CARTEN®

High Performance Valves & Flow Solutions

# SPDSA Series

## Ultra-High Purity Pneumatic Diaphragm Valves

For High Purity Gas and Chemical Distribution Systems

# High Purity Pneumatically Operated Diaphragm Valves

## Product Applications

This SPDSA (Diaphragm Design) is intended for bulk gas distribution where containment, cleanliness and purity are of the utmost importance. Applications for this valve include:

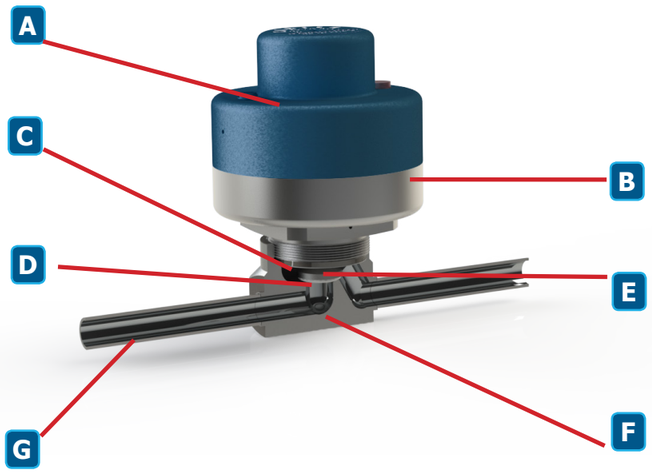
- High-purity gas system control valves
- High-purity gas control for point-of-use service
- Superior containment and cleanliness for your most critical valve applications
- Suitable for inert and most toxic gases
- Valve Manifold Boxes and Valve Manifold Panels

## Product Features

- Diaphragm Design for Ultra-High Purity and Long Cycle Life
- High-Purity Stainless/PCTFE Construction
- Elgiloy Tied-Diaphragm for Maximum Flow & High Life Cycle - 1/2”, 3/4” and 1”
- Springless, Packless Design for High Purity
- No Internal Particle Shedding Components
- Electropolished Wetted Surfaces to 10 Ra Max (Optional surface finishes available)
- Maximum Leak Rate of 1x $10^{-9}$ scc/s He for Diaphragm Seal and PCTFE Seat Insert*
- Available with Purge Connections and Integral Purge Valves
- Available as bottom port (ASPDS Range) and multi-port T-Valves ( SPDST Range )
- Assembled and Tested in CLASS 10 Cleanroom
- Valve Bodies and Tube Stubs are Serialized for Material Certification
- Inboard and Across the Seat Leak Tested with 100% Helium
- Cleaned For High-Purity Gas Service
- Purged and Final Packaged in CLASS 1 Cleanroom. Double-Bag Packaging with N Gas Environment Supplied from Liquid Source

*Excluding Permeation of PCTFE

## Material of Construction




| Item | Part |
|---|---|
| A | Aluminium, SS 303/304, Viton® |
| B | Bonnet Stainless Steel |
| C | Elgiloy Diaphragms (Tied-Diaphragms) |
| D | Seat PCTFE |
| E | Seat Holder 316L St. St. |
| F | Body Barstock 316L St. St. |
| G | Tube Ends 316L St. St. |

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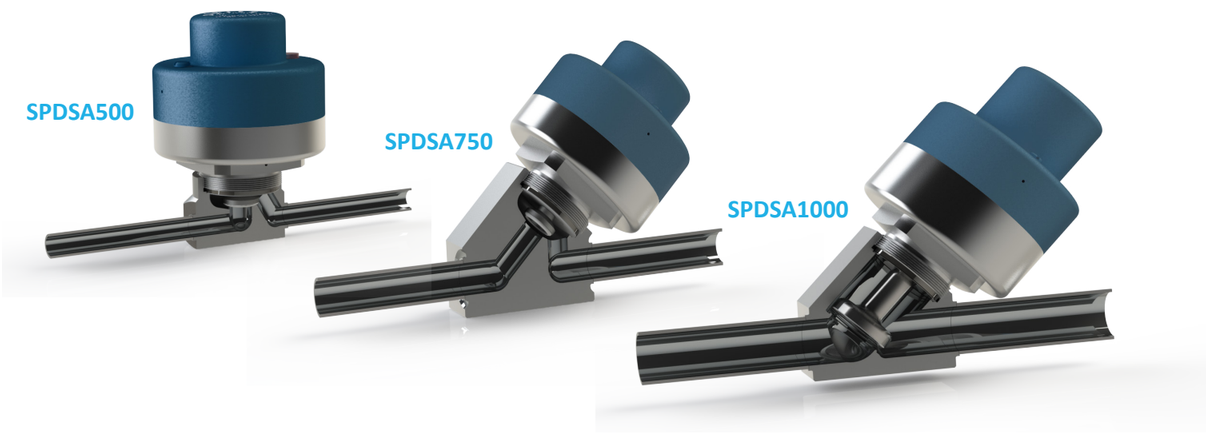
## SPDSA Series Technical Specifications

