**Why should pipes and valves be insulated?**

With the increasing value of energy and serious environmental pollution, energy conservation has received more and more attention from people, ranging from energy saving for large equipment to energy saving and environmental protection of the insulation of the[valve](https://www.xhvalves.com/).

How to do a good job of heat insulation of valves has become an important issue facing people nowadays. According to the calculation, a high-temperature valve that is generally exposed to the air loses the heat equivalent to burning one ton of fuel oil per year. The number of valves in industrial and civil use in China is tens of thousands, and the quality of thermal insulation directly affects the safety of the device and the important problem of thermal energy loss.

In the petrochemical industrial products, especially the transportation of crude oil, it must be heated to a certain temperature, so as to avoid that the temporature is too low, the viscosity increases sharply, the transport resistance of the valve and pipeline is increased, and the transportation is unfavorable. Therefore, the oil should be properly heated. In order to reduce the heat dissipation of the valvepipe along the path and to reduce the heating energy consumption, the pipeline should be insulated.

As for long-distance pipelines for transporting such as refined pulp and coal slurry, in order to prevent the slurry from freezing after reaching the end, the pipeline should also be insulated, and if necessary, should be heated. When various types of exposed pipelines are crossed across the valley or river, heat insulation should be carried out to prevent freezing when the downtime is too long.

Natural gas pipelines are not allowed to have free water and do not allow condensation on the inner wall. Some cold medium conveying pipes, such as refrigeration pipes and indoor groundwater pipes, do not allow condensation on the outer wall and should be insulated.

In some heating equipment, such as crude oil heating furnaces, in order to prevent the surface temperature from being too high and prevent the operator from being burnt, the heat should be kept so that the surface temperature does not exceed 60 °C. This protects both the operator and the fuel consumption.

The greater the thickness of the insulation layer, the larger the investment, but the smaller the heat consumption; on the contrary, the smaller the thickness of the insulation layer, the smaller the investment, but the greater the heat consumption, so there is a problem of economic thickness. For natural gas pipelines that do not allow condensation on the inner wall of the pipeline and cold medium pipelines that do not allow condensation on the outer wall of the pipeline, the thickness of the insulation layer is determined by the need for no condensation.

The insulation under normal operation of pipeline transportation is a problem of stable thermal calculation. The insulation after shutdown is an unsteady thermal calculation problem. Heat tracing measures are generally used to ensure that the minimum temperature after cooling is not lower than the minimum allowable temperature.

Commonly used valve and pipe insulation methods are wrapping them with insulation cotton or insulation blanket and then bundle them. The insulation cotton can be made of mineral wool, fiberglass cotton, ceramic wool, etc. A protective layer of aluminum is added on the outside.

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