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# ANGLE SEAT VALVES

PA Series - Pneumatically Actuated



 **WARNING - USER RESPONSIBILITY**

**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.**

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- Sudden moving or falling objects.
- Work piece or component parts being thrown off at high speeds.
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 **WARNING - CALIFORNIA PROPOSITION 65**

The products described in this catalog can expose you to chemicals, including Lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov) .

# Online Resources

## Connecting you to Parker Angle Seat Valves

### Configure PA Series

Build your solution step-by-step with the PA Series Configurator, complete with CAD models, specification sheets, installation manuals, and links to other relevant supporting documents - all available at [parker.com/fcd](http://parker.com/fcd).



Configure PA Series

Range	
Port Size	3/8" - 2-1/2"
Flow	5.5 - 81.7 Cv
Pressure	Up to 232 psi
Media Temp.	14° to 356 °F
Ambient Temp.	14° to 140 °F
Pilot Pressure	44 - 145 psi



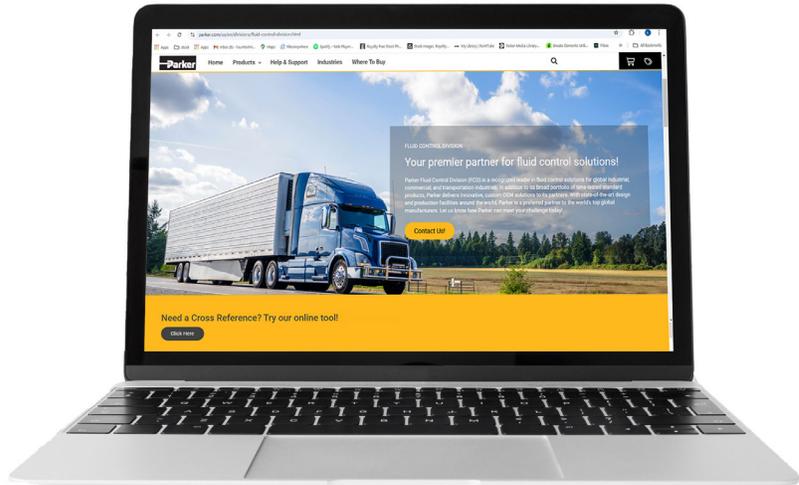
## ON/OFF | PROPORTIONAL CONTROL | POSITION SENSING

### Parker Cross Reference

Parker's all-new competitive crossover tool provides a quicker, easier way to access competitive and legacy product cross reference information.



Parker and Competitor Cross Reference



### Locate a Distributor

Need technical guidance and support? Need a quote? Contact a local Parker partner for assistance.



Locate a Distributor

### Need More Support?

Contact Fluid Control Division Technical Support for assistance.



Contact Fluid Control Division

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**CHEMICAL PROCESSING | COMMERCIAL LAUNDRY**  
**FOOD & BEVERAGE | INDUSTRIAL PROCESS CONTROL**  
**MACHINE TOOLS | STERILIZATION | WATER TREATMENT**  
**AGGREGATE PROCESSING | COOLING & CHILLING**

# Design Your Solution

## 3 Easy Steps

Step 1: Base Valve	Step 2: + Special Option Suffix	Step 3: Add a Pilot Valve
PA15S1N4S050A	Limit Switch Option “ -LS ”	U131B01NDAB
PA15S1N4S050A-LS		U131B01NDAB

## Angle Seat Valve Part Numbering System

PA	10	S1	N3	S	063S	-LS
Series	Valve Size	Valve Type	Body Ports NPT*	Body Material	Actuator Material/ Size	Special Option Suffix
	mm in					
PA	10 3/8"	S1 2-Way Normally Closed, Flow Over Seat	N3 3/8"	S 304 SS	304 SS	-LS Dual Limit Switches
PA	15 1/2"	S3 2-Way Normally Open, Flow Under Seat	N4 1/2"	R 316L SS	032S 32 mm actuator	-PS Proximity Sensor
PA	20 3/4"	SA 2-Way Normally Closed Anti-Water Hammer, Flow Under Seat	N5 3/4"		040S 40 mm actuator	-PR Proportional Control**
PA	25 1"		N6 1"	050S 50 mm actuator		
PA	32 1-1/4"	C1 2-Way Normally Closed Compact Model, Flow Over Seat	N7 1-1/4"	063S 63 mm actuator		
PA	40 1-1/2"		N8 1-1/2"	080S 80 mm actuator		
PA	50 2"	C2 2-Way Normally Closed Compact Model, Flow Under Seat	N9 2"	100S 100 mm actuator		
PA	65 2-1/2"		NT 2-1/2"			

\* consult factory for other process connections



Aluminum	
040A	40 mm actuator
050A	50 mm actuator
063A	63 mm actuator
080A	80 mm actuator
100A	100 mm actuator

# Series Overview - Brains meets Brawn

## New Smart Features, Classic Robust Performance

Parker PA Series Angle Seat Valves are designed for durability and reliability in demanding applications, and represent some of the toughest valves on the market.

By combining robust classic features with smart technologies like intelligent proportional control and position monitoring, Parker Angle Seat Valves are more capable than ever.



### PROPORTIONAL CONTROL

The **Intelligent Valve Positioner** provides variable position control via integrated position sensors, electrical controls, and microprocessor unit.

**Part No. Suffix "-PR"**  
*Refer to tables on page 13.*

### WHY PROPORTIONAL CONTROL?

For applications where dynamic control of process flow, temperature, downstream pressure, and liquid levels is critical.

### POSITION MONITORING

Within a 360° rotateable housing, **Dual Limit Switches** detect whether the valve is fully opened or fully closed, resulting in visual indication (LED) and concurrent electrical signals.

Independent switch signals facilitate a flexible and customizable installation.

**Part No. Suffix "-LS"**



### POSITION MONITORING

An integrated **Proximity Sensor** allows detection of the exact position of the valve stem, confirming whether the valve is opened, closed, or somewhere in between.

The PA Series with proximity sensor delivers a compact footprint with simple installation requirements.

**Part No. Suffix "-PS"**



### WHY POSITION MONITORING?

For process control applications where confirmation of valve position in relation to the control input signal is critical, such as proof-of-opening and proof-of-closure.

