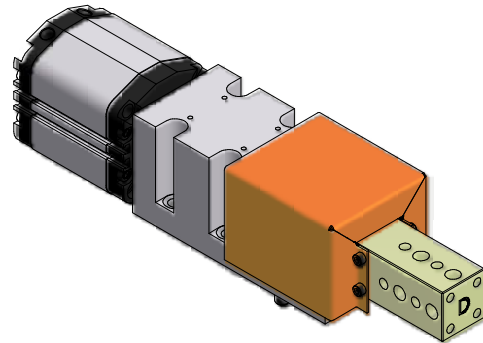
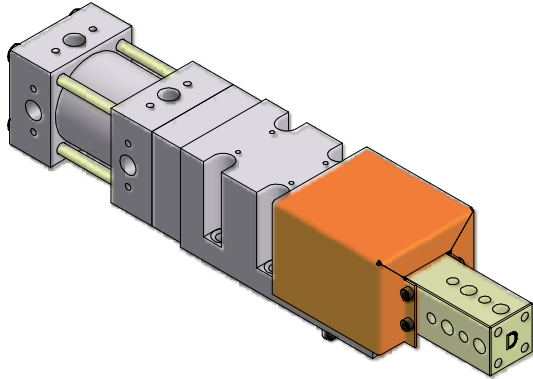
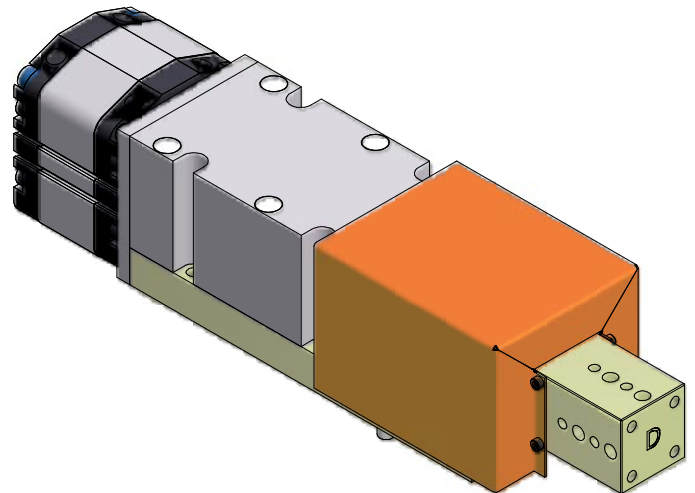
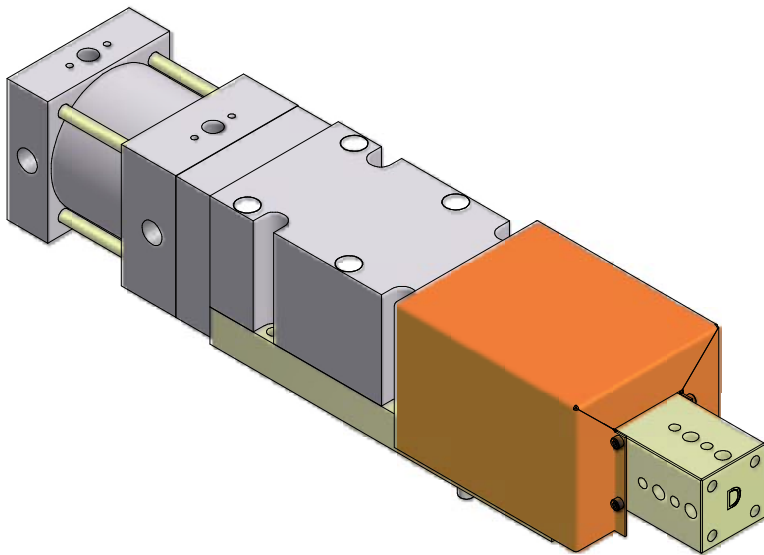


WP4 & 6 SERIES *GOLD LINE* SHOT PINS



WP4 STROKES

025, 050, 075, 100, 125, 150, 175, 200



WP6 STROKES

025, 050, 075, 100, 125, 150, 175, 200

ORDERING INFORMATION

WP
4
N
0
2
5
A
0
1
0
D
0
0
1
A
0
0
0

Series (Sheet 2)

WP

Ram Size

- 4 4 (40mm square)
- 6 6 (60mm square)

Stroke

025 025, 050, 075, 100, 125, 150, 175, 200
(100mm Max Stroke for Compact Cylinders)

Coupler

- A Rap (shortens nominal cylinder stroke by 2mm-WP4)
(shortens nominal cylinder stroke by 3mm-WP6)
- B Rigid

Cylinder Options (Sheet 3)

(See Charts Below)

Stop Options (Sheet 4)

- 0 None
- E Extend Stop
(Req's requires double rod cylinder, Not Available on Cylinders Hydraulic Model)

Ram Style (Sheet 5)

- D 4 Hole - Large
- L 4 Hole - Medium

(See supplemental ram sheet for other non-standard ram options)

Switch Options (Sheet 7)

(See Switch Charts on Page 7)

