

GENERAL CATALOG

Control Valve & Actuator



Pishro Sanat Amal Co. LTD

- Member of NIOC Vendors (AVL)
- A Knowledge-Based Company

- Ø Member of NIOC AVL
- Ø Exd Certified
- Ø ISO 9001 Certified
- Ø Knowledge Based



DOUBLE-PORTED CONTROL VALVE (VP-600)

Our range of high-performance double-ported(double-seat) control valves suitable for low and high-capacity applications, as well as three-way valves for mixing or splitting flows. Our control valves are designed to facilitate pressure drops at all stages of transportation in the oil, gas and power industries. All valves are refined by our engineers to suit the needs of each application and all service conditions.

CAGE-GUIDED CONTROL VALVES (VP-500)

The Series VP-500 range of cage-guided control valves is our core product. The exceptional valves in this range combine high-integrity features, such as ASME VIII body/bonnet bolting design, a high flow capacity and a wide range of trim designs, from low-noise anti-cavitation to multi-stage trims. These valves are ideally suited to the critical service process control requirements of a wide range of industry applications.

ANGLE & 3-WAY CONTROL VALVE (VP-400)

Our range of high-performance angle type control valves suitable for heavy duty applications, as well as three-way valves for mixing or splitting flows. Our angle control valves are designed to facilitate higher pressure drops and sever services for instance cavitation, flashing, noise and abrasive particles at all stages of transportation in oil, gas and power industries.

STEAM AND POWER VALVES (VP-300)

Our power valves commonly used effectively for heating, power plants or for other industries. These valves Include Turbine bypass, Feed water, Steam pressure and temperature control, De-superheaters...

UN-BALANCED GLOBE CONTROL VALVE (VP-200)

This range of valves are including globe and micro-flow control valves used for general services in lower pressure drop and lower rate of flow. For general conditions of flow properties, we offer this type of control valve to reduce project cost.

ROTARY CONTROL VALVES (VP-700)

The rotary range of high-capacity v-ball , eccentric plug control valves and high performance butterfly control valve have been developed to overcome the problems associated with control, cavitation and noise in conventional rotary valve designs. Lighter in weight and more compact than globe valve alternatives, this innovative valve performs especially well in severe-service applications, where pressure drops tend to be high in the controlling position but where high-capacity throughputs at low pressure drops are also required.

SEVERE SERVICE

PISHRO SANAT has built up a reputation for delivering valve solutions for the most arduous service conditions. We have developed a range of advanced, high-quality severe service valve solutions for every type of Problematic application, from high-pressure, high-temperature environments to sub-zero temperatures. Our valves are designed to combat the effects of cavitation, flashing, erosion, contaminated fluids, corrosion, high velocity, vibration, noise and energy dissipation.

REGULATING VALVE (VPR)

We are specialist in design and manufacturing of all kind of pressure reducing valves and back-pressure regulator for liquid and gas services with wide range of pressure and temperature.

ACTUATORS

Our range of robust, versatile and reliable pneumatic and electro-hydraulic actuators includes the 'VA-20', 'VA-30' and 'VA-40' Series models. These have been developed to meet the needs of all control valve applications, offering proven design and high reliability. They are used extensively for on-shore, offshore and power installations. In addition, we supply various proprietary actuators – such as electric, scotch-yoke, rack & pinion and hydraulic stepping actuators – to meet customer requirements. All actuators can be supplied with hand-wheels and limit stop features.

ACCESSORIES

We are a best manufacturer of Control Valve accessories in Iran e.g. EP-Positioner, Solenoid Valves, Air Filter Regulator, Hydraulic Handpump , Manual top and side mounted handwheel, ...

SPARE PARTS

We are specialist in engineering, design and manufacturing of all kind of control valves and actuators with requirements of services and process variables with OEM quality.

