**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.

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

**Inch Series**
The value of \( L_{RR} \) is in meters

\[
L_{RR} = 10^7 \times \left( \frac{Cd}{\text{LoadEquiv} \times RF} \right)^{3.0} \text{ (inches)}
\]

\( L_{CRS} \) = Slider Life Capacity which is found in the table

\( \text{LoadEquiv} \) = Equivalent Radial Load found from the following equation:

\[
\text{LoadEquiv} = \frac{Cd}{\text{LoadEquiv} \times RF}
\]

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MAX SPEED (fpm)</th>
<th>MAX SPEED (ipm)</th>
<th>Cd</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS14</td>
<td>500</td>
<td>6000</td>
<td>421</td>
</tr>
<tr>
<td>RRS18</td>
<td>800</td>
<td>9600</td>
<td>1032</td>
</tr>
</tbody>
</table>

**Metric Series**
The value of \( L_{RR} \) is in meters

\[
L_{RR} = (\frac{Cd}{\text{LoadEquiv} \times RF})^{3.0} \times 100,000 \text{ meters}
\]

\( Cd \) = Slider Life Capacity which is found in the table

\( \text{LoadEquiv} \) = Equivalent Radial Load found from the following equation:

\[
\text{LoadEquiv} = \frac{Cd}{\text{LoadEquiv} \times RF}
\]

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>MAX SPEED (m/min)</th>
<th>MAX SPEED (m/s)</th>
<th>Cd (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS30</td>
<td>300</td>
<td>5.0</td>
<td>1,440</td>
</tr>
<tr>
<td>RRS45</td>
<td>420</td>
<td>7.0</td>
<td>4,404</td>
</tr>
<tr>
<td>RRS65</td>
<td>480</td>
<td>8.0</td>
<td>10,200</td>
</tr>
</tbody>
</table>

**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
**RRS14 Slide**

*Redi-Rail® Linear Guides - Inch Series*

**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

**ORDER INFORMATION**

**EXAMPLE:**

Slider size 14

**NOTE:** Slide weight 0.25 lbs./ea.
RR14 Rail
Load Capacity to 340 lbs.

SUGGESTED RAIL LENGTHS & DIMENSIONS (Inches)

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>HOLES</th>
<th>Y (lbs./ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR14-12</td>
<td>12</td>
<td>4</td>
<td>0.75</td>
</tr>
<tr>
<td>RR14-24</td>
<td>24</td>
<td>7</td>
<td>1.50</td>
</tr>
<tr>
<td>RR14-36</td>
<td>36</td>
<td>11</td>
<td>0.50</td>
</tr>
<tr>
<td>RR14-48</td>
<td>48</td>
<td>14</td>
<td>1.25</td>
</tr>
<tr>
<td>RR14-60</td>
<td>60</td>
<td>17</td>
<td>2.00</td>
</tr>
<tr>
<td>RR14-72</td>
<td>72</td>
<td>21</td>
<td>1.00</td>
</tr>
<tr>
<td>RR14-84</td>
<td>84</td>
<td>24</td>
<td>1.75</td>
</tr>
<tr>
<td>RR14-96</td>
<td>96</td>
<td>28</td>
<td>0.75</td>
</tr>
</tbody>
</table>

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

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

ORDER INFORMATION

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

Redi-Rail® RR14
Aluminum alloy with hardened steel raceways inserted.

NOTE: Rail weight 0.56 lb/ft

PART NUMBER | Cd (lbs.) | Cr (lbs.) | Ca (lbs.) | Mx (in-lbs.) | My (in-lbs.) | Mz (in-lbs.) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS14</td>
<td>421</td>
<td>340</td>
<td>79</td>
<td>21</td>
<td>54</td>
<td>201</td>
</tr>
</tbody>
</table>

NOTE: Suggested lengths cut up to 19’
**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

---

**ORDER INFORMATION**

**EXAMPLE:** RRS18

Redi-Rail® RRS18

Redi-Rail Slide

Nominal Size

14 = Dimension (page 202)
18 = Dimension

TAPPED MOUNTING HOLES 5/16-24

NOTE: Slide weight 0.50 lbs./ea.
RR18 Rail
Load Capacity to 850 lbs.

SUGGESTED RAIL LENGTHS & DIMENSIONS (Inches)

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

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

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.

ORDER INFORMATION

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

Customer specifies "Y" dimension

NOTE: Rail weight 0.85 lb/ft
**RRS30 Slide**

Redi-Rail® Linear Guides - ISO Metric

**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.

**APPLICATIONS**

- Automation
- Assembly
- Material Handling
- Packaging

**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**

**Load Capacity to 1000 N**

- 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.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>Cd (N)</th>
<th>Cr (N)</th>
<th>Ca (N)</th>
<th>Mx (Nm)</th>
<th>My (Nm)</th>
<th>Mz (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS30</td>
<td>1,440</td>
<td>1,000</td>
<td>330</td>
<td>1.8</td>
<td>5.5</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**NOTE:** Rail weight 0.868 kg/m

**ORDER INFORMATION**

**EXAMPLE:** RR30-1200

Rail size 30 cut to 1200mm long

- **Redi-Rail® RR30**
- **Nominal Size**
  - 30 = Dimension
  - 45 = Dimension (page 209)
  - 65 = Dimension (page 211)
- **Corrosion Resistance**
  - Rail type with 440 SST rods
- **Lengths (mm)**
  - Note: Specify Rail Length & Carriage
**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

