

## Control Valves





## INTRODUCTION

Pneucon Valves was established in 1996. The present Directors are having a collective experience of over four decades in CONTROL VALVE TECHNOLOGY, The company is engaged in the Design, Development and Manufacture of a comprehensive range of Control Valves for all Process, Power Generation and associated industries. The company has the engineering and technical expertise together with the facilities to address the diverse automation demands of the modern process industries. Standard, Special and Customised Control Valves are all available on demand for use in a wide range of applications and industries.

### Foreign Technical Collaboration

Valve Solutions Ltd., UK are retained as our technical collaborators. The two senior partners have a collective experience of 75 years in Control Valves and have been Senior Managers and Directors of Large European and U.S. Valve Companies.

### Design & Engineering

PNEUCON'S Engineering department's mission is design innovation. Our ability, experience and expertise through the use of sophisticated technology and CAD/CAE equipment results in the production of high quality control valves for wide range of applications.

Valve Sizing & Selection is completed using current state of the art programmed software, taking into consideration Velocity, Mach No., Cavitation/Flashing, Noise Levels and energy conversion etc. This together with our application experience will ensure the optimum selection of Control Valves for each duty.

### Quality

PNEUCON Quality Management System comply with ISO 9001:2008 and is certified by Bureau Veritas. The quality of Globe type Control Valve has been further certified as "CE" in accordance to Pressure Equipment Directive by notified body Lloyd's Register.

PNEUCON control valves are produced in strict compliance with the Quality Management System requirements and in conformance with the engineering codes in practice and relevant standards.

### Manufacturing

PNEUCON believes in employing the latest manufacturing techniques and facilities. The valves and components are manufactured to the highest degree of accuracy to ensure a trouble free long life and guaranteed interchangeability of spares.

### Customer Service

PNEUCON has a fully integrated customer service division, which is fully geared to react speedily to all customer enquiries and whatever technical support is needed.

PNEUCON will undertake the complete plant servicing and overhaul of both indigenous and imported Control Valves. All Sizes, Types, Ratings can be accommodated regardless of age and will be refurbished to the highest standards to ensure complete satisfaction. Our flexible customer needs driven principles mean we can supply the smallest part, to the servicing of all valves during planned plant shutdown.

Individual parts can be reverse engineered to order, as well as valves being upgraded or customised to handle enhanced new duties, using the in house engineering expertise.



## GLOBE 2 WAY CONTROL VALVES (SERIES 110)

### Technical Specifications

|                 |  |
|-----------------|--|
| DESIGN          | : ASME B16.34  |
| VALVE SIZE      | : 15 to 450 mm (½" to 18")   |
| RATING          | : 150 to 2500 ANSI   |
| END CONNECTION  | : Flanged, Screwed, Buttweld, Socketweld   |
| MATERIAL        | : Carbon steel, Stainless steel, Monel, Duplex, Alloy 20, Hastelloy B/C, Aluminum Bronze, PP, Teflonlined etc.   |
| BONNET          | : Standard from - 20°C to 250°C<br>Normalizing between 250°C to 500°C<br>Extended Bellow sealed  |
| TRIM FORMS      | : Top guided Contoured, Splined Micro flow<br>V- Ported (Balanced / Unbalanced)<br>Low Noise (Upto four Stage Pressure Reduction Balanced / Unbalanced)                                    |
| TRIM MATERIAL   | : Stainless steel, Alloy20, Monel, Duplex<br>Hastelloy B/C, Stellite   |
| FLOW CHAR.      | : Equal Percentage, Linear and Quick Opening   |
| SEAT LEAKAGE    | : Class III, IV, V, & VI (FCI-70.2)<br>Standard Leakage Rates<br>Metal to Metal Seating Class IV-less than 0.01% of rated Cv<br>Metal to Soft Seating Class VI-Bubble tight (Zero Leakage) |
| GLAND PACKING   | : Grafoil or PTFE Chevron  |
| ACTUATOR        | : Diaphragm, Piston or Electrical  |
| ACTUATOR ACTION | : Direct / Reverse Acting  |



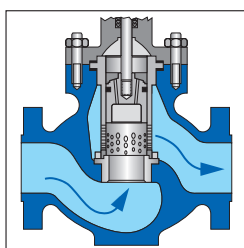
### Design and Performance Features

- High flow capacity and rangeability.
- Large Variety of trim design.
- Top opening for easy trim inspection without disturbing insulation or piping connections.
- Positive guiding for correct trim alignment under all operating conditions.
- Tight closing for reliable control even when change in pressure / temperature are sudden and extreme.

