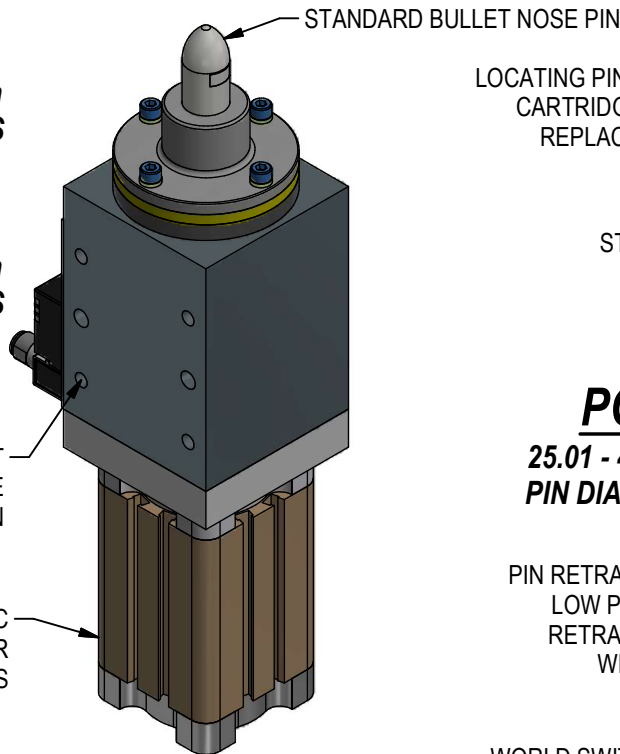


PCT, PCS, PCM SERIES PIN CLAMPS FOR POSITIVE LOCATING AND CLAMPING

PCT

12.00 - 16.00mm
PIN DIAMETERS



PCS

16.01 - 25.00mm
PIN DIAMETERS

STANDARD LOW PROFILE PIN

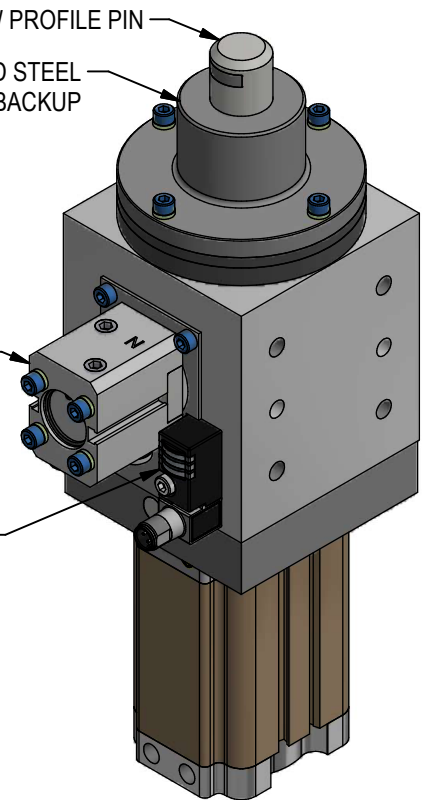
STANDARD STEEL PART BACKUP

PCM

25.01 - 40.00mm
PIN DIAMETERS

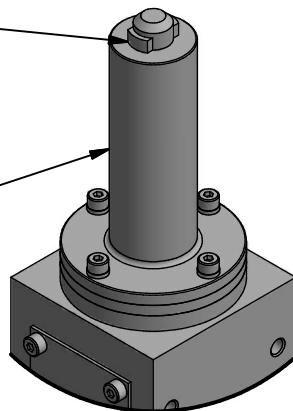
PIN RETRACT OPTION:
LOW PROFILE PIN
RETRACTS FLUSH
WITH BACKUP

WORLD SWITCH OPTION



GAPLESS CLAMP
FINGER DESIGN
AT FULL EXTENSION
AND RETRACTION

OPTIONAL LONG
PART BACKUP



APPLICATIONS

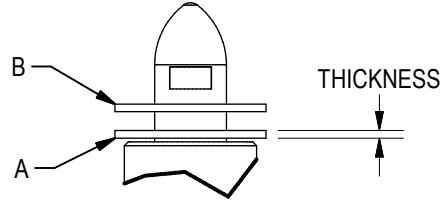
- ROBOT END EFFECTORS
- END OF ARM TOOLING
- AUTOMOTIVE ASSEMBLY & B/W
- PALLETIZED PART LOCATE & TRANSFER
- WELDING & HIGH CORROSIVE ENVIRONMENTS

PIN CLAMP WORKSHEET

PROJECT	STATION #	DATE	
CUSTOMER	CONTACT	EMAIL	PHONE

	MATERIAL	THICKNESS	HOLE SIZE (min-max)
A			
B			
C			

TOTAL THICKNESS: _____



WILL THE PIN BE IN GEO HOLES IN MULTIPLE METAL PIECES? YES NO

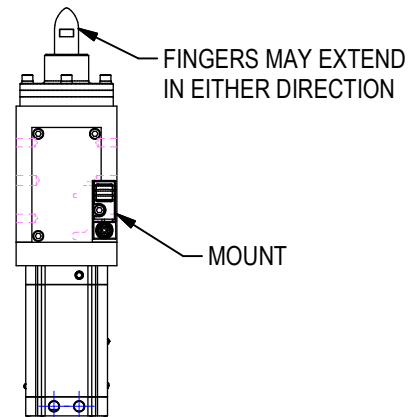
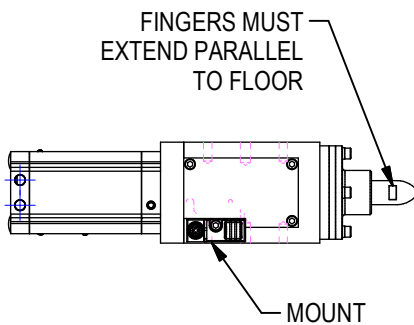
RECOMMENDED PIN DIAMETER:

SERIES	APPLICATION	PIN SIZING
PCS, PCT, PCM	GEO	0.15mm UNDER MINIMUM HOLE
PCS, PCT, PCM	MATERIAL HANDLING	0.5mm UNDER MINIMUM HOLE

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°

SUBMIT A PIN CLAMP WORKSHEET FOR EVERY INDIVIDUAL PIN CLAMP APPLICATION.

