



HEATING OR COOLING OPTIONS



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Certain processes require that the fluid be at constant temperature throughout the entire plant. Valve equipment is a thermal bridge that can significantly influence the fluid temperature. Today, several technologies exist to maintain the fluid at a specific temperature and each one of them has its advantages and disadvantages.

On the other hand, all of the heating or cooling technologies have one common objective: keep the optimum fluid temperature during the entire process to guarantee efficient flow (the right fluid viscosity). This also allows to reduce consumption, energy loss of the installation, non-necessary emissions and to improve the longevity and efficiency of the equipment.

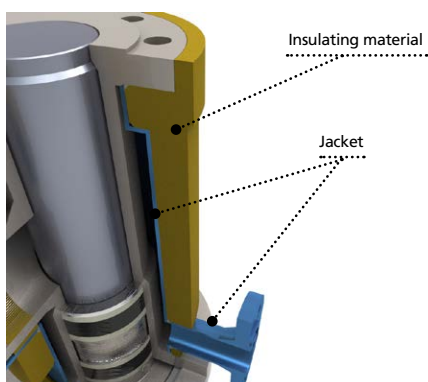
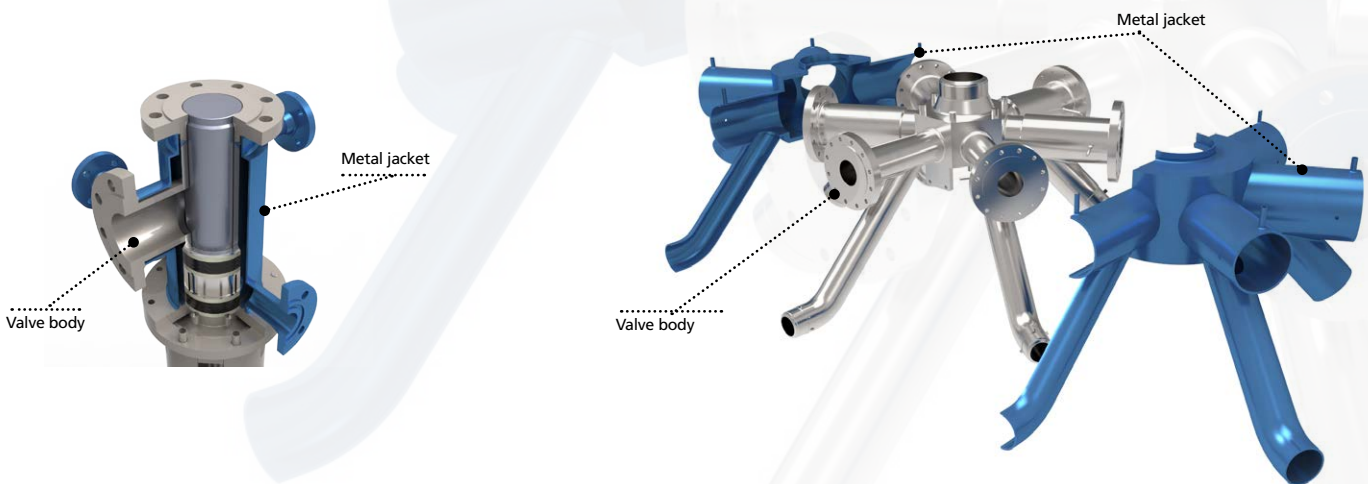
CUSTOM MADE METAL JACKETS

Metal heating or cooling jackets can be installed on almost all types of valves, even those with complex geometries. A custom design allows to respond perfectly to process needs with the advantage of heating the valve in a very homogeneous manner, at any point along the body.

The position of inlet and outlet nozzles are designed to optimise the heating or cooling. Deflectors (baffles) can be added to permit the right distribution of heating fluid.

These jackets are particularly used in “polymer” applications, where the fluid must remain liquid and consequently maintain a high temperature during the flow through the equipment. Otherwise, the fluid hardens inside the valve, disturbing its operation. In pharmaceutical applications, when a sample is drawn, it is important that the fluid exits into the sampling bottle at ambient temperature (to avoid any risk of burns). In this case, the use of a cooling jacket on the outlet leg is essential.

■ Example of custom-made metallic jacket for multiway valves



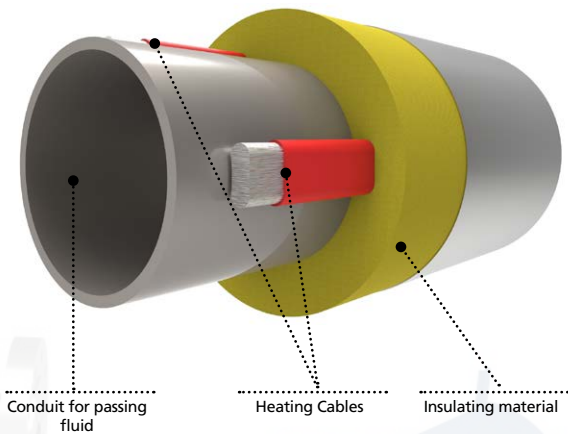
Distinctive Features

- Design possible on all types of valve equipment
- Can be installed in ATEX (hazardous) areas
- Allows for heating or cooling by oil, water or steam
- Can be used as a safety jacket (see chapter entitled “Safety Options”)
- Possibility of a bolted jacket
- Imposes a welded design, custom tailored to the installed valve device
- Design requires a circulation system for the jacket fluid to be put in place
- For safety reasons, metal jackets are insulated.