DOUBLE-PORTED CONTROL VALVE (VP-600)



CAGE-GUIDED CONTROL VALVES (VP-500)



ANGLE & 3-WAY CONTROL VALVE (VP-400)



REGULATING VALVES (VPR)



UN-BALANCED CONTROL VALVE (VP-200)



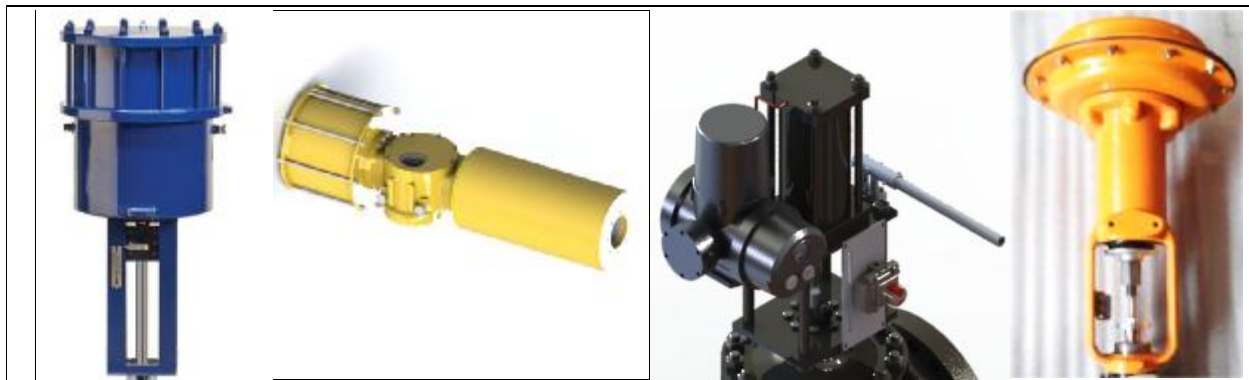
ROTARY CONTROL VALVES (VP-700)



STEAM & POWER VALVES (VP-300)



ACTUATORS



ACCESSORIES



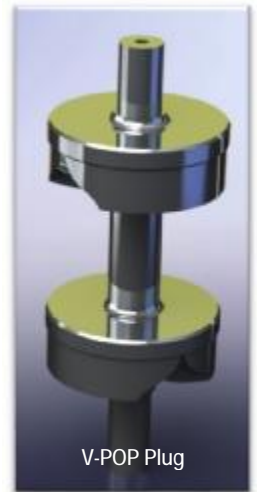
Double ported control valves (top guided control valves) have been used for various process control. Top guided valves were developed to give accurate and stable control; they were the first valves to offer a characterized plug. The original designs were produced as a single seated valve. But these were later developed into double seated constructions for high capacity applications. One of the best advantage of this design is the capability of "field reversible" for changing the action of the control valve body from direct to reverse or vice versa. Suppose you want to change a control valve from ATC to ATO or FC to FO without changing valve and actuator, using this design you can do this action with a little modification in body (no need to extra parts).

SERIES VP-610

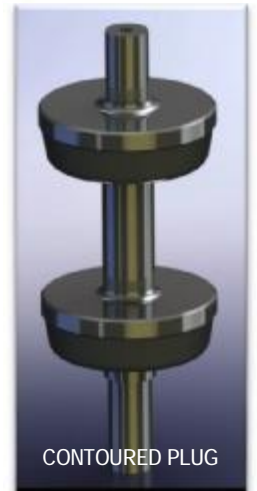
The series VP-610 valve incorporate two seats which provides a high capacity capability. The guiding of the plug enables the valve to control higher energy flows in a stable manner. The double seated plug is inherently balanced and therefore enables economical actuation of larger valves than on a single seated design. The seat tightness is class II in standard configuration and class III for optional and critical use. This design varies with plug formation in order to provide suitable flow characteristics for different process conditions. These formations are v-pop and contoured plug detailed as below in figures.

V-pop design of double ported control valve is used for precision flow percentage control with a special plug-shaped trim shown as bellow. Also the v-pop plug is seat-guided as well as top and bottom guide.

Contoured plug is used for higher flow capacity with a smaller rated travel in a larger size of transportation pipelines. Also the reconditioning of this type of plug is very simple with lower cost and minimum equipments.