(DO NOT SCALE DRAWING)



ORDERING INFORMATION

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



Series

- T** PCT Body
- C** PCS Body
- M** PCM Body

Pin Diameter (mm)*

- 12.00-16.00** T Series
- 16.01-25.00** C Series
- 25.01-40.00** M Series

*Pin diameter to 2 decimal places

Pin Type

- A** Bullet Nose Pin w/ fingers at 0°
- B** Bullet Nose Pin w/ fingers at 90°
- C** Bullet Nose 2-way Pin w/ fingers @ 0° **
- D** Bullet Nose 2-way Pin w/ fingers @ 90° **
- E** Low Profile Pin w/ fingers at 0°
- F** Low Profile Pin w/ fingers at 90°
- G** Low Profile 2-Way Pin w/ fingers @ 0° **
- H** Low Profile 2-Way Pin w/ fingers @ 90° **

Actuator

See Sheet 6 for Actuator Options

Switch Options

See Switch Charts on Sheets 10 & 11

Options

- A** Std Steel Backup
- B** Steel Long Backup

Backup Distance

- K** 14mm (for clamping range 0.1 - 4mm)
- N** 17mm (for clamping range 4.1 - 7mm)

Backup Diameter

- 035-050** (Ø35-Ø50mm) C & T Series
- 051-075** (Ø51-Ø75mm) M Series

See Sheet 11 for smaller backup diameters

Port Type & Position

- A** 1/8 NPT at Pos 1
- B** 1/8 NPT at Pos 2
- C** 1/8 NPT at Pos 3
- D** 1/8 NPT at Pos 4
- J** 1/8 G at Pos 1
- K** 1/8 G at Pos 2
- L** 1/8 G at Pos 3
- M** 1/8 G at Pos 4

STANDARD PRICING INCLUDES THESE FEATURES

- ** Not available on PCT with pin diameters 12.00 - 12.99mm
- * Diameter range for 2-way locating pins are different from 4-way range. See sheet 5.

SEE SHEET 13 FOR REPLACEMENT PIN CARTRIDGE & BACKUP ORDERING INFORMATION

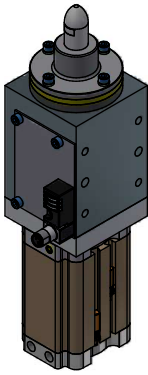
(DO NOT SCALE DRAWING)



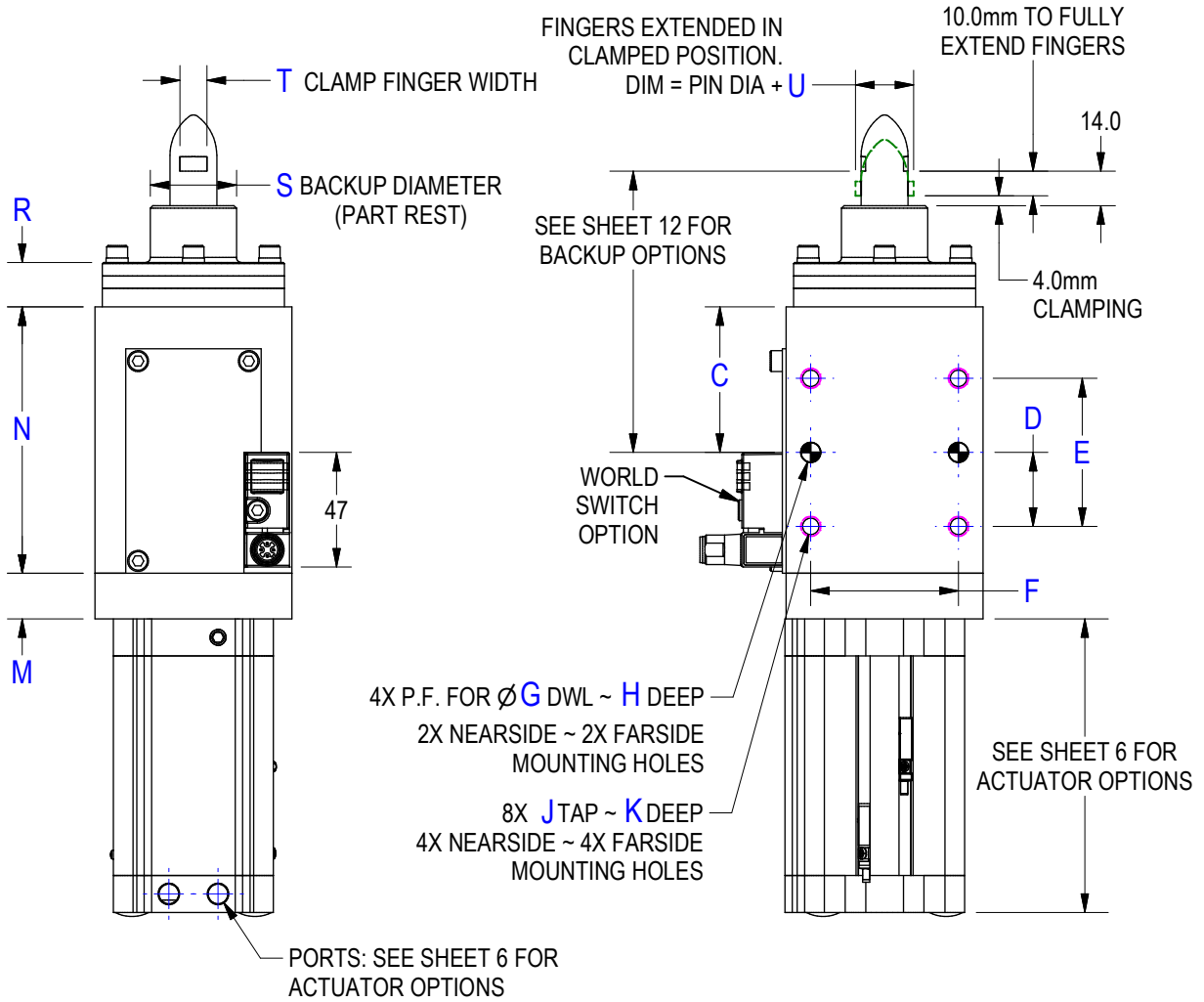
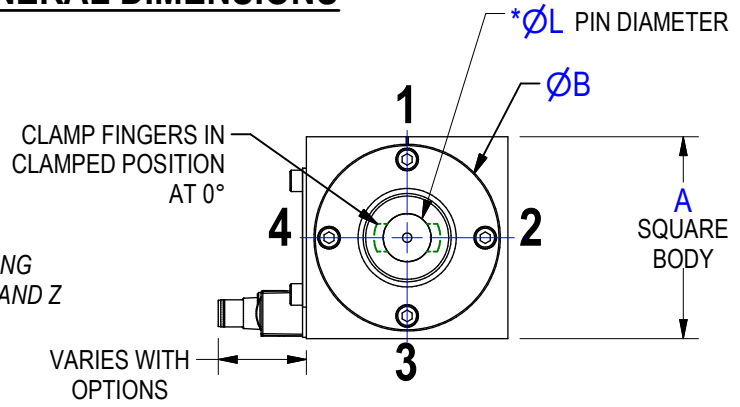
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GENERAL DIMENSIONS



