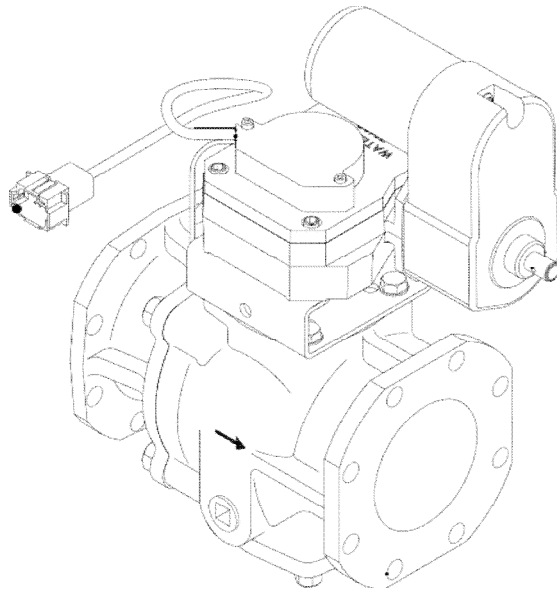


# 2-1/2" and 3-1/2" Discharge Valves

# Operation and Maintenance

Form No.	Section	Issue Date	Rev. Date
F-1031	2311	03/94	10/18/17



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**WATEROUS**

*Fire Pumps – Since 1886*



Waterous Company 125 Hardman Avenue South, South St. Paul, Minnesota 55075 USA (651) 450-5000

Instructions subject to change without notice.

## Description

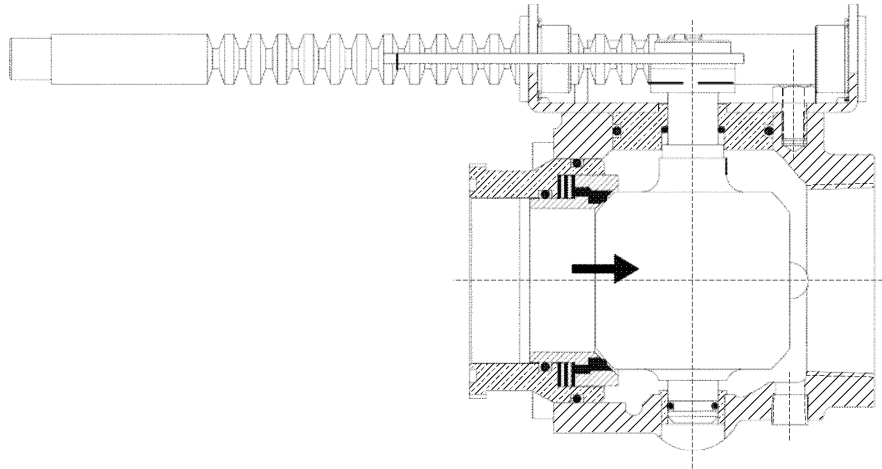
Waterous ball-type discharge valves are available in 2-1/2 inch standard or full flow and 3-1/2 inch sizes. The seal assembly is hydraulically balanced to control the contact pressure between the elastomer seal and the ball to provide drop tight sealing over the operating pressure range of the valve.

These valves are designed to open and close easily at fire pump operating pressure, with any one of a variety of reliable operating mechanisms offered

by Waterous. Mechanisms include provisions for valves mounted at the operator's panel, remote panel mounting, top control arrangements and for front mounted pumps.

