

# Cylinders

## Slip-in Cartridge Mount Pull

### Single Acting

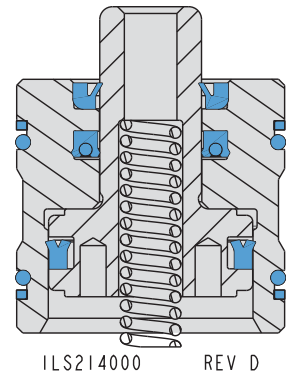
- Easy to use, cartridge mount, Pull Cylinders available in six capacities at 5,000 psi.
- Slip-in Pull design provides easy cavity machining.
- Short strokes specifically designed for use with bolt-down clamping elements.
- Compact design, return springs included.
- 360° oil feed location simplifies oil passages.
- All cylinder pistons are chrome plated, hardened alloy steel.



BHC™ (Black Hard Coating) on the cylinder body helps prevent scoring and scratching. After years of use, cylinder removal is easier because of BHC's corrosion resistance.

F-16

| Model No.                                                                   | Cylinder Capacity * |        | Stroke** | Plunger Thread*** | Min. Length | Effective Piston Area (sq. in.) |        | Oil Capacity (cu. in.) |      |
|-----------------------------------------------------------------------------|---------------------|--------|----------|-------------------|-------------|---------------------------------|--------|------------------------|------|
|                                                                             | Retract             | Extend |          |                   |             | Retract                         | Extend |                        |      |
| <b>Single Acting (S/A) Cylinders, actuated hydraulically one direction.</b> |                     |        |          |                   |             |                                 |        |                        |      |
| 21-4106-00                                                                  | 980                 |        | 0.13     | 6-32              | 1.21        | 0.20                            |        | N/A                    | 0.03 |
| 21-4106-01                                                                  |                     |        |          | 8-32              |             |                                 |        |                        |      |
| 21-4109-00                                                                  | 2000                |        | 0.18     | 8-32              | 1.21        | 0.40                            |        | N/A                    | 0.05 |
| 21-4109-01                                                                  |                     |        |          | 1/4-20            |             |                                 |        |                        |      |
| 21-4111-00                                                                  | 2950                |        | 0.18     | 1/4-20            | 1.42        | 0.59                            |        | N/A                    | 0.11 |
| 21-4111-01                                                                  |                     |        |          | 5/16-18           |             |                                 |        |                        |      |
| 21-4113-00                                                                  | 5200                |        | 0.18     | 3/8-16            | 1.47        | 1.04                            |        | N/A                    | 0.19 |
| 21-4113-01                                                                  |                     |        |          | 1/2-13            |             |                                 |        |                        |      |
| 21-4116-00                                                                  | 9000                |        | 0.29     | 1/2-13            | 1.61        | 1.80                            |        | N/A                    | 0.52 |
| 21-4116-01                                                                  |                     |        |          | 5/8-11            |             |                                 |        |                        |      |
| 21-4121-00                                                                  | 17100               |        | 0.29     | 5/8-11            | 2.00        | 3.54                            |        | N/A                    | 1.03 |



\* Cylinder capacities are listed at 5,000 psi maximum operating pressure. The output force is adjustable by varying the hydraulic system pressure. To determine approximate output force for your application, multiply the piston area by the operating pressure. Actual force may vary slightly due to friction loss, seal and wiper drag, and/or return springs.

\*\* Cylinder stroke may exceed stroke of the clamping element. Limiting cylinder stroke may be required to ensure proper operation of clamping element.

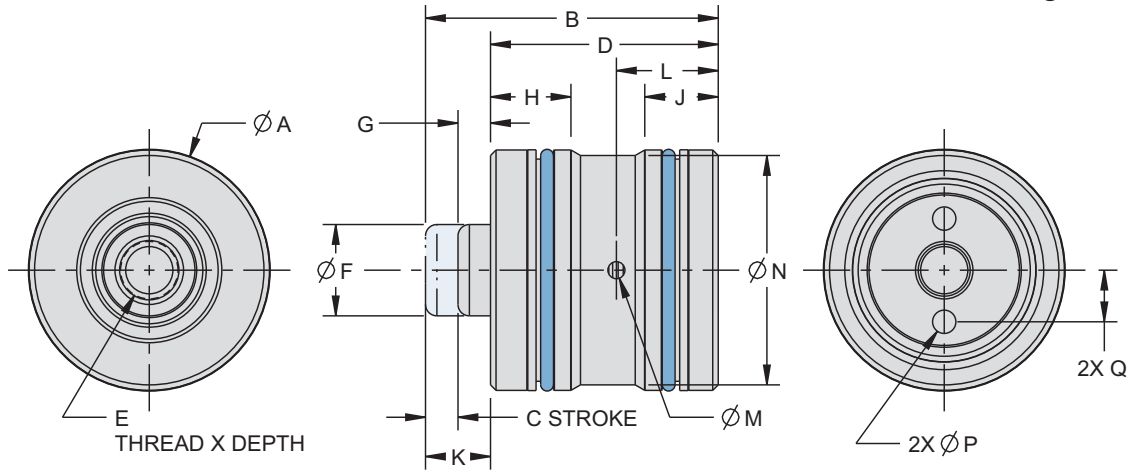
\*\*\* At full cylinder capacity, fastener life will be limited, should be considered service item and replaced frequently to avoid plunger damage. Models 21-4106-00, 21-4109-00, 21-4111-00 and 21-4113-00 not recommended for use above 2,500 psi.

