Valco Instruments Co. Inc.

Implementation of the Valco Two Position Air Actuator

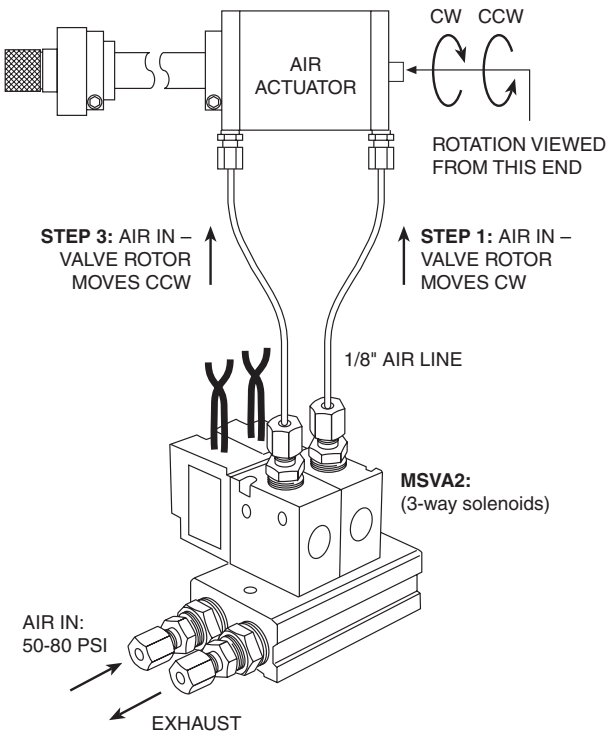
The recommended implementation approach for all VICI two position valves is to pulse a pair of 3-way solenoid valves (Model 310 or MSVA2) or a 5-way 3-position solenoid (V-SV-S53). This applies air to the actuator only during switching, and alleviates problems associated with continous air pressure. The pulsed operation simulates switching by hand while providing the advantages of powered operation.

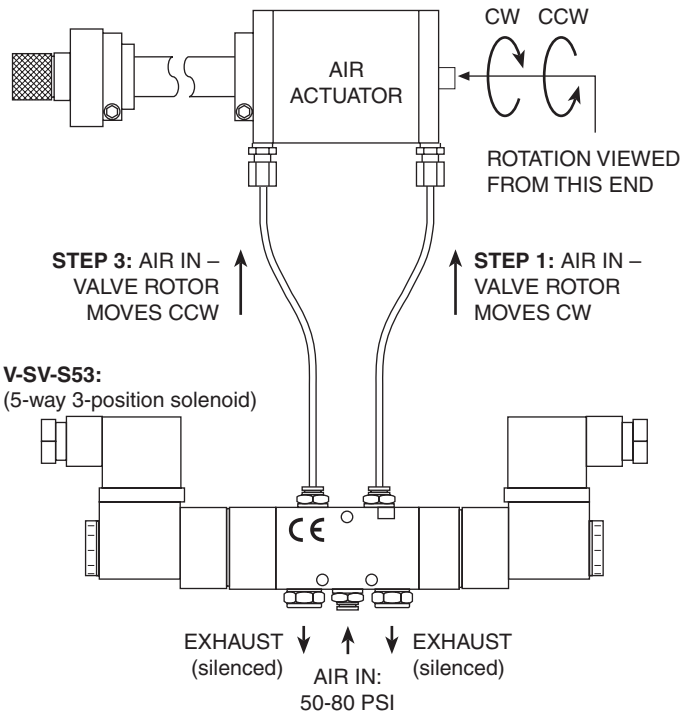
An air-actuated valve is often controlled by signals supplied by microprocessor-based instruments, data systems, or valve programmers. An interface such as Valco's Digital Valve Interface (DVI) can be used along with low-power negative true logic level signals or with data system contact closures.

If your solenoid assembly doesn't look like either of the units in the illustration below, it is likely that you have an older product, referenced in Technical Note 405.

PROCEDURE: (Requires two external events.)

1. Energize solenoid A – valve rotor rotates clockwise. *A 2-second delay is recommended before step 2.*
2. De-energize solenoid – air pressure stops.
3. Energize solenoid B – valve rotor rotates counterclockwise. *A 2-second delay is recommended before step 4.*
4. De-energize solenoid – air pressure stops.





Recommended Actuator Air Pressure

CAUTION:

We recommend bottled instrument air or nitrogen. If plant air from a compressor must be used, an oil separator and water dryer are required.

The optimum actuator air pressure depends upon the type of valve in use. Beyond that, variances between like valves and actuators mean that some turn easier than others. General pressure ranges are indicated in the table below, but essentially the optimum pressure for any particular valve/actuator combination is that pressure which yields a reasonable switching time (nominally 0.5 seconds). In practice, it is better to err on the side of too much pressure rather than too little, but as the pressure increases so does the potential for problems associated with the optional 4-way operation described on the next page.

Valve type	Suggested air pressure
P	50-60 psi
UW	40-50 psi*
W	30-40 psi

Alternate Implementation for Two Position Valves

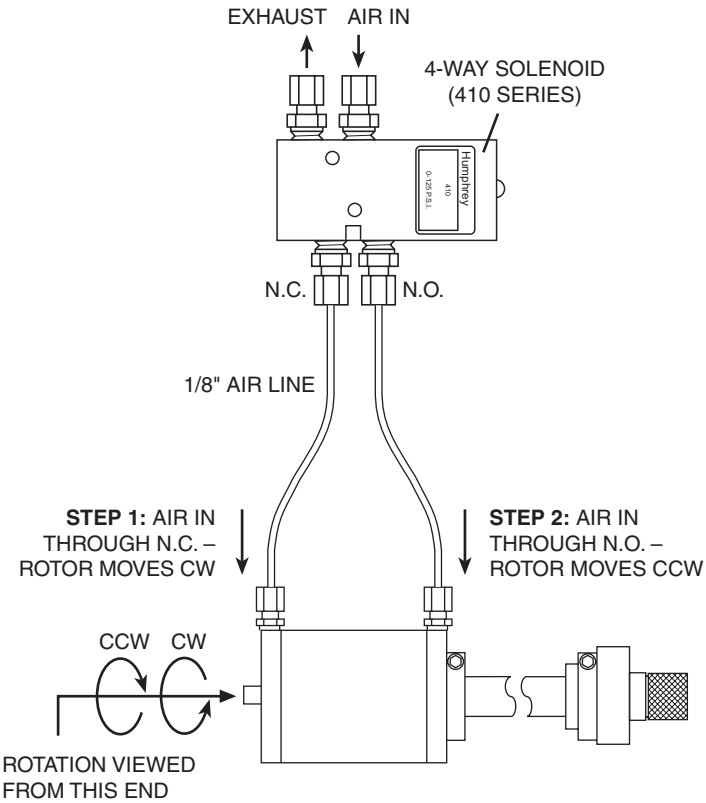
The use of two 3-way solenoid valves is the recommended implementation approach for all VICI two position valves. However, it is possible to use a single 4-way solenoid (410 or V-SV-S52). The 410 is shown below; for a V-SV-S52, refer to the schematic drawing on the body of the solenoid.

CAUTION:

In this alternative implementation, actuation pressure in excess of 60 psig may cause the valve to leak.

PROCEDURE:
(Requires one external event.)

1. Energize solenoid – air in through Normally Closed port. Valve rotor rotates clockwise.
2. De-energize solenoid – air in through Normally Open port. Valve rotor rotates counterclockwise.



*High pressure (2000-5000 psi UW valves may require 60-80 psi)

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