V-POP Plug



CONTOURED PLUG



This range of valves combines high-integrity features, such as ASME VIII body/bonnet bolting design, a high flow capacity and a wide range of trim designs. This means it is ideally suited to meet the various critical service process control requirements that are demanded by a wide range of industry-related applications.

PERFORMANCE:

- Noise, cavitation control and erosion resistant trims.
- Streamlined flow passages to optimize capacity.
- Stable flow control with high rangeability.

DESIGN FLEXIBILITY:

- Modular construction design available with a range of different end connections and styles.
- Large variation of trim designs from single stage drilled cage to multiple stage low noise/anti-cavitation trim designs.
- Wide range of supplementary noise control components, silencers, dynamic attenuators.
- Inherently characterized trim offered in equal percentage, modified EQ%, linear and quick open.
- Balanced or unbalanced plug designs.
- All trim components removable from the top for ease of maintenance and quick replacement.
- Clamped in guide for ease of service.
- Large range of CVs per body size allowing for large changes in process conditions.

DESIGN INTEGRITY:

- High-integrity body/bonnet bolting system designed to ASME VIII.
- Clamped cage for positive guiding on severe service applications.
- High-integrity plug guiding system.
- Low emission packings i.e. (ISO 15878).

QUALITY-ASSURED MANUFACTURING:

- Rigorously tested to ensure specified performance on site.
- Quality-assurance systems in accordance with ISO 9001.
- Optional full ISO 15156/NACE MR-01-75 certification.



FEATURES

- Top guided plug with additional skirt guiding through the seat rings
- Most components serviceable from the top
- Multi trim sizes available

PERFORMANCE

- High flow capacity
- Minimum differential plug areas to reduce actuator force requirements
- Excellent flow control rangeability

SERIES 410

The series 410 angle valve, is used for flow splitting duties. The basic body construction is based on the series 20 valve. The valve has one inlet and two outlets for proportional splitting of the process. The plug is inherently balanced.

SERIES 450

The series 450 three way control valves, are designed around the series 410 body construction. They are unbalanced valves and primarily used for proportional blending (mixing) or flow splitting (dividing) duty of two flows. When flowed in reverse they can be used for flow splitting duties.



Pishro Sanat is known throughout the power industry because we solve issues that routinely plague power plants – leaking valves, seat erosion, blown packing, and the inability to isolate critical equipment – all of which contribute to significant heat rate loss and safety concerns.

This range of valves combines high-integrity features, such as ASME VIII body/bonnet bolting design, a high flow capacity and a wide range of trim designs. This means it is ideally suited to meet the various critical service process control requirements that are demanded by a wide range of industry-related applications.

PERFORMANCE:

- Noise, cavitation control and erosion resistant trims.
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- Modular construction design available with a range of different end connections and styles.
- Large variation of trim designs from single stage drilled cage to multiple stage low noise/anti-cavitation trim designs.
- Wide range of supplementary noise control components, silencers, dynamic attenuators.
- Inherently characterized trim offered in equal percentage, modified Eq%, linear and quick open.
- Balanced or unbalanced plug designs.
- All trim components removable from the top for ease of maintenance and quick replacement.
- Clamped in guide for ease of service.
- Large range of CVs per body size allowing for large changes in process conditions.

DESIGN INTEGRITY:

- High-integrity body/bonnet bolting system designed to ASME VIII.
- Clamped cage for positive guiding on severe service applications.
- High-integrity plug guiding system.
- Low emission packings i.e. (ISO 15878).

QUALITY-ASSURED MANUFACTURING:

- Rigorously tested to ensure specified performance on site.
- Quality-assurance systems in accordance with ISO 9001.
- Optional full ISO 15156/NACE MR-01-75 certification.

SERIES VP-310

The series 310 De-superheating valve, is used for decreasing the superheated steam enthalpy with spraying water in it.

SERIES VP-330

The series 330 Feed water Valve , is suitable for handling high pressure and temperature water For feeding boilers.

