

Angle Body Valves & Proportional Control Valves

Skinner Valve™



Series 810 & 820

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WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or systems options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at anytime without notice.



Introduction and Key Features

The Parker Angle Body Valves consist of a family of externally pneumatically piloted 2-way angle body valves available for on – off or proportional control applications, powered pneumatically or electrically. Available with stainless steel or bronze bodies with metallic actuator housings, the Parker valves meet a diverse range of applications.

The portfolio is endowed with numerous benefits including:

- A full-line of normally closed and normally open valves ranging in size from 1/2 inch to 3 inches.
- State of the art performance for long life, ease of service and tighter system integrity.
- Operating pressures up to 580- psi.
- Suitable for temperatures ranging from –40°F to 430°F.
- Handles millions of cycles for high temperature and aggressive media.
- Proportional control capability with pneumatic (p/p), electro-pneumatic (e/p) and digital i/p integral positioners.
- Pilot valves for both AC & DC requirements.
- Complete line of high temperature watertight coil designs suitable for all pilot control valves.
- Fully repairable with discrete repair kits and supporting tools available.

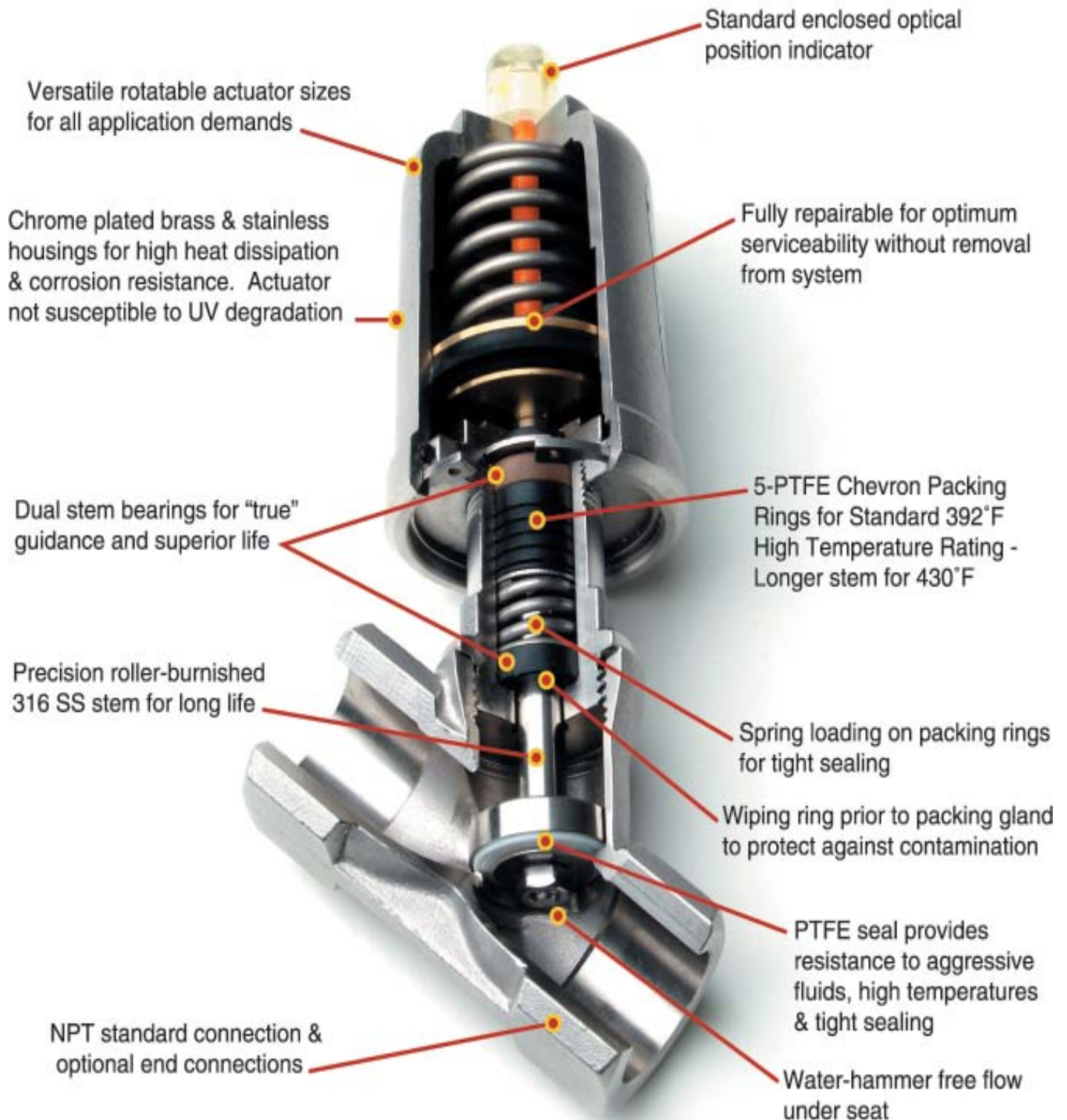
The Parker Valves are constructed of the highest quality materials available for exceptional quality, long life and reliability. All components are rigorously qualified based on the international standard ISO9001 certification processes providing rigorous standards for design, development, manufacturing and testing. High quality you've come to expect from Parker.

Angle body valves are suitable for many process & industrial application requirements. Relevant on-off and proportional control valve applications include but are not limited to the following areas:

- Food and Beverage Processing:
 - Brewery – water, steam, pasteurization, glycol solutions for cooling, de-aeration processes, blending, carbonation, thermal processes
 - Bottling & bottle washing equipment
 - “Clean-in-Place” systems
 - Dairy product processing
- Water technology & treatment:
 - Filtration technology
 - Pollution control equipment
- Textile Industry:
 - Bleaching, dyeing & drying equipment – steam, water & additives requirements
- Cooling systems on injection molding machines
- Pharmaceutical & cosmetic industry
- Chemical Process technology
- Refrigeration & Cooling heat exchangers
- Sterilizers – steam supply up to 430°F
- Water applications: Mining, Cement / concrete systems, Pulp & paper
- General industrial applications of aggressive fluids with stainless materials
- Industrial Laundry Equipment
- Industrial Air Dryers



Introduction and Key Features



Normally Closed Version Shown

Valve Ordering Information

ANGLE BODY VALVE NOMENCLATURE

The numbering system allows every user an easy method to identify, select and understand the valve being purchased. **Reference page 18 in this catalog for complete part numbering details and accessories.**

Ordering Angle Body Valves

The angle body valve line uses a significant numbering system that allows every user an easy method to select, identify, and understand the product being purchased.

Select the angle body valve based on the application requirements. The catalog number is specified in the individual specification table.

Example:

Designation	810	V	B	N	08	T	1	2	0	B	H	0	0	0
Positions	1-3	4	5	6	7-8	9	10	11	12	13	14	15	16	17

Series 810 valve, on-off valve, bronze body material, 1/2" npt, PTFE seal, closing with flow, brass chrome actuator, high temp. seals, no other accessories

Position Description

1-3	Product Series	Series	810
4	Valve, Actuator, Repair	Valve	V
5	Body Material	Bronze	B
6	Connection Type	NPT	N
7-8	Port / Orifice Size	1/2"	08
9	Seal Material	PTFE	T
10	Pilot Function	Closing with flow	1
11	Actuator Diameter	50mm	2
12	Springs	Standard	0
13	Actuator Housing	Brass Chrome Plated	B
14	Temperature Version	High Temperature	H
15	Packing	Standard	0
16	Accessories – 810 series	None	0
17	Additional Options	None	0

Reference Angle Body Valve Numbering Table for complete part numbering details and optional accessories.



Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

FEATURES



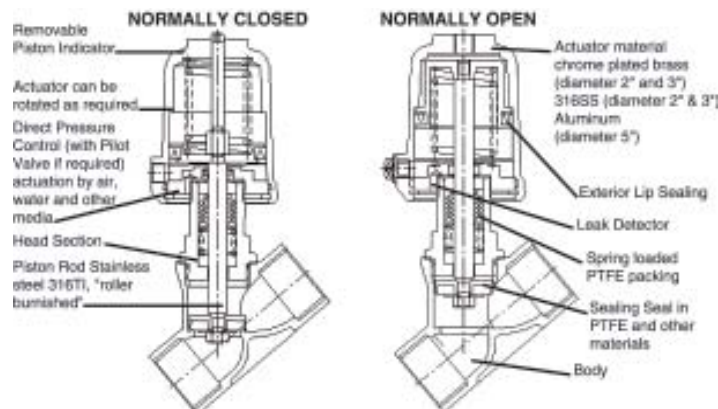
- Compact design, high flow rates
- Visual position indicator standard
- For temperatures from – 22°F to +430°F / -30°C to 221°C
- Working pressures up to 580 psi
- Damped closing anti-water hammer design (fluid under seat)
- Metal actuator housing for exceptional durability in steam & mildly aggressive applications
- Valves satisfy the Pressure Equipment Directive 97/23/EC
- Mountable in any position
- Tight shut-off and Long Service Life
- Actuator and valve components fully repairable

Technical Specifications

Body Material	Bronze Rq5	AISI 316L	Brass
Function	2/2 NC, NO	2/2 NC, NO	2/2 NC, NO
Nominal sizes	1/2" - 2"	1/2" - 2 1/2"	2 1/2" and 3"
Connections:			
NPT thread standard	1/2" - 2"	1/2" - 2 1/2"	2 1/2" - 3"
BSP thread (ISO228/1)			
SAE			
Tri clamp			
Tube ends			
Flanges ANSI 150			
Nominal Pressure	235 psi (16 bar)	580 psi (40 bar)	235 psi (16 bar)
Differential Pressure	See Specifications tables		
Pilot Pressure	up to 145 psi (10bar) reference graphs		
Actuator:	2" & 3" brass plated	2" & 3" brass plated	5" aluminum anodized
	[^] Optional	[^] Stainless Actuator	
Max. fluid temperature	-22°F (-30°C) up to 392°F (200°C)	-22°F (-30°C) up to 392°F (200°C)	-22°F (-30°C) up to 392°F (200°C)
	[#] Optional	[#] to -40°F (-40°C)	[#] to -40°F (-40°C)
	^{*Optional}	[*] Up to +430°F (221°C)	
Ambient temperature	-22°F (-30°C) up to +140°F (60°C)		
Seal Material	PTFE		
Packing Gland	PTFE / Graphite		
Viscosity of the fluid	maximum 600 mm ² /s (600cSt, 80°E, 2700 SSU)		
Vacuum	maximum 0.0295 mercury (Hg)		
Working pressure for inverted packing for vacuum service	maximum 175 psi		
Leakage	ANSI Class VI shutoff		
Installation	Any position		
Optical Position Indicator	Standard all sizes		
Pilot Control Media	Air, neutral gas, water		
Fluids	Inert gases, hot water, oils, steam	Aggressive & corrosive fluids	Inert gases, hot water, oils, steam

Options

- Electrical position indicators
- Inductive proximity switches
- Mechanical limit switches
- Manual override
- Oil and Grease free version
- Ultra High Temp. (PEEK)
- Stroke limiter





Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

Series 810 Operating Data: Normally Closed, Flow Direction Under Seat

Recommended for liquids and anti water-hammer application needs

BRONZE / BRASS * BODY VALVES

Port Size		Orifice Size		Flow Coeff		Operating Pressure								Pilot Pressure		Actuator		Valve Number Bronze (1) (2)	Wt. lbs
		DN		Cv	Kv	Min	psi	bar	psi	bar	psi	bar	psi	bar	mm	port			
		inch	(mm)														(m³/h)		
																dia	bsp		
1/2	0.59	15	4.1	3.6	0	232	16.0	232	16.0	-	-	51-145	3.5-10	50	1/8	810VBN08T320BH000	2.4		
3/4	0.78	20	9.2	8.0	0	190	13.0	190	13.0	-	-	65-145	4.5-10	50	1/8	810VBN12T320BH000	2.6		
1	1.00	25	17.3	15.0	0	85	5.8	85	5.8	-	-	65-145	4.5-10	50	1/8	810VBN16T320BH000	3.1		
1-1/4	1.25	32	24.3	21.0	0	75	5.2	75	5.2	-	-	85-145	5.7-10	50	1/8	810VBN20T320BH000	4.0		
1-1/2	1.56	40	40.4	35.0	0	100	7.0	100	7.0	-	-	51-145	3.5-10	80	1/4	810VBN24T330BH000	7.9		
2	2.00	50	63.5	55.0	0	60	4.0	60	4.0	-	-	51-145	3.5-10	80	1/4	810VBN32T330BH000	9.2		
2-1/2	2.56	65	107.4	93.0	0	75	5.0	75	5.0	-	-	45-145	3.1-10	125	1/4	810VBN40T350BH000	* 18.5		
3	3.15	80	132.8	115.0	0	50	3.5	50	3.5	-	-	45-145	3.1-10	125	1/4	810VBN48T350BH000	* 23.1		

316L STAINLESS STEEL VALVES

Port Size	Orifice Size		Flow Coeff		Operating Pressure						Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs	
	DN		Cv	Kv	Min	psi	bar	psi	bar	psi	bar	psi	bar	mm			port
	inch	(mm)				(m³/h)	air, gases	water, liquids	steam	dia	bsp						
1/2	0.59	15	4.1	3.6	0	320	22.0	320	22.0	-	-	51-145	3.5-10	50	1/8	810VSN08T320BH000	2.4
3/4	0.78	20	9.2	8.0	0	190	13.0	190	13.0	-	-	65-145	4.5-10	50	1/8	810VSN12T320BH000	2.6
1	1.00	25	17.3	15.0	0	85	5.8	85	5.8	-	-	65-145	4.5-10	50	1/8	810VSN16T320BH000	3.1
1-1/4	1.25	32	24.3	21.0	0	75	5.2	75	5.2	-	-	85-145	5.7-10	50	1/8	810VSN20T320BH000	4.0
1-1/2	1.56	40	40.4	35.0	0	100	7.0	100	7.0	-	-	51-145	3.5-10	80	1/4	810VSN24T330BH000	7.9
2	2.00	50	63.5	55.0	0	60	4.0	60	4.0	-	-	51-145	3.5-10	80	1/4	810VSN32T330BH000	9.2
2-1/2	2.56	65	107.4	93.0	0	100	7.0	100	7.0	-	-	45-145	3.1-10	125	1/4	810VSN40T350BH000	18.5

Pressure ratings reflect standard product offering. Higher pressure ratings are available. Consult Parker.

- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
- (2) For BSP porting, change "N" to "G" in the 6th position
- (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
- (4) For ultra-high temperature 430°F, 1/2" to 1-1/4" sizes only, see Ultra High Temperature tables
- * Brass Body



Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

Series 810 Operating Data: Normally Closed, Flow Direction Over Seat

Recommended for steam and most gases

BRONZE / BRASS * BODY VALVES

Port Size	Orifice Size		Flow Coeff		Min	Operating Pressure						Pilot Pressure		Actuator		Valve Number Bronze (1) (2)	Wt. lbs
	DN		Cv	Kv		psi	bar	psi	bar	psi	bar	psi	bar	mm	port		
	inch	(mm)				(m ³ /h)	air, gases	water, liquids	steam					dia	bsp		
1/2	0.59	15	4.1	3.6	0	232	16.0	-	-	210	14.5	40-145	2.8-10	50	1/8	810VBN08T120BH000	2.4
3/4	0.78	20	9.2	8.0	0	232	16.0	-	-	210	14.5	40-145	2.8-10	50	1/8	810VBN12T120BH000	2.6
1	1.00	25	17.3	15.0	0	232	16.0	-	-	210	14.5	40-145	2.8-10	50	1/8	810VBN16T120BH000	3.1
1-1/4	1.25	32	24.3	21.0	0	75	5.2	-	-	75	5.2	40-145	2.8-10	50	1/8	810VBN20T120BH000	4.0
1-1/2	1.56	40	40.4	35.0	0	232	16.0	-	-	210	14.5	16-145	1.1-10	80	1/4	810VBN24T130BH000	7.9
2	2.00	50	63.5	55.0	0	203	14.0	-	-	203	14.0	16-145	1.1-10	80	1/4	810VBN32T130BH000	9.2
2-1/2	2.56	65	107.4	93.0	0	175	12.1	-	-	175	12.1	8-145	0.6-10	125	1/4	810VBN40T150BH000	* 18.5
3	3.15	80	132.8	115.0	0	131	9.0	-	-	131	9.0	8-145	0.6-10	125	1/4	810VBN48T150BH000	* 23.1

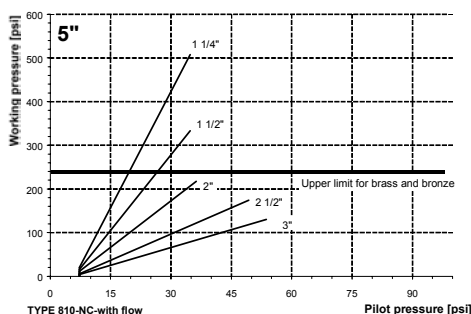
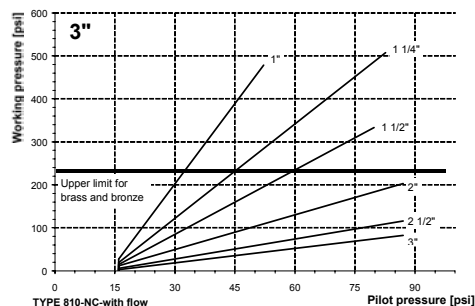
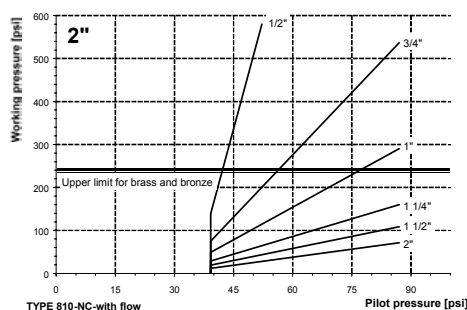
316L STAINLESS STEEL VALVES

Port Size	Orifice Size		Flow Coeff		Operating Pressure						Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs	
	DN		Cv	Kv	Min	psi	bar	psi	bar	psi	bar	psi	bar	mm			port
	inch	(mm)				(m ³ /h)	air, gases	water, liquids	steam	dia	bsp						
1/2	0.59	15	4.1	3.6	0	580	40.0	-	-	210	14.5	40-145	2.8-10	50	1/8	810VSN08T120BH000	2.4
3/4	0.78	20	9.2	8.0	0	535	36.8	-	-	210	14.5	40-145	2.8-10	50	1/8	810VSN12T120BH000	2.6
1	1.00	25	17.3	15.0	0	290	20.0	-	-	210	14.5	40-145	2.8-10	50	1/8	810VSN16T120BH000	3.1
1-1/4	1.25	32	24.3	21.0	0	160	11.0	-	-	160	11.0	40-145	2.8-10	50	1/8	810VSN20T120BH000	4.0
1-1/2	1.56	40	40.4	35.0	0	335	23.1	-	-	210	14.5	16-145	1.1-10	80	1/4	810VSN24T130BH000	7.9
2	2.00	50	63.5	55.0	0	203	14.0	-	-	203	14.0	16-145	1.1-10	80	1/4	810VSN32T130BH000	9.2
2-1/2	2.56	65	107.4	93.0	0	175	12.1	-	-	175	12.1	8-145	0.6-10	125	1/4	810VSN40T150BH000	18.5

Pressure ratings reflect standard product offering. Higher pressure ratings are available. Consult Parker.

- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
 - (2) For BSP porting, change "N" to "G" in the 6th position
 - (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
 - (4) For ultra-high temperature 430°F, 1/2" to 1-1/4" sizes only, see Ultra High Temperature tables
- * Brass Body

Control Pressure & Operating Pressure Charts





Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

Series 810 Operating Data: Normally Open, Flow Direction Under Seat

BRONZE / BRASS * BODY VALVES

BRONZE / BRASS BODY VALVES																	
Port Size	Orifice Size		Flow Coeff		Min	Operating Pressure						Pilot Pressure		Actuator		Valve Number Bronze (1) (2)	Wt. lbs
	DN		Cv	Kv		psi	bar	psi	bar	psi	bar	psi	bar	mm	port		
	inch	(mm)				(m ³ /h)	air, gases	water, liquids	steam	psi	bar	mm	bsp				
1/2	0.59	15	4.1	3.6	0	232	16.0	232	16.0	210	14.5	35-145	2.4-10	50	1/8	810VBN08T220BH000	2.4
3/4	0.78	20	9.2	8.0	0	232	16.0	232	16.0	210	14.5	45-145	3.1-10	50	1/8	810VBN12T220BH000	2.6
1	1.00	25	17.3	15.0	0	160	11.0	160	11.0	160	11.0	50-145	3.5-10	50	1/8	810VBN16T220BH000	3.1
1-1/4	1.25	32	24.3	21.0	0	100	7.0	100	7.0	100	7.0	50-145	3.5-10	50	1/8	810VBN20T220BH000	4.0
1-1/2	1.56	40	40.4	35.0	0	232	16.0	232	16.0	210	14.5	20-145	1.4-10	80	1/4	810VBN24T230BH000	7.9
2	2.00	50	63.5	55.0	0	190	13.0	190	13.0	190	13.0	20-145	1.4-10	80	1/4	810VBN32T230BH000	9.2
2-1/2	2.56	65	107.4	93.0	0	175	12.1	175	12.1	175	12.1	10-145	0.7-10	125	1/4	810VBN40T250BH000	* 18.5
3	3.15	80	132.8	115.0	0	131	9.0	131	9.0	131	9.0	10-145	0.7-10	125	1/4	810VBN48T250BH000	* 23.1

