Angle Body Valves & Proportional Control Valves

Skinner Valve™

Parker

Series 810 & 820

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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:

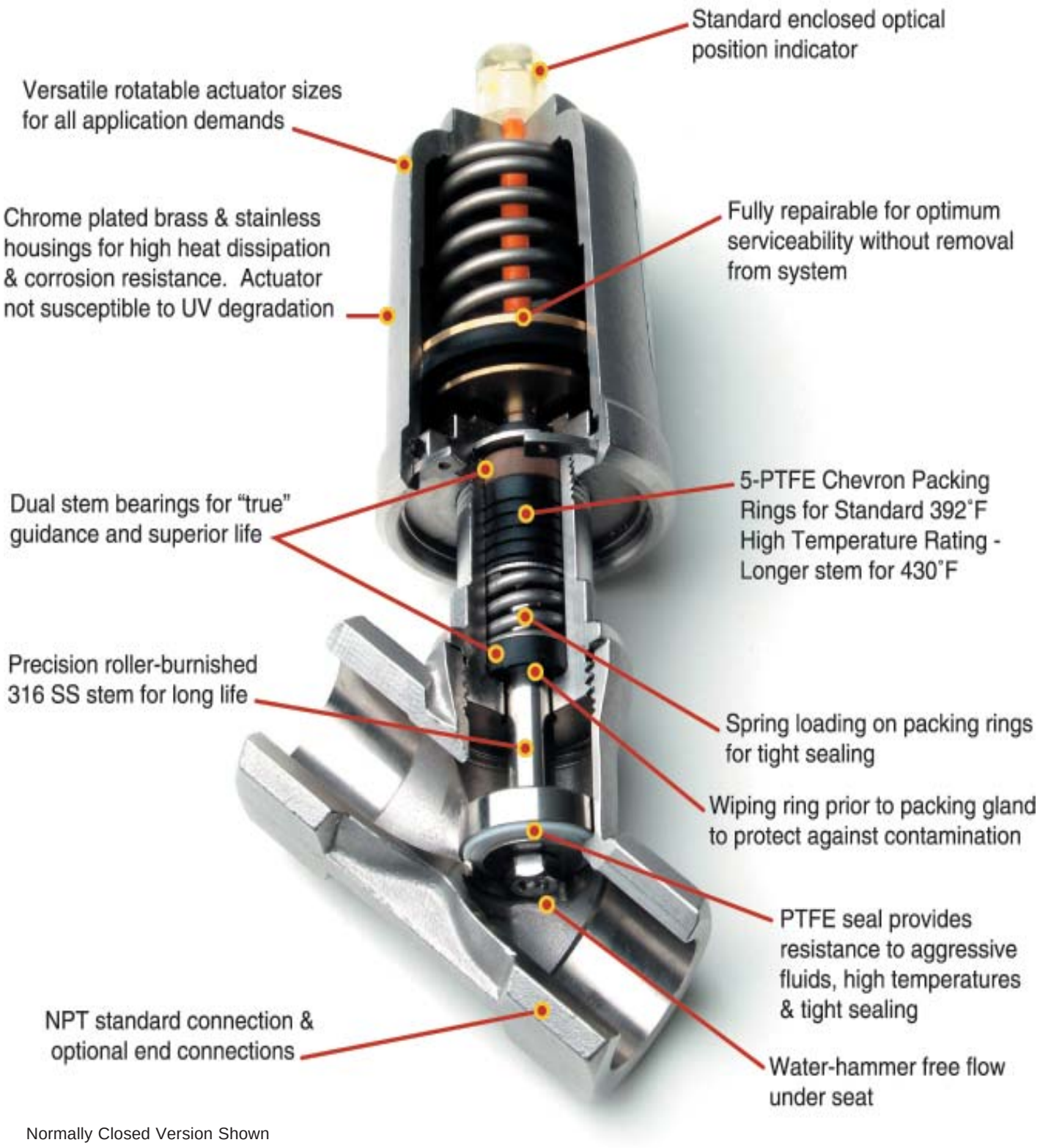
- A full-line of normally closed and normally open valves ranging in size from 1/2 inch to 3 inches.
- State of the art performance for long life, ease of service and tighter system integrity.
- Operating pressures up to 580- psi.
- Suitable for temperatures ranging from –40°F to 430°F.
- Handles millions 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
  - Diary 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