SERIES VP-350

The series 350 Steam conditioning Valve , is suitable for changing steams condition in the boilers, Turbines and power generation plants.



The Pishro Sanat VPR pressure regulating valves are self-actuated with internal or external impulse.

No power source or sensor is needed.

These self-actuated regulators are designed to operate on most industrial fluids and over wide pressure ranges, ranging from a few milibars to several tens of bar.

Our pressure regulators, are designed and manufactured in Iran with fully after sales support

Functions:

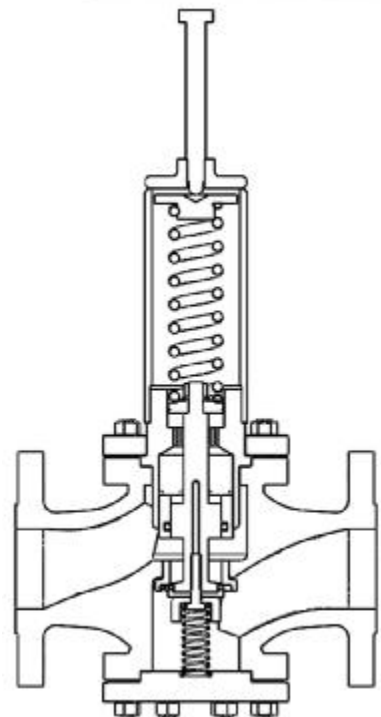
- Excess, reducing, and differential pressure regulators.

Applications:

- Pressure control, for liquids, neutral gases, steam, process fluids, clean steam, CIP, SIP, etc.

Main features:

- Flanged or threaded end connections
- ANSI Class 150 , 300 or ISO PN16, PN25, PN40
- Size 1/2 " to 6 " (Larger size by order)
- Carbon Steel or Stainless Steel construction
- Internal or external impulse
- Cv from 0.1 to 300.



Unbalanced control valves are globe-style with integral end connections, post guiding, and quick-change trim. These valves are used in gas, chemical, hydrocarbon and water processing applications or in applications that require control of non-lubricating, viscous, or other hard-to-handle fluids. This design of valve could handle a very tiny flow with seat formation of 'micro flow' from Cv of 0.0001.

Seat configuration and tightness:

- Shutoff Classifications per ANSI/FCI 70-2 and IEC 60534-4
- Metal Seats: Class IV is standard, Class V is optional
- PTFE Composition Seats: Class VI

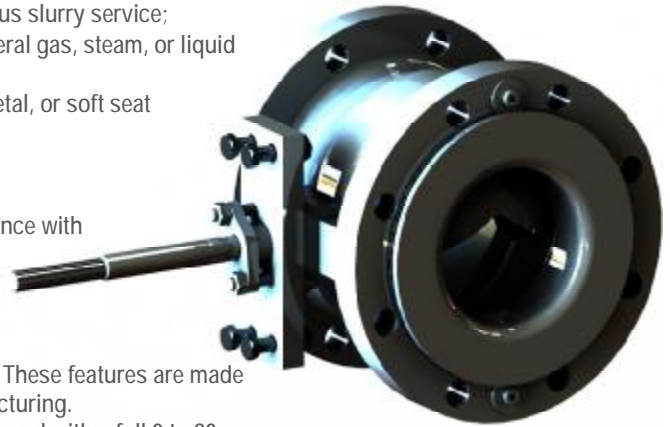
Flow Characteristics

- Equal percentage
- Modified EQ %
- Quick opening
- Linear



This design is a high-capacity rotary control valve for general or fibrous slurry service;

- Rotary valve efficiency with globe valve ruggedness for general gas, steam, or liquid service and for fibrous slurry applications
- Choice of seal types and materials: flat metal, heavy-duty metal, or soft seat
- Temperatures to 427 C
- Pressures to CL600
- Size to 20 in
- Pressure energized packing systems to help ensure compliance with environmental emissions requirements



SERIES 710

V-Ball rotary valves combine the features and performance you need. These features are made available through expertise in applications, valve design, and manufacturing. The valves are suitable for throttling or on-off service. They are often used with a full 0 to 90 degree ball rotation.

