

Linear Profile Guide Rail Brakes:

- RBB: Rail Brake, Spring Engaged, Air Released
- RBM: Manual Rail Brake



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A New Standard In Performance



RBB: Rail Brake, Spring Engaged, Air Released

Nexen's RBB Series of linear profile guide rail brakes use spring force to secure the load in holding applications. Superior response time and high force for stopping and holding in e-stop and power-off situations. Each RBB brake clamps directly onto the center of the guide rail to provide positive braking and holding in all axes, with no effect on bearing surfaces. These profile rail brakes hold position accurately by reducing drive train backlash and elasticity.

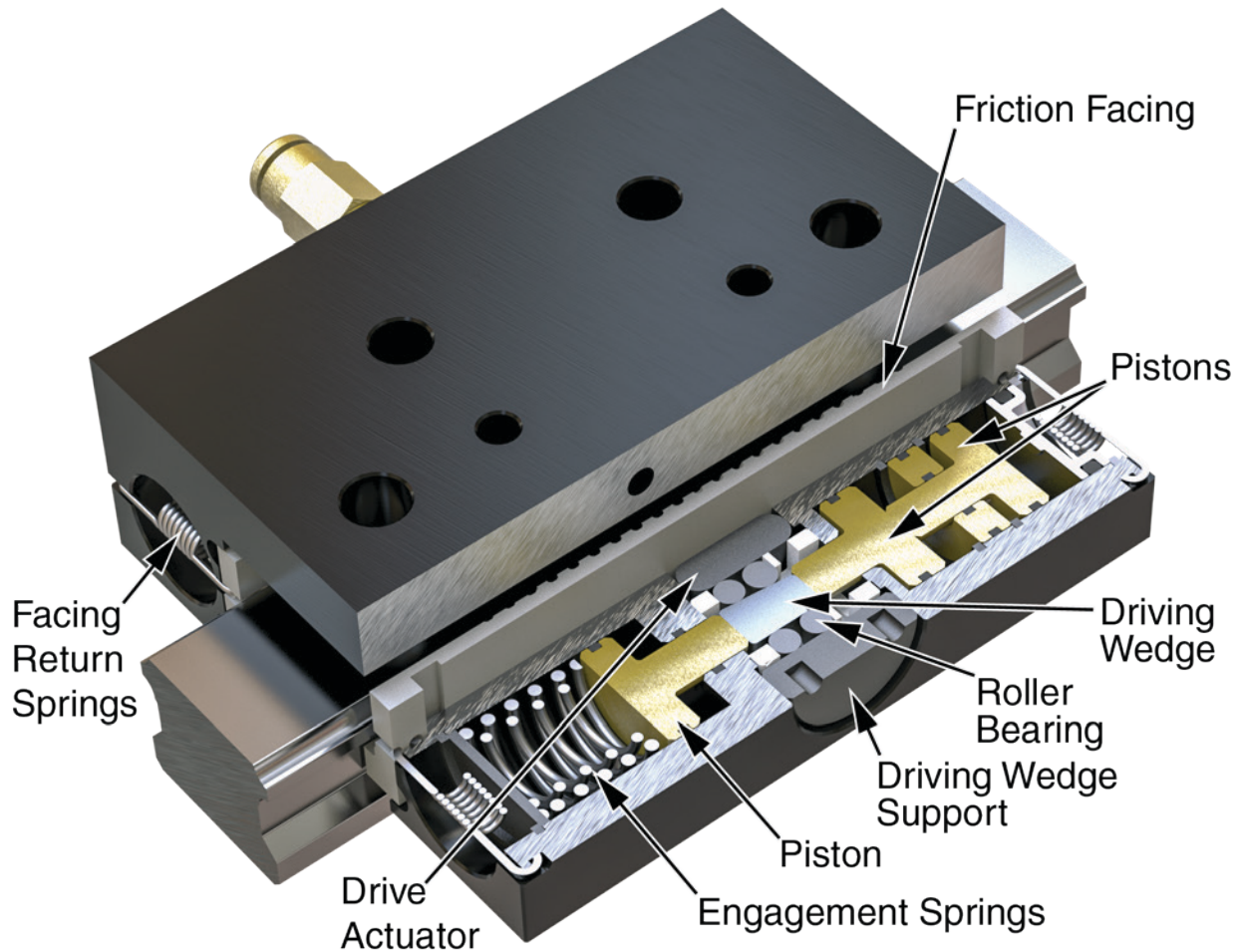
Nexen's RBB Series is engineered for dependable performance. With a revolutionary set of patented features, the RBB Series provides an industry leading braking solution for linear profile guide rails. If personnel safety is required, an unrelated, redundant safety system is recommended.



