08	PWN 08C		1/2"	0.687	2.000	3.500	1.6880	2.5000	1.000	1.375	#6	5/32"	0.250	1.125	1.250	0.046	0.931	0.313	MNAN-87	3900	1950	0.400
PWN 10	PWN 10C		5/8"	0.875	2.500	4.000	2.1250	3.0000	1.125	1.750	#8	3/16"	0.281	1.438	1.500	0.056	1.197	0.375	MNAN-112	5880	2940	0.910
PWN 12	PWN 12C		3/4"	0.937	2.750	4.500	2.3750	3.5000	1.250	1.875	#8	3/16"	0.313	1.563	1.625	0.056	1.330	0.438	MNAN-125	7620	3810	1.060
PWN 16	PWN 16C		1"	1.187	3.250	6.000	2.8750	4.5000	1.750	2.375	#10	7/32"	0.375	1.938	2.250	0.068	1.671	0.563	MNAN-156	14100	7050	1.970
PWN 20	PWN 20C		1-1/4"	1.500	4.000	7.500	3.5000	5.5000	2.000	3.000	#10	7/32"	0.438	2.500	2.625	0.068	2.122	0.625	MNAN-200	20580	10290	3.725
PWN 24	PWN 24C		1-1/2"	1.750	4.750	9.000	4.1250	6.5000	2.500	3.500	1/4"	9/32"	0.500	2.875	3.000	0.086	2.519	0.750	MNAN-237	28200	14100	5.800
PWN 32	PWN 32C		2"	2.125	6.000	10.000	5.2500	8.2500	3.250	4.500	3/8"	13/32"	0.625	3.625	4.000	0.103	3.182	1.000	MNAN-300	50100	25050	12.125

NOTES: (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.

(2) All standard pillow blocks use standard "FL" series bearings found on page 34.

(3) All open pillow blocks have "notch".

(4) Twin pillowblocks, open, with no seal option: Use (2) standard open bearings, based on compensated or std option.

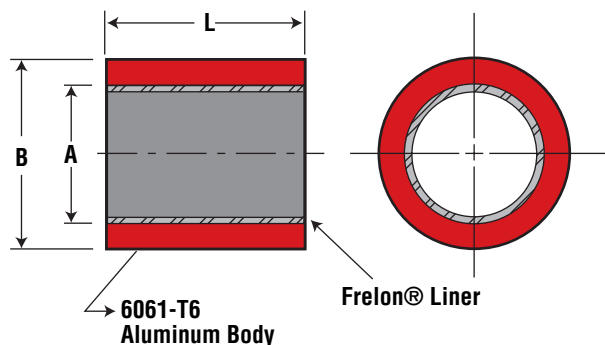
(5) Twin pillowblocks, open, with double seal option: Use (2) double seal bearings.

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See Page 18 for S.R.B. Series – Preassembled Pillow Block, Shaft and Support Rail.



SIMPLICITY® SPECIFICATIONS • Sleeve Bearings



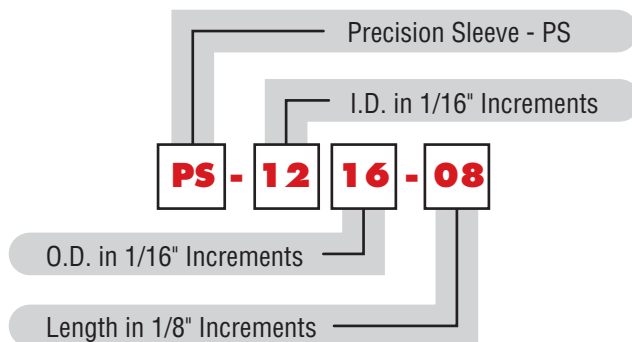
BASIC DIMENSIONAL INFORMATION

PART NO.	NOMINAL BEARING SIZE			A BEARING I.D.		B O.D.		L LENGTH		MAX. STATIC LOAD (LBS.) FRELON		BEARING WEIGHT OZ.	RECOMMENDED HOUSING BORE			
	I.D.	O.D.	LENGTH	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	GOLD	F & J		SLIP FIT & EPOXY		PRESS FIT	
PS0305-02	3/16"	5/16"	1/4"	0.1890	0.1900	0.3135	0.3145	0.230	0.250	130	65	0.02	0.3145	0.3155	0.3125	0.3130
PS0305-04	3/16"	5/16"	1/2"	0.1890	0.1900	0.3135	0.3145	0.480	0.500	272	136	0.04	0.3145	0.3155	0.3125	0.3130
PS0406-02	1/4"	3/8"	1/4"	0.2515	0.2525	0.3760	0.3770	0.230	0.250	174	87	0.03	0.3770	0.3780	0.3750	0.3755
PS0406-03	1/4"	3/8"	3/8"	0.2515	0.2525	0.3760	0.3770	0.355	0.375	268	134	0.04	0.3770	0.3780	0.3750	0.3755
PS0406-04	1/4"	3/8"	1/2"	0.2515	0.2525	0.3760	0.3770	0.480	0.500	362	181	0.05	0.3770	0.3780	0.3750	0.3755
PS0610-04	3/8"	5/8"	1/2"	0.3765	0.3775	0.6260	0.6270	0.480	0.500	542	271	0.14	0.6270	0.6280	0.6250	0.6255
PS0610-06	3/8"	5/8"	3/4"	0.3765	0.3775	0.6260	0.6270	0.730	0.750	824	412	0.20	0.6270	0.6280	0.6250	0.6255
PS0710-06	7/16"	5/8"	3/4"	0.4390	0.4400	0.6260	0.6270	0.730	0.750	962	481	0.23	0.6270	0.6280	0.6250	0.6255
PS0812-04	1/2"	3/4"	1/2"	0.5015	0.5025	0.7510	0.7520	0.480	0.500	722	361	0.15	0.7520	0.7530	0.7500	0.7505
PS0812-06	1/2"	3/4"	3/4"	0.5015	0.5025	0.7510	0.7520	0.730	0.750	1098	549	0.25	0.7520	0.7530	0.7500	0.7505
PS0812-08	1/2"	3/4"	1"	0.5015	0.5025	0.7510	0.7520	0.980	1.000	1474	737	0.35	0.7520	0.7530	0.7500	0.7505
PS1014-06	5/8"	7/8"	3/4"	0.6265	0.6275	0.8760	0.8770	0.730	0.750	1372	686	0.30	0.8770	0.8780	0.8750	0.8755
PS1014-08	5/8"	7/8"	1"	0.6265	0.6275	0.8760	0.8770	0.980	1.000	1842	921	0.45	0.8770	0.8780	0.8750	0.8755
PS1216-08	3/4"	1"	1"	0.7515	0.7525	1.0010	1.0020	0.980	1.000	2210	1105	0.50	1.0020	1.0030	0.9995	1.0000
PS1620-12	1"	1-1/4"	1-1/2"	1.0015	1.0025	1.2510	1.2520	1.480	1.500	4446	2223	0.95	1.2520	1.2530	1.2490	1.2500
PS2024-16	1-1/4"	1-1/2"	2"	1.2515	1.2525	1.5010	1.5020	1.980	2.000	7434	3717	1.55	1.5020	1.5030	1.4990	1.5000
PS2428-16	1-1/2"	1-3/4"	2"	1.5015	1.5025	1.7510	1.7520	1.980	2.000	8918	4459	1.80	1.7520	1.7530	1.7490	1.7500
PS2832-24	1-3/4"	2"	3"	1.7515	1.7525	2.0010	2.0020	2.980	3.000	15658	7829	3.15	2.0020	2.0030	1.9990	2.0000
PS3236-24	2"	2-1/4"	3"	2.0015	2.0025	2.2510	2.2520	2.980	3.000	17894	8947	3.55	2.2520	2.2530	2.2490	2.2500
PS4044-24	2-1/2"	2-3/4"	3"	2.5015	2.5025	2.7510	2.7520	2.980	3.000	22364	11182	4.85	2.7520	2.7530	2.7490	2.7500
PS4852-28	3"	3-1/4"	3-1/2"	3.0015	3.0025	3.2510	3.2520	3.480	3.500	31336	15668	6.10	3.2520	3.2530	3.2485	3.2495

INSTALLATION INSTRUCTIONS

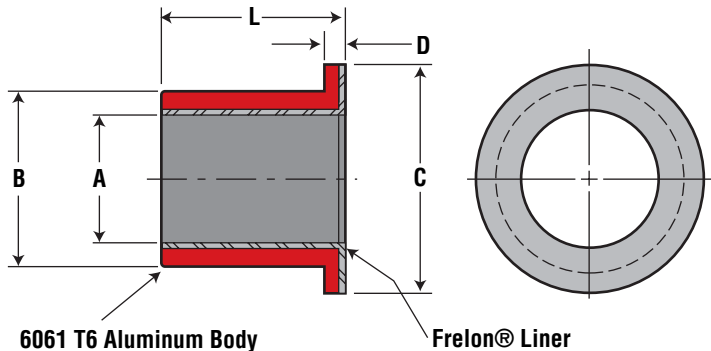
- Slip the bearing sleeve into the housing and epoxy into place with Loctite® or similar type bonding agent.
CAUTION: Do NOT let any of the adhesive touch the bearing liner. It will harden and interfere with the running clearance.
- Freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

PART NUMBER EXPLANATION



NOTE: Lengths not listed above must be quoted.

FrelonGOLD®, FrelonJ® and FrelonF® are registered trademarks of Pacific Bearing.



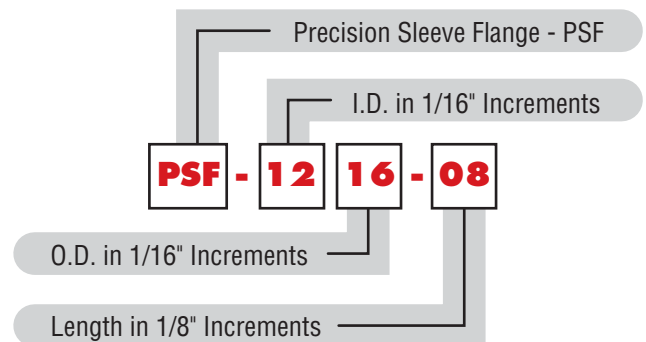
BASIC DIMENSIONAL INFORMATION

PART NO.	NOMINAL BEARING SIZE			A		B		C FLANGE O.D.	D FLANGE WIDTH	L		MAX. STATIC LOAD (LBS.) FRELON		BEARING WEIGHT	RECOMMENDED HOUSING BORE			
															SLIP FIT & EPOXY		PRESS FIT	
	I.D.	O.D.	LENGTH	MIN.	MAX.	MIN.	MAX.	MAX.	MAX.	MIN.	MAX.	GOLD	F & J	OZ.	MIN.	MAX.	MIN.	MAX.
PSF0305-02	3/16"	5/16"	1/4"	0.1890	0.1900	0.3135	0.3145	0.4370	.0625	0.230	0.250	130	65	0.023	.3145	0.3155	0.3125	0.3130
PSF0305-04	3/16"	5/16"	1/2"	0.1890	0.1900	0.3135	0.3145	0.4370	.0625	0.480	0.500	272	136	0.044	.3145	0.3155	0.3125	0.3130
PSF0406-02	1/4"	3/8"	1/4"	0.2515	0.2525	0.3760	0.3770	0.5000	.0625	0.230	0.250	174	87	0.031	.3770	0.3780	0.3750	0.3755
PSF0406-03	1/4"	3/8"	3/8"	0.2515	0.2525	0.3760	0.3770	0.5000	.0625	0.355	0.375	268	134	0.044	.3770	0.3780	0.3750	0.3755
PSF0406-04	1/4"	3/8"	1/2"	0.2515	0.2525	0.3760	0.3770	0.5000	.0625	0.480	0.500	362	181	0.055	.3770	0.3780	0.3750	0.3755
PSF0610-04	3/8"	5/8"	1/2"	0.3765	0.3775	0.6260	0.6270	0.8750	0.125	0.480	0.500	542	271	0.20	0.6270	0.6280	0.6250	0.6255
PSF0610-06	3/8"	5/8"	3/4"	0.3765	0.3775	0.6260	0.6270	0.8750	0.125	0.730	0.750	824	412	0.25	0.6270	0.6280	0.6250	0.6255
PSF0710-06	7/16"	5/8"	3/4"	0.4390	0.4400	0.6260	0.6270	0.9375	0.125	0.730	0.750	962	481	0.20	0.6270	0.6280	0.6250	0.6255
PSF0812-04	1/2"	3/4"	1/2"	0.5015	0.5025	0.7510	0.7520	1.0000	0.125	0.480	0.500	722	361	0.25	0.7520	0.7530	0.7500	0.7505
PSF0812-06	1/2"	3/4"	3/4"	0.5015	0.5025	0.7510	0.7520	1.0000	0.125	0.730	0.750	1098	549	0.30	0.7520	0.7530	0.7500	0.7505
PSF0812-08	1/2"	3/4"	1"	0.5015	0.5025	0.7510	0.7520	1.0000	0.125	0.980	1.000	1474	737	0.40	0.7520	0.7530	0.7500	0.7505
PSF1014-06	5/8"	7/8"	3/4"	0.6265	0.6275	0.8760	0.8770	1.0000	0.125	0.730	0.750	1372	686	0.35	0.8770	0.8780	0.8750	0.8755
PSF1014-08	5/8"	7/8"	1"	0.6265	0.6275	0.8760	0.8770	1.0000	0.125	0.980	1.000	1842	921	0.45	0.8770	0.8780	0.8750	0.8755
PSF1216-08	3/4"	1"	1"	0.7515	0.7525	1.0010	1.0020	1.2500	0.125	0.980	1.000	2210	1105	0.55	1.0020	1.0030	0.9995	1.0000
PSF1620-12	1"	1-1/4"	1-1/2"	1.0015	1.0025	1.2510	1.2520	1.5000	0.125	1.480	1.500	4446	2223	1.05	1.2520	1.2530	1.2490	1.2500
PSF2024-16	1-1/4"	1-1/2"	2"	1.2515	1.2525	1.5010	1.5020	1.7500	0.125	1.980	2.000	7434	3717	1.80	1.5020	1.5030	1.4990	1.5000
PSF2428-16	1-1/2"	1-3/4"	2"	1.5015	1.5025	1.7510	1.7520	2.0000	0.125	1.980	2.000	8918	4459	2.16	1.7520	1.7530	1.7490	1.7500
PSF2832-24	1-3/4"	2"	3"	1.7515	1.7525	2.0010	2.0020	2.2500	0.125	2.980	3.000	15658	7829	3.30	2.0020	2.0030	1.9990	2.0000
PSF3236-24	2"	2-1/4"	3"	2.0015	2.0025	2.2510	2.2520	2.5000	0.125	2.980	3.000	17894	8947	3.75	2.2520	2.2530	2.2490	2.2500
PSF4044-24	2-1/2"	2-3/4"	3"	2.5015	2.5025	2.7510	2.7520	3.0000	0.125	2.980	3.000	22364	11182	4.60	2.7520	2.7530	2.7490	2.7500
PSF4852-28	3"	3-1/4"	3-1/2"	3.0015	3.0025	3.2510	3.2520	3.5000	0.125	3.480	3.500	31336	15668	6.30	3.2520	3.2530	3.2485	3.2495

INSTALLATION INSTRUCTIONS

- Slip the bearing sleeve into the housing and epoxy into place with Loctite® or similar type bonding agent. CAUTION: Do NOT let any of the adhesive touch the bearing liner. It will harden and interfere with the running clearance.
- Freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

PART NUMBER EXPLANATION

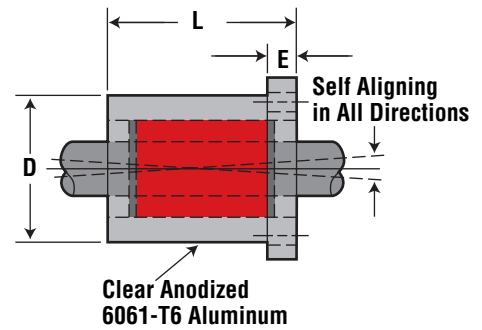
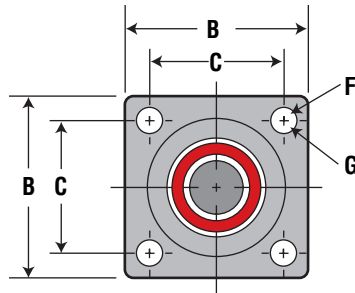


NOTE: Lengths not listed above must be quoted.

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SFP FLANGE MOUNTS

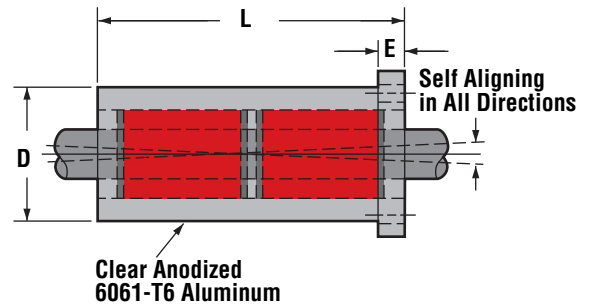
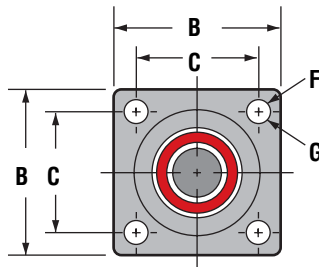


BASIC DIMENSIONAL INFORMATION

PART NO.		BEARING NOMINAL SIZE	B FLANGE SQUARE	C HOLE SPACING	D BARREL DIA.	E FLANGE LENGTH	F BOLT SIZE	G HOLE SIZE	L LENGTH OVERALL	MAX. STATIC LOAD (LBS.) FREELON		ASSEMBLY WEIGHT (LBS.)
										GOLD	F & J	
SFP 08	SFP 08 C	1/2"	1.63	1.25	1.25	0.250	#8	0.187	1.687	1950	975	0.175
SFP 12	SFP 12 C	3/4"	2.38	1.75	1.75	0.375	#10	0.219	2.067	2940	1470	0.463
SFP 16	SFP 16 C	1"	2.75	2.125	2.25	0.500	1/4"	0.281	2.812	3810	1905	1.206

NOTES: All standard, pre-assembled "SFP" assemblies include a self-aligning housing and standard "FL" bearings found on page 34.
Straight bore "SFPB" assemblies include a straight bore housing and standard "FL" bearings.

DFP FLANGE MOUNTS



BASIC DIMENSIONAL INFORMATION

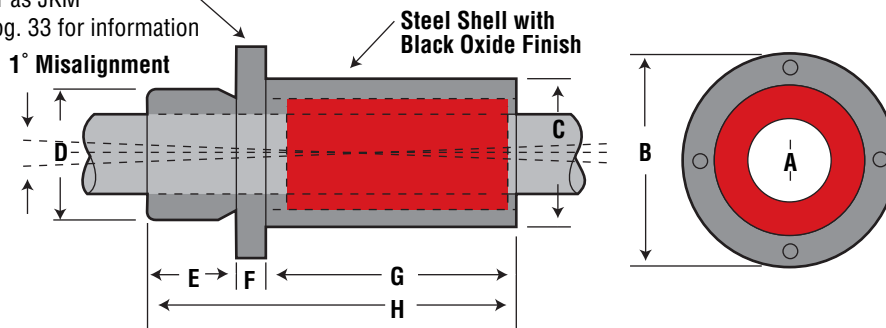
PART NO.		BEARING NOMINAL SIZE	B FLANGE SQUARE	C HOLE SPACING	D BARREL DIA.	E FLANGE LENGTH	F BOLT SIZE	G HOLE SIZE	L LENGTH OVERALL	MAX. STATIC LOAD (LBS.) FREELON		ASSEMBLY WEIGHT (LBS.)s
										GOLD	F & J	
DFP 08	DFP 08 C	1/2"	1.63	1.25	1.25	0.250	#8	0.187	3.375	3900	1950	0.325
DFP 12	DFP 12 C	3/4"	2.38	1.75	1.75	0.375	#10	0.219	4.188	5880	2940	0.825
DFP 16	DFP 16 C	1"	2.75	2.125	2.25	0.500	1/4"	0.281	5.625	7620	3810	1.750

NOTES: All standard, pre-assembled "DFP" assemblies include a self-aligning housing and standard "FL" bearings found on page 34.
Straight bore "DFPB" assemblies include a straight bore housing and standard "FL" bearings.



SDS FLANGE MOUNTS

Lube System Optional
Order as JKM
See pg. 33 for information



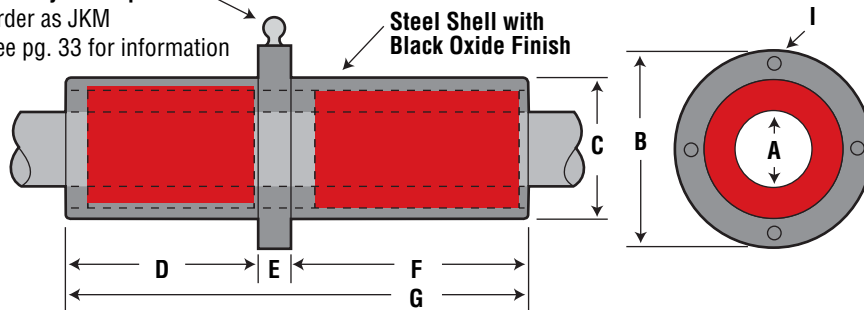
BASIC DIMENSIONAL INFORMATION

PART NO.		NOMINAL SIZE	B FLANGE O.D.	C BARREL DIA. MIN. MAX.		D PILOT DIA. MIN. MAX.		E PILOT LENGTH	F FLANGE LENGTH	G HEAD LENGTH	H OVERALL LENGTH	I MOUNTING HOLES (4 PLACES)			MAX. STATIC LOAD (LBS.) FREELON		ASSEM. WEIGHT (LBS)
												BOLT SIZE	HOLE SIZE	CIRCLE			
SDS 16	SDS 16 C	1"	3.00	2.098	2.100	1.4995	1.500	0.875	0.562	2.500	3.927	1/4"	0.281	2.550	7050	3525	2.431
SDS 20	SDS 20 C	1-1/4"	3.50	2.598	2.600	1.7495	1.750	1.125	0.750	3.000	4.875	1/4"	0.281	3.050	10290	5145	4.400
SDS 24	SDS 24 C	1-1/2"	4.25	2.998	3.000	1.9990	2.000	1.375	1.000	3.500	5.875	3/8"	0.406	3.650	14100	7050	7.238
SDS 32	SDS 32 C	2"	5.00	3.748	3.750	2.4990	2.500	1.625	1.000	4.500	7.125	3/8"	0.406	4.400	25050	12525	11.788

NOTES: All standard, pre-assembled "SDS" assemblies include a straight bore housing and standard "FLA" bearings found on page 34.
All straight bore, pre-assembled "SDSB" assemblies include a straight bore housing and standard "FL" bearings found on page 34.

DDS FLANGE MOUNTS

Lube System Optional
Order as JKM
See pg. 33 for information



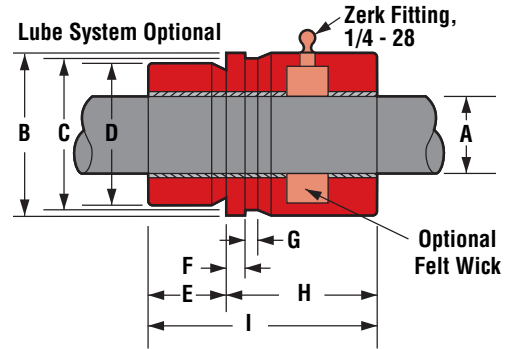
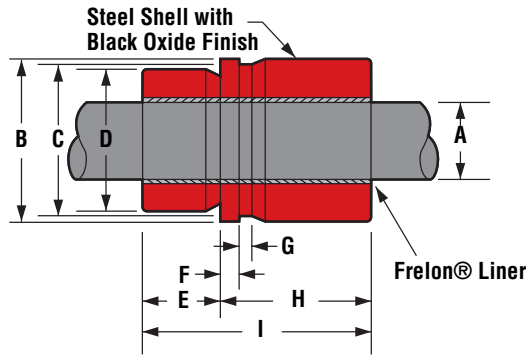
BASIC DIMENSIONAL INFORMATION

PART NO.		BEARING NOMINAL SIZE	B FLANGE O.D.	C BARREL DIA. MIN. MAX.		D LENGTH	E FLANGE LENGTH	F LENGTH	G OVERALL LENGTH	I MOUNTING HOLES (4 PLACES)			MAX. STATIC LOAD (LBS.) FREELON		ASSEMBLY WEIGHT
										BOLT SIZE	HOLE SIZE	BOLT CIRCLE			
DDS 16	DDS 16 C	1"	3.00	2.098	2.100	2.5	0.562	3.500	6.563	1/4"	0.281	2.550	14100	7050	3.825
DDS 20	DDS 20 C	1-1/4"	3.50	2.598	2.600	3	0.750	4.250	8.000	1/4"	0.281	3.050	20580	10290	6.625
DDS 24	DDS 24 C	1-1/2"	4.25	2.998	3.000	3.5	1.000	5.000	9.500	3/8"	0.406	3.650	28200	14100	10.363
DDS 32	DDS 32 C	2"	5.00	3.748	3.750	4.5	1.000	6.500	12.000	3/8"	0.406	4.400	50100	25050	18.400

NOTES: All standard, pre-assembled "DDS" assemblies include a straight bore housing and standard "FLA" bearings found on page 34.
All straight bore, pre-assembled "DDSB" assemblies include a straight bore housing and standard "FL" bearings found on page 34.

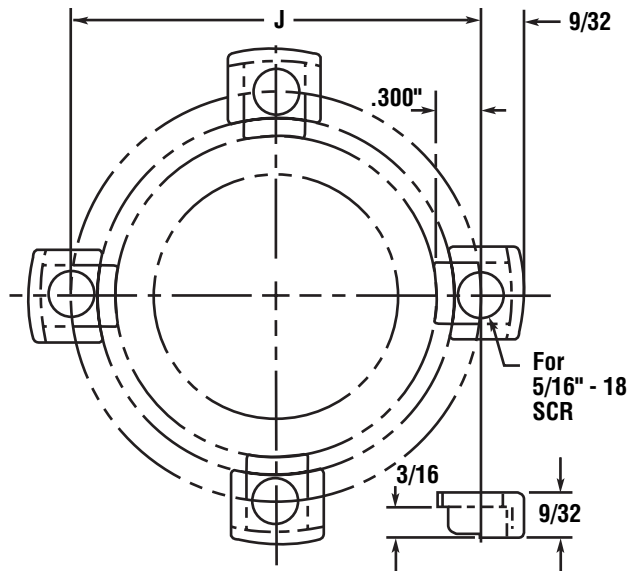
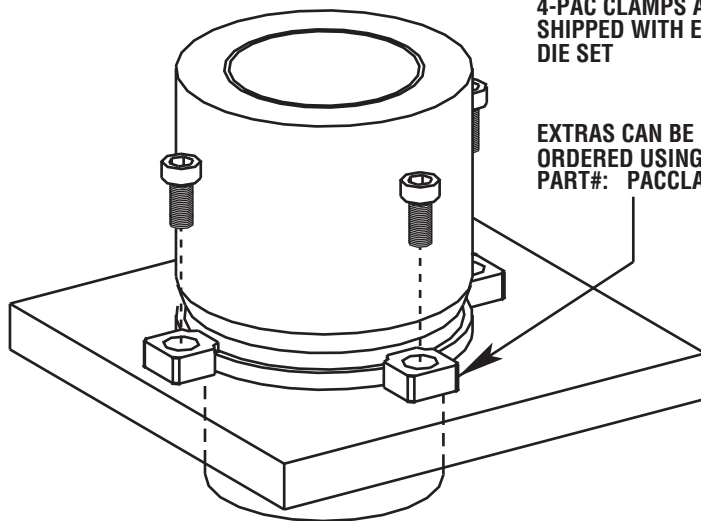


SIMPLICITY® SPECIFICATIONS • Die Set Bushings



BASIC DIMENSIONAL INFORMATION

PART NO. PRECISION	NOMINAL SIZE INCHES	A		PART NO. COMPENSATED	A		B		C	D		E	F	G	H	I	BEARING WEIGHT (LBS.)
		BEARING I.D. MIN.	MAX.		BEARING I.D. MIN.	MAX.	FLANGE & BARREL O.D. MIN.	MAX.		PILOT O.D. MIN.	MAX.						
PAC 750	3/4"	0.750	0.7510	PAC 750 C	0.7530	0.7540	1.285	1.300	1.012	1.1245	1.1250	0.812	0.188	0.712	2.000	2.812	0.625
PAC 100	1"	1.000	1.0010	PAC 100 C	1.0030	1.0040	1.723	1.738	1.450	1.4995	1.5000	0.875	0.188	0.812	2.250	3.125	1.000
PAC 125	1-1/4"	1.250	1.2510	PAC 125 C	1.2540	1.2550	2.097	2.112	1.825	1.7495	1.7500	1.125	0.188	0.812	2.375	3.500	1.500
PAC 150	1-1/2"	1.500	1.5012	PAC 150 C	1.5040	1.5050	2.346	2.361	2.075	1.9995	2.0000	1.375	0.188	1.112	2.750	4.125	2.000
PAC 200	2"	2.000	2.0014	PAC 200 C	2.0050	2.0064	3.095	3.110	2.825	2.4995	2.5000	1.625	0.188	1.112	3.000	4.625	4.188
PAC 250	2-1/2"	2.500	2.5016	PAC 250 C	2.5050	2.5065	3.595	3.610	3.325	2.9995	3.0000	1.875	0.188	1.112	3.500	5.375	6.000
PAC 300	3"	3.000	3.0020	PAC 300 C	3.0060	3.0080	4.345	4.360	4.075	3.6245	3.6250	1.875	0.188	1.112	4.000	5.875	10.000



NOTE: DIMENSION FOR CALCULATING BOLT CIRCLE

$$J = \left(\frac{C}{2} + .300" \right) \times 2$$



COMPLETE PRODUCT OFFERING

- RC60 Steel
- Stainless Steel
- Feather Shafting
- Feather Rail
- Custom Options
- Support Rails
- End Blocks
- Standard Lengths
- Random Lengths
- Pre-drilled and Tapped Shafting

RC60 Steel Shafting	43
Stainless Steel Shafting	44
ISO Metric Shafting	45
Feather Shafting	46
Feather Rails	47

RC60 STEEL SHAFTING

- RC60 case hardened steel
- Polished for optimum surface finish

- Suitable for Simplicity® bearings and linear ball bearings
- Available cut-to-length or in full random lengths

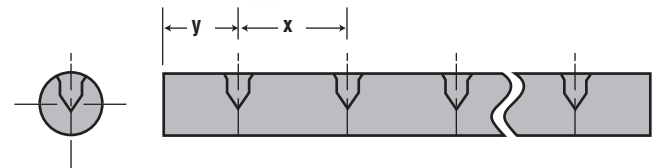
INSTRUMENT SHAFTING*

PART NO.	NOMINAL SIZE	DIAMETER TOLERANCE CLASS "I"		LENGTH IN FEET	HARDNESS DEPTH	WEIGHT PER INCH
	INCHES	MIN.	MAX.	MAX.	MIN.	(LBS.)
NIL02-xx	1/8"	0.1248	0.1247	21	N / A	0.004
NIL03-xx	3/16"	0.1873	0.1872	21	N / A	0.008
NIL04-xx	1/4"	0.2498	0.2497	21	N / A	0.014

RC60 STEEL SHAFTING*

PART NO.	NOMINAL SIZE	DIAMETER TOLERANCE CLASS "L"		LENGTH IN FEET	HARDNESS DEPTH	WEIGHT PER INCH
	INCHES	MIN.	MAX.	MAX.	MIN.	(LBS.)
NIL02-xx	1/8"	0.1248	0.1247	21	N / A	0.004
NIL03-xx	3/16"	0.1873	0.1872	21	N / A	0.008
NIL04-xx	1/4"	0.2498	0.2497	21	N / A	0.014
NIL06-xx	3/8"	0.3740	0.3745	21	0.040	0.031
NIL08-xx	1/2"	0.4990	0.4995	15	0.060	0.055
NIL10-xx	5/8"	0.6240	0.6245	15	0.060	0.086
NIL12-xx	3/4"	0.7490	0.7495	15	0.060	0.125
NIL16-xx	1"	0.9990	0.9995	17	0.080	0.222
NIL20-xx	1-1/4"	1.2490	1.2495	17	0.080	0.348
NIL24-xx	1-1/2"	1.4989	1.4994	17	0.080	0.500
NIL32-xx	2"	1.9987	1.9994	17	0.100	0.890
NIL40-xx	2-1/2"	2.4985	2.4993	17	0.100	1.391
NIL48-xx	3"	2.9983	2.9992	17	0.100	2.003
NIL64-xx	4"	3.9976	3.9988	17	0.100	3.560

***NOTES:** Specify length in part number using inches.
 Example: for 1/2" shafting total length 15" = NIL08-15
 For full random lengths, add "R" to the part number.
 Example: NIL08R
 Surface finish 8 Ra Max.
 Surface finish 4 Ra Max. - Instrument Shafting



PRE-DRILLED & TAPPED SHAFTING

PART NO.	NOMINAL SIZE	DIAMETER TOLERANCE CLASS "L"		HOLE SPACING		THREAD	LENGTH IN FEET	WEIGHT PER INCH
	INCHES	MIN.	MAX.	X	Y		MAX.	(LBS.)
NIPDL08-xx	1/2"	0.4990	0.4995	4.00	2.00	6-32	13	0.055
NIPDL10-xx	5/8"	0.6240	0.6245	4.00	2.00	8-32	13	0.086
NIPDL12-xx	3/4"	0.7490	0.7495	6.00	3.00	10-32	13	0.125
NIPDL16-xx	1"	0.9990	0.9995	6.00	3.00	1/4-20	16	0.222
NIPDL20-xx	1-1/4"	1.2490	1.2495	6.00	3.00	5/16-18	16	0.348
NIPDL24-xx	1-1/2"	1.4989	1.4994	8.00	4.00	3/8-16	16	0.500
NIPDL32-xx	2"	1.9987	1.9994	8.00	4.00	1/2-13	16	0.890

NOTES: Specify length in part number using inches.
 For random lengths, add "R" to the part number.
 Example: NIPDL08R
 Example: for 1/2" shafting total length 13" = NIPDL08-13
 For non-standard lengths, the "y" dimension will be held at one end. It may not be equal at both ends.



STAINLESS STEEL SHAFTING



- 440 Stainless Steel
- Suitable for original FrelonF® lined Simplicity® bearings or linear ball bearings
- Available cut-to-length or in full random lengths

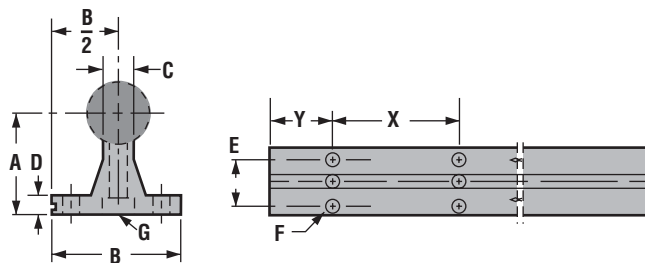
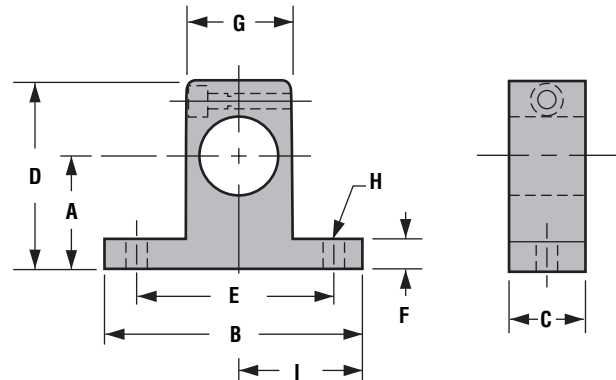
440 STAINLESS STEEL SHAFTING

PART NO.	NOMINAL SIZE	DIAMETER TOLERANCE CLASS "L"		LENGTH IN FEET	HARDNESS DEPTH	WEIGHT PER INCH
	INCHES	MIN.	MAX.	MAX.	MIN.	(LBS.)
NIL06SS-xx	3/8"	0.3740	0.3745	21	0.040	0.031
NIL08SS-xx	1/2"	0.4990	0.4995	15	0.060	0.055
NIL10SS-xx	5/8"	0.6240	0.6245	15	0.060	0.086
NIL12SS-xx	3/4"	0.7490	0.7495	15	0.060	0.125
NIL16SS-xx	1"	0.9990	0.9995	17	0.080	0.222
NIL20SS-xx	1-1/4"	1.2490	1.2495	17	0.080	0.348
NIL24SS-xx	1-1/2"	1.4989	1.4994	17	0.080	0.500
NIL32SS-xx	2"	1.9987	1.9994	17	0.100	0.890

NOTES: Specify length in part number using inches.
 Example: for 1/2" shafting total length 15" = NIL08SS-15.
 For full random lengths, add "R" to the part number.
 Example: NIL08RSS.

ALUMINUM END SUPPORT BLOCKS

PART NO.	NOMINAL SIZE	A	B	C	D	E	F	G	H	I	WEIGHT
	INCHES	+/- .001				+/- .001			BOLT	HOLE	+/- .001 (LBS.)
NSB04	1/4"	0.687	1.500	0.500	1.050	1.125	0.250	0.625	#6	5/32"	0.750 0.03
NSB06	3/8"	0.750	1.625	0.563	1.175	1.250	0.250	0.688	#6	5/32"	0.800 0.05
NSB08	1/2"	1.000	2.000	0.625	1.625	1.500	0.250	0.750	#8	3/16"	1.000 0.14
NSB10	5/8"	1.000	2.500	0.688	1.750	1.875	0.313	0.875	#10	7/32"	1.250 0.16
NSB12	3/4"	1.250	2.500	0.750	2.055	2.000	0.313	1.000	#10	7/32"	1.375 0.21
NSB16	1"	1.500	3.055	1.000	2.500	2.500	0.375	1.375	1/4"	9/32"	1.625 0.40
NSB20	1-1/4"	1.750	3.750	1.125	3.000	3.000	0.438	1.750	5/16"	11/32"	2.000 0.80
NSB24	1-1/2"	2.000	4.375	1.250	3.435	3.500	0.500	2.000	5/16"	11/32"	2.375 1.10
NSB32	2"	2.500	5.500	1.500	4.375	4.375	0.625	2.625	3/8"	13/32"	3.000 1.90



ALUMINUM PRE-DRILLED SUPPORT RAILS

PART NO.	NOMINAL SIZE	A	B	C	D	E	F		G		HOLE SPACING		STANDARD LENGTHS	WEIGHT PER FOOT (LBS.)
	INCHES	+/- .002					BOLT	HOLE	SCREW	HOLE	X	Y		
NSR08-PD-xx	1/2"	1.125	1.500	0.250	0.188	1.000	#6	0.169	6-32x7/8"	0.169	4.00	2.00	24", 36"	1.26
NSR10-PD-xx	5/8"	1.125	1.625	0.313	0.250	1.125	#8	0.193	8-32x7/8"	0.193	4.00	2.00	24", 36", 48"	1.88
NSR12-PD-xx	3/4"	1.500	1.750	0.375	0.250	1.250	#10	0.221	10-32x7/8"	0.221	6.00	3.00	24", 36", 48"	2.50
NSR16-PD-xx	1"	1.750	2.125	0.500	0.250	1.500	1/4"	0.281	1/4-20x1-1/2"	0.281	6.00	3.00	24", 36", 48"	4.06
NSR20-PD-xx	1-1/4"	2.125	2.500	0.563	0.313	1.875	5/16"	0.343	5/16-18x1-3/4"	0.343	6.00	3.00	24", 36", 48"	6.28
NSR24-PD-xx	1-1/2"	2.500	3.000	0.688	0.375	2.250	5/16"	0.343	3/8-16x2"	0.406	8.00	4.00	24", 36", 48"	8.06
NSR32-PD-xx	2"	3.250	3.750	0.875	0.500	2.750	3/8"	0.406	1/2-13x2-1/2"	0.531	8.00	4.00	24", 36", 48"	14.88

NOTES: Specify length in part number. Example: for 1/2" shafting support rail to 24" length = NSR08-PD-24 (Aluminum alloy construction)
 Shafts & support rails sold separately. For shaft, rail, bearing assemblies see SRB series on page 18.



METRIC SHAFTING - (RC60 Hardness)

PART NO.	NOMINAL SIZE	DIAMETER TOLERANCE CLASS "M"		LENGTH in m*	HARDNESS DEPTH	WEIGHT (kg/m)
	mm	MIN.	MAX.	MAX.	MIN. (mm)	
NIM03-xx	3	2.991	3	6.4	1.0	0.06
NIM04-xx	4	3.991	4	6.4	1.0	0.1
NIM05-xx	5	4.991	5	6.4	1.0	0.15
NIM06-xx	6	5.991	6	6.4	1.0	0.23
NIM08-xx	8	7.991	8	6.4	1.0	0.39
NIM10-xx	10	9.991	10	6.4	1.0	0.62
NIM12-xx	12	11.989	12	4.6	1.0	0.89
NIM16-xx	16	15.989	16	4.6	1.7	1.57
NIM20-xx	20	19.987	20	4.6	1.7	2.45
NIM25-xx	25	24.987	25	5.2	2.7	3.8
NIM30-xx	30	29.987	30	5.2	2.7	5.5
NIM40-xx	40	39.984	40	5.2	2.7	9.8
NIM50-xx	50	49.984	50	5.2	3.7	15.3
NIM60-xx	60	59.981	60	5.2	3.7	22.2
NIM80-xx	80	79.981	80	5.2	3.7	39.5

NOTES: Specify length in part number using millimeters.

Example: for 25 mm shafting total length

900mm = NIM25-900

*Longer custom lengths available - consult factory.



Metric Bearings and Pillow Blocks	48-51
Compact Metric Thin Wall Bearings	52-53
Metric Sleeve Bearings	54-55
Metric Die Set Bushings.....	56
Metric Flange Mounted Bearings	57-59



FEATHER SHAFTING®

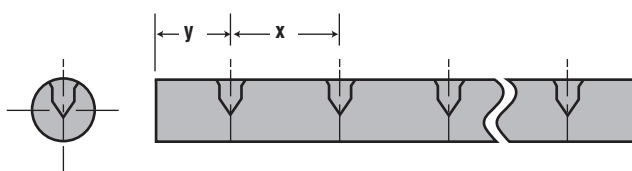


- 6105-T6 aluminum base material
- RC70 ceramic coated finish
- Designed to run with Simplicity FrelonGOLD® lined bearings
- Non-magnetic and vibration resistant
- Weld splatter, paints, contaminants will not stick

CERAMIC COATED ALUMINUM SOLID SHAFTING

PART NO.	NOMINAL SHAFT SIZE	DIAMETER TOLERANCES		MAX. LENGTH (FT.)	WEIGHT PER INCH (LBS.)
		MIN.	MAX.		
CC03-xx	3/16"	0.1863	0.1871	12	0.003
CC04-xx	1/4"	0.2488	0.2496	12	0.005
CC06-xx	3/8"	0.3738	0.3746	12	0.010
CC08-xx	1/2"	0.4988	0.4996	12	0.019
CC10-xx	5/8"	0.6238	0.6246	12	0.030
CC12-xx	3/4"	0.7488	0.7496	12	0.043
CC16-xx	1"	0.9988	0.9996	12	0.077
CC20-xx	1-1/4"	1.2488	1.2496	12	0.120
CC24-xx	1-1/2"	1.4987	1.4995	12	0.173
CC32-xx	2"	1.9985	1.9995	12	0.308

NOTES: Specify length in part number using inches.
 Example: for 1/2" shafting total length 36" long = CC08-36.
 Ends of cut-to-length shafting are not coated.
 Fully coated shafting is available on special request.



PRE-DRILLED & TAPPED SHAFTING

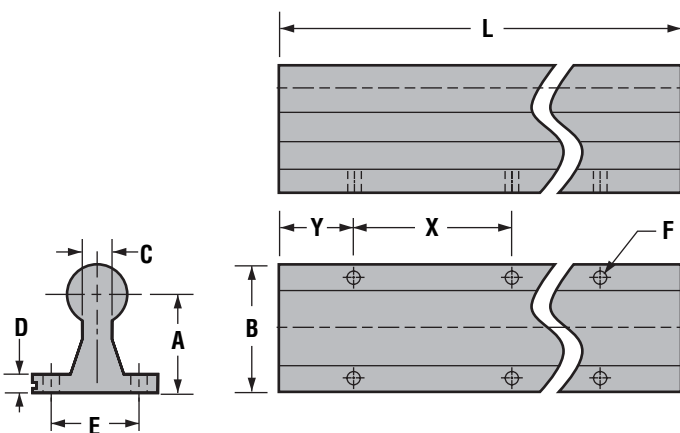
PART NO.	NOM. SHAFT SIZE	DIAMETER TOLERANCE		HOLE SPACING		THREAD	MAX. LENGTH (FT.)	WEIGHT PER INCH (LBS.)
		MIN.	MAX.	x	y			
CCPDL08-xx	1/2"	0.4988	0.4996	4	2	6-32	12	0.019
CCPDL10-xx	5/8"	0.6238	0.6246	4	2	8-32	12	0.030
CCPDL12-xx	3/4"	0.7488	0.7496	6	3	10-32	12	0.043
CCPDL16-xx	1"	0.9988	0.9996	6	3	1/4-20	12	0.077
CCPDL20-xx	1-1/4"	1.2488	1.2496	6	3	5/16-18	12	0.120
CCPDL24-xx	1-1/2"	1.4987	1.4995	8	4	3/8-16	12	0.173
CCPDL32-xx	2"	1.9985	1.9995	8	4	1/2-13	12	0.308

NOTES: Specify length in part number using inches.
 Example: for 1/2" shafting total length 36" long = CCPDL08-36.
 For non-standard lengths, the "y" dimension will be held to one end. It may not be equal at both ends.
 Ends of cut-to-length shafting are not coated.
 Fully coated shafting is available on special request.
 Counterbore .063" from top.



PRE-DRILLED ONE PIECE/INTEGRAL SHAFT AND SUPPORT RAIL

- 6105-T6 aluminum base material
- RC70 ceramic coated finish
- One piece integrated design eliminates assembly time
- Weld splatter, paints, and other contaminants will not stick to the shaft
- Non-magnetic and vibration resistant
- Economical, weight saving alternative to traditional steel shafting
- Designed to run with Simplicity FrelonGOLD® lined linear bearings



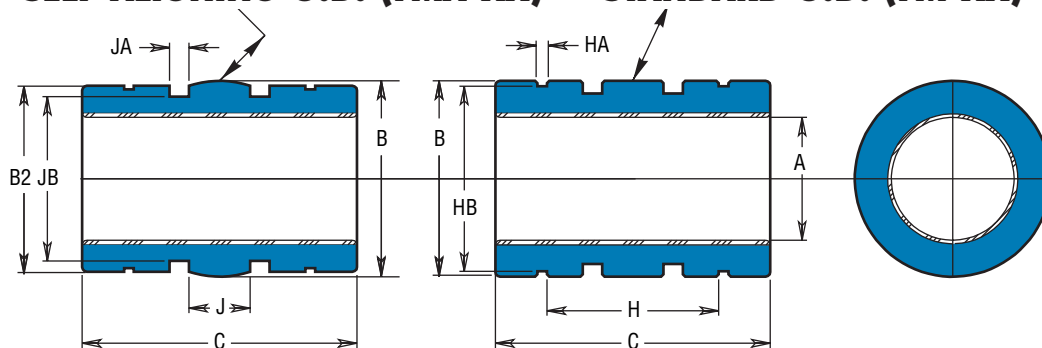
PART NO.	NOM. SHAFT SIZE	DIAMETER TOLERANCE		A	B	C	D	E	F		HOLE SPACING		L STD. LENGTHS (INCHES)	MAX. LENGTH *(FT.)	WEIGHT PER INCH (LBS.)
		MIN.	MAX.						BOLT	HOLE	x	y			
CCR08-xx	1/2"	0.4988	0.4996	1.125	1.500	0.250	0.188	1.000	#6	0.169	4	2	12, 24, 36, 48	4	0.019
CCR10-xx	5/8"	0.6238	0.6246	1.125	1.625	0.313	0.250	1.125	#8	0.193	4	2	12, 24, 36, 48	4	0.030
CCR12-xx	3/4"	0.7488	0.7496	1.500	1.750	0.375	0.250	1.250	#10	0.221	6	3	12, 24, 36, 48	4	0.043
CCR16-xx	1"	0.9988	0.9996	1.750	2.125	0.500	0.250	1.500	1/4"	0.281	6	3	12, 24, 36, 48	4	0.076
CCR20-xx	1-1/4"	1.2488	1.2496	2.125	2.500	0.563	0.313	1.875	5/16"	0.343	6	3	12, 24, 36, 48	4	0.119
CCR24-xx	1-1/2"	1.4987	1.4995	2.500	3.000	0.688	0.375	2.250	5/16"	0.343	8	4	24, 48	4	0.172
CCR32-xx	2"	1.9985	1.9995	3.250	3.750	0.875	0.500	2.750	3/8"	0.406	8	4	24, 48	4	0.305

NOTES: Specify length in part number using inches. Example: for 1/2" shafting total length 36" long = CCR08-36.
 For non-standard lengths, specify length in part number using inches. Example: for 1/2" shaft totaling 30" long = CCR08-30.
 * Up to 10 ft. available, consult factory for price & delivery.

