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# Parker Angle Seat Valves

## PA Series, 2/2 Way, NC or NO

### 3/8" to 2 1/2" BSP, 16 Bar



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# Parker Angle Seat Valves

## Introduction

An angle seat valve is actuated by a pneumatically driven piston and is capable to handle slurry solutions with particles or corrosive solutions at high temperature up to 180°C and operating pressure up to 16 Bar.

## Benefits

- Compact design, high flow rates
- Visual position indicator
- For temperatures from -10°C to 180°C
- Working pressures up to 16 Bar
- Dampened closing anti-water hammer design (fluid under seat)
- Stainless Steel actuator housing for exceptional durability in steam and aggressive applications
- Valves meeting Pressure Equipment Directive 97/23/EC
- Mountable in any position
- Tight shut-off and Long Service Life
- Parker Angle Seat Valves conform to the terms of the 94/9/CE directive specific to non electrical equipment for use within potentially explosive environments - zones 1/21 and 2/22

## Applications

**Angle seat valves are suitable for many process and industrial applications:**

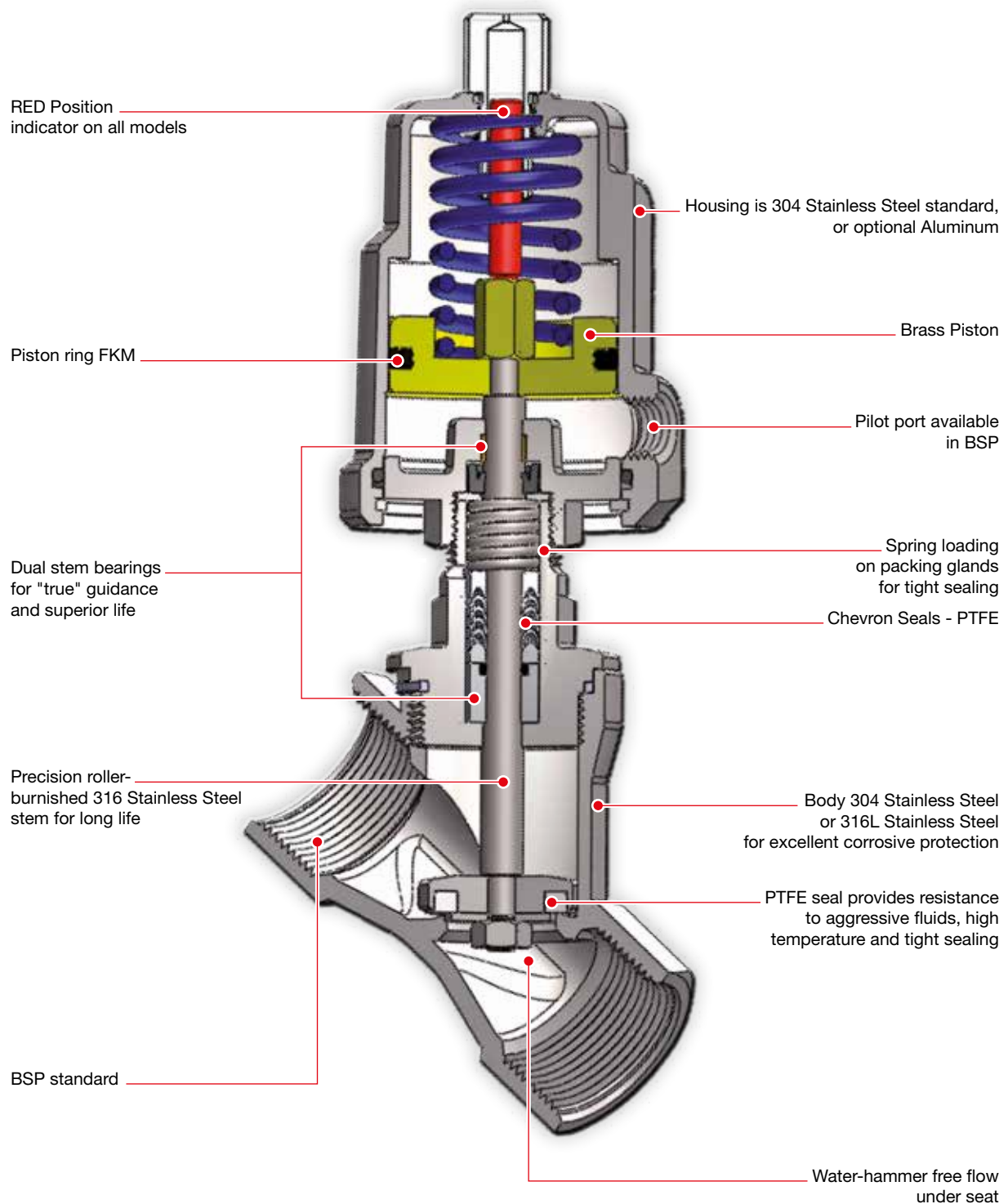
- Food and Beverage Processing
- Water Technology & Treatment
- Textile Industry
- Cooling systems on injection molding machines
- Pharmaceutical & cosmetic industry
- Chemical Process technology
- Refrigeration & Cooling heat exchangers
- Sterilizers steam supply
- Water applications: Mining, Cement / Concrete Systems, Pulp & Paper
- General industrial applications of aggressive fluids
- Industrial Laundry Equipment
- Industrial Air Dryers



# Table of Content

|                                                                                         |    |
|-----------------------------------------------------------------------------------------|----|
| Key Features .....                                                                      | 04 |
| General Specifications .....                                                            | 05 |
| Normally Closed<br>Flow Direction Over the Seat.....                                    | 06 |
| Normally Open<br>Flow Direction Over the Seat.....                                      | 10 |
| Normally Closed<br>Flow Direction Under the Seat<br>Anti Water Hammer Construction..... | 11 |
| Compact Design Normally Closed<br>Flow Direction Over Seat.....                         | 13 |
| Compact Design Normally Closed<br>Flow Direction Under Seat.....                        | 14 |
| Drawings and Dimensions .....                                                           | 15 |
| Numbering System.....                                                                   | 16 |
| Solenoid Valves for Controlling<br>the PA Angle Seat Valves.....                        | 17 |

# Key Features





# General Specifications

## PA Series, 2/2 Way, NC or NO 3/8" to 2 1/2" BSP, 16 bar

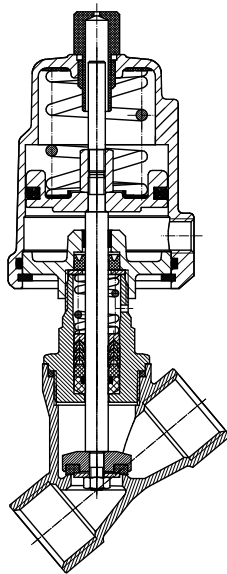


- Body Material 304 Stainless Steel or 316 Stainless Steel
- Actuator Material 304 Stainless Steel, or Aluminum
- Function 2/2 NC, NO, NC (anti-water hammer)
- Port size from DN 10 (3/8") to DN 65 (2 1/2")
- Connections: Threads BSP
- Max Working Pressure 16 Bar
- Flow factor KV from 4.7 m³/h (DN10) to 70 m³/h (DN 65)
- The PA Series angle seat valves comply with European Pressure Equipment Directive 97/23/EC
- Parker Angle Seat Valves conform to the terms of the 94/9/CE directive specific to non electrical equipment for use within potentially explosive environments - Zones 1/21 and 2/22 - Protection II 2 GD c TX
- Pilot Pressure 3 Bar min to 10 Bar according to control pressure charts
- Maximum Fluid Temp -10°C to 180°C
- Ambient Temperature -10°C to 60°C
- Seat Seal material PTFE/RTFE
- Packing Gland: PTFE and PTFE with Carbon
- Installation Any Position
- Optical Position Indicator Standard on all sizes
- Pilot Control Media Air, Neutral Gas
- Fluids handled: Inert gases, hot water, oils, steam, aggressive and corrosive fluids
- Weight from 0.58 Kg (DN10) to 8.65 Kg (DN 65)
- Viscosity: Maxi. 600 mm²/s (600cSt, 80° E, 2700 SSU)