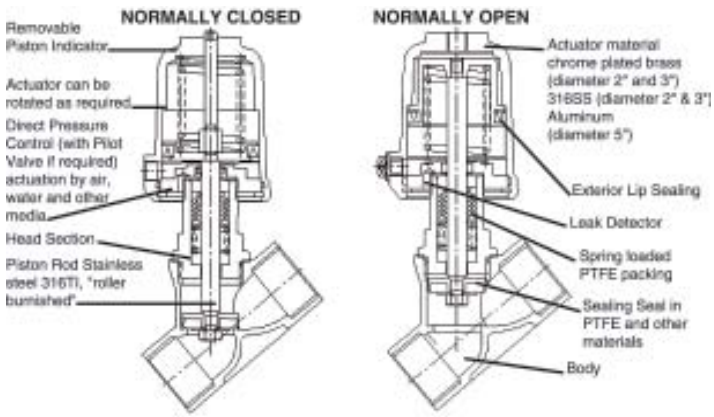
- Compact design, high flow rates
- Visual position indicator standard
- For temperatures from – 22°F to +430°F / -30°C to 221°C
- Working pressures up to 580 psi
- Damped closing anti-water hammer design (fluid under seat)
- Metal actuator housing for exceptional durability in steam & mildly aggressive 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 Rg5	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** BSP thread (ISO228/1) SAE Tri clamp Tube ends Flanges ANSI 150	1/2" - 2"	1/2" - 2 1/2"	2 1/2" - 3"
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: ^Optional	2" & 3" brass plated	2" & 3" brass plated ^ Stainless Actuator	5" aluminum anodized
Max. fluid temperature #Optional *Optional	-22°F (-30°C) up to 392°F (200°C) # to -40°F (-40°C)	-22°F (-30°C) up to 392°F (200°C) # to -40°F (-40°C) * Up to +430°F (221°C)	-22°F (-30°C) up to 392°F (200°C) # to -40°F (-40°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 mm²/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)		(m^3/h)		air, gases		water, liquids		steam				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)		(m^3/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 inch	Orifice Size DN (mm)	Flow Coeff Cv	Flow Coeff Kv (m^3/h)	Operating Pressure Min	Operating Pressure psi air, gases	Operating Pressure bar air, gases	Operating Pressure psi water, liquids	Operating Pressure bar water, liquids	Operating Pressure psi steam	Operating Pressure bar steam	Pilot Pressure psi	Pilot Pressure bar	Actuator mm dia	Actuator port bsp	Valve Number Bronze (1) (2)	Wt. lbs
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

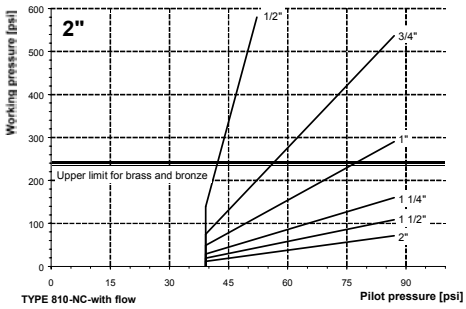
316L STAINLESS STEEL VALVES

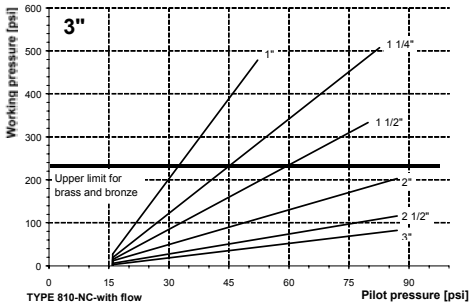
Port Size	Orifice Size inch	Orifice Size DN (mm)	Flow Coeff Cv	Flow Coeff Kv (m^3/h)	Operating Pressure Min	Operating Pressure psi air, gases	Operating Pressure bar air, gases	Operating Pressure psi water, liquids	Operating Pressure bar water, liquids	Operating Pressure psi steam	Operating Pressure bar steam	Pilot Pressure psi	Pilot Pressure bar	Actuator mm dia	Actuator port bsp	Valve Number Stainless (1) (2) (3) (4)	Wt. lbs
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

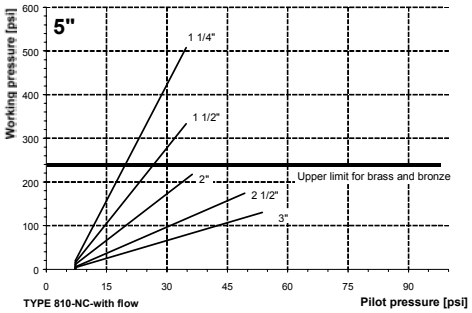
Pressure ratings reflect standard product offering. Higher pressure ratings are available. Consult Parker.

(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

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)		(m^3/h)		air, gases		water, liquids		steam				dia	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

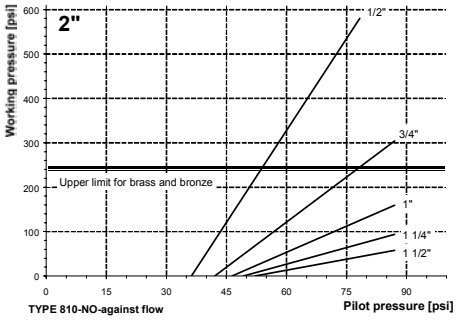
316L STAINLESS STEEL VALVES

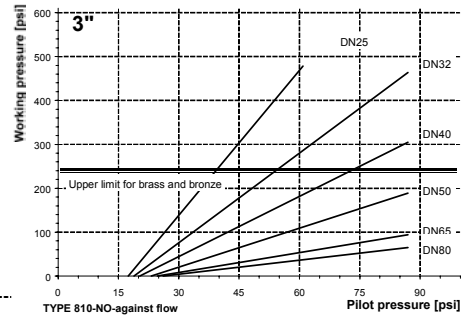
Port Size	Orifice Size		Flow Coeff		Operating Pressure							Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs
		DN	Cv	Kv	Min	psi	bar	psi	bar	psi	bar	psi	bar	mm	port		
	inch	(mm)		(m^3/h)		air, gases		water, liquids		steam				dia	bsp		
1/2	0.59	15	4.1	3.6	0	580	40.0	580	40.0	210	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

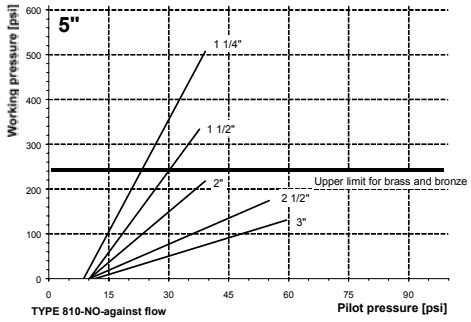
Pressure ratings reflect standard product offering. Higher pressure ratings are available. Consult Parker.

