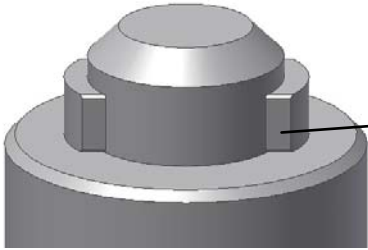


Pin Clamps

For Positive Locating and Clamping

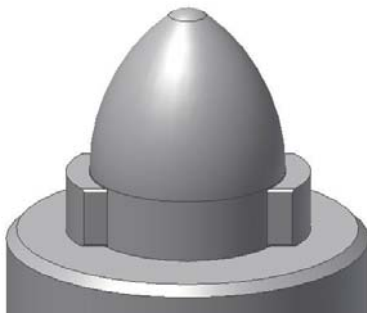
****LUBE FREE****



Low Profile Option

Gapless Clamp Finger Design at Full Extension and Retraction

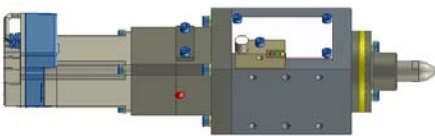
- Locating pin retracts to actuate clamp fingers
- Dual finger design ensures maximum part contact
- Linear non-toggle clamp action for clamping multiple part thicknesses within a 4mm range
- Excellent for clamping flanged holes



Standard Pin Option

Hardened Steel Locating Pin

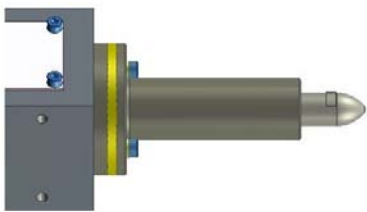
- Standard pin diameters available
- Other non-standard diameters available up to 100mm in .01 increments
- Low profile & custom shapes available
- 2-way location available



Electric Pin Clamp

Steel Part Backup

- Pin Cartridge replaceable in field. No need to revalidate part rest surface
- Custom part backups available with different diameters and heights
- Custom clamping ranges available for multiple, tall or flanged parts
- Aluminum Bronze available
- Standard long backup available



C Series Pin Clamp with Long Backup

5mm Spacer for "Z" Adjustment

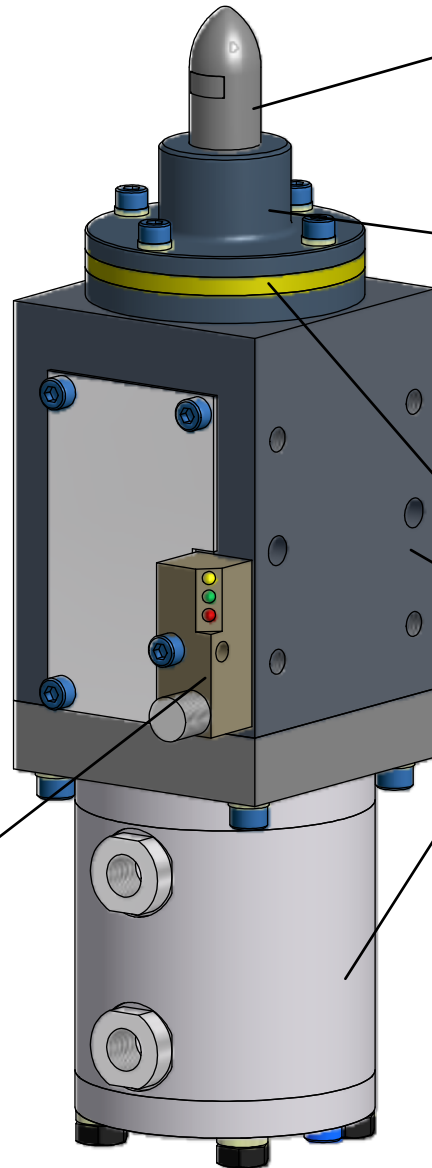
- NAAMS™ Compliant Hole Pattern
- NAAMS™ X-Y bracket available for 3-way positioning

World Switch Option

- Weld field immune
- Clamp sensor adjustable to part thickness
- AC or DC available
- Switch chart available for most brands
- Sensors can be ordered reversed

Multiple Actuator Options

- Double acting standard
- 115-400# clamping force varies with pin diameter series
- Field rotatable
- Double rod available
- Linear transducer available
- Above actuators available with heavy duty spring assist to maintain clamp pressure when air is lost
- Bottom plug removable for manual release (extends pin & retracts clamp fingers)
- NPT ports standard, G ports available



Standard C Series

Applications: ● Robot End Effectors ● End of Arm Tooling ● Automotive Assembly & BIW ● High Automation
● Palletized Part Locate & Transfer ● Welding and High Corrosion Environments