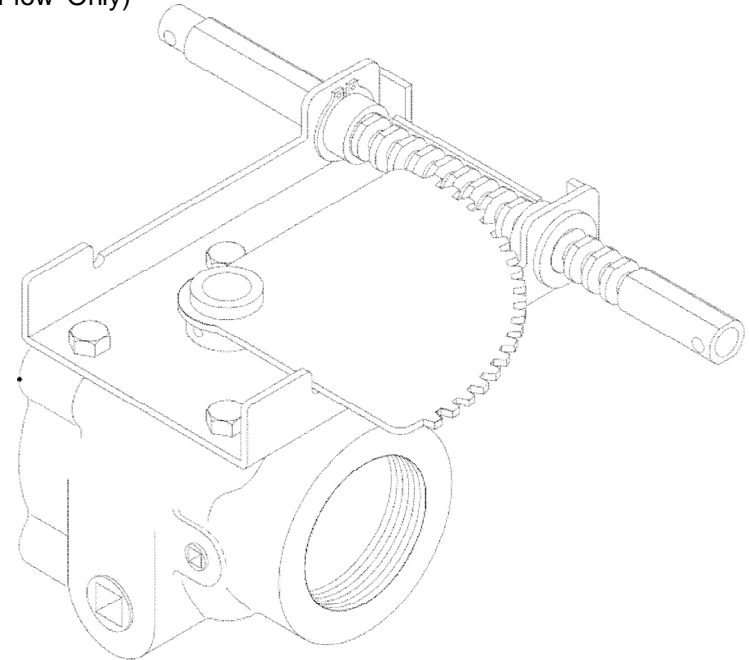
Waterous valves can be flange mounted directly on a Waterous discharge fitting or, when supplied with the proper tapped flanges, can be mounted in the piping for all other applications except the rotary actuator.

Figure 1. Discharge Valve Cutaway



IL1650

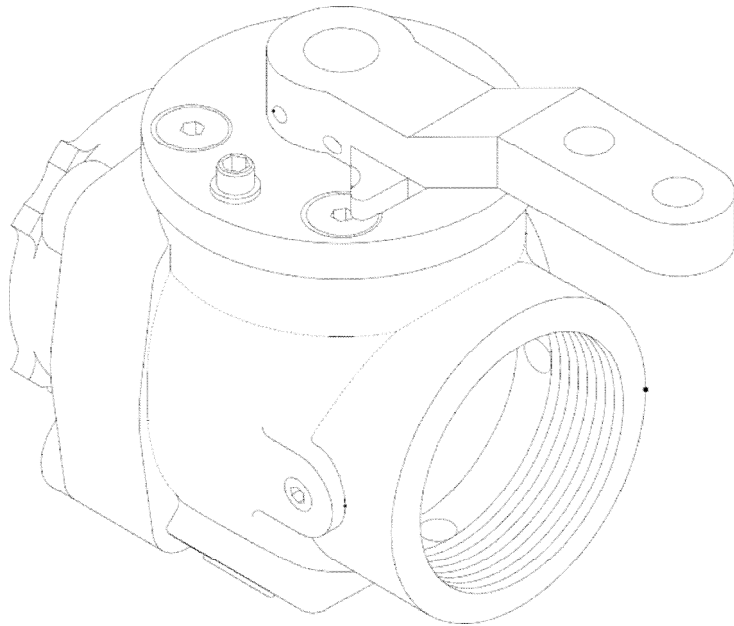
Figure 2. Push-Pull Twist Lock Operation (2-1/2 in. Standard and Full-Flow Only)



IL1651

The rack and sector operating mechanism provides constant operating force at any valve position. A simple twist of the panel mounted "T" handle locks the valve in any position regardless of discharge pressure.