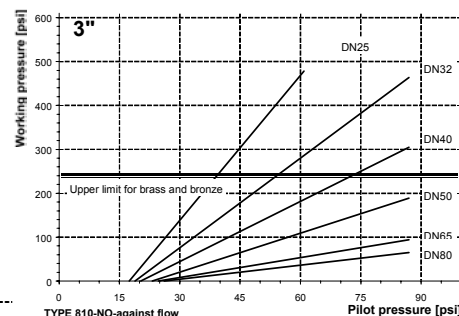
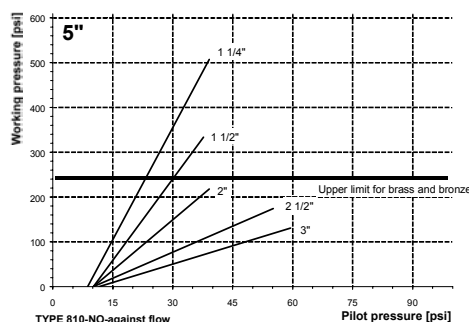
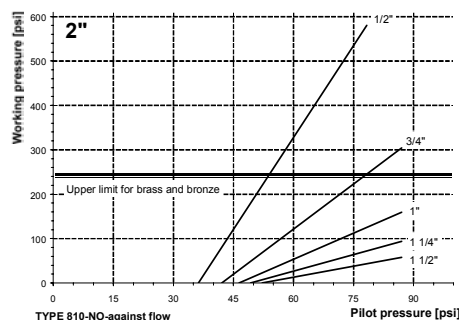
316L STAINLESS STEEL VALVES

Port Size	Orifice Size		Flow Coeff		Min	Operating Pressure						Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs
	DN		Cv	Kv		psi air, gases	bar water, liquids	psi steam	bar	psi	bar	mm	port				
	inch	(mm)												(m ³ /h)			
														dia	bsp		
1/2	0.59	15	4.1	3.6	0	580	40.0	580	40.0	210	14.5	35-145	2.4-10	50	1/8	810VSN08T220BH000	2.4
3/4	0.78	20	9.2	8.0	0	305	21.0	305	21.0	210	14.5	45-145	3.1-10	50	1/8	810VSN12T220BH000	2.6
1	1.00	25	17.3	15.0	0	160	11.0	160	11.0	160	11.0	50-145	3.5-10	50	1/8	810VSN16T220BH000	3.1
1-1/4	1.25	32	24.3	21.0	0	100	7.0	100	7.0	100	7.0	50-145	3.5-10	50	1/8	810VSN20T220BH000	4.0
1-1/2	1.56	40	40.4	35.0	0	305	21.0	305	21.0	210	14.5	20-145	1.4-10	80	1/4	810VSN24T230BH000	7.9
2	2.00	50	63.5	55.0	0	190	13.0	190	13.0	190	13.0	20-145	1.4-10	80	1/4	810VSN32T230BH000	9.2
2-1/2	2.56	65	107.4	93.0	0	175	12.1	175	12.1	175	12.1	10-145	0.7-10	125	1/4	810VSN40T250BH000	18.5

Pressure ratings reflect standard product offering. Higher pressure ratings are available. Consult Parker.

- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
 - (2) For BSP porting, change "N" to "G" in the 6th position
 - (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
 - (4) For ultra-high temperature 430°F, 1/2" to 1-1/4" sizes only, see Ultra High Temperature tables
- * Brass Body

Control Pressure & Operating Pressure Charts





Series 810: 2 Way Angle Body Valves: 1/2" to 1 1/4" NPT

Series 810 Operating Data: Ultra High Temp., Normally Closed, Flow Direction Under Seat- For control of fluids up to 430° F / 221° C

316L STAINLESS STEEL VALVES

316 STAINLESS STEEL VALVES																			
Port Size	Orifice Size		Flow Coeff		Operating Pressure							Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs		
	DN		Cv	Kv	Min	psi		bar		psi		bar		psi	bar			mm	port
	inch	(mm)				air, gases	water, liquids	steam											
1/2	0.59	15	4.1	3.6	0	380	26.1	380	26.1	-	-	85-145	5.8-10	50	1/8	810VSN08P320BU000	2.6		
3/4	0.78	20	10.4	9.0	0	360	24.8	360	24.8	-	-	51-145	3.5-10	80	1/8	810VSN12P330BU000	4.2		
1	1.00	25	19.7	17.1	0	250	17.2	250	17.2	-	-	51-145	3.5-10	80	1/4	810VSN16P330BU000	6.8		
1-1/4	1.25	32	32.5	28.1	0	175	12.0	175	12.0	-	-	80-145	5.5-10	80	1/4	810VSN20P330BU000	7.5		

Series 810 Operating Data: Ultra High Temp., Normally Closed, Flow Direction Over Seat- For control of fluids up to 430° F / 221° C

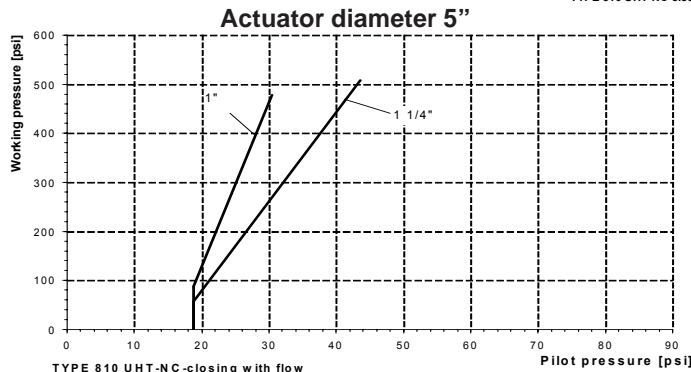
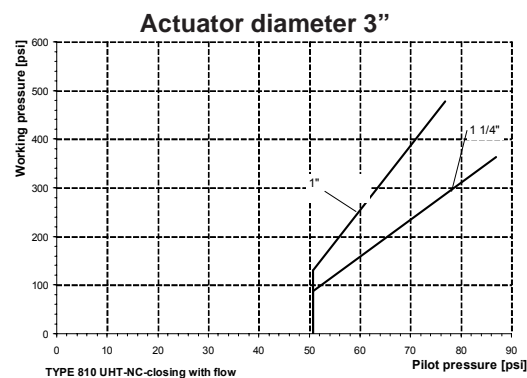
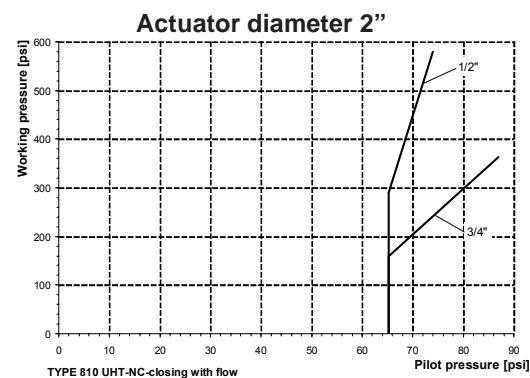
316L STAINLESS STEEL VALVES

Port Size	Orifice Size		Flow Coeff		Operating Pressure						Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs	
	DN		Cv	Kv	Min	psi		psi		psi		psi	bar	mm			port
						air, gases		water, liquids		steam							
	inch	(mm)	(m ³ /h)										dia				bsp
1/2	0.59	15	4.1	3.6	0	580	40.0	-	-	330	22.7	65-145	4.5-10	50	1/8	810VSN08P120BU000	2.6
3/4	0.78	20	10.4	9.0	0	360	24.8	-	-	330	22.7	65-145	4.5-10	50	1/8	810VSN12P120BU000	2.9
1	1.00	25	19.7	17.1	0	475	32.7	-	-	330	22.7	51-145	3.5-10	80	1/4	810VSN16P130BU000	6.8
1-1/4	1.25	32	32.5	28.1	0	360	24.8	-	-	330	22.7	51-145	3.5-10	80	1/4	810VSN20P130BU000	7.5

Pressure ratings reflect standard product offering. Higher pressure ratings are available. Consult Parker.

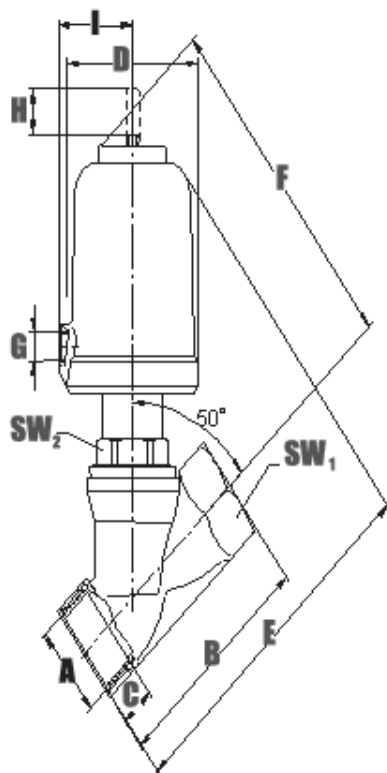
- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
- (2) For BSP porting, change "N" to "G" in the 6th position
- (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
- (4) For ultra high temperature stainless valves, seal material changes from PTFE to PEEK.