# Features and Benefits

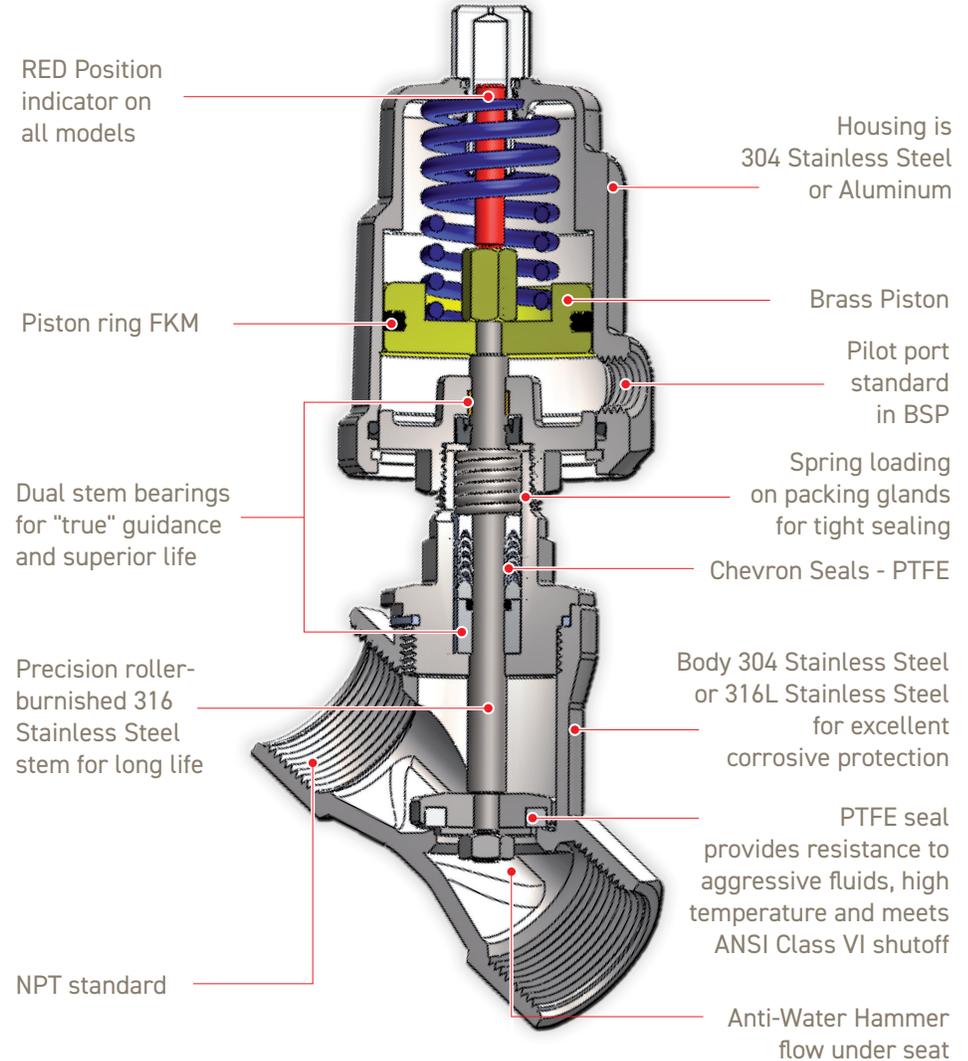
## Introduction

**PA Series Angle Seat Valves** are actuated by a pneumatically driven piston and are capable of handling slurries and corrosive solutions. The valves can manage high temperatures and operating pressures with unparalleled robustness. By combining classic design features with new intelligent controls, Parker PA Series Angle Seat Valves deliver more value than ever before.

Angle Seat Valves are suitable for use in diverse markets and applications.

Range	
Port Size	3/8" - 2-1/2"
Flow	5.5 - 81.7 Cv
Pressure	Up to 232 psi
Media Temp.	14° to 356 °F
Ambient Temp.	14° to 140 °F
Pilot Pressure	44 - 145 psi

## Features



## Benefits

- High flow with compact footprint. Proportional control option provides variable flow capability to control flow, pressure, temperature, or liquid level along with stem position feedback capability.
- Visual position indicator and multi-poise valve design allow for flexible installation. Optional limit switch box or proximity sensor offers remote monitoring of valve stem position.
- High temperature capabilities to 356 °F
- Pressure ratings accommodate diverse applications
- Anti-Water Hammer design reduces piping system and equipment wear
- Suitable for use in hazardous locations
- Valves can manage diverse media types and viscosities. Debris tolerant and compatible with slurries for maximum system uptime and application flexibility.
- Corrosion resistant materials accommodate diverse media types and offer protection from corrosion for longer service life.
- PTFE seating seal material and bubble tight shutoff deliver performance and chemical compatibility for excellent application coverage.
- Multiple PTFE and carbon filled PTFE packing accommodates corrosive media type and higher temperatures for long service life
- Economical replacement for many types of process control valves

## 2 Way Normally Closed

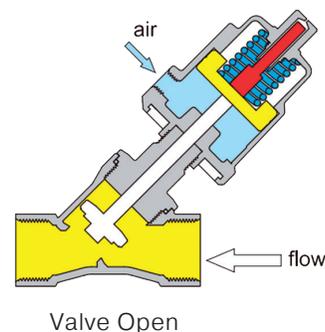
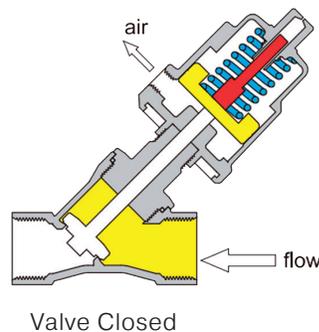
## Flow Over Seat

### 304 Stainless Steel Bodies - Aluminum Actuators

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas psi	Operating Pressure Steam psi	Minimum Pilot Control Pressure Range psi	Model Number	Net Weight lb.	
				Diameter		Port						
				mm	in.							BSP
3/8"	3/8"	0.51	5.5	50	1.97	1/8	0 - 232	0 - 130	43.5	PA10S1N3S050A	1.65	
1/2"	1/2"	0.51	5.5	50	1.97	1/8	0 - 232	0 - 130	43.5	PA15S1N4S050A	1.76	
3/4"	3/4"	0.71	10.5	50	1.97	1/8	0 - 232	0 - 130	43.5 - 58	PA20S1N5S050A	1.98	
				18.7	50	1.97	1/8	0 - 232	0 - 130	43.5 - 80	PA25S1N6S050A	2.79
1"	1"	0.94	18.7	63	2.48	1/8	0 - 232	0 - 130	43.5 - 58	PA25S1N6S063A	3.63	
				28.0	63	2.48	1/8	0 - 232	0 - 130	43.5 - 80	PA32S1N7S063A	4.16
1-1/4"	1-1/4"	1.22	28.0	63	2.48	1/8	0 - 232	0 - 130	43.5 - 80	PA32S1N7S063A	4.16	
1-1/2"	1-1/2"	1.38	37.3	63	2.48	1/8	0 - 232	0 - 130	43.5 - 94.3	PA40S1N8S063A	4.73	
				58.3	63	2.48	1/8	0 - 145	0 - 130	43.5 - 94.3	PA50S1N9S063A	6.56
				58.3	80	3.15	1/4	0 - 232	0 - 130	43.5 - 95.7	PA50S1N9S080A	7.83
2"	2"	1.77	58.3	100	3.94	1/4	0 - 232	0 - 130	43.5 - 72.5	PA50S1N9S100A	10.45	
				81.7	100	3.94	1/4	0 - 145	0 - 130	43.5 - 87	PA65S1NTS100A	12.10

