LINEAR MOTION SOLUTIONS

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

800.962.8979

PBC LINEAR
A PACIFIC BEARING CO.

www.pbclinear.com

Linear Shafting

Engineered for Maximum Linear Bearing Performance

Introducing

simplicity® 60 PLUS® SHAFTING

Only certified *Simplicity 60 Plus Shafting* provides maximum bearing performance.

Linear Ball Bearings

The right amount of microscopic surface texture holds lubrication for consistent smooth ball rotation minimizing the effects of metal-to-metal contact.

- **Excellent rigidity** while providing smooth, quiet operation
- **Extremely low friction** - rolling elements provide consistent anit-friction movement
- **Outer shell** - Available with steel jacket or self-aligning super bearing shell.

Simplicity® Plain Bearings

The Frelon® break-in and transfer process operates at maximum efficiency with Simplicity 60 Plus Shafting resulting in true self-lubrication and the longest life possible.

- **Self-lubricating** - maintenance-free, additional lubrication optional
- **Wide temperatures range** (-400°F/+400°F), (-240°C/+204°C)
- **Vibration damping** – eliminates fretting corrosion

New Round Shaft Technology Catalog

PBC Linear's bearings and shafting product information has been updated! Compiled into a new catalog, you will find technical specifications, application examples, and ordering details for this product family.

Click here to open the new Round Shaft Technology catalog.

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MINI-RAIL® MINIATURE LINEAR GUIDES

UNI-GUIDE - SLIDES, TABLES & STAGES

REDI-RAIL® LINEAR GUIDES

Click here to open the new Round Shaft Technology catalog. Get product details on Simplicity® self-lubricating plain bearings, linear ball bearings, Simplicity® 60 Plus™ Shafting, square bearings, and linear slides.

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V-GUIDE SYSTEM

COMMERCIAL RAIL

HARDENED CROWN ROLLERS

HEVI-RAIL® LINEAR BEARING SYSTEMS

Hevi-Rail®
Heavy Duty Bearing Systems

Click here to open the new Round Shaft Technology catalog. Get product details on Simplicity® self-lubricating plain bearings, linear ball bearings, Simplicity® 60 Plus™ Shafting, square bearings, and linear slides.

Mini-Rail® Miniature Linear Guides

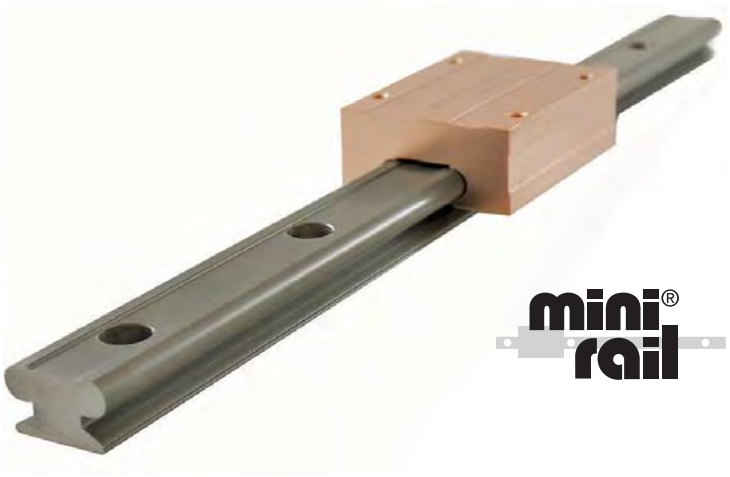
Product Overview

PRODUCT OVERVIEW

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.

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.

- No rolling elements
- Self-lubricating Frelon GOLD® Liner
- Withstands vibration and shock
- Corrosion-resistant - ideal in harsh environments
- Ceramic coated, aluminum rail
- Compact design- small footprint

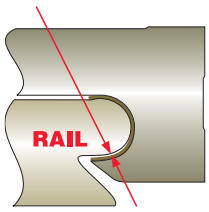


CARRIAGE CONFIGURATIONS

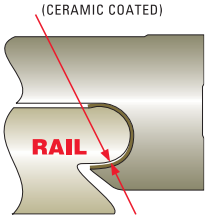
Precision Series: Ceramic coated rails and carriages are corrosion resistant. Frelon GOLD® self-lubricating liner delivers the best overall performance, the highest loads, the best wear life, and speeds. Most precise running clearance for high precision applications.

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

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



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



Frelon GOLD® and Frelon® J are Teflon® based materials that are truly self-lubricating. Frelon® materials are bonded to the carriage creating a one-piece unit.

APPLICATIONS

- Medical Precision
- Food Processing
- Automation
- Electronics
- Mobile Home Components
- Packaging
- Product Movement
- Printing
- Semi-conductor

ORDERING INFORMATION

CARRIAGE MR [ ] XX C

- **Mini-Rail** — Miniature Linear Guide
- **Series** — Blank = Precision Series; C= Compensated Precision Series
- **Nominal Sizes** — (7, 9, 12, 15, 20mm)
- **Carriage**

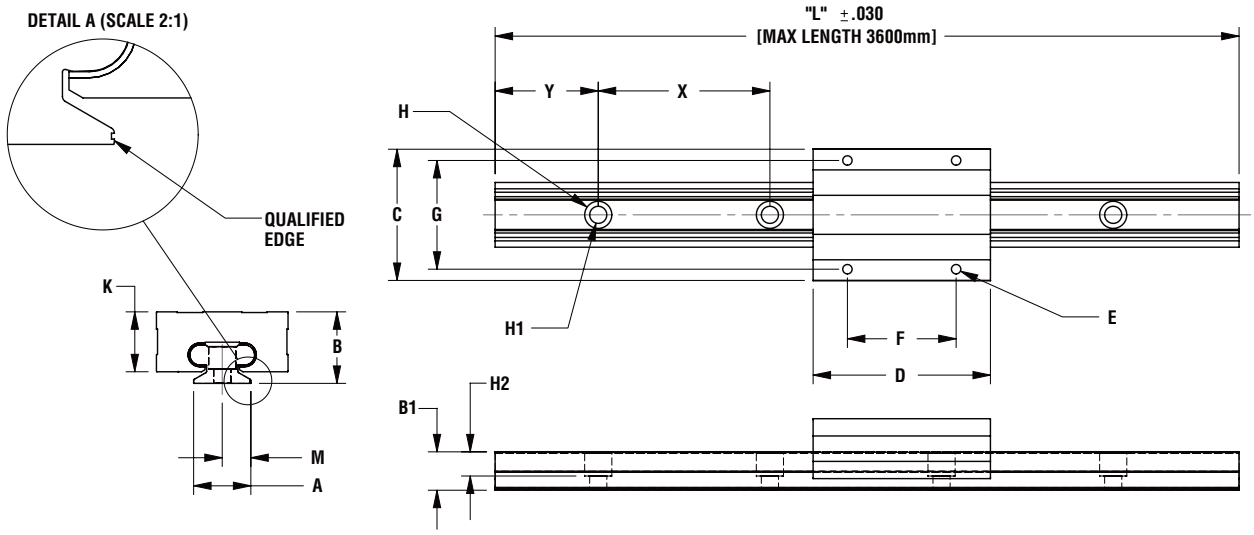
RAIL MR XX R

- **Mini-Rail** — Miniature Linear Guide
- **Nominal Sizes** — (7, 9, 12, 15, 20mm)
- **Rail**

EXAMPLE: MRC20C
MR20R

See following page for Mini-Rail full assembly ordering.

MINI-RAIL - MR



(Maximum Length 3600mm)

Materials: 6061-T6 aluminum rail and carriage, Frelon GOLD® or Frelon® J liner

Max V: 300 sfm for Frelon GOLD, 140 sfm for Felon J

Max P: 3000 psi for Frelon GOLD, 1500 psi for Frelon J

PART NUMBER	RUNNING CLEARANCE	A BASE WIDTH (mm)	B OVERALL HEIGHT	B1 RAIL HEIGHT	C CARRIAGE WIDTH	D CARRIAGE LENGTH	E CARRIAGE MTG. HOLE SIZE	E CARRIAGE MTG. HOLE DEPTH	F CARRIAGE MTG. HOLE CTR. TO CTR.	G CARRIAGE MTG. HOLE CTR. TO CTR.	H RAIL HOLE SIZE	H_1 RAIL HOLE SIZE	H_2 RAIL HOLE SIZE	K CARRIAGE HEIGHT	M RAIL MTG. HOLE TO QUALIFIED EDGE	Y RAIL HOLE TO END	X RAIL HOLE CTR. TO CTR	RAIL WT. (gram/mm)	CARRIAGE WT. (gram)
MR7-XXX	.025 - .051	7	8	6.1	17	24	M2 x 0.4	THRU	8	12	4.2	2.4	2.3	6.2	3.5	5	15	0.10	5.7
MRC7-XXX	.064 - .089																		
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	8.5
MRC9-XXX	.064 - .089																		
MR12-XXX	.025 - .051	12	13	8.0	27	34			15	20	6	3.5	3.5	10.7	6	10	25	0.22	20.0
MRC12-XXX	.064 - .089																		
MR15-XXX	.025 - .051	15	16	9.2	32	42			20	25			4.5	14.1	7.5	15	40	0.38	34.0
MRC15-XXX	.064 - .089																		
MR20-XXX	.025 - .051	20	25	13.4	46	62	M4 x 0.7	12.5	38	38	9.5	6	8.5	21.2	10	20	60	0.48	127.9
MRC20-XXX	.064 - .089																		

NOTES: Cut-to-length rails are available up to 3600mm.
Standard and cut-to-length rail ends are NOT coated. Fully coated rails are available upon request.
All carriage mounting holes are through tapped except MR20 12.5mm of thread.
The "Y" dimension will remain constant at one end unless requested otherwise.
Add the overall length of the rail to the part number (EX:"MR12-0220" for a Precision Series assembly with a 220mm rail)

ORDERING INFORMATION

EXAMPLE: MR12-0220-2

ASSEMBLY MR [ ] XX – XXXX – XX

Mini-Rail
Miniature Linear Guide

Series
Blank = Precision Series
C= Compensated Precision Series
FrelonGOLD® bearing material on RC70 ceramic-coated rail

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

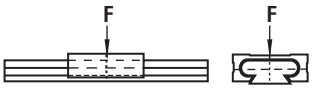
Length of Rail in mm
EX: 50mm = 0050

# of Carriages

STATIC LOAD DATA

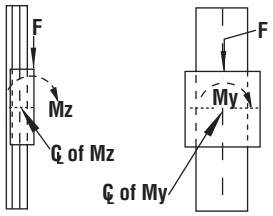
The numbers below are for rails in a static condition. Refer to the calculations below to establish dynamic parameters.

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.		

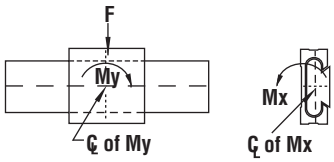


SIZE	F (N)
7	89
9	125
12	222
15	356
20	578

SIZE	My (N-m)	Mx (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)	My (N-m)	Mx (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)
Frelon GOLD®	20,000 (psi x ft./min.) or 0.7 N/mm^2 x m/s	3000 psi or 20.68 N/mm^2	300 sfm or 1.524 m/s
Frelon® J	10,000 (psi x ft./min.) or 0.35 N/mm^2 x m/s	1500 psi or 10.34 N/mm^2	140 sfm or 0.711 m/s

PV = The performance measurement of plane bearings.

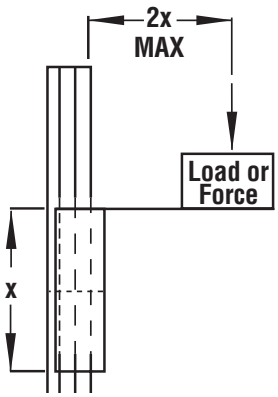
PV = P x V, where P = pressure (load) in psi (kgf/cm^2)

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.)

Design & Layout Options

Name: _____ **Date:** _____

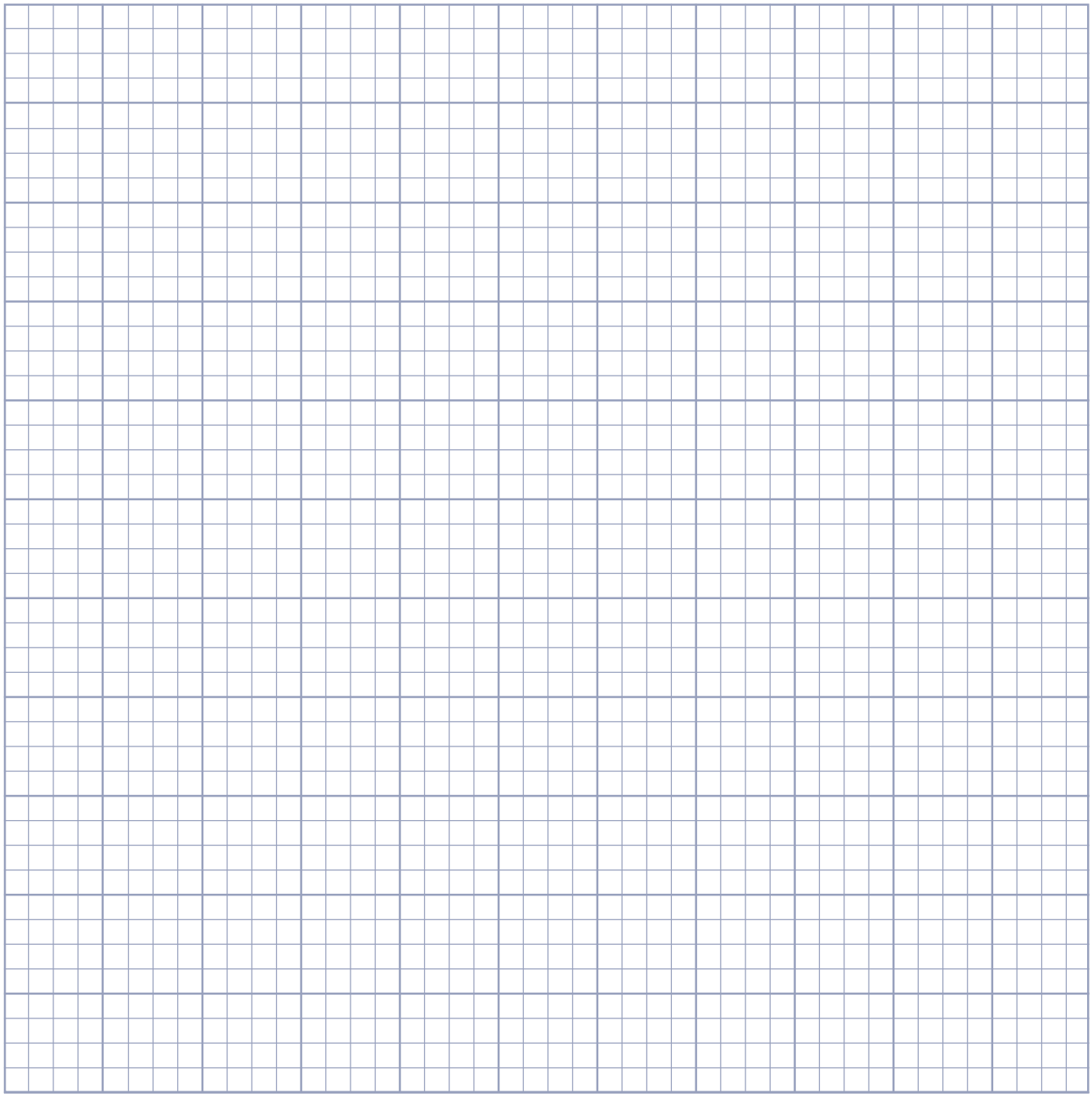
Dept.: _____ **Phone:** _____ **Fax:** _____

Company: _____ **Machine Type/Name:** _____

Email: _____

Address: _____

_____



Low Profile Mini-Rail® - LPM

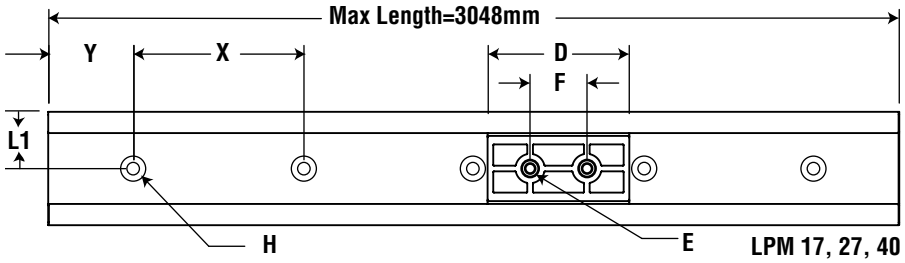
Miniature Guide/Slide Motion Systems

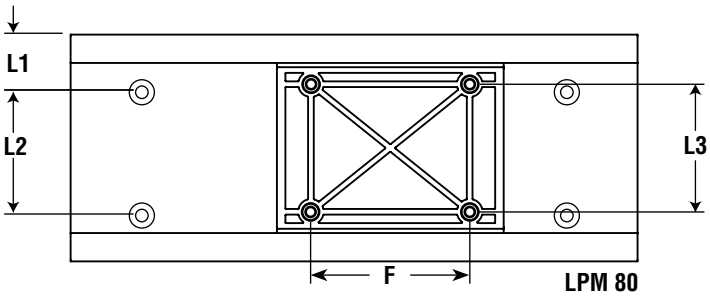
LOW PROFILE MINI-RAIL® - LPM

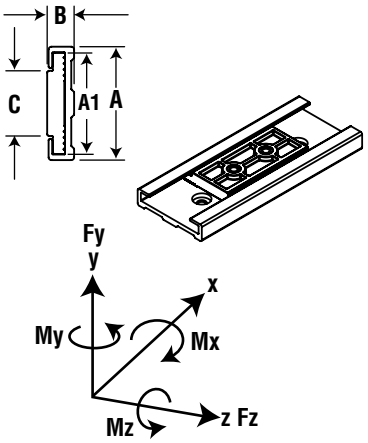
- Low profile for small spaces
- Low cost polymer slider
- Molded SS threaded Inserts
- Double rail track
- Ideal in harsh environments
- Available in four sizes

Materials: SimGlide™-J Polymer slider (UL 94 HB flammability rating)
Molded-in stainless steel thread inserts
Anodized aluminum rails

Operating Temperatures: -35C to 65C (-30F to 150F)
Chemical Resistance: Resistant to lubricants, fuels, dyes, weak acids
Maximum Velocity: 10 m/s
Load Reduction Factor: 0.7-1.0 for low speed application; 0.4-0.7 for medium speed application; 0.1-0.4 for high speed application



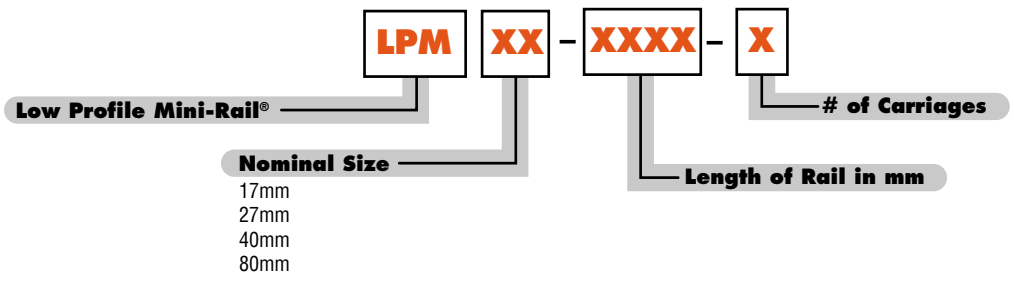




PART NUMBER	A1 (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	H (C'BORE) (mm)	L1 (mm)	L2 (mm)	L3 (mm)	Y (mm)	X (mm)	CAR-RIAGE WT. (g)	RAIL UNIT WT. (g/mm)	LOAD CAPACITY Fy (N)	Fy (lbs.)	Fz (N)	Fz (lbs.)	Mx (N-m)	Mx (lbs.-in.)	My (N-m)	My (lbs.-in.)	Mz (N-m)	Mz (lbs.-in.)
LPM17	14.6	17	6	9.6	25	M3 x 0.5	14	M3 SBHCS	8.5	N/A	N/A	20	60	1.1	0.15	35	8	10	2.5	0.2	1.5	0.3	2.5	0.2	1.5
LPM27	24	27	9.5	14	40	M4 x 0.7	20	M4 SBHCS	13.5	N/A	N/A	20	60	4.8	0.33	130	30	85	20	1	10	2.5	20	1	10
LPM40	36	40	9.5	23	50	M4 x 0.7	20	M4 SBHCS	20	N/A	N/A	20	60	9.8	0.38	270	60	150	35	2.5	25	5	50	2.5	25
LPM80	75.2	80	12.0	57	80	M4 x 0.7	56	M4 SBHCS	20	40	45	25	150	32.3	1.07	515	120	250	55	7	60	14	125	7	60

NOTE: Apply a load reduction factor 0.25 on Fy rating if the system is used inverted.

ORDERING INFORMATION



EXAMPLE: LPMXX-XXXX-X

Design & Layout Options

Name: _____ **Date:** _____

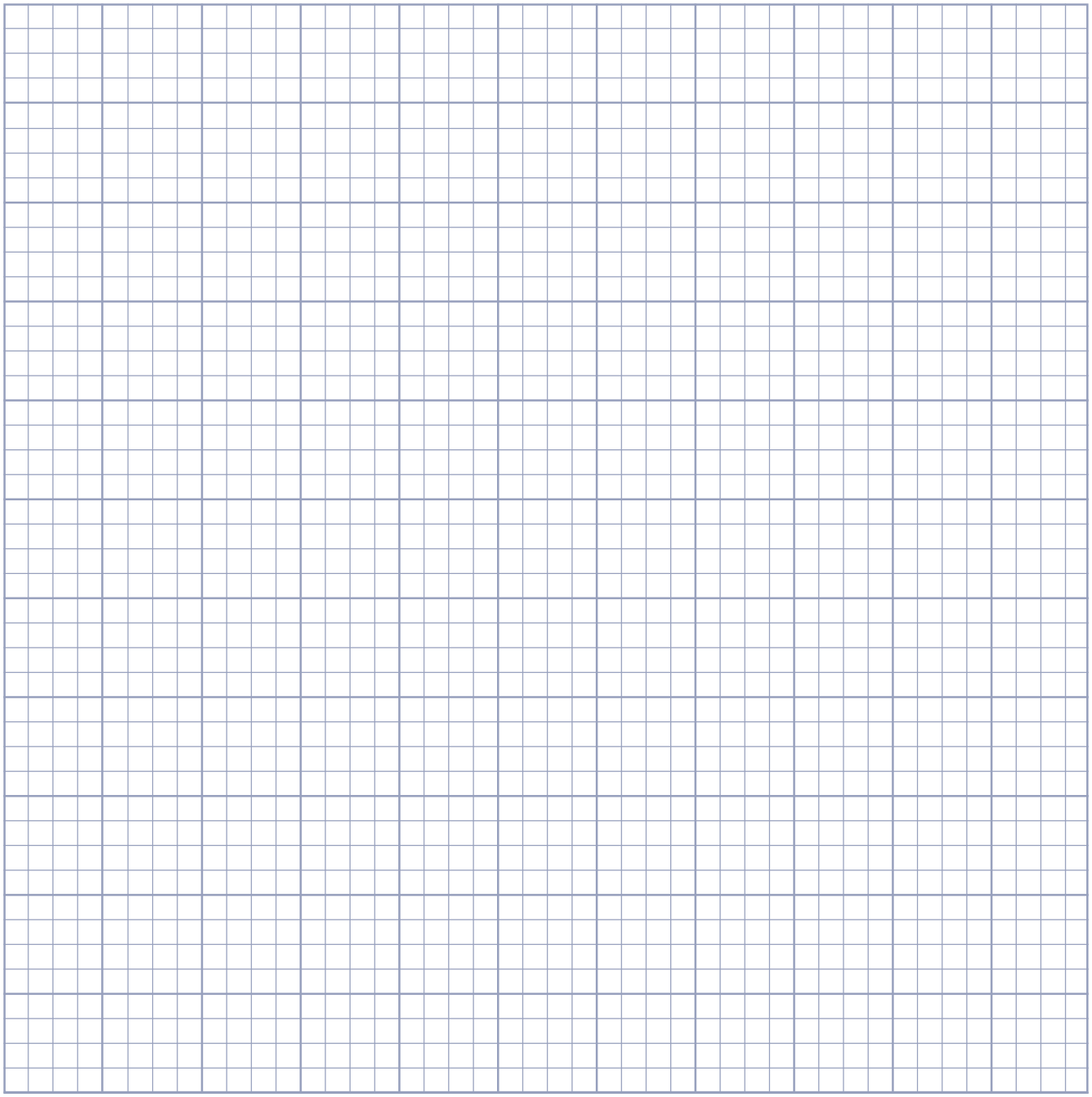
Dept.: _____ **Phone:** _____ **Fax:** _____

Company: _____ **Machine Type/Name:** _____

Email: _____

Address: _____

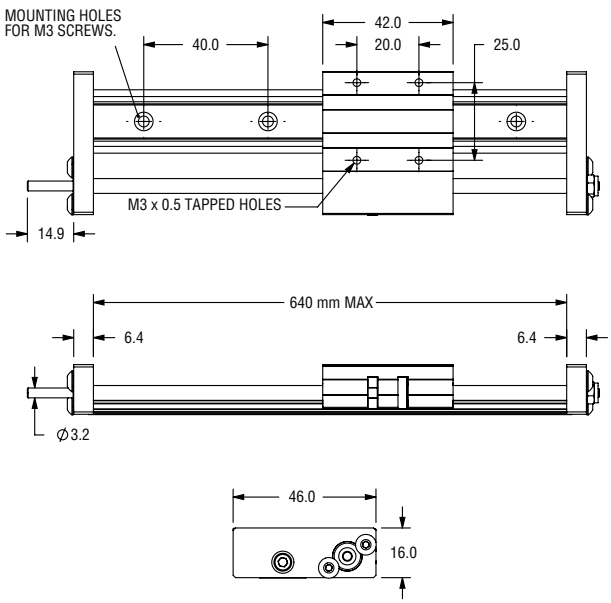
_____



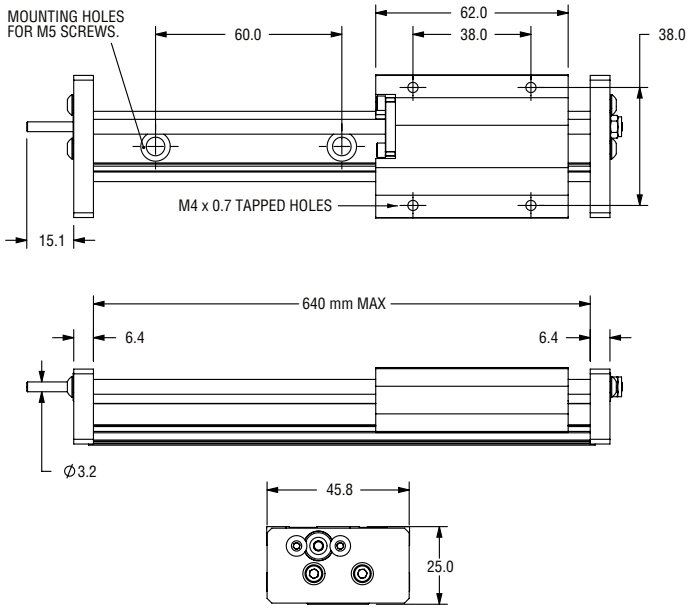
MINI-RAIL® LS - LEAD SCREW DRIVEN

- Right hand rolled thread
- 304 stainless steel screw with PTFE coating
- Self-lubricating Polyacetal, anti-backlash nut
- Lengths up to 640 mm
- Eight (8) leads available
- Optional hand brake

MR15LS



MR20LS



NOTES: Maximum length for lead screw driven MR is 640 mm.
Standard and cut-to-length rail ends are NOT coated. Fully coated rails are available upon request.