Control Pressure & Operating Pressure Charts

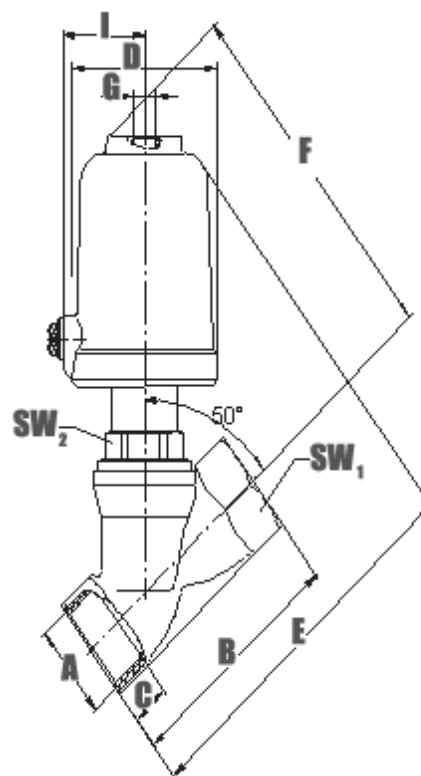


Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

Series 810 Operating Data: Dimensions and Weights



Normally Closed



Normally Open

A Pipe Size NPT	Actuator Diameter mm	DN	B		C	D	E		F	G	H	I	SW1		SW2	Cv-values		Weight	
			Bronze	Brass			Bronze	Brass					Bronze	Brass		Bronze	Brass	lbs.	Kg.
1/2"	50	15	2.55	-	0.45	2.45	5.30	-	4.70	G1/8	0.28	1.35	1.00	-	1.20	4.1	-	2.4	1.1
3/4"	50	20	2.95	-	0.50	2.45	5.30	-	4.90	G1/8	0.47	1.35	1.20	-	1.20	9.2	-	2.6	1.2
1"	50	25	3.55	-	0.60	2.45	5.70	-	5.10	G1/8	0.63	1.35	1.55	-	1.20	17.3	-	3.1	1.4
1"	80	25	3.55	-	0.60	3.80	7.30	-	9.70	G1/4	0.63	2.15	1.55	-	1.20	18.5	-	6.6	3.0
1-1/4"	50	32	4.35	-	0.65	2.45	6.30	-	5.70	G1/8	0.63	1.35	1.90	-	1.20	24.3	-	4.0	1.8
1-1/4"	80	32	4.35	-	0.65	3.80	7.85	-	7.50	G1/4	0.79	2.15	1.90	-	1.20	27.7	-	7.3	3.3
1-1/4"	125	32	4.35	-	0.65	5.75	9.05	-	8.45	G1/4	0.79	3.15	1.90	-	1.20	28.0	-	12.1	5.5
1-1/2"	50	40	4.70	-	0.75	2.45	6.50	-	5.90	G1/8	0.63	1.35	2.15	-	1.20	35.0	-	4.6	2.1
1-1/2"	80	40	4.70	-	0.75	3.80	8.05	-	7.70	G1/4	0.91	2.15	2.15	-	1.20	40.4	-	7.9	3.6
1-1/2"	125	40	4.70	-	0.75	5.75	9.25	-	8.65	G1/4	0.91	3.15	2.15	-	1.20	40.4	-	12.8	5.8
2"	50	50	5.90	-	0.85	2.45	7.30	-	6.30	G1/8	0.63	1.35	2.70	-	1.25	46.0	-	5.9	2.7
2"	80	50	5.90	-	0.85	3.80	8.85	-	7.85	G1/4	1.14	2.15	2.70	-	1.25	63.5	-	9.2	4.2
2"	125	50	5.90	-	0.85	5.75	9.85	-	8.85	G1/4	1.14	3.15	2.70	-	1.25	63.5	-	14.1	6.4
2-1/2"	80	65	-	7.10	1.00	3.80	-	10.25	8.25	G1/4	1.14	2.15	-	3.35	1.60	-	107	13.6	6.2
2-1/2"	125	65	-	7.10	1.00	5.75	-	11.20	9.45	G1/4	1.14	3.15	-	3.35	1.60	-	107	18.5	8.4
3"	80	80	-	8.25	1.10	3.80	-	11.00	8.8.5	G1/4	1.14	2.15	-	3.95	1.60	-	133	18.3	8.3
3"	125	80	-	8.25	1.10	5.75	-	12.00	9.85	G1/4	1.14	3.15	-	3.95	1.60	-	133	23.1	10.5

Dimension in inches except as noted



Series 810: 2 Way Angle Body Valves: 1/2" to 1 1/4" NPT

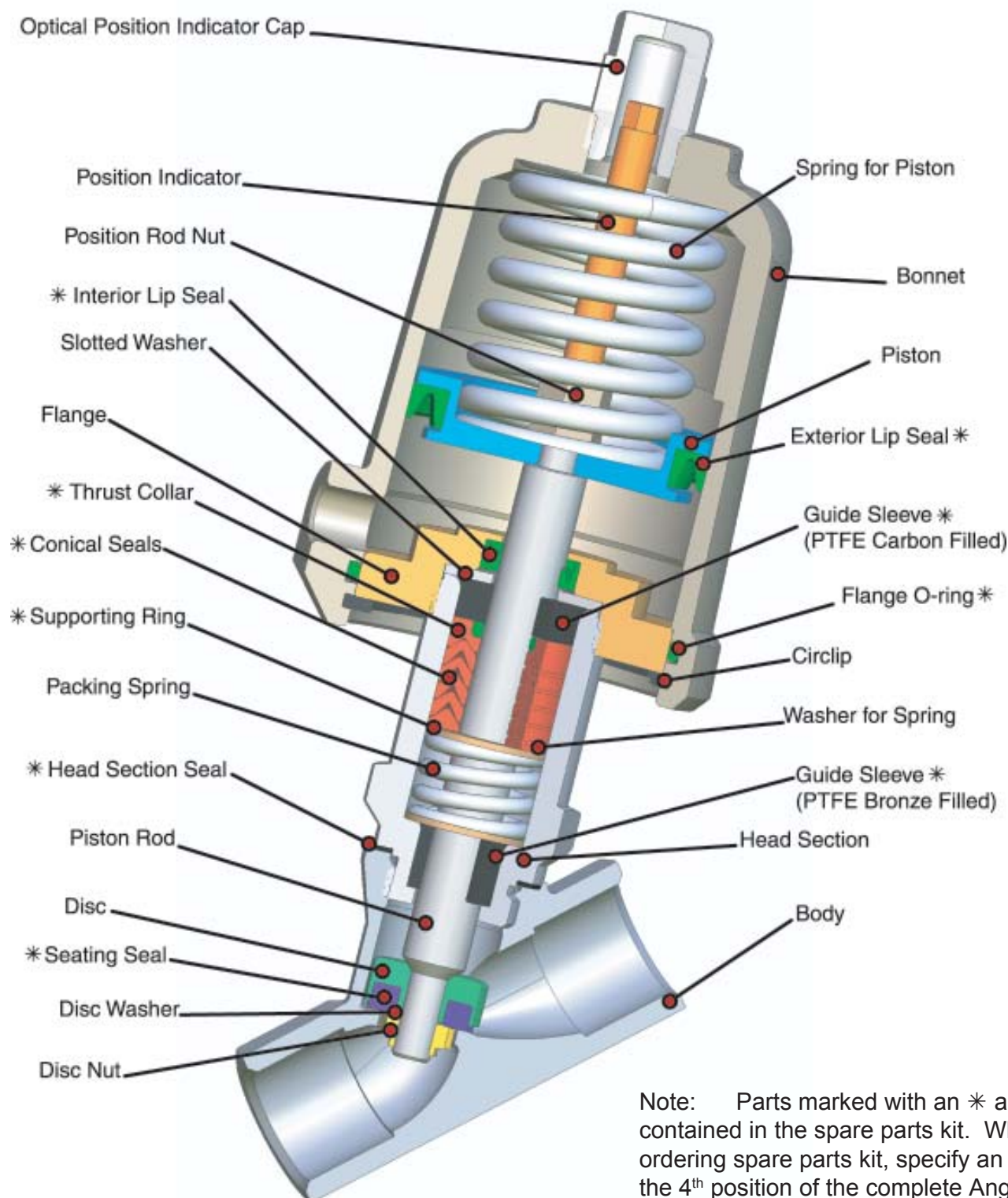
Series 810 Operating Data: Dimensions and Weights- Ultra High Temp.

A Pipe Size NPT	Actuator Diameter mm	DN	B	C	D	E	F	G	H	I	SW1	SW2	Cv- values	Weight	
			SST			SST			stroke		SST		SST	lbs.	Kg.
1/2"	50	15	2.55	0.45	2.45	5.70	5.95	G1/8	0.28	1.35	1.00	1.20	4.1	2.6	1.2
3/4"	50	20	2.95	0.50	2.45	6.00	6.25	G1/8	0.47	1.35	1.20	1.20	10.4	2.9	1.3
3/4"	80	20	2.95	0.50	3.80	7.30	7.75	G1/4	0.47	1.35	1.20	1.20	10.4	4.2	1.9
1"	80	25	3.55	0.60	3.80	7.60	8.08	G1/4	0.63	2.15	1.55	1.20	19.7	6.8	3.1
1"	125	25	3.55	0.60	5.75	8.80	9.23	G1/4	0.63	2.15	1.55	1.20	19.7	11.7	5.3
1-1/4"	80	32	4.35	0.65	3.80	8.30	8.85	G1/4	0.79	2.15	1.90	1.20	32.5	7.5	3.4
1-1/4"	125	32	4.35	0.65	5.75	9.50	10.05	G1/4	0.79	3.15	1.90	1.20	32.5	12.3	5.6

Dimension in inches except as noted

Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

Series 810 Typical Cross Section Drawing



Note: Parts marked with an * are contained in the spare parts kit. When ordering spare parts kit, specify an "R" in the 4th position of the complete Angle Seat Valve Model Number.



Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT



DIGITAL CONTROL: Control valve with integrated microprocessor-positioner for neutral through aggressive fluids.

Features:

- Operates independent of supply pressure variations.
- No steady state air consumption.
- Contactless strike feedback (inductive sensor)
- Not sensitive to vibration
- Instrument grade air not essential
- Individually programmable software configurable flow characteristics
- Protection Class IP 65
- For pneumatic control with linear or rotary actuators

Technical Specifications

Body Material	AISI 316L
Function	2/2 Normally Closed, Closes against the flow
Nominal sizes	1/2" - 2"
Connections: NPT thread standard BSP thread (ISO 228/1) SAE Tube Ends Flanges ANSI 150	1/2" - 2"
Differential Pressure	See Specifications tables
Pilot Pressure	up to 145 psi (10 bar) reference graphs
Actuator:	3" brass plated, 5" aluminum ^ 3" Stainless Actuator
Max. fluid temperature	-22°F (-30°C) up to 392°F (200°C) # to -40°F (-40°C) * Up to +430°F (221°C)
Seal Material	PTFE
Packing Gland	PTFE / Graphite
Viscosity of the fluid	max. 600 mm ² /s (600 cSt, 80°F, 2700 SSU)
Vacuum	maximum 0.0295 mercury (Hg)
Working pressure for inverted packing for vacuum service	maximum 175 psi
Leakage	ANSI Class VI shutoff
Installation	Any position
Pilot Control Media	Air, neutral gas, water
Fluids	Inert gases, hot water, oils, steam, aggressive & corrosive fluids
Optical Position Indicator	Standard

Port Size	Orifice Size		Flow Coeff		Operating Pressure									Pilot Pressure		Actuator		Valve Number			Valve Number			Wt lbs		
	DN		Cv	Kv	Min	psi		bar		psi		bar		psi		bar		mm	port	Stainless (1) (2) (3)			Stainless (1) (2) (3)			
	inch	mm	(m ³ /h)			air, gases		water, liquids		steam		(4)(5)		Linear Flow			Equal Percentage Flow									
1/2	0.59	15	4.4	3.8	0	232	16.0	232	16.0	225	15.5	58-87	4-6	80	1/4	820VSN08TD3ABH000	820VSN08TD3EBH000					9.0				
3/4	0.78	20	10.2	8.9	0	232	16.0	232	16.0	225	15.5	58-87	4-6	80	1/4	820VSN12TD3ABH000	820VSN12TD3EBH000					9.3				
1	1.00	25	16.2	14.1	0	232	16.0	232	16.0	225	15.5	58-87	4-6	80	1/4	820VSN16TD3ABH000	820VSN16TD3EBH000					9.7				
1-1/4	1.25	32	23.2	20.2	0	145	10.0	145	10.0	145	10.0	58-87	4-6	80	1/4	820VSN20TD3ABH000	820VSN20TD3EBH000					10.4				
1-1/4	1.25	32	23.2	20.2	0	232	16.0	232	16.0	225	15.5	44-87	3-6	125	1/4	820VSN20TD5ABH000	820VSN20TD5EBH000					16.1				
1-1/2	1.56	40	31.3	27.2	0	87	6.0	87	6.0	87	6.0	58-87	4-6	80	1/4	820VSN24TD3ABH000	820VSN24TD3EBH000					11.0				
1-1/2	1.56	40	31.3	27.2	0	232	16.0	232	16.0	225	15.5	58-87	4-6	125	1/4	820VSN24TD5ABH000	820VSN24TD5EBH000					16.8				
2	2.00	50	42.9	37.3	0	45	3.0	45	3.0	45	3.0	58-87	4-6	80	1/4	820VSN32TD3ABH000	820VSN32TD3EBH000					12.4				
2	2.00	50	42.9	37.3	0	131	9.0	131	9.0	131	9.0	58-87	4-6	125	1/4	820VSN32TD5ABH000	820VSN32TD5EBH000					18.1				

- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
- (3) For BSP porting, change "N" to "G" in the 6th position
- (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
- (4) For 40% linear reduced flow, change 12th position to "B" from A
- (5) For 25% linear reduced flow, change 12th position to "C" from A
- (6) For 40% equal percentage reduced flow, change 12th position to "F" from E
- (7) For 25% equal percentage reduced flow, change 12th position to "G" from E



Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT

ELECTRO-PNEUMATIC CONTROL: *Electro-Pneumatically operated control valve for neutral to aggressive fluids including electro-pneumatic (e/p) positioner.*

Features:

- Integrated Positioner
- All parts contacting fluid made of 316L Stainless Steel
- Temperatures up to 392° F / 200° C
- Compact Design



Technical Specifications

Body Material	AISI 316L
Function	2/2 Normally Closed, Closes against the flow
Nominal sizes	1/2" - 2"
Connections: NPT thread standard BSP thread (ISO 228/1) SAE Tube Ends Flanges ANSI 150	1/2" - 2"
Differential Pressure	See Specifications tables
Pilot Pressure	up to 145 psi (10bar) reference graphs
Actuator:	3" brass plated, 5" aluminum ^ 3" Stainless Actuator
Max. fluid temperature	-22°F (-30°C) up to 392°F (200°C) # to -40°F (-40°C) * Up to +430°F (221°C)
Seal Material	PTFE
Packing Gland	PTFE / Graphite
Viscosity of the fluid	max. 600 mm ² /s (600cSt, 80°F, 2700SSU)
Vacuum	maximum 0.0295 mercury (Hg)
Working pressure for inverted packing for vacuum service	maximum 175 psi
Leakage	ANSI Class VI shutoff
Installation	Any position
Pilot Control Media	Air, neutral gas, water
Fluids	Inert gases, hot water, oils, steam, aggressive & corrosive fluids
Optical Position Indicator	Standard

Port Size	Orifice Size		Flow Coeff		Min	Operating Pressure						Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) Linear Flow (4)/(5)	Valve Number Stainless (1) (2) (3) Equal Percentage Flow (6)/(7)	Wt lbs
	DN		Cv	Kv		psi	bar	psi	bar	psi	bar	psi	bar	mm	port			
	inch	mm	(m ³ /h)			air, gases		water, liquids		steam				dia	bsp			
1/2	0.59	15	4.4	3.8	0	232	16.0	232	16.0	225	15.5	60-90	4.1-6.2	80	1/4	820VSN08T83ABH000	820VSN08T83EBH000	8.8
3/4	0.78	20	10.2	8.9	0	232	16.0	232	16.0	225	15.5	60-90	4.1-6.2	80	1/4	820VSN12T83ABH000	820VSN12T83EBH000	9.0
1	1.00	25	16.2	14.1	0	175	12.1	175	12.1	175	12.1	60-90	4.1-6.2	80	1/4	820VSN16T83ABH000	820VSN16T83EBH000	9.5
1-1/4	1.25	32	23.2	20.2	0	102	7.0	102	7.0	102	7.0	60-90	4.1-6.2	80	1/4	820VSN20T83ABH000	820VSN20T83EBH000	10.1
1-1/4	1.25	32	23.2	20.2	0	190	13.1	190	13.1	190	13.1	45-90	3.1-6.2	125	1/4	820VSN20T85ABH000	820VSN20T85EBH000	15.8
1-1/2	1.56	40	31.3	27.2	0	60	4.1	60	4.1	60	4.1	60-90	4.1-6.2	80	1/4	820VSN24T83ABH000	820VSN24T83EBH000	10.8
1-1/2	1.56	40	31.3	27.2	0	160	11.0	160	11.0	160	11.0	60-90	4.1-6.2	125	1/4	820VSN24T85ABH000	820VSN24T85EBH000	16.5
2	2.00	50	42.9	37.3	0	85	5.9	85	5.9	85	5.9	60-90	4.1-6.2	125	1/4	820VSN32T85ABH000	820VSN32T85EBH000	17.8

- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
- (3) For BSP porting, change "N" to "G" in the 6th position
- (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
- (4) For 40% linear reduced flow, change 12th position to "B" from A
- (5) For 25% linear reduced flow, change 12th position to "C" from A
- (6) For 40% equal percentage reduced flow, change 12th position to "F" from E
- (7) For 25% equal percentage reduced flow, change 12th position to "G" from E



Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT

PNEUMATIC CONTROL: *Pneumatically operated control valve for neutral to aggressive fluids including pneumatic (p/p) positioner.*

Features

- Integrated Positioner
- All parts contacting fluid made of 316L Stainless Steel
- Temperatures up to 392° F / 200° C
- Compact Design

Technical Specifications

Body Material	AISI 316L
Function	2/2 Normally Closed, Closes against the flow
Nominal sizes	1/2" - 2"
Connections: NPT thread standard BSP thread (ISO 228/1) SAE Tube Ends Flanges ANSI 150	1/2" - 2"
Differential Pressure	See Specifications tables
Pilot Pressure	up to 145 psi (10 bar) reference graphs
Actuator:	3" brass plated, 5" aluminum ^ 3" Stainless Actuator
Max. fluid temperature	-22°F (-30°C) up to 392°F (200°C) # Optional * Optional
Seal Material	PTFE
Packing Gland	PTFE / Graphite
Viscosity of the fluid	max. 600 mm ² /s (600 cSt, 80°E, 2700 SSU)
Vacuum	maximum 0.0295 mercury (Hg)
Working pressure for inverted packing for vacuum service	maximum 175 psi
Leakage	ANSI Class VI shutoff
Installation	Any position
Pilot Control Media	Air, neutral gas, water
Fluids	Inert gases, hot water, oils, steam, aggressive & corrosive fluids
Optical Position Indicator	Standard

Port Size	Orifice Size		Flow Coeff		Operating Pressure									Pilot Pressure		Actuator		Valve Number			Valve Number			Wt lbs
	DN		Cv	Kv	Min	psi	bar	psi	bar	psi	bar	psi	bar	mm	port	Stainless (1) (2) (3)			Stainless (1) (2) (3)					
	inch	mm	(m ³ /h)			air, gases		water, liquids		steam				dia	bsp	Linear Flow (4)(5)			Equal Percentage Flow (6)(7)					
1/2	0.59	15	4.4	3.8	0	232	16.0	232	16.0	225	15.5	60-90	4.1-6.2	80	1/4	820VSN08T63ABH000			820VSN08T63EBH000			8.1		
3/4	0.78	20	10.2	8.9	0	232	16.0	232	16.0	225	15.5	60-90	4.1-6.2	80	1/4	820VSN12T63ABH000			820VSN12T63EBH000			8.4		
1	1.00	25	16.2	14.1	0	175	12.1	175	12.1	175	12.1	60-90	4.1-6.2	80	1/4	820VSN16T63ABH000			820VSN16T63EBH000			8.8		
1-1/4	1.25	32	23.2	20.2	0	102	7.0	102	7.0	102	7.0	60-90	4.1-6.2	80	1/4	820VSN20T63ABH000			820VSN20T63EBH000			9.5		
1-1/4	1.25	32	23.2	20.2	0	190	13.1	190	13.1	190	13.1	45-90	3.1-6.2	125	1/4	820VSN20T65ABH000			820VSN20T65EBH000			15.2		
1-1/2	1.56	40	31.3	27.2	0	60	4.1	60	4.1	60	4.1	60-90	4.1-6.2	80	1/4	820VSN24T63ABH000			820VSN24T63EBH000			10.1		
1-1/2	1.56	40	31.3	27.2	0	160	11.0	160	11.0	160	11.0	60-90	4.1-6.2	125	1/4	820VSN24T65ABH000			820VSN24T65EBH000			15.8		
2	2.00	50	42.9	37.3	0	85	5.9	85	5.9	85	5.9	60-90	4.1-6.2	125	1/4	820VSN32T65ABH000			820VSN32T65EBH000			17.2		

- (1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
- (3) For BSP porting, change "N" to "G" in the 6th position
- (3) Optional Stainless Actuator, change "B" to "S" in the 13th position
- (4) For 40% linear reduced flow, change 12th position to "B" from A
- (5) For 25% linear reduced flow, change 12th position to "C" from A
- (6) For 40% equal percentage reduced flow, change 12th position to "F" from E
- (7) For 25% equal percentage reduced flow, change 12th position to "G" from E



Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT

Cv - Values

	Linear						Equal Percentage					
DN	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
100%	4.4	10.2	16.2	23.2	31.3	42.9	3.5	7.0	11.6	18.6	29.0	-
40%	1.7	4.1	6.7	9.3	12.8	-	1.4	2.8	4.6	7.0	11.6	-
25%	1.1	2.6	4.2	-	-	-	0.9	1.7	3.0	-	-	-

Kv - Values

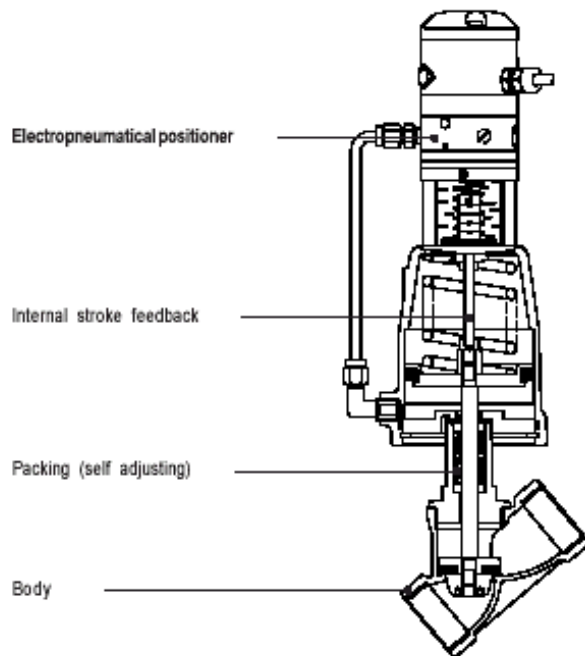
	Linear						Equal Percentage					
DN	15	20	25	32	40	50	15	20	25	32	40	50
100%	3.8	8.8	14.0	20.0	27.0	37.0	3.0	6.0	10.0	16.0	25.0	-
40%	1.5	3.5	5.8	8.0	11.0	-	1.2	2.4	4.0	6.0	10.0	-
25%	0.9	2.2	3.6	-	-	-	0.8	1.5	2.6	-	-	-

Percentage Flow characteristic with reduced flows based on contour of sealing plug.

