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JUNCTION BOXES, TEMPERATURE CONTROLS & ACCESSORIES FOR HEAT TRACING

• Enclosures & accessories for immersion heaters & temperature sensors:

See catalogue No.11

• Explosion proof thermostats & heat tracing equipment:

See catalogue No.4

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Adjustable room thermostat, IP55 plastic housing, internal or external adjustment, one pilot light, pig-YOD8 tail bulb. One, two, or three M20 cable glands for P10-P11 round or flat cables. Can be used for distribution to YOD9 one or two heating cables. Also available with bulb and capillary distant sensor. Maximum 16A Room thermostat, IP65, IK10 aluminium housing, internal adjustment under polycarbonate window. One pilot light, pig-tail bulb. Two M20 cable gland. Y1A8G Can be used for direct control of one heating P12-P13 Y1B8G Section 6 cable. Also available with bulb and capillary distant sensor. Maximum 16A. 20A version is available. See catalogue 4 of products for hazardous areas Room thermostat, IP69K, IK10, round plastic housing, Adjustment under screwed polycarbonate lid. Two YF7GNC pilot lights, pig-tail bulb. Two M20 cable gland. Can P14-P15 be used for direct control of one heating cable. Also available with bulb and capillary distant sensor. Section 7: Electronic controllers, for ambient temperature measurement, with built-in or remote P1-P36 Electronic controller with digital display, DIN rail mounting, with remote temperature sensor, for 2DNA antifreeze or temperature control of heating cables P3-P4 and pipes. On Off action with adjustable differential. Used to control directly one heating cable. Electronic room thermostat, on-off action with low differential, IP65, IK10 aluminum housing. Internal set Y1A2P point adjustment. Two M20 cable glands for round P5-P6 or flat cables. Used to connect directly one round or Y1B2P oblong heating cable. 25A version is available. See catalogue 4 of products for hazardous areas Adjustable electronic room thermostat with low differential, on-off action with adjustable differential, inside IP69K, IK10 plastic housing with transparent YF62NC polycarbonate window. Two M20 cable glands for P7-P8 YF92NC Section 7 round or flat cables. Allows direct connection of one round or oblong heating cable. Available with built-in or remote temperature sensor. Industrial electronic thermostat, graduated knob set point adjustment, wall-mounting, for remote control of trace heaters, to be used combination with a connection box Y26, Y27, Y28, Y29, Y40, Y41. IP69K Y8WR-X ingress protection. Adjustment by graduated knob. P9-P11 Y8WR-Y On-Off action. Output by 3 cable glands or by 5-ways connector. Can receive a rear stainless-steel bracket for pipe mounting.

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	Y8WH-X Y8WH-Y	Industrial electronic temperature controller, digital display, wall-mounting, for remote control of trace heaters, to be used combination with a connection box Y26, Y27, Y28, Y29, Y40, Y41. IP69K ingress protection. Adjustment by graduated knob, On-Off action. Output by 3 cable glands or by 5-ways connector. Can receive a rear stainless-steel bracket for pipe mounting.	P12-P14	
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	Y8WJ-Z	Industrial temperature controller with double digital display, PID action . IP69K, IK10 enclosure, adjustment under polycarbonate window. Fitted with one pipe mounting leg allowing to receive 1 or 2 self-regulating cables up to 6x13mm, and one temperature sensor cable. Also fitted with one M25 cable gland for the power cable. Available in room temperature control with built-in or with remote temperature sensor.	P28-P32	
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M20 and M24 cable glands with gaskets for round, P30-P34 6YTP oblong and self-regulating cables. Stainless steel devices for mounting temperature sensors and thermostat bulbs on pipes surface. **6YTBA** P35 Flexibles, they provide a permanent thermal contact with the pipe Bands for mounting electric heat tracing cables on P36-P37 **6YTBT** pipes, on roofs or on the floor. Support in stainless steel for mounting M20x1.5 disc P38 **6YTQS** thermostats and M20x1.5 temperature sensors on pipe walls. Stainless steel mounting feet for connection boxes Section 9 with or without insulation piercing, snapped-on or **6YTQT** P39-P40 screwed on the bottom of the boxes. Mounting on pipes by nylon ties or metal clamps. Heat tracing pipe mounting feet for connection boxes, includes gasket for flat self-regulating cables up to 6 **6YTPP** P41-P44 x13mm, and for temperature sensor. Patented selflocking of the gasket tightening. (1" thread). Tinned tubular copper terminals for connecting **6YTCO** heating wire conductors end to end by hexagonal P45-P48 crimping. Wimheat & & Fluid RTV silicone for filling, temperature resistance P49 **6YTMC** 280°C, in 45ml tubes, with injection nozzle.

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: These products are not made by Ultimheat

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Section 2 Historical introduction to electric flexible heating cables



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Historical introduction to electric flexible heating cables Heated cables and cords. First applications in horticulture and the early stages of anti-frosting using electricity

Around 1925, a Norwegian engineer named C. Jacobsen noticed that the snow had melted and that the vegetation was clearly visible all along the underground power lines. From there came the idea of using heating wires to increase the growth rate of crops. Thus, this area of heating was born, which progressed rapidly because of its numerous technical and economic advantages, and which quickly attracted German, Dutch and French horticulturists.

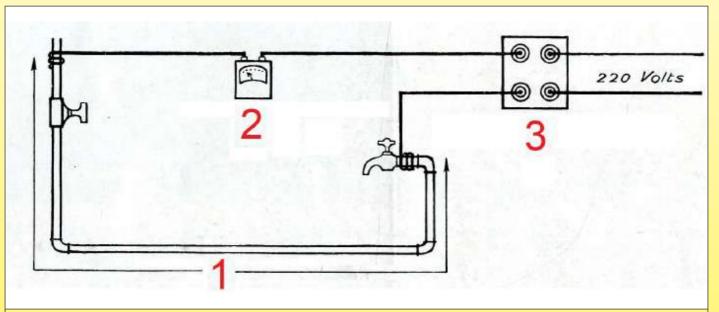
In 1928, in the south of Alsace, an electricity producer, (the Société des Forces Électriques Sundgoviennes), implemented an original system for reheating and thawing drinking water supply pipes, using the resistivity of iron pipes. This on-demand service, carried out house by house by a van specially fitted out with a low-voltage transformer, made it possible to thaw frozen underground pipes, by simply having access to both ends of them.

The two secondary terminals were then connected by 25mm² cables to the two ends of the pipe to be thawed.

Depending on the length of the pipes to be treated, currents of 50 to 150 amperes were used. The heating resistance was then the metal tube itself.

(1929 BIP Electricity Information and Propaganda Bulletin N 10)

In some countries, a similar technique was used for heating layers in horticulture. The heating element was then a simple galvanized iron mesh, placed inside the ground, and power supply was made at each end by a low voltage transformer.



Thawing system of water pipes implemented by the Sundgovian Electric Forces Company in 1928 1: Frozen iron pipe

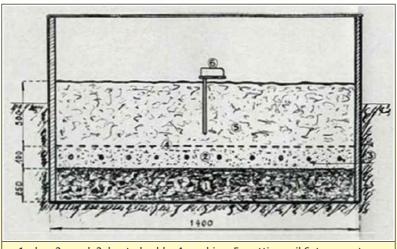
2: 0-150 Amp ammeter. 3: 220/20 Volts transformer, 50 / 150Amp.

From the beginning of 1929, experiments on electrically heating the soil for vegetable production were carried out at the Fontaines School of Agriculture in Saone et Loire (Ruling by the general council of Saone et Loire, August 1929).

In Holland, the first heated cables for horticultural use were installed as an experiment during the winter of 1929 - 1930 in The Hague, Delft and Rotterdam They had been produced by the Swedish company Sievert de Sundyberg. They consisted of a 0.73mm diameter resistor wire, with a linear resistance of 1.10 ohm per current meter. Two coils of asbestos helically wound in the opposite direction, then a layer of impregnated paper, and finally a 1.3mm thick lead sheath ensured the insulation and mechanical protection of the resistor wires. The outer diameter of this heating cable was 4.7mm. The lead sheath, with a linear resistance of 0.13 ohm, also acted as a return current conductor. For this purpose, the free end of the cable was welded to the resistor wire. Each 50m long cable can be charged up to 5 A or 22W/m (1931 BIP Information and Electricity propaganda N 37)

In countries with a harsh climate, such as the Scandinavian countries and Germany, heated cables buried at 30 centimeters maintained the temperature of greenhouse layers. The current at night could be set to a very low rate, and the savings in heating costs are estimated to be around at 75%. (Le Temps, April 27, 1932)

1936 To speed up the growth of early vegetables, horticulturists are making use of layers of crops covered with glass. Successful experiments with electrically heated layers were well received in various regions of France and abroad. For this purpose, controlled trials were carried out in Nice from February 1 to 15 May 1935. The heating cable consisted of a cable reinforced with a nickeline conductor, and was 12/10mm in diameter. The power input was about 3 kW, or about 200 watts per square meter of land area. [NB: Nickeline was an alloy of copper, zinc and nickel, similar to nickel silver, and manufactured by the German company Obermaier] (1936 BIP No. 93, Ultimheat Museum*)



1: slag, 2: sand, 3: heated cable, 4 meshing, 5: potting soil 6: temperature limiter (1936 BIP # 93, Ultimheat Museum*)

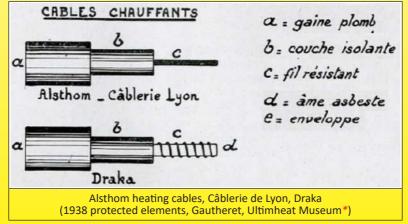
Horticultural applications using electric layer heating developed rapidly in France, and this type of heating cable was quickly standardized with two main French suppliers: Câbles de Lyon and Alsthom, using a straight heating wire. There was also a Dutch supplier, the Hollandse Draad in Kabelfabriek (Draka) from Amsterdam, that used spiral heating wire around an asbestos core.

