



400 Series Pneumatic Actuators for 76, 86 & 96 Series Ball Valves

2 Otter Court, Raymond, New Hampshire 03077 • Tel. (603) 244-7931 • service@geminivalve.com • www.geminivalve.com

FEATURES

- Compact, Lightweight Aluminum Body and Bracket featuring both Internal and External Teflon®-Impregnated Hard Anodized Surfaces
- Stainless Steel External Trim & Viton® O-rings Standard
- Direct Valve Stem Coupling to Actuator Shaft Minimizes Backlash
- Manual Override
- Available with Integral NAMUR Pilot Valve or can be Remotely Piloted
- Available with Limit Switches
- Easily Visible Open / Shut Position Read Out



Gemini's 400 Series Pneumatic Actuators were the first in the ball valve industry to offer direct actuator to valve mounting. This patented design eliminated the need for bulky bracketry which lacked precise alignment and rigidity required for long trouble free service life.

Gemini Actuator mounting is the key element of our pneumatically actuated ball valves. A quality valve and actuator, poorly mounted, results in an inferior actuated valve. The Gemini coupling eliminates this possibility. The actuator shaft is precisely coupled directly to the valve

stem, thereby eliminating misalignment and backlash. 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.

Designed to operate on 50 - 125 psi for double-acting models and 75 - 125 psi for spring-return models. Index (or Cycle) time is approximately 1/2 to 1 second depending on model.

The 400 Series Pneumatic Actuators are suitable for Gemini's 76, 86 & 96

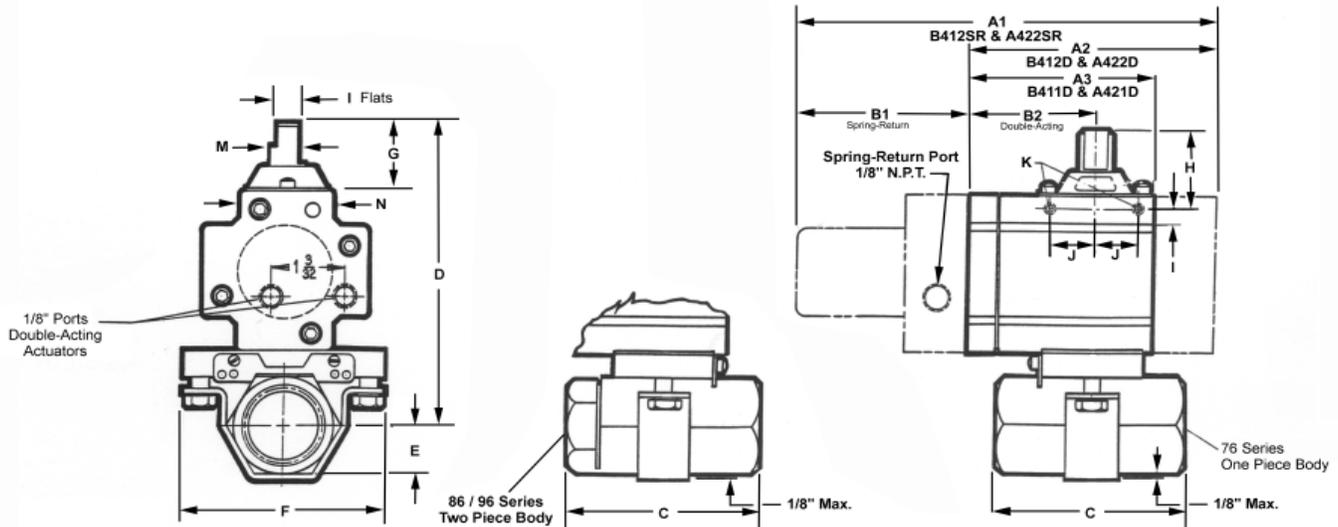
Series Barstock Ball Valves which are now part of our General Industrial Series.

The later introduction of the General Industrial Series Pneumatic Actuators (500 Model) provided a cost savings over the 400 Series by manufacturing the body from a standard shape extrusion and providing a simplified visual position indicator. The 400 Series Pneumatic Actuators today continue to have a following of loyal customers based upon its history of performance and customer satisfaction.

Actuator Dimensions

Valve Size & Series			Actuator Model			Approximate Dimensions (Inches)																	
76	86	96	Spring-Return 75 - 125 psi	Double-Acting 75 - 125 psi	Double-Acting 50-125 psi	A1	A2	A3	B1	B2	C		D	E	F	G	H	I	J	K	L	M	N
											76	86											
1/2	1/4 & 3/8	-	B412SR	B411D	B412D	7.64	3.64	2.73	5.85	1.85	2.18	2.18	4.26	.50	3.00	1.01	1.25	.19	.66	#10-24	.31	.47	1.31
3/4	1/2	-									2.22	2.61	4.35	.59									
1	3/4	1/2									2.76	2.94	4.51	.75									
1-1/4	1	3/4	A422SR	A421D	A422D	12.20	5.70	4.34	9.11	2.92	3.02	3.32	7.05	.97	4.80	1.59	1.96	.27	1.06	#10-24	.50	.81	2.12
1-1/2	1-1/4	1									3.45	3.70	7.14	1.06									
2	1-1/2	1-1/4									4.04	4.25	7.39	1.31									
-	2	1-1/2									-	4.57	7.58	1.50									

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



Actuator Specifications

Temperature

Pneumatic Actuators are designed to operate in ambient temperatures between -20° F (-28.0°C) and +350°F (+175°C). Care must be taken to assure that the moisture content of the air supply is sufficiently low to prevent icing within the actuator.