ORDERING INFORMATION

MR	XX	LS	XXX	XX	XX	XX	X

Mini-Rail

Nominal Size of Base in mm
15 mm
20 mm

Lead Screw

Length of Rail in mm
Cut to length (Max. of 640 mm)

Screw Lead Option

AH = 1 mm	(0.039 in.)	BG = 6 mm	(0.236 in.)
AG = 2 mm	(0.079 in.)	BH = 8 mm	(0.315 in.)
AR = 4 mm	(0.157 in.)	AJ = 10 mm	(0.394 in.)
AX = 5 mm	(0.197 in.)	BD = 12 mm	(0.472 in.)

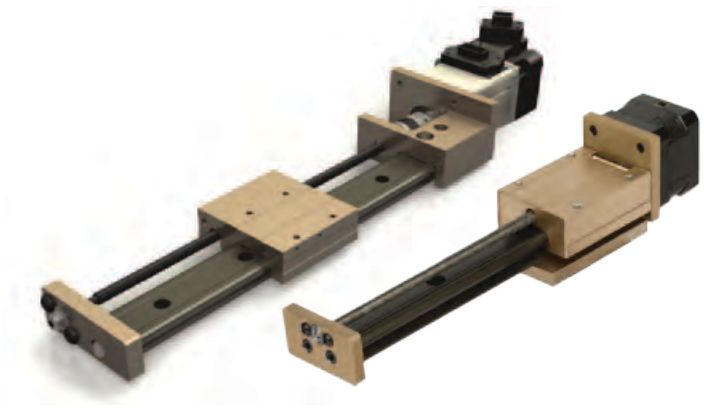
Driving Mechanism
ØØ = No knob
SK = With screw knob
17 = NEMA 17 motor mount

Mechanical Brake
ØØ = No brake
BL = With brake lever mounted on carriage

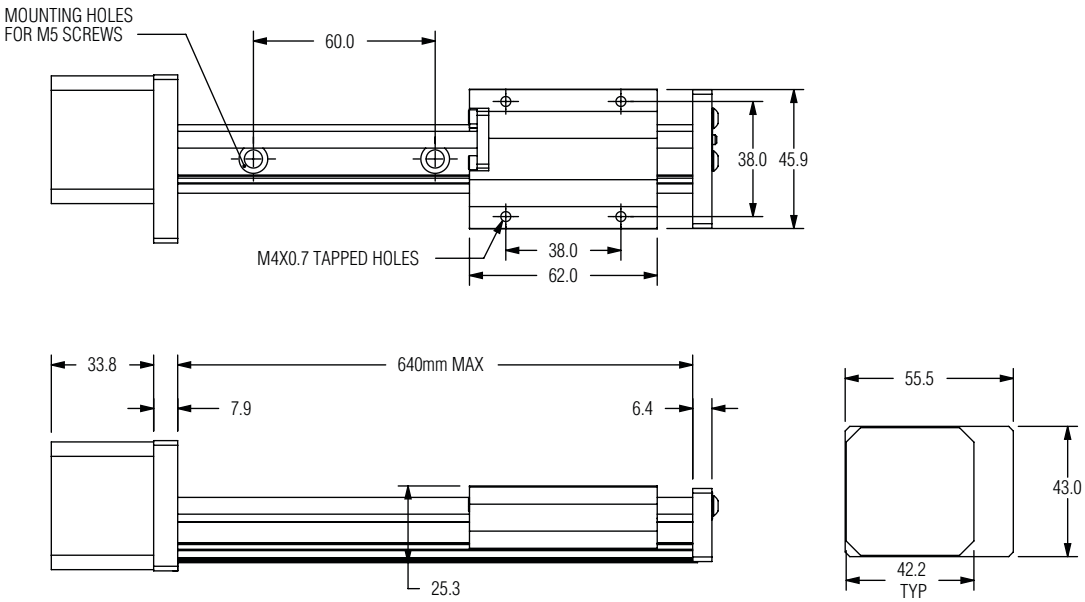
Number of Carriages
1 = One carriage
* Contact an application engineer before ordering, if more than one (1) carriage is needed

MINI-RAIL® MS - LEAD SCREW DRIVEN

- 304 stainless steel screw with PTFE coating
- Robust design - outstanding reliability
- Fewer parts - less maintenance
- Preloaded Polyacetal, anti-backlash nut
- High torque stepper motor 42 mm (NEMA 17)
- Low cost
- Lengths up to 640 mm
- Ball bearing supports
- Integral screw for MR20 (coupling used for MR15)
- Eight (8) leads available



MR20MS



NOTES: Maximum length for lead screw driven MR is 640 mm.
Standard and cut-to-length rail ends are NOT coated. Fully coated rails are available upon request.

ORDERING INFORMATION

MR	XX	MS	XXX	XX	M42	00	X

Mini-Rail

Nominal Size of Base in mm
15 mm
20 mm

Lead Screw

Length of Rail in mm
Cut to length (Max. of 64Ø mm)

Screw Lead Option

AH = 1 mm	(0.039 in.)	BG = 6 mm	(0.236 in.)
AG = 2 mm	(0.079 in.)	BH = 8 mm	(0.315 in.)
AR = 4 mm	(0.157 in.)	AJ = 10 mm	(0.394 in.)
AX = 5 mm	(0.197 in.)	BD = 12 mm	(0.472 in.)

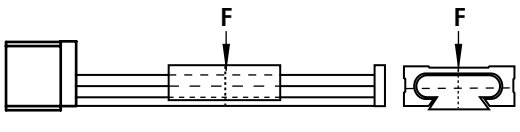
Nominal Size of Stepper Motor
M42 = 42 mm (NEMA 17)

Number of Carriages
1 = One carriage
* Contact an application engineer before ordering, if more than one (1) carriage is needed

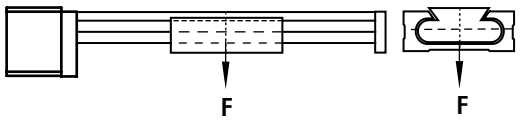
STATIC LOAD DATA

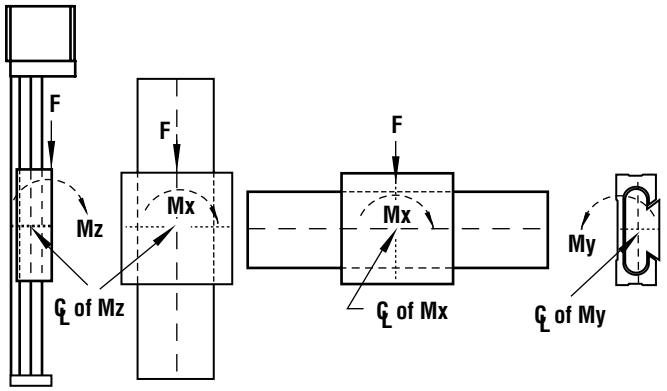
The numbers below are for rails in a static condition. Refer to the calculations below to establish dynamic parameters.

F (N)	MSL (N)*
3559	6005



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)
Frelon GOLD®	20,000 (psi x ft./min.) or 0.7 N/mm^2 x m/s	3000 psi or 20.68 N/mm^2	300 sfm or 1.524 m/s

PV = The performance measurement of plane bearings

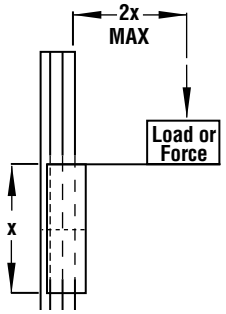
PV = P x V where P = pressure (load) in psi (kgf/cm^2)

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.

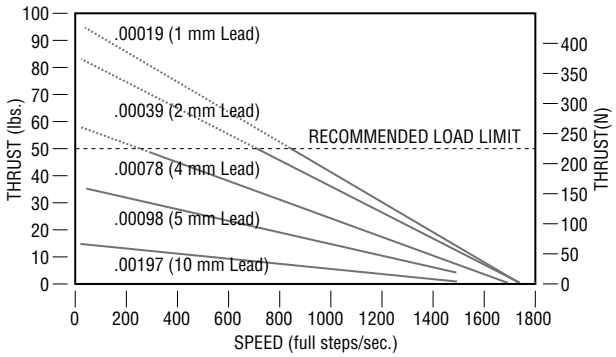


LOAD/MOMENT CONVERSION

N = 4.45 x (lbs.)

N-m = 0.113 x (in-lbs.)

SIZE 17 STEPPER MOTOR WITH 6 MM (0.236") SCREW

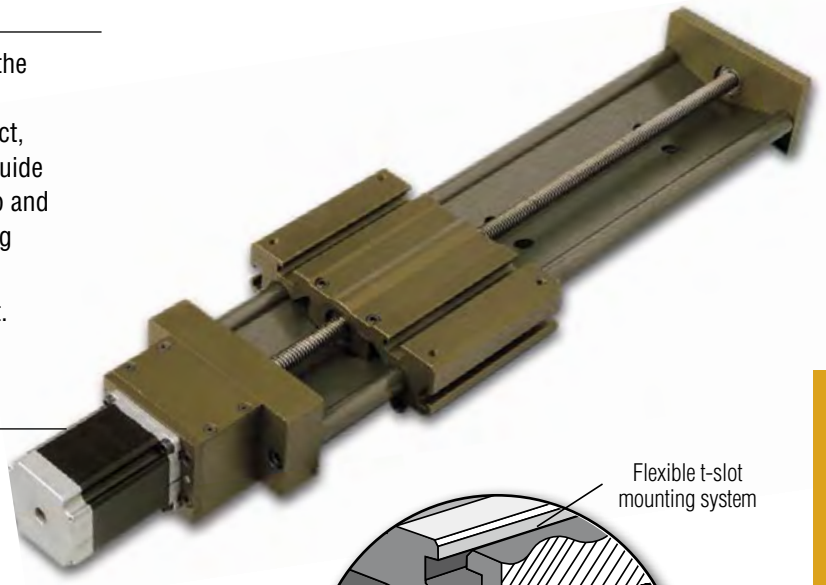


LEAD	LEAD CODE	LINEAR TRAVEL PER STEP	
		mm	Inch
1 mm	AH	0.005	0.000197
2 mm	AG	0.010	0.000394
4 mm	AR	0.020	0.000787
5 mm	AX	0.025	0.000984
6 mm	BG	0.030	0.001181
8 mm	BH	0.040	0.001575
10 mm	AJ	0.050	0.001969
12 mm	BD	0.060	0.002362

Note: 1.8° = 200 steps per revolution

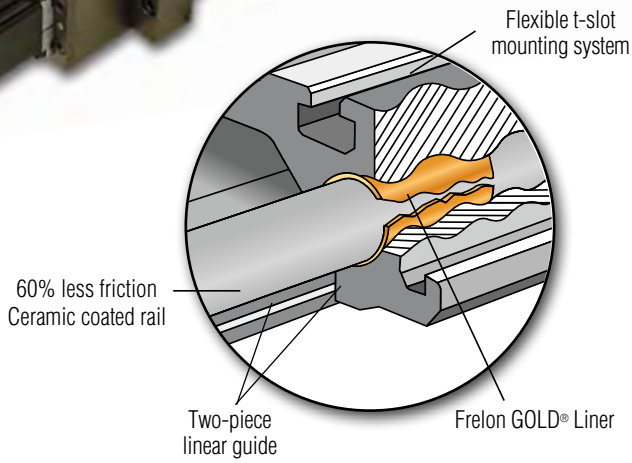
PRODUCT OVERVIEW

Based on proven Simplicity® linear bearing technology, the Uni-Guide contain Frelon GOLD® self-lubricating bearing material. This material results in no metal to metal contact, while dampening vibrations and shock loads. The Uni-Guide unique two-piece assembly eliminates tolerance stack up and the integrated lightweight packages can drop into existing applications making installation easy. Ideal for low cost automation, positioning tables and packaging equipment.



FEATURES & BENEFITS

- Two-piece assembly - lightweight and eliminates tolerance stack
- Self-lubricating - Frelon GOLD® provides low wear, low friction, and high strength
- Lengths up to 10' - butt-joinable for longer lenghts
- Mounting Flexibility
  - Pre-drilled rails
  - T-slots & mounting holes on carriages
  - Side or top mounting
- Easy drop in unit - no alignment needed
- Drive options
  - Ball
  - Lead screw (includes motor and drive)
  - Belt Driven
- Corrosion-Resistant - ideal in washdown environments
- Pre-engineered - ready to use



Uni-guide
MODULAR GUIDE SYSTEM

UNLIMITED DESIGN OPTIONS AND VERSATILITY.

ACCESSORIES*

- Hand Brake & Crank
- Vise Block
- Ratchet Pin
- Motor Mount
- End Block
- Pin Lock Clamp

APPLICATION EXAMPLES (Application examples require accessories. Contact manufacturer for availability)

Uni-Guide Ratchet

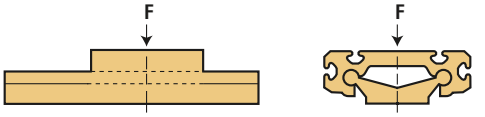
Pin-Lock Quick Positioning Clamp

Self- Centering Vice

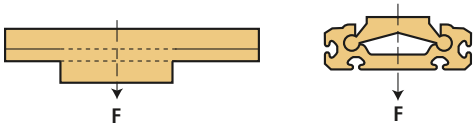
* Optional configurations and special carriages are available. Contact manfuracturer for availability.

STATIC LOADS WITH NO DRIVE MECHANISM

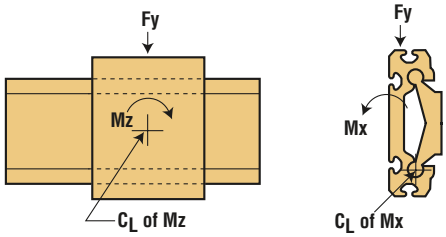
The numbers below are for guides only in a static condition. The drive mechanism selected (lead screw, ball screw, cylinder, etc.) becomes the limiting factor when calculating maximum load and speed capacities. The user is responsible for determining the maximum capacity for the complete system based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



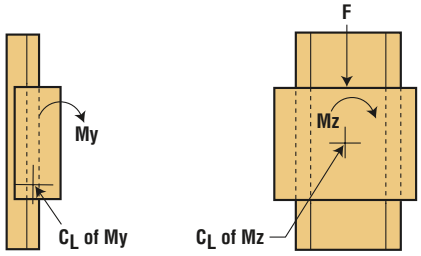
SIZE	Fz MAX LOAD (lbs.)	Fz MAX LOAD (N)
D075	500	2,224
D100	750	3,336
D125	1,000	4,448



SIZE	Fz (inverted) MAX LOAD (lbs.)	Fz (inverted) MAX LOAD (N)
D075	125	556
D100	190	845
D125	250	1,112



SIZE	Fy MAX LOAD (lbs.)	Mx (in./lbs.)	Mz (in./lbs.)	Fy MAX LOAD (N)	Mx (Nm)	Mz (Nm)
D075	250	340	350	1,112	38	40
D100	375	650	730	1,668	73	82
D125	500	1,200	1,225	2,224	136	138

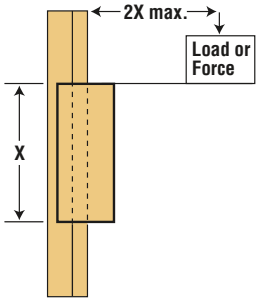


SIZE	My (in./lbs.)	Mz (in./lbs.)	My (Nm)	Mz (Nm)
D075	340	350	38	40
D100	650	730	73	82
D125	1,200	1,225	136	138

Designs must also operate within the following dynamic parameters:

- Maximum Loads (P) = from charts above
- Maximum Speed Dry (V) = 300 ft./min. (1.524 m/s)
- Maximum PV (pressure x velocity) = 20,000 (0.70 N/mm^2 x m/s)
- PV Example: Load = 85 psi
  Speed = 180 ft./min.
  PV = 85 x 180 = 15,300 PV

NOTE: Frelon GOLD® bearing material coefficient of friction is 0.125.



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.

ORDERING INFORMATION

D	X	XXX	X	CHB	–	XX	X	X	–	X

# of Carriages

Series
D - Standard Uni-Guide

Carriage Options
No Entry - Standard Carriage
L - Extended Length Carriage

Nominal Size
075mm, 100mm, 125mm
Based on mm from shaft center-to-center

Drive Options
No Entry - No Drive Mechanism
M - Right Hand Lead Screw with Standard Pitch
M1 - Right Hand Lead Screw with Optional Pitch
Notes: Screw options require attaching collar.
Call the factory for other optional drive mechanisms.

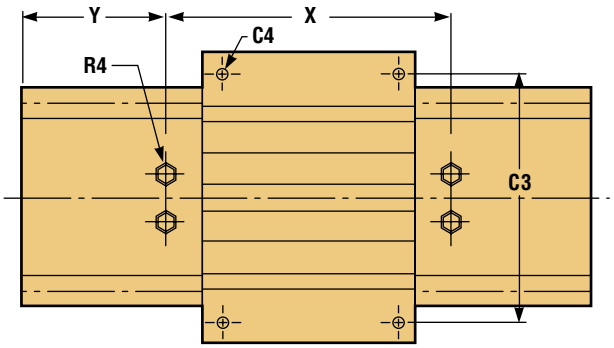
Metric Mounting Hole Option Retired -
Click Here for Product Migration Matrix

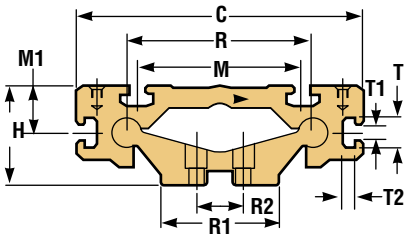
Drive Mounting Options
No Entry - No Drive Mounting Options
H - Hand Crank
N - NEMA Standard Motor Mount
HB - Handbrake (requires handcrank and screw)
CHB - Carriage Handbrake (not offered with screw driven options)

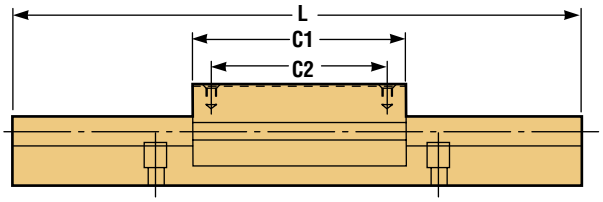
Overall Rail Length
"D" Series - enter length of rail in inches **xxx.xx** (EX: 6" = 006.000)

Power and Control Options
No Entry - No Power Options
P - Standard Motor with Motor Mount, Programmable Drive, Cables and Software (must have "N" in Drive Mounting Option)
Note: Kits available for NEMA motor

Data Entry Option
No Entry - No Options
M - Optional MMI Keypad (Man-to-Machine Interface)







STANDARD INCH SERIES WITH NO DRIVE MECHANISM (inches)

PART NUMBER	R	R1	R2	X	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	
D125-xxx	4.92	3.3	1.25		3/8	3	2.625	7.6	6	5.25	7.5	6.75	6.75	5/16-18	4.33	1.30	

CARRIAGE TYPES

PART NO.	DRILL	DEPTH	TAP	DEPTH
D075-xxx	.159	.534	10-32	.440
D100-xxx	.201	.750	1/4-20	.500
D125-xxx	.257		5/16-18	.625

T-SLOT INFORMATION (inches)

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

STANDARD LENGTHS CHART (inches)

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

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

METRIC SERIES WITH NO DRIVE MECHANISM (mm)

PART NUMBER	R	R1	R2	X	R4 BOLT SIZE	Y	H	C	C1 STANDARD	C2 STANDARD	C1 EXTENDED	C2 EXTENDED	C3	C4 BOLT SIZE	M	M1	L MAX-FEET
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	
DM125-xxx	125	84	30	200	M 10	100	66.7	193	150	130	190	170	175	M 8	110	33	

UPDATED PRODUCT INFORMATION
CLICK HERE
FOR THE PRODUCT MIGRATION MATRIX

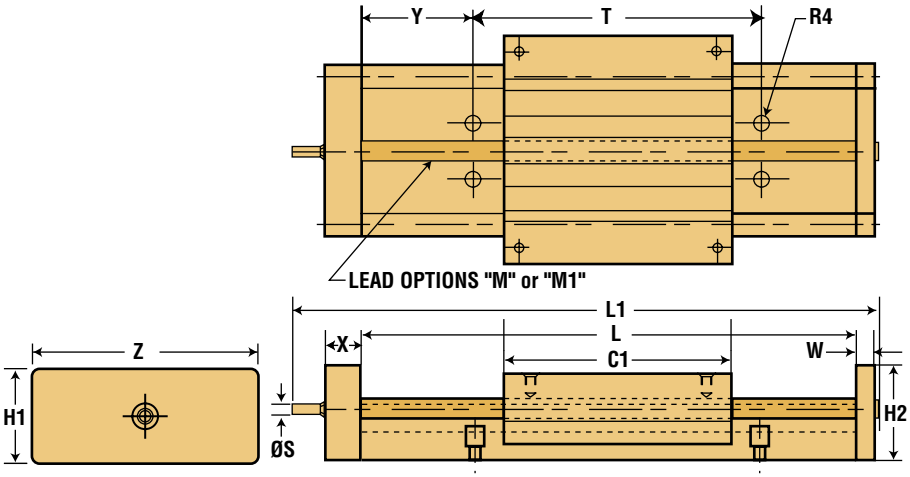
T-SLOT INFORMATION (mm)

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

RAIL Φ APPROXIMATE	
D075 =	.470 = 12mm
D100 =	.630 = 16mm
D125 =	.820 = 22mm

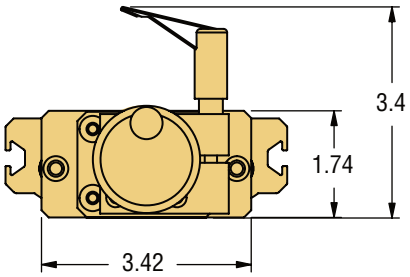
Straightness - ±.002"/ft

D075



OPTIONAL HAND BRAKE

NOTE: available only with optional hand crank

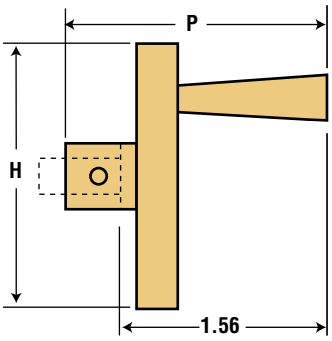


PART NO.	P	H
D075AHB	2.31	1.75

PART NO.	STROKE (L-C1)	L	L1	C1	NOMINAL SCREW DIA.	STANDARD LEAD M	OPTIONAL LEAD M1	S	Y	T	R4	W	X	Z	H1	H2
D075xx-12	8.5	12	13.93	3.5	10 mm	6 mm	12 mm	0.187	2	4	1/4	0.375	0.625	3.42	1.75	1.625
D075xx-16	12.5	16	17.93													
D075xx-20	16.5	20	21.93													
D075xx-24	20.5	24	25.93													

NOTE: Optional leads may be available - consult factory.

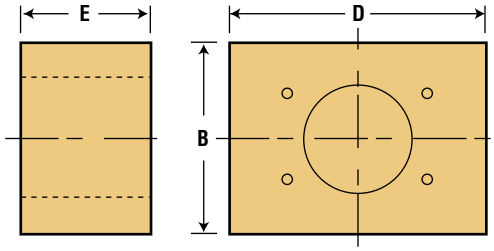
OPTIONAL HAND CRANK



PART NO.	P	H
75H	2.31	1.75

*See order codes on page 199 to integrate.