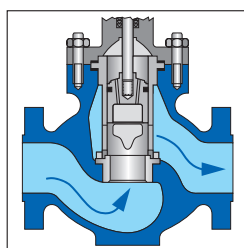
- Bellow seals available for positive stem sealing.
- Comprehensively designed and tested to ensure its optimum performance for the tough process parameters specified.
- Wide selection of actuators to meet most system requirements.

### Quality and Performance Guarantee

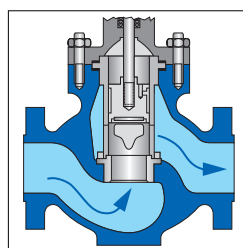
- Full material certification available for all major component parts.
- Full guarantee on design and performance.
- All testing performed to the requirements of ASME B16.34.



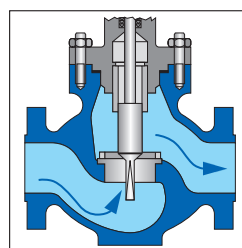
LOW NOISE CAGE GUIDED BALANCED TRIM



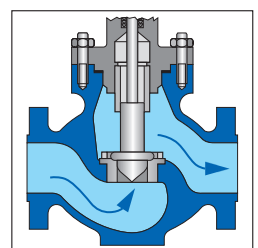
V-PORTED TRIM WITH BALANCED PLUG & RING



V-PORTED TRIM WITH UNBALANCED PLUG



SPLINED MICRO FLOW TRIM



CONTOURED TRIM



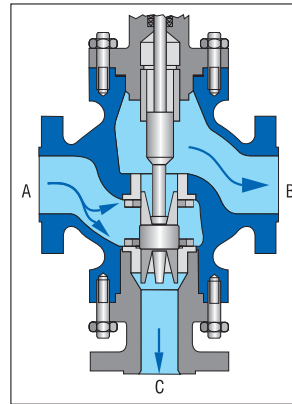
## GLOBE 3 WAY CONTROL VALVES (SERIES 130)

### Technical Specifications

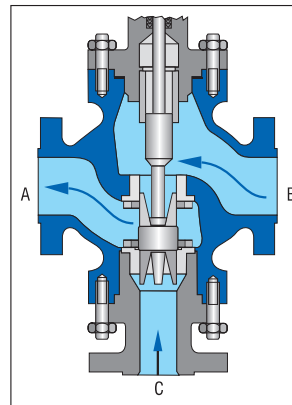
|                 |  |
|-----------------|--|
| DESIGN          | : ASME B16.34                                      |
| BODY FORM       | : Globe type with Tail piece to provide third port |
| VALVE SIZE      | : 15 to 300 mm (1/2" to 12")                       |
| RATING          | : 150 to 1500 ANSI                                 |
| TRIM FORM       | : Linear, V-Port Skirt Guided                      |
| FLOW CHAR.      | : Linear, On/Off                                   |
| SEAT LEAKAGE    | : IV, V & VI ( FCI-70.2 )                          |
| ACTUATOR        | : Diaphragm, Piston or Electrical                  |
| ACTUATOR ACTION | : Direct / Reverse Acting                          |

### Design and Performance Features

- High Flow capacity and rangeability.
- Heavy Duty top guide with additional skirt guiding on the plug.
- Heavy Duty ground and polished stem.
- Wide range of interchangeable trim sizes.
- Bellow seals available for positive stem sealing.
- Comprehensively designed and tested to ensure its optimum performance for the tough process parameters specified.
- Wide selection of actuators to meet most system requirements.
- All testing performed to the requirements of ASME 16.34.



