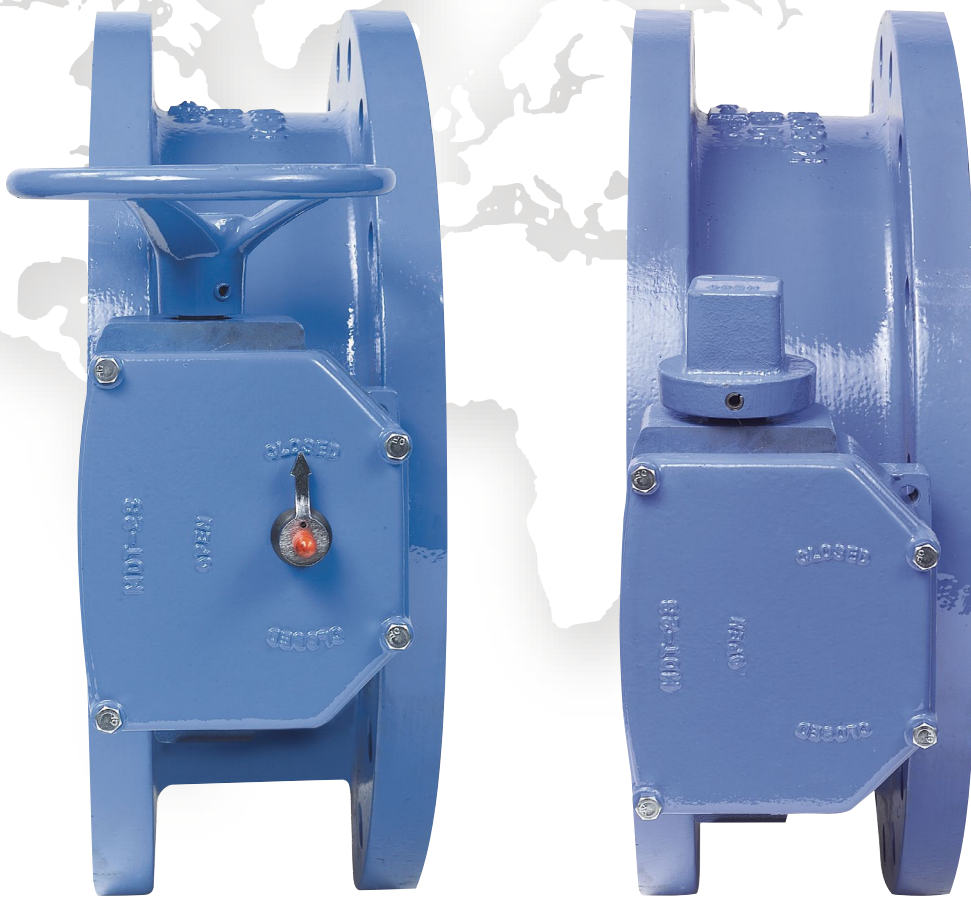


PRATT®

a MUELLER brand

MANUAL VALVE ACTUATORS

Engineering Creative Solutions for Fluid Systems Since 1901



MUELLER

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SCOPE OF LINE

Valve Actuators



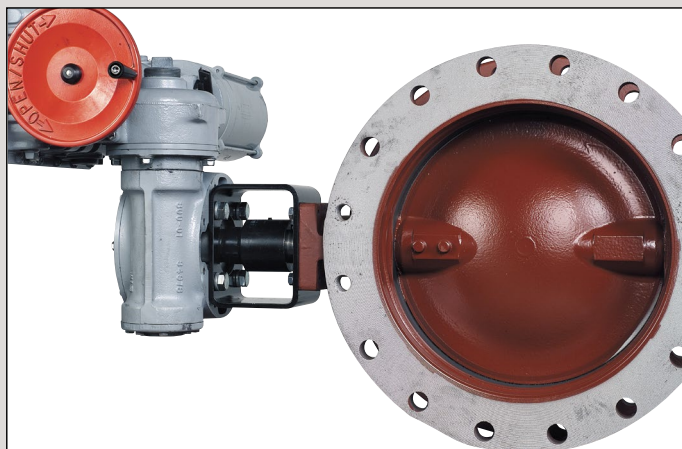
Pratt® offers a wide variety of actuator styles to suit a multitude of applications. Pratt brand valves are available with manual, buried service, submersible service, hydraulic or pneumatic, and electric actuators. Every actuator is specifically designed for long life in utility service with minimum maintenance.