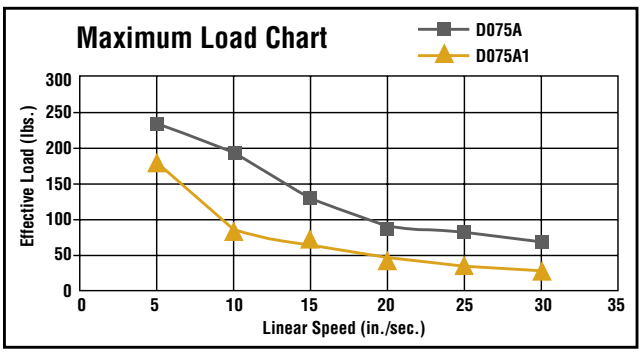
OPTIONAL MOTOR MOUNT ATTACHMENT



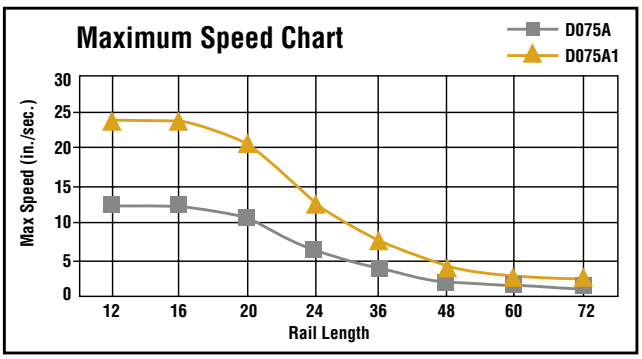
PART NO.	MOTOR MOUNT	B	E	D
75N	NEMA 17	2	1.81	3.25

LOAD & SPEED DATA FOR STANDARD LEAD SCREW DRIVEN (HORIZONTAL ORIENTATION)

D075A-xxx

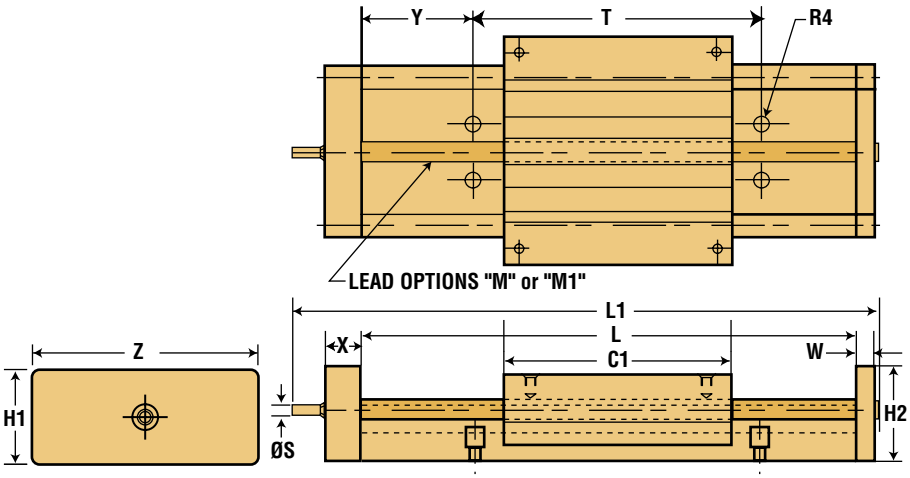


D075A-xxx



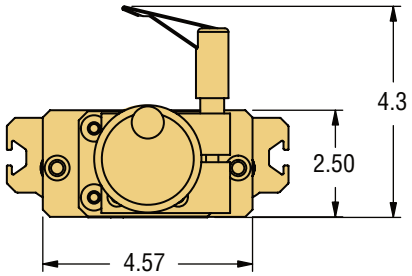
NOTE: Optional drives are available: ball screws, cylinders, linear motors, and belt drives.

D100



OPTIONAL HAND BRAKE

NOTE: available only with optional hand crank

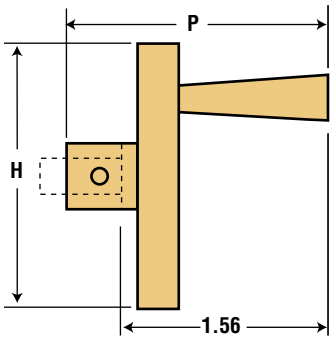


PART NO.	P	H
DO100AHB	2.31	1.75

PART NO.	STROKE (L-C1)	L	L1	C1	NOMINAL SCREW DIA.	STANDARD LEAD M	OPTIONAL LEAD M1	S	Y	T	R4	W	X	Z	H1	H2
D100xx-12	7.5	12	14.61	4.5	12 mm	6 mm	12 mm	0.314	3	6	5/16	0.5	1	4.56	2.5	2.500
D100xx-18	13.5	18	20.61													
D100xx-24	19.5	24	26.61													
D100xx-30	25.5	30	32.61													
D100xx-48	43.5	48	50.61													

NOTE: Optional leads may be available - consult factory.

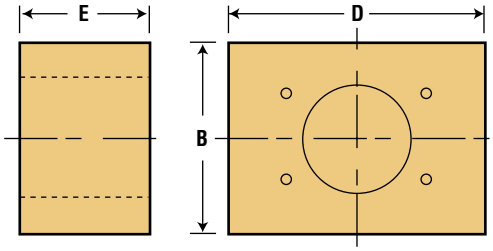
OPTIONAL HAND CRANK



PART NO.	P	H
100H	2.31	2.25

*See order codes on page 199 to integrate.

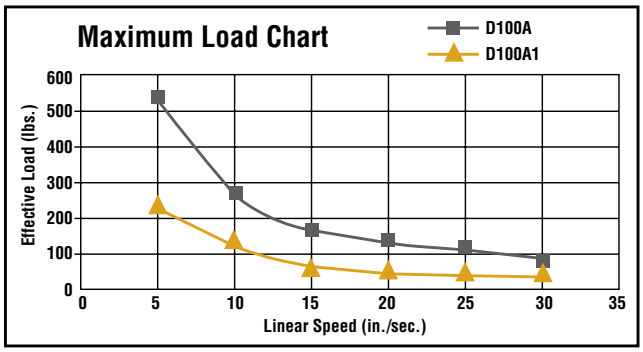
OPTIONAL MOTOR MOUNT ATTACHMENT



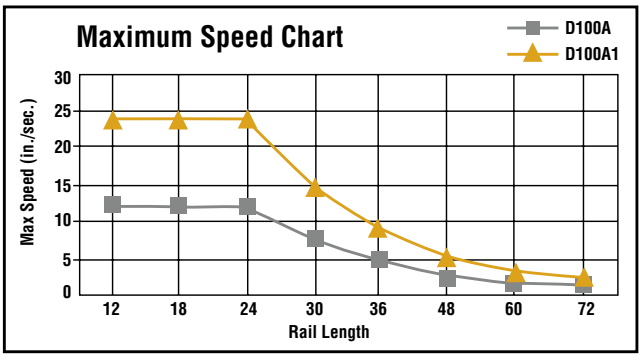
PART NO.	MOTOR MOUNT	B	E	D
100N	NEMA 23	2.5	1.81	3.25

LOAD & SPEED DATA FOR STANDARD LEAD SCREW DRIVEN (HORIZONTAL ORIENTATION)

D100A-xxx

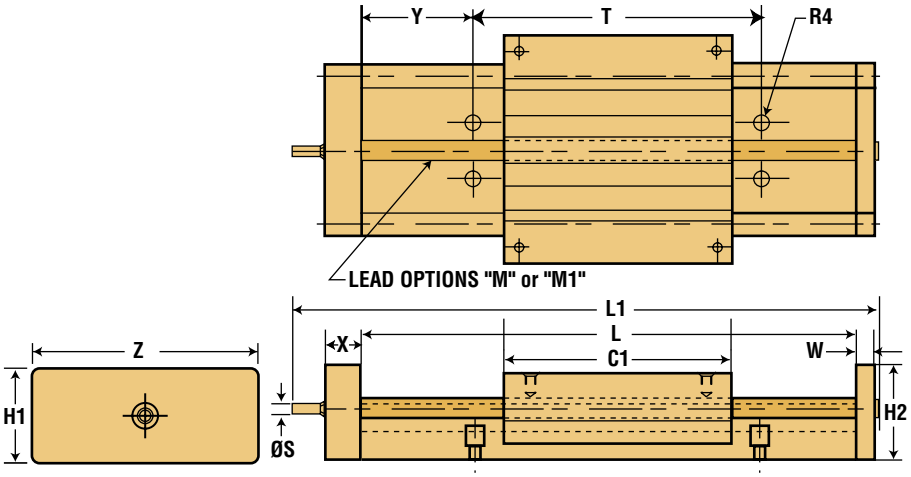


D100A-xxx



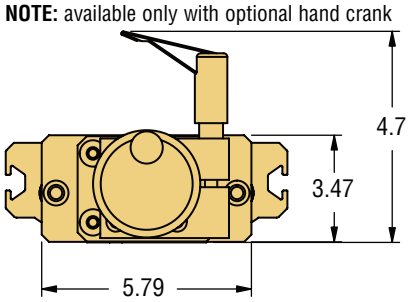
NOTE: Optional drives are available: ball screws, cylinders, linear motors, and belt drives.

D125



OPTIONAL HAND BRAKE

NOTE: available only with optional hand crank

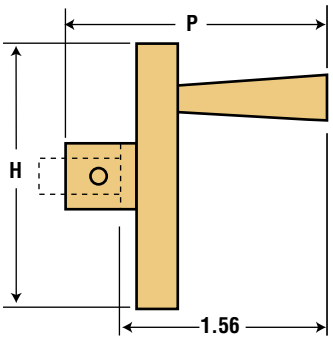


PART NO.	P	H
DO125AHB	2.31	1.75

PART NO.	STROKE (L-C1)	L	L1	C1	NOMINAL SCREW DIA.	STANDARD LEAD M	OPTIONAL LEAD M1	S	Y	T	R4	W	X	Z	H1	H2
D125xx-12	6	12	14.85	6	16 mm	5 mm	12 mm	0.314	3	6	3/8	0.5	1	5.78	3.5	2.500
D125xx-18	12	18	20.85													
D125xx-24	18	24	26.85													
D125xx-30	24	30	32.85													
D125xx-36	30	36	38.85													
D125xx-48	42	48	50.85													
D125xx-60	54	60	62.85													

NOTE: Optional leads may be available - consult factory.

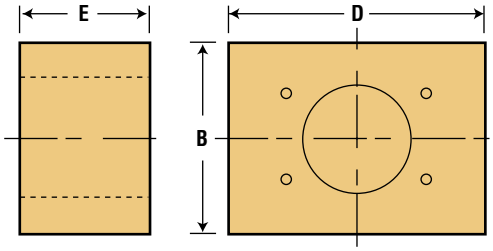
OPTIONAL HAND CRANK



PART NO.	P	H
125H	2.31	3.25

*See order codes on page 199 to integrate.

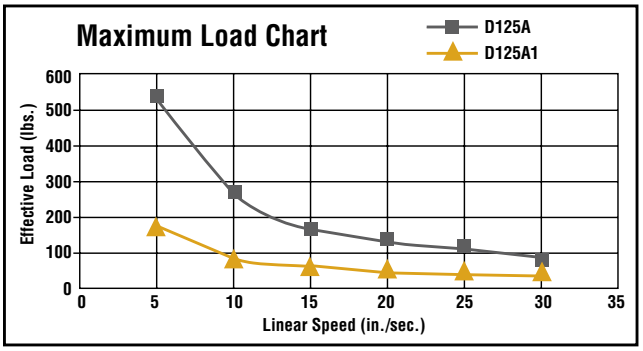
OPTIONAL MOTOR MOUNT ATTACHMENT



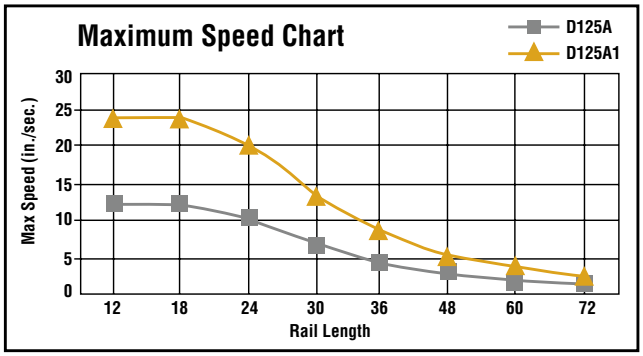
PART NO.	MOTOR MOUNT	B	E	D
125N	NEMA 34	3.5	2.3	4.25

LOAD & SPEED DATA FOR STANDARD LEAD SCREW (HORIZONTAL ORIENTATION)

D125A-xxx



D125A-xxx



NOTE: Optional drives are available: ball screws, cylinders, linear motors, and belt drives.

Design & Layout Options

Name: _____ **Date:** _____

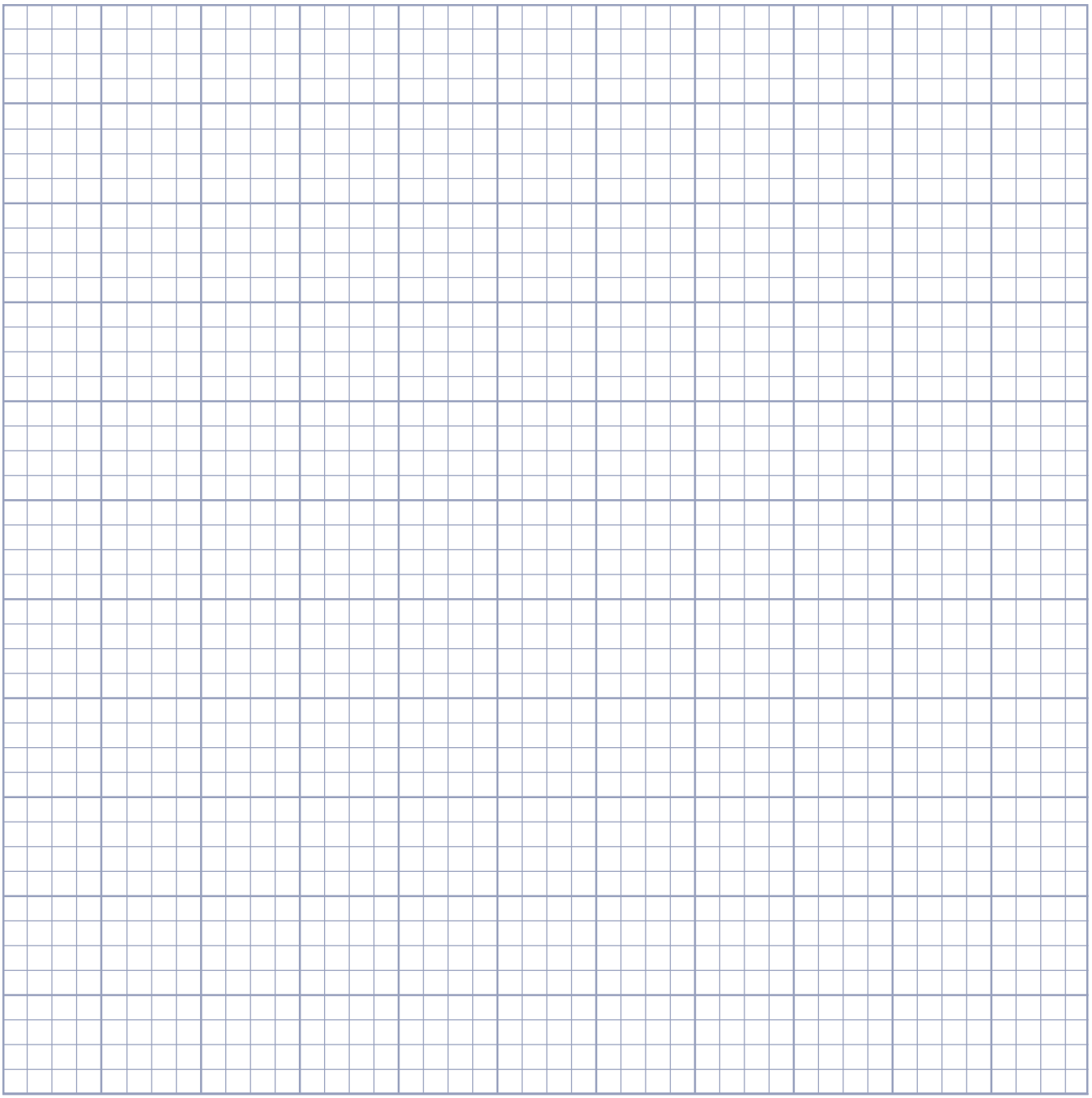
Dept.: _____ **Phone:** _____ **Fax:** _____

Company: _____ **Machine Type/Name:** _____

Email: _____

Address: _____

_____

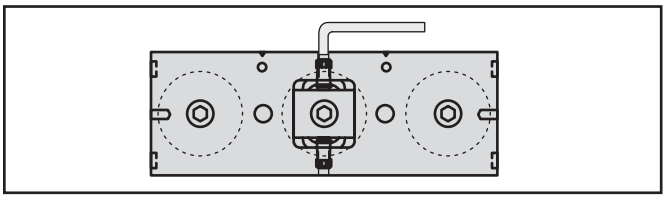


PRODUCT OVERVIEW

- Sealed double row bearings provide maintenance free, smooth linear guidance
- Side adjusted preload makes greatly simplifies assembly and installation
- Withstands temperatures up to 180°F
- Butt-joinable for longer length applications
- Available in Inch or ISO Metric

ADJUSTING SLIDE PRELOAD

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



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 slide 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 slide 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

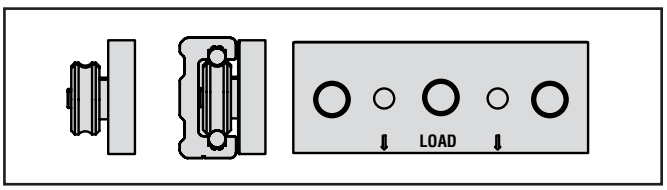
The rollers are internally lubricated for life, but the rails must always have a layer of grease. As a guideline, reapply fresh grease every 50,000 cycles.

SLIDER ORIENTATION

The 3-Roller slide 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.

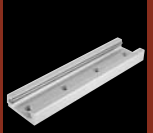
MOUNTING SLIDER BODY & MAX CAPACITY

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

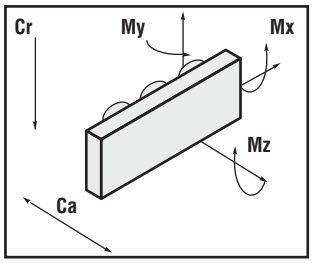


MOUNTING TORQUE

PART NUMBER	IN-LBS. TORQUE	NM TORQUE
RRS14 RRS30	25	3
RRS18 RRS45	70	8
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 PART NO.	Cr (lbs.)	Ca (lbs.)	Mx (in-lbs.)	My (in-lbs.)	Mz (in-lbs.)
RRS14	336	79	21	54	201
RRS18	847	168	67	153	677
METRIC	**(N)**	**(N)**	**(Nm)**	**(Nm)**	**(Nm)**
RRS30	1,002	330	1.8	5.5	12.5
RRS45	2,660	827	6.6	19.9	47.9
RRS65	5,950	1,678	19.0	58.2	154.7

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

Inch Series

The value of L_{RR} is in meters

$$L_{RR} = 10^7 \bullet \ (Cd/(LoadEquiv \bullet RF))^{3.0} \ \text{(inches)}$$

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

$Load_{Equiv}$ = Equivalent Radial Load found from the following equation:

$$Load_{Equiv} = Cr \bullet \left(\frac{Load_{Axial}}{Ca} + \frac{M_x}{M_{x\,Max}} + \frac{M_y}{M_{y\,Max}} + \frac{M_z}{M_{z\,Max}} \right) + Load_{Radial}$$

PART NO.	MAX SPEED (fpm)	MAX SPEED (ipm)	Cd
RRS14	500	6000	421
RRS18	800	9,600	1,032

Metric Series

The value of L_{RR} is in meters

$$L_{RR} = (Cd/Load_{Equiv} \bullet RF)^{3.0} \times 100{,}000 \text{ meters}$$

Cd = Slider Life Capacity which is found in the table

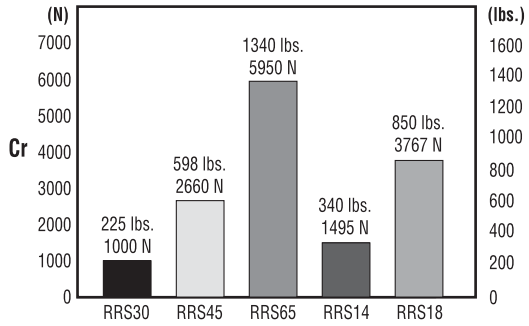
$Load_{Equiv}$ = Equivalent Radial Load found from the following equation:

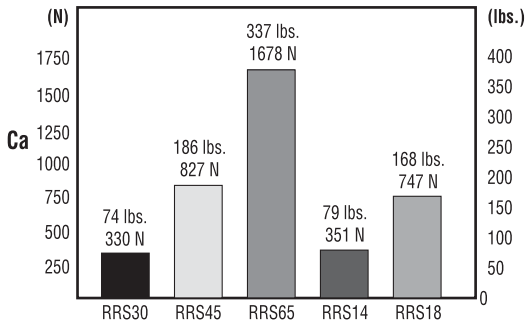
$$Load_{Equiv} = Cr \bullet \left(\frac{Load_{Axial}}{Ca} + \frac{M_x}{M_{x\,Max}} + \frac{M_y}{M_{y\,Max}} + \frac{M_z}{M_{z\,Max}} \right) + Load_{Radial}$$

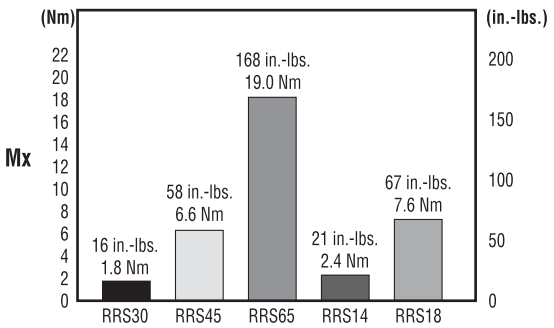
PART NUMBER	MAX SPEED (m/min)	MAX SPEED (m/s)	Cd (N)
RR30	300	5.0	1,440
RR45	420	7.0	4,404
RR65	480	8.0	10,200

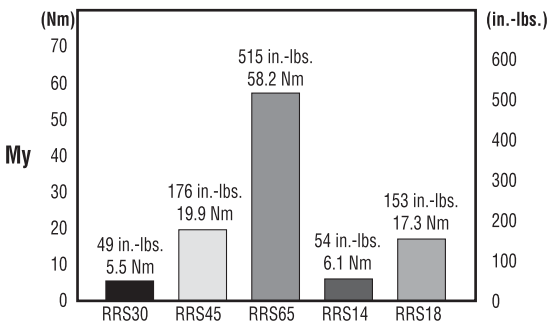
NOTE: Reduction factors apply to both inch and metric series
RF = Reduction Factor of the Application or Environment
- = 1.0 to 1.5 for very clean, low speed (<30% Max), low shocks
- = 1.5 to 2.0 for some dirtiness, moderate speed (30% Max to 75% Max), medium shocks and vibration
- = 2.0 to 3.0 for heavy dirt & dust, high speeds (>75% Max) and heavy shocks & vibrations

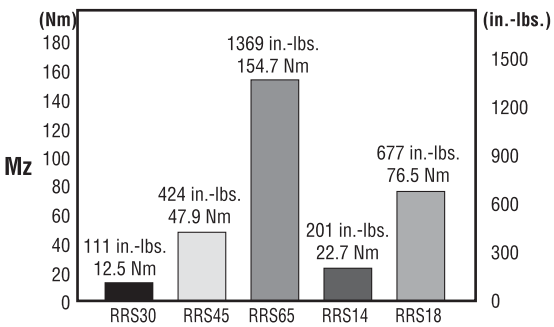
LOAD COMPARISON GRAPHS





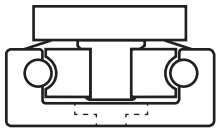


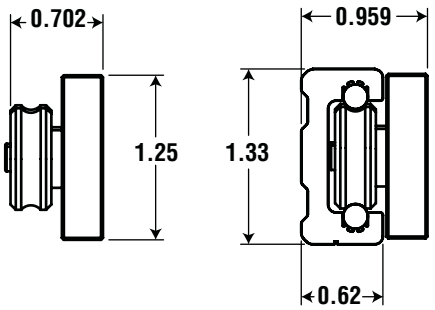


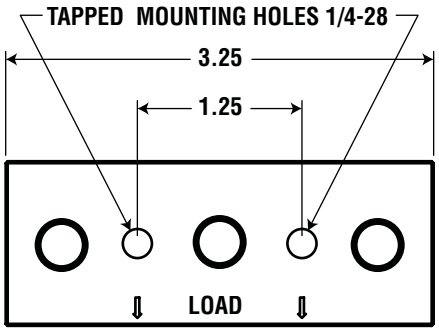


RRS14 SLIDE

- Low cost precision
- Factory adjusted
- Sealed bearings
- Solid bearing mounting system
- Up to 19' lengths
- Gothic arch rollers
- Aluminum alloy body
- Rollers are 52100 steel, sealed against contamination, and are mounted with hardened steel mounting accessories
- Not available with seals
- Maximum temperature approximately 180°F

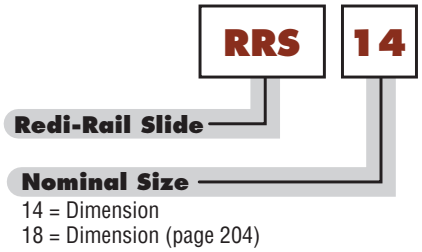






NOTE: Slide weight 0.25 lbs./ea.

ORDER INFORMATION



EXAMPLE:
Slider size 14

RR14 RAIL

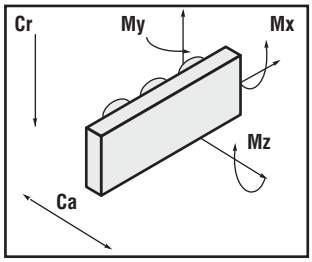
SUGGESTED RAIL LENGTHS & DIMENSIONS (Inches)

PART NUMBER	LENGTH	HOLES	Y	WT. (lbs./ft.)
RR14-12	12	4	0.75	0.56
RR14-24	24	7	1.50	
RR14-36	36	11	0.50	
RR14-48	48	14	1.25	
RR14-60	60	17	2.00	
RR14-72	72	21	1.00	
RR14-84	84	24	1.75	
RR14-96	96	28	0.75	

NOTE: Suggested lengths can be cut and are available up to 19' (6m).