(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

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	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

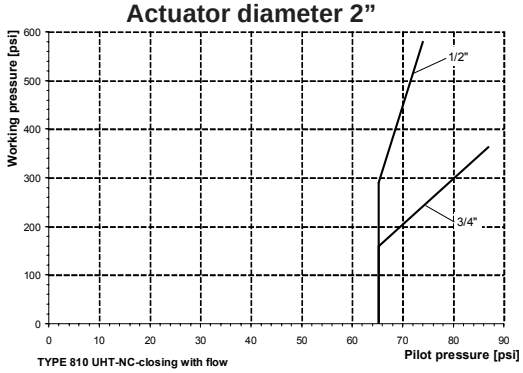
Port Size	Orifice Size		Flow Coeff		Operating Pressure								Pilot Pressure		Actuator		Valve Number Stainless (1) (2) (3) (4)	Wt. lbs
		DN	Cv	Kv	Min	psi	bar	psi	bar	psi	bar		psi	bar	mm	port		
	inch	(mm)		(m^3/h)		air, gases		water, liquids		steam					dia	bsp		
1/2	0.59	15	4.1	3.6	0	580	40.0	-	-	330	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.

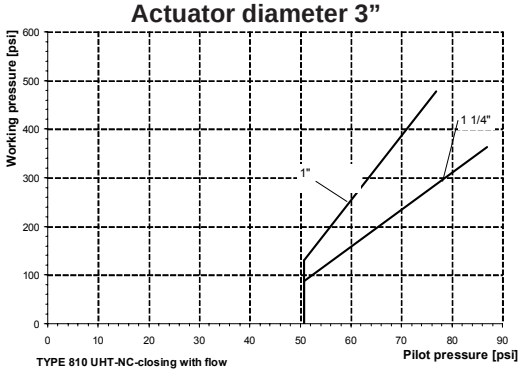
(1) Chrome Plated Brass Actuator Standard, Anodized Aluminum for 125mm housing
(2) For BSP porting, change "N" to "G" in the 6th position
(3) Optional Stainless Actuator, change "B" to "S" in the 13th position
(4) For ultra high temperature stainless valves, seal material changes from PTFE to PEEK.

Control Pressure & Operating Pressure Charts

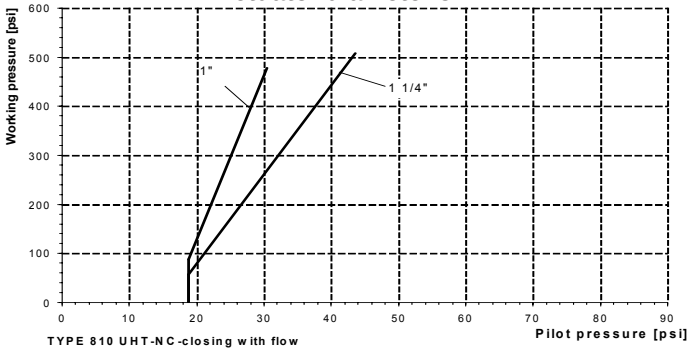
Actuator diameter 2"



Actuator diameter 3"

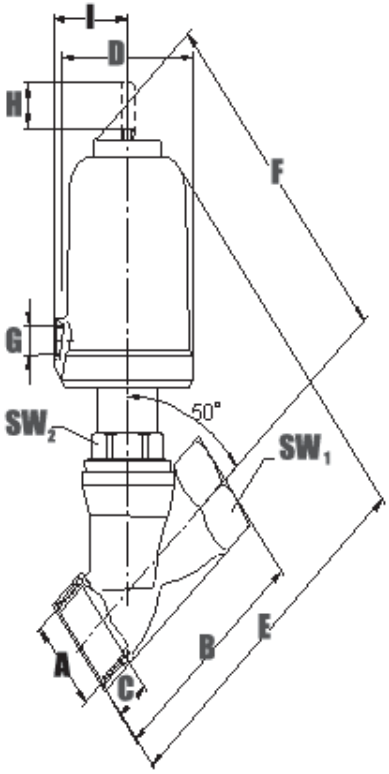


Actuator diameter 5"

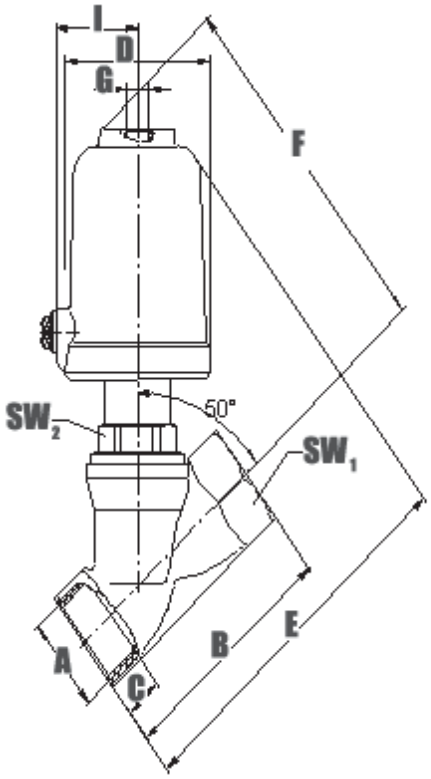


Series 810: 2 Way Angle Body Valves: 1/2" to 3" NPT

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 SST	Brass			Bronze SST	Brass			stroke		Bronze SST	Brass		Bronze SST	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