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)



Ordering Information

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

***Series**

- C** PCS BODY
- M** PCM BODY

Pin Diameter (Sheet 5)

16.00 - 25.00 to 2 Decimal Places ("C" Series)
25.01 - 40.00 to 2 Decimal Places ("M" Series)
 (For diameters less than 16.00, contact Welker)

Pin Type (Sheet 5)

- 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°

Actuator (Sheet 6)

- B** *Dbl Acting with Spring Assist
- D** Dbl Acting-Dbl Rod with Spring Assist
- F** Dbl Acting, Linear Transducer, Spring Assist
- G** Electric DC Stepper

World Switch Assy (Sheet 7)

- 0** *None
- A** DC Turck 4 Pin (PNP)
- B** AC/DC Turck 5 Pin (N.O.)
- C** DC Turck 4 Pin (NPN)
- D** DC Pepprl-Fuchs 4 Pin (PNP)
- F** DC Allen Bradley 4 Pin (PNP)
- G** AC/DC Allen Bradley 5 Pin (N.O.)
- H** DC Turck 4 Pin (PNP)~Pivoting Connector
- J** DC Efector 4 Pin (PNP)

*** STANDARD PRICING INCLUDES THESE FEATURES**

Options (Sheet 8)

- A** *Std Steel Backup
- B** Steel Long Backup
- C** Alum Bronze Backup
- D** Alum Brz Long Backup

***Backup Distance (Sheet 8)**

- K** 14mm (For Clamping Range: 0.1 - 4mm)
- N** 17mm (For Clamping Range: 4.1 - 7mm)

***Backup Diameter (Sheet 8)**

016-050 (Ø16-Ø50mm) C & T Series
051-075 (Ø51-Ø75mm) M Series

***Port Type & Pos or Electrical Pos (Sheet 6)**

- A** 1/4 NPT at Pos 1
- B** 1/4 NPT at Pos 2
- C** 1/4 NPT at Pos 3
- D** 1/4 NPT at Pos 4
- J** 1/4G at Pos 1
- K** 1/4G at Pos 2
- L** 1/4G at Pos 3
- M** 1/4G at Pos 4
- N** Electrical Connector at Pos 1
- P** Electrical Connector at Pos 2
- R** Electrical Connector at Pos 3
- S** Electrical Connector at Pos 4