Aluminum alloy with hardened steel raceways inserted.

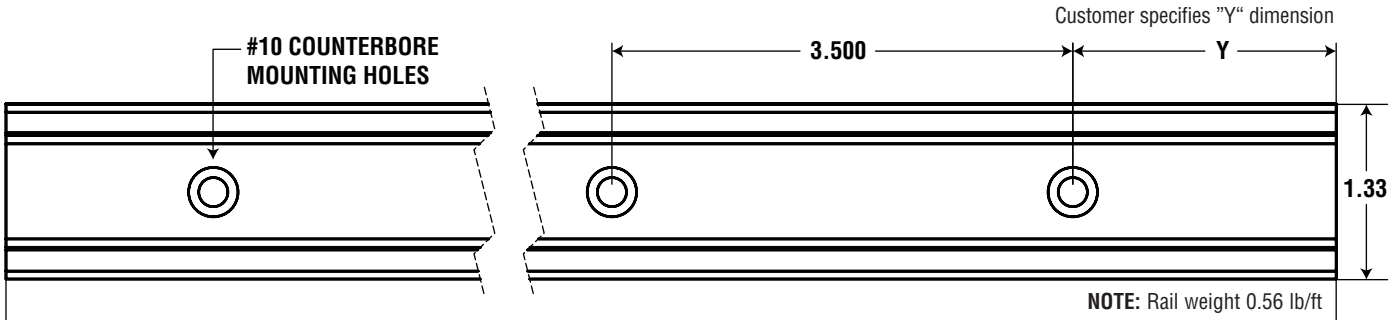
LIFE CALCULATIONS



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

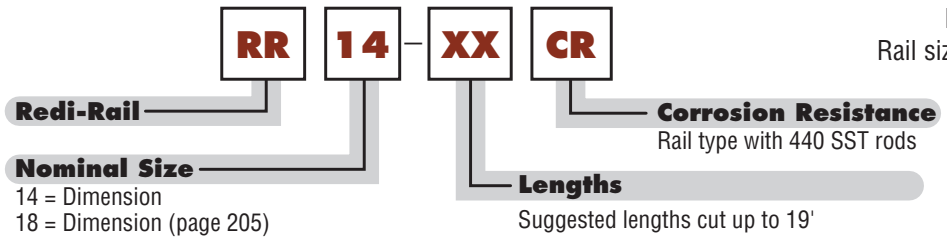
Conversions
newton (N) x 0.2248 = lbs.
(lbf) meter x 0.0397 = inch
newton - meter (Nm) x 8.851 = in.-lbs.

PART NUMBER	Cd (lbs.)	Cr (lbs.)	Ca (lbs.)	Mx (in-lbs.)	My (in-lbs.)	Mz (in-lbs.)
RRS14	421	340	79	21	54	201



NOTE: Rail weight 0.56 lb/ft

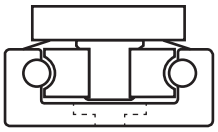
ORDER INFORMATION

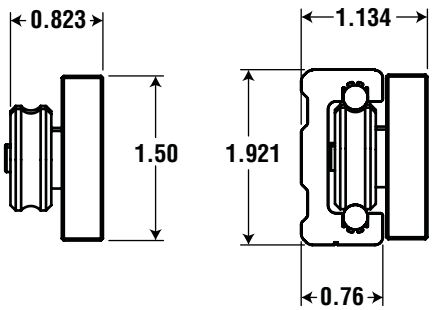


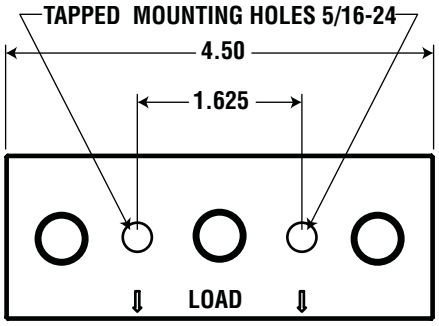
EXAMPLE: RR14-36
Rail size 14 cut to 36" long

RRS18 SLIDE

- Low cost precision
- Factory adjusted
- Sealed bearings
- Solid bearing mounting system
- Up to 5.79m lengths
- Gothic arch rollers
- Aluminum alloy body
- Rollers are 52100 steel, sealed against contamination, and are mounted with hardened steel mounting accessories
- Not available with seals
- Maximum temperature approximately 180°F



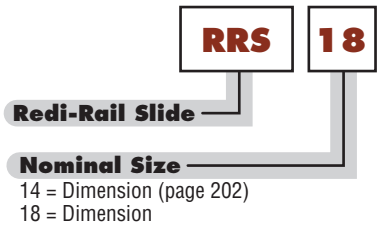




NOTE: Slide weight 0.50 lbs./ea.

ORDER INFORMATION

EXAMPLE: RRS18



RR18 RAIL

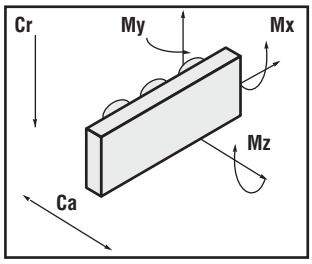
SUGGESTED RAIL LENGTHS & DIMENSIONS (Inches)

PART NUMBER	LENGTH	HOLES	Y	WT. (lbs./ft.)
RR18-12	12	4	0.75	0.85
RR18-24	24	7	1.50	
RR18-36	36	11	0.50	
RR18-48	48	14	1.25	
RR18-60	60	17	2.00	
RR18-72	72	21	1.00	
RR18-84	84	24	1.75	
RR18-96	96	28	0.75	

NOTE: Suggested lengths can be cut and are available up to 19' (6m).

Aluminum alloy with hardened steel raceways inserted.

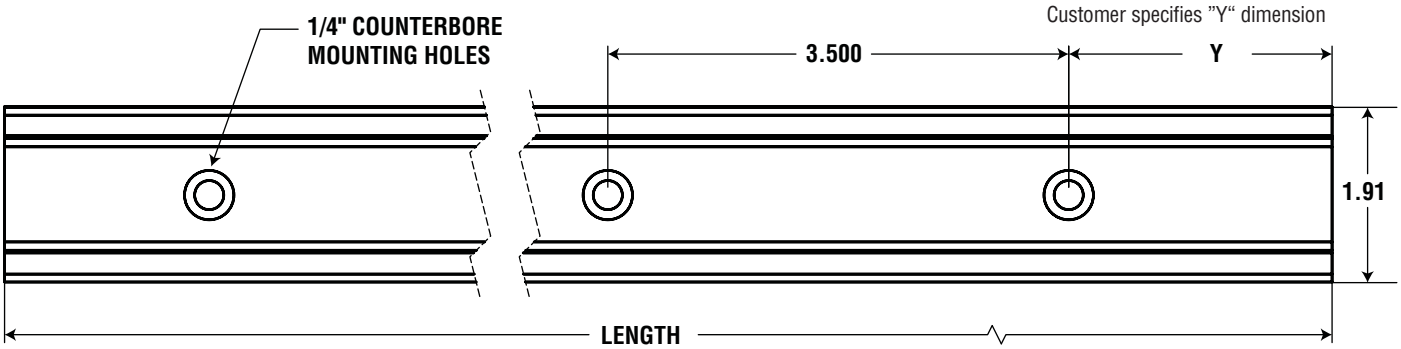
LIFE CALCULATIONS



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.

PART NUMBER	Cd (lbs.)	Cr (lbs.)	Ca (lbs.)	Mx (in-lbs.)	My (in-lbs.)	Mz (in-lbs.)
RRS18	1,032	850	168	67	153	677



NOTE: Rail weight 0.85 lb/ft

ORDER INFORMATION

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

RR **18** – **XX** **CR**

Redi-Rail

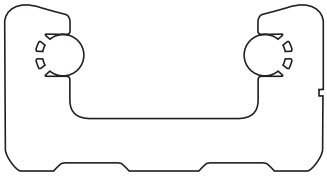
Nominal Size
14 = Dimension (page 203)
18 = Dimension

Lengths
Suggested lengths cut up to 19'

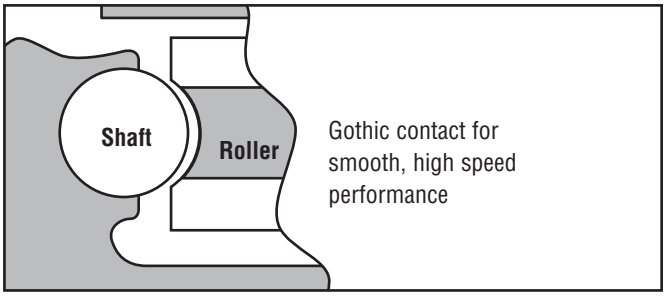
Corrosion Resistance
Rail type with 440 SST rods

RRS30 SLIDE

- 5.79 Meter Lengths
- Sealed Bearings
- Integral Seals
- Easy Adjusting
- Gothic Arch Rollers
- Solid Roller Mounting
- Slider body is aluminum alloy.
- Maximum temperature approximately 80°C.
- Gothic 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.
- Patented pre-load adjustment eliminates eccentrics.

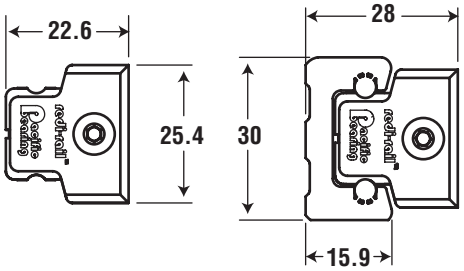


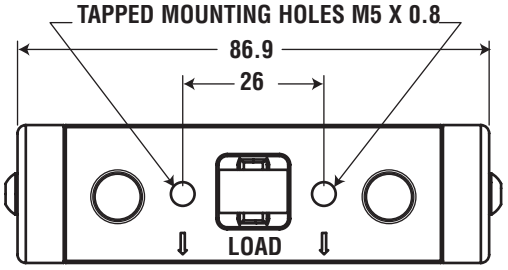
ROLLER/SHAFT INTERFACE



APPLICATIONS

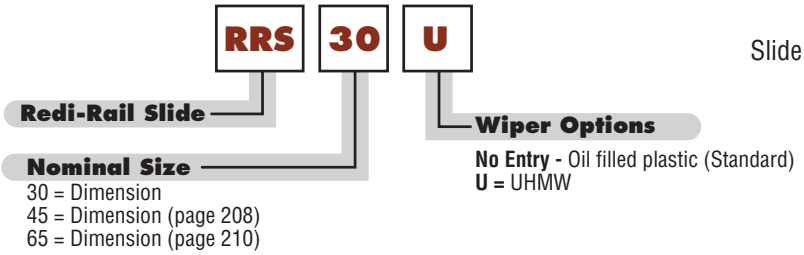
- Automation
- Assembly
- Material Handling
- Packaging





NOTE: Slide weight .09 Kg

ORDER INFORMATION



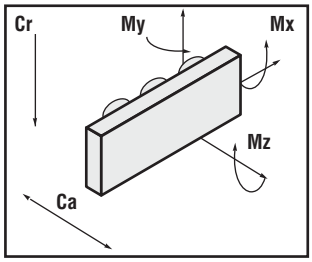
EXAMPLE: RRS30U
Slide size 30 with UHMW seals

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.

RR30 RAIL

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

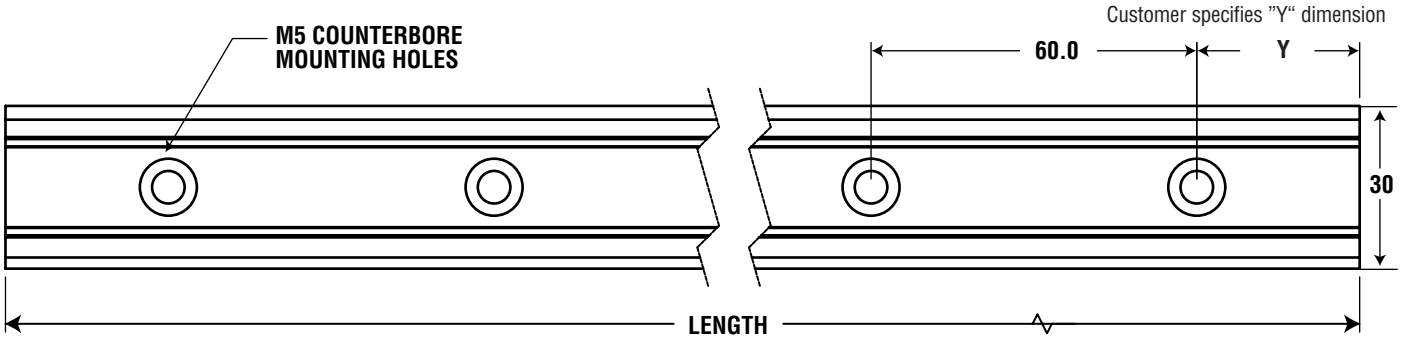
LIFE CALCULATIONS



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.

PART NUMBER	Cd (N)	Cr (N)	Ca (N)	Mx (Nm)	My (Nm)	Mz (Nm)
RRS30	1,440	1,000	330	1.8	5.5	12.5



NOTE: Rail weight 0.868 kg/m

ORDER INFORMATION

RR | 30 | – | XXXX | CR

Redi-Rail

Nominal Size
30 = Dimension
45 = Dimension (page 209)
65 = Dimension (page 211)

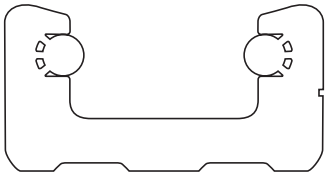
Lengths (mm)
Note: Specify Rail Length & Carriage

Corrosion Resistanc
Rail type with 440 SST rods

EXAMPLE: RR30-1200
Rail size 30 cut to 1200mm long

RRS45 SLIDE

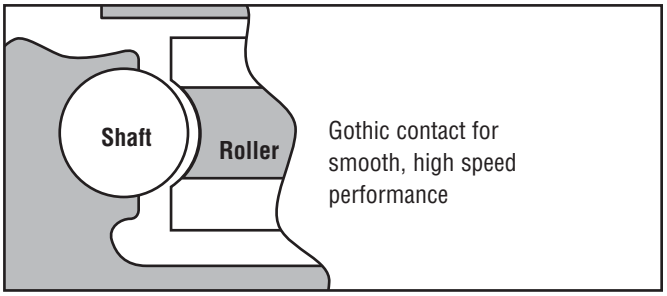
- 5.79 Meter Lengths
- Sealed Bearings
- Integral Seals
- Easy Adjusting
- Gothic Arch Rollers
- Solid Roller Mounting
- Slider body is aluminum alloy.
- Maximum temperature approximately 80°C.
- Gothic rollers are 52100 steel, hardened and ground, lubricated for life and sealed against contamination.
- 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.
- Patented pre-load adjustment eliminates eccentrics.

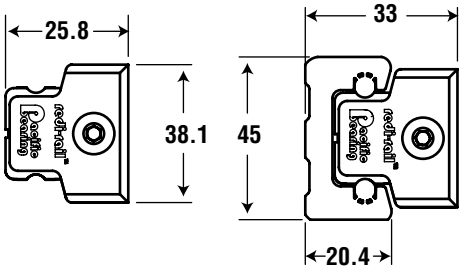


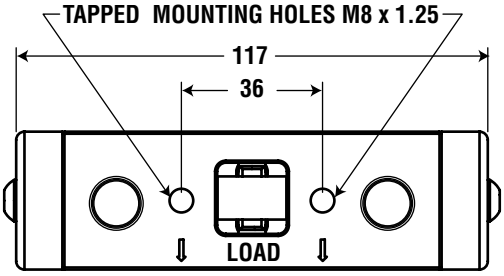
APPLICATIONS

- Automation
- Assembly
- Material Handling
- Packaging

ROLLER/SHAFT INTERFACE







NOTE: Slide weight .23 Kg

ORDER INFORMATION

EXAMPLE: RRS45U
Slider size 45 with UHMW seals

RRS **45** **U**

Redi-Rail Slide

Nominal Size
30 = Dimension
45 = Dimension
65 = Dimension

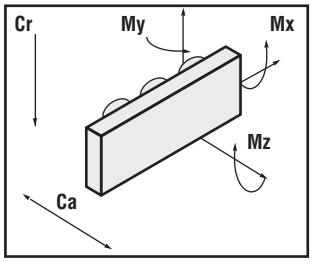
Wiper Options
No Entry - Oil filled plastic (Standard)
U = UHMW

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.

RR45 RAIL

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

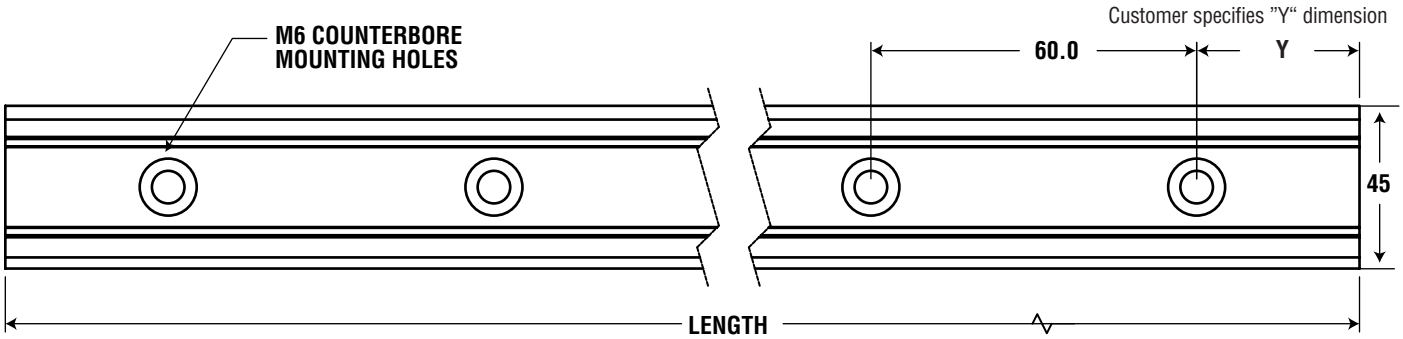
LIFE CALCULATIONS



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.

PART NUMBER	Cd (N)	Cr (N)	Ca (N)	Mx (Nm)	My (Nm)	Mz (Nm)
RRS45	4404	2660	827	6.6	19.9	47.9



NOTE: Rail weight 1.718 kg/m

ORDER INFORMATION

EXAMPLE: RR45-1200
Rail size 45 cut to 1200mm long

RR 45 – XXXX CR

Redi-Rail

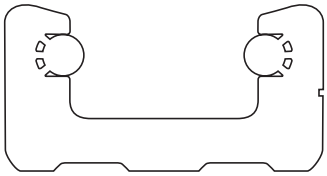
Nominal Size
30 = Dimension
45 = Dimension
65 = Dimension

Lengths (mm)
Note: Specify Rail Length & Carriage

Corrosion Resistance
Rail type with 440 SAT rods

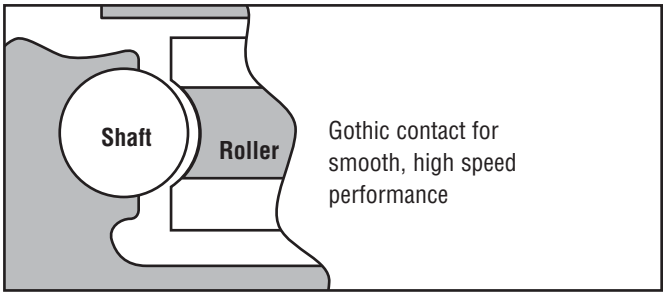
RRS65 SLIDE

- 5.79 Meter Lengths
- Sealed Bearings
- Integral Seals
- Easy Adjusting
- Gothic Arch Rollers
- Solid Roller Mounting



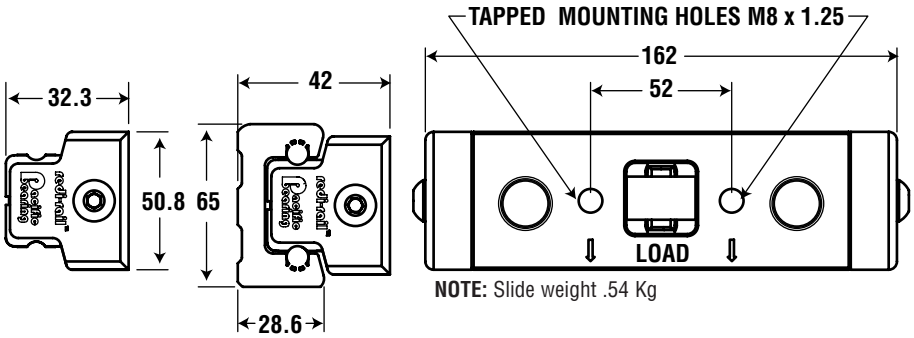
- Slider body is aluminum alloy.
- Maximum temperature approximately 80°C.
- Gothic rollers are 52100 steel, hardened and ground, lubricated for life and sealed against contamination.
- Oil-filled plastic or UHMW spring loaded seals keep contamination clear of the rollers.
- Custom roller configurations can be designed, engineered, and manufactured to meet your specific requirements.
- Patented pre-load adjustment eliminates eccentrics.

ROLLER/SHAFT INTERFACE



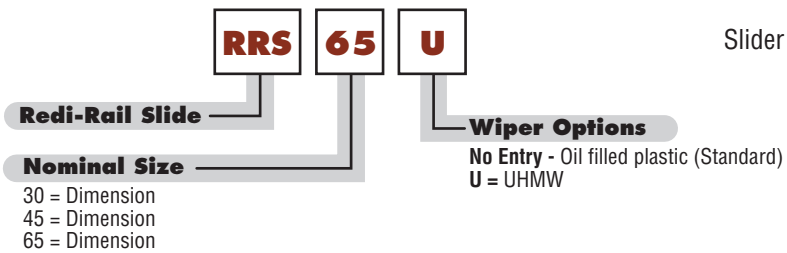
APPLICATIONS

- Automation
- Assembly
- Material Handling
- Packaging



NOTE: Slide weight .54 Kg

ORDER INFORMATION



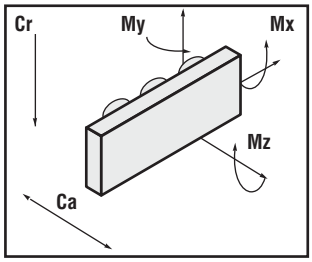
EXAMPLE: RRS65U
Slider size 65 with UHMW seals

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.

RR65 RAIL

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

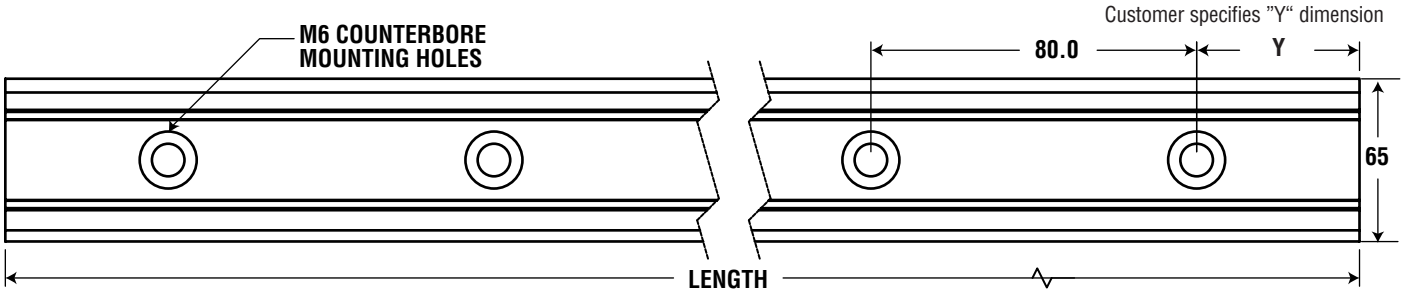
LIFE CALCULATIONS



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

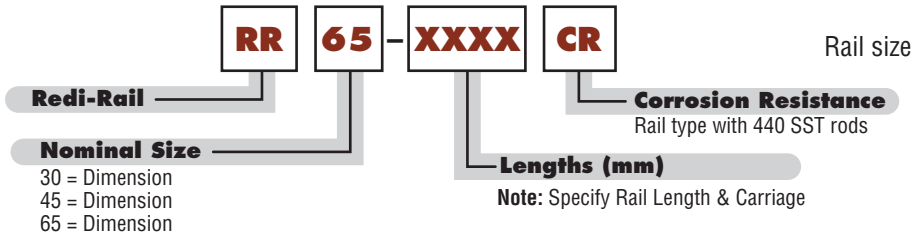
Conversions
newton (N) x 0.2248 = lbs.
(lbf) meter x 0.0397 = inch
newton - meter (Nm) x 8.851 = in.-lbs.

