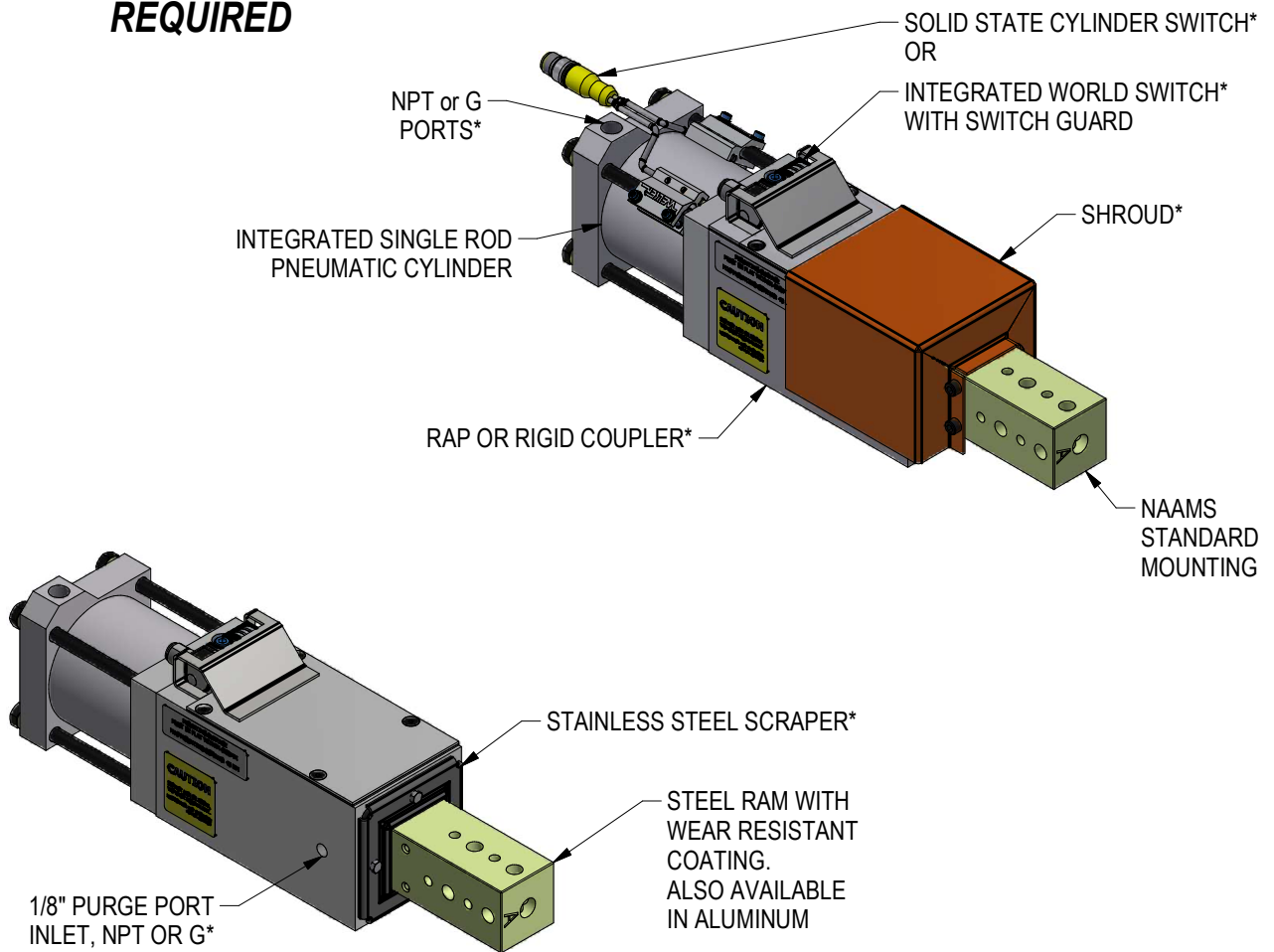


UB4 SERIES GOLD LINE SHOT PIN

USE AS: RETRACTABLE LOCATING PINS, PART STOPS, PROBE SLIDES,
WEDGE LOCKS, STRAIGHT CLAMP, LARGE PART METERS

**NO LUBRICATION
REQUIRED**



*OPTIONAL

RELEASED 5/15/24

ORDERING INFORMATION FOR UNITS WITH SINGLE ROD ACTUATORS

U B 4 [] [] [] [] [] 0 [] [] [] [] [] [] 0

Material

- N Aluminum body, steel ram
- A Aluminum body & ram
Not available w Rap Coupler

Stroke

- 025 025, 050, or 075mm Stroke

Coupler

- A Rap (shortens nominal stroke by 2mm)
- B Rigid

Actuator