Heating cables were a very special solution to the problem of heating elements, and they have since been widely adopted in the agricultural field for heating crops. However, these cables can be used industrially for relatively low voltages and low temperatures (up to 80°C on the cable surface), particularly in order to spread the heat as evenly as possible. There are currently three types of heating cables, which are listed below in alphabetical order:

- A / Starting from the center to the periphery, the Alsthom cable comprises a resistant nickel-chromium wire with two impregnated cotton pads, a triple asbestos braid, a wrap of impregnated paper, pure lead casing and, in some cases, an additional sheath or strip of striated electrolytic zinc was added to avoid electrolysis resulting from stray currents. The diameter of the bare lead cable is approximately 6mm and the resistivity may vary from 0.5 to 2 ohms per meter (in general, an amount equal to 1 ohm per meter is chosen). The maximum specific power is 30 W per meter or about 33 m.
- B / The Câblerie de Lyon cable was made of a resistant wire insulated with layers of asbestos and tar paper and wrung out. The whole system was coated in a lead sheath and protected against chemical corrosion by special treatment (sulphurization), and then covered with impregnated paper and sheet armor. The specific power varies from 25 to 40 W / m in general.
- C / The Draka cable (produced in Holland) is normally comprised of a nickel-chromium wire rolled on an asbest core (product made from asbestos) and surrounded by a mixture (of which we do not know the composition), which forms the electrical insulator and thermal conductor. The whole system is covered with a layer of pure lead. In some cases the cable is armed, the lead casing is asphalted, wrapped in impregnated paper, and then reinforced with 2 layers of sheeting, asphalted again and finally wrapped with impregnated paper. The outside diameter of the unarmed lead wire is 4.15 to 6.5mm. The specific power is usually 30 W / m.

Heating cables have three interesting advantages in particular: ease of use; resistance to certain chemical agents (pure lead sheath); low price (for example, a 1kW cable is currently worth about half the price of a magnesia-coated tube with the same power).

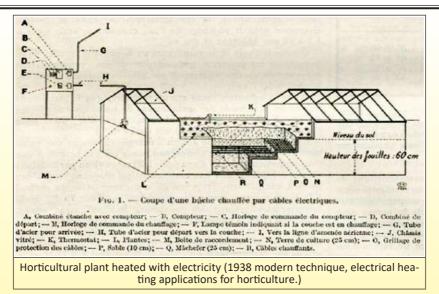
(1938 Protected Elements, Gautheret, Ultimheat Museum*)



1938 The heating cable is deemed the heating device that best meets the needs of horticulture. It consists of a high-resistance alloy conductor (nickeline, nichrome, nickel, constantan), insulated with several layers of asbestos and impregnated paper, and mechanically protected by a lead sheath covered with an anti-corrosive coating, and sometimes double coated with a steel sheet. The metric resistance of the cable to be installed depends on the length needed to obtain an equal distribution of the desired heat on a given surface.

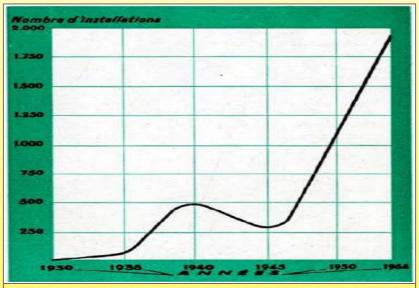
Manufacturers are building cable types of various strengths, ranging from 0.15 to 2.55 ohms/m, to meet all needs (1938 modern technology, electrical horticulture applications





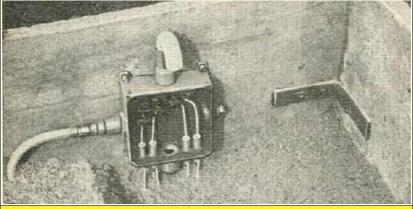
In 1956, 2,500 French farms were equipped with it, with a total installed power of about 5000kW, and an annual consumption (exclusively at night) of 3 to 4 million kWh.

Heating using buried flexible cables. 1956 Electric horticulture heating (Ultimheat Museum*)



Variation in the number of soil heating operations in service since 1930. (1956 Electric heating in horticulture, Ultimheat Museum*)

In 1957, the EDF manual describes electric heating applications in horticulture. Recommended values range from 150 to 200 W/m² for outdoor awnings and 80 to 120 W/m² for greenhouse shelves.



Electric heating of the ground, with the arrival of heating cables (1957, EDF Manual, Ultimheat Museum*)

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Miscellaneous applications of heating cables

The appearance in 1929-1930 and the development of heating cables for horticultural use gave rise to other applications. Waterproof and coated with a mechanical protective lead casing, they could easily be used on their own. It was no longer necessary to have them integrated into an envelope like the heating wires of fabrics and small household equipment. The lead shield kept the cable flexible while providing some temperature resistance. Insulator technology evolved to have a higher temperature resistance and that gradually increased the range of applications. As early as 1937, in Sweden, the electric floor heating of a sports field was carried out.

As early as 1938, some industrial achievements had already been made with some of these heating cables, such as drying ovens for glazed wire, heated water pipes to prevent freezing, tanks for photographic solutions, and paraffin tanks. These cables were then used in low-temperature heating for liquids and air, such as in drying ovens, chamber-ovens, walls and heated floors. (1938 Protected Elements, Gautheret)

In the USA, the Michigan state Highway received electric heating near Ferndale in 1948.

In cold countries, in Europe, trials of heating roads and bridges using electric heating cables began in 1956 in Switzerland, on the Walensee Strasse between Zürich and Cloire. Similar tests took place the same year in England and the following year in Germany at the Montabaur Bridge on the Frankfurt-Cologne route.

1963 saw the first French example of domestic heating: a heating cable embedded in the floorboards. It was presented at the international construction exhibition by the company Panélac. It worked by thermal accumulation during "off-peak hours" (1963 Domestic equipment N92, Ultimheat Museum*)

It was followed in 1966 by the heating of the interchange of the Porte de la Chapelle in Paris (Electric heating of the roadways, by Robert Félix, 1971, Ultimheat Museum*)



1969 Laying asphalt on the upper carriageway of a Hammerschmidt junction in London
(Electric heating of the roadways, by Robert Félix, 1971, Ultimheat Museum*)



1968 Installation of the heating web on an access ramp to a bus parking platform, Orly airport near Paris (Electric floor heating, by Robert Félix, 1971, Ultimheat Museum*)

In 1966, as with heat blankets, silicone modified the design of flexible industrial heating cables and fabrics.

On the market, we began to find heating cables consisting of a single or double Fe-Ni-Cr or nickel-silver resistor wire, electrically protected by sheaths or braids of glass wool, or glass wool and silicone rubber.

For industrial applications (drying ovens, liquid heating) and agricultural heat tracing, these heating cables were mechanically protected by flexible sheathing made from either lead, steel or copper. Their diameter ranged from 4 to 9mm, for a linear resistance of 0.25 to 100 Ω per meter, and a general power of 30 to 40 W/m. (1966 Electric Heating elements, Ultimheat Museum*)

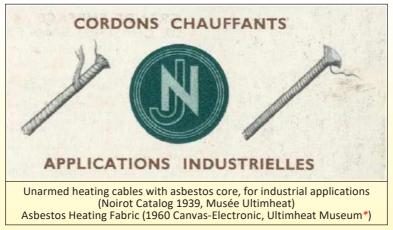
The development of self-regulating polyethylene-carbon cables in the late 1960s opened a new path for the electric heat tracing market, after their initial applications in domestic heated blankets stagnated.

A few years later in 1975, tests for pavement heating with heating cables were tested in the Cher region (Official Journal of 14 January 1976)

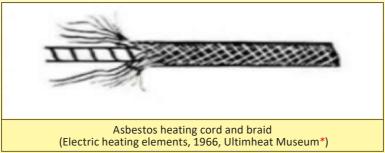
Flexible heating cords, with PVC, silicone, PTFE or polyolefin insulation, using resistive or self-regulating metal conductors, became an important new area of electric heating, with new opportunities opening up as new products emerged. Examples included heating cords for refrigerated windows, electric tracing heated cables, anti-freeze systems for pipe networks, road de-icing, roof snow removal, frost protection for meters, and domestic electric floor heating.

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Another important application is that of heating cords, consisting of a calibrated asbestos bead on which the metal conductor is wound and covered (or not) with asbestos braiding or other insulating substances". (1966 Electric Heating elements, Ultimheat Museum*)



In August 1977, awareness of the danger of asbestos led to a first decree on the protection of workers exposed to asbestos dust, followed by a total ban of asbestos in France in 1997. As a result, these types of heating elements disappeared from the market.

