

C&H SERVICES SBU



THERMAX CONTROL VALVE

3/2 Way Control Valves for Hot water, Chilled water and Thermic Fluid Application

WHAT IS CONTROL VALVE?

- Control Valves are used to regulate the flow, temperature, pressure of the fluid.
- These valves can move to any position within the stroke of the valve and hold the position including the full open & full closed position.
- Therefore they can act as on-off valves also.

Improving your business is our business

Thermax offers products, systems and solutions in energy and environment engineering to industrial and commercial establishments around the world. Its business expertise covers heating, cooling, waste heat recovery, captive power, water treatment & recycling, air pollution control & waste management and performance chemicals. Thermax brings to customers extensive experience in industrial applications, and expertise through technology partnerships and strategic alliances.

Operating from its headquarters in Pune (Western India), Thermax has built an international sales & service network spread over South East Asia, Middle East, Africa, Russia, UK and the US. It has a full fledged manufacturing set up that is certified for ISO 9001:2000, ISO 14001 and safety management according to OSHAS (ISO 18000).

In **process heating**, Thermax offers a wide range of steam boilers, thermal oil heaters and hot water generators. It has expertise in a wide range of fuels - oil, gas, solid and agro-waste/ biomass. Supporting a broad array of industries in generating, transferring and conserving heat across a host of applications, Thermax process heat products and systems are exported to North and South America, South East Asia, Middle East, Africa, Europe, CIS, Australia, Antarctica and SAARC.

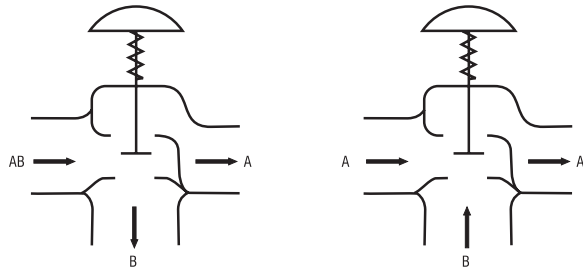
INTRODUCTION

THERMAX range of control valve with pneumatic & electrical actuators are designed to provide precise control for flow, pressure and temperature control applications in the following

- Hot water
- Thermal oil
- Chilled Water

It is important to achieve complete valve shut off, to prevent leakage that either could contaminate a process fluid or result in production loss. Also valve tightness ensure prevention of erosion damage that normally occurs on a high velocity steam leak across seating surface. Thermax helps in proper solution of valves, considering all reprised parameters.

FLOW DIRECTION



Diverting Application

Mixing Application

LFE GLAND PACKING

Fugitive Emission can be defined as any chemical/ mixture of chemicals in any physical form which represent an unanticipated or spurious leakage from equipment.

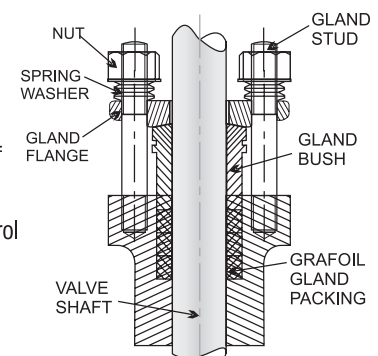
We are introducing LFE (Low Fugitive Emission) gland packing in control valves with special features :

- 1) This packing has been introduced for applications where even smallest gland leakage is not acceptable.
- 2) **LIVE LOADING** avoids the need to constantly retighten the packing when reduction in packing volume occurs due to wear, cold flow, plastic deformation or extrusion.
- 3) When consolidation occurs, the packing box will begin to leak & the gland flange bolting must be tightened further to seal the leakage. Using additional disc springs, live loading voids the need to constantly retighten the packing when consolidation occurs.
- 4) When thermal cycling is present, live loading is recommended to allow for continuous sealing.

LIVE LOADING

When the packing wears and consolidation (reduction in packing volume) occurs, the control valves start leaking unless gland packings are retightened again. This can be experienced for valves working on high cycle frequency and Thermal loads, which aggravates the wear and consolidation due to expansion and contraction of gland packing.

In order to overcome this problem, Thermax control valve have an arrangement where additional disc springs and extra 'O' rings (with V-Teflon rings/ Graphite rings) are provided to apply a constant load to compensate for wear, expansion and contraction of gland packing. Till the spring force is available, there will be no leakage, no need of gland tightening or gland packing replacement.



MULTISPRING DIAPHRAGM ACTUATORS



The 'TM' Series control valve actuators are diaphragm actuators with pre-compressed multispring construction. They are compact, comparatively with less number of parts, easy to maintain, quickly reversible. The actuators are suitable for regulating and on-off applications. Various models are available covering small to larger thrust requirements.

The actuator can be mounted on the shoulder of control valve bonnet with the help of locking ring. The connection between valve stem and actuator stem can be achieved with the help of stem connector made out of two halves. The travel indicator is coupled with the stem connector which matches with travel scale indicating the position of inner valve stem.