- 01 Pneumatic - Single Rod - NPT
- 02 Pneumatic - Single Rod - G Port

Ram Style

- A 4 Hole - Small
- D 4 Hole - Large
- L 4 Hole - Medium

Detent*

- 0 None
- D Detent

Purge Port

- 0 None
- P Purge Port

Port Position

- A P1 Port Position
- B P2 Port Position
- C P3 Port Position
- D P4 Port Position

Shroud

- 0 No Shroud
- 1 Shroud, steel
- 4 No Shroud w/ Scraper
- 5 Shroud, w/ Scraper

Switch

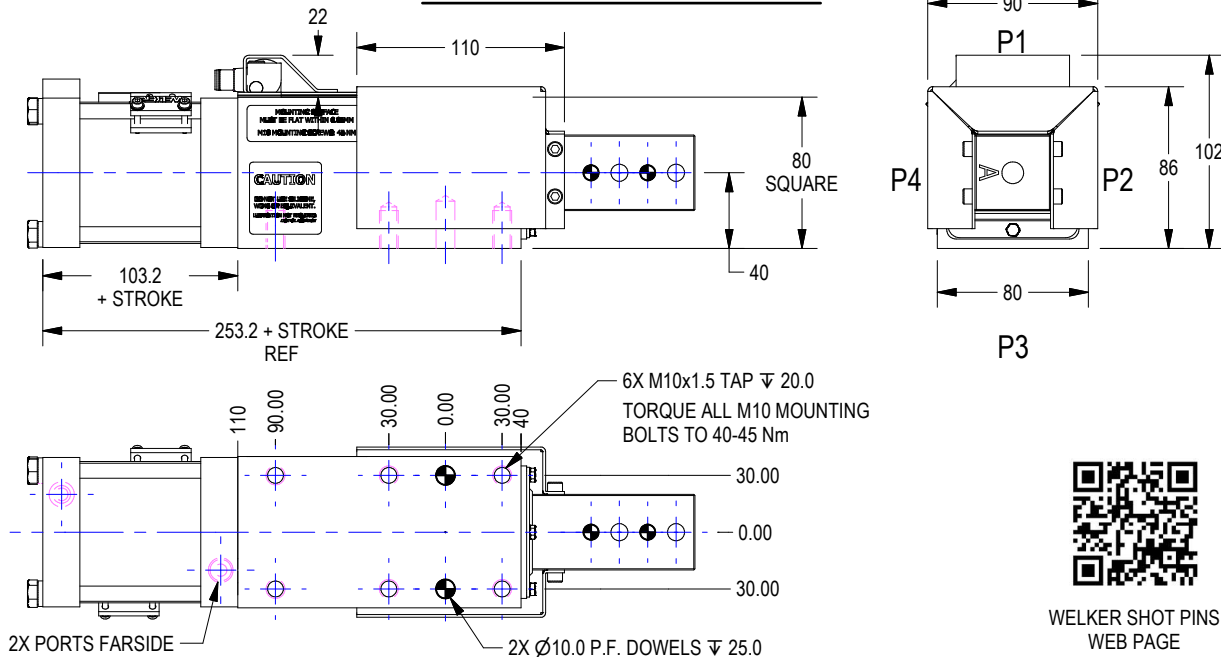
See chart on Sheet 3

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

***NOTE:**

Detent option only available with steel ram.