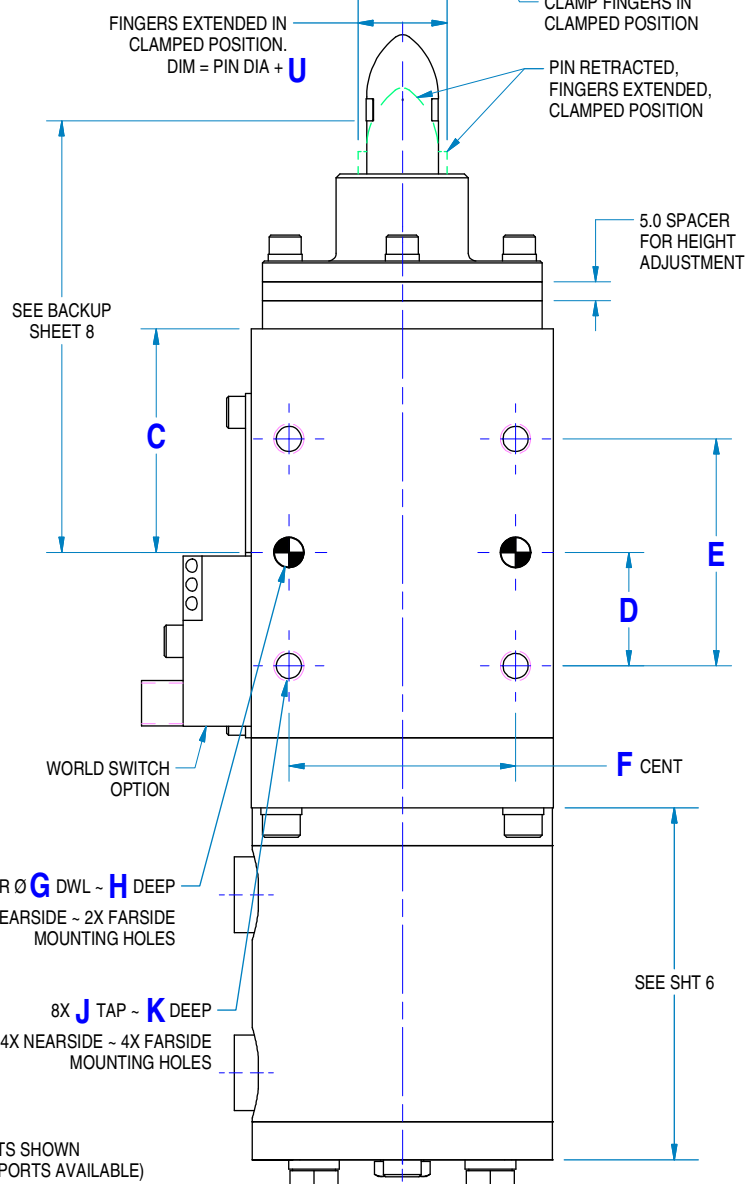
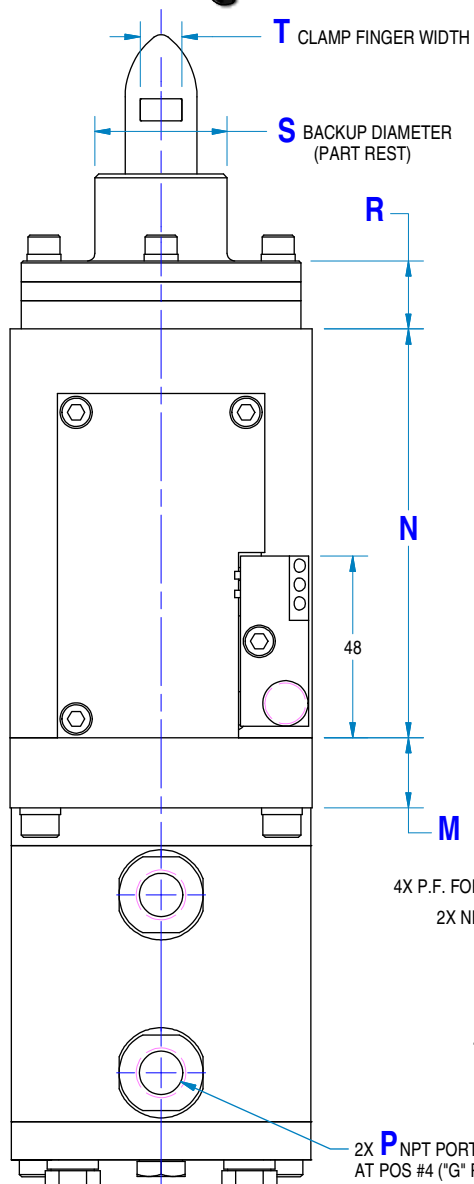
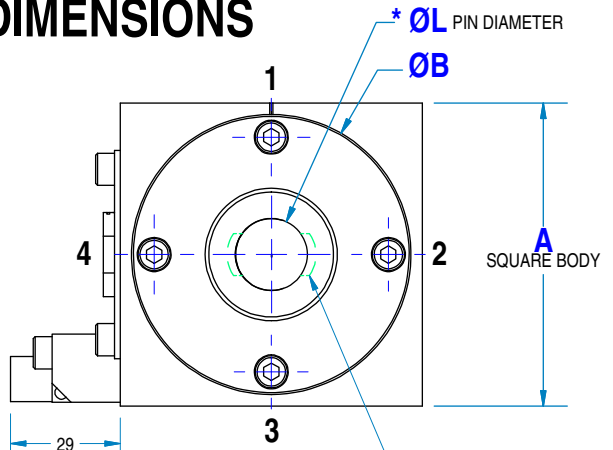
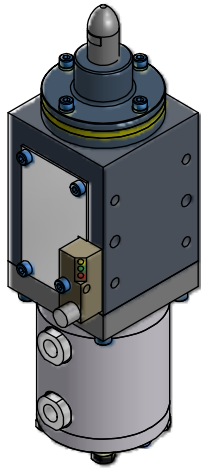
***Sensor Position (Sheet 7)**

- 0** None (No World Switch)
- E** Sensor 01-Unclamped (Pin Extended)
Sensor 02-Clamped
- R** Sensor 01-Clamped (Pin Retracted)
Sensor 02-Unclamped

(DO NOT SCALE DRAWING)



GENERAL DIMENSIONS



Series	A	ØB	C	D	E	F	G	H	J	K	*ØL	M	N	P	R	ØS	T	U	**WGHT
C	80	74	59	30.00	60.00	60	8	16	M8 X 1.25	16	16.00-25.00	19	108	1/4	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	1/4	22	51-75	18	5.6	20 LBS

* DIAMETER RANGE FOR 2-WAY LOCATING PINS ARE DIFFERENT FROM 4-WAY RANGE. SEE SHEET 5.
 ** FOR ALL ACTUATORS EXCEPT "G". ADD 1 LB FOR "G" ACTUATOR.