- Large friction facing contact area for consistent performance and low rail wear
- Field serviceable friction facing replacement
- Ideal for power-off, e-stop and holding applications
- Low backlash for accurate position holding
- Brake geometry is similar to linear bearing cassettes for easy installation
- Provides stiffness and eliminates vibration in linear drives
- Large clearance between brake and rail compensates for installation misalignment
- No lubrication or periodic maintenance required
- Models available to fit most common profile guide rails
- Highest spring engaged / air released holding force on the market
- Static holding cycle life in excess of one million cycles



RBB Rail Brake Specifications



Specifications

| Model | Holding Force (F) (minimum) | Backlash at Full Brake Force (maximum) | Release Pressure (minimum) | Starting Engagement Time ¹ (t _e) | Mass (average) |
|--------|--------------------------------|---|-------------------------------|---|------------------------|
| RB15B | 500 N [112 lbs] | Up to 0.10 mm [0.004 in] | 5.5 bar [80 psi] | 0.049 sec. | 0.41 Kg [0.904 lbs] |
| RB20B | 800 N [180 lbs] | Up to 0.13 mm [0.005 in] | 5.5 bar [80 psi] | 0.044 sec. | 0.62 Kg [1.367 lbs] |
| RB25B | 1000 N [225 lbs] | Up to 0.20 mm [0.008 in] | 5.5 bar [80 psi] | 0.050 sec. | 0.84 Kg [1.86 lbs] |
| RB30B | 1300 N [292 lbs] | Up to .020 mm [0.008 in] | 5.5 bar [80 psi] | 0.070 sec. | 1.54 Kg [3.40 lbs] |
| RB35B | 1600 N [360 lbs] | Up to 0.20 mm [0.008 in] | 5.5 bar [80 psi] | 0.070 sec. | 2.04 Kg [4.50 lbs] |
| RB45B | 2600 N [585 lbs] | Up to 0.20 mm [0.008 in] | 5.5 bar [80 psi] | 0.080 sec. | 3.48 Kg [7.68 lbs] |
| RBL55B | 2600 N [585 lbs] | Up to 0.20 mm [0.008 in] | 5.5 bar [80 psi] | 0.225 sec. | 5.21 Kg [11.49 lbs] |
| RBL65B | 3400 N [764 lbs] | Up to 0.20 mm [0.008 in] | 5.5 bar [80 psi] | 0.230 sec. | 7.10 Kg [15.65 lbs] |

¹ Average, full engagement time with up to 2 meters length of 4mm, polyurethane tube, and 1.4 C_v, 24 volt directional control valve and no quick exhaust.