All CCR shafting will be cut with bolt pattern centered to utilize maximum number of standard hole spacings. For all other lengths, the hole pattern will be centered to maximize the number of holes.
 Special cut-to-length rails may not be coated on the ends.



*SELF-ALIGNING O.D. (FMA-XX) STANDARD O.D. (FM-XX)



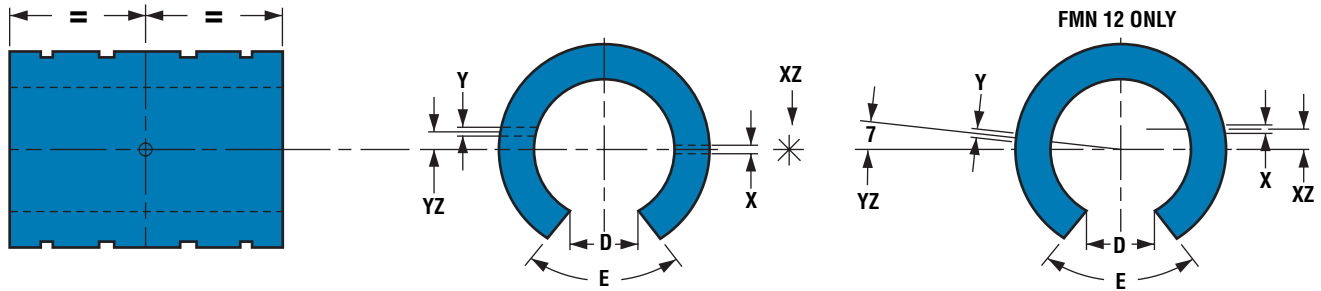
*Except for the O.D., bearings with the self-aligning feature have the same dimensions and tolerances as the standard bearing. There is a spherical crown on the O.D. to create the self-aligning feature. They are used in a straight bore housing. Add an "A" to the part number per the example. More information on self-aligning bearings is on pages 75-76.

BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B		FMA B2 O.D.		C LENGTH		CONCENTRIC	BEARING WEIGHT
PART NO.		NOMINAL SIZE	BEARING I.D. (F8)		PART NO.		BEARING I.D.		O.D. (h7)		MIN. MAX.		MIN. MAX.		MAX. mm	(kg.)
CLOSED	OPEN	mm	MIN.	MAX.	CLOSED	OPEN	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
FM 05	FMN 05	5	5.010	5.028	FMC 05	FMCN 05	5.060	5.078	11.982	12	11.941	11.966	21.746	22	0.0254	0.004
FM 08	FMN 08	8	8.013	8.035	FMC 08	FMCN 08	8.063	8.085	15.982	16	15.941	15.966	24.746	25	0.0254	0.009
FM 10	FMN 10	10	10.013	10.035	FMC 10	FMCN 10	10.063	10.085	18.979	19	18.938	18.964	28.746	29	0.0254	0.014
FM 12	FMN 12	12	12.016	12.043	FMC 12	FMCN 12	12.066	12.093	21.979	22	21.938	21.963	31.746	32	0.0254	0.017
FM 16	FMN 16	16	16.016	16.043	FMC 16	FMCN 16	16.066	16.093	25.979	26	25.938	25.964	35.746	36	0.0254	0.028
FM 20	FMN 20	20	20.020	20.053	FMC 20	FMCN 20	20.096	20.129	31.975	32	31.938	31.963	44.746	45	0.0254	0.054
FM 25	FMN 25	25	25.020	25.053	FMC 25	FMCN 25	25.096	25.129	39.975	40	39.936	39.962	57.746	58	0.0254	0.109
FM 30	FMN 30	30	30.020	30.053	FMC 30	FMCN 30	30.096	30.129	46.975	47	46.937	46.962	67.746	68	0.0254	0.176
FM 40	FMN 40	40	40.025	40.064	FMC 40	FMCN 40	40.127	40.166	61.970	62	61.935	61.961	79.746	80	0.0254	0.356
FM 50	FMN 50	50	50.025	50.064	FMC 50	FMCN 50	50.127	50.166	74.970	75	74.935	74.960	99.746	100	0.0254	0.628
FM 60	FMN 60	60	60.030	60.076	FMC 60	FMCN 60	60.182	60.228	89.965	90	89.931	89.957	124.492	125	0.0380	1.117
FM 80	FMN 80	80	80.030	80.076	FMC 80	FMCN 80	80.182	80.228	119.965	120	119.931	119.957	164.492	165	0.0510	2.679

MOUNTING DIMENSIONAL INFORMATION

PART NO.		NOMINAL SIZE	H BETWEEN RET. RINGS	HA RET. RING GRV. WIDTH	HB RET. RING GRV. DIA.	RET. RING PART NO. (DIN 471)	J BETWEEN O'RING GRVS.	JA O'RING GRV. WIDTH	JB O'RING GRV. DIA.	METRIC O'RING PART NO.
CLOSED	OPEN									
FM 05	FMN 05	5	12	1.14	11.5	12	5	2	9.86	9.7 x 1.3
FM 08	FMN 08	8	14	1.14	15.2	16	5.33	2	13.2	13 x 1.7
FM 10	FMN 10	10	19.4	1.32	18.0	19	5.63	2.44	15.7	15.5 x 2
FM 12	FMN 12	12	20	1.32	21.0	22	6	3.17	17.9	17.5 x 2.5
FM 16	FMN 16	16	22	1.32	24.9	26	8	3.17	21.9	21.5 x 2.5
FM 20	FMN 20	20	28	1.63	30.3	32	10	3.17	27.9	27.5 x 2.5
FM 25	FMN 25	25	40	1.90	37.5	40	12.5	3.17	35.9	35.5 x 2.5
FM 30	FMN 30	30	48	1.90	44.5	47	15	3.17	42.7	42.52 x 2.62
FM 40	FMN 40	40	56	2.20	59.0	62	20	4.1	56.3	56 x 3.5
FM 50	FMN 50	50	72	2.70	72.0	75	25	4.1	69.2	69 x 3.5
FM 60	FMN 60	60	95	3.20	86.4	90	30	7.1	81.7	81 x 5
FM 80	FMN 80	80	125	4.17	116.1	120	40	7.1	111.7	111 x 5



OPEN DIMENSIONAL INFORMATION

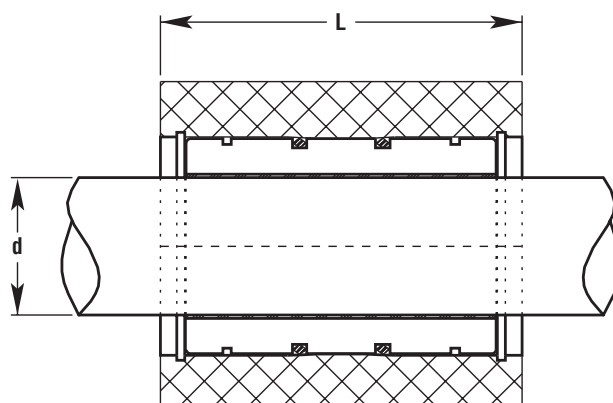
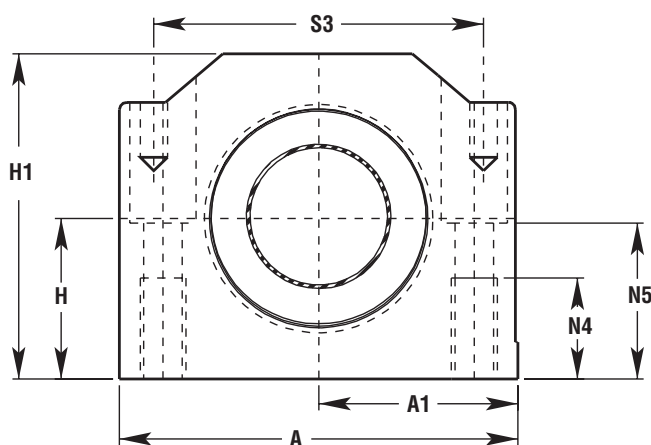
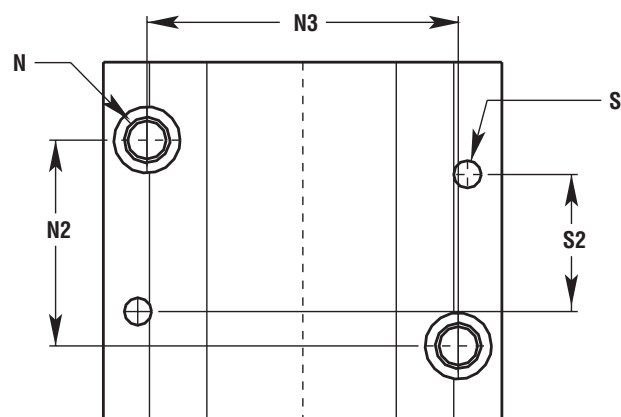
PART NO.		NOM. SIZE	D SLOT WIDE MIN.	E SLOT ANGLE	X RET. HOLE DIA.	XZ RET. HOLE LOCATE	Y RET. HOLE DIA.	YZ RET. HOLE LOCATE	BRG. WT. (kg.)
PRECISION	COMPEN.								
FMN 05	FMCN 05	5	3.2	60	2.2	0	N / A	N / A	0.0034
FMN 08	FMCN 08	8	5.1	60	3	0	N / A	N / A	0.0077
FMN 10	FMCN 10	10	6.4	60	3	0	N / A	N / A	0.0119
FMN 12	FMCN 12	12	7.6	78	3	1.35	3	7	0.0156
FMN 16	FMCN 16	16	10.4	78	2.2	0	3	0	0.0213
FMN 20	FMCN 20	20	10.8	60	2.2	0	3	0	0.0439
FMN 25	FMCN 25	25	13.2	60	3	0	3	-1.51	0.0893
FMN 30	FMCN 30	30	14.2	72	3	0	3	2	0.146
FMN 40	FMCN 40	40	19.5	72	3	0	3	1.5	0.2948
FMN 50	FMCN 50	50	24.0	72	3	0	5	2.5	0.5202
FMN 60	FMCN 60	60	29.6	72	N / A	N / A	6	0	0.9199
FMN 80	FMCN 80	80	39.0	72	N / A	N / A	8	0	2.2269



LOAD & SPEED DATA

		MAX. STATIC LOAD (kg.)		
PART NO.	EFFECTIVE SURFACE AREA (SQ. CM)	FRELON		
		GOLD	F & J	
FM 05	1.1	232	116	• MAX. PV (m/min. *kg/sq. cm) FrelonGOLD = 430 PV FrelonF & FrelonJ = 215 PV
FM 08	2	420	210	
FM 10	2.9	610	305	
FM 12	3.8	806	403	• MAX. Speed Running Dry (m/min.) FrelonGOLD = 91.4 FrelonF & FrelonJ = 42.6
FM 16	5.8	1210	605	
FM 20	9	1890	945	
FM 25	14.5	3046	1523	• MAX. Speed Running with Lubrication (m/min.) FrelonGOLD = 251.5 FrelonF & FrelonJ = 122
FM 30	20.4	4284	2142	
FM 40	32	6720	3360	
FM 50	50	10500	5250	
FM 60	75	15750	7875	
FM 80	132	27720	13860	

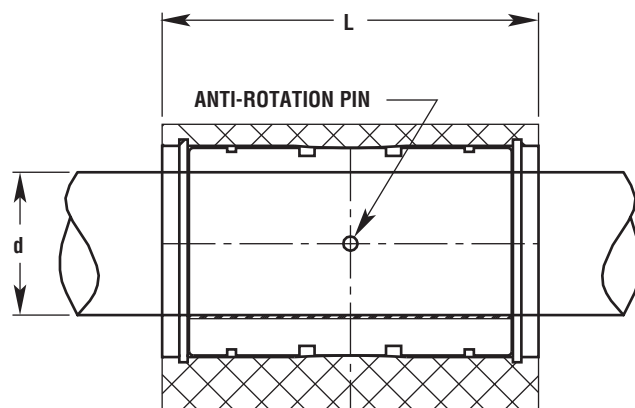
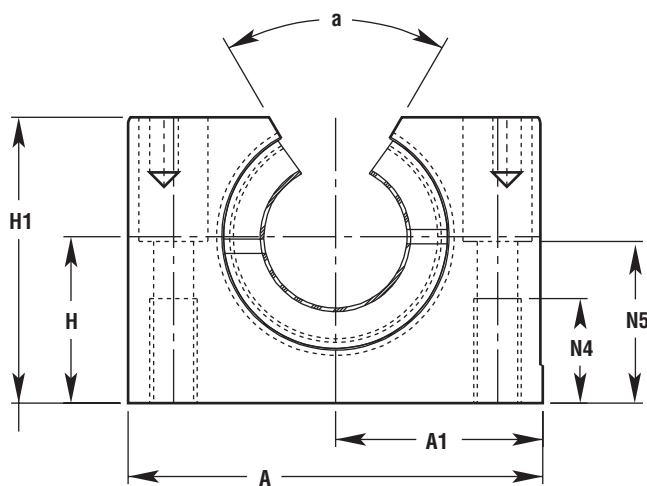
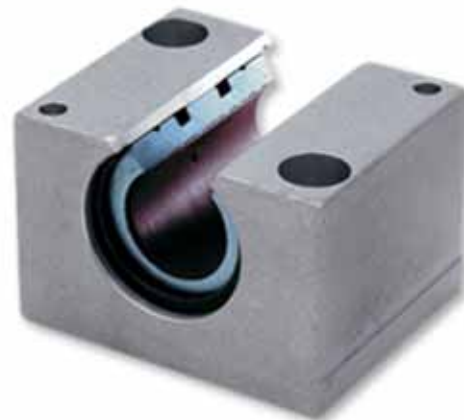
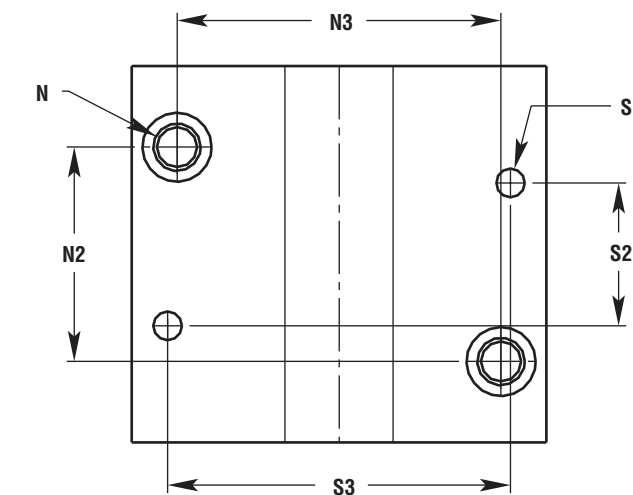
Pillow Block Information.....	50-51
Thin Wall Bearings	52-53
Sleeve Bearings	54-55
Die Set Bushings	56
Flange Mounted Bearings	57-59



CLOSED PILLOW BLOCKS

PART NO. CLOSED		d NOM. I.D. MIN.	H CENTERLINE .015	H1 HEIGHT	A WIDTH	A1 .013	L LENGTH	N BOLT	N2	N3	N4	N5	S	S2	S3	MAX. STATIC LOAD (kg.) FRELON		ASSEM. WT. (kg.)
																GOLD	F & J	
PM 08	PM 08 C	8	15	28	35	17.5	32	M4 x 0.7	20 .15	25 .15	9	14.5	N / A	N / A	N / A	N / A	N / A	0.069
PM 10	PM 10 C	10	16	31.5	40	20	36	M5 x 0.8	20 .15	29 .15	11	15	4	29	31	610	305	0.095
PM 12	PM 12 C	12	18	35	43	21.5	39	M5 x 0.8	23 .15	32 .15	11	16.5	4	32	34	806	403	0.118
PM 16	PM 16 C	16	22	42	53	26.5	43	M6 x 1.0	26 .15	40 .15	13	21	4	35	42	1210	605	0.200
PM 20	PM 20 C	20	25	50	60	30	54	M8 x 1.25	32 .15	45 .15	18	24	5	45	50	1890	945	0.329
PM 25	PM 25 C	25	30	60	78	39	67	M10 x 1.5	40 .15	60 .15	22	29	6	20	64	3046	1523	0.655
PM 30	PM 30 C	30	35	71	87	43.5	79	M10 x 1.5	45 .15	68 .15	22	34	6	30	72	4284	2142	1.020
PM 40	PM 40 C	40	45	91	108	54	91	M12 x1.75	58 .15	86 .15	26	44	8	35	90	6720	3360	1.846
PM 50	PM 50 C	50	50	105	132	66	113	M16 x 2.0	50 .2	108 .2	34	49	10	42	108	10500	5250	3.169

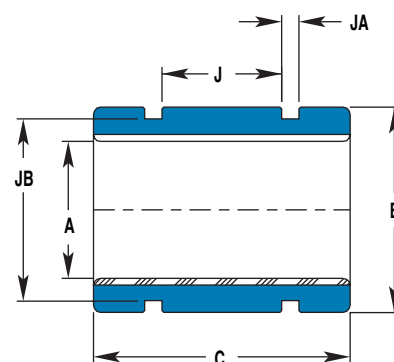
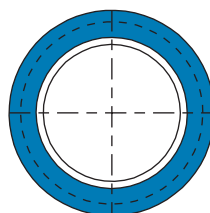
- NOTES:** (1) Standard pillow block assembly includes self-aligning housing and precision bearing.
 (2) All standard metric pillow blocks use standard "FM" series bearings found on page 48.
 (3) Straight bore pillow block assembly includes standard O.D. "FM" series bearing in straight bore housing.



OPEN PILLOW BLOCKS

PART NO.		d NOM. I.D. MIN.	H CENTERLINE .015	H1 HEIGHT	A WIDTH	A1 CENTERLINE .013	L LENGTH	N BOLT	N2	N3	N4	N5	S	S2	S3	a	MAX. STATIC LOAD (kg.) FRELON		ASSEM. WT. (kg.)
PRECISION	COMPEN.																GOLD	F & J	
PMN 12	PMN 12 C	12	18	28	43	21.5	39	M5 x 0.8	23 .15	32 .15	11	16.5	4	32	34	66	806	403	0.096
PMN 16	PMN 16 C	16	22	35	53	26.5	43	M6 x 1.0	26 .15	40 .15	13	21	4	35	42	68	1210	605	0.162
PMN 20	PMN 20 C	20	25	42	60	30	54	M8 x 1.25	32 .15	45 .15	18	24	5	45	50	60	1890	945	0.267
PMN 25	PMN 25 C	25	30	51	78	39	67	M10 x 1.5	40 .15	60 .15	22	29	6	20	64	60	3046	1523	0.536
PMN 30	PMN 30 C	30	35	60	87	43.5	79	M10 x 1.5	45 .15	68 .15	22	34	6	30	72	60	4284	2142	0.831
PMN 40	PMN 40 C	40	45	77	108	54	91	M12 x 1.75	58 .15	86 .15	26	44	8	35	90	60	6720	3360	1.499
PMN 50	PMN 50 C	50	50	88	132	66	113	M16 x 2.0	50 .2	108 .2	34	49	10	42	108	60	10500	5250	2.539

NOTES: 1) Standard pillow block assembly includes self-aligning housing and precision bearing.
 (2) All standard metric pillow blocks use standard "FM" series bearings found on page 48.



BASIC DIMENSIONAL INFORMATION

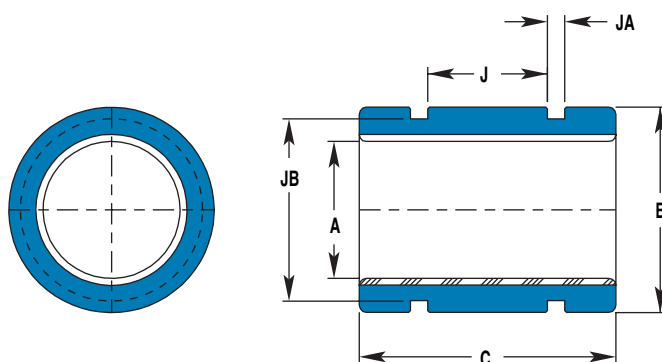
PRECISION I.D. SERIES Similar to preloaded ball bearing				COMPENSATED I.D. SERIES Similar to standard ball bearing			B O.D. (h7)		C LENGTH (h13)		CONCENTRIC MAX. mm	BEARING WEIGHT (kg.)
PART NO.	NOMINAL SIZE mm	A BEARING I.D. (F8)		PART NO.	A BEARING I.D.							
PART NO.	mm	MIN.	MAX.	CLOSED	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MAX. mm	(kg.)
FMT 06	6	6.010	6.028	FMT C 06	6.060	6.078	11.982	12	21.746	22	0.0254	0.0057
FMT 08	8	8.013	8.035	FMT C 08	8.063	8.085	14.982	15	23.746	24	0.0254	0.0071
FMT 10	10	10.013	10.035	FMT C 10	10.063	10.085	16.982	17	25.746	26	0.0254	0.0085
FMT 12	12	12.016	12.043	FMT C 12	12.066	12.093	18.979	19	27.746	28	0.0254	0.0113
FMT 14	14	14.016	14.043	FMT C 14	14.066	14.093	20.979	21	27.746	28	0.0254	0.0128
FMT 16	16	16.016	16.043	FMT C 16	16.066	16.093	23.979	24	29.746	30	0.0254	0.0184
FMT 20	20	20.020	20.053	FMT C 20	20.096	20.129	27.979	28	29.746	30	0.0254	0.0227
FMT 25	25	25.020	25.053	FMT C 25	25.096	25.129	34.975	35	39.746	40	0.0254	0.0439
FMT 30	30	30.020	30.053	FMT C 30	30.090	30.129	39.975	40	49.746	50	0.0254	0.0652
FMT 40	40	40.025	40.064	FMT C 40	40.127	40.166	51.970	52	59.746	60	0.0254	0.1233
FMT 50	50	50.025	50.064	FMT C 50	50.127	50.166	61.970	62	69.746	70	0.0254	0.1772

MOUNTING DIMENSIONS

PART NO.		NOMINAL SIZE	J BETWEEN O-RING GRVS.	JA O-RING GRV. WIDTH	JB O-RING GRV. DIA.	METRIC O-RING PART NO.
PRECISION	COMPENSATED					
FMT 06	FMT 06	6	N / A	N / A	N / A	N / A
FMT 08	FMT 08	8	10.0	2.000	12.200	12 x 1.7
FMT 10	FMT 10	10	12.0	2.000	14.400	14 x 1.6
FMT 12	FMT 12	12	14.0	2.000	16.600	16 x 1.5
FMT 14	FMT 14	14	14.0	2.000	18.500	18 x 1.5
FMT 16	FMT 16	16	14.0	2.000	21.300	21.1 x 1.6
FMT 20	FMT 20	20	14.0	2.000	25.500	25 x 1.5
FMT 25	FMT 25	25	22.0	3.200	30.900	30.5 x 2.5
FMT 30	FMT 30	30	30.0	3.200	35.900	35.5 x 2.5
FMT 40	FMT 40	40	40.0	4.100	46.200	46 x 3.5
FMT 50	FMT 50	50	50.0	4.100	56.300	56 x 3.5

LOAD & SPEED DATA

PART NO.	EFFECTIVE SURFACE AREA (SQ. CM)	MAX. STATIC LOAD (kg.) FRELON		
		GOLD	F & J	
FMT 06	1.3	278	139	• MAX. PV (m/min. *kg/sq. cm) FrelonGOLD = 430 PV FrelonF & FrelonJ = 215 PV
FMT 08	1.9	404	202	
FMT 10	2.6	546	273	
FMT 12	3.4	706	353	• MAX. Speed Running Dry (m/min.) FrelonGOLD = 91.4 FrelonF & FrelonJ = 42.6
FMT 14	3.9	824	412	
FMT 16	4.8	1008	504	
FMT 20	6.0	1260	630	• MAX. Speed Running with Lubrication (m/min.) FrelonGOLD = 251.5 FrelonF & FrelonJ = 122
FMT 25	10.0	2100	1050	
FMT 30	15.0	3150	1575	
FMT 40	24.0	5040	2520	
FMT 50	35.0	7350	3675	



BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing				COMPENSATED I.D. SERIES Similar to standard ball bearing			B O.D.		C LENGTH		CONCENTRIC MAX. mm	BEARING WEIGHT (kg.)
	NOMINAL SIZE	A BEARING I.D. (F8)		PART NO.	A BEARING I.D.							
PART NO.	mm	MIN.	MAX.	CLOSED	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
FG 06	6	6.010	6.028	FGC 06	6.060	6.078	11.98	12	17.8	18	0.0254	0.004
FG 08	8	8.013	8.035	FGC 08	8.063	8.085	14.98	15	19.8	20	0.0254	0.006
FG 10	10	10.013	10.035	FGC 10	10.063	10.085	16.98	17	21.8	22	0.0254	0.008
FG 12	12	12.016	12.043	FGC 12	12.066	12.093	21.98	22	26.8	27	0.0254	0.018
FG 15	15	15.016	15.043	FGC 15	15.066	15.093	24.98	25	27.8	28	0.0254	0.022
FG 16	16	16.016	16.043	FGC 16	16.066	16.093	25.98	26	29.8	30	0.0254	0.025
FG 18	18	18.020	18.053	FGC 18	18.096	18.129	27.98	28	29.8	30	0.0254	0.027
FG 20	20	20.020	20.053	FGC 20	20.096	20.129	31.98	32	34.8	35	0.0254	0.044
FG 25	25	25.020	25.053	FGC 25	25.096	25.129	39.98	40	44.8	45	0.0254	0.091
FG 30	30	30.020	30.053	FGC 30	30.096	30.129	44.98	45	53.8	54	0.0254	0.127
FG 35	35	35.025	35.064	FGC 35	35.127	35.166	51.98	52	61.7	62	0.0254	0.189
FG 40	40	40.025	40.064	FGC 40	40.127	40.166	59.98	60	71.7	72	0.0254	0.301
FG 50	50	50.025	50.064	FGC 50	50.127	50.166	74.98	75	89.7	90	0.0254	0.596

MOUNTING DIMENSIONS

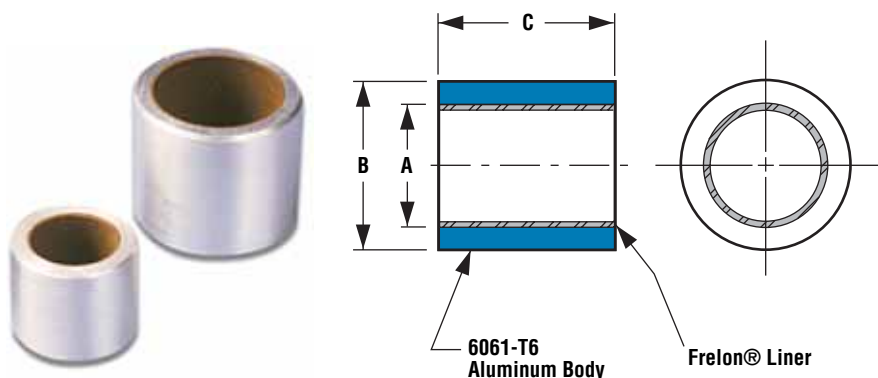
PART NO.		NOMINAL SIZE	J BETWEEN O-RING GRVS.	JA O-RING GRV. WIDTH	JB O-RING GRV. DIA.	METRIC O-RING PART NO.
PRECISION	COMPENSATED					
FG 06	FGC 06	6	N / A	N / A	N / A	N / A
FG 08	FGC 08	8	8.0	2.032	12.201	12 x 1.7
FG 10	FGC 10	10	8.3	2.032	14.415	14 x 1.6
FG 12	FGC 12	12	12.0	3.175	17.907	17.5 x 2.5
FG 15	FGC 15	15	12.7	3.175	20.671	20 x 2.65
FG 16	FGC 16	16	12.7	3.175	21.882	21.5 x 2.5
FG 18	FGC 08	18	14.0	3.175	23.885	23.5 x 2.5
FG 20	FGC 20	20	17.0	3.175	27.864	27.5 x 2.5
FG 25	FGC 25	25	24.0	3.175	35.865	35.5 x 2.5
FG 30	FGC 30	30	30.0	3.175	40.895	40 x 2.5
FG 35	FGC 35	35	36.0	4.115	46.200	46 x 3.5
FG 40	FGC 40	40	37.3	4.115	54.255	53 x 3.5
FG 50	FGC 50	50	50	4.115	69.215	69 x 3.5

LOAD & SPEED DATA

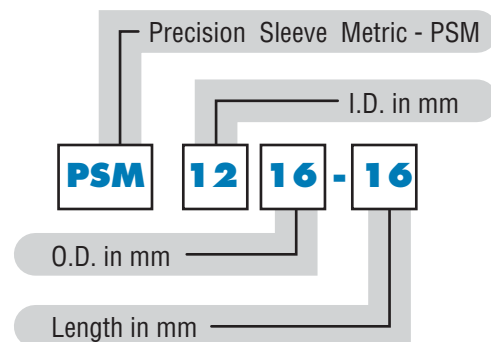
PART NO.	EFFECTIVE SURFACE AREA (SQ. CM)	MAX. STATIC LOAD (kg.) FRELON		
		GOLD	F & J	
FG 06	1.1	226	113	• MAX. PV (m/min. *kg/sq. cm) FrelonGOLD = 430 PV FrelonF & FrelonJ = 215 PV
FG 08	1.6	336	168	
FG 10	2.2	462	231	
FG 12	3.2	680	340	• MAX. Speed Running Dry (m/min.) FrelonGOLD = 91.4 FrelonF & FrelonJ = 42.6
FG 15	4.2	882	441	
FG 16	4.8	1008	504	
FG 18	5.4	1134	567	• MAX. Speed Running with Lubrication (m/min.) FrelonGOLD = 251.5 FrelonF & FrelonJ = 122
FG 20	7.0	1470	735	
FG 25	11.3	2362	1181	
FG 30	16.2	3402	1701	
FG 35	21.7	4558	2279	
FG 40	28.8	6048	3024	
FG 50	45.0	9450	4725	



SIMPLICITY® SPECIFICATIONS • ISO Metric Sleeve Bearings



PART NUMBER EXPLANATION

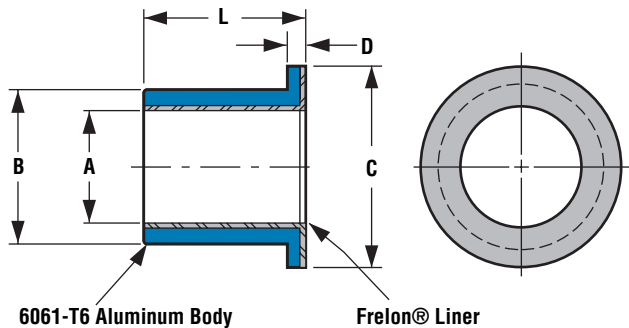


BASIC DIMENSIONAL INFORMATION

NOTE: Lengths not listed below must be quoted.

PART NO.	NOMINAL BEARING SIZE			A BEARING I.D.		B O.D. (S7)		C LENGTH		MAX. STATIC LOAD (kg.) FRELON		BEARING WEIGHT F & J	BEARING WEIGHT (kg.)	RECOMMENDED HOUSING BORE			
														SLIP FIT AND EPOXY		PRESS FIT	
	I.D.	O.D.	LENGTH	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	GOLD	F & J	MIN.	MAX.	MIN.	MAX.		
PSM0610-06	6	10	6	6.028	6.058	10.023	10.038	5.75	6	76	38	0.00084	10.038	10.063	10.000	10.015	
PSM0610-10	6	10	10	6.028	6.058	10.023	10.038	9.75	10	126	63	0.00140	10.038	10.063	10.000	10.015	
PSM0812-08	8	12	8	8.033	8.066	12.028	12.046	7.75	8	134	67	0.00140	12.046	12.071	12.000	12.018	
PSM0812-12	8	12	12	8.033	8.066	12.028	12.046	11.75	12	202	101	0.00210	12.046	12.071	12.000	12.018	
PSM0814-08	8	14	8	8.033	8.066	14.028	14.046	7.75	8	134	67	0.00231	14.046	14.071	14.000	14.018	
PSM0814-12	8	14	12	8.033	8.066	14.028	14.046	11.75	12	202	101	0.00347	14.046	14.071	14.000	14.018	
PSM1014-10	10	14	10	10.033	10.066	14.028	14.046	9.75	10	210	105	0.00210	14.046	14.071	14.000	14.018	
PSM1014-16	10	14	16	10.033	10.066	14.028	14.046	15.75	16	336	168	0.00336	14.046	14.071	14.000	14.018	
PSM1216-12	12	16	12	12.034	12.070	16.028	16.046	11.75	12	302	151	0.00294	16.046	16.071	16.000	16.018	
PSM1216-16	12	16	16	12.034	12.070	16.028	16.046	15.75	16	404	202	0.00392	16.046	16.071	16.000	16.018	
PSM1519-16	15	19	16	15.034	15.070	19.035	19.056	15.75	16	504	252	0.00476	19.046	19.071	19.000	19.018	
PSM1620-12	16	20	12	16.041	16.080	20.035	20.056	11.50	12	404	202	0.00378	20.056	20.081	20.000	20.021	
PSM1620-16	16	20	16	16.041	16.080	20.035	20.056	15.50	16	538	269	0.00505	20.056	20.081	20.000	20.021	
PSM1620-25	16	20	25	16.041	16.080	20.035	20.056	24.50	25	840	420	0.00788	20.056	20.081	20.000	20.021	
PSM2025-16	20	25	16	20.042	20.084	25.035	25.056	15.50	16	672	336	0.00787	25.056	25.081	25.000	25.021	
PSM2025-20	20	25	20	20.042	20.084	25.035	25.056	19.50	20	840	420	0.00984	25.056	25.081	25.000	25.021	
PSM2025-25	20	25	25	20.042	20.084	25.035	25.056	24.50	25	1050	525	0.01230	25.056	25.081	25.000	25.021	
PSM2025-30	20	25	30	20.042	20.084	25.035	25.056	29.50	30	1260	630	0.01476	25.056	25.081	25.000	25.021	
PSM2530-20	25	30	20	25.042	25.084	30.035	30.056	19.50	20	1050	525	0.01202	30.056	30.081	30.000	30.021	
PSM2530-25	25	30	25	25.042	25.084	30.035	30.056	24.50	25	1312	656	0.01503	30.056	30.081	30.000	30.021	
PSM2530-30	25	30	30	25.042	25.084	30.035	30.056	29.50	30	1576	788	0.01803	30.056	30.081	30.000	30.021	
PSM2535-25	25	35	25	25.050	25.096	35.043	35.068	24.50	25	1312	656	0.03276	35.068	35.093	35.000	35.021	
PSM2535-35	25	35	35	25.050	25.096	35.043	35.068	34.50	35	1838	919	0.04586	35.068	35.093	35.000	35.021	
PSM3035-25	30	35	25	30.050	30.096	35.043	35.068	24.50	25	1576	788	0.01777	35.068	35.093	35.000	35.021	
PSM3035-30	30	35	30	30.050	30.096	35.043	35.068	29.50	30	1890	945	0.02133	35.068	35.093	35.000	35.021	
PSM3040-35	30	40	35	30.050	30.096	40.043	40.068	34.50	35	2206	1103	0.05349	40.068	40.093	40.000	40.025	
PSM3040-50	30	40	50	30.050	30.096	40.043	40.068	49.50	50	3150	1575	0.07641	40.068	40.093	40.000	40.025	
PSM3545-25	35	45	25	35.052	35.102	45.043	45.068	24.50	25	1838	919	0.04365	45.068	45.093	45.000	45.025	
PSM3545-40	35	45	40	35.052	35.102	45.043	45.068	39.50	40	2940	1470	0.06983	45.068	45.093	45.000	45.025	
PSM3545-50	35	45	50	35.052	35.102	45.043	45.068	49.50	50	3676	1838	0.08729	45.068	45.093	45.000	45.025	
PSM4050-30	40	50	30	40.052	40.102	50.043	50.068	29.50	30	2520	1260	0.05891	50.068	50.093	50.000	50.025	
PSM4050-40	40	50	40	40.052	40.102	50.043	50.068	39.50	40	3360	1680	0.07855	50.068	50.093	50.000	50.025	
PSM5060-35	50	60	35	50.062	50.133	60.053	60.099	34.50	35	3676	1838	0.08419	60.099	60.124	60.000	60.030	
PSM5060-50	50	60	50	50.062	50.133	60.053	60.099	49.50	50	5250	2625	0.12027	60.099	60.124	60.000	60.030	
PSM6070-60	60	70	60	60.063	60.139	70.053	70.099	59.50	60	7560	3780	0.17052	70.099	70.124	70.000	70.030	

FrelonGOLD®, FrelonJ® and FrelonF® are registered trademarks of Pacific Bearing.



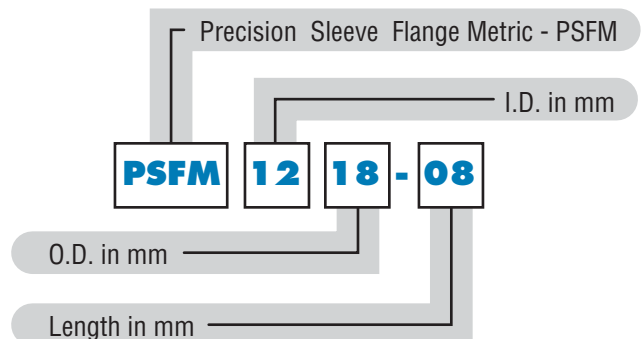
BASIC DIMENSIONAL INFORMATION

PART NO.	NOMINAL BEARING SIZE			A		B		C	D	L		MAX. STATIC LOAD (kg) FRELON		BEARING WEIGHT kg.	RECOMMENDED HOUSING BORE			
	I.D.	O.D.	LENGTH	MIN.	MAX.	MIN.	MAX.	FLANGE O.D.	FLANGE WIDTH	MIN.	MAX.	GOLD	F & J		SLIP FIT AND EPOXY	MIN.	MAX.	PRESS FIT
PSFM0610-06	6	10	6	6.028	6.058	10.023	10.038	14	2	5.75	6	76	38	0.00126	10.038	10.063	10.000	10.015
PSFM0610-10	6	10	10	6.028	6.058	10.023	10.038	14	2	9.75	10	126	63	0.00182	10.038	10.063	10.000	10.015
PSFM0812-06	8	12	6	8.033	8.066	12.028	12.046	16	2	5.75	6	100	50	0.00153	12.046	12.071	12.000	12.018
PSFM0812-08	8	12	8	8.033	8.066	12.028	12.046	16	2	7.75	8	134	67	0.00189	12.046	12.071	12.000	12.018
PSFM0812-12	8	12	12	8.033	8.066	12.028	12.046	16	2	11.75	12	202	101	0.00259	12.046	12.071	12.000	12.018
PSFM1016-08	10	16	8	10.033	10.066	16.028	16.046	22	3	7.75	8	168	84	0.00421	16.046	16.071	16.000	16.018
PSFM1016-10	10	16	10	10.033	10.066	16.028	16.046	22	3	9.75	10	210	105	0.00489	16.046	16.071	16.000	16.018
PSFM1016-16	10	16	16	10.033	10.066	16.028	16.046	22	3	15.75	16	336	168	0.00694	16.046	16.071	16.000	16.018
PSFM1218-08	12	18	8	12.034	12.070	18.028	18.046	24	3	7.75	8	202	101	0.00478	18.046	18.071	18.000	18.018
PSFM1218-12	12	18	12	12.034	12.070	18.028	18.046	24	3	11.75	12	302	151	0.00636	18.046	18.071	18.000	18.018
PSFM1519-16	15	19	16	15.034	15.070	19.028	19.046	25	3	15.50	16	504	252	0.00647	19.046	19.071	19.000	19.018
PSFM1620-16	16	20	16	16.041	16.080	20.035	20.056	27	3	15.50	16	538	269	0.00718	20.056	20.081	20.000	20.021
PSFM1620-20	16	20	20	16.041	16.080	20.035	20.056	27	3	19.50	20	672	336	0.00844	20.056	20.081	20.000	20.021
PSFM1620-25	16	20	25	16.041	16.080	20.035	20.056	27	3	24.50	25	840	420	0.01002	20.056	20.081	20.000	20.021
PSFM2026-20	20	26	20	20.042	20.084	26.035	26.056	32	3	19.50	20	840	420	0.01432	26.056	26.081	26.000	26.021
PSFM2026-30	20	26	30	20.042	20.084	26.035	26.056	32	3	29.50	30	1260	630	0.02035	26.056	26.081	26.000	26.021
PSFM2530-20	25	30	20	25.042	25.084	30.035	30.056	39	3.5	19.50	20	1050	525	0.01672	30.056	30.081	30.000	30.021
PSFM2530-25	25	30	25	25.042	25.084	30.035	30.056	39	3.5	24.50	25	1312	656	0.01973	30.056	30.081	30.000	30.021
PSFM2530-32	25	30	32	25.042	25.084	30.035	30.056	39	3.5	31.50	32	1680	840	0.02394	30.056	30.081	30.000	30.021
PSFM3038-30	30	38	30	30.050	30.096	38.043	38.068	46	4	29.50	30	1890	945	0.04145	38.068	38.093	38.000	38.021
PSFM3545-35	35	45	35	35.052	35.102	45.043	45.068	55	5	34.50	35	2572	1286	0.07192	45.068	45.093	45.000	45.025
PSFM4050-40	40	50	40	40.052	40.102	50.043	50.068	60	5	39.50	40	3360	1680	0.09044	50.068	50.093	50.000	50.025
PSFM5060-50	50	60	50	50.062	50.133	60.053	60.099	70	5	49.50	50	5250	2625	0.13429	60.099	60.124	60.000	60.030

INSTALLATION INSTRUCTIONS

- Slip the bearing sleeve into the housing and epoxy into place with Loctite™ or similar type bonding agent.
CAUTION: Do NOT let any of the adhesive touch the bearing liner. It will harden and interfere with the running clearance.
- Freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

PART NUMBER EXPLANATION

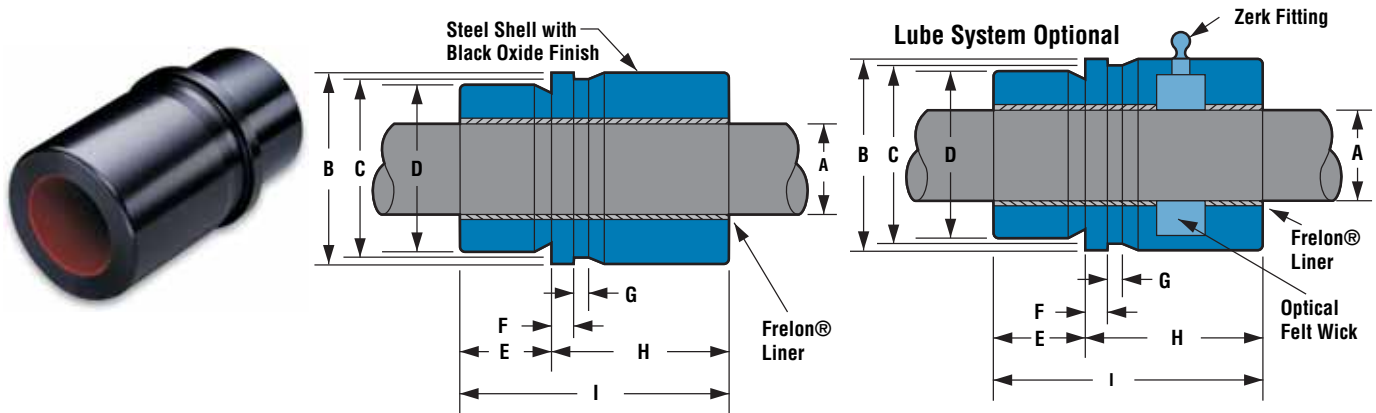


NOTE: Lengths not listed above must be quoted.

FrelonGOLD®, FrelonJ® and FrelonF® are registered trademarks of Pacific Bearing.