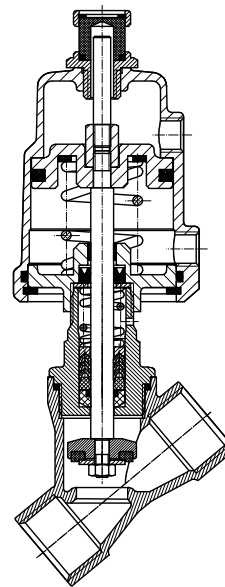
**For liquids, use versions with flow direction under the seat.**

### Accessories

- Spare Parts Kits are available for main seat and body gasket replacement (on request)
- 3 Way Direct Acting AC & DC Pilot Control Valves available as separate components



Normally Closed Valve



Normally Open Valve

# PA Series - Normally Closed Valves

## Flow Direction OVER Seat

Model Numbers Shown are BSP threads

304 Stainless Steel Actuators  
with 304 Stainless Steel Bodies

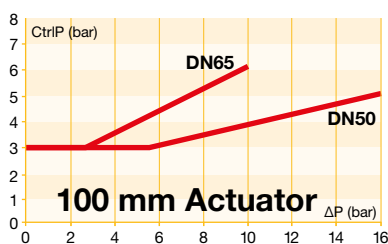
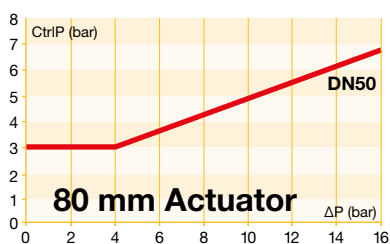
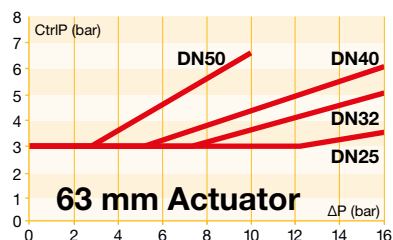
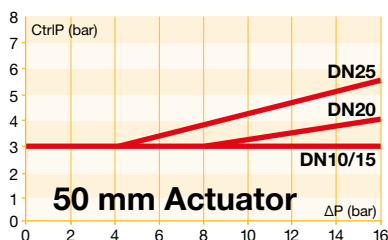
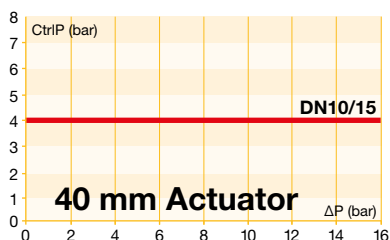


| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 40          | 4.7                  | 0-16                                | 4                                        | PA10S1G3S040S | 0.78          |
|      |           |            | 50          | 4.7                  | 0-16                                | 3                                        | PA10S1G3S050S | 1.01          |
| DN15 | 1/2"      | 13         | 40          | 4.7                  | 0-16                                | 4                                        | PA15S1G4S040S | 0.80          |
|      |           |            | 50          | 4.7                  | 0-16                                | 3                                        | PA15S1G4S050S | 1.03          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-16                                | 3-4                                      | PA20S1G5S050S | 1.06          |
| DN25 | 1"        | 24         | 50          | 16.0                 | 0-16                                | 3-5.5                                    | PA25S1G6S050S | 1.38          |
|      |           |            | 63          | 16.0                 | 0-16                                | 3-3.5                                    | PA25S1G6S063S | 2.05          |
| DN32 | 1-1/4"    | 31         | 63          | 24.0                 | 0-16                                | 3-5                                      | PA32S1G7S063S | 2.40          |
| DN40 | 1-1/2"    | 35         | 63          | 32.0                 | 0-16                                | 3-6                                      | PA40S1G8S063S | 2.75          |
| DN50 | 2"        | 45         | 63          | 50.0                 | 0-10                                | 3-6.5                                    | PA50S1G9S063S | 3.50          |
|      |           |            | 80          | 50.0                 | 0-16                                | 3-6.6                                    | PA50S1G9S080S | 4.62          |
|      |           |            | 100         | 50.0                 | 0-16                                | 3-5                                      | PA50S1G9S100S | 5.16          |
| DN65 | 2-1/2"    | 65         | 100         | 70.0                 | 0-10                                | 3-6                                      | PA65S1GTS100S | 8.65          |

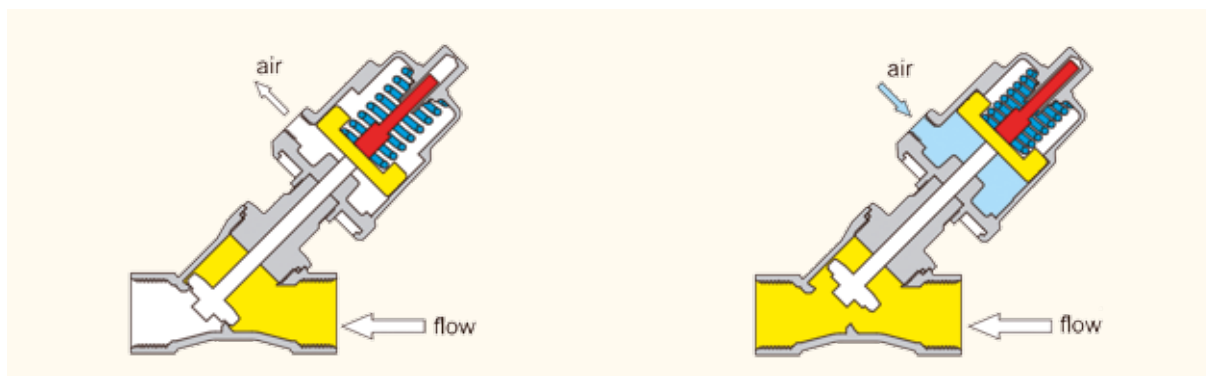
304 Stainless Steel Actuators  
with 316L Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 40          | 4.7                  | 0-16                                | 4                                        | PA10S1G3R040S | 0.78          |
|      |           |            | 50          | 4.7                  | 0-16                                | 3                                        | PA10S1G3R050S | 1.01          |
| DN15 | 1/2"      | 13         | 40          | 4.7                  | 0-16                                | 4                                        | PA15S1G4R040S | 0.80          |
|      |           |            | 50          | 4.7                  | 0-16                                | 3                                        | PA15S1G4R050S | 1.03          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-16                                | 3-4                                      | PA20S1G5R050S | 1.06          |
| DN25 | 1"        | 24         | 50          | 16.0                 | 0-16                                | 3-5.5                                    | PA25S1G6R050S | 1.38          |
|      |           |            | 63          | 16.0                 | 0-16                                | 3-3.5                                    | PA25S1G6R063S | 2.05          |
| DN32 | 1-1/4"    | 31         | 63          | 24.0                 | 0-16                                | 3-5                                      | PA32S1G7R063S | 2.40          |
| DN40 | 1-1/2"    | 35         | 63          | 32.0                 | 0-16                                | 3-6                                      | PA40S1G8R063S | 2.75          |
| DN50 | 2"        | 45         | 63          | 50.0                 | 0-10                                | 3-6.5                                    | PA50S1G9R063S | 3.50          |
|      |           |            | 80          | 50.0                 | 0-16                                | 3-6.6                                    | PA50S1G9R080S | 4.62          |
|      |           |            | 100         | 50.0                 | 0-16                                | 3-5                                      | PA50S1G9R100S | 5.16          |
| DN65 | 2-1/2"    | 65         | 100         | 70.0                 | 0-10                                | 3-6                                      | PA65S1GTR100S | 8.65          |

