PRODUCT OVERVIEW

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

FEATURES & BENEFITS

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

V-Guide System:
- Excellent for harsh environments
- High speed capabilities
- Low noise operation

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

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

Wheel Bushings:
- 303 Stainless Steel
- Available for English or metric hardware

APPLICATIONS

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

TECHNICAL SPECIFICATIONS

Linear Bearing for Axial & Radial Loads

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

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

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

- Available in 1045 Carbon Steel or 400 Stainless Steel
- Optional black oxide finish
- Choose predrilled rail from stock, or custom cut and drilled to your specification

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

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

LOAD CALCULATIONS

L = applied load / number of wheel pairs

L_R = wheel radial load

L_O = wheel load from moment

A = load offset dimension

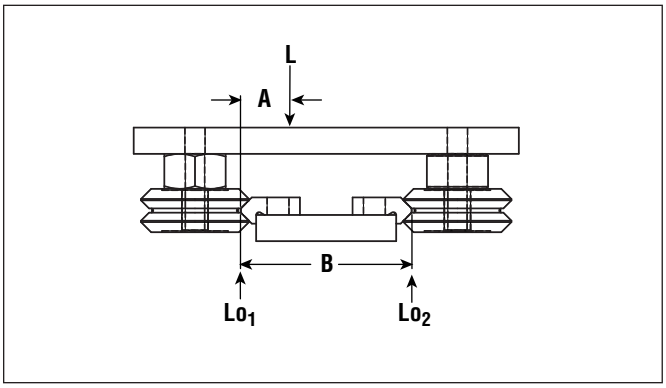
B = track width dimension

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,

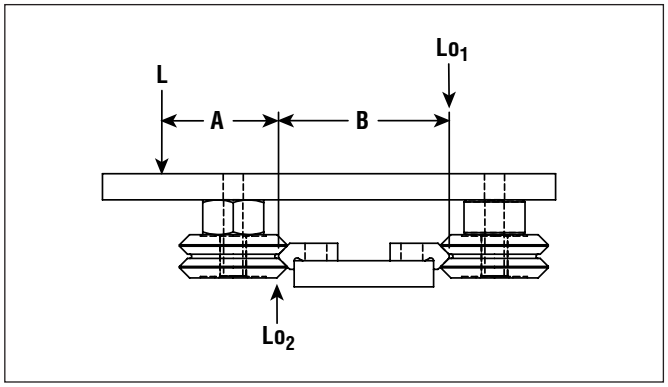
L = 100 / 2 pair wheels = 50 lbs.

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.

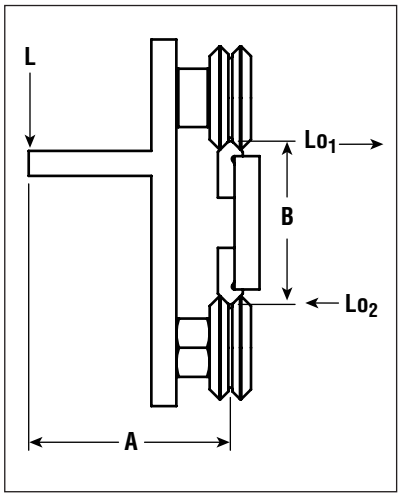
LOAD CONDITION C

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

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

$$Lo_1 = Lo_2$$

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.

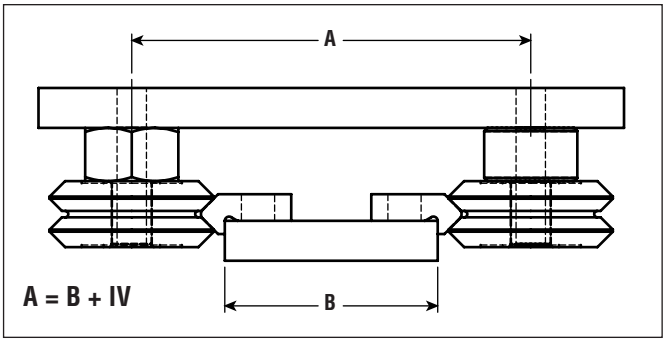
LUBRICATION

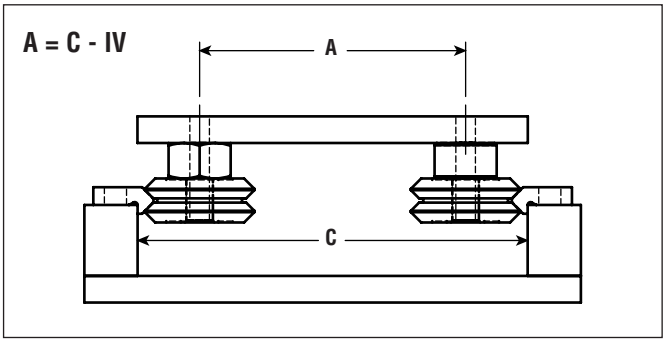
The V-Guide wheels are grease lubricated, and will not require any additional lube. The track should be lubricated for optimum performance and service life. Suggested lubricants are Mobil Vactra #2 Way Oil, or Mobil Polyrex EP 2 Extreme Pressure Grease.

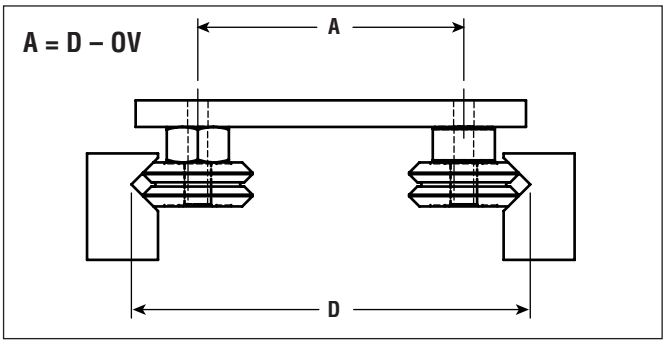
SUGGESTED FASTENERS

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

CENTER DISTANCE FORMULA







WHEEL / BUSHING ASSEMBLY

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