**ORDER INFORMATION**

**EXAMPLE:** RRS45U
Slider size 45 with UHMW seals

**NOTES:** Felt wipers have been replaced by low friction oil impregnated plastic wipers.
No entry in the part # results in use of oil impregnated wiper.
RR45 Rail
Load Capacity to 2660 N

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.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>Cd (N)</th>
<th>Cr (N)</th>
<th>Ca (N)</th>
<th>Mx (Nm)</th>
<th>My (Nm)</th>
<th>Mz (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS45</td>
<td>4404</td>
<td>2660</td>
<td>827</td>
<td>6.6</td>
<td>19.9</td>
<td>47.9</td>
</tr>
</tbody>
</table>

Order Information

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

Nominal Size

30 = Dimension
45 = Dimension
65 = Dimension

Corrosion Resistance
Rail type with 440 SAT rods

Note: Specify Rail Length & Carriage

Customer specifies "Y" dimension
**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.

**APPLICATIONS**

- Automation
- Assembly
- Material Handling
- Packaging

**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**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>Cd (N)</th>
<th>Cr (N)</th>
<th>Ca (N)</th>
<th>Mx (Nm)</th>
<th>My (Nm)</th>
<th>Mz (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS65</td>
<td>10200</td>
<td>5950</td>
<td>1678</td>
<td>19.0</td>
<td>58.2</td>
<td>154.7</td>
</tr>
</tbody>
</table>

**Conversions**

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

**ORDER INFORMATION**

**EXAMPLE:** RR65-1200

Rail size 65 cut to 1200mm long
Flexible Guide System 43
Roller & Rail - Radial Loads to 3,600 N

**F - ROLLER**

**GUIDING ROLLER / CONCENTRIC PIVOT - FEV**

**GUIDING ROLLER / ECCENTRIC PIVOT - FCV**

**FLOATING ROLLER / CONCENTRIC PIVOT - FCP**

**FLOATING ROLLER / ECCENTRIC PIVOT - FEP**

**FLOATING ROLLER FEP-FCP LATERAL DISPLACEMENT**

**GUIDING ROLLER FCV- FEV**

**FR43 - RAILS**

Flexible rails have a unique design as its rail offers three protruding raceways, angled at 90° intervals. Providing an extremely versatile linear system. The stronger flexible rails have a 160mm hole pitch for easy assembling.

<table>
<thead>
<tr>
<th>LATERAL DISPLACEMENT</th>
<th>ROLLER TYPE</th>
<th>D</th>
<th>S</th>
<th>H</th>
<th>L1</th>
<th>d</th>
<th>M1</th>
<th>Ch</th>
<th>C</th>
<th>C</th>
<th>CORAD</th>
<th>COAX</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>FCV43</td>
<td>30.8</td>
<td>14</td>
<td>2</td>
<td>9</td>
<td>15</td>
<td>M8</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>9,000</td>
<td>3,600</td>
<td>2,160</td>
</tr>
<tr>
<td></td>
<td>FEV43</td>
<td>30.4</td>
<td>14</td>
<td>2</td>
<td>9</td>
<td>15</td>
<td>M8</td>
<td>6</td>
<td>0.8</td>
<td>0</td>
<td>9,000</td>
<td>3,600</td>
<td>2,160</td>
</tr>
</tbody>
</table>

**FR43 - RAILS**

<table>
<thead>
<tr>
<th>RAIL TYPE</th>
<th>Kg/m</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>d</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>S</th>
<th>L</th>
<th>SCREW TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR43</td>
<td>2.09</td>
<td>19.36</td>
<td>25</td>
<td>18.3</td>
<td>10.5</td>
<td>6.5</td>
<td>13.2</td>
<td>12.3</td>
<td>12.2</td>
<td>4.4</td>
<td>5.6</td>
<td>400 - 3,920</td>
<td>M6 DIN 6912</td>
</tr>
</tbody>
</table>

**ORDER INFORMATION**

**RAIL**

- F = Flexible
- C = Concentric
- P = Floating
- 43 = Rail Size 43 = 43mm

**CARRIAGE**

- FR = Flexible Rail
- 43 = Rail Size 400 - 3920mm
- 0400 = Rail Length 43 = 43mm

**EXAMPLE:** FCP43 FR43-XXXX

Note: Tolerance for first-last hole +/-0.5
**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:** \( \approx 180^\circ F \)
V-Guide System - 20 mm (3/4"
Radial Loads to 283 lbs. (1,260 N) per Wheel

V-Guide Wheels

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>NO. OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD1-1250</td>
<td>12.5” (317.5 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRD1-2450</td>
<td>24.5” (622.3 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRD1-3650</td>
<td>36.5” (927.1 mm)</td>
<td>19</td>
</tr>
<tr>
<td>VRD1-4850</td>
<td>48.5” (1231.9 mm)</td>
<td>25</td>
</tr>
<tr>
<td>VRD1-6050</td>
<td>60.5” (1536.7 mm)</td>
<td>31</td>
</tr>
<tr>
<td>VRD1-7250</td>
<td>72.5” (1841.5 mm)</td>
<td>37</td>
</tr>
</tbody>
</table>

Stainless Steel

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>NO. OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRSD1-1250</td>
<td>12.5” (317.5 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRSD1-2450</td>
<td>24.5” (622.3 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRSD1-3650</td>
<td>36.5” (927.1 mm)</td>
<td>19</td>
</tr>
<tr>
<td>VRSD1-4850</td>
<td>48.5” (1231.9 mm)</td>
<td>25</td>
</tr>
<tr>
<td>VRSD1-6050</td>
<td>60.5” (1536.7 mm)</td>
<td>31</td>
</tr>
<tr>
<td>VRSD1-7250</td>
<td>72.5” (1841.5 mm)</td>
<td>37</td>
</tr>
</tbody>
</table>

