

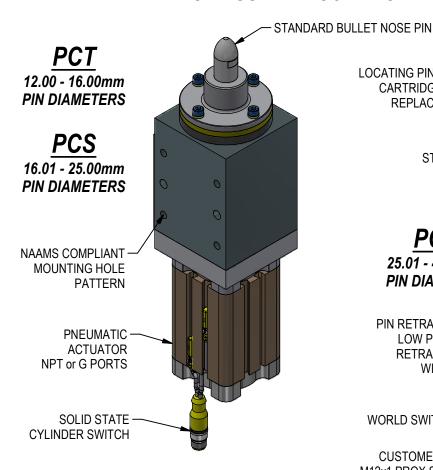
ENGINEERED PRODUCTS

ISO 9001REGISTERED

Patent #6,786,478

PIN CLAMPS

FOR POSITIVE LOCATING AND CLAMPING



LOCATING PIN IN SELF-CONTAINED CARTRIDGE. CARTRIDGE IS REPLACEABLE IN FIELD REQUIRES NO LUBRICATION!

STANDARD LOW PROFILE PIN STANDARD STEEL PART BACKUP **PCM** 25.01 - 40.00mm PIN DIAMETERS 0 0 0 PIN RETRACT OPTION: LOW PROFILE PIN 0 0 RETRACTS FLUSH WITH BACKUP WORLD SWITCH OPTION **CUSTOMER SUPPLIED** M12x1 PROX SWITCH FOR RETRACT OPTION WITH WORLD SWITCH

FINGER DESIGN
AT FULL EXTENSION
AND RETRACTION

OPTIONAL LONG
PART BACKUP

RELEASED 10/31/22

APPLICATIONS

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

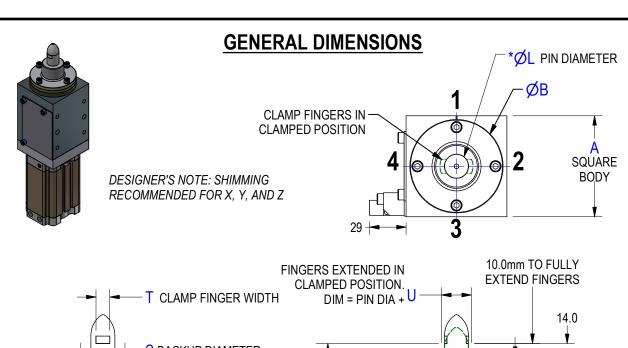
GAPLESS CLAMP

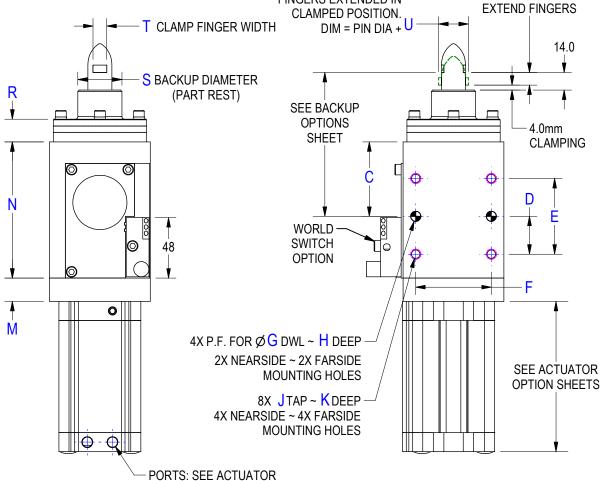
PIN CLAMP WORKSHEET Station # Project Date Customer Contact Email Phone **NOMINAL HOLE DIAMETER:** Tolerance ± Single Metal Thickness: Multiple Metal Quantity: _____ Overall thickness: Will the pin be in geo holes in multiple metal pieces? Yes RECOMMENDED PIN DIAMETER: Series Application Pin sizing PCS, PCT, PCM geo 0.15mm under minimum PCS, PCT, PCM material handling 0.5mm under minimum FINGER & PIN CLAMP ORIENTATION PIN CLAMP MOUNTED HORIZONTALLY: PIN CLAMP MOUNTED INVERTED OR VERTICALLY: FINGERS MAY EXTEND FINGERS MUST -IN EITHER DIRECTION **EXTEND PARALLEL** TO FLOOR MOUNT MOUNT FLOOR -FLOOR -Part # Mounting Horizontal Vertical or inverted Fingers @ 0° @ 90° Mounting Part # Horizontal Vertical or inverted @ 0° Fingers @ 90° Part # _____ Mounting Horizontal Vertical or inverted Fingers @ 0° @ 90° (DO NOT SCALE DRAWING)