## Control Pressure & Operating Pressure Charts for the Normally Closed Valves with 304 Stainless Steel Actuators



## Flow Diagram



Valve Closed

Valve Open

# PA Series - Normally Closed Valves Flow Direction **OVER** Seat

Model Numbers Shown are BSP threads

Aluminium Actuators  
with 304 Stainless Steel Bodies



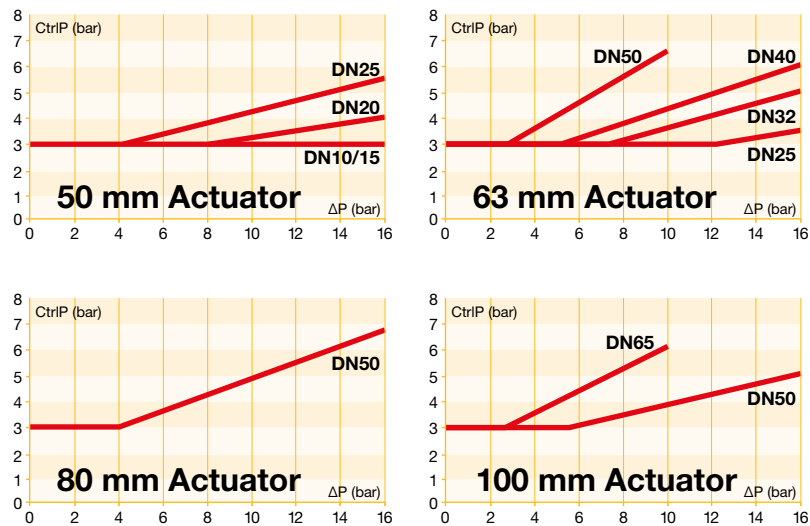
| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 3                                        | PA10S1G3S050A | 0.75          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 3                                        | PA15S1G4S050A | 0.80          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-16                                | 3-4                                      | PA20S1G5S050A | 0.90          |
| DN25 | 1"        | 24         | 50          | 16.0                 | 0-16                                | 3-5.5                                    | PA25S1G6S050A | 1.27          |
|      |           |            | 63          | 16.0                 | 0-16                                | 3-4                                      | PA25S1G6S063A | 1.65          |
| DN32 | 1-1/4"    | 31         | 63          | 24.0                 | 0-16                                | 3-5.5                                    | PA32S1G7S063A | 1.89          |
| DN40 | 1-1/2"    | 35         | 63          | 32.0                 | 0-16                                | 3-6.5                                    | PA40S1G8S063A | 2.15          |
| DN50 | 2"        | 45         | 63          | 50.0                 | 0-10                                | 3-6.5                                    | PA50S1G9S063A | 2.98          |
|      |           |            | 80          | 50.0                 | 0-16                                | 3-6.6                                    | PA50S1G9S080A | 3.56          |
|      |           |            | 100         | 50.0                 | 0-16                                | 3-5                                      | PA50S1G9S100A | 4.75          |
| DN65 | 2-1/2"    | 65         | 100         | 70.0                 | 0-10                                | 3-6                                      | PA65S1GTS100A | 5.50          |

Aluminium Actuators  
with 316L Stainless Steel Bodies

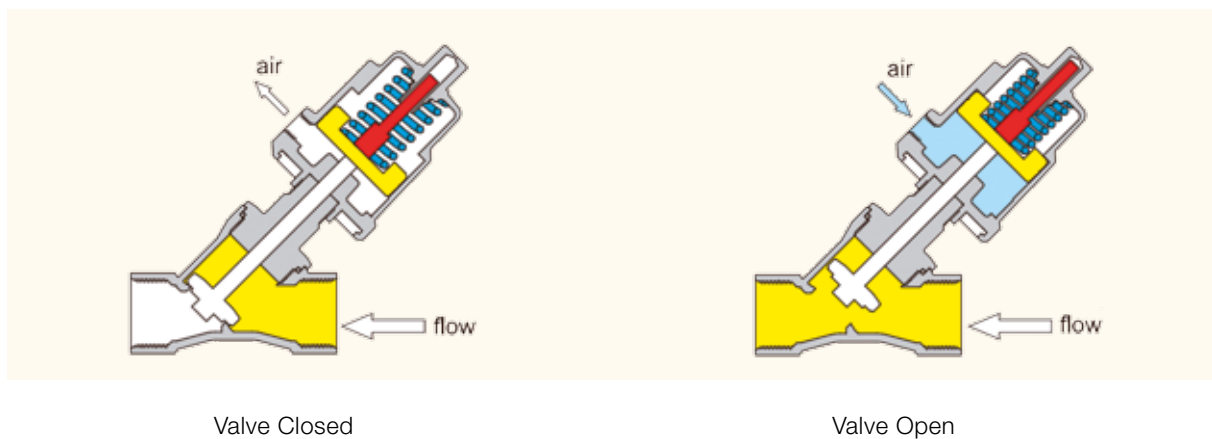
| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 3                                        | PA10S1G3R050A | 0.75          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 3                                        | PA15S1G4R050A | 0.80          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-16                                | 3-4                                      | PA20S1G5R050A | 0.90          |
| DN25 | 1"        | 24         | 50          | 16.0                 | 0-16                                | 3-5.5                                    | PA25S1G6R050A | 1.27          |
|      |           |            | 63          | 16.0                 | 0-16                                | 3-4                                      | PA25S1G6R063A | 1.65          |
| DN32 | 1-1/4"    | 31         | 63          | 24.0                 | 0-16                                | 3-5.5                                    | PA32S1G7R063A | 1.89          |
| DN40 | 1-1/2"    | 35         | 63          | 32.0                 | 0-16                                | 3-6.5                                    | PA40S1G8R063A | 2.15          |
| DN50 | 2"        | 45         | 63          | 50.0                 | 0-10                                | 3-6.5                                    | PA50S1G9R063A | 2.98          |
|      |           |            | 80          | 50.0                 | 0-16                                | 3-6.6                                    | PA50S1G9R080A | 3.56          |
|      |           |            | 100         | 50.0                 | 0-16                                | 3-5                                      | PA50S1G9R100A | 4.75          |
| DN65 | 2-1/2"    | 65         | 100         | 70.0                 | 0-10                                | 3-6                                      | PA65S1GTR100A | 5.50          |



## Control Pressure & Operating Pressure Charts for the Normally Closed Valves with Aluminum Actuators



## Flow Diagram



# PA Series - Normally Open Valves

## Flow Direction OVER Seat

Model Numbers Shown are BSP threads

304 Stainless Steel Actuators  
with 304 Stainless Steel Bodies



| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 3.5                                | PA10S2G3S050S | 1.00          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 3.5                                | PA15S2G4S050S | 1.03          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-16                                | 3.5                                | PA20S2G5S050S | 1.06          |
| DN25 | 1"        | 24         | 63          | 16.0                 | 0-16                                | 4.5                                | PA25S2G6S063S | 2.05          |
| DN32 | 1-1/4"    | 31         | 63          | 24.0                 | 0-14                                | 4.5                                | PA32S2G7S063S | 2.40          |
| DN40 | 1-1/2"    | 35         | 63          | 32.0                 | 0-11                                | 4.5                                | PA40S2G8S063S | 2.75          |
| DN50 | 2"        | 45         | 63          | 50.0                 | 0-6                                 | 5                                  | PA50S2G9S063S | 3.50          |
|      |           |            | 80          | 50.0                 | 0-12                                | 5                                  | PA50S2G9S080S | 4.62          |

