Series 3826

Application and Installation Guide

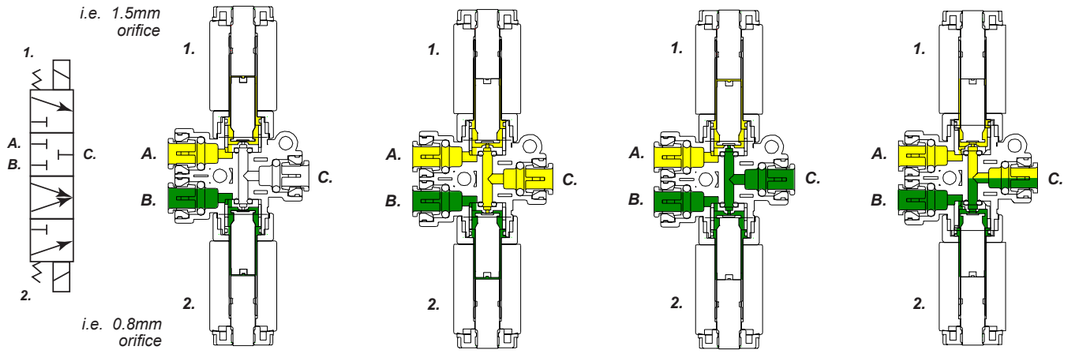
Principles of Operation and Application

OPTION 5:

Direct Acting, 3-way, 4 Position, Blocked Center, Flow Multiplication

Flow multiplication can be accomplished by tailoring orifice sizes to media flow rates, (both main valve orifices), as needed assuming the same media at ports “A” and “B”.

- Solenoids de-energized all ports are blocked.
- Energization of solenoid 1 connects port “A to port “C” at a specified flow rate dependent on orifice chosen.
- Energization of solenoid 2 connects media from port “B” to port “C” at a specific flow rate depending on orifice chosen.
- Simultaneous energization of solenoids 1 and 2 with effectively multiplies flow through port “C” by the sum of the orifice from “A”and “B”. Either solenoid can then be de-energized at any time to tailor the flow rates desired. In this way the valve acts as a digital flow control.

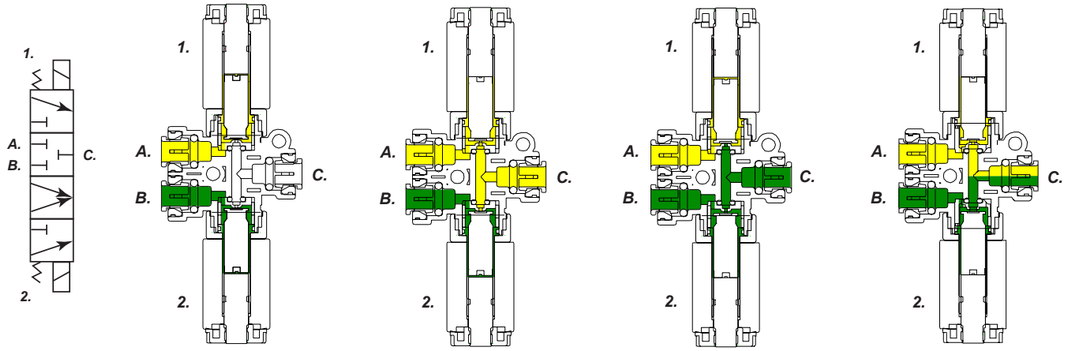


OPTION 6:

Direct Acting, 3-Way, 4 Position, Blocked Center, Mixing

Assume that two different media are plumbed to ports “A” and “B”. Selective energization of solenoid 1 and solenoid 2 flow each media through common port “C”.

- De-energization of solenoids blocks media to all ports.
- Energization of solenoid 1 connects port “A” and port “C”.
- Energization of solenoid 2 connects port “B” and port “C”.
- Simultaneous energization of solenoid 1 and 2 connect port “A” and “B” with port “C”. Simultaneous energization of solenoids effectively mixes the two medias through port “C”. This also assumes that the pressures of each media are the same.



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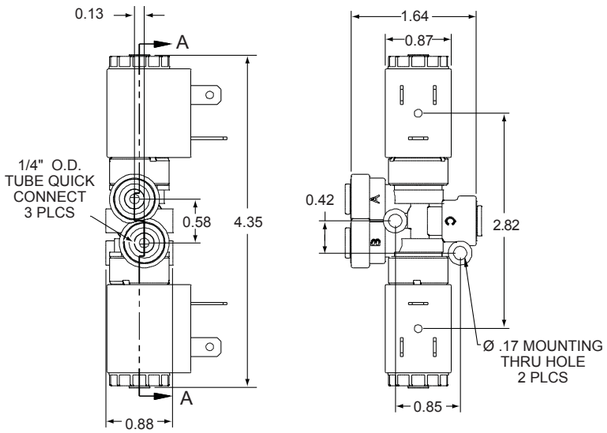
Series 3826

Application and Installation Guide

Series 3826 Multiple Function Solenoid Valves

Mounting Template



Technical Data

Function: 3/3 way, 4/3 way, or 3/4 way normally open or closed, direct acting. Diverting or mixing