Shroud

- 0 No Shroud
- 1 Shroud

Cylinder Prox (or "G" Port) Position (Sheet 4)

- A X1 Position
- B X2 Position
- C X3 Position
- D X4 Position

Ram Rotation (Sheet 5)

- 0 No Rotation
- 9 90° Rotation

WP4 Cylinder Options (Sheet 4)

- 30 Pneumatic - 63mm Compact - Single Rod (NPT Ports)
- 31 Pneumatic - 63mm Compact - Single Rod (G Ports)
- 32 Pneumatic - 63mm Compact - Double Rod (NPT Ports)
- 33 Pneumatic - 63mm Compact - Double Rod (G Ports)
- 01 Pneumatic - 63mm Tie Rod - Single Rod (NPT Ports)
- 02 Pneumatic - 63mm Tie Rod - Single Rod (G Ports)
- 03 Pneumatic - 63mm Tie Rod - Double Rod (NPT Ports)
- 04 Pneumatic - 63mm Tie Rod - Double Rod (G Ports)
- 09 Hydraulic - 40mm Bore - Single Rod (SAE Ports)
- 10 Hydraulic - 40mm Bore - Single Rod (G Ports)
- 11 Hydraulic - 40mm Bore - Double Rod (SAE Ports)
- 12 Hydraulic - 40mm Bore - Double Rod (G Ports)

WP6 Cylinder Options (Sheet 4)

- 30 Pneumatic - 100mm Compact - Single Rod (NPT Ports)
- 31 Pneumatic - 100mm Compact - Single Rod (G Ports)
- 32 Pneumatic - 100mm Compact - Double Rod (NPT Ports)
- 33 Pneumatic - 100mm Compact - Double Rod (G Ports)
- 01 Pneumatic - 100mm Tie Rod - Single Rod (NPT Ports)
- 02 Pneumatic - 100mm Tie Rod - Single Rod (G Ports)
- 03 Pneumatic - 100mm Tie Rod - Double Rod (NPT Ports)
- 04 Pneumatic - 100mm Tie Rod - Double Rod (G Ports)
- 09 Hydraulic - 80mm Bore - Single Rod (SAE Ports)
- 10 Hydraulic - 80mm Bore - Single Rod (G Ports)
- 11 Hydraulic - 80mm Bore - Double Rod (SAE Ports)
- 12 Hydraulic - 80mm Bore - Double Rod (G Ports)

Standard Options - All other options may affect price and delivery

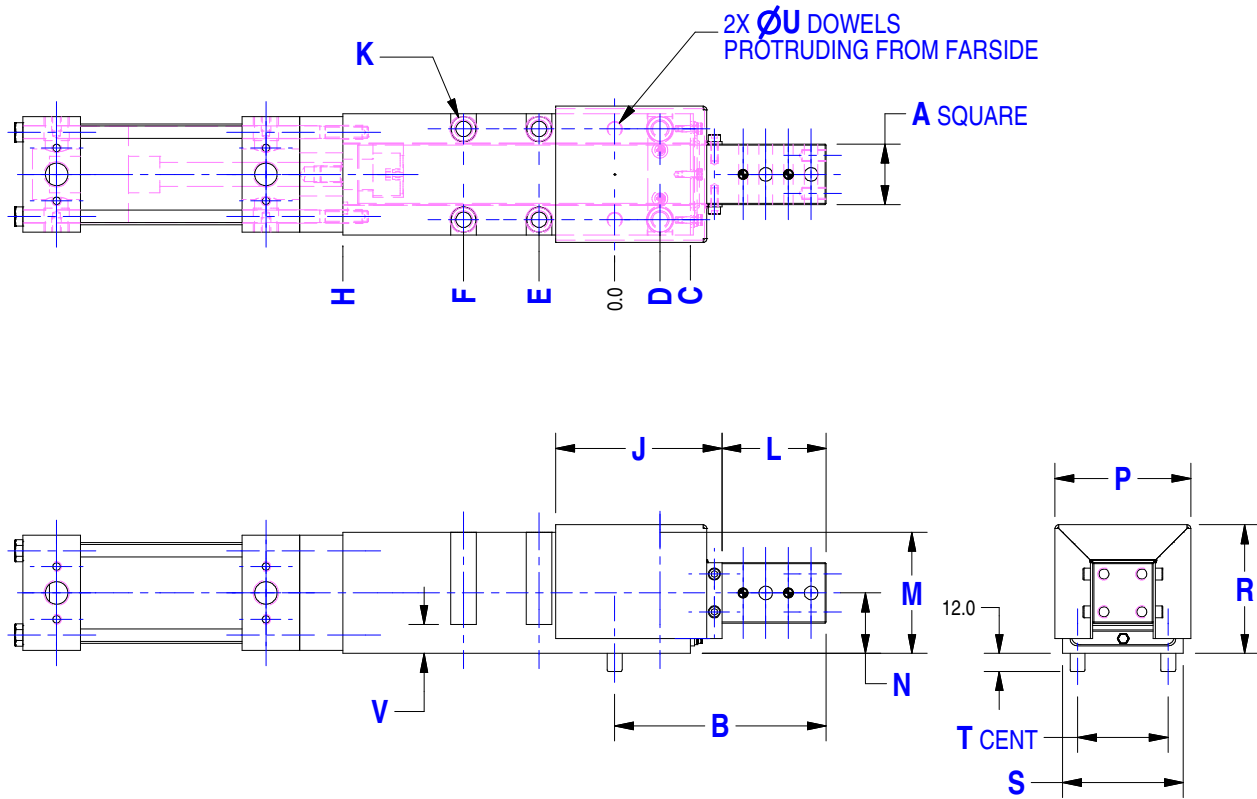
(DO NOT SCALE DRAWING)



