



CROSBY JBS-E SERIES SIL 3 CAPABLE PNEUMATIC ACTUATED RELIEF VALVE DIRECT SPRING PRESSURE RELIEF VALVES

Emergency pressure relief valve solution capable of remote actuation for on-demand overpressure protection.

GENERAL APPLICATION

The CROSBY SIL 3 Pneumatic Actuated PRV is a high performance instrumented solution providing on demand actuation as part of a Safety Instrumented System (SIS) or Controlled Safety Pressure Relief System (CSPRS) reducing the need for Emergency Blowdown valves, associated piping and additional construction cost.

In addition, the Crosby JBS-E PRV provides standard pressure relief valve protection of the system in the event of an overpressure condition.

FEATURES

- Standard direct spring operated pressure relief valve which can be opened on demand.
- Pneumatically operated actuator controlled by pressure, temperature or other remotely sensed process variable.
- Direct inline loading of valve spindle without the use of levers or cams.
- Capable of fully lifting the relief valve independent of process pressure at valve inlet.
- Remote valve lift indication.
- Operation with standard air supply.
- Rugged actuator construction utilizing Stainless materials.
- Available with a wide variety of monitoring options including TopWorx™ GO™ Switches and Fisher™ position transmitters.
- Certified as a total final element solution for SIS – SIL 3 Capable per IEC 61508

JBS-E TECHNICAL DATA⁽¹⁾

| | |
|--------------------|---|
| Sizes: | 1" D 2" to 12" W 16" 25 D 50 to 200 T 250 (EN Type) |
| Orifices: | 0.110 to 60.75 in ² [71 to 39.193 mm ²] |
| Inlet ratings: | ANSI Classes 150, 300, 600, 900, 1500, 2500 EN Classes PN 10, PN 16, PN 25, PN40 |
| Temperature range: | -450°F to 1000°F [-268°C to 538°C] |
| Set pressure: | 25 to 6000 psig [1.75 to 413.79 barg] |

ACTUATOR TECHNICAL DATA

| | |
|---|--|
| Operating pressure | |
| Maximum allowable: | 120 psig [8.3 bar] |
| Minimum recommended: | 13 psig [0.9 bar] |
| Operating temperature limits | |
| Standard construction (Viton® O-rings): | -15°F to 400°F [-26°C to 204°C] other materials on request. |
| Pressure connection | |
| | ½ NPT internal (standard) for instrument air. (consult factory for other connections) |
| Sizing | |
| | Actuators are sized according to valve selection |



CERTIFICATIONS AND TYPE APPROVALS

- SIL 3 Capable per IEC 61508
- ASME Boiler and Pressure Code Section VIII and Section XIII
- National Board of Boiler and Pressure Vessel Inspectors Capacity Certifications
- Canadian Registration Number
- Pressure Equipment Directive (2014/68/EU), (ISO-4126-1) [CE]
- China Manufacturing License [TS]
- United States Coast Guard [USCG]
- Australia [AS-1271]
- Bureau Veritas [BV] certification



1. Consult the latest Crosby J Series Catalog for details about the Crosby JBS-E Relief Valve. Viton® is a mark owned by E.I. du Pont de Nemours and Co.

