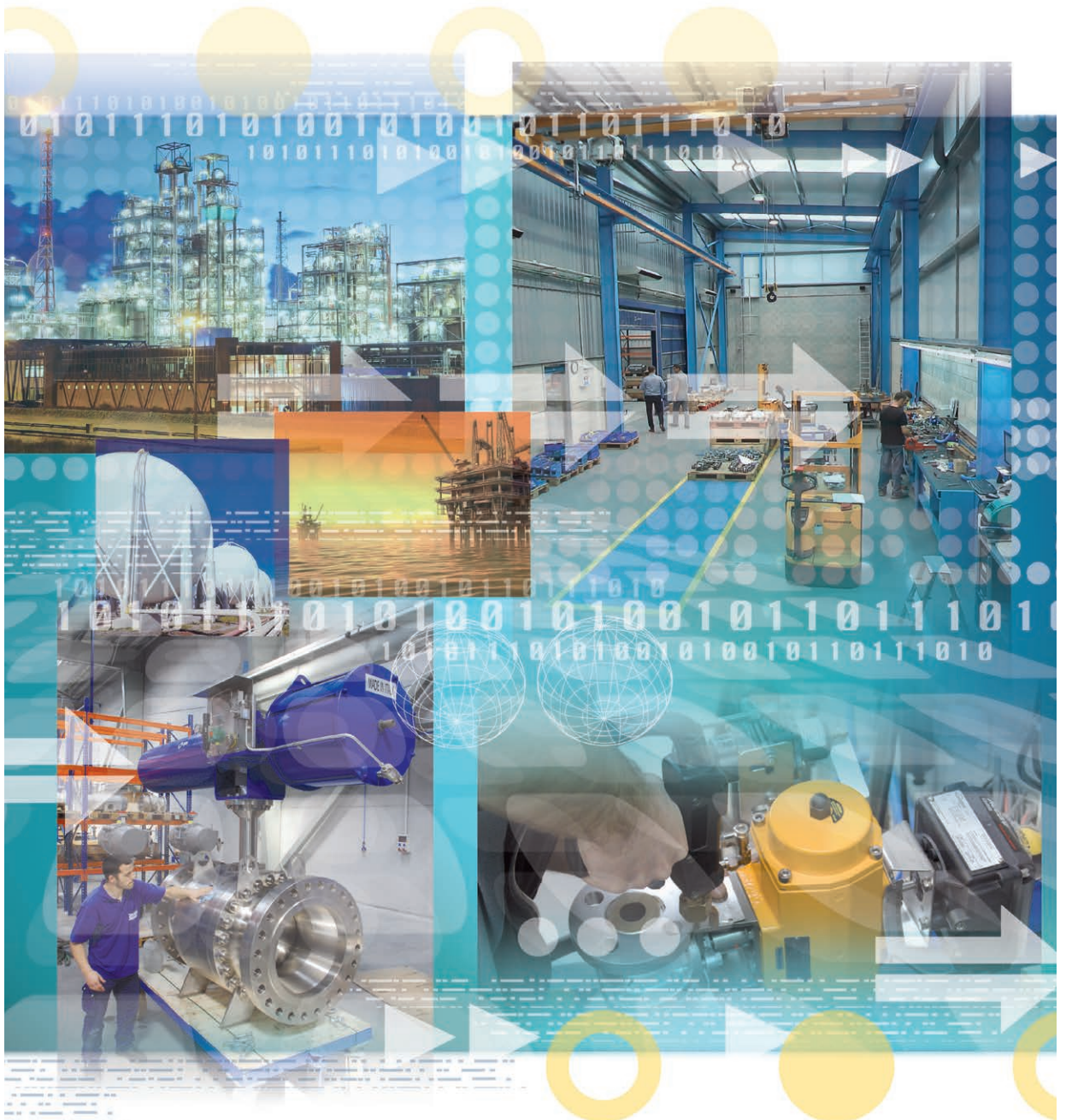




# Pekos<sup>®</sup>

AUTOMATION



Pekos valve automation







# Pekos valve automation



More than 300 sq./m exclusively allocated to for valves automation, state-of-the-art facilities and equipment that allow us to handle up to 3.2 T. weights.

