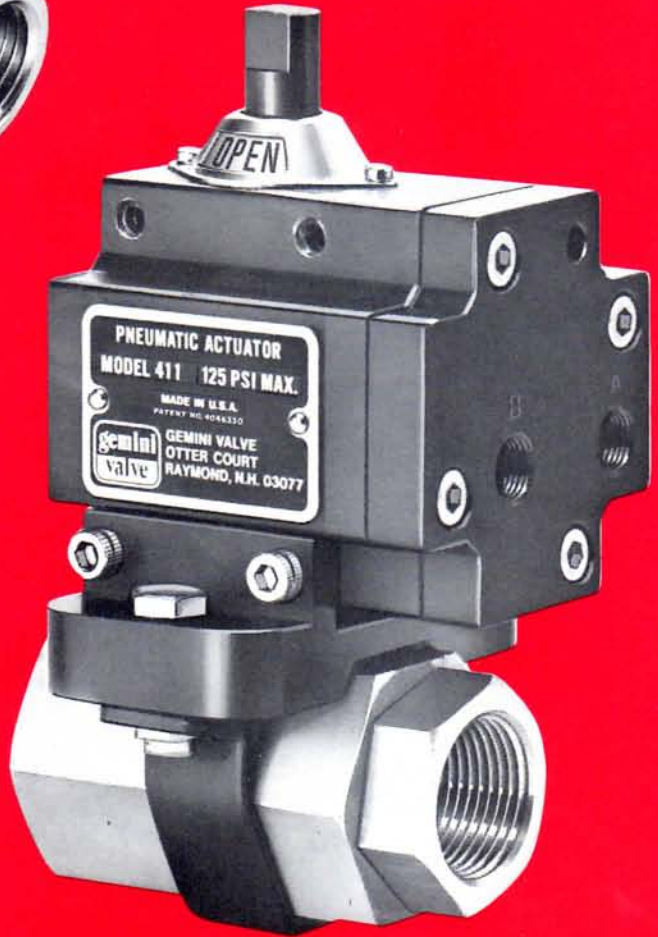


gemini[®]
valve

Value through Innovation



Process Components Distribution
42 Edgeboro Road
East Brunswick, New Jersey 08816
Phones: N. J. 800-352-4993
N. Y., CT., PA., DE., MD., 800-631-5516
GOULD INC. IMPERIAL-EASTMAN PRODUCTS



BALL VALVES
ACTUATORS

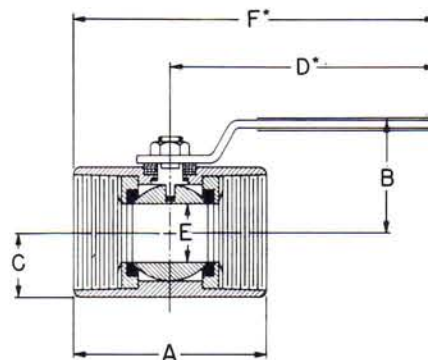


76 Series



FEATURES

- Metal to Metal Insert to Body Joint
- Metal to Metal Secondary Seat
- Reinforced PTFE Seats and Seals
- 1/4 Turn Operation
- Easily Visible Open/Close Identification
- Full Thread Length in Compliance with ANSI B2.1 Specification
- Blow-out Proof Stem
- One Piece Bar Stock Body
- Bubble Tight Closure
- Compact Design



Every valve is "bubble" tested under water to insure that all sealing points are properly functioning after assembly.