WELKER
 ENGINEERED PRODUCTS
 248-528-2020 www.e-welker.com

(DO NOT SCALE DRAWING)

LOCATING PIN OPTIONS

DENOTES Ø25.00mm PIN



PIN DIAMETER

PIN TYPE (SEE OPTIONS BELOW)

4-WAY DIAMETER RANGE (OPTIONS A,B,E,F)

2-WAY DIAMETER RANGE (OPTIONS C,D,G,H)

16.00-25.00 ("C" SERIES ONLY)

18.00-26.00 ("C" SERIES ONLY)

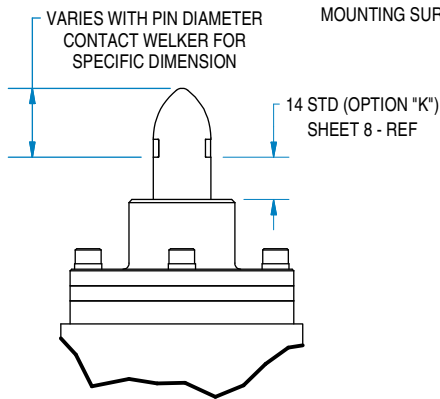
25.01-40.00 ("M" SERIES ONLY)

26.85-42.00 ("M" SERIES ONLY)

- 2-WAY DIAMETERS 26.01-26.84 ARE NOT AVAILABLE
- ORDER PIN DIAMETER (IN MILLIMETER UNITS ONLY)•
- PIN DIAMETER CAN BE ORDERED IN .01mm INCREMENTS
- STOCK 4-WAY DIAMETERS: 16.00, 19.85, 20.00, 24.85, 25.00, 34.85, 35.00, 39.85, 40.00

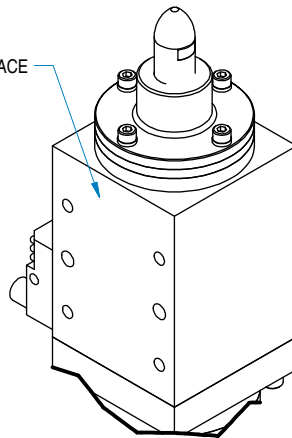
PIN TYPES

PIN SERIES	"R" RELIEF	"N"
C	1.00	12.00
M	1.00	19.00

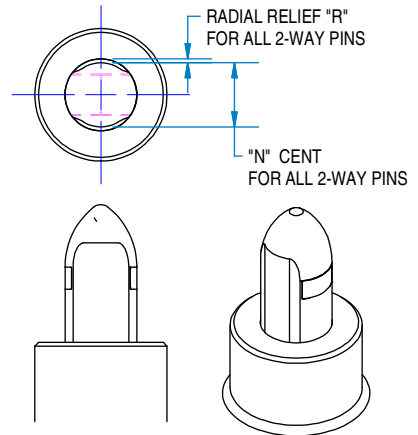


OPTION

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

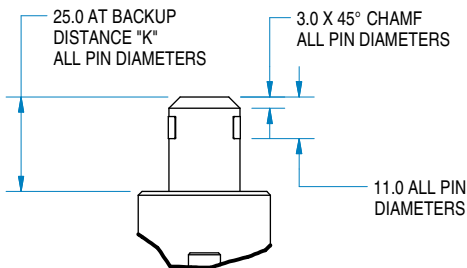


PIN TYPE OPTION "A"
BULLET NOSE PIN WITH FINGERS SHOWN AT 0° (FINGERS EXTEND & RETRACT **PARALLEL** TO MOUNTING SURFACE)



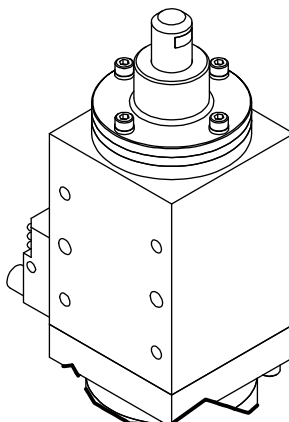
OPTION

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

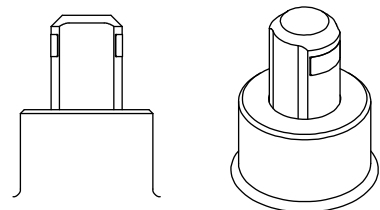


OPTION

- 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 SHOULD BE PARALLEL TO THE GROUND FOR ROUND HOLES

(DO NOT SCALE DRAWING)



