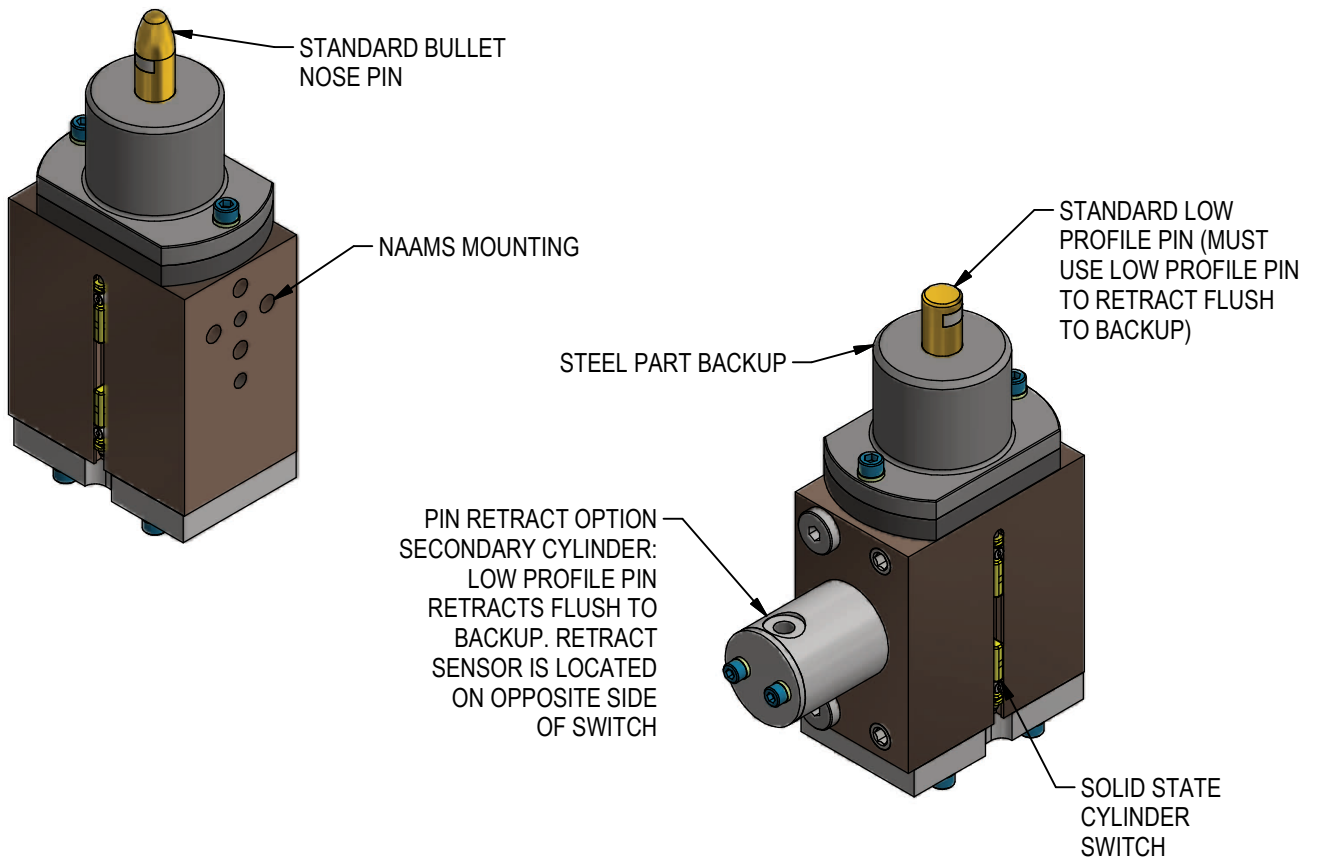


Patent #6,786,478

PCY SERIES PIN CLAMPS

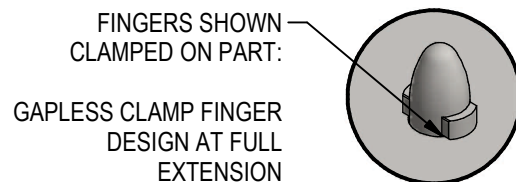
FOR POSITIVE LOCATING AND CLAMPING

UP TO 4mm PART THICKNESS
11.85 - 26.00mm PIN DIAMETERS



APPLICATIONS

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



RELEASED 11/29/18

PIN CLAMP WORKSHEET

Project _____	Station # _____	Date _____	
Customer _____	Contact _____	Email _____	Phone _____