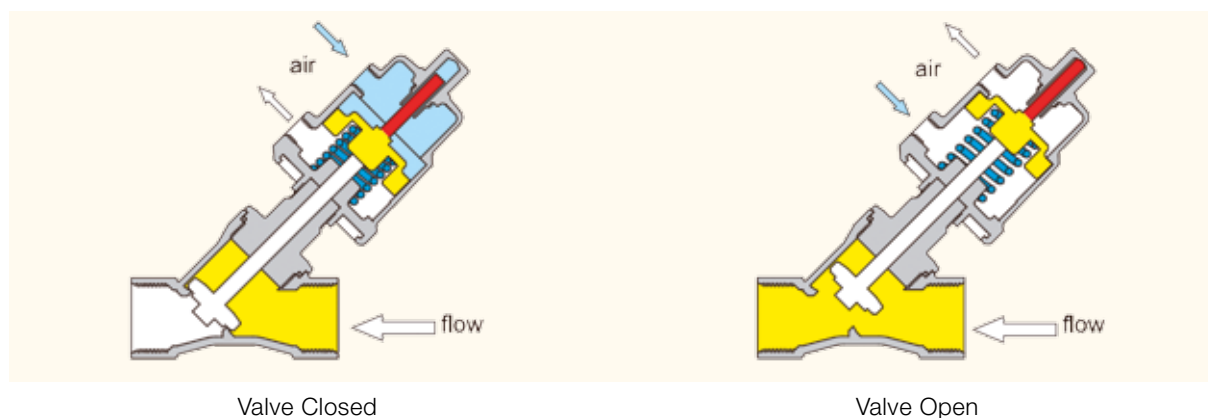
304 Stainless Steel Actuators  
with 316L Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 3.5                                | PA10S2G3R050S | 1.00          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 3.5                                | PA15S2G4R050S | 1.03          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-16                                | 3.5                                | PA20S2G5R050S | 1.06          |
| DN25 | 1"        | 24         | 63          | 16.0                 | 0-16                                | 4.5                                | PA25S2G6R063S | 2.05          |
| DN32 | 1-1/4"    | 31         | 63          | 24.0                 | 0-14                                | 4.5                                | PA32S2G7R063S | 2.40          |
| DN40 | 1-1/2"    | 35         | 63          | 32.0                 | 0-11                                | 4.5                                | PA40S2G8R063S | 2.75          |
| DN50 | 2"        | 45         | 63          | 50.0                 | 0-6                                 | 5                                  | PA50S2G9R063S | 3.50          |
|      |           |            | 80          | 50.0                 | 0-12                                | 5                                  | PA50S2G9R080S | 4.62          |

## Control Pressure & Operating Pressure

Charts do not apply for Normally Open Valves. A minimum pressure as noted above is all that is required, up to 10 bar Maximum.

## Flow Diagram



# PA Series - Normally Closed Valves

## Flow Direction UNDER Seat

Anti Water Hammer Construction

Model Numbers Shown are BSP threads

304 Stainless Steel Actuators  
with 304 Stainless Steel Bodies

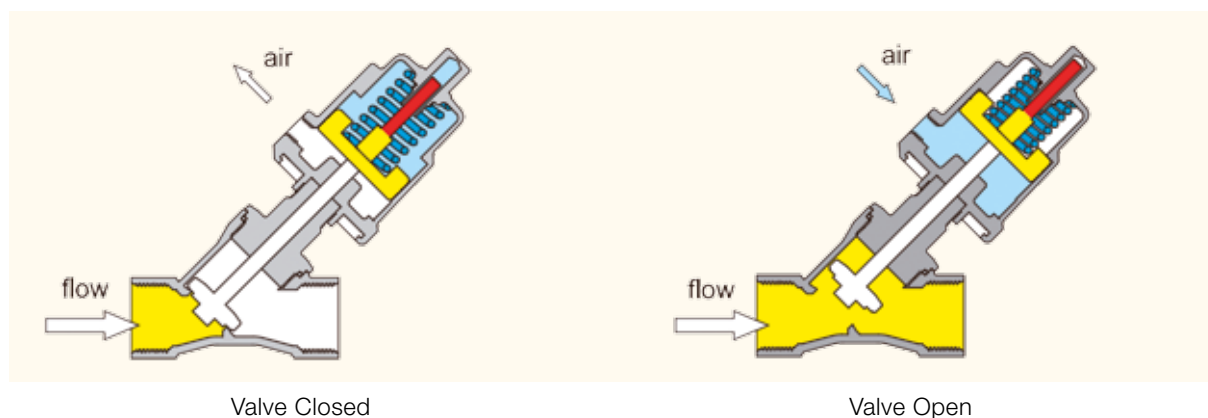


| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA10SAG3S050S | 1.01          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA15SAG4S050S | 1.03          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-10                                | 4.5                                | PA20SAG5S050S | 1.06          |
| DN25 | 1"        | 24         | 63          | 16.0                 | 0-8                                 | 4.5                                | PA25SAG6S063S | 2.05          |
| DN32 | 1-1/4"    | 31         | 80          | 24.0                 | 0-11                                | 4                                  | PA32SAG7S080S | 3.82          |
| DN40 | 1-1/2"    | 35         | 80          | 32.0                 | 0-8                                 | 4                                  | PA40SAG8S080S | 4.07          |
|      |           |            | 100         | 32.0                 | 0-16                                | 4                                  | PA40SAG8S100S | 4.61          |
| DN50 | 2"        | 45         | 100         | 50.0                 | 0-9                                 | 4                                  | PA50SAG9S100S | 5.16          |

304 Stainless Steel Actuators  
with 316L Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA10SAG3R050S | 1.01          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA15SAG4R050S | 1.03          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-10                                | 4.5                                | PA20SAG5R050S | 1.06          |
| DN25 | 1"        | 24         | 63          | 16.0                 | 0-8                                 | 4.5                                | PA25SAG6R063S | 2.05          |
| DN32 | 1-1/4"    | 31         | 80          | 24.0                 | 0-11                                | 4                                  | PA32SAG7R080S | 3.82          |
| DN40 | 1-1/2"    | 35         | 80          | 32.0                 | 0-8                                 | 4                                  | PA40SAG8R080S | 4.07          |
|      |           |            | 100         | 32.0                 | 0-16                                | 4                                  | PA40SAG8R100S | 4.61          |
| DN50 | 2"        | 45         | 100         | 50.0                 | 0-9                                 | 4                                  | PA50SAG9R100S | 5.16          |

## Flow Diagram



# PA Series - Normally Closed Valves

## Flow Direction UNDER Seat

Anti Water Hammer Construction

Model Numbers Shown are BSP threads

Aluminum Actuators  
with 304 Stainless Steel Bodies



| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA10SAG3S050A | 0.75          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA15SAG4S050A | 0.80          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-10                                | 4.5                                | PA20SAG5S050A | 0.90          |
| DN25 | 1"        | 24         | 63          | 16.0                 | 0-8                                 | 4.5                                | PA25SAG6S063A | 1.65          |
| DN32 | 1-1/4"    | 31         | 80          | 24.0                 | 0-11                                | 4                                  | PA32SAG7S080A | 2.80          |
| DN40 | 1-1/2"    | 35         | 80          | 32.0                 | 0-8                                 | 4                                  | PA40SAG8S080A | 3.10          |
|      |           |            | 100         | 32.0                 | 0-16                                | 4                                  | PA40SAG8S100A | 4.15          |
| DN50 | 2"        | 45         | 100         | 50.0                 | 0-9                                 | 4                                  | PA50SAG9S100A | 4.75          |

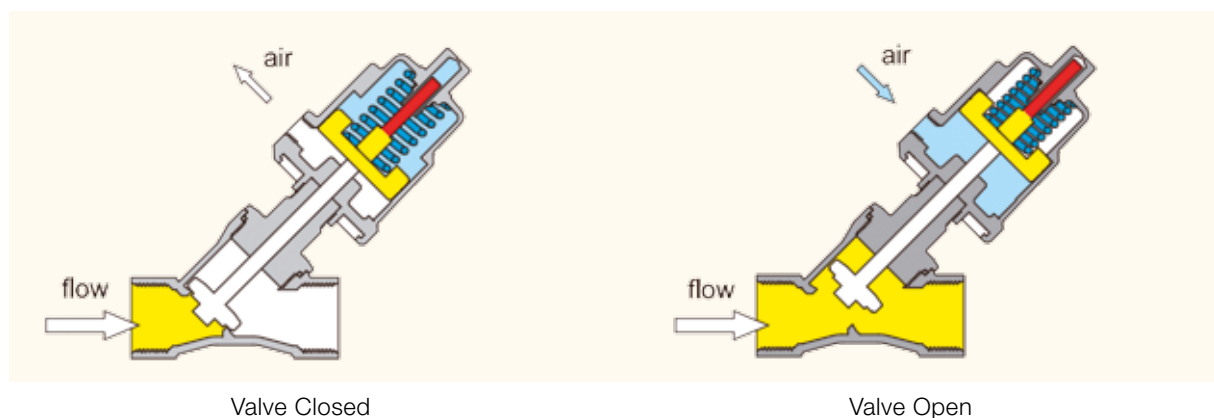
## Aluminum Actuators with 316L Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA10SAG3R050A | 0.75          |
| DN15 | 1/2"      | 13         | 50          | 4.7                  | 0-16                                | 4.5                                | PA15SAG4R050A | 0.80          |
| DN20 | 3/4"      | 18         | 50          | 9.0                  | 0-10                                | 4.5                                | PA20SAG5R050A | 0.90          |
| DN25 | 1"        | 24         | 63          | 16.0                 | 0-8                                 | 4.5                                | PA25SAG6R063A | 1.65          |
| DN32 | 1-1/4"    | 31         | 80          | 24.0                 | 0-11                                | 4                                  | PA32SAG7R080A | 2.80          |
| DN40 | 1-1/2"    | 35         | 80          | 32.0                 | 0-8                                 | 4                                  | PA40SAG8R080A | 3.10          |
|      |           |            | 100         | 32.0                 | 0-16                                | 4                                  | PA40SAG8R100A | 4.15          |
| DN50 | 2"        | 45         | 100         | 50.0                 | 0-9                                 | 4                                  | PA50SAG9R100A | 4.75          |