RBB Rail Brake Product Numbers by Rail Type

| Rail/Carriage Manufacturer | Rail Type | RB15B | RB20B | RB25B | RB30B | RB35B | RB45B | RBL55B | RBL65B |
|------------------------------|------------------|---------------------|------------------|------------------|------------------|------------------|------------------|---------------------|-----------------------|
| ABBA | BRH | 968217 | 968218 | 968112 | 968219 | 968220 | 968221 | N/A | N/A |
| HIWIN | HGR ¹ | 968179 ² | 968178 | 968161 | 968107 | 968174 | 968181 | 968261 ⁵ | N/A ³ |
| IKO | LWH | 968132 | 968127 | 968158 | 968115 | 968171 | 968184 | 968254 ⁵ | 968259 ^{4,5} |
| | LRX | 968134 | 968129 | 968160 | 968116 | 968173 | 968182 | 968253 ⁵ | 968258 ^{4,5} |
| | LWE | 968133 | 968128 | 968159 | 968117 | 968172 | 968183 | N/A | N/A |
| INA | KUSE | N/A | 968148 | 968154 | 968118 | 968167 | 968194 | N/A | N/A |
| | KUVE | 968137 | 968143 | 968155 | 968108 | 968168 | 968195 | N/A | N/A |
| LINTECH | HRC | 968214 | 968215 | 968216 | N/A ³ | N/A ³ | N/A ³ | N/A | N/A |
| NB | SGL ¹ | 968223 ² | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A | N/A |
| NOOK | NH | N/A ³ | N/A ³ | 968213 | N/A ³ | 968198 | N/A ³ | N/A | N/A |
| | NHRC / NARC | N/A ³ | N/A ³ | 968233 | N/A ³ | N/A ³ | N/A ³ | N/A | N/A |
| NSK | LS / NS | 968138 | 968144 | 968156 | 968119 | 968169 | N/A | N/A | N/A |
| | LH / NH | 968131 | 968125 | 968157 | 968120 | 968170 | 968185 | 968255 ⁵ | 968260 ^{4,5} |
| PMI | MSA | 968200 | 968201 | 968202 | 968203 | 968204 | 968205 | N/A ³ | N/A ³ |
| ROCKFORD | RPG | 968217 | 968218 | 968112 | 968219 | 968220 | 968221 | N/A | N/A |
| ROLLON | MRRO | N/A ³ | N/A ³ | 968235 | N/A ³ | N/A ³ | N/A | N/A | N/A |
| SBC | SBG | N/A ³ | 968188 | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A ³ |
| | SBI | N/A ³ | 968186 | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A ³ |
| SCHNEEBERGER | MR | N/A | N/A | 968162 | N/A | N/A ³ | 968206 | N/A ³ | N/A ³ |
| SKF | LLRHS..A | 968139 | 968146 | 968152 | 968105 | 968165 | N/A ³ | N/A | N/A |
| | LLRHS..LA | 968139 | 968146 | 968153 | 968105 | 968165 | N/A ³ | N/A | N/A |
| | LLRHS..SA | 968139 | 968146 | 968153 | 968105 | 968165 | N/A ³ | N/A | N/A |
| | LLTHR | N/A ³ | N/A ³ | 968121 | 968111 | N/A ³ | N/A ³ | N/A | N/A |
| STAR (BOSCH) (REXROTH) | 1605 | 968139 | 968146 | 968152 | 968105 | 968165 | 968187 | N/A ³ | N/A ³ |
| | 1607 | 968139 | 968146 | 968152 | 968105 | 968165 | 968187 | N/A ³ | N/A ³ |
| | 1645 | 968139 | 968146 | 968152 | 968105 | 968165 | 968187 | N/A ³ | N/A ³ |
| | 1647 | 968139 | 968146 | 968152 | 968105 | 968165 | 968187 | N/A ³ | N/A ³ |
| | 1805 | N/A | N/A | 968153 | N/A ³ | 968166 | 968197 | N/A ³ | N/A ³ |
| | 1807 | N/A | N/A | 968153 | N/A ³ | 968166 | 968197 | N/A ³ | N/A ³ |
| TBI | TRH | 968207 | 968208 | 968209 | 968210 | 968211 | N/A ³ | N/A ³ | N/A ³ |
| THK | HSR | 968135 ² | 968145 | 968130 | 968102 | 968101 | 968193 | 968252 ⁵ | 968257 ^{4,5} |
| | SHS | 968141 ² | 968147 | 968150 | 968106 | 968163 | 968190 | 968250 ⁵ | 968256 ^{4,5} |
| | SRG | 968136 | 968142 | 968126 | 968114 | 968164 | 968192 | 968251 ⁵ | N/A ³ |
| | SR ¹ | 968177 ² | 968180 | 968151 | 968113 | 968176 | N/A | N/A | N/A |
| THOMSON | 400 | N/A ³ | 968149 | N/A ³ | 968122 | N/A ³ | N/A ³ | N/A ³ | N/A |
| N/A | 40mm Rectangle | N/A ³ | N/A ³ | N/A ³ | N/A ³ | N/A ³ | 968199 | N/A ³ | N/A ³ |

All Rail brakes shown above have a release pressure of 5.5 BAR [80 PSI], many rail types/sizes are available with release pressures below 4.1 BAR [60 PSI].