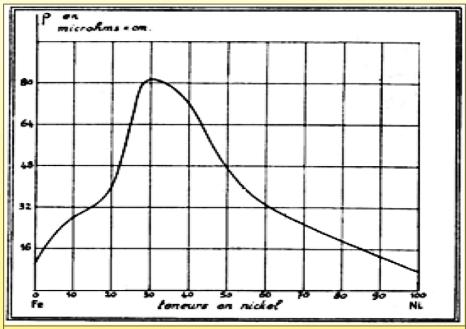
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Technological evolution of heating elements Metal heating wires

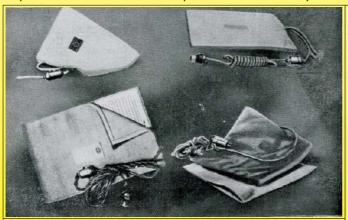
When Camille Hergott developed his first flexible heating elements, his research was focused around nickel conductors. He made this choice because of the high temperature coefficient, making it rustproof and self-regulating (thanks to its double resistivity between 20 and 200°C). Other metals used at the end of the 19th century for heating elements were platinum (expensive), iron (oxidizable), nickel silver (low temperature coefficient), and copper (very low resistivity).

Ferro-nickels, which appeared shortly thereafter, made it possible to limit the length of the heating wires required, because they had greater resistivity. The most resistive alloy used for heating elements was 30% iron and 70% nickel. Its resistivity varied little with temperature (temperature coefficient of 0.0009°C i.e. 5 times less than pure nickel at 0.0054). They were basically rustproof at high temperatures, and so were mainly used in stoves, radiators, and toasters.



Variation in resistivity: curve according to nickel content in ferro-nickel alloys (La Nature, 1934, Nickel alloys and their applications, P215)

The development of nickel alloys from 1900 to 1940 gave rise to nickel-chromium resistive alloys and multiple coppernickel alloys. As for ferro-nickels, high resistivity and temperature resistance were the main parameters for using these products. The alloys also had to have a low temperature coefficient, such as constantan and 'Advance' by Driver-Harris, so that their characteristics were not affected by temperature. Their use in heated blankets and thermoplasms required the addition of a temperature-limitation system.



1930 Electric compress with Advance heating elements (Drivers Harris, 1930 catalog, Ultimheat Museum*)

ALLIAGES R. N. C. POUR RÉSISTANCES ÉLECTRIQUES

Propriétés	RNG-1	RNG-2	RNC-3
Résistivité à 15°	nicrohms/%/%1	microhms/%/1%2	nicrohms/%/%
Coefficient de température de la résis- tivité, valeur moyenne entre	o 6/500° 0,30 à 0,35 × 10-3	0,10 à 0,15 × 10-1	0,05 à 0,08 × 10-8
Pouvoir thermoélectrique par rapport au cuivre	+ 2 à + 2,5 microvolts par degré	o à + 0,7 microvolts par degré	+ 5 à + 6 microvolts par degre
Densitė	8,05	8,25	8,45
Point de fusion	1.4500	1.4500	1.4750
Température limite d'emploi	600-7000	900-1.000*	1.100-1.1500
Applications	Rhéostats. Chauf- fage aux tempéra- tures moyennes, Cuisine électrique, Chauffage domes- tique.	Radiateurs, Chauf- fage aux tempéra- tures élevées, Fours	aux températures très élevées, Appa- reils de laboratoires

1933 Imphy's steel plants offer resistive wires in 3 different nickel-chromium alloys, which they call RNC 1, 2 and 3 (Resistive Nickel Chrome). RNC1 was well suited for heated blankets. It had a large increase in resistivity in relation to temperature, which provided a self-regulating effect (0.0030 to 0.0035 Ω / Ω /°C)

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Around 1934, Harris produced a 28% iron and 72% nickel alloy with a high temperature coefficient; it was called Hytemco (High Temperature Coefficient) This alloy had a temperature coefficient of 0.0048 to 0.0053 Ω / Ω /°C, making it very close to pure nickel. But its resistivity was twice as high, which made it possible to reduce the length of the necessary wires. Used in heated blankets, it provided an important self-regulating function.

Over the years, Driver Harris developed a range of alloys with a high temperature coefficient, in particular:

- 99 alloy: (99.8% pure nickel): $0.006 \Omega / \Omega / ^{\circ}C$
- Nickel grade A: 0.005 Ω / Ω /°C
- Nickel grade E: $0.0045 \Omega / \Omega / ^{\circ}C$
- Hytemco: $0.0045 \Omega / \Omega / ^{\circ}C$
- Permanickel: $0.0036 \Omega / \Omega / ^{\circ}C$
- Alloy 152: $0.0035 \Omega / \Omega / ^{\circ}C$
- Alloy 146: 0.0032 Ω / Ω /°C

Similar alloys were developed by other metallurgists under the names Alloy 120, MWS-120, Balco, HAI-380, NIFE 5200, Kanthal 70, Alloy K70, Nifethal 70, and Pelcoloy.

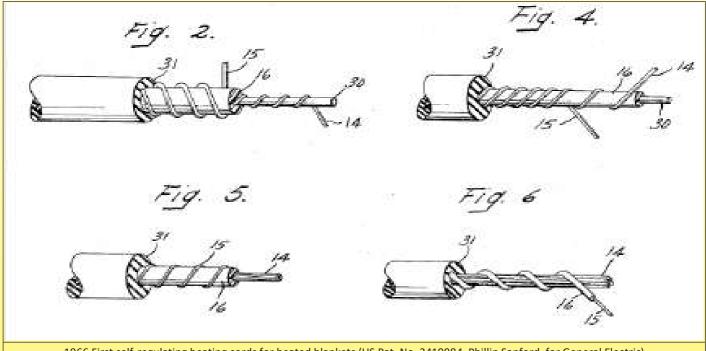
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Self-regulating polymer heating cables with positive temperature coefficient

In 1962, an important discovery was made at Douglas Aircraft laboratories (US Pat. No. 3,238,355) on polymers and, in particular, on polyethylene loaded with carbon nanoparticles, which is a semiconductor at room temperature. It was found that this material, at a temperature of around 70°C, saw its resistivity rise sharply as a quasi-electrical insulator ("Electrical Properties of Black Carbon Filled Polyethylene", Polymer Engineering and Science, Jun. 1978, vol. 18, No. 8, pp. 649-653. "Polyethylene / Carbon Black Switching Materials", Journal of Applied Polymer Science, vol. 22, 1163-1165, 1978, Wiley & Sons, NY)

As early as 1966, General Electric engineers Phillip A. Sanford and William P. Somers devised flexible conductors using this property to make resistors for heated blankets. This eliminated the need for safety limiters, as the heating pad adjusted its power automatically as soon as the temperature became too high. The most comfortable power for the heating cords in ambient temperature was found to be 3 to 3.8 watts per meter.



1966 First self-regulating heating cords for heated blankets (US Pat. No. 3410984, Phillip Sanford, for General Electric)

Depending on the composition of the polymer, its percentage of carbon particles and its thickness, it was possible to obtain different stabilization temperatures. However, in addition to its cost, the lack of flexibility of this highly charged 27% carbon polymer made the heating cords relatively stiff, and lacking the flexibility required for heated blankets. In addition, two major technical problems quickly emerged that prevented commercialization.

The first was related to the high contact resistance between the conductors and the polyethylene semiconductor, due to the difficulty of joining the two. The second problem was the poor stability of the heating element, which had lower resistivity, presumably because of the high operating temperature and thermal cycles. It took more than 10 years to resolve, and it was not until 1980 that Sunbeam, the American heated blanket manufacturer, filed patent 4271350 for a reliable version of heating cables with a positive temperature coefficient. In this technical evolution, the heating cord underwent a thermal annealing cycle at a temperature of around 150°C. This was greater than the melting temperature of polyethylene, which required a high-temperature over-sheathing of thermoplastic elastomer and special precautions so that the conductors did not touch during annealing. Sunbeam's various versions of electric blanket applications also improved the flexibility of the heating cord.

At the beginning of 1984, Sunbeam heated blankets using this type of conductor, without thermostats, appeared on the American market.

This technology continues to be used almost exclusively by Sunbeam in the USA. It allows production of blankets with high calorific value, but, although reduced, the original defects are still present, such as lack of flexibility, and loss of heating power due to aging of the PTC polymer.

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Recent technological developments of flexible heating conductors.

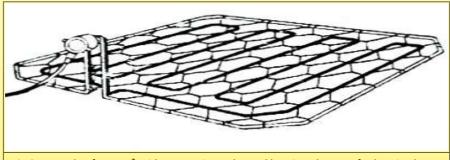
- Polymer ribbons with conductive plating: these ribbons are spiraled around a fiberglass core. With their extreme flexibility, they can create small diameter cords that can be incorporated into fabric manufacturing.
- Metallic micrometric ribbons wrapped around a cotton, synthetic fiber, or fiberglass core. These ribbons also make it possible to produce cords with a very small diameter (up to 0.27mm), which can be easily integrated into fabrics (2004)
- Self regulating silicones. These silicones are made up of a filler in carbon nanoparticles, similar to PE and PP (US Patent: 6.734.250 dated August 17, 2000 Shin Etsu chemical).
- Polymeric fibers with surfaces metalized with plasma or electroplating.

A few words on other technologies used in electrical tracing, and rigid or non-flexible heating systems

Mineral insulated shielded heating cables.

Not very flexible, these cables, made up of a heating wire insulated with compressed magnesia, shielded by a stainless-steel tube, offer an excellent mechanical resistance. This technique began to be used in the field of horticultural heating, for small areas, around 1936, when the company Thomson (Als-Thom) marketed the Calrod American heating elements.

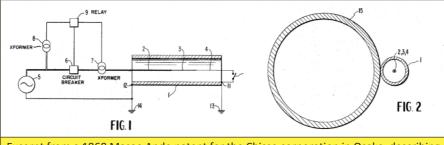
Given the very high temperature resistance of this system (+ 600°C), these elements are currently used for high temperature heat tracing applications.



