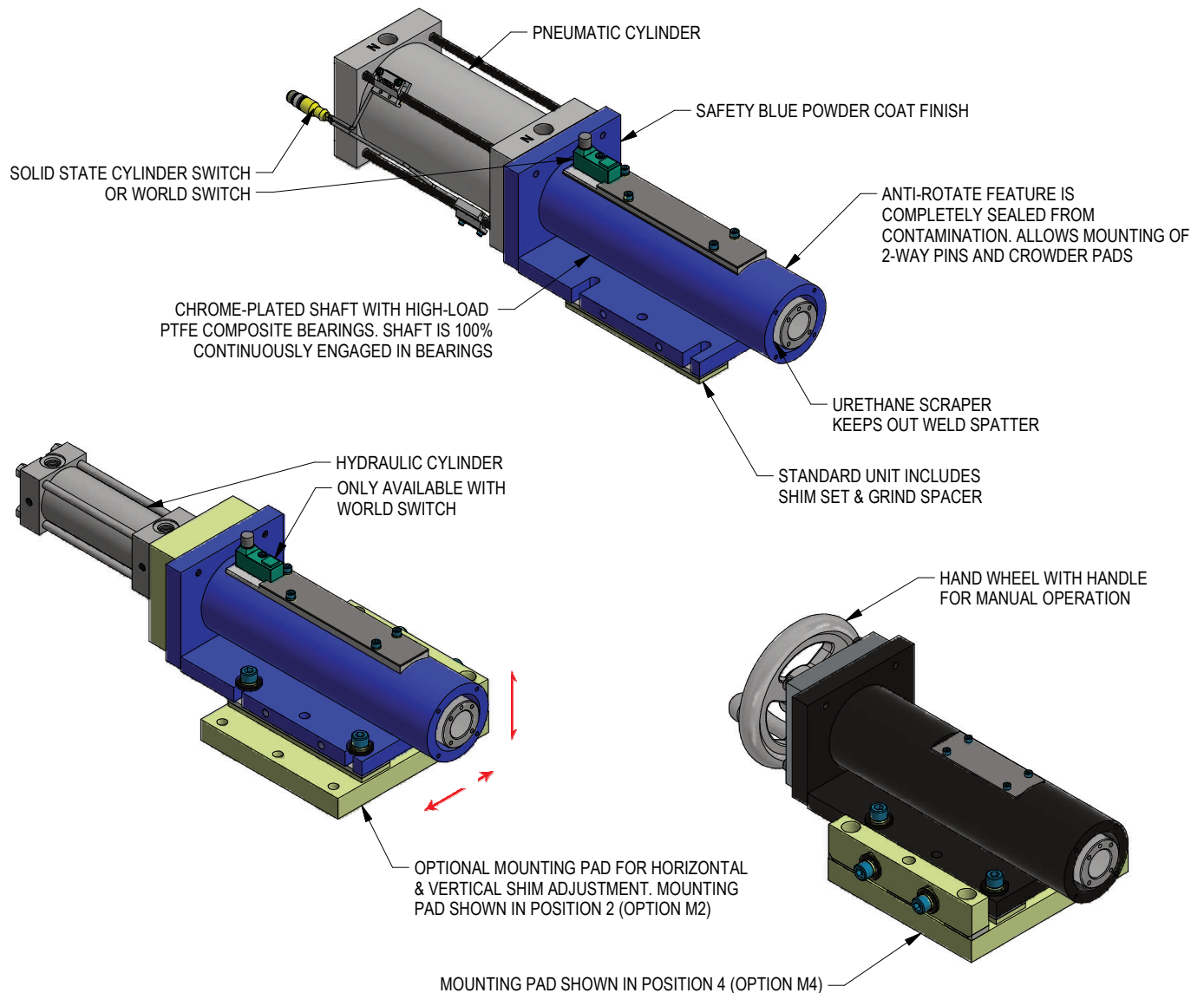


## HP5 BULL PIN

**FOR FRAME LINE APPLICATIONS**

754 LBF RETRACT FORCE @ 60 PSI

RETRACTING LOCATING PIN WITH A 2KG SLIDE HAMMER PISTON. RAP ACTION\* PROVIDES CONCENTRATED PULLING POWER. A GREATER THAN FOUR TIMES SHAFT-DIAMETER TO BEARING-LENGTH RATIO IS ALWAYS FULLY ENGAGED, OFFERING LONG PRECISION LIFE. NO MAINTENANCE OR GREASING REQUIRED.  
(\*RAP ACTION ON PNEUMATIC UNIT ONLY)



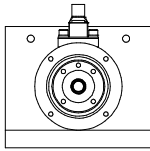
RELEASED 3/3/22

# APPLICATION GUIDE

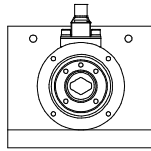
HP5 Bull Pins are made for inline balanced loads. There is an anti-rotate feature but it is for orientation only - not for offset loads.

