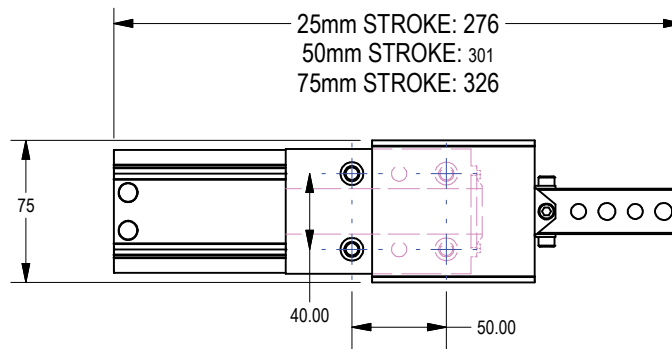


**EFFECTIVE 1/1/21: WP2 IS LEGACY STATUS, ONLY AVAILABLE AS SERVICE PARTS  
AVAILABILITY, PRICING & DELIVERY LEAD TIMES ARE NOT GUARANTEED.**

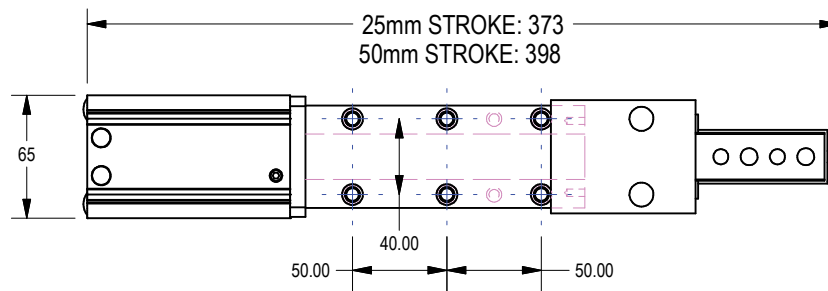
## UB2

RECOMMENDED REPLACEMENT FOR WP2

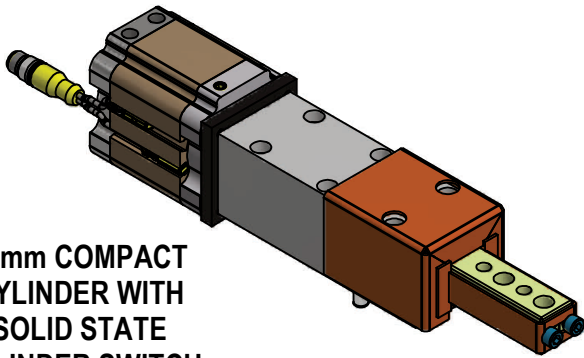


## LEGACY SHOT PINS

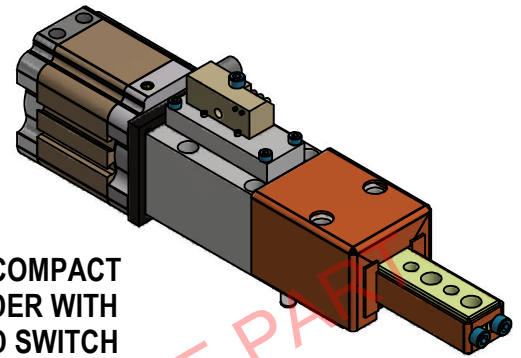
## WP2



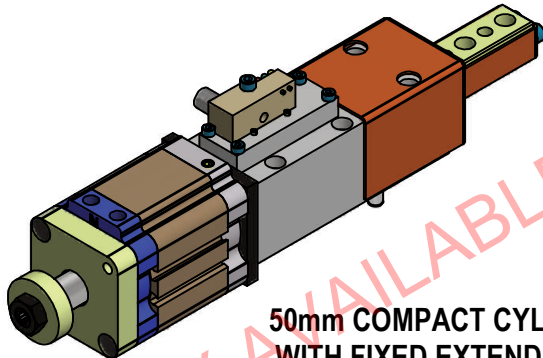
## WP2 SERIES *GOLD LINE* SHOT PINS



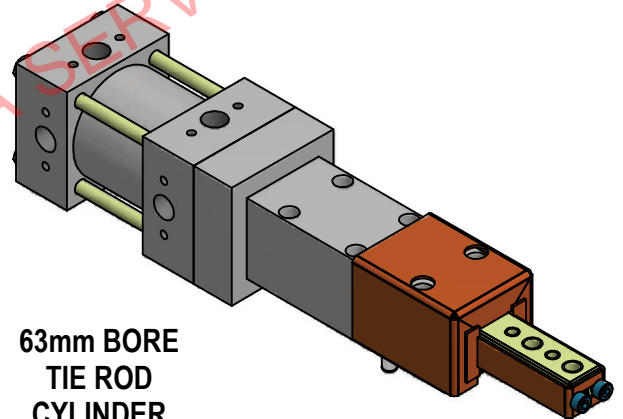
50mm COMPACT  
CYLINDER WITH  
SOLID STATE  
CYLINDER SWITCH



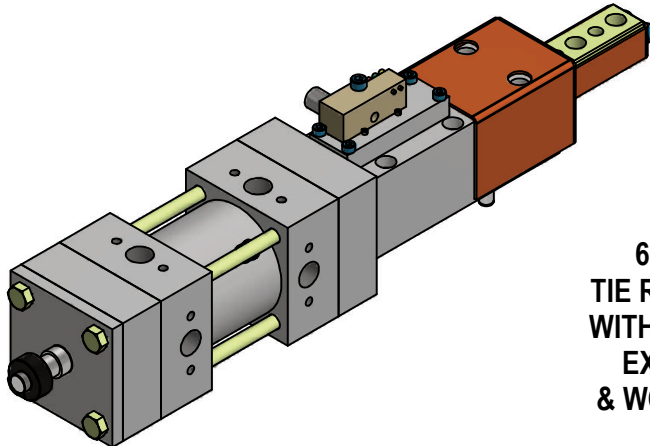
50mm COMPACT  
CYLINDER WITH  
WORLD SWITCH



50mm COMPACT CYLINDER  
WITH FIXED EXTEND STOP  
& WORLD SWITCH



63mm BORE  
TIE ROD  
CYLINDER



63mm BORE  
TIE ROD CYLINDER  
WITH ADJUSTABLE  
EXTEND STOP  
& WORLD SWITCH

ONLY AVAILABLE AS A SERVICE PART

REVISED: 8/27/20

# ORDERING INFORMATION

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