1956, example of a 1.5m² grid, supporting a sheated heating element, for heating layers in horticulture. (1956 Electric heating in horticulture, Ultimheat Museum*)

Electric tracing with skin effect, also named eddy current.

This technical solution, in which a ferromagnetic tube is used, in which an insulated electrical conductor is passing, is based on the eddy currents induced by an alternating current in the interior surface of the wall of the tube. Although their first applications date from the 1950s /1953s for domestic tubular radiators (US patent 2,635,168 for Patko Cy), it was not until 1965, in Japanese patent 460,224 (In the USA: 3,293,407 by Masao Ando) that appears a tube with skin effect associated with a piping, for the transport of hydrocarbons. This solution, inexpensive, will be strongly used thereafter for the reheating in the pipes of great length. It also have the advantage of not producing voltage on the outside surface of the metal tube.



Excerpt from a 1968 Masao Ando patent for the Chisso corporation in Osaka, describing the heating of pipelines by an eddy current heating tube

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Technical introduction

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The different methods of preparing the ends of heating cables

There are many methods for preparing the ends of heating cables.

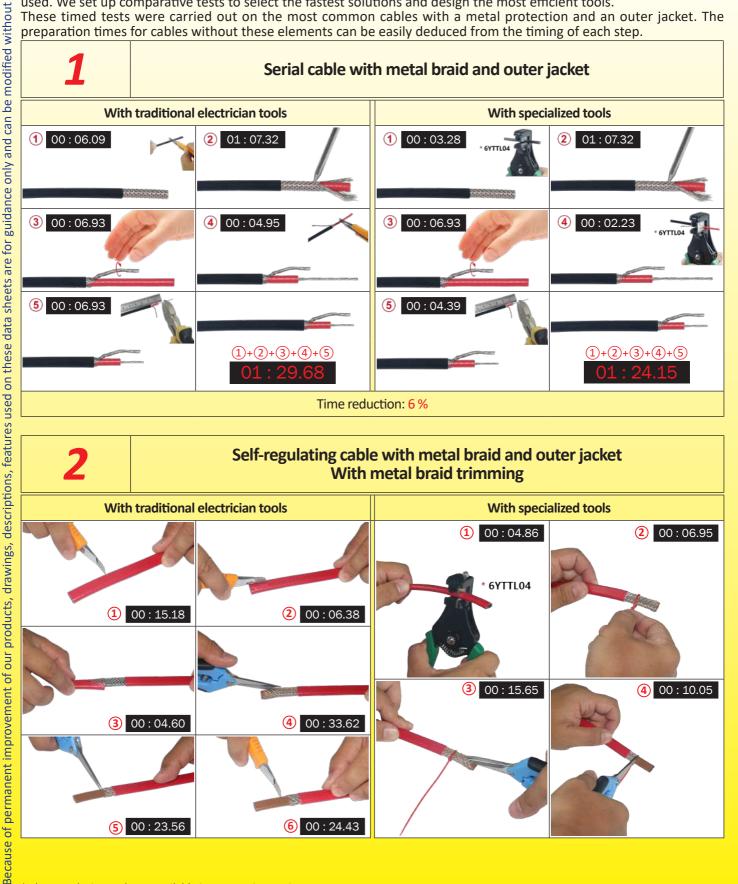
The manufacturers of these cables often ignore these operations, even though they represent a significant part of the installation cost. They are more or less time consuming and tedious depending on the types of cables and the tools used. We set up comparative tests to select the fastest solutions and design the most efficient tools.

These timed tests were carried out on the most common cables with a metal protection and an outer jacket. The preparation times for cables without these elements can be easily deduced from the timing of each step.

Serial cable with metal braid and outer jacket With specialized tools With traditional electrician tools 1 00:06.09 **2** 01:07.32 1 00:03.28 2 01:07.32 3 00:06.93 **3** 00 : 06.93 4 00:04.95 **4** 00:02.23 **5** 00:06.93 **5** 00 : 04.39

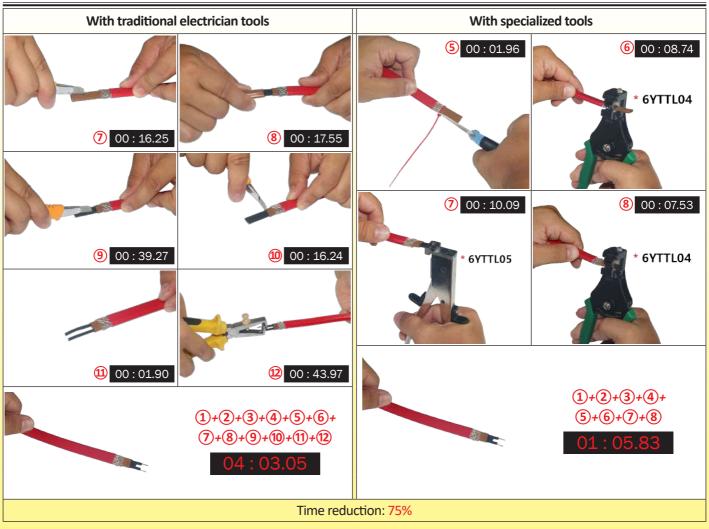
Time reduction: 6 %

Self-regulating cable with metal braid and outer jacket With metal braid trimming



These exclusive tools are available in accessories section





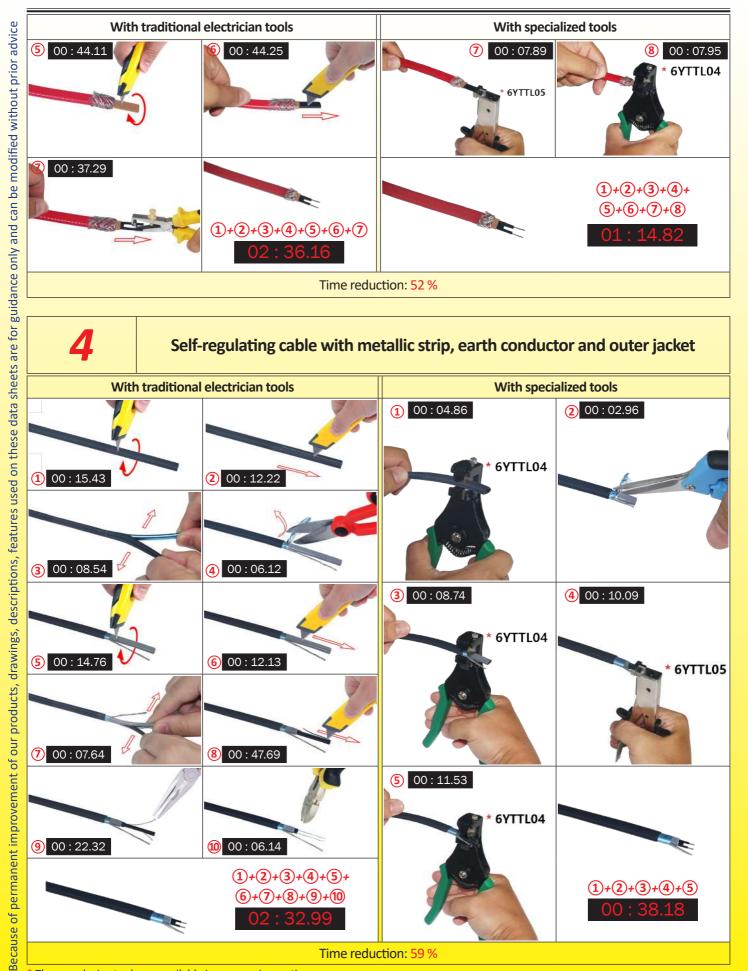
Self-regulating cable with metal braid and outer jacket With rolling up of the metal braid With traditional electrician tools With specialized tools



* These exclusive tools are available in accessories section

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Time reduction: 33 %



List of references

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6YTPIM24S080120N	6YTTL04A3	TPJBD150A03022D6	Y280PFFF000000S0
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Update 2024/06/12



Section 4 Heat tracing connection boxes, connection on stripped conductors

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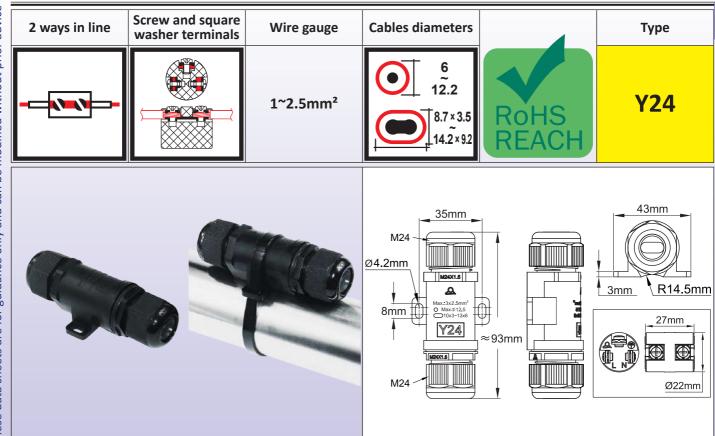
The advantages of terminals with tightening on stripped conductors

- Visualization of the connection.
- No need to check the ohmic resistance of the connection to verify that it is correctly made.
 - Usable on all types of heating cables
- Each terminal, because of the use of square dented washers, can receive two conductors.