GENERAL DIMENSIONS



| NOMINAL RAM | PNEUMATIC BORE | PORTS | PUSH Sq.In. | PULL Sq.In. |
|-------------|----------------|------------------|-------------|-------------|
| 40 | 70 | 1/4" NPT OR G1/4 | 5.97 | 3.49 |

RECOMMENDED OPERATING PRESSURE:
60-80 PSI, FLOW CONTROLS NOT REQUIRED



| UNIT WEIGHTS (WEIGHTS SHOWN VARY WITH OPTIONS) | | | | |
|--|----------|-------------|-------------|-------------|
| ACTUATOR | RAM | 25mm STROKE | 50mm STROKE | 75mm STROKE |
| 01/02 | STEEL | 18 lbs | 18.5 lbs | 19.1 lbs |
| 01/02 | ALUMINUM | 13 lbs | 13.5 lbs | 14 lbs |

(DO NOT SCALE DRAWING)



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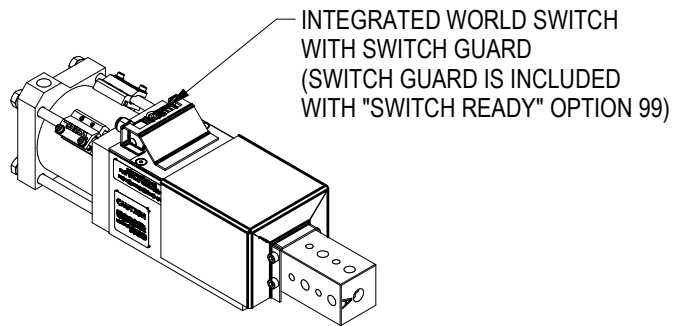
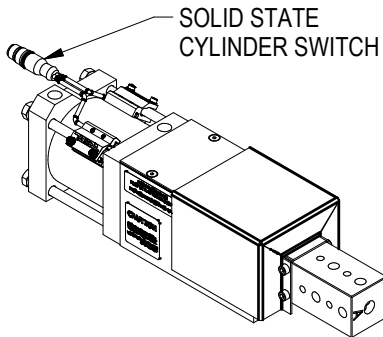
SWITCH OPTIONS

| Order Number SO1 (E)XTEND or SO1 (R)ETRACT | | | | | |
|---|---|---|---------------------------------|--|--|
| | Part Number | Manufacturer | Description | | |
| World Switches <i>Includes Switch Guard</i> | 99 | Switch Ready | | Customer Supplied Switch. Prepared for switches below : | |
| | ZE or ZR | WWS001A | Welker | 4-Wire, 4-Pin, DC M12 X 1 (PNP) | |
| | Non-stocked switches (effective 1-2-2023): | | | | |
| | AE or AR | Ni2-Q6.5-AP6-0.1-FS 4.4X3/S304 | Turck | 4-Wire, 4-Pin, DC M12 X 1 (PNP) | |
| | 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.) | |
| | CE or CR | Ni2-Q6.5-AN6-0.1-FS 4.4X3/S304 | Turck | 4-Wire, 4-Pin, DC M12 X 1 (NPN) | |
| | DE or DR | NBN2-F581-100S6-E8-V1 | Pepperl & Fuchs | 4-Wire, 4-Pin, DC M12 X 1 (PNP) | |
| | EE or ER | BES-Z02KR2-PSC20F-P100-S04-V | Balluff | 3-Wire, 4-Pin, DC M12 X 1 (PNP) | |
| JE or JR | IN5374 | Efector | 3-Wire, 4-Pin, DC M12 X 1 (PNP) | | |
| Order Number | | | | | |
| | Part Number | Manufacturer | Description | | |
| Cylinder Switches | L3 | SWITCH L3 ~ Weld field immune*, comparable to World Sw itches | Welker | 4-Wire, 4-Pin, DC M12 X 1 (PNP) | |
| | 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) | |

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 w elding applications) may cause a fault. In these applications, it is recommended that the sensor be ignored/bypassed during the w elding cycle.