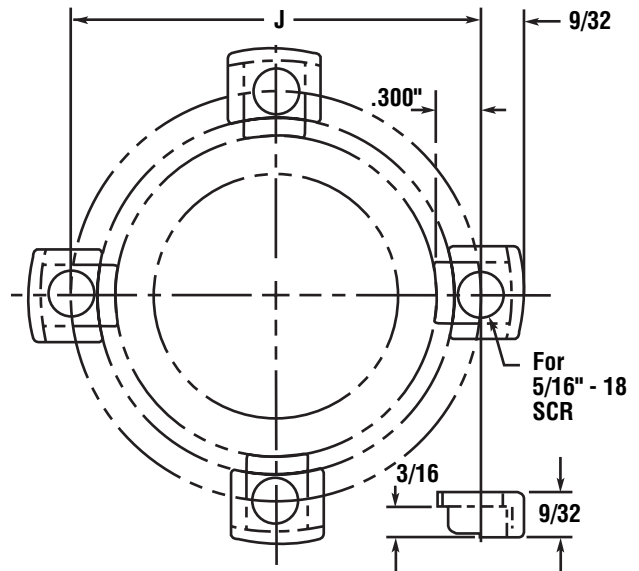
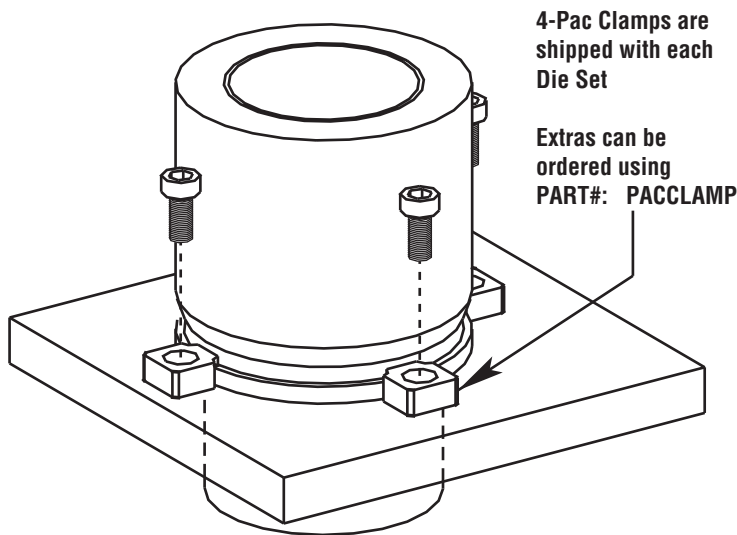


SIMPLICITY® SPECIFICATIONS • ISO Metric Die Set Bushings



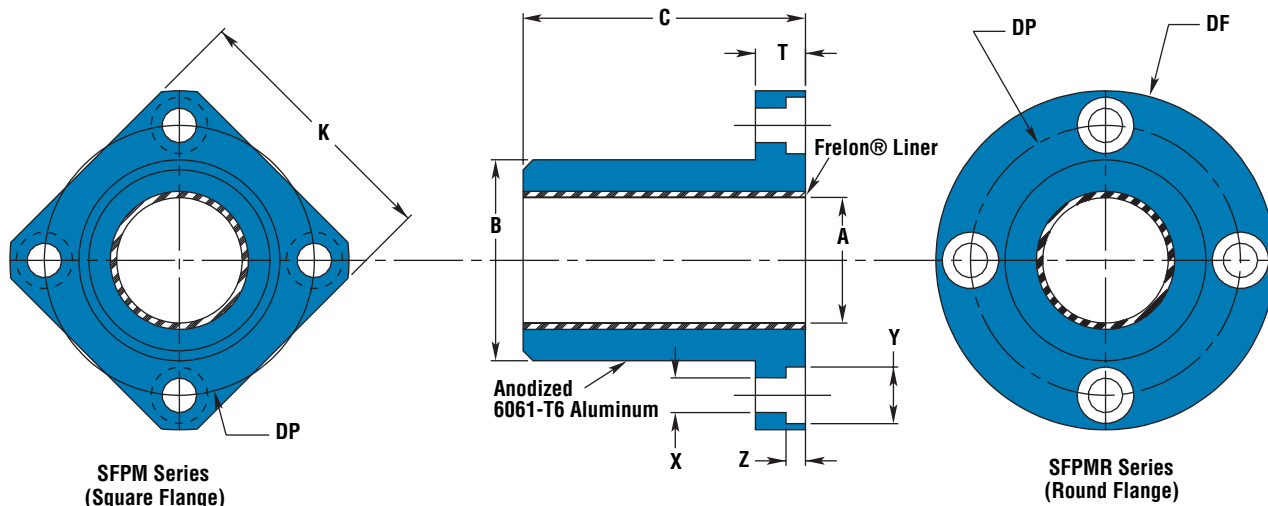
BASIC DIMENSIONAL INFORMATION

PART NO.	NOM. SIZE	A		PART NO.	A		B		C	D		E	F	G	H	I	BEARING WEIGHT
PRECISION	mm	MIN.	MAX.	COMPENSATED	MIN.	MAX.	MIN.	MAX.	MIN.	MIN.	MAX.	PILOT LENGTH	FLANGE LENGTH	RECESS LENGTH	HEAD LENGTH	OVERALL LENGTH	kg.
PACM 19	19	19.020	19.053	PACM 19 C	19.096	19.129	33.975	34	29	27.979	28	18	5	18	52	70	0.282
PACM 25	25	25.020	25.053	PACM 25 C	25.096	25.129	43.975	44	39	37.975	38	23	5	20	57	80	0.551
PACM 32	32	32.020	32.053	PACM 32 C	32.096	32.129	52.970	53	48	44.975	45	26	5	20	64	90	0.834
PACM 40	40	40.025	40.064	PACM 40 C	40.127	40.166	62.970	63	58	53.970	54	30	5	25	70	100	1.229
PACM 50	50	50.025	50.064	PACM 50 C	50.127	50.166	78.970	79	74	64.970	65	35	5	25	75	110	2.055
PACM 63	63	63.030	63.076	PACM 63 C	63.182	63.228	91.965	92	87	80.970	81	48	5	25	82	130	2.984
PACM 80	80	80.030	80.076	PACM 80 C	80.182	80.228	110.965	111	106	99.965	100	48	5	25	102	150	4.772



NOTE: DIMENSION FOR CALCULATING BOLT CIRCLE

$$J = \left(\frac{C}{2} + .300 \right) \times 2$$



BASIC DIMENSIONAL INFORMATION

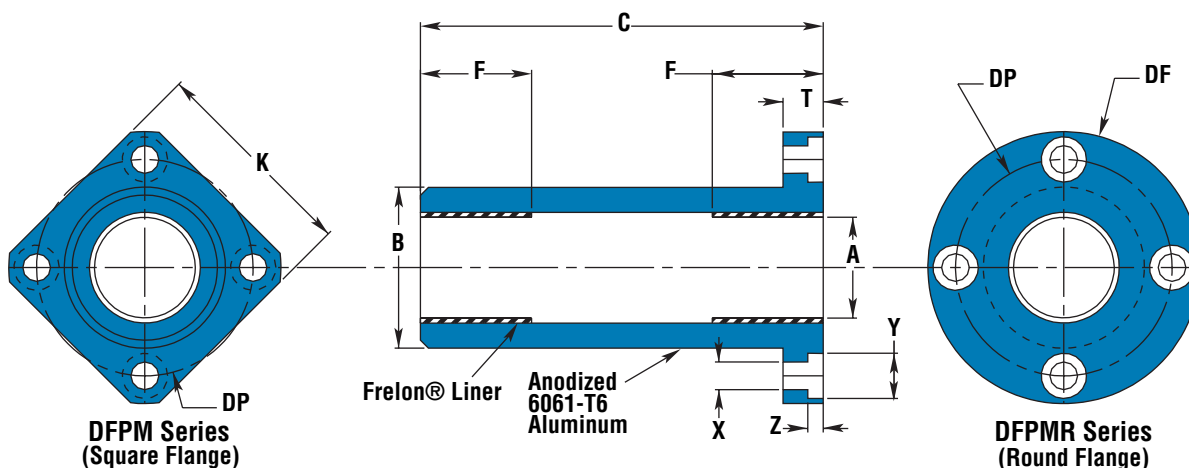
PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B BODY O.D. (h7)		C LENGTH (h13)	
PART NO.		NOMINAL SIZE	A BEARING I.D. (F8)		PART NO.		A BEARING I.D.					
SQUARE	ROUND	mm	MIN.	MAX.	SQUARE	ROUND	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
SFPM 08	SFPMR 08	8	8.013	8.035	SFPM 08C	SFPMR 08C	8.063	8.085	15.982	16	24.8	25
SFPM 12	SFPMR 12	12	12.016	12.043	SFPM 12C	SFPMR 12C	12.066	12.093	21.979	22	31.8	32
SFPM 16	SFPMR 16	16	16.016	16.043	SFPM 16C	SFPMR 16C	16.066	16.093	25.979	26	35.8	36
SFPM 20	SFPMR 20	20	20.020	20.053	SFPM 20C	SFPMR 20C	20.096	20.129	31.975	32	44.8	45
SFPM 25	SFPMR 25	25	25.020	25.053	SFPM 25C	SFPMR 25C	25.096	25.129	39.975	40	57.7	58
SFPM 30	SFPMR 30	30	30.020	30.053	SFPM 30C	SFPMR 30C	30.096	30.129	46.975	47	67.7	68
SFPM 40	SFPMR 40	40	40.025	40.064	SFPM 40C	SFPMR 40C	40.127	40.166	61.970	62	79.7	80
SFPM 50	SFPMR 50	50	50.025	50.064	SFPM 50C	SFPMR 50C	50.127	50.166	74.970	75	99.7	100
SFPM 60	SFPMR 60	60	60.030	60.076	SFPM 60C	SFPMR 60C	60.182	60.228	89.965	90	124.6	125
SFPM 80	SFPMR 80	80	80.030	80.076	SFPM 80C	SFPMR 80C	80.182	80.228	119.965	120	164.6	165

MOUNTING DIMENSIONAL INFORMATION

PART NO.		K	DF	T	DP	X	Y	Z	CLAMPING BOLT	CONCENTRICITY	SQUARENESS	SFPM	SFPMR
SQUARE	ROUND	SQUARE MAX.	O.D. MAX.	LENGTH MAX.	BOLT CIRCLE	HOLE	C'BORE DIA.	C'BORE DEPTH				WEIGHTS kg.	WEIGHTS kg.
SFPM 08	SFPMR 08	25	32	8	24	3.5	6	3.1	M 3	0.012	0.012	0.018	0.022
SFPM 12	SFPMR 12	32	42	9	32	4.5	7.5	4.1	M 4	0.012	0.012	0.037	0.046
SFPM 16	SFPMR 16	35	46	9	36	4.5	7.5	4.1	M 4	0.012	0.012	0.047	0.058
SFPM 20	SFPMR 20	42	54	11	43	5.5	9	5.1	M 5	0.015	0.015	0.085	0.101
SFPM 25	SFPMR 25	50	62	11	51	5.5	9	5.1	M 5	0.015	0.015	0.156	0.172
SFPM 30	SFPMR 30	60	76	14	62	6.6	11	6.1	M 6	0.015	0.015	0.257	0.293
SFPM 40	SFPMR 40	75	98	18	80	9.0	14	8.1	M 8	0.017	0.017	0.500	0.595
SFPM 50	SFPMR 50	88	112	18	94	9.0	14	8.1	M 8	0.017	0.017	0.825	0.930
SFPM 60	SFPMR 60	106	134	24	112	11.0	17	11.1	M 10	0.020	0.020	1.506	1.697
SFPM 80	SFPMR 80	136	164	24	142	11.0	17	11.1	M 10	0.020	0.020	3.308	3.483



SIMPLICITY® SPECIFICATIONS • ISO Metric Flange Bearings

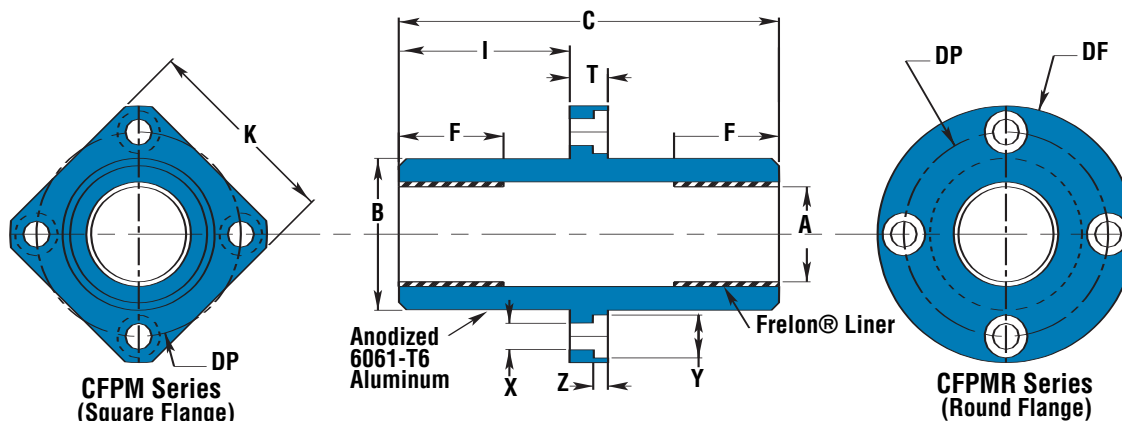


BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B BODY O.D. (h7)		C LENGTH		F LENGTH EACH END
PART NO.		NOMINAL SIZE mm	A BEARING I.D. (F8)		PART NO.		A BEARING I.D.		MIN.	MAX.	MIN.	MAX.	
SQUARE	ROUND		MIN.	MAX.	SQUARE	FLANGE	MIN.	MAX.					
DFPM 08	DFPMR 08	8	8.013	8.035	DFPM 08C	DFPMR 08C	8.063	8.085	15.982	16	44.7	45	12.1
DFPM 12	DFPMR 12	12	12.016	12.043	DFPM 12C	DFPMR 12C	12.066	12.093	21.979	22	56.7	57	15.4
DFPM 16	DFPMR 16	16	16.016	16.043	DFPM 16C	DFPMR 16C	16.066	16.093	25.979	26	69.7	70	20.4
DFPM 20	DFPMR 20	20	20.020	20.053	DFPM 20C	DFPMR 20C	20.096	20.129	31.975	32	79.7	80	22.1
DFPM 25	DFPMR 25	25	25.020	25.053	DFPM 25C	DFPMR 25C	25.096	25.129	39.975	40	111.6	112	33.1
DFPM 30	DFPMR 30	30	30.020	30.053	DFPM 30C	DFPMR 30C	30.096	30.129	46.975	47	122.6	123	35
DFPM 40	DFPMR 40	40	40.025	40.064	DFPM 40C	DFPMR 40C	40.127	40.166	61.970	62	150.6	151	44
DFPM 50	DFPMR 50	50	50.025	50.064	DFPM 50C	DFPMR 50C	50.127	50.166	74.970	75	191.6	192	69.5
DFPM 60	DFPMR 60	60	60.030	60.076	DFPM 60C	DFPMR 60C	60.182	60.228	89.965	90	208.6	209	73

MOUNTING DIMENSIONAL INFORMATION

PART NO.		K SQUARE MAX.	DF O.D. MAX.	T LENGTH MAX.	DP BOLT CIRCLE	X HOLE	Y C'BORE DIA.	Z C'BORE DEPTH	CLAMPING BOLT	CONCENTRICITY	SQUARENESS	DFPM WEIGHTS kg.	DFPMR WEIGHTS kg.
SQUARE	ROUND												
DFPM 08	DFPMR 08	25	32	8	24	3.5	6	3.1	M 3	0.015	0.015	0.027	0.031
DFPM 12	DFPMR 12	32	42	9	32	4.5	7.5	4.1	M 4	0.015	0.015	0.055	0.064
DFPM 16	DFPMR 16	35	46	9	36	4.5	7.5	4.1	M 4	0.015	0.015	0.078	0.089
DFPM 20	DFPMR 20	42	54	11	43	5.5	9	5.1	M 5	0.017	0.017	0.133	0.149
DFPM 25	DFPMR 25	50	62	11	51	5.5	9	5.1	M 5	0.017	0.017	0.270	0.286
DFPM 30	DFPMR 30	60	76	14	62	6.6	11	6.1	M 6	0.017	0.017	0.413	0.450
DFPM 40	DFPMR 40	75	98	18	80	9.0	14	8.1	M 8	0.020	0.020	0.846	0.942
DFPM 50	DFPMR 50	88	112	18	94	9.0	14	8.1	M 8	0.020	0.020	1.450	1.556
DFPM 60	DFPMR 60	106	134	24	112	11.0	17	11.1	M 10	0.025	0.025	2.329	2.519



BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B BODY O.D. (h7)		C LENGTH		I LENGTH TO FLNG.	F LENGTH EACH END
PART NO.		NOMINAL SIZE mm	A (F8) BEARING I.D.		PART NO.		A BEARING I.D.							
SQUARE	ROUND		MIN.	MAX.	SQUARE	ROUND	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
CFPM 08	CFPMR 08	8	8.013	8.035	CFPM 08C	CFPMR 08C	8.063	8.085	15.982	16	45.7	46.3	20.5	12.1
CFPM 12	CFPMR 12	12	12.016	12.043	CFPM 12C	CFPMR 12C	12.066	12.093	21.979	22	60.7	61.3	27.5	15.4
CFPM 16	CFPMR 16	16	16.016	16.043	CFPM 16C	CFPMR 16C	16.066	16.093	25.979	26	67.7	68.3	31	20.4
CFPM 20	CFPMR 20	20	20.020	20.053	CFPM 20C	CFPMR 20C	20.096	20.129	31.975	32	79.7	80.3	36	22.1
CFPM 25	CFPMR 25	25	25.020	25.053	CFPM 25C	CFPMR 25C	25.096	25.129	39.975	40	111.7	112.3	52	33.1
CFPM 30	CFPMR 30	30	30.020	30.053	CFPM 30C	CFPMR 30C	30.096	30.129	46.975	47	122.7	123.3	56.5	35
CFPM 40	CFPMR 40	40	40.025	40.064	CFPM 40C	CFPMR 40C	40.127	40.166	61.970	62	150.7	151.3	69	44
CFPM 50	CFPMR 50	50	50.025	50.064	CFPM 50C	CFPMR 50C	50.127	50.166	74.970	75	191.7	192.3	89.5	69.5
CFPM 60	CFPMR 60	60	60.030	60.076	CFPM 60C	CFPMR 60C	60.182	60.228	89.965	90	208.7	209.3	95.5	73

MOUNTING DIMENSIONAL INFORMATION

PART NO.		K SQUARE MAX.	DF O.D. MAX.	T LENGTH MAX.	DP BOLT CIRCLE	X HOLE	Y C'BORE DIA.	Z C'BORE DEPTH	CLAMPING BOLT	CONCENTRICITY	SQUARENESS	CFPM WEIGHTS (kg.)	CFPMR WEIGHTS (kg.)
SQUARE	ROUND												
CFPM 08	CFPMR 08	25	32	8	24	3.5	6	3.1	M 3	0.015	0.015	0.027	0.031
CFPM 12	CFPMR 12	32	42	9	32	4.5	7.5	4.1	M 4	0.015	0.015	0.058	0.067
CFPM 16	CFPMR 16	35	46	9	36	4.5	7.5	4.1	M 4	0.015	0.015	0.077	0.088
CFPM 20	CFPMR 20	42	54	11	43	5.5	9	5.1	M 5	0.017	0.017	0.133	0.149
CFPM 25	CFPMR 25	50	62	11	51	5.5	9	5.1	M 5	0.017	0.017	0.270	0.286
CFPM 30	CFPMR 30	60	76	14	62	6.6	11	6.1	M 6	0.017	0.017	0.413	0.450
CFPM 40	CFPMR 40	75	98	18	80	9.0	14	8.1	M 8	0.020	0.020	0.846	0.942
CFPM 50	CFPMR 50	88	112	18	94	9.0	14	8.1	M 8	0.020	0.020	1.450	1.556
CFPM 60	CFPMR 60	106	134	24	112	11.0	17	11.1	M 10	0.025	0.025	2.329	2.519



SIMPLICITY® ISO METRIC SHAFTING



METRIC SHAFTING - (RC60 Hardness)

PART NO.	NOMINAL SIZE	DIAMETER TOLERANCE CLASS "M"		LENGTH in m*	HARDNESS DEPTH	WEIGHT
	mm	MIN.	MAX.	MAX.	MIN. (mm)	(kg/m)
NIM03-xx	3	2.991	3	6.4	1.0	0.06
NIM04-xx	4	3.991	4	6.4	1.0	0.1
NIM05-xx	5	4.991	5	6.4	1.0	0.15
NIM06-xx	6	5.991	6	6.4	1.0	0.23
NIM08-xx	8	7.991	8	6.4	1.0	0.39
NIM10-xx	10	9.991	10	6.4	1.0	0.62
NIM12-xx	12	11.989	12	4.6	1.0	0.89
NIM16-xx	16	15.989	16	4.6	1.7	1.57
NIM20-xx	20	19.987	20	4.6	1.7	2.45
NIM25-xx	25	24.987	25	5.2	2.7	3.8
NIM30-xx	30	29.987	30	5.2	2.7	5.5
NIM40-xx	40	39.984	40	5.2	2.7	9.8
NIM50-xx	50	49.984	50	5.2	3.7	15.3
NIM60-xx	60	59.981	60	5.2	3.7	22.2
NIM80-xx	80	79.981	80	5.2	3.7	39.5

NOTES: Specify length in part number using millimeters.
Example: for 25 mm shafting total length
900mm = NIM25-900

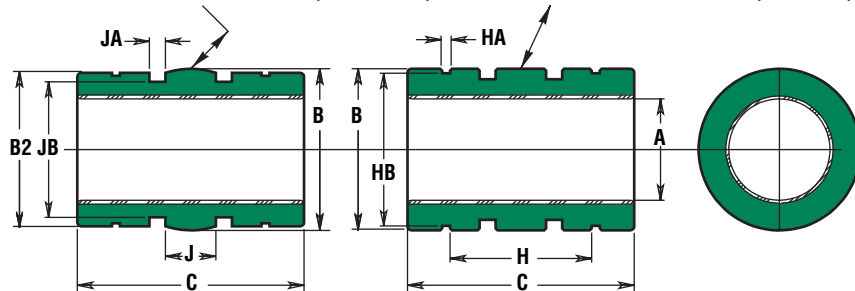
*Longer custom lengths available - consult factory.

Metric Bearings and Pillow Blocks	48-51
Compact Metric Thin Wall Bearings	52-53
Metric Sleeve Bearings	54-55
Metric Die Set Bushings.....	56
Metric Flange Mounted Bearings	57-59



*SELF-ALIGNING O.D. (FJA-XX)

STANDARD O.D. (FJ-XX)



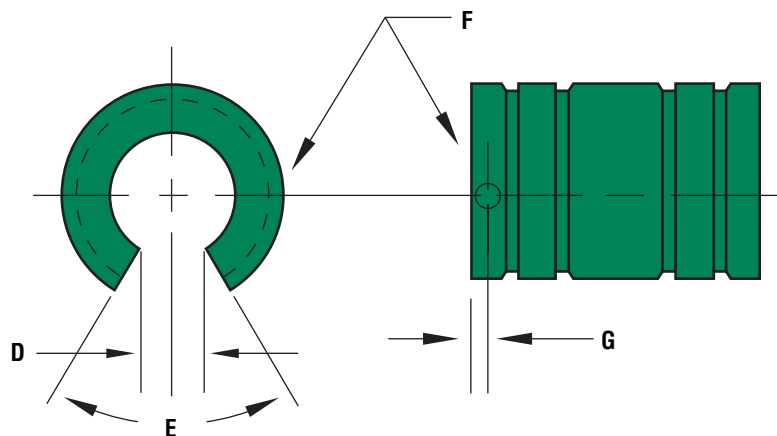
*Except for the O.D. bearings with the self-aligning feature have the same dimensions and tolerances as the standard bearing. There is a spherical crown on the O.D. to create the self-aligning feature. They are for use in a straight bore housing. Add an "A" to the part number per the example. More information on self-aligning bearings is on page 74-75.

BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B O.D.		FJA B2 O.D.		C LENGTH		CONCENTRIC	BEARING WEIGHT (kg.)
PART NO.		NOMINAL SIZE	A BEARING I.D.		PART NO.		A BEARING I.D.									
CLOSED	OPEN	mm	MIN.	MAX.	CLOSED	OPEN	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MAX. mm	
FJ 06	N / A	6	6.010	6.028	FJC 06	FJCN 06	6.06	6.078	11.989	12	11.943	11.968	18.8	19	0.0254	0.004
FJH 08	FJHN 08	8	8.013	8.035	FJCH 08	FJCHN 08	8.063	8.085	14.989	15	14.943	14.968	16.8	17	0.0254	0.005
FJ 08	FJN 08	8	8.013	8.035	FJC 08	FJCN 08	8.063	8.085	14.989	15	14.943	14.968	23.8	24	0.0254	0.008
FJ 10	FJN 10	10	10.013	10.035	FJC 10	FJCN 10	10.063	10.086	18.987	19	18.936	18.969	28.8	29	0.0254	0.015
FJ 12	FJN 12	12	12.016	12.043	FJC 12	FJCN 12	12.066	12.093	20.987	21	20.942	20.968	29.8	30	0.0254	0.018
FJ 13	FJN 13	13	13.016	13.043	FJC 13	FJCN 13	13.066	13.093	22.987	23	22.944	22.969	31.8	32	0.0254	0.024
FJ 16	FJN 16	16	16.016	16.043	FJC 16	FJCN 16	16.066	16.093	27.987	28	27.943	27.968	36.8	37	0.0254	0.039
FJ 20	FJN 20	20	20.02	20.053	FJC 20	FJCN 20	20.096	20.129	31.984	32	31.941	31.966	41.8	42	0.0254	0.052
FJ 25	FJN 25	25	25.02	25.053	FJC 25	FJCN 25	25.096	25.129	39.984	40	39.942	39.967	58.7	59	0.0254	0.119
FJ 30	FJN 30	30	30.02	30.053	FJC 30	FJCN 30	30.096	30.129	44.984	45	44.940	44.966	63.7	64	0.0254	0.149
FJ 35	FJN 35	35	35.02	35.053	FJC 35	FJCN 35	35.100	35.136	51.981	52	51.940	51.966	69.7	70	0.0254	0.212
FJ 38	FJN 38	38	38.025	38.064	FJC 38	FJCN 38	38.127	38.166	56.981	57	56.940	56.966	75.7	76	0.0254	0.284
FJ 40	FJN 40	40	40.025	40.064	FJC 40	FJCN 40	40.127	40.166	59.981	60	59.939	59.964	79.7	80	0.0254	0.333
FJ 50	FJN 50	50	50.025	50.064	FJC 50	FJCN 50	50.127	50.166	79.981	80	79.939	79.964	99.7	100	0.0254	0.823
FJ 60	FJN 60	60	60.03	60.076	FJC 60	FJCN 60	60.182	60.228	89.978	90	89.939	89.964	109.7	110	0.0254	1.024
FJ 80	FJN 80	80	80.03	80.076	FJC 80	FJCN 80	80.182	80.228	119.978	120	119.939	119.964	139.6	140	0.038	2.359
FJ 100	FJN 100	100	100.03	100.076	FJC 100	FJCN 100	100.182	100.228	149.975	150	149.936	149.962	174.6	175	0.051	4.651
FJ 120	FJN 120	120	120.035	120.089	FJC 120	FJCN 120	120.19	120.236	179.975	180	179.936	179.962	199.6	200	0.051	7.706
FJ 150	FJN 150	150	150.035	150.089	FJC 150	FJCN 150	150.19	150.236	209.971	210	209.934	209.959	239.6	240	0.051	11.104

MOUNTING DIMENSIONAL INFORMATION

PART NO.		NOMINAL SIZE	H BETWEEN RET. RINGS	HA RET. RING GRV. WIDTH	HB RET. RING GRV. DIA.	RET. RING PART NO. (JIS B 2804)	J BETWEEN O'RING GRVS.	JA O'RING GRV. WIDTH	JB O'RING GRV. DIA.	METRIC O'RING PART NO.
CLOSED	OPEN									
FJ06	N / A	6	11.3	1.15	11.5	STW - 12	4.293	2.032	9.859	9.7 x 1.3
FJH 08	FJHN08	8	9.2	1.15	14.3	STW - 15	2.540	2.362	12.243	12 x 1.7
FJ 08	FJN08	8	15.2	1.15	14.3	STW - 15	7.493	2.362	12.243	12 x 1.7
FJ 10	FJN 10	10	19.3	1.35	18	STW - 19	9.500	2.362	15.700	15.5 x 2
FJ 12	FJN 12	12	20.3	1.35	20	STW - 20	10.490	2.362	18.546	18 x 1.5
FJ 13	FJN 13	13	20.3	1.35	22	STW - 23	11.481	2.362	20.544	20 x 1.5
FJ 16	FJN 16	16	23.2	1.65	26.6	STW - 28	11.100	3.556	23.978	23.5 x 2.5
FJ 20	FJN 20	20	27.2	1.65	30.3	STW - 32	15.977	3.556	27.864	27.5 x 2.5
FJ 25	FJN 25	25	37.2	1.85	38	STW - 40	19.990	3.556	35.865	35.5 x 2.5
FJ 30	FJN 30	30	40.7	1.85	42.5	STW - 45	22.479	3.556	40.843	40 x 2.5
FJ 35	FJN 35	35	44.8	2.20	49	STW - 52	25.984	4.115	46.200	46 x 3.5
FJ 38	FJN 38	38	54.3	2.20	54.5	STW - 58	28.499	4.115	51.2	51 x 3.5
FJ 40	FJN 40	40	56.1	2.20	57	STW - 60	29.997	4.115	54.225	53 x 3.5
FJ 50	FJN 50	50	68.6	2.70	76.5	STW - 80	39.980	4.75	74.193	73 x 3.5
FJ 60	FJN 60	60	78.7	3.15	86.5	STW - 90	44.983	7.036	81.738	81 x 5
FJ 80	FJN 80	80	97.2	4.15	116	STW - 120	59.995	7.137	111.727	111 x 5
FJ 100	FJN 100	100	117.2	4.15	145	STW - 150	74.981	7.137	141.199	140 x 5.3
FJ 120	FJN 120	120	150.3	4.15	175	STW - 180	89.992	7.137	171.74	170 x 5
FJ 150	FJN 150	150	160.3	5.15	204	STW - 210	104.978	7.137	201.193	200 x 5.3



OPEN DIMENSIONAL INFORMATION

PART NO.		NOMINAL SIZE	D SLOT WIDTH MIN.	E SLOT ANGLE	F RETENTION HOLE DIA.	G RETENTION HOLE LOC.	BEARINGS WEIGHTS (kg.)
PRECISION	COMPENSATED						
FJHN 08	FJHCN 08	8	5.1	60	2.2	8.46	0.004
FJN 08	FJCN 08	8	5.1	60	2.2	11.94	0.006
FJN 10	FJCN 10	10	7.0	80	3.454	1.941	0.012
FJN 12	FJCN 12	12	8.0	80	3.454	1.941	0.014
FJN 13	FJCN 13	13	9.0	80	3.454	2.441	0.018
FJN 16	FJCN 16	16	11.0	80	3.454	3.019	0.030
FJN 20	FJCN 20	20	11.0	60	3.454	3.175	0.044
FJN 25	FJCN 25	25	12.0	50	3.454	3.175	0.102
FJN 30	FJCN 30	30	15.0	50	5.105	4.763	0.128
FJN 35	FJCN 35	35	17.0	50	5.105	4.763	0.182
FJN 38	FJCN 38	38	18	50	5.105	4.763	0.245
FJN 40	FJCN 40	40	20	50	5.105	4.763	0.286
FJN 50	FJCN 50	50	25	50	6.731	7.938	0.709
FJN 60	FJCN 60	60	30	50	6.731	7.938	0.882
FJN 80	FJCN 80	80	40	50	6.731	13.181	2.031
FJN 100	FJCN 100	100	50	50	6.731	14.500	4.005
FJN 120	FJCN 120	120	85	80	6.731	16.103	5.994
FJN 150	FJCN 150	150	105	80	6.731	17.350	8.637

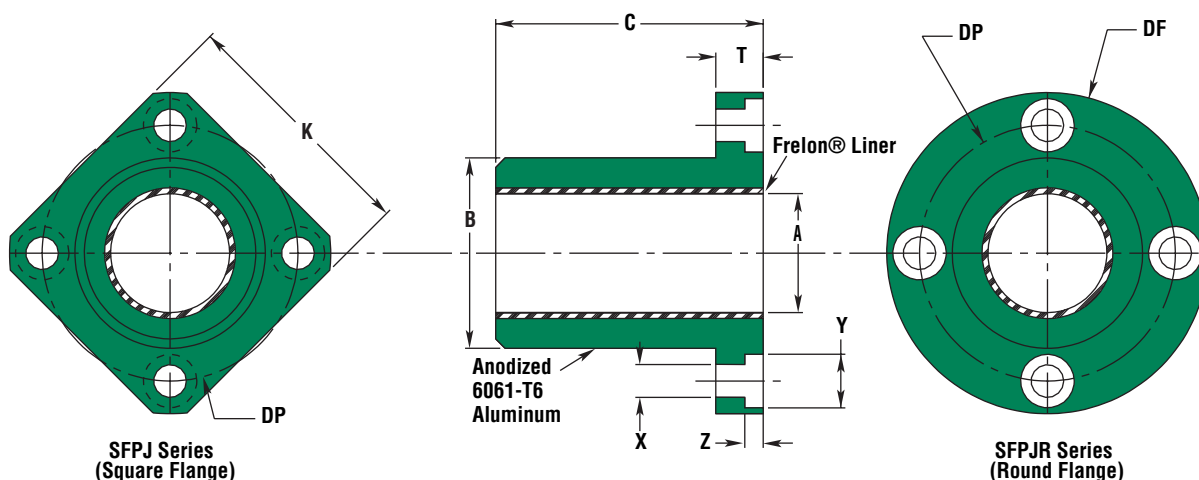
LOAD & SPEED DATA

PART NO.	EFFECTIVE SURFACE AREA (SQ. CM)	MAX. STATIC LOAD (LBS.) FRELON	
		GOLD	F & J
FJH 08	1	286	143
FJ 08	1.9	404	202
FJ 10	2.9	610	305
FJ 12	3.6	756	378
FJ 13	4	874	437
FJ 16	5.9	1244	622
FJ 20	8.4	1764	882
FJ 25	15	3098	1549
FJ 30	19	4032	2016
FJ 35	25	5146	2573
FJ 38	29	6064	3032
FJ 40	32	6720	3360
FJ 50	50	10500	5250
FJ 60	66	13860	6930
FJ 80	112	23520	11760
FJ 100	175	36750	18375
FJ 120	240	50400	25200
FJ 150	360	75600	37800

- **MAX. PV (m/min. *kg\sq. cm)**
FrelonGOLD = 430 PV
FrelonF & FrelonJ = 215 PV
- **MAX. Speed Running Dry (m/min.)**
FrelonGOLD = 91.4
FrelonF & FrelonJ = 42.6
- **MAX. Speed Running with Lubrication (m/min.)**
FrelonGOLD = 251.5
FrelonF & FrelonJ = 122

Flange Mounted Bearings72-74

Retaining Ring Groove Dimension61

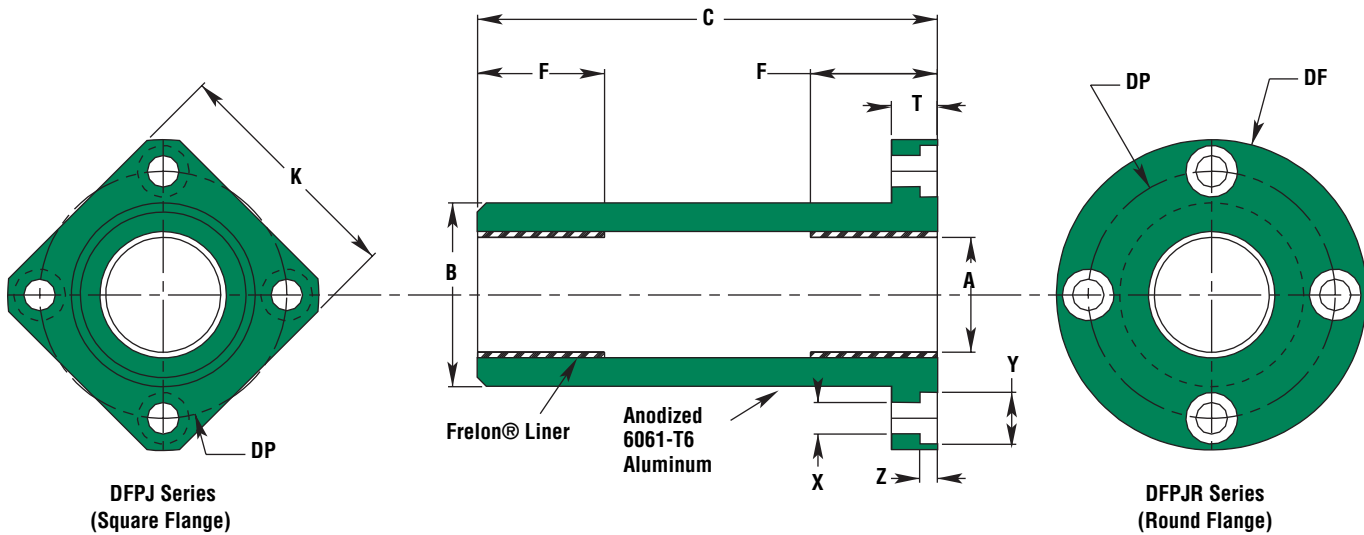


BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B		C	
PART NO.		NOMINAL SIZE	BEARING I.D. (F8)		PART NO.		BEARING I.D.		BODY O.D. (h7)		LENGTH (h13)	
SQUARE	ROUND	mm	MIN.	MAX.	SQUARE	ROUND	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
SFPJ 06	SFPJR 06	6	6.010	6.028	SFPJ 06C	SFPJR 06C	6.060	6.078	11.982	12	18.8	19
SFPJ 08	SFPJR 08	8	8.013	8.035	SFPJ 08C	SFPJR 08C	8.063	8.085	14.982	15	23.8	24
SFPJ 10	SFPJR 10	10	10.013	10.035	SFPJ 10C	SFPJR 10C	10.063	10.085	18.979	19	28.8	29
SFPJ 12	SFPJR 12	12	12.016	12.043	SFPJ 12C	SFPJR 12C	12.066	12.093	20.979	21	29.8	30
SFPJ 13	SFPJR 13	13	13.016	13.043	SFPJ 13C	SFPJR 13C	13.066	13.093	22.979	23	31.8	32
SFPJ 16	SFPJR 16	16	16.016	16.043	SFPJ 16C	SFPJR 16C	16.066	16.093	27.979	28	36.8	37
SFPJ 20	SFPJR 20	20	20.020	20.053	SFPJ 20C	SFPJR 20C	20.096	20.129	31.975	32	41.8	42
SFPJ 25	SFPJR 25	25	25.020	25.053	SFPJ 25C	SFPJR 25C	25.096	25.129	39.975	40	58.7	59
SFPJ 30	SFPJR 30	30	30.020	30.053	SFPJ 30C	SFPJR 30C	30.096	30.129	44.975	45	63.7	64
SFPJ 35	SFPJR 35	35	35.020	35.053	SFPJ 35C	SFPJR 35C	35.096	35.129	51.970	52	69.7	70
SFPJ 40	SFPJR 40	40	40.025	40.064	SFPJ 40C	SFPJR 40C	40.127	40.166	59.970	60	79.7	80
SFPJ 50	SFPJR 50	50	50.025	50.064	SFPJ 50C	SFPJR 50C	50.127	50.166	79.965	80	99.7	100
SFPJ 60	SFPJR 60	60	60.030	60.076	SFPJ 60C	SFPJR 60C	60.182	60.228	89.965	90	109.6	110
SFPJ 80	SFPJR 80	80	80.030	80.076	SFPJ 80C	SFPJR 80C	80.182	80.228	119.965	120	139.6	140

MOUNTING DIMENSIONAL INFORMATION

PART NO.		K	DF	T	DP	X	Y	Z	CLAMPING	CONCENTRICITY	SQUARENESS	SFPJ	SFPJR
SQUARE	ROUND	SQUARE	O.D.	LENGTH	BOLT	HOLE	C'BORE	C'BORE	BOLT			WEIGHTS	WEIGHTS
		MAX.	MAX.	MAX.	CIRCLE		DIA.	DEPTH				(kg.)	(kg.)
SFPJ 06	SFPJR 06	22	28	8	20	3.5	6	3.1	M 3	0.012	0.012	0.011	0.014
SFPJ 08	SFPJR 08	25	32	8	24	3.5	6	3.1	M 3	0.012	0.012	0.017	0.021
SFPJ 10	SFPJR 10	30	40	9	29	4.5	7.5	4.1	M 4	0.012	0.012	0.029	0.038
SFPJ 12	SFPJR 12	32	42	9	32	4.5	7.5	4.1	M 4	0.012	0.012	0.033	0.042
SFPJ 13	SFPJR 13	34	43	9	33	4.5	7.5	4.1	M 4	0.012	0.012	0.041	0.048
SFPJ 16	SFPJR 16	37	48	9	38	4.5	7.5	4.1	M 4	0.012	0.012	0.058	0.069
SFPJ 20	SFPJR 20	42	54	11	43	5.5	9	5.1	M 5	0.015	0.015	0.081	0.097
SFPJ 25	SFPJR 25	50	62	11	51	5.5	9	5.1	M 5	0.015	0.015	0.158	0.174
SFPJ 30	SFPJR 30	58	74	14	60	6.6	11	6.1	M 6	0.015	0.015	0.216	0.252
SFPJ 35	SFPJR 35	64	82	14	67	6.6	11	6.1	M 6	0.017	0.017	0.292	0.338
SFPJ 40	SFPJR 40	75	96	18	78	9.0	14	8.1	M 8	0.017	0.017	0.467	0.547
SFPJ 50	SFPJR 50	92	116	18	98	9.0	14	8.1	M 8	0.017	0.017	0.999	1.104
SFPJ 60	SFPJR 60	106	134	24	112	11.0	17	11.1	M 10	0.020	0.020	1.359	1.550
SFPJ 80	SFPJR 80	136	164	24	142	11.0	17	11.1	M 10	0.020	0.020	2.873	3.048

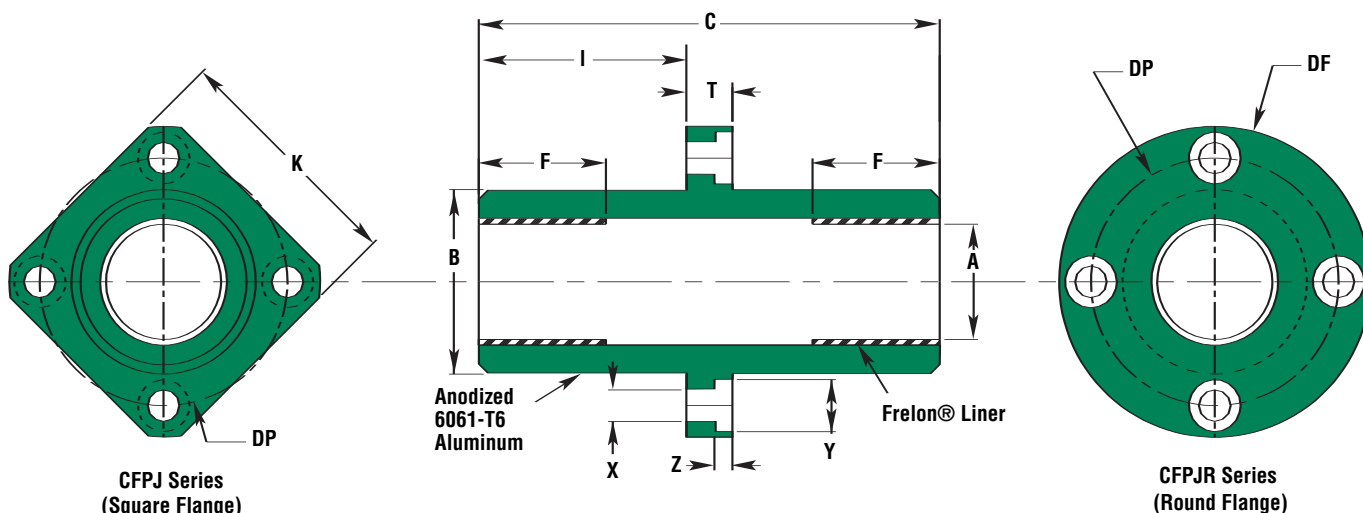


BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B BODY O.D. (h7)		C LENGTH		F LENGTH EACH END
PART NO.		NOMINAL SIZE	A BEARING I.D. (F8)		PART NO.		A BEARING I.D.						
SQUARE	ROUND	mm	MIN.	MAX.	SQUARE	ROUND	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
DFPJ 06	DFPJR 06	6	6.010	6.028	DFPJ 06C	DFPJR 06C	6.060	6.078	11.982	12	34.7	35	12
DFPJ 08	DFPJR 08	8	8.013	8.035	DFPJ 08C	DFPJR 08C	8.063	8.085	14.982	15	44.7	45	12
DFPJ 10	DFPJR 10	10	10.013	10.035	DFPJ 10C	DFPJR 10C	10.063	10.085	18.979	19	54.7	55	14
DFPJ 12	DFPJR 12	12	12.016	12.043	DFPJ 12C	DFPJR 12C	12.066	12.093	20.979	21	56.7	57	15
DFPJ 13	DFPJR 13	13	13.016	13.043	DFPJ 13C	DFPJR 13C	13.066	13.093	22.979	23	60.7	61	16
DFPJ 16	DFPJR 16	16	16.016	16.043	DFPJ 16C	DFPJR 16C	16.066	16.093	27.979	28	69.7	70	20
DFPJ 20	DFPJR 20	20	20.020	20.053	DFPJ 20C	DFPJR 20C	20.096	20.129	31.975	32	79.7	80	22
DFPJ 25	DFPJR 25	25	25.020	25.053	DFPJ 25C	DFPJR 25C	25.096	25.129	39.975	40	111.6	112	33
DFPJ 30	DFPJR 30	30	30.020	30.053	DFPJ 30C	DFPJR 30C	30.096	30.129	44.975	45	122.6	123	35
DFPJ 35	DFPJR 35	35	35.020	35.053	DFPJ 35C	DFPJR 35C	35.096	35.129	51.970	52	134.6	135	40
DFPJ 40	DFPJR 40	40	40.025	40.064	DFPJ 40C	DFPJR 40C	40.127	40.166	59.970	60	150.6	151	44
DFPJ 50	DFPJR 50	50	50.025	50.064	DFPJ 50C	DFPJR 50C	50.127	50.166	79.965	80	191.6	192	70
DFPJ 60	DFPJR 60	60	60.030	60.076	DFPJ 60C	DFPJR 60C	60.182	60.228	89.965	90	208.6	209	73

MOUNTING DIMENSIONAL INFORMATION

PART NO.		K SQUARE	DF O.D.	T LENGTH	DP BOLT CIRCLE	X HOLE	Y C'BORE DIA.	Z C'BORE DEPTH	CLAMPING BOLT	CONCENTRICITY	SQUARENESS	DFPJ WEIGHTS (kg.)	DFPJR WEIGHTS (kg.)
SQUARE	ROUND	MAX.	MAX.	MAX.									
DFPJ 06	DFPJR 06	22	28	8	20	3.5	6	3.1	M 3	0.015	0.015	0.015	0.018
DFPJ 08	DFPJR 08	25	32	8	24	3.5	6	3.1	M 3	0.015	0.015	0.024	0.028
DFPJ 10	DFPJR 10	30	40	9	29	4.5	7.5	4.1	M 4	0.015	0.015	0.044	0.053
DFPJ 12	DFPJR 12	32	42	9	32	4.5	7.5	4.1	M 4	0.015	0.015	0.051	0.060
DFPJ 13	DFPJR 13	34	43	9	33	4.5	7.5	4.1	M 4	0.015	0.015	0.063	0.071
DFPJ 16	DFPJR 16	37	48	9	38	4.5	7.5	4.1	M 4	0.015	0.015	0.096	0.107
DFPJ 20	DFPJR 20	42	54	11	43	5.5	9	5.1	M 5	0.017	0.017	0.133	0.149
DFPJ 25	DFPJR 25	50	62	11	51	5.5	9	5.1	M 5	0.017	0.017	0.270	0.286
DFPJ 30	DFPJR 30	58	74	14	60	6.6	11	6.1	M 6	0.017	0.017	0.360	0.397
DFPJ 35	DFPJR 35	64	82	14	67	6.6	11	6.1	M 6	0.020	0.020	0.501	0.547
DFPJ 40	DFPJR 40	75	96	18	78	9.0	14	8.1	M 8	0.020	0.020	0.776	0.856
DFPJ 50	DFPJR 50	92	116	18	98	9.0	14	8.1	M 8	0.020	0.020	1.780	1.885
DFPJ 60	DFPJR 60	106	134	24	112	11.0	17	11.1	M 10	0.025	0.025	2.329	2.519

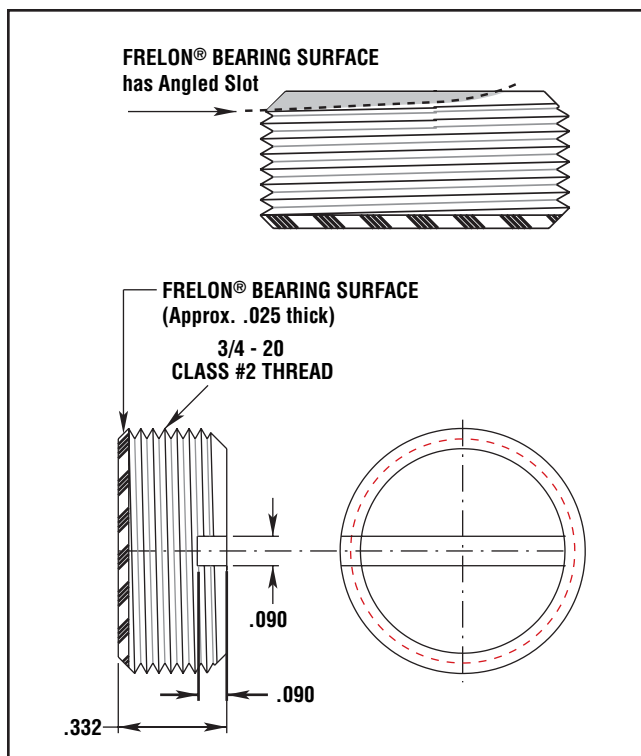


BASIC DIMENSIONAL INFORMATION

PRECISION I.D. SERIES Similar to preloaded ball bearing					COMPENSATED I.D. SERIES Similar to standard ball bearing				B BODY O.D. (h7)		C LENGTH		I LENGTH TO FLNG.	F LENGTH EACH END
PART NO.		NOMINAL SIZE	A (F8) BEARING I.D.		PART NO.		A BEARING I.D.							
SQUARE	ROUND	mm	MIN.	MAX.	SQUARE	ROUND	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
CFPJ 06	CFPJR 06	6	6.010	6.028	CFPJ 06C	CFPJR 06C	6.060	6.078	11.982	12	34.7	35.3	15	12
CFPJ 08	CFPJR 08	8	8.013	8.035	CFPJ 08C	CFPJR 08C	8.063	8.085	14.982	15	44.7	45.3	20	12
CFPJ 10	CFPJR 10	10	10.013	10.035	CFPJ 10C	CFPJR 10C	10.063	10.085	18.979	19	54.7	55.3	24.5	14
CFPJ 12	CFPJR 12	12	12.016	12.043	CFPJ 12C	CFPJR 12C	12.066	12.093	20.979	21	56.7	57.3	25.5	15
CFPJ 13	CFPJR 13	13	13.016	13.043	CFPJ 13C	CFPJR 13C	13.066	13.093	22.979	23	60.7	61.3	27.5	16
CFPJ 16	CFPJR 16	16	16.016	16.043	CFPJ 16C	CFPJR 16C	16.066	16.093	27.979	28	69.7	70.3	32	20
CFPJ 20	CFPJR 20	20	20.020	20.053	CFPJ 20C	CFPJR 20C	20.096	20.129	31.975	32	79.7	80.3	36	22
CFPJ 25	CFPJR 25	25	25.020	25.053	CFPJ 25C	CFPJR 25C	25.096	25.129	39.975	40	111.7	112.3	52	33
CFPJ 30	CFPJR 30	30	30.020	30.053	CFPJ 30C	CFPJR 30C	30.096	30.129	44.975	45	122.7	123.3	56.5	35
CFPJ 35	CFPJR 35	35	35.020	35.053	CFPJ 35C	CFPJR 35C	35.096	35.129	51.970	52	134.7	135.3	62.5	40
CFPJ 40	CFPJR 40	40	40.025	40.064	CFPJ 40C	CFPJR 40C	40.127	40.166	59.970	60	150.7	151.3	69	44
CFPJ 50	CFPJR 50	50	50.025	50.064	CFPJ 50C	CFPJR 50C	50.127	50.166	79.965	80	191.7	192.3	89.5	70
CFPJ 60	CFPJR 60	60	60.030	60.076	CFPJ 60C	CFPJR 60C	60.182	60.228	89.965	90	208.7	209.3	95.5	73

MOUNTING DIMENSIONAL INFORMATION

PART NO.		K SQUARE	DF O.D.	T LENGTH	DP BOLT CIRCLE	X HOLE	Y C'BORE DIA.	Z C'BORE DEPTH	CLAMPING BOLT	CONCENTRICITY	SQUARENESS	CFPJ WEIGHTS (kg.)	CFPJR WEIGHTS (kg.)
SQUARE	ROUND	MAX.	MAX.	MAX.									
CFPJ 06	CFPJR 06	22	28	8	20	3.5	6	3.1	M 3	0.015	0.015	0.015	0.018
CFPJ 08	CFPJR 08	25	32	8	24	3.5	6	3.1	M 3	0.015	0.015	0.024	0.028
CFPJ 10	CFPJR 10	30	40	9	29	4.5	7.5	4.1	M 4	0.015	0.015	0.044	0.053
CFPJ 12	CFPJR 12	32	42	9	32	4.5	7.5	4.1	M 4	0.015	0.015	0.051	0.060
CFPJ 13	CFPJR 13	34	43	9	33	4.5	7.5	4.1	M 4	0.015	0.015	0.063	0.071
CFPJ 16	CFPJR 16	37	48	9	38	4.5	7.5	4.1	M 4	0.015	0.015	0.096	0.107
CFPJ 20	CFPJR 20	42	54	11	43	5.5	9	5.1	M 5	0.017	0.017	0.133	0.149
CFPJ 25	CFPJR 25	50	62	11	51	5.5	9	5.1	M 5	0.017	0.017	0.270	0.286
CFPJ 30	CFPJR 30	58	74	14	60	6.6	11	6.1	M 6	0.017	0.017	0.360	0.397
CFPJ 35	CFPJR 35	64	82	14	67	6.6	11	6.1	M 6	0.020	0.020	0.501	0.547
CFPJ 40	CFPJR 40	75	96	18	78	9.0	14	8.1	M 8	0.020	0.020	0.776	0.856
CFPJ 50	CFPJR 50	92	116	18	98	9.0	14	8.1	M 8	0.020	0.020	1.780	1.885
CFPJ 60	CFPJR 60	106	134	24	112	11.0	17	11.1	M 10	0.025	0.025	2.329	2.519



ORDERING INFORMATION

PART NO.	DESCRIPTION
APN16E	Standard - Adjustable bearing plug with FrelonJ® bearing liner. Use with 300 series stainless or soft shafting.
APN16	Optional - Adjustable bearing plug with FrelonGOLD® bearing liner. Use with steel shafting.
APN16F	Optional - Adjustable bearing plug with FrelonF® bearing liner. Use with steel shafting and 440 stainless steel.