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2 ways in line connection box for heat tracing cables, for traditional or self-regulating cables





Applications

This box allows to connect end-to-end, on field, with a good ingress protection (IP66), a round or flat heating cable to a round power cable. However, it also makes it possible to connect together two round cables or two flat cables. The internal connection terminal block is in ceramic.

Main features

Material: Polyamide 66 black, total length 93mm. Good UV resistance.

Waterproof grade: IP66

Mounting:

- Wall mounting: By 2 side lugs for 4mm diameter screws, 35mm distance.
- On pipe: By a nylon cable tie. The lower part is concave to facilitate this assembly and the oblong holes of the lugs allow the passage and holding of a cable tie.

Terminal block:

- High temperature ceramic with screw terminals with captive toothed square washers accepting bare conductors
- 3 conductors, from 1 to 2.5mm²
- Maximum permissible intensity: 16A 250V

Cable clamping: with M24 cable glands, with 70 shore NBR gaskets

- Size limits of round cables: 6 to 12,2mm
- Size limits of flat cables: from 8.7 × 3.5 to 14.2 × 9.2mm

For more information, see the catalogue page on 6YTP cable glands. **Easy assembly:** It is possible to slide the ceramic terminal block out of the body to connect the cables outside of it.

Main part numbers

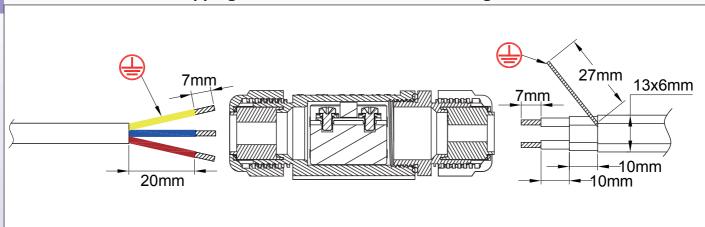
Part number	Seals on side A*	Seals on side B*
Y240RF	Silicone seal for round cable dia. 12mm max.	Silicone seal for oblong cable max. size 13x6mm
Y240MW	NBR seal for round cable dia. 12mm max.	NBR seal for oblong cable max. size 13x6mm.
Y240SS	Set of silicone seals for round cables dia. max. 8, 12 and 14mm.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.
Y240XX	Set of NBR seals for round cables dia. max. 8, 12 and 14mm.	Set of NBR seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.

Silicone seals recommended for ambient temperature higher than 80°C.

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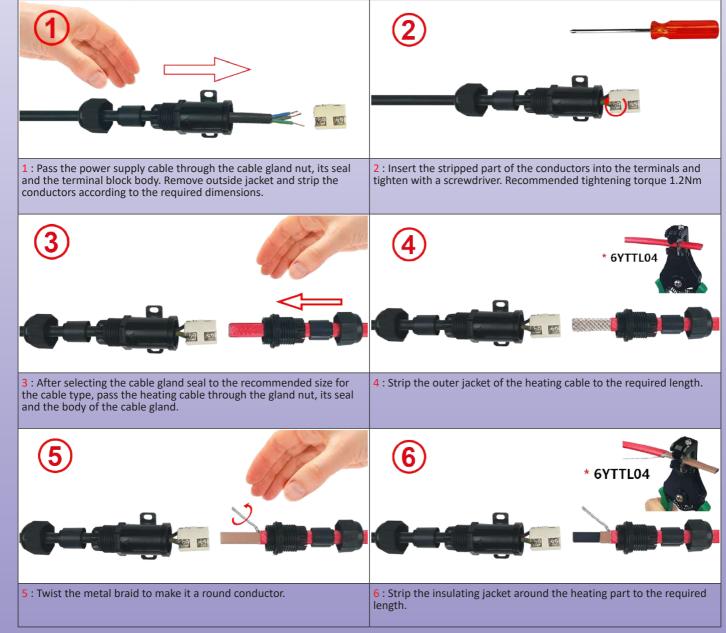
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Stripping dimensions of round and oblong cables



Cables assembly steps

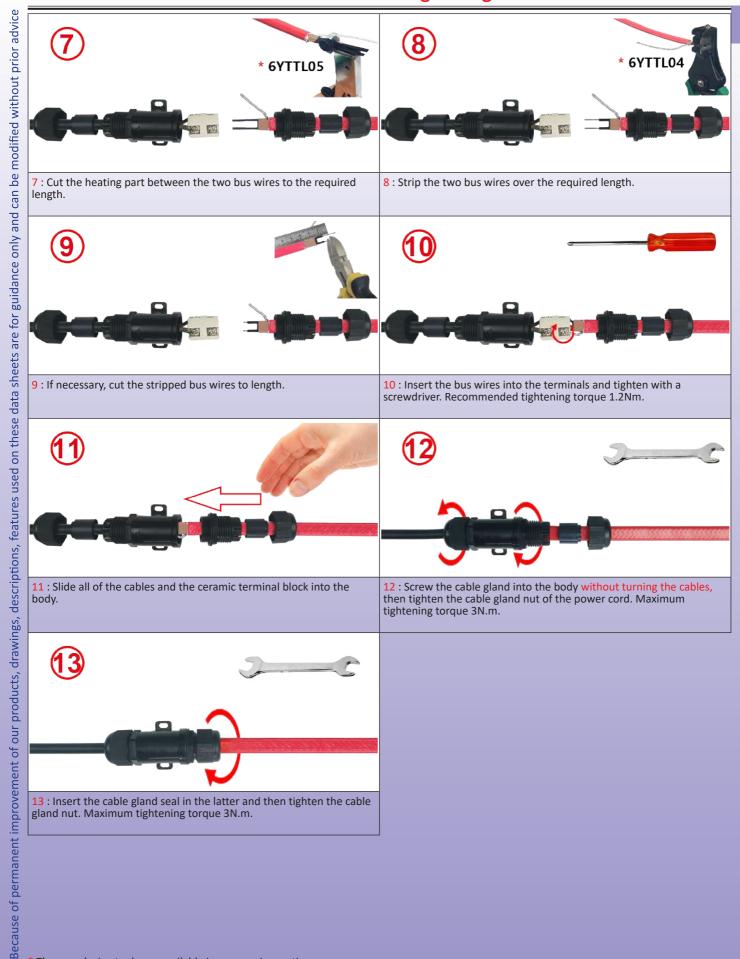
(More details on the different methods of preparing termination for various types of cables are available in the technical introduction).



These exclusive tools are available in accessories section

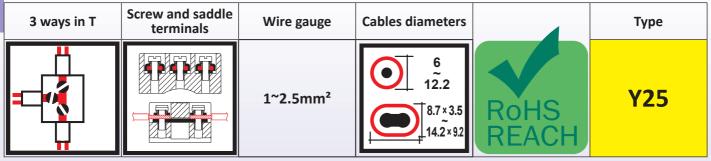
2 ways in line connection box for heat tracing cables, for traditional or self-regulating cables

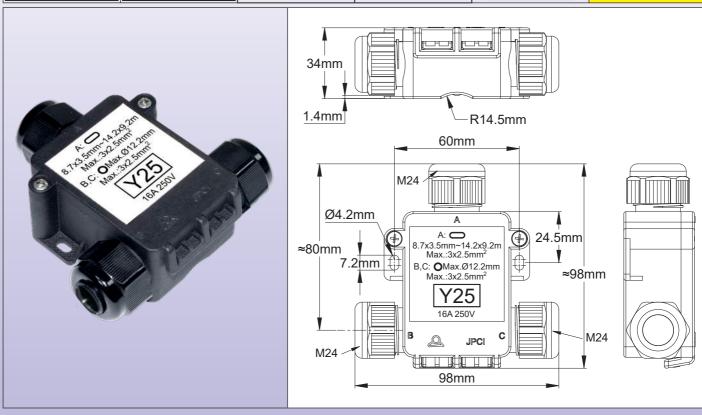




* These exclusive tools are available in accessories section

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Applications

This box allows to connect, with a good ingress protection (IP66), end-to-end, on field, a round or flat heating cable to a round power cable, and providing at the same time the continuity of the power line. An example of this type of connection is the feeding of heated drinking troughs in stables or breeding premises. The internal connection terminal block is in ceramic.

Main features

Material: Polyamide 66 black, 98mm × 98mm × 34mm. Good UV resistance.

Waterproof grade: IP66.

Mounting:

- Wall mounting: by 2 side lugs for 4mm diameter screws, 60mm distance.
- Pipe mounting: By a nylon cable tie. The oblong holes of the lugs allow the passage and holding of a cable tie. **Terminal block:**
- High temperature ceramic with screw and saddle terminals for 0.5mm² to 2.5mm² conductors
- Maximum permissible intensity: 16A 250V

Cable clamping: with M24 cable glands, with silicone gaskets

- Maximum diameter of round cables: 12.2mm on B and C output
- Size limits of flat cable on A output: from 8.7×3.5 to 14.2×9.2 mm.

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands.

For cables of larger dimensions or too rigid to be able to be fitted inside this model, see the connection boxes of the Y26 and Y27 series.

Easy assembly: It is possible to slide the ceramic terminal block out of the body to connect the cables outside of it.