## Control Pressure & Operating Pressure

Charts do not apply for Valves with flow direction Under Seat. A minimum pressure as noted above is all that is required, up to a maximum of 10 bar.

## Flow Diagram



# PA Series - Compact Design Normally Closed Valves-Flow direction OVER Seat

Model Numbers Shown are BSP threads

Media Temperature - 10°C to + 100°C



## 304 Stainless Steel Actuators with 304 Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m³/h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|---------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA10C3G3S032S | 0.58          |
| DN15 | 1/2"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA15C3G4S032S | 0.60          |
| DN20 | 3/4"      | 15         | 32          | 5.4     | 0-14                                | 4.5-6                                    | PA20C3G5S032S | 0.65          |

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

| Size | Port Size | Orifice mm | Actuator mm | KV m³/h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|---------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA10C3G3R032S | 0.58          |
| DN15 | 1/2"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA15C3G4R032S | 0.60          |
| DN20 | 3/4"      | 15         | 32          | 5.4     | 0-14                                | 4.5-6                                    | PA20C3G5R032S | 0.65          |

Media Temperature - 10°C to + 180°C

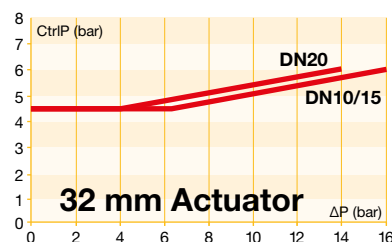
## 304 Stainless Steel Actuators with 304 Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m³/h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|---------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA10C1G3S032S | 0.63          |
| DN15 | 1/2"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA15C1G4S032S | 0.65          |
| DN20 | 3/4"      | 15         | 32          | 5.4     | 0-14                                | 4.5-6                                    | PA20C1G5S032S | 0.71          |

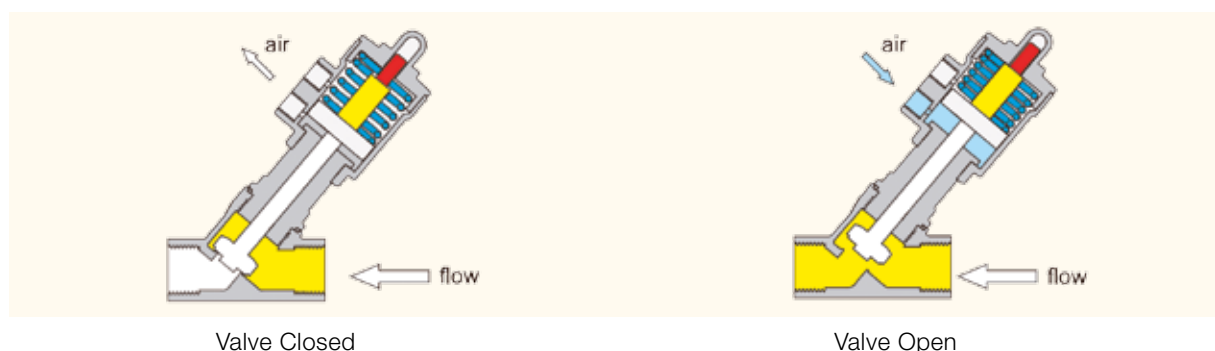
## 304 Stainless Steel Actuators with 316L Stainless Steel Bodies

| Size | Port Size | Orifice mm | Actuator mm | KV m³/h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|---------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA10C1G3R032S | 0.63          |
| DN15 | 1/2"      | 13         | 32          | 4.7     | 0-16                                | 4.5-6                                    | PA15C1G4R032S | 0.65          |
| DN20 | 3/4"      | 15         | 32          | 5.4     | 0-14                                | 4.5-6                                    | PA20C1G5R032S | 0.71          |

## Control Pressure & Operating Pressure



## Flow Diagram





# PA Series - Compact Design **Normally Closed** Valves-Flow direction **UNDER** Seat



Model Numbers Shown are BSP threads

**Media Temperature - 10°C to + 100°C**



**304 Stainless Steel Actuators with 304 Stainless Steel Bodies**

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA10C4G3S032S | 0.58          |
| DN15 | 1/2"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA15C4G4S032S | 0.60          |
| DN20 | 3/4"      | 15         | 32          | 5.4                  | 0-4                                 | 5-6                                      | PA20C4G5S032S | 0.65          |

**304 Stainless Steel Actuators with 316L Stainless Steel Bodies**

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA10C4G3R032S | 0.58          |
| DN15 | 1/2"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA15C4G4R032S | 0.60          |
| DN20 | 3/4"      | 15         | 32          | 5.4                  | 0-4                                 | 5-6                                      | PA20C4G5R032S | 0.65          |

**Media Temperature - 10°C to + 180°C**

**304 Stainless Steel Actuators with 304 Stainless Steel Bodies**

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA10C2G3S032S | 0.63          |
| DN15 | 1/2"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA15C2G4S032S | 0.65          |
| DN20 | 3/4"      | 15         | 32          | 5.4                  | 0-4                                 | 5-6                                      | PA20C2G5S032S | 0.71          |

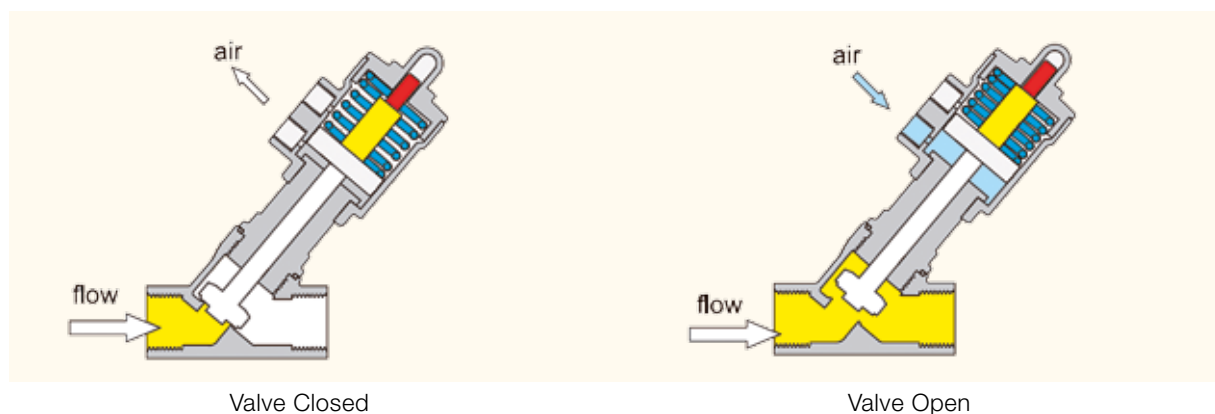
**304 Stainless Steel Actuators with 316L Stainless Steel Bodies**

| Size | Port Size | Orifice mm | Actuator mm | KV m <sup>3</sup> /h | Operating Pressure Differential bar | Minimum Pilot Control Pressure Range bar | Model Number  | Net Weight Kg |
|------|-----------|------------|-------------|----------------------|-------------------------------------|------------------------------------------|---------------|---------------|
| DN10 | 3/8"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA10C2G3R032S | 0.63          |
| DN15 | 1/2"      | 13         | 32          | 4.7                  | 0-6                                 | 5-6                                      | PA15C2G4R032S | 0.65          |
| DN20 | 3/4"      | 15         | 32          | 5.4                  | 0-4                                 | 5-6                                      | PA20C2G5R032S | 0.71          |

## Control Pressure & Operating Pressure

Charts do not apply for Valves with flow direction Under Seat. A minimum pressure as noted above is all that is required, up to 10 bar maximum.