Our 710 V-Ball valves use the time-proven V-notch ball that provides high-capacity control of liquid, gas, steam, and fibrous slurries. The shearing action of the ball allows smooth, non-clogging operation, and the unrestricted, straight-through flow ensures high capacity.

- Easy Installation
- High Rangeability
- Reduced Maintenance Costs
- Protection Against Process Fluid Emissions
- Materials for Sour Service
- Easy Seal Inspection
- Noise Attenuator Ball
- Basis Weight Control Valve



SERIES 750

The 750 eccentric plug rotary control valve controls erosive, coking, and other hard-to-handle fluids, providing either throttling or on-off operation. The flanged and flangeless valves feature streamlined flow passages, rugged metal trim components, and a self-centering seat ring. With these components, the 750 rotary control valve combines globe valve ruggedness with the efficiency of a rotary valve. The 750 rotary control valve matched with an automatic or manual actuator, and dependably controls fluids in many process industries.

- Resists Damage from Erosive Flow
- Long Seat Life
- Operational Versatility
- Seat-loaded construction



SERIES 780

The 780 eccentric disc Butterfly valves feature an eccentrically mounted disc and a PTFE or 316 stainless steel or soft seal ring. The pressure-assisted seal ring provides excellent shutoff against pressure applied in either direction. The 780 is a multi-class rated valve, available in NPS 2 through 12, and class 150 through 600 compatible.

These valves combine with a variety of power and manual actuators to form reliable, high-performance control valves suited for many liquid and gas applications requiring extremely low leakage.

Constructions are available for temperatures up to 538 C (1000 F).

- Sour Service Capability
- Excellent Flow Control
- Seat-loaded construction
- Lower weight
- Lower cost



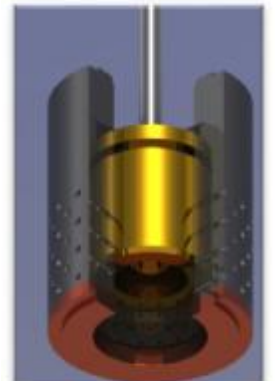
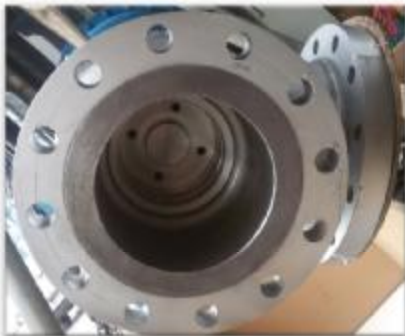
PISHRO SANAT has been manufacturing Severe Service Valves for special and critical applications. The following is a list of some of the issues that are considered in assessing the severity of an application:

- High Pressure Drop
- Cavitation and Flashing
- High Velocity and Noise
- Contaminated Flow
- Erosive / Corrosive Medium

Whether it is for problematic applications relating to High Pressure, High Temperature, Sub Zero Temperatures, Cavitation, Flashing, Erosion, Solids Contaminated Fluids, Corrosion, High Velocity, Vibration, Noise or Energy Dissipation, PISHRO SANAT has proved it has the solutions. These issues are discussed in the following sections together with Case Studies, which present some of the solutions provided by PISHRO SANAT to handle potentially problematic applications.

Some applications that are frequently classified as “Severe Service” include:

- Compressor Anti Surge
- Pipeline Surge Relief Control
- Centrifugal Pump Minimum Flow Re-circulation
- Slug Catcher
- Vent to Flare
- Separator Level Control
- Boiler Feed Water
- Emergency Drains
- Super Heater Spray
- High Pressure / High Temperature



Our range of robust, versatile and reliable actuators includes the 'VA10,15,20,30,40,70' models of power actuators for modulating duty. Also the range of sophisticated instrumentation includes positioners, airsets, volume boosters and airlocks. In addition, we supplies various proprietary actuators and instrumentations depending on customers' applications and requirements.