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



SERIES	A	ØB	C	D	E	F	G	H	J	K	*ØL	M	N	R	ØS	T	U	WGHT
T	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
C	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
M	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

(DO NOT SCALE DRAWING)



LOCATING PIN OPTIONS

C **2500** **A** **B** **A** **R** **D** **035** **K** **A**

Pin Diameter
(Ø25.00mm SHOWN)
ORDER IN MILLIMETERS ONLY
.01 INCREMENTS

SEE SHEET 13 FOR REPLACEMENT PIN CARTRIDGE & BACKUP
ORDERING INFORMATION

- Pin Type**
- A** Bullet Nose Pin with fingers at 0°
 - B** Bullet Nose Pin with fingers at 90°
 - C** Bullet Nose 2-way Pin with fingers at 0°
 - D** Bullet Nose 2-way Pin with fingers at 90°
 - E** Low Profile Pin with fingers at 0°
 - F** Low Profile Pin with fingers at 90°
 - G** Low Profile 2-Way Pin with fingers at 0°
 - H** Low Profile 2-Way Pin with fingers at 90°

**T SERIES
DIAMETERS**

- 12.00 - 16.00
- 12.00 - 16.00
- 13.00 - 16.00
- 13.00 - 16.00
- 12.00 - 16.00
- 12.00 - 16.00
- 13.00 - 16.00
- 13.00 - 16.00

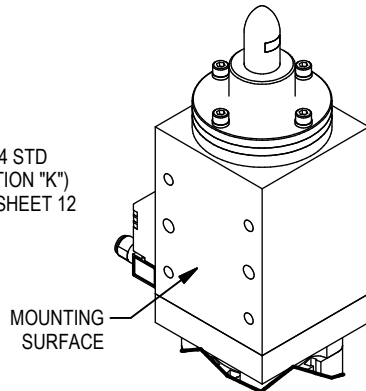
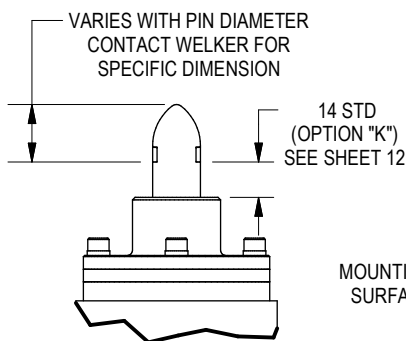
**C SERIES
DIAMETERS**

- 16.01 - 25.00
- 16.01 - 25.00
- 18.00 - 26.00
- 18.00 - 26.00
- 16.01 - 25.00
- 16.01 - 25.00
- 18.00 - 26.00
- 18.00 - 26.00

**M SERIES
DIAMETERS**

- 25.01 - 40.00
- 25.01 - 40.00
- 26.85 - 42.00
- 26.85 - 42.00
- 25.01 - 40.00
- 25.01 - 40.00
- 26.85 - 42.00
- 26.85 - 42.00