THE 76-Dimensions (inches)

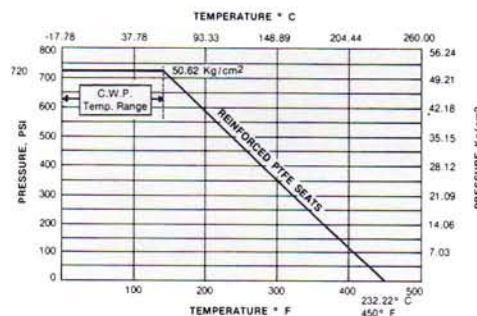
SIZE	A	B	C	D	E	F
1/2"	2.18	1.75	.50	4.81	.36	5.90
3/4"	2.22	1.80	.59	4.81	.49	5.92
1"	2.75	2.00	.75	5.38	.62	6.76
1 1/4"	3.00	2.24	.97	5.38	.80	6.87
1 1/2"	3.18	2.93	1.06	6.75	.97	8.35
2"	3.84	3.18	1.31	6.75	1.25	8.69

THE 76-Dimensions (millimeters)

SIZE	A	B	C	D	E	F
1/2"	55.4	44.4	12.7	122.2	9.1	149.9
3/4"	56.4	45.7	15.0	122.2	12.4	150.4
1"	69.9	50.8	19.0	136.6	15.8	171.7
1 1/4"	76.2	57.0	24.6	136.6	20.3	174.5
1 1/2"	80.8	74.4	26.9	171.4	24.6	212.1
2"	97.5	80.8	33.3	171.4	31.7	220.1

UNDERWRITERS LABORATORIES LISTING: The Gemini 76 Series ball valves can be supplied for fire protection service per UL Listing 385N.

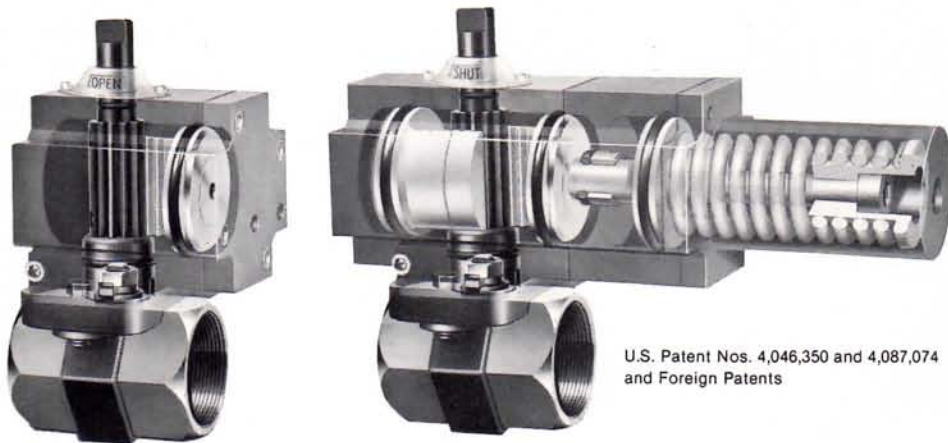
Pressure-Temperature Ratings



Size: 1/2" thru 2", N.P.T. Screwed End
Material: Brass, Carbon Steel, 316 Stainless Steel, Monel, Alloy 20. Other Material Available Upon Request.
Temperature: -50°F to +450°F (-45°C to +232°C)
Pressure: 20 Micron vacuum to 720 PSI (50.62Kg/cm²) C.W.P. (Cold Working Pressure) Non-Shock Service. To 150 PSI (10.54Kg/cm²) for Saturated Steam.
CAUTION: Care must be taken to assure that the internal media and external environment are compatible with the valve materials.



BAR STOCK PNEUMATIC ACTUATORS FOR GEMINI BALL VALVES



U.S. Patent Nos. 4,046,350 and 4,087,074 and Foreign Patents

Auxiliary spring piston to optimize torque output

Modular construction for simple conversion from double acting to spring return

Adaptable to either spring to open or close

FEATURES

- Compact, lightweight aluminum alloy body, end cap, and bracket featuring both internal and external teflon impregnated hard anodized surfaces.
- No external stops. Precise machining assures 90° rotation of the valve ball without external adjustment.
 - Direct valve stem coupling to actuator shaft minimizes backlash.
 - Valve stem nut positively fixed within actuator shaft prevents backoff during operation.
 - Manual override.
 - Easily visible open/shut position read out.
 - Rack and pinion design adaptable to flow control.
- Rigid mounting assures precise stem to actuator shaft alignment thus optimizing valve stem seal life.
 - Mounting simplicity enables quick conversion from manual to pneumatic operation.