(DO NOT SCALE DRAWING)

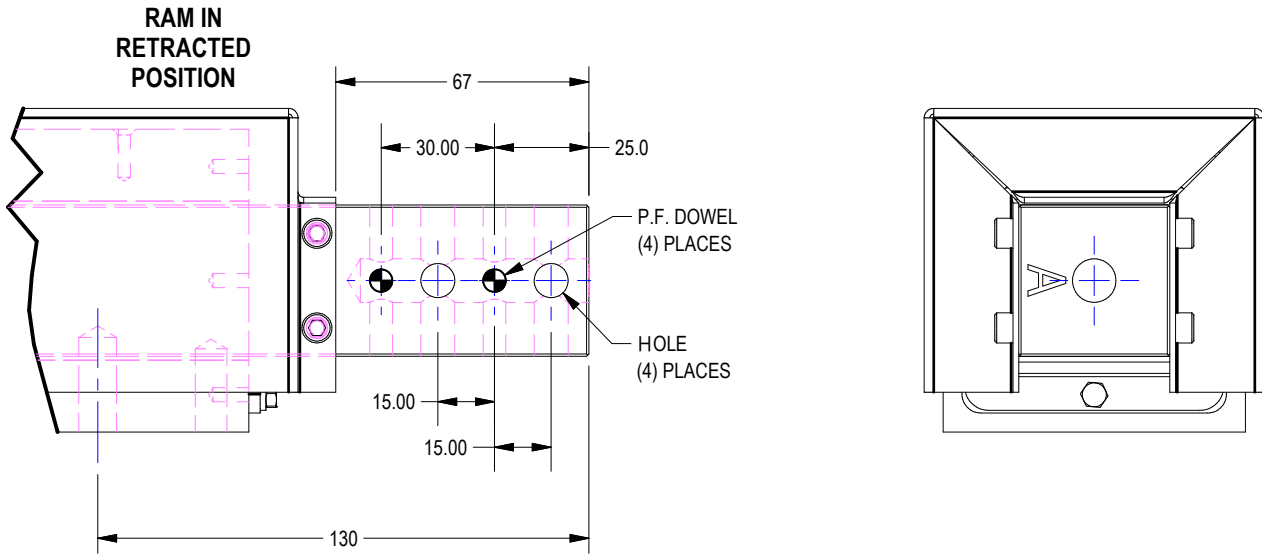
WELKER

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STANDARD RAM OPTIONS

(SEE SUPPLEMENTAL RAM SHEET FOR NON-STANDARD RAM OPTIONS)



| RAM STYLE | DOWELS | HOLES |
|-----------|------------|-------------|
| A | 6.0mm THRU | 9mm THRU |
| D | 8.0mm THRU | 11.0mm THRU |
| L | 8.0mm THRU | 9.0mm THRU |

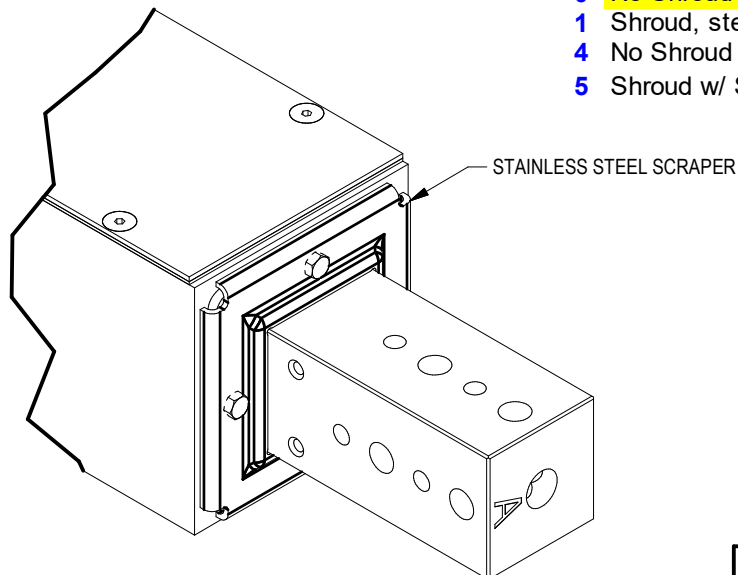
SCRAPER OPTION

U B 4 N 0 2 5 B 0 1 0 D A E A 0 0 0

OPTIONAL SCRAPER FOR WELD PROTECTION

Shroud

- 0 No Shroud
- 1 Shroud, steel
- 4 No Shroud w/ Scraper
- 5 Shroud w/ Scraper



(DO NOT SCALE DRAWING)