4-WAY PINS

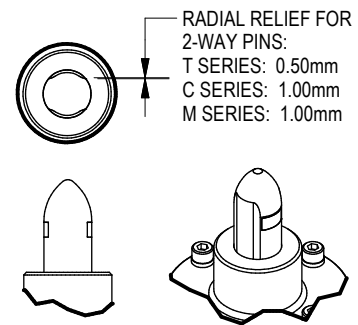


OPTION

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

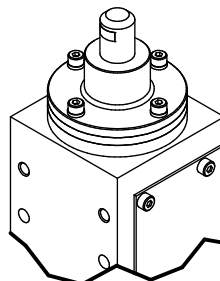
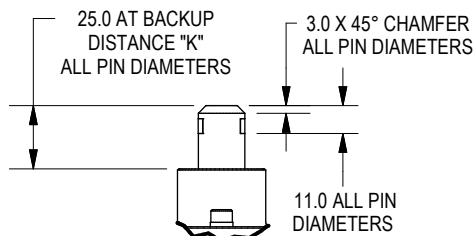
PIN TYPE OPTION "A"
BULLET NOSE PIN WITH FINGERS
SHOWN AT 0° (FINGERS EXTEND &
RETRACT **PARALLEL** TO MOUNTING
SURFACE)

2-WAY PINS



OPTION

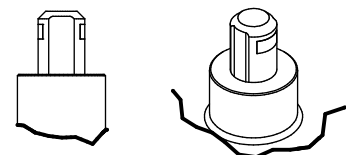
- C** BULLET NOSE 2-WAY PIN WITH FINGERS AT 0°
- D** BULLET NOSE 2-WAY PIN WITH FINGERS AT 90°



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°

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

(DO NOT SCALE DRAWING)

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ACTUATOR INFORMATION

C	2	5	0	0	A	B	A	R	D	0	3	5	K	A
Series					Actuator			Port Type & Position						
T PCT Body C PCS Body M PCM Body														

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

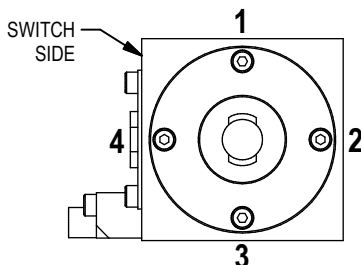
NOTE: Cylinder switches not available with actuator A on PCT

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

PCS & PCM ACTUATOR INFORMATION

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

TOP VIEW: PORT LOCATION



PORT TYPE & POSITION

A NPT AT POSITION #1	J G AT POSITION #1
B NPT AT POSITION #2	K G AT POSITION #2
C NPT AT POSITION #3	L G AT POSITION #3
D NPT AT POSITION #4	M G AT POSITION #4

(DO NOT SCALE DRAWING)



ACTUATOR DIMENSIONS: A & B

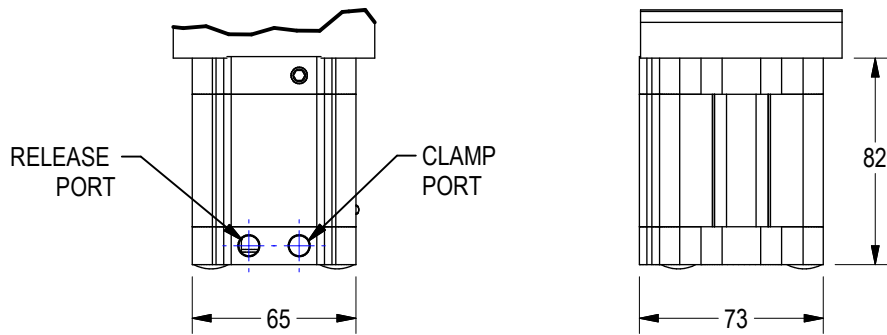
SEE SHEET 8 FOR ACTUATOR OPTION V

ACTUATOR A

40mm BORE

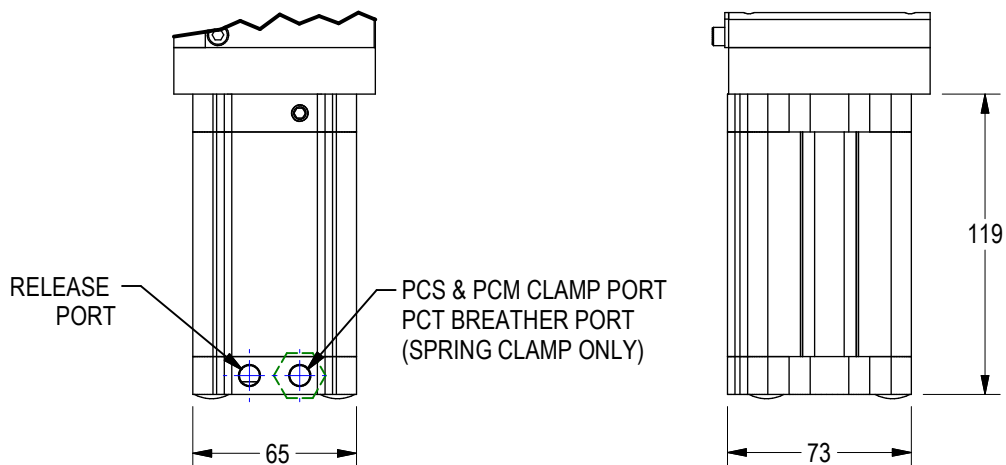
NOTES:

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



ACTUATOR B

50mm BORE



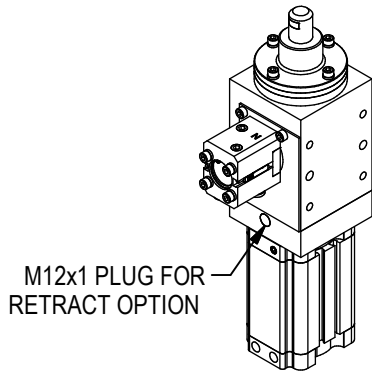
(DO NOT SCALE DRAWING)