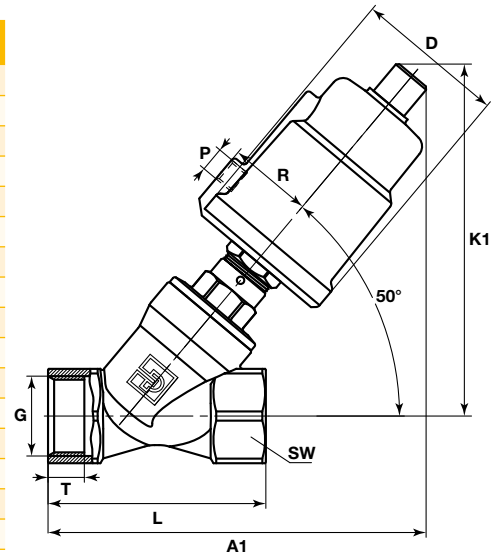
## Flow Diagram



# PA Series - Drawings and Dimensions

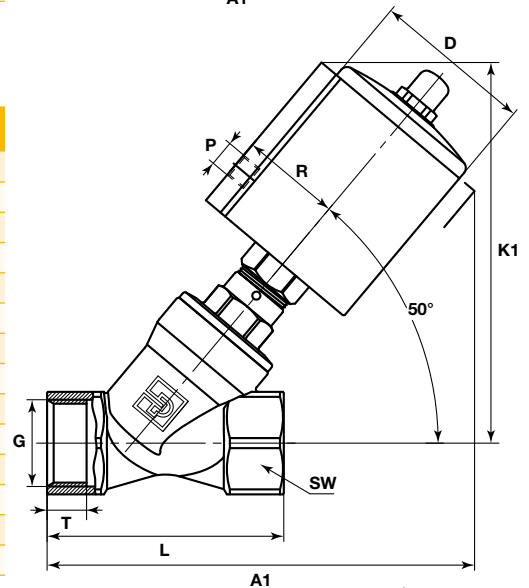
## Stainless Steel Actuators Sizes 40, 50, 63, 80, 100 mm

| Type  | Actuator | D    | R    | P    | K1  | A1  | G      | L   | T    | SW         |
|-------|----------|------|------|------|-----|-----|--------|-----|------|------------|
| DN10  | 40       | 50.5 | 27   | G1/8 | 116 | 121 | G3/8   | 60  | 10   | 22 hexagon |
|       | 50       | 62   | 34   | G1/8 | 130 | 133 | G3/8   | 60  | 10   | 22 hexagon |
| DN15  | 40       | 50.5 | 27   | G1/8 | 118 | 124 | G1/2   | 65  | 11.5 | 25 hexagon |
|       | 50       | 62   | 34   | G1/8 | 131 | 135 | G1/2   | 65  | 11.5 | 25 hexagon |
| DN 20 | 50       | 62   | 34   | G1/8 | 134 | 141 | G3/4   | 75  | 14   | 31 hexagon |
| DN25  | 50       | 62   | 34   | G1/8 | 141 | 153 | G1     | 90  | 15   | 39 hexagon |
|       | 63       | 77   | 41.5 | G1/8 | 164 | 175 | G1     | 90  | 15   | 39 hexagon |
| DN32  | 63       | 77   | 41.5 | G1/8 | 170 | 188 | G1-1/4 | 110 | 18   | 50 octagon |
|       | 80       | 98   | 52   | G1/4 | 184 | 205 | G1-1/4 | 110 | 18   | 50 octagon |
| DN40  | 63       | 77   | 41.5 | G1/8 | 181 | 201 | G1-1/2 | 120 | 18   | 56 octagon |
|       | 80       | 98   | 52   | G1/4 | 195 | 217 | G1-1/2 | 120 | 18   | 56 octagon |
|       | 100      | 121  | 63   | G1/4 | 213 | 235 | G1-1/2 | 120 | 18   | 56 octagon |
| DN50  | 63       | 77   | 41.5 | G1/8 | 189 | 216 | G2     | 150 | 22   | 68 octagon |
|       | 80       | 98   | 52   | G1/4 | 203 | 233 | G2     | 150 | 22   | 68 octagon |
|       | 100      | 121  | 63   | G1/4 | 221 | 250 | G2     | 150 | 22   | 68 octagon |
| DN65  | 100      | 121  | 63   | G1/4 | 248 | 285 | G2-1/2 | 180 | 25   | 85 octagon |



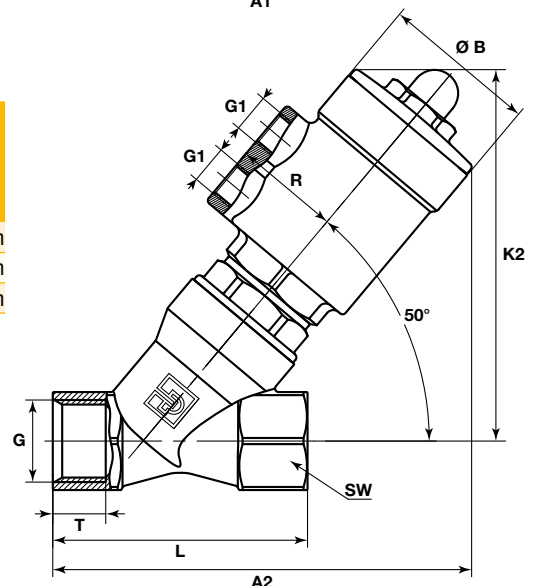
## Aluminum Actuators Sizes 50, 63, 80, 100 mm

| Type | Actuator | D   | R  | P    | K1  | A1  | G      | L   | T    | SW         |
|------|----------|-----|----|------|-----|-----|--------|-----|------|------------|
| DN10 | 50       | 61  | 38 | G1/8 | 132 | 141 | G3/8   | 60  | 10   | 22 hexagon |
| DN15 | 50       | 61  | 38 | G1/8 | 133 | 144 | G1/2   | 65  | 11.5 | 25 hexagon |
| DN20 | 50       | 61  | 38 | G1/8 | 136 | 150 | G3/4   | 75  | 14   | 31 hexagon |
| DN25 | 50       | 61  | 38 | G1/8 | 144 | 162 | G1     | 90  | 15   | 39 hexagon |
|      | 63       | 75  | 45 | G1/8 | 167 | 183 | G1     | 90  | 15   | 39 hexagon |
| DN32 | 63       | 75  | 45 | G1/8 | 173 | 196 | G1-1/4 | 110 | 18   | 50 octagon |
|      | 80       | 94  | 54 | G1/4 | 192 | 214 | G1-1/4 | 110 | 18   | 50 octagon |
| DN40 | 63       | 75  | 45 | G1/8 | 184 | 209 | G1-1/2 | 120 | 18   | 56 octagon |
|      | 80       | 94  | 54 | G1/4 | 203 | 226 | G1-1/2 | 120 | 18   | 56 octagon |
|      | 100      | 115 | 64 | G1/4 | 223 | 245 | G1-1/2 | 120 | 18   | 56 octagon |
| DN50 | 63       | 75  | 45 | G1/8 | 192 | 224 | G2     | 150 | 22   | 68 octagon |
|      | 80       | 94  | 54 | G1/4 | 211 | 242 | G2     | 150 | 22   | 68 octagon |
|      | 100      | 115 | 64 | G1/4 | 231 | 260 | G2     | 150 | 22   | 68 octagon |
| DN65 | 100      | 115 | 64 | G1/4 | 257 | 294 | G2-1/2 | 180 | 25   | 85 octagon |