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DETENT OPTION

U
B
4
N
0
2
5
B
0
1
0
D
A
E
1
A
0
0
0

Detent
(Steel ram only)

0 None

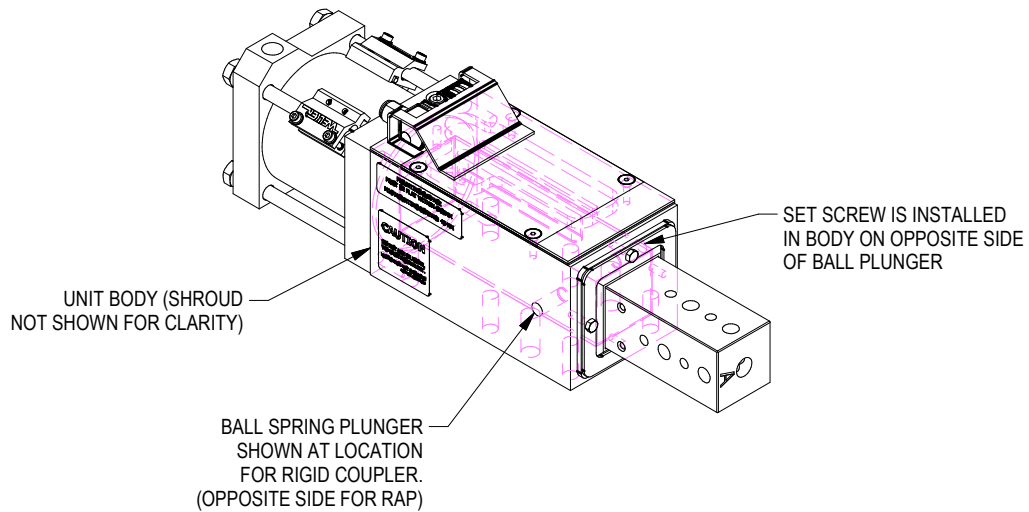
D Detent

DETENT OPTION IS A BALL SPRING PLUNGER INSTALLED IN UNIT BODY TO ASSIST WITH HOLDING THE RAM IN EXTENDED POSITION (ONLY) WITH LOSS OF AIR PRESSURE.

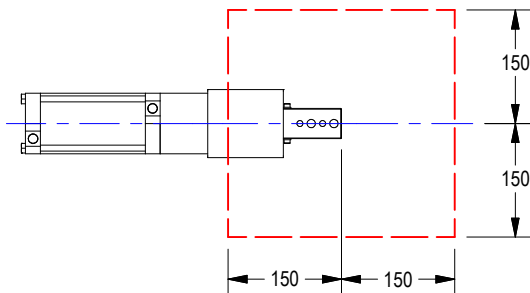
DETENT IS NOT DESIGNED TO HOLD GEO LOCATION WITH LOSS OF AIR PRESSURE.

DETENT OPTION WILL CAUSE VISIBLE LINES IN THE RAM'S EXTERIOR COATING.

BALL SPRING PLUNGER IS A WEAR ITEM AND WILL NEED TO BE REPLACED AT RECOMMENDED INTERVALS.



NOTE: IF RAP/RIGID COUPLER IS SWITCHED IN THE FIELD, THE BALL PLUNGER AND SET SCREW MUST BE SWITCHED TO OPPOSITE SIDES.



DETENT OPTION EFFECTIVE WEIGHT LIMIT IS 24 LBF FOR VERTICAL APPLICATIONS.