ADJUSTABLE BEARING PLUGS

Plug material is 316 stainless steel.

BEARING MATERIAL: FrelonJ® is standard for stainless square steel shafting (APN16 - E). Standard FrelonF® and FrelonGold® are also available for applications to be run on steel.

- Bearing plugs can be purchased separately
- Ideal for use in many applications as a wear pad
- Bearing surface area = .300 in²
- MAX Static Load Capacity per Plug = 450 lbs.
- The use of green Loctite is recommended to hold the adjustable bearing plugs in position

SQUARE BEARING BENEFITS & FEATURES

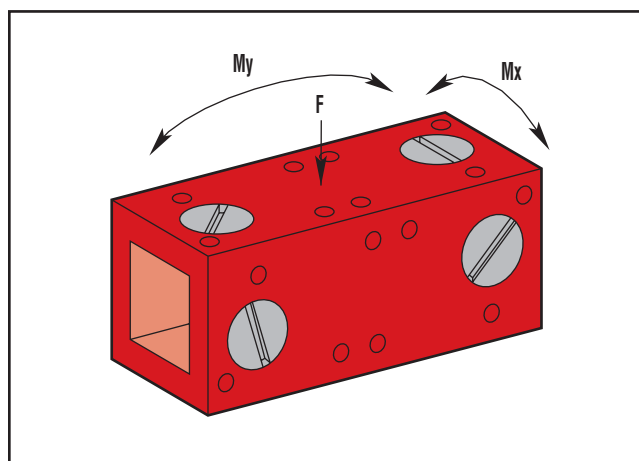
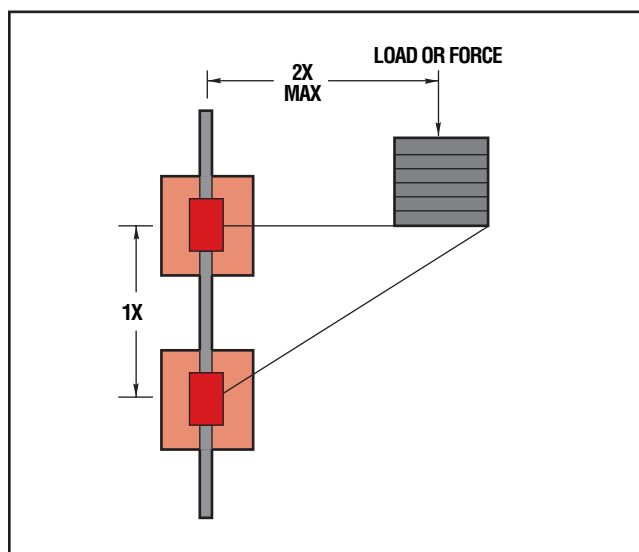
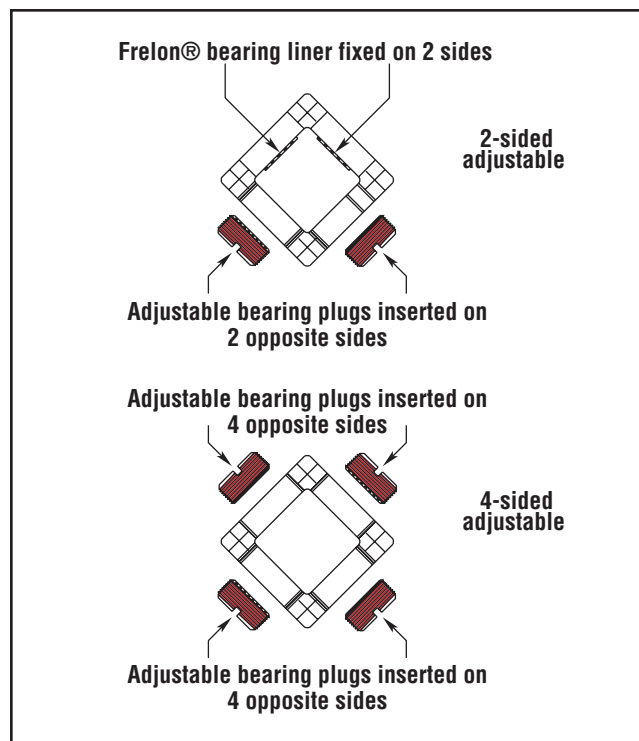
- Runs on a single, square shaft eliminating costly components
- Maintains radial integrity and can eliminate the need for parallel shafting
- Can be mounted in any orientation
- Housings are 6061-T6 aluminum with a standard anodized finish
- Utilizes standard bearing plugs
- Adjustable to maintain tight running clearances, contingent upon shafting
- Bearing plugs are easily replaced

SAME CHARACTERISTICS OF THE STANDARD ROUNDWAY SIMPLICITY® BEARINGS:

- Self-lubricating
- High load capacity
- Wide temperature range (-400°F/+500°F)
(-240°C/+260°C)
- Excel in contaminated environments
- High shock loading abilities
- Low wear rates



CUT-AWAY VIEW



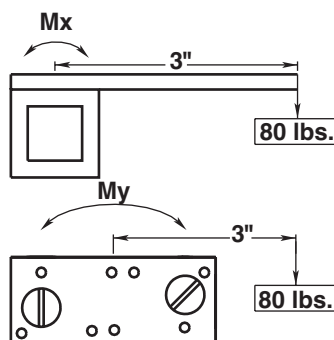
APPLICATION NOTE:

Use green Loctite to hold the adjustable bearing plugs in position.

Two parameters must be met in the design and use of square bearings:

1. The 2:1 ratio for cantilevered loads applies to square bearings in the same way as roundway Simplicity® bearings. Binding will occur if the ratio is not met! **NOTE:** if only one bearing is used, the 2:1 applies from plug centers.
2. The maximum load and moment load must be met. To calculate the acceptable cantilever or lever arm, multiply the length (from center of the bearing to the center of the load) times the weight. The result must be less than the moment load for that orientation.

EXAMPLE: Distance of cantilever = 3"
Amount of load = 40 lbs.
3" x 80 lbs. = 240 in-lbs.



SQUARE BEARING LOADING INFORMATION

PART NO.	MAXIMUM MOMENTS (TORSIONAL CAPACITIES) (IN-LBS.)		MAXIMUM FORCE (LBS.)
	Mx	My	F
SB16	74	165	920
SBL16	74	475	920
SB24	416	402	1840
SBL24	416	1413	1840



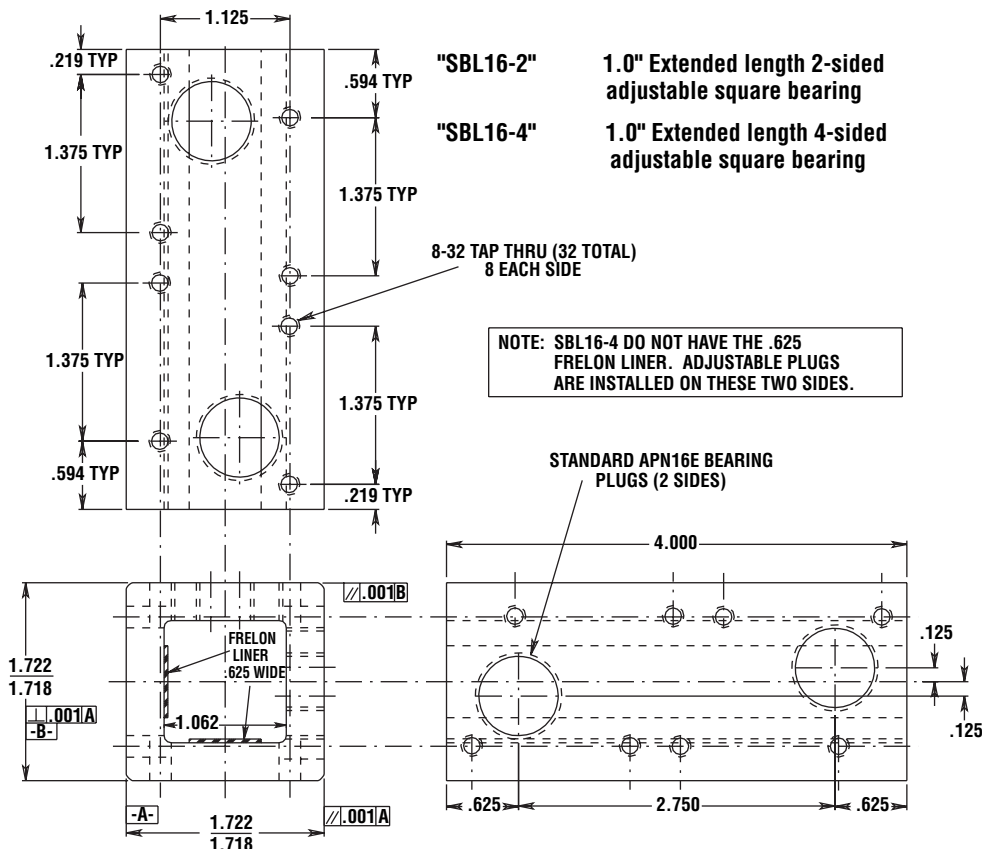
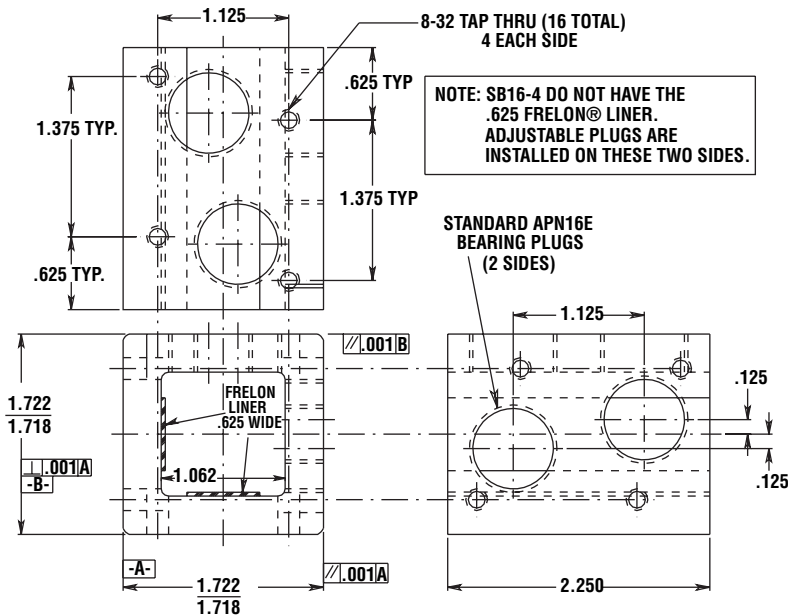
SIMPLICITY® 1.0" SQUARE BEARING SPECIFICATIONS

"SB16-2"
"SB16-4"

1.0" 2-Sided adjustable square bearing
1.0" 4-Sided adjustable square bearing

ORDERING INFORMATION

PART NO.	DESCRIPTION	BEARING WEIGHT (LBS)
SB16-2E	Standard 1.0" two-sided adjustable square bearing with FrelonJ® plugs for stainless steel shafting	.48
SB16-2	Optional 1.0" two-sided adjustable square bearing with FrelonGOLD® plugs for steel shafting	.48
SB16-4E	Standard 1.0" four-sided adjustable square bearing with FrelonJ plugs for stainless steel shafting	.56
SB16-4	Optional 1.0" four-sided adjustable square bearing with FrelonF or FrelonGOLD plugs for steel shafting	.56
SBL16-2E	Standard 1.0" extended length, two-sided adjustable square bearing with FrelonJ plugs for stainless steel shafting	.77
SBL16-2	Optional 1.0" extended length, two-sided adjustable square bearing with FrelonGOLD plugs for steel shafting	.77
SBL16-4E	Standard 1.0" extended length, four-sided adjustable square bearing with FrelonJ plugs for stainless steel shafting	.85
SBL16-4	Optional 1.0" extended length, four-sided adjustable square bearing with FrelonF or FrelonGOLD plugs for steel shafting	.85







SIMPLICITY® SQUARE SHAFTING & ACCESSORIES



SQUARE SHAFTING

- 304 Stainless steel (standard) is highly corrosion resistant
- Buffed and polished to provide an excellent running surface for FrelonJ®
- Both 1" and 1.5" available cut to any length up to 10 feet
- Wall thickness is $\cong .120$ "

ORDERING INFORMATION

PART NO.	DESCRIPTION	WT. LBS/INCH
PST16-xx	Standard 1.0" 304 stainless steel square shafting	0.12
PST24-xx	Standard 1.5" 304 stainless steel square shafting	0.18

xx - Specify length in inches. Cut charge applied.

SQUARE MOUNTING ACCESSORIES

All mounting accessories are made from cast 356-T6 aluminum for good strength and corrosion resistance.

ORDERING INFORMATION - (Square Clamps)

PART NO.	A	B	C	D	E	F	G	H
PFL1000	1.00	0.984	1.968	0.630	2.362	0.197	0.200	0.787
PFL1500	1.50	1.338	2.677	0.787	2.953	0.276	0.256	1.024

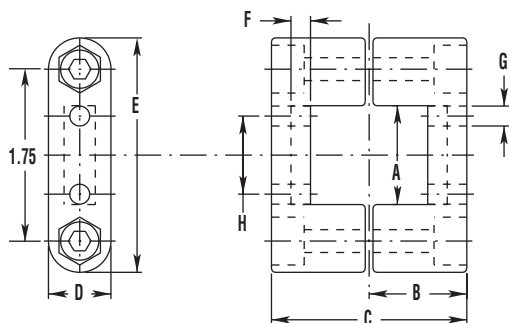
Includes 2 M6 x 1 Hex head bolts, 1.5" long

ORDERING INFORMATION - (Flanged Base)

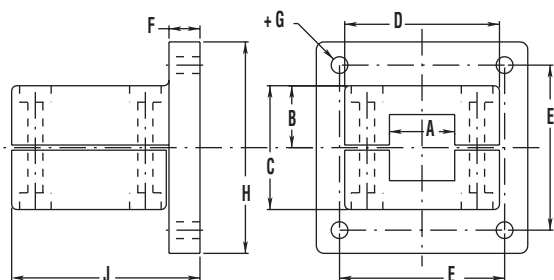
PART NO.	A	B	C	D	E	F	G	H	J
PBH1000	1.00	0.984	1.890	2.362	2.520	0.472	0.256	3.228	2.874
PBH1500	1.50	1.338	2.440	2.756	2.992	0.551	0.256	3.740	3.347

Other housing configurations are also available. Size specifications are available upon request.

PFL



PBH



ANGLE BRACKET – 1 1/2" only
Part No. PAN1515



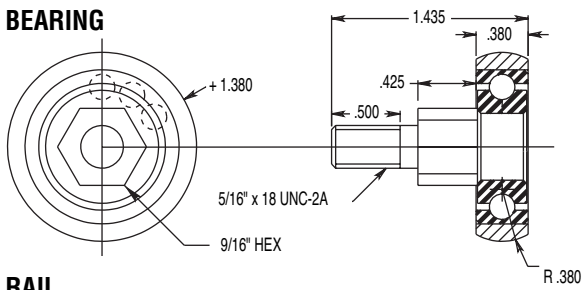
CROSS MOUNT – 1 1/2" only
Part No. PXK1515



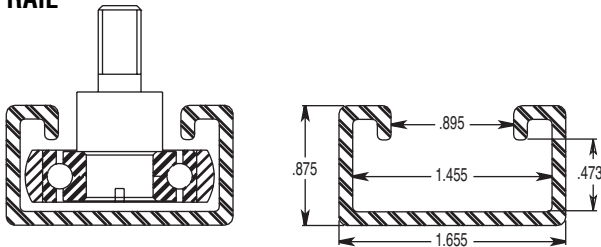
CROSS MOUNT ROUND & SQUARE – 1 1/2" only
Part No. PXM1515



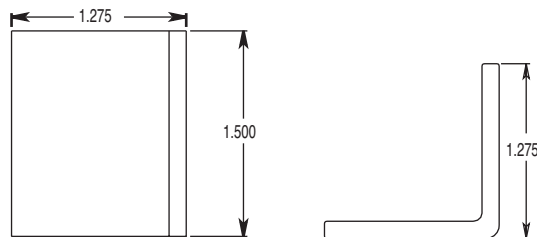
BEARING



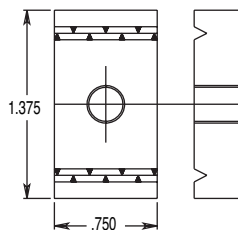
RAIL



ANGLE BRACKET



END STOP



ANGLE BRACKETS CAN BE WELDED IN ANY POSITION ALONG THE LENGTH OF THE TRACK



- Low cost linear motion solution
- Precision rolling element bearing riding in a Unistrut™ type rail
- 9/16" Hex head for easier mounting
- Simple solution and setup for point-to-point applications
- Hardened crown provides self-alignment, good strength, and long life
- MAX. bearing load - 300 lbs.
- MAX. bearing speed - 150 ft./ min. (30 in./sec.)
- Rails available in lengths up to 10'

RAILS AVAILABLE WITH TWO FINISHES:

- Bare steel
- Powder coated

ACCESSORIES AVAILABLE:

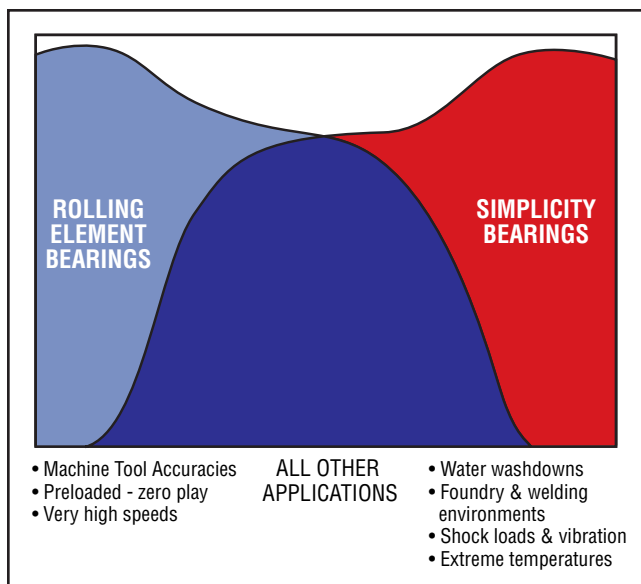
- Angle brackets (for welding to mounting rail)
- End stops

™ Unistrut is a trademark of Unistrut, Inc.

ORDERING INFORMATION

PART NO.	DESCRIPTION
PAC3016	Hardened Crown Roller Bearing
PAC3016M	Hardened Crown Roller Bearing with metric thread
PAC2245	Rail System - unpainted (specify length - priced per foot)
PAC2247	Rail System - black powder coat finish (specify length- price per foot)
PAC2244	Angle Brackets - 1" Steel
PAC2246	End Stops for Rail System (bolt included)

WHAT MAKES SIMPLICITY® THE RIGHT CHOICE?



Plane bearing applications represent 25% of total worldwide bearing usage.

Why? Good engineering principles dictate the best bearing design for the application. Often ball bearings are asked to perform beyond their design capabilities. The rolling element industry has not helped users understand the limitations of their technology.

In 1983, linear ball bearing users came to Pacific Bearing® and asked for a linear bearing that simply would not fail. Dirt, vibration, shock loading, water washdowns, etc. were causing premature failure, often within days. After testing many material combinations, we chose the Simplicity design as the best solution.

In 1997, three years of rigorous development and testing resulted in the release of the next generation of plane bearing material – FrelonGOLD®. The original Simplicity bearings were improved with additional performance advantages. These are the advantages you will gain with Simplicity:

LINER

- Self-lubricating – requires no external lubricant
- Embeddability of hard particulate eliminates galling and shaft damage
- Dampens vibration for quiet and smooth operation

LOAD CAPACITY

- FrelonGOLD® supplies an average of 20x more load capacity than a standard linear ball bearing allowing the Design Engineer to use a more compact package
- Shock loads are absorbed without damage to components

PERFORMANCE

- Simultaneous linear, oscillating, and rotary motions expand possibilities
- Reliable friction characteristics that do not increase over the life of the bearing
- Liner material similar to energized Teflon® seals
- Close fit & wiping action - cleans shafting - eliminating the need for seals

LOW COST

- Average purchase price 15-30% less than rolling element linear bearings
- Operates maintenance free
- Reliable, predictable life
- WILL NOT CATASTROPHICALLY FAIL!!

SIMPLICITY BEARING

Fines embed in Frelon® - eliminates shaft damage

Wiping action cleans shaft

Lubrication optional - smooth and quiet

BALL BEARING

Excessive preload fatigues balls

Counterrotation creates stick-slip

Scored shafting destroys accuracy

Fines cause balls to slide

WHAT GIVES SIMPLICITY® THESE ADVANTAGES?

THE FRELON® BEARING LINER MATERIALS

FrelonGOLD®, FrelonJ®, FrelonF® are a compound of Teflon® and fillers developed for improved performance over other bearings. They provide low wear, low friction, self-lubrication, and high strength.

TEFLON FEATURES:

- Self-lubricating (runs without added lubricant)
- Embeddability of hard particulate
- Wide temperature range (-400°F/+500°F)
(-240°C/+260°C)
- Chemically inert
- Vibration dampening (NO metal-to-metal contact)

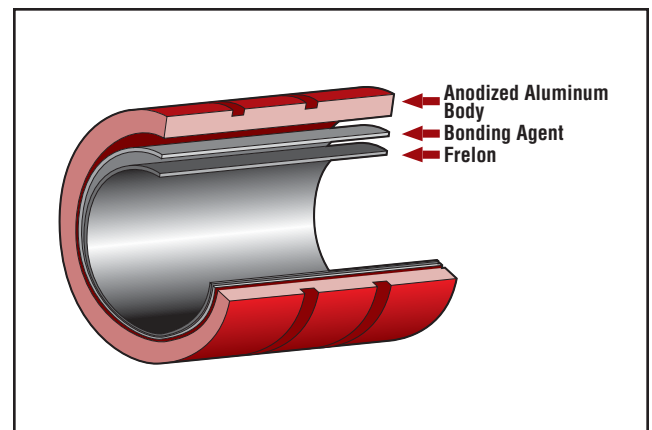
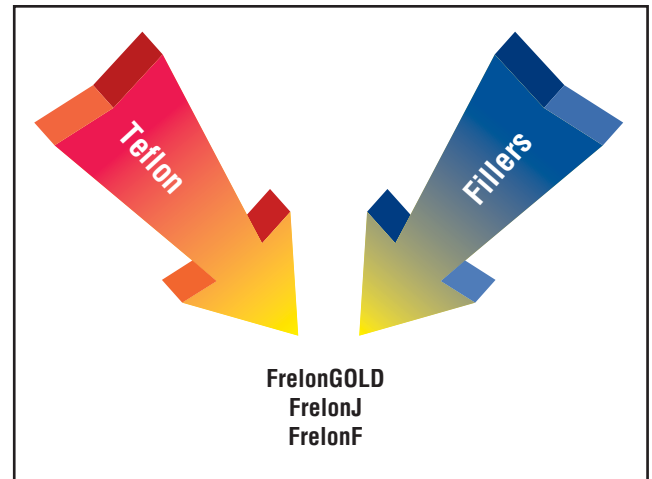
FILLER BENEFITS:

- High load capacity
- High strength
- Low wear rate vs. other materials

PACIFIC BEARING HAS COMBINED FRELON® WITH PRECISION BEARING TECHNOLOGY TO CREATE SIMPLICITY®

- The Frelon liner is bonded to the bearing shell at the molecular level, which transfers the load and dissipates heat buildup throughout the bearing
- Will not rust or corrode due to anodized aluminum or stainless steel shell
- Patented self-aligning capabilities are standard (See pages 75-76 for information)
- Provides both linear, oscillating, rotary, or any combination of motions
- Maintenance free operation
- Will not damage shafting
- Smooth, quiet operation
- Highly accurate – all critical surfaces are ground on precision bearing grinders
- WILL NOT CATASTROPHICALLY FAIL!

Teflon® is a registered trademark of Dupont Corporation



FrelonGOLD®



FrelonJ®

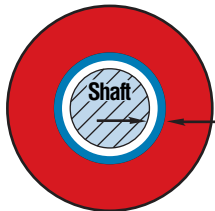


FrelonF®



Bearing Plug Shown - See Page 66

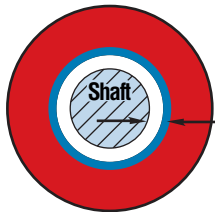
RUNNING CLEARANCE



Standard "FL"

Performs like a preloaded linear ball bearing

.0005" per side clearance average
(.0127 mm)



Compensated "FLC"

Performs like a standard linear ball bearing

.0015" + per side clearance average
(.0381 + mm)

STANDARD



Inch Series



ISO Metric Series



JIS Metric Series

OPTIONAL



316 Stainless Steel

BEARING LINER MATERIAL

Simplicity bearings are available with three liner materials.

FrelonGOLD is a brown base material with gold-colored fillers and is compatible with standard RC60 hardened steel shafting and RC70 ceramic coated Feather Shafting™.

FrelonJ is yellow and specially formulated to provide the optimum performance with 300 series stainless steel and bare aluminum shafting.

FrelonF is maroon and contains fillers that are compatible with RC60 hardened steel shafting and 440 stainless steel.

RUNNING CLEARANCE

Simplicity bearings are available with two classes of running clearance.

PRECISION—"FL":

- Performs like a preloaded ball bearing
- Tightest running clearance approximately .001" (.025mm)
- Use in applications that require high precision

CAUTION: Not recommended for all parallel shaft applications. Any misalignment can cause binding on the shaft. See recommended "FLC".

COMPENSATED—"FLC":

- Performs like a standard ball bearing
- Additional clearance built into the I.D. (all other dimensions are the same as the precision bearings)
- Ideally suited for parallel shaft applications

NOTE: Many parallel shaft applications will run "FL" precision on one rail and "FLC" compensation on the opposite rail to accommodate slight misalignments.

BEARING SHELL

Simplicity bearings are available in a variety of configurations to help meet specific application needs.

- Standard is 6061-T6 aluminum with anodized finish (standard)
- Special 316 stainless steel (no plating) (optional)

BEARING SHELL (cont.)

MATERIALS:

6061-T6 – Is a heat treated and artificially aged aluminum with good strength and corrosion resistance.

316 Stainless Steel – Has an excellent corrosion resistance and is widely used by the paper, food, and other industries.

FINISHES:

Standard Anodized – A sulfuric bath anodizing with a nickel acetate seal that will stand up to 14 days exposure in a 5% salt spray solution at 96°F. It is applied at a .0002" thickness.

NOTE: See page 96 for details on chemical resistance.

TOLERANCES:

- All bearings are precision ground both I.D. and O.D. to provide the highest quality.
- Statistical Process Control (SPC) capabilities also increase final quality.

SELF-ALIGNMENT FEATURE

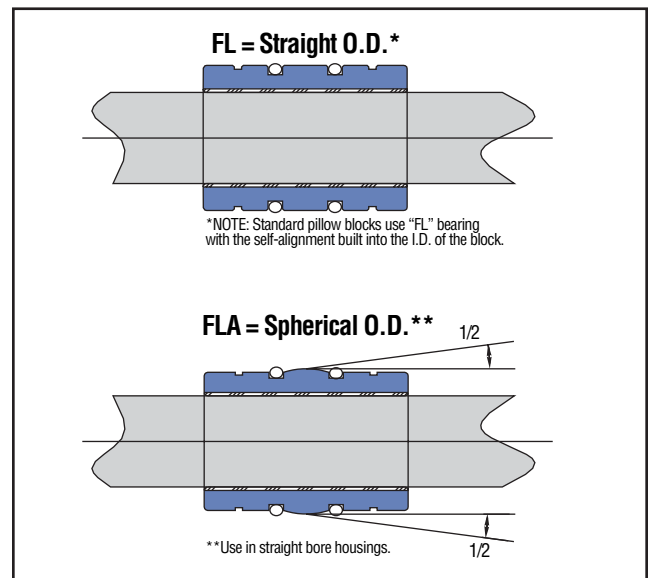
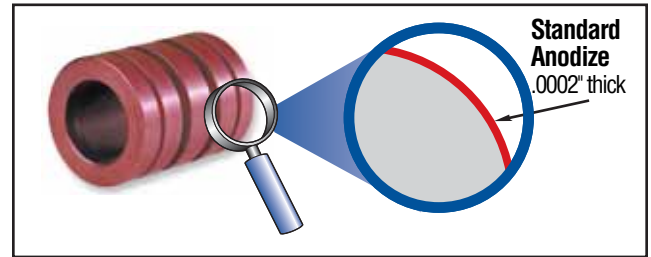
Simplicity bearings are available with a standard straight O.D. or a crowned self-aligning O.D.

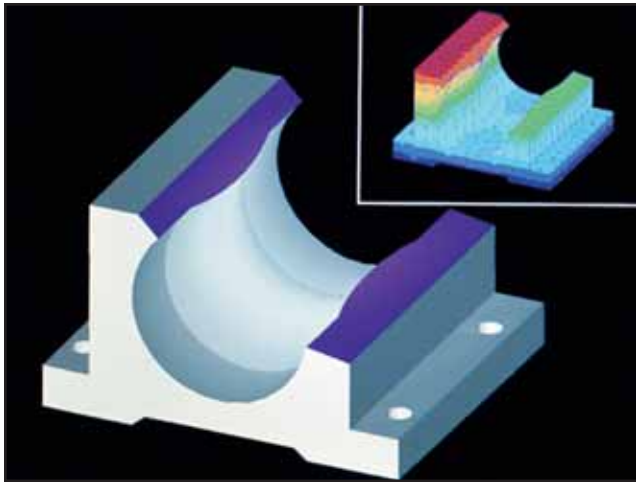
“FL” – (Standard):

- Straight O.D.
- Pacific Bearing standard pillow blocks have the self-aligning capability designed into the block using standard “FL” bearings for the final assembly

“FLA” – (Self-aligning O.D.):

- Has a crown on the O.D. allowing the bearing to re-align itself in binding situations
- Specifically designed to easily retrofit straight bore housings
- The bearing will allow 1/2° of misalignment capability from centerline (1° overall).
- O-rings are used on either side of the crown. This cushions and eliminates clatter in operation.





PILLOW BLOCKS

- Made of 6063-T6 aluminum
- Pillow blocks are interchangeable with industry standard ball bearing pillow blocks
- Critical centerline dimensions hold accuracy within $\pm.001"$ on inch sizes and $\pm.015$ mm on metric sizes

FINISHES:

- Clear anodized finish (Standard)

Standard pillow blocks have built-in self-alignment in all directions.

- Standard pillow blocks have $1/2^\circ$ misalignment from centerline.
- This feature is built into the housing with a patented spherical radius at the midpoint of the block.
- This self-aligning capability will allow for some shaft deflection and misalignment.

Rigid or straight bore housings are available.

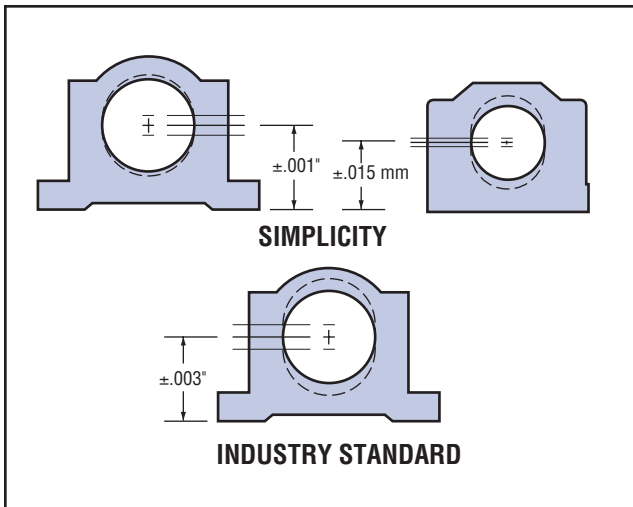
- This does not allow for any self-alignment and provides a very rigid assembly.
- They are typically used in single shaft applications.

ADDITIONAL FEATURES

O-Rings – Used in standard pillow blocks and with self-aligning bearings.

Nitrile Buna 70 (standard) – A good general purpose rubber that is used in 98% of applications.
-65°F to 275°F (-50°C to 135°C)

Viton (special – designate with “V”) – Used only in high temperature applications up to 400°F (up to 204°C).



ADDITIONAL FEATURES (cont.)

SEALS: Use only in the most contaminated environments.

Polymod® (standard) – A high performance polymer modified material that reduces friction of a standard buna material by 50% and increases wear life

®Polymod is a registered trademark of Polymod Technologies, Inc.

Temperature – -40 – +482°F

Urethane (special - designate with “U”) – A moly-impregnated urethane scraper that is only for the severest applications - friction is greatly increased!

Temperature – -40 – +180°F

Viton (special - designate with “V”) – Used only in high temperature applications up to 400°F (up to 204°C).

CAUTION: 90% of applications do not require seals when using Simplicity bearings. The liner has a natural ability to wipe particles from the shafting. Any particulate (metal, sand, etc.) that does enter the bearing will embed itself into the soft liner not scoring the shafting or locking mechanical parts.

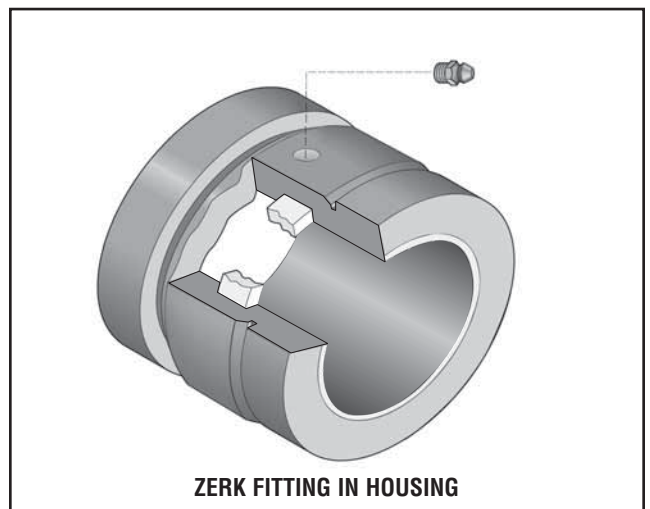
LUBRICATION SYSTEM: Order with “JKM” modifier

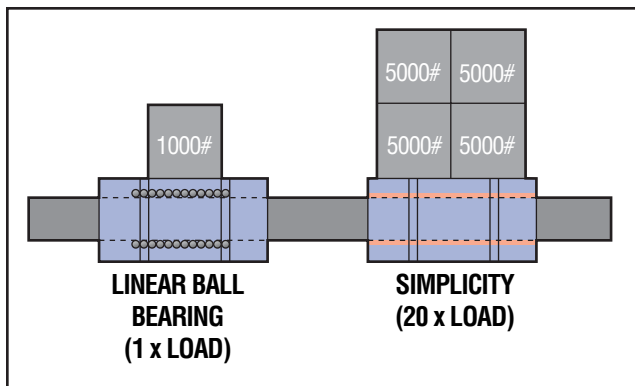
- Recommended for high speed, high load, and rotary or oscillating applications

Lubrication System consists of:

Felt wick – Retains oil lubricants (remove when using grease lubrication)

Zerk fitting – Installed into pillow block, other housing, or directly into die sets PAC, PACM





LOAD CAPACITY OF LINER

Simplicity bearings can carry from 4 to 20 times the load of a linear ball bearing.

BEARING MATERIAL	STATIC LOAD CAPACITY
FrelonGOLD®	3000 psi (210.9 kgf/cm ²)
FrelonF® & FrelonJ®	1500 psi (105.45 kgf/cm ²)

- Allows the engineer to maintain performance in a smaller designed package

Example: Simplicity 1/2" I.D. = 1" I.D. linear ball bearing

- Shock loads and vibration are absorbed
- Metal to metal contact is eliminated providing a smoother, quieter running assembly

SPEED CHARACTERISTICS

Exceeding these speeds causes frictional heat and accelerates liner wear.

BEARING MATERIAL	NO LUBE CONTINUOUS MOTION	NO LUBE INTERMITTENT MOTION	WITH LUBRICATION*
FrelonGOLD	300 sfm	825 sfm	825 sfm
	60 in./sec.	165 in./sec.	165 in./sec.
	1.524 m/sec.	4.19m/sec.	4.19 m/sec.
FrelonF & FrelonJ	140 sfm	400 sfm	400 sfm
	28 in./sec.	80 in./sec.	80 in./sec.
	.711 m/sec.	2.03 m/sec.	2.03 m/sec.

* Depending on the lubrication used, loads, and frequency of continuous or intermittent motion, speeds can be in excess of the numbers shown.

PERFORMANCE RATINGS (for Linear Motion)

Plane bearings are rated by their limiting PV which is a combination of load over a given surface area and the velocity.

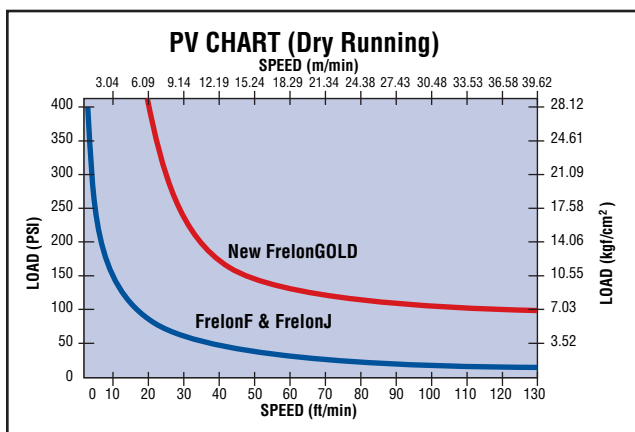
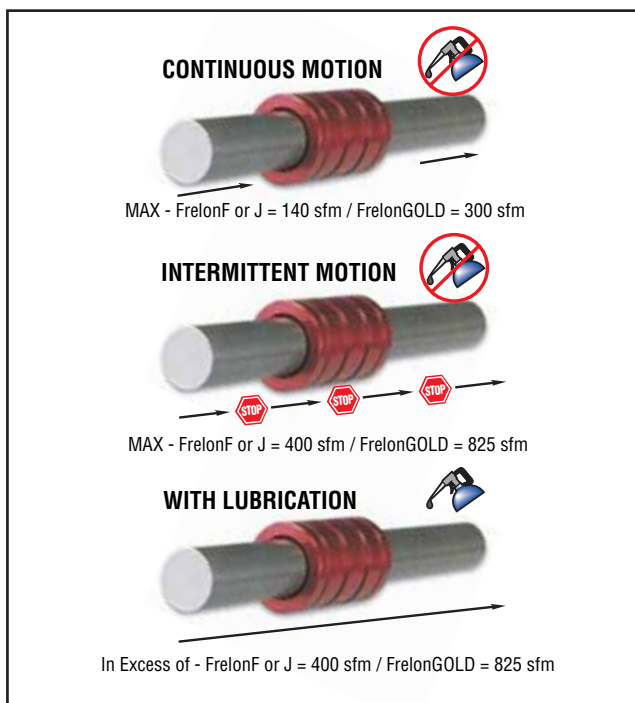
BEARING MATERIAL	MAX. "PV"	MAX. "P"	MAX. "V" (NO LUBRICATION)
FrelonGOLD	20,000 (psi x ft/min)	3000 psi	300sfm
	430 (kgf/cm ² x m/min)	210.9 kgf/cm ²	91.44 m/min.
FrelonF & FrelonJ	10,000 (psi x ft/min)	1500 psi	140 sfm
	215 (kgf/cm ² x m/min)	105.45 kgf/cm ²	42.66 m/min.

PV = The performance measurement of plane bearings

PV = P x V where P = pressure (load) in psi (kgf/cm²)

V = velocity (speed) in sfm (m/min.)

NOTE: All 3 parameters must be met by an application for the bearing to perform properly.



WEAR RATE/LIFE EXPECTANCY

The life expectancy of a Simplicity bearing is dependent on application parameters.

Factors that will affect life...

- Shaft hardness, surface finish, and preparation
- Length of travel
- Temperature
- Contamination
- Running clearance
- Lubrication
- Speed
- And many, many other factors

The Radial Wear chart gives a guideline for a typical application at 10 psi (.703 kgf/cm²) traveling at 100 ft./min (30.48 m/min.).

FACTORS AFFECTING WEAR RATE/LIFE

Shafting requirements for Frelon® bearing materials.

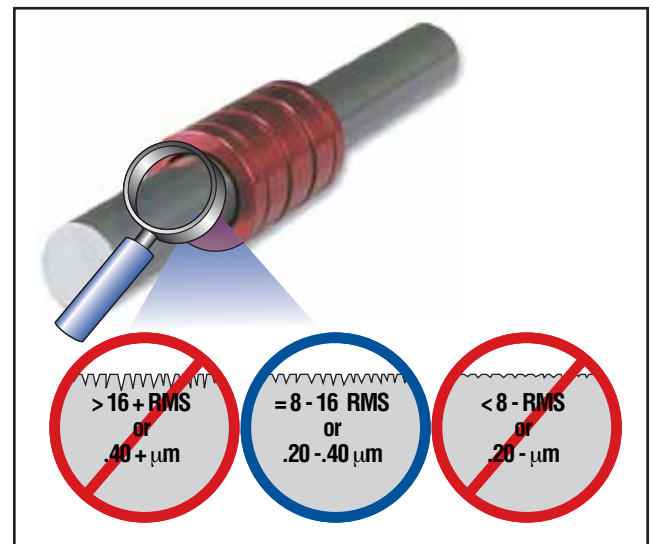
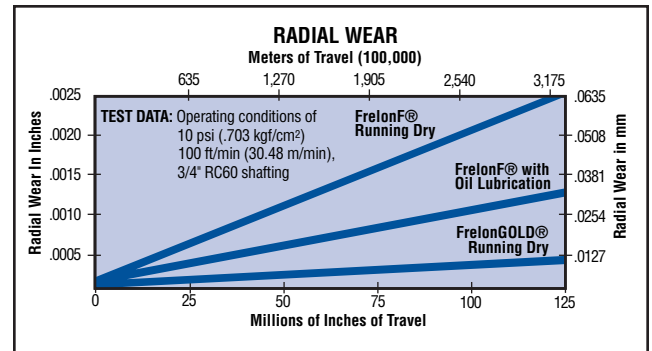
BEST PERFORMANCE:

- Finish of 8 - 12 RMS
- Hardness of RC60

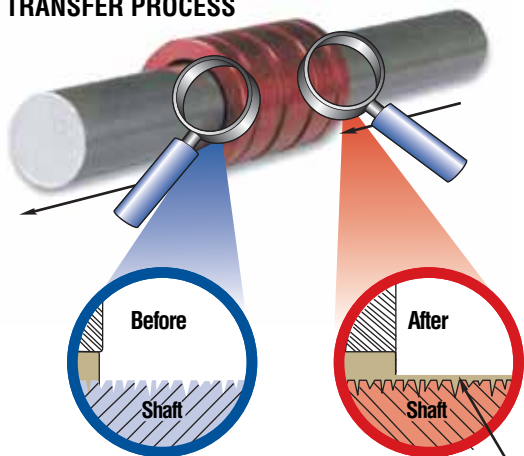
ACCEPTABLE PERFORMANCE:

- Finish of 8 - 16 RMS
- Hardness of RC35
- Surface finish requirements apply to all three Frelon bearing materials.
- Rougher shafting can be used, but both bearing and shafting will wear at accelerated rates and binding may occur.

NOTE: Consult factory if using chrome plated shafting.