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GENERAL DIMENSIONS



Series	Strokes (25mm increments)	Nominal Bore	Nominal Ram	A	B	C	D	E	F	H	J	K
WP4	25,50	63	40	39.998 39.987	140	50	30	50	100	130	110	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"
WP4	75	63	40	39.998 39.987	140	50	30	50	100	180	110	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"
WP4	100, 125	63	40	39.998 39.987	140	50	30	50	150	230	175	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"
WP4	150-200	63	40	39.998 39.987	140	50	30	50	150	330	230	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"
WP6	25-100	100	60	60.000 59.987	200	90	60	60	180	230	180	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"
WP6	125, 150	100	60	60.000 59.987	200	90	60	60	180	390	280	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"
WP6	175, 200	100	60	60.000 59.987	200	90	60	60	180	440	280	6X M12 x 1.75 Tap thru & Ø17.0 C'Bore as shown for M10 or 3/8"

	L	M	N	P	R	S	T	U	V
WP4	69	80	40	90	85	80	60	10	19
WP6	70	120	60	134	127	120	100	12	30

(DO NOT SCALE DRAWING)



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TIE ROD CYLINDER INFORMATION

W P **4** N 0 2 5 A **0 1** 0 D 0 0 1 **A** 0 0 0

Ram Size

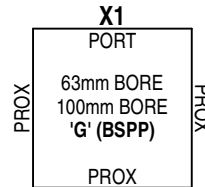
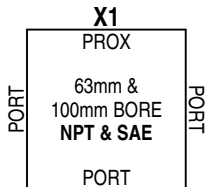
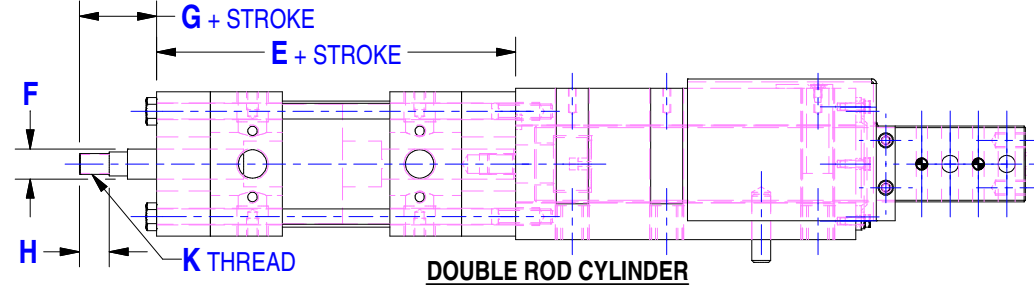
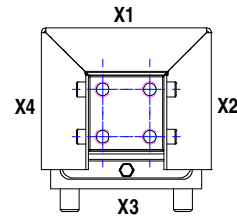
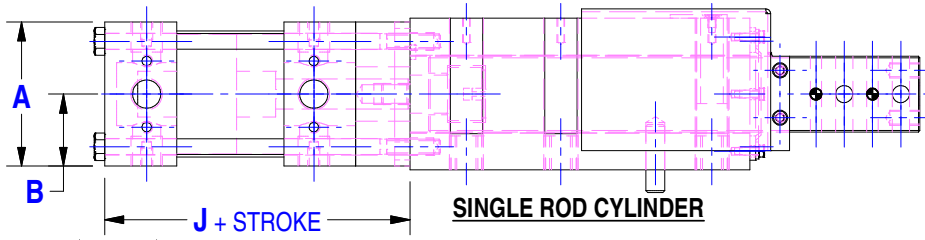
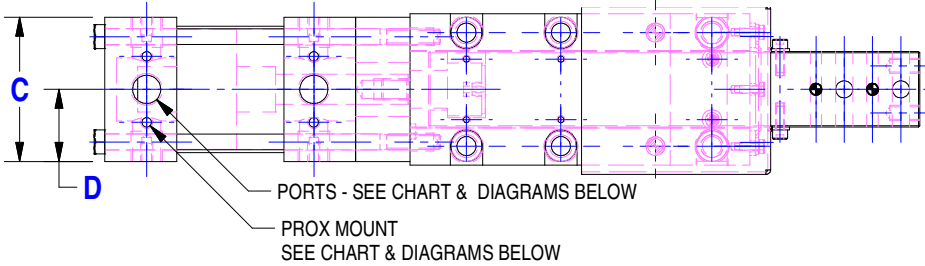
- 4 4 (40mm square)
- 6 6 (60mm square)

Cylinder Options

(See Chart on Order Page)
(40mm Bore Cylinders are Non-Square)

Cylinder Prox (or "G" Port) Position

- A X1 Rotation
- B X2 Rotation
- C X3 Rotation
- D X4 Rotation



"NPT, SAE & ALL 40mm BORE PORT TYPES"
X1 OPTION DESIGNATES LOCATION OF THE **PROX**. TO ROTATE THE PROX LOCATION 90° CLOCKWISE, ORDER THE X2 OPTION.