NOMINAL HOLE DIAMETER: _____ Tolerance \pm _____

Single Metal Thickness: _____

Multiple Metal Quantity: _____ Overall thickness: _____

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

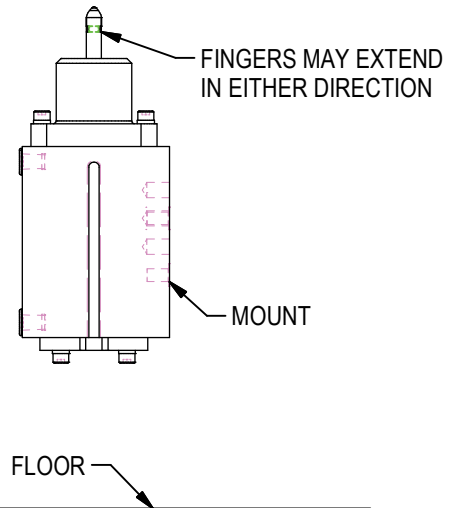
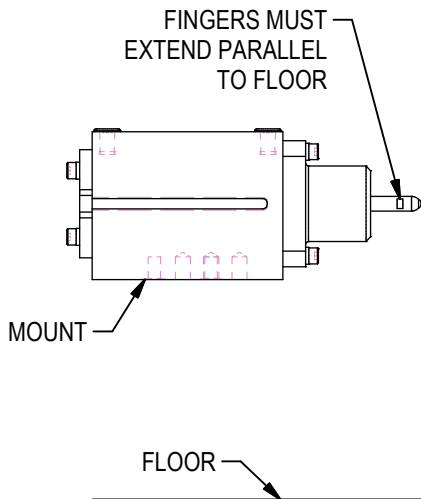
RECOMMENDED PIN DIAMETER:

Pin Diameter	Application	Pin sizing
11.85-16.00	geo	0.2mm under minimum
16.01-26.00	geo	0.15mm under minimum
11.85-26.00	material handling	0.5mm under minimum

FINGER & PIN CLAMP ORIENTATION

PIN CLAMP MOUNTED HORIZONTALLY:

PIN CLAMP MOUNTED INVERTED OR VERTICALLY:



Part # _____	Mounting	<input type="checkbox"/> Horizontal	<input type="checkbox"/> Vertical or inverted
	Fingers	<input type="checkbox"/> @ 0°	<input type="checkbox"/> @ 90°
Part # _____	Mounting	<input type="checkbox"/> Horizontal	<input type="checkbox"/> Vertical or inverted
	Fingers	<input type="checkbox"/> @ 0°	<input type="checkbox"/> @ 90°
Part # _____	Mounting	<input type="checkbox"/> Horizontal	<input type="checkbox"/> Vertical or inverted
	Fingers	<input type="checkbox"/> @ 0°	<input type="checkbox"/> @ 90°

(DO NOT SCALE DRAWING)



ORDERING INFORMATION

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

Y

K
A

Pin Diameter
11.85 - 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°

Actuator
A Double Acting
B Double Acting with Spring
R Double Acting w Retractable Pin: Ports @ 90°
S Double Acting w Retractable Pin: Ports @ 0°
T Double Acting w Retractable Pin & Spring: Ports @ 0°
U Double Acting w Retractable Pin & Spring: Ports @ 90°

Back Up Diameter
050 50mm Dia Max
 Backup diameter must be larger than pin diameter

Magnetic Solid State Switch
00 None
LX See Switch Chart

Port Type
A NPT
J G

Welker Cylinder Switch Chart

FOR PIN CLAMP ACTUATOR OPTION A & B

Option	QTY	Switch Part #	Wire	Output	Mfg
L3	1	SWITCH L3** Dual sensor, single connector switch: 1 switch required per cylinder	4	PNP	Welker
L5	2	MK5113 Single sensor, single connector switch: 2 switches required per cylinder	3	NPN	ifm Efector