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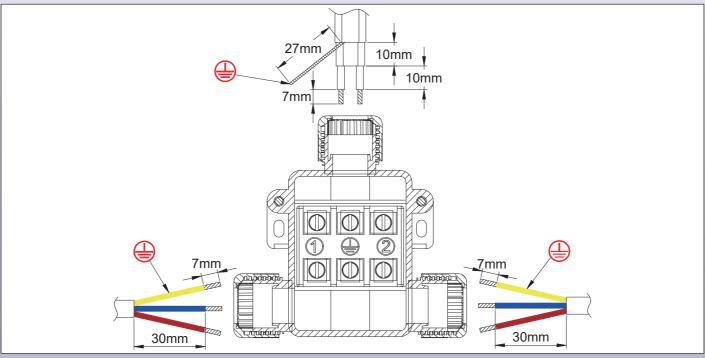
3 ways in T connection box for heat tracing cables, for traditional or self-regulating cables



Main part numbers				
Part numbers	Seals on side A*	Seals on side B*	Seals on side C*	
Y250FPP	Silicone seal for oblong cable max. size 13 × 6mm	Silicone seal for round cable dia. 12.2mm max	Silicone seal for round cable dia. 12.2mm max.	
Y250NKK	NBR seal for oblong cable max. size 13 × 6mm.	NBR seal for round cable dia. 12.2mm max.	NBR seal for round cable dia. 12.2mm max.	
Y250SPP	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Silicone seal for round cable dia. 12.2mm max.	Silicone seal for round cable dia. 12.2mm max.	
Y250XKK	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	NBR seal for round cable dia. 12.2mm max.	NBR seal for round cable dia. 12.2mm max.	

^{*} Silicone seals recommended for ambient temperature higher than 80°C

Stripping dimensions of round and oblong cables



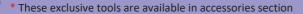
Cables assembly steps

(More details on the different methods of preparing termination for various types of cables are available in the technical introduction).



- 1 : Pass the two power supply cables through the cable gland nuts B and C, their seal and the terminal block body. Remove outside jacket and strip the conductors according to the required dimensions.
- 2: Strip the outer jacket of the heating cable to the required length.

* 6YTTL04

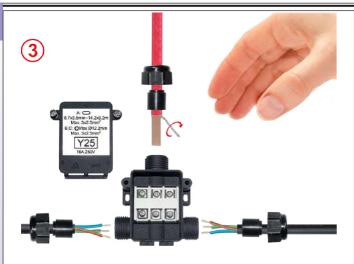




3 ways in T connection box for heat tracing cables, for traditional or self-regulating cables



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3: Twist the metal braid to make it a round conductor.

4: Strip the insulating jacket around the heating part to the required length.





5: Cut the heating part between the two bus wires of the heating cable to the required length.

6: Strip the two bus wires over the required length.





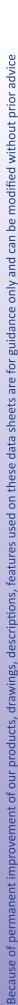
7: If necessary, cut the stripped bus wires to length.

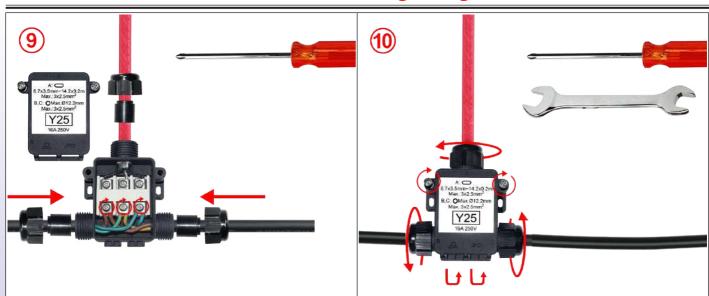
8: Insert the stripped part of the heating cable conductors into the terminals and tighten with a screwdriver. Recommended tightening torque 1.2Nm.

* These exclusive tools are available in accessories section

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3 ways in T connection box for heat tracing cables, for traditional or self-regulating cables





9: Insert the stripped part of the power supply conductors into the terminals and tighten with a screwdriver. 2 conductors inside each terminal, on each side of the saddle. Recommended tightening torque 1.2Nm.

10 : Screw the cable gland nuts on the body without turning the cables. Maximum tightening torque 3N.m.

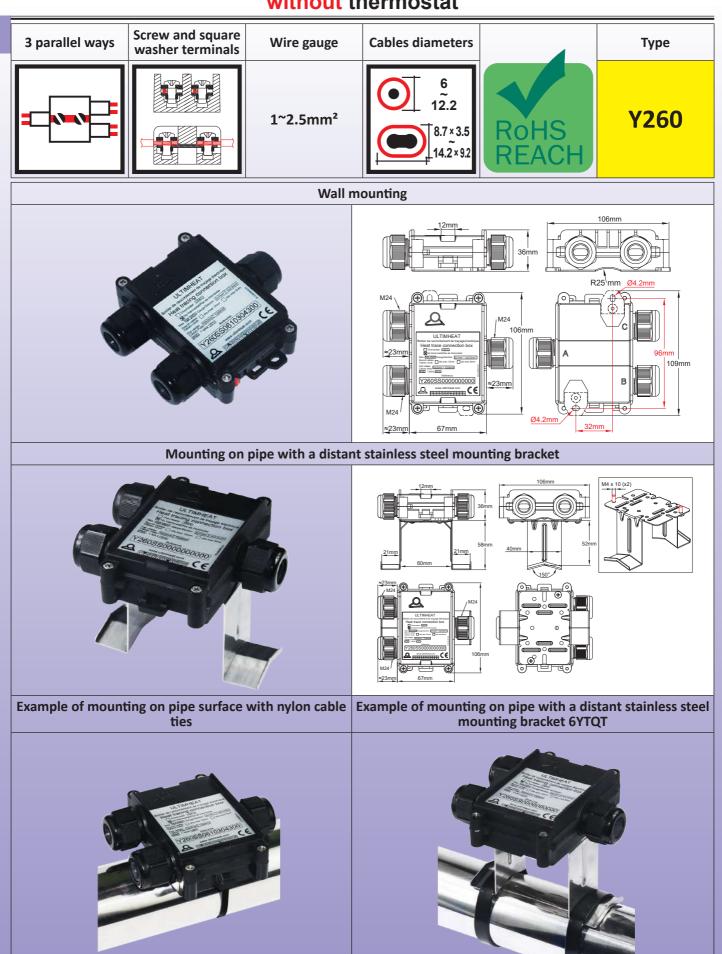


Contact us www.ultimheat.com Cat12-3-4-9

3 parallel ways connection box for heat tracing cables, without thermostat



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3 parallel ways connection box for heat tracing cables, without thermostat



Applications

This box allows to connect, with a good IP65 ingress protection, 2 rounds or flat heating cable to a round power cable or providing at the same time the continuity of the power line between many connection boxes. It can be mounted on a flat surface, or on a pipe.

Terminals positions provide easy access, wiring is simple, including for braided heating cables. Compatible with all types of flexible heating wires, round or flat.

Main features

Material: Polyamide 66 black, 90mm × 67mm × 36mm (Cable glands not included). Excellent UV resistance.

Waterproof grade: IP65

Mounting: 2 removable wall mounting bracket, holes distance 96mm. Pipe mounting with cable tie also possible, by using the 2 rings located on the side of the box

Terminals:

- Screw terminals with captive toothed square washers accepting rigid or flexible conductors.
- The mechanical tightening of the cable is ensured by a screwed metal saddle, usable on round or flat cable.

This patented saddle also ensures the earthing of the metal braid of the heating cables.

- Wire gauge: 3 × 1mm² to 3 × 2.5mm²
- Maximum permissible intensity: 16A 250V

Cables outlet: with M24 cable glands, with 70 shore NBR gaskets (Silicone is available on request).

- Maximum diameter of round cables: 8; 12mm depending on the gaskets installed.
- Limit sizes of oblong cables:
- From 8×5 to 9.5×6 mm
- From 9.5×2.5 to 11×3.5 mm
- From 11 × 4 to 13 × 6mm
- From 12.5 × 8 to 14.2 × 9.2mm

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands.

Safety sealing: supplied with 5 red plastic ties for use in the sealing holes

Easy assembly: Assembly is made with full access to terminals when cover is removed. Mounting on wall or pipe can be made with cover removed or cover assembled.

Accessories: Stainless steel bracket for mounting distant from the pipe, see accessories page 6YTQT.

Options: Model for 3 heating wires without power supply cable and model for one heating wire and 2 power supply cables.

Consult us for parts numbers of simplified models with only one dimension of cable gland gasket for round wire and flat wires, customized label, and specific set of accessories for pipe mounting (OEM versions).

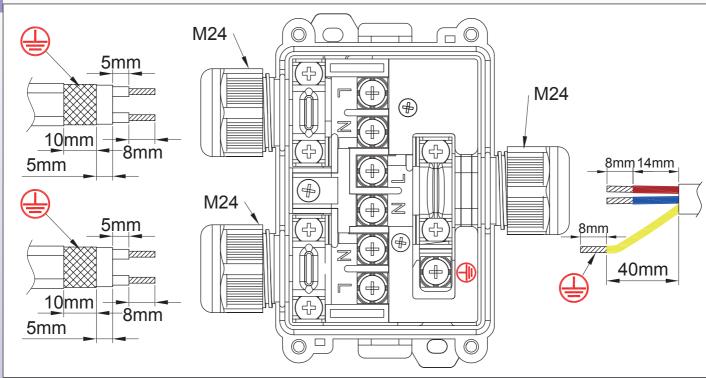
Main part numbers

Part numbers	Seals on side A*	Seals on side B*	Seals on side C*
Y260PFF	Silicone seal for round cable dia. 12.2mm max.	Silicone seal for oblong cable max. size 13 × 6mm.	Silicone seal for oblong cable max. size 13 × 6mm.
Y260KNN0000000S0	NBR seal for round cable dia. 12.2mm max.	NBR seal for oblong cable max. size 13 × 6mm	NBR seal for oblong cable max. size 13 × 6mm.
Y260PSS0000000S0	Silicone seal for round cable dia. 12.2mm max.	Set of Silicone seal for oblong cables max. size 9.5 × 6; 11 × 3.5; 13 × 6 and 14.2 × 9.2mm.	Set of Silicone seal for oblong cables max. size 9.5 × 6; 11 × 3.5; 13 × 6 and 14.2 × 9.2mm.
Y260KXX0000000S0	NBR seal for round cable dia. 12.2mm max.	Set of NBR seals for oblong cables max. size 9.5 × 6; 11 × 3.5; 13 × 6 and 14.2 × 9.2mm.	Set of NBR seals for oblong cables max. size 9.5 × 6; 11 × 3.5; 13 × 6 and 14.2 × 9.2mm.