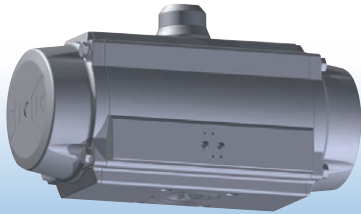
## INDUSTRIES

- OIL & GAS • CHEMICAL • PETROCHEMICAL • MINING • FOOD INDUSTRY • PAPER INDUSTRY • STEEL



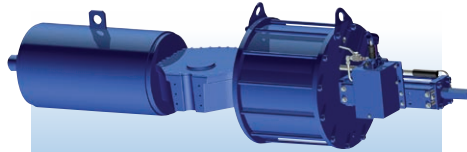
# Actuators

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



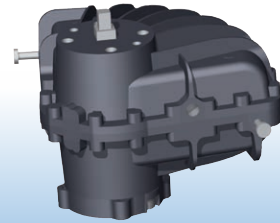
- Pneumatic.
- Single / Double Acting.
- 0-90° up to 180°.
- Low / Medium Torque.

**RACK & PINION**



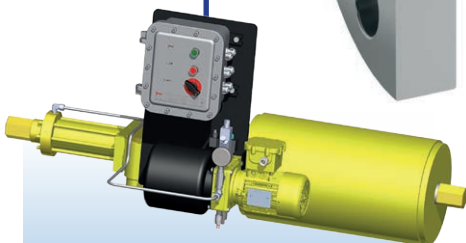
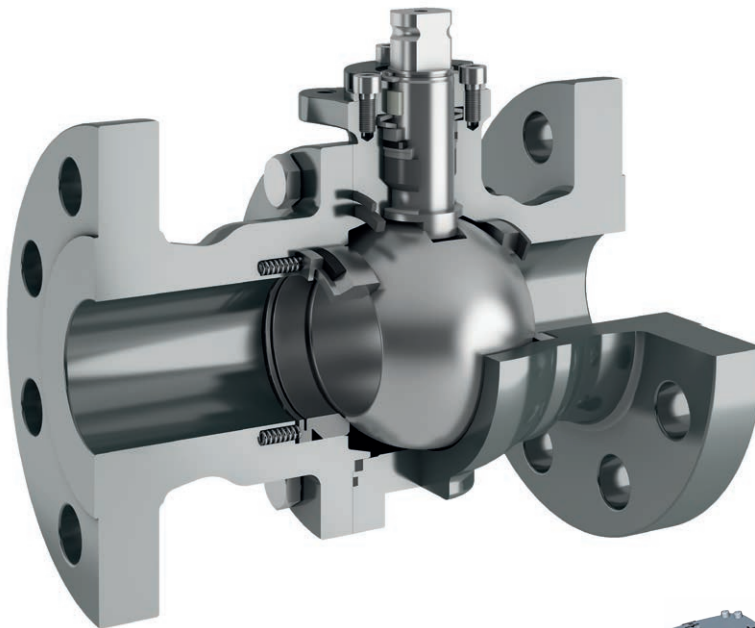
- Pneumatic / hydraulic.
- Single / Double Acting.
- 0-90°.
- High Torque.

**SCOTCH YOKE**



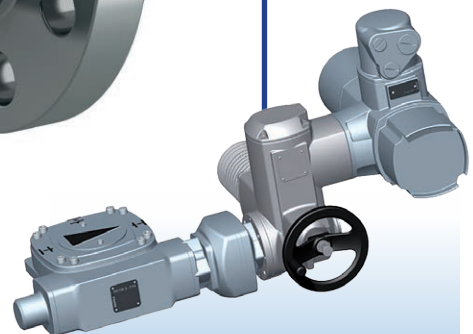
- Pneumatic.
- Single / Double Acting.
- 0-90° up to 180°.
- Low / Medium Torque.

**VANE**



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

**ELECTRO HYDRAULIC**



- 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.

**ELECTRIC**

# Automation Parts

## LIMIT SWITCH BOX

- Limit switch boxes with visual positions indicators.
- Sensor Types: Mechanical / Magnetic / Inductive / Pneumatic.
- Available with ATEX ( Eexia, Eaxd, Eaxed) 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.

| Pneumatic Positioner | Electro-pneumatic Positioner                        | Smart Positioner   |
|----------------------|---|--|
| 3 to 15 psi signal   | 4-20 mA signal<br>Optional, 4-20 mA feedback signal | Self-calibration<br>Communication Protocol HART, Profibus and others.<br>Optional, 4-20 mA feedback signal<br>PST Function |



## SOLENOIDS

- NAMUR connection 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 +80°C.
- DC/AC available.
- Brass, Aluminium or Stainless steel body.
- IP65-IP68 Protection.
- ATEX.
- 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.