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SHEET 2

ORDERING INFORMATION NOTE: ALL BOXES MUST BE FILLED IN FOR A COMPLETE PART NUMBER Series-T PCT Body Options A Std Steel Backup PCS Body M PCM Body B Steel Long Backup C Alum Bronze Backup D Alum Bronze Long Backup Pin Diameter* 12.00-16.00 T Series 16.01-25.00 C Series **Backup Distance** 25.01-40.00 M Series K 14mm (for clamping range 0.1 - 4mm) *Pin diameter to 2 decimal places N 17mm (for clamping range 4.1 - 7mm) **Backup Diameter** 035-050 (Ø35-Ø50mm) C & T Series Pin Type A Bullet Nose Pin w/ fingers at 0° 051-075 (Ø51-Ø75mm) M Series B Bullet Nose Pin w/ fingers at 90° See Sheet 11 for smaller backup diameters C Bullet Nose 2-way Pin w/ fingers @ 0° ** D Bullet Nose 2-way Pin w/ fingers @ 90° ** Port Type & Position Low Profile Pin w/ fingers at 0° A 1/8 NPT at Pos 1 Low Profile Pin w/ fingers at 90° B 1/8 NPT at Pos 2 G Low Profile 2-Way Pin w/ fingers @ 0° ** C 1/8 NPT at Pos 3 1/8 NPT at Pos 4 H Low Profile 2-Way Pin w/ fingers @ 90° ** J 1/8 G at Pos 1 K 1/8 G at Pos 2 Actuator L 1/8 G at Pos 3 See Actuator Charts M 1/8 G at Pos 4 **Switch Options** Switch Assembly Type World Switch (See World Switch Chart) World Switch Sensor Position O None None (No Switch) Z DC Welker 4 Pin (PNP) Sensor 01-Unclamped (Pin Extended) A DC Turck 4 Pin (PNP) Sensor 02-Clamped EFFECTIVE 1/2/2023: These B AC/DC Turck 5 Pin (N.O.) Sensor 01-Clamped (Pin Retracted) DC Turck 4 Pin (NPN) switches will be non-stock Sensor 02-Unclamped DC Pepprl-Fuchs 4 Pin (PNP) items, affecting price and E DC Balluff 4 Pin (PNP/NO) delivery DC Efector 4 Pin (PNP) NOTE: Cylinder Cylinder Switch (See Cylinder Switch Chart) Cylinder Switch Selection switches not available None (No Switch) with actuator A on L Solid State Cylinder Switch DC 4 Pin (PNP) Weld Field Immune PCT 5 DC 3 Wire (NPN) Switch ordering examples: PCS with low profile pin, Turck World Switch in Retract position: C1601EBARA035KA PCM with bullet nose pin, Welker L3 switch: M2501BBL3A051KA STANDARD PRICING INCLUDES THESE FEATURES Not available on PCT with pin diameters 12.00 - 12.99mm SEE SHEET 14 FOR REPLACEMENT PIN CARTRIDGE & BACKUP ORDERING INFORMATION L3 NOTE: L3 switch is weld field immune, comparable to World Switches. Note that some mid (DO NOT SCALE DRAWING) 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. ENGINEERED PRODUCTS SHEET 3 800-229-0890 www.welkerproducts.com





