

Cylinder Actuators

PRATT
Henry Pratt Company

401 South Highland Avenue
Aurora, Illinois 60506-5563
<http://www.henrypratt.com>
phone: 630.844.4000
fax: 630.844.4160



- Light weight, low-maintenance components which are readily available.
- Impact resistant cylinder barrel.
- Non-metallic cylinder eliminates galvanic corrosion of piston and end caps.
- Corrosion resistant barrel, piston and end caps.
- Suitable for use with air, oil, water, or air/oil combinations up to 150 psi.

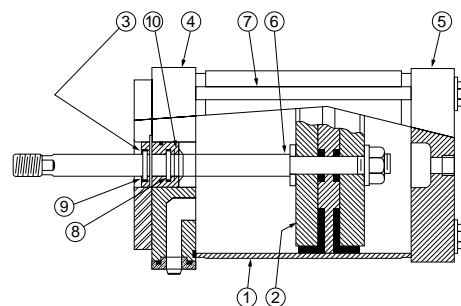
- The Dura-Cyl cylinder and MDT traveling nut actuator combination offers both open/close service or throttling operation through remote control or automated positioning systems.
- Minimizes water hammer by providing characterized closure. (See charts below)
- Designed specifically for flow characteristics of butterfly valves and ball valves.

Features of the Duracyl Cylinder

- Action:** Double acting
- Operating Pressure:** 150 psig maximum
- Sizes:** Over 15 bore/stroke combinations
- Mounting:** Designed for the Pratt MDT actuator
- Connections:** Threaded nominal pipe tap (NPT); size varies with bore.
- Optional controls:** Speed controls, positioners, transmitters, limit switches, solenoid valves, manual override

Cylinder Actuator Parts List

1. **Body** — glass fiber reinforced epoxy resin with low-friction additives emulsified throughout. Greater impact resistance and higher strength/weight ratio than bronze alloy or all bronze cylinders
2. **Piston** — non-metallic material designed with enlarged bearing area to minimize wear induced by side loading
3. **Rod Gland** — low friction acetal copolymer with extra long bearing area
- 4-5. **Head and Cap** — high flexural strength phenolic laminate

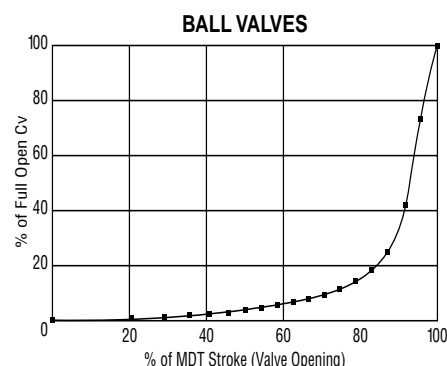
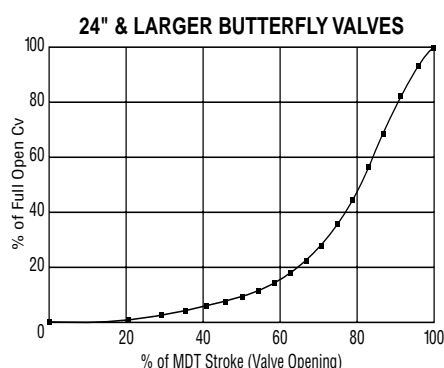
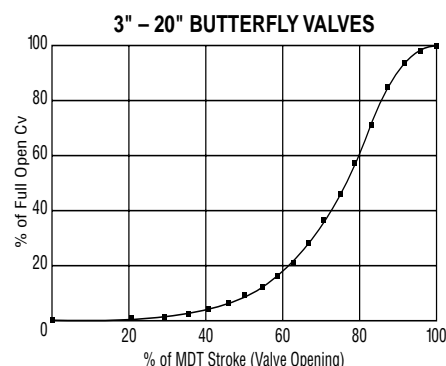


6. **Position Rod** — ground and polished stainless steel, hard chrome plated to provide greater abrasion resistance
7. **Tie Rods** — high tensile cold rolled steel plated
8. **Seal** — Pressure energized, non-adjustable type Buna N molded rubber
- 9-10. **Rod Wipers** — External: molded Buna N type removes any foreign materials on the exterior rod surfaces per AWWA C504
Internal: a Pratt innovation...removes any water deposited material from the rod before any rod seal damage can occur.

Suggested Specifications

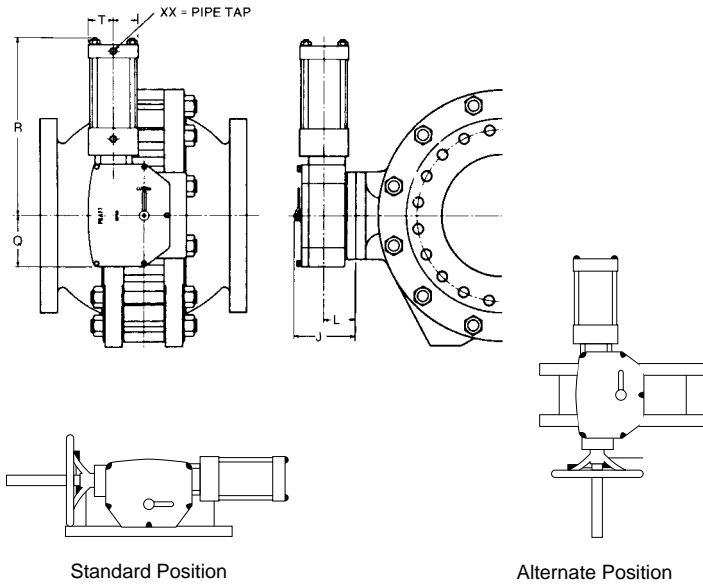
Cylinder actuators for valve sizes 3"-8" shall be of the scotch yoke type. Valve sizes 10" and larger shall be supplied with a compound link and lever arrangement designed to minimize water hammer by providing characterized opening and closing. The concept of characterized closure is to reduce the flow area quickly to 20% open in the first half of the actuator stroke, and then slow down the disc travel to close off the last 20% of the flow area. Each unit shall comply to AWWA C540-93 Standard for Power Actuating Devices.