### 316L Stainless Steel Bodies - 304 Stainless Steel Actuators

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas psi	Operating Pressure Steam psi	Minimum Pilot Control Pressure Range psi	Model Number	Net Weight lb.	
				Diameter		Port						
				mm	in.							BSP
3/8"	3/8"	0.51	5.5	40	1.57	1/8	0 - 232	0 - 130	58.0	PA10S1N3R040S	1.72	
				50	1.97	1/8	0 - 232	0 - 130	43.5	PA10S1N3R050S	2.22	
1/2"	1/2"	0.51	5.5	40	1.57	1/8	0 - 232	0 - 130	58.0	PA15S1N4R040S	1.76	
				50	1.97	1/8	0 - 232	0 - 130	43.5	PA15S1N4R050S	2.27	
3/4"	3/4"	0.71	10.5	50	1.97	1/8	0 - 232	0 - 130	43.5 - 58.0	PA20S1N5R050S	2.33	
1"	1"	0.94	18.7	50	1.97	1/8	0 - 232	0 - 130	43.5 - 80	PA25S1N6R050S	3.04	
				18.7	63	2.48	1/8	0 - 232	0 - 130	43.5 - 50.8	PA25S1N6R063S	4.51
1-1/4"	1-1/4"	1.22	28.0	63	2.48	1/8	0 - 232	0 - 130	43.5 - 72.5	PA32S1N7R063S	5.28	
1-1/2"	1-1/2"	1.38	37.3	63	2.48	1/8	0 - 232	0 - 130	43.5 - 87	PA40S1N8R063S	6.05	
				58.3	63	2.48	1/8	0 - 145	0 - 130	43.5 - 94.3	PA50S1N9R063S	7.70
				58.3	80	3.15	1/4	0 - 232	0 - 130	43.5 - 95.7	PA50S1N9R080S	10.16
2"	2"	1.77	58.3	100	3.94	1/4	0 - 232	0 - 130	43.5 - 72.5	PA50S1N9R100S	11.35	
				81.7	100	3.94	1/4	0 - 145	0 - 130	43.5 - 87	PA65S1NTR100S	19.03



## 2 Way Normally Closed

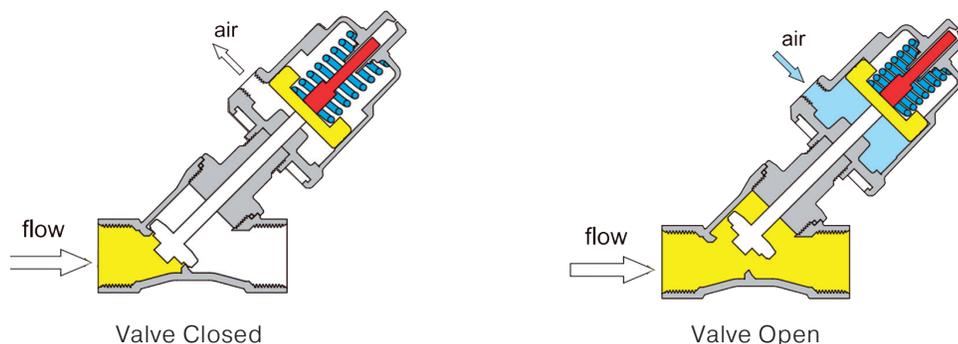
## Flow Under Seat

### 304 Stainless Steel Bodies - Aluminum Actuators Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid psi	Operating Pressure Steam psi	Minimum Pilot Control Pressure Range psi	Model Number	Net Weight lb.
				Diameter		Port					
				mm	in.	BSP					
3/8"	3/8"	0.51	5.5	50	1.97	1/8	0-232	N/A	65.3	PA10SAN3S050A	1.65
1/2"	1/2"	0.51	5.5	50	1.97	1/8	0-232	N/A	65.3	PA15SAN4S050A	1.76
3/4"	3/4"	0.71	10.5	50	1.97	1/8	0-145	N/A	65.3	PA20SAN5S050A	1.98
1"	1"	0.94	18.7	63	2.48	1/8	0-116	N/A	65.3	PA25SAN6S063A	3.63
1-1/4"	1-1/4"	1.22	28.0	80	3.15	1/4	0-160	N/A	58.0	PA32SAN7S080A	6.16
1-1/2"	1-1/2"	1.38	37.3	80	3.15	1/4	0-116	N/A	58.0	PA40SAN8S080A	6.82
				100	3.94	1/4	0-232	N/A	58.0	PA40SAN8S100A	9.13
2"	2"	1.77	58.3	100	3.94	1/4	0-130	N/A	58.0	PA50SAN9S100A	10.45

### 316L Stainless Steel Bodies - 304 Stainless Steel Actuators Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid psi	Operating Pressure Steam psi	Minimum Pilot Control Pressure Range psi	Model Number	Net Weight lb.
				Diameter		Port					
				mm	in.	BSP					
3/8"	3/8"	0.51	5.5	50	1.97	1/8	0-232	N/A	65.3	PA10SAN3R050S	2.22
1/2"	1/2"	0.51	5.5	50	1.97	1/8	0-232	N/A	65.3	PA15SAN4R050S	2.27
3/4"	3/4"	0.71	10.5	50	1.97	1/8	0-145	N/A	65.3	PA20SAN5R050S	2.33
1"	1"	0.94	18.7	63	2.48	1/8	0-116	N/A	65.3	PA25SAN6R063S	4.51
1-1/4"	1-1/4"	1.22	28.0	80	3.15	1/4	0-160	N/A	58.0	PA32SAN7R080S	8.40
1-1/2"	1-1/2"	1.38	37.3	80	3.15	1/4	0-116	N/A	58.0	PA40SAN8R080S	8.95
				100	3.94	1/4	0-232	N/A	58.0	PA40SAN8R100S	10.14
2"	2"	1.77	58.3	100	3.94	1/4	0-130	N/A	58.0	PA50SAN9R100S	11.35



## 2 Way Normally Open

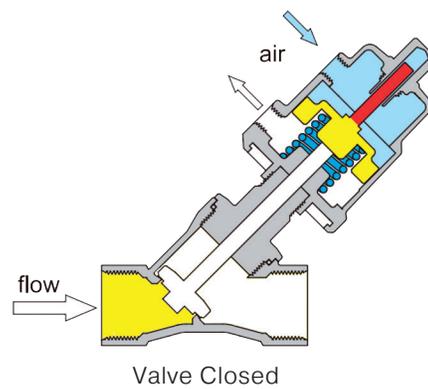
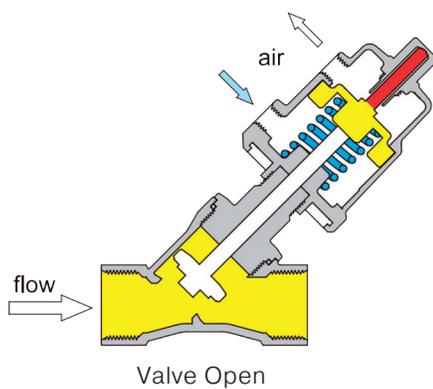
## Flow Under Seat