When manual actuation is required, the Pratt MDT traveling nut type actuator is the ideal option for Pratt brand valves. Our MDT manual actuators are available with a

2" nut for buried, submersible or vault service. For above ground applications, the MDT is available with a handwheel or chainwheel. Hand levers are available for valve sizes up to 10".

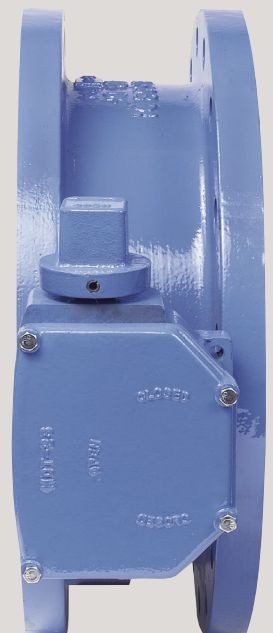
Actuators for open / close service, throttling or modulating service are all available in hydraulic, pneumatic and electric models.

Pratt supplies a variety of actuator accessories. Each accessory is designed to meet specific operating requirements.



Each actuator can be mounted in various positions for maximum convenience in installation and operation. Pratt can mount the actuator directly on the valve, or on an actuator extension to suit your application. The actuator position can be rotated about the valve stem as indicated on the project drawings.

Details of our MDT manual actuator and accessory product offerings are featured in this bulletin. More information on electric and pneumatic actuator styles that are available to be mounted on Pratt valves, can be found in other bulletins.

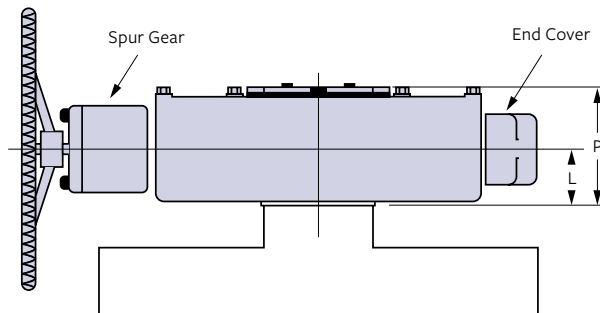


MANUAL ACTUATORS

TRAVELING NUT TYPE MANUAL ACTUATOR

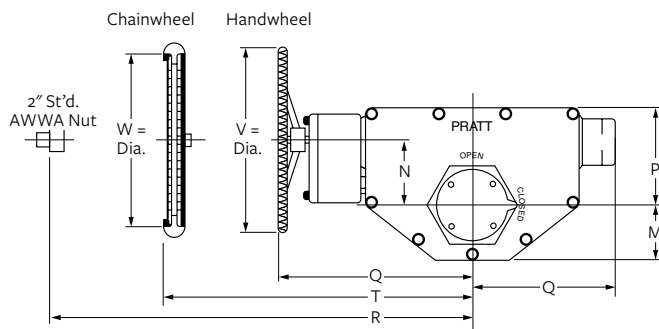
The Pratt® MDT traveling nut type actuator is the ideal manual actuation option for Pratt butterfly valves. The MDT provides characterized closure, which means the disc travel slows down in relation to the rotation of the handwheel or operating nut as it approaches the closed position. This feature helps to minimize the possibility of line shock and also provides a mechanical advantage at valve closure, where torque is normally higher.

Unlike other designs, the Pratt MDT actuator is designed to withstand up to 450 ft. lbs. of input torque (open or closed



Notes: Clockwise to close (open left) unless otherwise noted.

Spur gear and end Cover applies only to the MDT-6S.



positions) against the stops. This exceeds AWWA C504 design requirements by 50%. The MDT actuator maintains exact valve position under conditions of fluctuating, turbulent and intermittent flow without sacrificing ease of operation.