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OPERATION

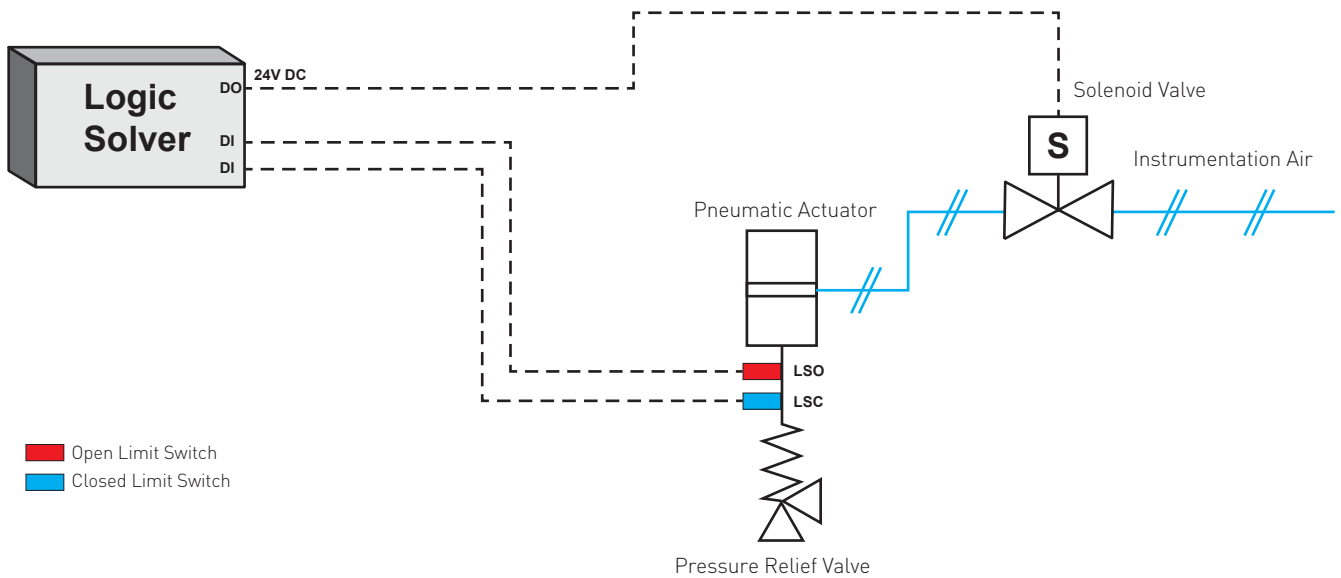
A Safety Instrumented System (SIS) is a system that processes input signals from sensors and utilizes hardware or software logic solvers to provide output signals to control an actuator of a Safety Instrumented Function (SIF).

The Crosby SIL 3 JBS-E Pneumatic Actuated Relief Valve^[1], as part of a Safety Instrumented Function (SIF), performs as a standard pressure relief valve protecting a system with the additional safety function of on demand operation by means of a controlled piston linear actuator.

In the event of fire, runaway reaction or other upset condition, system sensors will provide a signal to the logic controller (not included), which will process the information and determine the appropriate output. When needed, the controller will provide an open signal to the pneumatic actuator providing lift to the PRV elements and allowing the process to depressurize. Once the system is at a safe operating state, the actuator will be depressurized allowing the PRV to return to its normal fail closed state. See Installation Types below.

INSTALLATION TYPES (EXAMPLES)

LIMIT SWITCH WITH SOLENOID VALVE^{[2][3][5]}



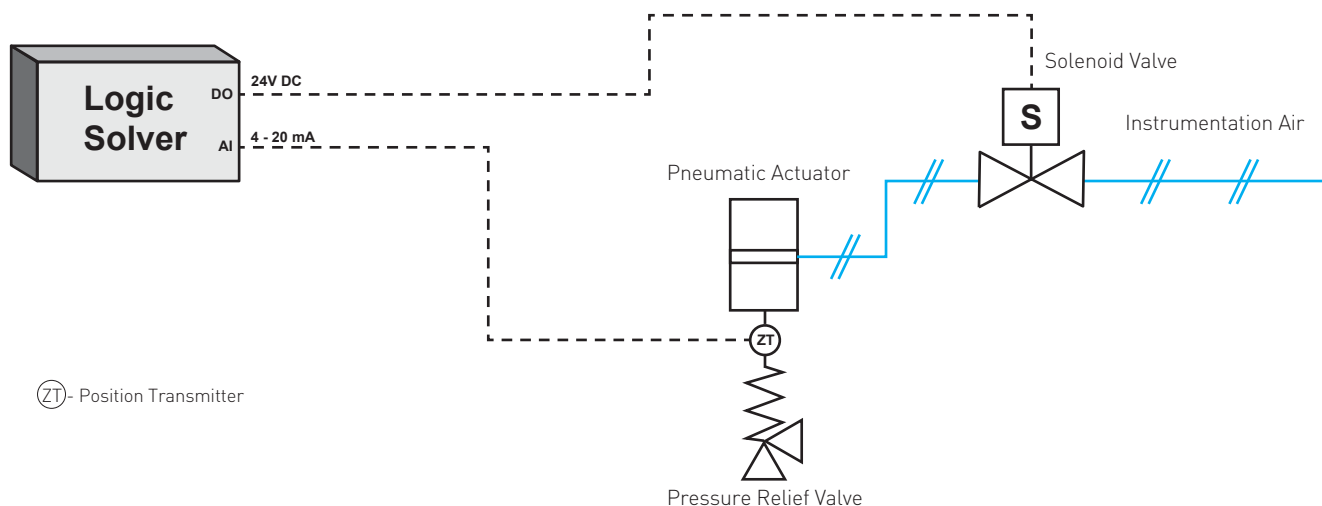
NOTE:

1. Consult the latest Crosby J Series Catalog for details about the Crosby JBS-E Relief Valve.
2. Logic Solver not provided.
3. Limit Switch and Solenoid Valves can be provided per hazardous area classification and application requirements.
4. Fisher™ FIELDVUE™ DVC 6200 shown.
5. Pressure transmitters not illustrated or provided.

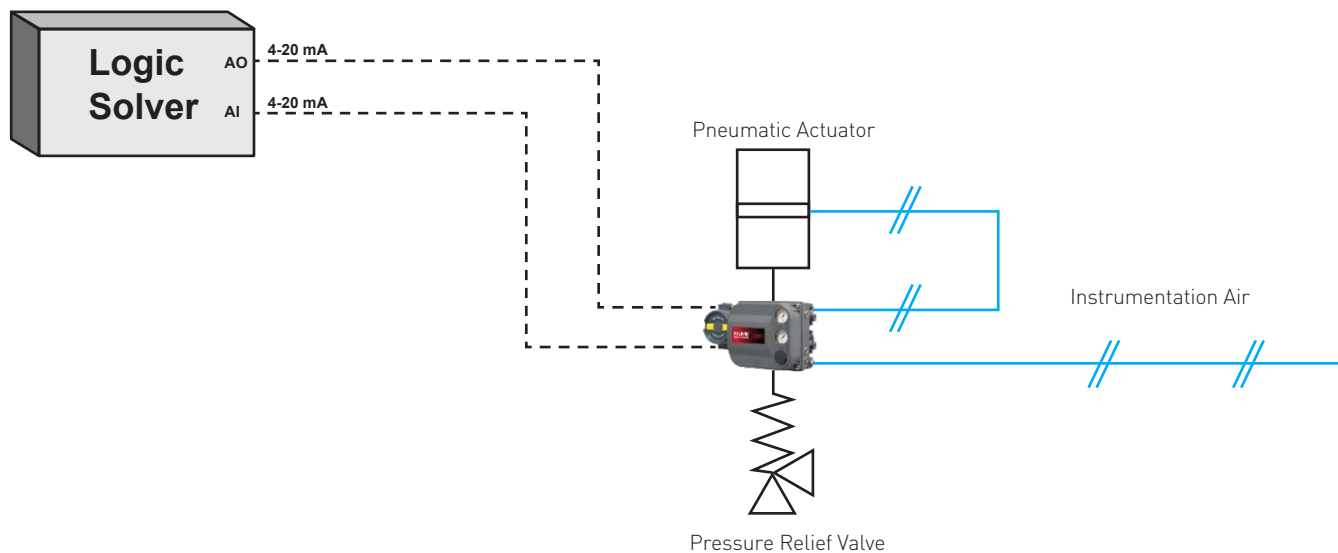
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DIRECT SPRING PRESSURE RELIEF VALVES

POSITION TRANSMITTER WITH SOLENOID VALVE⁽²⁾⁽³⁾⁽⁵⁾



VALVE POSITIONER/DIGITAL VALVE CONTROLLER⁽²⁾⁽⁴⁾⁽⁵⁾



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The manufacturer may use the mark



Revision 1.0 April 28, 2020
Surveillance Audit Due May 1, 2023



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004

Certificate / Certificat Zertifikat / 合格証

EAS 1903108 C001

exida hereby confirms that the:

JBS Actuated Pressure Relief Valve Emerson Automation Solutions Final Control US LP Stafford, TX - USA

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

**Systematic Capability: SC 3 (SIL 3 Capable)
Random Capability: Type A, Route 2_H Device**

**PFH/PFD_{avg} and Architecture Constraints
must be verified for each application**

Safety Function:
The Actuated Pressure Relief Valve will move to the open position within the specified safety time.

Application Restrictions:
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.




Evaluating Assessor


Certifying Assessor

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