PCY SERIES PIN CLAMPS
FOR POSITIVE LOCATING AND CLAMPING
UP TO 4mm PART THICKNESS
8.00 - 26.00mm PIN DIAMETERS

APPLICATIONS
ROBOT END EFFECTORS
END OF ARM TOOLING
AUTOMOTIVE ASSEMBLY & B/W
PALLETED PART LOCATE & TRANSFER
WELDING & HIGHLY CORROSIVE ENVIRONMENTS

STANDARD BULLET NOSE PIN

STEEL PART BACKUP

PIN RETRACT OPTION
SECONDARY CYLINDER: LOW PROFILE PIN RETRACTS FLUSH TO BACKUP. RETRACT SENSOR IS LOCATED ON OPPOSITE SIDE OF SWITCH

STANDARD LOW PROFILE PIN (MUST USE LOW PROFILE PIN TO RETRACT FLUSH TO BACKUP)

SOLID STATE CYLINDER SWITCH

FINGERS SHOWN CLAMPED ON PART:
GAPLESS CLAMP FINGER DESIGN AT FULL EXTENSION

RELEASED 9/20/21

Patent #6,786,478
PIN CLAMP WORKSHEET

<table>
<thead>
<tr>
<th>Project</th>
<th>Station #</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer</td>
<td>Contact</td>
<td>Email</td>
</tr>
</tbody>
</table>

NOMINAL HOLE DIAMETER: __________ Tolerance ± __________
- Single Metal Thickness:
- Multiple Metal Quantity: Overall thickness:

Will the pin be in geo holes in multiple metal pieces? __________ Yes __________ No

RECOMMENDED PIN DIAMETER:

<table>
<thead>
<tr>
<th>Pin Diameter</th>
<th>Application</th>
<th>Pin sizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00-16.00</td>
<td>geo</td>
<td>0.2mm under minimum</td>
</tr>
<tr>
<td>16.01-26.00</td>
<td>geo</td>
<td>0.15mm under minimum</td>
</tr>
<tr>
<td>8.00-26.00</td>
<td>material handling</td>
<td>0.5mm under minimum</td>
</tr>
</tbody>
</table>

FINGER & PIN CLAMP ORIENTATION

PIN CLAMP MOUNTED HORIZONTALLY:

FINGERS MUST EXTEND PARALLEL TO FLOOR

MOUNT

FLOOR

PIN CLAMP MOUNTED INVERTED OR VERTICALLY:

FINGERS MAY EXTEND IN EITHER DIRECTION

MOUNT

FLOOR

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mounting</th>
<th>Fingers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horizontal</td>
<td>@ 0°</td>
</tr>
<tr>
<td></td>
<td>Vertical or inverted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horizontal</td>
<td>@ 0°</td>
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<td></td>
</tr>
</tbody>
</table>

DO NOT SCALE DRAWING

ENGINEERED PRODUCTS
800-229-0890 www.welkerproducts.com

SHEET 2
ORDERING INFORMATION
NOTE: ALL BOXES MUST BE FILLED IN FOR A COMPLETE PART NUMBER

<table>
<thead>
<tr>
<th>Option</th>
<th>QTY</th>
<th>Switch Part #</th>
<th>Wire</th>
<th>Output</th>
<th>Mfg</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3</td>
<td>1</td>
<td>SWITCH L3**</td>
<td>4</td>
<td>PNP</td>
<td>Welker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dual sensor, single connector switch: 1 switch required per cylinder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L5</td>
<td>2</td>
<td>MK5113</td>
<td>3</td>
<td>NPN</td>
<td>ifm Efector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single sensor, single connector switch: 2 switches required per cylinder</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOR PIN CLAMP ACTUATOR OPTION R, S, T, U

<table>
<thead>
<tr>
<th>Option</th>
<th>QTY</th>
<th>Switch Part #</th>
<th>Wire</th>
<th>Output</th>
<th>Mfg</th>
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<td>1</td>
<td>SWITCH L3**</td>
<td>3</td>
<td>PNP</td>
<td>Welker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single sensor, single connector switch: 1 switch required for retract cylinder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L5</td>
<td>3</td>
<td>MK5113</td>
<td>3</td>
<td>NPN</td>
<td>ifm Efector</td>
</tr>
</tbody>
</table>