WP	2	N													0	0
----	---	---	--	--	--	--	--	--	--	--	--	--	--	--	---	---

**Series** \_\_\_\_\_  
WP

**Ram Size** \_\_\_\_\_  
2 24mm square

**Stroke** \_\_\_\_\_  
025 025, 050

**Coupler** \_\_\_\_\_  
**A** Rap (shortens nominal cylinder stroke by 2mm)  
 Rap only available with Actuator Options 30, 31, 01, or 02  
**B** Rigid

**Actuator Options** (See chart below) \_\_\_\_\_

**Stop Options** \_\_\_\_\_  
**0** None  
**E** Adjustable Extend Stop\*  
**G** Fixed Extend Stop\*  
**NOTE: Options E & G will shorten stroke - see Sheet 5**  
 \* Requires double rod cylinder. Available on Actuators 32, 33, 03 & 04

**Ram Style** \_\_\_\_\_  
**D** 4 Hole - Large  
**L** 4 Hole - Medium

**Switch Options** (see Switch Charts) \_\_\_\_\_

**Shroud** \_\_\_\_\_  
**0** No Shroud  
**1** Shroud

**Cylinder Prox (or "G" Port) Position** \_\_\_\_\_  
**A** X1 Position  
**B** X2 Position  
**C** X3 Position  
**D** X4 Position