FRELON® TRANSFER PROCESS



NOTE: At break-in, Frelon deposits a microscopic film on the shaft and fills the valleys in the surface finish creating a Frelon-on-Frelon running condition that is true self-lubrication.

RECOMMENDED LUBRICATION

- Waylube Oil
- Light Weight Oils
- Petroleum Based Grease
- 3-in-1 oils



NOT RECOMMENDED

- WD-40
- PTFE Sprays
- Fluorocarbons
- Silicon Oils, Grease or Spray



WD40® is a registered trademark of the WD40 company

TRANSFER PROCESS OF LINER TO SHAFT

The interaction of the Frelon® material and the shafting creates a natural, microscopic transfer of the Frelon to the running surface. A thin film is deposited on the shaft, and the valleys in the surface finish are filled in with Frelon material during the initial break-in period. This transfer creates the self-lubricating condition of Frelon riding on Frelon.

This break-in period will vary depending on several criteria:

1. Preparation of the shafting prior to installation - it is best to clean the shafting with a 3-in-1 type oil before installing the bearings. This ensures that the surface will receive a full transfer of material.
2. Speed, load, and length of stroke specific to the application - typically the initial transfer process will take approximately 50-100 strokes of continuous operation. The running clearance on the bearing will increase an average of .0002" to .0005", depending on the length of the stroke and surface requiring the transfer.
3. How often the shafting is cleaned - if the shafting is cleaned regularly, increased wear will be seen in the bearings. This is due to the transfer process being performed over and over again.

CAUTION: Do not repeatedly clean the shafting with alcohol! This will remove the previously transferred material entirely and increase the wear to the bearing liner.

LUBRICATION

Lubrication can...

- Reduce friction up to 50%.
- Minimize wear of liner.
- Reduce heat buildup allowing greater speeds. Actual speeds achieved are dependent on type of lubricant and frequency of application.
- Aid in cleaning the shafting for a proper transfer process. A minimum of initial lubrication of Simplicity bearings is strongly recommended.

TEMPERATURE

Simplicity bearings can operate in a wide range of temperatures (-400°F/+500°F) (-240°C /+260°C). Temperature dependent on materials housed in pillow block and size of bearing.

- Maintains the same performance characteristics
- The thin liner allows heat to dissipate through the bearing shell

THERMAL EXPANSION

The standard bearing ID options are designed for use in most industrial applications.

For temperatures below 0° F, the standard I.D. is recommended. (FL series)

For extreme high temperatures, the Compensated I.D. bearing is recommended (FLC) for the increased running clearance.

CAUTION: It is always best to inspect actual size at extreme temperatures to insure proper running clearance.

ROTARY APPLICATIONS

Simplicity bearings will operate very well in rotary applications if applied properly.

Stationary rotary applications do not allow the heat to be spread over an extended area. It is retained in the I.D. of the bearing limiting speed and load.

- MAX Rotary Speed (No lube/continuous motion)
- 40 sfm (12.2 m/min.) for standard precision ID clearances
- 140 sfm (42.6 m/min.) for compensated ID clearances

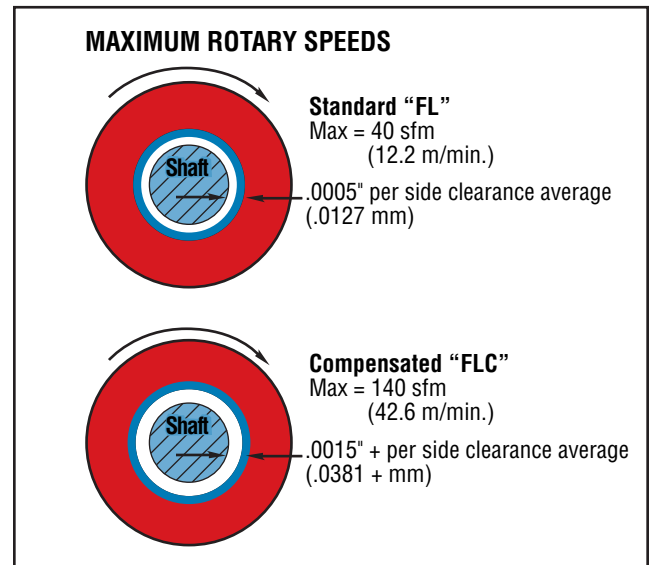
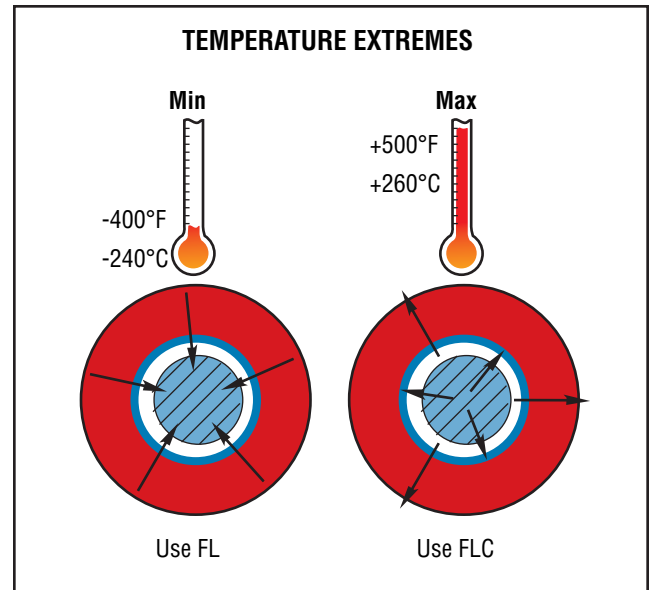
$$V(\text{sfm}) = .262 \times d \times \text{RPM}$$

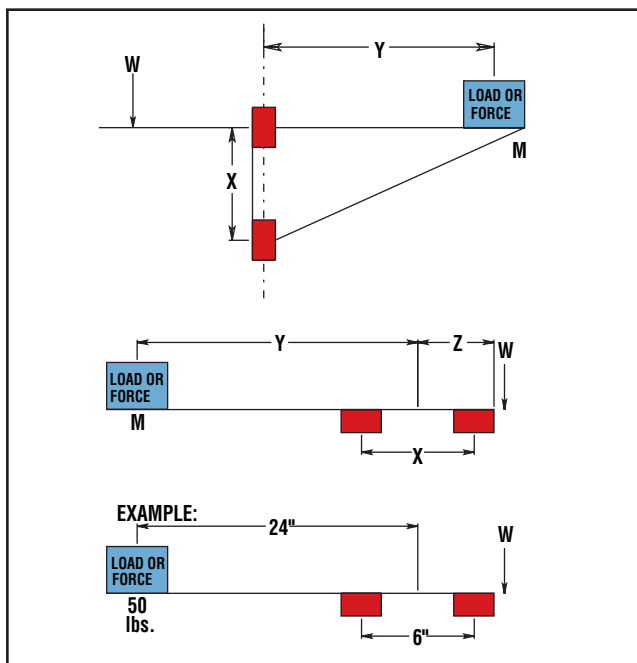
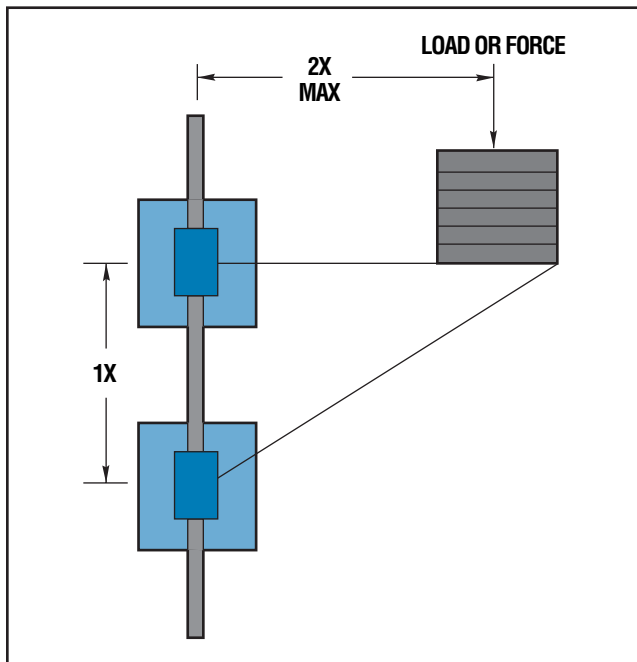
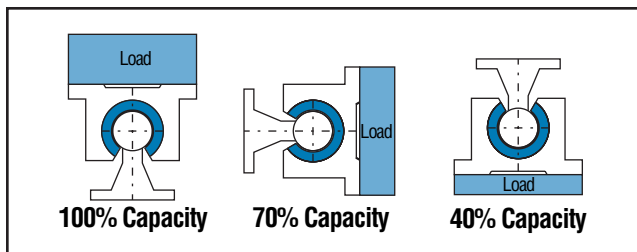
d = shaft diameter (inches)

RPM = revolutions per minute

- Properly maintained lubrication can increase these speeds dramatically.

CAUTION: It is always best to do specific testing for rotary applications above these limits where lubrication is to be used.





OPEN BEARINGS ORIENTATION

Simplicity bearings can operate in any orientation.

Load capacities will vary on open bearings depending on the orientation in which they are being used.

CANTILEVERED LOADS

- Maximum 2:1 ratio
- 1x = bearing separation on same shaft
- 2x = distance from shaft to load or force

EXAMPLE: If 2x equals 10" then 1x must be at least 5"

CAUTION: BINDING will occur if the 2:1 ratio is exceeded!

This principle is NOT load dependent! It is also NOT dependent on the driving force used! The bearings will bind whether hand or mechanically driven.

This principle is a product of friction.

What if more than 2:1 is required?

Often times holding the 2:1 ratio is not possible. One method of preventing binding problems in these cases is to use a counter balance.

For efficient counter balances, use this formula:

$$M * Y = W * Z$$

NOTES: To avoid problems when running without mass (M) $Z = 1.5X$

W can be calculated; load on bearing will be:

$$\frac{M + W}{\# \text{ of bearings}}$$

EXAMPLE: $50 * 24 = W * Z$ ($Z = 1.5 * 6 = 9$)

$$W = \frac{50 * 24}{9} = 133 \text{ lbs.}$$

$$\text{Load per bearing} = \frac{50 + 133}{4} = 45.75 \text{ lbs./bearing}$$

SEVERE MISALIGNMENT SOLUTIONS

Linear ball bearings will continue to operate in a misaligned condition, but will cause damage to shafting and catastrophically fail.

Simplicity bearings DO NOT tolerate misalignment. They simply will stop moving without any damage to the shafting.

Self-aligning housings will aid in misalignment - up to $1/2^\circ$ from centerline.

POSSIBLE SOLUTIONS for use with Standard "FL":

Undersize the bearing O.D. (see chart) and install o-rings. See product pages for o-ring numbers.

Oversize the housing I.D. (see chart) and install the standard bearing with o-rings. See product pages for o-ring part numbers.

The additional clearance created by either method will allow the bearing to float in the housing and match the non-parallelism of the shafting.

CAUTION: This solution is only for SEVERE cases that the standard self-aligning will not accommodate.

NOTE: Maximum additional clearance and o-ring information for severe misalignment solutions on page 95. For complete installation instructions, see pages 93-95 in the Technical Section.

MACHINING THE BEARINGS

Simplicity bearings can be machined and modified in the field.

If machining the I.D., be sure that more running clearance is actually needed! This is NOT a solution for binding!

To solve binding problems, first check:

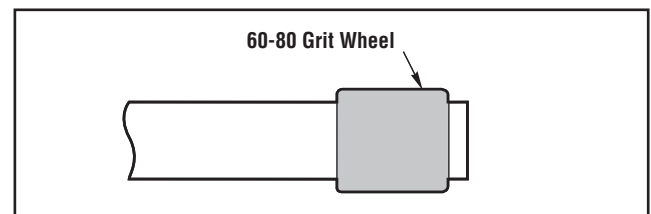
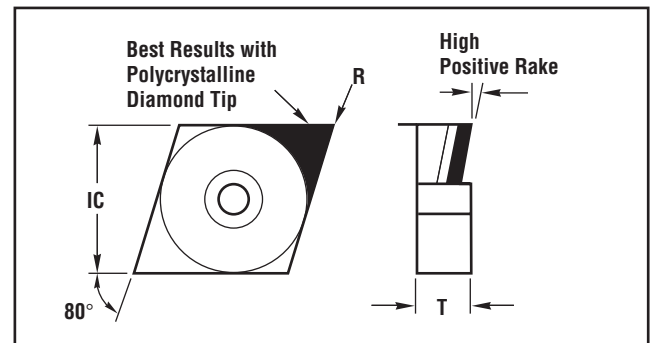
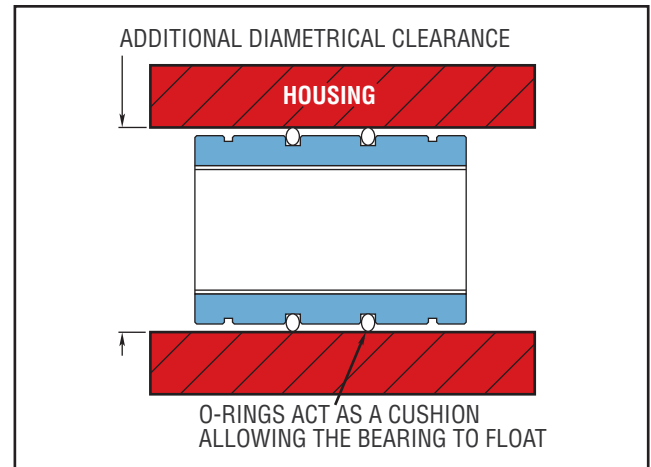
1. Shaft alignment
2. Cantilever limitations (page 82)
3. Shaft deflection (page 91)

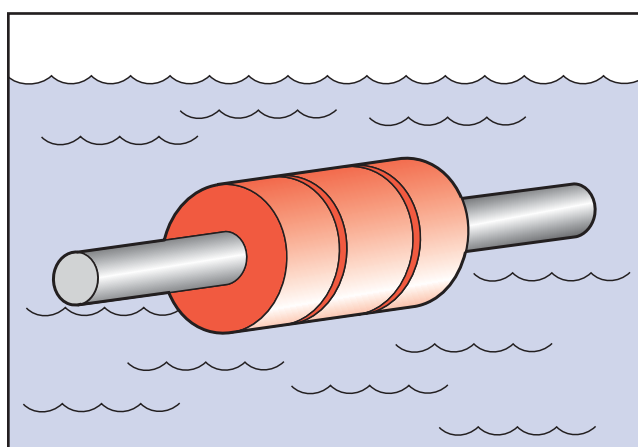
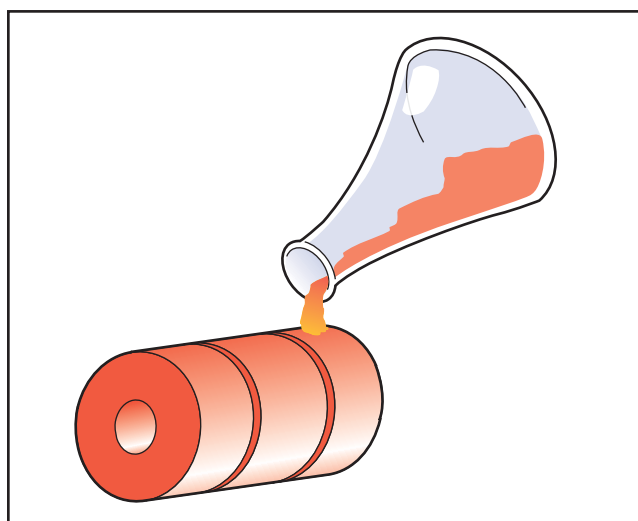
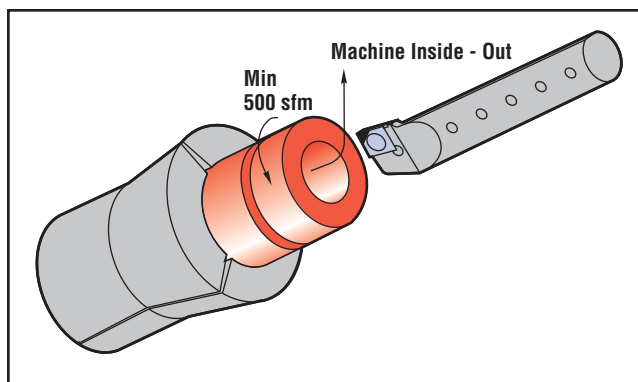
NOTE: The liner that is removed is also potential wear life that is removed!

When using insertable tools, polycrystalline diamond tip inserts with a high positive rake are best.

Carbide tools will only work with an extremely high positive rake. Tolerance and finish will be more difficult to hold. Recommended insert: ISCAR CNMS or DNMS 432-12

To hone or ID grind the liner, a 60-80 grit grinding wheel is recommended.





MACHINING THE BEARINGS (cont.)

Machine the bearings at a minimum of 500 sfm (150 m/min.)

It is always best to cut from the inside out. When pushing in on the liner, it is possible to delaminate the material.

CAUTION: The bearing liner averages only .015" to .020" (.381 mm to .508 mm) thick on each side of the bearing wall. At the time of manufacture, tight tolerances on size, roundness, and concentricity are maintained. Any after sale modifications may compromise this quality. Pacific Bearing Company will not be held responsible for any damaged or destroyed product that is machined or altered.

CHEMICAL RESISTANCE

Simplicity bearings stand up to harsh environments.

Frelon® and FrelonJ® – almost universal chemical inertness. Only molten sodium and fluorine at elevated temperatures and pressures show any signs of attack.

FrelonGOLD® – the fillers in the material can be attacked by deionized water and other harsh chemicals.

Anodized Aluminum Shell (Standard) – good chemical resistance in most industrial applications.

316 Stainless Steel Shell (Optional) – excellent chemical and corrosion resistance in harsh environments. (See page 96 for complete chemical interaction listing.)

SUBMERGED APPLICATIONS

Simplicity bearings will provide excellent performance in a submerged condition.

The bearings will employ the fluid as a lubricant showing increased velocities and wear life. Oils and non-salt water are especially effective.

Do not use FrelonGOLD in submerged applications.

VACUUMS/OUTGASSING/CLEAN ROOMS

Due to self-lubrication, low outgassing, and a minimum of particulate (buildup), Simplicity bearings are excellent in clean rooms and vacuums.

Testing has been done on the Frelon® materials in accordance with ASTM E-595-90 with acceptable maximums of 1.00% TML and .10% CVCM.

MATERIAL	% TML	% CVCM
Frelon	0.00	0.00
FrelonJ	0.18	0.01

TML = Total Mass Loss

CVCM = Collected Volatile Condensable Materials

CLASSES OF PLANE BEARINGS

Simplicity bearings are in a class of bearings known as plane bearings, which means that they have no rolling elements. There are three classes of plane bearings:

Class I - Require an outside source of lubrication (oil, grease, etc.).

Class II - Lubrication is impregnated within the walls of the bearing. (Bronze, powder metal, etc.) Typically these bearings require an added lubricant also.

Class III - Self-lubricating bearings, which do not require added lubricants.

Simplicity bearings are Class III plane bearings and are self-lubricating.

RATING A PLANE BEARING

Plane bearing performance capacity is rated by PV.

P - pressure or load in pounds per square inch (psi) or kilograms per square centimeter (kg/cm²).

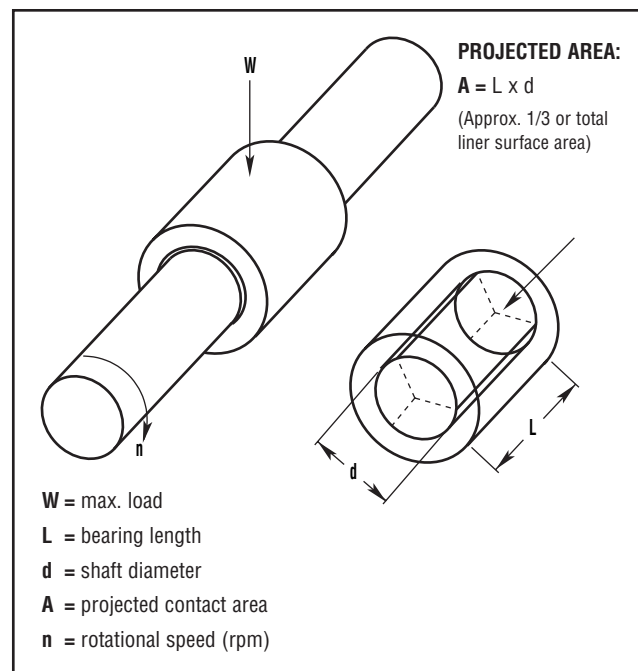
V - velocity or surface speed in feet per minute (fpm or sfm) or meters per minute (m/min).

PV - pressure velocity value.

SIMPLICITY MAXIMUM PARAMETER

MAXIMUM PARAMETERS	P	V (RUNNING DRY)	PV
FRELONF® & FRELONJ®	1500 psi or 105.45 kgf/cm ²	140 sfm or 42.67 m/min.	10,000 psi x ft/min. or 215 kgf/cm ² x m/min.
FRELON GOLD®	3000 psi or 210.9 kgf/cm ²	300 sfm or 91.44 m/min.	20,000 psi x ft/min. or 430 kgf/cm ² x m/min.

NOTE: All three parameters must be met in order for the bearing to operate properly.



FORMULAS FOR RATINGS

PRESSURE IS OVER THE PROJECTED AREA OF LOAD:

$$A = L \times d$$

$$P = \frac{W}{A} \text{ psi (or kg/cm}^2\text{)}$$

VELOCITY:

Linear = total distance traveled in one minute

ROTATIONAL VELOCITY:

$$V = \frac{\pi \times d \times n}{12} \text{ fpm (or m/min.)}$$

PRESSURE VELOCITY VALUE (PV):

$$PV = P \times V \text{ psi x fpm (or kg/cm}^2 \times \text{m/min)}$$

PV EQUIVALENTS

	INCH	TECHNICAL METRIC	INT'L METRIC (SI)
LOAD	1 psi	.0703 kgf/cm ²	.0069 N/mm ²
VELOCITY	1 ft/min.	.3048 m/min.	.00508 m/sec.
PV	1 PV	.0214 PV	.000036 PV
FRELONF® & FRELONJ® MAX PV	10,000	215	.36
FRELON GOLD® MAX PV	20,000	430	.72

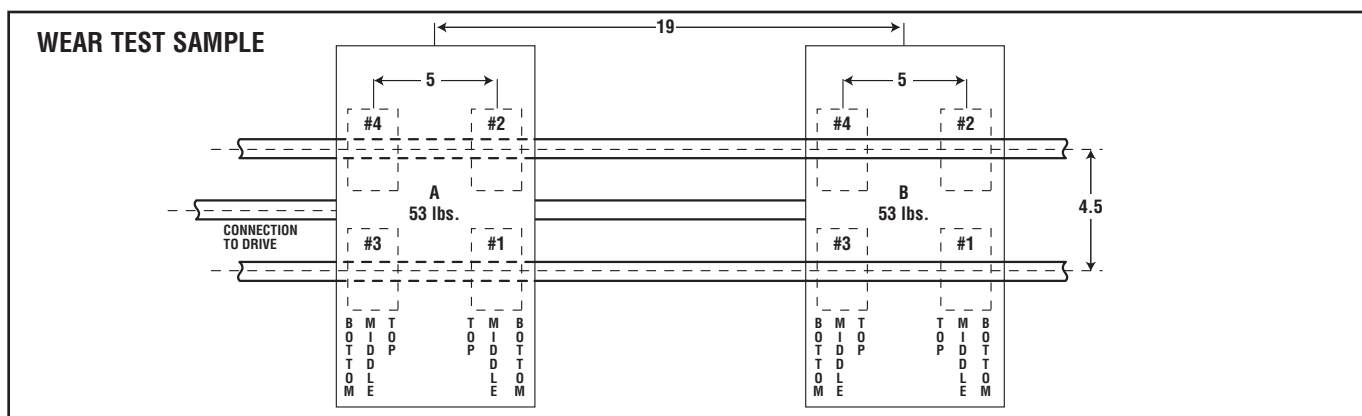
WEAR RATE VS. LIFE EXPECTANCY

A rolling element linear bearing's life expectancy is usually expressed in total inches or meters. A rolling element rotary bearing's life expectancy is expressed in hours of operation. Both are also rated for average (L-50) and minimum (L-10) life. L-50 life is the average life that can be expected from 50% of rolling element bearings. In other words, 50% will not reach the average life expectancy. L-10 life is the minimum life (1/5 the average life) expected from 90% of rolling element bearings. In other words, 10% will not reach the minimum life expectancy. Theoretically they could fail upon installation.

Plane bearings are not rated by a life expectancy but by the wear rate of the bearing material. Wear is greatly dependent

upon the proper application of the bearing and material used. If it is not properly applied, it will fail. Failure, however, is subjective and dependent upon specific application requirements. 0.002" running clearance may not be acceptable in one application while another may be able to run a bearing until the liner is completely worn through. The user may then rotate it 30 degrees and continue to run it. This broad range of acceptability makes it difficult to determine life expectancy.

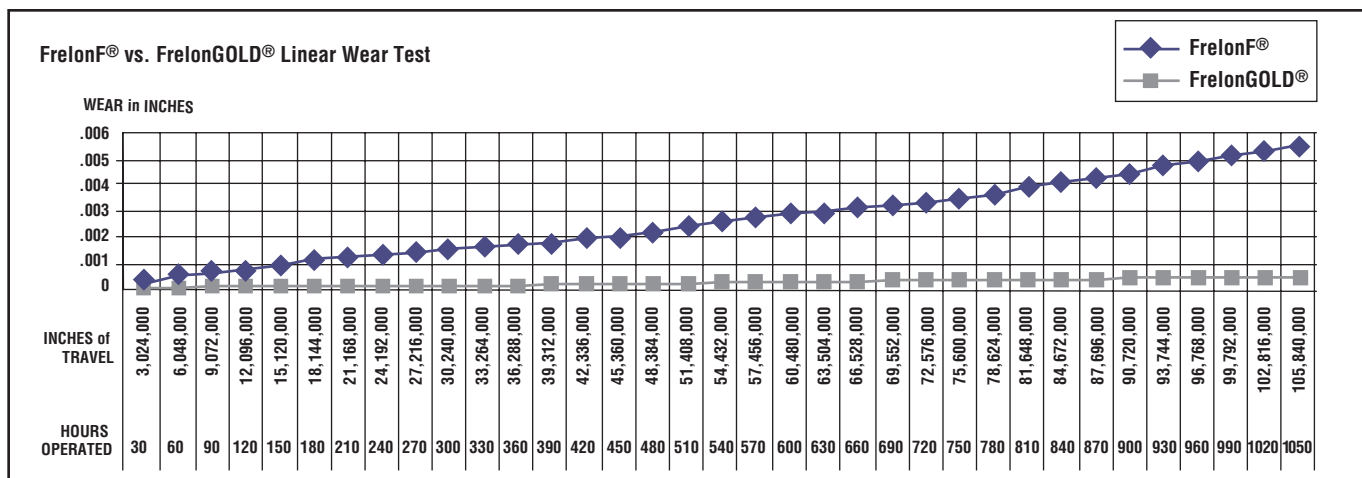
The first step is to determine what wear is acceptable for your application. Then utilizing the test data below, you can estimate the wear expected for your given application.



CONDUCTED BY: Pacific Bearing® Company
BEARING MATERIAL: FrelonF® and FrelonGOLD®
SHAFT MATERIAL: Standard RC60 steel shafting
SURFACE FINISH: 8-12 RMS
SPEED: 140 fpm (70 cycles/min; 1,680"/min;
 100,800"/hour; 2,419,200"/day)
STROKE: 12"

LOAD: 10.87 psi (53 lbs.)
BEARINGS USED: FLN12 (3/4" open style bearings)
LUBRICATION: None
TOTAL WEAR TO BEARING MATERIAL:
 FrelonF = .0055"
 FrelonGOLD = .00042"

NOTE: Wear is an average of totals taken from 4 bearings per carriage.

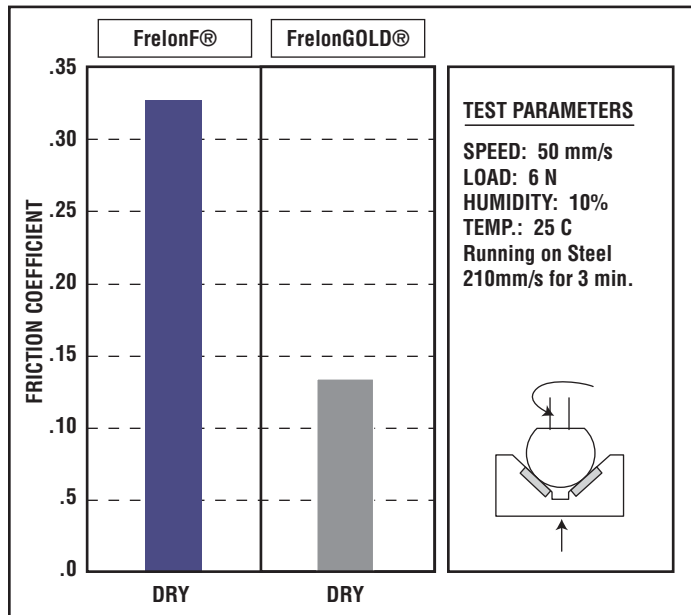


COEFFICIENT OF FRICTION

A frequent misconception of plane bearings is that wear and friction are basically synonymous, in that, high friction equals high wear or that low friction equals low wear. While there can be a relation between the two, they should be addressed as separate issues in the design process.

For example, dry running virgin (unfilled) Teflon® on steel's coefficient of friction (c.o.f.) is approximately .1 while filled Teflon's c.o.f. can range from .125 to .4 depending on the fillers used. By comparison, however, the virgin Teflon will wear at a much greater rate.

FRICTION TEST SAMPLE #1



CONDUCTED BY: Dr. Tillwich GmbH

MANAGING DIRECTOR: Mr. Werner Stehr (World leading tribologist with a seat on the ISOTC123 Committee establishing standards for tribological testing.)

BEARING MATERIAL: FrelonF® and FrelonGOLD®

SHAFT MATERIAL: Standard RC60 steel shafting

SURFACE FINISH: 8-12 RMS

SPEED: 50 mm/sec

LOAD: 6 N

TEMP.: 25°C

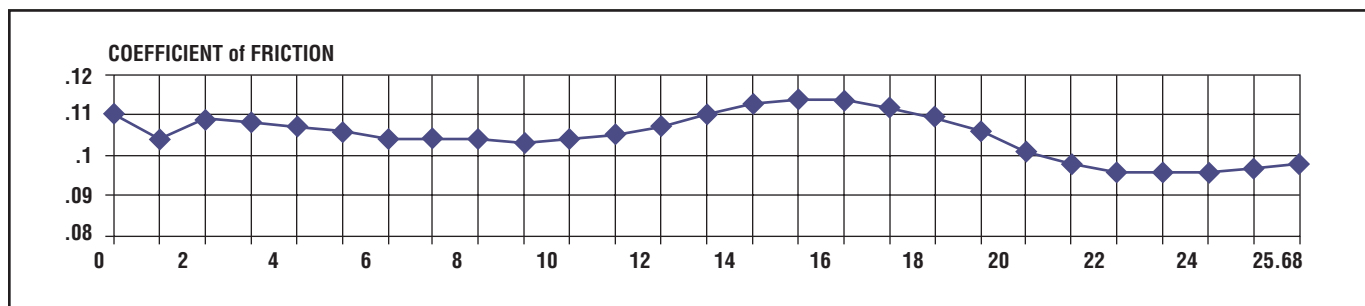
LUBRICATION: None

AVG. COEFFICIENT OF FRICTION:

FrelonF = .325

FrelonGOLD = .125

FRICTION TEST SAMPLE #2



CONDUCTED BY: FrelonGOLD material processor

BEARING MATERIAL: FrelonGOLD

SHAFT MATERIAL: CRS 1018

SPEED: 100 fpm

LOAD: 100 psi

DURATION: 25.68 hours

LUBRICATION: None

SURFACE FINISH: 8 RMS

AVERAGE COF: 0.10

MAX. COF: 0.15

MIN. COF: 0.08

AVG. RUNNING TEMP.: 95.40°F

LOAD CAPACITY (Pressure)

Depending upon the material used, a plane bearing's load capacity can greatly exceed a rolling element bearing. There are three basic reasons for this:

1. The area of surface contact with the shaft is far greater than rolling element bearings, which have point-to-point contact with a given number of balls.
2. A rolling element bearing must be oriented properly for the ball tracks to carry the load adequately, while a plane bearing can be mounted in any orientation.
3. Only one or two of the tracks in a rolling element bearing will actually carry any of the load applied.

Simplicity bearings have a thin liner that is bonded to a metal shell at the molecular level, allowing the load to be transferred throughout the bearing. This gives it an advantage over other plane bearings of solid plastic or polymer materials. These other materials will tend to "cold flow" under pressure. "Cold flow" means to deform or lose shape. The idea is similar to pressing your finger into a bar of soap - material will move or deform as pressure is applied.

LINEAR SURFACE SPEEDS (Velocity)

In typical applications, speed is a known quantity and easily converted. Typically feet per minute or meters per minute are used. The most important factor that speed (along with friction) produces is heat buildup. This is not a critical factor in most linear applications because the heat is dissipated over the length of travel, and it does not affect the bearing. Short stroke or extremely high speed applications may see the effects of heat buildup in thermal expansion and the bearing ID locking on the shaft. A compensated ID bearing (FLC) is recommended in these applications.

FACTORS THAT CONTRIBUTE TO WEAR LIFE

Proper mating of shaft and liner materials.

Surface finish 8-16 RMS (.20-.40mm) is required. Peaks in the surface that are polished to a radius provide the best running surface. Sharp peaks in the finish will be like a fine lapping compound wearing the I.D. of the bearing.

NOTE: Shafting damaged by use with ball bearings can be salvaged and used with Simplicity bearings. Spin in a lathe and polish with sand papers in this order: 120 grit, 180 grit, and 300 grit. This will also remove sharp peaks in the surface finish.

Surface speed - at high speeds, heat buildup will affect liner wear.

Break-in transfer - proper transfer process of the liner to the shaft. (pg. 80)

Lubrication - proper lubrication can greatly improve the wear rate of a bearing. At the same time, improper lubrication can increase wear and failure.

Load & Wear Relationship - Wear is proportional to $(load)^3$, so if load is reduced to 1/2, wear will be reduced to $(1/2)^3$.

Contamination - while migrating into the bearing and embedding into the liner, certain types of contamination may, over time, cause increased wear to the liner.

NOTE: This is not an all inclusive list. There are many, many more factors within an application that can affect wear to different degrees. These are the major issues and the first things to address in a design.

TYPES AND EFFECTS OF LUBRICATION

Lubrication is any outside technique used for reducing the friction, wear, or both of a bearing. **Proper lubrication of Simplicity bearings is critical.** Evaluate lubrication needs on an application by application basis to determine whether or not it should be used at all, what type is needed, and how it is applied. Below are some criteria on which to base the lubricant decision:

DO NOT USE WD40™, PTFE sprays, or other oils, greases, or sprays that contain fluorocarbons or silicone. In testing, these lubricants have proven to cause long-term stick-slip problems with the Frelon lined bearings. They tend to become a gummy substance that ultimately increases friction.

RECOMMENDED LUBRICANTS:

- Waylube oils
- Lightweight oils
- 3-in-1 type oils
- Lightweight petroleum based greases

WD40™ is a registered trademark of the WD40 Corporation.

USING OILS WITH SIMPLICITY

DO NOT USE ANY TYPE OF MOTOR OIL OR OILS WITH ADDITIVES! These types of oils work well short term, but quickly become ineffective, and will cause stick-slip reactions in the bearing. As a rule of thumb, the less additives in the oil, the better the performance. Recommended oils are Mobil Vactra #2 (a way lube oil) and any standard 3-in-1 oil. The 3-in-1 oils are tremendous cleaning oils and are the best in preparing for a proper transfer of teflon to the shafting.

GREASE PRODUCTS

DO NOT USE A MOLY FILLED OR OTHER TYPE FILLED GREASES! They become like a lapping compound on the ID of the bearing and increase wear dramatically.

PROPER USE OF GREASES

Proper use of grease is critical for trouble-free operation.

Be sure the felt wick is removed from a “FL-xx-JKM” bearing because grease inserted through the zerk will cause the wick to act like a brake.

Do not fill all of the running clearance with grease! The temptation is to treat it like a rolling element bearing and fill it until it weeps from the end. This will cause greater friction and binding.

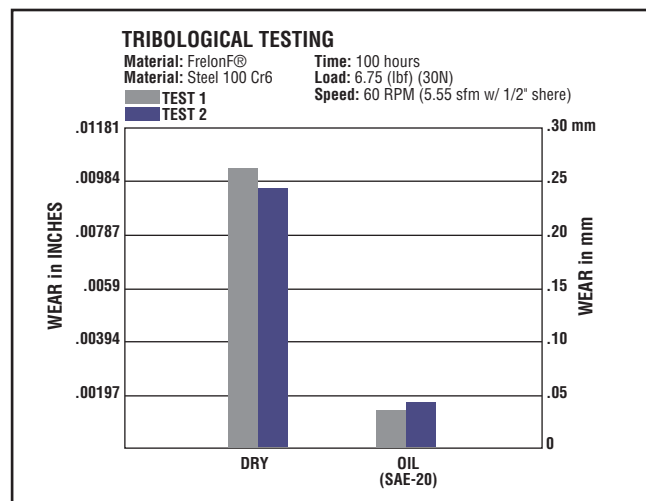
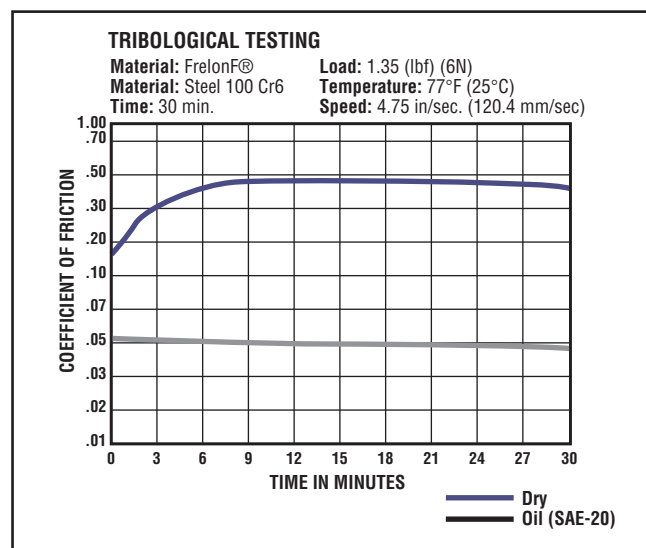
The rule of thumb for the bearing liner that “thin is better” applies to the use of grease also.

If grease is used and does not work in the application, it is possible to salvage the bearing with minimal work and to continue to operate. Follow the steps below:

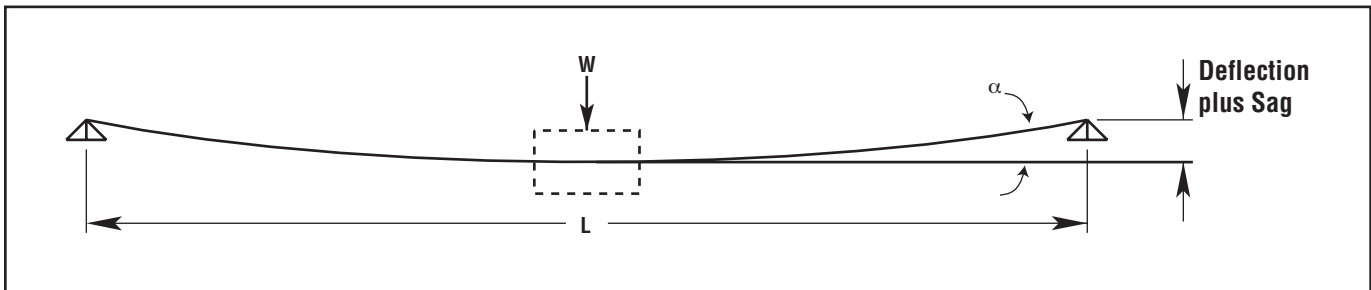
1. If possible, remove the bearing from the housing, wipe the grease from the liner, use a 3-in-1 type oil to clean the excess remaining grease, and reinstall.
2. If it is not possible to remove the bearing, wipe as much grease as possible away from the ends of the bearing, then start to fill with a 3-in-1 type oil for cleaning the liner. To speed the cleaning process, apply forced air to the bearing through the zerk hole and continue using oil lubrication.

EFFECTS OF LUBRICATION

Lubrication can greatly increase the performance of a bearing when applied properly as noted earlier. Actual performance results for specific applications are difficult to predict due to the number of elements involved (temperature change with lube, useable life or aging of lubricant, etc.). Specific application testing is recommended to establish specific performance parameters. Below are charts with guidelines of performances.



APPLICATION INFORMATION



INCH

SHAFT DIAMETER	HARDENED STEEL		STAINLESS STEEL		FEATHER SHAFT	
	D	S	D	S	D	S
3/16"	8.4×10^4	1.7×10^7	8.0×10^4	1.6×10^7	2.9×10^4	$1.65\text{E}+05$
1/4"	2.67×10^5	3.1×10^7	2.54×10^5	2.9×10^7	9.2×10^4	$2.93\text{E}+05$
3/8"	1.35×10^6	6.9×10^7	1.29×10^6	6.5×10^7	4.7×10^5	$6.58\text{E}+05$
1/2"	4.27×10^6	1.23×10^8	4.06×10^6	1.16×10^8	1.5×10^6	$1.17\text{E}+06$
5/8"	1.04×10^7	1.92×10^8	9.92×10^6	1.81×10^8	3.6×10^6	$1.83\text{E}+06$
3/4"	2.16×10^7	2.77×10^8	2.06×10^7	2.61×10^8	7.5×10^6	$2.63\text{E}+06$
1"	6.83×10^7	4.92×10^8	6.5×10^7	4.63×10^8	2.4×10^7	$4.68\text{E}+06$
1-1/4"	1.67×10^8	7.69×10^8	1.59×10^8	7.24×10^8	5.8×10^7	$7.31\text{E}+06$
1-1/2"	3.46×10^8	1.11×10^9	3.29×10^8	1.04×10^9	1.22×10^8	$1.05\text{E}+07$
2"	1.09×10^8	1.97×10^9	1.04×10^9	1.85×10^9	3.8×10^8	$1.87\text{E}+07$
2-1/2"	2.67×10^8	3.07×10^9	2.54×10^9	2.9×10^9	N/A	N/A
3"	5.53×10^9	4.43×10^9	5.27×10^9	4.17×10^9	N/A	N/A
4"	1.75×10^{10}	7.87×10^9	1.66×10^{10}	7.41×10^9	N/A	N/A

METRIC

SHAFT DIAMETER	HARDENED STEEL		STAINLESS STEEL	
	D	S	D	S
5 mm	2.94×10^8	3.12×10^{11}	2.8×10^8	2.94×10^{11}
6 mm	6.11×10^8	4.5×10^{11}	5.81×10^8	4.24×10^{11}
8 mm	1.93×10^9	8.0×10^{11}	1.84×10^9	7.53×10^{11}
10 mm	4.71×10^9	1.25×10^{12}	4.48×10^9	1.18×10^{12}
12 mm	9.77×10^9	1.8×10^{12}	9.3×10^9	1.69×10^{12}
13 mm	1.35×10^{10}	2.11×10^{12}	1.28×10^{10}	1.99×10^{12}
14 mm	1.81×10^{10}	2.45×10^{12}	1.72×10^{10}	2.31×10^{12}
16 mm	3.09×10^{10}	3.2×10^{12}	2.94×10^{10}	3.01×10^{12}
20 mm	7.54×10^{10}	5.0×10^{12}	7.17×10^{10}	4.71×10^{12}
25 mm	1.84×10^{11}	7.81×10^{12}	1.75×10^{11}	7.35×10^{12}
30 mm	3.82×10^{11}	1.12×10^{13}	3.63×10^{11}	1.06×10^{13}
35 mm	7.07×10^{11}	1.53×10^{13}	6.73×10^{11}	1.44×10^{13}
38 mm	9.82×10^{11}	1.8×10^{13}	9.35×10^{11}	1.7×10^{13}
40 mm	1.21×10^{12}	2.0×10^{13}	1.15×10^{12}	1.88×10^{13}
50 mm	2.94×10^{12}	3.12×10^{13}	2.8×10^{12}	2.94×10^{13}
60 mm	6.11×10^{12}	4.5×10^{13}	5.81×10^{12}	4.24×10^{13}
80 mm	1.93×10^{12}	8.0×10^{13}	1.84×10^{13}	7.53×10^{13}
100 mm	4.71×10^{13}	1.25×10^{14}	4.48×10^{13}	1.18×10^{14}
120 mm	9.77×10^{13}	1.8×10^{14}	9.3×10^{13}	1.69×10^{14}
150 mm	2.39×10^{14}	2.81×10^{14}	2.27×10^{14}	2.65×10^{14}

SHAFT DEFLECTION

In applications where a support rail is not used, shaft deflection can become critical in the function of the bearing. If deflection is greater than the misalignment capabilities of a standard pillow block, binding can occur. Solutions would be to increase shaft and bearing size (to lessen the amount of deflection) or to use an open bearing configuration with a support rail. Follow the formulas below to check shaft deflection and sag.

FORMULA FOR INCH AND METRIC SHAFTING DEFLECTION

Total shaft deflection in horizontal applications:

$$\text{Tot. Def} = \text{Def} + \text{Sag}$$

$$\text{Def} = w \times L^3 / D$$

$$\text{Sag} = L^4 / S$$

Def = Pure deflection due to load at center of shaft (inches or mm)

Sag = Deflection of shaft due to its own weight (inches or mm)

L = Shaft unsupported length (inches or mm)

w = load being applied at center of shaft (lbs. or N)

D = Deflection coefficient (D = 48 x E x I)

S = Sag coefficient (S = E x I x 384 / (5 x sw))

NOTES: I = $\pi \times \text{diam}^4 / 64$

sw = $\pi \times \text{diam}^2 / 4 \times \text{density}$

E = Modulus of Elasticity (Young's modulus)

TOTAL DEFLECTION

ø1" Shaft

24" Length (L)

250# load (W)

$$\begin{aligned} \text{Deflection} &= \frac{W \times L^3}{D \text{ (from table)}} \\ &= \frac{250\# \times (24")^3}{6.83 \times 10^7} \\ &= \frac{3,456,000 \text{ in.}^3 \text{ lbs.}}{68,300,000 \text{ in.}^2 \text{ lbs.}} \end{aligned}$$

$$\text{Deflection} = 0.0506 \text{ in.}$$

$$\begin{aligned} \text{SAG} &= \frac{L^4}{S \text{ (from table)}} \\ &= \frac{(24")^4}{4.92 \times 10^8} \end{aligned}$$

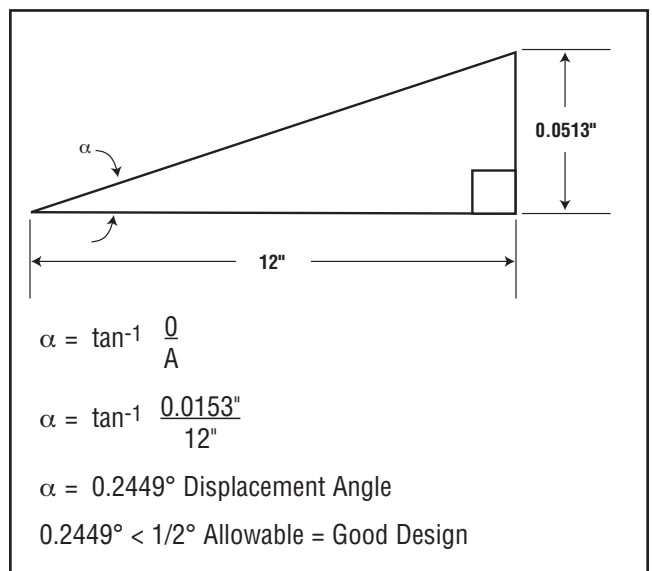
$$\text{SAG} = \frac{331,776 \text{ in.}^4}{492,000,000 \text{ in.}^3}$$

$$\text{SAG} = .000674 \text{ in.}$$

$$\begin{aligned} \text{Total Deflection} &= \text{Deflection} + \text{SAG} \\ &= 0.0506 \text{ in.} + .000674 \text{ in.} \end{aligned}$$

$$\text{Total Deflection} = 0.0513 \text{ in.}$$

DISPLACEMENT ANGLE



INSTALLING SIMPLICITY® BEARINGS

Applies to standard linear bearing series.