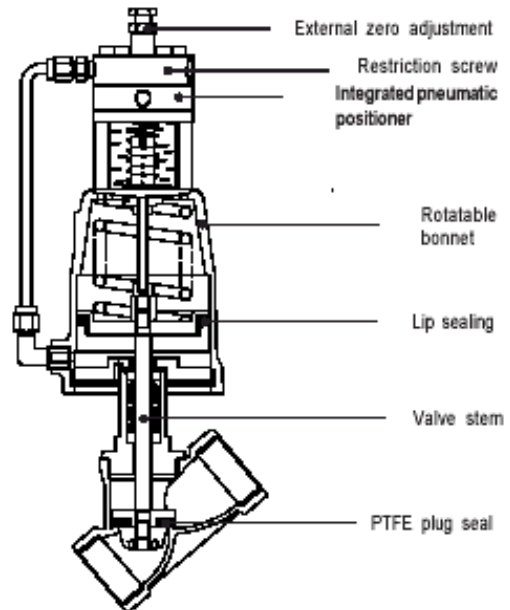
Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT

Series 820 Technical Data: Positioners

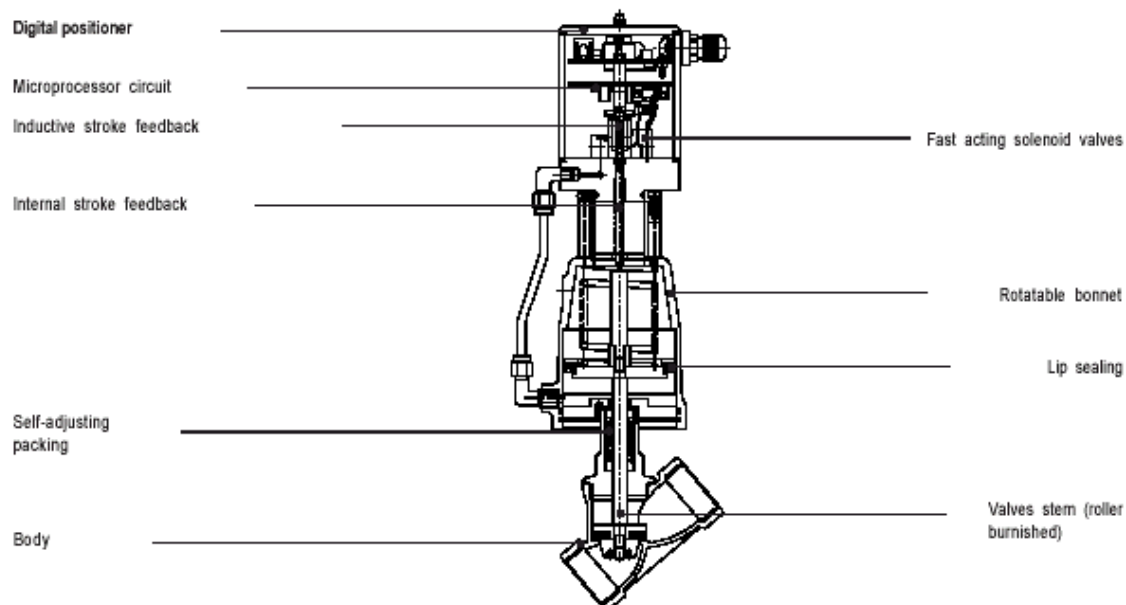
Electro-Pneumatic Positioner
(e/p)



Pneumatic Positioner
(p/p)



Digital Positioner
(i/p)



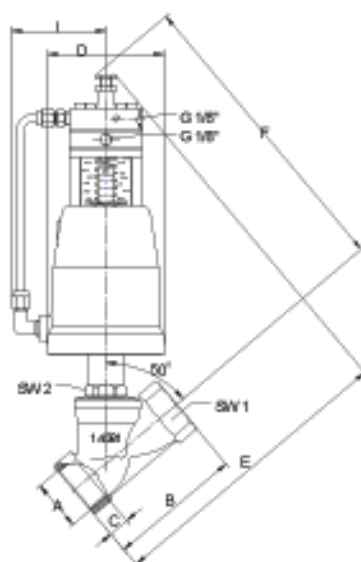
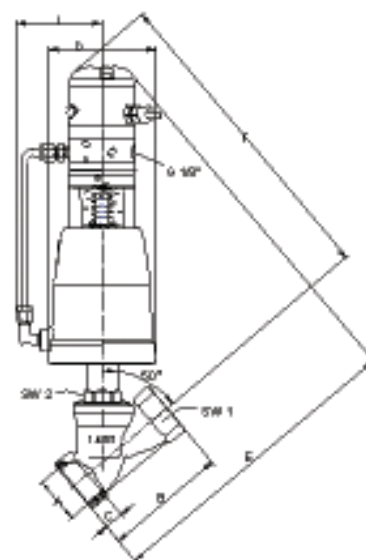
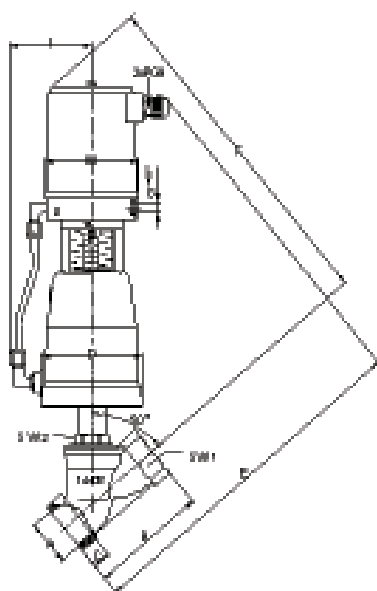


Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT

Series 820 Technical Data: Dimensions and Weights

A Pipe Size NPT	Actuator Diameter mm	DN	B	C	D	E Positioner			F Positioner			I	SW1	SW2	Weight (lbs)		
			SST			p/p	l/p	digital	p/p	l/p	digital		SST		p/p	l/p	digital
1/2"	80	15	2.55	0.60	3.80	8.65	9.85	11.80	9.05	10.25	11.4	3.15	1.00	1.20	8.1	8.8	9.0
3/4"	80	20	2.95	0.65	3.80	8.85	10.05	12.00	9.25	10.45	11.60	3.15	1.20	1.20	8.4	9.0	9.2
1"	80	25	3.55	0.75	3.80	9.25	10.45	12.40	9.45	10.65	11.80	3.15	1.55	1.20	8.8	9.5	9.7
1-1/4"	80	32	4.35	0.85	3.80	9.85	11.00	13.00	10.05	11.20	12.40	3.15	1.90	1.20	9.5	10.1	10.3
1-1/4"	125	32	4.35	0.85	5.75	10.45	11.60	14.15	10.85	12.00	13.60	4.15	1.90	1.20	15.2	15.8	16.1
1-1/2"	80	40	4.70	0.85	3.80	10.05	11.20	13.20	10.25	11.40	12.60	3.15	2.15	1.20	10.1	10.8	11.0
1-1/2"	125	40	4.70	0.85	5.75	10.65	11.8	14.35	11.00	12.20	13.80	4.15	2.15	1.20	15.8	16.5	16.7
2"	80	50	5.90	0.85	3.80	10.85	12.00	13.80	10.65	11.80	13.00	3.15	2.70	1.25	11.7	12.1	12.3
2"	125	50	5.90	1.00	5.75	11.20	12.40	14.95	11.20	12.40	14.15	4.15	2.70	1.25	17.2	17.8	17.8

Dimension in inches except as noted





810 and 820 Numbering System

Series 820 Valve Ordering

1. Series	2 Configuration	3. Body Material	4 Connection Type	5. Port / Orifice Inches / DN	6. Seal Material	7 Pilot Function
810 820	V Valve Assembly A Actuator Unit less Body R Repair Kit	B Bronze & Brass S Stainless steel 316L	N NPT-thread G BSP- ISO J SAE C ANSI Flanges 150 E Tube ends T Tri clamp inch (ASME 1998)	08 1/2" DN15 12 3/4" DN20 16 1" DN25 20 1-1/4" DN32 24 1-1/2" DN40 32 2" DN50 40 2-1/2" DN65 48 3" DN80	T PTFE P PEEK Consult factory for other seal materials	Enr 810 Valve Series 1 NC (closing with flow - over seat) 2 NO (closing against flow - under seat) 3 NC (closing against flow - under seat) 4 Universal, double acting Enr 820 Valve Series 6 Pneumatic positioner 7 Electro-pneumatic positioner 8 Electro-pneumatic positioner with clamp adapter 9 Electro-pneumatic positioner ex-proof (II 2 G Eex Ib IIC T6) A Integrated process controller type D Integrated digital positioner type
8 Actuator Diameter	9. Springs	10. Actuator Head Material	11. Temperature Version	12 Packing	13 Accessories	14 Additional
2 Piston 2" (NPT) 3 Piston 3" (NPT) 5 Piston 5" (NPT)	Enr 810 Valve Series 0 Standard 9. Characteristics & Flow Values Enr 820 Valve Series (standard spring only) A Linear - Full flow B Linear - reduced 40% flow C Linear - reduced 25% flow E Equal percentage - Full flow F Equal percentage - reduced 40% flow G Equal percentage - reduced 25% flow	B Brass Plated, Alum Anodized for 5" size S Stainless Steel 316 (Option for stainless body valves only)	Enr 810 Valve Series H High temperature standard (392°F / 200°C) (bronze, stainless steel) U Ultra High temperature (430°F stainless steel only) L Low Temperature (-40°F / -40°C) Enr 820 Valve Series H High temperature standard (392°F) (stainless steel) U Ultra High temperature (430°F stainless steel only) L Low Temperature (-40°F -40°C)	0 Standard - PTFE Graphite Filled 2 Inverted packing for Vacuum Service only	Enr 810 Valve Series 0 No accessories 1 Electrical position indicator with single switch 2 Electrical position indicator with double switches 3 4 Manual override (N.C.) 5 Stroke limitation (N.C.) 6 Electrical position indicator compact 7 Position indicator with 2 proximity switches 8 Position indicator with 1 proximity switch Enr 820 Valve Series 0 No accessories	Enr 810 Valve Series 0 No additional accessories 1 Pilot Valve .078 (DN2) 120/60, 110/50 DIN coil 2 Pilot Valve .078 (DN2) 240/60, 220/50 DIN coil 3 Pilot Valve .078 (DN2) 240/60, 220/50 DIN coil 4 Pilot Valve .078 (DN2) 24VDC DIN coil 5 Pilot Valve .078 (DN2) 12VDC DIN coil Enr 820 Valve Series 0 No additional accessories 1 Pilot Valve .078 (DN2) 120/60, 110/50 DIN coil 2 Pilot Valve .078 (DN2) 240/60, 220/50 DIN coil 3 Pilot Valve .078 (DN2) 24/60, 24/50 DIN coil 4 Pilot Valve .078 (DN2) 24VDC DIN coil 5 Pilot Valve .078 (DN2) 12VDC DIN coil

FEATURES

Digital Control Positioner

- Top Mounted
- Compact construction for linear and rotary actuators
- Control input 0/4-20mA, 0/2-10VDC
- Inductive sensor for non-contact stroke feedback
- 140 movements per inch stroke for precise control, repeatable within <0.5%
- Self calibrating
- Flow characteristics programmable by PC software
- Standard visual position indicator between the positioner and valve actuator
- Alarm output capable
- Available with stainless steel casing
- Simple installation and serviceability



Technical Specifications

Set Point Signal	0/4 - 20 mA, 0/2 - 10 V, LON-fieldbus connection (optional)
Supply Voltage	24 VDC, maximum 10w
Supply Pressure	44 - 87 psi / 3 - 6 bar
Hysteresis	< 0.5 %
Characteristics	linear, equal percentage, user-defined, process optimized*
Adjustment (stroke, zero point)	Self - Learning
Ambient Temperature	14°F to 170°F / -10°C to + 76°C
Protection class, DIN40050	IP 65
Range of Stroke / Angle	0.12...0.87 inches; 0.35...1.97 inches Rotary actuators up to 180°
Mounting to Control Valve	Standard mounting
Adaption to Range and Zero	Self - Learning
Configuration	Software configurable flow characteristics
Steady State Air Consumption	None

* Process optimized produces a linear flow characteristic for optimal control. After entering a few process points (e.g. upstream and downstream pressures), the optimized flow characteristic is calculated by the digital positioner configuration software and stored in the positioner memory.