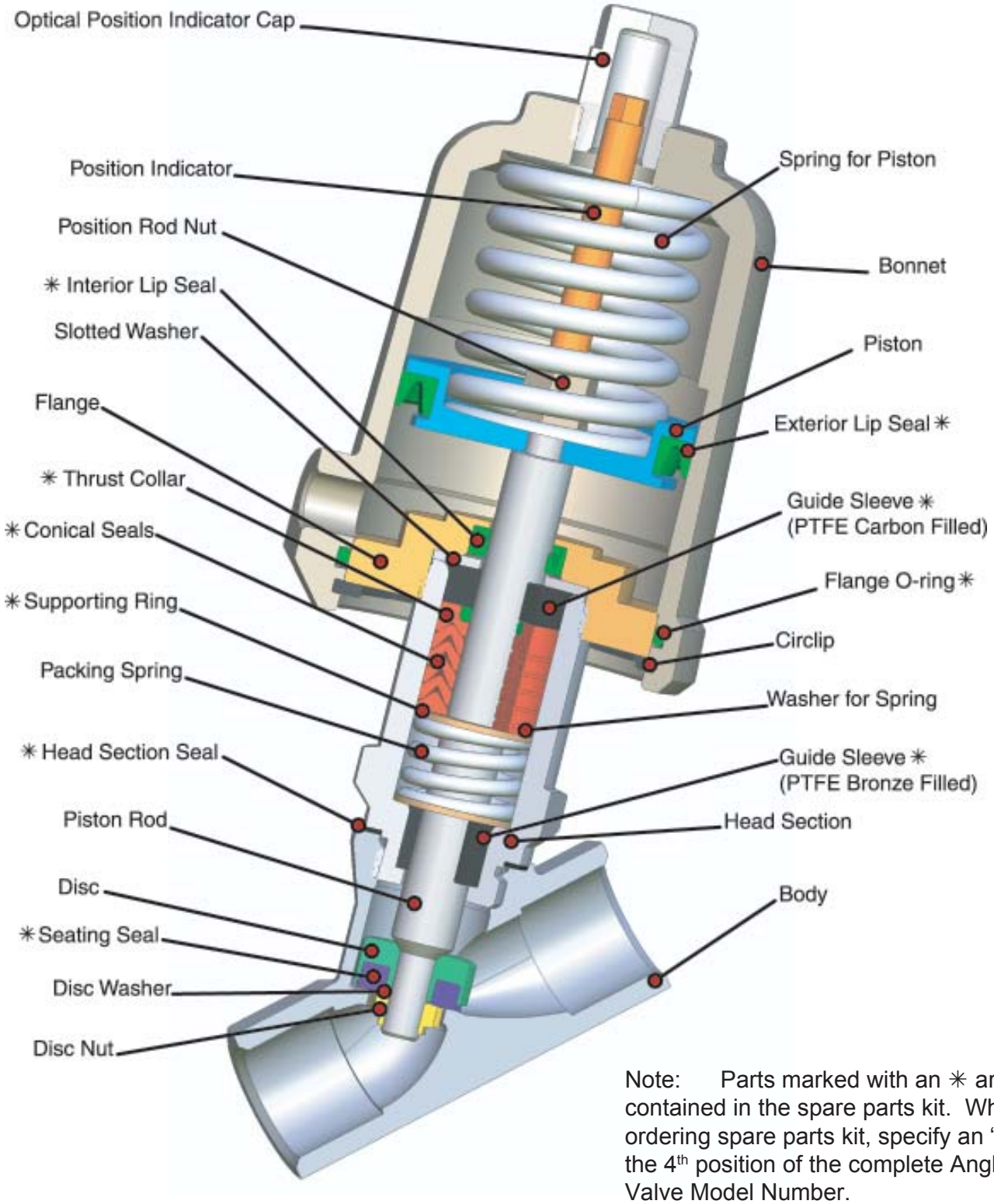
Series 810 Operating Data: Dimensions and Weights- Ultra High Temp.

A Pipe Size NPT	Actuator Diameter mm	DN	**B** SST	**C**	**D**	**E** SST	**F**	**G**	**H** stroke	**I**	**SW1** SST	**SW2**	**Cv-values** SST	**Weight** 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 (ISO228/1) SAE Tube Ends Flanges ANSI 150	1/2" - 2"
Differential Pressure	See Specifications tables
Pilot Pressure	up to 145 psi (10bar) reference graphs
Actuator: ^Optional	3" brass plated, 5" aluminum ^ 3" Stainless Actuator
Max. fluid temperature #Optional *Optional	-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 mm²/s (600cSt, 80°E, 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		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	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	4.4	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 (ISO228/1) SAE Tube Ends Flanges ANSI 150	1/2" - 2 "
Differential Pressure	See Specifications tables
Pilot Pressure	up to 145 psi (10bar) reference graphs
Actuator: ^Optional	3" brass plated, 5" aluminum ^ 3" Stainless Actuator
Max. fluid temperature #Optional *Optional	-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 mm²/s (600cSt, 80°E, 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		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	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	4.4	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 (ISO228/1) SAE Tube Ends Flanges ANSI 150	1/2" - 2 "
Differential Pressure	See Specifications tables
Pilot Pressure	up to 145 psi (10bar) reference graphs
Actuator: ^Optional	3" brass plated, 5" aluminum ^ 3" Stainless Actuator
Max. fluid temperature #Optional *Optional	-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 mm²/s (600cSt, 80°E, 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		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	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	4.4	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	-	-	-