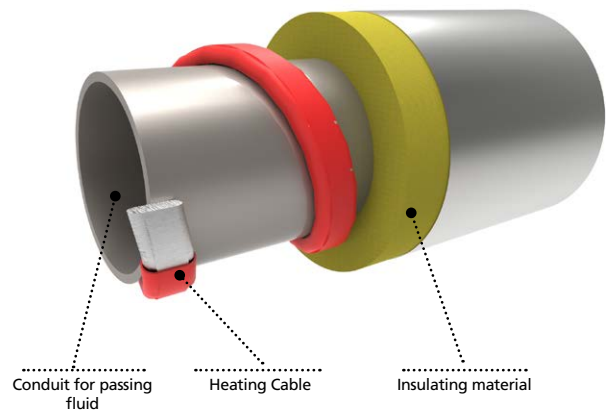
TRACING

Electric tracing consists of equipping the piping and/or the valve with electric heating elements. These heating elements must be in contact with the wall of the equipment that is going to maintain the temperature or heat the valve, the piping and hence the fluid. Furthermore, it is recommended to thermally isolate the valve and/or the piping with a flexible insulating jacket to limit heat loss and avoid eventual burns to operators. An insulating material will therefore envelop the part equipped with the tracing system.

■ Linear tracing (3 cables at 120°)



■ Helical tracing

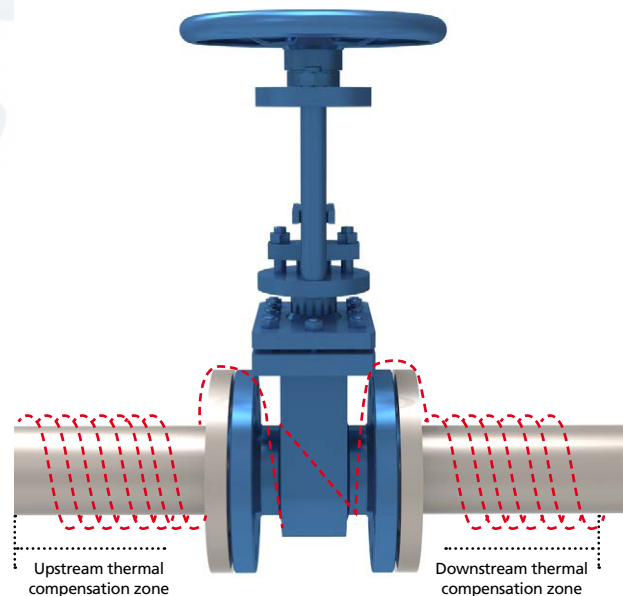


All valves positioned along the path of the pipeline are thermal bridges through which heat can escape. In function of the valve mass and the temperature to be obtained, it is important to select the right length for the heating cable as well as the correct heating power in order to compensate heat loss emitted by the valve equipment. Generally, the required length is several meters in order to compensate such a heat loss.

As it is impossible to arrange the entire length of thermal compensation exclusively on the equipment itself, it is important to distribute a significant length of cable upstream and downstream of the equipment. It will be installed on the device uniquely the necessary length, which will still allow for disassembly and easy maintenance.

Distinctive Features

- Adapted for all types of equipment, regardless the design, the dimensions and the technology used
- Possibility of hydraulic tracing
- Non-homogenous heating
- Installation constraints in ATEX/hazardous areas
- Imposes relatively complicated assembly constraints (pinching, twist, bend radius, curvature of the cables used, etc.)
- Requires that insulation be put in place
- Temperature control constraints (installation of temperature sensor and control box)



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FLEXIBLE INSULATION JACKETS



■ Non insulated valve



■ Insulated valve

Valves carrying a hot or cold fluid and requiring in-depth, periodic, maintenance can be equipped with a flexible jacket to avoid losses related to the process temperature.

Non-insulated valves are sources of energy loss. It is possible to reduce these losses thanks to an insulation jacket and consequently, rapidly reduce the operating costs.

Flexible jackets, also called "covers", permit the insulation of the valves. Their implementation is easy and in-expensive.

Distinctive Features

- Low cost (jacket made up of insulating materials)
- Installation possible on all types of valve devices
- Can be installed in ATEX (hazardous) areas
- Can be combined with an electric tracing or metal jacket option
- No electrical connection required
- Limited longevity
- Avoids risk of burns (safer)
- Reduced efficiency

CHOICE GUIDE FOR HEATING OPTIONS

- Well adapted
- Moderately adapted
- Little adapted

Technology \ Criterion	Metal Jacket	Heat Tracing
Life expectancy	Well adapted	Moderately adapted
Efficiency	Well adapted	Moderately adapted
Purchase price	Moderately adapted	Well adapted
Operating cost	Well adapted	Little adapted