Silicone seals recommended for ambient temperature higher than 80°C.

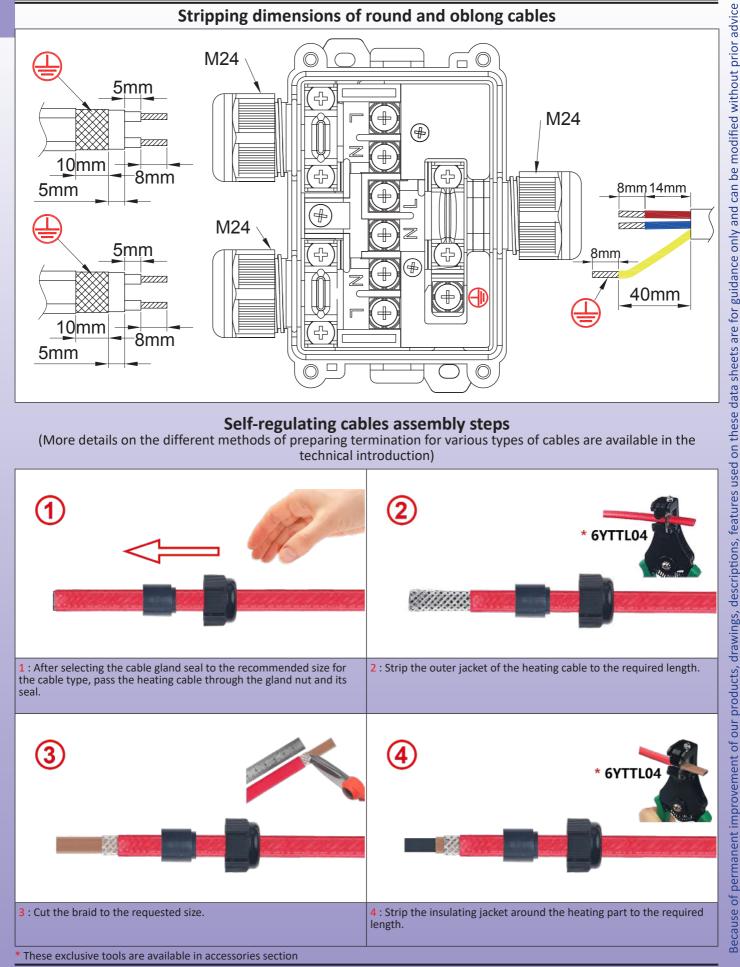
Contact us www.ultimheat.com Cat12-3-4-11

Stripping dimensions of round and oblong cables



Self-regulating cables assembly steps

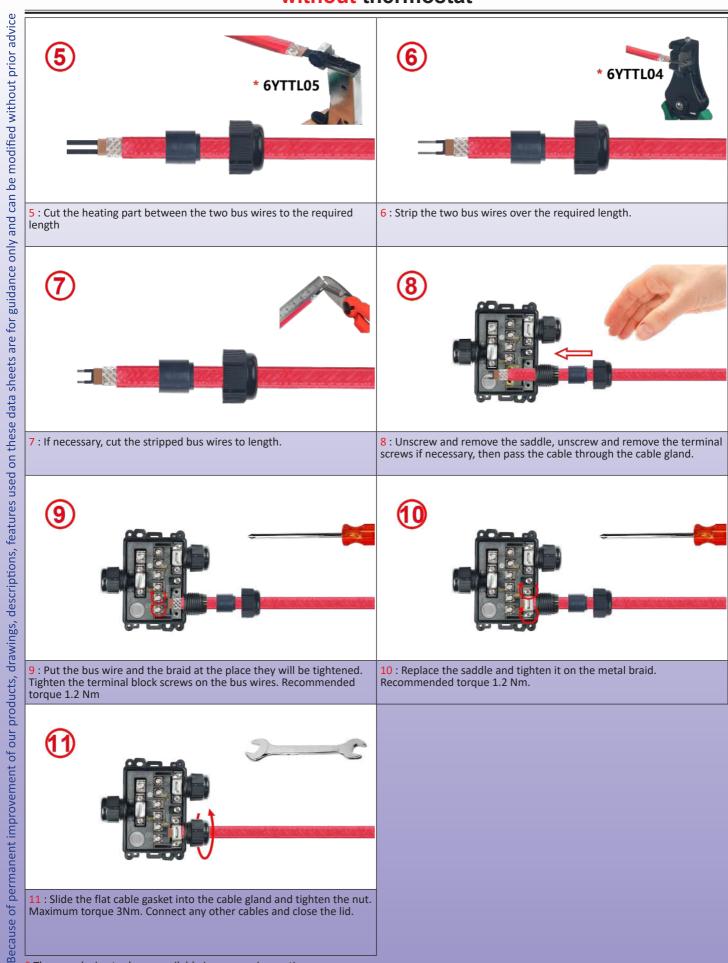
(More details on the different methods of preparing termination for various types of cables are available in the technical introduction)



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3 parallel ways connection box for heat tracing cables, without thermostat





* These exclusive tools are available in accessories section

Contact us www.ultimheat.com Cat12-3-4-13

3 parallel ways connection box for heat tracing cables, without thermostat



Round cable assembly steps





1 : Remove outer insulation on round cable as requested by drawing. Eventually, crimp cable shoes.

Slide the cable gland nut on the cable. Select the compatible diameter gasket and slide it on the cable.

2: Put the neutral, line and ground wires inside the screw terminals and tigthen them. Recommended torque 1.2 Nm.





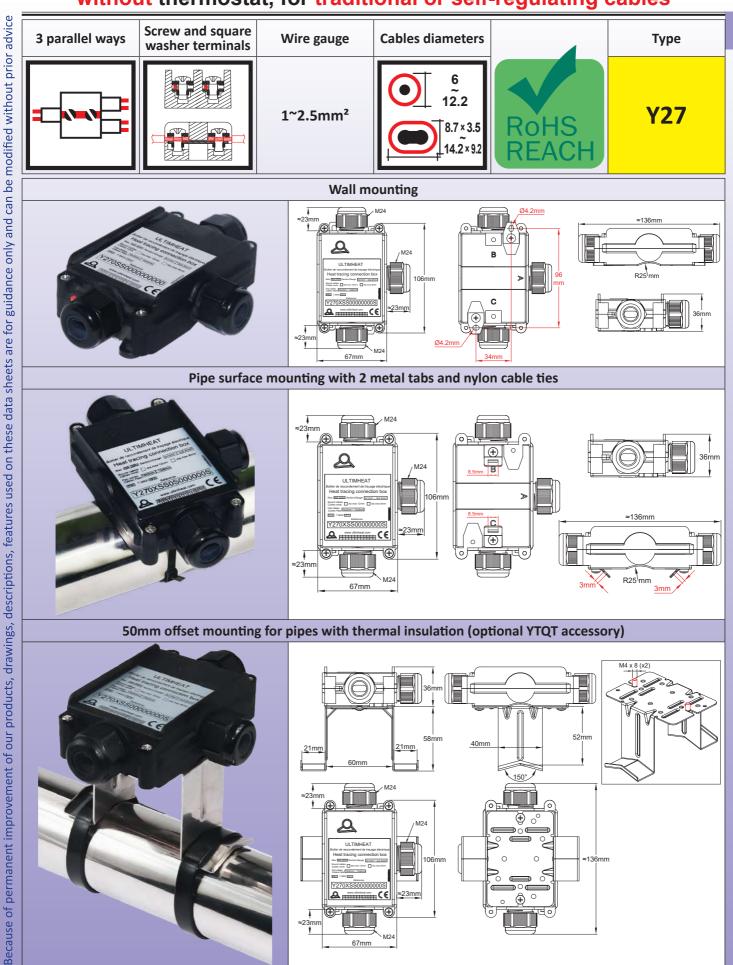
3: Tigthen the saddle screw. Recommanded torque 1.6 Nm.

 ${\bf 4}$: Slide the round cable seal into the cable gland and tighten the nut. Maximum torque 3N.m.

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3 ways "Tee" connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables





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3 ways "Tee" connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables



Applications

This box is used to connect **one power cable to two heating cables**, or to ensure the continuity of a power cable between several boxes, and connecting a single heating cable on each box.

It can be mounted on a flat surface, or on a pipe.

The terminal blocks are easily accessible and the connection is simple, including for self-regulating flat cables with metallic protective braid.

Main features

Material: Polyamide 6 black, 96mm × 67mm × 36mm (Cable glands not included). Excellent UV resistance.

Waterproof grade: IP65.

Mounting: 2 removable wall mounting bracket, holes distance 96mm. Pipe mounting with cable tie also possible with 2 small metal tabs screwed on backside.