## GOOD APPLICATIONS

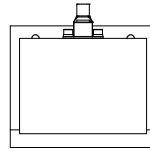
(VIEWS ARE FROM PIN END, HP5 SHOWN)



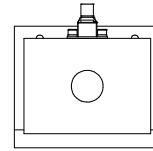
INLINE  
ROUND PIN



INLINE  
DIAMOND PIN



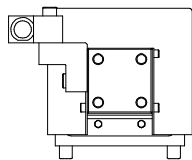
INLINE  
PUSHER BLOCK



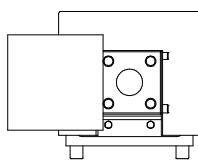
INLINE  
PIN/PUSHER BLOCK COMBO

## BAD APPLICATIONS FOR HP5, GOOD APPLICATIONS FOR WP6 SHOT PINS

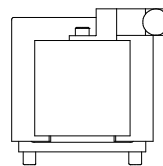
(VIEWS ARE FROM PIN END, WP6 SHOWN)



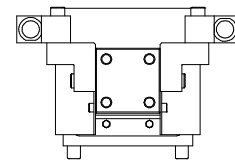
OFFSET PIN



INLINE PIN WITH  
OFFSET  
PUSHER BLOCK



INLINE PUSHER BLOCK  
WITH OFFSET PIN



DOUBLE PIN

(DO NOT SCALE DRAWING)

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# ORDERING INFORMATION

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

H P 5 - 
 






0
0

- Cylinder**
- P** Pneumatic, NPT ports
  - G** Pneumatic, G ports
  - H** Hydraulic
  - M** Manual

- Port Position**
- 0** None (Manual operation)
  - 1** Port @ Position 1
  - 2** Port @ Position 2
  - 3** Port @ Position 3
  - 4** Port @ Position 4

- Mounting Assembly**
- 00** None
  - M2** Mounting Position 2
  - M4** Mounting Position 4

- Switch Option**
- 00** None
  - ZE** See World Switch chart (Pneum & Hyd Options only)
  - L3** Cylinder Switch (Pneumatic Option only)

- Short Stroke (Pneumatic Option Only)**
- 0** None\*
  - A** 60mm actual Stroke = 63mm Stroke less 3mm for Rap

\*97mm actual Standard Stroke = 100mm Stroke less 3mm for Rap

| World Switches | Order Number<br>SO1 EXTEND (E) or<br>SO1 RETRACT (R) |                       |  |  |
|----------------|--|-----------------------|--|--|
|                | Part Number  | Manufacturer          | Description                                      |  |
|                | 00   | NO SWITCH             |  |  |
|                | VE or VR   | NBN2-F581-160S6-E8-V1 | Pepperl & Fuchs                                  | 4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect |
| ZE or ZR       | WWS001A  | Welker                | 4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect |  |

| Cylinder Switch | Switch | Part Number | Manufacturer   | Description |
|-----------------|--------|-------------|--|-------------|
|                 | L3     | SWITCH L3*  | L3 sw itch is w eld field immune, comparable to World Sw itches. Dual sensor sw itch, 1 per cylinder | Welker      |

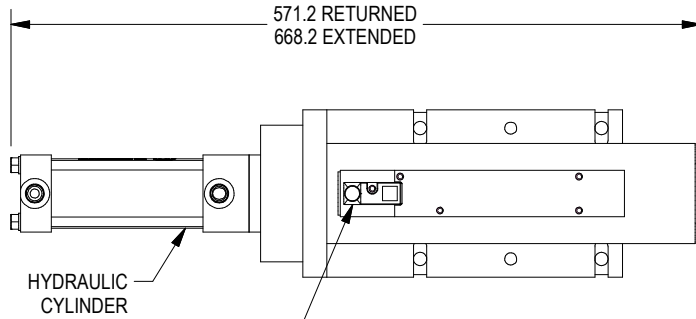
\*Note that some mid and low frequency DC resistance applications (i.e. aluminum resistance welding applications) may cause a fault. In these applications, it is recommended that the sensor be ignored/bypassed during the welding cycle.

