



## 87 Series Electric High Cycle - Maintenance Free Ball Valves

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Made In USA

### FEATURES

- Fast 1.5 Second Index Time
- Ultra Compact Design
- 12VDC & 24VDC Motors
- Long-Lasting, Maintenance Free Stem Seal
- Superior Mounting System - Precise Alignment, Rigid Coupling; In-Line or Cross-Mount
- Bubble Tight Closure - Each valve is bubble tested to ensure that all sealing points function properly
- Ideal for wide variety of OEM and End User Applications where traditional slow or bulky actuators will not work

**G**emini 87 Series features the latest innovation in a premium quality, long lasting, and truly maintenance free automated valve. Suited for a variety of applications including those involving high cycling where stem seal leakage is problematic or where extended maintenance-free service is desired.

The 87 Series was designed exclusively for enduring automation rather than being simply a

manual ball valve fitted with an actuator. New breakthroughs in stem seal design and a superior mounting system, coupled with competitive pricing, delivers unprecedented value for your automated ball valve needs.

The valve is available in pipe sizes ¼" - 1" with standard body materials of brass and stainless steel. Each valve is bubble-tested to ensure leak-tight performance.

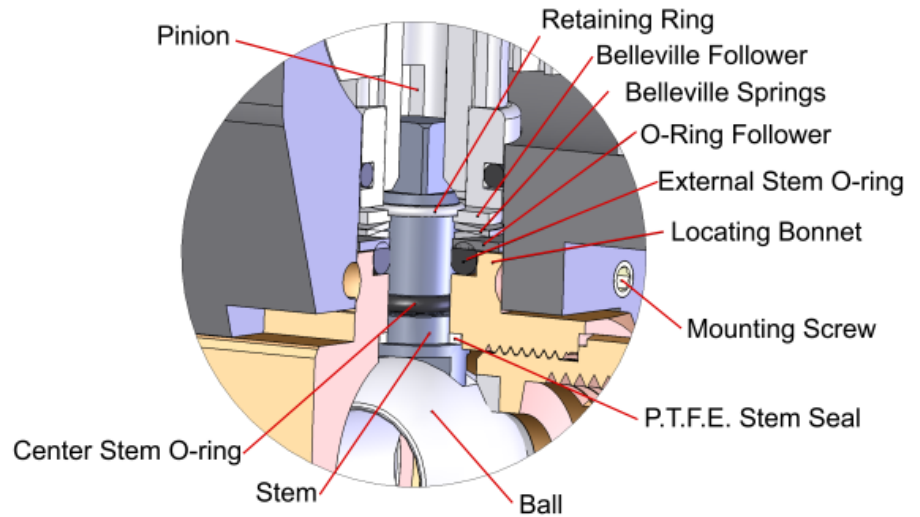
The valve is operated by a compact direct mount, permanently lubricated worm drive transmission powered by a 12VDC or 24VDC gear motor. The bearing supported drive train ensures long, reliable performance. Each actuator is factory calibrated for fast, accurate and repeatable indexing.

Standard 'In-line' or 'Cross Mount' valve to actuator configuration is easily achieved even after the valve is in service.

## Stem Detail

The addition of two o-ring seals adds a new dimension to our proven self compensating stem seal design. Stem seal integrity is achieved by three independent and distinct elements for excellent longevity.

A lower, dual purpose stem seal and thrustbearing made from reinforced Teflon® acts as a primary static seal. A center o-ring seal provides the main dynamic seal. The gland for this o-ring is located on the stem so that it maintains a predictable preload. Finally, an external o-ring provides both a secondary static and dynamic seal. This final seal is spring compensated to make up for extreme cycling and wear. As the o-ring and PTFE seals wears, the springs apply a constant axial force on a hardened stainless washer forcing the o-ring below to



expand radially and maintain contact with the stem.