All wetted parts of the cylinder shall be nonmetallic, except the cylinder rod which shall be chromium plated stainless steel. The rod seals shall be of the nonadjustable, wear compensating type. A rod wiper for removing deposits inside the cylinder shall be provided in addition to an external dirt wiper. Cylinder actuator can be supplied with an optional manual override. Cylinder actuators shall be Pratt MDT with Dura-Cyl power cylinder or approved equal.



NOTE: Chart representing Cv (flow factor) v/s Stroke describes the accurate flow characteristic of the combined unit. Each point on the curve represents 5° of valve rotation (i.e. 50% of MDT stroke = 30° of valve opening).

MDT Cylinder Actuator



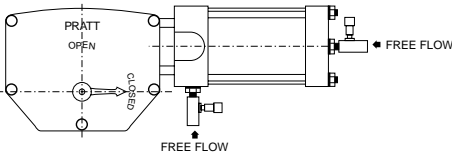
Actuator Dimensions

Actuator Size	Cylinder Size Bore	Stroke	J	L	Q	R	T	XX
MDT-2 S	4	4	6½	3%	4¼	13¼	¾	¾
MDT-2 S	5	4	6½	3%	4¼	13¼	¾	¾
MDT-3 S	5	5%	7¼	4¼	5¼	17¾	2%	-½
MDT-3 S	8	5%	7¼	4¼	5¼	18¾	4%	-¾
MDT-3 S	10	5%	7¼	4¼	5¼	19¼	5%	-¾
MDT-4 S	5	8	8	4½	6¼	21	2%	-½
MDT-4 S	8	8	8	4½	6¼	21¼	4%	-¾
MDT-4 S	10	8	8	4½	6¼	22¾	5%	-¾
MDT-5	8	11	10	5%	10%	27¼	4%	-¾
MDT-5	10	11	10	5%	10%	28¼	5%	-¾
MDT-5	12	11	10	5%	10%	32%	6%	1
MDT-5	14	11	10	5%	10%	33%	7%	1

CYLINDER ACCESSORIES

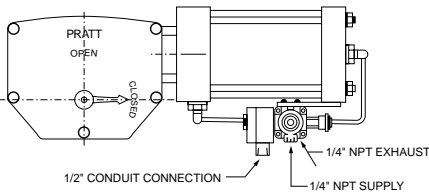
Henry Pratt offers a variety of optional accessories designed to meet your specific operating requirements. Those featured on this page are among the most frequently used on our Dura-Cyl cylinder.

Speed Control Valves



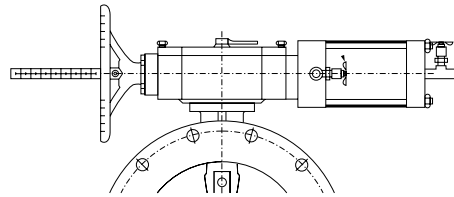
Speed control valves may be installed to limit valve opening or closing speed, or both opening and closing speed. Depending upon the operating medium, typical opening and closing speeds are 30 to 60 seconds.

Solenoid Valves



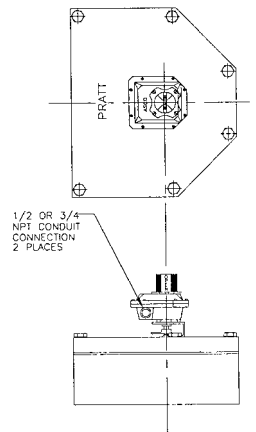
Pneumatic four-way solenoid valves serve as main control valves for dual-acting cylinders. These valves direct the power supply to the proper side of the cylinder and at the same time, provide an exhaust line from the opposite side. Various styles of solenoids are available for open/close, throttling or modulating applications.

Manual Override



Manual override (hand-jack) is used to manually operate the valve in the event of power failure or loss of air, oil or water supply.

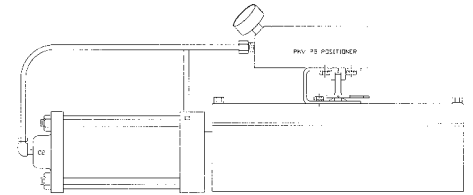
Limit Switches



Limit switches provide a visual as well as electrical indication of the valve position. The unit can be customized by choosing from a variety of options such as:

- Single pole double throw limit switches
- Double pole double throw limit switches
- 1-1000 Ohm potentiometer
- 4-20 mA feedback transmitter

Positioners



Positioners are designed to position the valve at any point from open to close, with the application of the proper control signal. Pratt offers the following three styles of positioners:

Pneumatic Positioner:

The pneumatic and electro pneumatic positioners differ by the medium needed to operate them. The pneumatic positioner generally operates off an air supply and a 3-15 psi air input signal.

Electro Pneumatic Positioner:

The electro pneumatic positioner operates using a 4-20 mA signal and utilizes air to drive the cylinder actuator.

Electro Hydraulic Positioner:

The electro hydraulic positioner operates using a 4-20 mA signal and utilizes water or oil as the operating medium.

Various accessory items such as limit switches, potentiometers, and transmitters can be supplied with all of the above positioners to meet specific control requirements.