For sleeve and flange bearings, see product pages in the catalog.

PS - Page 38, PSM - Page 54, PSF - Page 39,
PSFM - Page 55

STRAIGHT BORE HOUSING - PRESS FIT BEARING

This type of configuration is **NOT** recommended for the vast majority of applications using Simplicity bearings.

It **does NOT** allow for any misalignment or shaft deflection.

Misalignment or shaft deflection will cause the bearing to bind on the shafting.

Extremely high precision applications may be able to employ this type of mounting. Typically the shafting has been aligned with a laser or some other highly precise equipment.

Due to bore closure in the pressing process, use a “C” series (compensated I.D.) bearing.

EXAMPLE: FLC24, FMC30, FJC30

The recommended installation procedure is to freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

This type of mounting will not allow for misalignment or shaft deflection. Both are very critical in the smooth operation of Simplicity bearings. A rolling element bearing may appear to initially operate in this condition, but it is operating in an extremely preloaded condition and will prematurely fail and in most cases destroy the shafting. Simplicity bearings will indicate the problem immediately upon installation by failing to move due to the binding condition. There are alternative mounting options that work extremely well.

PART NO.	MIN. HOUSING I.D. (INCHES)	MAX. HOUSING I.D. (INCHES)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)
FLC03	0.3729	0.3737	FMC05	11.995	11.972	FMTC06	11.954	11.972	FGC06	11.952	11.970	FJC06	11.961	11.979
FLC04	0.4978	0.4986	FMC08	15.954	15.972	FMTC08	14.954	14.972	FGC08	14.952	14.970	FJHC08	14.961	14.979
FLC06	0.6228	0.6236	FMC10	18.948	18.969	FMTC10	16.954	16.972	FGC10	16.952	16.970	FJC08	14.961	14.979
FLC08	0.8725	0.8734	FMC12	21.944	21.965	FMTC12	18.948	18.969	FGC12	21.945	21.966	FJC10	18.952	18.973
FLC10	1.1224	1.1234	FMC16	25.944	25.965	FMTC14	20.944	20.965	FGC15	24.945	24.966	FJC12	20.952	20.997
FLC12	1.2474	1.2484	FMC20	31.940	31.961	FMTC16	23.944	23.965	FGC16	25.945	25.966	FJC13	22.952	22.973
FLC16	1.5596	1.5607	FMC25	39.932	39.957	FMTC20	27.944	27.965	FGC18	27.945	27.966	FJC16	27.952	27.973
FLC20	1.9970	1.9981	FMC30	46.932	46.957	FMTC25	34.940	34.961	FGC20	31.945	31.966	FJC20	31.950	31.971
FLC24	2.3717	2.3729	FMC40	61.917	61.947	FMTC30	39.932	39.957	FGC25	39.937	39.962	FJC25	39.941	39.966
FLC32	2.9965	2.9977	FMC50	74.917	74.947	FMTC40	51.932	51.957	FGC30	44.937	44.962	FJC30	44.941	44.966
FLC40	3.7461	3.7473	FMC60	89.906	89.936	FMTC50	61.917	61.947	FGC35	51.937	51.962	FJC35	51.938	51.963
FLC48	4.4953	4.4966	FMC80	119.886	119.921				FGC40	59.927	59.957	FJC38	56.938	56.963
FLC64	5.9949	5.9963							FGC50	74.927	74.957	FJC40	59.928	59.958
												FJC50	79.922	79.952
												FJC60	89.919	89.949
												FJC80	119.899	119.934
												FJC100	149.896	149.931
												FJC120	179.875	179.915
												FJC150	209.849	209.895

NOTE: Use “C” (compensated I.D.) series bearings.

INSTALLING SIMPLICITY® BEARINGS

STRAIGHT BORE HOUSING - SLIP FIT BEARING

There are three basic configurations that work well, depending on the misalignment and shaft deflection in the application:

1. Virtually NO misalignment

This method allows for NO or very little shaft deflection and misalignment.

Standard I.D. bearings will need tighter alignment than a "C" series (compensated I.D.) bearing.

Standard retention methods are acceptable.

EXAMPLE: snap rings, epoxy, etc.

NOTE: If using epoxy, do not touch the bearing liner with the bonding agent!

This type of mounting will allow for minimum misalignment or shaft deflection. Both are very critical in the smooth operation of Simplicity bearings. A rolling element bearing may appear to initially operate in this condition, but it is operating in an extremely preloaded condition and will prematurely fail and in most cases destroy the shafting. Simplicity bearings will indicate the problem immediately upon installation by failing to move due to the binding condition.

PART NO.	MIN. HOUSING I.D. (INCHES)	MAX. HOUSING I.D. (INCHES)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)
FL03	0.3755	0.3764	FM05	12.016	12.043	FMT06	12.016	12.043	FG06	12.016	12.043	FJ06	12.016	12.043
FL04	0.5006	0.5017	FM08	16.016	16.043	FMT08	15.016	15.043	FG08	15.016	15.043	FJH08	15.016	15.043
FL06	0.6256	0.6267	FM10	19.020	19.053	FMT10	17.016	17.043	FG10	17.016	17.043	FJ08	15.016	15.043
FL08	0.8758	0.8771	FM12	22.020	22.053	FMT12	19.020	19.053	FG12	22.020	22.053	FJ10	19.020	19.053
FL10	1.1258	1.1271	FM16	26.020	26.053	FMT14	21.020	21.053	FG15	25.020	25.053	FJ12	21.020	21.053
FL12	1.2510	1.2525	FM20	32.025	32.064	FMT16	24.020	24.053	FG16	26.020	26.053	FJ13	23.020	23.053
FL16	1.5635	1.5650	FM25	40.025	40.064	FMT20	28.020	28.053	FG18	28.020	28.053	FJ16	28.020	28.053
FL20	2.0012	2.0030	FM30	47.025	47.064	FMT25	35.025	35.064	FG20	32.025	32.064	FJ20	32.025	32.064
FL24	2.3762	2.3780	FM40	62.030	60.076	FMT30	40.025	40.064	FG25	40.025	40.064	FJ25	40.025	40.064
FL32	3.0012	3.0030	FM50	75.030	75.076	FMT40	52.030	52.076	FG30	45.025	45.064	FJ30	45.025	45.064
FL40	3.7514	3.7535	FM60	90.036	90.090	FMT50	62.030	62.076	FG35	52.030	52.076	FJ35	52.030	52.076
FL48	4.5014	4.5035	FM80	120.036	120.090				FG40	60.030	60.076	FJ38	57.030	57.076
FL64	6.0017	6.0042							FG50	75.030	75.076	FJ40	60.030	60.076
												FJ50	80.030	80.076
												FJ60	90.036	90.090
												FJ80	120.036	120.090
												FJ100	150.043	150.106
												FJ120	180.043	180.106
												FJ150	210.050	210.122

INSTALLING SIMPLICITY® BEARINGS

STRAIGHT BORE HOUSING - SLIP FIT BEARING (cont.)

2. Standard applications with average misalignment

A self-aligning O.D. bearing is recommended.

EXAMPLE: FLA24, FMA30, FJA30

For details on the self-aligning O.D. feature, see page 75 of the product catalog.

The recommended method of retention for this mounting is a snap ring at each end.

NOTE: Do not use epoxy in this configuration. It will lock the bearing in place not allowing it to self-align.

Be sure to install the o-rings around the O.D. of the bearing to reduce noise while the bearing is in operation.

PART NO.	MIN. HOUSING I.D. (INCHES)	MAX. HOUSING I.D. (INCHES)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)	PART NO.	MIN. HOUSING I.D. (MM)	MAX. HOUSING I.D. (MM)
FLA03	0.3755	0.3764	FMA05	12.016	12.043	FMT06	N / A	N / A	FG06	N / A	N / A	FJA06	12.016	12.043
FLA04	0.5006	0.5017	FMA08	16.016	16.043	FMT08	N / A	N / A	FG08	N / A	N / A	FJHA08	15.016	15.043
FLA06	0.6256	0.6267	FMA10	19.020	19.053	FMT10	N / A	N / A	FG10	N / A	N / A	FJA08	15.016	15.043
FLA08	0.8758	0.8771	FMA12	22.020	22.053	FMT12	N / A	N / A	FG12	N / A	N / A	FJA10	19.020	19.053
FLA10	1.1258	1.1271	FMA16	26.020	26.053	FMT14	N / A	N / A	FG15	N / A	N / A	FJA12	21.020	21.053
FLA12	1.2510	1.2525	FMA20	32.025	32.064	FMT16	N / A	N / A	FG16	N / A	N / A	FJA13	23.020	23.053
FLA16	1.5635	1.5650	FMA25	40.025	40.064	FMT20	N / A	N / A	FG18	N / A	N / A	FJA16	28.020	28.053
FLA20	2.0012	2.0030	FMA30	47.025	47.064	FMT25	N / A	N / A	FG20	N / A	N / A	FJA20	32.025	32.064
FLA24	2.3762	2.3780	FMA40	62.030	60.076	FMT30	N / A	N / A	FG25	N / A	N / A	FJA25	40.025	40.064
FLA32	3.0012	3.0030	FMA50	75.030	75.076	FMT40	N / A	N / A	FG30	N / A	N / A	FJA30	45.025	45.064
FLA40	3.7514	3.7535	FMA60	90.036	90.090	FMT50	N / A	N / A	FG35	N / A	N / A	FJA35	52.030	52.076
FLA48	4.5014	4.5035	FMA80	120.036	120.090				FG40	N / A	N / A	FJA38	57.030	57.076
FLA64	6.0017	6.0042							FG50	N / A	N / A	FJA40	60.030	60.076
												FJA50	80.030	80.076
												FJA60	90.036	90.090
												FJA80	120.036	120.090
												FJA100	150.043	150.106
												FJA120	180.043	180.106
												FJA150	210.050	210.122

NOTE: FMT and FG series are NOT available with a self-aligning O.D

INSTALLING SIMPLICITY® BEARINGS

STRAIGHT BORE HOUSING - SLIP FIT BEARING (cont.)

3. Severe misalignment

A standard O.D. bearing is recommended.

EXAMPLE: FL24, FM30, FJ30

Oversize the I.D. of the housing and install the bearing with o-rings. This will allow the bearing to “float” in the housing and match the misalignment or non-parallelism of the shafting.

The recommended method of retention for this mounting is a snap ring at each end.

NOTE: Do not use epoxy in this configuration. It will lock the bearing in place, not allowing it to self-align.

See page 84 of the product catalog for more details on this solution.

PART NO.	MAXIMUM ADDITIONAL CLEARANCE (INCHES)	PART NO.	MAXIMUM ADDITIONAL CLEARANCE (MM)	PART NO.	MAXIMUM ADDITIONAL CLEARANCE (MM)	PART NO.	MAXIMUM ADDITIONAL CLEARANCE (MM)	PART NO.	MAXIMUM ADDITIONAL CLEARANCE (MM)
FL03	0.0070	FM05	0.203	FMT06	0.203	FG06	0.203	FJ06	0.203
FL04	0.0080	FM08	0.203	FMT08	0.203	FG08	0.203	FJH08	0.203
FL06	0.0080	FM10	0.203	FMT10	0.203	FG10	0.203	FJ08	0.203
FL08	0.0080	FM12	0.203	FMT12	0.203	FG12	0.203	FJ10	0.203
FL10	0.0100	FM16	0.254	FMT14	0.203	FG15	0.254	FJ12	0.203
FL12	0.0100	FM20	0.254	FMT16	0.254	FG16	0.254	FJ13	0.203
FL16	0.0120	FM25	0.305	FMT20	0.254	FG18	0.254	FJ16	0.254
FL20	0.0120	FM30	0.305	FMT25	0.254	FG20	0.254	FJ20	0.254
FL24	0.0120	FM40	0.305	FMT30	0.305	FG25	0.305	FJ25	0.305
FL32	0.0120	FM50	0.305	FMT40	0.305	FG30	0.305	FJ30	0.305
FL40	0.0160	FM60	0.406	FMT50	0.305	FG35	0.305	FJ35	0.305
FL48	0.0160	FM80	0.508			FG40	0.305	FJ38	0.305
FL64	0.0200					FG50	0.305	FJ40	0.305
								FJ50	0.406
								FJ60	0.406
								FJ80	0.508
								FJ100	0.610
								FJ120	0.610
								FJ150	0.610

CHEMICAL REACTION CHART

The original FrelonF® and FrelonJ® have almost universal chemical inertness. Only molten sodium and fluorine at elevated temperatures and pressures show any signs of attack. It is approved for use with liquid oxygen, N₂O₂ hydrazine, UDMH, hydrocarbon fuels, high strength hydrogen peroxide, etc.

The FrelonGOLD® material is a composite of PTFE and a bearing filler. The PTFE is chemically inert. The chemical resistance shown in the chart below is defined by the compatibility of the filler with the various chemicals.

Other data in the chart below applies to the bearing shell and pillow block materials. The table is provided as a reference only. The data given will be affected by factors such as temperature, PV, degree of contact, strength of solution, etc. In each specific application, it is always advisable to conduct specific testing to determine suitability of use. This table only addresses general corrosion, NOT galvanic, SCC, or other types of corrosion. Corrosion rates are at room temperature unless otherwise noted.

Standard and hard coat data only apply when the coating is intact. If the coating is worn through or damaged, an area of galvanic and pitting corrosion will be created. Then use the bare aluminum data.

Standard Simplicity products use 6061-T6 aluminum alloy, which is known to have the best corrosion resistance of the high strength aluminum alloys. The sulfuric bath anodizing and nickel acetate sealing provide the best corrosion resistance available in anodized coatings. They can withstand a rigorous 14-day exposure in a 5% salt spray solution at 96°F per military specifications without significant damage. With the coating intact, it is considered to be inert in most fluids with a pH value between 5 and 8. Hard coat anodizing provides the same chemical resistance but is applied to a .002" thickness, providing a more durable surface that will stand up to greater abuse. However, if the coating is penetrated, the resistance is reduced.

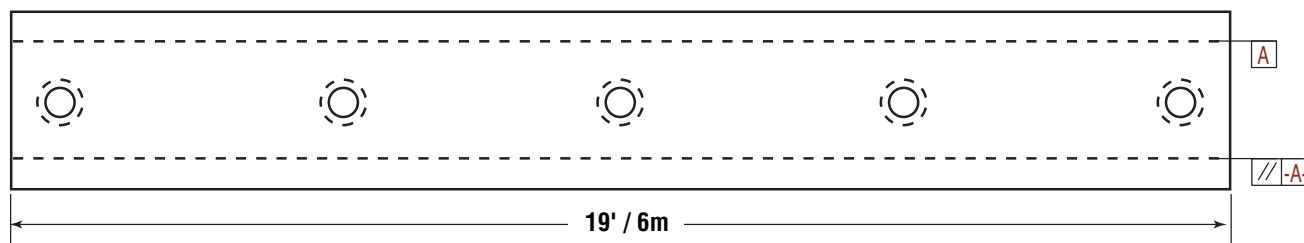
Special stainless steel bearings use AISI 316 stainless, which has superior resistance over 303, 304, 420, 440, 17-4PH, and most other common stainless grades. 316 is generally considered to be the most corrosion resistant of conventional stainless steels.

NOTE: This information was compiled for Pacific Bearing® Company by Materials Engineering, Inc. of Virgil, IL. This specification information is believed to be accurate and reliable, however, no liability is assumed. INFORMATION IS FOR REFERENCE ONLY. USER MUST TEST SPECIFIC APPLICATIONS.

E = < .002" per year					G = < .020" per year					S = < .050" per year					U = > .050" per year				
CHEMICAL	FRELONGOLD®	BARE ALUMINUM	STANDARD & HARD COAT ANODIZED ALUMINUM	316 STAINLESS STEEL	CHEMICAL	FRELONGOLD®	BARE ALUMINUM	STANDARD & HARD COAT ANODIZED ALUMINUM	316 STAINLESS STEEL	CHEMICAL	FRELONGOLD®	BARE ALUMINUM	STANDARD & HARD COAT ANODIZED ALUMINUM	316 STAINLESS STEEL	CHEMICAL	FRELONGOLD®	BARE ALUMINUM	STANDARD & HARD COAT ANODIZED ALUMINUM	316 STAINLESS STEEL
Acetic Acid, 20%	U	G	G	E	Hydrogen sulfide, dry	U	G	E	E	JP-4	G	G	G	G	Mercury	U	U	U	E
Acetone	G	E	E	E	Kerosene	G	G	G	G	Lactic acid, 10%	G	G	G	E	Methyl alcohol	G	G	G	G
Ammonia, anhydrous	E	E	E	E	Magnesium chloride, 50%	G	U	U	G	Methanol	G	G	G	E	Methyl ethyl ketone	G	G	G	G
Ammonium hydroxide, 10%	U	U	U	E	Mercury	U	U	U	E	Methylene chloride	G	E	E	G	Mineral oil	G	G	G	G
Ammonium chloride, 10%	U	U	U	G	Methyl alcohol	G	G	G	G	Naptha	G	G	G	G	Nitric acid, 70%	U	U	U	E
Ammyl acetate (122°F / 50°C)	G	E	E	E	Methyl ethyl ketone	G	G	G	G	Phosphoric acid, 10%	U	U	U	E	Sodium chloride	G	U	U	E
Barium hydroxide	U	U	U	G	Methylene chloride	G	E	E	G	Sodium hydroxide, 20%	G	U	U	G	Sodium hypochlorite, 20%	U	G	G	U
Beer	G	E	E	E	Mineral oil	G	G	G	G	Sodium peroxide, 10%	U	G	G	G	Steam (see water)	-	-	-	-
Boric acid solutions	G	E	E	G	Naptha	G	G	G	G	Sulfur dioxide, wet	U	U	U	G	Sulfur dioxide, dry	G	G	G	G
Butane	G	G	G	G	Nitric acid, 70%	U	U	U	E	Sulfur trioxide	U	G	G	G	Sulfuric acid, 50%	U	U	U	U
Calcium chloride, 20%	G	G	G	G	Phosphoric acid, 10%	U	U	U	E	Sulfurous acid	U	G	G	E	Toluene (122°F / 50°C)	E	E	E	E
Calcium hydroxide, 10%	G	G	G	G	Sodium chloride	G	U	U	E	Turpentine	G	G	E	E	Water, demineralized	U	G	E	E
Carbon dioxide	G	E	E	G	Sodium hydroxide, 20%	G	U	U	G	Water, distilled	G	U	S	G	Sea Water	G	G	E	G
Carbon monoxide	E	E	E	E	Sodium hypochlorite, 20%	U	G	G	U	Water, sewage	G	U	S	G	Xylene	G	G	G	G
Chlorine gas, dry	G	G	G	G	Sodium peroxide, 10%	U	G	G	G	Zinc chloride solutions	U	U	U	G					
Chlorine gas, wet	U	U	U	U	Steam (see water)	-	-	-	-										
Chromic acid, 10%	U	G	E	E	Sulfur dioxide, wet	U	U	U	G										
Citric acid, 5%	G	E	E	E	Sulfur dioxide, dry	G	G	G	G										
Ethyl acetate	G	E	E	G	Sulfur trioxide	U	G	G	G										
Ethyl alcohol	G	E	E	G	Sulfuric acid, 50%	U	U	U	U										
Ethylene glycol	G	E	E	G	Sulfurous acid	U	G	G	E										
Ferric chloride, 50%	U	U	U	U	Toluene (122°F / 50°C)	E	E	E	E										
Formic acid - Anhydrous	U	E	E	E	Turpentine	G	G	E	E										
Gasoline, Unleaded	G	G	G	G	Water, demineralized	U	G	E	E										
Hydrochloric acid, 20%	U	U	U	U	Water, distilled	G	U	S	G										
Hydrochloric acid, 35%	U	U	U	U	Sea Water	G	G	E	G										
Hydrocyanic acid, 10%	U	G	G	G	Water, sewage	G	U	S	G										
Hydrofluoric acid - dilute	U	U	U	U	Xylene	G	G	G	G										
Hydrofluoric acid, 48%	I	U	U	U	Zinc chloride solutions	U	U	U	G										
Hydrogen	E	E	E	E															
Hydrogen peroxide - dilute	U	E	E	G															



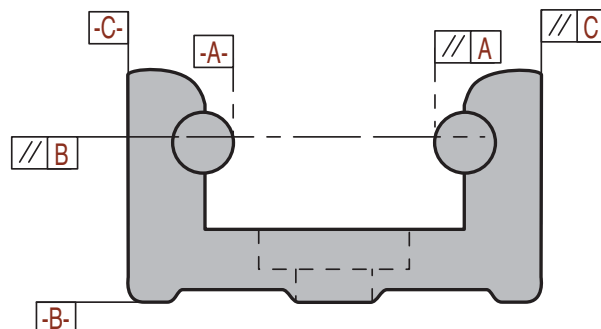
MATERIAL HANDLING, PACKAGING AND ASSEMBLY APPLICATIONS



Repeatable Accuracies Are...

- Engineered using precise geometric dimensions and tolerances.
- Manufactured using a consistent, stable, proprietary process.

Variance of A, B, and C is measured and held to within $\pm .001"$ (.025 mm) over the entire length of the rail. It is not cumulative, building up per foot, and it is not dependent upon the length of rail.



REDI-RAIL LINEAR GUIDES

- Designed for Automation Assembly, Packaging, and Material Handling Applications

Precision Engineering -
Rails hold $\pm .001"$ (.025 mm) over the entire rail length.

Precision Ground Steel Inner Race -
Standard O.D. grinders lower manufacturing costs. Superior race for bearing means high speeds and acceleration.

Precision Ground Double-Row Ball Bearings -
Consistent fast and quiet motion up to 8m/s. (26.2 ft./sec.) Good load carrying capabilities.

Easily Customizable -
Rollers can be added to special designs to handle high moment loads.

Precision Aluminum Support Structure -
Lightweight without sacrificing strength. Low cost raw material.

Running Parallelism of A to C and B to D is held to $\pm .001"$ (.025mm) over the entire length of a 19' (6m) rail.

Patented Preload Adjustment -
Simple design for fast, easy, precise pressure adjustment.

Customizable Seals -
UHMW, felt, oil-filled plastics or virtually any other material can be used to keep contamination from the raceways.

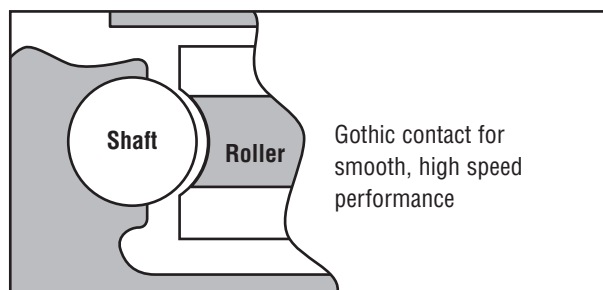
Redi-Rail Provides Economical Precision -
Through its engineering and manufacturing process.



REDI-RAIL® LINEAR GUIDES (SLIDES) • Metric Series

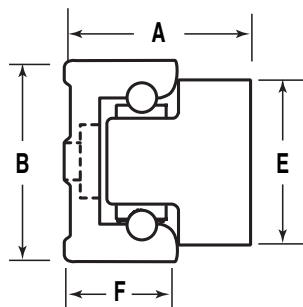
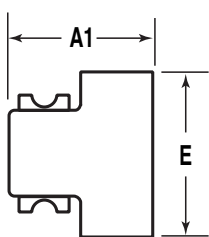


ROLLER/SHAFT INTERFACE



DIMENSIONS (mm)

PART #	A	A1	B	C	D	E	F	G	Y	WT. (LBS EA)
RRS30	28	22.2	30	70	86	25.4	16	26	M5 x .8	.20
RRS45	33	25.6	45	100	116	38.1	20.5	36	M8 x 1.25	.50
RRS65	42	32.0	65	145	161	50.8	27	52	M8 x 1.25	1.20



ORDER CODES



REDI-RAIL Slider

Nominal Size

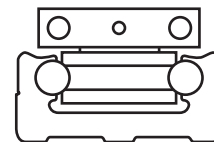
30 = B Dimension
45 = B Dimension
65 = B Dimension

Wiper Options

No Entry - Oil filled plastic is standard
U = UHMW

METRIC CHARACTERISTICS

- Continuous Motion
- Low Friction
- Smooth, Quiet
- High Speed

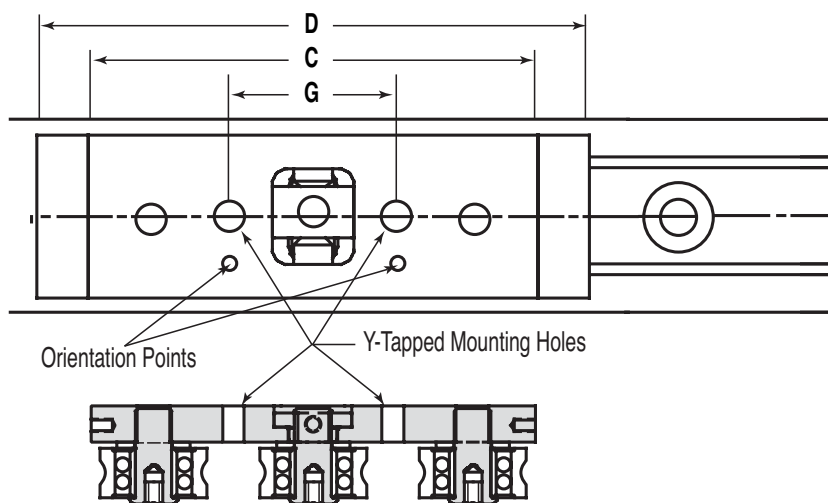


APPLICATIONS

- Automation
- Material Handling
- Assembly
- Packaging

FEATURES

- Slider body is 6061-T6 aluminum.
- Maximum temperature approximately 180°F.
- Rollers are 52100 steel, hardened and ground, lubricated for life and sealed against contamination.
- Oil-filled plastic or UHMW spring loaded seals keep contamination clear of the rollers.
- Custom roller configurations can be designed, engineered, and manufactured to meet your specific requirements.
- Custom seals can be made from virtually any material.
- Patented pre-load adjustment eliminates eccentrics.
- **NEW** coated Redi-Rail FDA compliant, call 800-962-8979 for details.



EXAMPLE: RRS45U

Redi-Rail Slider size 45 with UHMW seals

NOTES: Felt wipers have been replaced by low friction oil impregnated plastic wipers.
No entry in the part # results in use of oil impregnated wiper.

REDI-RAIL® LINEAR GUIDES (RAILS) • Metric Series



- Rail is 6061-T6 aluminum with hardened and ground steel raceways inserted.
- Custom solutions can be designed, engineered, and manufactured to meet your specific requirements.
- Maximum lengths up to 5800 mm are available. Patented
- Joinable for even longer runs.

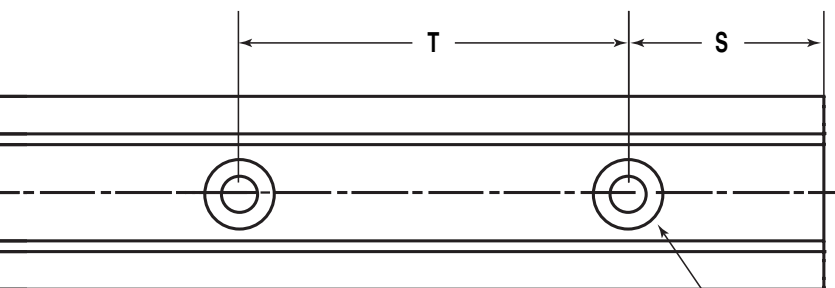


STANDARD RAIL LENGTHS (mm)

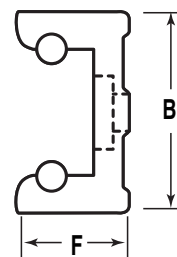
PART #									
RR30	240	420	480	720	960	1200	1440	1680	1920
RR45	240	420	480	720	960	1200	1440	1680	1920
RR65	240	400	480	720	960	1200	1440	1680	1920

DIMENSIONS (mm)

PART #	B	F	S	T	X	WT. (LBS/FT)
RR30-xxx	30	16	30	60	M5	.57
RR45-xxx	45	20.5	30	60	M6	1.15
RR65-xxx	65	27	40	80	M6	2.51



X-Rail Mounting Holes for
Metric Button Head Cap Screws
(Customer-supplied)



ORDER CODES

RR **30** **XXXX**

REDI-RAIL

Nominal Size

30 = B Dimension
45 = B Dimension
65 = B Dimension

Lengths (mm)

Note: Specify Rail Length & Carriage

EXAMPLE: RR45-1200

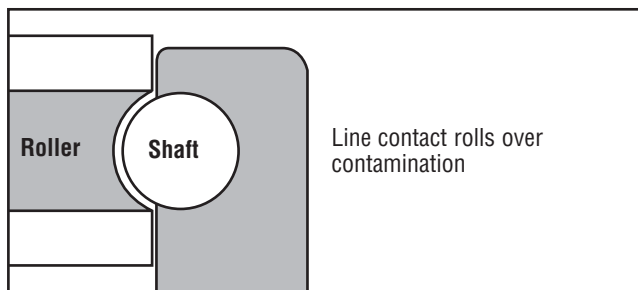
Redi-Rail size 45 cut to 1200 mm long



REDI-RAIL® LINEAR GUIDES (SLIDES) • Inch Series



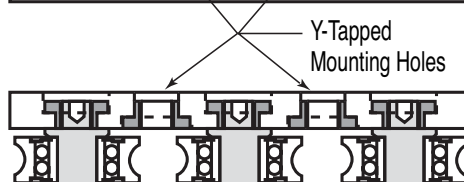
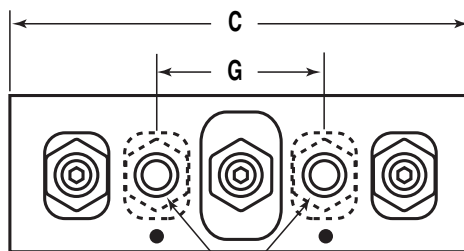
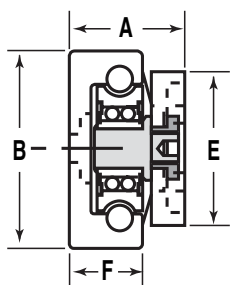
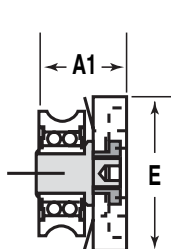
ROLLER/SHAFT INTERFACE



DIMENSIONS (Inches)

PART #	A	A1	B	C	D	E	F	Y	WT. (LBS EA)
RRSG14	.938	.685	1.32	3.25	1.25	.56	1.25	1/4 - 28	.25
RRSG18	1.125	.850	1.91	4.50	1.50	.75	1.625	5/16 - 24	.50
RRSG24	1.500	1.150	3.00	6.00	2.75	1.04	1 x 2*	7/16 - 20	1.75

NOTE: RRSG24 size slider has 4 mounting holes which form a 1" by 2" rectangular hole pattern.



ORDER CODES

RRSG

18

REDI-RAIL Slide

Nominal Size

14 = B Dimension

18 = B Dimension

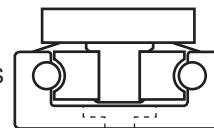
24 = B Dimension

EXAMPLE:

1. RRS18 - Redi-Rail Slider size 18
2. RRS18 - Gothic Arch size 18

INCH CHARACTERISTICS

- Choice of Rollers
- Used in a Wide Range of Applications



FEATURES

- Body is 6061-T6 aluminum.
- Rollers are 52100 steel, sealed against contamination, and are mounted with hardened steel mounting accessories.
- Not available with seals.
- Bearings are angled creating line contact with race.
- Maximum temperature approximately 180°F.
- **NEW** coated Redi-Rail FDA compliant, call 800-962-8979 for details.

V-GROOVE ROLLERS

- Low friction
- Use for severely contaminated environments.
- Line contact with shaft allows particles to flow through.

GOTHIC ARCH ROLLERS

- Smooth, quiet, consistent motion.
- Use for continuous motion applications.
- Surface contact with shaft allows greater moment loads.

REDI-RAIL® LINEAR GUIDES (RAILS) • Inch Series



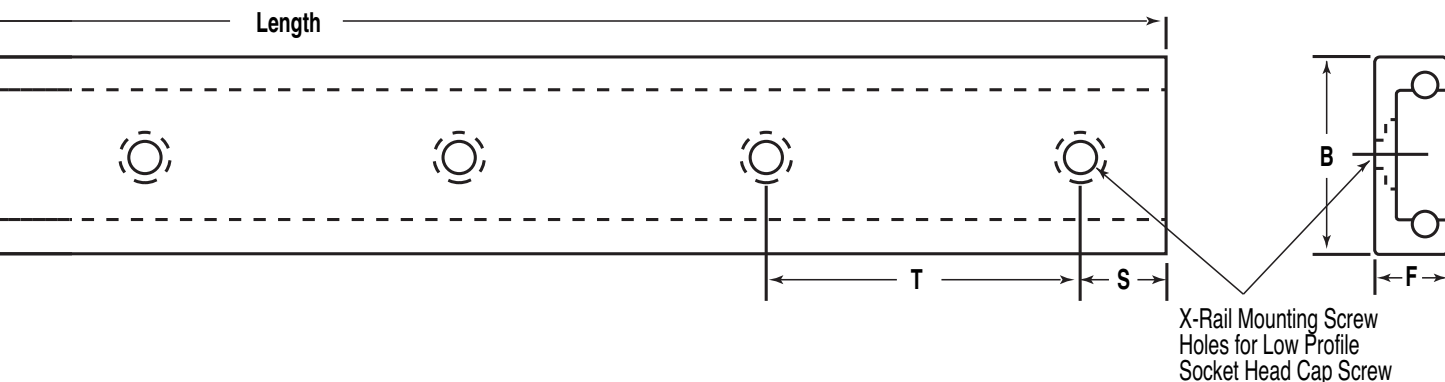
- 6061-T6 aluminum with hardened steel raceways inserted.



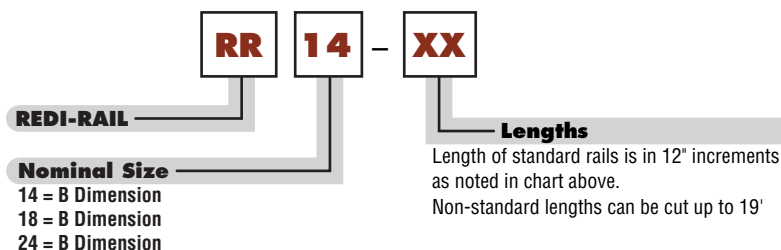
STANDARD RAIL LENGTHS & DIMENSIONS (Inches)

PART #	LENGTH	HOLES	B	E	S	T	X	WT. (LBS/FT)
RR14-12	12	4	1.32	.60	.75	3.5	#10	.64
RR14-24	24	7	1.32	.60	1.5	3.5	#10	.64
RR14-36	36	11	1.32	.60	.5	3.5	#10	.64
RR14-48	48	14	1.32	.60	1.25	3.5	#10	.64
RR14-60	60	17	1.32	.60	2.0	3.5	#10	.64
RR14-72	72	21	1.32	.60	1.0	3.5	#10	.64
RR14-84	84	24	1.32	.60	1.75	3.5	#10	.64
RR14-96	96	28	1.32	.60	.75	3.5	#10	.64
RR18-12	12	4	1.91	.75	.75	3.5	1/4	1.11
RR18-24	24	7	1.91	.75	1.5	3.5	1/4	1.11
RR18-36	36	11	1.91	.75	.5	3.5	1/4	1.11
RR18-48	48	14	1.91	.75	1.25	3.5	1/4	1.11
RR18-60	60	17	1.91	.75	2.0	3.5	1/4	1.11
RR18-72	72	21	1.91	.75	1.0	3.5	1/4	1.11
RR18-84	84	24	1.91	.75	1.75	3.5	1/4	1.11
RR18-96	96	28	1.91	.75	.75	3.5	1/4	1.11
RR24-12	12	4	3.0	1.04	.75	3.5	5/16	2.51
RR24-24	24	7	3.0	1.04	1.5	3.5	5/16	2.51
RR24-36	36	11	3.0	1.04	.5	3.5	5/16	2.51
RR24-48	48	14	3.0	1.04	1.25	3.5	5/16	2.51
RR24-60	60	17	3.0	1.04	2.0	3.5	5/16	2.51
RR24-72	72	21	3.0	1.04	1.0	3.5	5/16	2.51

NOTE: The sizes above are standard lengths. Non-standard lengths can be cut and are available up to 19' (6m).



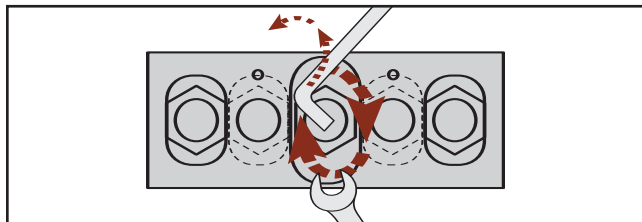
ORDER CODES



EXAMPLE: RR18-36
Redi-Rail size 18 cut to 36" long

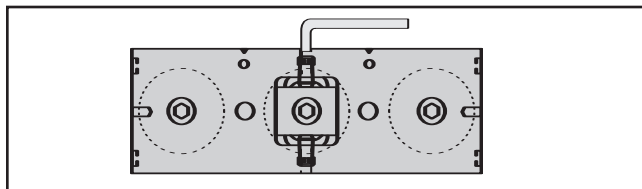
ADJUSTING SLIDER PRELOAD

The preload of a slider should be properly set from the factory, but if you must adjust it yourself, here are some simple steps to follow.



Inch Series

1. To loosen the eccentric (center) roller, use an allen wrench to turn the roller stud **CLOCKWISE**.
2. When it is loose enough, the stud bushing (hex nut) can be turned with a small wrench or by hand.
3. Make a very small change, tighten the stud and try it out. If the preload is too loose, you will feel the slider rock and you will hear a slight "clunk." If it is too tight, the slider will roll rough, like riding a bicycle on a gravel road.
4. Move the slider along the length of the rail by hand. Adjust it so that it does not feel loose anywhere. It may take you several times to get the proper adjustment.
5. Make sure the rollers are tightened with the proper adjustment prior to operation.



Metric Series

1. To loosen the eccentric (center) roller, use an Allen wrench to loosen the screw that is on the side of the mounting block. Be sure to loosen the screw that is on the side of the direction you want the roller to move.
2. When it is loose, tighten the set screw on the opposite side of the block. This will move the roller and mounting stud.
3. Make a very small change, retighten the first set screw, and try it out. If the preload is too loose, you will feel the slider rock and you will hear a slight "clunk." If it is too tight, the slider will roll rough, like riding a bicycle on a gravel road.
4. Move the slider along the length of the rail by hand. Adjust it so that it does not feel loose anywhere. It may take you several times to get the proper adjustment.
5. Make sure the rollers are tightened with the proper adjustment prior to operation.

SLIDER ORIENTATION

The 3-Roller slider should be installed in the rail so the load is shared on the two outside rollers. The orientation marks indicate how to align the slider with the load direction.

LUBRICATION - RAILS & BEARINGS

The rollers are internally lubricated for life, but the rails must always have a layer of grease. As a guideline, reapply fresh grease every 50,000 cycles.

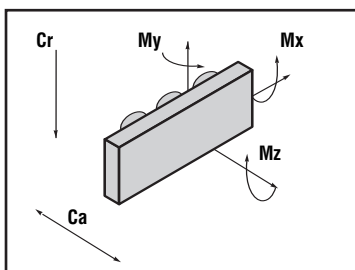
MOUNTING SLIDER BODY & MAX CAPACITY

Below are recommended bolt tightening torques for mounting to the slider body. Be sure to use bolts that are long enough to obtain full thread engagement.

MOUNTING TORQUES

Part #	In-lbs. Torque	Nm Torque
RRSG14 RRS30	25	3
RRSG18 RRS45	70	8
RRSG24 RRS65	150	24

LIFE CALCULATIONS



Cd = Dynamic capacity (LC)
Cr = Radial capacity
Ca = Axial capacity
Mx, My, Mz = Moment capacities

Conversions

newton (N) x 0.2248 = lbs.
(lbf) meter x 0.0397 = inch
newton - meter (Nm) x
8.851 = in.-lbs.

INCH SERIES

Part #	Cr (lbs.)	Ca (lbs.)	Mx (in.-lbs.)	My (in.-lbs.)	Mz (in.-lbs.)
RRSG14	336	79	21	54	201
RRSG18	847	168	67	153	677
RRSG24	1269	252	159	288	1269

METRIC SERIES

Part #	Cr (N)	Ca (N)	Mx (Nm)	My (Nm)	Mz (Nm)
RRS30	1002	330	1.8	5.5	12.5
RRS45	2660	827	6.6	19.9	47.9
RRS65	5950	1678	19.0	58.2	154.7

LIFE CALCULATIONS (cont.)

To calculate an approximate life for redi-rail sliders, use the following equation.

Inch Series

The value of L_{RR} is in meters

$$L_{RR} = 10^7 \cdot (LC_{RRS} / (\text{Load}_{\text{Equiv}} \cdot RF))^{3.0} \text{ (inches)}$$

LC_{RRS} = Slider Life Capacity which is found in the table

$\text{Load}_{\text{Equiv}}$ = Equivalent Radial Load found from the following equation:

$$\text{Load}_{\text{Equiv}} = Cr \cdot \left(\frac{\text{Load}_{\text{Axial}}}{Ca} + \frac{M_x}{M_{x \text{ Max}}} + \frac{M_y}{M_{y \text{ Max}}} + \frac{M_z}{M_{z \text{ Max}}} \right) + \text{Load}_{\text{Radial}}$$

INCH SERIES

Part #	Max Speed (fpm)	Max Speed (ipm)	LC_{RRS}
RRG14	500	6000	421
RRG18	800	9600	1032
RRG24	1150	13800	2162

Metric Series

The value of L_{RR} is in meters

$$L_{RR} = (Cd(\text{Load}_{\text{Equiv}} \cdot RF))^{3.0} \times 100,000 \text{ meters}$$

Cd = Slider Life Capacity which is found in the table

$\text{Load}_{\text{Equiv}}$ = Equivalent Radial Load found from the following equation:

$$\text{Load}_{\text{Equiv}} = Cr \cdot \left(\frac{\text{Load}_{\text{Axial}}}{Ca} + \frac{M_x}{M_{x \text{ Max}}} + \frac{M_y}{M_{y \text{ Max}}} + \frac{M_z}{M_{z \text{ Max}}} \right) + \text{Load}_{\text{Radial}}$$

METRIC SERIES

Part #	Max Speed (m/min)	Max Speed (m/s)	Cd (N)
RR30	300	5.0	1440
RR45	420	7.0	4404
RR65	480	8.0	10200

REDUCTION FACTOR

NOTE: Reduction factors apply to both inch and metric series

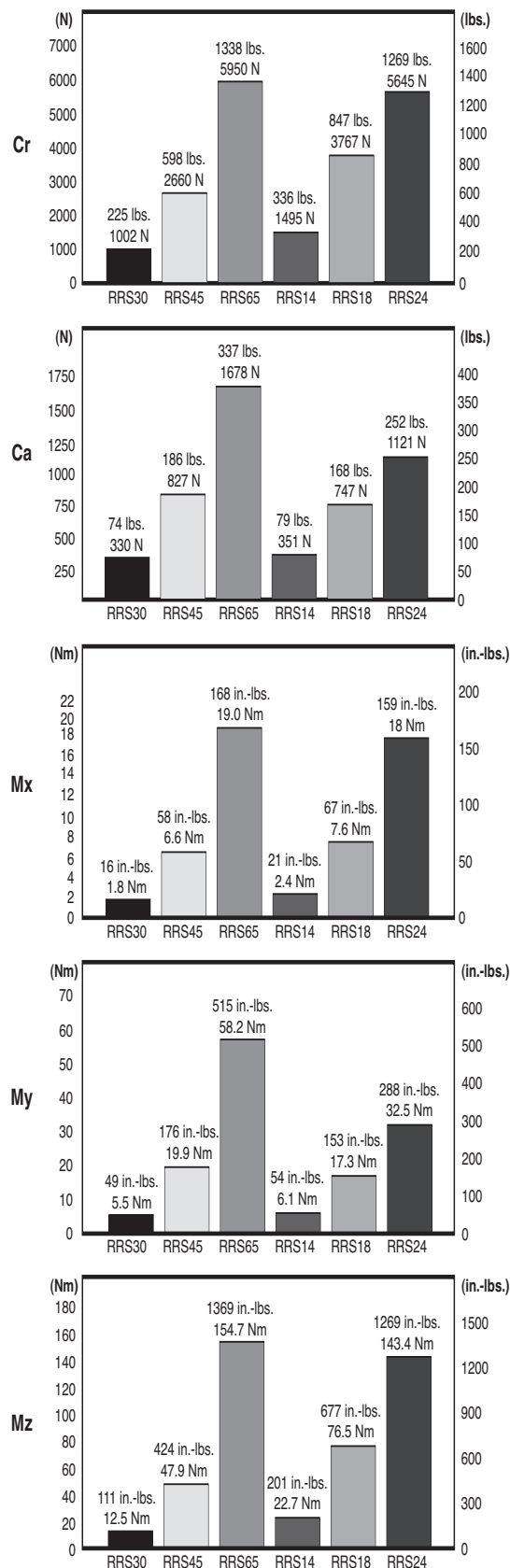
RF = Reduction Factor of the Application or Environment

= 1.0 to 1.5 for very clean, low speed (<30% Max), low shocks

= 1.5 to 2.0 for some dirtiness, moderate speed (30% Max to 75% Max), medium shocks and vibration

= 2.0 to 3.0 for heavy dirt & dust, high speeds (>75% Max) and heavy shocks & vibrations

LOAD COMPARISON GRAPHS

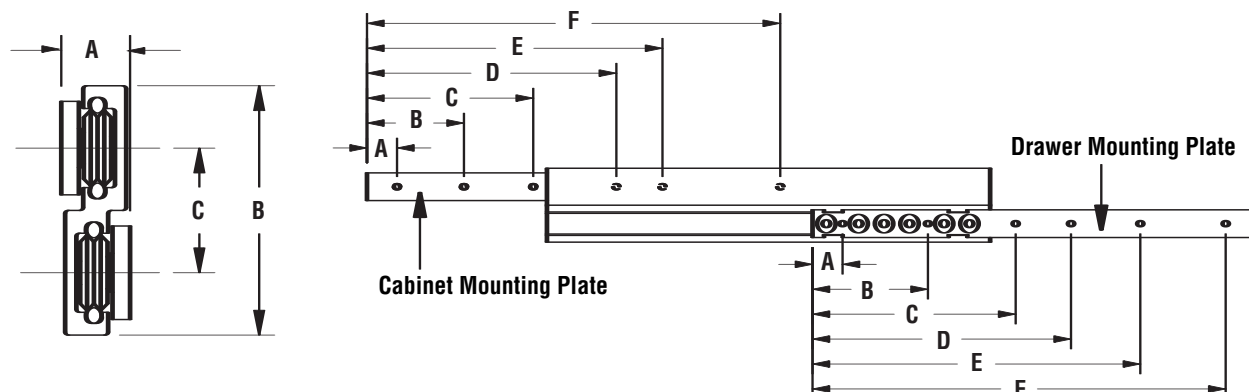




REDI-RAIL® DRAWER SLIDES • Product Selection Information



- One piece 6061-T6 extruded aluminum support structure with RC60 steel raceways inserted.
- Metric rollers are the same as those used in the metric sliders on page 100.
- Custom designs for specific application needs are available.