### 304 Stainless Steel Bodies - Aluminum Actuators Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid	Operating Pressure Steam	Minimum Pilot Control Pressure Range	Model Number	Net Weight
				Diameter	Port						
				mm	in.	BSP					
3/8"	3/8"	0.51	5.5	50	1.97	1/8	0 - 232	0 - 130	50.8	PA10S3N3S050A	1.65
1/2"	1/2"	0.51	5.5	50	1.97	1/8	0 - 232	0 - 130	50.8	PA15S3N4S050A	1.76
3/4"	3/4"	0.71	11.1	50	1.97	1/8	0 - 232	0 - 130	50.8	PA20S3N5S050A	1.98
1"	1"	0.94	18.1	63	2.48	1/8	0 - 232	0 - 130	65.3	PA25S3N6S063A	3.63
1-1/4"	1-1/4"	1.22	27.0	80	3.15	1/4	0 - 232	0 - 130	43.5	PA32S3N7S080A	6.16
1-1/2"	1-1/2"	1.38	36.2	80	3.15	1/4	0 - 232	0 - 130	43.5	PA40S3N8S080A	6.82
2"	2"	1.77	58.3	80	3.15	1/4	0 - 232	0 - 130	43.5	PA50S3N9S080A	7.83

### 316L Stainless Steel Bodies - 304 Stainless Steel Actuators Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid	Operating Pressure Steam	Minimum Pilot Control Pressure Range	Model Number	Net Weight
				Diameter	Port						
				mm	in.	BSP					
3/8"	3/8"	0.51	5.5	50	1.97	1/8	0-232	0 - 130	50.8	PA10S3N3R050S	2.22
1/2"	1/2"	0.51	5.5	50	1.97	1/8	0-232	0 - 130	50.8	PA15S3N4R050S	2.27
3/4"	3/4"	0.71	11.1	50	1.97	1/8	0-232	0 - 130	50.8	PA20S3N5R050S	2.33
1"	1"	0.94	18.1	63	2.48	1/8	0-232	0 - 130	65.3	PA25S3N6R063S	4.51
1-1/4"	1-1/4"	1.22	27.0	80	3.15	1/4	0-232	0 - 130	43.5	PA32S3N7R080S	8.40
1-1/2"	1-1/2"	1.38	36.2	80	3.15	1/4	0-232	0 - 130	43.5	PA40S3N8R080S	8.91
2"	2"	1.77	58.3	80	3.15	1/4	0-232	0 - 130	43.5	PA50S3N9R080S	10.16

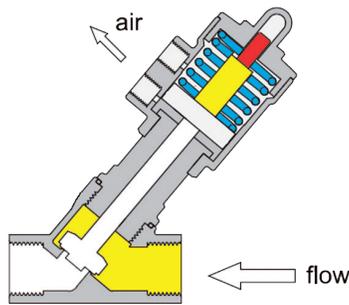


## 2 Way Normally Closed - Compact

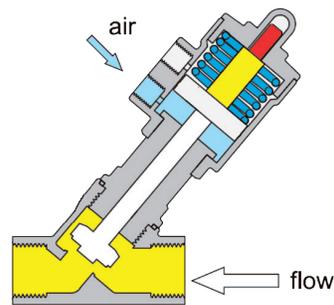
## Flow Over Seat

316L Stainless Steel Bodies - 304 Stainless Steel Actuators

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas	Operating Pressure Steam	Minimum Pilot Control Pressure Range	Model Number	Net Weight
				Diameter		Port					
				mm	in.						
NPT	in.				psi	psi	psi	lb.			
3/8"	3/8"	0.51	5.5	32	1.26	1/8	0 - 232	0 - 130	66 - 87	PA10C1N3R032S	1.39
1/2"	1/2"	0.51	5.5	32	1.26	1/8	0 - 232	0 - 130	66 - 87	PA15C1N4R032S	1.43
3/4"	3/4"	0.59	6.3	32	1.26	1/8	0 - 232	0 - 130	66 - 87	PA20C1N5R032S	1.56



Valve Closed



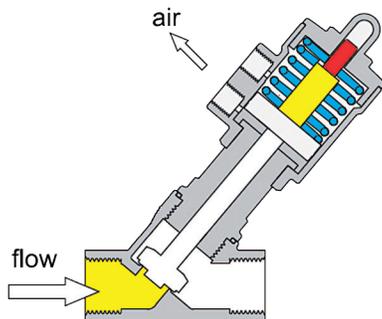
Valve Open

## 2 Way Normally Closed - Compact

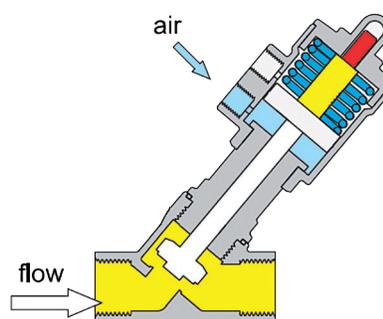
## Flow Under Seat

316L Stainless Steel Bodies - 304 Stainless Steel Actuators  
Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid	Operating Pressure Steam	Minimum Pilot Control Pressure Range	Model Number	Net Weight
				Diameter		Port					
				mm	in.						
NPT	in.				psi	psi	psi	lb.			
3/8"	3/8"	0.51	5.5	32	1.26	1/8	0 - 87	N/A	73 - 87	PA10C2N3R032S	1.39
1/2"	1/2"	0.51	5.5	32	1.26	1/8	0 - 87	N/A	73 - 87	PA15C2N4R032S	1.43
3/4"	3/4"	0.59	6.3	32	1.26	1/8	0 - 58	N/A	73 - 87	PA20C2N5R032S	1.56



Valve Closed

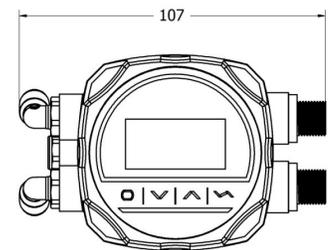
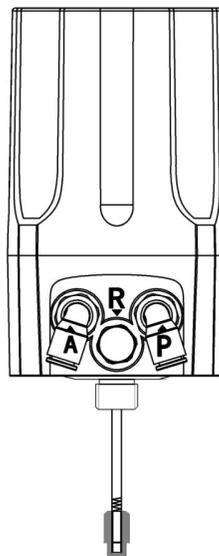
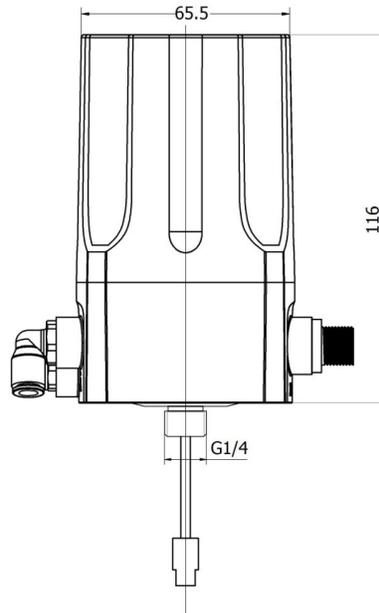


Valve Open

# Proportional Control Valve

Proportional Control Valves can continuously modulate position with the use of internal position sensors, microprocessor and valving, coupled with remote sensors and electronic control (PLC).  
 Application medium: alcohol, oil, organic solvent, weak acid or weak base solution.  
 e.g. PA15SAN4R063A-PR