PORTS: SEE ACTUATOR **OPTION SHEETS**

SERIES	Α	øΒ	С	D	Е	F	G	Н	J	K	*øL	М	N	R	øS	Τ	U	WGHT
Т	80	74	59	30.00	60.00	60	8	16	M8 X 1.25	16	12.00-16.00	19	108	18	35-50	8	3.4	12 LBS
С	80	74	59	30.00	60.00	60	8	16	M8 X 1.25	16	16.01-25.00	19	108	18	35-50	11	4.6	12 LBS
М	100	99	55	30.00	60.00	60	8	16	M10 X 1.5	20	25.01-40.00	19	110	22	51-75	18	5.6	20 LBS

* DIAMETER RANGE FOR 2-WAY LOCATING PINS ARE DIFFERENT FROM 4-WAY RANGE. SEE SHEET 4

(DO NOT SCALE DRAWING)



LOCATING PIN OPTIONS

T SERIES

C 2 5 0 0 A B A R D 0 3 5 K A

Pin Diameter -

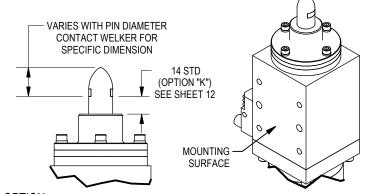
(Ø25.00mm SHOWN) ORDER IN MILLIMETERS ONLY .01 INCREMENTS SEE SHEET 14 FOR REPLACEMENT PIN CARTRIDGE & BACKUP ORDERING INFORMATION

C SERIES

	. 0 = = 0	0 0 = 1 11 = 0	W 0 = 1 11 = 0
Type —	DIAMETERS	DIAMETERS	DIAMETERS
Bullet Nose Pin with fingers at 0°	12.00 - 16.00	16.01 - 25.00	25.01 - 40.00
Bullet Nose Pin with fingers at 90°	12.00 - 16.00	16.01 - 25.00	25.01 - 40.00
Bullet Nose 2-way Pin with fingers at 0°	13.00 - 16.00	18.00 - 26.00	26.85 - 42.00
Bullet Nose 2-way Pin with fingers at 90°	13.00 - 16.00	18.00 - 26.00	26.85 - 42.00
Low Profile Pin with fingers at 0°	12.00 - 16.00	16.01 - 25.00	25.01 - 40.00
Low Profile Pin with fingers at 90°	12.00 - 16.00	16.01 - 25.00	25.01 - 40.00
Low Profile 2-Way Pin with fingers at 0°	13.00 - 16.00	18.00 - 26.00	26.85 - 42.00
Low Profile 2-Way Pin with fingers at 90°	13.00 - 16.00	18.00 - 26.00	26.85 - 42.00
	Bullet Nose Pin with fingers at 0° Bullet Nose Pin with fingers at 90° Bullet Nose 2-way Pin with fingers at 0° Bullet Nose 2-way Pin with fingers at 90° Low Profile Pin with fingers at 0° Low Profile Pin with fingers at 90° Low Profile 2-Way Pin with fingers at 0° Low Profile 2-Way Pin with fingers at 90°	Type Bullet Nose Pin with fingers at 0° Bullet Nose Pin with fingers at 90° Bullet Nose 2-way Pin with fingers at 0° Bullet Nose 2-way Pin with fingers at 0° Bullet Nose 2-way Pin with fingers at 90° Low Profile Pin with fingers at 0° Low Profile Pin with fingers at 90° Low Profile Pin with fingers at 90° Low Profile 2-Way Pin with fingers at 0° 13.00 - 16.00 13.00 - 16.00	Type DIAMETERS DIAMETERS Bullet Nose Pin with fingers at 0° 12.00 - 16.00 16.01 - 25.00 Bullet Nose Pin with fingers at 90° 12.00 - 16.00 16.01 - 25.00 Bullet Nose 2-way Pin with fingers at 0° 13.00 - 16.00 18.00 - 26.00 Bullet Nose 2-way Pin with fingers at 90° 13.00 - 16.00 18.00 - 26.00 Low Profile Pin with fingers at 0° 12.00 - 16.00 16.01 - 25.00 Low Profile 2-Way Pin with fingers at 0° 13.00 - 16.00 16.01 - 25.00 Low Profile 2-Way Pin with fingers at 0° 13.00 - 16.00 18.00 - 26.00