**Ram Rotation** \_\_\_\_\_  
**0** 0° Rotation  
**9** 90° Rotation

- WP2 Actuator Options**
- 30** Pneumatic - 50mm Compact - Single Rod (NPT Ports)
  - 31** Pneumatic - 50mm Compact - Single Rod (G Ports)
  - 32** Pneumatic - 50mm Compact - Double Rod (NPT Ports)
  - 33** Pneumatic - 50mm Compact - Double Rod (G Ports)
  - 01** Pneumatic - 63mm Bore Tie Rod - Single Rod (NPT Ports)
  - 02** Pneumatic - 63mm Bore Tie Rod - Single Rod (G Ports)
  - 03** Pneumatic - 63mm Bore Tie Rod - Double Rod (NPT Ports)
  - 04** Pneumatic - 63mm Bore Tie Rod - Double Rod (G Ports)

**Standard Options -**  
**All other options may affect price and delivery**

(DO NOT SCALE DRAWING)

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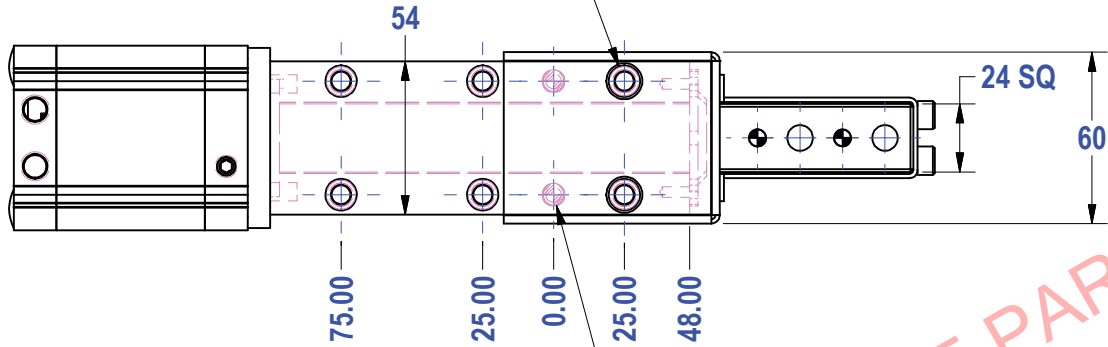
# GENERAL DIMENSIONS

**\*NOTE:**

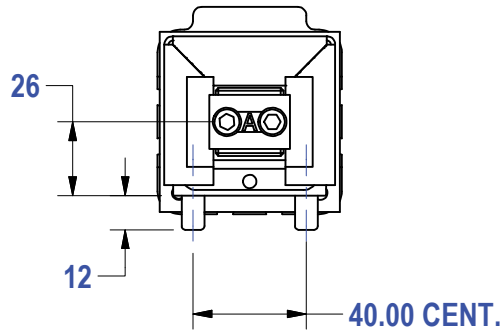
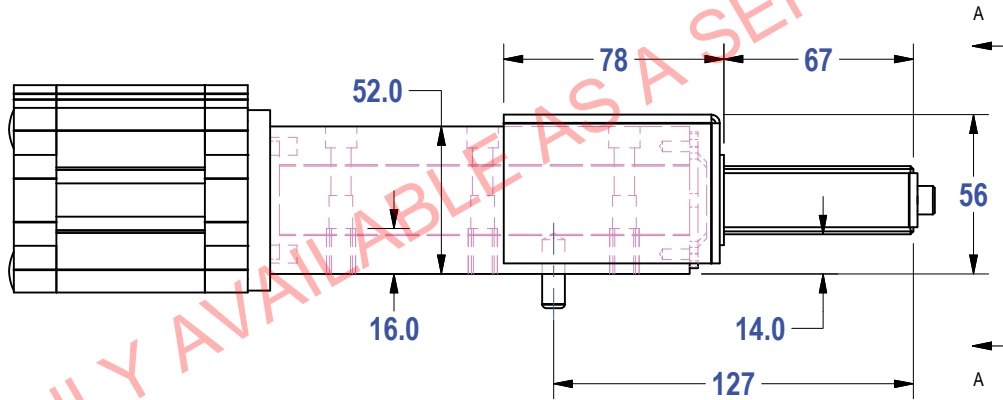
IF USING M6 MOUNTING SCREWS, TIGHTEN TO 9.5 Nm (7 ft-lb)