GEMINI PNEUMATICALLY ACTUATED BALL VALVES offer a unique combination of the three elements required for long trouble free life—a premium quality ball valve, a quality actuator designed to meet the torque requirements of the valve, and a mounting bracket and connection which assures alignment and rigidity.

GEMINI BALL VALVES low operating torque makes possible a compact actuator which is both economical to install and operate. Precise machining of all components, including the seats, controls the sealing preload to assure bubble tight sealing while minimizing operating torque.

GEMINI PNEUMATIC ACTUATOR'S simple rack and pinion design, made possible through unique manufacturing techniques, results in a bar stock actuator which is compact, efficient and trouble free.

A spring return option extends the capability of the design to meet the needs of those services requiring a spring action to either open or close the valve.

Conversion from double acting to spring return simply requires the replacement of the end cap with a spring module. On most actuators, addition of a spring return module would mean a drastic loss in the output torque and thus restrict the use to a much smaller size range of valves. Not so with the Gemini design. An auxiliary piston in the spring return housing assists in compressing the spring when the air side is energized thus retaining the energy of the main actuator pistons to operate the valve. Another very important feature of

this design is the means of disassembly or reassembly of the spring module. The spring is preloaded outside of the housing by means of a threaded rod which is screwed into the auxiliary piston. The thread lengths are designed so that when the rod is unscrewed from the piston there remains thread engagement after the spring is completely de-energized.

All actuators are factory lubricated so that there is no need for lubricated air. A grease pocket between the piston and the cylinder wall lubricates the cylinder wall with each pass of the piston.

All threaded bolt holes in aluminum components have self locking stainless steel inserts to assure strong, positive fastening.

GEMINI ACTUATOR MOUNTING is the key element of our pneumatically actuated ball valves. A good valve and actuator, poorly mounted, results in an inferior actuated valve. The Gemini coupling eliminates this possibility with "the missing link" i.e., the actuator shaft is precisely coupled directly to the valve stem, thereby eliminating misalignment and backlash often found with the commonly used tongue and groove connecting linkage. The valve stem nut is fixed within the actuator shaft. These features combined with a rigid mounting bracket result in a pneumatically actuated ball valve which minimizes backlash, assures optimum stem seal life, and prevents any possibility of stem nut back off.

Available with integrally mounted pilot valves and limit switches.

Series 76



Series 86/96



Construction and Ordering Information—All Series

Specifications are subject to change without notice and without any obligation on the part of the manufacturer.