**L3 switch is weld field immune, comparable to World Switches. 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.

TO ORDER REPLACEMENT CARTRIDGE

REPLACEMENT CARTRIDGE

ROD IS INCLUDED FOR UNITS WITH ACTUATOR B, T, OR U

(Do not scale drawing)
**GENERAL DIMENSIONS**

**DESIGNER'S NOTE: SHIMMING RECOMMENDED FOR X, Y, AND Z**

**FINGERS EXTENDED IN CLAMPED POSITION. DIM = PIN DIA + DIM B**

<table>
<thead>
<tr>
<th>PIN DIA</th>
<th>DIM A</th>
<th>DIM B</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00 - 16.00mm</td>
<td>5mm</td>
<td>2.4mm</td>
</tr>
<tr>
<td>16.01 - 26.00mm</td>
<td>11mm</td>
<td>5.0mm</td>
</tr>
</tbody>
</table>

**UNIT WEIGHT IS 8 LBS.**
(WEIGHT VARIES WITH UNIT OPTIONS)

**SOLID STATE CYLINDER SWITCH**

**DIM A**
- CLAMP FINGER WIDTH

**DIM B**
- 50mm MAX BACKUP DIAMETER. MUST BE GREATER THAN PIN DIAMETER

**DIM A**
- 10mm MAX BACKUP MODIFICATION AREA: CALL WELKER FOR MODIFICATIONS

**DIM B**
- 10.0mm TO FULLY EXTEND FINGERS
- 4.0mm CLAMPING

**4X Ø8.00 16.00 P.F. DOWEL**

**2X M8x1.25 TAP 16.00**

**ENGINEERED PRODUCTS**
800-229-0890 www.welkerproducts.com
LOCATING PIN OPTIONS

**Pin Diameter**
08.00 - 26.00mm to 2 Decimal Places

**Pin Type**
- A  Bullet Nose Pin with fingers at 0°
- B  Bullet Nose Pin with fingers at 90°
- E  Low Profile Pin with fingers at 0°
- F  Low Profile Pin with fingers at 90°

**NOTE:** FOR HORIZONTAL APPLICATIONS, ORIENTATION OF THE CLAMP FINGER MOVEMENT SHOULD BE PARALLEL TO THE GROUND

**OPTION**
- **A**  BULLET NOSE PIN WITH FINGERS AT 0°
- **B**  BULLET NOSE PIN WITH FINGERS AT 90°

**OPTION**
MUST USE LOW PROFILE PIN OPTION E or F FOR PIN TO RETRACT FLUSH TO BACKUP
- **E**  LOW PROFILE PIN WITH FINGERS AT 0°
- **F**  LOW PROFILE PIN WITH FINGERS AT 90°

**PIN TYPE OPTION "A"**
BULLET NOSE PIN WITH FINGERS SHOWN AT 0°
FINGERS EXTEND & RETRACT PARALLEL TO MOUNTING SURFACE

**PIN TYPE OPTION "F"**
LOW PROFILE PIN WITH FINGERS SHOWN AT 90°
FINGERS EXTEND & RETRACT PERPENDICULAR TO MOUNTING SURFACE

VARIABLES WITH PIN DIAMETER. CONTACT WELKER FOR SPECIFIC DIMENSION

1.0 X 45° CHAMFER ALL PIN DIAMETERS

(SHEET 5)

ENGINEERED PRODUCTS
800-229-0890 www.welkerproducts.com

(DO NOT SCALE DRAWING)
### ACTUATOR INFORMATION

Y 1 9 6 5 B 0 0 0 5 0 K A

**Actuator**
- A: Double Acting
- B: Double Acting with Spring
- R: Double Acting with Retractable Pin, Ports at 90°
- S: Double Acting with Retractable Pin, Ports at 0°
- T: Double Acting with Retractable Pin & Spring, Ports at 0°
- U: Double Acting with Retractable Pin & Spring, Ports at 90°

