

SILstroke-3c



Fault-Tolerant "SOV" Design FOR CONTROL VALVES

**SEPARATE
PILOT
SUPPLY**



**FOR
POSITIONER
OPERATED
CVs**

THE QUESTIONS??

For each Control Valve (CV) application, there are these two age old questions to be answered --- Is the solenoid (SOV) stuck open? – and How long before it fails, shutting down the process?

CONTROL VALVES IN RELIABILITY SERVICES

Because of the application (*the SOV is located between the discharge of the positioner and the CV's diaphragm input*) the SOV is never tested. If any attempt to test the SOV should occur, partial CV closure is inevitable with the de-energizing of the SOV. Having another SOV in parallel does double the changes to have a SOV in supply mode – BUT – it also double the changes for having a SOV in the venting mode. There has to be more intelligence within the SOV arrangement to resolve the aforementioned CV reliability questions.

CONTROL VALVES IN ESD APPLICATIONS

For CVs that are used as part of the Safety Instrumented Function (SIF) – The SOV has to be tested to increase the Proof Test Intervals (TI). Within SIF loops the SOV is controlled by the ESD System, not the control system (BPCS). To test the SOV without impacting the process, requires an SOV arrangement that will allow for the cycling of individual SOVs without changing the CV position.

Because of the modulation of the CV's position, the CV does not have to be partial stroke tested (PST), but the SOV needs to be cycle if the CV's TI is to greater then a few weeks or months.

WHAT IS THE BEST SOV ARRANGEMENT?

The only arrangement that mitigates both spurious closure the CV and allowing closure on demand is a 2 out of 4 SOV arrangement such as the SILstroke-3c design (*See the back*).

"CV" APPLICATIONS

**PATENTED 2oo4D SOV ARRANGEMENT
CLASS I, DIV 2, Grp A-D**

FAULT TOLERANT & FAIL SAFE

**BY-PASS - SOVs A&B or C&D
(NEVER ALL FOUR SOVs)**

POWER: 18 to 28VDC; 450ma

NO PROGRAMMING

SIL 3 CERTIFIED by TUV

Built-In Local SOV Testing

SafePlex Systems, Inc.

**10801 Hammerly Blvd. Suite 242
Houston, Texas 77043**

PHONE: 832.582.7029

FAX: 832.582.7676

E-MAIL: sales@safplexsystems.com

SILstroke-3c



SafePlex Systems, Inc.
Protection, Solutions, Services, Integrity

No Single Dangerous SOV Failure - Fault Tolerant

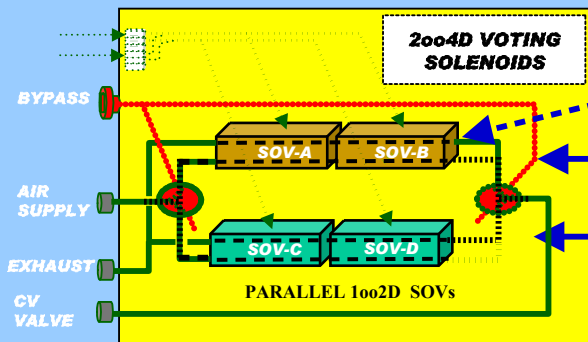
SILstroke-3c OPERATIONS

SOVs in a 2oo4D arrangement masks all single failures, both dangerous and spurious. The arrangement shown below illustrates how SILstroke-3c is both a fault-tolerant and fail safe design. The parallel paths provide the fault-tolerance, and the series SOVs provide the fail safe aspect. For maintenance, the by-pass valve will by-pass the upper or lower SOV set while the positioner controls the CV the remaining SOV set. With its parallel 1.7 Cv air paths, the SILstroke-3c solution meets the needs of small or large CV valves.



The series 1oo2 arrangement of the SOVs mitigates all suck open failures of any SOV.

The paralleled 1oo2 arrangement of the SOVs mitigates all spurious CV closure of any SOV closure.



IMPORTANT NOTICE

SILstroke-3c SOVs are arranged with:

- Dual Air Supply Paths
- Dual Venting Paths

SPECIFICATIONS

POWER: 450ma at 18 to 28VDC
TEMPERATURE: 0 to 60°C
AIR CONNECTIONS: 3/8"
AIR SUPPLY - PILOT: 15 to 100 PSIG
AIR SUPPLY - LOAD: 0 to 115PSIG

SOV TESTING

- Testing of the SOVs can be executed locally with the SILstroke-3 four individual SOV pushbuttons, or with the local "Test" key switch.
- Remote SOV testing via a MODBUS RS 485 serial link is built in and an optional Ethernet-TCP link supporting MODBUS or OPC is available.

SafePlex Systems, Inc.
10801 Hammerly Blvd. Suite 242
Houston, Texas 77043

PHONE: 832.582.7029
FAX: 832.582.7676
E-MAIL: sales@safeplexsystems.com