PART NUMBER	Cd (N)	Cr (N)	Ca (N)	Mx (Nm)	My (Nm)	Mz (Nm)
RRS65	10200	5950	1678	19.0	58.2	154.7



NOTE: Rail weight 3.758kg/m

ORDER INFORMATION



EXAMPLE: RR65-1200
Rail size 65 cut to 1200mm long

Design & Layout Options

Name: _____ **Date:** _____

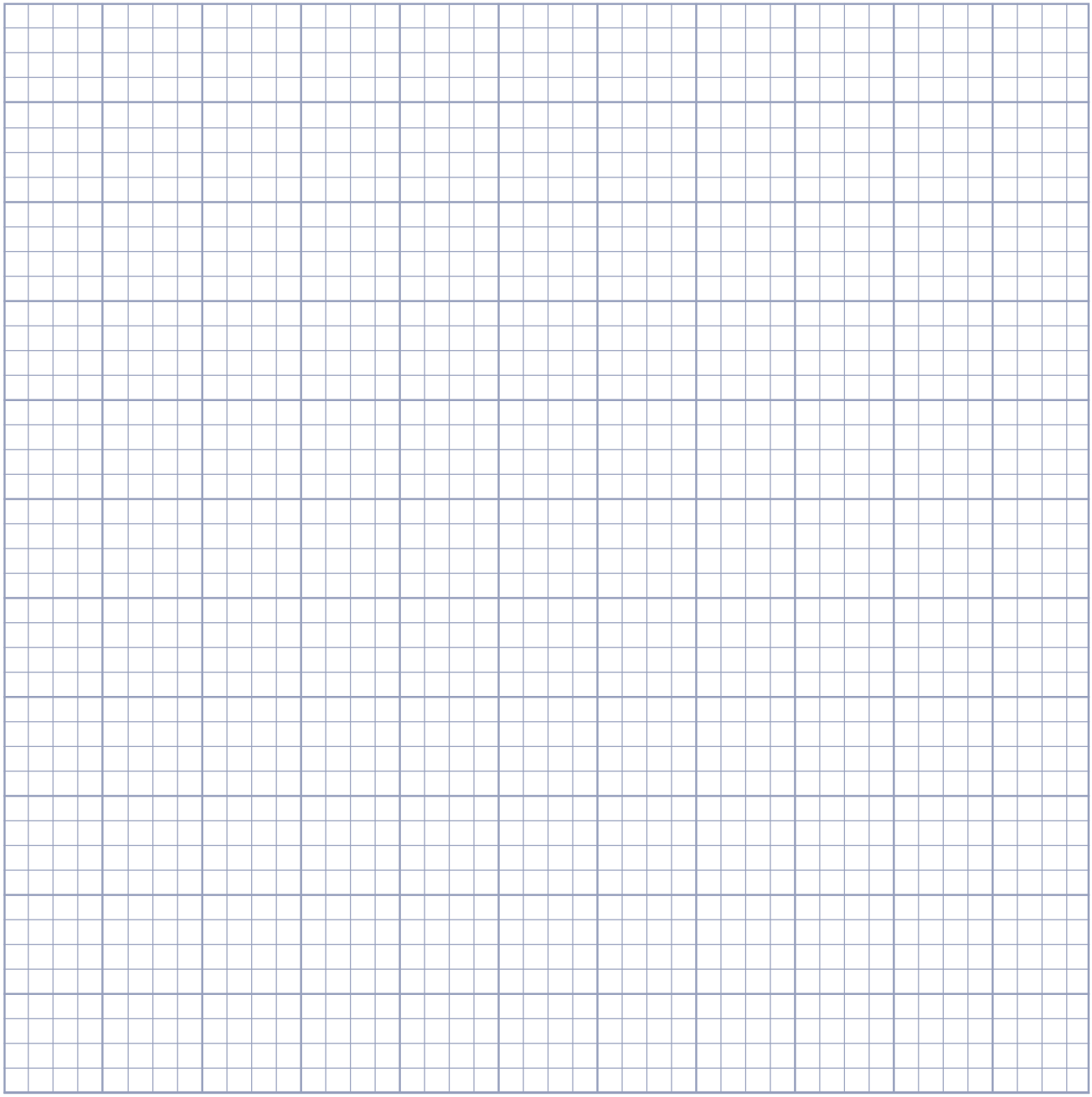
Dept.: _____ **Phone:** _____ **Fax:** _____

Company: _____ **Machine Type/Name:** _____

Email: _____

Address: _____

_____



PRODUCT OVERVIEW

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

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 Rail:
- Has shoulder for simple mounting and alignment
- Available in long lengths
- Induction hardened way surface
- 1045 Carbon Steel or 400 Series Stainless Steel
- Optional black oxide finish
- Choose predrilled rail from stock, or custom cut and drilled to your specification

V-Guide Wheels:
- Four (4) sizes
- Permanently lubricated
- Precision dual row bearing construction
- Available in 52100 Bearing Steel or 420 Stainless Steel construction
- 304 Stainless Steel shields, or nitrile rubber seals

Wheel Bushings:
- 303 Stainless Steel
- Inch or metric hardware
- Adjustable bushings allow adjustable fit and preload
- Fixed bushings are used in the primary radial load direction
- Stainless Steel construction

APPLICATIONS

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

TECHNICAL SPECIFICATIONS

V-Guide Wheels:
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.

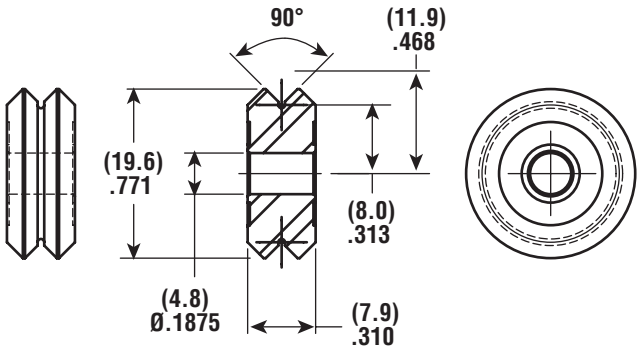
V-Guide Rails:
The rail V-Ways are induction or flame hardened, ground and polished. The track body is left soft for easy drilling of mounting holes. Available in (4) four sizes, which are designed for the corresponding size wheels.

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

Working Temperature Rating: ≈ 180°F

V-GUIDE WHEELS

VW1	Shielded Bearing
VWS1	Sealed Bearing
VWSS1	Sealed Stainless Bearing



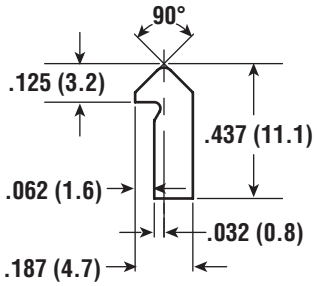
WEIGHT: .42 oz. (12 g)

Rated for:
Radial loads to 283 lbs. (1,260 N) per wheel
Axial loads to 67 lbs. (297 N) per wheel

V-GUIDE RAIL

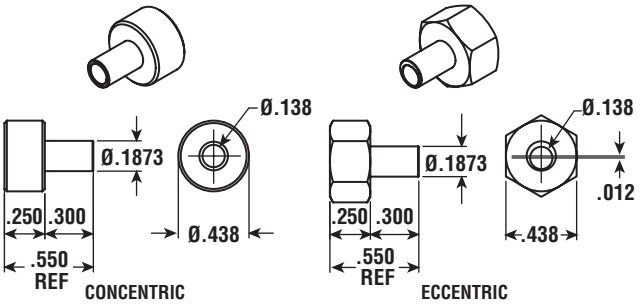
Carbon Steel	
VR1-xxx	undrilled rail max. length 21' (6400 mm)
VRD1-xxx	drilled rail, see table
Stainless Steel	
VRS1-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD1-xxx	drilled rail, see table

NOTE: Non-heat treated rails available in all sizes, contact factory.



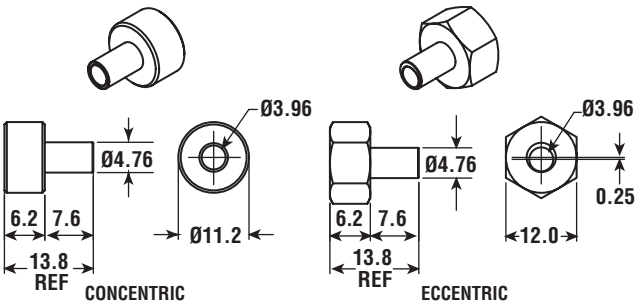
WHEEL BUSHINGS

VB1	Fixed Bushing
VBA1	Adjustable Bushing



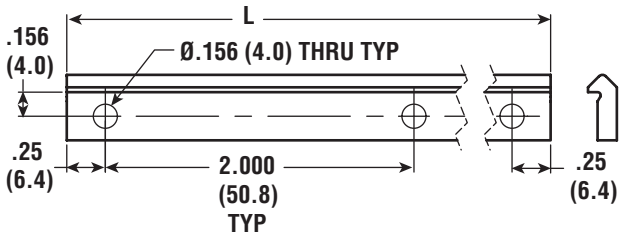
METRIC WHEEL BUSHINGS

MVB1	Metric Fixed Bushing
MVBA1	Metric Adjustable Bushing



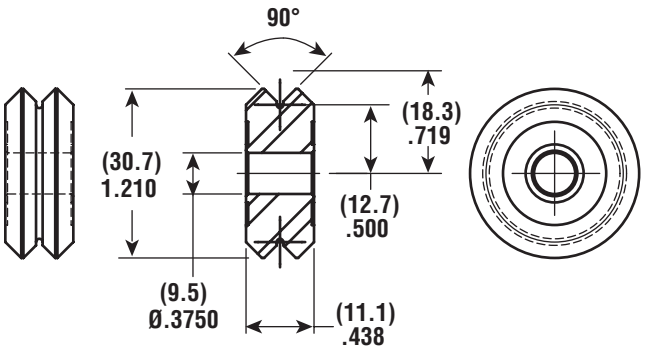
STANDARD DRILLED RAILS

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



V-GUIDE WHEELS

VW2	Shielded Bearing
VWS2	Sealed Bearing
VWSS2	Sealed Stainless Bearing



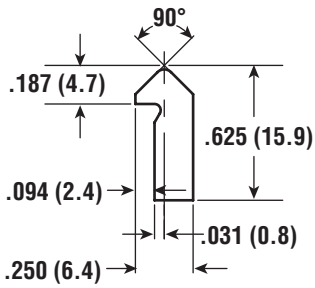
WEIGHT: 1.3 oz. (38 g)

Rated for:
Radial loads to 614 lbs. (2,730 N) per wheel
Axial loads to 142 lbs. (632 N) per wheel

V-GUIDE RAIL

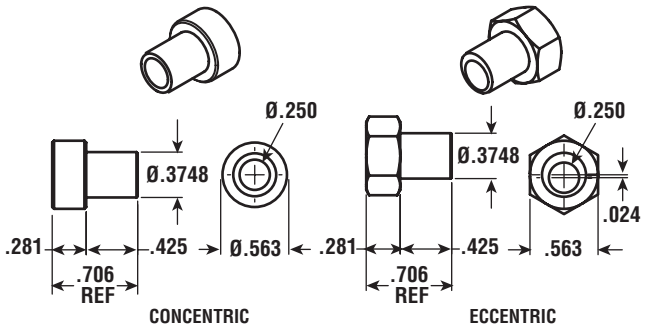
Carbon Steel	
VR2-xxx	undrilled rail max. length 21' (6400 mm)
VRD2-xxx	drilled rail, see table
Stainless Steel	
VRS2-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD2-xxx	drilled rail, see table

NOTE: Non-heat treated rails available in all sizes, contact factory.



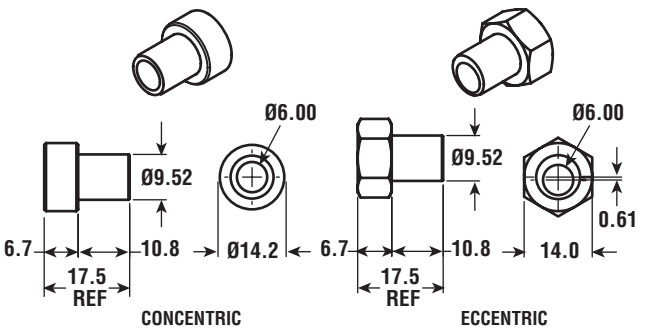
WHEEL BUSHINGS

VB2	Fixed Bushing
VBA2	Adjustable Bushing



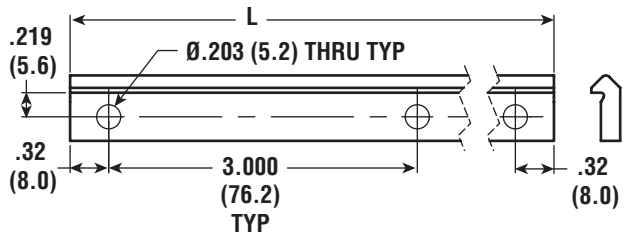
METRIC WHEEL BUSHINGS

MVB2	Metric Fixed Bushing
MVBA2	Metric Adjustable Bushing



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

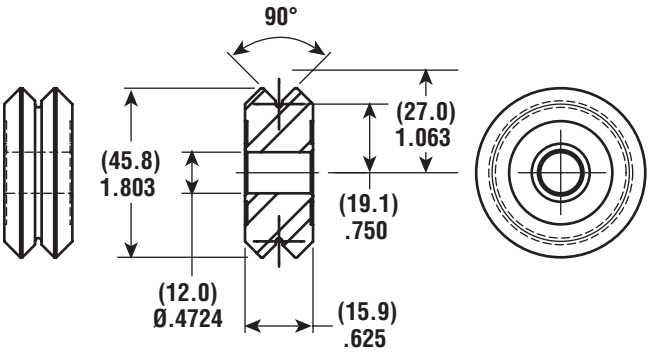


V-Guide System - 45 mm (1-3/4")

Radial Loads to 1,386 lbs. (6,166 N) per Wheel

V-GUIDE WHEELS

VW3	Shielded Bearing
VWS3	Sealed Bearing
VWSS3	Sealed Stainless Bearing



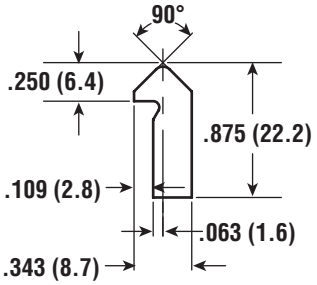
WEIGHT: 4.6 oz. (131 g)

Rated for:
Radial loads to 1,386 lbs. (6,166 N) per wheel
Axial loads to 326 lbs. (1,448 N) per wheel

V-GUIDE RAIL

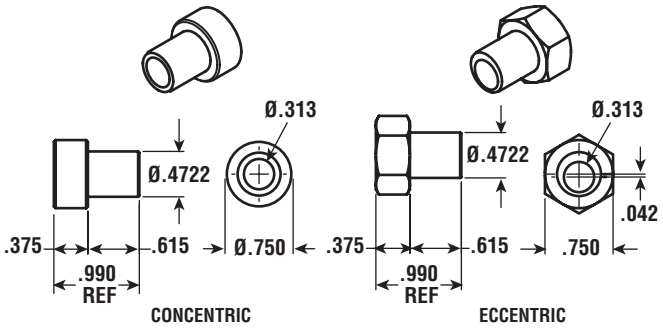
Carbon Steel	
VR3-xxx	undrilled rail max. length 21' (6400 mm)
VRD3-xxx	drilled rail, see table
Stainless Steel	
VRS3-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD3-xxx	drilled rail, see table

NOTE: Non-heat treated rails available in all all sizes, contact factory.



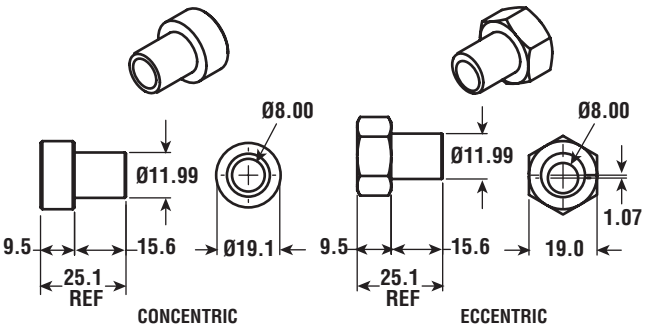
WHEEL BUSHINGS

VB3	Fixed Bushing
VBA3	Adjustable Bushing



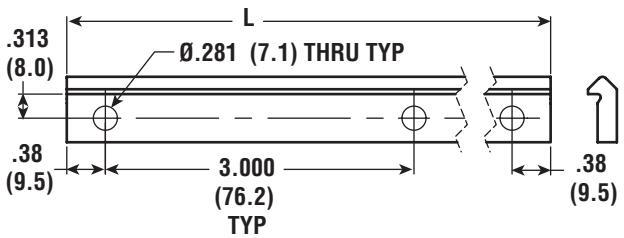
METRIC WHEEL BUSHINGS

MVB3	Metric Fixed Bushing
MVBA3	Metric Adjustable Bushing



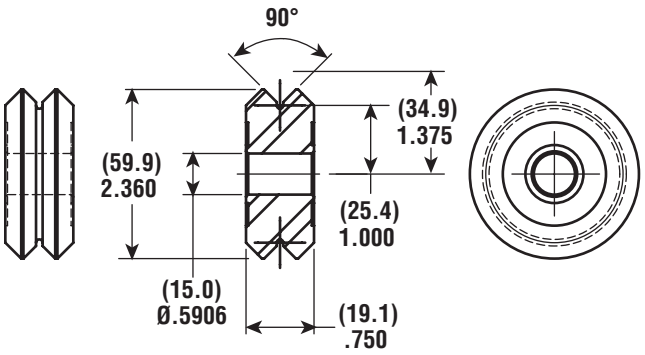
STANDARD DRILLED RAILS

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



V-GUIDE WHEELS

VW4	Shielded Bearing
VWS4	Sealed Bearing
VWSS4	Sealed Stainless Bearing



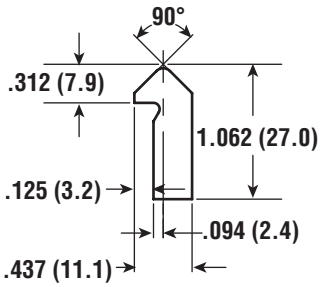
WEIGHT: 10 oz. (281 g)

Rated for:
Radial loads to 2,246 lbs. (9,991 N) per wheel
Axial loads to 520 lbs. (2,313 N) per wheel

V-GUIDE RAIL

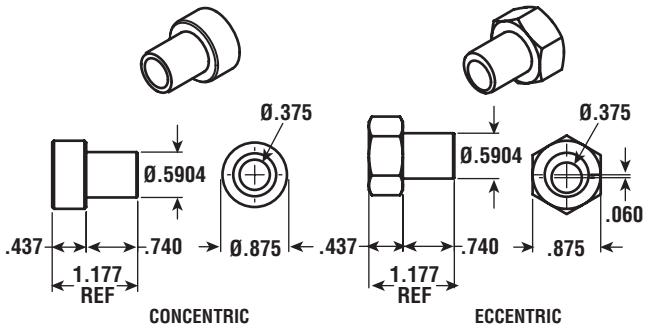
Carbon Steel	
VR4-xxx	undrilled rail max. length 21' (6400 mm)
VRD4-xxx	drilled rail, see table
Stainless Steel	
VRS4-xxx	undrilled rail, max. length 21' (6400 mm)
VRSD4-xxx	drilled rail, see table

NOTE: Non-heat treated rails available in all sizes, contact factory.



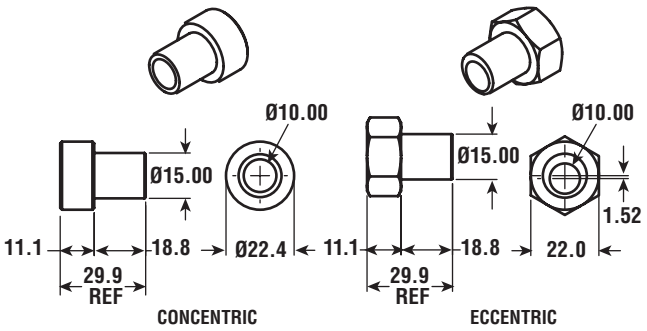
WHEEL BUSHINGS

VB4	Fixed Bushing
VBA4	Adjustable Bushing



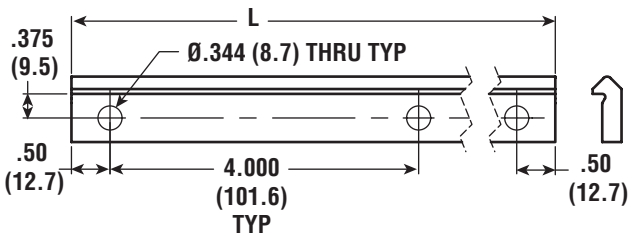
METRIC WHEEL BUSHINGS

MVB4	Metric Fixed Bushing
MVBA4	Metric Adjustable Bushing



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

L_O = wheel load from moment

A = load offset dimension

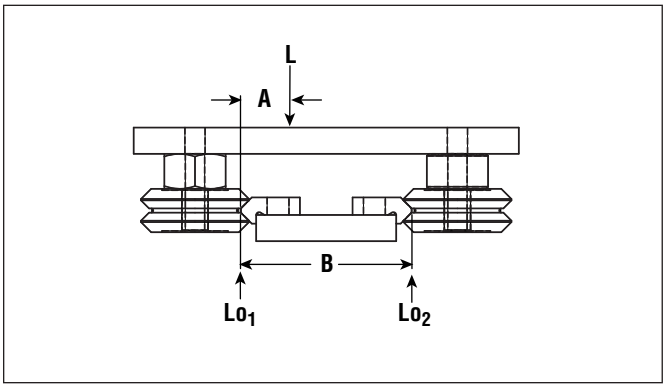
B = track width dimension

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



$$Lo_1 = \frac{L \times (B - A)}{B} \times F_A$$

$$Lo_2 = (L \times F_A) - Lo_1$$

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

Example:

Load is 100 lbs on 4 wheel carriage,

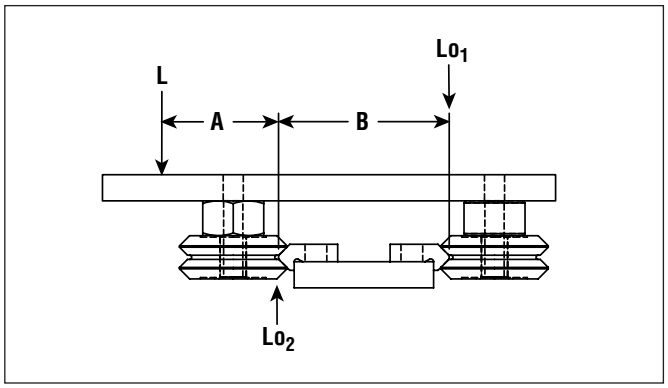
L = 100 / 2 pair wheels = 50 lbs.

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

$$Lo_1 = \frac{50 \times (10 - 4) \times 1}{10} = 30 \text{ lbs.}$$

Lo_2 = 50 - 30 = 20 lbs.

LOAD CONDITION B



$$Lo_1 = \frac{L \times A}{B} \times F_A$$

$$Lo_2 = (L \times F_A) + Lo_1$$

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 pair wheels = 50 lbs.

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

$$Lo_1 = \frac{50 \times 4 \times 1}{6} = 33 \text{ lbs.}$$

Lo_2 = 50 + 33 = 83 lbs.

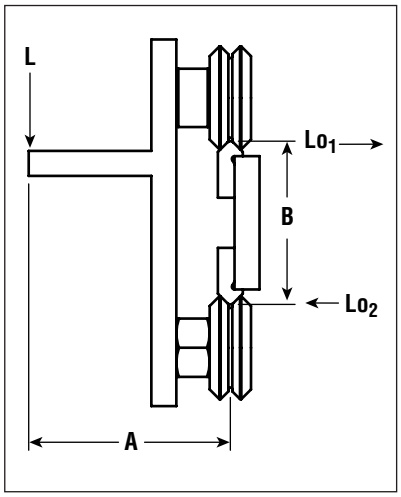
LOAD CONDITION C

$$Lo_1 = \frac{L \times A}{B} \times F_A$$

$$L_R = (L \times F_A) + Lo_1$$

$$Lo_1 = Lo_2$$

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 pair wheels = 50 lbs.

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

$$Lo_1 = \frac{50 \times 4 \times 1}{6} = 33 \text{ lbs.}$$

L_R = (50 x 1) + 33 = 83 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.

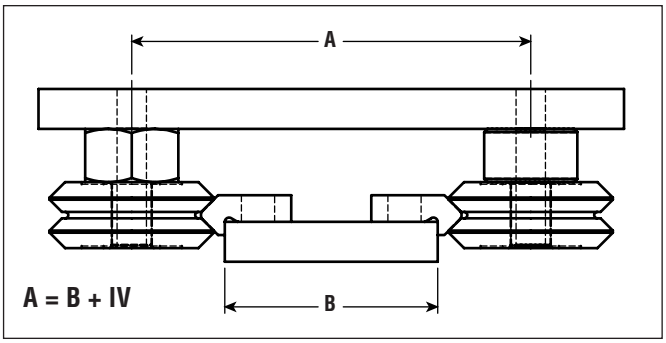
LUBRICATION

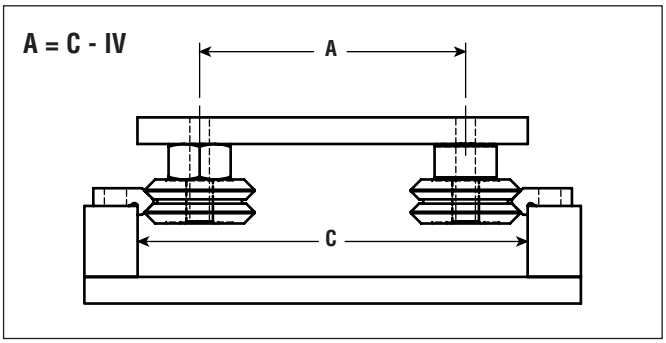
The V-Guide wheels are grease lubricated, and will not require any additional lube. The track should be lubricated for optimum performance and service life. Suggested lubricants are Mobil Vactra #2 Way Oil, or Mobil Polyrex EP 2 Extreme Pressure Grease.