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

Option	QTY	Switch Part #	Wire	Output	Mfg
L3	1	SWITCH L3**	4	PNP	Welker
	1	SWITCH L3S** Single sensor, single connector switch: 1 switch required for retract cylinder	3	PNP	
L5	3	MK5113	3	NPN	ifm Efector

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

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

All switches are DC M12 X 1, Quick Disconnect

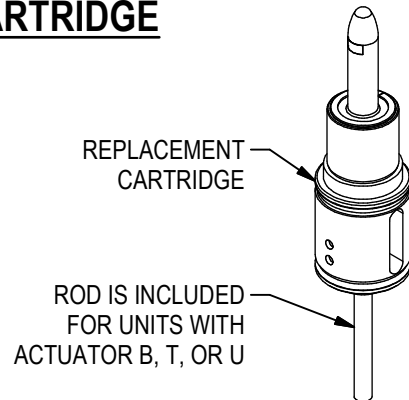
TO ORDER REPLACEMENT CARTRIDGE

Y -
 C
R
T -

Pin Diameter
11.85 - 26.00 to 2 Decimal Places

Pin Type
A Bullet Nose Pin with fingers at 0°(Shown)
B Bullet Nose Pin with fingers at 90°
E Low Profile Pin with fingers at 0°
F Low Profile Pin with fingers at 90°

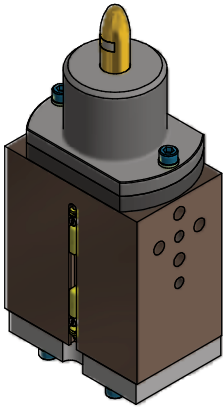
Actuator
A Dbl Acting
B Dbl Acting w Spring
R Dbl Acting w Retractable Pin (Ports @ 90deg)
S Dbl Acting w Retractable Pin (Ports @ 0deg Shown)
T Dbl Acting w Retractable Pin & Spring (Ports @ 0deg)
U Dbl Acting w Retractable Pin & Spring (Ports @ 90deg)



(DO NOT SCALE DRAWING)