Technical Data	
<b>Cover Material</b>	PPS
<b>Body Material</b>	PC
<b>Power Supply</b>	24VDC $\pm$ 10%
<b>Input Signal</b>	0-20/4-20mA 0-5/0-10V
<b>Residual Ripple</b>	Max. 10%
<b>Power Consumption</b>	4W
<b>Output Signal</b>	4~20mA
<b>Fail Option (Power/Air)</b>	Move to safe position (safe)
<b>Operating Temperature</b>	-10 to 60 °C
<b>Supply Pressure</b>	0.5~7 bar
<b>Pilot Air Ports</b>	G1/8 (6 $\varnothing$ mm tube)
<b>Air Input Filter</b>	Mesh aperture 5 micron
<b>Flow Capacity (6 bar supplied)</b>	20 LPM
<b>Filtering Particle Size</b>	5 micron
<b>Stroke</b>	5~40mm
<b>Electrical Connection</b>	2-M16x1.5 (with screw terminals)
<b>Ingress Protection</b>	IP67



## 2 Way Normally Closed - Proportional

## Flow Under Seat

### 316L Stainless Steel Bodies - Aluminum Actuators Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid psi	Operating Pressure Steam psi	Min. Pilot Control Pressure Range psi	Model Number	Net Weight lb.
				Diameter		Port					
				mm	in.	BSP					
1/2"	1/2"	0.51	5.20	63	2.48	1/8	0 - 232	0 - 130	58	PA15SAN4R063A-PR	
3/4"	3/4"	0.71	10.98	63	2.48	1/8	0 - 203	0 - 130	73	PA20SAN5R063A-PR	
1"	1"	0.94	15.03	80	3.15	1/4	0 - 232	0 - 130	58	PA25SAN6R080A-PR	
1-1/4"	1-1/4"	1.22	25.43	100	3.94	1/4	0 - 232	0 - 130	65	PA32SAN7R100A-PR	
1-1/2"	1-1/2"	1.38	34.68	100	3.94	1/4	0 - 232	0 - 130	73	PA40SAN8R100A-PR	
2"	2"	1.77	52.02	100	3.94	1/4	0 - 130	0 - 130	73	PA50SAN9R100A-PR	

### 316L Stainless Steel Bodies - 304 Stainless Steel Actuators Anti-Water Hammer

Valve Size	Port Size	Orifice	Cv	Actuator			Operating Pressure Air, Inert Gas, Liquid psi	Operating Pressure Steam psi	Min. Pilot Control Pressure Range psi	Model Number	Net Weight lb.
				Diameter		Port					
				mm	in.	BSP					
1/2"	1/2"	0.51	5.20	63	2.48	1/8	0-232	0 - 130	58	PA15SAN4R063S-PR	
3/4"	3/4"	0.71	10.98	63	2.48	1/8	0-203	0 - 130	73	PA20SAN5R063S-PR	
1"	1"	0.94	15.03	80	3.15	1/4	0-232	0 - 130	58	PA25SAN6R080S-PR	
1-1/4"	1-1/4"	1.22	25.43	100	3.94	1/4	0-232	0 - 130	65	PA32SAN7R100S-PR	
1-1/2"	1-1/2"	1.38	34.68	100	3.94	1/4	0-232	0 - 130	73	PA40SAN8R100S-PR	
2"	2"	1.77	52.02	100	3.94	1/4	0-130	0 - 130	73	PA50SAN9R100S-PR	



Valve Size	Port Size	Orifice $\varnothing$ (mm)	Actuator $\varnothing$ (mm)	Cv versus % Open							
				5%	10%	30%	50%	70%	90%	100%	
				1/2"	1/2"	0.51	63	0.15	0.20	0.35	1.27
3/4"	3/4"	0.71	63	0.35	0.46	1.50	5.55	9.13	10.64	10.98	
1"	1"	0.94	80	0.46	0.69	1.62	5.66	9.83	13.29	15.03	
1-1/4"	1-1/4"	1.22	100	0.69	0.81	1.73	6.94	16.76	23.12	25.43	
1-1/2"	1-1/2"	1.35	100	0.69	0.92	2.31	9.25	21.96	31.21	34.68	
2"	2"	1.77	100	1.16	1.50	4.05	12.72	32.37	46.82	52.02	

# Accessories

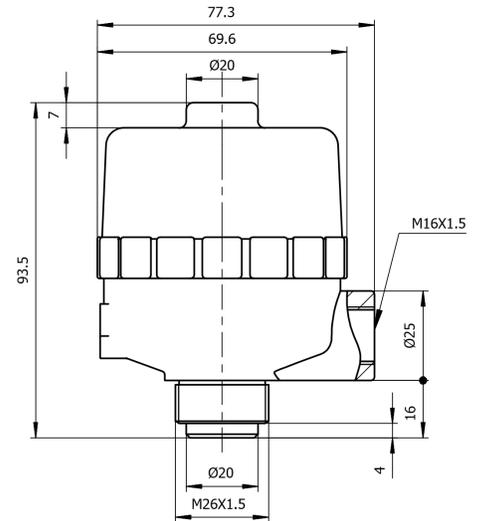
## Limit Switch

Supplied with two mechanical switches with LEDs and mounts on top of the valve operator in place of the standard visual indicator. As the valve works, cams on the limit switch box lengthening stem operate the switches to provide electrical feedback of the valve position. The limit switch box can rotate 360°, assembly available in 40mm to 100 mm. Available only on valves with standard size actuators (non-compact).

e.g. PA15SAN4S050A-LS



<b>LED</b>	Green: Valve Open Red: Valve Closed Yellow: Voltage Indicator
<b>Ambient Temp</b>	-20 - +60 °C
<b>Nominal Voltage</b>	12 VDC - 0.11 W 24 VDC - 0.45 W 48 VDC - 1.80 W
<b>Ingress Protection</b>	IP65



## Proximity Sensor

Compact and lightweight, the switch assembly is available in 40mm to 100mm. Available only on valves with standard size actuators (non-compact).

e.g. PA15SAN4S050A-PS



<b>LED</b>	Red LED will be illuminated to indicate valve is fully open
<b>Ambient Temp</b>	-20 - +70 °C
<b>Nominal Voltage</b>	12 - 24 VDC
<b>Ingress Protection</b>	IP67

# Pilot Valves - 3 Way Normally Closed

## Banjo Series - Direct Mount, Compact

Port Size	Actuator Enclosure Port	Flow Factor (PRS)	Flow Factor (EXH)	Operating Pressure Differential (MOPD) psi		Max Media Temp °F	Seal Material	Power AC/DC	Model Number
		Cv	Cv	Min	Air, Inert Gas			Watts	
1/8" NPT	G 1/8"	0.04	0.04	0	150	185	FKM	6.9 / 4.8	U131B01NDAx
1/8" NPT	G 1/4"	0.04	0.04	0	150	185	FKM	6.9 / 4.8	U131B02NDAx



- Body: Aluminum
- NEMA 4,4X
- Directly mounts to PA Series actuator
- Standard locking manual override
- Coil: DIN 43650B
- Coil is cURus
- Cycle Life: up to 5 million cycles
- Compatible Fluids: Air, Inert Gas