FEATURES

Electro-Pneumatic Positioner

- Top Mounted
- Compact construction
- Control input 0/4-20mA, 0/2-10VDC
- Standard visual position indicator between the positioner and valve actuator
- Economical
- Wide span range for easy adjustment
- Available in intrinsically safe version
- Simple installation and serviceability



Technical Specifications

Input Signal Range	pneumatic: 3-15 psi / 0.2 - 1 bar, electro-pneumatic: 0/4 - 20mA
Stroke Range	0.2 - 1 inch depending on return spring
Supply Pressure	44 - 87 psi / 3 - 6 bar
Sensitivity of Response	<0.15 %
Hysteresis	< -1% to + 1%
Characteristics	linear, equal percentage
Adjustment (stroke, zero point)	mechanical
Ambient Temperature	14°F to 140°F / -10°C to + 60°C
Protection class, DIN40050	IP 54
Air Consumption	13.3 to 21.3 scfh (depending on output pressure)
Intrinsically Safe (optional)	Ⓔ II 2 G EEx ib IIC T6 +45°C / +113°F
	Ⓔ II 2 G EEx ib IIC T5 +60°C / +140°F
Housing	Aluminum, black epoxy coated

FEATURES

Pneumatic Positioner

- Top Mounted
- Compact construction
- Standard visual position indicator between the positioner and valve actuator
- Economical
- Easy adjustment
- Simple installation and serviceability



Technical Specifications

Input Signal Range	pneumatic: 3-15 psi / 0.2 - 1 bar
Stroke Range	0.2 - 1 inch depending on return spring
Supply Pressure	44 - 87 psi / 3 - 6 bar
Sensitivity of Response	<0.15 %
Hysteresis	< -1% to + 1%
Characteristics	linear, equal percentage
Adjustment (stroke, zero point)	mechanical
Ambient Temperature	14°F to 140°F / -10°C to + 60°C
Air Consumption	13.3 to 21.3 scfh (depending on output pressure)
Housing	Brass, chrome plated



3 Way Direct Acting Pilot Control Valves

FEATURES

Pilot Control Valve

- Compact design for industrial applications
- Brass or stainless steel body valves
- NC (normally closed) and NO (normally open) versions
- Rugged coil family for all application demands
- Manual operation optional



Technical Specifications

Function	3/2 Normally Closed, Normally Open and Multi-Purpose	
Connections: NPT thread standard	1/8" - 1/4 "	
Differential Pressure	See Specifications tables	
Pilot Control Media	Air, neutral gas, water	
Max. fluid temperature	-20°F (-23°C) up to 185°F (85°C)	
Ambient temperature	-20°F (-23°C) up to +140°F (60°C)	
Viscosity of the fluid	max.22 mm²/s (22cSt, 3°E, 100SSU)	
Installation	Any position	
Manual Locking Control	Optional	
Materials	Body	Brass (stainless optional)
	Sleeve	Stainless
	Core	Stainless
	Spring	Stainless
	Seals	FKM
Coils	DIN coil standard	
	Conduit & Hazardous coils optional	

port size	orifice size inch mm		Flow Coef Cv Kv (m ³ /h)		air psi	water psi	oil psi	AC VALVE NUMBERS *	air psi	water psi	oil psi	DC VALVE NUMBERS *
BRASS UNIVERSAL VALVE FOR NORMALLY CLOSED & NORMALLY OPEN REQUIREMENTS												
1/8	1/16	1.5	0.11	0.10	150	150	150	7133KBN1GVJ1N0D4D1xx	150	150	150	7133KBN1GVJ1N0D5D1xx
1/8	5/64	2.0	0.17	0.15	100	100	100	7133KBN1JVJ1N0D4D1xx	100	100	100	7133KBN1JVJ1N0D5D1xx
1/4	1/16	1.5	0.11	0.10	150	150	150	7133KBN2GVJ1N0D4D1xx	150	150	150	7133KBN2GVJ1N0D5D1xx
1/4	5/64	2.0	0.17	0.15	100	100	100	7133KBN2JVJ1N0D4D1xx	100	100	100	7133KBN2JVJ1N0D5D1xx
STAINLESS NORMALLY CLOSED												
1/8	1/16	1.5	0.10	0.09	200	200	200	71315SN1GV00N0D4D1xx	200	200	200	71315SN1GV00N0D5D1xx
1/4	3/32	2.4	0.17	0.15	125	125	125	71315SN2KV00N0D4D1xx	125	125	125	71315SN2KV00N0D5D1xx
STAINLESS NORMALLY OPEN												
1/8	1/16	1.5	0.10	0.09	150	150	150	71395SN1GVJ1N0D4D1xx	150	150	150	71395SN1GVJ1N0D5D1xx
1/4	3/32	2.4	0.17	0.15	125	125	125	71395SN2KVJ1N0D4D1xx	125	125	125	71395SN2KVJ1N0D5D1xx
1 bar = 14.5 psi								AC VoltageCodes P3 = 120/60; 110/50 Q3 = 240/60; 220/50 B2 = 24/60; 24/50			DC VoltageCodes C1 = 12VDC C2 = 24VDC	
* xx - Replace with voltage code												



3 Way Direct Acting Pilot Control Valves





ELECTRICAL SELECTION GUIDE

All Parker solenoid valves for pneumatic actuator control use standard coil designs that are interchangeable. They are available in a wide variety of standard voltages and frequencies. Coils are labeled with electrical data providing easy identification.

Construction

Encapsulated waterproof coils are standard on all pilot valves. Numerous construction options are available including DIN terminals and conduit hub housing coils. The special compound is absolutely waterproof and impervious to oil, dust and most corrosive fumes and vapors.

All coils are Class “F” rated for high temperature application requirements. Class H coils is optional. The coils are molded in accordance with UL, NEMA, and other accepted standards.

Coil Code*	Class	Wattage	Description	
D4D1xx	F	13	DIN AC Voltages(terminations per DIN 43650 / ISO 4400 requirements)	
D5D1xx	F	16	DIN DC Voltages(terminations per DIN 43650 / ISO 4400 requirements)	
C111xx	F	10	Conduit, NEMA 4X 18" lead length, 2-wires	
H111xx	F	10	Hazardous, NEMA 4X, 7, 9 18" lead length, 2-wires	

* xx- Replace with voltage code

DIN coils are provided standard as noted in order table.

To select the either conduit version coil, simply specify the coil number and voltage in positions 15 through 20 of the valve number.

Example: To order 1/4" NPT brass body NC valve with NEMA 4 conduit coil rated for 120/60 voltage: 7133KBN2JVJ1+N0+C111P3 = 7133KBN2JVJ1N0C111P3

To order the pressure vessel alone, select only the pressure vessel number, the first 12 digits of the part number.

To select coil alone, select the 4-digit coil part and 2-digit voltage code.

Electrical Supply Requirements

The solenoid coil must be connected to electrical lines of correct voltage and frequency as indicated on the coil label. The supply circuits must be properly sized to give adequate voltage at the coil leads even when other electrical equipment is operating. The molded coil is designed to operate with line voltage from 85% to 110% of the coil rated voltage. Operating with a line voltage above or below these limits may result in reduced coil life or coil burn out. Also, operating with line voltage below the limit will result in lowering the maximum operating pressure differential (MOPD).

Conversion from AC to DC Coils

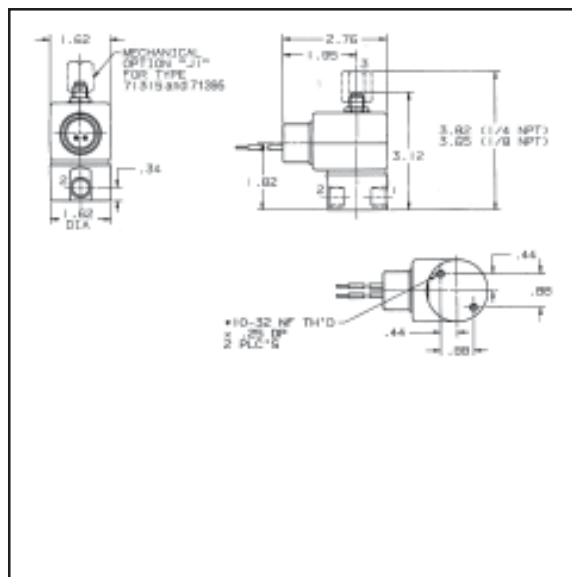
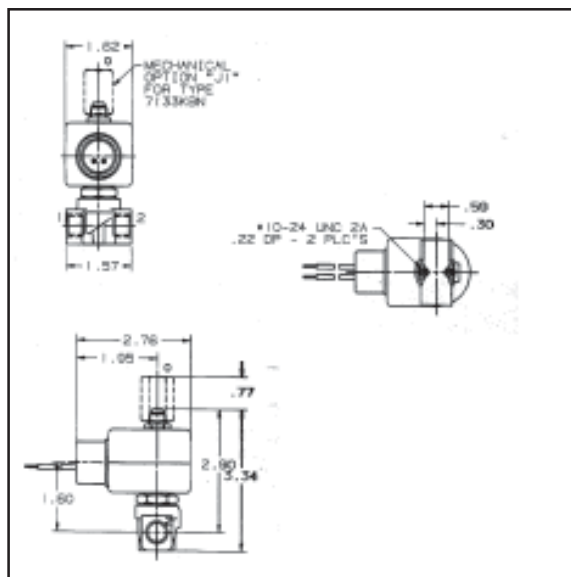
The same valve assembly can be used for both AC and DC service requirements. AC and DC coils are interchangeable. To convert a valve assembly from AC to DC service, select the appropriate DC coil voltage per the valve specification chart based on the system pressure requirements.