STANDARD RAIL LENGTHS & DIMENSIONS (inch)

TYPE/SIZE	LENGTH (inch)	STROKE (inch)	CAPACITY (lbs.)	MOUNTING PLATE	MOUNTING DATA						SCREW SIZE (inch)
					A	B	C	D	E	F	
RD44-12	12	13	109	Cabinet Drawer	1.125	4.25	7.75	10.875	N / A	N / A	1/4
					1.125	4.75	7.25	10.875	N / A	N / A	1/4
RD44-24	24	25	213	Cabinet Drawer	1.125	5.375	9.75	14.25	18.625	22.875	1/4
					1.125	4.75	12	19.25	22.875	N / A	1/4
RD44-36	36	37	185	Cabinet Drawer	1.125	4.5	14.75	21.25	31.5	34.875	1/4
					1.125	10.5	18	25.5	34.875	N / A	1/4
RD44-48	48	49	144	Cabinet Drawer	1.125	5.5	19	29	42.5	46.875	1/4
					1.125	15	24	33	46.875	N / A	1/4
RD64-12	12	10	211	Cabinet Drawer	2	7	10.375	N / A	N / A	N / A	5/16
					1.625	6.25	10.375	N / A	N / A	N / A	5/16
RD64-24	24	25	431	Cabinet Drawer	1.625	9	15	22.375	N / A	N / A	5/16
					1.625	6.25	12	17.75	22.375	N / A	5/16
RD64-36	36	37	555	Cabinet Drawer	1.625	7.5	15	21	28.5	34.375	5/16
					1.625	10.5	18	25.5	34.375	N / A	5/16
RD64-48	48	49	410	Cabinet Drawer	1.625	7.5	19	29	40.5	46.375	5/16
					1.625	14.25	24	33.75	46.375	N / A	5/16
RD96-24	24	25	487	Cabinet Drawer	2.25	9	15	21.75	N / A	N / A	3/8
					2.25	7.5	16.5	21.75	N / A	N / A	3/8
RD96-36	36	37	694	Cabinet Drawer	2.25	8.75	14.25	21.75	27.25	33.75	3/8
					2.25	8.25	18	27.75	33.75	N / A	3/8
RD96-48	48	49	85	Cabinet Drawer	2.25	8.75	18.75	29.25	39.25	45.75	3/8
					2.25	10.5	19.5	28.5	37.5	45.75	3/8

ORDER CODES

RD **44** - **36** **RT**

EXAMPLE: RR44-36RT

REDI-RAIL Drawer Slide

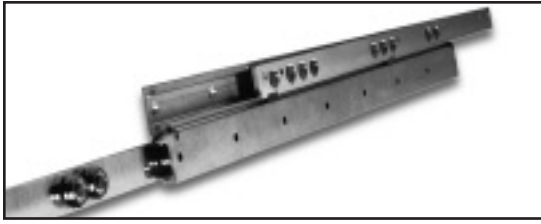
Slide Orientation

LB = left-handed - drawer (load) mounted to bottom plate
 RB = right-handed - drawer (load) mounted to bottom plate
 LT = left-handed - drawer (load) mounted to top plate
 RT = right-handed - drawer (load) mounted to top plate

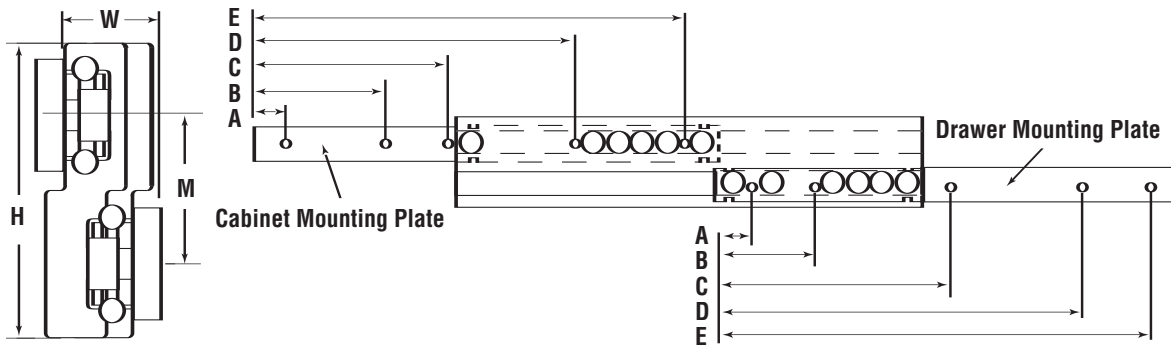
Nominal Size

Length in (inches)

(Special lengths are available)



- One piece 6061-T6 extruded aluminum support structure with RC60 steel raceways inserted.
- Metric rollers are the same as those used in the metric sliders on page 100.
- Custom designs for specific application needs are available.



STANDARD RAIL LENGTHS & DIMENSIONS (mm)

TYPE/SIZE	LENGTH (mm)	STROKE (mm)	CAPACITY (N)	LIFE MULTIPLIER	MOUNTING PLATE	MOUNTING DATA					*SCREW SIZE	H	W	M
						A	B	C	D	E				
RD60-500	500	510	355	3.38 x 10 ¹²	Cabinet	50	160	250	340	450	M5	60	29	31
					Drawer	50	120	250	380	450	M5	60	29	31
RD60-750	750	760	725	1.93 x 10 ¹²	Cabinet	50	200	350	550	700	M5	60	29	31
					Drawer	50	230	375	520	700	M5	60	29	31
RD60-1000	1000	1010	709	1.36 x 10 ¹²	Cabinet	50	200	450	800	950	M5	60	29	31
					Drawer	50	320	500	680	950	M5	60	29	31
RD60-1250	1250	1260	601	6.64 x 10 ¹²	Cabinet	50	250	540	100	1200	M5	60	29	31
					Drawer	50	410	625	840	1200	M5	60	29	31
RD90-500	500	510	738	4.66 x 10 ¹²	Cabinet	60	210	290	440	N / A	M6	90	37	46
					Drawer	60	150	350	440	N / A	M6	90	37	46
RD90-750	750	760	1663	3.58 x 10 ¹⁴	Cabinet	60	200	360	550	690	M6	90	37	46
					Drawer	60	200	375	550	690	M6	90	37	46
RD90-1000	1000	1000	1940	4.27 x 10 ¹⁴	Cabinet	60	200	460	800	940	M6	90	37	46
					Drawer	60	300	500	700	940	M6	90	37	46
RD90-1250	1250	1260	1610	1.96 x 10 ¹⁴	Cabinet	60	250	550	1000	1190	M6	90	37	46
					Drawer	60	390	625	860	1190	M6	90	37	46
RD130-500	500	500	1192	2.22 x 10 ¹⁴	Cabinet	77	173	327	423	N / A	M8	130	43	66
					Drawer	77	173	327	423	N / A	M8	130	43	66
RD130-750	750	760	2466	1.30 x 10 ¹⁵	Cabinet	77	250	387	500	673	M8	130	43	66
					Drawer	77	183	375	567	673	M8	130	43	66
RD130-1000	1000	1010	3823	3.63 x 10 ¹⁵	Cabinet	77	300	477	700	923	M8	130	43	66
					Drawer	77	273	500	727	923	M8	130	43	66
RD130-1250	1250	1260	3889	3.06 x 10 ¹⁵	Cabinet	77	300	572	950	1173	M8	130	43	66
					Drawer	77	368	625	882	1173	M8	130	43	66

*Mounting holes sized for metric socket head cap screws or button head cap screws.

ORDER CODES

RD

60

- **1000**

R

REDI-RAIL Drawer Slide

Nominal Size
60 = H Dimension
90 = H Dimension
130 = H Dimension

Slide Orientation
L = left-hand
R = right-hand

Length in (mm)
(Special lengths are available)

EXAMPLE: RRS90-1250R

Redi-Rail drawer slide size "90" to a length of 1250 mm for mounting to right hand side of drawer.

NOTE: For drawer slide applications, one right hand and one left hand slide is required.



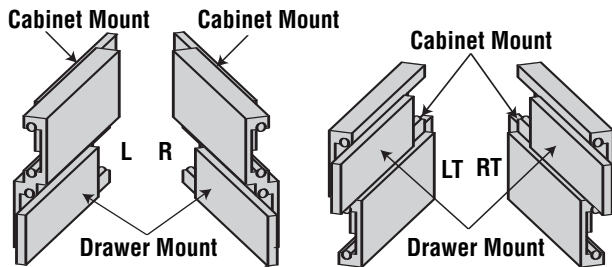
LOAD LOCATION

Load (drawer) center gravity the load (drawer) must be applied at the center of the drawer mount plate. If not, slide capacity is greatly reduced. For example, according to the chart, if the load is concentrated at the end of the drawer mounting plate, slide capacity is only 36% of what is listed in the table.

MOUNTING/OPERATION

Typical drawer slide applications require one left-hand and one right-hand slide; one used on each side of the drawer accordingly (See LB, RB, LT, and RT illustrations below). Mounting orientation is important because drawer slides use rollers that are slightly offset to roll on the appropriate rail. They are adjusted according to orientation, so several rollers share the load, and one or two apply the preload. If it is used in the wrong orientation, the load will not be shared properly, and the slide may fail. Cabinet and drawer mounting surfaces must be rigid. Any twisting or deflection of mounting surfaces during operation can damage the slides. End stops are meant for light-duty, hand-operated slides in horizontal motion applications. If the installation is to be powered or angled, an additional stopping method is required.

MOUNTING ATTACHMENT



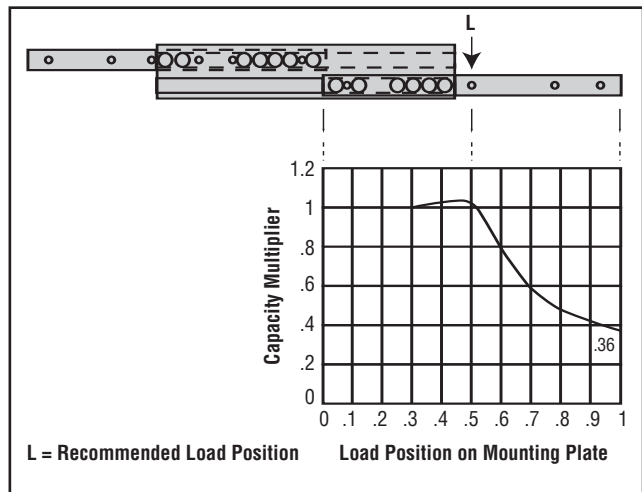
LIFE CALCULATIONS

Drawer slide life is very difficult to determine because so many variables can affect it. The following equation is meant as a guideline for estimating the number of cycles the slide can be expected to perform, if the load is applied to the middle of the drawer mounting plate.

Use the same reduction factor values described in the Linear Slide section, page 105.

$$L_{\text{cycles}} = 10^7 \cdot (LC_{RD}(\text{Load} \cdot RF))^{3.0} \text{ (Cycles)}$$

LC_{RD} = Life Capacity from the table



DRAWER SLIDE LIFE CALCULATIONS

PART NO.	CAPACITY (lbs.)	PART NO.	CAPACITY (lbs.)
RD44-12	100	RD64-36	171
RD44-24	81	RD64-48	156
RD44-36	71	RD96-24	412
RD44-48	64	RD96-36	361
RD64-12	242	RD96-48	329
RD64-24	195		

Redi-Rail slides are shipped completely assembled and ready for mounting. Rollers are factory set for correct operation. Please observe the following guidelines for drawer slide mounting.

- Do not attempt to mount the slide in any position other than shown in the illustration. Rollers are factory positioned to distribute the load properly for this type of mounting. Different mounting will place forces over the wrong rollers and the installation will not be as effective.
- Be sure cabinet and drawer mounting surfaces are rigid. Any twisting or deflection of mounting surfaces during operation can damage the slides.

- Do not use the end stop as the primary method of stopping the entire load. End stops are in place only to prevent slides from separating. They are designed to stop light duty, hand operated slides moving on a horizontal surface. If the installation is to be powered or angled, an additional stopping method is required.

PARTS LIST (per slide)

The following parts are required for installation:

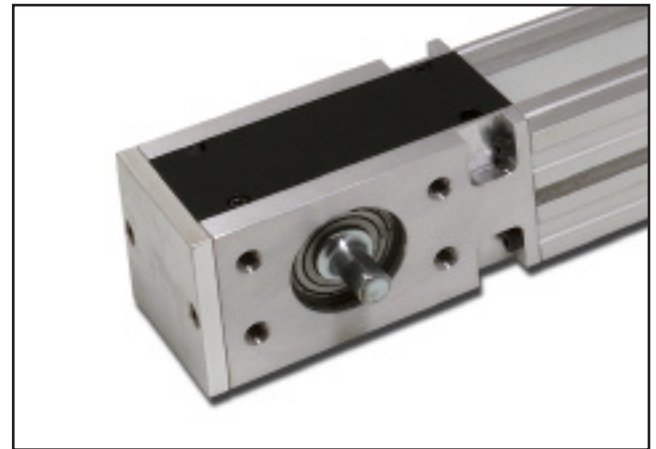
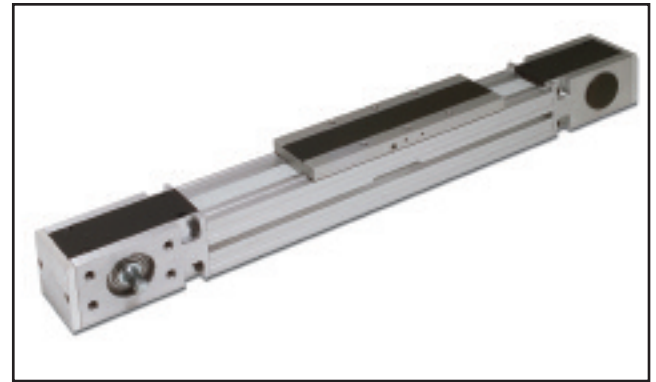
- 1 cabinet mount plate
- 1 drawer mounting slide
- 1 beam
- 4 end stops

REDI-RAIL® BELT DRIVE SYSTEM

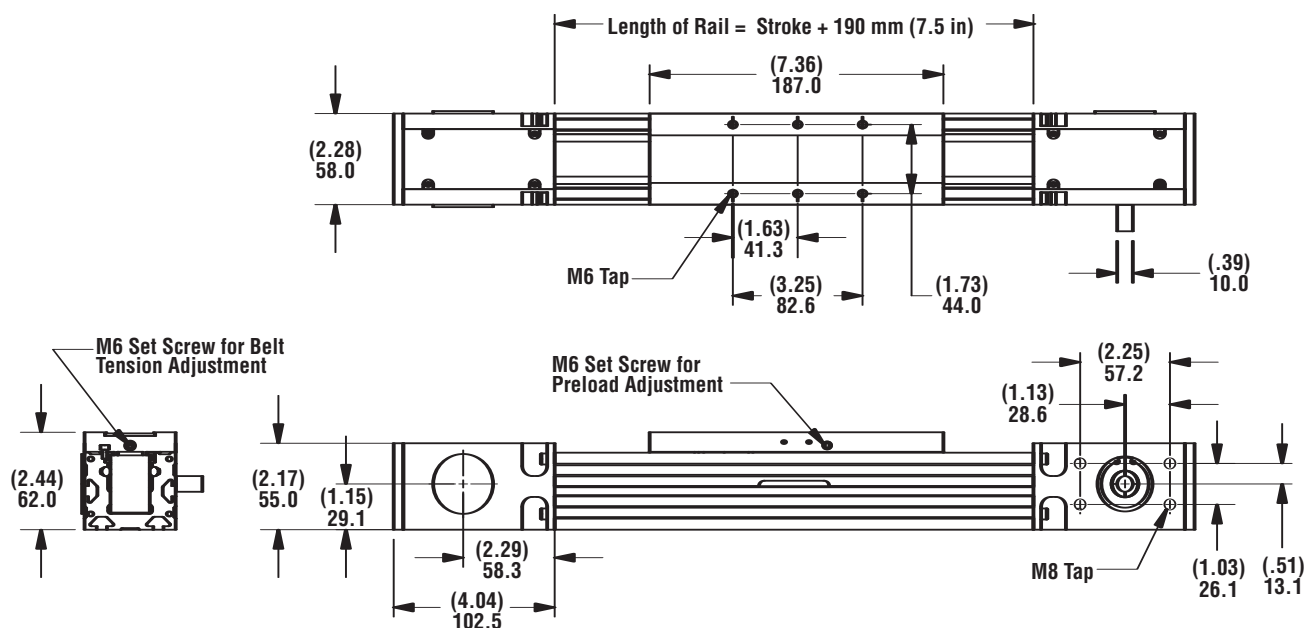


The REDI-RAIL Belt Drive System is an innovative product designed to make linear motion simple.

- The base guidance system is a REDI-RAIL Linear Guide featuring 3 dual row ball bearings.
- Preload is easily adjusted by set screws that are accessible from the outside of the carriage. No disassembly is required.
- The hardened steel raceways provide a consistent running surface for the bearings resulting in smooth performance and long life.
- Belt tension is easily accomplished by adjusting a set screw.
- The pulley bearings are sealed and covered to keep contamination clear.
- The drive pulley is not keyed, but is a one-piece design for greater accuracy and life.
- REDI-RAIL Belt Drive Systems are an excellent solution for high speed, low friction linear motion up to (5 m/s) 196 in/sec.
- Maximum stroke for one-piece rail is 3.65 m (12 ft). Rails may be joined together for longer length strokes.
- The REDI-RAIL Belt Drive Systems are priced to be an economical solution for a wide range of linear motion applications.
- Option to mount motor shaft on left or right (consult factory).



REDI-RAIL®



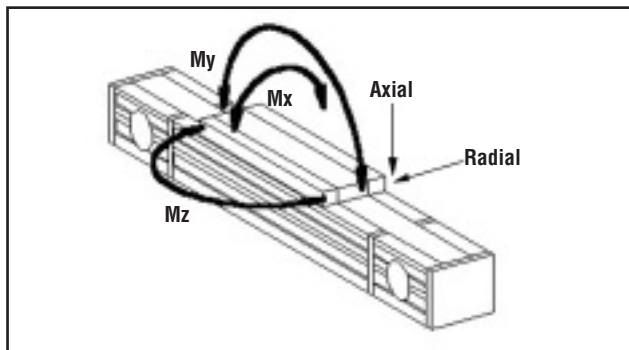


REDI-RAIL® BELT DRIVE SYSTEM • Specifications

PRODUCT SPECIFICATIONS

Repeatability	±.025 mm/m (.0003 in/ft)
Accuracy	±.025 mm/m (.0003 in/ft)
Straightness	.33 mm/m (.004 in/ft)
Parallelism	±.025 mm/m (.0003 in/ft)
Flatness (Carriage)	.05 mm (.002 in)
Flatness (Rail)	.05 mm (.002 in)
Pulley Diameter (Pitch)	31.83 mm (1.253 in)
Pulley Diameter (O.D.)	30.80 mm (1.213 in)
Pulley # of Teeth	20
Drive Lead	99.95 mm (3.935 in)
Pulley Weight (Drive)	185 g (6.5 oz)
Pulley Weight (Slave)	173 g (6.1 oz)
Mass Moment of Inertia (Drive)	15.0 kg*m ²
Mass Moment of Inertia (Slave)	14.8 kg*m ²
Belt Width	25 mm (.984 in)
Belt Weight	94 g/m (.079 oz/in)
Belt Composition	Polyurethane Steel reinforced
Carriage Weight	623 g (22 oz)
Maximum length	3600 mm (12 ft)
Temperature Range	-30 C to +80 C (-22 F to +176 F)
Belt Tension Limit	1260 N (283 lbs)
Breakaway Torque	.18 Nm (25 oz-in)
Max Carriage Thrust	Based on application
Maximum Speed	5 m/s (196 in/s)
Maximum Acceleration	F = ma
Radial Load Capacity	2660 N (598 lbs)
Axial Load Capacity	827 N (186 lbs)
Moment Load Capacity	
Roll (Mx)	6.6 Nm (58.4 in-lbs)
Pitch (My)	19.9 Nm (176 in-lbs)
Yaw (Mz)	47.9 Nm (424 in-lbs)
Moment of Inertia	I _x = .729 in ⁴ I _y = 1.299 in ⁴
Initial Belt Tension	220 N (49.5 lbs)

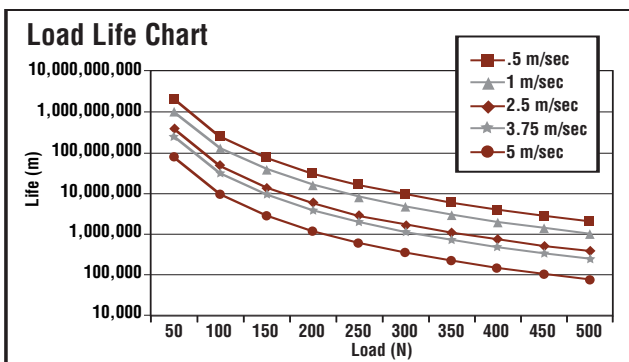
PERFORMANCE SPECIFICATIONS FOR REDI-RAIL BELT DRIVE



LOAD/LIFE FOR REDI-RAIL BELT DRIVE

The Load / Life graph applies to REDI-RAIL Belt Drive Systems that are loaded in a radial orientation.

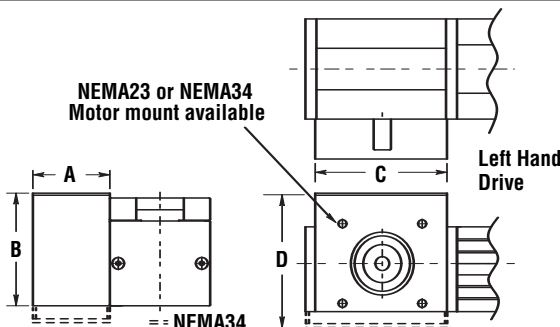
Systems loaded in an axial orientation will have a life at 30% of those shown in the graph.



MOTOR MOUNT OPTIONS

- Standard aluminum motor mounts are available for NEMA23 or NEMA34 size motors.
- Consult the factory for complete motion control packages

	A		B		C		D		PART #
	mm	in	mm	in	mm	in	mm	in	MOTOR MOUNT
NEMA23	44.5	1.75	65.1	2.56	76.2	3.00	N/A	N/A	RRB45-MM23
NEMA34	64.8	2.55	N/A	N/A	108.0	4.25	88.1	3.47	RRB45-MM34



ORDERING CODE

Redi-Rail Belt Drive Unit **RRB 45 xH Nxx - xxx** Enter Length of Rail in mm*

Nominal Size of Unit

RH - Drive shaft mounted on right side of front**
LH - Drive shaft mounted on left side of front**
 **Front is defined as the side of the unit where the drive shaft is facing you.
No Entry - Standard belt drive unit supplied with right hand drive shaft

NEMA Standard Motor Mounting Bracket
N23 - motor mount for standard NEMA23 motor
N34 - motor mount for standard NEMA34 motor
No Entry - Belt drive unit only with NO motor mounting bracket

*Rail = stroke + 190mm (7.5 in.)
 Belt length = (Rail x 2) + 11.00"
 Mylar = Rail length + 10.00"

REDI-RAIL® V-GUIDE SYSTEM



Redi-Rail® V-Guide System components provide an excellent alternative for linear motion applications in harsh environments with medium accuracy requirements, and high speed capabilities.

FEATURES & BENEFITS

Redi-Rail V-Guide systems are an industry standard for linear motion, and offer features that make them an ideal solution for a wide range of motion control applications.

V-Guide System:

- Excellent for harsh environments
- High speed capabilities
- Low noise operation

V-Guide Rail:

- Has shoulder for simple mounting and alignment
- Available in long lengths
- Induction hardened way surface

V-Guide Wheels:

- Permanently lubricated
- Precision dual row bearing construction
- Available in 52100 Bearing Steel or 440 Stainless Steel construction

Wheel Bushings:

- 303 Stainless Steel
- Available for English or metric hardware

APPLICATIONS

- Machine tool doors
- Vending machines
- Woodworking machinery
- Carpet and textile machinery
- Laboratory automation
- Paper converting equipment
- Packaging machinery



TECHNICAL SPECIFICATIONS

Linear Bearing for Axial & Radial Loads

Wheels:

Redi-Rail V-Guide Wheels are precision ground dual row angular contact ball bearings with hardened outer way surfaces that provide low friction guidance for linear motion applications. V-Guide wheels can be used with internal or external 90-degree ways, or used with round shafts.

- Available in four sizes
- 52100 Bearing Steel or 440 Stainless Steel construction
- Permanently grease lubricated
- Available with 304 Stainless Steel shields, or nitrile rubber seals

Rails:

Redi-Rail V-Rails are available in four sizes, which are designed for the corresponding size wheels. The V-Ways are induction hardened and polished, while the track body is left soft for easy drilling of mounting holes.

- Available in 1045 Carbon Steel or 420 Stainless Steel
- Optional black oxide finish
- Choose predrilled rail from stock, or custom cut and drilled to your specification

Bushings:

Bushings allow for the wheels to be mounted with the appropriate fastener for the specific application.

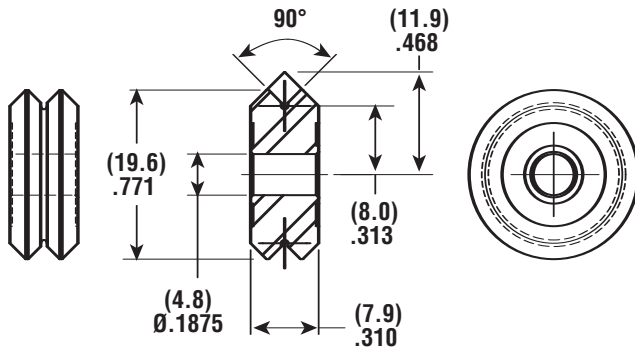
- Fixed bushings are used in the primary radial load direction
- Adjustable bushings allow adjustable fit and preload
- Stainless Steel construction



REDI-RAIL® V-GUIDE SYSTEM • 3/4" Wheel - Radial Loads to 110 lbs. (50 kg) per Wheel

V-GUIDE WHEELS

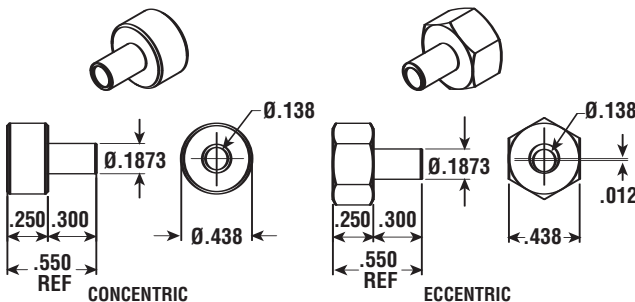
VW1	Shielded Bearing
VWS1	Sealed Bearing
VWSS1	Sealed Stainless Bearing



WEIGHT: .42 oz. (12 g)

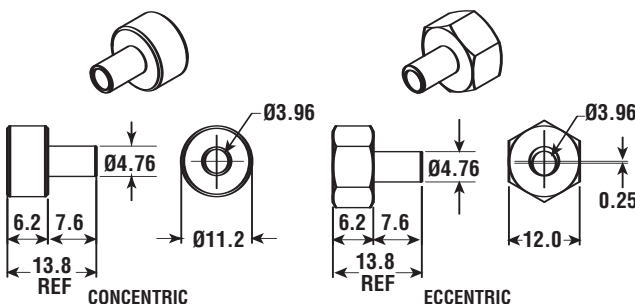
WHEEL BUSHINGS

VB1	Fixed Bushing
VBA1	Adjustable Bushing



METRIC WHEEL BUSHINGS

MVB1	Metric Fixed Bushing
MVBA1	Metric Adjustable Bushing



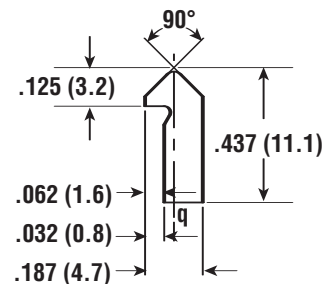
Rated for:

Radial loads to 110 lbs. (50 kg) per wheel

Moment loads to 40 lbs. (18 kg) per wheel

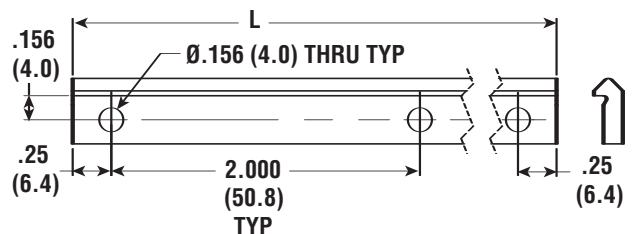
V-GUIDE RAIL

CARBON STEEL	
VR1-xxx	undrilled rail max. length 21' (6400 mm)
VRD1-xxx	drilled rail, see table
STAINLESS STEEL	
VRS1-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD1-xxx	drilled rail, see table



STANDARD DRILLED RAILS

PART NUMBER	LENGTH	NO. OF HOLES
CARBON STEEL		
VRD1-1250	12.5" (317.5 mm)	7
VRD1-2450	24.5" (622.3 mm)	13
VRD1-3650	36.5" (927.1 mm)	19
VRD1-4850	48.5" (1231.9 mm)	25
VRD1-6050	60.5" (1536.7 mm)	31
VRD1-7250	72.5" (1841.5 mm)	37
STAINLESS STEEL		
VRSD1-1250	12.5" (317.5 mm)	7
VRSD1-2450	24.5" (622.3 mm)	13
VRSD1-3650	36.5" (927.1 mm)	19
VRSD1-4850	48.5" (1231.9 mm)	25
VRSD1-6050	60.5" (1536.7 mm)	31
VRSD1-7250	72.5" (1841.5 mm)	37

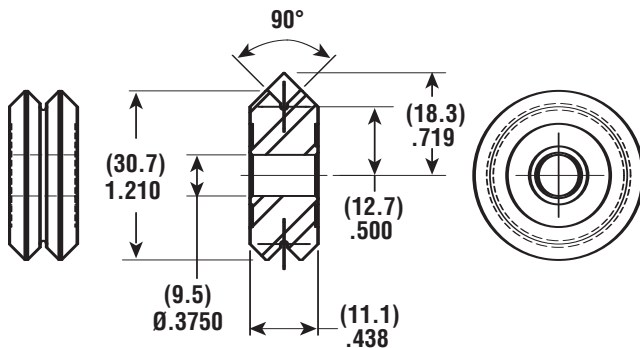


REDI-RAIL® V-GUIDE SYSTEM • 1-1/4" Wheel - Radial Loads to 251 lbs. (114 kg) per Wheel



V-GUIDE WHEELS

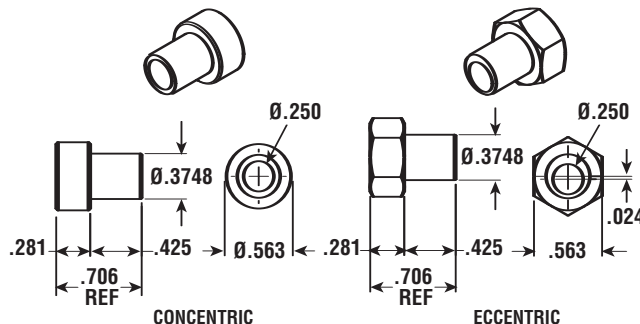
VW2	Shielded Bearing
VWS2	Sealed Bearing
VWSS2	Sealed Stainless Bearing



WEIGHT: 1.41 oz. (40 g)

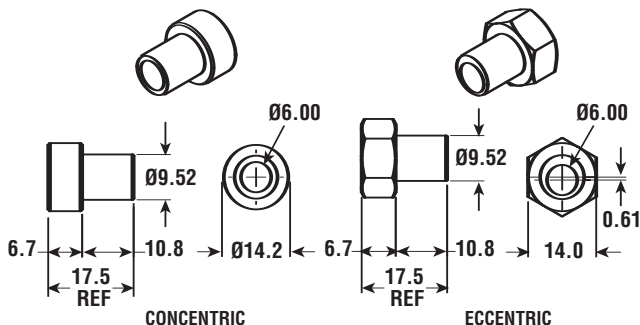
WHEEL BUSHINGS

VB2	Fixed Bushing
VBA2	Adjustable Bushing



METRIC WHEEL BUSHINGS

MVB2	Metric Fixed Bushing
MVBA2	Metric Adjustable Bushing



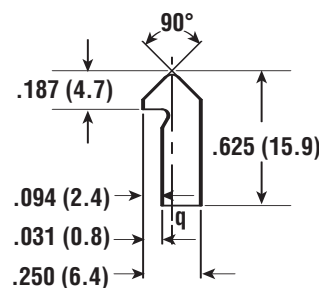
Rated for:

Radial loads to 251 lbs. (114 kg) per wheel

Moment loads to 88 lbs. (40 kg) per wheel

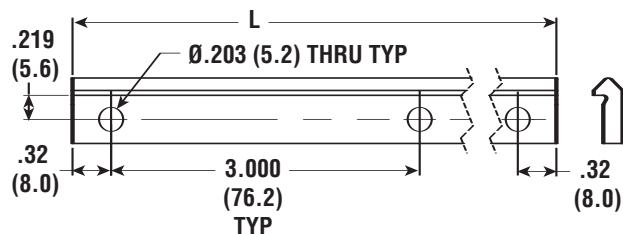
V-GUIDE RAIL

CARBON STEEL	
VR2-xxx	undrilled rail max. length 21' (6400 mm)
VRD2-xxx	drilled rail, see table
STAINLESS STEEL	
VRSD2-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD2-xxx	drilled rail, see table



STANDARD DRILLED RAILS

PART NUMBER	LENGTH	# OF HOLES
CARBON STEEL		
VRD2-1263	12.63" (320.8 mm)	5
VRD2-2463	24.63" (625.6 mm)	9
VRD2-3663	36.63" (930.4 mm)	13
VRD2-4863	48.63" (1235.2 mm)	17
VRD2-6063	60.63" (1540 mm)	21
VRD2-7263	72.63" (1844.8 mm)	25
STAINLESS STEEL		
VRSD2-1263	12.63" (320.8 mm)	5
VRSD2-2463	24.63" (625.6 mm)	9
VRSD2-3663	36.63" (930.4 mm)	13
VRSD2-4863	48.63" (1235.2 mm)	17
VRSD2-6063	60.63" (1540 mm)	21
VRSD2-7263	72.63" (1844.8 mm)	25

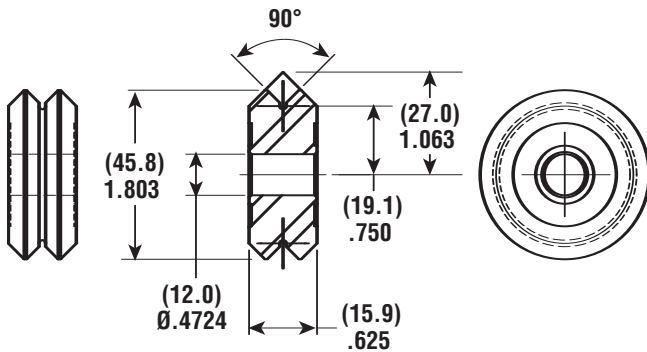




REDI-RAIL® V-GUIDE SYSTEM • 1-3/4" Wheel - Radial Loads to 1300 lbs. (591 kg) per Wheel

V-GUIDE WHEELS

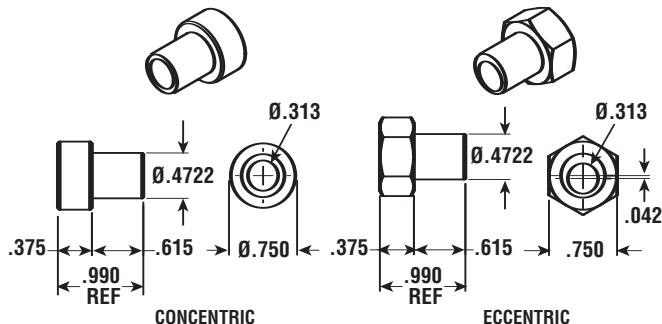
VW3	Shielded Bearing
VWS3	Sealed Bearing
VWSS3	Sealed Stainless Bearing



WEIGHT: 4.79 oz. (136 g)

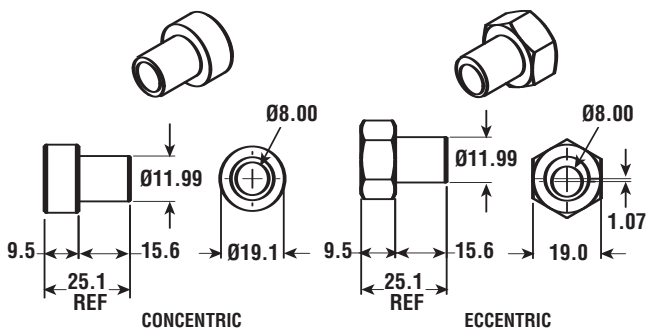
WHEEL BUSHINGS

VB3	Fixed Bushing
VBA3	Adjustable Bushing



METRIC WHEEL BUSHINGS

MVB3	Metric Fixed Bushing
MVBA3	Metric Adjustable Bushing



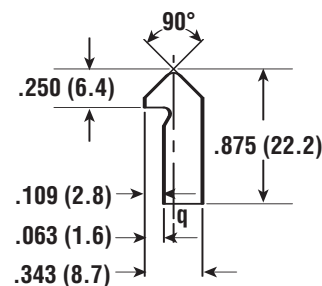
Rated for:

Radial loads to 1300 lbs. (591 kg) per wheel

Moment loads to 121 lbs. (55 kg) per wheel

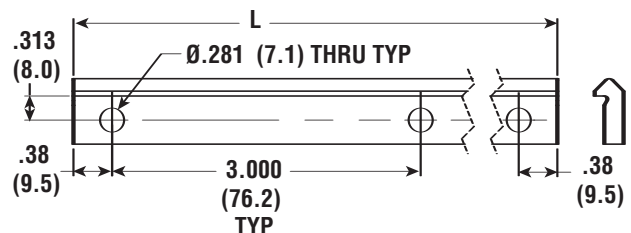
V-GUIDE RAIL

CARBON STEEL	
VR3-xxx	undrilled rail max. length 21' (6400 mm)
VRD3-xxx	drilled rail, see table
STAINLESS STEEL	
VRS3-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD3-xxx	drilled rail, see table



STANDARD DRILLED RAILS

PART NUMBER	LENGTH	# OF HOLES
CARBON STEEL		
VRD3-1275	12.75" (323.9 mm)	5
VRD3-2475	24.75" (628.7 mm)	9
VRD3-3675	36.75" (933.5 mm)	13
VRD3-4875	48.75" (1238.3 mm)	17
VRD3-6075	60.75" (1543.1 mm)	21
VRD3-7275	72.75" (1847.9 mm)	25
STAINLESS STEEL		
VRSD3-1275	12.75" (323.9 mm)	5
VRSD3-2475	24.75" (628.7 mm)	9
VRSD3-3675	36.75" (933.5 mm)	13
VRSD3-4875	48.75" (1238.3 mm)	17
VRSD3-6075	60.75" (1543.1 mm)	21
VRSD3-7275	72.75" (1847.9 mm)	25

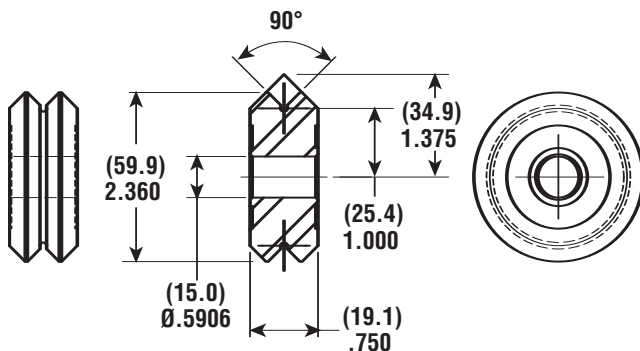


REDI-RAIL® V-GUIDE SYSTEM • 2-1/4" Wheel - Radial Loads to 1980 lbs. (900 kg) per Wheel



V-GUIDE WHEELS

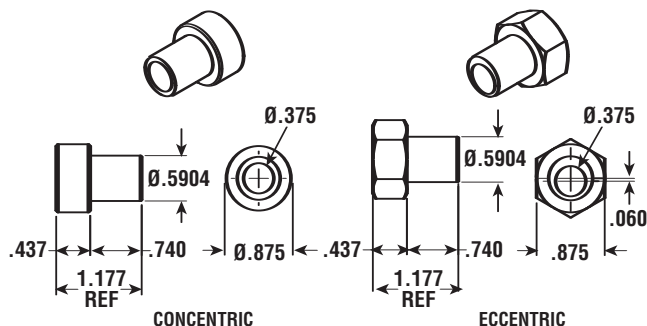
VW4	Shielded Bearing
VWS4	Sealed Bearing
VWSS4	Sealed Stainless Bearing



WEIGHT: 10 oz. (285 g)

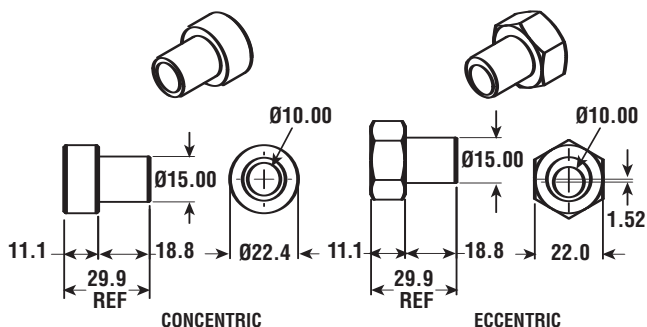
WHEEL BUSHINGS

VB4	Fixed Bushing
VBA4	Adjustable Bushing



METRIC WHEEL BUSHINGS

MVB4	Metric Fixed Bushing
MVBA4	Metric Adjustable Bushing



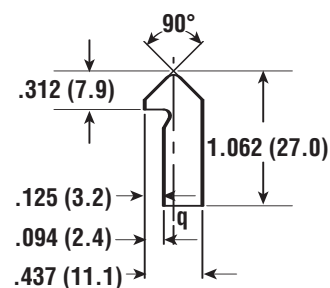
Rated for:

Radial loads to 1980 lbs. (900 kg) per wheel

Moment loads to 180 lbs. (82 Kg) per wheel

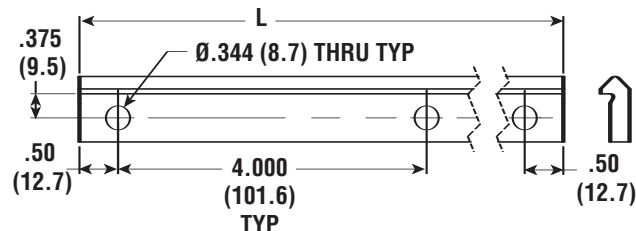
V-GUIDE RAIL

CARBON STEEL	
VR4-xxx	undrilled rail max. length 21' (6400 mm)
VRD4-xxx	drilled rail, see table
STAINLESS STEEL	
VRS4-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD4-xxx	drilled rail, see table



STANDARD DRILLED RAILS

PART NUMBER	LENGTH	# OF HOLES
CARBON STEEL		
VRD4-1300	13.00" (330.2 mm)	4
VRD4-2500	25.00" (635 mm)	7
VRD4-3700	37.00" (939.8 mm)	10
VRD4-4900	49.00" (1244.6 mm)	13
VRD4-6100	61.00" (1549.4 mm)	16
STAINLESS STEEL		
VRSD4-1300	13.00" (330.2 mm)	4
VRSD4-2500	25.00" (635 mm)	7
VRSD4-3700	37.00" (939.8 mm)	10
VRSD4-4900	49.00" (1244.6 mm)	13
VRSD4-6100	61.00" (1549.4 mm)	16





LOAD CALCULATIONS

L = applied load / number of wheel pairs

L_R = wheel radial load

L₀ = wheel load from moment

A = load offset dimension

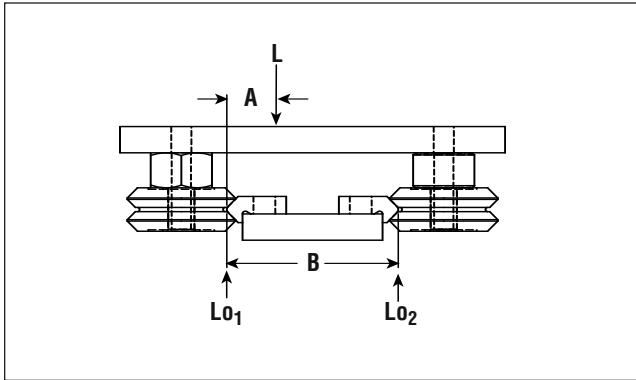
B = track width dimension

F_A = .5 for light duty, well lubricated use

F_A = 1 for normal lubricated use

F_A = 2 for dry, or harsh environments

LOAD CONDITION A



$$L_{01} = \frac{L \times (B - A) \times F_A}{B}$$

$$L_{02} = (L \times F_A) - L_{01}$$

Compare the greater of these loads to the rated moment and radial load capacities.

Example:

Load is 100 lbs on 4 wheel carriage,

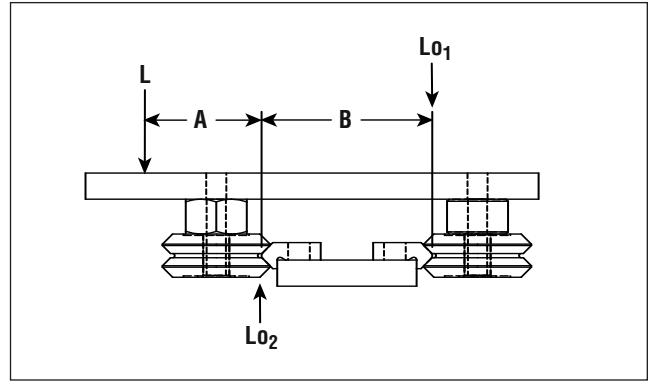
$L = 100 / 2 \text{ pair wheels} = 50 \text{ lbs.}$

$A = 4", B = 10", F_A = 1$

$$L_{01} = \frac{50 \times (10 - 4) \times 1}{10} = 30 \text{ lbs.}$$

$$L_{02} = 50 - 30 = 20 \text{ lbs.}$$

LOAD CONDITION B



$$L_{01} = \frac{L \times A}{B} \times F_A$$

$$L_{02} = (L \times F_A) + L_{01}$$

Compare the greater of these loads to the rated moment and radial load capacities.

Example:

Load is 100 lbs on 4 wheel carriage,

$L = 100 / 2 \text{ pair wheels} = 50 \text{ lbs.}$

$A = 4", B = 6", F_A = 1$

$$L_{01} = \frac{50 \times 4}{6} \times 1 = 33 \text{ lbs.}$$

$$L_{02} = 50 + 33 = 83 \text{ lbs.}$$

LOAD CONDITION C

$$L_{01} = \frac{L \times A}{B} \times F_A$$

$$L_R = (L \times F_A) + L_{01}$$

$$L_{01} = L_{02}$$

Compare the greater of these loads to the rated moment and radial load capacities.

Example:

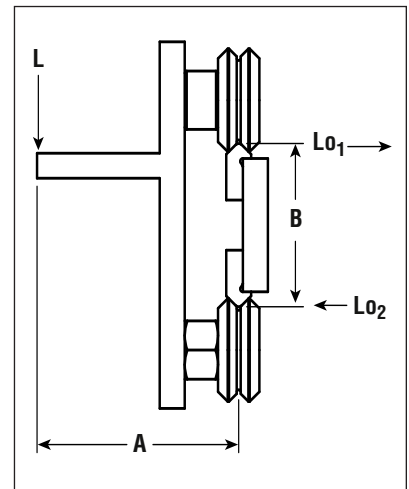
Load is 100 lbs on 4 wheel carriage,

$L = 100 / 2 \text{ pair wheels} = 50 \text{ lbs}$

$A = 4", B = 6", F_A = 1$

$$L_{01} = \frac{50 \times 4}{6} \times 1 = 33 \text{ lbs.}$$

$$L_R = (50 \times 1) + 33 = 83 \text{ lbs.}$$





MOUNTING AND ADJUSTMENT

Use the recommended fasteners for the specified track and wheel bushings.

Use the following table, and the center distance formulas in the next column, to configure the appropriate wheel mounting dimensions.