VEIGHT: .42 oz. (12 g)

V-Guide Rail

Carbon Steel

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>NO. OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>VR1-xxx</td>
<td>undrilled rail max. length 21’ (6400 mm)</td>
<td></td>
</tr>
<tr>
<td>VRD1-xxx</td>
<td>drilled rail, see table</td>
<td></td>
</tr>
</tbody>
</table>

Stainless Steel

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>NO. OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRS1-xxx</td>
<td>undrilled rail, max. length 21’ (6400 mm)</td>
<td></td>
</tr>
<tr>
<td>VRSD1-xxx</td>
<td>drilled rail, see table</td>
<td></td>
</tr>
</tbody>
</table>

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

Wheel Bushings

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB1</td>
<td>Fixed Bushing</td>
</tr>
<tr>
<td>VBA1</td>
<td>Adjustable Bushing</td>
</tr>
</tbody>
</table>

Metric Wheel Bushings

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVB1</td>
<td>Metric Fixed Bushing</td>
</tr>
<tr>
<td>MVBA1</td>
<td>Metric Adjustable Bushing</td>
</tr>
</tbody>
</table>

Standard Drilled Rails

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>NO. OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD1-1250</td>
<td>12.5” (317.5 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRD1-2450</td>
<td>24.5” (622.3 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRD1-3650</td>
<td>36.5” (927.1 mm)</td>
<td>19</td>
</tr>
<tr>
<td>VRD1-4850</td>
<td>48.5” (1231.9 mm)</td>
<td>25</td>
</tr>
<tr>
<td>VRD1-6050</td>
<td>60.5” (1536.7 mm)</td>
<td>31</td>
</tr>
<tr>
<td>VRD1-7250</td>
<td>72.5” (1841.5 mm)</td>
<td>37</td>
</tr>
</tbody>
</table>

Stainless Steel

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>LENGTH</th>
<th>NO. OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRSD1-1250</td>
<td>12.5” (317.5 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRSD1-2450</td>
<td>24.5” (622.3 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRSD1-3650</td>
<td>36.5” (927.1 mm)</td>
<td>19</td>
</tr>
<tr>
<td>VRSD1-4850</td>
<td>48.5” (1231.9 mm)</td>
<td>25</td>
</tr>
<tr>
<td>VRSD1-6050</td>
<td>60.5” (1536.7 mm)</td>
<td>31</td>
</tr>
<tr>
<td>VRSD1-7250</td>
<td>72.5” (1841.5 mm)</td>
<td>37</td>
</tr>
</tbody>
</table>

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

METRIC WHEEL BUSHINGS

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVB1</td>
<td>Metric Fixed Bushing</td>
</tr>
<tr>
<td>MVBA1</td>
<td>Metric Adjustable Bushing</td>
</tr>
</tbody>
</table>

WHEEL BUSHINGS - 20 mm (3/4"

V-Guide - 20 mm (3/4"

800.962.8979 • www.pbclinear.com
### V-Guide System - 30 mm (1-1/4”)
Radial Loads to 614 lbs. (2,730 N) per Wheel

#### V-Guide Wheels
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>VW2</td>
<td>Shielded Bearing</td>
</tr>
<tr>
<td>VWS2</td>
<td>Sealed Bearing</td>
</tr>
<tr>
<td>VWSS2</td>
<td>Sealed Stainless Bearing</td>
</tr>
</tbody>
</table>

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

#### V-Guide Rail

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Steel</td>
<td>Undrilled rail max. length 21’ (6400 mm)</td>
<td>VR2-xxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drilled rail, see table</td>
<td>VRD2-xxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>Undrilled rail, max. length 21’ (6400 mm)</td>
<td>VRS2-xxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drilled rail, see table</td>
<td>VRSD2-xxx</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

#### Wheel Bushings

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB2</td>
<td>Fixed Bushing</td>
</tr>
<tr>
<td>VBA2</td>
<td>Adjustable Bushing</td>
</tr>
</tbody>
</table>

#### Metric Wheel Bushings

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVB2</td>
<td>Metric Fixed Bushing</td>
</tr>
<tr>
<td>MVBA2</td>
<td>Metric Adjustable Bushing</td>
</tr>
</tbody>
</table>

#### Standard Drilled Rails

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD2-1263</td>
<td>12.63” (320.8 mm)</td>
<td>5</td>
</tr>
<tr>
<td>VRD2-2463</td>
<td>24.63” (625.6 mm)</td>
<td>9</td>
</tr>
<tr>
<td>VRD2-3663</td>
<td>36.63” (930.4 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRD2-4863</td>
<td>48.63” (1235.2 mm)</td>
<td>17</td>
</tr>
<tr>
<td>VRD2-6063</td>
<td>60.63” (1540 mm)</td>
<td>21</td>
</tr>
<tr>
<td>VRD2-7263</td>
<td>72.63” (1844.8 mm)</td>
<td>25</td>
</tr>
<tr>
<td>VRS2-1263</td>
<td>12.63” (320.8 mm)</td>
<td>5</td>
</tr>
<tr>
<td>VRS2-2463</td>
<td>24.63” (625.6 mm)</td>
<td>9</td>
</tr>
<tr>
<td>VRS2-3663</td>
<td>36.63” (930.4 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRS2-4863</td>
<td>48.63” (1235.2 mm)</td>
<td>17</td>
</tr>
<tr>
<td>VRS2-6063</td>
<td>60.63” (1540 mm)</td>
<td>21</td>
</tr>
<tr>
<td>VRS2-7263</td>
<td>72.63” (1844.8 mm)</td>
<td>25</td>
</tr>
</tbody>
</table>