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

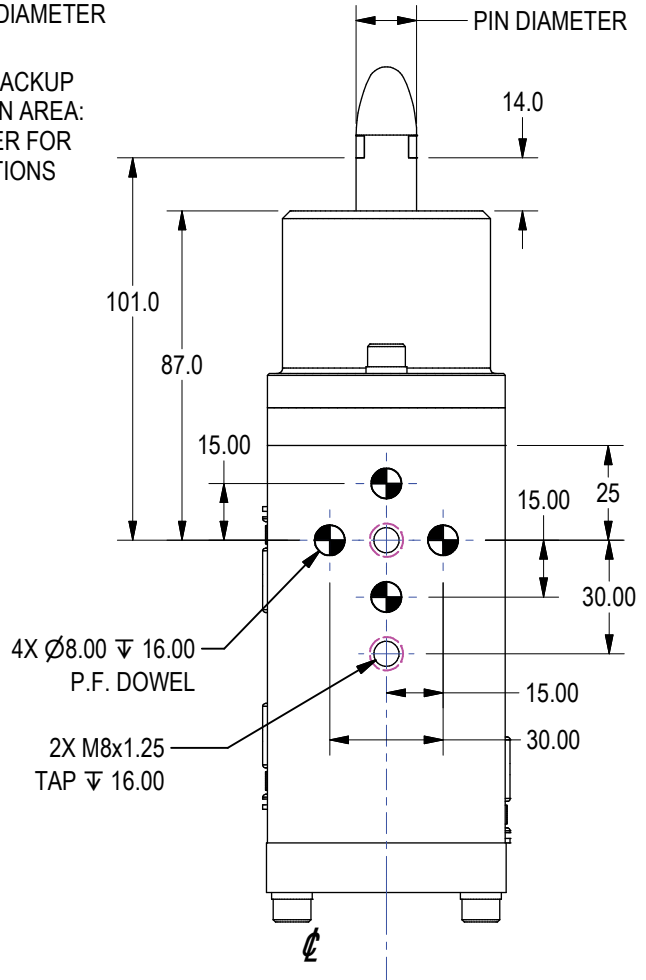
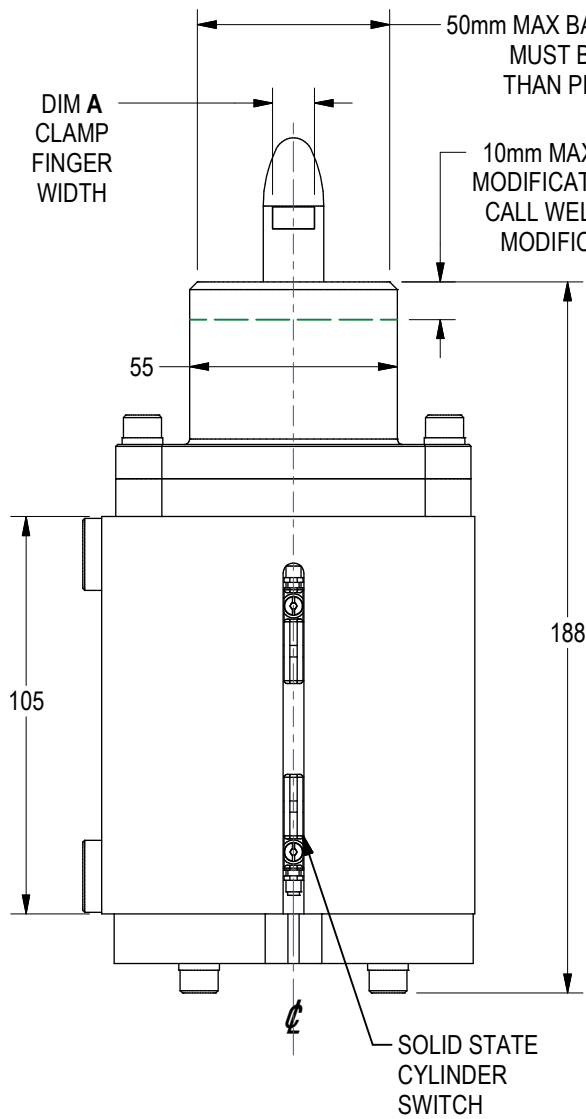
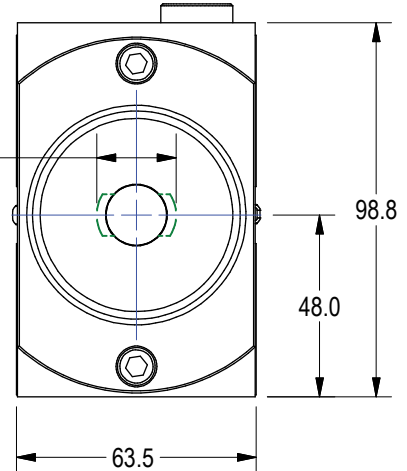
GENERAL DIMENSIONS



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

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

PIN DIA	DIM A	DIM B
11.85 - 16.00mm	5mm	2.4mm
16.01 - 26.00mm	11mm	5.0mm



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



WELKER PIN CLAMP
WEB PAGE

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LOCATING PIN OPTIONS



Pin Diameter
11.85 - 26.00mm to 2 Decimal Places

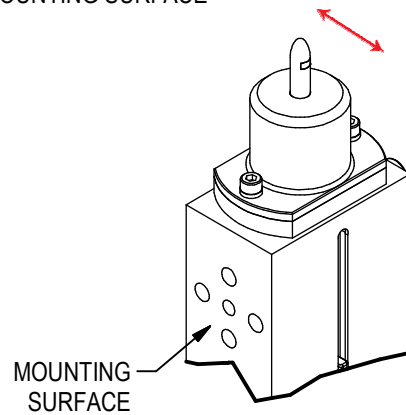
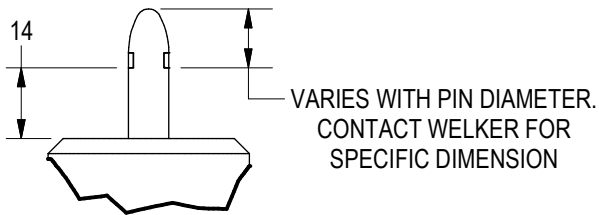
- Pin Type**
- A** Bullet Nose Pin with fingers at 0°
 - B** Bullet Nose Pin with fingers at 90°
 - E** Low Profile Pin with fingers at 0°
 - F** Low Profile Pin with fingers at 90°