WORKING PRINCIPLE

When the compressed air is introduced, the diaphragm pushes the actuator stem (which is connected with the valve stem) in upward / downward direction as desired and valve gets opened / closed. However when the air pressure starts decreasing the spring force moves the diaphragm in opposite direction and valve starts opening/closing. Depending on the air pressure the valve can be modulated.

ELECTRIC ACTUATOR

ELECTRIC ACTUATOR type is designed linear for remote control of globe control valves. These actuators are designed for on-off application and they are customer friendly and guarantee precise control every time, with repeated operations also.

The special design features of this actuator give value addition to our customers in following ways :-

- VERSATILITY ■ ROBUSTNESS
- RELIABILITY ■ ECONOMY

WORKING PRINCIPLE

When electric signals in the range of 4-20 mA or up/down pulse from relay is given to the actuator, it operates the synchronous motor either in clockwise or anticlockwise direction. This rotary motion is converted to linear motion with the help of a gear train. The resultant linear motion of gear train moves the stem in upward or downward direction which results in opening or closing of the valve.



TECHNICAL SPECIFICATIONS

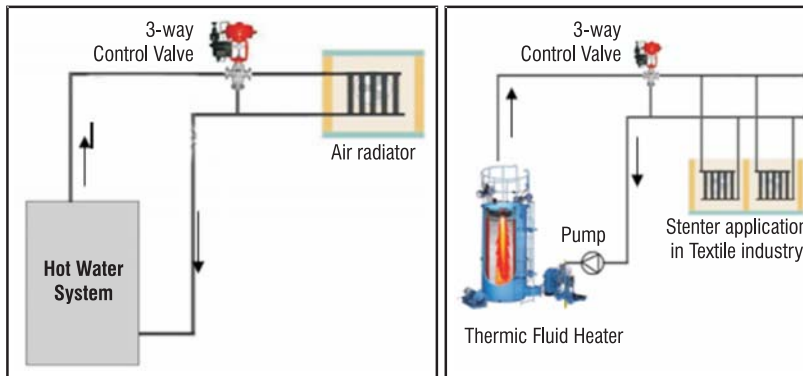
Type	2 way and 3 way Valves
Valve Sizes and Ratings	15mm thru 300mm NB
Flow Type	Mixing / Diverting
Pressure suitability	As per ANSI #150, #300, PN 16, PN 25 equivalent to BS & DIN
Temperature suitability	As per ANSI B 16.34
End Connections	Flanged & Butt Weld End – All sizes, Socket Weld End & Screwed End upto size 2"
Valve Body MOC	Carbon Steel ASTM A216 Gr. WCB. All other materials available on request.
Trim MOC	Seat - SS 316 Stellite, Plug - SS 316 Stellite, Guide – SS 431 Heat Treated All other materials available on request.
Rangeability	30:1 Standard (50:1 or higher available on request)
Bonnets	Extended Finned, suitable for high temp. application
Manual Overrides	Top mounted version upto size 4", Side mounted version recommended above size 4"
Electrical Specifications	230 / 110 V, 50 / 60 Hz, 1/3 Ph
Compressed Air	4 – 6 Kg/cm ² at the inlet of Pneumatic Actuator

FEATURES

- a) Complete range of 2 way and 3 way control valves, with options of pneumatic and electrical actuators, for reliable leakage-free operation for a long duration.
- b) Reliable electrical actuator with Stall duty motor, ensure no failure of motor coil at locked rotor conditions.
- c) Specially designed for high temperature application, with extended bonnet as default offering.
- d) Body with top entry trim and bolted bonnet facilitates easy access to all internal parts for online inspection, maintenance and trim replacements.
- e) Stream lined flow path provide large flow capacity, variety of Trim options available for precise flow control.
- f) Zero emission valve due to low fugitive emission Graphoil gland packing.
- g) Stellited internals ensures zero leakage through ports.
- h) Easy to integrate to control loop and/or distributed control system in Electrical actuator type.
- i) Ensures a long service life, due to rigid construction & durable components.
- j) Modular design ensure common parts, easy to install & maintain and hence trouble free operation.
- k) Dust & water proof (IP65 for Pneumatic & IP67 for Electrical actuator) protection ensure smooth operation at extreme condition.

APPLICATIONS

Typical Applications :



FEW OTHER APPLICATIONS FOR CONTROL VALVE :

- Radiators used in process industry
- Shell & tube heat exchanger in process industry
- Stenter application in Textile industry
- Drying cylinders in process industry
- Platten press application
- Calendering application
- Dyeing application
- Tank heating application
- Tank / Drum Level Control Application
- Distillation column application

For more information, please get in touch with your nearest Thermax Representative. You can also mail us at info.c&hservices@thermaxindia.com visit us at: www.thermaxindia.com

In view of our constant endeavour to improve the quality of our products, we reserve the right to alter or change specifications without prior notice. All photographs shown in this publication are representative in purpose, and to be used for reference only. For actual details and specifications, please refer to Thermax offer document.



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Sustainable Solutions in
Energy & Environment

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Thermax Business Portfolio

Boilers & Heaters

Absorption Cooling

Air Pollution Control

Captive Power

Chemicals

Water & Waste Solutions