Valve Automation

Pekos Valves
Pekos valve automation

Pekos Valves, has been designing and manufacturing ball valves since 1988, catering for a wide range of different industries. Pekos Valve automation division provides complete valves sizing and automation to industrial processes.

We add maximum value to tailored solutions for the most demanding applications.

Valve sizing and automation, based on customer’s requirements according to:

- Redundant configuration control.
- ATEX/SIL Classification.
- International standards for specific applications.
- Passive Fire Protection.
- Partial Stroke Test devices.
- Air tank sizing for emergency operating.

Functional Test Sheet Report

We certify that all valves are factory tested.
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<table>
<thead>
<tr>
<th>ITEM</th>
<th>TAG</th>
<th>VALVE ACTUATOR MODEL</th>
<th>ACTUATOR FAIL POSITION</th>
<th>ACTUATOR Mtg. POSITION</th>
<th>SOLENOID FILTER REGULATOR LIMIT SWITCH PARTIAL STROKE DEVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y013PA3H1BS</td>
<td>Y013PA3H1BS</td>
<td>Y013AA3H1BS</td>
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</tr>
</tbody>
</table>

**AT-33366/17 OFF SHORE PLATFORM**

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<tbody>
<tr>
<td>CYCLES TESTED:</td>
<td></td>
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</tbody>
</table>

**STATEMENTS**

- We certify that all valves are factory tested stroking time measurement. 3D dimensional design.
- State-of-the-art facilities and equipment at our customer’s disposal.

**DC. 75-02-04-PF Rev. 6 ESD AUTOMATED BALL VALVE FUNCTIONAL TEST REPORT**

- TEST & INSPECT BY: D. SANZ

**OTHERS**

- QUICK EXHAUST QEV13AE3H00S

**FUNCTIONAL TEST ACTUATOR AIR SUPPLY (bar):**

- ACTUATOR DATA
  -消费者: 384 Nm
  - 1,5
  - 24 VDC

**PST CALIBRATION**

- 15% CLOSING TRAVEL

**THIRD INSPECTION AUTHORITY**

- YES

**ACCEPTANCE**

- Is Motorized Valve Assembled, Tested, & Inspected to Specifications?
Actuators

Pekos Valves automation division offers all types of actuator assembly; 0-90° rotative actuators (pneumatic, hydraulic, electric, Gas over oil, Direct Gas, etc.).

- **RACK & PINION**
  - Pneumatic.
  - Single / Double Acting.
  - 0-90° up to 180°.
  - Low / Medium Torque.

- **SCOTCH YOKE**
  - Pneumatic / hydraulic.
  - Single / Double Acting.
  - 0-90°.
  - High Torque.

- **VANE**
  - Pneumatic.
  - Single / Double Acting.
  - 0-90° up to 180°.
  - Low / Medium Torque.

- **ELECTRO HYDRAULIC**
  - Rack & Pinion / Scotch Yoke available.
  - Single / Double Acting.
  - 0-90°.
  - Low / High Torque.

- **ELECTRIC**
  - 0-90° up to 180° (or multiturn).
  - Power unit: 24 Vdc, 230 Vca, 400 Vac, others.
  - Control unit: 24 Vdc, 230 Vac, others.
  - Low / High torque.
Automation Parts

LIMIT SWITCH BOX
- Limit switch boxes with visual position indicators.
- Sensor Types: Mechanical / Magnetic / Inductive / Pneumatic.
- Available with ATEX (Exia, Exd, Exed) SIL certificates.
- Aluminium, stainless steel and vestamid housing covers.

POSITIONERS
Pekos Valves supplies universal positioners that provide versatility, dynamic performance, and high positioning accuracy. Assembled on top, in contact with the actuator, with the same rotary movement. Available for hazardous zones, SIL and other certificates.