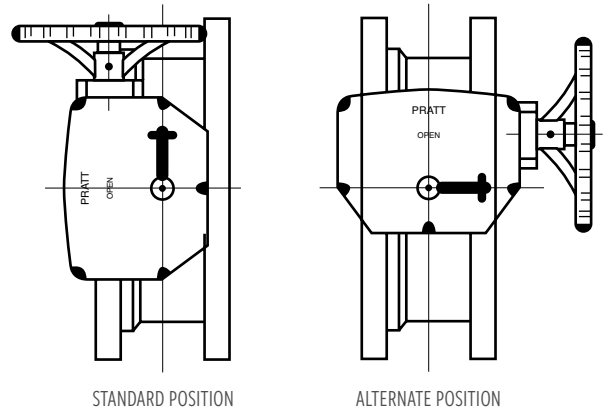
In complete conformity to AWWA Standard C504, the Pratt butterfly valve, coupled with the MDT actuator, offers single source responsibility for both actuator and valve.

In order to meet your just in time delivery requirements, Pratt maintains inventory on 3" through 48" butterfly valves with a variety of MDT actuation styles to suit your application. Consult factory for availability.



PRATT MODEL 2FII
WITH HANDWHEEL ACTUATOR

MDT MOUNTING POSITIONS



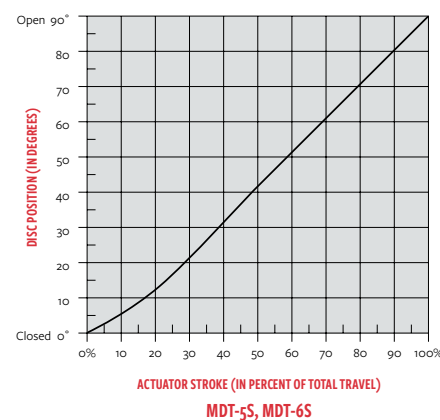
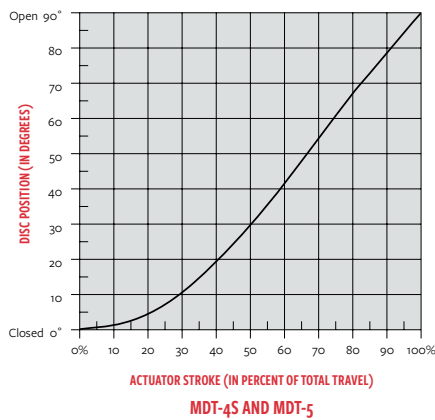
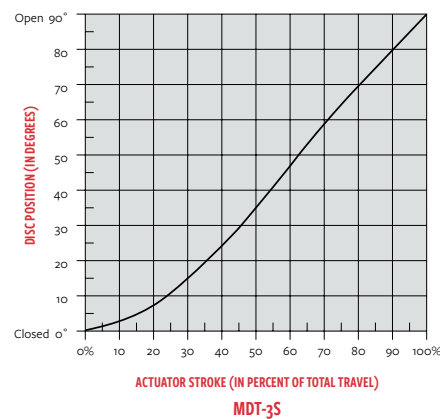
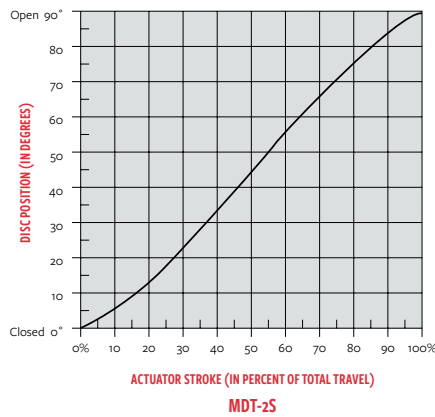
VALVE SIZE	MDT SIZE	J	L	M	N	P	Q	R	S	T	V	W	# TURNS TO CLOSE
3" to 10"	MDT-2S	4-7/8	2	2-1/8	2	4-1/2	4-1/4	7-5/8	7-7/8	7-7/8	8	9-1/8	32
12"	MDT-2S	4-7/8	2	2-1/8	2	4-1/2	4-1/4	7-5/8	7-7/8	7-7/8	12	9-1/8	32
14", 16"	MDT-3S	5-5/8	2-7/16	3-1/4	3-5/32	5-5/8	5-3/8	9-1/4	10-1/2	10	12	9-1/8	30
18" to 24"	MDT-4S	6-3/8	2-13/16	3-3/8	4	7-5/16	6-3/4	10-1/2	11-1/2	11	12	9-1/8	40
*30", 36"	MDT-5	7-9/16	3-15/32	4-1/2	5-1/2	8-3/4	10	17	17-1/8	17-7/8	18	16-7/16	44
*36", 42"	MDT-5S	10-3/4	6-1/8	5-5/8	3-5/8	10-5/8	15-15/16	19-11/16	20	20-3/4	24	22-1/4	136
*42", 48"	MDT-6S	12-7/8	7-5/8	7	8-1/4	12-5/8	18-5/8	26-1/2	26-3/4	25-7/8	24	22-1/4	215

