

Self-limiting temperature electric heating cables Installation Notes?The self-limiting temperature electric heating cable is the only belt-shaped constant temperature electric heater of the new generation. [Heat trace cable](#) uses electric heating equipment to convert electrical energy into heat. Through direct or indirect heat exchange, it supplements the heat lost by the heating equipment through the insulation material. And adopts temperature control to track and control the temperature of the medium in the heat tracing equipment to maintain it at a reasonable and economical level.

With the wide application of self-limiting temperature electric heating cables, more and more heating users choose [self-limiting temperature electric heating cables](#). After many electric heating customers purchase self-limiting temperature electric heating cables, they will enter some misunderstandings during installation. Only by understanding the installation misunderstandings can they be better avoided. The following is the self-limiting temperature compiled by [Anhui Tiankang Group](#)Some misunderstandings about the installation of electric heating cables.

1. Before installation

The anti-rust and anti-corrosion coating should be dry, burrs and sharp corners on the pipe, no damage to the surface of the heating belt, and the insulation resistance of the heating belt should be $\geq 20M\Omega$ (1000VDC). Do not pull the heating belt forcefully, and avoid placing pedals or heavy objects on the heating belt; the models of the heating belt and all accessories should be consistent with the design requirements.

2. Inspection and testing after installation

Check whether the surface of the heating belt is damaged, and test one end of each independent circuit with a shaker 2500VDC. The insulation resistance should be above 20M Ω . It should be ensured that the overload protection, leakage protection and explosion-proof safety devices of the power supply are in good condition.

3. Special precautions

It is strictly forbidden to mix steam heating and electric heating together. The insulation layer shall not be damaged when the heating belt is installed, and it shall be close to the heated body to improve thermal efficiency. If the body to be heated is a non-metal body, use adhesive tape to increase the contact heat transfer area and fix it with nylon cable ties. It is strictly forbidden to tie it with metal wires. The medium at the flange is easy to leak, so avoid directly under it when winding the

heating tape. One end of the heating belt is connected to the power source, and the other end of the wire core is strictly prohibited to be short-circuited or contact with conductive materials and cut into a "V shape. The matching head must be used to seal tightly; waterproof and explosion-proof occasions should have a matching explosion-proof junction box and terminal .After wiring, apply silicone rubber to seal (the shielding layer must be peeled off 250px at the terminal of the electric heating belt using the shielding layer to prevent short circuit); the insulation of the hot spots should be measured one by one during installation, the shielding layer must be grounded, and the insulation resistance value is small, low At $20M\Omega$ (1000VDC), select bipolar power failure and leakage protection circuit breakers according to the voltage and current parameters of each circuit of electric heating. When steam cleaning pipelines are required for descaling, attention should be paid to cleaning first and then installing electric heating belts, such as The annual line sweeping and maintenance should be designed and installed according to special circumstances.

2. When installing

1. Before construction, you must understand the structure, performance and installation requirements of the electric heating cable used.
2. The installation, commissioning and operation of electric heating cables must comply with the relevant provisions of GB50254-96 "Code for Construction and Acceptance of Electrical Installations in Explosive and Fire Hazardous Environments" and GB50257-96 "Code for Construction and Acceptance of Low-Voltage Electrical Apparatus" issued by the Chinese state.
3. All kinds of electric heating cables have minimum bending radius requirements during installation and laying. Excessive bending will damage the electric heating cables.
4. The electric heating cable laid in parallel along the pipeline is generally installed under the pipeline and is at an angle of 45° to the horizontal axis of the pipe cross section. If two electric heating cables are used, they should be laid symmetrically.
5. When installing on the vessel, the electric heating cable should be wrapped around the middle and lower part of the vessel, usually not more than $2/3$ of the vessel height, generally $1/3$.
6. For electric heating of non-metallic pipes, a metal sheet (aluminum foil) should be inserted between the outer wall of the pipe and the electric heating cable to improve



the heating effect.

7. The installation of electric heating cable should fully consider the possibility of pipeline accessories and equipment disassembly, and ensure that the heating cable itself is not damaged.
8. When installing accessories, aprons, washers, fasteners, etc. are required to be installed correctly and fastened to prevent loosening or water in the box.
9. The insulation material outside the electric heating cable must be dry, and the quality and thickness of the material must be guaranteed.
10. In humid and corrosive environments, reinforced or marine electric heating cables must be used.
11. After the insulation material is installed, it must be wrapped with a waterproof layer immediately to prevent rain and moisture.
12. When installing the electric heating cable, the end box must be used. It is strictly forbidden to connect the end core wire to cause a short circuit.
13. The maximum laying length of electric heating cable should be less than 100 meters.
14. When laying horizontal pipelines in parallel, ensure that the electric heating cable is close to the bottom of the pipeline, so that heat can be transferred more effectively and heat loss can be reduced during work.
15. At the same time, please note that the antifreeze sensor should be installed on the upper part of the pipeline (that is, the opposite direction of the electric heating cable); the antifreeze sensor cannot be directly contacted with the electric heating cable, so that the actual temperature of the pipeline cannot be accurately detected.
16. When using other laying methods, also pay attention to the installation position of the antifreeze sensor, and it is best to place it at the lowest point of the pipeline temperature.
17. During the construction process, pay attention to check the surface of the electric heating cable for no scratches, cracks, etc., and replace it immediately if found.
18. In addition to installing smart meters to control the work of the electric heating cable, if the electric heating cable is used alone to prevent freezing, a leakage protection device must be installed at the power input end, and ordinary three-terminal plugs cannot be used directly. The grounding protection wire should be reliably connected to the pipeline for laying the electric heating cable. In this way,

once the electric tracing cable leaks, the leakage protection device can reliably cut off the power supply to ensure safety.

If you want to know the installation method of self-limiting temperature heating cable, please refer to [Schematic diagram of common electric heating cable installation methods](#). If you need to know the calculation of heat dissipation of pipe heating, please refer to [Calculation formula for heat dissipation of pipes using electric heating cable](#).