¹ Rail brake holding forces are 10% less than shown on the previous page when used with THK: "SR", Hiwin: "HGR" and NB: "SGL" rail types.

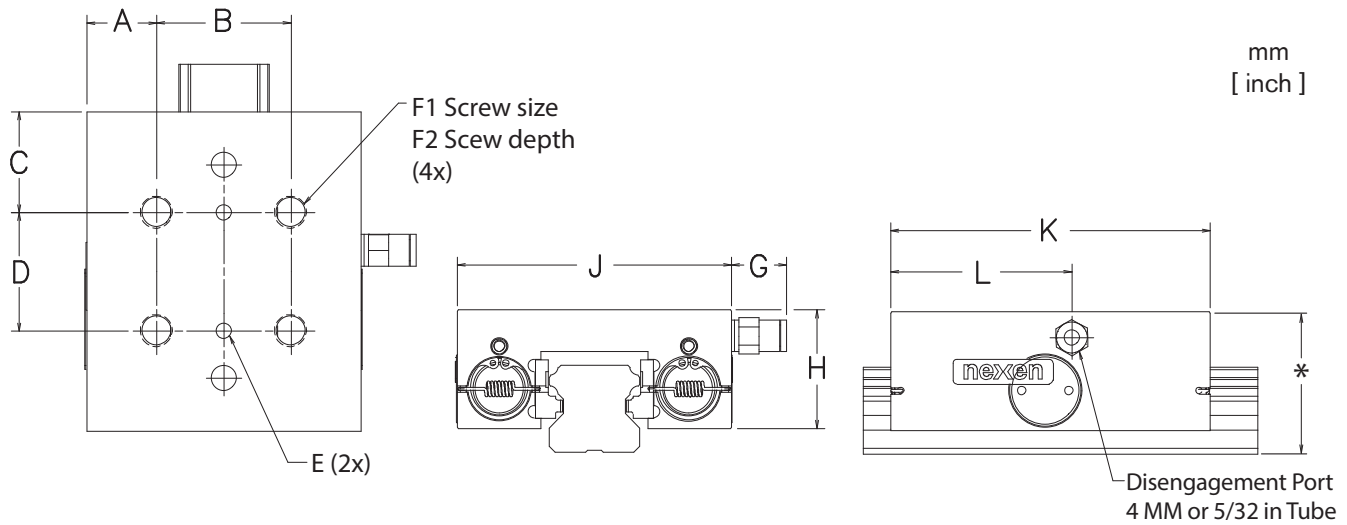
² RB15 product numbers 968135, 968141, 968177, 968223 and 968179 have a holding force of 400 N [90 lbs].

³ Contact Nexen for Availability.

⁴RBL65 Not Recommended for E-Stops.

⁵RBL55 and RBL65 are not C € rated.