STOCK 4-WAY DIAMETERS: 16.00, 19.85, 20.00, 24.85, 25.00, 34.85, 35.00, 39.85, 40.00

4-WAY PINS



OPTION

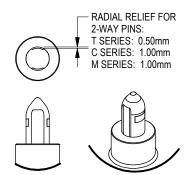
A BULLET NOSE PIN WITH FINGERS AT 0°

B BULLET NOSE PIN WITH FINGERS AT 90°

PIN TYPE OPTION "A" BULLET NOSE PIN WITH FINGERS SHOWN AT 0° (FINGERS EXTAND & RETRACT PARALLEL TO MOUNTING SURFACE)

2-WAY PINS

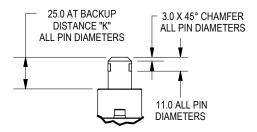
M SERIES



OPTION

C BULLET NOSE 2-WAY PIN WITH FINGERS AT 0°

D BULLET NOSE 2-WAY PIN WITH FINGERS AT 90°

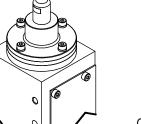


OPTION

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)



OPTION

G LOW PROFILE 2-WAY PIN WITH FINGERS AT 0°

H LOW PROFILE 2-WAY PIN WITH FINGERS AT 90°

(DO NOT SCALE DRAWING)



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

SHEET 5

0

0

ACTUATOR INFORMATION



Series -

T PCT BodyC PCS BodyM PCM Body

Actuator

Port Type & Position

NOTES: ALL ACTUATORS

AT LOSS OF AIR PRESSURE, SPRING ASSIST WILL MAINTAIN 50 LBS. OF CONSTANT CLAMP PRESSURE.

FOR INVERTED APPLICATIONS, PART WEIGHT MUST NOT EXCEED 50 LBS.

NORMAL OPERATING TEMPERATURE FOR ALL ACTUATORS IS -10° TO 165°F, -23 TO 74°C

PCT ACTUATOR INFORMATION

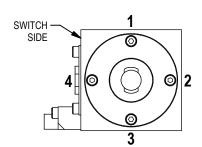
NOTE: Cylinder switches not available with actuator A on PCT

		CLAMP FORCE (LBS.) (INCLUDES SPRING PRESSURE)
DESCRIPTION	PORTS	60 PSI
A DOUBLE ACTING 40mm BORE	4 (01) 212	50
B SINGLE ACTING 50mm BORE, SPRING CLAMP	1/8" NPT or G 1/8	50
SINGLE ACTING 50mm BORE, SPRING CLAMP, RETRACTABLE PIN		50

PCS & PCM ACTUATOR INFORMATION

			CLAMP FORCE (LBS.) 50mm BORE ACTUATOR INCLUDES SPRING PRESSURE			
	DESCRIPTION	PORTS	60 PSI	80 PSI	100 PSI	
В	DOUBLE ACTING 50mm BORE WITH SPRING ASSIST	1/8" NPT	220	277	333	
Т	DOUBLE ACTING 50mm BORE, SPRING ASSIST, RETRACTABLE PIN	or G 1/8	220	277	333	

TOP VIEW: PORT LOCATION



PORT TYPE & POSITION

A NPT AT POSITION #1

B NPT AT POSITION #2

C NPT AT POSITION #3

D NPT AT POSITION #4

J G AT POSITION #1

K G AT POSITION #2

L G AT POSITION #3

M G AT POSITION #4

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SHEET 6

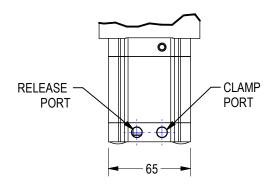
ACTUATOR DIMENSIONS: A & B ACTUATOR T ON FOLLOWING SHEET

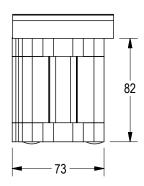
ACTUATOR A

40mm BORE

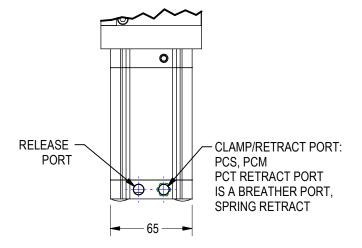
NOTES:

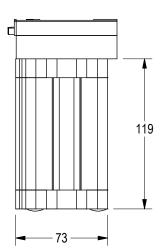
- Cylinder switches not available with actuator A on PCT
- Actuator A is only available with PCT





ACTUATOR B 50mm BORE

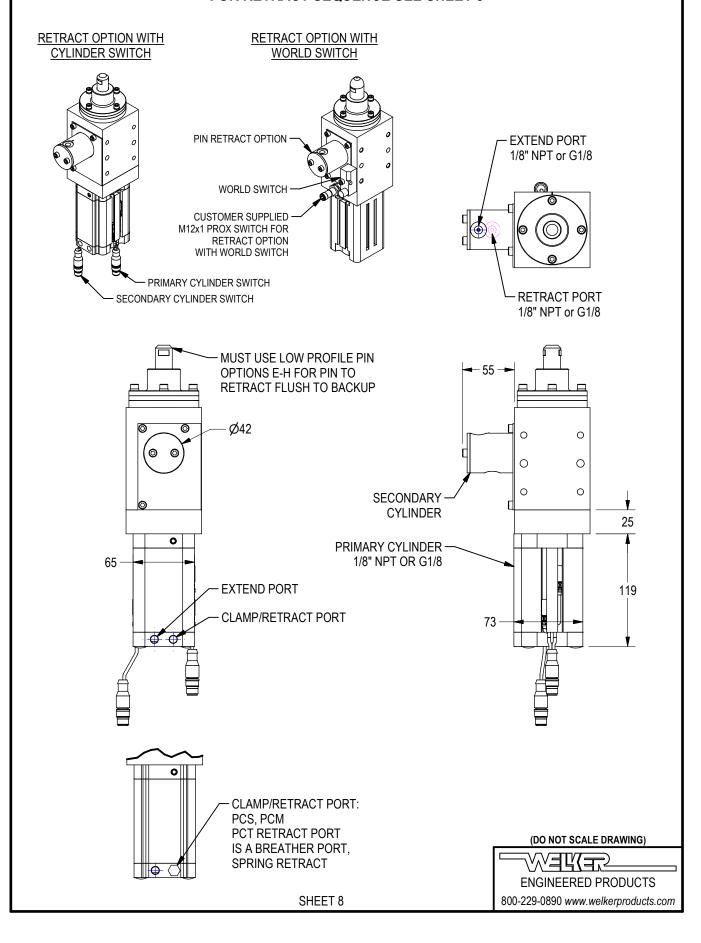


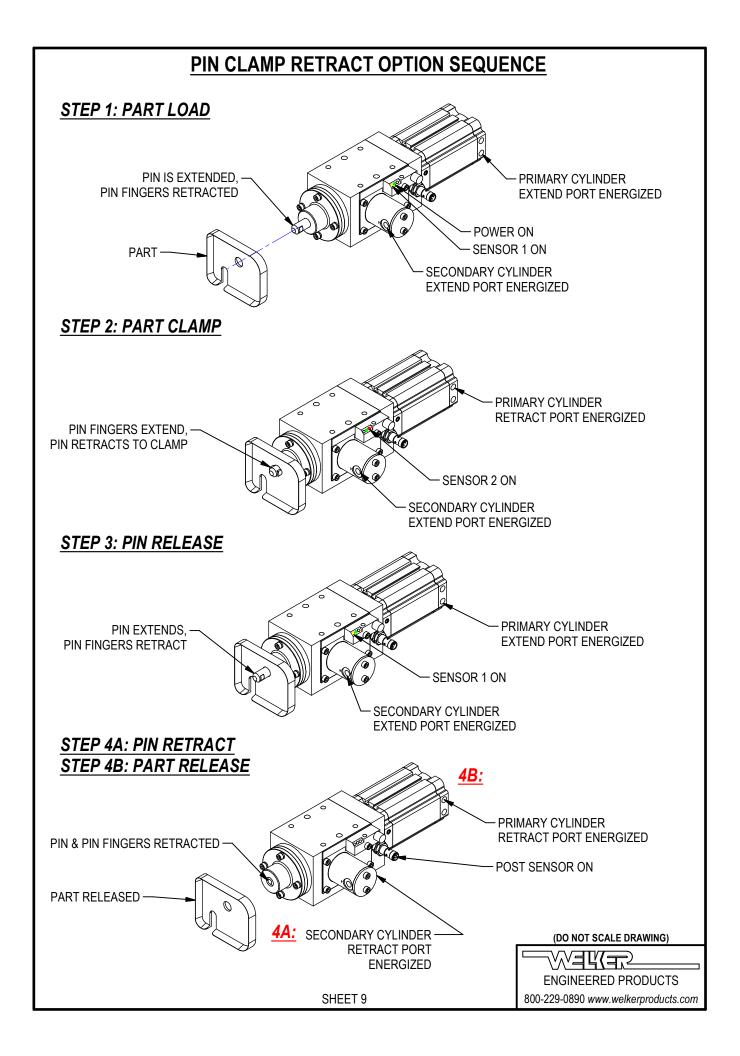


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ACTUATOR T: RETRACT OPTION FOR RETRACT SEQUENCE SEE SHEET 8





WORLD SWITCH INFORMATION

C 2 5 0 0 A B Z E D 0 3 5 K A

WORLD SWITCH ASSEMBLY-

WORLD SWITCH SENSOR POSITION

WORLD SWITCH ASSEMBLY

0 NONE

NON-STOCKED SWITCHES EFFECTIVE 1-2-23

A DC TURCK 4-PIN (PNP) #Ni2-Q6.5-AP6-0.1-FS 4.4x3/S304

B AC/DC TURCK 5-PIN (N.O.) #Ni2-Q6.5-ADZ32-0.1-FSB 5.4x4/S304

C DC TURCK 4-PIN (NPN) #Ni2-Q6.5-AN6-0.1-FS 4.4x3/S304

DC PEPPERL & FUCHS 4-PIN (PNP) #NBN2-F581-100S6-E8-V1