Diverting Service



Mixing Service



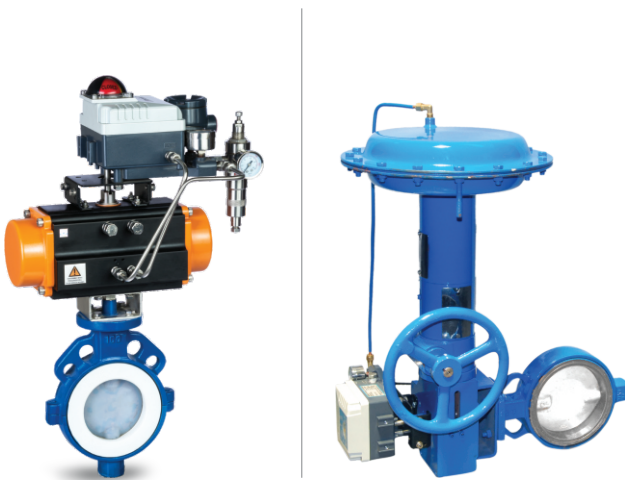
## BUTTERFLY CONTROL VALVES (SERIES 200)

### Technical Specifications

|               |   |
|---------------|---|
| DESIGN        | : Wafer (Complies to BS:5155)                   |
| VALVE SIZE    | : 50 to 900 mm (2" to 36")                      |
| BODY TYPE     | : Metal to Metal / Sleeved / Teflon Seated      |
| RATING        | : 150 ANSI                                      |
| FLOW CHAR.    | : On-Off / Throttling                           |
| SEAT LEAKAGE  | : II to VI ( FCI-70.2 )                         |
| MATERIAL      |   |
| BODY          | : Cast Iron, Carbon Steel, Stainless Steel etc. |
| VANE          | : Stainless steel, (Other on request)           |
| BODY SLEEVE   | : Neoprene, Nitrile, Teflon, EPDM etc.          |
| GLAND PACKING | : PTFE V Ring upto 180°C<br>Grafoil upto 400°C  |
| ACTUATOR      | : Diaphragm, Rotary or Electrical               |

### Design and Performance Features

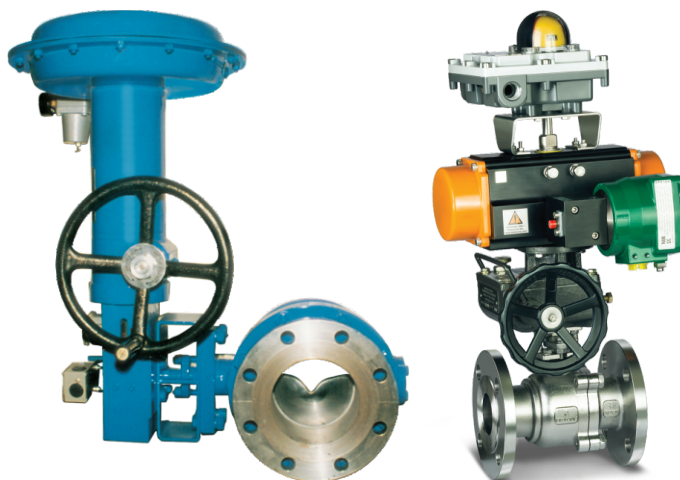
- Compact design, low cost and maintenance free.
- Very high Cv to size ratio.
- Reliable smooth operation with assured product quality.
- Bubble tight shut off (leakage Class-VI).
- Rangeability of 33 : 1 in the control range, OFF-SET (Teflon seated) / Center Disc
- Flow characteristic - throttling for modulating duty.
- Suitable for vacuum service at very low absolute pressure.



