



TECHNICAL DATA SHEET

82 Series Ball Valves

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DESCRIPTION

82 Series, two-piece compression end style valve for instrumentation applications or simply the convenience associated with compression style tubing.

MATERIALS OF CONSTRUCTION

BODY: Brass - ASTM B-16, 316 Stainless Steel - ASTM A276

BALL AND STEM: 316 Stainless Steel

SEATS AND STEM SEAL: Glass Reinforced P.T.F.E. (Teflon®)

CONNECTION / STYLE SIZES

Tube / Compression	1/4, 3/8, 1/2, 3/4, 1
Pipe / N.P.T.F. (Dryseal National Pipe Taper)	1/2" - 1-1/2"
Pipe / B.S.P.T. (British Standard Pipe Taper)	1/2" - 1-1/2"
Pipe / J.I.S. (Japanese Imperial Standard)	1/2" - 1-1/2"

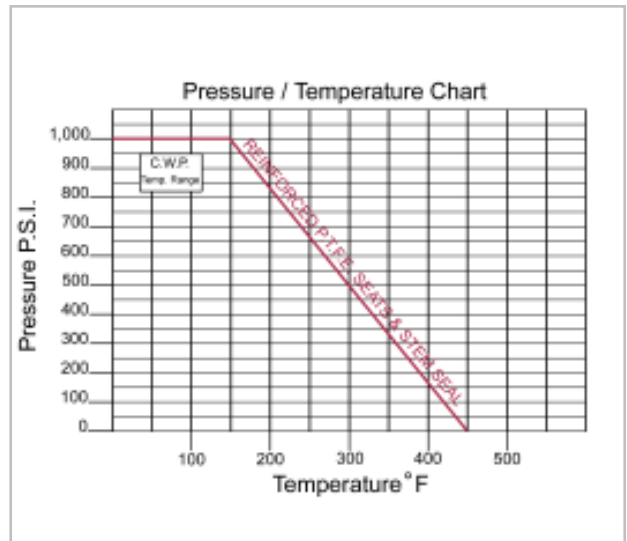
RATINGS

TEMPERATURE: -50°F to 450°F
(also see Pressure Temperature Chart)

PRESSURE: 1,000 p.s.i. C.W.P. (Cold Working Pressure to 150°F)
(also see Pressure Temperature Chart)

VACUUM: 20 Micron

SATURATED STEAM: 150 p.s.i.



RATINGS (continued)

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.

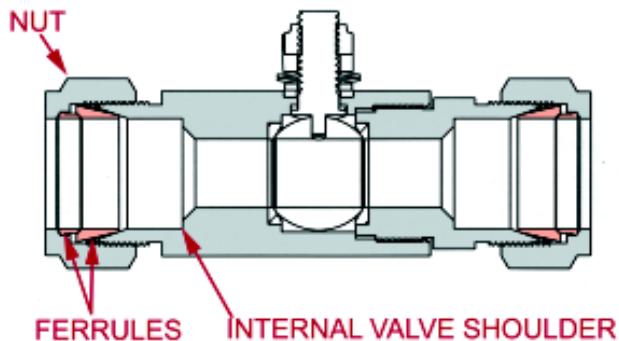
Size	1/4	3/8	1/2	3/4	1
Cv	*	*	5.5	8	12
* - Consult Gemini Valve					

INSTALLATION INSTRUCTIONS

Tube (initial assembly):

1. Ensure the tube end is square and free from burrs, nicks, scratches and debris.
2. Loosen the NUT by turning it counter-clockwise one turn. Insert the tube through the NUT and FERRULES until it sits against the internal VALVE SHOULDER. Tighten the NUT (clock-wise) hand tight. Continue tightening the NUT with a wrench for 1 to 1-1/4 turns or until snug.

Note: for re-assembly, after initial assembly, approximately 1/4 turn with wrench is generally required to re-tighten.



MAINTENANCE

Like all Gemini Valves, the 82 Series utilizes our self compensating stem seal design. This design automatically compensates for wear as well as thermal expansion and contraction resulting in a leak tight, maintenance free, service life.

Once the stem seal has worn beyond the compensation afforded by the Belleville springs adjustment of the stem nut may enable valve to be returned to service. Holding the 'flats' of the stem, tighten the stem nut until Belleville springs become fully compressed (flattened); the torque required to tighten the nut further increases sharply when this point is reached. Do not tighten the stem nut beyond this point to avoid damage of the stem seal.

Series 82 valves are of a two piece body design, which permits disassembly without any special tools. Although still promoted as maintenance free, replacement of the seats and stem seal may enable the valve to be returned to service. For stainless steel valves problems associated with 'galling' of the mating parts could result in body seal leakage and subsequent safety issues. Note the price of a seat and seal kit may approach 60% of the cost of a new valve and does not include labor and any safety related issues should the valve be incorrectly repaired.

For those customers who desire to attempt repair a VRK (Valve Repair Kit) kit is available from Gemini Valve.