76 86 96 Figure Number						76 Series Only			
	BRASS 76-1-RT-1* 86-1-RT-1* 96-1-RT-1*	CARBON STEEL 76-4-RT-4* 86-4-RT-4* 96-4-RT-4*	316 STAINLESS STEEL 76-6-RT-6* 86-6-RT-6* 96-6-RT-6*	BRASS W/ 316 STAINLESS STEEL BALL & STEM 76-1-RT-6* 86-1-RT-6* 96-1-RT-6*	CARBON STL W/316 STAINLESS STEEL BALL & STEM 76-4-RT-6* 86-4-RT-6* 96-4-RT-6*	ALLOY 20 76-16-RT-16*	CARBON STEEL W/ALLOY 20 BALL & STEM 76-4-RT-16*	MONEL 76-19-RT-19*	CARBON STEEL W/MONEL 76-4-RT-19*
1. BODY	ASTM B-16 BRASS	CARBON STEEL	316 SS	ASTM B-16 BRASS	CARBON STEEL	ALLOY 20	CARBON STEEL	MONEL	CARBON STEEL
2. BALL	ASTM B-16 BRASS	CHROME PLATED C.S.	316 SS	316 SS	316 SS	ALLOY 20	ALLOY 20	MONEL	MONEL
3. STEM	ASTM B-21 F.H. NAVAL BR	CADMIUM PLATED C.S.	316 SS	316 SS	316 SS	ALLOY 20	ALLOY 20	MONEL	MONEL
4. END PLUG	ASTM B-16 BRASS	CARBON STEEL	316 SS	ASTM B-16 BRASS	CARBON STEEL				
4A. INSERT	ASTM B-16 BRASS	CARBON STEEL	316 SS	ASTM B-16 BRASS	CARBON STEEL	ALLOY 20	CARBON STEEL	MONEL	CARBON STEEL
5. SEAT	GLASS FILLED REINFORCED PTFE								
6. STEM SEAL	GLASS FILLED REINFORCED PTFE								
7. THRUSTWASHER	GLASS FILLED REINFORCED PTFE								
8. FOLLOWER	STAINLESS STEEL								
9. BELLEVILLE WASHER	STAINLESS STEEL								
10. HANDLE	CADMIUM PLATED C.S. W/VINYL PLASTISOL SLEEVE (300 SERIES STAINLESS STEEL LEVER AVAILABLE UPON REQUEST—SUFFIX SL)								
11. HANDLE NUT	CADMIUM PLATED CARBON STEEL (300 SERIES STAINLESS STEEL LOCK NUT AVAILABLE UPON REQUEST)								
12. GROUNDING SPRING	STAINLESS STEEL								

HOW TO ORDER: Specify quantity, size and figure number.

*For other than Standard Handle follow part number with appropriate Handle Suffix Letter.

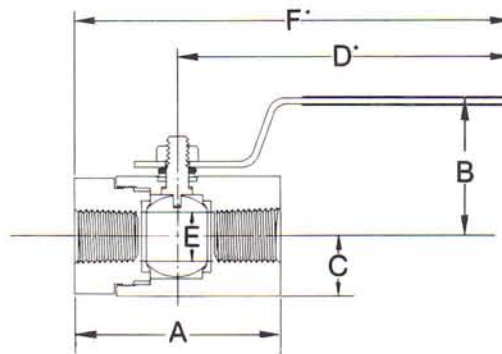


86/96 Series



FEATURES

- Metal to Metal Body Joint
- Blow-out Proof Stem
- Metal to Metal Secondary Seat
- Maintenance Free
- 86 - Standard Port, 96 - Full Port
- Reinforced PTFE Seats and Seals
- Bubble Tight Closure
- 1/4 Turn Operation
- Compact Design
- Easily Visible Open/Close Identification
- Full Thread Length in Compliance with ANSI B2.1 Specification



Every valve is "bubble" tested under water to insure that all sealing points are properly functioning after assembly.

—B.S.P. (British Standard) threads available upon request.

*QUANTITY OF (10)
LIST \$2.60
OEM 206*

THE 86-Dimensions (inches)

SIZE	A	B	C	D	E	F
1/4"	2.18	1.75	.50	4.81	.36	5.90
3/8"	2.18	1.75	.50	4.81	.36	5.90
1/2"	2.61	1.84	.59	4.81	.49	6.11
3/4"	2.94	2.00	.75	5.38	.62	6.85
1"	3.32	2.28	.97	5.38	.80	7.04
1 1/4"	3.70	2.93	1.1	6.75	.97	8.60
1 1/2"	4.25	3.19	1.3	6.75	1.25	8.87
2"	4.56	3.37	1.5	6.75	1.50	9.41

THE 86-Dimensions (millimeters)

SIZE	A	B	C	D	E	F
1/4"	55.4	44.4	12.7	122.2	9.1	149.9
3/8"	55.4	44.4	12.7	122.2	9.1	149.9
1/2"	66.3	46.7	15.0	122.2	12.4	155.2
3/4"	74.7	50.8	19.0	136.7	15.8	174.0
1"	84.3	58.0	24.6	136.7	20.3	179.0
1 1/4"	94.0	74.4	28.0	171.4	24.6	218.4
1 1/2"	108.0	81.0	33.0	171.4	31.8	225.3
2"	116.0	85.6	38.1	171.4	38.1	239.0