**WEIGHT:** 1.3 oz. (38 g)
V-Guide System - 45 mm (1-3/4”)
Radial Loads to 1,386 lbs. (6,166 N) per Wheel

V-Guide Wheels

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD3-1275</td>
<td>12.75”</td>
<td>5</td>
</tr>
<tr>
<td>VRD3-2475</td>
<td>24.75”</td>
<td>9</td>
</tr>
<tr>
<td>VRD3-3675</td>
<td>36.75”</td>
<td>13</td>
</tr>
<tr>
<td>VRD3-4875</td>
<td>48.75”</td>
<td>17</td>
</tr>
<tr>
<td>VRD3-6075</td>
<td>60.75”</td>
<td>21</td>
</tr>
<tr>
<td>VRD3-7275</td>
<td>72.75”</td>
<td>25</td>
</tr>
<tr>
<td>VRS3-1275</td>
<td>12.75”</td>
<td>5</td>
</tr>
<tr>
<td>VRS3-2475</td>
<td>24.75”</td>
<td>9</td>
</tr>
<tr>
<td>VRS3-3675</td>
<td>36.75”</td>
<td>13</td>
</tr>
<tr>
<td>VRS3-4875</td>
<td>48.75”</td>
<td>17</td>
</tr>
<tr>
<td>VRS3-6075</td>
<td>60.75”</td>
<td>21</td>
</tr>
<tr>
<td>VRS3-7275</td>
<td>72.75”</td>
<td>25</td>
</tr>
</tbody>
</table>

Metric Wheel Bushings

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD3-1275</td>
<td>12.75”</td>
<td>5</td>
</tr>
<tr>
<td>VRD3-2475</td>
<td>24.75”</td>
<td>9</td>
</tr>
<tr>
<td>VRD3-3675</td>
<td>36.75”</td>
<td>13</td>
</tr>
<tr>
<td>VRD3-4875</td>
<td>48.75”</td>
<td>17</td>
</tr>
<tr>
<td>VRD3-6075</td>
<td>60.75”</td>
<td>21</td>
</tr>
<tr>
<td>VRD3-7275</td>
<td>72.75”</td>
<td>25</td>
</tr>
</tbody>
</table>

V-Guide Rail

Carbon Steel

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VR3-xxx</td>
<td>undrilled rail max. length 21’ (6400 mm)</td>
<td></td>
</tr>
<tr>
<td>VRD3-xxx</td>
<td>drilled rail, see table</td>
<td></td>
</tr>
</tbody>
</table>

Stainless Steel

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRS3-xxx</td>
<td>undrilled rail, max. length 21’ (6400 mm)</td>
<td></td>
</tr>
<tr>
<td>VRS3-xxx</td>
<td>drilled rail, see table</td>
<td></td>
</tr>
</tbody>
</table>

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

Standard Drilled Rails

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD3-1275</td>
<td>12.75”</td>
<td>5</td>
</tr>
<tr>
<td>VRD3-2475</td>
<td>24.75”</td>
<td>9</td>
</tr>
<tr>
<td>VRD3-3675</td>
<td>36.75”</td>
<td>13</td>
</tr>
<tr>
<td>VRD3-4875</td>
<td>48.75”</td>
<td>17</td>
</tr>
<tr>
<td>VRD3-6075</td>
<td>60.75”</td>
<td>21</td>
</tr>
<tr>
<td>VRD3-7275</td>
<td>72.75”</td>
<td>25</td>
</tr>
</tbody>
</table>

METRIC WHEEL BUSHINGS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD3-1275</td>
<td>12.75”</td>
<td>5</td>
</tr>
<tr>
<td>VRD3-2475</td>
<td>24.75”</td>
<td>9</td>
</tr>
<tr>
<td>VRD3-3675</td>
<td>36.75”</td>
<td>13</td>
</tr>
<tr>
<td>VRD3-4875</td>
<td>48.75”</td>
<td>17</td>
</tr>
<tr>
<td>VRD3-6075</td>
<td>60.75”</td>
<td>21</td>
</tr>
<tr>
<td>VRD3-7275</td>
<td>72.75”</td>
<td>25</td>
</tr>
</tbody>
</table>

NOTE: Non-heat treated rails available in all all sizes, contact factory.
V-Guide System - 60 mm (2-1/4“)
Radial Loads to 2,246 lbs. (9,991 N) per Wheel

V-Guide Wheels

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>VW4</td>
<td>Shielded Bearing</td>
</tr>
<tr>
<td>VWS4</td>
<td>Sealed Bearing</td>
</tr>
<tr>
<td>VWSS4</td>
<td>Sealed Stainless Bearing</td>
</tr>
</tbody>
</table>

Weight: 10 oz. (281 g)

V-Guide Rail

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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD4-1300</td>
<td>13.00” (330.2 mm)</td>
<td>4</td>
</tr>
<tr>
<td>VRD4-2500</td>
<td>25.00” (635 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRD4-3700</td>
<td>37.00” (939.8 mm)</td>
<td>10</td>
</tr>
<tr>
<td>VRD4-4900</td>
<td>49.00” (1244.6 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRD4-6100</td>
<td>61.00” (1549.4 mm)</td>
<td>16</td>
</tr>
</tbody>
</table>