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

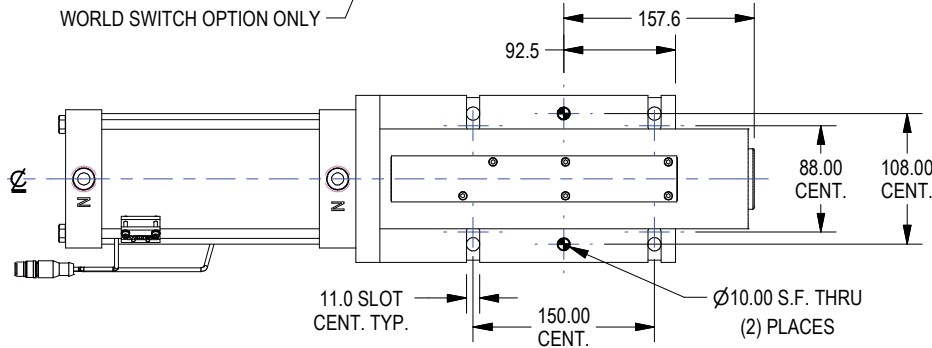
(DO NOT SCALE DRAWING)



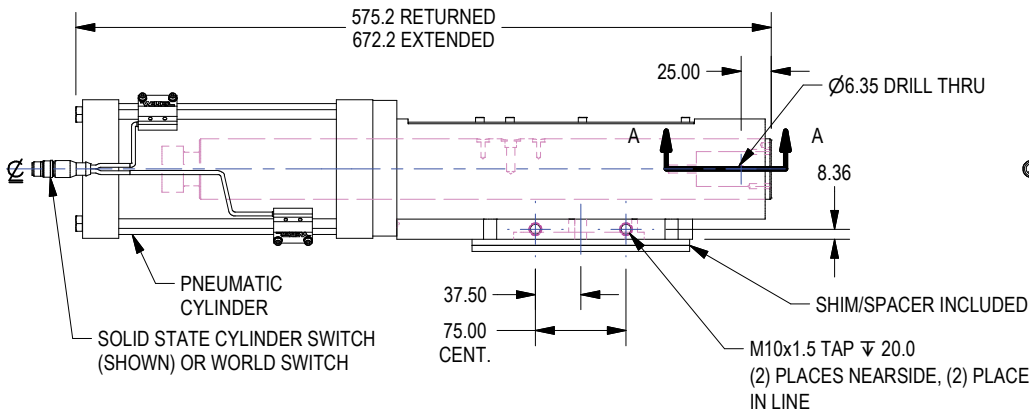
# GENERAL DIMENSIONS



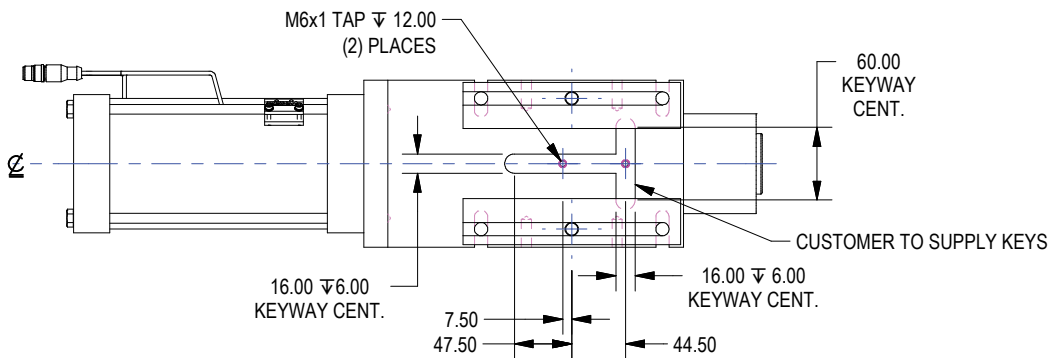
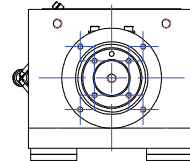
**HYDRAULIC CYLINDER:**  
 2" BORE X 97mm [3.818] STROKE, 1400 PSI MAX  
 CUSHIONS BOTH ENDS  
 #6 SAE PORTS  
 FLUOROCARBON SEALS FOR PISTON AND ROD  
 HIGH LOAD PISTON



**PNEUMATIC CYLINDER:**  
 4" BORE X 100mm STROKE  
 LESS 3.0mm FOR RAP  
 97.0mm ACTUAL STROKE  
 1/2" NPT OR G1/2 PORTS