ACTUATOR INFORMATION

C **2** **5** **0** **0** **A** **A** **A** **U** **D** **0** **3** **5** **K** **A**

ACTUATOR

PORT TYPE & POSITION OR
ELECTRICAL CONNECTOR POSITION

DESCRIPTION	CLAMP FORCE (LBS.)		
	50mm BORE ACTUATOR (Includes Spring Pressure)		
	60 psi	80 psi	100 psi
B DOUBLE ACTING WITH SPRING ASSIST	220	277	333
D DOUBLE ACTING - DOUBLE ROD WITH SPRING ASSIST	220	277	333
F DOUBLE ACTING - LINEAR TRANSDUCER WITH SPRING ASSIST	220	277	333
G ELECTRIC DC STEPPER	250 (See Sht 8)		

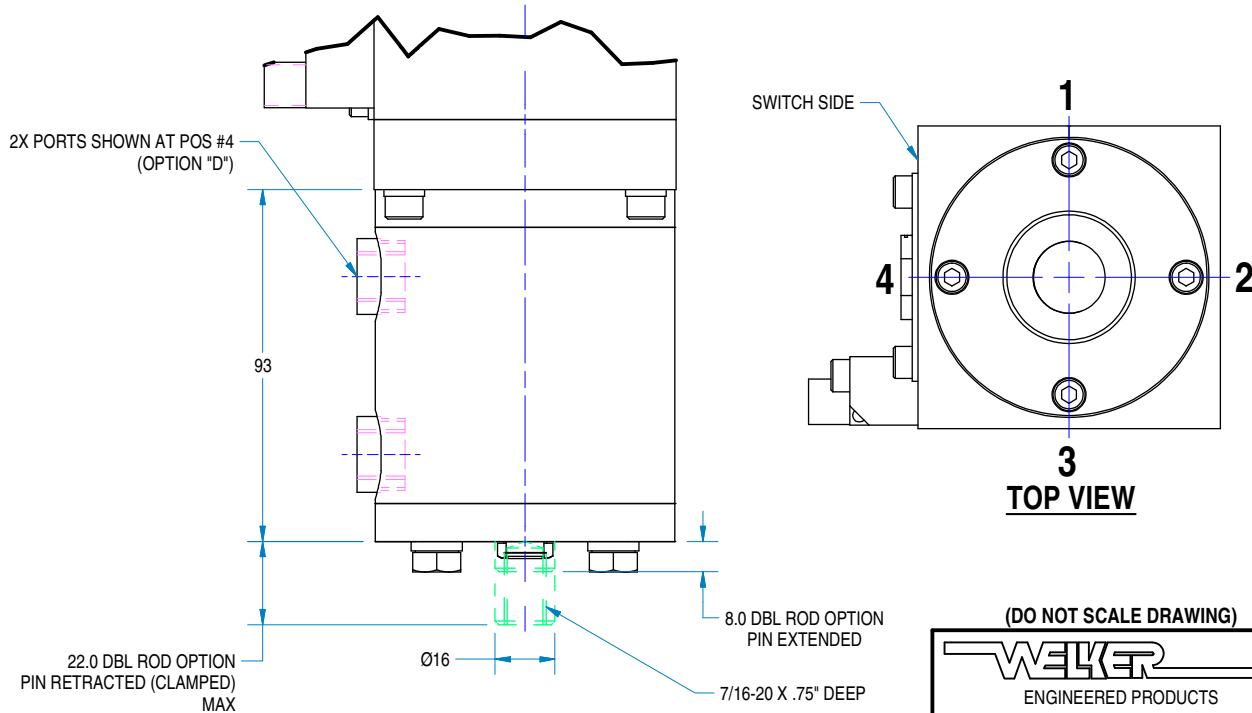
NOTE: AT LOSS OF AIR PRESSURE, SPRING ASSIST WILL MAINTAIN 50# OF CONSTANT CLAMP PRESSURE. FOR INVERTED APPLICATIONS, PART WEIGHT MUST NOT EXCEED 50#. NORMAL OPERATING TEMPERATURE FOR ALL ACTUATORS IS -10° TO 165° F, -23° TO 74° C.