MOUNTED TOOLING MUST BE WITHIN APPROVED APPLICATION RADIUS FROM END OF RAM.

(DO NOT SCALE DRAWING)

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AIR PURGE OPTION

U
B
4
N
0
2
5
B
0
1
0
D
Z
E
1
A
0
0
0

Purge Port

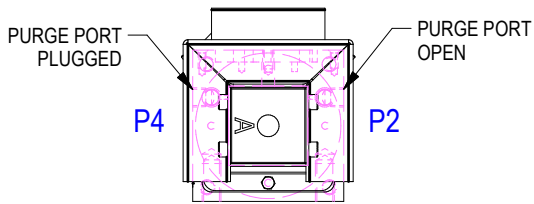
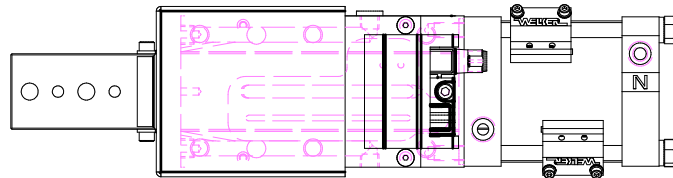
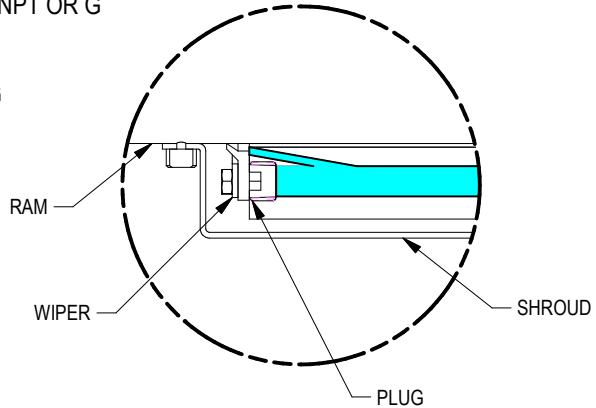
0 None

P Purge Port

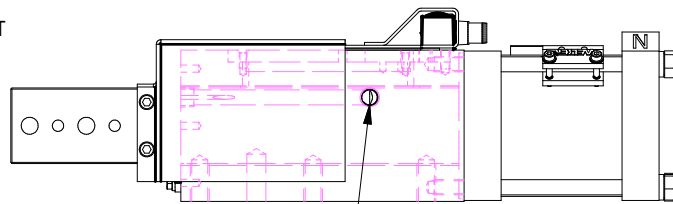
PURGE PORT OPTION:

1/8" AIR INLET PORTS PROVIDED AT POSITION P2 & P4.
 AIR PORTS ARE SAME AS CYLINDER PORT: NPT OR G
 P2 PORT IS OPEN, P4 PORT IS PLUGGED.

AIR EXHAUSTS AROUND WIPER, EXPELLING
 FINES AWAY FROM RAM.



P = PORT POSITION



PURGE PORT INLET:
 1/8" NPT IF CYLINDER HAS NPT PORTS
 G1/8 IF CYLINDER HAS G PORTS

(DO NOT SCALE DRAWING)



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Welker UB4 Series Shot Pin Technical Information

Body Mounting: 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 0.05mm [0.002"]**. Tighten M10 mounting screws to 45 Nm (33 ft-lb).

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 ± 0.38 [0.015"] and repeatability within ± 0.05 [0.002"]. Units with non standard strokes may not meet standard cylinder stroke repeatability. Rap couplings cause the unit to be 2mm less than the nominal stroke of the cylinder. The rap allows the cylinder to accelerate without load, acting like a slide hammer. The impact of the coupler helps free tooling from a bound condition, similar to a dowel puller.

Welker cylinders do not require lubrication.

Switch: UB4 is available with World Switch or cylinder switch.

Repeatability: Shot pin units utilize a full contact bearing surface for high repeatability. Repeatability within ± 0.05 [0.002"] part to part is achievable.

Wear: Defined as 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 ± 0.005 " 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.