## V-NOTCH BALL CONTROL VALVES (SERIES 300)

### Technical Specifications

|             |   |
|-------------|---|
| DESIGN      | : Complies to BS:5351                           |
| VALVE SIZE  | : 15 to 300 mm (1/2" to 12")                    |
| BODY TYPE   | : V-Notch / Full bore conventional              |
| RATING      | : 150 ANSI                                      |
| FLOW CHAR.  | : Throttling / On-Off                           |
| MATERIAL    |   |
| BODY        | : Carbon Steel, Stainless Steel etc.            |
| BALL        | : Stainless Steel                               |
| SEAL        | : Teflon, Viton                                 |
| TEMPERATURE | : 180°C with PTFE Seal<br>250°C with Viton Seal |
| ACTUATOR    | : Diaphragm, Rotary or Electrical               |



### Design and Performance Features

- Full bore straight through construction turbulence free flow with wide rangeability.
- High Cv to body size ratio.
- Tight shut off leakage class VI.
- Suitable for control action with carefully contoured V-notch resulting in a nearly equal % characteristic
- Ball machined to fine finish hard-chrome plated and mirror polished to increase ball seal life.
- Preventing dust & dirt out of the working mechanism.
- Reliable operation and ideal for abrasive slurries or solids.

## DIAPHRAGM CONTROL VALVES (SERIES 400)



### Technical Specifications

|                              |  |
|------------------------------|--|
| DESIGN                       | : Complies to BS:5156  |
| VALVE SIZE                   | : 15 mm to 200 mm (1/2" to 8")   |
| BODY TYPE                    | : Weir   |
| END CONNECTION               | : 125 ANSI   |
| FLOW CHAR.                   | : On-Off / Throttling  |
| BODY MATERIAL                | : Cast Iron, Carbon Steel (other on request)   |
| LINING MATERIAL              | : Ebonite, Neoprene, Teflon, EPDM, FRP, Glass etc.   |
| LINING THICKNESS (Elastomer) | : 15 to 65mm Valve - 3mm<br>80 & 100mm Valve - 3.5mm<br>125 & 150mm Valve - 4.0mm<br>200mm Valve - 5mm<br>PFA Lining - 3mm<br>Glass Lining - 1.5mm |
| BODY DIAPHRAGM               | : Neoprene, Teflon Backed with Neoprene, Butyl, Nitrile, Hypalon, Viton, EPDM  |
| ACTUATOR                     | : Diaphragm, Piston or Electrical  |
| ACTUATOR ACTION              | : Direct / Reverse acting  |



### Design and Performance Features

- It is a simple diaphragm valve and of low pressure type because of the larger area of diaphragm exposed to line pressure.
- Perfect sealing and longer diaphragm life due to weir design. • Valves are self cleaning with no pocket, recess, corner, grooves or sharp edges.



## FLUSH BOTTOM VALVES (SERIES 500)

### Technical Specifications

|            |  |
|------------|--|
| DESIGN     | : Complies to Pneucon's Specifications |
| VALVE SIZE | : 25 to 200 mm (1" to 8")              |
| RATING     | : 150/300 ANSI                         |

### Design and Performance Features

- High flow capacity
- Best suited for drainage system
- Tight closing for reliable shut - off even after change in pressure / temperature are sudden and extreme
- Wide selection of actuators to meet most system requirements



## PRESSURE REGULATING VALVES

### Technical Specifications

|            |  |
|------------|--|
| TYPE       | : Downstream Regulation (Series 600)<br>Upstream Regulation (Series 700) |
| VALVE SIZE | : 15 to 200 mm (1/2" to 8")  |
| RATING     | : 150/300 ANSI, Higher on request  |

### Design and Performance Features

- High flow capacity
- Disc is reversible and can be changed quickly or for the renewed life
- Pressure reducing is of the balanced design and any fluctuations in the inlet pressure has negligible effect on the regulated pressure
- Builtin safety against accidental high pressures.



## DESUPERHEATER (SERIES 800)

The evolutionary series 800 Desuperheater i.e. Varitrol variable spray nozzles unit can be used in many application to efficiently reduce the superheated steam or other vapours to temperature approaching saturation.