Stainless Steel

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRSD4-1300</td>
<td>13.00” (330.2 mm)</td>
<td>4</td>
</tr>
<tr>
<td>VRSD4-2500</td>
<td>25.00” (635 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRSD4-3700</td>
<td>37.00” (939.8 mm)</td>
<td>10</td>
</tr>
<tr>
<td>VRSD4-4900</td>
<td>49.00” (1244.6 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRSD4-6100</td>
<td>61.00” (1549.4 mm)</td>
<td>16</td>
</tr>
</tbody>
</table>

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

Wheel Bushings

<table>
<thead>
<tr>
<th>Bushing</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB4</td>
<td>Fixed Bushing</td>
</tr>
<tr>
<td>VBA4</td>
<td>Adjustable Bushing</td>
</tr>
</tbody>
</table>

Metric Wheel Bushings

<table>
<thead>
<tr>
<th>Bushing</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVB4</td>
<td>Metric Fixed Bushing</td>
</tr>
<tr>
<td>MVBA4</td>
<td>Metric Adjustable Bushing</td>
</tr>
</tbody>
</table>

Standard Drilled Rails

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Length</th>
<th># of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRD4-1300</td>
<td>13.00” (330.2 mm)</td>
<td>4</td>
</tr>
<tr>
<td>VRD4-2500</td>
<td>25.00” (635 mm)</td>
<td>7</td>
</tr>
<tr>
<td>VRD4-3700</td>
<td>37.00” (939.8 mm)</td>
<td>10</td>
</tr>
<tr>
<td>VRD4-4900</td>
<td>49.00” (1244.6 mm)</td>
<td>13</td>
</tr>
<tr>
<td>VRD4-6100</td>
<td>61.00” (1549.4 mm)</td>
<td>16</td>
</tr>
</tbody>
</table>
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

\[ L_O_1 = \frac{L \times (B - A) \times F_A}{B} \]

\[ L_O_2 = (L \times F_A) - L_O_1 \]

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
\[ L_O_1 = \frac{50 \times (10 - 4) \times 1}{10} = 30 \text{ lbs.} \]
\[ L_O_2 = 50 - 30 = 20 \text{ lbs.} \]

LOAD CONDITION B

\[ L_O_1 = L x A \times F_A \]
\[ L_O_2 = (L x F_A) + L_O_1 \]

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
\[ L_O_1 = 50 \times 4 \times 1 = 33 \text{ lbs.} \]
\[ L_O_2 = 50 + 33 = 83 \text{ lbs.} \]

LOAD CONDITION C

\[ L_O_1 = L x A \times F_A \]
\[ L_R = (L x F_A) + L_O_1 \]

\[ L_O_1 = L_O_2 \]

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
\[ L_O_1 = 50 \times 4 \times 1 = 33 \text{ lbs.} \]
\[ L_R = (50 \times 1) + 33 = 83 \text{ lbs.} \]
MOUNTING AND ADJUSTMENT

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

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

<table>
<thead>
<tr>
<th>V-RAIL SIZE</th>
<th>IV (in.)</th>
<th>OV (in.)</th>
<th>IV (mm)</th>
<th>OV (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.874</td>
<td>0.934</td>
<td>22.2</td>
<td>23.7</td>
</tr>
<tr>
<td>2</td>
<td>1.374</td>
<td>1.436</td>
<td>34.9</td>
<td>36.5</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>2.124</td>
<td>50.8</td>
<td>53.9</td>
</tr>
<tr>
<td>4</td>
<td>2.624</td>
<td>2.75</td>
<td>66.6</td>
<td>69.9</td>
</tr>
</tbody>
</table>

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 Polynex EP 2 Extreme Pressure Grease.

SUGGESTED FASTENERS

<table>
<thead>
<tr>
<th>BUSHINGS</th>
<th>INCH</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB1</td>
<td>#6</td>
<td>MVB1</td>
</tr>
<tr>
<td>VB2</td>
<td>1/4&quot;</td>
<td>MVB2</td>
</tr>
<tr>
<td>VB3</td>
<td>5/16&quot;</td>
<td>MVB3</td>
</tr>
<tr>
<td>VB4</td>
<td>3/8&quot;</td>
<td>MVB4</td>
</tr>
<tr>
<td>V-RAIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VR1</td>
<td>#6, M3</td>
<td>VR3</td>
</tr>
<tr>
<td>VR2</td>
<td>#10, M6</td>
<td>VR4</td>
</tr>
</tbody>
</table>

CENTER DISTANCE FORMULA

- \( A = B + IV \)
- \( A = C - IV \)
- \( A = D - OV \)

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 6000mm
- 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

<table>
<thead>
<tr>
<th>PRELOAD ADJUSTMENT</th>
<th>CR20/CRSS20</th>
<th>CR30/CRSS30</th>
<th>CR45/CRSS45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrench flat sq. (mm)</td>
<td>6</td>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