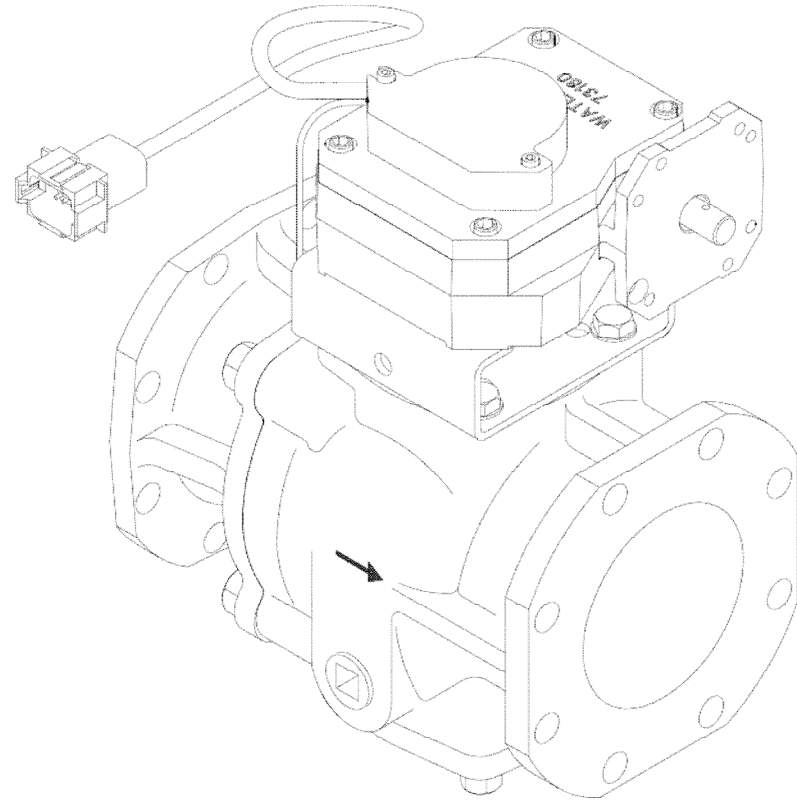
Figure 3. Quarter Turn, Remote Locking (2-1/2 in. Standard and Full-Flow Only)



IL2243

The control offers the same basic features as the other types except that a locking system is not included as part of the operating mechanism. Often used with top mounted panels.

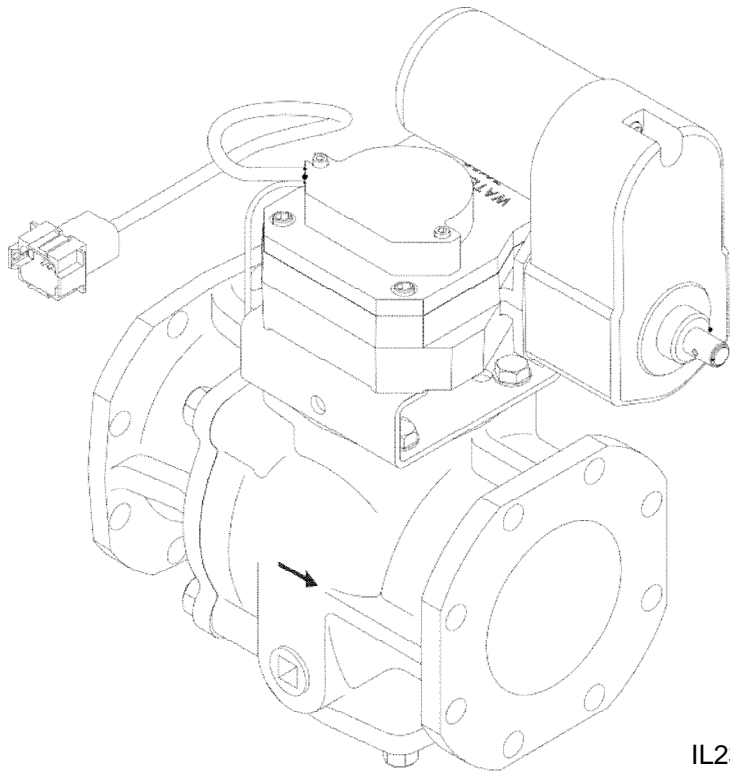
Figure 4. Manual Rotary Actuator (All Valves)



IL2352

Complies with NFPA requirement of slow actuation. The hand crank rotary actuator allows easy operation at the operators panel to open and close the valve.

Figure 5. Electric Rotary Actuator (All Valves)



Complies with NFPA requirements for slow operation. The electric actuator is designed for easy positioning of valves with panel mounted switch. The simple-to-operate switch can be mounted in any convenient location and is ideal for top mounted panels. 12 VDC and 24 VDC power only.