## Stainless Steel Actuators Size 32 mm

| Type | Actuator | Ø B  | R  | G1   | K2                   |                      | A2                   |                      | G    | L  | T    | SW         |
|------|----------|------|----|------|----------------------|----------------------|----------------------|----------------------|------|----|------|------------|
|      |          |      |    |      | Type C1/C2<br>(180°) | Type C3/C4<br>(100°) | Type C1/C2<br>(180°) | Type C3/C4<br>(100°) |      |    |      |            |
| DN10 | 32       | 39.6 | 27 | G1/8 | 107                  | 94                   | 117                  | 106                  | G3/8 | 60 | 10   | 22 hexagon |
| DN15 | 32       | 39.6 | 27 | G1/8 | 109                  | 96                   | 119                  | 108                  | G1/2 | 65 | 11.5 | 25 hexagon |
| DN20 | 32       | 39.6 | 27 | G1/8 | 112                  | 100                  | 126                  | 115                  | G3/4 | 75 | 14   | 31 hexagon |



# PA Series - Numbering System

## Angle Seat Valve Numbering System

| PA | 10         |      | S1                |                                     | G3                   |       | S             | 063S                 | -                          |
|----|------------|------|-------------------|-------------------------------------|----------------------|-------|---------------|----------------------|----------------------------|
|    | Valve Size |      | Valve Type/Series |                                     | Body Thread Standard |       | Body Material | Actuator Description | Special                    |
| PA | 10         | DN10 | S1                | NC                                  | G3                   | 3/8   | BSP           | S 304 SS             | <b>Stainless Steel 304</b> |
| PA | 15         | DN15 | S2                | NO                                  | G4                   | 1/2   | BSP           | R 316L SS            | 032S 32 mm actuator        |
| PA | 20         | DN20 | SA                | NC, flow under seat                 | G5                   | 3/4   | BSP           |                      | 040S 40 mm actuator        |
| PA | 25         | DN25 | C1                | Compact, NC, flow over seat         | G6                   | 1     | BSP           |                      | 050S 50 mm actuator        |
| PA | 32         | DN32 | C2                | Compact, NC, flow under seat        | G7                   | 1-1/4 | BSP           |                      | 063S 63 mm actuator        |
| PA | 40         | DN40 | C3                | Compact NC, flow over seat (100°C)  | G8                   | 1-1/2 | BSP           |                      | 080S 80 mm actuator        |
| PA | 50         | DN50 | C4                | Compact NC, flow under seat (100°C) | G9                   | 2     | BSP           |                      | 100S 100 mm actuator       |
| PA | 65         | DN65 |                   |                                     | GT                   | 2-1/2 | BSP           |                      |                            |
|    |            |      |                   |                                     |                      |       |               |                      | <b>Aluminum</b>            |
|    |            |      |                   |                                     |                      |       |               |                      | 040A 40 mm actuator        |
|    |            |      |                   |                                     |                      |       |               |                      | 050A 50 mm actuator        |
|    |            |      |                   |                                     |                      |       |               |                      | 063A 63 mm actuator        |
|    |            |      |                   |                                     |                      |       |               |                      | 080A 80 mm actuator        |
|    |            |      |                   |                                     |                      |       |               |                      | 100A 100 mm actuator       |



### WARNING - USER RESPONSIBILITY

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

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- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

# Solenoid Valves for Controlling the PA Angle Seat Valves

## 3 Way Direct Acting Pilot Control Valves

Available as Separate Components

### Features

- Compact designs
- Brass or Stainless steel body valves
- NC (normally closed) and NO (normally open) versions
- Broad offering of coils to meet World Wide requirements
- Available in BSP and NPT connections in 1/8" and 1/4" sizes

### Representative Pictures

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### Banjo Valve for Direct Mounting to the Valve

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Banjo Valve



Banjo Valve Mounted to the valve

# Solenoid Valves for Controlling the PA Angle Seat Valves

## 3 Way Direct Acting Pilot Control Valves

Banjo Valve - Available as Separate Components

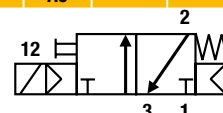
## Banjo Valves G1/4" & G1/8" Series with Aluminium Body

Solenoid Operated Versions - B14-B04 Versions with 22 mm Coil

| Port Size | Orifice | Q <sub>N</sub> | Admissible differential pressure (bar) max. |     |     | Max. admissible fluid temperature (°C) Min. = -10°C | Seat disc           | Reference number |         |      | Consumption Power (Watt) |    | Weight (g) | Dim. Ref. |
|-----------|---------|----------------|---------------------------------------------|-----|-----|-----------------------------------------------------|---------------------|------------------|---------|------|--------------------------|----|------------|-----------|
| Banjo     | G       | mm             | l/min                                       | min | DC= | AC~                                                 | Air & Neutral gases | Valve            | Housing | Coil | DC                       | AC |            |           |

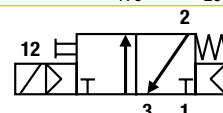
### 3/2 Solenoid operated - Spring return (monostable)

|     |     |     |    |   |    |    |    |     |        |   |        |   |   |     |    |
|-----|-----|-----|----|---|----|----|----|-----|--------|---|--------|---|---|-----|----|
| 1/8 | 1/8 | 1.2 | 50 | 0 | 10 | 10 | 50 | NBR | 131B14 | - | 496131 | 3 | 3 | 140 | 26 |
| 1/8 | 1/8 | 1.2 | 50 | 0 | 10 | 10 | 50 | NBR | 131B14 | - | 496482 | 3 | 3 | 150 | 26 |
| 1/8 | 1/8 | 1.2 | 50 | 0 | 10 | 10 | 50 | NBR | 131B14 | - | 496637 | 3 | 3 | 150 | 26 |
| 1/8 | 1/8 | 1.2 | 50 | 0 | 10 | -  | 50 | NBR | 131B14 | - | 482605 | 5 | - | 170 | 26 |

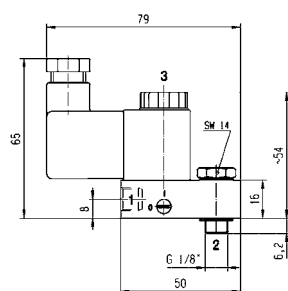


### 3/2 Solenoid operated - Spring return (monostable)

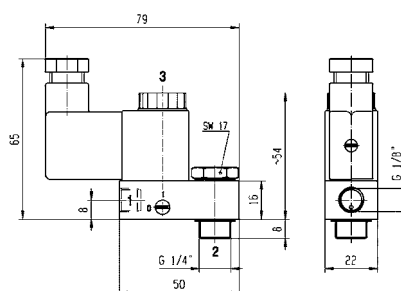
|     |     |     |    |   |    |    |    |     |        |   |        |   |   |     |    |
|-----|-----|-----|----|---|----|----|----|-----|--------|---|--------|---|---|-----|----|
| 1/4 | 1/8 | 1.2 | 50 | 0 | 10 | 10 | 50 | NBR | 131B04 | - | 496131 | 3 | 3 | 160 | 27 |
| 1/4 | 1/8 | 1.2 | 50 | 0 | 10 | 10 | 50 | NBR | 131B04 | - | 496482 | 3 | 3 | 175 | 27 |
| 1/4 | 1/8 | 1.2 | 50 | 0 | 10 | 10 | 50 | NBR | 131B04 | - | 496637 | 3 | 3 | 175 | 27 |
| 1/4 | 1/8 | 1.2 | 50 | 0 | 10 | -  | 50 | NBR | 131B04 | - | 482605 | 5 | - | 190 | 27 |



Dimensions Reference 26



Dimensions Reference 27



## Coils 22 mm for Banjo Valves Series

These coils with connection for 2 P+G DIN 43650 B plug are encapsulated in synthetic material, conform to the IEC/CENELEC safety standards and comply with European low voltage directive 2006/95/EC. Banjo Valve bodies conform to the terms of the directive 94/9/CE specific to non electrical equipment for use within potentially explosive environments - Please select appropriate Coil for Safe Area or ATEX zones 1/21 or 2/22 in the following table.

