

General Description

Model 14130 Crank Type Cylinders accept hydraulic oil to produce a rotary motion (90 degrees maximum). The models consist of a linear motion cylinder and a linkage which connects to a rotary motion (see schematic below).

The cylinder requires extremely low breakloose pressure, which assures accurate positioning for the smallest output change of a hydraulic controller, because the piston and cylinder are accurately fitted without rings or packing by individually grinding and lapping each piston into a honed cylinder. Simplicity of design and precision manufacture assure long trouble free performance with unimpaired sensitivity and accuracy.

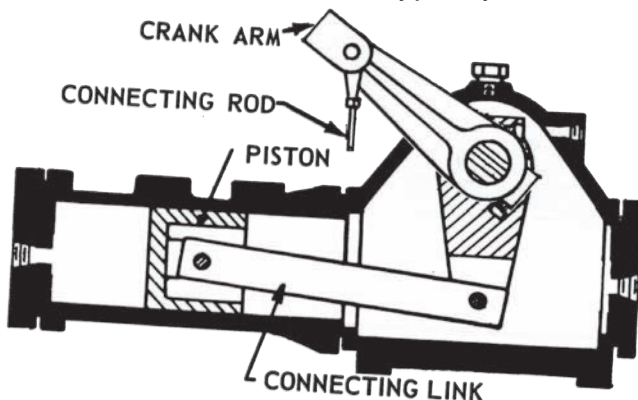
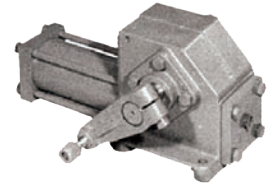
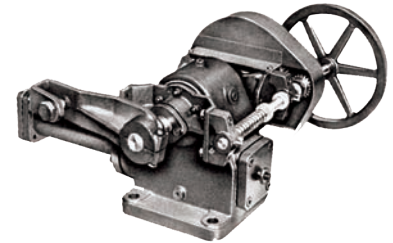
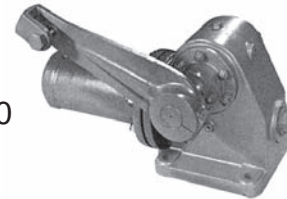
Because of the unique construction of the cylinder, there is no loss of piston area due to the piston rod and therefore the stroking speed and force are the same in each direction. This provides for a simple method of obtaining manual operation by employing a bypass pump in a bypass piping manifold.

Crank Type Cylinders provide a readily adaptable means of correcting the undesirable non-linear characteristics of a butterfly valve. The angular travel of the crank is readily adjustable to provide the maximum operating force for seating the valve in the closed position.

Various size crank arms are available for the 3" (bore diameter of the cylinder) size, including an adjustable crank arm which provides for full piston travel for a given angular travel of the final control element. Connecting rods are available for all sizes, which are easily altered to length in the field.

All three sizes of cylinders are available with optional equipment including de-clutching manual operator (hand-wheel type), limit switches, and pilot valves.

Schematic of Crank Type Cylinder

**3" Size**
Model 14130**3½" Size**
with Manual Operator
Model 14130**5" Size**
Model 14140

- **Minimum Breakloose**

Ground and lapped pistons in honed cylinders reduce friction.

- **Long Life**

Extra long pistons reduce wear.

- **Low Maintenance**

Piston and cylinder accurately fitted without rings.

- **Versatile**

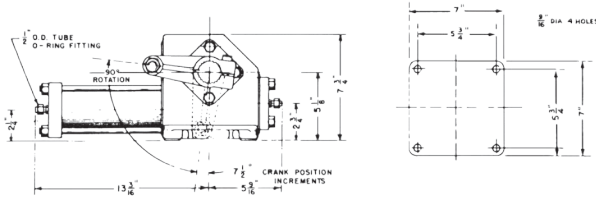
Rotary motion ideally suited for butterfly valves, dampers, louvers, etc.