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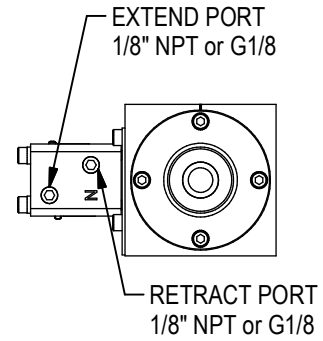
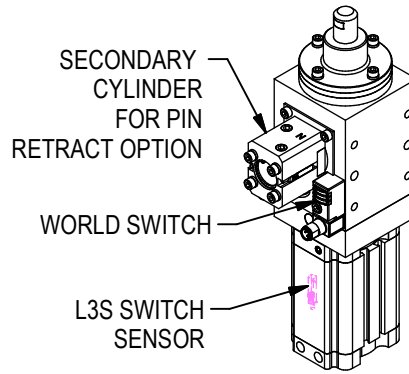
ACTUATOR V: RETRACT OPTION

SEE SHEET 9 FOR RETRACT SEQUENCE

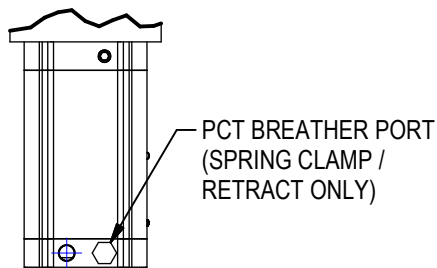
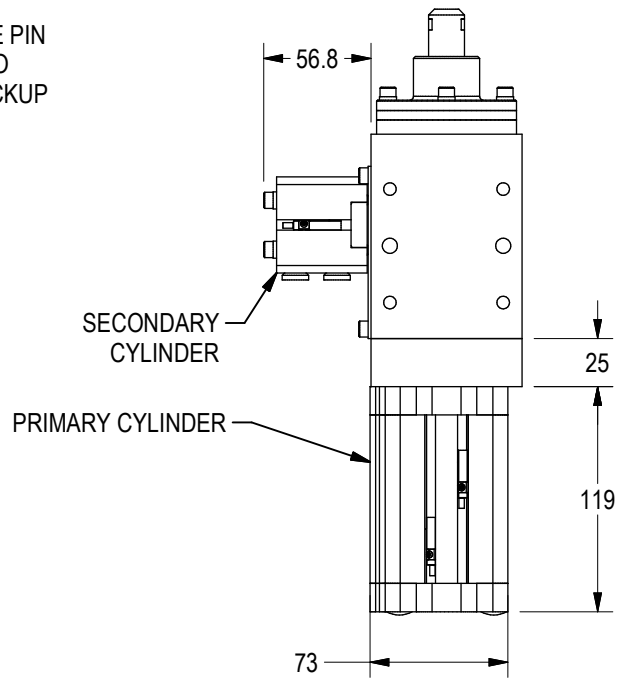
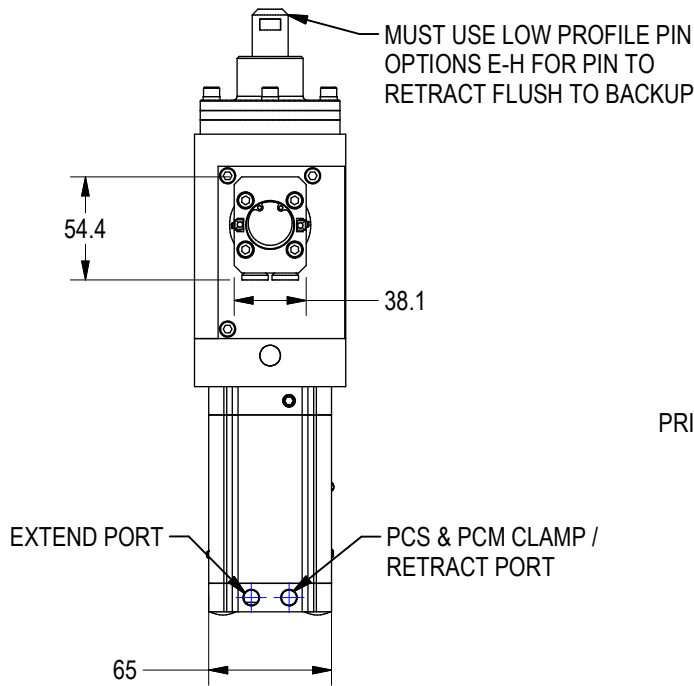
RETRACT OPTION WITH CYLINDER SWITCH



RETRACT OPTION WITH WORLD SWITCH



SHOWN WITHOUT PRIMARY AND SECONDARY CYLINDER SWITCHES



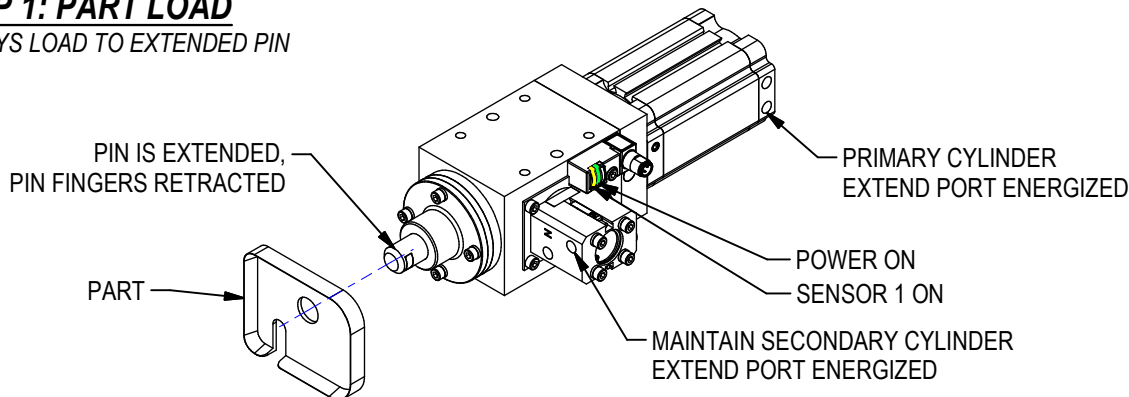
(DO NOT SCALE DRAWING)