**Port Type**
- A: NPT
- J: G

### CLAMP FORCE (LBS.)

(INCLUDES SPRING PRESSURE)

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CLAMP FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOUBLE ACTING</td>
<td>82</td>
</tr>
<tr>
<td>DOUBLE ACTING WITH SPRING</td>
<td>150</td>
</tr>
<tr>
<td>DOUBLE ACTING WITH RETRACTABLE PIN</td>
<td>82</td>
</tr>
<tr>
<td>DOUBLE ACTING WITH RETRACTABLE PIN &amp; SPRING</td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT LOSS OF AIR PRESSURE, SPRING ASSIST WILL MAINTAIN CONSTANT CLAMP PRESSURE:</td>
</tr>
<tr>
<td>68 LBF</td>
</tr>
<tr>
<td>FOR INVERTED APPLICATIONS, PART WEIGHT MUST NOT EXCEED:</td>
</tr>
<tr>
<td>68 LBF</td>
</tr>
<tr>
<td>NORMAL OPERATING TEMPERATURE FOR ALL ACTUATORS:</td>
</tr>
<tr>
<td>-10°F TO 165°F</td>
</tr>
<tr>
<td>-23°C TO 74°C</td>
</tr>
</tbody>
</table>

### ACTUATOR A
DOUBLE ACTING

G 1/4 CLAMP PORT*

1/4" NPT CLAMP PORT

126

G 1/4 RELEASE PORT*

1/4" NPT RELEASE PORT

### ACTUATOR B
NON RETRACTABLE SPRING CLAMP

G 1/4 CLAMP PORT*

1/4" NPT CLAMP PORT

105

G 1/4 RELEASE PORT*

91

*SHOWN PLUGGED
RETRACT OPTION: ACTUATORS R, S, T & U

FOR RETRACT SEQUENCE SEE SHEET 7
SEE SHEET 3 FOR GENERAL DIMENSIONS

ACTUATOR S
DOUBLE ACTING WITH RETRACTABLE PIN, PORTS AT 0°

ACTUATOR T
DOUBLE ACTING WITH RETRACTABLE PIN & SPRING, PORTS AT 0°

ACTUATOR R
DOUBLE ACTING WITH RETRACTABLE PIN, PORTS AT 90°

ACTUATOR U
DOUBLE ACTING WITH RETRACTABLE PIN & SPRING, PORTS AT 90°

MUST USE LOW PROFILE PIN OPTION "E" OR "F"
FOR PIN TO RETRACT FLUSH TO BACKUP

EXTEND PORT
1/8" NPT or G 1/8

RETRACT PORT
1/8" NPT or G 1/8

G 1/4 CLAMP PORT*

1/4" NPT Clamp Port

G 1/4 RELEASE PORT*

1/4" NPT RELEASE PORT

SECONDARY CYLINDER

PRIMARY CYLINDER

SOLID STATE CYLINDER SWITCH. RETRACT SENSOR ON OPPOSITE SIDE

*SHOWN PLUGGED

SHEET 7
PIN CLAMP RETRACT OPTION SEQUENCE

STEP 1: PART LOAD

PIN IS EXTENDED,
PIN FINGERS RETRACTED
PART

STEP 2: PART CLAMP

PIN FINGERS EXTEND,
PIN RETRACTS TO CLAMP

STEP 3: PIN RELEASE

PIN EXTENDS,
PIN FINGERS RETRACT

STEP 4A: PIN RETRACT
STEP 4B: PART RELEASE

PIN & PIN FINGERS RETRACTED
PART RELEASED

SWITCH NOTE:
SWITCH L0 AND L1 HAVE LED SENSOR INDICATORS.
L2 DOES NOT.

4A:
SECONDARY CYLINDER RETRACT PORT ENERGIZED.
RETRACT SENSOR IS ACTIVATED
(LOCATED ON OPPOSITE SIDE OF SENSORS 1 & 2)

4B:
PRIMARY CYLINDER RETRACT PORT ENERGIZED.
PCY PIN CLAMP DESIGN GUIDELINES

1. FOR HORIZONTAL APPLICATIONS, ORIENTATION OF THE CLAMP FINGER MOVEMENT SHOULD BE PARALLEL TO THE GROUND FOR ROUND HOLES. SEE GENERAL DIMENSION SHEET FOR MAXIMUM SIDE LOADS.