PORT TYPE OR ELECTRICAL CONNECTOR POSITION

- A** 1/4 NPT AT POSITION #1
- B** 1/4 NPT AT POSITION #2
- C** 1/4 NPT AT POSITION #3
- D** 1/4 NPT AT POSITION #4

- J** "1/4G" AT POSITION #1
- K** "1/4G" AT POSITION #2
- L** "1/4G" AT POSITION #3
- M** "1/4G" AT POSITION #4

- N** ELECTRICAL CONNECTOR AT POSITION #1
- P** ELECTRICAL CONNECTOR AT POSITION #2
- R** ELECTRICAL CONNECTOR AT POSITION #3
- S** ELECTRICAL CONNECTOR AT POSITION #4



22.0 DBL ROD OPTION
PIN RETRACTED (CLAMPED)
MAX

8.0 DBL ROD OPTION
PIN EXTENDED

7/16-20 X .75" DEEP

Ø16

93

(DO NOT SCALE DRAWING)

WELKER

ENGINEERED PRODUCTS

SWITCH OPTIONS

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

WORLD SWITCH ASSY

SENSOR POSITION

WORLD SWITCH ASSEMBLY

DESCRIPTION

- 0 NONE
- 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
- D *DC PEPRL & FUCHS 4-PIN (PNP)
#NBN2-F581-100S6-E8-V1
- F DC ALLEN-BRADLEY 4-PIN (PNP)
#871D-MW2GP100A-D4
- G AC/DC ALLEN-BRADLEY 5-PIN(N.O.)
#871D-JW2G100A-R5
- H DC TURCK 4-PIN (PNP)
#Ni2-Q6.5-AP6-0.1-BDS-2AP6X3-H1141/S34
- J DC EFECTOR 4-PIN (PNP)
#IN 5374

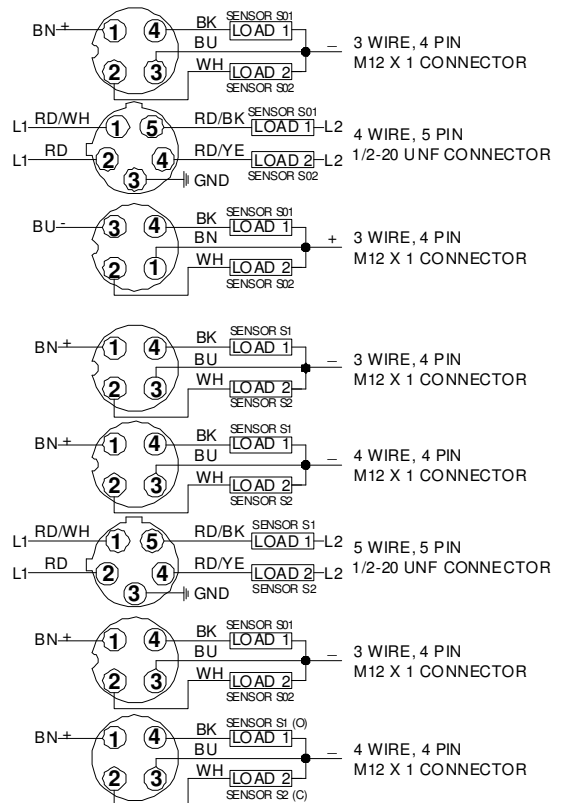
* Standard Switch Pricing.

Other Switches may require a price premium.

SENSOR POSITION

- 0 NONE
- E Sensor 01-Unclamped (Pin Extended, Load/Unload Position)
Sensor 02-Clamped (Pin Retracted)
- R Sensor 01-Clamped (Pin Retracted)
Sensor 02-Unclamped (Load/Unload Position)

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



(DO NOT SCALE DRAWING)

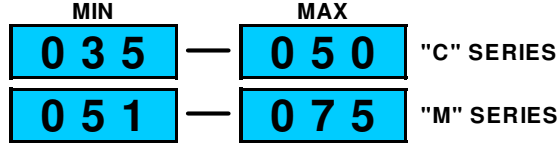


ENGINEERED PRODUCTS

BACKUP OPTIONS

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

BACKUP DIAMETER RANGE
(1mm INCREMENTS)



BACKUP DISTANCE
(SEE NOTE 1)

OPTIONS

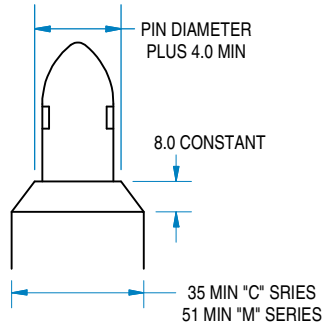
- A** STANDARD STEEL BACKUP
- B** STEEL LONG BACKUP
- C** ALUMINUM BRONZE BACKUP
- D** ALUMINUM BRONZE LONG BACKUP

NOTE 1: LOCATING PIN RETRACTS TO ACTUATE CLAMP FINGERS. CLAMP FINGERS ARE EXTENDING DURING THE 1ST 10mm OF PIN TRAVEL AND THEN TRAVELS LINEARLY UNTIL CLAMPED.