How to Order**Specify:**

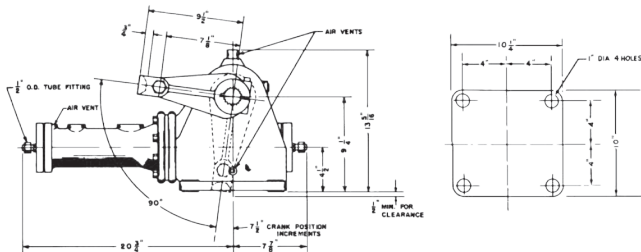
1. Model 14130 or 14140 Crank Type Cylinder
2. Size
3. Length of crank arm
4. Type of hydraulic fluid - mineral base or phosphate-free ester base
5. Optional equipment required

PRODUCT DATA SHEET

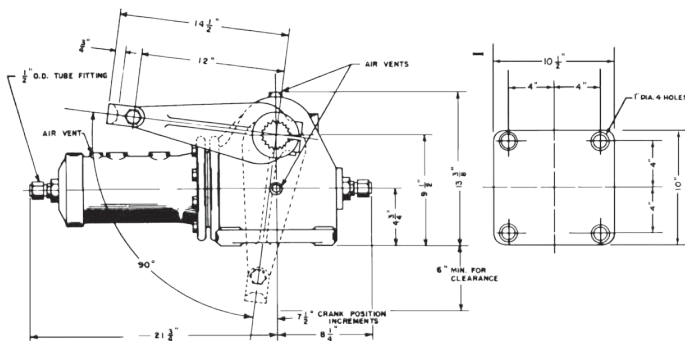
Outline Dimensions



3" Size

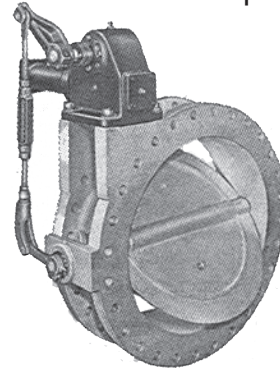


3 1/2" Size



5" Size

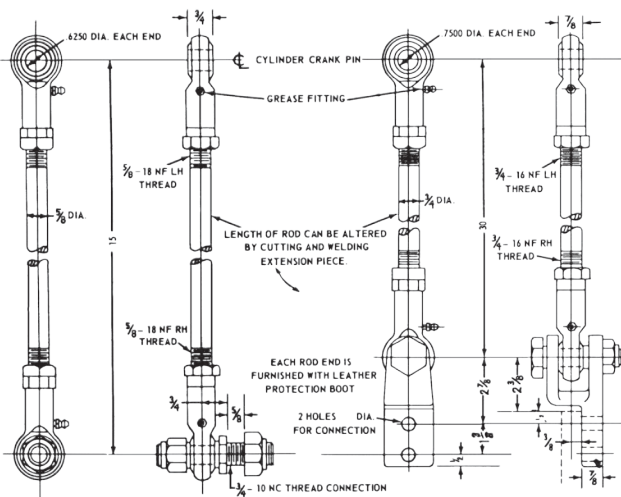
Specifications



Typical Butterfly Valve
Equipped with
Crank Type Cylinder

Optional Equipment	3" Size	3 1/2" Size	5" Size
4 1/8" Crank Arm	●		
7 1/8" Crank Arm	●	●	
12" Crank Arm			●
Adjustable (0 to 4 1/8") Crank Arm	●		
5/8" Connecting Rod	●		
3/4" Connecting Rod		●	●
Limit Switches for Full Travel Indication	●	●	●
Manual Lever	❖	❖	
Manual Operator (de-clutching hand-wheel type)	❖	❖	
Manual Hand Pump (bypass type) <i>requires separate mounting</i>	❖	❖	❖
Pilot Valve for parallel operation of cylinder or hydraulic feedback	❖	❖	❖
Bypass Piping, including shutoff valves and equalizing valve	●	●	●

● Denotes Optional Equipment available with size shown
❖ Denotes Available, but requires Bypass Piping



For 3" Size

For 3 1/2" and 5" Sizes

Connecting Rods

Specification	3" Size	3 1/2" Size	5" Size
Working Pressure	200 psi	100 psi	200 psi
Proof Pressure	400 psi	150 psi	250 psi
Full Stroke Capacity	.153 gal.	.336 gal.	.680 gal.
Maximum Crank Rotation	90°	90°	90°
Output Torque at Working Pressure (Average)	2760 in. lbs.	3750 in. lbs.	13,300 in. lbs.
Maximum Torque	4930 in. lbs.	5200 in. lbs.	20800 in. lbs.
Maximum Permissible Load at Minimum Angle	900 lbs.	1550 lbs.	3300 lbs.
Minimum Angle Between Crank Arm & Connecting Rod	20°	20°	10°
Cylinder Size	3" x 5"	3 1/2" x 8"	5" x 8"