IF USING M8 MOUNTING SCREWS, TIGHTEN TO 22 Nm (16.5 ft-lb)

6X \*M8x1.25 TAP FAR SIDE & C'BORE  
and  
THRU FOR \*M6 or 1/4" SHCS



2X 8mm DOWELS  
PROTRUDING FROM FAR SIDE



VIEW A-A



WELKER SHOT PINS  
WEB PAGE

UNIT WEIGHTS				
ACTUATOR OPTION:	30/31	32/33	01/02	03/04
25mm STROKE	7 lbs	8.5 lbs	14.5 lbs	18 lbs
50mm STROKE	7.5 lbs	9 lbs	15 lbs	18.5 lbs

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# SINGLE ROD CYLINDER INFORMATION

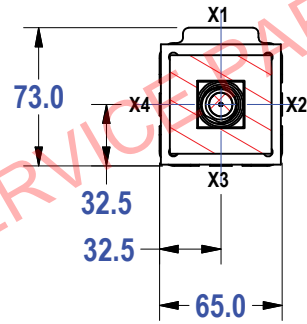
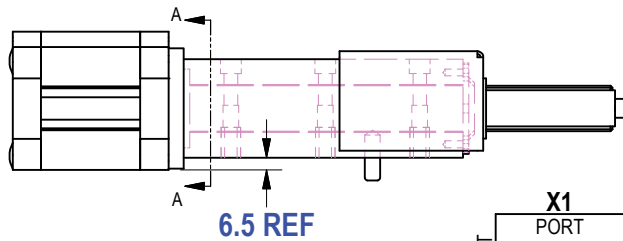
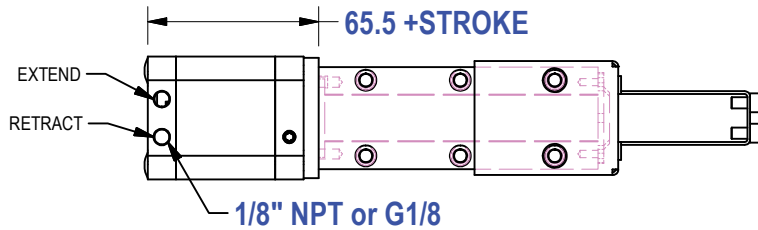
W P 2 N 0 2 5 A 0 1 0 D 0 0 1 A 0 0 0

**Cylinder Options**  
See Chart (Sheet 2)

**Cylinder Prox (or "G" Port) Position**  
**A** X1 Rotation (Default for 01 & 03)  
**B** X2 Rotation  
**C** X3 Rotation  
**D** X4 Rotation

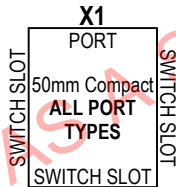
## 50mm COMPACT (30,31) SINGLE ROD CYLINDER

(3.0 SQ. IN. PUSH, 2.5 SQ. IN. PULL FORCE)