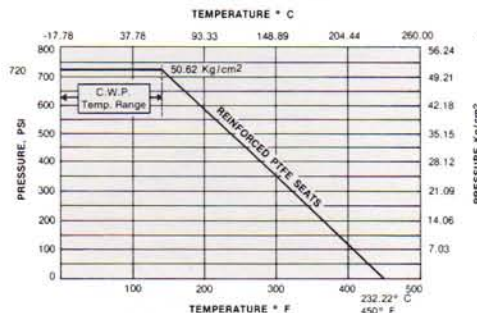
THE 96-Dimensions (inches)

SIZE	A	B	C	D	E	F
1/2"	2.94	2.00	.75	5.38	.62	6.85
3/4"	3.32	2.28	.97	5.38	.80	7.04
1"	3.70	2.93	1.1	6.75	.97	8.60
1 1/4"	4.25	3.19	1.3	6.75	1.25	8.87
1 1/2"	4.56	3.37	1.5	6.75	1.50	9.41

THE 96-Dimensions (millimeters)

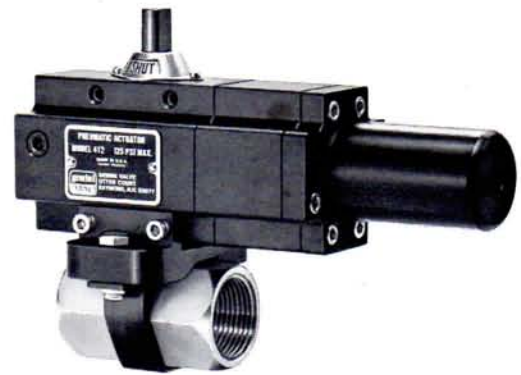
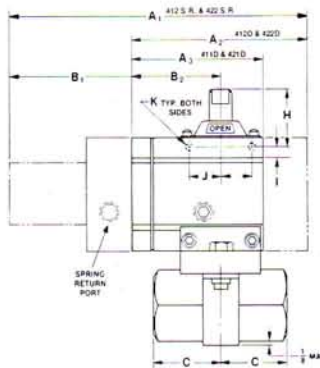
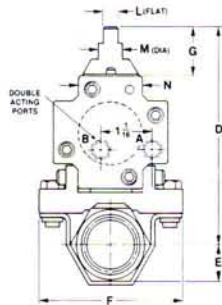
SIZE	A	B	C	D	E	F
1/2"	74.7	50.8	19.0	136.7	15.8	174.0
3/4"	84.3	58.0	24.6	136.7	20.3	179.0
1"	94.0	74.4	28.0	171.4	24.6	218.4
1 1/4"	108.0	81.0	33.0	171.4	31.8	225.3
1 1/2"	116.0	85.6	38.1	171.4	38.1	239.0

Pressure-Temperature Ratings



Size: 86 — 1/4" thru 2", NPT Screwed End
96 — 1/2" thru 2", NPT Screwed End
Material: Brass, Carbon Steel, 316 Stainless Steel
Temperature: -50°F to +450°F (-45°C to +232°C)
Pressure: 20 Micron vacuum to 720 P.S.I. (50.62Kg/cm²) C.W.P. (Cold Working Pressure) Non-Shock Service. To 150 PSI (10.54Kg/cm²) for Saturated Steam.
CAUTION: Care must be taken to assure that the internal media and external environment are compatible with the valve materials.

Specifications:



ACTUATOR SELECTION

The accompanying chart listing Gemini Ball Valves and Actuators represents the recommended combinations for normal service conditions with pressure differentials across the valves up to 400 psi. Contact the factory for special applications.