## DETECTION / TEST DEVICES

LIMIT SWITCH - SENSOR TYPES

SIL

ATEX

Partial Stroke Test

POSITIONERS

## ACTUATORS

PNEUMATIC / HYDRAULIC / ELECTRIC

SIL

ATEX

STROKING TIMES

## CONTROL PANEL TYPES & REQUERIMENTS

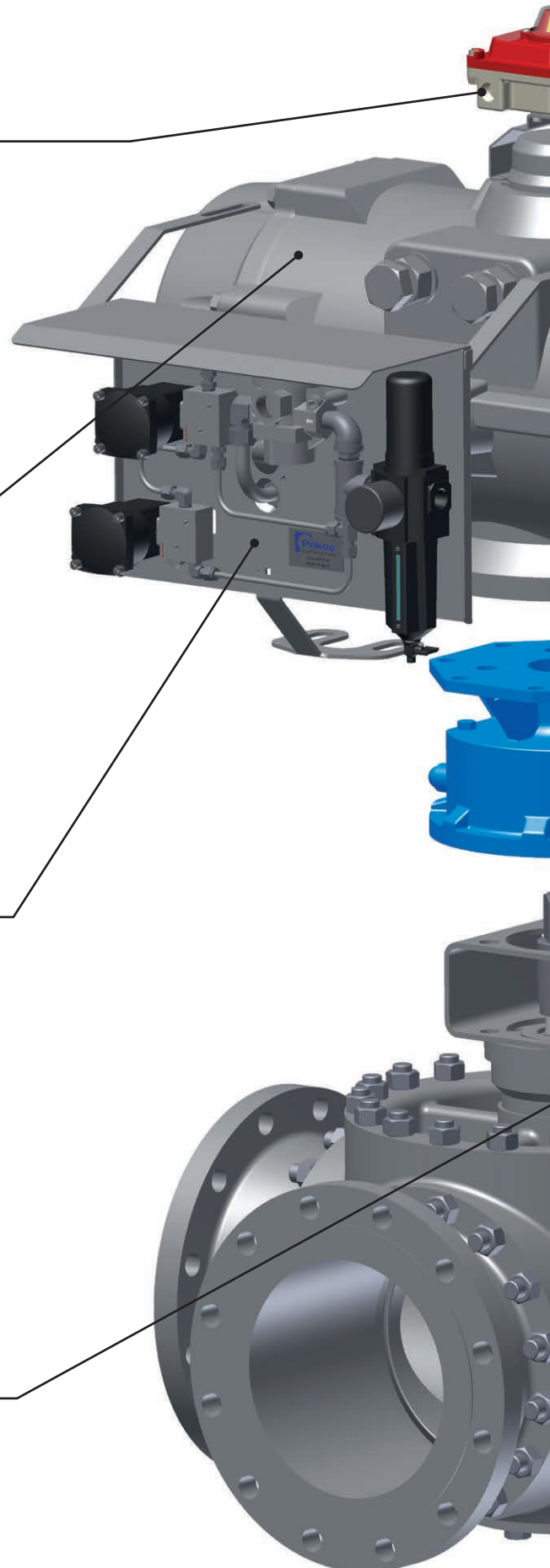
SIL

ATEX

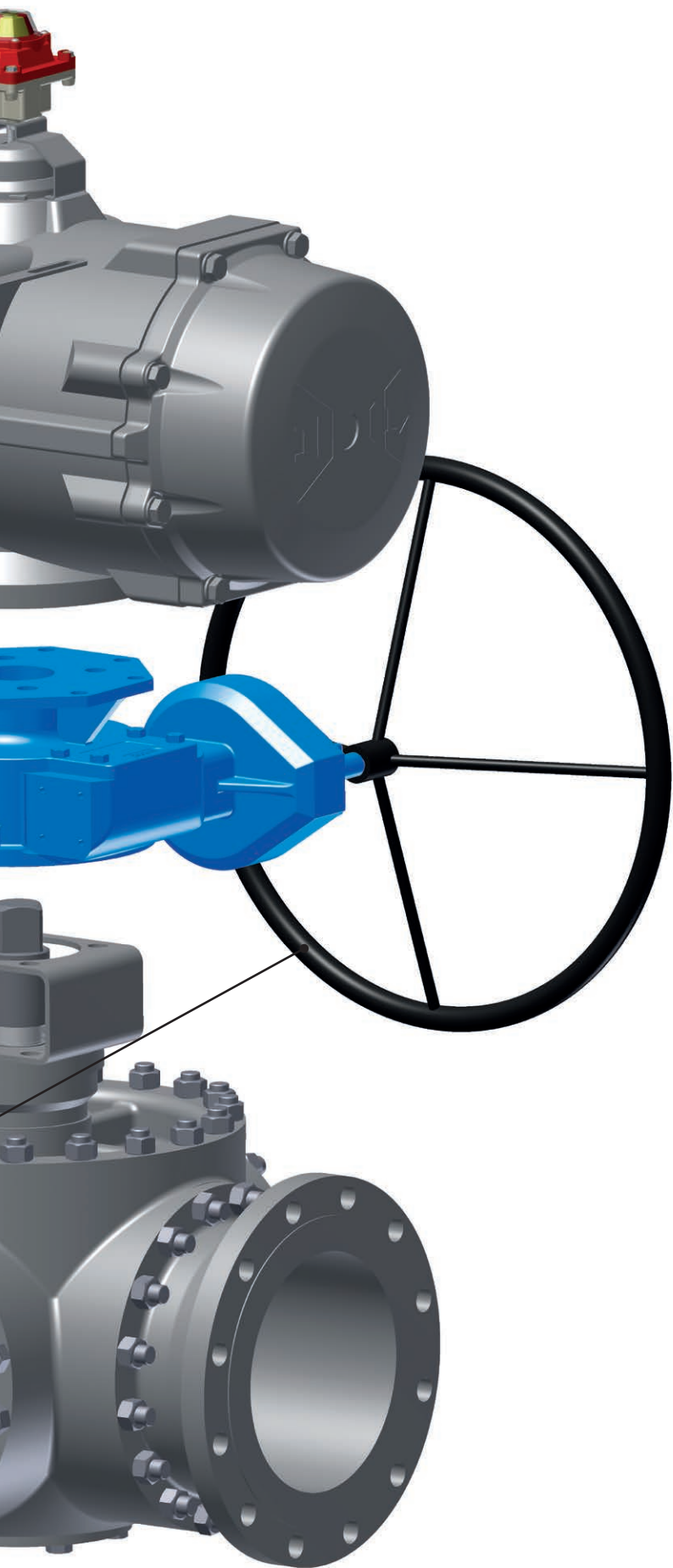
STROKING TIMES

DIFFERENT CONTROL CONFIGURATION  
AVAILABLE

## MANUAL OVERRIDE



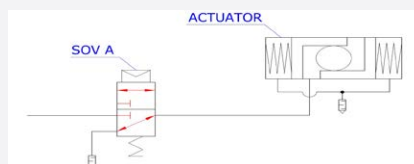
# Setting parameters



## SOLENOID CONFIGURATION

### 1oo1 CONFIGURATION

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

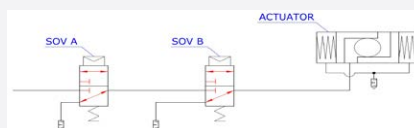


| SOV A                | ACTUATOR |
|----------------------|----------|
| <b>SINGLE ACTING</b> |          |
| ON                   | OPEN     |
| OFF                  | CLOSE    |
| <b>DOUBLE ACTING</b> |          |
| ON                   | OPEN     |
| OFF                  | CLOSE    |

### 1oo2 REDUNDANT CONFIGURATION

2 solenoids connected in series - single acting  
**SAFETY**

The air has one way to reach the actuator

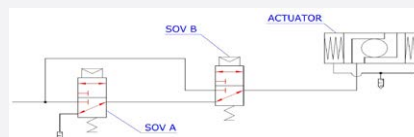


| SOV A | ACTUATOR |
|-------|----------|
| ON    | OPEN     |
| ON    | CLOSE    |
| OFF   | CLOSE    |
| OFF   | CLOSE    |