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

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

OPTION

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

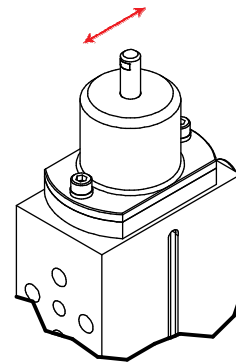
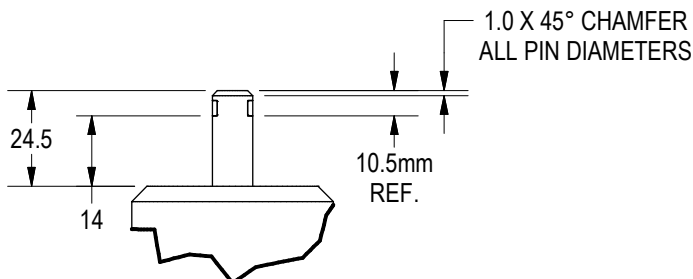


OPTION

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



(DO NOT SCALE DRAWING)

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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)
DESCRIPTION	60 PSI
A DOUBLE ACTING	82
B DOUBLE ACTING WITH SPRING	150
R S DOUBLE ACTING WITH RETRACTABLE PIN	82
T U DOUBLE ACTING WITH RETRACTABLE PIN & SPRING	150

NOTES:
AT LOSS OF AIR PRESSURE, SPRING ASSIST WILL MAINTAIN CONSTANT CLAMP PRESSURE:

68 LBF

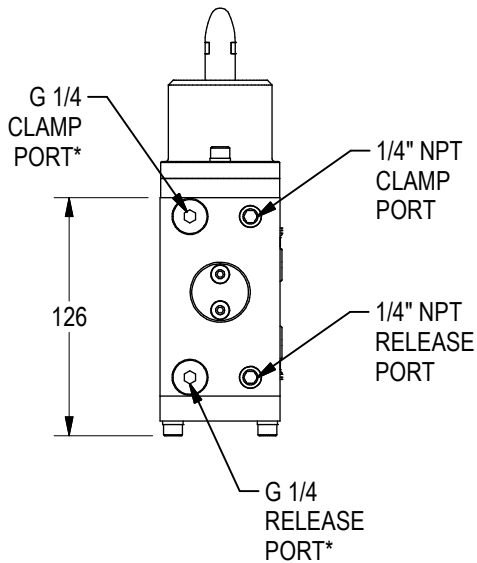
FOR INVERTED APPLICATIONS, PART WEIGHT MUST NOT EXCEED:

68 LBF

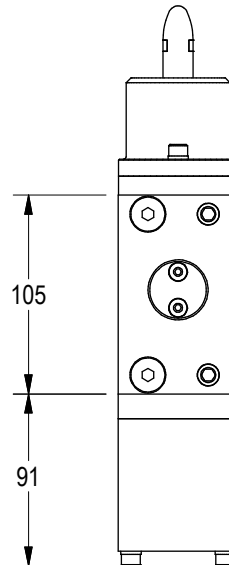
NORMAL OPERATING TEMPERATURE FOR ALL ACTUATORS:

- 10°F TO 165°F
- 23°C TO 74°C

ACTUATOR A
DOUBLE ACTING



ACTUATOR B
NON RETRACTABLE SPRING CLAMP



*SHOWN PLUGGED

(DO NOT SCALE DRAWING)

ENGINEERED PRODUCTS

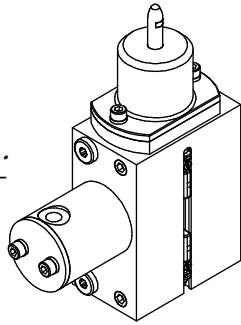
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RETRACT OPTION: ACTUATORS R, S, T & U