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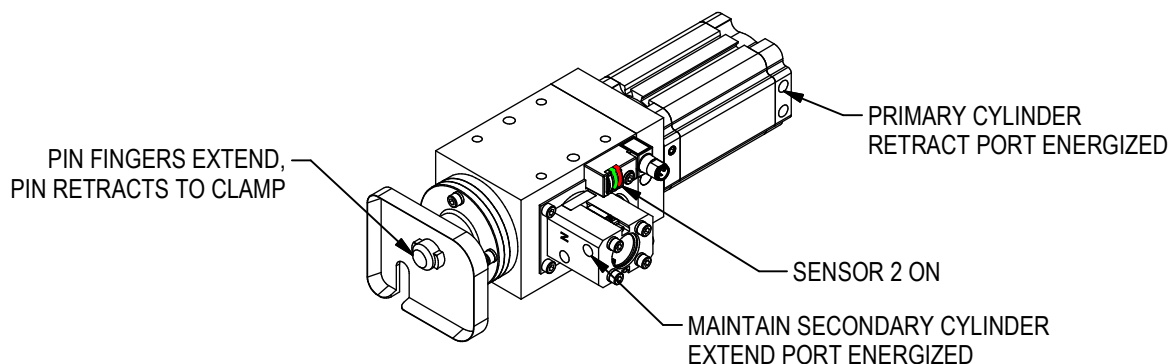
PIN CLAMP RETRACT OPTION SEQUENCE