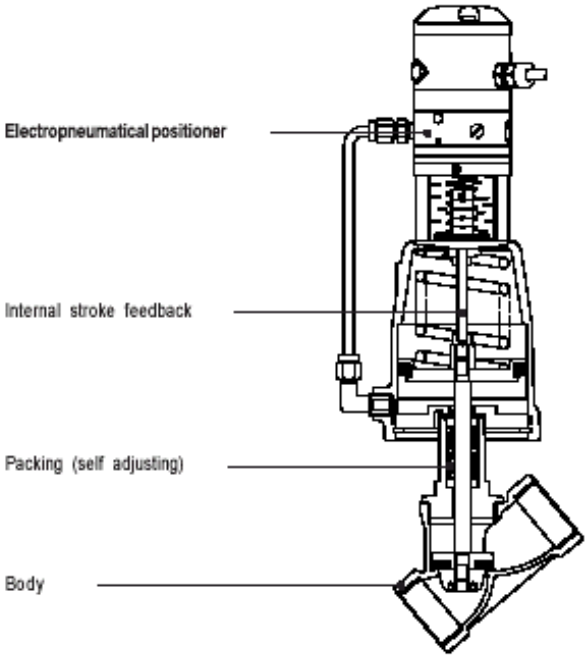
Kv - Values

	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	-	-	-

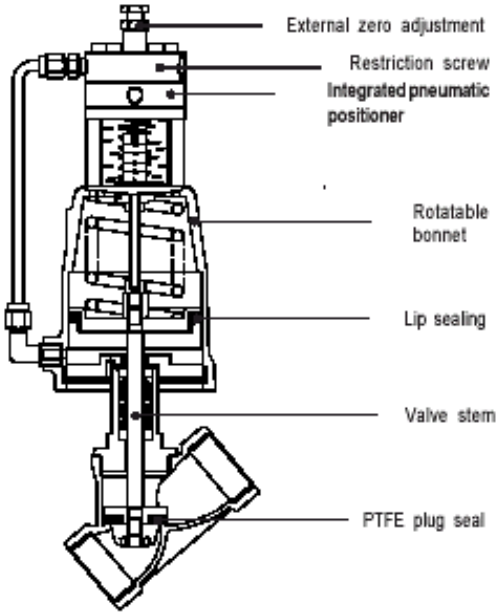
Percentage Flow characteristic with reduced flows based on contour of sealing plug.

Series 820 Technical Data: Positioners

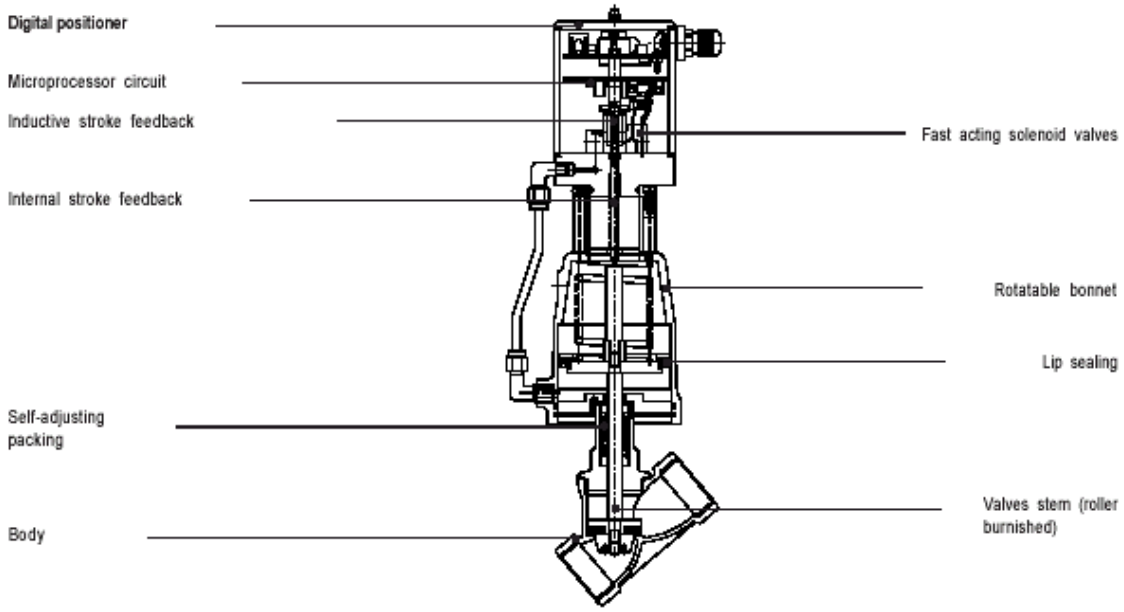
Electro-Pneumatic Positioner (e/p)



Pneumatic Positioner (p/p)