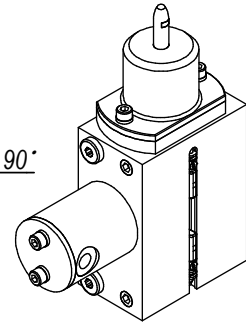
FOR RETRACT SEQUENCE SEE SHEET 7

SEE SHEET 3 FOR GENERAL DIMENSIONS

RETRACT PORTS AT 0°



RETRACT PORTS AT 90°



ACTUATOR S

DOUBLE ACTING WITH RETRACTABLE PIN, PORTS AT 0°

ACTUATOR T

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

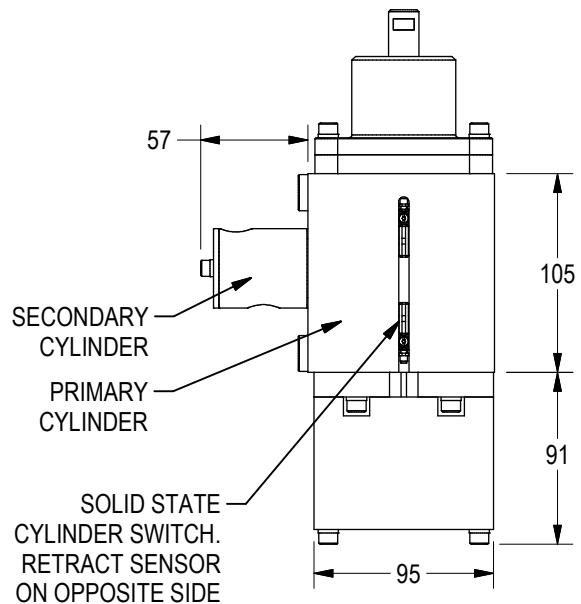
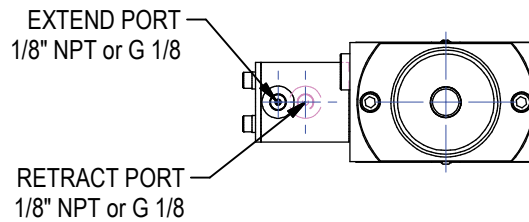
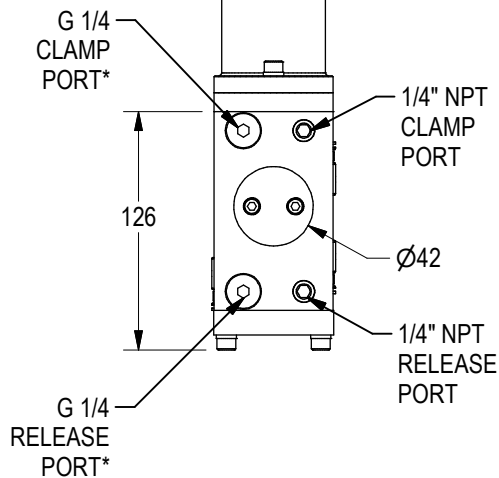
ACTUATOR R

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



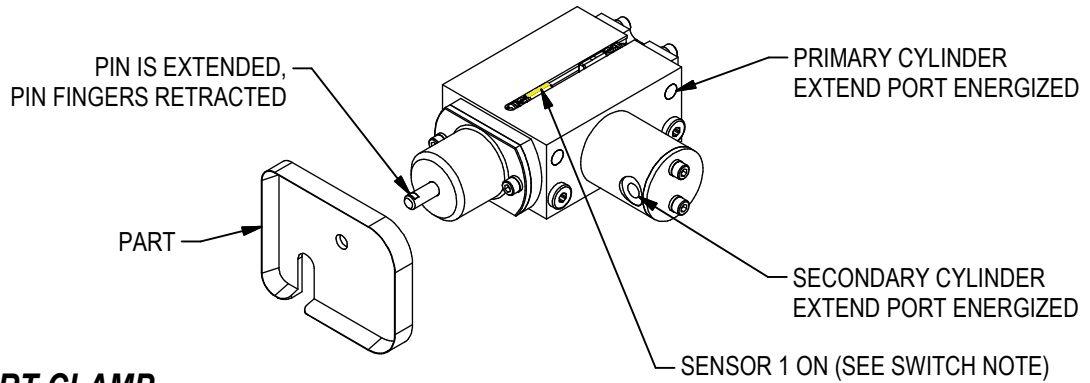
(DO NOT SCALE DRAWING)