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

Series	Nominal Ram	Pneumatic Bore(Max)	Hydraulic Bore(Max)	Cylinder Options				Pneumatic Ports	Hydraulic Ports	Prox Read Depth		
				A	B	C	D					
WP4	40	63 (250psi)	40 (200psi)	76	38	76	38	3/8" NPT OR G3/8	SAE #6 OR G3/8	26mm READ DEPTH		
WP6	60	100 (250psi)	80 (200psi)	114	57	114	57	1/2" NPT OR G1/2	SAE #8 OR G1/2	32mm READ DEPTH		
				Bore	E	F	G	H	J	K	Push Sq. In.	Pull Sq. In.
WP4		63	165	16	16	16	137			7/16-20	4.8	4.5
WP6		100	191	29	29	25	168			3/4-16	12.2	11.4

CYLINDER ARE SWITCH READY.
SWITCHES ARE NOT SUPPLIED WITH THE CYLINDER.

(DO NOT SCALE DRAWING)

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COMPACT CYLINDER INFORMATION

WP **4** N 0 2 5 A **3 0** 0 D 0 0 1 **A** 0 0 0

Ram Size

- 4 4 (40mm square)
- 6 6 (60mm square)

Cylinder Options

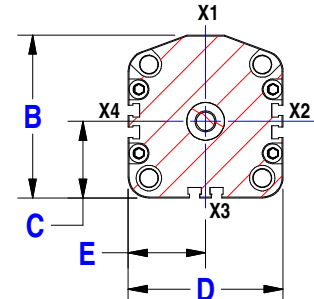
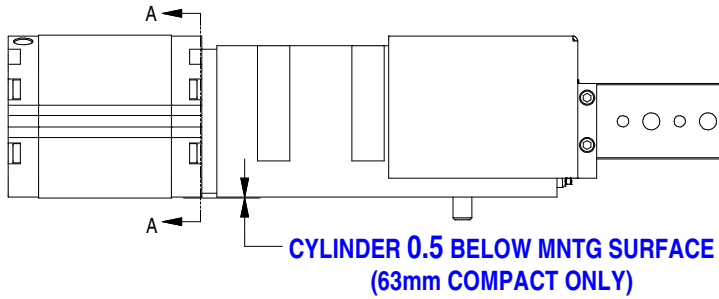
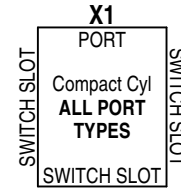
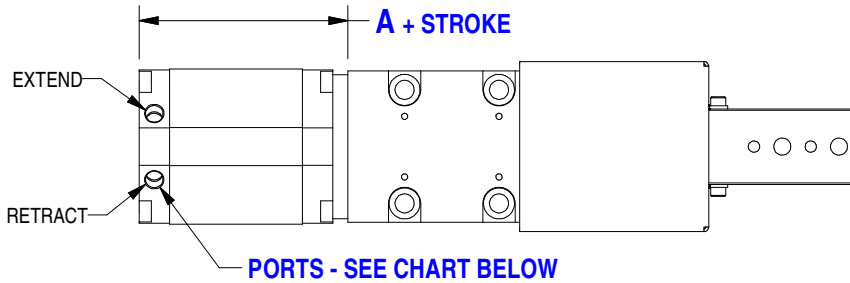
- 30 63 or 100mm Bore Compact (NPT Ports)
- 31 63 or 100mm Bore Compact (G Ports)
- 32 63 or 100mm Bore Compact Dbl Rod (NPT Ports)
- 33 63 or 100mm Bore Compact Dbl Rod (G Ports)

Port Position

- A X1 Rotation
- B X2 Rotation
- C X3 Rotation
- D X4 Rotation

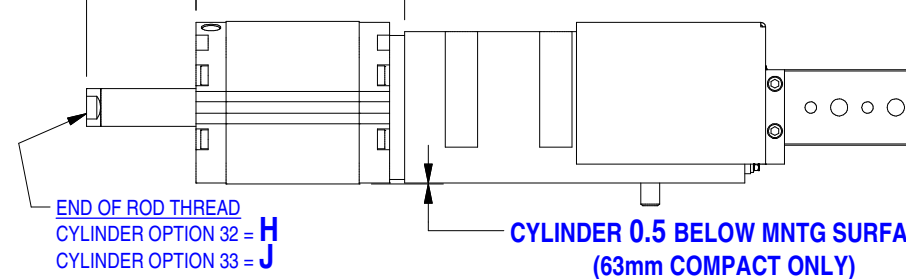
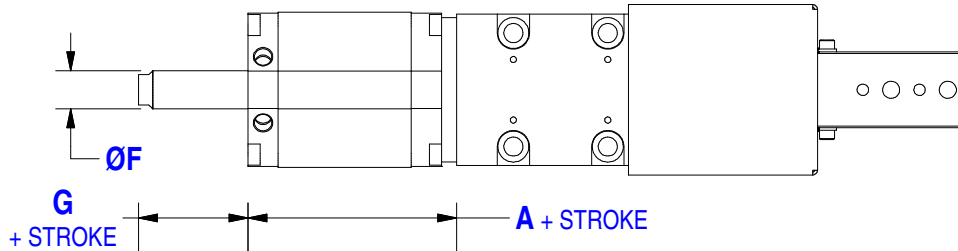
SINGLE ROD CYLINDER (30,31)