Digital Positioner (i/p)

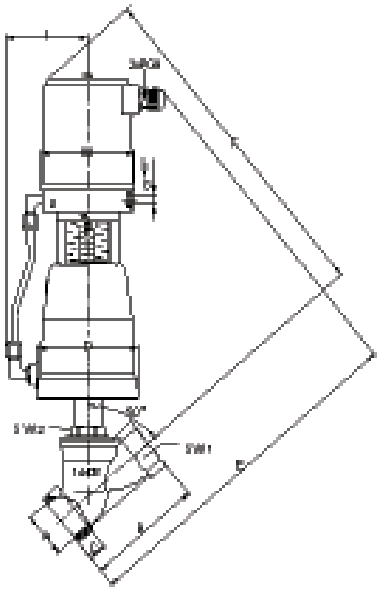


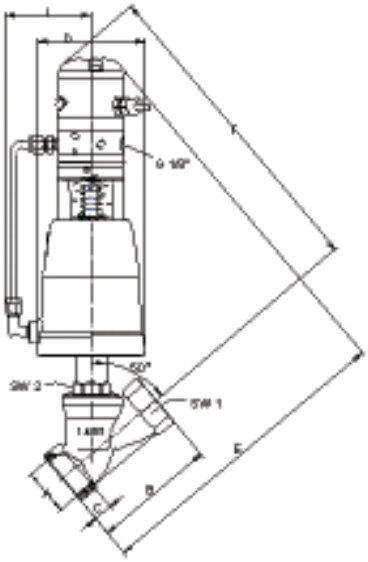
Series 820: 2 Way Angle Body Control Valves: 1/2" to 2" NPT

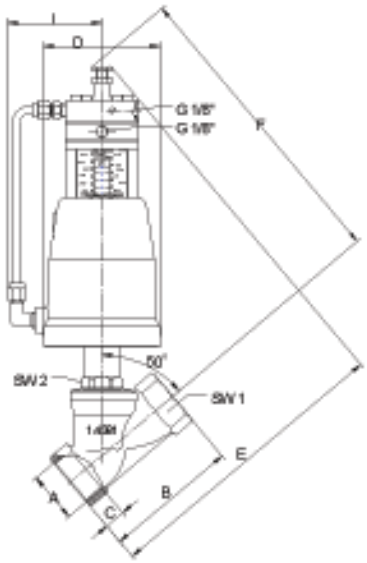
Series 820 Technical Data: Dimensions and Weights

A Pipe Size NPT	Actuator Diameter mm	DN	B	C	D	E Positioner			F Positioner			I	SW1	SW2	Weight (lbs)		
			SST			p/p	I/p	digital	p/p	I/p	digital		SST		p/p	I/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	V	Valve Assembly	B	Bronze & Brass	N	NPT-thread	08	1/2"	DN15	T	PTFE		For 810 Valve Series
	820	A	Actuator Unit less Body	S	Stainless steel 316L	G	BSP- ISO	12	3/4"	DN20			1	NC (closing with flow - over seat)
		R	Repair Kit			J	SAE	16	1"	DN25	P	PEEK	2	NO (closing against flow - under seat)
						C	ANSI Flanges 150	20	1-1/4"	DN32			3	NC (closing against flow - under seat)
								24	1-1/2"	DN40			4	Universal, double acting
						E	Tube ends	32	2'	DN50				
						T	Tri clamp inch (ASME 1998)	40	2-1/2"	DN65		Consult factory for other seal materials		For 820 Valve Series
								48	3"	DN80			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)		For 810 Valve Series	B	Brass Plated, Alum Anodized for 5" size		For 810 Valve Series	0	Standard - PTFE Graphite Filled		For 810 Valve Series		For 810 Valve Series
3	Piston 3" (NPT)	0	Standard	S	Stainless Steel 316 (Option for stainless body valves only)	H	High temperature standard (392°F / 200°C) (bronze, stainless steel)	2	Inverted packing for Vacuum Service only	0	No accessories	0	No additional accessories
5	Piston 5" (NPT)					U	Ultra High temperature (430°F stainless steel only)			1	Electrical position indicator with single switch	1	Pilot Valve .078 (DN2) 120/60, 110/50 DIN coil
		9. Characterisitics & Flow Values				L	Low Temperature (-40°F / -40°C)			2	Electrical position indicator with double switches	2	Pilot Valve .078 (DN2) 240/60, 220/50 DIN coil
			For 820 Valve Series							3		3	Pilot Valve .078 (DN2) 240/60, 220/50 DIN coil
			(standard spring only)				For 820 Valve Series			4	Manual overide (N.C.)	4	Pilot Valve .078 (DN2) 24VDC DIN coil
		A	Linear - Full flow			H	High temperature standard (392°F) (stainless steel)			5	Stroke limitation (N.C.)	5	Pilot Valve .078 (DN2) 12VDC DIN coil
		B	Linear - reduced 40% flow			U	Ultra High temperature (430°F stainless steel only)			6	Electrical position indicator compact		
		C	Linear - reduced 25% flow			L	Low Temperature (-40°F -40°C)			7	Position indicator with 2 proximity switches		For 820 Valve Series
										8	Position indicator with 1 proximity switch	0	No additional accessories
		E	Equal percentage - Full flow									1	Pilot Valve .078 (DN2) 120/60, 110/50 DIN coil
		F	Equal percentage - reduced 40% flow								For 820 Valve Series	2	Pilot Valve .078 (DN2) 240/60, 220/50 DIN coil
		G	Equal percentage - reduced 25% flow							0	No accessories	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

Control Valve Accessories

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.