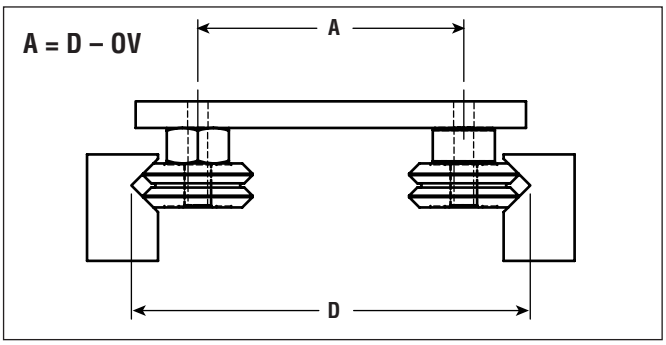
SUGGESTED FASTENERS

BUSHINGS			
INCH		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

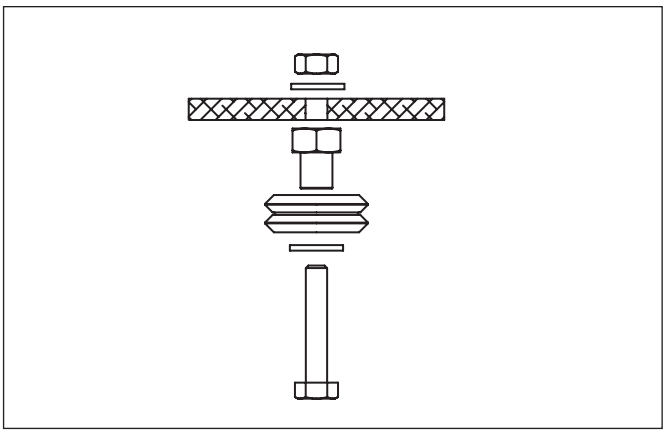






WHEEL / BUSHING ASSEMBLY

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



PRODUCT OVERVIEW

Commercial Rail is a simple and cost effective linear motion solution with high load capacity and corrosion resistance.

- Roll formed rails made of steel/stainless steel sheet for low cost and corrosion resistance application
- Zinc plated rail length up to 6,000 mm
- Machined slider body made of aluminum alloy and anodized for corrosion resistance
- Steel rollers are made of 52100 chrome steel, hardened and ground, lubricated for life and sealed against contamination
- Stainless steel rollers made of 440C stainless steel for better corrosion resistance, lubricated for life and sealed against contamination
- Rollers made with thread integrated inner ring for ease of assembly and adjustment of pre-load
- Custom polymer wipers can be designed and manufactured to improve the smoothness of motion and service life
- Maximum operating temperature 100°C or 212°F
- Consult with factory for special hole spacing
- Speed up to 1.5 m/s
- Moment loads should be carried by two slides or two parallel rollers

SLIDE ORIENTATION

The 3-roller slide should be installed in the rail so that the load is shared among 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.

PRELOAD ADJUSTMENT

- To loosen the center roller, use an Allen wrench to un-tighten the screw while holding the roller still with an open-end wrench
- Turn the center roller to a position to achieve the desired pre-load
- Move the slide along the length of the rail by hand. Adjust it so that it does not feel loose anywhere.
- Tighten the screw while holding the roller flat with an open-end wrench

PRELOAD ADJUSTMENT	CR20/CRSS20	CR30/CRSS30	CR45/CRSS45
Wrench flat sq. (mm)	6	10	14

APPLICATIONS

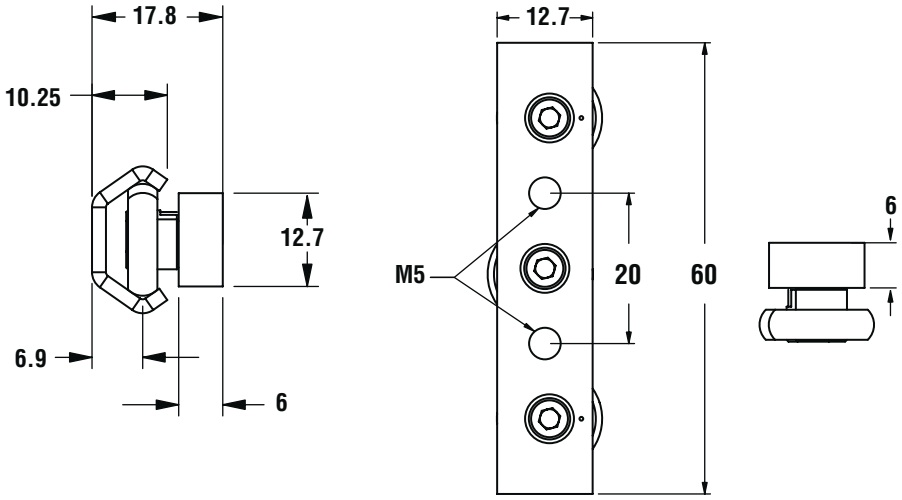
- Automation
- Packaging, material handling, etc
- Environmental, energy, HVAC, etc.
- Medical
- Office equipment

MATERIAL & FINISH SPECIFICATIONS

	CR SERIES	SS SERIES
Rail	Carbon steel sheet, Zinc plated	Stainless steel 304 sheet
Slide	Aluminum alloy anodized	Aluminum alloy anodized
Rollers	Chrome steel	Stainless steel
Hardware	Steel zinc plated	Stainless steel 18-8

RAIL MOUNT	CR20/CRSS20	CR30/CRSS30	CR45/CRSS45
Slide mount screws (Socket head cap)	M5	M6	M8
Tightening torque (lbs-in)	25	43	103
Tightening torque (N-m)	3	5	12
SLIDES	**CR20/SS20**	**CR30/SS30**	**CR45/SS45**
Rail mount screw (Button head cap)	M4	M6	M8

CR20 SLIDE

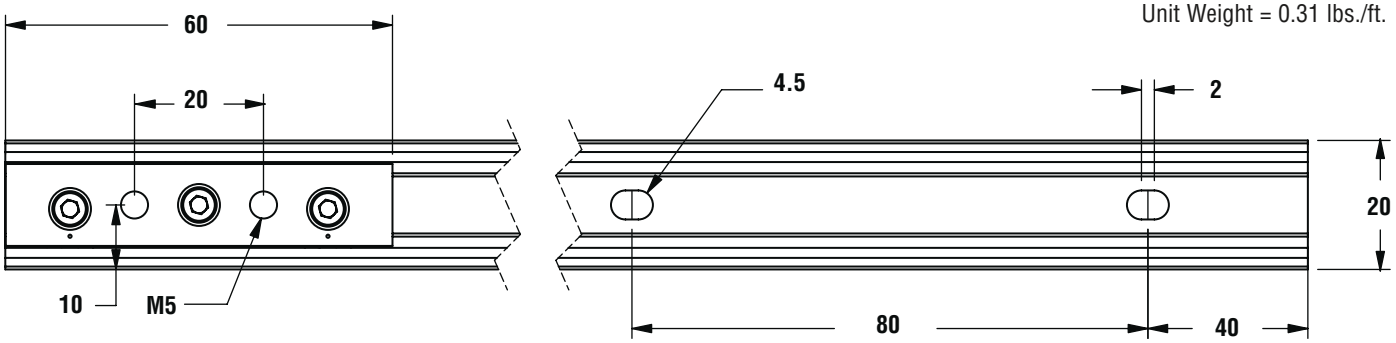


DIMENSION	LOAD RATINGS		
	STATIC RADIAL C_{or} (N)	STATIC AXIAL C_{oa} (N)	DYNAMIC RADIAL Cr (N)
CR20	210	160	280
CRSS20	210	160	280

CR20MCA Thread Pitch M5 x 0.8

CR20 RAIL

Unit Weight = 0.31 lbs./ft.



ORDER INFORMATION

EXAMPLE: CR20MCA / CR20R-XXXX

SLIDE CR [ ] 20 MCA

- **Commercial Rail Slide**
- **Material**
  - Blank = Steel
  - SS = Stainless Steel
- **Rail Size**
  - 20 = 20 mm
  - 30 = 30 mm
  - 45 = 45 mm
- **Type of Body**
  - MCA = Machined Body

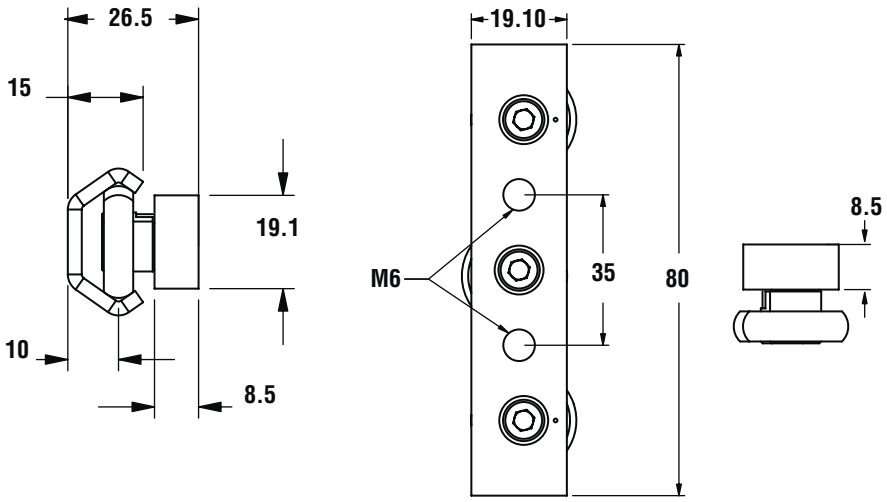
RAIL CR [ ] 20 R – XXXX

- **Commercial Rail**
- **Material**
  - Blank = Steel
  - SS = Stainless
- **Rail Size**
  - 20 = 20mm
  - 30 = 30mm
  - 45 = 45mm
- **Rail**
- **Rail Length**
  - 160 - 6000mm

Commercial Rail - CR30

Dynamic Radial Cr = 800 N

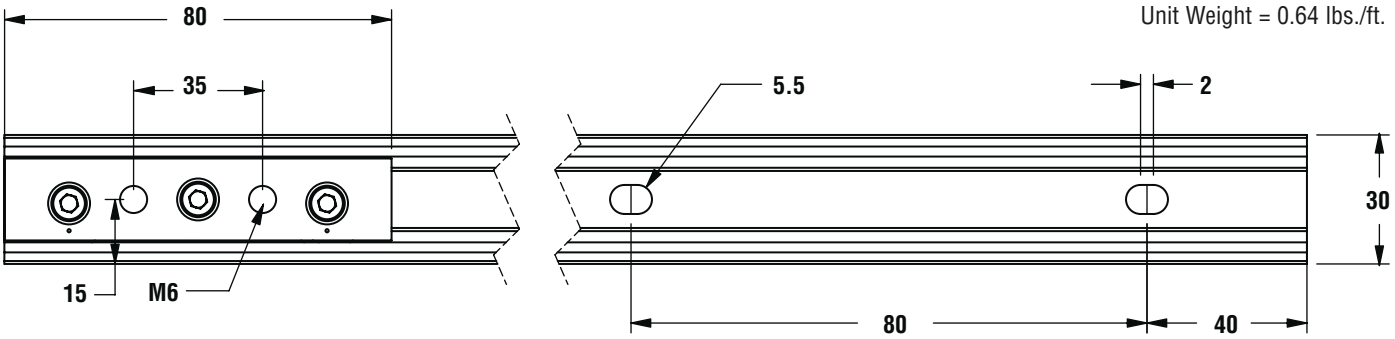
CR30 SLIDE



DIMENSION	LOAD RATINGS		
	STATIC RADIAL C_{or} (N)	STATIC AXIAL C_{oa} (N)	DYNAMIC RADIAL Cr (N)
CR30	610	420	800
CRSS30	610	420	800

CR30MCA Thread Pitch M6 x 1.0

CR30 RAIL



Unit Weight = 0.64 lbs./ft.

ORDER INFORMATION

EXAMPLE: CR30MCA / CR30R-XXXX

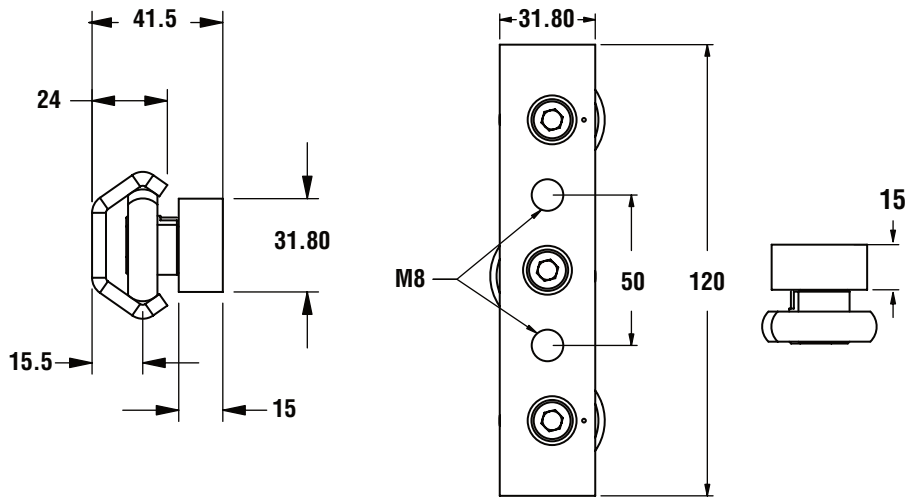
SLIDE CR [ ] 30 MCA

- **Commercial Rail Slide**
- **Material**: Blank = Steel; SS = Stainless Steel
- **Rail Size**: 20 = 20mm; 30 = 30mm; 45 = 45mm
- **Type of Body**: MCA = Machined Body

RAIL CR [ ] 30 R – XXXX

- **Commercial Rail**
- **Material**: Blank = Steel; SS = Stainless
- **Rail Size**: 20 = 20mm; 30 = 30mm; 45 = 45mm
- **Rail**
- **Rail Length**: 160 - 6000mm

CR45 SLIDE

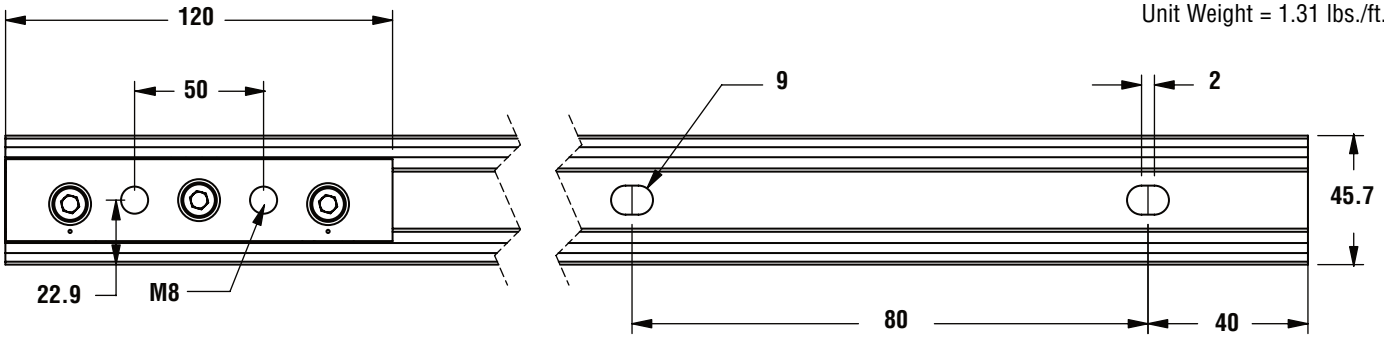


DIMENSION	LOAD RATINGS		
	STATIC RADIAL C_{or} (N)	STATIC AXIAL C_{oa} (N)	DYNAMIC RADIAL Cr (N)
CR45	1330	930	1740
CRSS45	1330	930	1740

CR45MCA Thread Pitch M8 x 1.25

CR45 RAIL

Unit Weight = 1.31 lbs./ft.



ORDER INFORMATION

EXAMPLE: CR45MCA / CR45R-XXXX

SLIDE CR [ ] 45 MCA

- **Commercial Rail Slide**
- **Material**
  - Blank = Steel
  - SS = Stainless Steel
- **Rail Size**
  - 20 = 20mm
  - 30 = 30mm
  - 45 = 45mm
- **Type of Body**
  - MCA = Machined Body

RAIL CR [ ] 45 R – XXXX

- **Commercial Rail**
- **Material**
  - Blank = Steel
- **Rail Size**
  - 20 = 20mm
  - 30 = 30mm
  - 45 = 45mm
- **Rail**
- **Rail Length**
  - 160 - 6000mm

FEATURES & BENEFITS

- Low cost linear motion solution
- Precision rolling element bearing riding in a rail from Copper B-Line Series
- 9/16" Hex head for easier mounting
- Simple solution and setup for point-to-point applications
- Rollers provide self-alignment, durability and longevity
- MAX. bearing load - 300 lbs.
- MAX. bearing speed - 150 ft./ min. (30 in./sec.)
- Rails lengths available up to 10 ft.
  Contact manufacturer for longer lengths.

RAILS FINISHES:

- Bare steel
- Powder coated

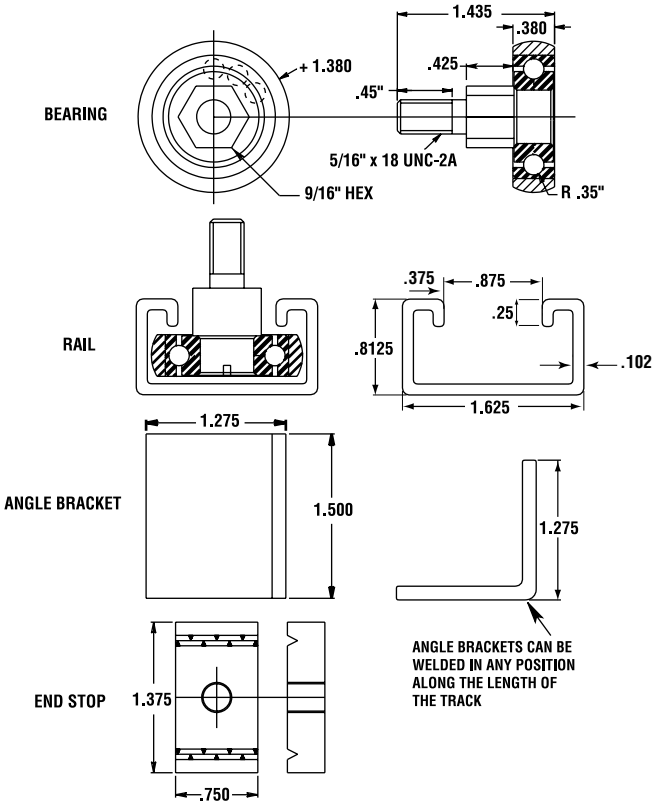
ACCESSORIES AVAILABLE:

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

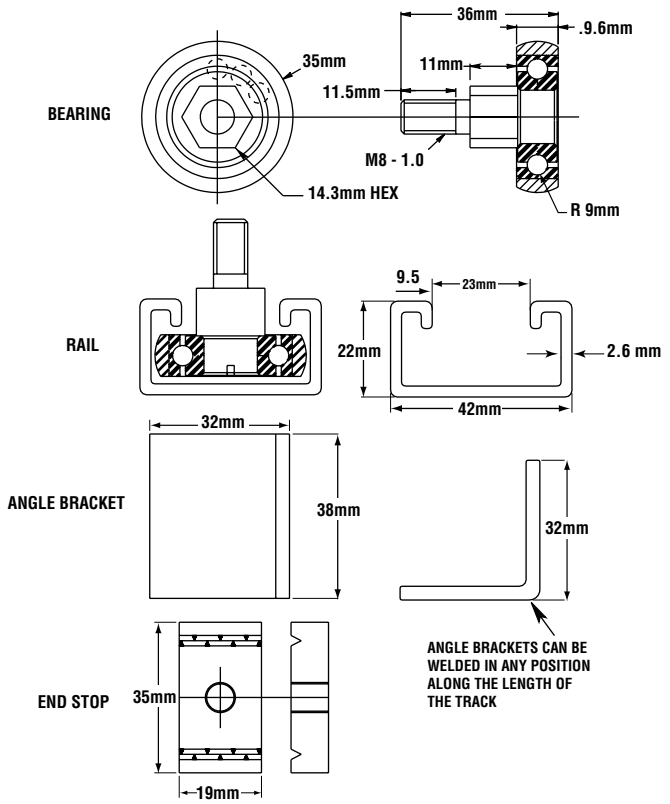
ORDERING INFORMATION

PART NUMBER	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)

INCH



METRIC



NOTE: All metric dimensions are conversions from inch dimensions all parts are manufactured to inch standards.

PRODUCT OVERVIEW

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.

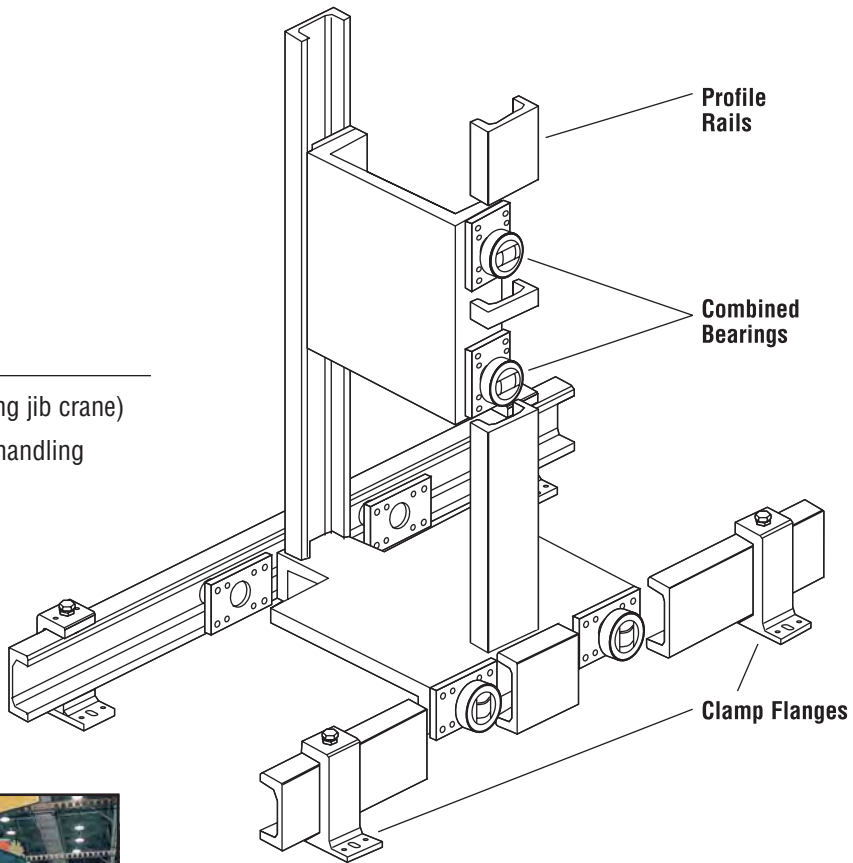
Linear Bearings:
- Outer ring made of case-hardened steel
- Handles very high axial and radial loads
- Easily interchangeable components for less down-time

Profile Rails:
- Standard length up to 6 meters
- Sand blasted or lightly oiled
- U-channel or I-channel available

Flange Plates:
- Simple mounting for bearings
- Can be ordered pre-welded to bearing

Ordering example: HVB-054/HVPO

Clamp Flanges:
- Adjustable
- Eliminates need for welding and straightening
- Easily adjustable parallelism



APPLICATIONS

- 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

Bolt tolerance = 0.05 mm

Profile Rails: High quality steel, ASTM A 252 Gr.1, A 252 Gr.2, A 252 Gr.3, A 663 Gr.45-80, A 675 Gr. 45-90. Standard length (1024/1524 steel) of 6 m (19.7ft.). MnCr 5 with maximum contact pressure of 750 MPa (N/mm2). Optional sand blasted and/or lighty oiled. Rails are not hardened but have a Brinell hardness of 145-185. The guide ways in the rails should be lightly greased and not painted.

Clamp Flange: Low carbon steel, adjustable clamp

Flange Plate: Low carbon steel. Special designs available, contact manufacturer.

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-056 to HVB-063 can be re-lubricated with grease zerk. Adjustable bearings are not available with zerk.

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

Bearing Life Calculations:

$L10 = \left(\frac{1666}{n}\right)\left(\frac{C}{P}\right)^{10/3}$ (Hours)

C = Dynamic load rating (KN)

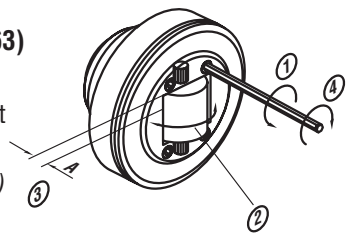
P = Automatic dynamic load (KN)

n = Revolutions per minute (rpm)

NOTE: Above calculation formula is for predicting life expectance with 90% reliability level. Customers shall use their discretion to determine the reduction factor based on the actual operation needs and conditions such as reliability level, load, speed, impact and environments.

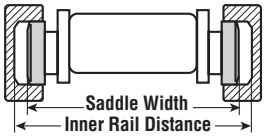
Adjusting Axial Bearing (HVBEA-454 to HVBEA-463)

1. Remove front screws.
2. Rotate axial bearing shaft
3. Check dimension A *(repeat step 2, if needed)*
4. Re-install front screws



SYSTEM DESIGN CLEARANCE

1. The overall system clearance should be 1.524 mm to 3.048 mm



Inner Rail Distance = Saddle Width + (1.524 mm to 3.048 mm)

2. Verify that the Axial bearing is aligned parallel to the rail; especially in vertical operations.

CALCULATION OF FMAX FOR CANTILEVERED LOADS

Q = Load capacity (N)

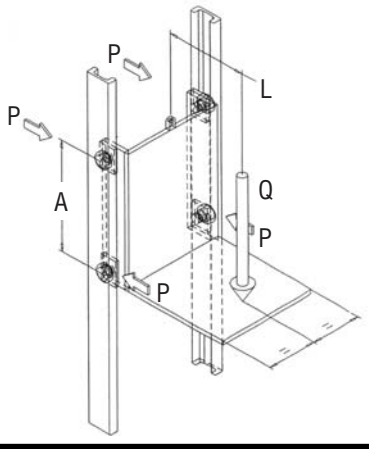
L = Load distance to suspension point (mm)

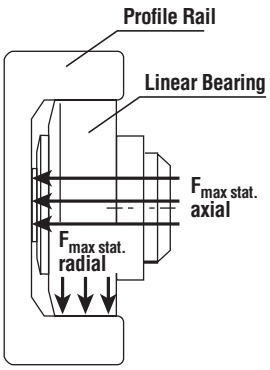
P = Suspension point

A = Bearing distance (mm) recommended 500–1000 mm

Formula: $F_{max}[N]_{\text{stat radial}} = \frac{Q \bullet L}{2 \bullet A}$

P_{zul} = 750 N/mm² for all profile rails. Indicated here are F_{max} stat radial + axial for each bearing.