### 50mm COMPACT CYLINDERS

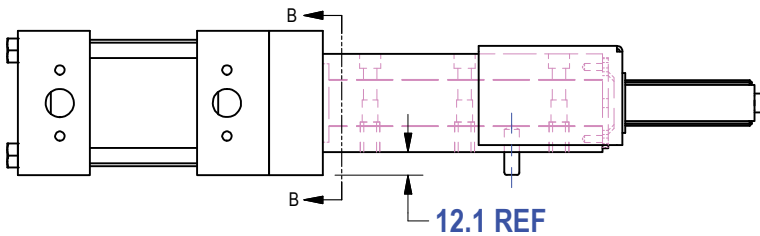
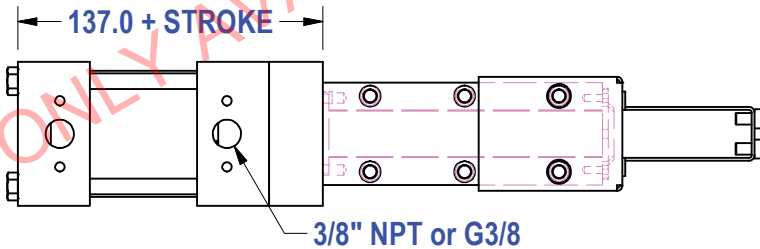
X1 OPTION DESIGNATES LOCATION OF THE PORT. TO ROTATE THE PORT LOCATION 90° CLOCKWISE, ORDER THE X2 OPTION.



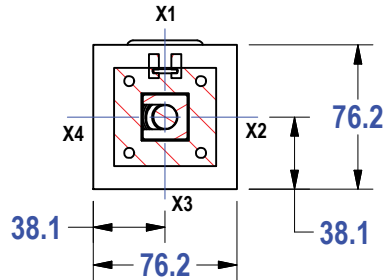
SECTION A-A

## 63mm TIE ROD (01,02) SINGLE ROD CYLINDER

(4.8 SQ. IN. PUSH, 4.5 QU. IN. PULL FORCE)



PROX READ DEPTH  
 63mm BORE CYLINDERS  
 26mm (1.025") READ DEPTH

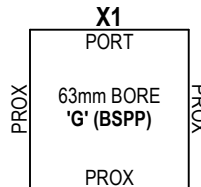


### 63mm NPT PORT TYPE

FOR CYLINDER OPTIONS 01 & 03, THE CYLINDER IS PORTED AND PROX READY ON ALL SIDES. USE 'X1' AS DEFAULT

### 63mm "G" PORT CYLINDERS

X1 OPTION DESIGNATES LOCATION OF THE G PORT. TO ROTATE THE PORT LOCATION 90° CLOCKWISE, ORDER THE X2 OPTION. ALL OTHER SIDES PORTED FOR CYLINDER 26mm (1.025") READ DEPTH.



SECTION B-B

(DO NOT SCALE DRAWING)



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# DOUBLE ROD CYLINDER & STOP OPTIONS