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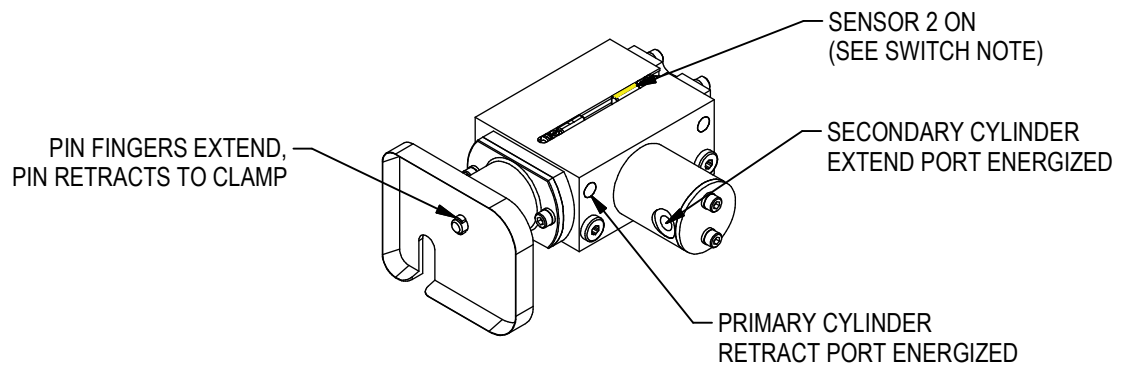
*SHOWN PLUGGED

PIN CLAMP RETRACT OPTION SEQUENCE

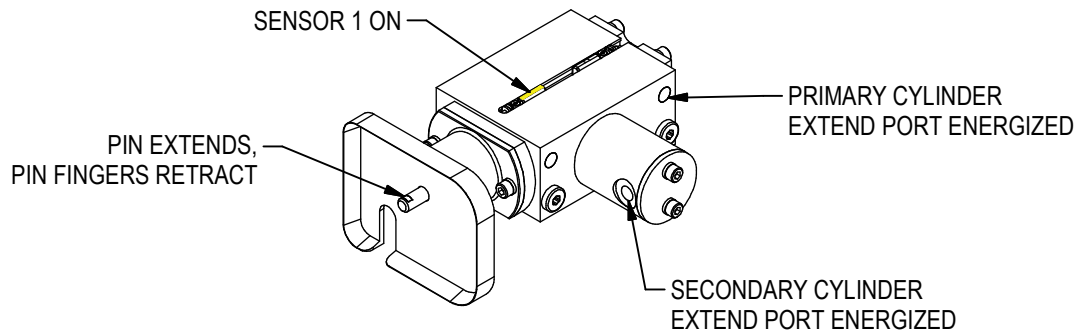
STEP 1: PART LOAD



STEP 2: PART CLAMP

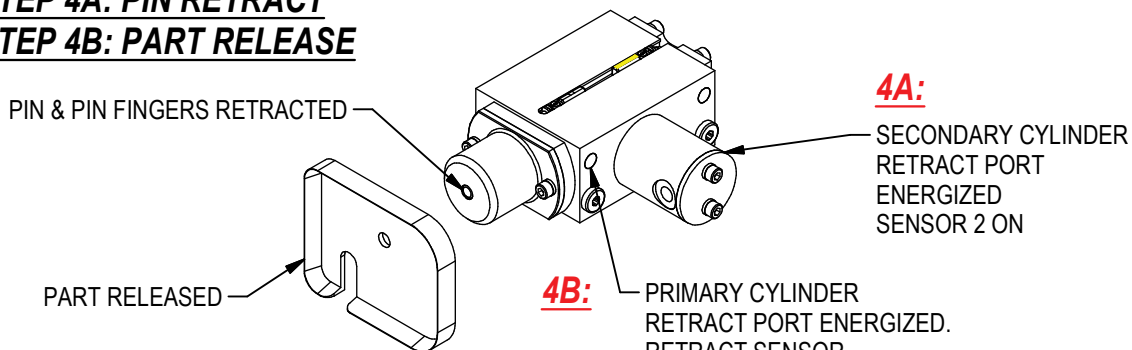


STEP 3: PIN RELEASE



STEP 4A: PIN RETRACT

STEP 4B: PART RELEASE



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

(DO NOT SCALE DRAWING)

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.

(DO NOT SCALE DRAWING)