FOR THIS VIEW'S DIMENSIONS SEE SHEET 5



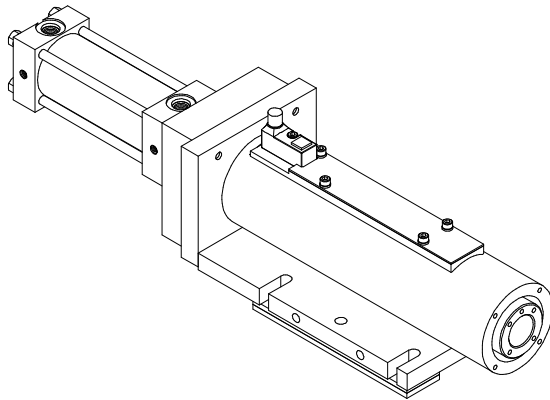
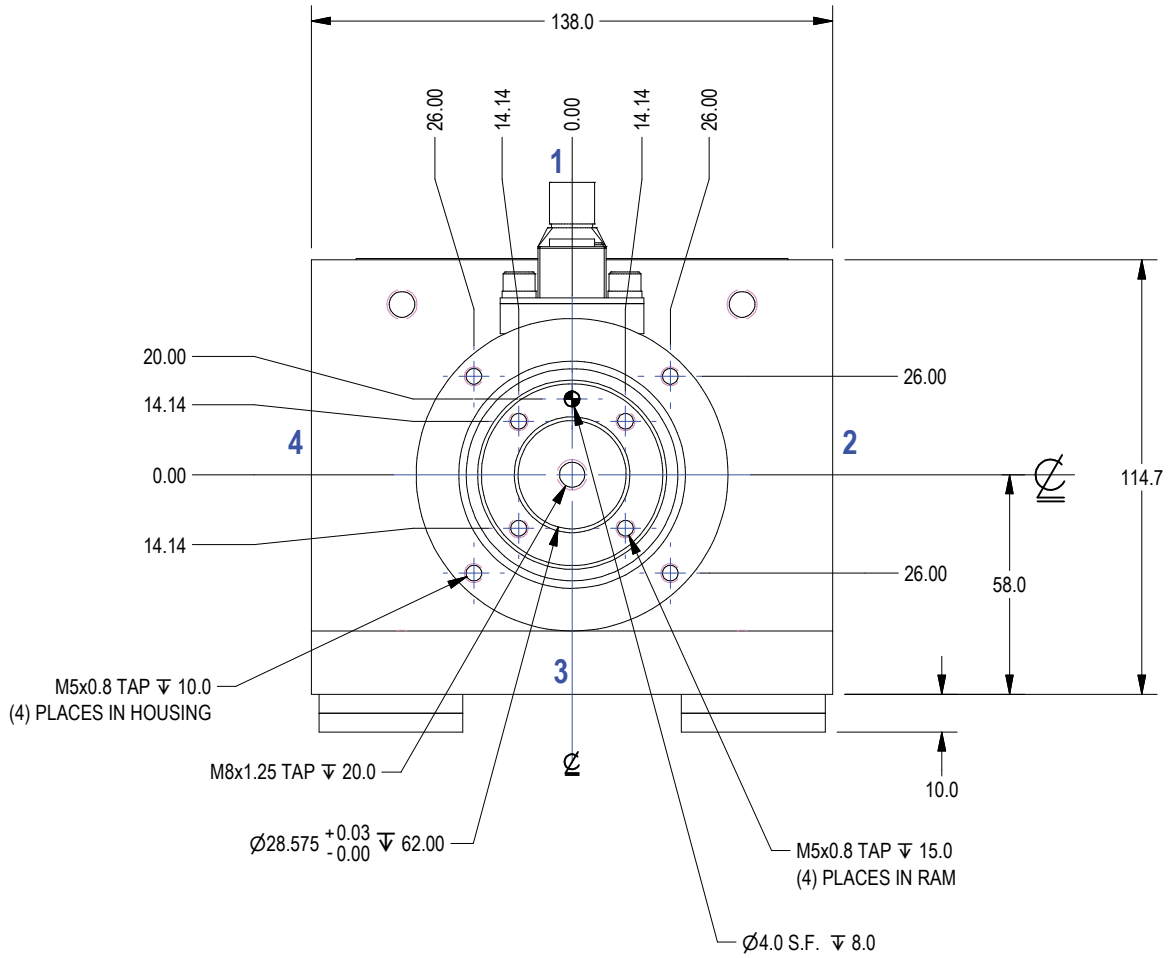
(DO NOT SCALE DRAWING)