### Voltage Codes for Coils

A= 12VDC, B= 24VDC, E= 24/60, F= 120/60, 110/50, G= 240/60, 220/50  
 Replace "x" in the part number with one of the above Coil Voltage Codes

## G4 Series - Miniature, More Performance

Port Size	Orifice Size	Flow Factor (PRS)	Flow Factor (EXH)	Operating Pressure Differential (MOPD) psi		Max Media Temp °F	Seal Material	Power AC/DC	Model Number
	in.	Cv	Cv	Min	Air, Inert Gas, Light Oil			Watts	
1/8" NPT	3/64"	0.05	0.05	0	200	240	FKM	10 / 8	Conduit Coil: 30CC02EV4C4x DIN Coil: 30CC02EV4D6x



- Body: 303 Stainless Steel
- NEMA 4,4X
- Compatible with push-to-connect fittings
- Coil: 1/2" NPT Conduit 18" leads
- Coil: DIN 43650A
- Water-tight solenoid coils
- Valves are cULus, cURus
- Cycle Life: up to 20 million cycles
- Compatible Fluids: Air, Light Oils

### Voltage Codes for Coils

A= 12VDC, B= 24VDC, E= 24/60, F= 120/60, 110/50, G= 240/60, 220/50  
 Replace "x" in the part number with one of the above Coil Voltage Codes

# Pilot Valves - 3 Way Normally Closed

## G7 Series - Full Size, Best Performance

Port Size	Orifice Size in.	Flow Factor (PRS) Cv	Flow Factor (EXH) Cv	Operating Pressure Differential (MOPD) psi		Max Media Temp °F	Seal Material	Power AC/DC Watts	Model Number
				Min	Air, Inert Gas, Water, Light Oil				
1/4" NPT	1/16"	0.18	0.17	0	160	185	NBR	10	Conduit Coil: 30CC04LN7C7xM0
									DIN Coil: 30CC04LN7D7xM0
1/4" NPT	1/16"	0.18	0.17	0	160	185	FKM	10	Conduit Coil: 30CC04LV7C7xM0
									DIN Coil: 30CC04LV7D7xM0



- Body: 303 Stainless Steel
- IP69 Rated (Conduit Coil)
- High Flow for Fast Piloting
- Standard 1/4-turn manual override
- Compatible with push-to-connect fittings
- Coil: 1/2" NPT Conduit 18" leads
- Coil: DIN 43650A
- Water-tight and thermal shock resistant solenoid coil design
- Valves are cULus, cURus
- Cycle Life: up to 20 million cycles
- Compatible Fluids: Air, Water, Light Oils

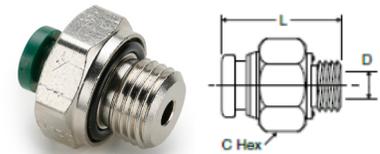
### Voltage Codes for Coils

A= 12VDC, B= 24VDC, E= 24/60, F= 120/60, 110/50, G= 240/60, 220/50  
 Replace "x" in the part number with one of the above Coil Voltage Codes

## Actuator Port Fittings

### Push-to-Connect Fittings for Pilot Valves - Adapts PA Series Actuator Port

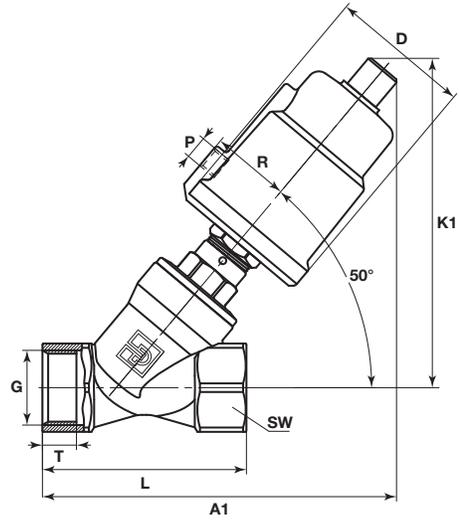
Part No.	Tube Size (In)	Pipe THD BSPP	C Hex	L	Flow Dia. D
V1-22-148	3/16	1/8-28	11/16	.96	.156
V1-22-149	3/16	1/4-19	3/4	.97	.156
V1-22-150	1/4	1/8-28	11/16	1.13	.188
V1-22-151	1/4	1/4-19	3/4	1.13	.188



# Drawings and Dimensioning System

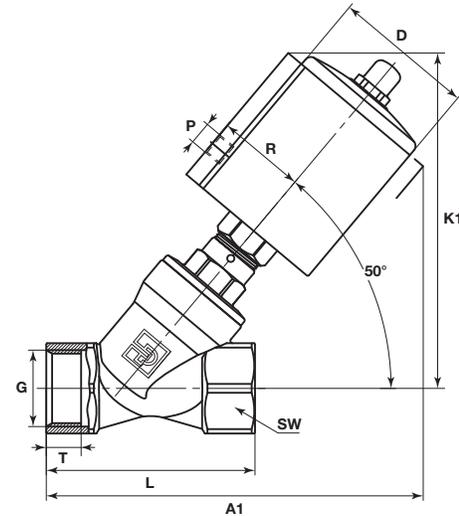
## Stainless Steel Actuators Sizes 40, 50, 63, 80, 100 mm

Type	Actuator mm	D in	R in	P bsp	K1 in	A1 in	G NPT	L in	T in	SW in
DN10 (3/8")	40	1.99	1.06	G1/8	4.57	4.76	3/8	2.36	0.39	.87 hexagon
	50	2.44	1.34	G1/8	5.12	5.24	3/8	2.36	0.39	.87 hexagon
DN15 (1/2")	40	1.99	1.06	G1/8	4.65	4.88	1/2	2.56	0.45	.98 hexagon
	50	2.44	1.34	G1/8	5.16	5.31	1/2	2.56	0.45	.98 hexagon
DN 20 (3/4")	50	2.44	1.34	G1/8	5.28	5.55	3/4	2.95	0.55	1.22 hexagon
DN25 (1")	50	2.44	1.34	G1/8	5.55	6.02	1	3.54	0.59	1.53 hexagon
	63	3.03	1.63	G1/8	6.46	6.89	1	3.54	0.59	1.53 hexagon
DN32 (1-1/4")	63	3.03	1.63	G1/8	6.69	7.40	1-1/4	4.33	0.71	1.97 octagon
	80	3.86	2.05	G1/4	7.24	8.07	1-1/4	4.33	0.71	1.97 octagon
DN40 (1-1/2")	63	3.03	1.63	G1/8	7.13	7.91	1-1/2	4.72	0.71	2.20 octagon
	80	3.86	2.05	G1/4	7.68	8.54	1-1/2	4.72	0.71	2.20 octagon
	100	4.76	2.48	G1/4	8.39	9.25	1-1/2	4.72	0.71	2.20 octagon
DN50 (2")	63	3.03	1.63	G1/8	7.44	8.50	2	5.91	0.87	2.68 octagon
	80	3.86	2.05	G1/4	7.99	9.17	2	5.91	0.87	2.68 octagon
100	4.76	2.48	G1/4	8.70	9.84	2	5.91	0.87	2.68 octagon	
DN65 (2-1/2")	100	4.76	2.48	G1/4	9.76	11.22	2-1/2	7.09	0.98	3.35 octagon