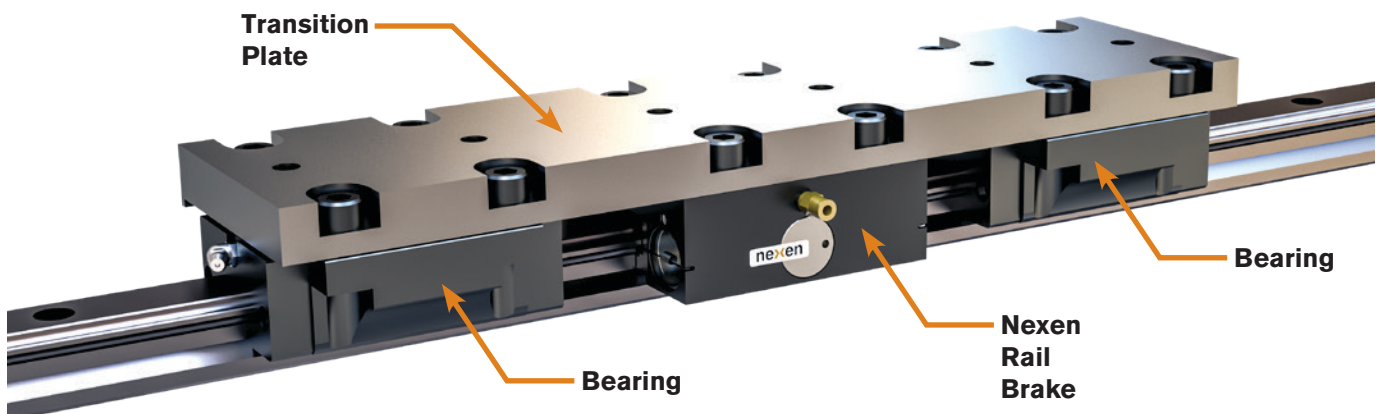
RBB Rail Brake Dimensions



| Model | A | B | C | D | øE | F1 | F2 | G | H | J | K | L | Threaded Port |
|--------|------------------|------------------|------------------|------------------|-----------------|---------------|------------------|------------------|------------------|-------------------|-------------------|------------------|---------------|
| RB15B | 14.25 [0.561] | 26.00 [1.024] | 20.50 [0.807] | 26.00 [1.024] | 3.00 [0.118] | M5 x 0.8-6H | 5.20 [0.210] | 13.90 [0.550] | 21.00 [0.827] | 54.50 [2.146] | 67.00 [2.640] | 41.00 [1.610] | M5 x 0.8-6H |
| RB20B | 17.25 [0.679] | 30.00 [1.181] | 23.50 [0.930] | 30.00 [1.181] | 4.00 [0.157] | M6 x 1.00-6H | 7.20 [0.280] | 13.90 [0.550] | 25.50 [1.004] | 64.50 [2.539] | 77.00 [3.030] | 45.00 [1.770] | M5 x 0.8-6H |
| RB25B | 17.75 [0.699] | 34.00 [1.339] | 25.50 [1.000] | 30.00 [1.181] | 4.00 [0.157] | M8 x 1.25-6H | 9.00 [0.340] | 13.90 [0.550] | 30.00 [1.181] | 69.50 [2.736] | 80.90 [3.190] | 45.90 [1.810] | M5 x 0.8-6H |
| RB30B | 8.75 [0.344] | 72.00 [2.835] | 24.00 [0.940] | 52.00 [2.047] | 6.00 [0.236] | M10 x 1.5-6H | 9.00 [0.350] | 13.90 [0.550] | 35.00 [1.378] | 89.50 [3.524] | 100.00 [3.937] | 48.00 [1.890] | M6 x 1.0-6H |
| RB35B | 8.75 [0.344] | 82.00 [3.228] | 22.00 [0.870] | 62.00 [2.441] | 6.00 [0.236] | M10 x 1.5-6H | 9.00 [0.350] | 13.90 [0.550] | 40.00 [1.575] | 99.50 [3.917] | 106.00 [4.173] | 52.20 [2.055] | M6 x 1.0-6H |
| RB45B | 27.25 [1.073] | 65.00 [2.559] | 28.50 [1.120] | 70.00 [2.756] | 6.35 [0.250] | M12 x 1.75-6H | 14.00 [0.550] | 13.90 [0.550] | 50.00 [1.969] | 119.50 [4.705] | 127.00 [5.000] | 63.20 [2.49] | M6 x 1.0-6H |
| RBL55B | 27.5 [1.08] | 75.00 [2.953] | 26.0 [1.02] | 75.00 [2.953] | N/A | M12 x 1.75-6H | 14.00 [0.550] | 14.70 [0.579] | 58.00 [2.283] | 130.00 [5.118] | 127.00 [5.000] | 62.60 [2.465] | M6 x 1.0-6H |
| RBL65B | 32.0 [1.26] | 76.00 [2.992] | 28.5 [1.12] | 70.00 [2.756] | N/A | M16 x 2.00-6H | 20.00 [0.787] | 14.70 [0.579] | 75.00 [2.953] | 140.00 [5.512] | 127.00 [5.000] | 75.00 [2.953] | M6 x 1.0-6H |

*Additional dimensions and tolerances are available in the drawings and CAD models on the product pages on Nexen's website.

