PLASTIC CONTROL VALVES

Acids • Bleaches • Chlorine • pH Control

COLLINS INSTRUMENT COMPANY, INC.

1" Model 1070 with electric actuator

1/2", 1" Model 7500 angle valve.

1/2", 1" Model 8560 off-set valve.

1" Model 1060B bellows seal valve.

COLLINS PLASTIC CONTROL VALVES FOR CORROSIVE APPLICATIONS

2" Model 2080 with electro-pneumatic positioner

1" Model 9560 thru-bolt valve

2" Model 2060 pneumatic valve

1" Model 1060 pneumatic valve

Highly Responsive Control Valves for Corrosive Applications.

Collins Plastic Control Valves are highly responsive control valves designed for use with corrosive media and/or corrosive atmospheres.

Suitable for applications in numerous industries including chemical, petrochemical, pulp and paper, and municipal, Collins Control Valves are extremely corrosion-resistant, feature fast accurate positioning and are available with a wide selection of trim sizes.

These specialized control valves will stroke at the rate of approximately 1/2 inch per second. The differential area piston eliminates the necessity for auxiliary loading regulators. The actuator is molded of glass filled, UV inhibited polypropylene except for the integral positioner. Before shipment, the aluminum positioner and a portion of the cylinder are immersed in dipseal to provide atmospheric protection. The integral positioner eliminates the need for external linkages which are subject to corrosion and malfunctioning. Valves are available in Globe, Angle, or Corner configurations to fit your piping. Valves may be furnished without positioner for ON-OFF applications.

These valves incorporate a unique closure between the cylinder and yoke, eliminating the previous threaded closure. The actuator is attached to the yoke with an internal locking ring which is inserted through a slot in the side of the actuator cylinder. This is accomplished by machining a half circle groove inside the lower edge of the cylinder and matching half circle groove in the yoke. When the yoke and cylinder are assembled, a 5/32" OD polypropylene rod is inserted through the slotted hole into the groove, locking the two together. See photo 1.

Photo 1

Corrosion Protection with Minimal Fugitive Emissions.

Collins initial objective to supply a chemically inert control valve package became a reality with the advent of its plastic, pneumatic actuator. When assembled with one of Collins plastic valve bodies, the resulting combination represents an effective way to handle both corrosive materials that flow through the valve as well as the harsh environments that can attack the outside of the valve and actuator.

Collins plastic control valve package can therefore withstand the salty atmosphere of coastal areas as well as the industrial environments which are too corrosive for the metal actuators used with other control valves.

Along with its corrosion resistance the Collins control valve features a stem packing arrangement that virtually eliminates the problem of fugitive emissions (leakage), thereby protecting the environment. One Collins packing design is shown in Photo 2. This design consists of Kalrez* "O" Rings together with Kynar** guide spacers - which are held in compression by a spring loaded cap.