## Dimensions

| Model No.                                                                   | A    | B    | C    | D    | E              | F    | G    | H    | J   | K    | L    | M    | N    | P    | Q    |
|-----------------------------------------------------------------------------|------|------|------|------|----------------|------|------|------|-----|------|------|------|------|------|------|
| <b>Single Acting (S/A) Cylinders, actuated hydraulically one direction.</b> |      |      |      |      |                |      |      |      |     |      |      |      |      |      |      |
| 21-4106-00                                                                  | 0.81 | 1.34 | 0.13 | 1.12 | 6-32 x 0.25    | 0.37 | 0.10 | 0.44 | .40 | 0.22 | 0.51 | 0.08 | 0.75 | 0.09 | 0.22 |
| 21-4106-01                                                                  |      |      |      |      | 8-32 x 0.25    |      |      |      |     |      |      |      |      |      |      |
| 21-4109-00                                                                  | 1.19 | 1.39 | 0.18 | 1.12 | 8-32 x 0.35    | 0.50 | 0.09 | 0.44 | .40 | 0.27 | 0.55 | 0.09 | 1.13 | 0.09 | 0.27 |
| 21-4109-01                                                                  |      |      |      |      | 1/4-20 x 0.46  |      |      |      |     |      |      |      |      |      |      |
| 21-4111-00                                                                  | 1.31 | 1.60 | 0.18 | 1.24 | 1/4-20 x 0.50  | 0.50 | 0.18 | 0.44 | .40 | 0.36 | 0.55 | 0.09 | 1.25 | 0.11 | 0.28 |
| 21-4111-01                                                                  |      |      |      |      | 5/16-18 x 0.50 |      |      |      |     |      |      |      |      |      |      |
| 21-4113-00                                                                  | 1.75 | 1.65 | 0.18 | 1.37 | 3/8-16 x 0.66  | 0.75 | 0.11 | 0.44 | .40 | 0.28 | 0.55 | 0.09 | 1.69 | 0.13 | 0.44 |
| 21-4113-01                                                                  |      |      |      |      | 1/2-13 x 0.66  |      |      |      |     |      |      |      |      |      |      |
| 21-4116-00                                                                  | 2.12 | 1.89 | 0.29 | 1.49 | 1/2-13 x 0.50  | 0.88 | 0.12 | 0.44 | .40 | 0.40 | 0.80 | 0.11 | 2.06 | 0.25 | 0.50 |
| 21-4116-01                                                                  |      |      |      |      | 5/8-11 x 0.59  |      |      |      |     |      |      |      |      |      |      |
| 21-4121-00                                                                  | 2.87 | 2.29 | 0.29 | 1.62 | 5/8-11 x 0.78  | 1.06 | 0.39 | 0.44 | .40 | 0.67 | 0.80 | 0.11 | 2.81 | 0.25 | 0.79 |



## Cartridge Mount Pull



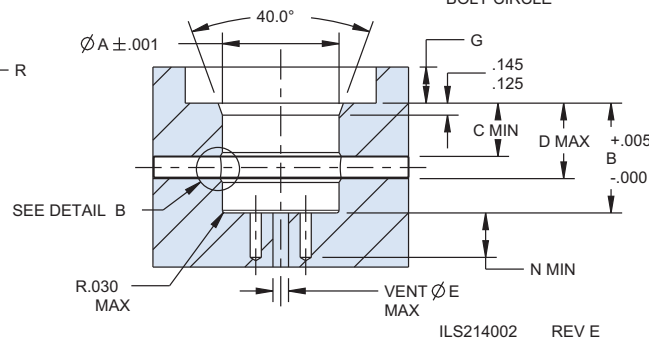
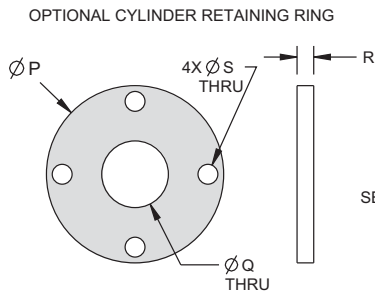
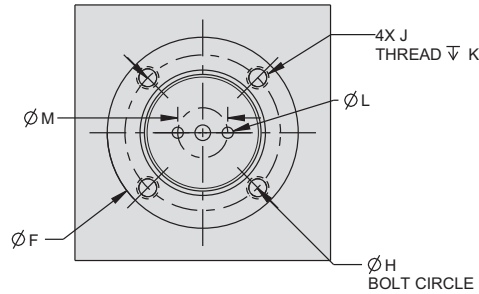
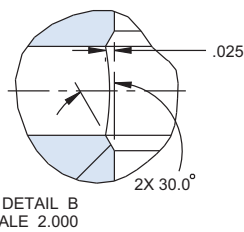
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\*Return springs and anti-rotation pins included.