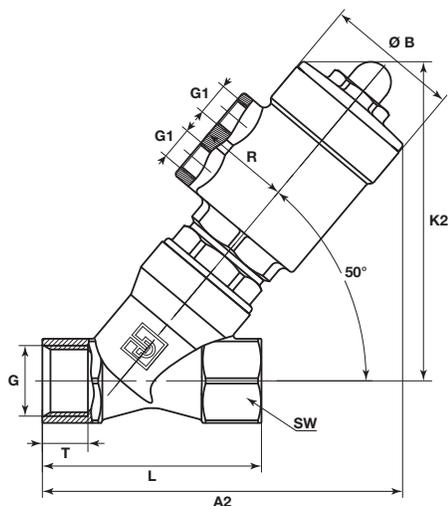
## Aluminum Actuators Sizes 50, 63, 80, 100 mm

Type	Actuator mm	D in	R in	P bsp	K1 in	A1 in	G NPT	L in	T in	SW in
DN10 (3/8")	50	2.40	1.50	G1/8	5.20	5.55	3/8	2.36	0.39	.87 hexagon
DN15 (1/2")	50	2.40	1.50	G1/8	5.24	5.67	1/2	2.56	0.45	.98 hexagon
DN20 (3/4")	50	2.40	1.50	G1/8	5.35	5.91	3/4	2.95	0.55	1.22 hexagon
DN25 (1")	50	2.40	1.50	G1/8	5.67	6.38	1	3.54	0.59	1.53 hexagon
	63	2.95	1.77	G1/8	6.57	7.20	1	3.54	0.59	1.53 hexagon
DN32 (1-1/4")	63	2.95	1.77	G1/8	6.81	7.72	1-1/4	4.33	0.71	1.97 hexagon
	80	3.70	2.13	G1/4	7.56	8.43	1-1/4	4.33	0.71	1.97 hexagon
DN40 (1-1/2")	63	2.95	1.77	G1/8	7.24	8.23	1-1/2	4.72	0.71	2.20 octagon
	80	3.70	2.13	G1/4	7.99	8.90	1-1/2	4.72	0.71	2.20 octagon
	100	4.53	2.52	G1/4	8.78	9.65	1-1/2	4.72	0.71	2.20 octagon
DN50 (2")	63	2.95	1.77	G1/8	7.56	8.82	2	5.91	0.87	2.68 octagon
	80	3.70	2.13	G1/4	8.31	9.53	2	5.91	0.87	2.68 octagon
100	4.53	2.52	G1/4	9.09	10.24	2	5.91	0.87	2.68 octagon	
DN65 (2-1/2")	100	4.53	2.52	G1/4	10.12	11.57	2-1/2	7.09	0.98	3.35 octagon



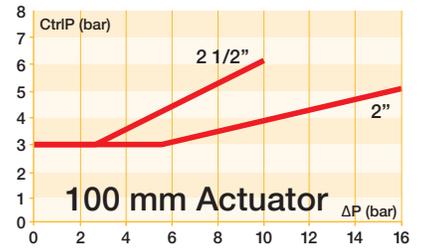
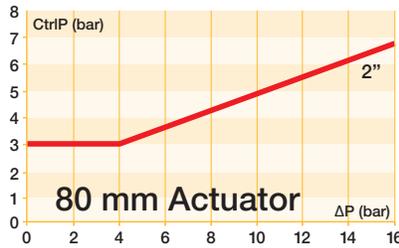
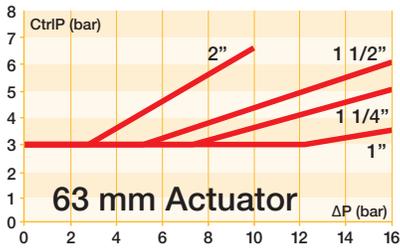
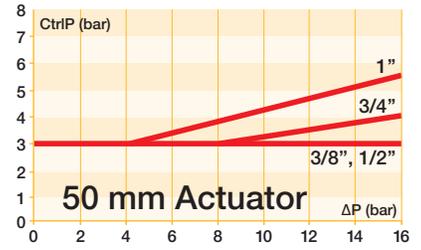
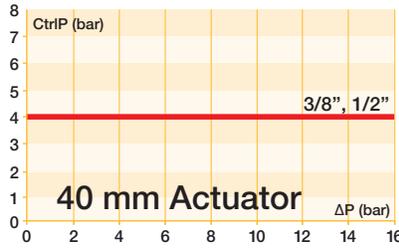
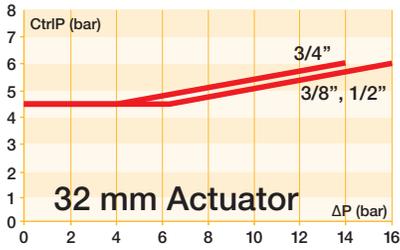
## Stainless Steel Actuators Size 32 mm

Type	Actuator mm	Ø B in	R in	G1 bsp	K2 in	A2 in	G NPT	L in	T in	SW in
DN10 (3/8")	32	1.56	1.06	G1/8	4.21	4.61	3/8	2.36	0.39	.87 hexagon
DN15 (1/2")	32	1.56	1.06	G1/8	4.29	4.69	1/2	2.56	0.45	.98 hexagon
DN20 (3/4")	32	1.56	1.06	G1/8	4.41	4.96	3/4	2.95	0.55	1.22 hexagon

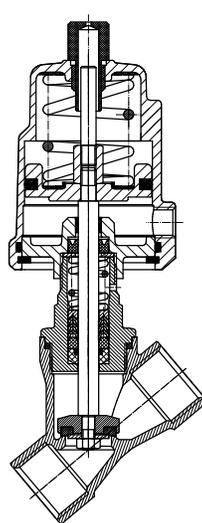
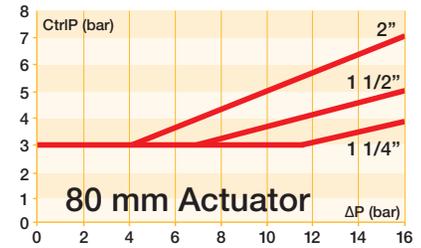
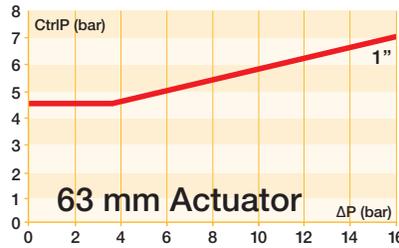
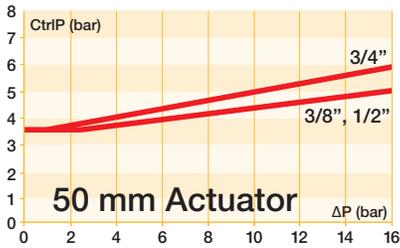