2. PROXIMITY OF SOME WELD APPLICATIONS TO THE PIN CLAMP COULD AFFECT THE LIFE OF THE PIN AND CLAMP FINGERS.

3. IMPACT LOADING AND EXCESSIVE SIDE LOADING MUST BE AVOIDED. FOR ROBOTICS AND HARD AUTOMATION APPLICATIONS, THE LOCATING PINS NEED TO ENGAGE AND DISENGAGE AT LOAD AND UNLOAD.

4. WELKER ENGINEERED PRODUCTS DOES NOT RECOMMEND MORE THAN ONE 4-WAY AND ONE 2-WAY LOCATING DEVICE IN A COMMON GEO SETTING APPLICATION. PIN BIND AND EXCESSIVE SIDE LOAD MAY RESULT. IF A GEO SETTING APPLICATION REQUIRES MULTIPLE LOCATING DEVICES, CONTACT WELKER.

5. PCY PIN CLAMPS ARE DESIGNED TO BE OPERABLE UP TO 60 PSI MAX.

6. PIN CLAMP PNEUMATIC ACTUATORS HAVE INTEGRATED FLOW RESTRICTIVE ORIFICES. FLOW CONTROLS ARE NOT REQUIRED.

WARRANTY

WELKER ENGINEERED PRODUCTS WARRANTS TO ITS CUSTOMERS PURCHASING PIN CLAMPS MANUFACTURED BY WELKER THAT THESE UNITS ARE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS. WELKER WARRANTS IT WILL REPAIR DEFECTS IN ITS MANUFACTURE DETERMINED BY WELKER TO HAVE OCCURRED AS A RESULT OF DEFECTIVE WORKMANSHIP AND/OR MATERIALS. THIS WARRANTY AUTOMATICALLY EXPIRES AT THE EARLIER OF THREE YEARS FROM THE DATE OF WELKER BEARING'S SHIPMENT OF THE PRODUCTS TO ITS CUSTOMER, OR THREE MILLION CYCLES. THE AFOREMENTIONED WARRANTY SHALL NOT APPLY IF WELKER DETERMINES THE PIN CLAMP(S) WERE MISAPPLIED, ABUSED, OR MODIFIED BY THE CUSTOMER. WITH THE EXCEPTION OF THE THREE YEAR OR THREE MILLION CYCLE WARRANTY ON DEFECTIVE WORKMANSHIP AND MATERIALS, WELKER BEARING MAKES NO EXPRESS WARRANTY, NO WARRANTY OF MERCHANTABILITY, NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND NO WARRANTY WHICH EXTENDS BEYOND THIS WRITING ON WELKER MANUFACTURED PIN CLAMPS SOLD BY WELKER BEARING.

LOCATING PINS AND CLAMP FINGERS ARE CONSIDERED WEAR ITEMS AND AS SUCH ARE NOT INCLUDED IN THIS WARRANTY UNLESS THERE IS A MANUFACTURING DEFECT AS STATED ABOVE.

UNDER NO CIRCUMSTANCES SHALL WELKER BEARING BE LIABLE TO ANYONE FOR INCIDENTAL, CONSEQUENTIAL, EXEMPLARY, SPECIAL OR PUNITIVE DAMAGES WHETHER DIRECT OR INDIRECT, INCLUDING, BUT NOT LIMITED TO DOWN TIME, ARISING OUT OF OR RELATED TO ANY PRODUCTS SOLD OR MANUFACTURED BY WELKER ENGINEERED PRODUCTS.

ANY PRODUCT THOUGHT TO BE DEFECTIVE IN WORKMANSHIP OR MATERIALS MUST BE RETURNED TO WELKER FREIGHT PREPAID FOR EVALUATION. WELKER SHALL NOT BE LIABLE FOR LABOR COST INCURRED IN THE REMOVAL OF A PART, DEFECTIVE PART OR THE INSTALLATION OF ANY REPLACEMENT PART.