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# GENERAL DIMENSIONS: HP5 NOSE END VIEW



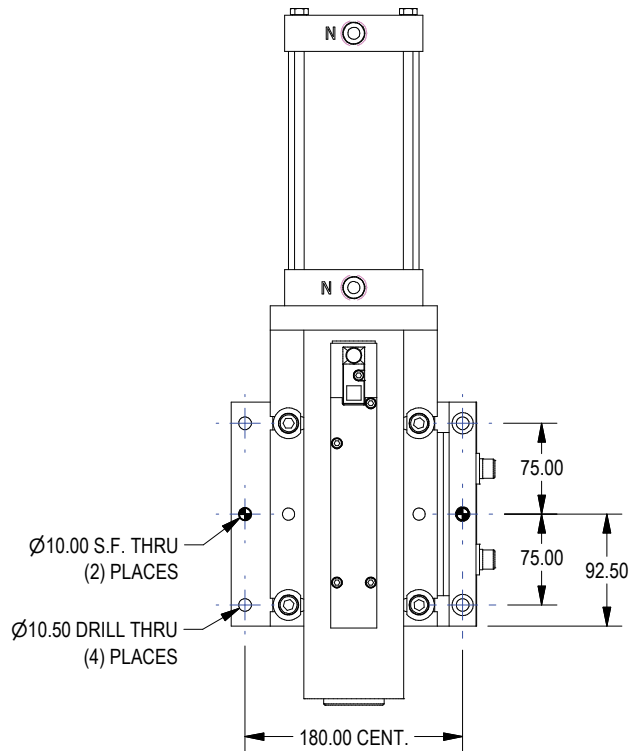
(DO NOT SCALE DRAWING)

**WELKER**

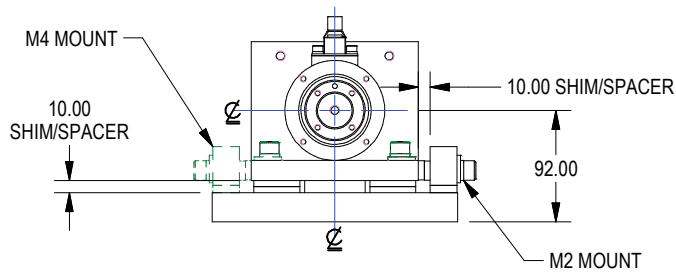
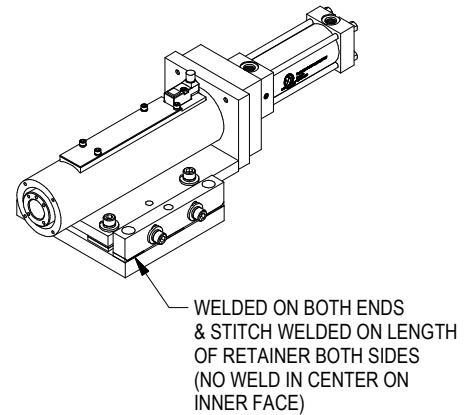
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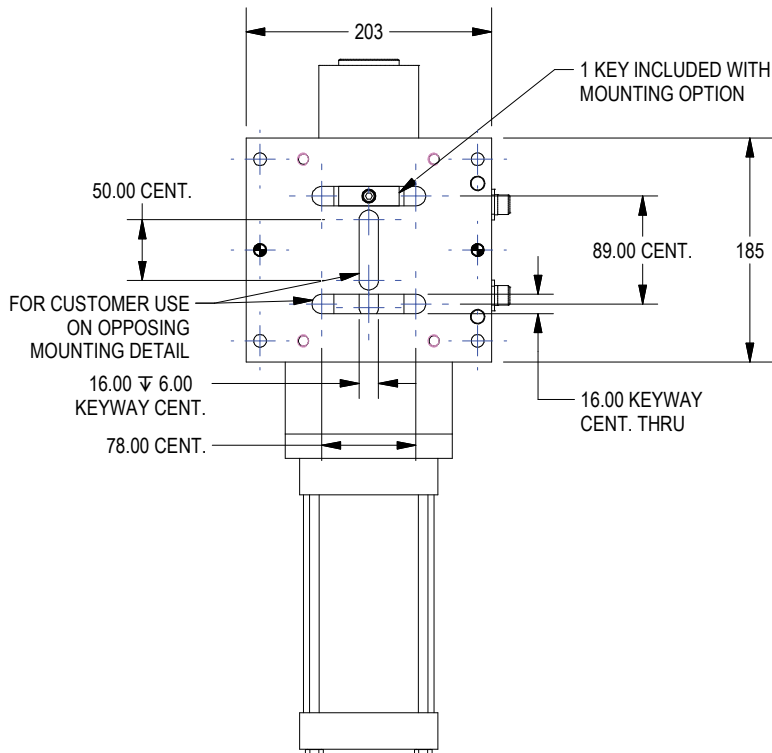
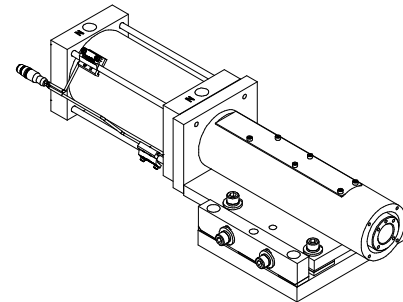
# MOUNTING OPTION DIMENSIONS