**APPLICATIONS**

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

**MATERIAL & FINISH SPECIFICATIONS**

<table>
<thead>
<tr>
<th></th>
<th>CR SERIES</th>
<th>SS SERIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail</td>
<td>Carbon steel sheet, Zinc plated</td>
<td>Stainless steel 304 sheet</td>
</tr>
<tr>
<td>Slide</td>
<td>Aluminum alloy anodized</td>
<td>Aluminum alloy anodized</td>
</tr>
<tr>
<td>Rollers</td>
<td>Chrome steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hardware</td>
<td>Steel zinc plated</td>
<td>Stainless steel 18-8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RAIL MOUNT</th>
<th>CR20/CRSS20</th>
<th>CR30/CRSS30</th>
<th>CR45/CRSS45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide mount screws (Socket head cap)</td>
<td>M5</td>
<td>M6</td>
<td>M8</td>
</tr>
<tr>
<td>Tightening torque (lbs-in)</td>
<td>25</td>
<td>43</td>
<td>103</td>
</tr>
<tr>
<td>Tightening torque (N-m)</td>
<td>3</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SLIDES</th>
<th>CR20/SS20</th>
<th>CR30/SS30</th>
<th>CR45/SS45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail mount screw (Button head cap)</td>
<td>M4</td>
<td>M5</td>
<td>M8</td>
</tr>
</tbody>
</table>
**Commercial Rail - CR20**

**Dynamic Radial Cr = 280 N**

### CR20 SLIDE

**Dimensions**

- Width: 17.8 mm
- Height: 12.7 mm
- Thickness: 6.9 mm
- Height: 10.25 mm
- Width: 6 mm

**Material**

- Blank = Steel
- SS = Stainless
- P = Polymer

**Rail Size**

- 20 = 20mm
- 30 = 30mm
- 45 = 45mm

**Type of Body**

- MCA = Machined Body

### CR20 RAIL

**Dimensions**

- Length: 60 mm
- Width: 20 mm
- Height: 4.5 mm
- Height: 2 mm
- Width: 80 mm
- Thickness: 20 mm

**Material**

- Blank = Steel
- SS = Stainless

**Rail Size**

- 20 = 20mm
- 30 = 30mm
- 45 = 45mm

**Rail Length**

160 - 6000mm

**Unit Weight**

0.31 lbs./ft.

### ORDER INFORMATION

**EXAMPLE:** CR20MCA / CR20R-XXXX

**Load Ratings**

<table>
<thead>
<tr>
<th>Dims</th>
<th>Static Radial Cor. (N)</th>
<th>Static Radial Coa. (N)</th>
<th>Dynamic Radial Cr (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRSS20</td>
<td>210</td>
<td>160</td>
<td>280</td>
</tr>
<tr>
<td>CRP20</td>
<td>30</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>
**CR30 SLIDE**

Dimensions:
- Width: 26.5
- Height: 15
- Depth: 10
- Thickness: 8.5

**CR30 RAIL**

Unit Weight: 0.64 lbs./ft.

**ORDER INFORMATION**

**Example:** CR30MCA / CR30R-XXXX

**Commercial Rail - CR30**

**Dynamic Radial Cr = 800 N**

<table>
<thead>
<tr>
<th>DIMS</th>
<th>LOAD RATINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STATIC RADIAL</td>
</tr>
<tr>
<td></td>
<td>Cor. (N)</td>
</tr>
<tr>
<td>CR30</td>
<td>610</td>
</tr>
<tr>
<td>CRSS30</td>
<td></td>
</tr>
<tr>
<td>CRP30</td>
<td>90</td>
</tr>
</tbody>
</table>

**Material**
- Blank = Steel
- SS = Stainless
- P = Polymer

**Rail Size**
- 20 = 20mm
- 30 = 30mm
- 45 = 45mm

**Rail Length**
- 160 - 6000mm

**Type of Body**
- MCA = Machined Body

**Rail**
- CR
- 30
- R
- XXXX

**Commercial Rail Slide**

**Material**
- Blank = Steel
- SS = Stainless Steel
- P = Polymer

**Rail Size**
- 20 = 20mm
- 30 = 30mm
- 45 = 45mm

**Type of Body**
- MCA = Machined Body

**.slide**
- CR
- 30
- MCA
**CR45 SLIDE**

**CR45 RAIL**

**ORDER INFORMATION**

**EXAMPLE: CR45MCA / CR45R-XXXX**

---

**LOAD RATINGS**

<table>
<thead>
<tr>
<th>DIMS</th>
<th>STATIC RADIAL</th>
<th>DYNAMIC RADIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cor. (N)</td>
<td>Cr. (N)</td>
</tr>
<tr>
<td>CR45</td>
<td>1330</td>
<td>1740</td>
</tr>
<tr>
<td>CRSS45</td>
<td>930</td>
<td>190</td>
</tr>
<tr>
<td>CRP45</td>
<td>150</td>
<td>260</td>
</tr>
</tbody>
</table>

Unit Weight = 1.31 lbs./ft.
FEATURES & BENEFITS

- Low cost linear motion solution
- Precision rolling element bearing riding in a *Unistrut™ type rail
- 9/16” Hex head for easier mounting
- Simple solution and setup for point-to-point applications
- 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

*Unistrut is a trademark of Unistrut, Inc.