Design flexibility:

- Reversible fail action in the field with no need for extra parts.
- Split coupling for simple attachment to plug stem.
- Compatible with a wide range of valve sizes and accessories.

SERIES VA-10

SPRING-RETURN PNEUMATIC PISTON ACTUATORS

Designed without linkages and with minimal working parts, this actuator offers built-in reliability and low maintenance costs. VA-10 & VA-10R (rotary) actuators are always operated through a valve positioner, with different sizes available to suit different applications.

The frequency response of this piston actuator is extremely high, and is superior to comparable diaphragm units. Its linear response to a signal change is unaffected by increasing or decreasing pressure, with sensitivity being maintained over the working range.

SERIES VA-15

DOUBLE-ACTING PNEUMATIC PISTON ACTUATORS

Ancillary equipment comprising a three-way switching valve, lock-up valve and a check valve is required, in addition to the volume tank and pipework. The existing positioner must be set for double-action operation.

SERIES VA-20

PNEUMATIC MULTI SPRING-OPPOSED DIAPHRAGM ACTUATORS

For general applications, the multi spring diaphragm actuator offers the following benefits:

- Simple cost-effective design.
- Long life and reliability.
- Low cost, simple maintenance.
- Field reversible(ATC to ATO or vice versa).

SERIES VA-30

PNEUMATIC HEAVY DUTY SPRING-OPPOSED DIAPHRAGM ACTUATORS

For standard and sever applications, the heavy duty diaphragm actuator offers the following benefits:

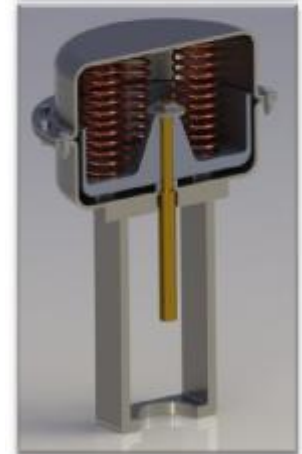
- High coefficient of stiffness.
- Long life and reliability.
- Simple maintenance and understanding.
- For both Linear(VA31,32) and Rotary (VA35, 36) movements
- High-performance, low-friction rolling diaphragm delivers low hysteresis comparable with piston types.

SERIES VA-40

ELECTRO HYDRAULIC SPRING RETURN ACTUATOR

This design of self-contained, electro-hydraulic actuators are the result of our ongoing commitment to product development utilizing leading edge technology. The VA-40 range includes VA-40L, VA-40Q actuators for linear or quarter turn duty.

- Self-contained electrically operated.
- Failsafe : FO, FC, FL
- Partial stroking capability.
- Modulating control 4-20 mA input / output.
- LCD display for position, pressure and fault diagnostics.
- Integral controls with non-intrusive setting.
- Watertight and Explosion proof models.



SERIES VA-50

SPRING-RETURN Or DOUBLE-ACTION SCOTCH-YOKE ACTUATORS

VA-50 double-acting and single-acting (spring-return) actuators are designed in such a way that there are no moving parts on the outside (with the exception of the position indicator) making them safe, easy to install and virtually maintenance free.

This Generation of actuators are applicable for both On/Off and modulating duty for rotary valves. Also with regarding of shaft and piston seals, VA-50 series actuators could work with both Pneumatic (VA-50P) or Hydraulic (VA-50H) fluids, depending the site power availability. The following specifications make this type of actuator reliable for critical and general applications ;

- High Performance Springs
- Long Life Span
- Travel Stops
- Efficient Bearing Design
- Environmental Protection
- Safety



SERIES VA-70

ELECTRICAL MODULATING AND ON/OFF ACTUATOR

VA-70 actuators are multi-turn electric actuators which can be used for isolation or regulating duties. This actuators are watertight and explosion proof depending upon specification. The modulating version of the VA-70 has a solid state reversing starter in place of the electro-mechanical contactors. The VA-70 is suitable for up to 200 starts per hour. The solid state starter also adds an electronic motor 'brake' feature, improving positional control.