### 2oo2 REDUNDANT CONFIGURATION

2 solenoids connected in series - single  
**AVAILABILITY**

The air has two ways to reach the actuator



| SOV A | SOV B | ACTUATOR |
|-------|-------|----------|
| ON    | ON    | OPEN     |
| ON    | OFF   | OPEN     |
| OFF   | ON    | OPEN     |
| OFF   | OFF   | CLOSE    |

## ■ 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.
- Manual reset pneumatic valves.
- Pneumatic control configuration: 1oo1, 1oo2.
- PST. / SIL. / Hazardous locations.
- An ESDV valve is controlled by the Emergency Shut-Down system (ESD).
- A SDV valve is controlled by the Process Safety System (PSS).



## ■ 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).



### BDV STANDARD AIR TANK PARTS

Pressure Switch

Gauge

Lock-Up Valve

Check Valve

Drain Valve

Safety Valve

Safety Valves



# Process function

## ■ 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.



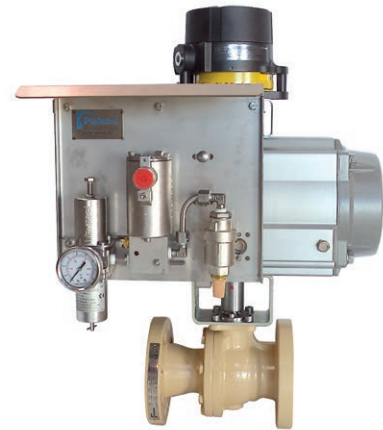
# EN 161, EN 16678 & EN 23553 (EN 264)

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

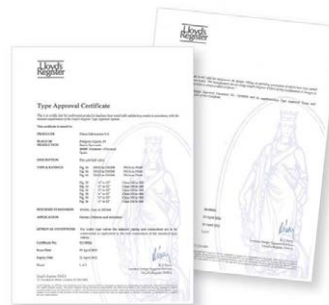
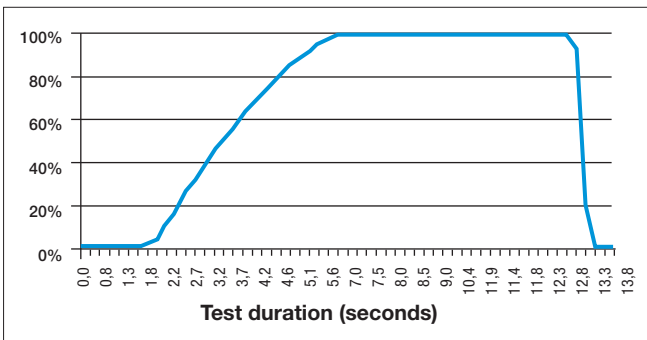
- EN 161 and EN 16678: Automatic shut-off valves for gas burners and gas appliances.
- EN 23553 (former EN 264): Safety and control devices for oil burners and oil-burning appliances.

### Equipment description

- Measurement device: SAMSON 3738-20 (software TROVIS-VIEW).
- Actuator: Air Torque AT351US12 FA, air fail: Close.
- 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.

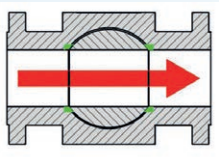


Equipment test according to EN 161 & EN 23553: Closing < 1 second (drawing).

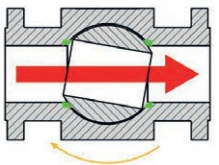


**Lloyd's Type Approval Certificate EN 161, EN 16678 class A, & EN 23553 (former EN 264)**, for PEKOS ball valves, with Air Torque actuators, assembled at Pekos facilities.

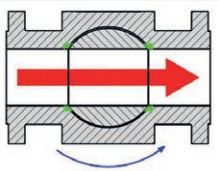
## PST Partial Stroke Test Non-intrusive test for safety prevention



**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).

The PST does not affect the fluid flow (red arrow). The PST allow us to reach and maintain the required system's SIL level.



**Local Control Mode**  
Manual PST via Solenoid.



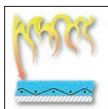
**Remote Control Mode**  
Smart positioner  
Communication Protocol ( HART, PROFIBUS, etc.).