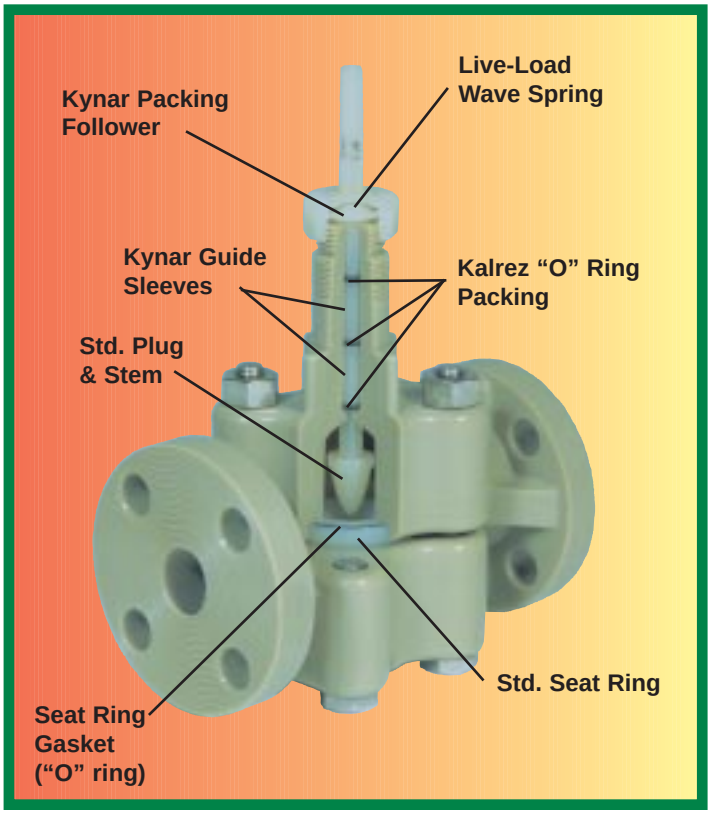


Photo 2

SPECIAL NOTE: In actual field tests lasting over one year, and after several thousand cycles of shop testing, the design in photo 2 yielded virtually no fugitive emissions (leakage).

*Kalrez® - Registered Trademark of DuPont Dow Elastomers
**Kynar® - Registered Trademark of ELF Atochem North America Inc.

Description/Ordering Information

Collins plastic control valves are available in various styles in either Globe, Angle or Corner configurations and are furnished with a positioner for throttling control or without a positioner for ON/OFF service.

Model 1000/2000 Series: Material and Specifications

VALVE BODY

Type:	Flanged Split Body, Globe ANSI face to face
Material:	Molded PVDF or Polypropylene
Size:	2” (50.8 mm) Series 2000 1” (25.4 mm) Series 1000
Connections:	150# FF Flanged
Rating:	PVDF 300 psi @ 73° F 150 psi @ 225° F Polypropylene 300 psi @ 73° F 150 psi @ 175° F
Packing:	A) Live-Load with Kalrez or Viton “O” Rings B) Teflon* Bellows Seal (with Live-Load “backup” “O” Ring Packing) C) Live-Load with Teflon V-Rings

*Teflon: Registered trademark of DuPont

ACTUATOR (Pneumatic)

Type:	Polypropylene Positioning Cylinder with Integral Positioner
Stem Travel:	1-1/2 Inch (Series 2000) 3/4 Inch (Series 1000)
Action:	Direct: Air-to-open (retract stem) Reverse: Air-to-close (extend stem)
Supply Air:	60 to 80 psi
Rating:	100 psi (max.)
Signal:	3-15 psi standard 3-9 & 9-15 available
Connections:	1/4” NPT
Response Time:	1/2 Second
Material:	Molded of 10% Glass filled Polypropylene, resistant to ultraviolet radiation

Note: Specifications on Electric Actuator located on Page 7 and Electro-Pneumatic Positioner on Page 8.

TRIM

Model 1000:	1”
Type:	Linear - All Cv’s through 12 Percentage - 0.6 through 12
Material:	PVDF Standard, Exotic Materials Available
Flow Coefficient:	Linear - .003, .005, .007, .010, .020, .035, .050, .080, .10, .16, .25, .40, .60, 1.00, 1.50, 2.50, 4.00, 6.00, 9.00 and 12.00 Percentage - .60, 1.00, 1.50, 2.50, 4.00, 6.00, 9.00 and 12.00
Energy Dissipating Trim:	Linear and Equal Percentage
Flow Coefficient:	0.6,1.0, 1.5, 2.0, 2.5, 4.0, 6.0 and 8.0