STEP 1: PART LOAD

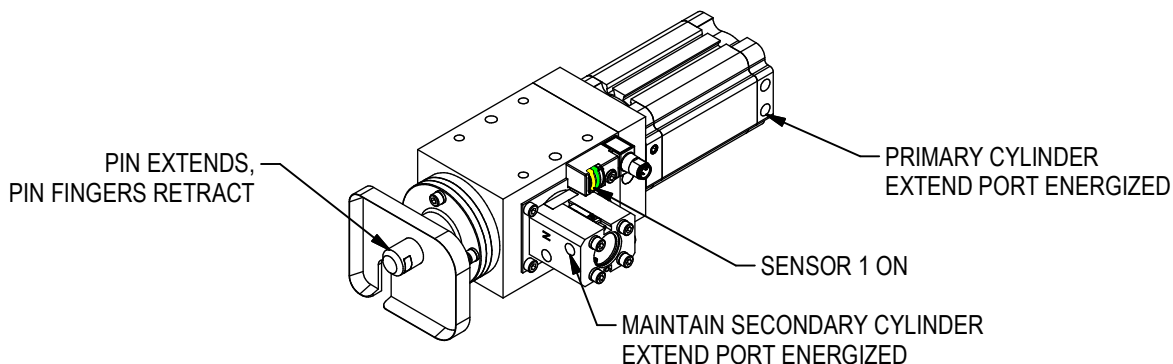
ALWAYS LOAD TO EXTENDED PIN



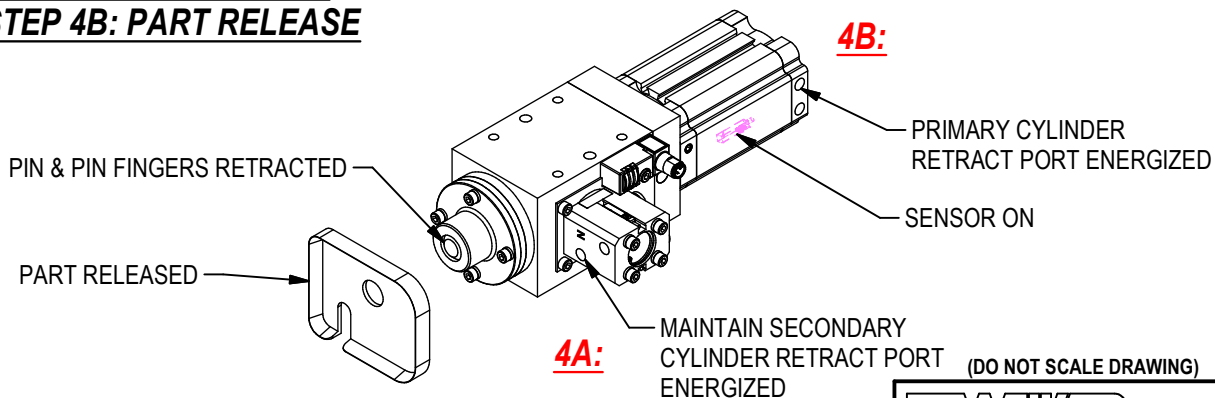
STEP 2: PART CLAMP



STEP 3: PIN RELEASE



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



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

Option SO1 (E)XTEND or SO1 (R)ETRACT	QTY	Part Number	Manufacturer	Description
00	0	Switch Ready		Customer Supplied Sw itch. Prepared for sw itches below :
ZE or ZR	1	WWS001A	Welker	4-Wire, 4-Pin, DC M12 X 1 (PNP)
Non-stocked switches (effective 1-2-2023):				
AE or AR	1	Ni2-Q6.5-AP6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP)
BE or BR	1	Ni2-Q6.5-ADZ32-0.1-FSB 5.4X4/S304	Turck	4-Wire, 5-Pin, AC/DC 1/2-20 (N.O.)
CE or CR	1	Ni2-Q6.5-AN6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (NPN)
DE or DR	1	NBN2-F581-100S6-E8-V1	Pepperl & Fuchs	4-Wire, 4-Pin, DC M12 X 1 (PNP)
EE or ER	1	BES-Z02KR2-PSC20F-P100-S04-V	Balluff	3-Wire, 4-Pin, DC M12 X 1 (PNP)
JE or JR	1	IN5374	Efector	3-Wire, 4-Pin, DC M12 X 1 (PNP)

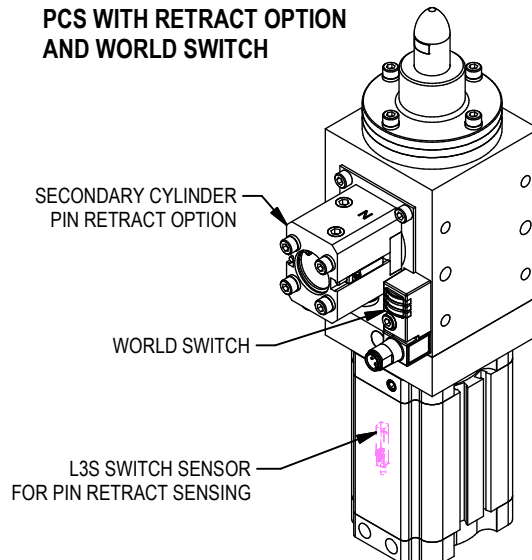
ALL SWITCHES QUICK DISCONNECT

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

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.

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

NOTE: (1) L3 SWITCH FOR SECONDARY CYLINDER SENSING AND (1) L3S SWITCH FOR PIN RETRACT SENSING ARE INCLUDED WHEN WORLD SWITCH OPTIONS ARE SELECTED.



(DO NOT SCALE DRAWING)


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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 "V"

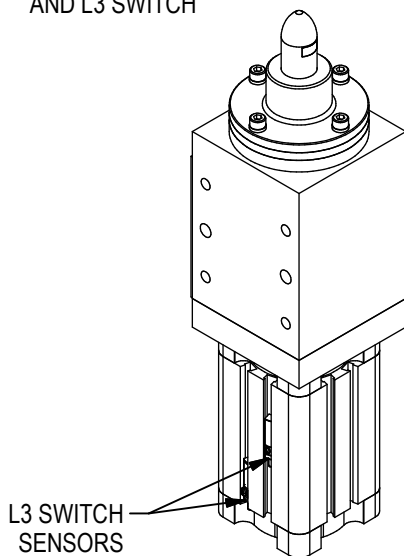
Option	QTY	Switch Part #	Wire	Output	Mfg
L3	2	SWITCH L3**	4	PNP	Welker
	1	SWITCH L3S** Single sensor, single connector switch: 1 switch required for retract cylinder	3	PNP	
L5	5	MK5113	3	NPN	ifm Efector

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

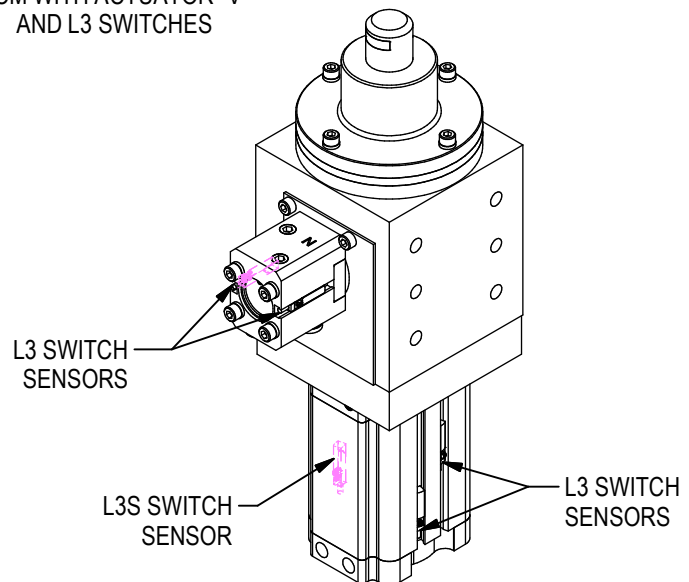
All switches are DC M12 X 1, Quick Disconnect

**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.

PCS WITH ACTUATOR "B"
AND L3 SWITCH



PCM WITH ACTUATOR "V"
AND L3 SWITCHES



(DO NOT SCALE DRAWING)

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BACKUP OPTIONS

C **2500** **A** **B** **A** **R** **D** **035** **K** **A**

SEE SHEET 13 FOR REPLACEMENT
PIN CARTRIDGE & BACKUP
ORDERING INFORMATION

BACKUP DIAMETER RANGE
(1mm INCREMENTS)