OPTION "K": 14mm (FOR CLAMPING RANGE 0.1 - 4.0mm)

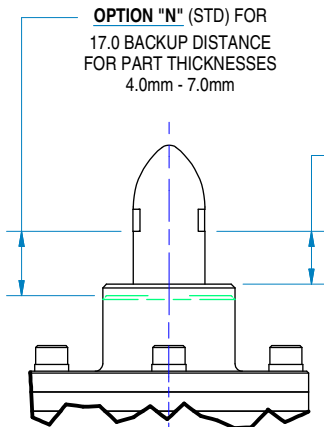
OPTION "N": 17mm (FOR CLAMPING RANGE 4.0 - 7.0mm)

FOR SPECIAL PART CLAMP RANGES, CONTACT WELKER



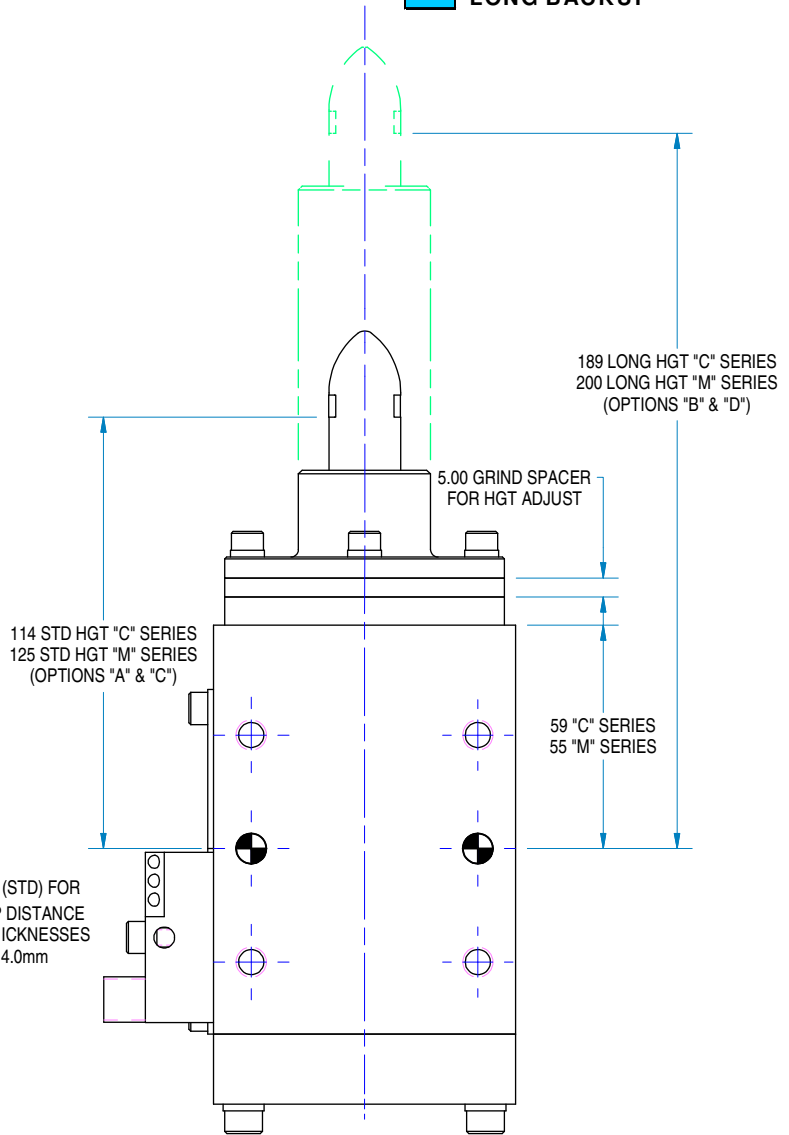
BACKUP DIMENSIONS FOR DIAMETERS LESS THAN THE MIN. SHOWN

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



STD BACKUP DISTANCES

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

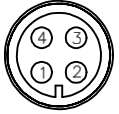


(DO NOT SCALE DRAWING)