The superheated vapour is passed through a section of pipe into which is fitted a spray nozzle that produces dispersed droplets from a supply of pressurized condensate.

These finely atomized particles promote almost immediate evaporation. The required heat being absorbed from the superheated vapour, thus reducing the temperature.

### Technical Specifications

|              |                     |
|--------------|---------------------|
| DESIGN       | : ASME B16.34       |
| VALVE SIZE   | : 1.1/2" & 2"       |
| RATING       | : 150 to 1500 ANSI  |
| NOZZLE SIZE  | : Cv - 0.25 to 9.00 |
| RANGEABILITY | : Maximum 45 to 1   |
| VALVE TRAVEL | : 38mm              |





## POWER CYLINDER (SERIES900)

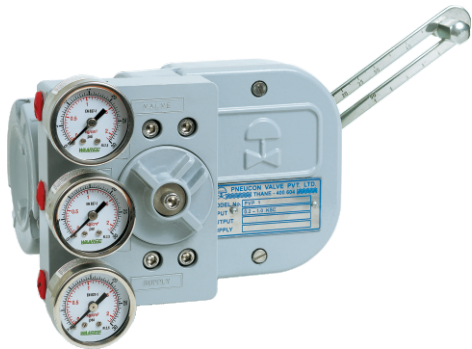
Power Cylinders are widely used for accurately and positively positioning all types of plant regulators such as Dampers, ID and FD Fans in Boilers, Throttle Valves and Butterfly Valves.

### Technical Specifications

|               |  |
|---------------|--|
| DESIGN        | : Piston Double Acting Cylinder                  |
| CYLINDER BORE | : 2" to 14"                                      |
| STROKE        | : Upto 20" Standard,<br>Higher sizes on request. |

## ACCESSORIES

### Pneumatic Positioner



|              |   |
|--------------|---|
| INPUT SIGNAL | : 0.2 - 1.0 KSC<br>: 0.2 - 0.6 (Optional)<br>: 0.6 - 1.0 (Optional) |
| STROKE RANGE | : 14 to 100 mm  |
| ACTION       | : Direct / Reverse  |
| LINEARITY    | : Within 1% of valve stroke.  |
| HYSTERISIS   |   |

### Electro-Pneumatic Positioner



|              |  |
|--------------|--|
| MODEL        | : EPL (Linear Type-lever feedback)<br>EPR (Rotary Type-cam feedback) |
| INPUT SIGNAL | : 4-20mA @ 24V DC  |
| LINEARITY    | : Within 1.0% F. S.  |
| SENSITIVITY  | : Within 0.2% F. S.  |
| HYSTERESIS   | : Within 0.5% F. S.  |

### Volume Booster



|                      |                |
|----------------------|----------------|
| CONNECTION           | : 1/4" NPT (F) |
| MAX. SUPPLY PRESSURE | : 150 Psi.     |
| MAX. SIGNAL PRESSURE | : 100 Psi.     |
| PRESSURE RATIO       | : 1:1          |
| REPRODUCIBILITY      | : 0.1%         |
| FLOW CAPACITY (Cv)   | : 1.01         |

### High Volume Booster



|                      |                        |
|----------------------|------------------------|
| CONNECTION           | : 1/2" or 3/4" NPT (F) |
| MAX. SUPPLY PRESSURE | : 150 Psi.             |
| MAX. SIGNAL PRESSURE | : 100 Psi.             |
| PRESSURE RATIO       | : 1:1                  |
| REPRODUCIBILITY      | : 0.1                  |
| FLOW CAPACITY (Cv)   | : 4.95                 |

### Air Lock Relay



|                       |                  |
|-----------------------|------------------|
| ACTING TYPE           | : Single/Double  |
| CONNECTION            | : 1/4" NPT (F)   |
| MAX. SUPPLY PRESSURE  | : 100 Psi.       |
| PRESSURE RANGE        | : 20-100 Psi.    |
| DIFFERENTIAL PRESSURE | : Below 1.4 Psi. |
| STD. SPRING SETTING   | : 18 Psi.        |



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