<table>
<thead>
<tr>
<th>Pneumatic Positioner</th>
<th>Electro-pneumatic Positioner</th>
<th>Smart Positioner</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 15 psi signal</td>
<td>4-20 mA signal</td>
<td>Self-calibration</td>
</tr>
<tr>
<td></td>
<td>Optional, 4-20 mA feedback signal</td>
<td>Communication Protocol ; HART, Profinus and others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optional, 4-20 mA feedback signal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PST Function</td>
</tr>
</tbody>
</table>

SOLENOIDS
- In-line / NAMUR assembly according to VDI/VDE 3845 available.
- For single/double acting: 5/2 way (double acting), 3/2 (single acting).
- Working temperature range: -60°C up to +90°C.
- DC/AC available.
- Brass, Aluminium or Stainless steel body.
- IP65-IP68 Protection.
- ATEX / IECEx/FM.
- SIL.

PNEUMATIC PARTS
- Pneumatic Valves 2/2, 3/2, 5/2,5/3.
- Filter Regulator.
- Booster.
- Quick Exhaust.
- Thermal Fuse (Fire protection).
- Pressure Switches.
- Relief valves.
- Check valves.
- Lock up valves.

EMERGENCY MANUAL OVERRIDE
Available for single and double acting actuators. The assembly location for rack & pinion is between the actuator and the valve. The emergency manual override devices on Scotch Yoke Actuators are integrated inside the actuator by the manufacturer.
Valve automation setting parameters

<table>
<thead>
<tr>
<th>DETECTION / TEST DEVICES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LIMIT SWITCH - SENSOR TYPES</td>
<td></td>
</tr>
<tr>
<td>SIL</td>
<td></td>
</tr>
<tr>
<td>ATEX</td>
<td></td>
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<tr>
<td>Partial Stroke Test</td>
<td></td>
</tr>
<tr>
<td>POSITIONERS</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>ACTUATORS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEUMATIC / HYDRAULIC / ELECTRIC</td>
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<tr>
<td>SIL</td>
<td></td>
</tr>
<tr>
<td>ATEX</td>
<td></td>
</tr>
<tr>
<td>STROKING TIMES</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTROL PANEL TYPES &amp; REQUIREMENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SIL</td>
<td></td>
</tr>
<tr>
<td>ATEX</td>
<td></td>
</tr>
<tr>
<td>STROKING TIMES</td>
<td></td>
</tr>
<tr>
<td>DIFFERENT CONTROL CONFIGURATION AVAILABLE</td>
<td></td>
</tr>
</tbody>
</table>

| MANUAL OVERRIDE |  |
# SOLENOID CONFIGURATION

## 1oo1 CONFIGURATION
Only 1 solenoid
3/2 Solenoid-Single Acting
5/2 Solenoid, Monostable – Double Acting

<table>
<thead>
<tr>
<th>SOV A</th>
<th>ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SINGLE ACTING</td>
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<tr>
<td>ON</td>
<td>OPEN</td>
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<tr>
<td>OFF</td>
<td>CLOSE</td>
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<tr>
<td></td>
<td>DOUBLE ACTING</td>
</tr>
<tr>
<td>ON</td>
<td>OPEN</td>
</tr>
<tr>
<td>OFF</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

## 1oo2 REDUNDANT CONFIGURATION
2 solenoids connected in series - single acting

**SAFETY**
The air has one way to reach the actuator

<table>
<thead>
<tr>
<th>SOV A</th>
<th>SOV B</th>
<th>ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
<td>OPEN</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>CLOSE</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>CLOSE</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

## 2oo2 REDUNDANT CONFIGURATION
2 solenoids connected in parallel - single acting

**AVAILABILITY**
The air has two ways to reach the actuator

<table>
<thead>
<tr>
<th>SOV A</th>
<th>SOV B</th>
<th>ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
<td>OPEN</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>OPEN</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>OPEN</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>
**ESDV** Emergency Shut-Down Valve / SDV: Shut-Down Valve

- ON-OFF valve intended for emergency situations.
- Long periods of time at the same position (opened) until an emergency occurs.
- Required stroking times, especially for safety position.
- Single acting actuators. FAIL CLOSE.
- Pneumatic control configuration: 1oo1, 1oo2.
- PST. / SIL. / Hazardous locations.
- An ESDV valve is controlled by the Emergency Shut-Down system (ESD/SIS).
- A SDV valve is controlled by the Process Safety System (PSS/SIS).