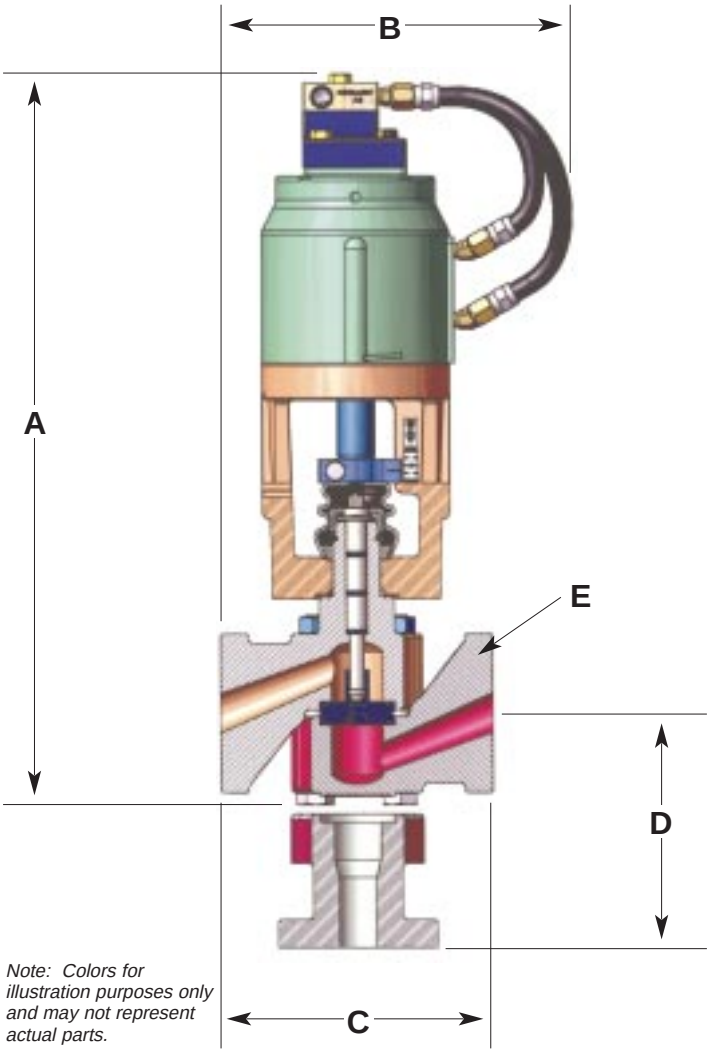
TRIM

Model 2000:	2”
Type:	Linear - 4.0 through 38 Percentage - 4.0 through 38
Material:	PVDF Standard, Exotic Metals Available
Flow Coefficient:	Linear - 4.0, 6.0, 9.0, 12, 16, 25 and 38 Percentage - 4.0, 6.0, 9.0, 12, 16, 25 and 38
Energy Dissipating Trim:	Linear and Equal Percentage
Flow Coefficient:	4.0, 6.0, 9.0, 12.0, 16.0, 25.0 and 30.0

Model 1000/2000 (Flange) Selection Chart

Size:	Model 1"	Model 2"	Style: Globe	Style: Angle	W/Actuator & Positioner	W/Actuator W/O Positioner	Body S/A Only
	1060	2060	✔	-	✔	-	-
	1020	2020	✔	-	-	✔	-
	1010	2010	✔	-	-	-	✔
	1061	2061	-	✔	✔	-	-

Model 1000/2000 Dimensions



Note: Colors for illustration purposes only and may not represent actual parts.

	1”	2”
	Model 1060	Model 2060
A	19.5” (495mm)	23.5” (597mm)
B	8.25” (210mm)	9.5” (241mm)
C	7.25” (184mm)	10” (254mm)
D	3.625” (92mm)	5.125” (130mm)
E	1” -150# FF Flange	2” - 150# FF Flange

Gross shipping weights:
1” - Model 1060 = 15 - 20 lbs each
2” - Model 2060 = 20 - 25 lbs each

Model 7500,8500,9500 Series Materials and Specifications

VALVE BODY

Type: **1.** Off-set Globe or Angle Split Body
2. Screwed-in-Seat Angle
3. Through-bolt Globe

Material: Kynar or PVC Standard

Sizes: Standard 1/2" and 1", 3/8" & 3/4" available on Type 1 and 2 only (shown above).

Connections: Screwed-type Standard on Type 1 & 2 above (optional flanges available). Through-bolt only on Type 3 (shown above).

Rating: Kynar
300 psi (2068 Kpa) @ 73° F (23° C)
150 psi (1034 Kpa) @ 225° F (106° C)

(Rating cont'd.)
PVC
300 psi (2068 Kpa) @ 73° F (23° C)
150 psi (1034 Kpa) @ 140° F (60° C)

Packing: Live-Load with Kalrez "O" Rings or Teflon V-Rings.

ACTUATOR

Type: Polypropylene Positioning Pneumatic Cylinder with Integral Positioner

Stem Travel: 3/4"

Action: Air-to-open or Air-to-close

Supply Air: 60 to 80 psi
275-551 Kpa

(Supply Air cont'd.)

Rating: 100 psi (max.)