(SEE CHART FOR PUSH AND PULL FORCES)



DOUBLE ROD CYLINDER (32,33)

(SEE CHART FOR PULL FORCE IN BOTH DIRECTIONS)



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

Series	Nominal Sq. Ram	Bore(Max)	A	B	C	D	Push Sq. In.	Pull Sq. In.
WP4	40	63 (250psi)	60.5	86	40.5	82	4.8	4.5
WP6	60	100 (250psi)	80.5	126.5	59.5	119	12.2	11.4

	E	F	G	H	J	Ports
WP4	41	20	8	1/2-20, .69 DP	M10X1.5, 17.6 DP	1/8" NPT OR G1/8
WP6	59.5	25	12	3/4-16, 1.06 DP	M20X2.5, 27 DP	1/4" NPT OR G1/4

(DO NOT SCALE DRAWING)



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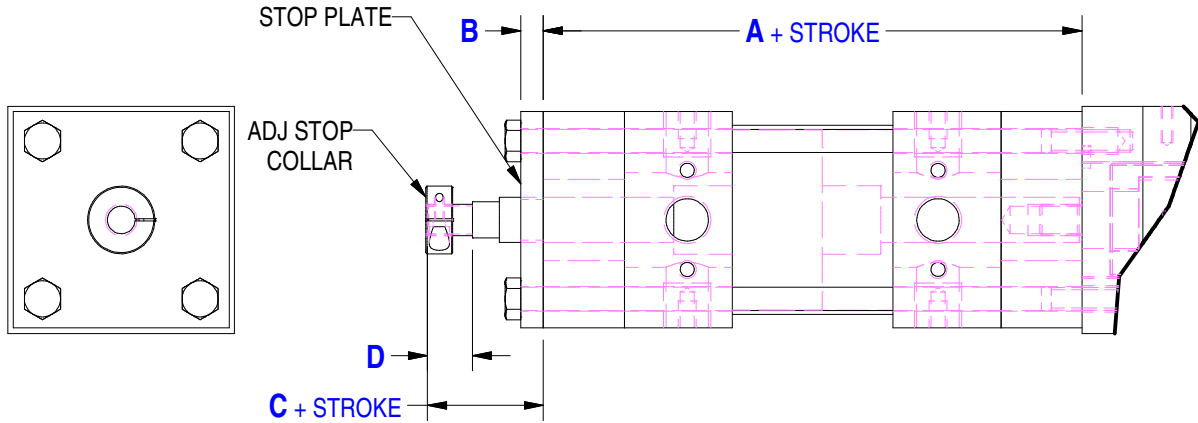
STOP OPTIONS

W P 4 N 0 2 5 A 0 1 0 D 0 0 1 A 0 0 0

Stop Option

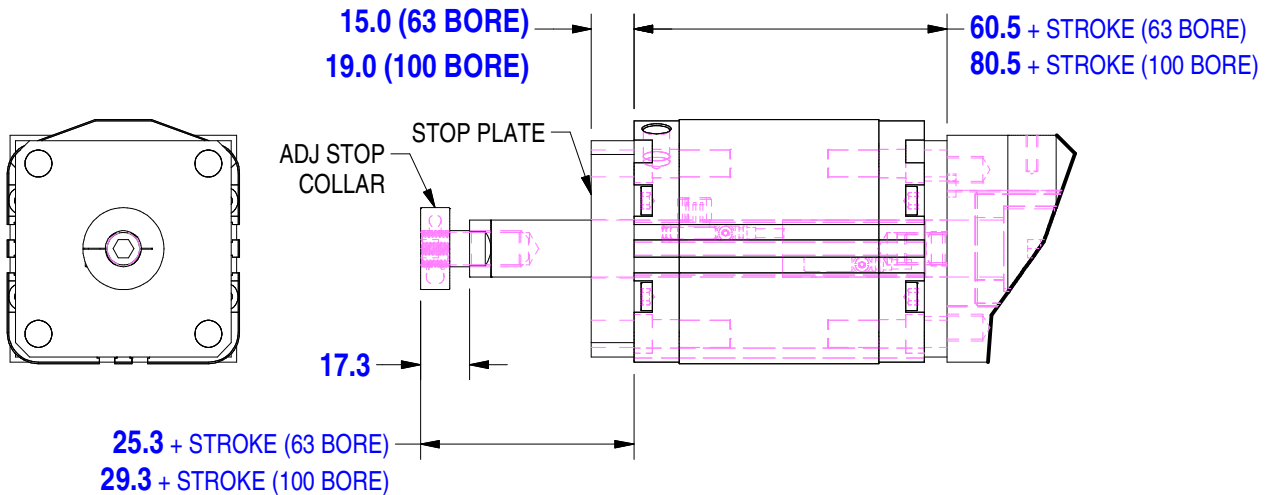
- 0 None
- E Extend Stop
Extend Stop Req's requires double rod cylinder
NOT available on Hydraulic