RBB Typical Mounting Arrangement



RBB Rail Brake Sample Calculations for Emergency Stops

SAMPLE DATA

| Brake Model ^{1, 2} | Brake Force (F) ¹ | Brake Engagement Time (t _e) ¹ | Acceleration of Gravity (g) | Mass of Load (m) | Load Velocity (V) |
|-----------------------------|------------------------------|--|-----------------------------|------------------|-------------------|
| RB25B | 1000 N | 0.050 seconds | 9.8 m/s ² | 45.4 kg | 0.50 m/s |

¹For brake specifications, see Specifications Table on page 4.

²RBL65B not recommended for E-Stops.

HORIZONTAL TRAVEL (X and Y axis)

Dynamic Stopping Time (in seconds):

$$t_T = \frac{m \cdot V}{F} + t_e$$

$$t_T = \frac{45.4 \cdot 0.50}{1000} + .050 = 0.073 \text{ seconds}$$

Dynamic Stopping Distance (in meters):

Distance of Travel During Brake Engagement (L_e)

$$L_e = V \cdot t_e$$

$$L_e = 0.5 \cdot 0.050 = 0.025 \text{ meters}$$

Stopping Distance (L_s) at Full Brake Force

$$L_s = \frac{0.5 \cdot m \cdot V^2}{F}$$

$$L_s = \frac{0.5 \cdot 45.4 \cdot 0.50^2}{1000} = 0.006 \text{ meters}$$

Total Travel Distance

$$L_T = L_e + L_s$$

$$L_T = 0.025 + 0.006 = 0.031 \text{ meters or } 31 \text{ mm}$$

In this example, the load will travel 31 mm [1.22 in] from the time the RB25B engages until the system is brought to a complete stop.

VERTICAL TRAVEL (DOWNWARD) (Z axis)

Dynamic Stopping Time (in seconds):

$$t_T = \frac{m \cdot (g \cdot t_e + V)}{[F - (m \cdot g)]} + t_e$$

$$t_T = \frac{45.4 \cdot (9.8 \cdot 0.050 + 0.50)}{[1000 - (45.4 \cdot 9.8)]} + 0.050 = 0.131 \text{ seconds}$$

Dynamic Stopping Distance (in meters):

Distance of Travel During Brake Engagement (L_e)

$$L_e = 0.5 \cdot (t_e^2) \cdot g + V \cdot t_e$$

$$L_e = 0.5 \cdot (.050^2) \cdot 9.8 + .5 \cdot .050 = 0.037 \text{ meters}$$

Stopping Distance (L_s) at Full Brake Force

$$L_s = 0.5 \cdot [(t_e \cdot g) + V] \cdot (t_T - t_e)$$

$$L_s = 0.5 \cdot [(0.050 \cdot 9.8) + 0.5] \cdot (0.131 - 0.050)$$

$$L_s = 0.040 \text{ meters}$$

Total Travel Distance

$$L_T = L_e + L_s$$

$$L_T = 0.037 + 0.040 = 0.077 \text{ meters or } 77 \text{ mm}$$

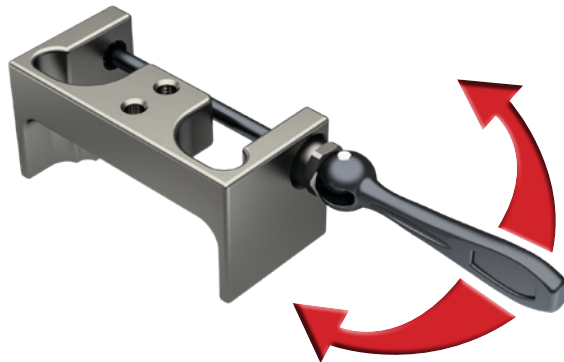
In this example, the load will travel 77 mm [3.03 in] from the time the RB25B engages until the system is brought to a complete stop.