3 Way Direct Acting Pilot Control Valves

ELECTRICAL DATA

To determine the approximate Holding or Inrush Current for AC voltages including 24/60, 120/60, 208/60 and 240/60 in amperes, divide the voltage into the VA rating indicated in the AC Power Consumption tables. DC valves have no inrush current. The current rating in amperes are shown in the DC table. Figures are based on nominal values and will vary slightly depending on operating voltage and coil tolerances.

Valve Series	AC Power Consumption Ratings		DC Current Consumption Ratings (Amperes)	
	10 watt AC coils		10 watt DC coils	
	VA Holding	VA Inrush	12VDC	24VDC
7133K	17	31	0.81	0.41
71315	16	30	0.81	0.41
71395	17	27	0.81	0.41



OPERATING PRINCIPLES

Introduction

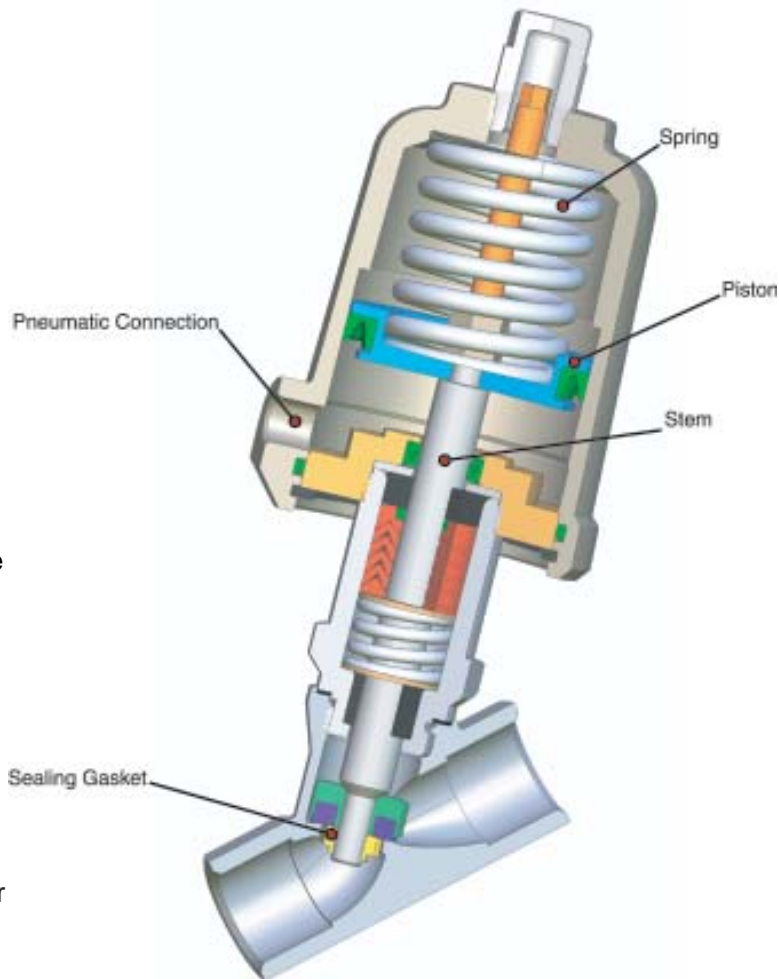
Angle seat valves are robust, high flow valves suitable for many diverse industrial applications including chemical industry, food processing, steam sterilizers, water technology and OEM industrial applications just to name a few. This section provides a brief overview of the components and functional varieties of angle seat valves.

General Information

On-Off Valve Construction and Basic Operation

An angle seat valve is a piston operated pneumatic device controlled by an external pneumatic source, either gas or liquid. The angle seat valve is used to control the flow of liquids or gases in a positive, fully-closed or fully-open mode. The valve is commonly used in high flow requirements, high temperature, aggressive applications and handling fluids with suspended particles, which replaced manual valves or electrically / motorized operated valves.

The angle seat valve is operated by opening and closing an orifice in a valve body which permits or prevents flow through the valve. The orifice is opened or closed through the use of a combined stem, spring and piston assembly that is raised or lowered when a pneumatic source is applied to the actuator head. The bottom of the stem contains a compatible sealing material, which closes off the orifice in the body, stopping flow through the valve.



Proportional Control Valve Construction and Basic Operation

Proportional control valves are suitable for applications requiring pressure, temperature, flow and level control, generally recommend for closed loop systems but suitable for open loop systems as well. The control valve is generally the final element in the control circuit. The position of the valve stem is controlled through a control signal and feedback loop to maintain the system parameters. The control signal can be a pneumatic, voltage or current signal. The feedback loop, through sensors, transducers, meters, etc., adjust the control signal to match the required output. Various configurations of the valve disc can better match the process flow rates over the entire flow range for consistent valve gain and stable process performance.

Proportional Control Valve Construction and Basic

The control valve series is available with integrated positioners including digital, electro-pneumatic and pneumatic capabilities. The positioner senses the valve stem position in comparison to an input signal and adjusts the actuation pressure and disc position for the required performance. The positioner is typically used in conjunction with a control valve to provide better control and repeatability as well as to combat hysteresis and other elements such as packing friction.

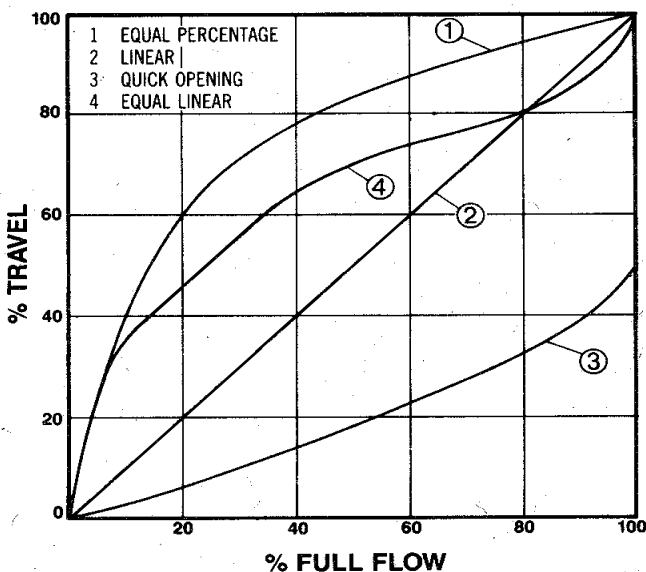
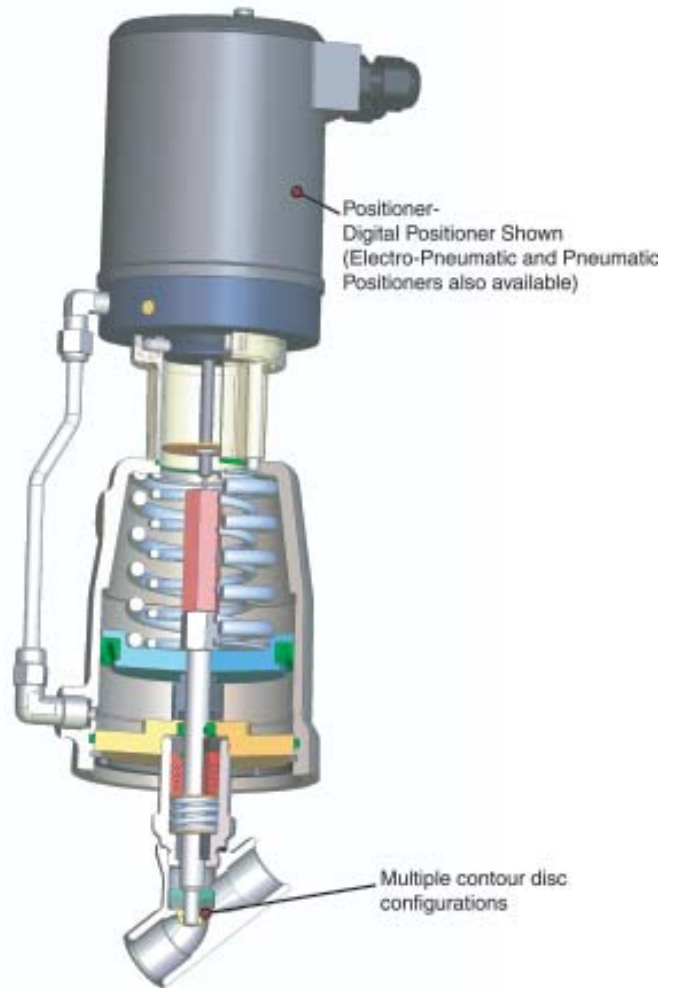
LINEAR FLOW CHARACTERISTIC:

Equal changes in flow for equal increments of lift, assuming a constant differential pressure across the valve seat.

EQUAL PERCENTAGE FLOW CHARACTERISTIC:

Equal changes in travel will produce equal percentage changes in flow, assuming a constant differential pressure across the valve seat.

The flowing chart depicts typical results with varying flow characteristic curves at constant pressure differentials.



DESIGN TERMINOLOGY

Continuous Duty – A rating given to a valve that can be energized continuously with overheating.

Correction Factor – A mathematical relationship related to a fluid's specific gravity used to convert specific flows from a standard media to the media in question.

Current drain – The amount of current (expressed in amperes) that flows through the coil of a solenoid valve when it is energized.

Cv Factor – A mathematical factor that represents the quantity of water, in gallons per minute, that will pass through a valve with a 1 psi pressure drop across the valve. The higher the Cv, the greater the flow through the valve.

Fail Safe – The position of the valve upon loss of control signal or power.

Flow – Movement of fluid created by a pressure differential.

Flow Capacity – The quantity of fluid that will pass through a valve under a given set of temperature and pressure conditions.

I/P – A transducer used in control valves which converts an electronic instrument signal (generally 4-20ma) into a pneumatic signal (generally 3-15 psi) which can be used to throttle a pneumatic control valve.

Manual Stem – A mechanical device that permits the manual opening or closing of a valve in the case of emergency or power failure. A manual stem is available on all normally closed valves.

Maximum Operating Pressure Differential (MOPD) – The maximum pressure difference between the inlet and outlet pressures of the valve must not be exceeded, allowing the solenoid to operate in both the energized and de-energized positions.

Minimum Operating Pressure Differential – The minimum pressure difference between the inlet and outlet pressures required for proper operation. This minimum operating pressure differential must be maintained throughout the operating cycle of pilot operated valves to assure proper shifting from the closed position to the open position and visa versa. In the absence of the minimum operating pressure, the valve may close or will not fully open.

Orifice – The main opening through which fluid flows.

Safe Working Pressure -The maximum pressure a valve may be exposed to without experiencing any damage. The valve does not have to be operable at this pressure, but merely withstand the pressure without damage.

Linear Shut-off Categories:

ANSI Class III – Leakage must not exceed 0.1% of the total valve capacity.

ANSI Class IV – Leakage must not exceed 0.01% of the total valve capacity.

ANSI Class VI – Zero leakage rate achieved with a soft seal.

Metal seat-to-seat control valves typically exhibit ANSI class III and IV ratings.

All Parker Hannifin angle valves meet ANSI class VI rating.