HP5 BULL PIN
FOR FRAME LINE APPLICATIONS
754 LBF RETRACT FORCE @ 60 PSI

RETRACTING LOCATING PIN WITH A 2KG SLIDE HAMMER PISTON. RAP ACTION* PROVIDES CONCENTRATED PULLING POWER. A GREATER THAN FOUR TIMES SHAFT DIAMETER TO BEARING LENGTH RATIO IS ALWAYS FULLY ENGAGED, OFFERING LONG PRECISION LIFE. NO MAINTENANCE OR GREASING REQUIRED.

(*RAP ACTION ON PNEUMATIC UNIT ONLY)
APPLICATION GUIDE

HP5 Bull Pins are made for inline balanced loads. There is an anti-rotate feature but it is for orientation only - not for offset loads.

GOOD APPLICATIONS
(VIEWS ARE FROM PIN END, HP5 SHOWN)

- INLINE ROUND PIN
- INLINE DIAMOND PIN
- INLINE PUSHER BLOCK
- INLINE PIN/PUSHER BLOCK COMBO

BAD APPLICATIONS FOR HP5, GOOD APPLICATIONS FOR WP6 SHOT PINS
(VIEWS ARE FROM PIN END, WP6 SHOWN)

- OFFSET PIN
- INLINE PIN WITH OFFSET PUSHER BLOCK
- INLINE PUSHER BLOCK WITH OFFSET PIN
- DOUBLE PIN
**ORDERING INFORMATION**

**NOTE:** ALL BOXES MUST BE FILLED IN FOR A COMPLETE PART NUMBER

<table>
<thead>
<tr>
<th>Cylinder</th>
<th>P</th>
<th>Pneumatic, NPT ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Pneumatic, G ports</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Hydraulic</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Manual</td>
<td></td>
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</table>

**Port Position**

<table>
<thead>
<tr>
<th>Port Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None (Manual operation)</td>
</tr>
<tr>
<td>1</td>
<td>Port @ Position 1</td>
</tr>
<tr>
<td>2</td>
<td>Port @ Position 2</td>
</tr>
<tr>
<td>3</td>
<td>Port @ Position 3</td>
</tr>
<tr>
<td>4</td>
<td>Port @ Position 4</td>
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</table>

**Mounting Assembly**

<table>
<thead>
<tr>
<th>Mounting Assembly</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>None</td>
</tr>
<tr>
<td>M2</td>
<td>Mounting Position 2</td>
</tr>
<tr>
<td>M4</td>
<td>Mounting Position 4</td>
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</table>

**Switch Option**

<table>
<thead>
<tr>
<th>Switch Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>None</td>
</tr>
<tr>
<td>ZE</td>
<td>See World Switch chart (Pneum &amp; Hyd Options only)</td>
</tr>
<tr>
<td>L3</td>
<td>Cylinder Switch (Pneumatic Option only)</td>
</tr>
</tbody>
</table>

**Short Stroke (Pneumatic Option Only)**

<table>
<thead>
<tr>
<th>Short Stroke</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>A</td>
<td>60mm Stroke</td>
</tr>
</tbody>
</table>

### World Switches

<table>
<thead>
<tr>
<th>Switch</th>
<th>Part Number</th>
<th>Manufacturer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE or VR</td>
<td>NBN2-F581-160S6-EB-V1</td>
<td>Pepperl &amp; Fuchs</td>
<td>4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
</tr>
<tr>
<td>ZE or ZR</td>
<td>WWS001A</td>
<td>Welker</td>
<td>4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
</tr>
</tbody>
</table>

### Cylinder Switch

<table>
<thead>
<tr>
<th>Switch</th>
<th>Part Number</th>
<th>Manufacturer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3</td>
<td>SWITCH L3*</td>
<td>Welker</td>
<td>4-Wire, 4-Pin, DC (PNP) M12 X 1 Quick Disconnect</td>
</tr>
</tbody>
</table>

*Note that some mid and low frequency DC resistance applications (i.e. aluminum resistance welding applications) may cause a fault. In these applications, it is recommended that the sensor be ignored/bypassed during the welding cycle.*

**Standard Switch Option - All other options may affect price and delivery**

**WECKER**

ENGINEERED PRODUCTS

(800) 229-0890 www.welkerproducts.com

SHEET 3
GENERAL DIMENSIONS

HYDRAULIC CYLINDER:
2" BORE X 97mm [3.818] STROKE, 1400 PSI MAX CUSHIONS BOTH ENDS
#6 SAE PORTS
FLUOROCARBON SEALS FOR PISTON AND ROD
HIGH LOAD PISTON

PNEUMATIC CYLINDER:
4" BORE X 100mm STROKE
LESS 3.0mm FOR RAP
97.0mm ACTUAL STROKE
1/2" NPT OR G1/2 PORTS

SOLID STATE CYLINDER SWITCH (SHOWN) OR WORLD SWITCH

M6x1 TAP 12.00
(2) PLACES

M10x1.5 TAP 20.0
(2) PLACES NEARSIDE, (2) PLACES FARSIDE IN LINE

SHIM/SPACER INCLUDED

CUSTOMER TO SUPPLY KEYS

60.00 KEYWAY CENT.

DO NOT SCALE DRAWING
GENERAL DIMENSIONS: HP5 NOSE END VIEW

M5x0.8 TAP ? 10.0
(4) PLACES IN HOUSING

M8x1.25 TAP ? 20.0

Ø28.575 ±0.03 ? 0.00 ? 62.00

M5x0.8 TAP ? 15.0
(4) PLACES IN RAM

Ø4.0 S.F. ? 8.0

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DO NOT SCALE DRAWING
MOUNTING OPTION DIMENSIONS

HP5 WITH MOUNTING ASSEMBLY OPTION M2:
SHOWN WITH HYDRAULIC CYLINDER

WELDED ON BOTH ENDS & STITCH WELDED ON LENGTH OF RETAINER BOTH SIDES (NO WELD IN CENTER ON INNER FACE)

HP5 WITH MOUNTING ASSEMBLY OPTION M4:
SHOWN WITH PNEUMATIC CYLINDER

M4 MOUNT
10.00 SHIM/SPACER

M2 MOUNT
16.00 KEYWAY CENT.

FOR CUSTOMER USE ON OPPOSING MOUNTING DETAIL
16.00 $ 6.00 KEYWAY CENT.
78.00 CENT.

1 KEY INCLUDED WITH MOUNTING OPTION

(2) PLACES

(4) PLACES

ENGINEERED PRODUCTS
(800) 229-0890 www.welkerproducts.com
MANUAL OPTION

SEE SHEETS 4 & 5 FOR GENERAL DIMENSIONS
SEE SHEET 6 FOR MOUNTING OPTION DIMENSIONS

TYPICAL APPLICATIONS:
- MANUAL BUILD/PONY LINES
- PROTOTYPE BUILDS
- CMM ROOMS

1-4 ACME LEAD SCREW
75mm STROKE

SHOWN WITH MOUNTING OPTION M2

HAND WHEEL WITH HANDLE

SWITCH NOT AVAILABLE WITH MANUAL OPTION

SHOWN WITHOUT MOUNTING OPTION

68

76

¡52