**BDV** Blow Down Valves

- Valve intended for venting the pipeline.
- Assembled with an air tank to ensure valve operability during emergency situations.
- Required stroking times.
- Single acting actuators. FAIL OPEN.
- Pneumatic control configuration: 1oo1, 2oo2.
- Hazardous locations.
- A BDV valve is controlled by the Emergency Shut-Down system (ESD/SIS).

### BDV STANDARD AIR TANK PARTS

<table>
<thead>
<tr>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Switch</td>
</tr>
<tr>
<td>Gauge</td>
</tr>
<tr>
<td>Lock-Up Valve</td>
</tr>
<tr>
<td>Check Valve</td>
</tr>
<tr>
<td>Drain Valve</td>
</tr>
<tr>
<td>Safety Valve</td>
</tr>
</tbody>
</table>
**XV Process Valve**

- Process ON-OFF valve controlled by the Process Control System (PCS).
- Required stroking times.
- Single acting / double acting actuators.
- Pneumatic control configuration: 1oo1, 1oo2, 2oo2, etc.
- PST.
- SIL.
- Hazardous locations.

**MOV Motor Operated Valves**

- Process ON-OFF valve controlled by Process Control System (PCS).
- Hazardous Locations.
- SIL.
- HART, Profibus and others.
- Stroking Times.
- Manual Override.
- Different types of surface.
EN 161, EN 16678 & EN 23553 (EN 264)

CERTIFIED ASSEMBLY FOR AUTOMATIC SHUT-OFF ACCORDING TO
EN 161, EN 16678 & EN 23553 (FORMER EN 264) WORKING CONDITIONS

- EN 23553 (former EN 264): Safety and control devices for oil burners and oil-burning appliances.

Equipment description

- Solenoid Cv: 0.6.
- Quick Exhaust Cv: 6.4.
- Air supply pressure: 6 bar.
- PEKOS ball valve: Z06 TTTG PN40 DN50.
- Ambient temperature limitation: -30°C up to +80°C.

Equipment test according to EN 161 & EN 23553: Closing < 1 second (drawing).

Lloyd’s Type Approval Certificate EN 161, EN 16678 class A, & EN 23553 (former EN 264), for PEKOS ball valves, with Air Torque actuators, assembled at Pekos facilities.

PST Partial Stroke Test
Non-intrusive test for safety prevention

1° stage
Valve in working position.

2° stage
PST operation (PST set point achieved) 10% rotation.

3° stage
Valve back to working position (non-emergency situation).

Local Control Mode
Manual PST via Solenoid.

Remote Control Mode
Smart Positioner/Transmitter Communication Protocol (HART, PROFIBUS, etc.).

The PST does not affect the fluid flow (red arrow). The PST allow us to reach and maintain the required system’s SIL level.
K-MASS® Passive fire protection

**General standard requirement:**
Protect parts 1093°C/2000°F during 30 minutes. Result: After the test, the protected parts must to be operative and will keep its operational features.

- **As the fire starts:**
  K-Mass® starts to react at 85.6°C. A chemical process causes the coating to expand (intumesce). Evaporation on the surface then takes place which also has a cooling effect. The outside surface then starts to char.

- **During the fire:**
  The surface char deepens reflecting 80-90% of the heat back into the fire. More intumescenting takes place which forms a barrier which both insulates and has a cooling effect.

- **Long term exposure:**
  The 1093°C heat will penetrate the first layer so that the K-Mass® below will start to react. The next layer reacts as before. The layers react until the fire is extinguished or the material is consumed.

**WHY UL-1709**
UL-1709 shows the real behaviour of a petrochemical fire. The fire reaches extremely high temperatures in a very short period of time.

**K-MASS APPLICATION TYPES**

**SURFACE COATING:**
K-Mass® is applied directly over all external surfaces of the parts which are going to be protected against the fire. The coating is fixed to the surfaces permanently. This protection systems allows to perform any kind of maintenance operations.

**MODULAR SYSTEM**
The modular system K-GUARD® consists of two parts which cover and protect the equipment. Both parts are made 100% of K-MASS® and are adapted to the external shape of the equipment, reducing all the possible gaps between protected parts and K-MASS®. K-GUARD allows to perform any kind of maintenance.