Air Supply

Sufficient air delivery must be available at the actuator to ensure dependable operation. The following precautions should be observed:

Air supply should be clean and dry. When dirty or wet air is a problem; a filter / separator should be specified; these units are most effective when

installed as closely as possible to the actuator. A filter, when used, should permit a minimum flow of 4 scfm at an upstream pressure of 60 psi.

Eliminate severe restrictions to air flow (certain solenoid valves & fittings). The most restricted passage must have an area no smaller than .003" square, the area of 1/16" diameter orifice. If more than a single actuator is to be supplied by an individual pilot, the minimum passage requirement applies per actuator.

Tubing: For short runs up to 5 feet 5/32" I.D. is suitable, 1/4" I.D. will serve up to 30 feet. For longer runs, use 3/8" I.D. or larger.

Accessories

Solenoid pilot valves and limit switches are available. Please see our literature or contact us direct.

Port Connections: 1/8" N.P.T.

Materials of Construction

BODY, END CAPS: : Aluminium with Teflon® Impregnated Hard Anodized (PolyLube®) Surfaces

SPRING MODULES: Aluminium with Teflon® Impregnated Hard Anodized (PolyLube®) Surfaces

SHAFT / DRIVER & EXTERNAL TRIM: 300 Series Stainless Steel

How To Configure Model Number

Manually Actuated Valve

Select Valve Size and Product Code. Example: **1 86-6-RT-6-L**

NOTE: 76 Sizes 1/2" - 2", 86 Sizes 1/4" - 2", 96 Sizes 1/2" - 1-1/2"

Size	Product Code					
	Valve Type / Model	Body Material	Seal Material	Ball & Stem Material	Optional Special Features	Operator Handle - Type
1/4	76 One-Piece Body Reduced Port 1/2" - 2"	1 Brass	RT Glass Filled Reinforced P.T.F.E. (Teflon®)	6 316 Stainless Steel	B Internal Pressure Equalizing Vent - Upstream Type	L Lever
3/8		4 Carbon Steel		16 Alloy 20		FC0* NSF® / ANSI 169 Listed
1/2	86 Two-Piece Body Standard Port 1/4" - 2"	6 316 Stainless Steel		19 Monel	S**	
3/4		16 Alloy 20 76 Series Only 1/2" - 1"				R Round / Oval
1						96 Two-Piece Body Full Port 1/2" - 1-1/2"
1-1/4	19 Monel 76 Series Only 1/2" - 1"	Z Actuator Drive Key All Except Below				
1-1/2		Z1 Actuator Drive Key for; 1-1/4" 76 1" 86 3/4" 96				
2	NOTE: Suffix M after Valve Model indicated current stem geometry. Applies to: 1/2 - 3/4 76, 1/4 - 1/2 86					

Pneumatically Actuated Valve

1. Take **Manually Actuated Valve Model** and omit Operator . Handle-Type. Example: **1 86-6-RT-6-**
2. Based upon the Valve Model & Size Select Actuator Type and add to Valve Size & Model.

Example: **1 86-6-RT-6-B412D**

NOTE: For Double-Acting Actuators, models which use 50-125 psi are recommended.

Valve Model			Actuator Type Air Supply Available		
			Double Acting		Spring Return
76	86	96	50-125 psi	75-125 psi	75-125 psi
1/2	1/4 & 3/8	-	B412D	B411D	B412SR
3/4	1/2	-	B412D	B411D	B412SR
1	3/4	1/2	B412D	B411D	B412SR
1-1/4	1	3/4	B412D	-	A422SR
1-1/2	1-1/4	1	A422D	-	A422SR
2	1-1/2	1-1/4	A422D	-	A422SR
	2	1-1/2	A422D	-	A422SR

How To Configure Model Number (continued)

Pneumatically Actuated Valve - Optional Accessories

1. Optional Accessory: Take the **Pneumatically Actuated Valve Model** and add suffix N with GP Series and or Limit Switch or both. NOTE: Actuator must be ordered / supplied with optional NAMUR Interface Suffix **N**
 Examples: **1 86-6-RT-6-B412DN-4GP-SC07D-120VAC-DS** / **1 86-6-RT-6-B412DN-4GP-SC07D-120VAC-DS-LS-1**
1 86-6-RT-6-B412D-LS-1

Optional Actuator Accessory						
GP Series NAMUR Integral Solenoid Valve						Limit Switch
Type	Coil Style	Voltage Code	Connection Type	Voltage	Electrical Connector	
4GP (use with Double-Acting)	SC Standard	07 120VAC	D Mini DIN	VAC	DS DIN X Strain	LS-1
Spring-Return Consult Gemini Valve	MR Manual Override	03 24VDC	L* Wire Leads	VDC	DC DIN X 1/2" Conduit	
	HL* Hazardous Locations	02 12VDC			DA DIN X Field Bus M12	
		06 24VAC			DM10 DIN X Molded 10' Lead	
		08 240VAC			DM15 DIN X Molded 15' Lead	
					DML10 DIN X Molded LED 10' Lead	
* HL Coil Style Only Offered in 120VAC Conduit Hub with 24" Leads					C24* Conduit 24" Leads	



2 Otter Court
Raymond, NH 03077

Tel. (603) 895-4761
FAX (603) 895-6785
www.geminivalve.com

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