PORT CONNECTIONS

All actuator port connections are 1/8 N.P.T. (female).
Double Acting Models

When viewed from above, pressure applied to the port marked "A" causes counterclockwise rotation of the actuator shaft; pressure applied to port "B" causes clockwise rotation.

Spring Return

The spring return model has one air inlet port as shown in the illustration above. Pressure applied to the port causes counterclockwise rotation of the actuator shaft; the spring causes clockwise rotation.

OPERATING TEMPERATURE

Gemini Pneumatic Actuators are designed to operate in environmental temperatures between -20°F (-28.9°C) and $+180^{\circ}\text{F}$ ($+82.2^{\circ}\text{C}$). Care must be taken to assure the moisture content of the air supply is sufficiently low to prevent icing within the Actuator.

			AIR SUPPLY 75 - 125 PSI	AIR SUPPLY 40 - 125 PSI	APPROXIMATE DIMENSIONS																			
76	86	96	ACTUATOR MODEL (SPRING RETURN)	ACTUATOR MODEL (DOUBLE ACTING)	ACTUATOR MODEL (DOUBLE ACTING)	A ₁	A ₂	A ₃	B ₁ Spring Return	B ₂ Double Acting	C		D	E	F	G	H	I	J	K	L	M	N	
											76 SER.	86 & 96 SER.												
1/2	1/4&3/8	—	412SR	411D	412D	7.64	3.64	2.73	5.85	1.85	1.09	1.09	4.20	50	3.00	1.01	1.25	.19	.66	#10-24	.31	.47	1.31	
3/4	1/2	—									1.11	1.30	4.33	59										
1	3/4	1/2	422SR	421D	422D	11.89	5.70	4.34	9.11	2.92	1.37	1.47	4.51	75	4.80	1.59	2.65	.27	1.06	5/16-18	.50	.81	2.12	
1-1/4	1	3/4									1.50	1.66	6.74	97										
1-1/2	1-1/4	1									1.59	1.85	6.92	1.06										
2	1-1/2	1-1/4									1.92	2.12	7.20	1.31										
—	2	1-1/2									—	2.28	7.42	1.50										

Specifications are subject to change without notice and without obligation on the part of the manufacturer.

HOW TO ORDER

To determine the proper actuator for any given Gemini Ball Valve, select from the chart above the actuator model number and the appropriate air supply pressure, valve size and series.

When ordering an actuator premounted on a Gemini Ball Valve, specify the quantity, valve size and series, valve figure number, and appropriate actuator model number.

Example:

10	3/4	76	6RT6	411D
Quantity	Valve size	Valve series	Valve figure number	Actuator Model number

When ordering an actuator for mounting on a Gemini Ball Valve at installation, specify the quantity, appropriate actuator model number, followed by the valve size and series on which it will be mounted. The proper mounting hardware will be included with the actuator.

Example:

5	422 S.R.	1-1/2	76
Quantity	Actuator Model number	Valve size	Valve series

Accessories: Solenoid pilot valves and limit switches are available. Contact your Gemini Distributor for your specific requirement.



GEMINI VALVE INC.
 Otter Court
 Raymond, N.H. 03077

TEL 603-895-4761
 TWX 710-366-0540

LIMITED WARRANTY

Seller warrants its products to be manufactured in accordance with published specifications and free from defects in material and/or workmanship.

Seller, at its option, will repair or replace any products returned intact to the factory, transportation charges prepaid, which Seller, upon inspection, shall determine to be defective in material and/or workmanship. The foregoing shall constitute the sole remedy for any breach of Seller's warranty.

SELLER MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, EXCEPT AS PROVIDED HEREIN, INCLUDING WITHOUT LIMITATION THEREOF, WARRANTIES AS TO MARKETABILITY, MERCHANTABILITY, FOR A PARTICULAR PURPOSE OR USE, OR AGAINST INFRINGEMENT OF ANY PATENT. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.