*NOTE: Actuator sizing is determined by flow rate and working pressure operating conditions.

MANUAL ACTUATORS

ACTUATOR CHARACTERISTIC CURVES

The actuator characteristic curves below illustrate the total travel of the disc achieved by turning the valve actuator (shown in increments of 10%) from closed to full open position. The Pratt® MDT-2S actuator which is used on valves ranging from 3" to 12", features a slotted-lever design. The MDT-3S through MDT-6S used on valves larger than 12" in diameter feature a link-lever system (see illustrations on page 4). The MDT actuator provides for maximum slow down as the valve approaches the closed position, thus reducing the possibility of line shock.

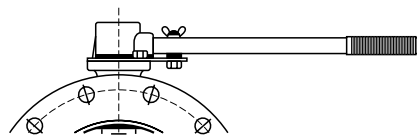


HAND LEVER STYLE

Pratt offers extra heavy steel hand levers furnished with a comfortable non-metallic hand grip for easy operation.

Our hand levers operate similarly to a tee wrench, and are available for valves sizes up to 10".

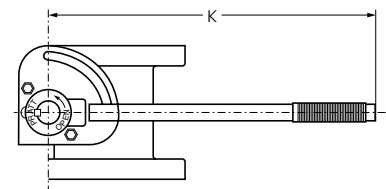
For throttling, the lever is moved to any



desired position and locked with a wing nut to eliminate vibration or chattering.

Standard lever lengths are 12" for valves through 6" in size, and 18" for 8" and 10" valves.

VALVE SIZE	ACTUATOR SIZE	K
3" to 6"	L -12"	12
8" to 10"	L -18"	18

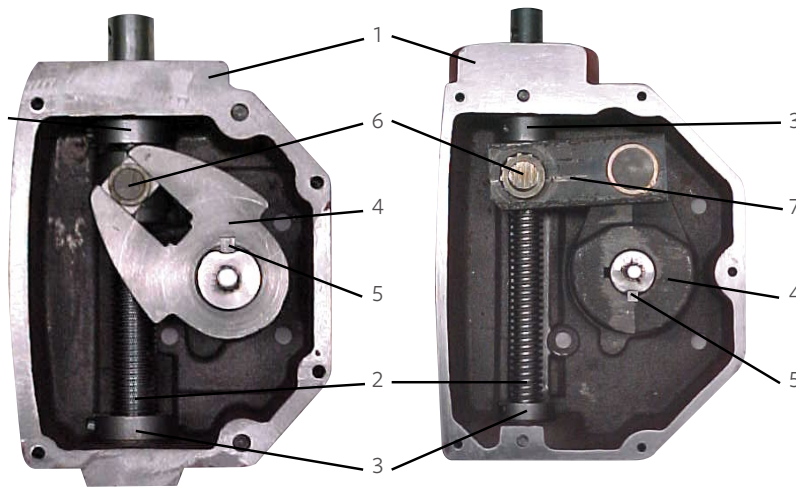


MANUAL ACTUATORS

ACTUATOR DESIGN PARTS LIST

SLOTTED LEVER (4"-12")

LINK-LEVER (14"-48")