EXTEND STOP (E) TIE ROD CYLINDERS (03, 04)



Series	Ram	Bore	A	B	C	D
WP4	40	63	165	7.9	16	16
WP6	60	100	191	7.9	28	28

EXTEND STOP (E) COMPACT CYLINDERS (32, 33)



THREADED STOP COLLAR ALLOWS
FOR APPROXIMATELY 6mm ADJUSTMENT

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STANDARD RAM OPTIONS

(See supplemental ram sheet for non-standard options)

W P **4** N 0 2 5 A 0 1 0 **D** 0 0 1 A **0** 0 0

Ram Size

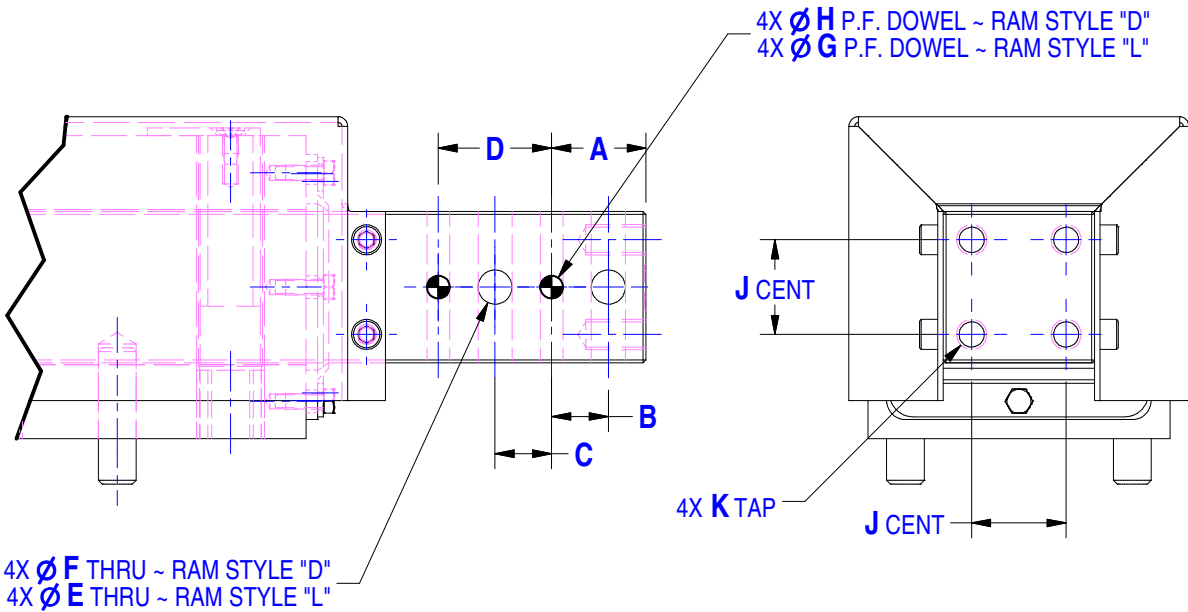
- 4** 4 (40mm square)
- 6** 6 (60mm square)

Ram Style

- D** 4 Hole - Large
- L** 4 Hole - Medium

Ram Rotation

- 0** No Rotation
- 9** 90° Rotation



Series	Nominal Ram	Nominal									
		A	B	C	D	ØE	ØF	ØG	ØH	J	K
WP4	40	25	15	15	30	9.0	11.0	8.0 THRU	8.0 THRU	25	M8 X 1.25 - 15 DEEP
WP6	60	25	15	15	30	9.0	11.0	8.0 THRU	8.0 THRU	40	M10 X 1.5 - 20 DEEP