MIN **035** TO MAX **050** "C" & "T" SERIES
051 TO **075** "M" SERIES

OPTIONS

- A** STANDARD STEEL BACKUP
- B** STEEL LONG BACKUP

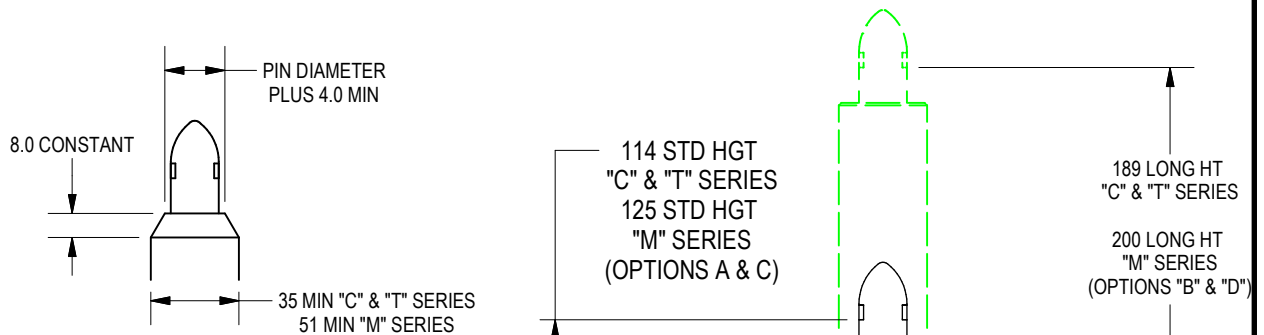
Backup Distance

OPTION "K": 14mm (for Clamping Range: 0.1 - 4mm)

OPTION "N": 17mm (for Clamping Range: 4.1 - 7mm)

NOTE: LOCATING PIN RETRACTS TO ACTUATE CLAMP FINGERS. CLAMP FINGERS ARE EXTENDING DURING THE FIRST 10mm OF PIN TRAVEL AND THEN TRAVELS LINEARLY UNTIL CLAMPED.

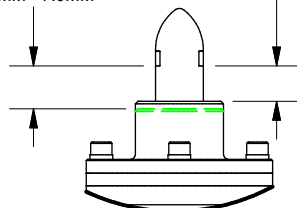
FOR SPECIAL PART CLAMP RANGES, CONTACT WELKER



BACKUP DIMENSIONS FOR DIAMETERS LESS THAN THE MINIMUM SHOWN

EXAMPLE: TO ORDER A "C" SERIES WITH
ø18.85 PIN AND A ø25.0 BACKUP TOUCHING
THE PART, USING THE ABOVE ORDER
NUMBER, ORDER #C1885AAARD025KA

OPTION "N" (STD) FOR
17.0 BACKUP DISTANCE
FOR PART THICKNESSES
4.0MM - 7.0MM



OPTION "K" (STD) FOR
14.0 BACKUP DISTANCE FOR
PART THICKNESSES
0.1mm - 4.0mm

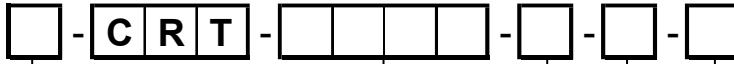
STANDARD BACKUP DISTANCES

(DO NOT SCALE DRAWING)

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REPLACEMENT PIN CLAMP CARTRIDGES

SEE SHEET 5 FOR PIN TYPES AND FINGER ORIENTATION



Series

- T PCT Body
- C PCS Body
- M PCM Body

Pin Diameter*

- 12.00-16.00 T Series
- 16.01-25.00 C Series
- 25.01-40.00 M Series

*Pin diameter to 2 decimal places

Pin Type

- A Bullet Nose Pin w/ fingers at 0°
- B Bullet Nose Pin w/ fingers at 90°
- C Bullet Nose 2-way Pin w/ fingers @ 0° **
- D Bullet Nose 2-way Pin w/ fingers @ 90° **
- E Low Profile Pin w/ fingers at 0°
- F Low Profile Pin w/ fingers at 90°
- G Low Profile 2-Way Pin w/ fingers @ 0° **
- H Low Profile 2-Way Pin w/ fingers @ 90° **

** Not available on PCT with pin diameters 12.00 - 12.99

Options

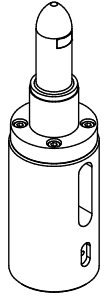
- T Retractable Cartridge
- V Retractable Cartridge w/ Secondary Cylinder Sensing

Backup

- Std Standard Backup
 - Long Long Backup
- (Backups must be ordered separately)

Cartridge ordering examples:

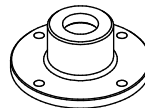
- C-CRT-16.00-A-STD
- M-CRT-40.00-B-LONG
- C-CRT-19.00-A-STD-T



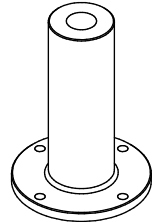
REPLACEMENT BACKUP

INCLUDES A BACKUP ONLY
SEE SHEET 12 FOR BACKUP OPTIONS

OPTION A
STANDARD
BACKUP



OPTION B
LONG
BACKUP



Series

- T PCT Body
- C PCS Body
- M PCM Body

Pin Diameter*

- 12.00-16.00 T Series
- 16.01-25.00 C Series
- 25.01-40.00 M Series

*Pin diameter to 2 decimal places

Backup Diameter

- 035-050 (Ø35-Ø50mm) C & T Series
- 051-075 (Ø51-Ø75mm) M Series

Options

- A Std Steel Backup
- B Steel Long Backup

Backup Distance

- K 14mm (for clamping range 0.1 - 4mm)
- N 17mm (for clamping range 4.1 - 7mm)

Backup ordering example:
CE06C-16.00-035-K-A

(DO NOT SCALE DRAWING)



PIN CLAMP DESIGN GUIDELINES

1. FOR HORIZONTAL APPLICATIONS, ORIENTATION OF THE CLAMP FINGER MOVEMENT SHOULD BE PARALLEL TO THE GROUND FOR ROUND HOLES.
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)