Control Valve Accessories

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)	⟨Ex⟩ II 2 G EEx ib IIC T6 +45°C / +113°F
	⟨Ex⟩ II 2 G EEx ib IIC T5 +60°C / +140°F
Housing	Aluminum, black epoxy coated

Control Valve Accessories

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	orifice size mm	Flow Coef Cv	Flow Coef 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

*** xx - Replace with voltage code**

AC VoltageCodes
P3 = 120/60; 110/50
Q3 = 240/60; 220/50
B2 = 24/60; 24/50

DC VoltageCodes
C1 = 12VDC
C2 = 24VDC

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).

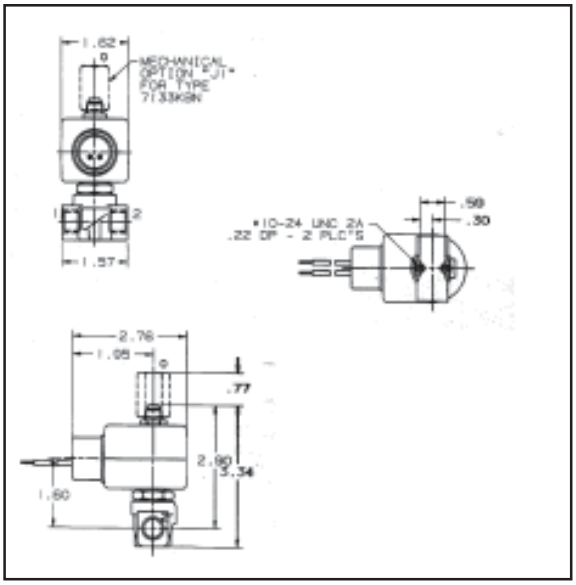
Conversion from AC to DC Coils

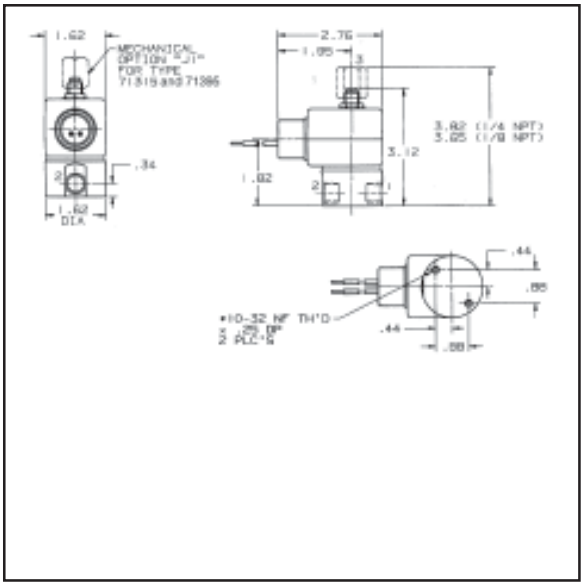
The same valve assembly can be used for both AC and DC service requirements. AC and DC coils are interchangeable. To convert a valve assembly from AC to DC service, select the appropriate DC coil voltage per the valve specification chart based on the system pressure requirements.

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

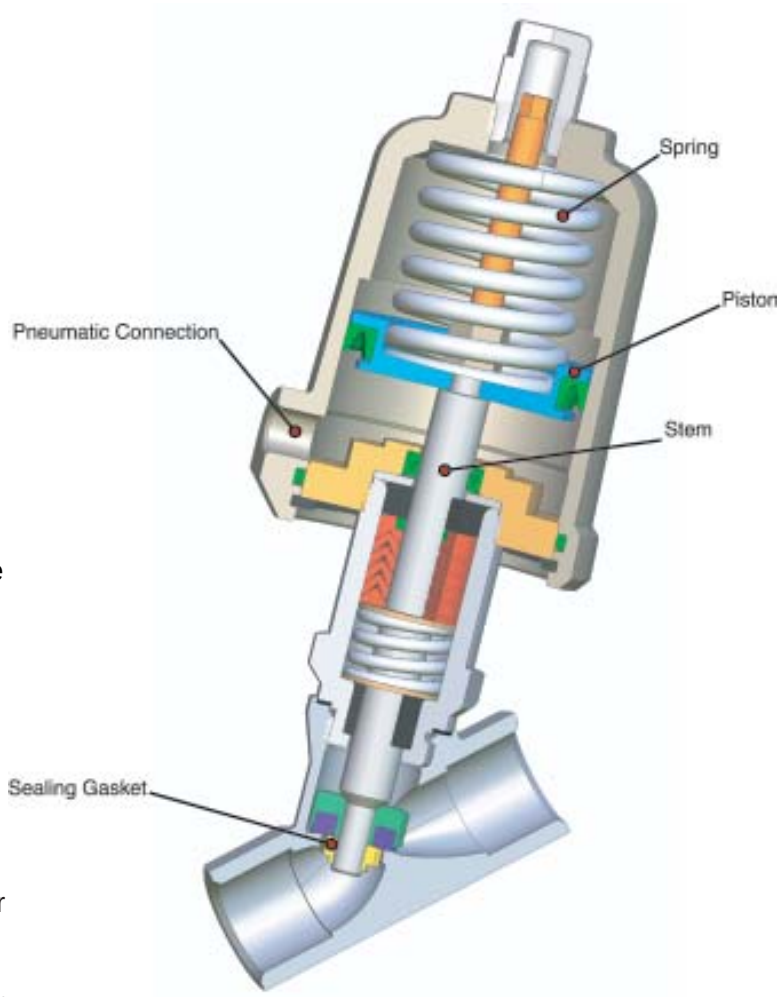
Introduction

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.