**Note: It is normal for the valve to produce a ratcheting sound upon reaching the fully open or fully closed position.**

## Maintenance

The effectiveness of a ball-type valve depends greatly upon the tightness of its seal, as a leaking seal allows air to enter the pump during priming, or water to escape when operating. Sand or other abrasive material in the water being pumped can score and roughen the surfaces of the valve parts. This rough surfaces may gradually cut the seal and cause leakage. If valve leakage is detected, rotate the valve ball 180° so the seal contacts the opposite side of the ball. If turning the ball does not stop leakage, replace the ball. A repair kit is available from Waterous Company.

The ball bearings on the 3-1/2 inch valve stems are factory lubricated and sealed, and require no maintenance.

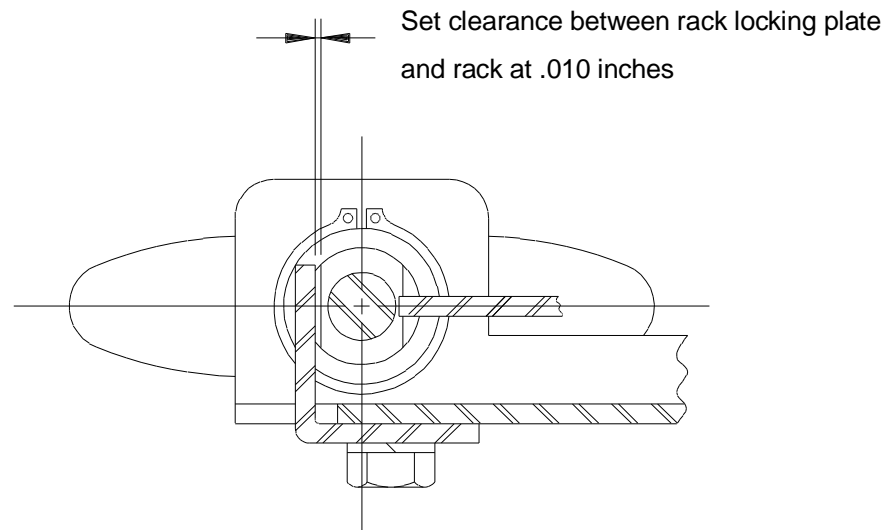
Operating linkages should be kept free of grease and dirt. No lubrication is required. Operate the valves at least monthly (with water flowing) to flush and lubricate the seals.

Rotate the valve ball 180° and replace the seal. The seal will contact the opposite side of the ball.

## Rack Locking Plate Adjustment

(Push-Pull, Twist Lock Operation Only)

Whenever locking plate is loosened or removed, adjust it with a feeler gage during reassembly to provide 0.010 inch clearance between plate and rack when unlocked.



(Unlocked Position)

IL1170

**TROUBLESHOOTING:**

<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
Valve leaking	Compression set into valve seal	Replace seal with appropriate seal kit
	Defective seal	Replace seal with appropriate seal kit
	Scored / Corroded valve ball	Clean with emery cloth, rotate ball 180°, or replace
Panel LED's all illuminated constantly	Encoder not grounded	Check for ground on encoder assembly
	Defective encoder	Unplug encoder from panel – if LED's turn off, replace encoder
Valve Position LED's NOT illuminated	No power to panel	Check for power supply to panel
	Encoder not grounded	Check for ground on encoder assembly
	Defective encoder	Unplug encoder from panel – if all LED's turn off, replace encoder
	Defective panel	Connect jumper wire from 12V red wire deutsch connector to each other pin of the connector – should light the individual LED's on the panel
Electric Valve doesn't open or close	Defective switch	Check for proper connections
	Motor to switch connection	Check wiring from motor to switch
	Defective motor	Unplug connection at motor and measure motor continuity with an Ohm meter – should be less than 5 Ohms
	No power to panel	Check for power supply to panel
Motor runs constantly	Defective switch / short circuit across switch	Check for circuit across switch – replace in necessary