DC BALLUFF 4-PIN (PNP)
#BES-Z02KR2-PSC20F-P100-S04

J DC EFECTOR 4-PIN (PNP) #IN5374

Z *DC WELKER 4-PIN (PNP) #WWS001A

*STANDARD SWITCH PRICING
OTHER SWITCHES MAY REQUIRE PRICING PREMIUM

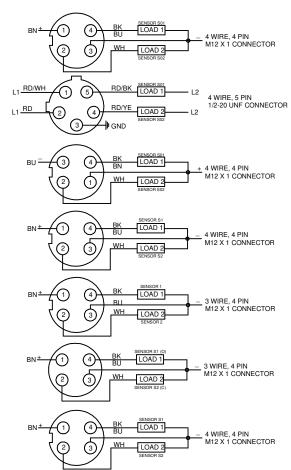
SENSOR POSITION

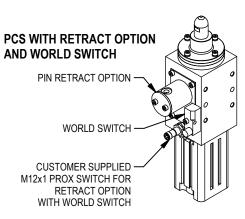
0 NONE

Sensor 01-Unclamped (Pin Extended, Load/Unload Position)
Sensor 02-Clamped (Pin Retracted)

Sensor 01-Clamped (Pin Retracted)
Sensor 02-Unclamped (Load/Unload Position)

Note: Sensor 01 displays an amber LED. Sensor 02 displays a red LED





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CYLINDER SWITCH INFORMATION

C 2 5 0 0 A B L 3 D 0 3 5 K A

CYLINDER SWITCH

FOR PIN CLAMP ACTUATOR OPTION "B" & "D"

(NOTE: Cylinder switches not available with actuator A on PCT)