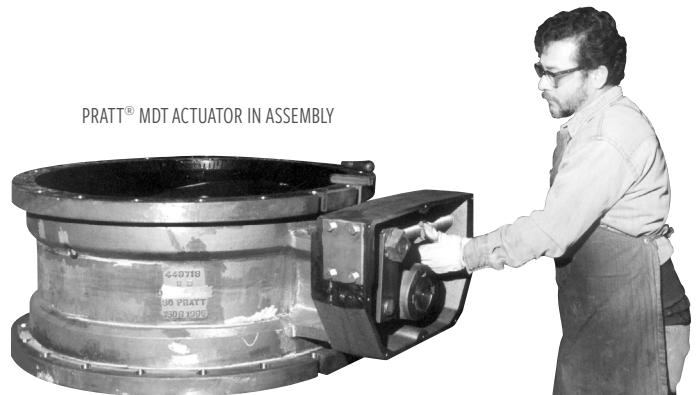


- 1. Housing** — Provides structural support plus protection for internal operating mechanism. Mounts to valve trunnion with four bolts. Gasket between housing and cover prevents infiltration of dirt and moisture.
- 2. Screw Rod** — Precision-machined, high strength steel.
- 3. Stop Limiting Collars** — Built-in, threaded into position and pinned. Exceeds AWWA C504 standard for input torque requirements to eliminate the possibility of damage to actuator housing, mechanism or disc-shaft assembly.
- 4. Lever** — Rugged casting built to transmit torques from slider nut to valve shaft. On link-lever design, takes up higher portion of nut movement at the “closing” end of the screw.
- 5. Key** — Actuator is keyed to valve shaft.
- 6. Slider Nut** — Precision machined to mate perfectly with screw rod and lever. Capable of withstanding 450 ft. lb. input torque against stop collar.
- 7. Dual-Link Construction** — One link above the screw (shown) and one below (hidden), adds strength and prevents misalignment and jamming of slider nut.

SUGGESTED SPECIFICATIONS

Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators shall be equipped with mechanical stop-limiting devices to prevent overt ravel of the disc in the open and closed positions. Valves shall close with a (clockwise) (counter-clockwise) rotation. Actuators shall be fully enclosed and designed to produce the specified torque with a maximum pull of 80 lb. on the handwheel or chainwheel. Actuator components shall withstand an input of 450 ft. lbs. at extreme actuator position without damage.

PRATT® MDT ACTUATOR IN ASSEMBLY



BURIED SERVICE ACTUATOR

RUGGED, FEATURE PACKED CONSTRUCTION

Designed and developed by Pratt specifically for buried service applications, our buried service MDT traveling nut actuator is mounted on the Pratt® Groundhog® butterfly valve. The buried service MDT actuator is lubricated for the life of the valve. Because of its fully grease packed construction, the actuator can be operated without maintenance under ground-water conditions. As long as the cover, gasket, and seals remain intact, there is no need to worry about damage resulting from water infiltration.

Completely in conformity to AWWA Standard C504, our buried service MDT actuator has a mechanical stop which will withstand an input torque of 450 ft. lbs against the stop. It can be relied upon to maintain exact valve position under conditions of fluctuating, turbulent and intermittent flow.

BURIED SERVICE ACCESSORIES

A variety of accessories can be used with our buried service MDT actuator. A conventional valve box or five inch soil pipe can be used to provide ready access to the AWWA nut (by means of a tee wrench) after backfilling. These items can be obtained from your local Pratt distributor.

PRATT® DIVINER® GROUND LEVEL POSITION INDICATOR

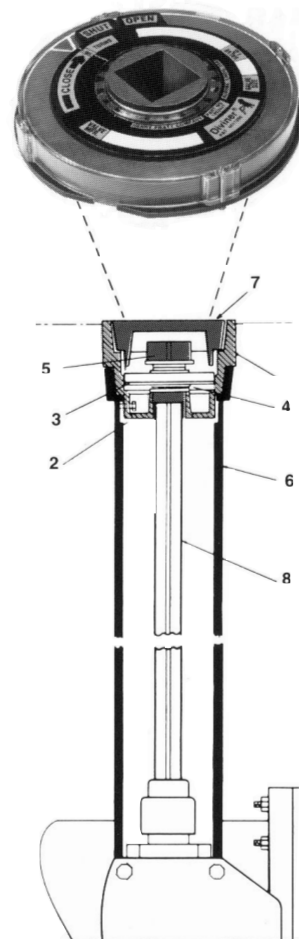
The Pratt Diviner is a valve position indicator used for buried valves to enable you to identify valve position at a glance, direction and number of turns to open or close the valve. It is installed in a standard 5-1/4" buried valve box just below the removable valve box cover. The Diviner position indicator is used in conjunction with an extension stem (see Actuator Extensions on page 7) that is available in 5' or 10' lengths at an additional cost.