WP 2 N 0 2 5 B 3 2 **E** D 0 0 1 A 0 0 0

## Stop Option

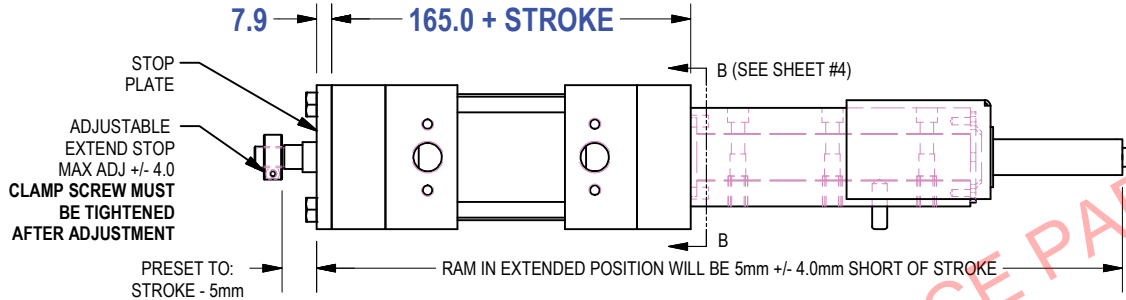
**E** Adjustable Extend Stop\*

**G** Fixed Extend Stop\*

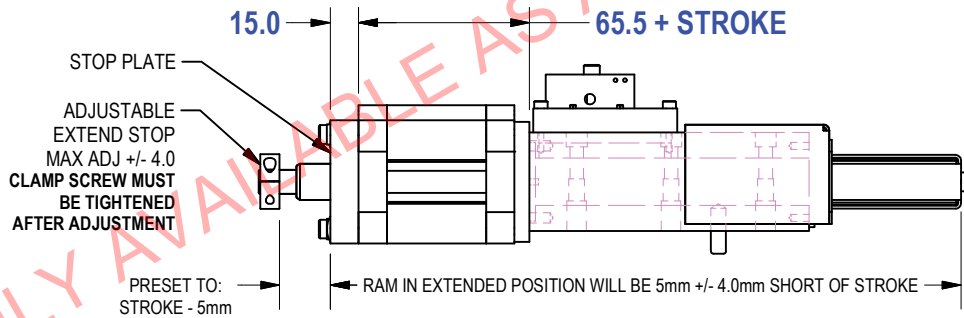
\* Requires double rod cylinder

Double rod cylinders require Stop Option E or G

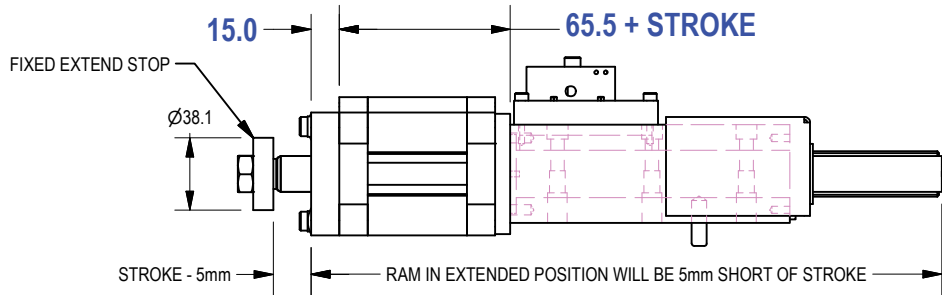
## EXTEND STOP (E) CYLINDER OPTIONS 03,04



## EXTEND STOP (E) CYLINDER OPTIONS 32,33



## EXTEND STOP (G) CYLINDER OPTIONS 32,33



(DO NOT SCALE DRAWING)

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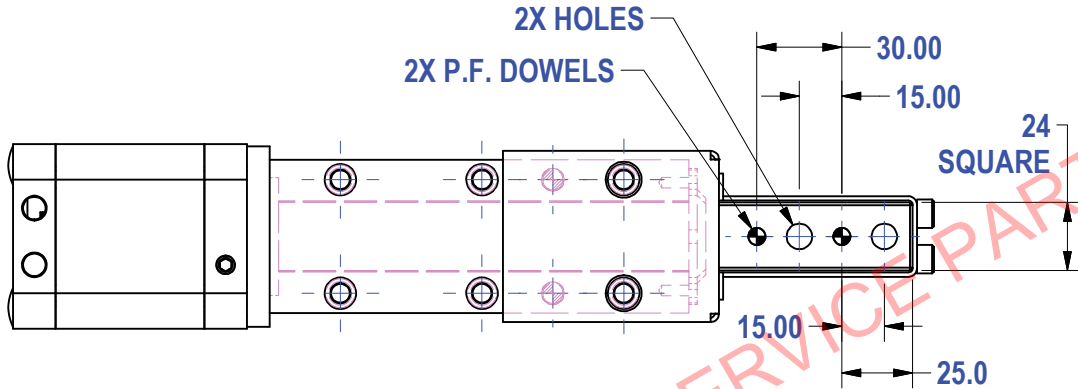
# RAM OPTIONS