V-RAIL SIZE	IV (IN.)	OV (IN.)	IV (MM)	OV (MM)
1	0.874	0.934	22.2	23.7
2	1.374	1.436	34.9	36.5
3	2	2.124	50.8	53.9
4	2.624	2.75	66.6	69.9

The fixed bushing should be used to carry the heaviest loading. Preload the adjustable bushing so that the wheel can just be turned by hand. Over-tightening the preload will cause premature wear of the components.

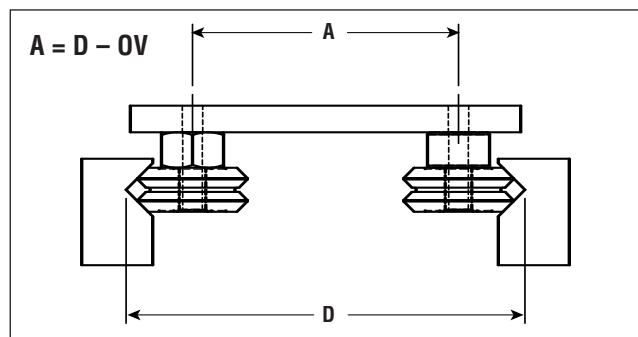
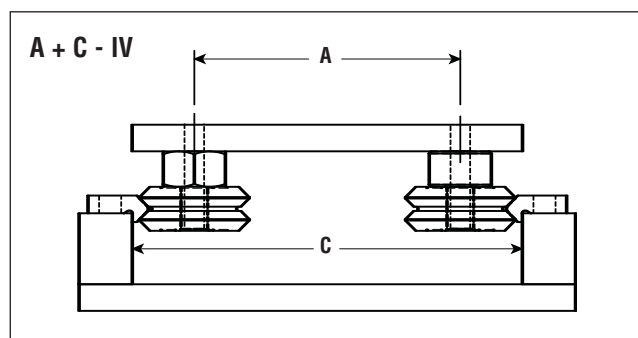
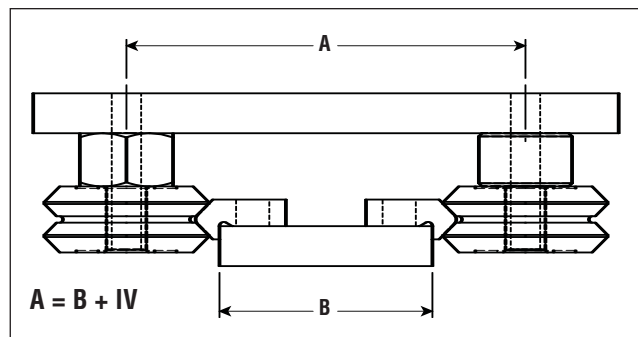
LUBRICATION

The V-Guide wheels are grease lubricated, and will not require any additional lube. The track should be lubricated for optimum performance and service life. Suggested lubricants are Mobil Vactra #2 Way Oil, or Mobil Polyrex EP 2 Extreme Pressure Grease.

SUGGESTED FASTENERS

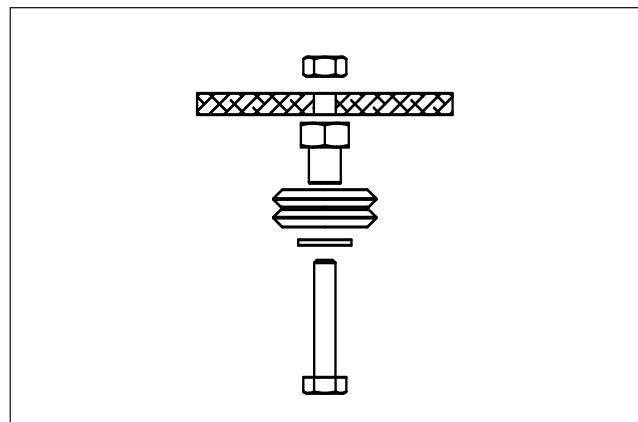
BUSHINGS			
ENGLISH		METRIC	
VB1	#6	MVB1	M4
VB2	1/4"	MVB2	M6
VB3	5/16"	MVB3	M8
VB4	3/8"	MVB4	M10
V-RAIL			
VR1	#6, M3	VR3	1/4", M6
VR2	#10, M6	VR4	5/16", M8

CENTER DISTANCE FORMULA



WHEEL / BUSHING ASSEMBLY

Use SAE series N flat washers and lock washers to secure the wheel bushing assemblies.





The Hevi-Rail® high load capacity linear bearing guide systems from Pacific Bearing provide high axial and radial load capacity for material handling, packaging, automotive, aerospace, steel, paper processing and many more industries and applications with medium to low precision requirements.

FEATURES & BENEFITS

The economical Hevi-Rail® guide systems offer a lifetime of durability under continuous use. The easily interchangeable bearing components provide even dispersion of forces in the profile rails for longer system life and stability.

Linear Bearings:

- Outer ring made of case-hardened steel
- Handles very high axial and radial loads
- Easily interchangeable components for less down-time

Profile Rails:

- Standard length up to 6 meters
- Available sand blasted and lightly oiled
- U-channel and I-channel available

Flange Plates:

- Simple mounting for bearings
 - Can be ordered pre-welded to bearing
- Ordering example:** HVB-054/HVPO-1

Clamp Flanges:

- Adjustable
- Eliminates need for welding and straightening
- Easily adjustable parallelism

APPLICATIONS

Some application examples:

- Telescoping applications (ex. overhead extending jib crane)
- Warehouse handling systems / other material handling
- Custom and standard lift units
- Large Shrink-wrap machinery
- Steel and coil handling
- Large variety of material handling

TECHNICAL SPECIFICATIONS

Linear Bearing for Axial & Radial Loads

Prior to welding, disassemble bearing components. To avoid cracks in welded joints, please use welding electrodes and core weld for unalloyed steel.

Materials:

Outer ring - Case-hardened steel UNI 20 MnCr 5 hardened at 60+2 HRc

Inner ring - Hardened steel En 31 - SAE 52100 hardened at 62-2 HRc

Cylindrical rollers - Flat ground heads are hardened steel, En 31 - SAE 52100, hardened at 59-64 HRC

Welding bolts - Low carbon steel

Bolt tolerance = 0.05 mm

Seals:

Bearings with fixed axial bearing (HVB-053 to HVB-063) - radial bearing has steel labyrinth and side guide roller with rubber seals

Bearings with eccentric adjustable axial bearing (HVBEA-454 to HVBEA-463) - Both radial and axial bearings utilize rubber seals (RS type)

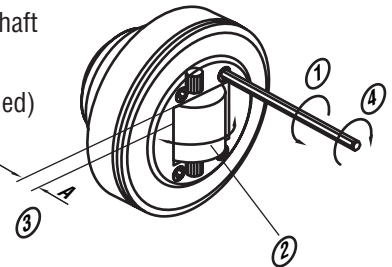
Lubrication:

Bearings are supplied lubricated with grease grade 3. Bearings from HVB-055 to HVB-063 can be relubricated with grease zerk. Adjustable bearings are not available with zerk.

Temperature: Resistant from -10°C to 80°C (14°F to 176°F)

Adjusting Axial Bearing (HVBEA-454 to HVBEA-463)

1. Remove front screws. Heat or tap sharply to break Loctite®.
2. Rotate axial bearing shaft
3. Check dimension A (repeat step 2, if needed)
4. Re-install front screws with Loctite®



112



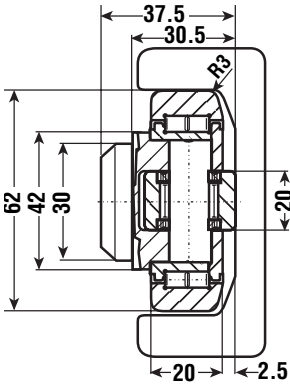
HEVI-RAIL® • Linear Bearing Systems to 0.8 US Ton-Force

WHEN USED WITH
SHOWN PROFILE RAILS,

System Max. Static Radial Load = 7.2 kN / 0.8 US Ton-Force
System Max. Static Axial Load = 2.4 kN / 0.3 US Ton-Force

*All dimensions in mm,
unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-054



WEIGHT = 0.53 Kg

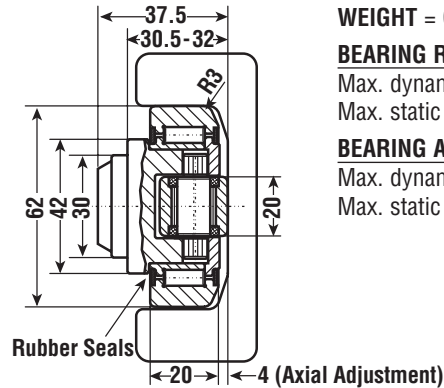
BEARING RADIAL LOAD

Max. dynamic load = 39 kN
Max. static load = 65 kN

BEARING AXIAL LOAD

Max. dynamic load = 15 kN
Max. static load = 22 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-454



WEIGHT = 0.53 Kg

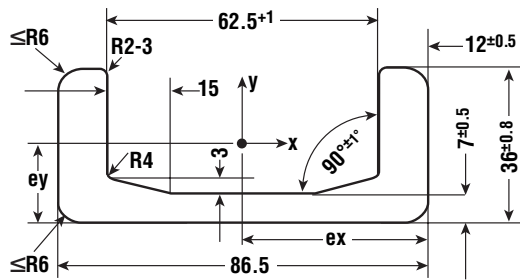
BEARING RADIAL LOAD

Max. dynamic load = 39 kN
Max. static load = 65 kN

BEARING AXIAL LOAD

Max. dynamic load = 16 kN
Max. static load = 25 kN

PROFILE RAIL U-CHANNEL HVR-0



WEIGHT = 10.5 Kg/m

MOMENT OF INERTIA

$I_x = 15.35 \text{ cm}^4$, $I_y = 137.05 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 1.29 \text{ cm}$, $e_x = 4.33 \text{ cm}$

RADIUS OF INERTIA

$i_x = 1.07 \text{ cm}$, $i_y = 3.20 \text{ cm}$

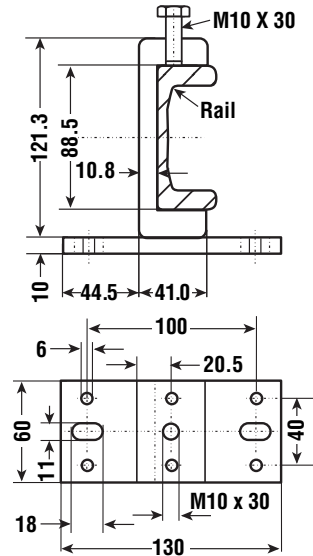
MOMENT OF RESISTANCE

$W_{x_{min}} = 6.64 \text{ cm}^3$

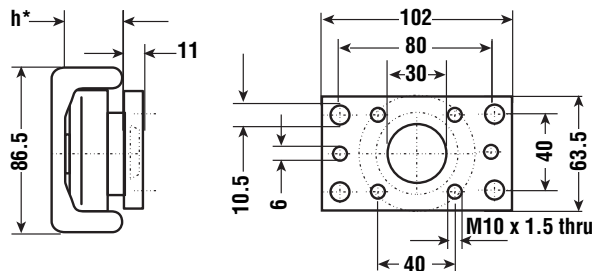
$W_{x_{max}} = 11.93 \text{ cm}^3$

$W_y = 31.69 \text{ cm}^3$

CLAMP FLANGE HVC-0



FLANGE PLATE HVPO-1



* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-054 or HVBEA-454.

*All dimensions in mm,
unless otherwise specified.

* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-055 or HVBEA-455.



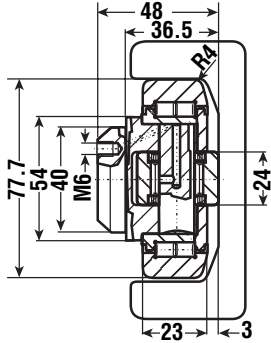
HEVI-RAIL® • Linear Bearing Systems to 1.0 US Ton-Force

WHEN USED WITH
SHOWN PROFILE RAILS,

System Max. Static Radial Load = 8.9 kN / 1.0 US Ton-Force
System Max. Static Axial Load = 3.0 kN / 0.3 US Ton-Force

*All dimensions in mm,
unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-056



WEIGHT = 1.00 Kg

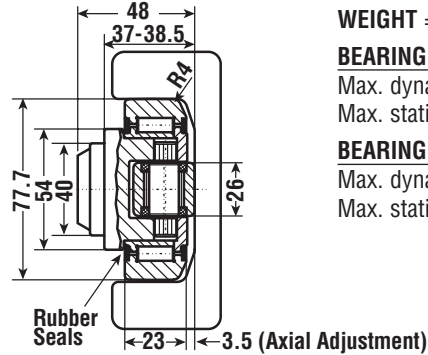
BEARING RADIAL LOAD

Max. dynamic load = 59 kN
Max. static load = 102 kN

BEARING AXIAL LOAD

Max. dynamic load = 20 kN
Max. static load = 32 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-456



WEIGHT = 1.00 Kg

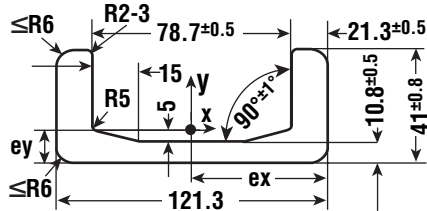
BEARING RADIAL LOAD

Max. dynamic load = 59 kN
Max. static load = 102 kN

BEARING AXIAL LOAD

Max. dynamic load = 23 kN
Max. static load = 36 kN

PROFILE RAIL U-CHANNEL HVR-2



WEIGHT = 20.9 Kg/m

MOMENT OF INERTIA

$I_x = 37.92 \text{ cm}^4$, $I_y = 493.58 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 1.54 \text{ cm}$, $e_x = 6.07 \text{ cm}$

RADIUS OF INERTIA

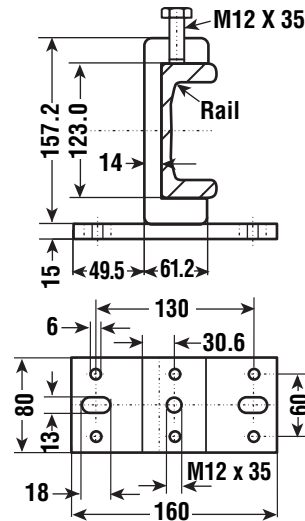
$i_x = 1.19 \text{ cm}$, $i_y = 4.30 \text{ cm}$

MOMENT OF RESISTANCE

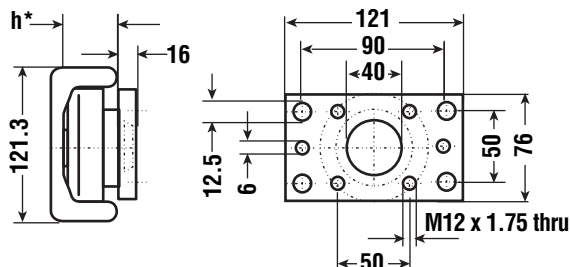
$W_{x_{min}} = 14.83 \text{ cm}^3$, $W_{x_{max}} = 24.58 \text{ cm}^3$,

$W_y = 81.38 \text{ cm}^3$

CLAMP FLANGE HVC-2



FLANGE PLATE HVP2-1



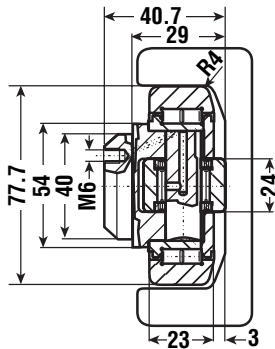
* "h" refers to the depth of the axial bearing,
so "h" depends on choice of HVB-056 or HVBEA-456.



WHEN USED WITH SHOWN PROFILE RAILS, **System Max. Static Radial Load = 8.9 kN / 1.0 US Ton-Force**
System Max. Static Axial Load = 3.0 kN / 0.3 US Ton-Force

*All dimensions in mm, unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-057



WEIGHT = 0.90 Kg

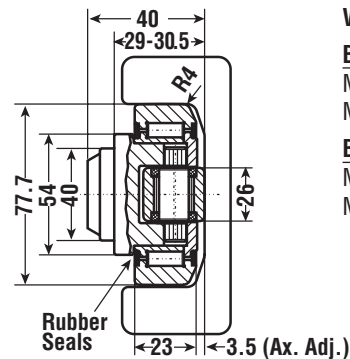
BEARING RADIAL LOAD

Max. dynamic load = 59 kN
 Max. static load = 102 kN

BEARING AXIAL LOAD

Max. dynamic load = 20 kN
 Max. static load = 32 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-457



WEIGHT = 0.87 Kg

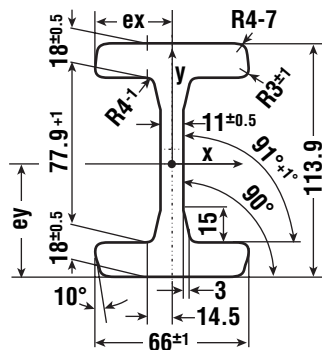
BEARING RADIAL LOAD

Max. dynamic load = 59 kN
 Max. static load = 102 kN

BEARING AXIAL LOAD

Max. dynamic load = 23 kN
 Max. static load = 36 kN

PROFILE RAIL I-CHANNEL HVRI-08



WEIGHT = 25.3 Kg/m

MOMENT OF INERTIA

$I_x = 597.54 \text{ cm}^4$, $I_y = 76.79 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 5.70 \text{ cm}$, $e_x = 3.30 \text{ cm}$

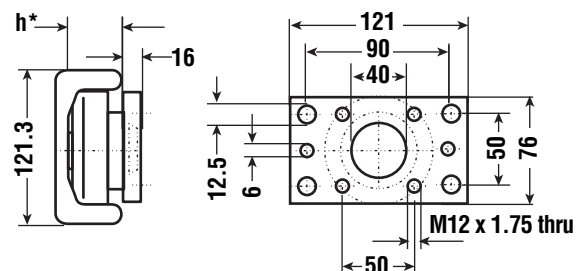
RADIUS OF INERTIA

$i_x = 4.24 \text{ cm}$, $i_y = 1.54 \text{ cm}$

MOMENT OF RESISTANCE

$W_x = 104.92 \text{ cm}^3$,
 $W_y = 23.27 \text{ cm}^3$

FLANGE PLATE HVP2-1



* "h" refers to the depth of the axial bearing,
 so "h" depends on choice of HVB-057 or HVBEA-457.



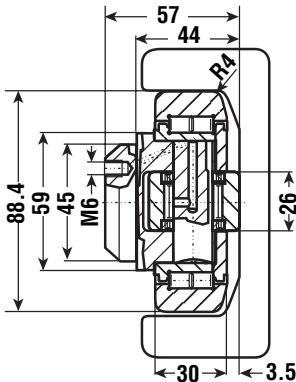
HEVI-RAIL® • Linear Bearing Systems to 1.7 US Ton-Force

WHEN USED WITH
SHOWN PROFILE RAILS,

System Max. Static Radial Load = 15.6 kN / 1.7 US Ton-Force
System Max. Static Axial Load = 5.2 kN / 0.6 US Ton-Force

*All dimensions in mm,
unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-058



WEIGHT = 1.62 Kg

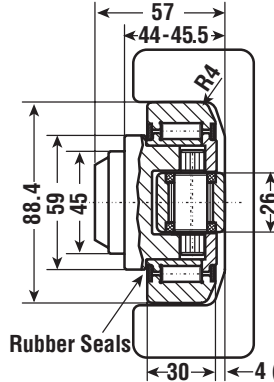
BEARING RADIAL LOAD

Max. dynamic load = 85 kN
Max. static load = 134 kN

BEARING AXIAL LOAD

Max. dynamic load = 27 kN
Max. static load = 44 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-458



WEIGHT = 1.62 Kg

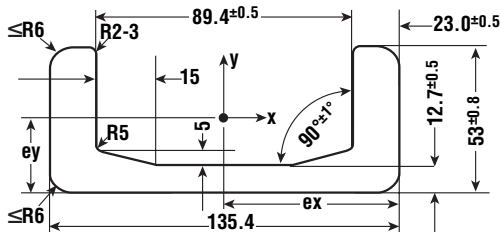
BEARING RADIAL LOAD

Max. dynamic load = 85 kN
Max. static load = 134 kN

BEARING AXIAL LOAD

Max. dynamic load = 23 kN
Max. static load = 36 kN

PROFILE RAIL U-CHANNEL HVR-3



WEIGHT = 28.6 Kg/m

MOMENT OF INERTIA

$I_x = 89.47 \text{ cm}^4$, $I_y = 865.23 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 1.99 \text{ cm}$, $e_x = 6.77 \text{ cm}$

RADIUS OF INERTIA

$i_x = 1.57 \text{ cm}$, $i_y = 4.87 \text{ cm}$

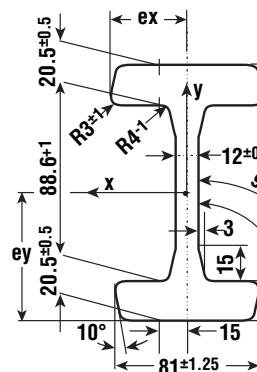
MOMENT OF RESISTANCE

$W_{x_{min}} = 27.03 \text{ cm}^3$

$W_{x_{max}} = 44.96 \text{ cm}^3$

$W_y = 127.80 \text{ cm}^3$

PROFILE RAIL I-CHANNEL HVRI-09



WEIGHT = 34.1 Kg/m

MOMENT OF INERTIA

$I_x = 1037.22 \text{ cm}^4$, $I_y = 161.89 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 6.48 \text{ cm}$, $e_x = 4.05 \text{ cm}$

RADIUS OF INERTIA

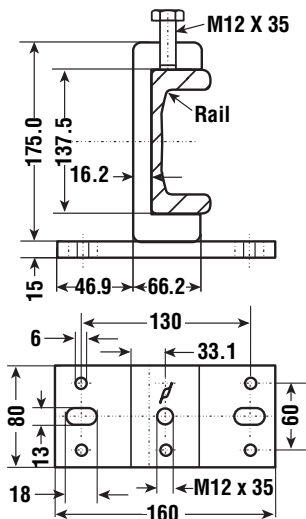
$i_x = 4.89 \text{ cm}$, $i_y = 1.93 \text{ cm}$

MOMENT OF RESISTANCE

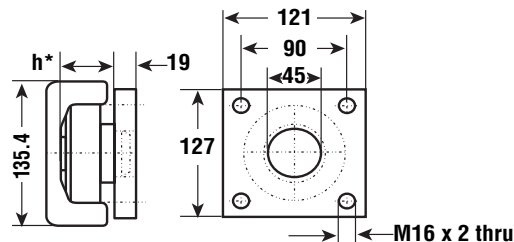
$W_x = 160.07 \text{ cm}^3$,

$W_y = 39.97 \text{ cm}^3$

CLAMP FLANGE HVC-3



FLANGE PLATE HVP3-1



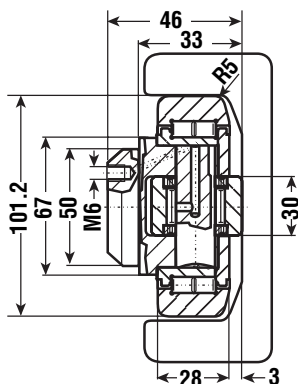
* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-058 or HVBEA-458.



WHEN USED WITH SHOWN PROFILE RAILS, **System Max. Static Radial Load = 15.5 KN / 1.7 US Ton-Force**
System Max. Static Axial Load = 5.1 KN / 0.6 US Ton-Force

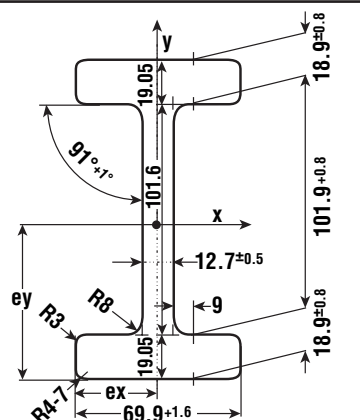
*All dimensions in mm, unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-059



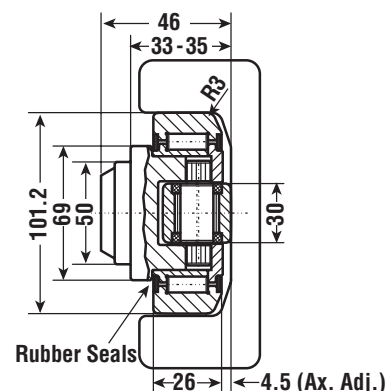
WEIGHT = 1.80 Kg
BEARING RADIAL LOAD Max. dynamic load = 92 KN
 Max. static load = 153 KN
BEARING AXIAL LOAD
 Max. dynamic load = 32 KN
 Max. static load = 50 KN

PROFILE RAIL I-CHANNEL HVRI-10



WEIGHT = 30.9 Kg/m
MOMENT OF INERTIA
 $I_x = 1078.01 \text{ cm}^4$, $I_y = 104.38 \text{ cm}^4$
DIST. TO CENTER OF GRAVITY
 $e_y = 6.99 \text{ cm}$, $e_x = 3.49 \text{ cm}$
MOMENT OF RESISTANCE
 $W_x = 154.33 \text{ cm}^3$, $W_y = 29.89 \text{ cm}^3$

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-459

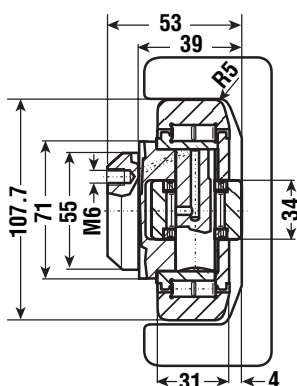


WEIGHT = 1.74 Kg
BEARING RADIAL LOAD
 Max. dynamic load = 91 KN
 Max. static load = 140 KN
BEARING AXIAL LOAD
 Max. dynamic load = 32 KN
 Max. static load = 50 KN

WHEN USED WITH SHOWN PROFILE RAILS, **System Max. Static Radial Load = 16.5 KN / 1.8 US Ton-Force**
System Max. Static Axial Load = 5.5 KN / 0.6 US Ton-Force

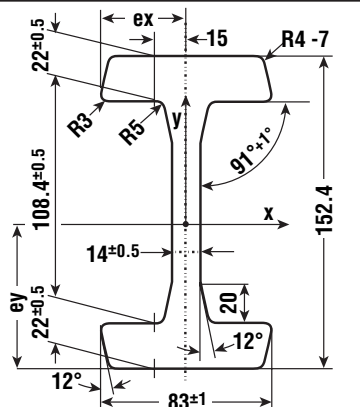
*All dimensions in mm, unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-060



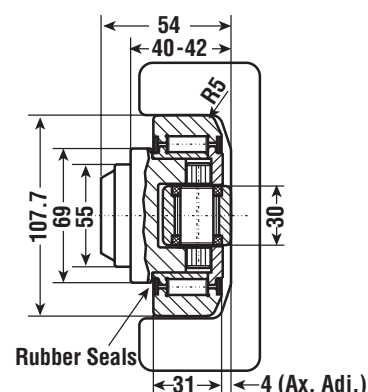
WEIGHT = 2.30 Kg
BEARING RADIAL LOAD
 Max. dynamic load = 100 KN
 Max. static load = 174 KN
BEARING AXIAL LOAD
 Max. dynamic load = 39 KN
 Max. static load = 66 KN

PROFILE RAIL I-CHANNEL HVRI-11



WEIGHT = 40.5 Kg/m
MOMENT OF INERTIA
 $I_x = 1670.08 \text{ cm}^4$, $I_y = 184.52 \text{ cm}^4$
DIST. TO CENTER OF GRAVITY
 $e_y = 7.62 \text{ cm}$, $e_x = 4.15 \text{ cm}$
RADIUS OF INERTIA
 $i_x = 5.69 \text{ cm}$, $i_y = 1.91 \text{ cm}$
MOMENT OF RESISTANCE
 $W_x = 219.17 \text{ cm}^3$, $W_y = 44.46 \text{ cm}^3$

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-460



WEIGHT = 2.27 Kg
BEARING RADIAL LOAD
 Max. dynamic load = 100 KN
 Max. static load = 174 KN
BEARING AXIAL LOAD
 Max. dynamic load = 32 KN
 Max. static load = 50 KN



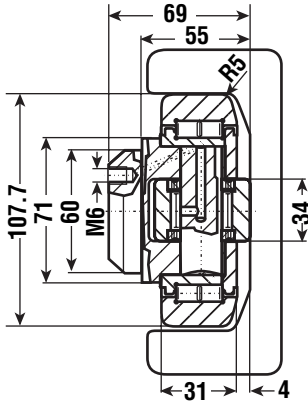
HEVI-RAIL® • Linear Bearing Systems to 1.8 US Ton-Force

WHEN USED WITH
SHOWN PROFILE RAILS,

System Max. Static Radial Load = 16.5 kN / 1.8 US Ton-Force
System Max. Static Axial Load = 5.5 kN / 0.6 US Ton-Force

*All dimensions in mm,
unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-061



WEIGHT = 2.82 Kg

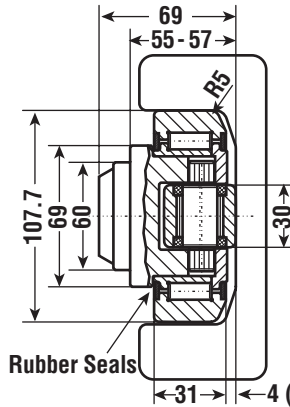
BEARING RADIAL LOAD

Max. dynamic load = 100 kN
Max. static load = 174 kN

BEARING AXIAL LOAD

Max. dynamic load = 39 kN
Max. static load = 66 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-461



WEIGHT = 2.82 Kg

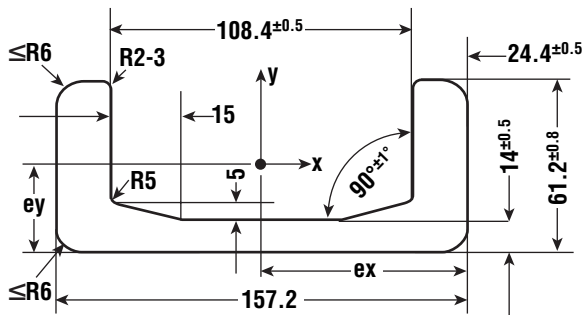
BEARING RADIAL LOAD

Max. dynamic load = 100 kN
Max. static load = 174 kN

BEARING AXIAL LOAD

Max. dynamic load = 32 kN
Max. static load = 50 kN

PROFILE RAIL U-CHANNEL HVR-4



WEIGHT = 35.9 Kg/m

MOMENT OF INERTIA

$I_x = 150.98 \text{ cm}^4$
 $I_y = 1,494.32 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 2.25 \text{ cm}$, $e_x = 7.86 \text{ cm}$

RADIUS OF INERTIA

$i_x = 1.82 \text{ cm}$, $i_y = 5.72 \text{ cm}$

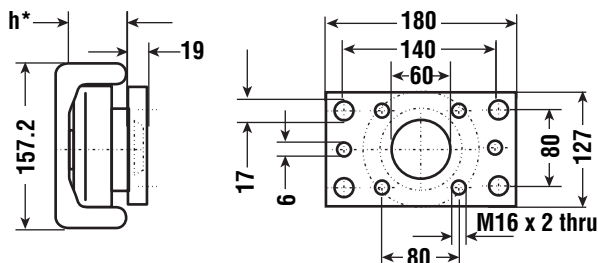
MOMENT OF RESISTANCE

$W_{x_{min}} = 39.00 \text{ cm}^3$

$W_{x_{max}} = 67.13 \text{ cm}^3$

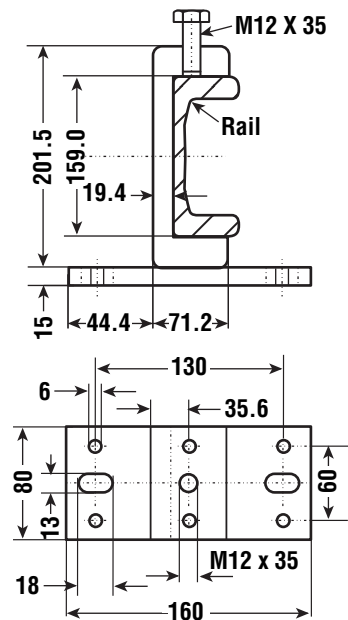
$W_y = 190.12 \text{ cm}^3$

FLANGE PLATE HVP4-1



* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-061 or HVBEA-461.

CLAMP FLANGE HVC-4



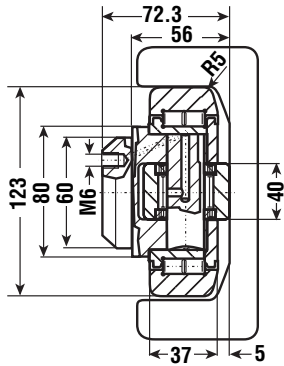


WHEN USED WITH
SHOWN PROFILE RAILS,

System Max. Static Radial Load = 23.5 kN / 2.6 US Ton-Force
System Max. Static Axial Load = 7.8 kN / 0.9 US Ton-Force

*All dimensions in mm,
unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-062



WEIGHT = 4.50 Kg

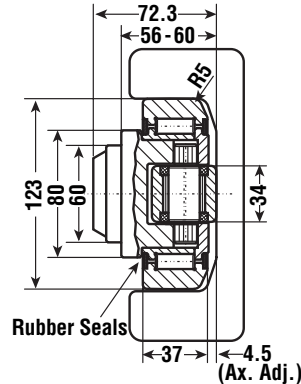
BEARING RADIAL LOAD

Max. dynamic load = 135 kN
 Max. static load = 242 kN

BEARING AXIAL LOAD

Max. dynamic load = 47 kN
 Max. static load = 90 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-462



WEIGHT = 3.90 Kg

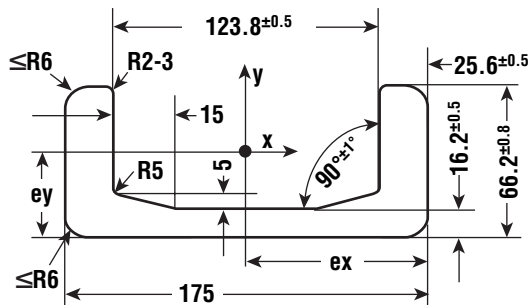
BEARING RADIAL LOAD

Max. dynamic load = 135 kN
 Max. static load = 242 kN

BEARING AXIAL LOAD

Max. dynamic load = 41 kN
 Max. static load = 72 kN

PROFILE RAIL HVR-5



WEIGHT = 42.9 Kg/m

MOMENT OF INERTIA

$I_x = 205.84 \text{ cm}^4$,
 $I_y = 2,185.32 \text{ cm}^4$

DIST. TO CENTER OF GRAVITY

$e_y = 2.37 \text{ cm}$, $e_x = 8.75 \text{ cm}$

RADIUS OF INERTIA

$i_x = 1.94 \text{ cm}$, $i_y = 6.32 \text{ cm}$

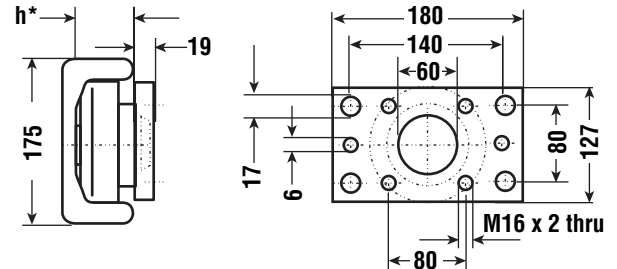
MOMENT OF RESISTANCE

$W_{x_{min}} = 48.42 \text{ cm}^3$

$W_{x_{max}} = 86.89 \text{ cm}^3$

$W_y = 249.75 \text{ cm}^3$

FLANGE PLATE HVP4-1



* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-062 or HVBEA-462.

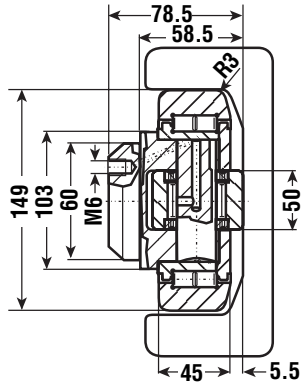


HEVI-RAIL® • Linear Bearing Systems to 4.6 US Ton-Force

WHEN USED WITH SHOWN PROFILE RAILS, **System Max. Static Radial Load = 41.1 kN / 4.6 US Ton-Force**
System Max. Static Axial Load = 13.7 kN / 1.5 US Ton-Force

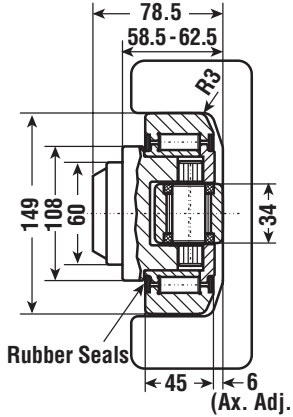
*All dimensions in mm, unless otherwise specified.

LINEAR BEARING WITH FIXED AXIAL BEARING HVB-063



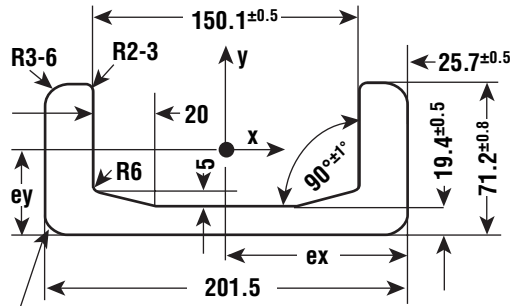
WEIGHT = 6.52 Kg
BEARING RADIAL LOAD
 Max. dynamic load = 183 kN
 Max. static load = 353 kN
BEARING AXIAL LOAD
 Max. dynamic load = 82 kN
 Max. static load = 131 kN

LINEAR BEARING WITH ECCENTRIC ADJUSTABLE AXIAL BEARING HVBEA-463



WEIGHT = 6.50 Kg
BEARING RADIAL LOAD
 Max. dynamic load = 183 kN
 Max. static load = 353 kN
BEARING AXIAL LOAD
 Max. dynamic load = 41 kN
 Max. static load = 72 kN

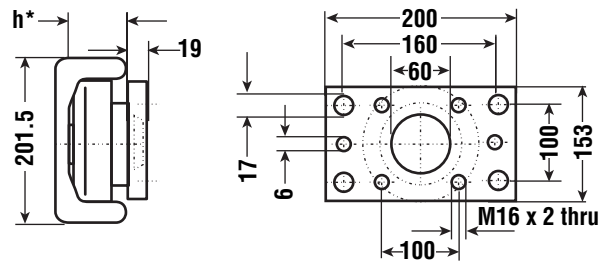
PROFILE RAIL HVR-6



R3-8

WEIGHT = 52.3 Kg/m
MOMENT OF INERTIA
 $I_x = 269.52 \text{ cm}^4$
 $I_y = 3,423.08 \text{ cm}^4$
DIST. TO CENTER OF GRAVITY
 $e_y = 2.40 \text{ cm}$, $e_x = 10.08 \text{ cm}$
RADIUS OF INERTIA
 $i_x = 2.01 \text{ cm}$, $i_y = 7.17 \text{ cm}$
MOMENT OF RESISTANCE
 $W_{x_{\min}} = 57.15 \text{ cm}^3$
 $W_{x_{\max}} = 112.11 \text{ cm}^3$
 $W_y = 339.76 \text{ cm}^3$

FLANGE PLATE HVP6-1



* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-063 or HVBEA-463.



CALCULATION OF FMAX FOR CANTILEVERED LOADS

Q = Load capacity (N)

L = Load distance to suspension point (mm)

P = Suspension point

A = Bearing distance (mm) recommended 500–1000 mm

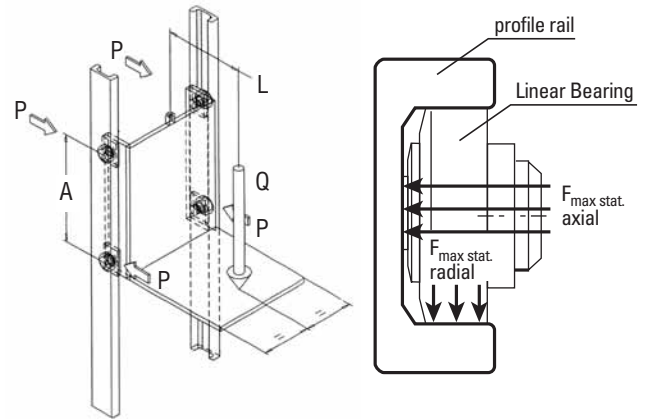
$$\text{Formula: } F_{\max}[\text{N}] = \frac{Q \cdot L}{2 \cdot A}$$

stat radial

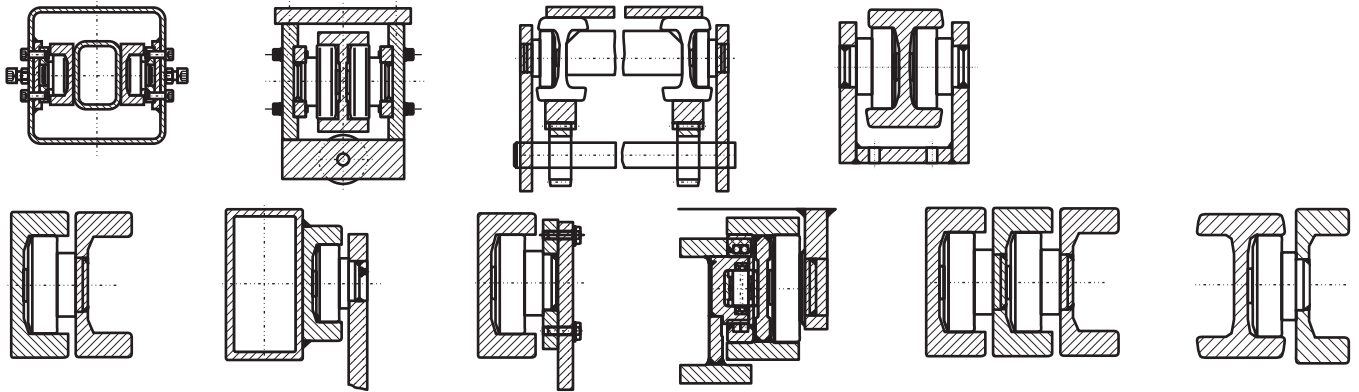
To avoid wearout in the rail, which is not hardened, the pressure between bearing and rail should be max.

$P_{\text{zul}} = 860 \text{ N/mm}^2$ for Profile Rails HVB-0 to HVB-6.

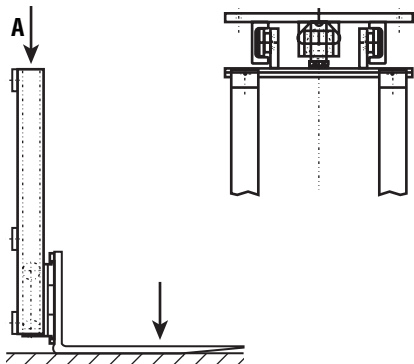
$P_{\text{zul}} = 750 \text{ N/mm}^2$ for all profile rails. Indicated here are F_{\max} stat radial + axial for each bearing.



POSSIBLE MOUNTING CONFIGURATIONS



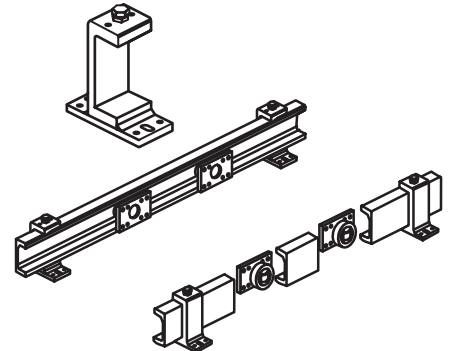
LIFTING UNITS



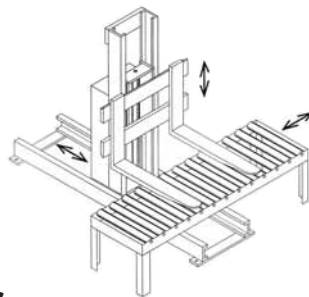
HORIZONTAL TELESCOPE



ADJUSTABLE CLAMP SYSTEM



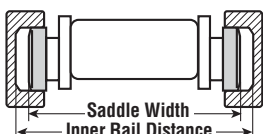
HANDLING UNITS



SYSTEM DESIGN SUGGESTIONS

1. The overall system clearance should be 1.524 mm to 3.048 mm

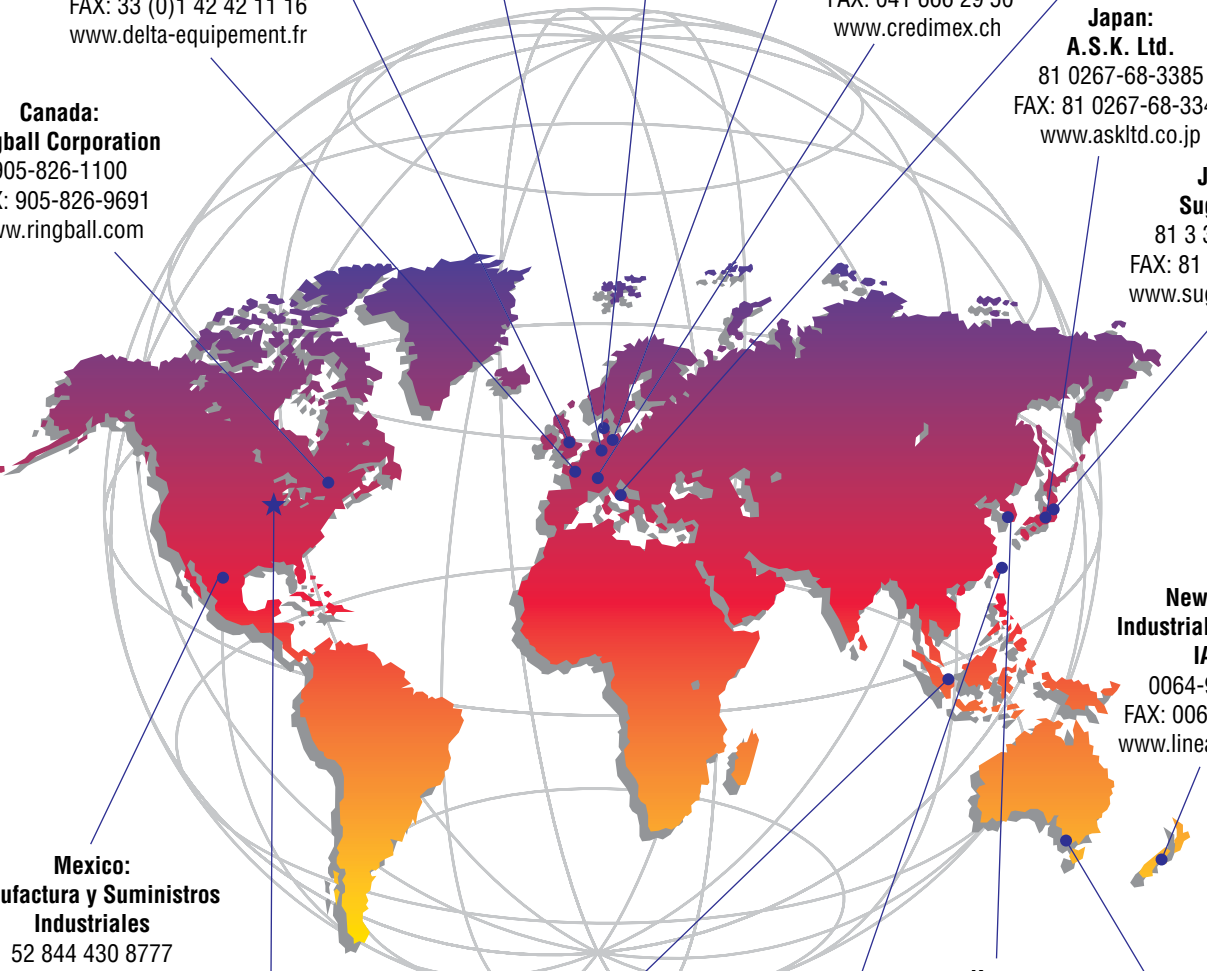
2. Verify that the Axial bearing is aligned parallel to the rail; especially in vertical operations.



Inner Rail Distance =
Saddle Width + (1.524
mm to 3.048 mm)



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