

# MODEL D86 VALVE OVERTORQUE PROTECTOR

## TECHNICAL MANUAL

### STOP VALVE BREAKAGE

Valve Overtorque Protector prevents valve damage caused by excessive operating torque.

### DESCRIPTION

Valve Overtorque Protector is permanently mounted on the valve operating nut. No special tools or valve modifications are required. Easily mounted on direct buried valves without excavation.

Operating torque is applied to the 2-inch AWWA nut on the overtorque protector and transmitted to the valve through the overtorque protector.

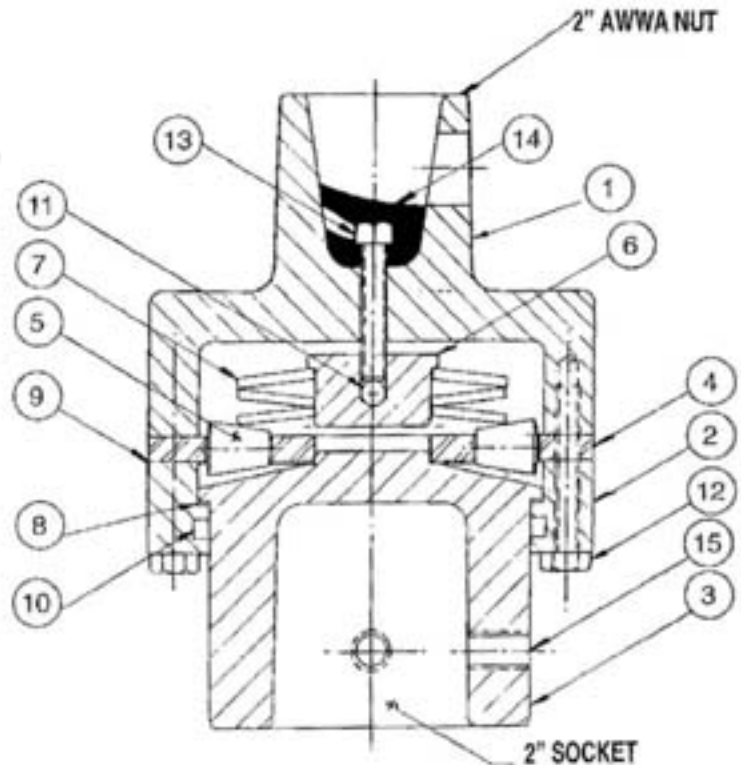
The overtorque protector will transmit sufficient torque to free up and operate the valve. When excessive torque is applied, the drive mechanism will disengage and prevent valve damage. The drive will re-engage automatically.

Operates buried and submerged. Zero maintenance. Permanently lubricated. Corrosion protected.

### OPERATION

Operating torque is applied to the Bonnet Nut (1) and transmitted through the Drive Plate (4) to the Drive Rollers (5) then to the Socket (3) by means of Detents in the Socket face.

When excessive torque is applied, the Drive Rollers (5) compress the springs (7), rise out of the Detents and disengage the drive to prevent damage to the valve. Operation is the same in either open or close direction.



### MATERIALS OF CONSTRUCTION

No.	Part	Material
1	Bonnet	Cast Iron ASTM A48 Gr30
2	Retainer	AISI 12L14
3	Socket	Spc Alloy Ductile Iron ACC 100
4	Drive Plate	Carbon Steel AISI Type 1071
5	Drive Roller	CrMo Alloy Steel AISI Type 41L40
6	Spring Guide	CrMo Alloy Steel AISI Type 41L40
7	Spring	CrV Alloy Steel DIN 17222
8	Thrust Water	Molydisulfide filled Nylon
9	Gasket	Cellulose Fiber/Styrene Butadiene
10	Seal Ring	Nitrile Butadiene
11	Bearing Ball	CrMn Alloy Steel SAE 52100
12	Body Screw	CrMo Alloy Steel ANSI B18.3
13	Adjusting Screw	CrMo Alloy Steel ANSI B18.3
14	Sealant	Polyurethane
15	Mounting Screw	CrMo Alloy Steel ANSI B18.3

**Corrosion protection:** Sealed mechanism. Cast iron housing epoxy coated inside and outside with enamel final coat.

**Lubrication:** Molydisulfide-bearing, water-resistant, high-pressure synthetic grease.



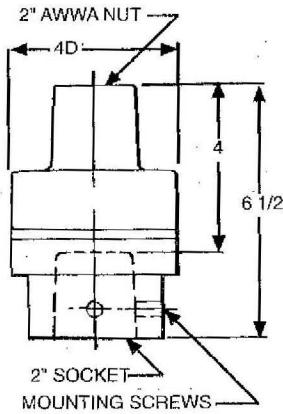
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## DIMENSIONS AND MOUNTING INSTRUCTIONS



To mount, place overtorque protector on valve operating nut and tighten the two mounting screws.

To mount on buried valves, hook into the drain hole in the side of the bonnet nut then lower the unit onto the valve operating nut. The mounting screws need not be tightened.

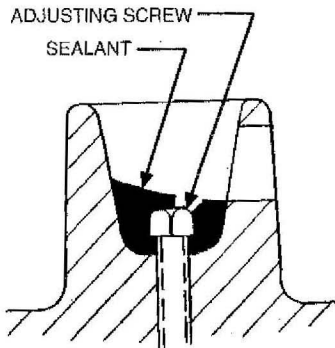
## STANDARD TRIP TORQUES

Model D86-250: 200 lbft  
 Model D86-500: 400 lbft  
 Other trip torques available

## TRIP TORQUE CAPACITIES

Model D86-250: 25 to 250 lbft  
 Model D86-500: 50 to 500 lbft

## TRIP TORQUE ADJUSTMENT



Model D86 Trip Torque Adjustment Screws are sealed and concealed to prevent tampering. Trip torque can be adjusted in the user's shop by the following procedure:

1. Remove polyurethane sealant from bonnet nut cavity to expose the adjusting screw.
2. Rotate the adjusting screw inward (clockwise) to increase trip torque or outward (counterclockwise) to decrease. One-sixteenth revolution will change the trip torque approximately twelve pound feet.
3. After adjustment, fill the nut cavity with Devcon Flexane 80 Liquid polyurethane up to the lower edge of the drain hole in the side of the bonnet nut.

## AWWA VALVE TORQUE REFERENCE DATA

Valve Style	AWWA Ref	Valve Size	Max Torque To Operate	Max Torque Allowable	Industry Standard Trip Torque
Butterfly	C504-87 3.8.5.2 3.8.5.8	3 thru 72 in	150 lbft	300 lbft	200 lbft
Ball	C507-91 3.2.7.14 3.2.7.16	6 thru 48 in	150 lbft	300 lbft	200 lbft
Resilient Seat Gate	C509-87 3.1 6.2.2 A.5.7.5	3 thru 4 in	—	200 lbft	150 lbft
		6 thru 12 in	—	300 lbft	200 lbft
Gate	C500-86 3.1 A.5.7.6	3 thru 4 in	—	200 lbft	150 lbft
		6 thru 12 in	—	300 lbft	200 lbft