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAC3016</td>
<td>Hardened Crown Roller Bearing</td>
</tr>
<tr>
<td>PAC3016M</td>
<td>Hardened Crown Roller Bearing with metric thread</td>
</tr>
<tr>
<td>PAC2245</td>
<td>Rail System - unpainted (specify length - priced per foot)</td>
</tr>
<tr>
<td>PAC2247</td>
<td>Rail System - black powder coat finish</td>
</tr>
<tr>
<td></td>
<td>(specify length- price per foot)</td>
</tr>
<tr>
<td>PAC2244</td>
<td>Angle Brackets - 1” Steel</td>
</tr>
<tr>
<td>PAC2246</td>
<td>End Stops for Rail System (bolt included)</td>
</tr>
</tbody>
</table>

**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
Hevi-Rail® Linear Bearing Systems
Technical Information & Selection Guide

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 lightly 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

Bearing 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:

\[ L_{10} = \left( \frac{1666}{\pi} \right) \left( \frac{C}{P} \right)^{\frac{1}{3}} \text{ (Hours)} \]

\[ C = \text{Dynamic load rating (KN)} \]
\[ P = \text{Automatic dynamic load (KN)} \]
\[ \pi = \text{Revolutions per minute (rpm)} \]

NOTE: Above calculation formula is for predicting life expectancy 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

\[ \text{Inner Rail Distance} = \text{Saddle Width} + (1.524 \text{ mm to 3.048 mm}) \]

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

CALCULATION OF FMAX FOR CANTILEVERED LOADS

\[ Q = \text{Load capacity (N)} \]
\[ L = \text{Load distance to suspension point (mm)} \]
\[ P = \text{Suspension point} \]
\[ A = \text{Bearing distance (mm) recommended 500–1000 mm} \]

Formula: \[ F_{\text{max \ stat radial}} = \frac{Q \cdot L}{2 \cdot A} \]

\[ P_{\text{zul}} = 750 \text{ N/mm}^2 \text{ for all profile rails. Indicated here are } F_{\text{max \ stat radial}} + \text{axial for each bearing.} \]
**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.

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

**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**
- **HORIZONTAL TELESCOPE**
**Hevi-Rail® Linear Bearing System**

**0.6 US Ton-Force**

### Hevi-Rail® - 0.6 US Ton-Force

#### 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-5**

**WEIGHT** = 5.3 Kg/m

**MOMENT OF INERTIA**
- Ix = 5.2 cm$^4$, ly = 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**

**WEIGHT** = 5.3 Kg

**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
**Hevi-Rail® Linear Bearing Systems**
0.8 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**
  - $ix = 15.35 \text{ cm}^2$, $iy = 137.05 \text{ cm}^4$
- **DIST. TO CENTER OF GRAVITY**
  - $ey = 1.29 \text{ cm}$, $ex = 4.33 \text{ cm}$
- **RADIUS OF INERTIA**
  - $ix = 1.07 \text{ cm}$, $iy = 3.20 \text{ cm}$
- **MOMENT OF RESISTANCE**
  - $W_{x\min} = 6.64 \text{ cm}^3$
  - $W_{x\max} = 11.93 \text{ cm}^3$
  - $Wy = 31.69 \text{ cm}^3$

---

**FLANGE PLATE**

**HVP0-1**

---

**CLAMP FLANGE**

**HVC-0**

---

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

---

**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

---

**247**

800.962.8979 • www.pbclinear.com
Hevi-Rail® Linear Bearing Systems
0.9 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.

**PROFILE RAIL U-CHANNEL**

**HVR-1**

- **WEIGHT = 14.8 Kg/m**
- **MOMENT OF INERTIA**
  - $I_x = 27.29 \text{ cm}^4$
  - $I_y = 273.50 \text{ cm}^4$
- **DIST. TO CENTER OF GRAVITY**
  - $e_y = 1.50 \text{ cm}$
  - $e_x = 5.16 \text{ cm}$
- **RADIUS OF INERTIA**
  - $i_x = 1.20 \text{ cm}$
  - $i_y = 3.81 \text{ cm}$
- **MOMENT OF RESISTANCE**
  - $W_{X_{\text{min}}} = 10.91 \text{ cm}^3$
  - $W_{X_{\text{max}}} = 18.20 \text{ cm}^3$
  - $W_y = 53.00 \text{ cm}^3$

**FLANGE PLATE**

**HVP1-1**

**CLAMP FLANGE**

**HVC-1**

**ECCENTRIC ADJUSTABLE**

**HVBEA-455**

- **WEIGHT = 0.80 Kg**
- **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 I-CHANNEL**

**HVRI-07**

- **WEIGHT = 19.4 Kg/m**
- **MOMENT OF INERTIA**
  - $I_x = 344.29 \text{ cm}^4$
  - $I_y = 57.63 \text{ cm}^3$
- **DIST. TO CENTER OF GRAVITY**
  - $e_y = 4.90 \text{ cm}$
  - $e_x = 3.25 \text{ cm}$
- **RADIUS OF INERTIA**
  - $i_x = 3.73 \text{ cm}$
  - $i_y = 1.52 \text{ cm}$
- **MOMENT OF RESISTANCE**
  - $W_x = 70.26 \text{ cm}^3$
  - $W_y = 17.73 \text{ cm}^3$

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

*“h” refers to the depth of the axial bearing, so “h” depends on choice of HVB-055 or HVBEA-455.*
**Hevi-Rail® Linear Bearing Systems**

**1.0 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.

**PROFILE RAIL U-CHANNEL  HVR-2**

- **WEIGHT**: 20.9 Kg/m
- **RADIUS OF INERTIA**
  - \( I_x = 1.19 \text{ cm}^2 \)
  - \( I_y = 4.30 \text{ cm}^2 \)
- **DIST. TO CENTER OF GRAVITY**
  - \( e_y = 1.54 \text{ cm} \)
  - \( e_x = 6.07 \text{ cm} \)

**FLANGE PLATE  HVP2-1**

**CLAMP FLANGE  HVC-2**

**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.

---

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

---

**WHEN USED WITH SHOWN PROFILE RAILS**

- System Max. Static Radial Load = 8.9 KN / 1.0 US Ton-Force
- System Max. Static Axial Load = 3.0 KN / 0.3 US Ton-Force
Hevi-Rail® Linear Bearing Systems
1.0 US Ton-Force

**AXIAL BEARING - FIXED**

- **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.