SEE SUPPLEMENTAL RAM SHEET FOR NON-STANDARD RAM OPTIONS

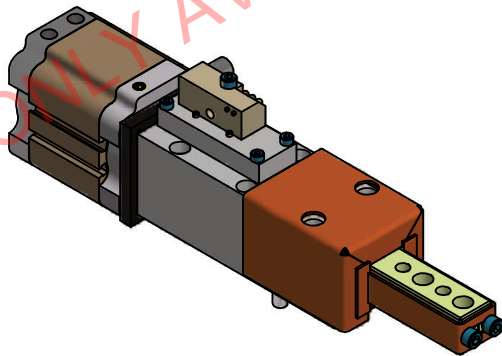
WP 2 N 0 2 5 A 0 1 0 **D** 0 0 1 A **0** 0 0

**Ram Style**  
See Chart Below

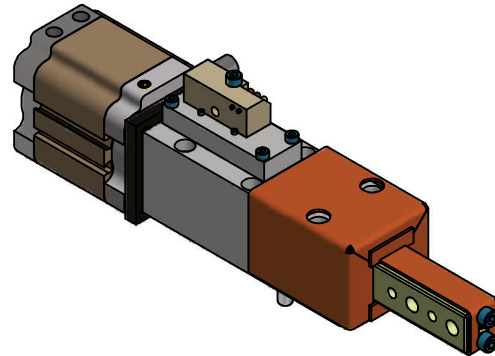
**Ram Rotation**  
0 0° Rotation  
9 90° Rotation



RAM STYLE	DOWELS	HOLES
D	8.0mm THRU	11.0mm THRU
L	8.0mm THRU	9.0mm THRU



0° RAM ROTATION  
OPTION "0"



90° RAM ROTATION  
OPTION "90"

(DO NOT SCALE DRAWING)

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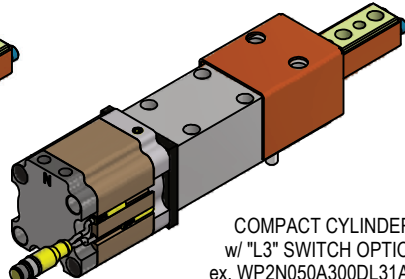
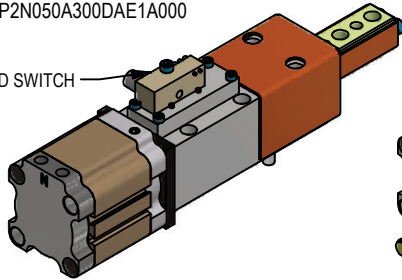
# SWITCH OPTIONS

WP 2 N 0 2 5 A 0 1 0 D 0 0 1 A 0 0 0

**Switch** \_\_\_\_\_  
**00** See charts below

COMPACT CYLINDER  
w/ WORLD SWITCH  
ex. WP2N050A300DAE1A000

WORLD SWITCH

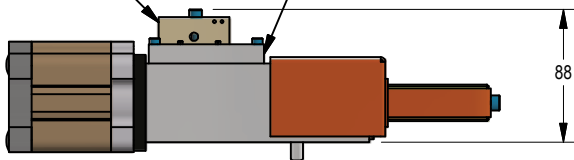


COMPACT CYLINDER  
w/ "L3" SWITCH OPTION  
ex. WP2N050A300DL31A000

WORLD SWITCH

SWITCH BLOCK

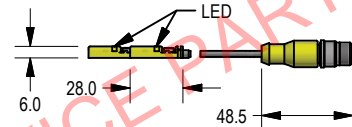
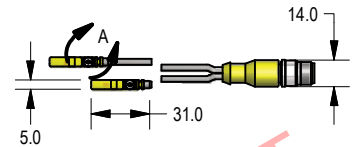
SOLID STATE  
CYLINDER SWITCH



