MK Guide Rail Brake

Electromagnetic Failsafe Caliper
MK Guide Rail Brake

The Hilliard MK Guide Rail Brake is designed for use on elevators, conveyors, cranes, or other devices requiring a spring-applied electromagnetically released brake. The patented MK brake can be applied to a guide rail or a brake disc. It is unique in that it is direct acting with only one moving part. The brake incorporates an electromagnetic coil that uses a voltage dropping circuit to minimize current draw and heat when the brake is released. Shipped with manual release bolts for easy assembly to the rail or disc, it can also be equipped with a manual release mechanism for a momentary release of the brake with a standard open-end or socket wrench.

Benefits

- Designed for holding duty and emergency stopping
- Manual release mechanism automatically reapplies the brake when force is removed
- Equipped with a microswitch for monitoring brake status
- Can be configured for various rail or disc thickness
- Easy to install - equipped with manual release bolts
- Can be adjusted for wear by adding shims behind the brake pads
- Mounted on pins allowing for axial movement
## Manual Release
Optional manual release mechanism automatically returns closed when wrench is removed.

## Pad Replacement
Simply release the brake and remove the front pin to rotate the brake clear from the rail to install new brake pads.

## Mounting Arrangements

### Approximate Envelope Dimensions (in)

<table>
<thead>
<tr>
<th>Brake Type</th>
<th>A</th>
<th>B*</th>
<th>C</th>
<th>D</th>
<th>E*</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J*</th>
<th>K</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK-350</td>
<td>7.50</td>
<td>4.95</td>
<td>5.44</td>
<td>8.31</td>
<td>6.82</td>
<td>5.44</td>
<td>30</td>
<td>8.13</td>
<td>6.82</td>
<td>6.94</td>
<td>25 lb</td>
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<tr>
<td>MK-750</td>
<td>10.13</td>
<td>6.00</td>
<td>7.25</td>
<td>11.31</td>
<td>9.00</td>
<td>7.25</td>
<td>32</td>
<td>11.25</td>
<td>9.00</td>
<td>9.63</td>
<td>50 lb</td>
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<tr>
<td>MK-1400</td>
<td>13.50</td>
<td>6.82</td>
<td>8.75</td>
<td>14.63</td>
<td>8.94</td>
<td>8.75</td>
<td>33</td>
<td>14.00</td>
<td>8.94</td>
<td>11.56</td>
<td>80 lb</td>
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<tr>
<td>MK-4800</td>
<td>21.50</td>
<td>10.18</td>
<td>16.50</td>
<td>23.00</td>
<td>13.69</td>
<td>16.50</td>
<td>28</td>
<td>22.56</td>
<td>13.69</td>
<td>18.88</td>
<td>325 lb</td>
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</tbody>
</table>

*Dimension varies with rail or disc thickness
The Brakeboss electric brake controller features rectification from AC to DC, combined with Peak Inverse Voltage suppression and magnetic field over-energization for interface to the MK Rail Brakes.

Enclosure Dimensions (in.)

The control box input voltage is 230 VAC 50/60 Hz. The output to the brakes is 210 VDC for 1-2 seconds, during which time the brake releases. The voltage then drops to 105 VDC indefinitely to keep the brake in the released condition. The brake applies when power is removed (fail safe).
Controller Fuse Ratings

<table>
<thead>
<tr>
<th>Brake Type</th>
<th>One Brake</th>
<th>Two Brakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK-350</td>
<td>.25 AMP</td>
<td>.5 AMP</td>
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<tr>
<td>MK-750</td>
<td>3 AMP</td>
<td>6 AMP</td>
</tr>
<tr>
<td>MK-1400</td>
<td>4 AMP</td>
<td>8 AMP</td>
</tr>
<tr>
<td>MK-4800</td>
<td>8 AMP</td>
<td>N/A</td>
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</tbody>
</table>

Wiring Diagram

230 VAC
1 PH
50/60 Hz

BRAKE COIL VOLTAGE
210 VDC FOR RELEASE
100 VDC HOLD

JUMPER
SEE INSTALLATION INSTRUCTIONS

CONTROLLER WIRING
------- BRAKE WIRING CONNECTED BY CUSTOMER

NC RED
NO BROWN
COM BLACK

BRAKE 1 MICRO SWITCH

NC RED
NO BROWN
COM BLACK

BRAKE 2 MICRO SWITCH
**Applications**

MK-1400 brake installed on the high speed shaft of a gearbox on top of a hoist. In this application the disc brake application acts as a holding brake when power is removed from the main drive.

This theatrical stage lift incorporates eight MK-1400 brakes acting on four separate elevator T-Rails. These are secondary safety brakes that apply in the event of a drive chain failure.

MK-1400 brakes are pin-mounted on the bridge drive of an overhead crane, ensuring the bridge doesn’t drift during critical lift operations.
**Torque Calculation**

Rated Torque = Braking Force x (Disc Radius - “X”) in Lb-Ft Torque

If the brake is for holding duty and no dynamic stops are made, reduce rated torque by 50%.

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**Data**

<table>
<thead>
<tr>
<th>Brake Type</th>
<th>Braking Force (lb)</th>
<th>Release Voltage (vdc)</th>
<th>Holding Voltage (vdc)</th>
<th>Dimension &quot;X&quot; (in)</th>
<th>Min Disc Diameter (in)</th>
<th>Min Rail Depth (in)</th>
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</thead>
<tbody>
<tr>
<td>MK-350</td>
<td>350</td>
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<td>1.38</td>
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<td>100</td>
<td>2.25</td>
<td>20</td>
<td>4.75</td>
</tr>
</tbody>
</table>
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- Gas Turbine Engine Starters
- Star Filter Presses
- Wastewater Filtration Systems

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