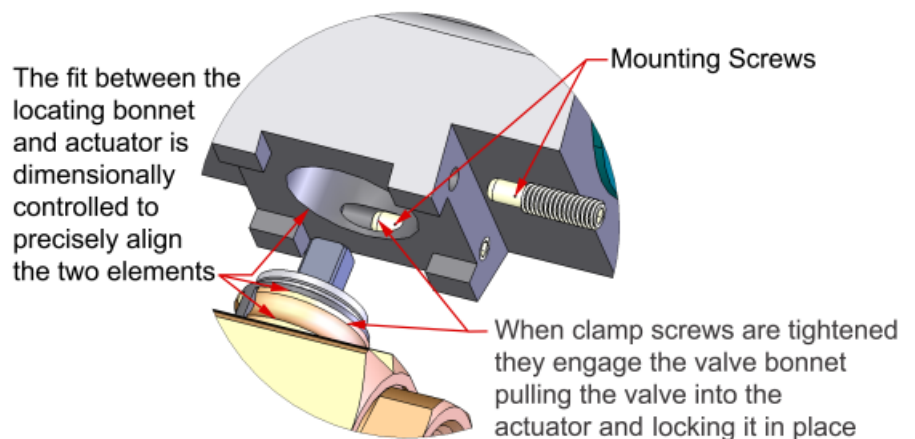
The traditional stem (packing) nut has been eliminated and replaced with a captive, fixed-preload retaining ring. This eliminates the danger of incorrectly tightening

the nut which can result in premature stem seal leaks. The valve is designed to maintain its integrity without any adjustment or maintenance of the stem seal preload.

## Mounting Detail

A key element in long stem seal life is to minimize stem side loading resulting from valve to actuator mis-alignment. Our unique valve to actuator coupling system utilizes a precisely machined locating bonnet and mating actuator gland to ensure nearly perfect alignment. Two intersecting clamp screws are used to complete the mounting process by pulling the valve into the actuator and locking it rigidly in place. These clamp screws are easy accessible making the usual chore of joining or separating the valve from the actuator simple and quick.

Additionally, the relative torque between the actuator and valve is



absorbed independent of the clamp screw by means of a four corner mounting pad that straddles a mating projection on the valve body. This locks the

valve in position and eliminates the risk of the valve loosening while in service.

# Specifications

## Valve

### MATERIALS OF CONSTRUCTION

**BODY:** B16 Brass or CF8M Stainless Steel

**BALL:** Type 316 Stainless Steel

**STEM:** Type 630 (17-4) Stainless Steel

**SEATS:** Glass Reinforced P.T.F.E. (Teflon ®)

**SEALS:** Viton® Optional: EPR / EPDM

### CONNECTION / STYLE SIZES

Pipe / N.P.T.F. 1/4" - 1"  
(Dryseal National Pipe Taper)

### RATINGS

#### TEMPERATURE:

P.T.F.E with Viton: -20° F to 350° F

P.T.F.E. with EPR / EPDM: -50° F to 250° F

P.T.F.E. with Buna N: -30°F to 250°F

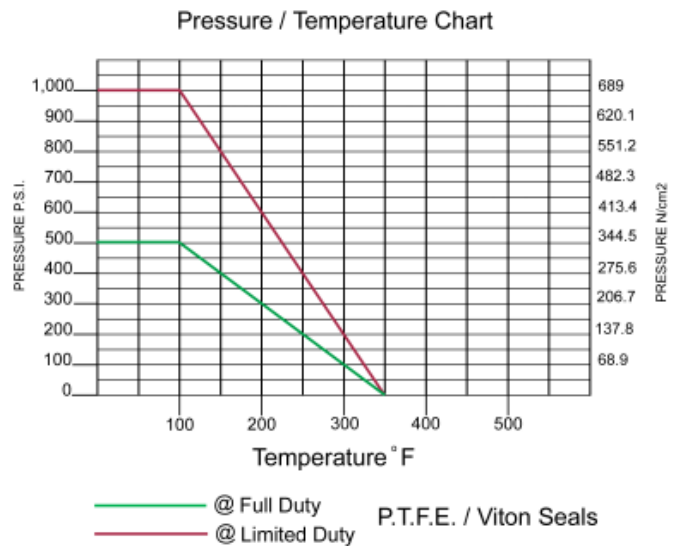
(also see Pressure Temperature Chart)

#### PRESSURE:

1,000 p.s.i. C.W.P. (100°F) - Limited Duty

500 p.s.i. C.W.P. - Full Duty

(also see Pressure Temperature Chart)



### FLOW CHARACTERISTICS

The approximate flow rate through a valve can be calculated as follows:

$$Q = C_v \sqrt{\frac{\Delta P}{G}}$$

where; Q = flow rate in gallons (U.S. Std.) per minute  
Cv = valve constant  
P = pressure drop across the valve in pounds per square inch  
G = specific gravity of the media of relative to water

Note: The values derived from the flow equation are for estimating purposes only. Product variances or systemic factors may alter actual performance.