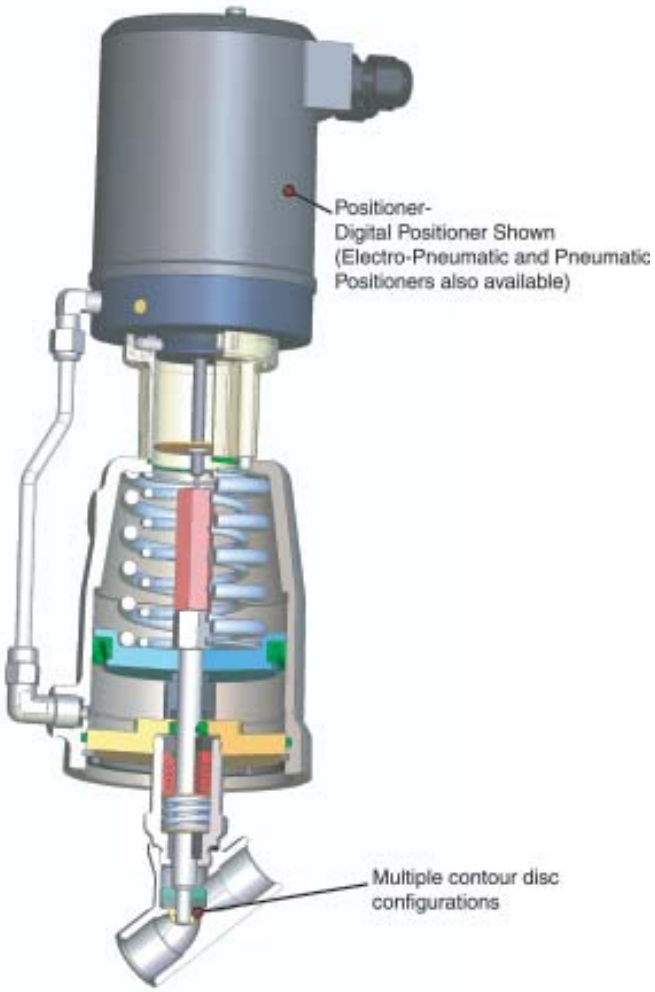
The angle seat valve is operated by opening and closing an orifice in a valve body which permits or prevents flow through the valve. The orifice is opened or closed through the use of a combined stem, spring and piston assembly that is raised or lowered when a pneumatic source is applied to the actuator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



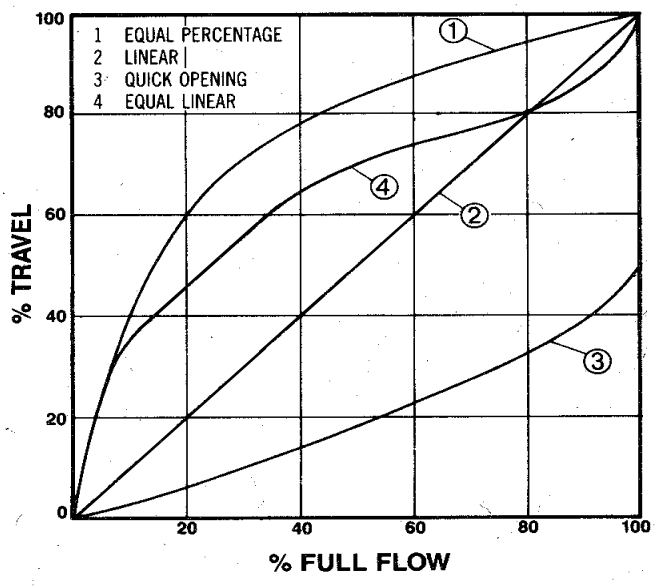
LINEAR FLOW CHARACTERISTIC:

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 fluids 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 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 Catergories:
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 achieve 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.

Offer Of Sale

The items described in this document are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer (“Buyer”) shall be governed by all of the following Terms and Conditions. Buyer’s order for any item described in its document, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor (“Seller’] verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller’s products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer’s acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly ac-cepted in writing by Seller. Seller’s acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer’s assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer’s offer. Acceptance of Seller’s products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer’s receipt of the shipment. The minimum order amount is $125.00 net, unless otherwise noted on the quotation .

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller’s plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller’s delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery. Shipments are made by common carrier. Any premium freight must be requested and paid for by the Buyer.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 1 year from the date of shipment to Buyer, or 2,000 hours of use, whichever expires first. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTA TION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTIBILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARIS. ING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEAL ING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER’S DESIGNS OR SPECIFICATIONS.

5. Limitation Of Remedy: SELLER’S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER’S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller’s discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller’s property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer’s Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer’s property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller’s possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter ‘Intellectual Property Rights’). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller’s obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller’s sole and exclusive liability and Buyer’s sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller’s obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter ‘events of Force Majeure]. Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller’s control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

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