**PROFILE RAIL I-CHANNEL**

- **WEIGHT:** 25.3 Kg/m
- **MOMENT OF INERTIA**
  - $I_x = 597.54 \text{ cm}^4$, $I_y = 76.79 \text{ cm}^4$
- **DIST. TO CENTER OF GRAVITY**
  - $\delta y = 5.70 \text{ cm}$, $\delta x = 3.30 \text{ cm}$
- **RADIUS OF INERTIA**
  - $i_x = 4.24 \text{ cm}$, $i_y = 1.54 \text{ cm}$
- **MOMENT OF RESISTANCE**
  - $W_x = 104.92 \text{ cm}^3$
  - $W_y = 23.27 \text{ cm}^3$

**FLANGE PLATE**

- **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.

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

**SYSTEM MAX. STATIC RADIAl LOAD**

- **When used with shown profile rails**
  - 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
1.7 US Ton-Force

Hevi-Rail® Linear Bearing Systems
1.7 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.

**PROFILE RAIL U-CHANNEL**

**HVR-3**

- **WEIGHT** = 28.6 Kg/m
- **RADIUS OF INERTIA**
  - ix = 1.57 cm, iy = 4.87 cm
- **MOMENT OF RESISTANCE**
  - Wx = 72.03 cm³
  - Wy = 27.80 cm³

**PROFILE RAIL I-CHANNEL**

**HVRI-09**

- **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.

**FLANGE PLATE**

**HVP3-1**

- **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.

**CLAMP FLANGE**

**HVC-3**

- **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.

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

**WHEN USED WITH SHOWN PROFILE RAILS**

System Max. Static Radial Load = 15.6 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

**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

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

---

**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

**WEIGHT** = 1.80 Kg  
**BEARING RADIAL LOAD**  
Max. dynamic load = 92 KN  
Max. static load = 153 KN  
**BEARING AXIAL LOAD**  
Max. dynamic load = 32 KN  
Max. static load = 50 KN

---

**PROFILE RAIL I-CHANNEL**  
**HVRI-10**

**WEIGHT** = 30.9 Kg/m  
**MOMENT OF INERTIA**  
Iₓ = 1078.01 cm⁴, Iᵧ = 104.38 cm⁴  
**DIST. TO CENTER OF GRAVITY**  
ey = 6.99 cm, ex = 3.49 cm  
**MOMENT OF RESISTANCE**  
Wₓ = 154.33 cm³, Wᵧ = 29.89 cm³

---

**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

**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

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

---

**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

**WEIGHT** = 2.30 Kg  
**BEARING RADIAL LOAD**  
Max. dynamic load = 100 KN  
Max. static load = 174 KN  
**BEARING AXIAL LOAD**  
Max. dynamic load = 39 KN  
Max. static load = 66 KN

---

**PROFILE RAIL I-CHANNEL**  
**HVRI-11**

**WEIGHT** = 40.5 Kg/m  
**MOMENT OF INERTIA**  
Iₓ = 1670.08 cm⁴, Iᵧ = 184.52 cm⁴  
**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 cm³, Wᵧ = 44.46 cm³

---

**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

---

**NOTE:** Above loads achievable when used with a hardened rail 55 RC minimum 2.54mm deep.
**Hevi-Rail® Linear Bearing Systems**

**1.8 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**
- \( I_x = 150.98 \text{ cm}^4 \)
- \( I_y = 1,494.32 \text{ cm}^4 \)

**DIST. TO CENTER OF GRAVITY**
- \( e_y = 2.25 \text{ cm} \), \( e_x = 7.86 \text{ cm} \)

**RADIUS OF INERTIA**
- \( i_x = 1.82 \text{ cm} \), \( i_y = 5.72 \text{ cm} \)

**MOMENT OF RESISTANCE**
- \( W_{x_{\text{min}}} = 39.00 \text{ cm}^3 \)
- \( W_{x_{\text{max}}} = 67.13 \text{ cm}^3 \)
- \( W_y = 190.12 \text{ cm}^3 \)

### FLANGE PLATE

#### HVP4-1

**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.

### CLAMP FLANGE

#### HVC-4

**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.

---

*“h” refers to the depth of the axial bearing, so “h” depends on choice of HVB-061 or HVBEA-461.*
**Hevi-Rail® Linear Bearing Systems**

**2.6 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 cm⁴,
Iᵧ = 2,185.32 cm⁴

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
Wₓₘᵟᵢᵳ = 48.42 cm³
Wₓₘₐₓ = 86.89 cm³
Wᵧ = 249.75 cm³

**FLANGE PLATE**

**HVP4-1**

WEIGHT = 4.50 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

* “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
Hevi-Rail® Linear Bearing Systems
4.6 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.

**PROFILE RAIL**

**HVR-6**

**WEIGHT** = 52.3 Kg/m

**MOMENT OF INERTIA**
- \( I_x = 269.52 \text{ cm}^4 \)
- \( I_y = 3,423.08 \text{ cm}^4 \)

**DIST. TO CENTER OF GRAVITY**
- \( e_y = 2.40 \text{ cm} \)
- \( e_x = 10.08 \text{ cm} \)

**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.

**FLANGE PLATE**

**HVP6-1**

**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.

* “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**