\*NOTE: Anti-rotation pins intended for hand installation of bolt only.  
Do not torque bolt against anti-rotation pins.

NOTE: FLEXIBLE HONING/ BALL HONING OF CAVITY IS STRONGLY RECOMMENDED.

Preferred Relief Detail  
Relief to be within Dimensions  
C & D



## Cavity Dimensions

| Model No.*                 | Cap. (lbs.) | A     | B     | C    | D    | E    | F**  | G**  | H**  | J**         | K**  | L***  | M*** | N*** | P     | Q    | R     | S     | Bolt Torque | Optional Retainer                                       |  |  |  |  |  |  |  |  |  |
|----------------------------|-------------|-------|-------|------|------|------|------|------|------|-------------|------|-------|------|------|-------|------|-------|-------|-------------|---------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>Single Acting (S/A)</b> |             |       |       |      |      |      |      |      |      |             |      |       |      |      |       |      |       |       |             | <b>Cylinders, actuated hydraulically one direction.</b> |  |  |  |  |  |  |  |  |  |
| 21-4106-00                 | 980         | 0.813 | 1.120 | 0.44 | 0.72 | 0.16 | 1.43 | 0.31 | 1.13 | 8-32 UNC    | 0.33 | 0.125 | 0.44 | 0.31 | 1.395 | 0.50 | 0.125 | 0.173 | 29 in-lbs   | 64-0140-80                                              |  |  |  |  |  |  |  |  |  |
| 21-4109-00                 | 2000        | 1.188 | 1.120 | 0.44 | 0.72 | 0.18 | 1.86 | 0.31 | 1.56 | 8-32 UNC    | 0.33 | 0.125 | 0.53 | 0.40 | 1.832 | 0.75 | 0.125 | 0.173 | 29 in-lbs   | 64-0141-10                                              |  |  |  |  |  |  |  |  |  |
| 21-4111-00                 | 2950        | 1.313 | 1.245 | 0.44 | 0.84 | 0.18 | 2.15 | 0.41 | 1.75 | 1/4-20 UNC  | 0.38 | 0.156 | 0.56 | 0.40 | 2.125 | 0.75 | 0.125 | 0.257 | 63 in-lbs   | 64-0141-30                                              |  |  |  |  |  |  |  |  |  |
| 21-4113-00                 | 5200        | 1.751 | 1.370 | 0.44 | 0.97 | 0.33 | 2.83 | 0.53 | 2.31 | 5/16-18 UNC | 0.47 | 0.156 | 0.88 | 0.40 | 2.782 | 1.00 | 0.187 | 0.328 | 20 ft-lbs   | 64-0141-70                                              |  |  |  |  |  |  |  |  |  |
| 21-4116-00                 | 9000        | 2.126 | 1.495 | 0.44 | 1.09 | 0.35 | 3.40 | 0.67 | 2.81 | 3/8-16 UNC  | 0.50 | 0.281 | 1.00 | 0.60 | 3.375 | 1.12 | 0.250 | 0.391 | 24 ft-lbs   | 64-0142-10                                              |  |  |  |  |  |  |  |  |  |
| 21-4121-00                 | 17100       | 2.876 | 1.620 | 0.44 | 1.22 | 0.40 | 4.59 | 0.90 | 3.81 | 1/2-13 UNC  | 0.63 | 0.281 | 1.57 | 0.60 | 4.563 | 1.25 | 0.375 | 0.515 | 62 ft-lbs   | 64-0142-80                                              |  |  |  |  |  |  |  |  |  |

\* Lubricate o-rings with grease prior to installation.

\*\* This cavity uses the optional retaining ring available from Vekttek. These features are for use with the retaining ring.

\*\*\* These features are only needed if anti-rotation pins are used. Anti-rotation and return springs are included with the cylinder.