Signal: 3-15 psi standard (3-9 & 9-15 psi available)

Connections: 1/4" NPT

Gross Shipping Wt.: 15-20 lbs. each

TRIM

Type: Linear - all sizes
Percentage - 2.5 through 12 Cv

Material: PVC, Kynar and Exotic Metals

Flow Coefficient: .003 to 12 range

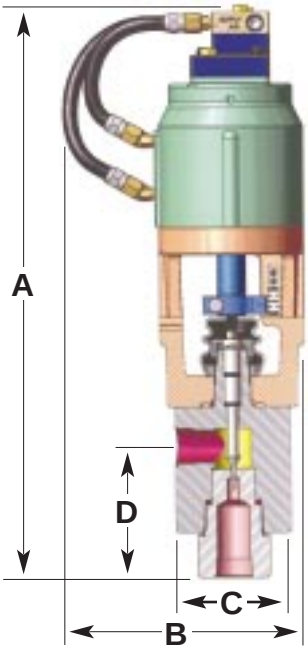
Note: Energy Dissipating Trim not available in 7500, 8500 or 9500 Series.

Model 7500,8500,9500 Selection Chart

Model No.	Type	W/Actuator & Positoner	W/Actuator W/O Positoner	Body S/A Onlyl
7561	Angle	✔	-	-
7521	Angle	-	✔	-
7511	Angle	-	-	✔
8560	Offset Split-Body	✔	-	-
8520	Offset Split-Body	-	✔	-
8510	Offset Split-Body	-	-	✔
8561	Split-Body, Angle	✔	-	-
8521	Split-Body, Angle	-	✔	-
8511	Split-Body, Angle	-	-	✔
9560	Thru-Bolt DAC	✔	-	-
9520	Thru-Bolt DAC	-	✔	-
9510	Thru-Bolt DAC	-	-	✔

Model 7500,8500,9500 Series Dimensions

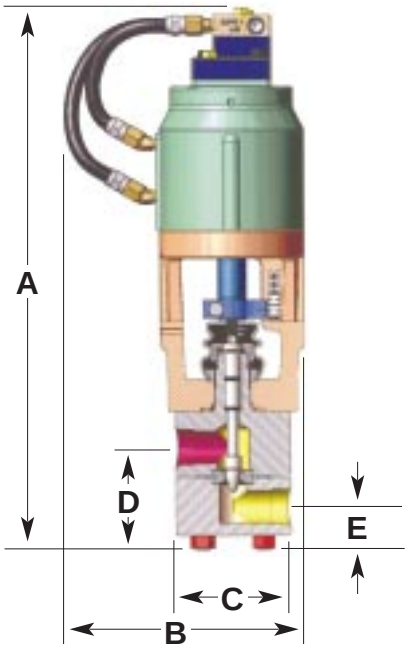
Screwed-in-Seat Angle
Model 7561



Valve Size	**1/2”** (13mm)	**1”** (25mm)
A	18.750” (476mm)	20” (508mm)
B	8.25” (210mm)	8.25” (210mm)
C	2” (51mm)	4” (102mm)
D	3.625” (92mm)	4.5” (114mm)

Valve Size	**3/8”** (10mm)	**3/4”** (19mm)
	Dimensions same as above except for threaded pipe connections.	Dimensions same as above except for threaded pipe connections.

Split-Body Off-Set
Model 8560

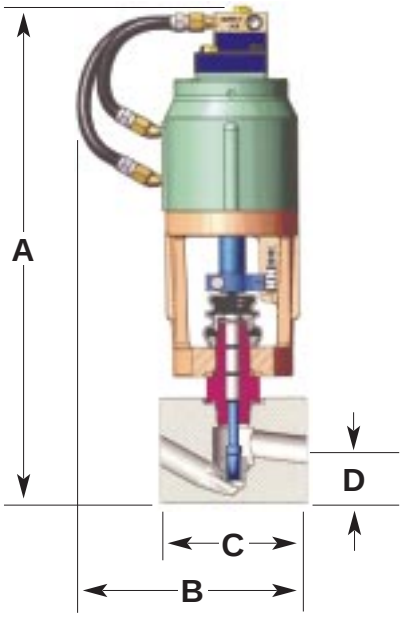


Also available in Angle Valve.

Valve Size	**1/2”** (13mm)	**1”** (25mm)
A	18” (457mm)	18” (457mm)
B	8.25” (210mm)	8.25” (210mm)
C	3” (76mm)	4” (102mm)
D	3.5” (89mm)	3.5” (89mm)
E	1.5” (38mm)	1.5” (38mm)

Valve Size	**3/8”** (10mm)	**3/4”** (19mm)
	Dimensions same as above except for threaded pipe connections.	Dimensions same as above except for threaded pipe connections.