The Diviner® position indicator is shipped for field assembly complete with cast iron adapter (1) and cap screws, guide bushing (2), position indicator (3), flexible washer (4), and a two-inch square AWWA nut (5) with set screw.

The adapter fits a standard 5-1/4" valve box (6) or 5 inch cast iron soil pipe bell utilizing a cast cover with skirt depth of 1" or less (7). Extension stems (8) are available in 5-foot and 10-foot lengths and can be ordered separately at extra cost.



PRATT GROUNDHOG
WITH BURIED SERVICE ACTUATOR



DIVINER GROUND LEVEL
POSITION INDICATOR



TYPICAL 5" SOIL
PIPE APPLICATION

FEATURES & BENEFITS

Traveling Nut Actuator

FEATURES OF THE TRAVELING NUT ACTUATOR

- Specifically Designed for Quarter Turn Valves
- Slows Down Valve Travel as the Disc Approaches the Closed Position
- Threaded Input Shaft
- Input Stops are Rated at 450 ft. lbs.

BENEFITS OF THE TRAVELING NUT ACTUATOR

- The peak output torque of a traveling nut actuator occurs at the same position as the peak torque requirement of the butterfly valve.
- The traveling nut actuator controls the valve disc with extreme precision which reduces disc vibration and chatter.
- The traveling nut actuator has many threads which keep the input shaft free from stress, therefore creating lower contact pressures.
- The input stops are capable of withstanding 1-1/2 times the AWWA C504 required input torque at full open or closed positions without damage to the valve or actuator.

OPTIONAL ACTUATOR STYLES

SUBMERGED SERVICE ACTUATORS

At Pratt's manufacturing facility, the buried service MDT actuator can be converted to an actuator which is suitable for continuous submerged service. Our capable engineering staff will evaluate your specific submersible conditions, and determine the MDT design modifications necessary to suit your application.

WORM GEAR ACTUATORS

Pratt furnishes worm gear actuators upon request. We offer a variety of different manufacturers' designs tailored to each project specification requirement.

CYLINDER AND ELECTRIC MOTOR ACTUATORS

Pratt® valves can be equipped with a wide range of cylinder and electric motor actuators to meet your special operating requirements. Consult our factory for additional information.

ACTUATOR EXTENSIONS

Pratt offers a variety of actuator extensions which can be used for manual, cylinder or electric actuators. The choice of extension style is determined by the need for valve position indication, location of the actuator and application.

EXTENSION APPLICATIONS

EXTENSION STEM WITH AWWA NUT

- Used to extend the 2" nut on a buried service actuator.
- Extension stems are available in 5 foot and 10 foot lengths, made of carbon steel, and can be special ordered in stainless steel and longer lengths.

EXTENSION BONNET

- Used to extend the actuator from the valve in situations when there may be space constraints, or it is not desirable to mount the actuator directly on the valve.
- Can be used for submerged service (such as reservoir inlet) and buried service applications.