| | | | | | |
|---|---|---|---|---|---|
| **Maximum Operating Pressure** | | **SPDSA Series** | | **Vacuum to 250 psi. (17.23 BAR) See below for pneumatic actuation pressures** | |
| **Maximum Operating Temperature** | | **PCTFE Seat*** | | **–30°C (-22°F) to 82°C (180°F) 302°F (150°C)** | |
| Inch Model | | Control Function | Cv | Cycle Life** | Actuation Pressure |
| Description | Line Size (Body) Size | | | | |
| SPDSA 500 | .500 (.500) | NO, NC | 2.50 | 100,000 | 65-100PSIG (4.48-6.9BAR) |
| SPDSA 755 | .750 (.500) | NO, NC | 2.60 | 100,000 | 65-100PSIG (4.48-6.9BAR) |
| | | | | | |
| SPDSA 750 | .750 (.750) | NO, NC | 3.10 | 100,000 | 65-100PSIG (4.48-6.9BAR) |
| SPDSA 1075 | 1.000 (.750) | NO, NC | 3.10 | 100,000 | 65-100PSIG (4.48-6.9BAR) |
| | | | | | |
| SPDSA 751*** | .750 (1.000) | NO<br>NC | 5.50 | 50,000 | 80-100PSIG (5.51-6.9BAR)<br>90-100PSIG (6.20-6.9BAR) |
| SPDSA 1000*** | 1.000 (1.000) | NO<br>NC | 6.50 | 50,000 | 80-100PSIG (5.51-6.9BAR)<br>90-100PSIG (6.20-6.9BAR) |
| **Helium Leak Test** | | **Inboard**<br>**Across the Seat**<br>**Outboard Pressure Test** | | **<1 x $10^{-9}$ scc/s He (1 x $10^{-10}$ Pa-M³/s)**<br>**<1 x $10^{-9}$ scc/s He (1 x $10^{-10}$ Pa-M³/s)**<br>**<1 x $10^{-6}$ scc/s He (1 x $10^{-7}$ Pa-M³/s)** | |
| **Cleanliness and Packaging** | | **Assembled and tested in Class 10 Cleanroom. Purged and Final Packaged in Class 10 Cleanroom. Double-bag packaging with Ultra-High Purity $N^2$ gas environment.** | | | |
| **Standard Finish** | | **Electropolished to 10 Ra µin Max (0.25 µm) on all wetted surfaces** | | | |
| **Options** | | **450psi pressure rated model available for NC versions of SPDSA 500/755/750/1075**<br>**Optional surface finishes available.**<br>**Testing: particle, moisture, $O^2$, SEM, ESCA and AES on request.**<br>**Purge connections and Purge valves are available as requested.**<br>**Face seal, twin ferrule compression fittings available up to 1” lines.** | | | |

* For more options contact sales
**Cycle life based on minimum pressure rating, through a standardised testing of sample set under laboratory conditions
***SPDSA751 &SPDSA1000 Normally Open Pressure Rating is 150psig




Contact the Carten sales team for detailed product specification sheets on the SPDSA Series -sales@cartencontrols.com

# Order Information

**SPDSA - 750 - 065 - 065* - PV15 - NC - EPS**

| 1 | 2 | 3 | 4 | 5 | 7 | 8 |
|---|---|---|---|---|---|---|
| Series | Description (Line Size) | Inlet Connection | Outlet Connection | Purge Type | Actuator Designator | Actuator Accessories |
| SPDSA | 500 (1/2”) | 1/2” TE = 049 | 1/2” TE = 049 | PC1 - 1/4” Downstream Purge | N.C. Normally Closed | EPS Explosion Proof Proximity Sensor |
| | 755 (3/4”) | 3/4” TE = 049 | 3/4” TE = 049 | PC2 - 1/4” Up and Downstream Purge | N.O. Normally Open | AR + SOL Air Regulator and Solenoid |
| | 750 (3/4”) | 3/4” TE = 065 | 3/4” TE = 065 | PC3 - 1/4” Upstream Purge | | |
| | 1075 (1”) | 1” TE = 065 | 1” TE = 065 | PV1- 1/4” Downstream Valve | | |
| | 751 (3/4”) | 1/2” FSM FM | | PV2 - 1/4” Up and Downstream Valve | | |
| | 1000 (1”) | 1/2” FSM MS | | PV3 - 1/4” Upstream Valve | | |
| | | 3/4” FSM FM | | PC15 - 1/2” Downstream Purge | | |
| | | 3/4” FSM MS | | PC25 1/2” - Up and Downstream Purge | | |
| | | 1” FSM FM | | PC35 - 1/2” Upstream Purge | | |
| | | 1” FSM MS | | PV15 - 1/2” Downstream Valve | | |
| | | | | PV25 - 1/2” Up and Downstream Valve | | |
| | | | | PV35 - 1/2” Upstream Valve | | |

*Leave this section blank if the outlet connection is the same as the inlet connection



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