ELECTRIC ACTUATOR OPTION

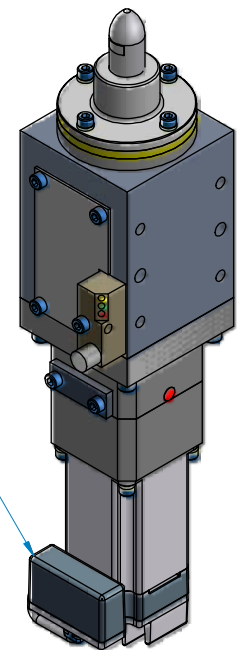
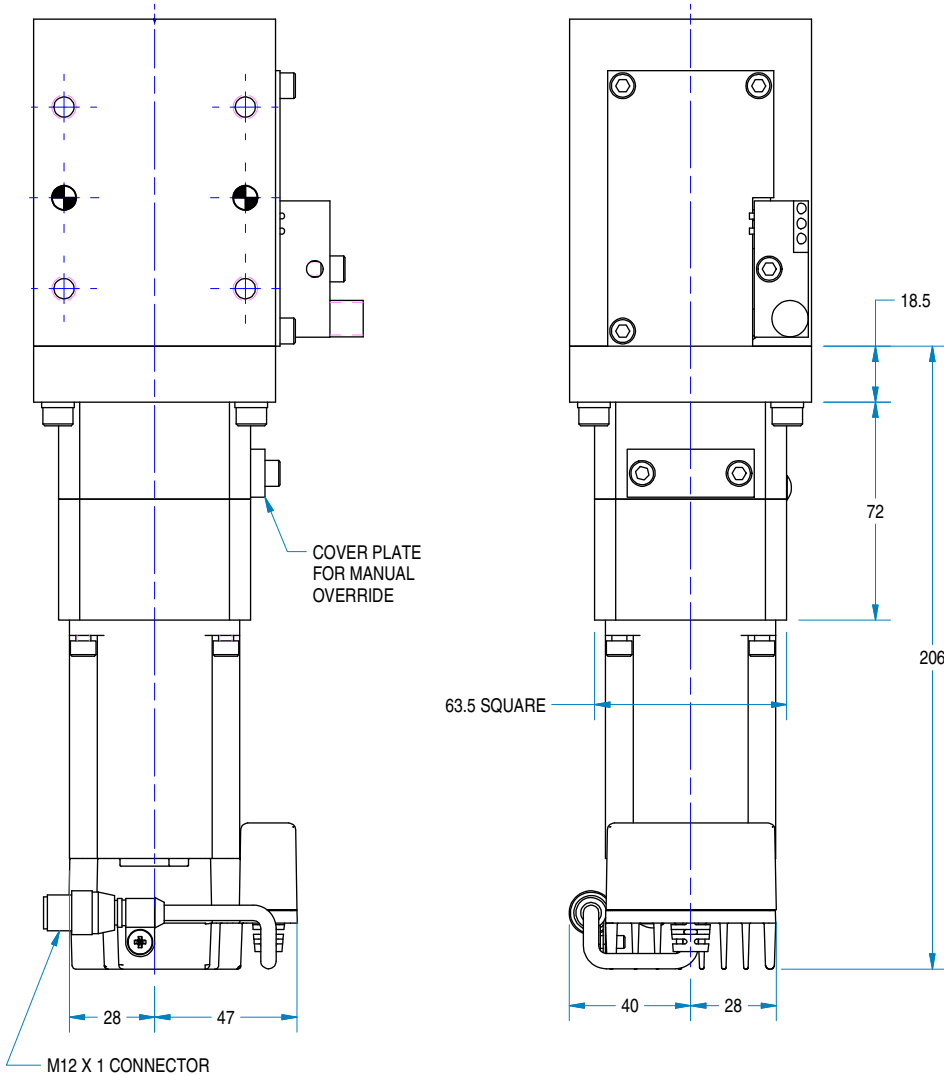
MALE 4-PIN
M12 MICRO
CONNECTOR



Pin	Motor I/O Function	I/O Description	Signal
1	V+ (2A)	Control Power	+24Vdc to Motor
2	Input B	Unclamp (Pin Extend)	+24Vdc to Motor
3	V- (2A)	Power Common	0Vdc to Motor
4	Input A	Clamp (Pin Retract)	+24Vdc to Motor

MOTOR INPUTS 2 AND 4 MUST BE MAINTAINED DURING DRIVE MOTION. LOSS OF THE OUTPUT WILL CAUSE DRIVE MOTION TO STOP. DURING PIN CLAMP OPERATION, THE DRIVE OPERATES AT SPEED UNTIL OUTPUT IS LOST.

PIN TRAVEL IS CONTROLLED BY EXTERNAL CONTROLS. THE MOTION INPUT SHOULD BE MAINTAINED FOR 1/2 SECOND AS SENSED BY THE WORLD SWITCH. THE MOTION INPUT SHOULD THEN BE DROPPED.



ACTUATOR OPTION **G**

SELF-LOCKING
DC BRUSHLESS MOTOR
WITH INTEGRATED DRIVE

CLAMP TIME = 1 SECOND
DEPENDING ON PART THICKNESS

CONNECTOR BOX SHOWN
AT POSITION #4

OPTION **S**

(DO NOT SCALE DRAWING)