DIVINER HANDWHEEL FLOORSTAND, TORQUE TUBE FLOORSTAND, MOTOR ACTUATOR ON FLOORSTAND

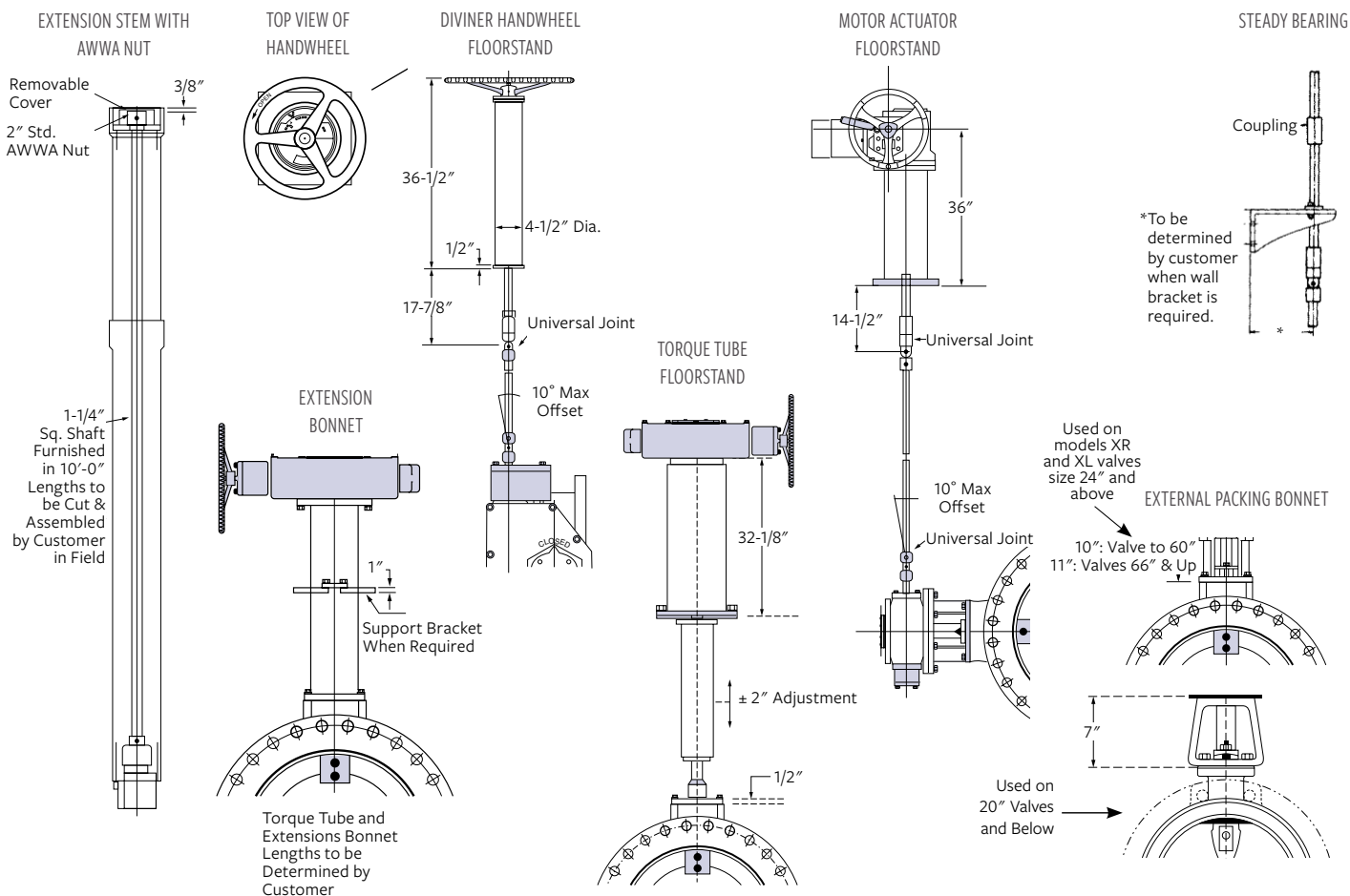
- Choice of floorstands or torque tube floorstand are determined by the need for valve position indication and angular alignment.

EXTERNAL PACKING BONNET

- There are two styles offered based on valve size. Both styles serve the same purpose; to allow for the valve packing to be replaced without removing the actuator.

STEADY BEARING



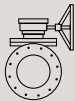



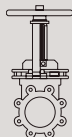


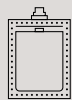

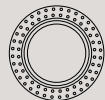

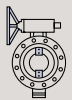
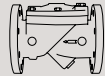
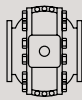

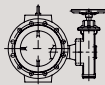
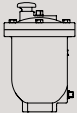
- A steady bearing is a support designed to restrict the bending of a long vertical stem.



NOTES

NOTES

PRATT® PRODUCT GUIDE

 Model 2FI	 Monoflange MKII	 Plug Valve
 Triton® XR70	 Indicating Butterfly Valve UL & FM approved	 Tilting Disc Check Valve
 Knife Gate Valve	 N-Stamp Nuclear Butterfly Valve	 Cone Valve
 Rectangular	 PIVA Post Indicating Valve Assembly UL & FM approved	 Sleeve Valve
 Rubber Seated Ball Valve	 Triton® HP250	 Check Valve
 Metal Seated Ball Valve	 Control Systems	 Plunger Valve
	 Air Valve	

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