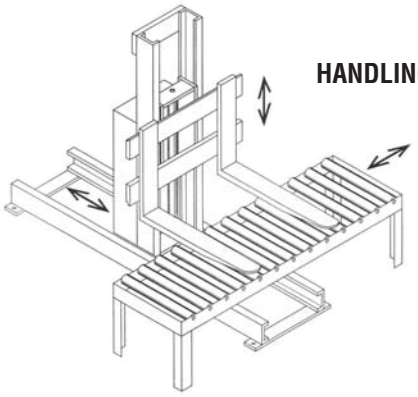
SELECTION GUIDE (when used with Profile Rails HVR-S to HVR-6)

Use the following chart to select the bearings (fixed or adjustable), rails, flange plates and clamp flanges according to your system's maximum static radial and axial loading. A "system" is defined as a bearing in the corresponding rail. For dimensional and detailed specifications for the system selected, simply refer to the corresponding pages.

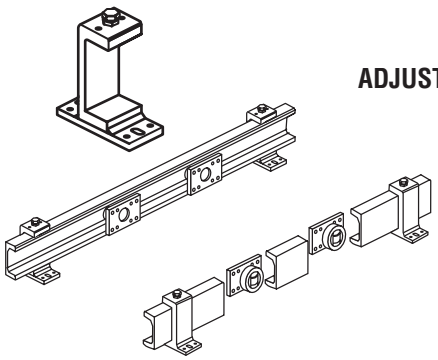
F (KN) MAX STAT RADIAL	F (KN) MAX STAT AXIAL	COMBINED BEARING AXIAL BEARING FIXED	COMBINED BEARNG AXIAL BEARING ADJUSTABLE	PROFILE RAILS	CLAMP FLANGE	FLANGE PLATE	PAGE NO.
5.2	1.7	HVB-053	–	HVR-S	–	HVPS-1	246
7.2	2.4	HVB-054	HVBEA-454	HVR-0	HVC-0	HVP0-1	244
8.6	2.8	HVB-055	HVBEA-455	HVR-1, HVRI-07	HVC-1	HVP1-1	248
8.9	3.0	HVB-056	HVBEA-456	HVR-2	HVC-2	HVP2-1	249
8.9	3.0	HVB-057	HVBEA-457	HVRI-08	–	HVP2-1	250
15.6	5.2	HVB-058	HVBEA-458	HVR-3, HVRI-09	HVC-3	HVP3-1	251
15.5	5.1	HVB-059	HVBEA-459	HVRI-10	–	–	252
16.5	5.5	HVB-060	HVBEA-460	HVRI-11	–	–	252
16.5	5.5	HVB-061	HVBEA-461	HVR-4	HVC-4	HVP4-1	253
23.5	7.8	HVB-062	-	HVR-5	–	HVP4-1	254
41.1	13.7	HVB-063	HVBEA-463	HVR-6	–	HVP6-1	255

NOTE: For cantilevered loads, static verification calculations can be found on page 244. *All dimensions in mm.

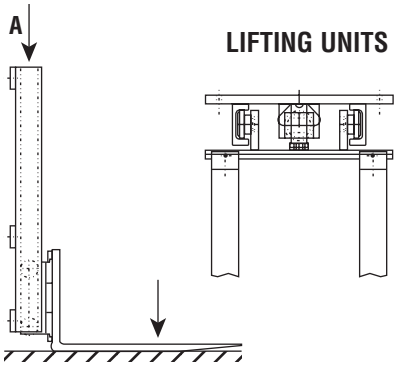
MOUNTING CONFIGURATIONS



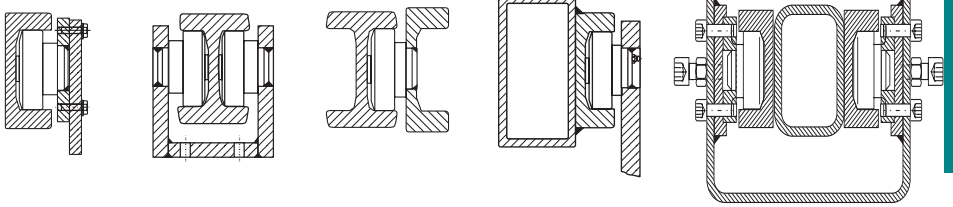
HANDLING UNITS



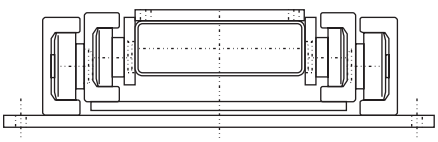
ADJUSTABLE CLAMP SYSTEM



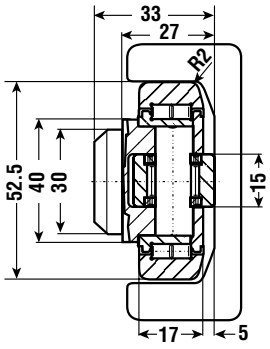
LIFTING UNITS



HORIZONTIAL TELESCOPE



AXIAL BEARING - FIXED — HVB-053



WEIGHT = 0.36 Kg

BEARING RADIAL LOAD

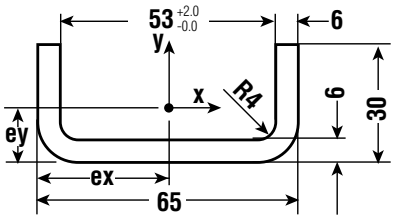
Max. dynamic load = 24 KN
Max. static load = 33 KN

BEARING AXIAL LOAD

Max. dynamic load = 10 KN
Max. static load = 14 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL U-CHANNEL — HVR-S



WEIGHT = 5.3 Kg/m

MOMENT OF INERTIA

Ix = 5.2 cm^4, Iy = 38.8 cm^4

MOMENT OF RESISTANCE

Wx = 2.50 cm^3, Wy = 11.90 cm^3

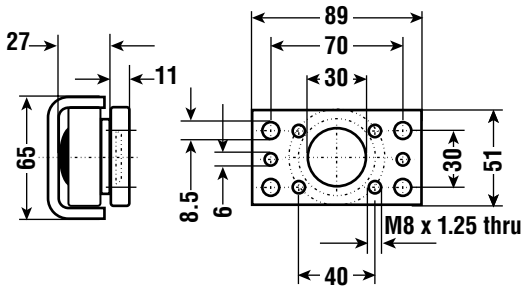
RADIUS OF INERTIA

ix = 0.80 cm, iy = 2.40 cm

DIST. TO CENTER OF GRAVITY

ey = 0.94 cm, ex = 32.50 cm

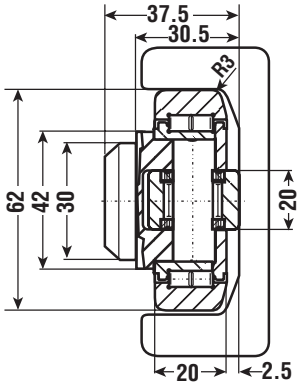
FLANGE PLATE — HVPS-1



WHEN USED WITH SHOWN PROFILE RAILS

System Max. Static Radial Load = 5.2 KN / 0.6 US Ton-Force
System Max. Static Axial Load = 1.7 KN / 0.2 US Ton-Force

AXIAL BEARING - FIXED — HVB-054



WEIGHT = 0.53 Kg

BEARING RADIAL LOAD

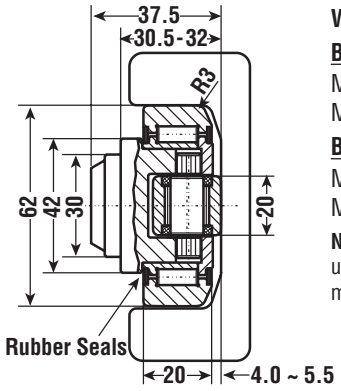
Max. dynamic load = 39 KN
Max. static load = 65 KN

BEARING AXIAL LOAD

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

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-454



WEIGHT = 0.53 Kg

BEARING RADIAL LOAD

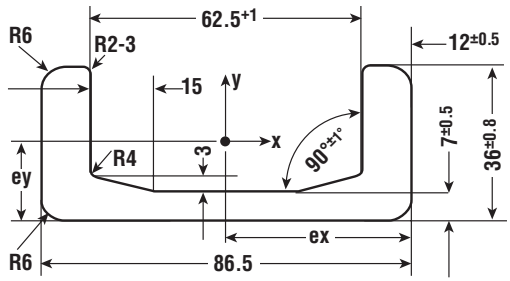
Max. dynamic load = 39 KN
Max. static load = 65 KN

BEARING AXIAL LOAD

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

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL U-CHANNEL — HVR-0



WEIGHT = 10.5 Kg/m

MOMENT OF INERTIA

Ix = 15.35 cm^4, Iy = 137.05 cm^4

DIST. TO CENTER OF GRAVITY

ey = 1.29 cm, ex = 4.33 cm

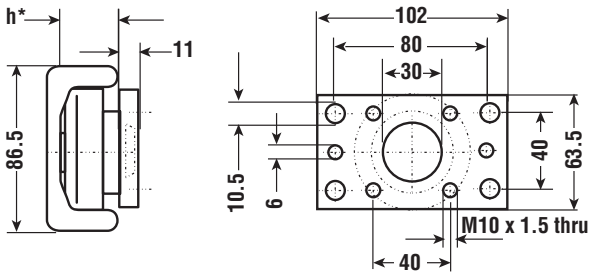
RADIUS OF INERTIA

ix = 1.07 cm, iy = 3.20 cm

MOMENT OF RESISTANCE

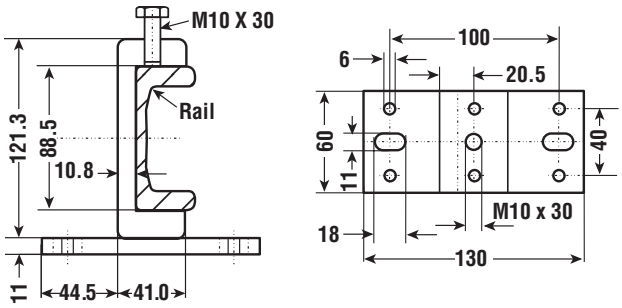
Wx_{min} = 6.64 cm^3
Wx_{max} = 11.93 cm^3
Wy = 31.69 cm^3

FLANGE PLATE — HVPO-1



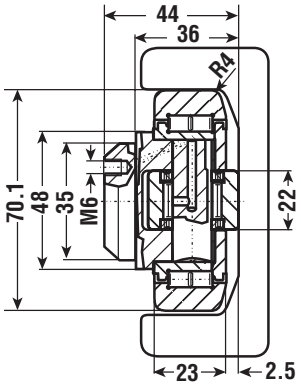
* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-054 or HVBEA-454.

CLAMP FLANGE — HVC-0



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

AXIAL BEARING - FIXED — HVB-055



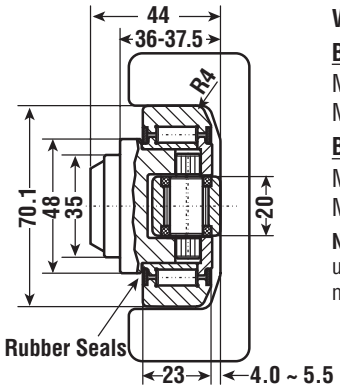
WEIGHT = 0.80 Kg

BEARING AXIAL LOAD

Max. dynamic load = 18 KN
Max. static load = 26 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-455



WEIGHT = 0.80 Kg

BEARING RADIAL LOAD

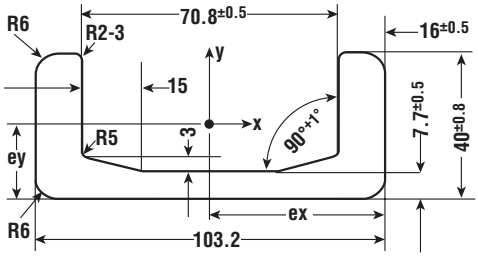
Max. dynamic load = 56 KN
Max. static load = 93 KN

BEARING AXIAL LOAD

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

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL U-CHANNEL — HVR-1



WEIGHT = 14.8 Kg/m

MOMENT OF INERTIA

Ix = 27.29 cm^4, Iy = 273.50 cm^4

DIST. TO CENTER OF GRAVITY

ey = 1.50 cm, ex = 5.16 cm

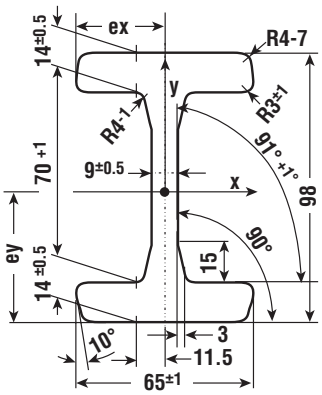
RADIUS OF INERTIA

ix = 1.20 cm, iy = 3.81 cm

MOMENT OF RESISTANCE

Wx_{min} = 10.91 cm^3
Wx_{max} = 18.20 cm^3
Wy = 53.00 cm^3

PROFILE RAIL I-CHANNEL — HVRI-07



WEIGHT = 19.4 Kg/m

MOMENT OF INERTIA

Ix = 344.29 cm^4, Iy = 57.63 cm^3

DIST. TO CENTER OF GRAVITY

ey = 4.90 cm. ex = 3.25 cm

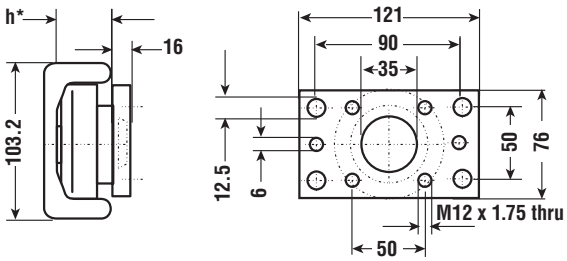
RADIUS OF INERTIA

ix = 3.73 cm, iy = 1.52 cm

MOMENT OF RESISTANCE

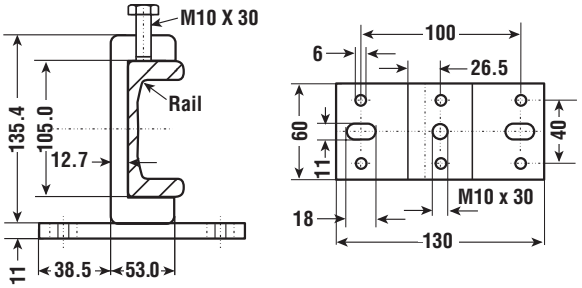
Wx = 70.26 cm^3, Wy = 17.73 cm^3

FLANGE PLATE — HVP1-1



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

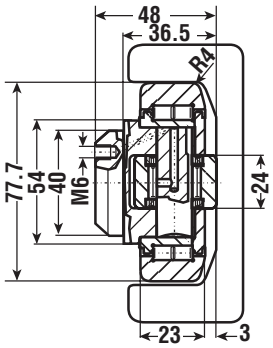
CLAMP FLANGE — HVC-1



WHEN USED WITH SHOWN PROFILE RAILS

System Max. Static Radial Load = 8.6 KN / 0.9 US Ton-Force
System Max. Static Axial Load = 2.8 KN / 0.3 US Ton-Force

AXIAL BEARING - FIXED — HVB-056



WEIGHT = 1.00 Kg

BEARING RADIAL LOAD

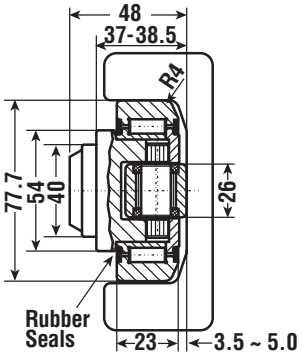
Max. dynamic load = 59 KN
Max. static load = 102 KN

BEARING AXIAL LOAD

Max. dynamic load = 20 KN
Max. static load = 32 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-456



WEIGHT = 1.00 Kg

BEARING RADIAL LOAD

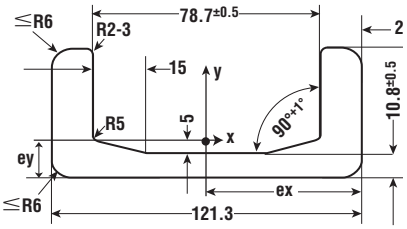
Max. dynamic load = 59 KN
Max. static load = 102 KN

BEARING AXIAL LOAD

Max. dynamic load = 23 KN
Max. static load = 36 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL U-CHANNEL — HVR-2



WEIGHT = 20.9 Kg/m

MOMENT OF INERTIA

Ix = 37.92 cm^4, Iy = 493.58 cm^4

DIST. TO CENTER OF GRAVITY

ey = 1.54 cm, ex = 6.07 cm

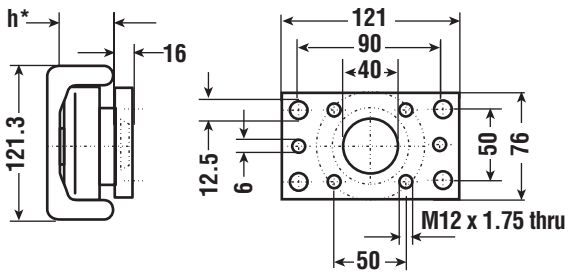
RADIUS OF INERTIA

ix = 1.19 cm, iy = 4.30 cm

MOMENT OF RESISTANCE

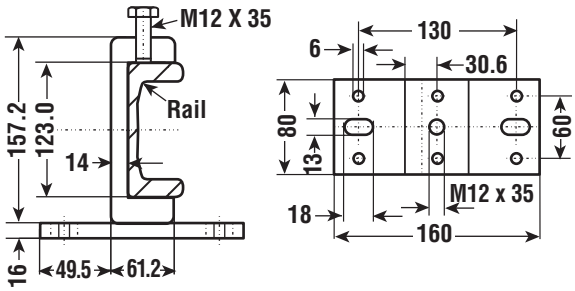
Wx_{min} = 14.83 cm^3, Wx_{max} = 24.58 cm^3, Wy = 81.38 cm^3

FLANGE PLATE — HVP2-1



* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-056 or HVBEA-456.

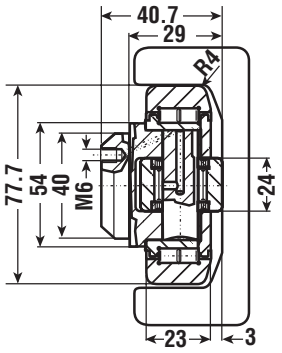
CLAMP FLANGE — HVC-2



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

Hevi-Rail® Linear Bearing Systems
1.0 US Ton-Force

AXIAL BEARING - FIXED — HVB-057



WEIGHT = 0.90 Kg

BEARING RADIAL LOAD

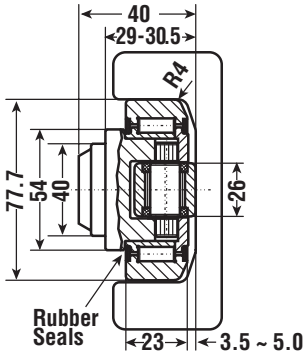
Max. dynamic load = 59 KN
Max. static load = 102 KN

BEARING AXIAL LOAD

Max. dynamic load = 20 KN
Max. static load = 32 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-457



WEIGHT = 0.87 Kg

BEARING RADIAL LOAD

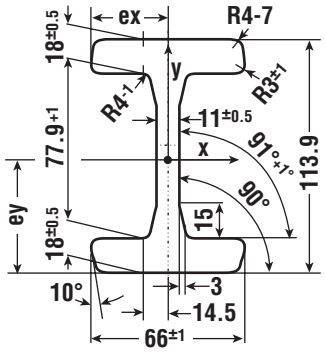
Max. dynamic load = 59 KN
Max. static load = 102 KN

BEARING AXIAL LOAD

Max. dynamic load = 23 KN
Max. static load = 36 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL I-CHANNEL — HVRI-08



WEIGHT = 25.3 Kg/m

MOMENT OF INERTIA

Ix = 597.54 cm^4, Iy = 76.79 cm^4

DIST. TO CENTER OF GRAVITY

ey = 5.70 cm, ex = 3.30 cm

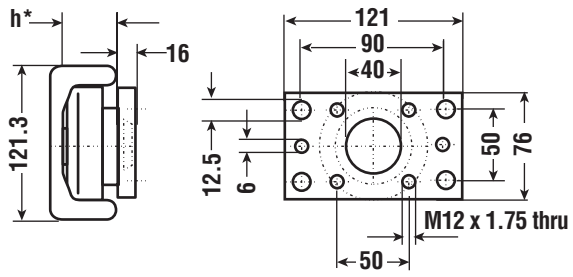
RADIUS OF INERTIA

ix = 4.24 cm, iy = 1.54 cm

MOMENT OF RESISTANCE

Wx = 104.92 cm^3,
Wy = 23.27 cm^3

FLANGE PLATE — HVP2-1

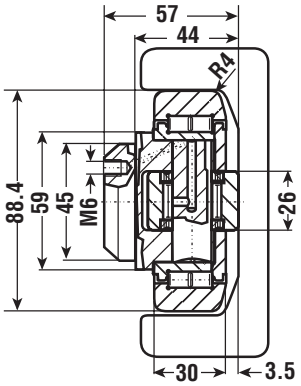


* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-057 or HVBEA-457.

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

AXIAL BEARING - FIXED — HVB-058



WEIGHT = 1.62 Kg

BEARING RADIAL LOAD

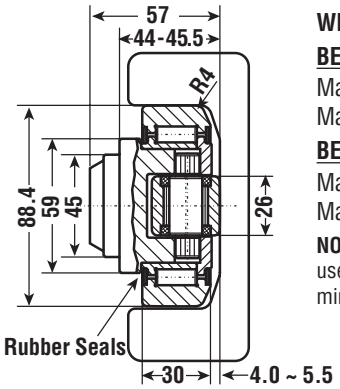
Max. dynamic load = 85 KN
Max. static load = 134 KN

BEARING AXIAL LOAD

Max. dynamic load = 27 KN
Max. static load = 44 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-458



WEIGHT = 1.62 Kg

BEARING RADIAL LOAD

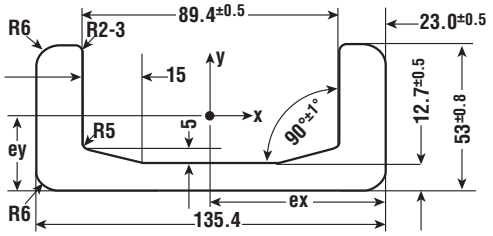
Max. dynamic load = 85 KN
Max. static load = 134 KN

BEARING AXIAL LOAD

Max. dynamic load = 23 KN
Max. static load = 36 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL U-CHANNEL — HVR-3



WEIGHT = 28.6 Kg/m

MOMENT OF INERTIA

Ix = 89.47 cm^4, Iy = 865.23 cm^4

DIST. TO CENTER OF GRAVITY

ey = 1.99 cm, ex = 6.77 cm

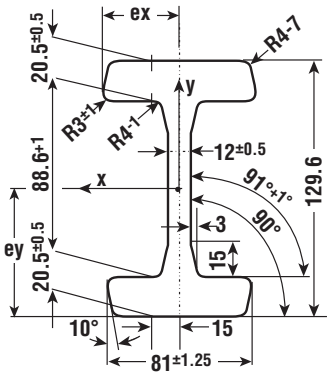
RADIUS OF INERTIA

ix = 1.57 cm, iy = 4.87 cm

MOMENT OF RESISTANCE

Wx_{min} = 27.03 cm^3
Wx_{max} = 44.96 cm^3
Wy = 127.80 cm^3

PROFILE RAIL I-CHANNEL — HVRI-09



WEIGHT = 34.1 Kg/m

MOMENT OF INERTIA

Ix = 1037.22 cm^4, Iy = 161.89 cm^4

DIST. TO CENTER OF GRAVITY

ey = 6.48 cm, ex = 4.05 cm

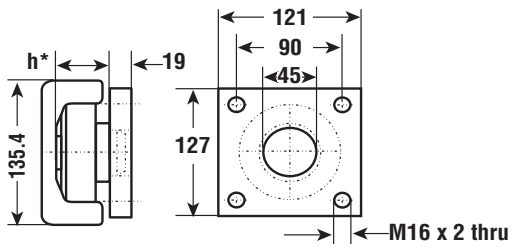
RADIUS OF INERTIA

ix = 4.89 cm, iy = 1.93 cm

MOMENT OF RESISTANCE

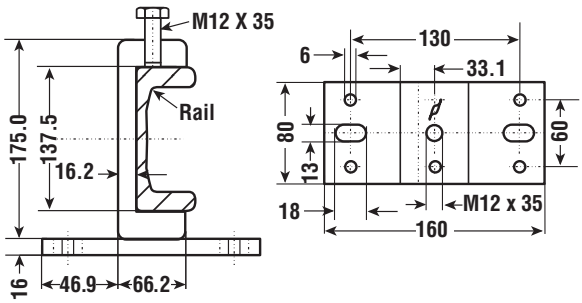
Wx = 160.07 cm^3,
Wy = 39.97 cm^3

FLANGE PLATE — HVP3-1



* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-058 or HVBEA-458.