Port Sizes: 1/4" O.D. JG (John Guest) tube cartridges (3x)

Orifice Sizes/ Flow Factor:

0.6mm / .025 Cv	0.8mm / 0.03 Cv
1.0mm / .05 Cv	1.2mm / .065 Cv
1.5mm / .08 Cv	2.0mm / .17 Cv
2.4mm / .24 Cv	3.0mm / .31 Cv

Pressure Range: Vacuum to 150 psi (depending on orifice size)

Temp. Range: (Fluid 90°C max.) Ambient - 10 to +55°C

Response Time: 14-20 ms

Materials: Operator: 400 Series Stainless and Brass tube standard (400 and 300 Stainless tube available on request)
Shading Ring: Copper standard
Springs: 300 Series Stainless
Seals: Viton, Nitrile, EPDM standard (Chemraz® available on request)
Valve Body: DuPont® Celcon GB25 Acetal resin
Fittings: DuPont® Celcon GB25 Acetal resin

Media: Air, water, potable water, light oils (consult factory for chemical compatibility)

Mounting: Ø.175" mounting holes, 2 places

Coil Data: Glass filled nylon encapsulation (Class F, continuous duty)
DIN spades or flying lead 5 watt standard
(other wattages available on request)
Voltage: 6, 12, 24 VDC
12, 24, 120, 220, 240 VAC 50/60 Hz
Voltage Tolerance: +/- 10%

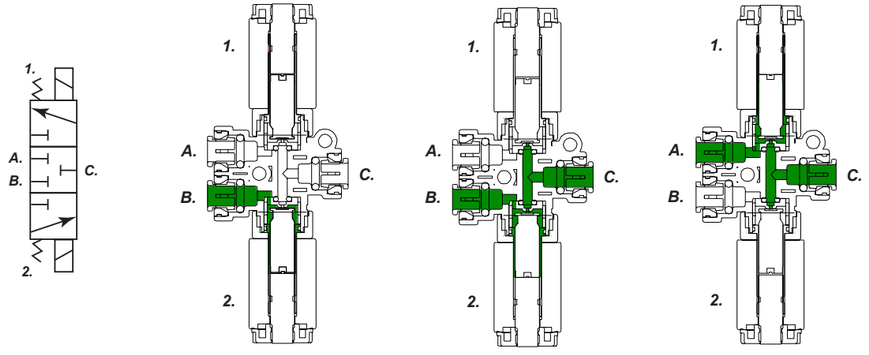
Principles of Operation and Application

OPTION 1:

Direct Acting, 3-Way, 3 Position, Blocked Center, Feed and Bleed

This version of the 3826 is made to fix or change position and or pressure applied to a single acting linear actuator.

- Both solenoids de-energized, pressure enters the valve through port “B” and is blocked. Ports “A” and “C” are also blocked.
- Energize solenoid 2 and pressure flows from “B” to “C” filling the actuator.
- De-energization of solenoid 2 blocks the pressure in the actuator holding its position.
- Energizing solenoid 1 connects port “C” with port “A”, relieving the pressure in the actuator and dropping the actuator position.
- The solenoids can be alternately energized and de-energized to attain precise positioning of the actuator. Pressure can then be used in conjunction with closed loop sensing and a comparator circuit.



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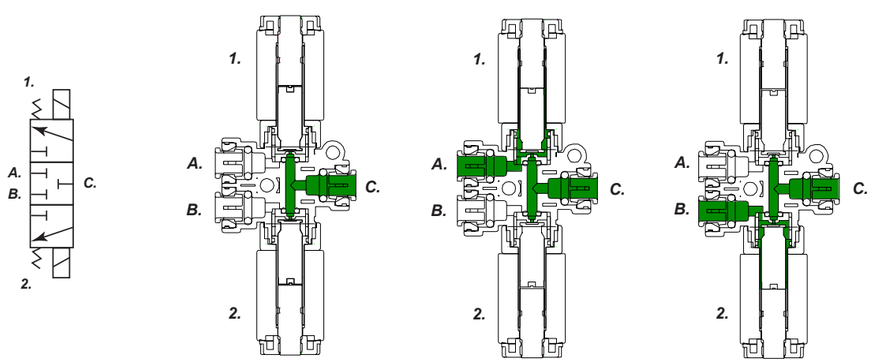
Principles of Operation and Application

OPTION 2:

Direct Acting, 3-Way, 3 Position, Blocked Center, Diverting

This valve is made to control a single media and divert it into two different locations. Media is presented to port "C" and diverted to ports "A" and "B".

- Pressure / media enters through port “C” and is normally blocked.
- Energization of solenoid 1 connects port “C” to port “A”.
- De-energization of solenoid 1 blocks media flow once again.
- Energization of solenoid 2 connects port “C” to port “B” effectively diverting the same media to another location.