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1  |
|------|-----|-----|-----|-----|----|
| Cv   | 5.5 | 5.5 | 8   | 12  | 32 |

# Specifications

## Actuator

### MATERIALS OF CONSTRUCTION

Coated Aluminum Die Cast Base, Zytel Enclosure, 300 Series Stainless Steel Output Shaft & Mounting Hardware

### RATINGS

**TEMPERATURE:** 40°F - 221°F (4°C - 105°C)  
**DUTY CYCLE:** 25%  
**ENCLOSURE:** General Purpose (non-NEMA rated)

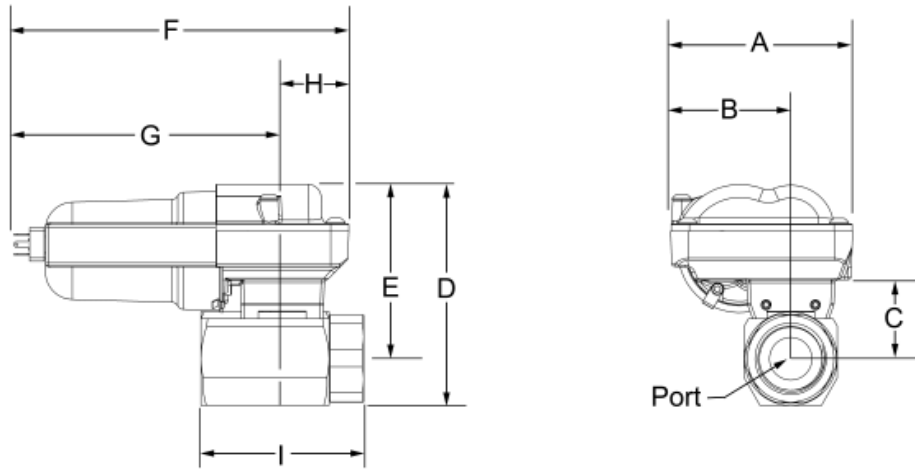
### CONNECTION

Sub-Micro 9mm connector, 4 pin, 20 AWG

| Model  | Voltage | Index Time*<br>(Seconds) | Current**<br>Start / Running<br>(Amps.) |
|--------|---------|--------------------------|---|
| WD2401 | 24DC    | 0.9                      | 3.2 / 1.6                               |
| WD2402 |         | 1.3                      | 2.4 / 1.2                               |
| WD2403 |         | 2.9                      | 1.6 / 0.8                               |
| WD1201 | 12DC    | 0.9                      | 6.2 / 3.1                               |
| WD1202 |         | 1.3                      | 4.6 / 2.3                               |
| WD1203 |         | 2.9                      | 3.4 / 1.7                               |

\* - Approximate Index Time Dependent on Load & Temperature  
 \*\* - Current Dependent on Load Requirements (valve size, line pressure & media)

## Dimensions



| Valve Size | A    | B    | C    | D    | E    | F    | G    | H    | I    | Port |
|------------|------|------|------|------|------|------|------|------|------|------|
| 1/4        | 3.42 | 2.26 | 1.11 | 3.39 | 2.90 | 6.29 | 5.04 | 1.25 | 1.74 | .36  |
| 3/8        |      |      | 1.11 | 3.39 | 2.90 |      |      |      | 1.74 | .36  |
| 1/2        |      |      | 1.21 | 3.64 | 2.99 |      |      |      | 2.31 | .49  |
| 3/4        |      |      | 1.34 | 3.89 | 3.12 |      |      |      | 2.53 | .62  |
| 1          |      |      | 1.48 | 4.14 | 3.26 |      |      |      | 3.06 | .80  |

## How To Order

Specify Size and Product Code. Example: 1/2 871RTRV6WD2402

| Size | Product Code |                      |  |                      |          |
|------|--------------|----------------------|--|----------------------|----------|
|      | Valve Series | Body Material        | Seal Materials                                   | Ball & Stem Material | Operator |
| 1/4  | 87           | 1<br>Brass           | RTV<br>Glass Filled Reinforced P.T.F.E. & Viton  | 6<br>Stainless Steel | WD2401   |
| 3/8  |              | 6<br>Stainless Steel | RTR<br>Glass Filled Reinforced P.T.F.E. & EPR    |                      | WD2402   |
| 1/2  |              |                      | RTB<br>Glass Filled Reinforced P.T.F.E. & Buna N |                      | WD2403   |
| 3/4  |              |                      | WD1201   |                      |          |
| 1    |              |                      | WD1202   |                      |          |
|      |              | WD1203               |  |                      |          |

**WD2402 Model Available from Stock** - Other models manufacture to order

LIMITED WARRANTY - Copy Available Upon Request.  
 Specifications subject to change without notice and without obligation on the part of the manufacturer.



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