**HP5 WITH MOUNTING  
ASSEMBLY OPTION M2:**  
SHOWN WITH HYDRAULIC CYLINDER



**HP5 WITH MOUNTING  
ASSEMBLY OPTION M4:**  
SHOWN WITH PNEUMATIC CYLINDER



(DO NOT SCALE DRAWING)

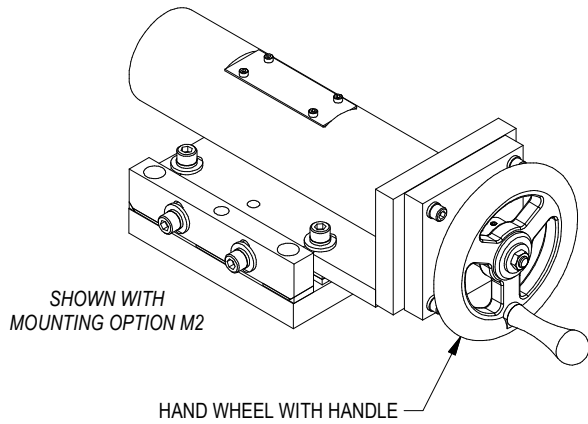
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# MANUAL OPTION

SEE SHEETS 4 & 5 FOR GENERAL DIMENSIONS  
SEE SHEET 6 FOR MOUNTING OPTION DIMENSIONS

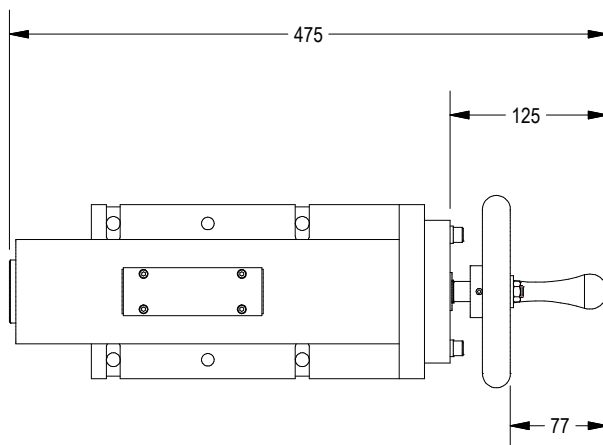


## TYPICAL APPLICATIONS:

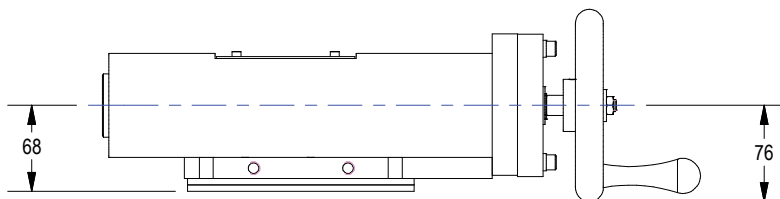
- MANUAL BUILD/PONY LINES
- PROTOTYPE BUILDS
- CMM ROOMS

1-4 ACME LEAD SCREW

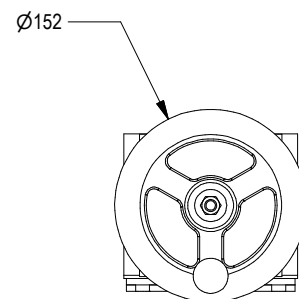
75mm STROKE



SWITCH NOT AVAILABLE WITH MANUAL OPTION



SHOWN WITHOUT MOUNTING OPTION



(DO NOT SCALE DRAWING)

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