SERIES EPP-3000

ELECTRO PNEUMATIC POSITIONER

Smart Valve Positioner 3000 Series are loop powered type with low power consumption. The 3000 Series positioner receives a 4-20 mA DC current signal from controller and controls pneumatic valves automatically. This type of EP Positioner is designed for mount on Linea and Rotary pneumatic valves with high positioning accuracy and position stability.

Digital Smart Positioner Features:

- Ex IP66 Aluminium Body with two M20x1.5 Conduit
- G1/4 Air Connections
- 1.4 ~ 7 Bar Supply Air Pressure (Clean Dry Air Recommended)
- 4 ~ 20 mA 24VDC Input Signal
- 4 ~ 20 mA Output Signal.
- Input signal powers device so no external power supply is required
- +/- 0.5% Linearity , 1% Hysteresis , 0.2% Repeatability
- Self Initialisation procedure and customisable parameters
- Can be configured for Fail Closed and Fail Open operation
- Applicable for rotary and linear valves
- Digital LCD for showing status and menu items
- Pressure gauge for supply / output air
- Mounting bracket for connect to any actuators



SERIES SV10

SOLENOID VALVE

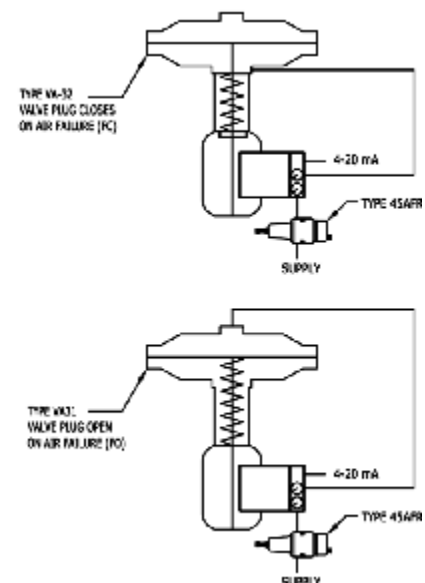
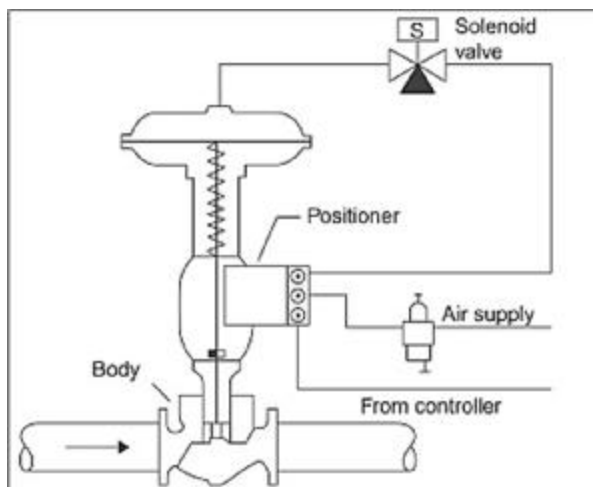
SV10 series solenoid valve is a heavy duty and direct acting solenoid valve using for pneumatic and hydraulic fluid for on/off and diverting flow. This solenoid valve can be use in any environment and process because of the stainless steel and rugged construction . Easy maintenance of this SOV is one of the major advantage for using in critical application.



SERIES 45AFR

AIR FILTER REGULATOR

This Air Filter Regulator is used in compressed air systems to regulate the pressure and clean the supply to pneumatic control valves, actuators, pneumatic tools, and HVAC systems. 45AFR deliver a constant output air pressure to its outlet when the input pressure is vary from its set pressure up to maximum spring range.



SERIES HW**MANUAL HAND-WHEEL**

Manual handwheel for control valve is used in applications that require a throttling type of **control valve** that can be manually operated when the instrument air is not available or not connected to the actuator. Also manual handwheel is used on valve without pneumatic chamber as manually operated control valve for throttling fluid flow.

Top-mounted & side-mounted handwheel used for valve and actuator due to customer need depending on the place of accessibility of valve and piping system shape. HW34S/T , HW56S/T , HW70S/T is used for related valve and actuator depending on the size and suitable thrust.