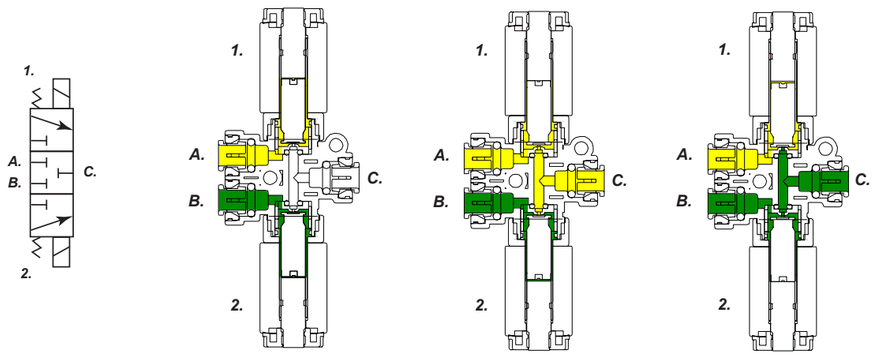


OPTION 3:

Direct Acting, 3-Way, 3 Position, Blocked Center, Mixing (or Function)

This valve is made to control two separate and distinct medias. The two medias will be presented to ports “A” and “B” separately.

- Pressure/media entering through ports “A” and "B" is normally blocked.
- Energization of solenoid 1 connects port “A” to port “C”.
- De-energization of solenoid 1 blocks media flow once again.
- Energization of solenoid 2 connects port “B” to port “C”.
- De-energization of solenoid 2 blocks media flow once again



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Application and Installation Guide
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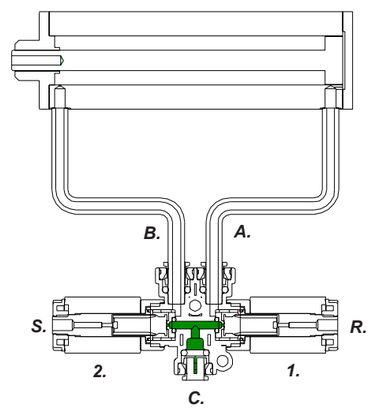
Principles of Operation and Application

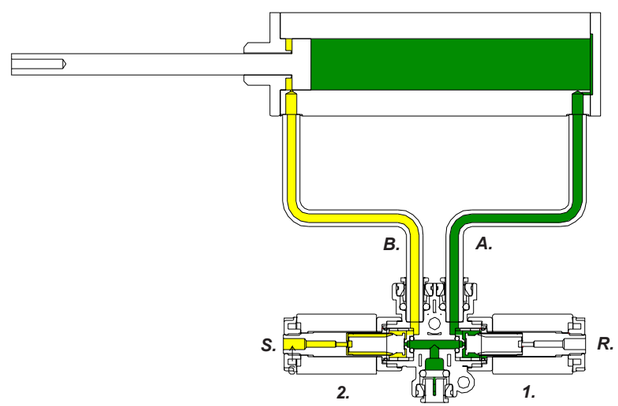
OPTION 4:

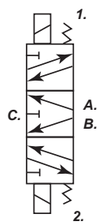
Direct Acting, 4-Way, 3 Position, Exhaust Center, Directional Control

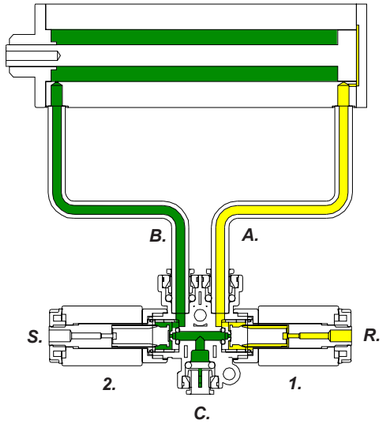
This configuration is most often used to control the flow of air to a double acting, linear actuator. The valve features an exhaust middle position.

- Solenoid 1 and solenoid 2 are de-energized; pressure is blocked on port "C". Ports "B" and "A" are connected to exhaust (atmosphere).
- Solenoid 1 is energized, pressure is connected from port "C" to port "A". Air from the actuator is then forced through port "B" to the exhaust port "S" to atmosphere.
- When solenoid 2 is energized, pressure is connected from port "C" to port "B" shifting the actuator into it other position. The pressure trapped in the downstream side of the actuator travels through the "A" port to exhaust port "R" to atmosphere.









Caution

Excessive use of pipe sealant can cause clogging and leakage. Please follow ASME standards for applying pipe sealant and tape. Do not use media, voltage or pressures other than that recommended by Spartan Scientific Inc. as valve malfunction could result. Misuse or misapplication of Spartan solenoid valves could cause serious bodily injury or property damage.

Warranty Information

Solenoid valves and all other products manufactured by Spartan are warranted by Spartan to be free from defects in material and workmanship for a period of 1 year from the date of purchase. Spartan's obligation under this warranty is limited to repair or replacement of the defective product or refund of the purchase price paid solely at the discretion of Spartan and provided such defective product is returned to Spartan freight prepaid and upon examination by Spartan such product is found defective. This warranty shall be void in the event that the product has been subject to misuse, misapplication, improper maintenance, modification or tampering. This warranty is expressed in lieu of all other warranties, expressed or implied from Spartan Scientific, Inc., representatives or employees.

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