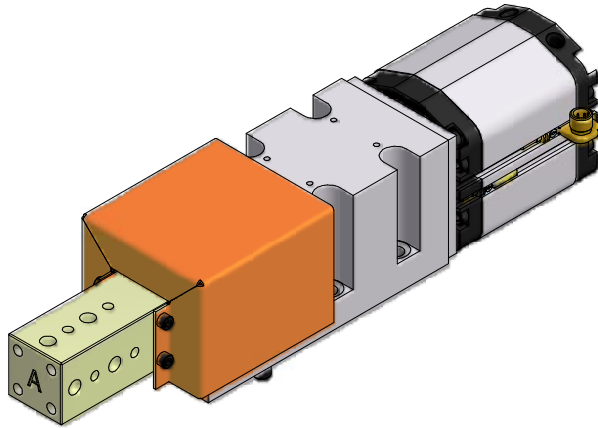
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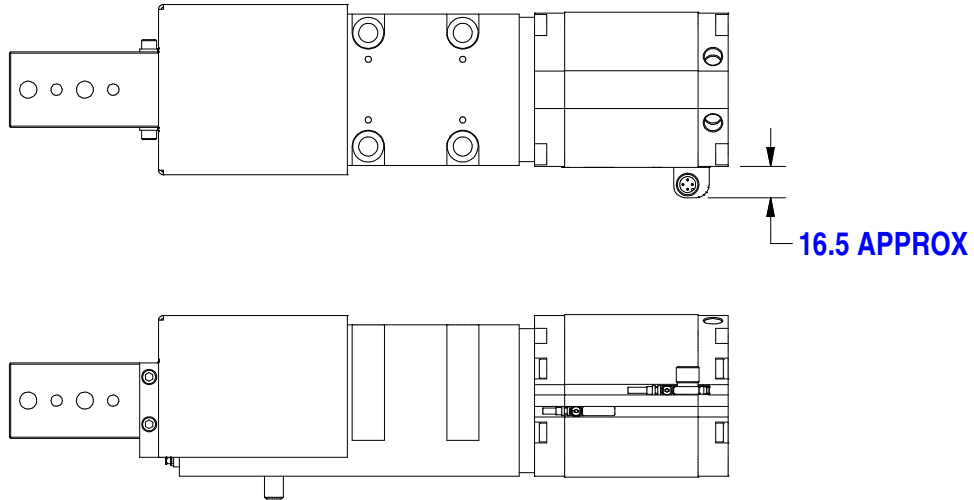
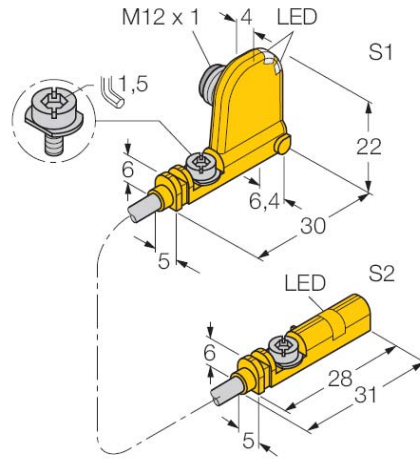
SWITCH OPTIONS

WP 4 N 0 2 5 A 3 0 0 D **L 0** 1 A 0 0 0

Switch
L0 See Chart Below



COMPACT CYLINDER
 w/ COMPACT CYLINDER SWITCH
 ex. WP4N025A300AL01A000



Order Number	Part Number	Manufacturer	Description
00	None	-	-
L0 (Cylinder Switch)	BIM-UNT-0.1-UNT-2AP6X3-H1141	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect

FOR COMPACT CYLINDERS
 OPTIONS 30, 31, 32 & 33 ONLY

TURCK SOLID STATE SENSOR (OPTION L0)
 TO BE FIELD MOUNTED BY CUSTOMER.

(DO NOT SCALE DRAWING)



SUPPLEMENTAL RAM OPTIONS

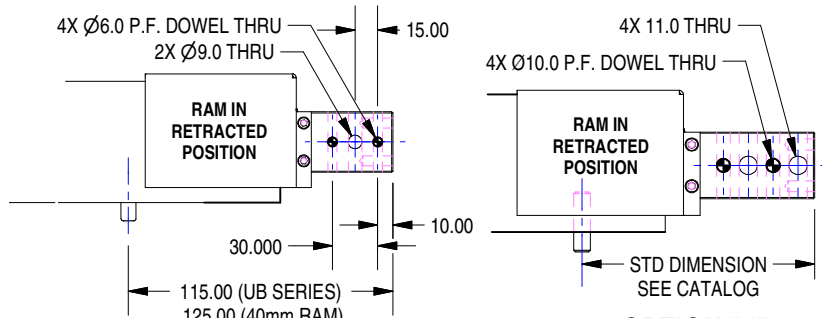
SPECIAL ORDER ONLY - NOT SUBJECT TO STANDARD PRICE OR DELIVERY

S
B
4
N
0
2
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A
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1
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D
0
0
1
A
0
0
0

- | | | | |
|--|---|-----------------------|---|
| Series | Ram Size | Ram Options | Ram Rotation |
| EB Electric Side-By-Side
SB Pneumatic Side-By-Side
WP In Line
UB In Line w/Integrated Cyl
(40mm Ram) | 2 2 (24mm square)
where noted
4 4 (40mm square)
6 6 (60mm square) | See Ram Options Chart | 0 No Rotation
9 90° Rotation
(Ram Option "H") |