**SERIES HP40****MANUAL HAND-PUMP**

Manual handpump is used for hydraulic and electro-hydraulic actuator when electric power is not available or not connected to the actuator. Rugged and heavy duty construction of this handpump assure the long-life operation without mechanical damage. A bleed port with a blind plug used for de-aeration the hydraulic lines for better operation and inspection of the hydraulic fluid flow inside the system.



CAD/CAM

All our products designed and checked by CAD software for better accuracy and capability of verification and customization in the future. Also it is easy for manufacturing the parts by CNC machine using CAM software in related with CAD software. All parts' 2D and 3D CAD drawing archived for future referring and repeatability of product quality and dimensions.

Hardness Test

For confirmation of raw material quality, using hardness test facility for assuring the range of standard hardness referring to related codes and procedures. Also for springs stiffness and accurate range the hardness is an important parameter.

Mill Test / PMI

For assuring the material of Body and Trim parts it is mandatory to check the chemical composition and mechanical properties of all parts by laboratory test and issue the mill test report to the client in to the final data book.

NDT

Non destructive examination for valve parts guarantee the quality of parts and diagnosing the possible defects or problems in them Using PT, RT, UT, MT, VT, DC methods.

FAT Test

After inspection of raw material and manufactured parts, valves and actuators assemble completely and check for possibly leakage in related test bench as Hydrostatic test and Seat leakage test according to related standards. Complete assembled valve, actuator and accessories also test for functions and performance according to clients requirement and related procedures.

Painting Test

Surface preparation, paint material, painting layers, layers thickness and adhesivity check with special facility to assuring the best protection of control valves external surface.

Packing/ Marking

After successfully passed all tests with sequence of the related ITP, equipments marking will be performed on nameplates and packing list according to approved procedure and finally packing will be prepared as requested in packing procedure.



Projects & Clients

- ✓ 26 in Bandarabbas-Sirjan-Rafsanjan Pipe line , Rampco, NIOEC
- ✓ 42 in Gurreh – Jask Pipeline , Payandan, PEDEC
- ✓ 24 in Isfahan – Rey , IOPTC
- ✓ 26 in Ahwaz – Rey , IOPTC
- ✓ 12 in Tabriz – Oromiyeh Pipeline, Rampco, NIOEC
- ✓ Gachsaran Petrochemical Complex – Utility , BFC, Panah Sanat
- ✓ Jey Oil Refinery – Bitumen Bandarabbas , BFC, Petrotechsan
- ✓ Takhte Jamshid – Hexane Asaluyeh, Tesla, Exir Hallal
- ✓ Maroon Oil & Gas Production – Kupal, Maroon3, Asmari, Dissaulting Unite
- ✓ Gachsaran Oil & Gas Production – Bibihakimeh
- ✓ Aghajari Oil & Gas Production
- ✓ Bidboland Gas Refinery
- ✓ Abadan Oil Refinery
- ✓ Amirkabir Petrochemical Complex
- ✓ Fanavaran Petrochemical Complex
- ✓ Abadan Petrochemical Complex
- ✓ South Azadegan – Bandarabbas 30 in, Marun Mechanic, NIOEC
- ✓ Ahvaz 14 , Maroon Karan , NISOC
- ✓ Sulabedar, BGK , NISOC
- ✓ ...

SPARE PARTS

- We are specialist for providing or manufacturing control valve spare parts for general or sever service.
- We are specialist for reconditioning of all types of control valves and actuator in all industries.
- We are specialist in control valve sizing calculations : Body Sizing, Trim Sizing, Actuator Sizing.
- We are specialist in control valve flow passage design for better performance and long life cycle.
- We are specialist for producing special materials for Body and Trim parts for any process medium.
- We are specialist for modification of your control valves 'Cv' in case of process variable change.
- We are specialist in consultant for selection of control valves for any kinds medium in projects.
- We are specialist for participation of professional control valve and actuators training seminars.



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