88

1.5 ALLEN

DETAIL A  
SCALE 1 : 1



	Order Number SO1 (E)XTEND or SO1 (R)ETRACT	Part Number	Manufacturer	Description
<b>World Switches</b>	00	NONE		
	99	Sw itch Ready		Customer Supplied Sw itch. Prepared for sw itches below :
	AE or AR	Ni2-Q6.5-AP6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
	BE or BR	Ni2-Q6.5-ADZ32-0.1-FSB 5.4X4/S304	Turck	4-Wire, 5-Pin, AC/DC 1/2-20 (N.O.) Quick Disconnect
	DE or DR	NBN2-F581-100S6-E8-V1	Pepperl & Fuchs	4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
	JE or JR	IN5374	Efector	3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
	Order Number	Part Number	Manufacturer	Description
<b>Cylinder Switches*</b>	L3	SWITCH L3 L3 sw itch is w eld field immune, comparable to World Sw itches	Welker	4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
	L5	MK5113 (This is a single sensor sw itch: 2 sw itches are installed per cylinder)	ifm Efector	3-Wire, 4-Pin, DC M12 X 1 (NPN) Quick Disconnect

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

\* CYLINDER SWITCH ONLY AVAILABLE WITH CYLINDER OPTIONS 30, 31, 32, 33

(DO NOT SCALE DRAWING)

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## Welker WP2 Shot Pin Technical Information

**Body Mounting:** Square ram shot pin units have dual mounting capability. At all mounting locations, you have the option of mounting from the top using the counter-bored clearance holes or the same holes, tapped from the bottom. Using any four of the six holes, symmetrical about the centerline, is sufficient. Protruding mounting dowels are provided and are press fit into the body.  
IF USING M6 MOUNTING SCREWS, TIGHTEN TO 9.5 Nm (7 ft-lb)  
IF USING M8 MOUNTING SCREWS, TIGHTEN TO 22 Nm (16.5 ft-lb)

Square ram packages are high precision full contact plane bearing units and therefore must be mounted to a flat surface. **Mounting surfaces must be flat within .002" (0.05mm).**

**Ram Mounting:** Square ram shot pin units use a standard NAAMS L-Block pattern with 15mm spacing. Spacing allows mounting of 3 and 4 hole pin retainers and L-blocks to the ram. Through holes can be tapped and fitted with standard thread inserts.

**Shrouds:** Safety orange steel shrouds are available for additional protection. Shrouds prevent undesirable buildup of contamination from welding and machining applications. Welker specifically recommends shroud usage in MIG, TIG and arc welding applications. Shrouds should only be removed if clearance problems exist and conditions permit. Consult Welker.

**Wipers:** The wiper is the only maintenance item on Welker pin units. It is a custom molded moly impregnated urethane wiper. Welker recommends changing the wiper yearly. Specific applications may require more or less frequent wiper service.

**Stroke:** The stroke accuracy of shot pins is limited to that of the cylinder. Normal cylinder stroke accuracy is  $\pm .015"$  (0.38mm). For control of "end of stroke" repeatability, see extend and retract stop options for each series.

Rap couplings cause the unit to be less than the nominal stroke of the cylinder. The 24mm ram and 40mm ram units have a 2mm rap. The rap allows the cylinder to begin moving before moving the ram. The impact of the coupler helps free tooling from a bound condition. Most applications using a pneumatic shot pin should have rap couplings while most hydraulic shot pin applications should use a rigid coupler.

Welker cylinders do not require lubrication.

**Switch:** 24mm ram tie rod cylinders use prox switch (cylindicator) ports with 1.025" read depth (probe length). Shot pins ordered with compact cylinders are cylinder switch ready. Solid state cylinder switches and World Switches are available through Welker.

**Repeatability:** Shot pin units utilize a full contact bearing surface for high repeatability. Repeatability within  $\pm .002"$  (0.05mm) part to part is achievable.

**Wear:** Wear equals variance in position under load over time. Shot pin tests indicate maximum wear of .002" wear at 3 million cycles.

**Loading and Deflection:** Maximum deflection is  $\pm .005"$  and is measured at the **end of the ram** up to the specified strokes and up to the loads and distances as shown below. Longer extensions can be used at lower tolerances and loads. Pins mounted closer to the body exhibit less deflection. For applications with longer strokes and higher loads, consult Welker.