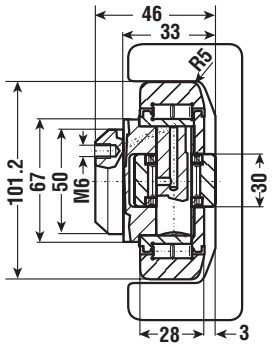
CLAMP FLANGE — HVC-3



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

AXIAL BEARING - FIXED HVB-059



WEIGHT = 1.80 Kg

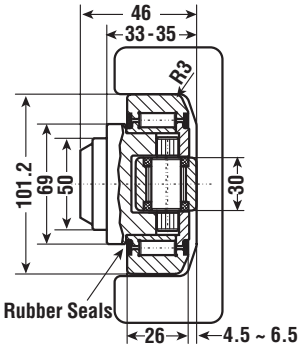
BEARING RADIAL LOAD

Max. dynamic load = 92 KN
Max. static load = 153 KN

BEARING AXIAL LOAD

Max. dynamic load = 32 KN
Max. static load = 50 KN

ECCENTRIC ADJUSTABLE HVBEA-459



WEIGHT = 1.74 Kg

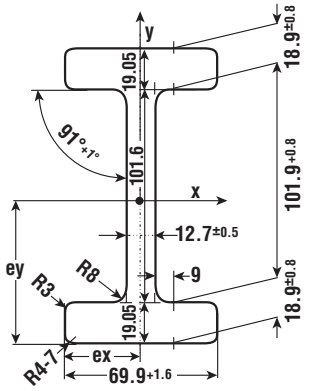
BEARING RADIAL LOAD

Max. dynamic load = 91 KN
Max. static load = 140 KN

BEARING AXIAL LOAD

Max. dynamic load = 32 KN
Max. static load = 50 KN

PROFILE RAIL I-CHANNEL HVRI-10



WEIGHT = 30.9 Kg/m

MOMENT OF INERTIA

Ix = 1078.01 cm^4, Iy = 104.38 cm^4

DIST. TO CENTER OF GRAVITY

ey = 6.99 cm, ex = 3.49 cm

MOMENT OF RESISTANCE

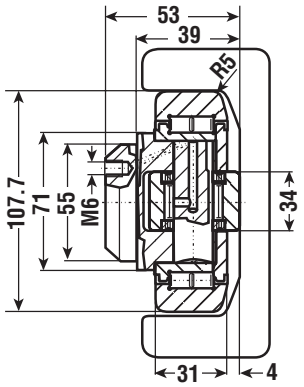
Wx = 154.33 cm^3, Wy = 29.89 cm^3

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

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

AXIAL BEARING - FIXED HVB-060



WEIGHT = 2.30 Kg

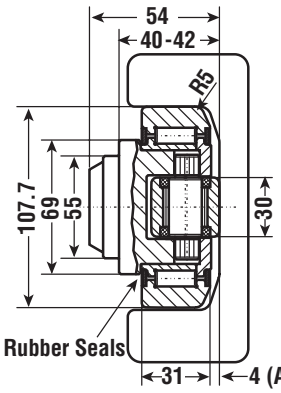
BEARING RADIAL LOAD

Max. dynamic load = 100 KN
Max. static load = 174 KN

BEARING AXIAL LOAD

Max. dynamic load = 39 KN
Max. static load = 66 KN

ECCENTRIC ADJUSTABLE HVBEA-460



WEIGHT = 2.27 Kg

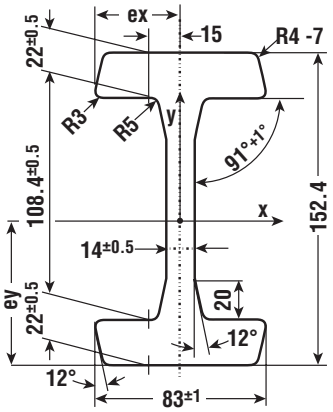
BEARING RADIAL LOAD

Max. dynamic load = 100 KN
Max. static load = 174 KN

BEARING AXIAL LOAD

Max. dynamic load = 32 KN
Max. static load = 50 KN

PROFILE RAIL I-CHANNEL HVRI-11



WEIGHT = 40.5 Kg/m

MOMENT OF INERTIA

Ix = 1670.08 cm^4, Iy = 184.52 cm^4

DIST. TO CENTER OF GRAVITY

ey = 7.62 cm, ex = 4.15 cm

RADIUS OF INERTIA

ix = 5.69 cm, iy = 1.91 cm

MOMENT OF RESISTANCE

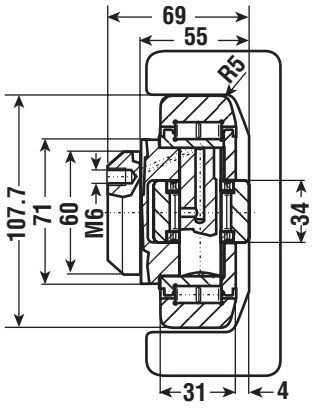
Wx = 219.17 cm^3, Wy = 44.46 cm^3

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

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

AXIAL BEARING - FIXED — HVB-061



WEIGHT = 2.82 Kg

BEARING RADIAL LOAD

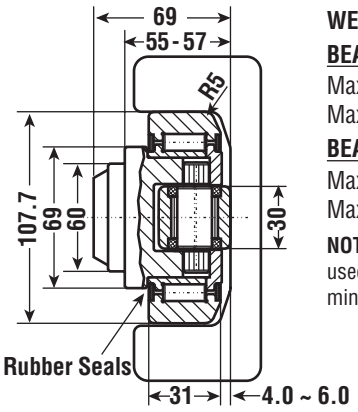
Max. dynamic load = 100 KN
Max. static load = 174 KN

BEARING AXIAL LOAD

Max. dynamic load = 39 KN
Max. static load = 66 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-461



WEIGHT = 2.82 Kg

BEARING RADIAL LOAD

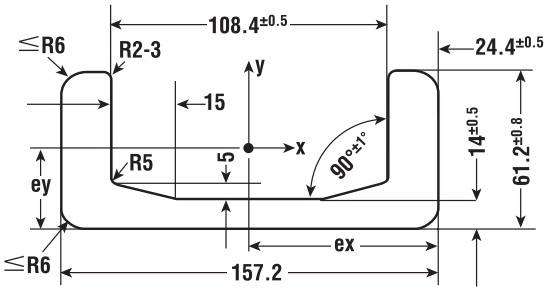
Max. dynamic load = 100 KN
Max. static load = 174 KN

BEARING AXIAL LOAD

Max. dynamic load = 32 KN
Max. static load = 50 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL U-CHANNEL — HVR-4



WEIGHT = 35.9 Kg/m

MOMENT OF INERTIA

Ix = 150.98 cm^4,
Iy = 1,494.32 cm^4

DIST. TO CENTER OF GRAVITY

ey = 2.25 cm, ex = 7.86 cm

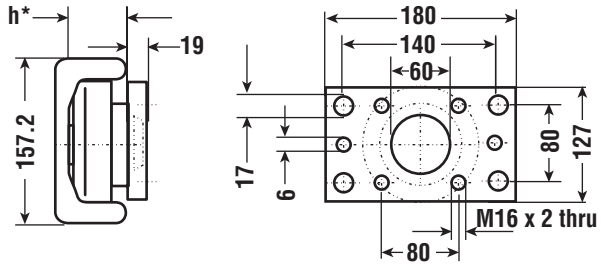
RADIUS OF INERTIA

ix = 1.82 cm, iy = 5.72 cm

MOMENT OF RESISTANCE

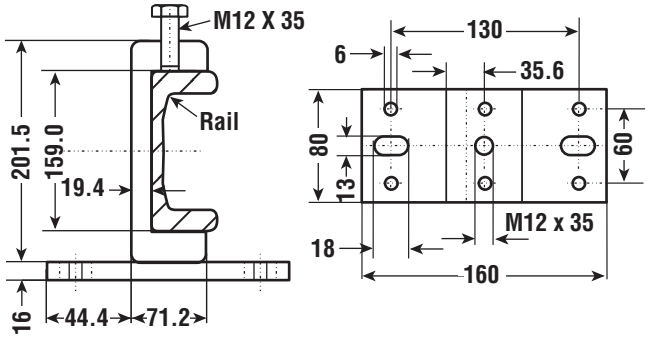
Wx_{min} = 39.00 cm^3
Wx_{max} = 67.13 cm^3
Wy = 190.12 cm^3

FLANGE PLATE — HVP4-1



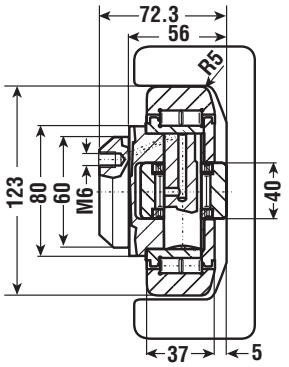
* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-061 or HVBEA-461.

CLAMP FLANGE — HVC-4



WHEN USED WITH SHOWN PROFILE RAILS	System Max. Static Radial Load = 16.5 KN / 1.8 US Ton-Force System Max. Static Axial Load = 5.5 KN / 0.6 US Ton-Force

AXIAL BEARING - FIXED — HVB-062



WEIGHT = 4.50 Kg

BEARING RADIAL LOAD

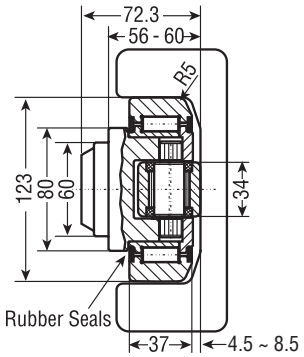
Max. dynamic load = 135 KN
Max. static load = 242 KN

BEARING AXIAL LOAD

Max. dynamic load = 47 KN
Max. static load = 90 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-462



WEIGHT = 3.90 Kg

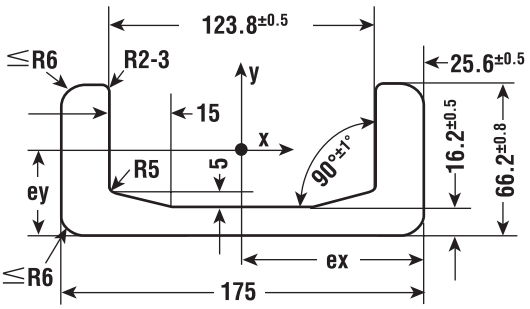
BEARING RADIAL LOAD

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 U-CHANNEL — HVR-5



WEIGHT = 42.9 Kg/m

MOMENT OF INERTIA

Ix = 205.84 cm^4,
Iy = 2,185.32 cm^4

DIST. TO CENTER OF GRAVITY

ey = 2.37 cm, ex = 8.75 cm

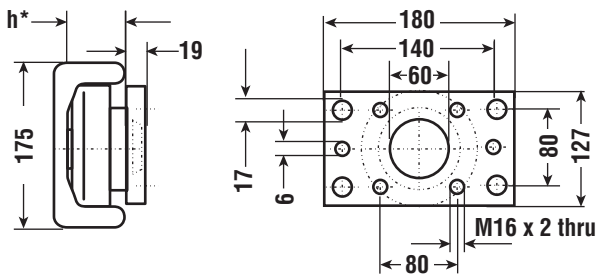
RADIUS OF INERTIA

ix = 1.94 cm, iy = 6.32 cm

MOMENT OF RESISTANCE

Wx_{min} = 48.42 cm^3
Wx_{max} = 86.89 cm^3
Wy = 249.75 cm^3

FLANGE PLATE — HVP4-1

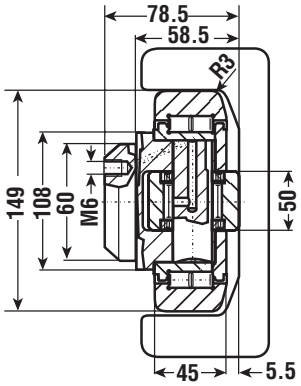


* "h" refers to the depth of the axial bearing, so "h" depends on choice of HVB-062 or HVBEA-462.

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

AXIAL BEARING - FIXED — HVB-063



WEIGHT = 6.52 Kg

BEARING RADIAL LOAD

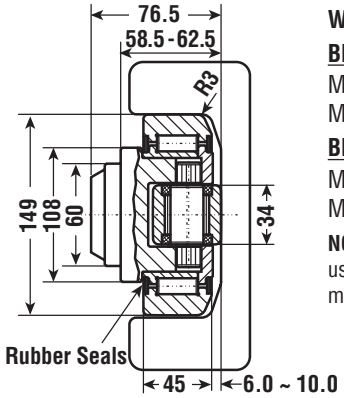
Max. dynamic load = 183 KN
Max. static load = 353 KN

BEARING AXIAL LOAD

Max. dynamic load = 82 KN
Max. static load = 131 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

ECCENTRIC ADJUSTABLE — HVBEA-463



WEIGHT = 6.50 Kg

BEARING RADIAL LOAD

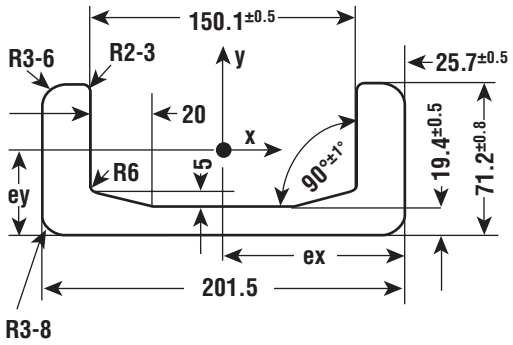
Max. dynamic load = 183 KN
Max. static load = 353 KN

BEARING AXIAL LOAD

Max. dynamic load = 41 KN
Max. static load = 72 KN

NOTE: Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.

PROFILE RAIL HVR-6



WEIGHT = 52.3 Kg/m

MOMENT OF INERTIA

Ix = 269.52 cm^4,
Iy = 3,423.08 cm^4

DIST. TO CENTER OF GRAVITY

ey = 2.40 cm, ex = 10.08 cm

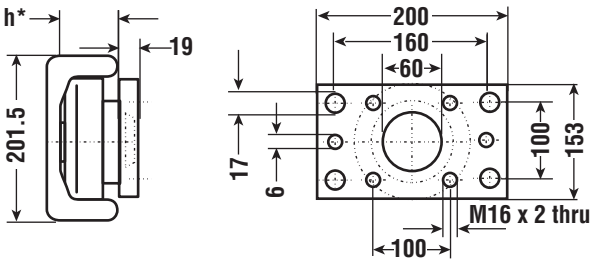
RADIUS OF INERTIA

ix = 2.01 cm, iy = 7.17 cm

MOMENT OF RESISTANCE

Wx_{min} = 57.15 cm^3
Wx_{max} = 112.11 cm^3
Wy = 339.76 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.

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

Design & Layout Options

Name: _____ **Date:** _____

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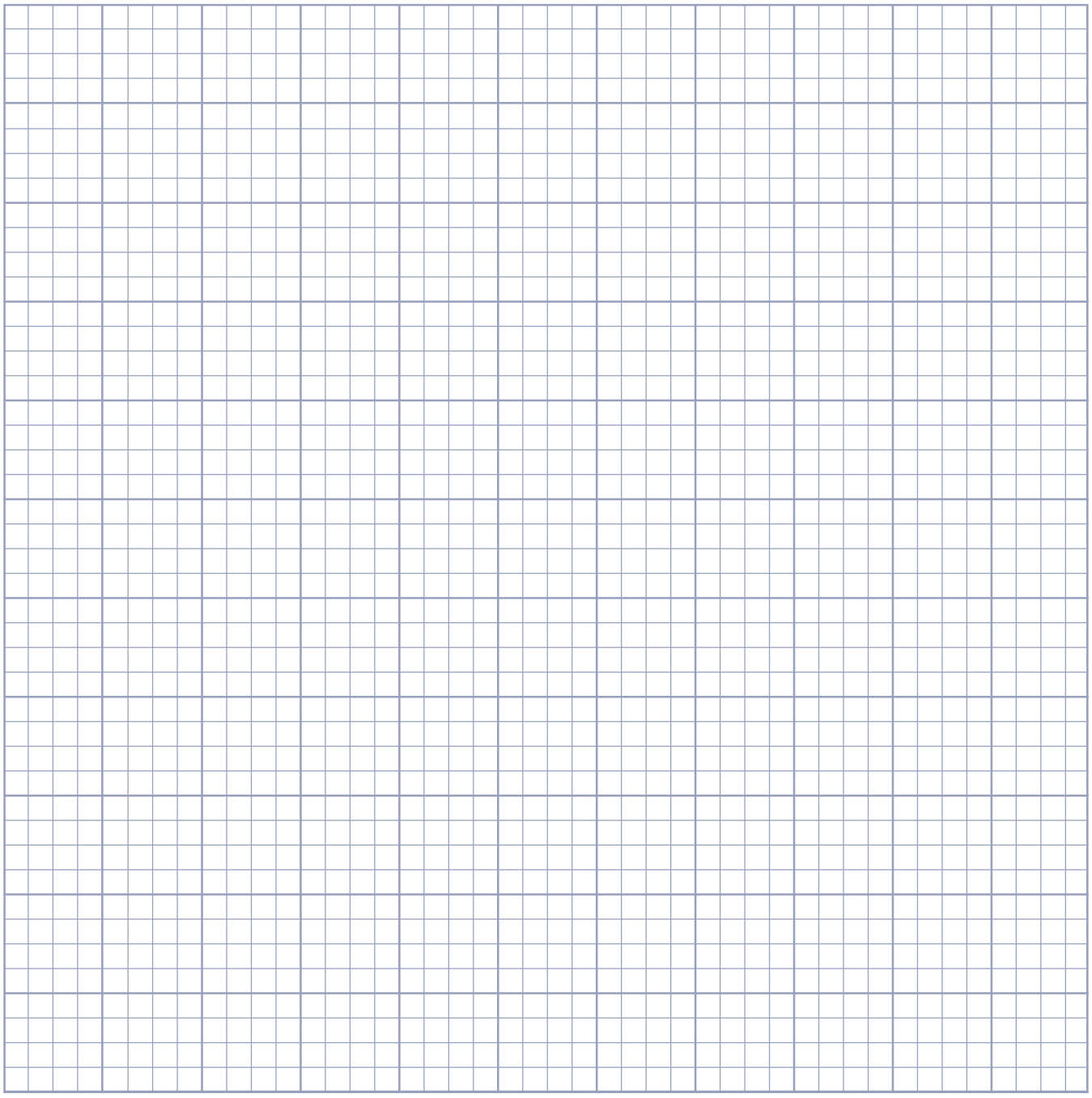

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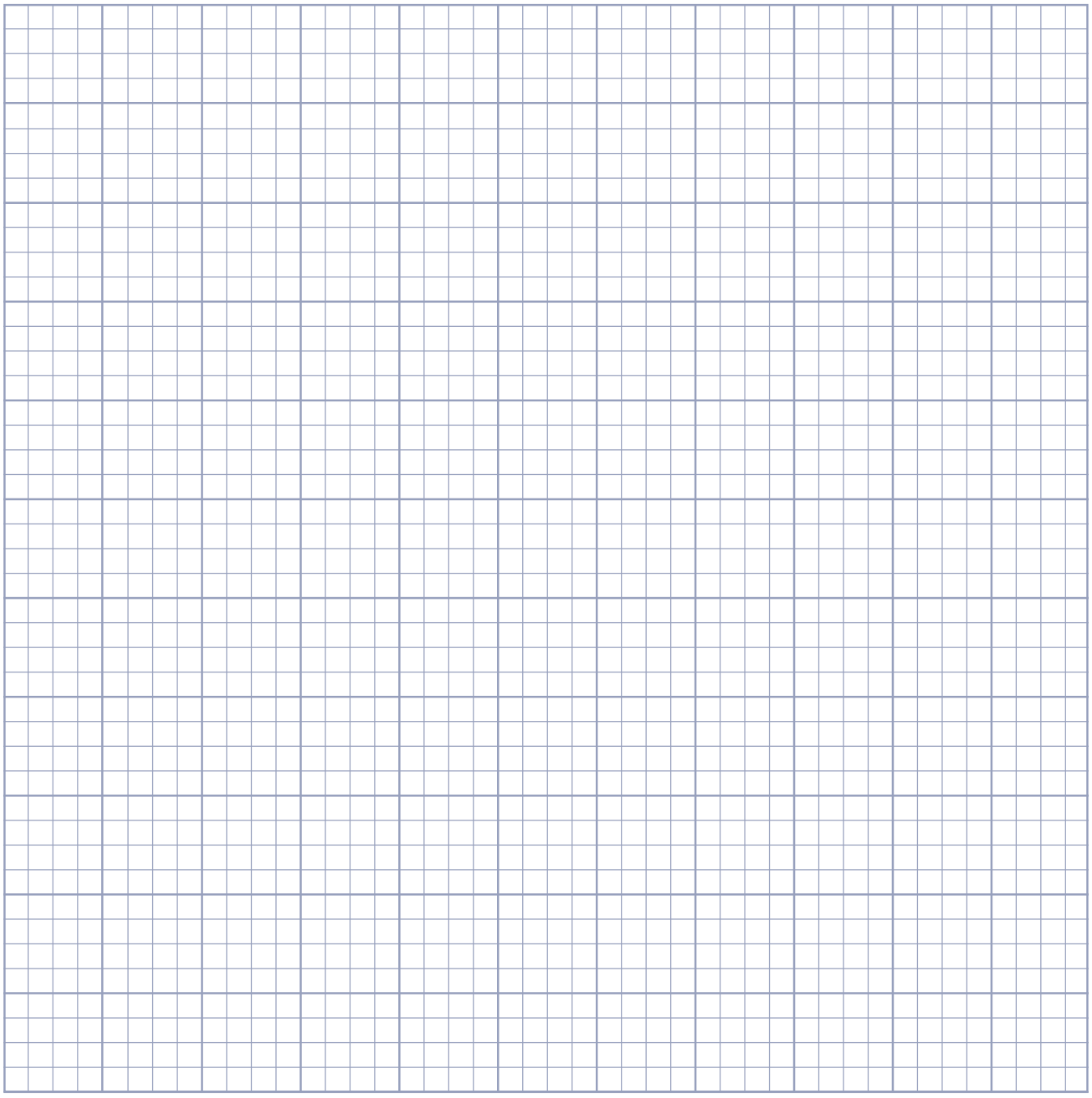

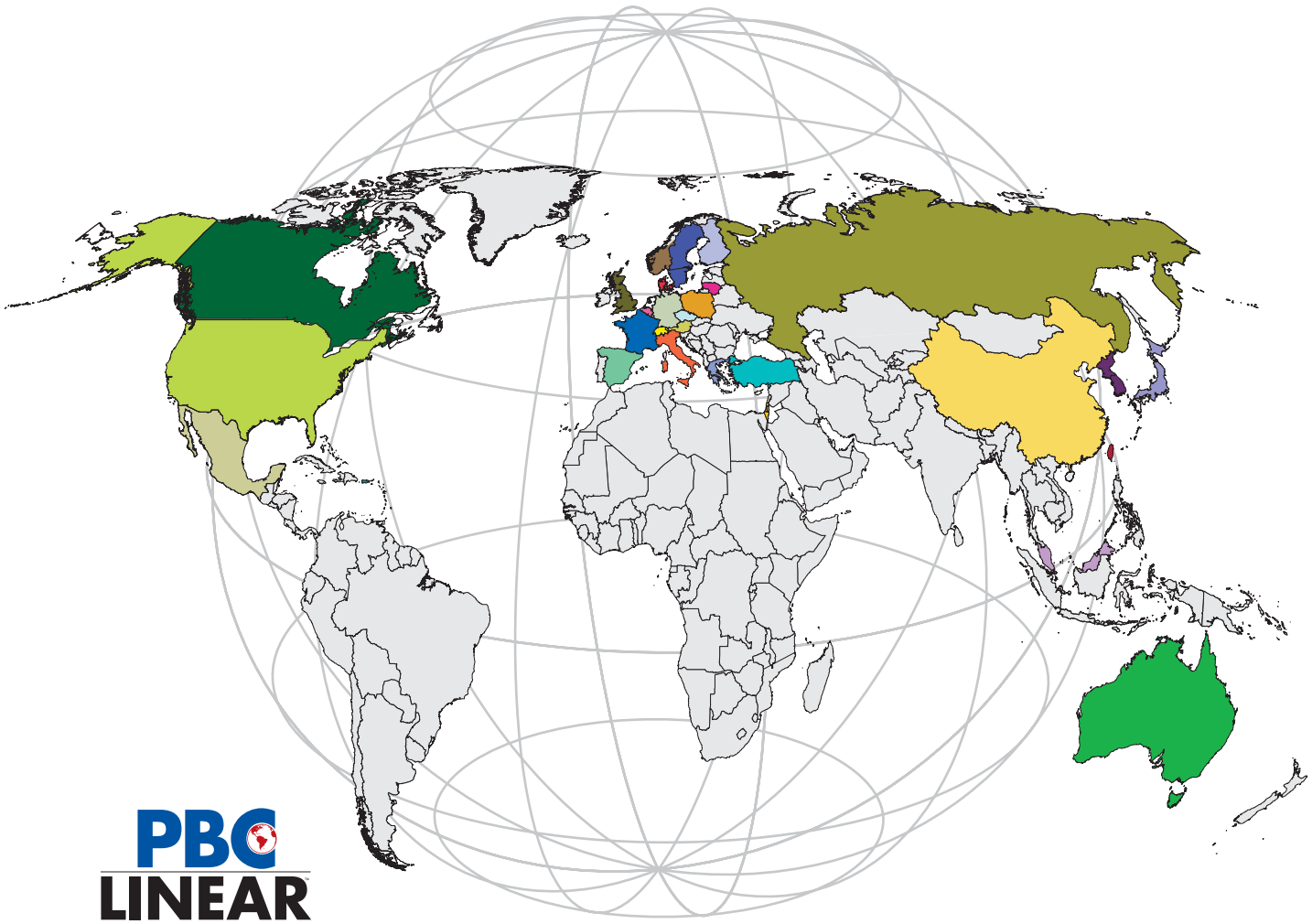

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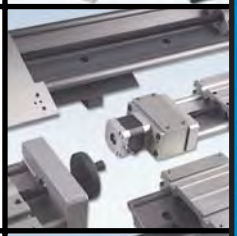

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