# K-MASS<sup>®</sup> 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<sup>®</sup> 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 intumescing takes place which forms a barrier which both insulates and has a cooling effect.



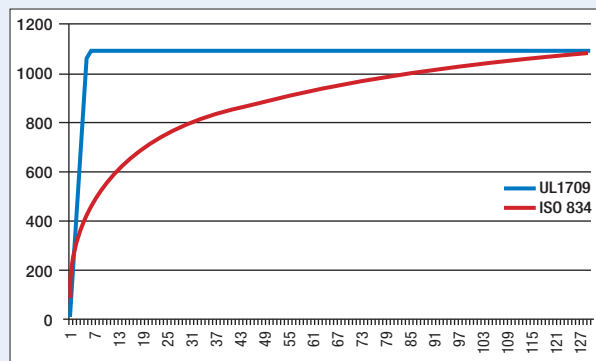
### Long term exposure:

The 1093°C heat will penetrate the first layer so that the K-Mas<sup>®</sup> 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.



Petrochemical fire behavior (UL-1709) vs. cellulose fire behavior (ISO 834).

## K-MASS APPLICATION TYPES

### SURFACE COATING:

K-Mass<sup>®</sup> 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.



K-CAB HOUSING: CONTROL SET PROTECTION

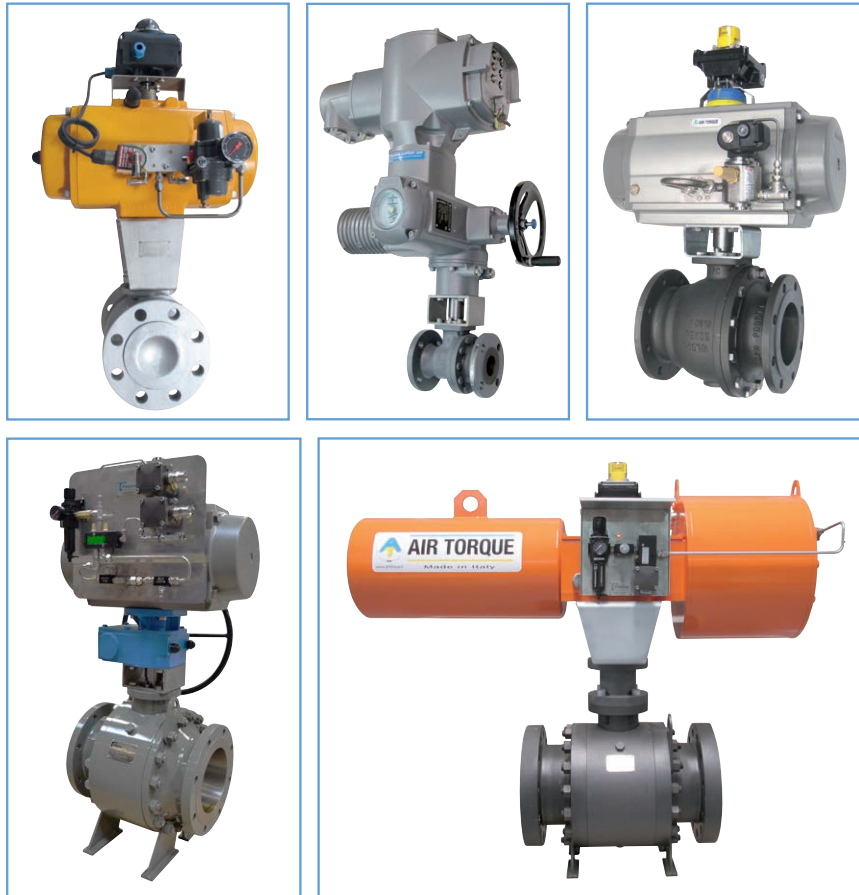


### MODULAR SYSTEM

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







[www.pekos.es](http://www.pekos.es)

Sales & Headquarters:  
 Rec del Molinar, 9 - P.I. El Circuit  
 08160 Montmeló (Barcelona) - Spain

Tel.: (+34) 93 568 92 56 / Fax: (+34) 93 579 92 44

[pekos@pekos.es](mailto:pekos@pekos.es)



Octub/15 - REV. 0