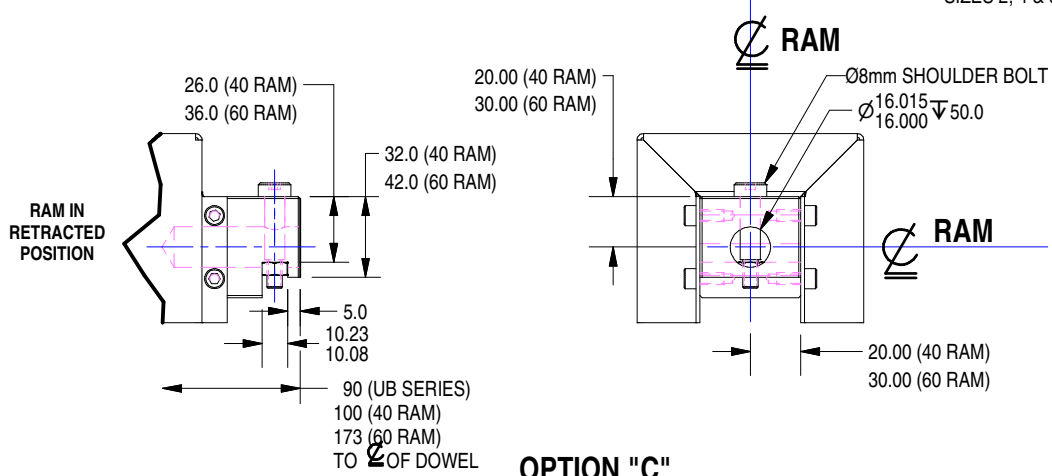
Ram Options

- A** 4 Hole - 6mm Dwls and 9mm Holes
- B** 3 Hole
- C** End Hole
- D** 4 Hole - Large (See Ram Options Sheet)
- E** 4 Hole - M8 Taps - 6mm Dwls
- F** 3 Hole - M8 Taps - 6mm Dwls
- G** 4 Hole - M10 Taps - 8mm Dwls
- H** 6 Hole
- J** 4 Hole - 10mm Dwls and 11mm Holes
- K** 3 Hole - 10mm Dwls and 11mm Holes
- L** 4 Hole - Medium (See Ram Options Sheet)

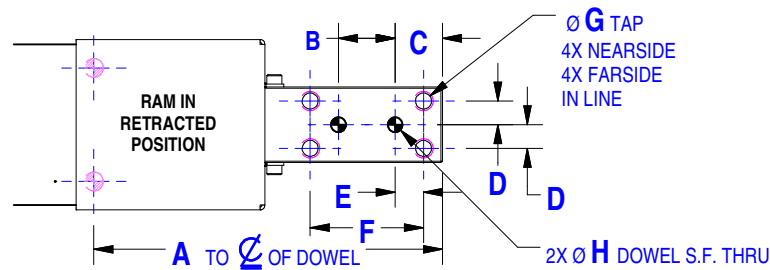


OPTION "B"

OPTION "J"
FOR ALL RAM SIZES 2, 4 & 6



OPTION "C"



OPTION "H"
(PLAN VIEW, 0° ROTATION SHN)

Nominal

Ram	A	B	C	D	E	F	ØG	ØH
40	155 (145 UB Series)	30	25	12.5	15.0	60.0	M10 X 1.5 X 20 DEEP or Clear for M8 Screw	8
60	290	95	30	17.5	15.0	125.0	M12 X 1.75 X 24 DEEP or Clear for M10 Screw	10

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Welker Shot Pin Technical Information EB, SB, UB and WP Series

Body Mounting (except UB - see UB catalog)

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.

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" (0.95mm).**

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 60mm ram units have a 3mm 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. **WELKER DOES NOT MOUNT CUSTOMER SUPPLIED CYLINDERS TO SHOT PIN UNITS.** 24mm ram and 40mm ram tie rod cylinders use prox switch (cylindicator) ports with 1.025" read depth (probe length). 60mm ram tie rod cylinders have prox switch (cylindicator) ports with 1.250" read depth (probe length). Welker does not supply cylindicator switches. Shot pins ordered with compact cylinders are cylinder switch ready. Cylinder switches are available though Welker. World switches are available though Welker for shot pins offering world switch capability.

Repeatability

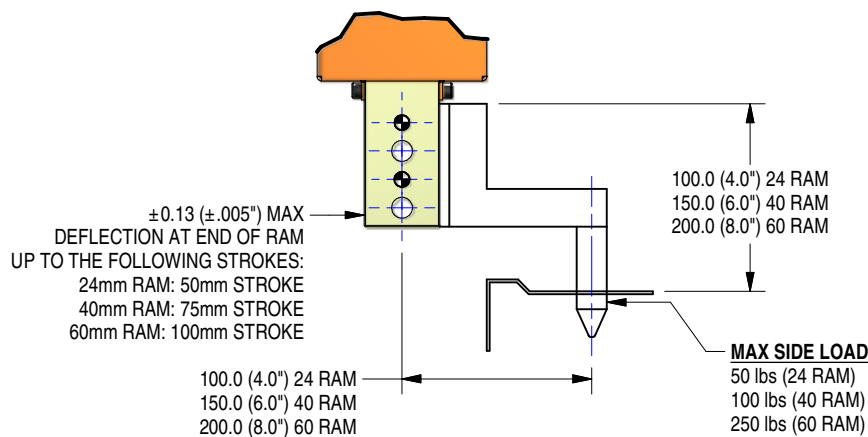
Shot pin units utilize a full contact bearing surface for high repeatability. Repeatability within $\pm .002"$ (0.05mm) part to part is achievable.

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.



SHEET 9

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