# Construction & Technical Reference

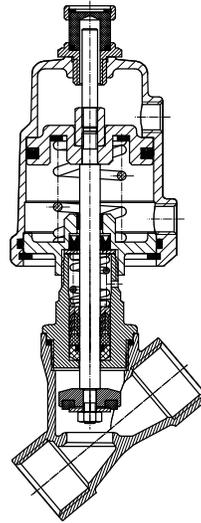
## Control Pressure & Operating Pressure Charts for Normally Closed On/Off Valves



## Control Pressure & Operating Pressure Charts for Normally Open Valves



Normally Closed Valve



Normally Open Valve

# OFFER OF SALE

## PARKER-HANNIFIN CORPORATION OFFER OF SALE

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**3. Price; Payment.** The Products set forth in the Quote are offered for sale at the prices indicated in the Quote. Unless otherwise specifically stated in the Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices for any reason and at any time by giving ten (10) days prior written notice. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2020). All sales are contingent upon credit approval and full payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Under any circumstances, Buyer may not withhold or suspend payment of any amounts due and payable as a deduction, set-off or recoupment of any amount, claim or dispute with Seller. Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law. Seller reserves the right to require advance payment or provision of securities for first and subsequent deliveries if there is any doubt, in Seller's sole determination, regarding the Buyer's creditworthiness or for other business reasons. If the requested advance payment or securities are not provided to Seller's satisfaction, Seller reserves the right to suspend performance or reject the purchase order, in whole or in part, without prejudice to Seller's other rights or remedies, including the right to full compensation. Seller may revoke or shorten any payment periods previously granted in Seller's sole determination. The rights and remedies herein reserved to Seller are cumulative and in addition to any other or further rights and remedies available at law or in equity. No waiver by Seller of any breach by Buyer of any provision of these terms will constitute a waiver by Seller of any other breach of such provision.

**4. Shipment; Delivery; Title and Risk of Loss.** All delivery dates are approximate, and Seller is not responsible for damages or additional costs resulting from any delay. All deliveries are subject to our ability to procure materials from our suppliers. Regardless of the manner of shipment, delivery occurs and title and risk

of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

**5. Warranty.** The warranty for the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED, UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH-RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

**6. Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

**7. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCTS, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.**

**8. Confidential Information.** Buyer acknowledges and agrees that Confidential Information has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller and shall return all such Confidential Information to Seller within thirty (30) days upon request.

**9. Loss to Buyer's Property.** Buyer's Property will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property. Also, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control.

**10. Special Tooling.** Seller may impose a tooling charge for any Special Tooling. Special Tooling shall be and remain Seller's property. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property owned by Seller in its sole determination at any time.

**11. Security Interest.** To secure payment of all sums due from Buyer, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect Seller's security interest.

**12. User Responsibility.** Buyer, through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. Buyer must analyze all aspects of the application and follow

applicable industry standards, specifications, and any technical information provided with the Quote or the Products, such as Seller's instructions, guides and specifications. If Seller provides options of or for Products based upon data or specifications provided by Buyer, Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event Buyer is not the end-user of the Products, Buyer will ensure such end-user complies with this paragraph.

**13. Use of Products, Indemnity by Buyer.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of Buyer's Property; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms, including any legal or administrative proceedings, collection efforts, or other actions arising from or relating to such failure to comply. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

**14. Cancellations and Changes.** Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, any order for any reason except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

**15. Assignment.** Buyer may not assign its rights or obligations without the prior written consent of Seller.

**16. Force Majeure.** Seller is not liable for delay or failure to perform any of its obligations by reason of any events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, cyber related disruptions, cyber-attacks, ransomware sabotage, delays or failures in delivery from carriers or suppliers, shortages of materials, sudden increases in the price of raw material or components, shutdowns or slowdowns affecting the supply of raw materials or components, or the transportation thereof, oil shortages or oil price increases, energy crisis, energy or fuel interruption, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, embargoes, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by an event of force majeure shall be tolled for the duration of such event of force majeure and rescheduled for mutually agreed dates as soon as practicable after the event of force majeure ceases to exist. The right to allocate capacity is in the Seller's sole discretion. An event of force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or sub-contractors. An event of force majeure in the meaning of these Terms means any circumstances beyond Seller's control that permanently or temporarily hinders performance, even where that circumstance was already foreseen. Buyer shall not be entitled to cancel any orders following its claim of an event of force majeure.

**17. Waiver and Severability.** Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

**18. Duration.** Unless otherwise stated in the Quote, any agreement governed by or arising from these Terms shall: (a) be for an initial duration of one (1) year; and (b) shall automatically renew for successive one-year terms unless terminated by Buyer with at least 180-days written notice to Seller or if Seller terminates the agreement pursuant to Section 19 of these Terms.

**19. Termination.** Seller may, without liability to Buyer, terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property, (d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

**20. Ownership of Rights.** Buyer agrees that (a) Seller (and/or its affiliates) owns or is the valid licensee of Seller's IP and (b) the furnishing of information, related

documents or other materials by Seller to Buyer does not grant or transfer any ownership interest or license in or to Seller's IP to Buyer, unless expressly agreed in writing. Without limiting the foregoing, Seller retains ownership of all Software supplied to Buyer. In no event shall Buyer obtain any greater right in and to the Software than a right in a license limited to the use thereof and subject to compliance with any other terms provided with the Software. Buyer further agrees that it will not, directly or through intermediaries, reverse engineer, decompile, or disassemble any Software (including firmware) comprising or contained within a Product, except and only to the extent that such activity may be expressly permitted, either by applicable law or, in the case of open source software, the applicable open source license.

**21. Indemnity for Infringement of Intellectual Property Rights.** Seller is not liable for infringement of any Intellectual Property Rights except as provided in this Section. 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 a third-party claim that one or more of the Products infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by Seller to Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer (including Seller's use of Buyer's Property); or (ii) directed to any Products for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for claims of infringement of Intellectual Property Rights.

**22. Governing Law.** These Terms, the terms of any Quote, and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

**23. Entire Agreement.** These Terms, along with the terms set forth in the Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the Quote and these Terms, the terms set forth in the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. No modification to these Terms will be binding on Seller unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence, 'clickwrap' or other purported electronic assent to different or additional terms. Sections 2-25 of these Terms shall survive termination or cancellation of any agreement governed by or arising from these Terms.

**24. No 'Wrap' Agreements/No Authority to Bind.** Seller's clicking any buttons or any similar action, such as clicking "I Agree" or "Confirm," to utilize Buyer's software or webpage for the placement of orders, is NOT an agreement to Buyer's Terms and Conditions. NO EMPLOYEE, AGENT OR REPRESENTATIVE OF SELLER HAS THE AUTHORITY TO BIND SELLER BY THE ACT OF CLICKING ANY BUTTON OR SIMILAR ACTION ON BUYER'S WEBSITE OR PORTAL.

**25. Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer represents that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Products from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws. Buyer agrees to promptly and reliably provide Seller all requested information or documents, including end-user statements and other written assurances, concerning Buyer's ongoing compliance with Export Law.









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