A New Standard In Performance

RBM: Manual Rail Brake

Nexen's RBM Series of linear profile guide rail brakes use a manually actuated lever to secure the load in holding applications. With no effect on bearing surfaces, the brake provides positive zero backlash holding in all axes. The compact footprint, compared to pneumatic and electric rail brakes, allows for ease of installation.

Nexen's RBM Series is engineered for dependable performance. The RBM Series provides an industry leading braking solution for linear profile guide rails. If personnel safety is required, an unrelated, redundant safety system is recommended.



- Easy operation. No wiring. No air lines.
- Zero backlash for accurate position holding
- Brake is compact for ease of installation
- Brakes engagement status is apparent via lever position
- Ideal for power-off and holding applications
- Large clearance between brake and rail compensates for installation misalignment
- Models available to fit most common profile guide rails
- Static holding cycle life in excess of one hundred thousand cycles

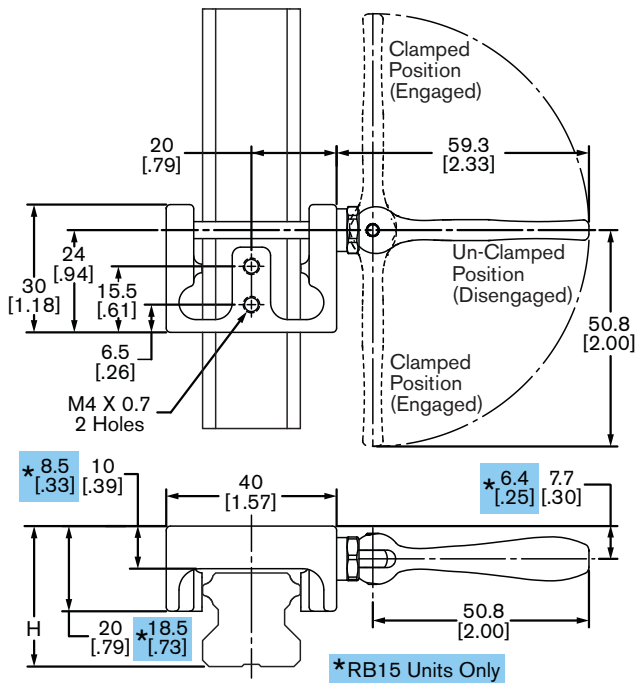
Manual Rail Brake: Product Description

Example: **RBM 25 - THK - HSR**

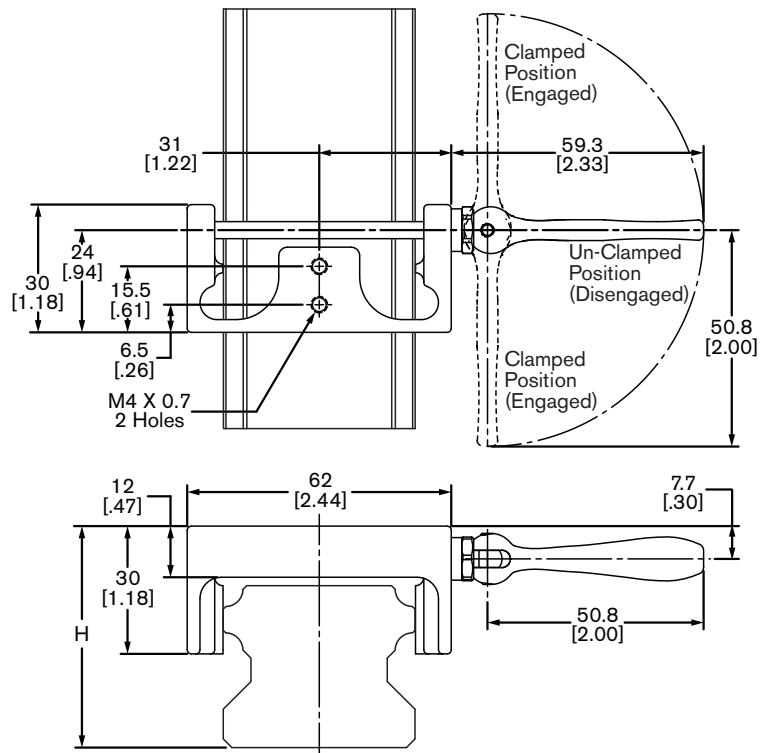
| Product Type | Rail Size | Rail Manufacturer | Rail Model |
|-------------------|-----------|-------------------|--------------------|
| Manual Rail Brake | 15 | THK | HSR |
| | 20 | | SHS |
| | 25 | | SR |
| | 30 | IKO | LWH / MH |
| | 35 | | LWE / ME |
| | 45 | NSK | NH / LH NS / LS |