Thru-Bolt DAC
Model 9560



Removable Seat through Cv6,
Integral Seat Cv 9 & 12.
Only 1” available in this design.

Valve Size	**1”** (25mm)
A	18.875” (479mm)
B	8.25” (210mm)
C	5.5” (140mm)
D	2” (51mm)

Note: Colors for illustration purposes only and may not represent actual parts.

All Series of Control Valves

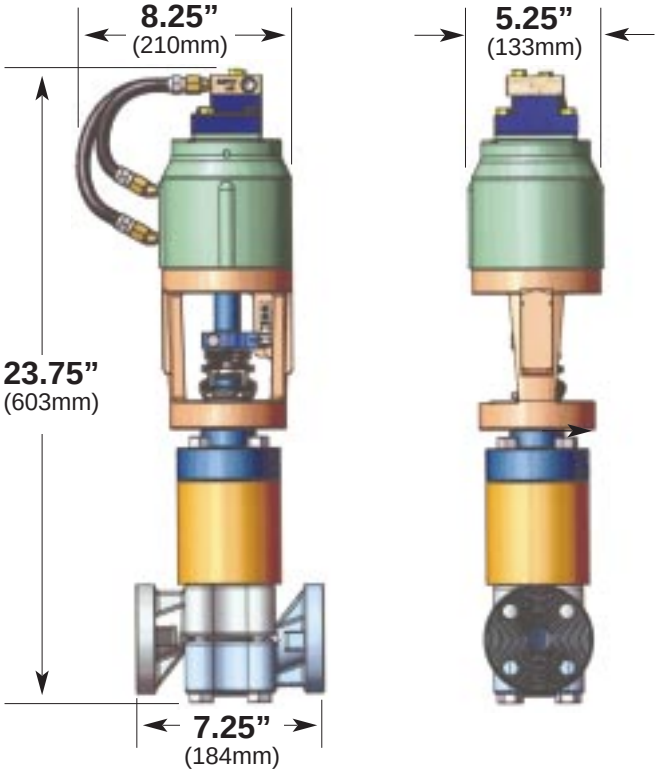
How to order:

When ordering a Collins Valve Please Specify:

1. Valve Model Number (from pages 3 & 4)
2. Body material, trim material, size (1/2” - 2”)
3. Cv requirement
4. Fail close, Fail open, or no fail spring
5. Pressure drop (ΔP) and inlet pressure
6. Air to open or air to close
7. Rate spring 3-15 psi, 3-9 psi, or 9-15 psi
8. Characteristic Linear or Equal Percent.
9. Process Fluid and Temperature.

Collins Bellows Seal Plastic Control Valves For Corrosive Applications

Pictured here is the Collins Model 1060B - a 1 in. 150 lb. FF flanged plastic control valve with PTFE Bellows Seal.



Features:

- All Plastic Construction
- Permeation Resistant PTFE Bellows Seal
- Wide Range of Cv’s
- Pneumatic, Electronic or Electro-Pneumatic Actuator
- Back-up Stem Seal Packing
- Low Maintenance
- Rugged Design

Collins Instrument Company, Inc. of Angleton, Texas, manufactures plastic, low-flow control valves for use with a wide range of corrosive liquids. The Collins 1000 Series flanged control valves are available with a PTFE bellows seal for a wide range of corrosive applications. The model 1060B features all-plastic construction, rugged design, low maintenance, a wide range of Cv’s and a bellows seal complete with back-up stem seal packing for additional safety.

The model 1060B is furnished with a 1” 150# flanged body, PTFE bellows seal, PVDF trim pneumatic or electric actuator, and various optional features such as energy dissipating trim for cavitational conditions, current-to-pneumatic transducers and limit-switches. An electropneumatic positioner with a built-in I/P is also available.