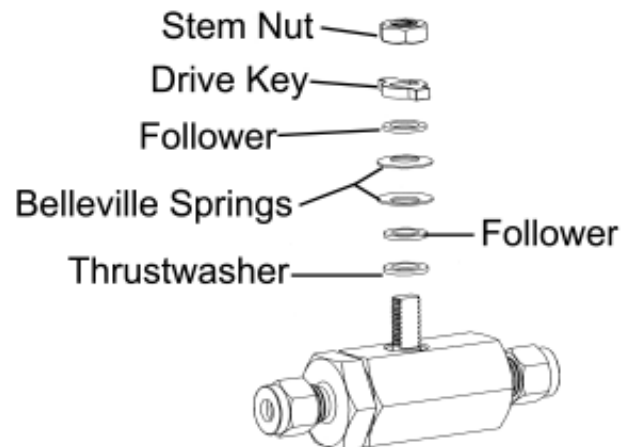
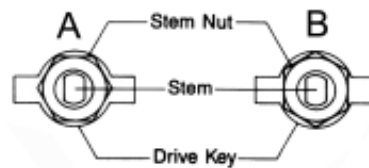
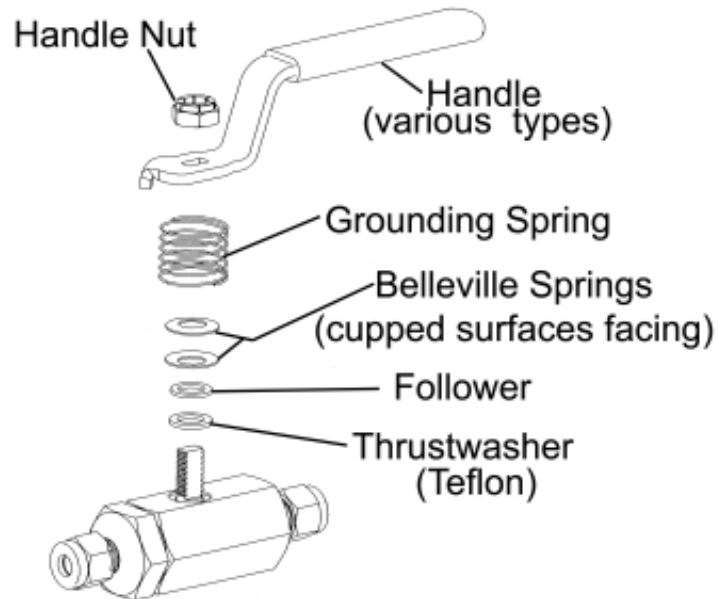
CONVERSION INSTRUCTIONS; MANUAL TO AUTOMATED

These instructions cover the conversion of manual (handle-operated) valves for actuated operation. In addition to the valve and actuator, a mounting kit is also necessary to complete the installation.

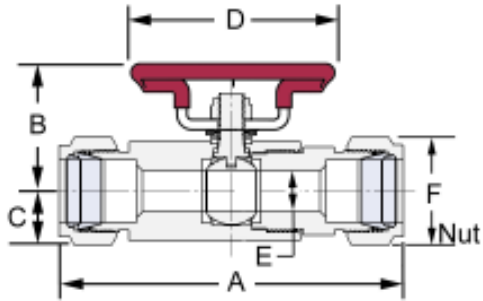
1. With the valve in the 'open' position remove, and put aside, the handle nut, handle and grounding spring from the valve on which the actuator will be mounted. Leave the thrustwasher, follower and Belleville springs on the valve stem.

2. Assemble the follower, (for 1/4" - 3/4" only), drive key, and stem nut from the kit. Do not reuse the handle nut from the manual valve assembly. Prevent the stem from turning as the nut is tightened by inserting a wooden or plastic dowel through the valve, then tighten the stem nut until the Belleville springs have just become fully compressed (flattened). Although the nut spins freely when first run onto the stem, the torque needed to continue tightening will increase progressively after the stem nut contacts the drive key and the Belleville springs begin to deflect. The torque required to tighten further will increase sharply once the Belleville springs have become fully flattened. Tightening beyond this point should not be attempted as damage to the stem seal may result.

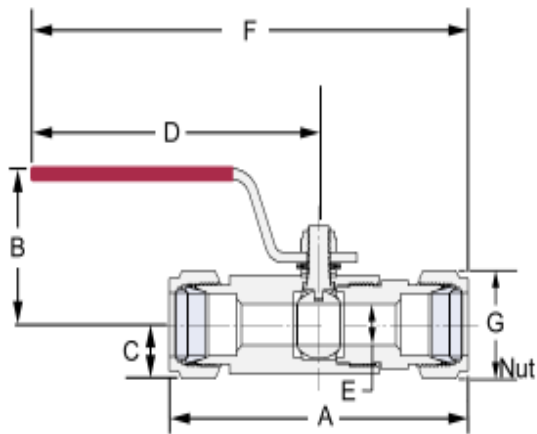
3. The correct orientation of the stem nut to the drive key is shown in Figure 3; this orientation is necessary to permit engagement with the twelve-point socket in the actuator pinion driver. In order to achieve the desired orientation, loosen the stem nut until the nut / drive key relationship corresponds to either 'A' or 'B' in Figure 3. This adjustment should require less than one-twelfth (1/12) turn of the nut.



DIMENSIONS



Tube Size OD	Dimensions - Inches					
	A	B	C	D	E	F
1/4	3.72	1.58	.50	2.31	.19	9/16
3/8	3.70	1.58	.50	2.31	.28	11/16
1/2	3.94	1.58	.50	2.31	.36	7/8
3/4	4.17	1.67	.59	3.41	.49	1-1/8
1	4.92	1.91	.75	3.41	.62	1-1/2



Tube Size OD	Dimensions - Inches						
	A	B	C	D	E	F	G
1/4	3.72	1.77	.50	4.00	.19	5.86	9/16
3/8	3.70	1.77	.50	4.00	.28	5.86	11/16
1/2	3.94	1.77	.50	4.00	.36	5.97	7/8
3/4	4.17	1.87	.59	4.00	.49	6.08	1-1/8
1	4.92	2.08	.75	5.38	.62	7.83	1-1/2