* Brake not compatible with Size 45 NSK-NS/LS Rail

Dimensions and Holding Force



Size: 15, 20 & 25 Rail



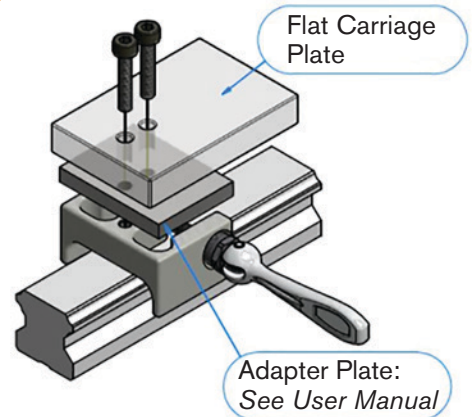
Size: 30, 35 & 45 Rail

Contact Nexen if your rail is not listed below.

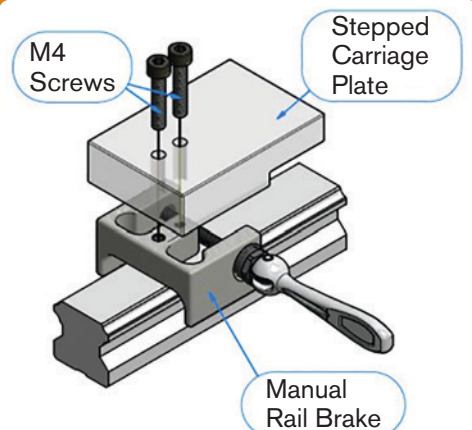
| Rail Size | Rail Manufacturer THK | Rail Manufacturer IKO | Rail Manufacturer NSK | H (mm) | Weight (g) | Rated Static Holding Force (N) |
|-----------|-----------------------|-----------------------|-----------------------|--------|------------|--------------------------------|
| 15 | SHS, SR | - | NS / LS | 22.5 | 79 | 400 * |
| | HSR | LWE / ME, LWH / MH | NH / LH | 24 | | |
| 20 | SR | LWE / ME | NS / LS | 26.5 | 88 | |
| | SHS | - | - | 27 | | |
| | HSR | LWH / MH | NH / LH | 28.5 | | |
| 25 | SR | - | NS / LS | 28.5 | 85 | |
| | - | LWE / ME | - | 30 | | |
| | SHS | - | - | 31.5 | | |
| | HSR | LWH / MH | NH / LH | 33 | | |
| 30 | SHS, SR | - | NS / LS | 36 | 140 | |
| | - | LWE / ME, LWH / MH | - | 38 | | |
| | HSR | - | NH / LH | 40 | | |
| 35 | SHS | - | - | 40 | 138 | |
| | HSR, SR | LWE / ME, LWH / MH | NS / LS, NH / LH | 42 | | |
| 45 | SHS | - | - | 46 | 135 | |
| | - | LWE / ME, LWH / MH | - | 48 | | |
| | SR | - | - | 50 | | |
| | HSR | - | NH / LH | 52 | | |

* Actual holding force may be reduced by approximately 50%, when rail or clamping surface of brake is not clean.
(Grease, excessive oil, excessive dust, debris or metallic wear powder.)
Holding force may decrease on certain types of rails.
Brake must be adjusted once every six months, or once every 10,000 operations (static cycles) to maintain rated holding force.
Nexen Manual Rail Brake is not CE rated.

Installation Examples



Using a Flat Carriage Plate



Using a Stepped Carriage Plate

See User Manual for Installation Instructions

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