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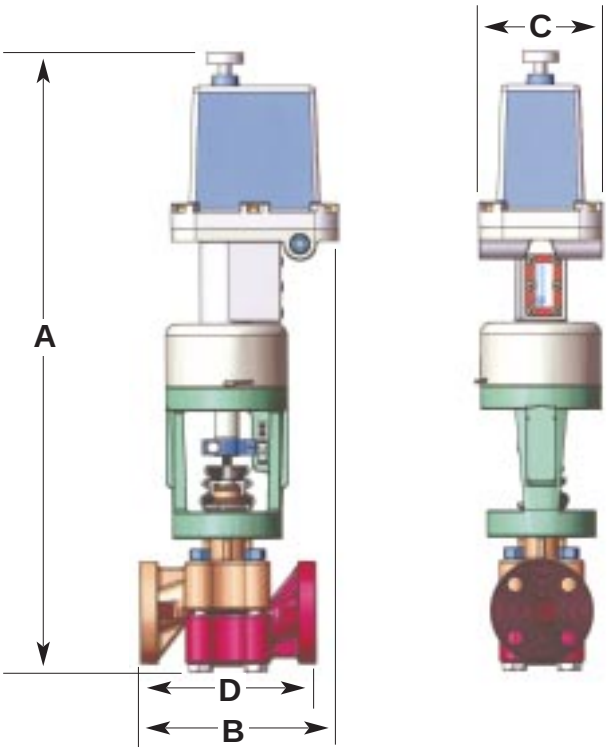
Electric Control Valve Actuator with Collins Plastic Control Valves

The Collins electric actuator is pictured here with Collins Series 1000, 1 inch 150 lb. FF flanged plastic control valve.



Features

- Stem position indicator
- Manual override knob
- Isolated 4 to 20 mA position feedback signal
- Dual voltage: 120 or 240 Vac (50/60 Hz)
- Four infinitely adjustable position outputs
- Enclosure rated Type 4 (IP65) indoor/outdoor and hazardous locations for Class I, Division 1, Groups C & D; and Class II, Division 1, Groups E, F, and G, indoor/outdoor

Collins Instrument Company, Inc. of Angleton, Texas offers an electric actuator for use with its 1/2”, 3/4”, 1” or 2” split body, globe style, plastic control valves. Each standard electric actuator valve package will accept standard analog current and voltage signals. Gear-free design of the actuator provides smooth, highly accurate positioning, with positive position-lock when not in motion.

Collins has designed a Polypropylene mounting adapter for use with this actuator. Through use of a “keeper ring” the adapter easily and securely assembles to Collins standard 10% glass-filled polypropylene valve yoke. All metal valve linkage is contained within this adapter thereby maintaining the total corrosion resistant feature of the entire valve package. This unique adapter allows for easy maintenance and/or retrofitting the electric actuator to existing pneumatic assemblies when such a conversion is necessary.

	1”	2”
	Model 1070	Model 2070
A	26” (660mm)	28” (711mm)
B	7.625” (194mm)	10.125” (257mm)
C	5.5” (140mm)	5.5” (140mm)
D	7.25” (184mm)	10” (254mm)

Note: Colors for illustration purposes only and may not represent actual parts.

Electropneumatic Positioners for Use with Collins Plastic Control Valves

The PMV positioner is pictured here with a Collins Series 2000, 2 in. 150 lb. FF flanged plastic control valve.

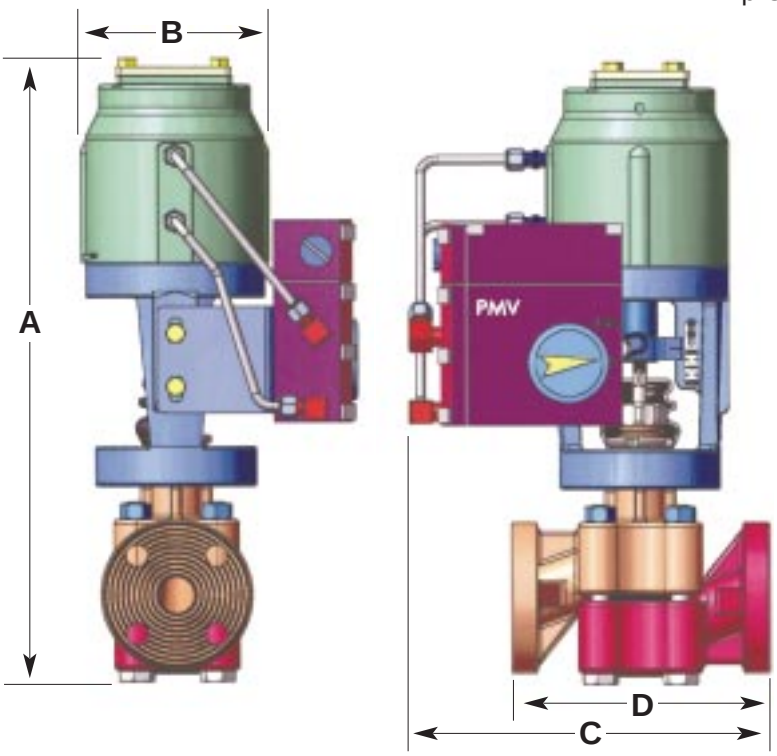
Features:

- Simple Calibration, External Zero Adjustment
- Modular Design
- External Gauge Ports
- Large 0-100% Position Indicator
- Stainless Steel Cam
- Optional “Smart” Module
- Available in Standard, Intrinsically Safe, and Explosion Proof Versions

Collins Instrument Company, Inc. of Angleton, Texas, offers the PMV electropneumatic positioners for use with its 1/2”, 3/4”, 1” or 2” split body, globe style, plastic control valves.

Each PMV positioner features compact, sturdy design with a completely sealed cover for use in harsh/corrosive environments. These units can be supplied with new valves or retrofitted in the field to existing valves of current design by means of a mounting kit.

The PMV positioners are lightweight, easy to calibrate, require only one (1) air supply line (Model EP5) and utilize all stainless steel hardware. The “Direct” or “Reverse” action of the valve or “split ranging” can be easily accomplished by reversing the stainless steel cam.



	1”	2”
	Model 1080	Model 2080
A	17.5” (445mm)	21.250” (537mm)
B	5.25” (133mm)	6.0” (152mm)
C	10” (254mm)	13” (330mm)
D	7.25” (184mm)	10” (254mm)

Note: Colors for illustration purposes only and may not represent actual parts.

Collins Instrument Company Valve Specification Form

Interested in a Collins plastic control valve? Simply complete the following valve selection form, FAX a copy to Collins, and receive a response on specifying/pricing a Collins plastic control valve for your application within 24 hours.

TEL: (979) 849-8266
FAX: (979) 848-0783

Flow Data:

Fluid _____ (Gas: _____ Liquid: _____) Spec Gr. _____

Temp. Range _____ Delta P _____

Inlet Pressure _____ Outlet Press. _____

Normal Flow (i.e. GPM, SCFM, etc.) _____ Max. Flow _____

Calc Cv _____ Valve Cv _____

Valve Data:

Quantity: _____ Line Size: _____

Type: Globe _____ Angle _____ Other _____

Mat'l: Body _____ Plug _____ Stem _____ Seat _____

Characteristic: (Linear)_____ (Percentage) _____ E.D. Trim _____

Body Connection: Flanged _____ Screw-end _____ Other _____

Actuator:

Fail: Open _____ Close _____ Air-to: Open _____ Close _____

Range: Pneumatic: 3-15 psi _____ 3-9 psi _____ 9-15 psi _____

Electric: 4-20 madc _____ 4-12 madc _____ 12-20 madc _____

Operation: Pneumatic (Piston) _____ Electric _____ Electro-Pneumatic (Piston) _____

Completed by: Date: _____

Name: _____ Company: _____

Phone: _____ FAX No. _____

Collins Recommendation:

Model _____ Size _____ Price _____

Material: Body _____ Plug _____ Stem _____ Seat _____

Comments _____

Completed by _____ Date _____

Applications for Collins Control Valves

Applications for Collins Control Valves include:

• Acids • Bleaches • Alkalis • pH Control

• Wastewater • Chlorine • Chemicals • Other Corrosive Liquids

In addition to our line of plastic control valves, Collins offers:

• Replacement Valve Parts and Trim

• Exotic Alloy Tube Fittings (Compression)

• Miniature Instrument Valves (Exotic Metal)

• Custom Machining (Exotic Metals & Plastic)

Thank you for your interest in Collins Instrument Company, Inc.. Should you have any questions or need additional information please contract us at 1-979-849-8266 or call your local representative.

••••IMPORTANT NOTE••••

Collins Instrument Co., Inc. offers a complete Repair / Calibration Service for our plastic control valves.

PLEASE CALL 1-979-849-8266 FOR DETAILS

COLLINS INSTRUMENT COMPANY, INC.

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