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

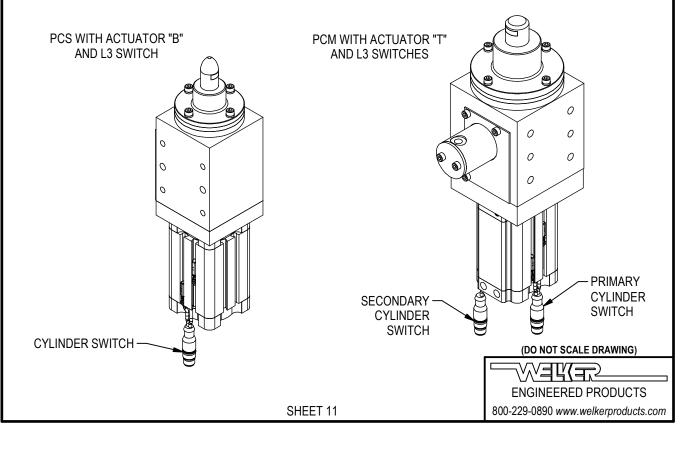
FOR PIN CLAMP ACTUATOR OPTION "T"

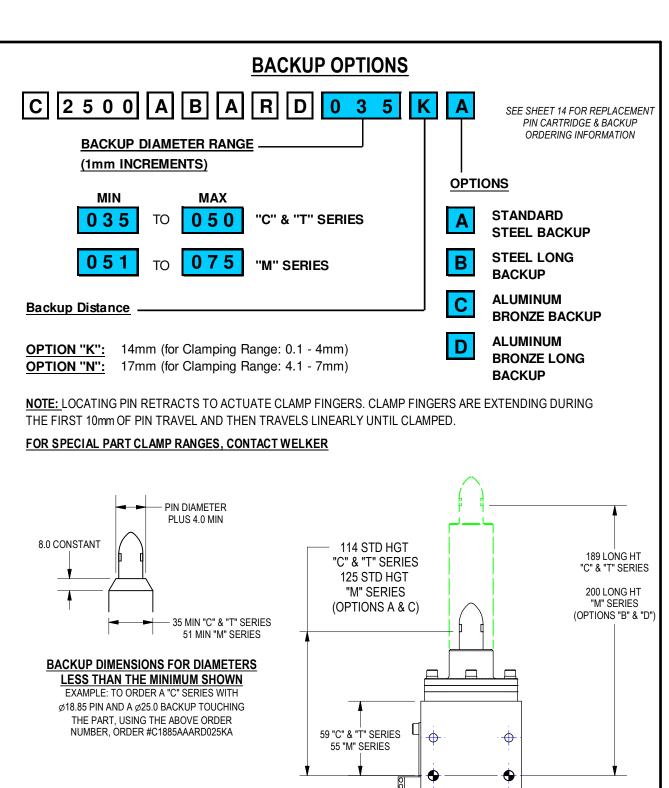
Option	QTY	Switch Part #	Wire	Output	Mfg
	1	SWITCH L3**	4	PNP	
L3	1	SWITCH L3S** Single sensor, single connector switch: 1 switch required for retract cylinder	3	PNP	Welker
L5	3	MK5113	3	NPN	ifm Efector

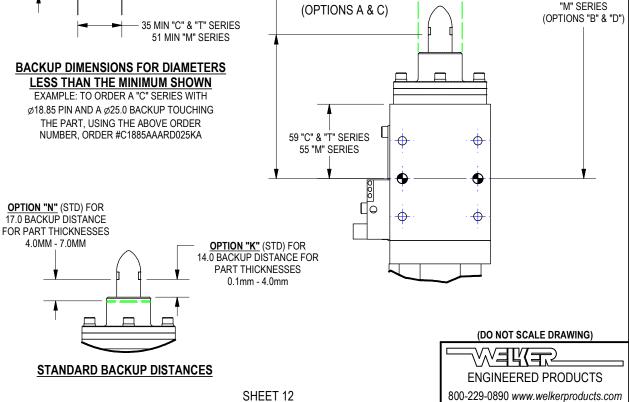
Standard Switch Option - All other options may affect price and delivery

All switches are DC M12 X 1, Quick Disconnect

**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.







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. ALL PIN CLAMPS ARE DESIGNED TO BE OPERABLE UP TO 110 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.

ALL PNEUMATIC PIN CLAMPS ARE SHIPPED WITH INTERNAL OR EXTERNAL FLOW RESTRICTORS. IF THESE RESTRICTORS ARE REMOVED OR BYPASSED. THE WARRANTY IS VOID.

(DO NOT SCALE DRAWING)

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