- Power: 3 W or 5 W
- Insulation Class: F (155°C)
- Degree of Protection: IP65 (with plug)
- Duty Cycle: 100% ED

| Available Voltages | Safe area without DIN plug Code | Safe area with DIN plug Code | For Zone 2/22 II 3 G-Ex nc AC IIC T5 II 3 D-Ex tc AC IIC - T 95°C code with DIN plug | For Zone 1/21 II 2 G-Ex mb II T4 II 2 D-Ex tb IIC - T 130°C code includes DIN plug and 1.5 m cable |
|--------------------|---------------------------------|------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 12 VDC             | 496131 C1                       | 496482 C1                    | 496637 C1                                                                            | 482605 C1                                                                                          |
| 24 VDC             | 496131 C2                       | 496482 C2                    | 496637 C2                                                                            | 482605 C2                                                                                          |
| 48 VDC             | 496131 C4                       | 496482 C4                    | 496637 C4                                                                            | -                                                                                                  |
| 110 VDC            | 496131 C5                       | 496482 C5                    | 496637 C5                                                                            | -                                                                                                  |
| 24/50-60 VAC       | 496131 P0                       | 496482 P0                    | 496637 P0                                                                            | -                                                                                                  |
| 48/50-60 VAC       | 496131 S4                       | 496482 S4                    | 496637 S4                                                                            | -                                                                                                  |
| 110/50-60 VAC      | 496131 P2                       | 496482 P2                    | 496637 P2                                                                            | -                                                                                                  |
| 115/60 VAC         | 496131 K8                       | 496482 K8                    | 496637 K8                                                                            | -                                                                                                  |
| 230/50-60 VAC      | 496131 P9                       | 496482 P9                    | 496637 P9                                                                            | -                                                                                                  |

## How to Order

Valve Reference Number - Coil Reference - Voltage code = Order code

**Example: 131B14 - 496131 C2** - Valves and coils may be ordered also separately.





# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374



## **Aerospace** **Key Markets**

Aftermarket services  
Commercial transports  
Engines  
General & business aviation  
Helicopters  
Launch vehicles  
Military aircraft  
Missiles  
Power generation  
Regional transports  
Unmanned aerial vehicles

## **Key Products**

Control systems & actuation products  
Engine systems & components  
Fluid conveyance systems & components  
Fluid metering, delivery & atomization devices  
Fuel systems & components  
Fuel tank inerting systems  
Hydraulic systems & components  
Thermal management  
Wheels & brakes



## **Climate Control** **Key Markets**

Agriculture  
Air conditioning  
Construction Machinery  
Food & beverage  
Industrial machinery  
Life sciences  
Oil & gas  
Precision cooling  
Process  
Refrigeration  
Transportation

## **Key Products**

Accumulators  
Advanced actuators  
CO<sub>2</sub> controls  
Electronic controllers  
Filter driers  
Hand shut-off valves  
Heat exchangers  
Hose & fittings  
Pressure regulating valves  
Refrigerant distributors  
Safety relief valves  
Smart pumps  
Solenoid valves  
Thermostatic expansion valves



## **Electromechanical** **Key Markets**

Aerospace  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Paper machinery  
Plastics machinery & converting  
Primary metals  
Semiconductor & electronics  
Textile  
Wire & cable

## **Key Products**

AC/DC drives & systems  
Electric actuators, gantry robots & slides  
Electrohydraulic actuation systems  
Electromechanical actuation systems  
Human machine interface  
Linear motors  
Stepper motors, servo motors, drives & controls  
Structural extrusions



## **Filtration** **Key Markets**

Aerospace  
Food & beverage  
Industrial plant & equipment  
Life sciences  
Marine  
Mobile equipment  
Oil & gas  
Power generation & renewable energy  
Process  
Transportation  
Water Purification

## **Key Products**

Analytical gas generators  
Compressed air filters & dryers  
Engine air, coolant, fuel & oil filtration systems  
Fluid condition monitoring systems  
Hydraulic & lubrication filters  
Hydrogen, nitrogen & zero air generators  
Instrumentation filters  
Membrane & fiber filters  
Microfiltration  
Sterile air filtration  
Water desalination & purification filters & system



## **Fluid & Gas Handling** **Key Markets**

Aerial lift  
Agriculture  
Bulk chemical handling  
Construction machinery  
Food & beverage  
Fuel & gas delivery  
Industrial machinery  
Life sciences  
Marine  
Mining  
Mobile  
Oil & gas  
Renewable energy  
Transportation

## **Key Products**

Check valves  
Connectors for low pressure fluid conveyance  
Deep sea umbilicals  
Diagnostic equipment  
Hose couplings  
Industrial hose  
Mooring systems & power cables  
PTFE hose & tubing  
Quick couplings  
Rubber & thermoplastic hose  
Tube fittings & adapters  
Tubing & plastic fittings



## **Hydraulics** **Key Markets**

Aerial lift  
Agriculture  
Alternative energy  
Construction machinery  
Forestry  
Industrial machinery  
Machine tools  
Marine  
Material handling  
Mining  
Oil & gas  
Power generation  
Refuse vehicles  
Renewable energy  
Truck hydraulics  
Turf equipment

## **Key Products**

Accumulators  
Cartridge valves  
Electrohydraulic actuators  
Human machine interfaces  
Hybrid drives  
Hydraulic cylinders  
Hydraulic motors & pumps  
Hydraulic systems  
Hydraulic valves & controls  
Hydrostatic steering  
Integrated hydraulic circuits  
Power take-offs  
Power units  
Rotary actuators  
Sensors



## **Pneumatics** **Key Markets**

Aerospace  
Conveyor & material handling  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Transportation & automotive

## **Key Products**

Air preparation  
Brass fittings & valves  
Manifolds  
Pneumatic accessories  
Pneumatic actuators & grippers  
Pneumatic valves & controls  
Quick disconnects  
Rotary actuators  
Rubber & thermoplastic hose & couplings  
Structural extrusions  
Thermoplastic tubing & fittings  
Vacuum generators, cups & sensors



## **Process Control** **Key Markets**

Alternative fuels  
Biopharmaceuticals  
Chemical & refining  
Food & beverage  
Marine & shipbuilding  
Medical & dental  
Microelectronics  
Nuclear Power  
Offshore oil exploration  
Oil & gas  
Pharmaceuticals  
Power generation  
Pulp & paper  
Steel  
Water/wastewater

## **Key Products**

Analytical Instruments  
Analytical sample conditioning products & systems  
Chemical injection fittings & valves  
Fluoropolymer chemical delivery fittings, valves & pumps  
High purity gas delivery fittings, valves, regulators & digital flow controllers  
Industrial mass flow meters/ controllers  
Permanent no-weld tube fittings  
Precision industrial regulators & flow controllers  
Process control double block & bleeds  
Process control fittings, valves, regulators & manifold valves



## **Sealing & Shielding** **Key Markets**

Aerospace  
Chemical processing  
Consumer  
Fluid power  
General industrial  
Information technology  
Life sciences  
Microelectronics  
Military  
Oil & gas  
Power generation  
Renewable energy  
Telecommunications  
Transportation

## **Key Products**

Dynamic seals  
Elastomeric o-rings  
Electro-medical instrument design & assembly  
EMI shielding  
Extruded & precision-cut, fabricated elastomeric seals  
High temperature metal seals  
Homogeneous & inserted elastomeric shapes  
Medical device fabrication & assembly  
Metal & plastic retained composite seals  
Shielded optical windows  
Silicone tubing & extrusions  
Thermal management  
Vibration dampening

ENGINEERING YOUR SUCCESS.



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