Note: if you want to rotate the case 90° relative to the pipe, use the Y28 model with three outputs.

Terminals:

- Screw terminals with captive toothed square washers accepting stranded or rigid conductors
- The mechanical tightening of the cable is ensured by a screwed metal saddle, usable on round or flat cable.

This patented saddle also ensures the earthing of the metal braid of the heating cables.

- Wire gauge: $3 \times 1 \text{mm}^2$ to $3 \times 2.5 \text{mm}^2$
- Maximum permissible intensity: 16A 250V.

Cables outlet: with M24 cable glands, with 70 shore NBR gaskets (Silicone is available on request).

- Maximum diameter of round cables: 8; 12mm depending on the gaskets installed.
- <u>Limit sizes of oblong cables:</u>
- From 8×5 to 9.5×6 mm
- From 9.5×2.5 to 11×3.5 mm
- From 11×4 to 13×6 mm
- From 12.5 × 8 to 14.2 × 9.2mm

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands.

Inviolability: The case can receive one or two seals (delivered with 5 red seals)

Sealing: supplied with 5 red plastic ties for use in the sealing holes

Easy assembly: Assembly is made with full access to terminals when cover is removed. Mounting on wall or pipe can be made with cover removed or cover assembled.

Accessory: Bracket in stainless steel for offset mounting on pipe with up to 50mm insulation thickness. Can be screwed on the two M4 threads on backside. See the 6YTQT in the accessories section.

Options:

- Model for 3 heating wires without power supply cable
- Model for one heating cable and 2 power supply cables.

Consult us for parts numbers of simplified models with only one dimension of cable gland gasket for round wire and flat wires, customized label, and specific set of accessories for pipe mounting (OEM versions).

Main part numbers

(These models include 2 small metal tabs for pipe surface mounting*).

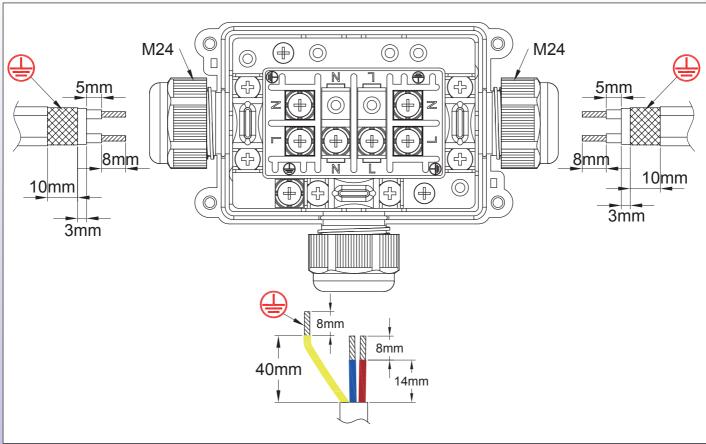
	Part numbers	bers Seals on side A** Seals on side B**		Seals on side C**
Y270PFF0000000S0		Silicone seal for round cable dia. 12.2mm max.	Silicone seal for oblong cable max. size 13x6mm.	Silicone seal for oblong cable max. size 13x6mm.
Y270KNN0000000S0 NBR seal for round cable dia. 12.2mm max.		NBR seal for oblong cable max. size 13x6mm.	NBR seal for oblong cable max. size 13x6mm	
Y270PSS0000000S0 Silicone seal for round cable dia. 12.2mm max.		Silicone seal for round cable dia. 12.2mm max.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.
	Y270KXX0000000S0	NBR seal for round cable dia. 12.2mm max.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.

^{*} Models without the 2 small tabs, replace 0S0 by 000 in the part number.

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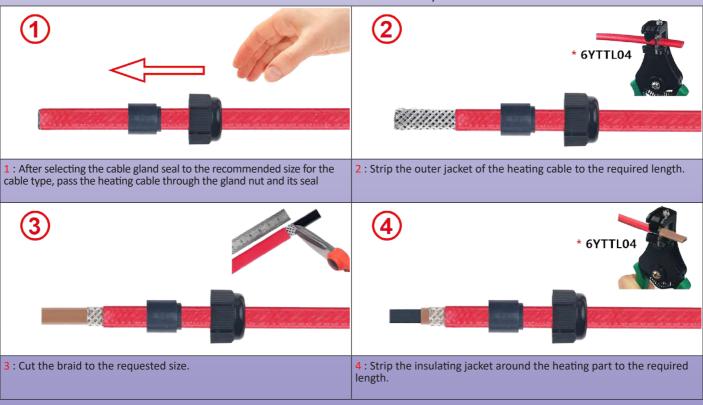
^{**} Silicone seals recommended for ambient temperature higher than 80°C.

Stripping dimensions of round and oblong cables



Self-regulating cables assembly steps

(More details on the different methods of preparing termination for various types of cables are available in the technical introduction).

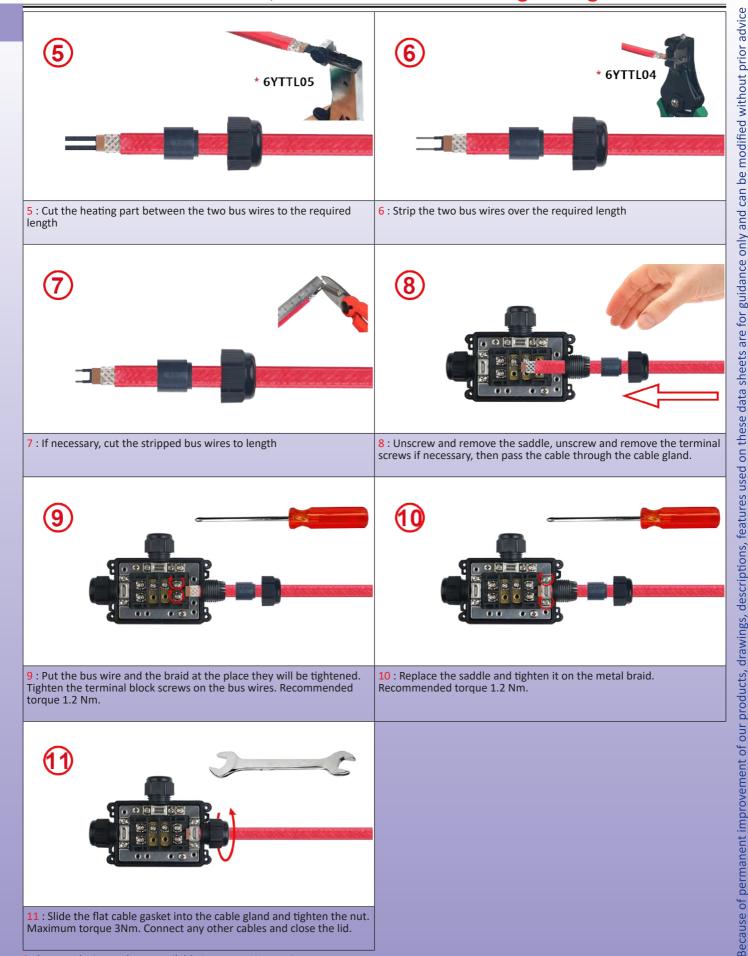


* These exclusive tools are available in accessories section

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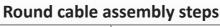
3 ways "Tee" connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables

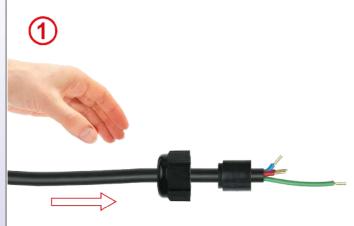




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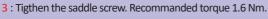






- 1: Remove outer insulation on round cable as requested by drawing. Eventually, crimp cable shoes.
- Slide the cable gland nut on the cable. Select the compatible diameter gasket and slide it on the cable.
- ${\bf 2}$: Put the neutral, line and ground wires inside the screw terminals and tigthen them. Recommended torque 1.2 Nm.





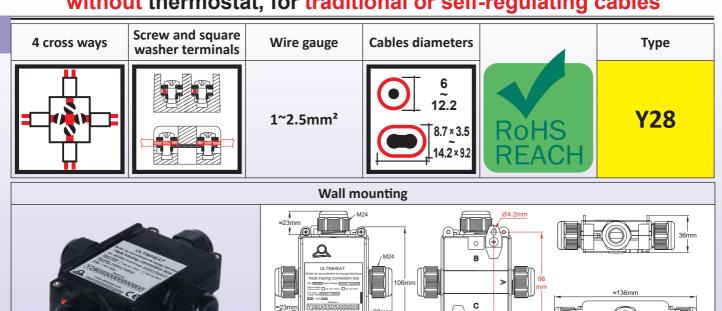


 $\mbox{\bf 4}$: Slide the round cable seal into the cable gland and tighten the nut. Maximum torque 3N.m.

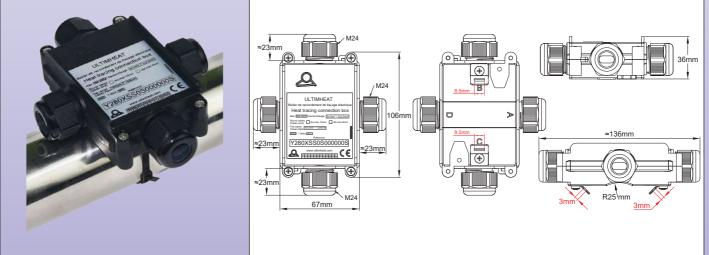
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4 cross ways connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables

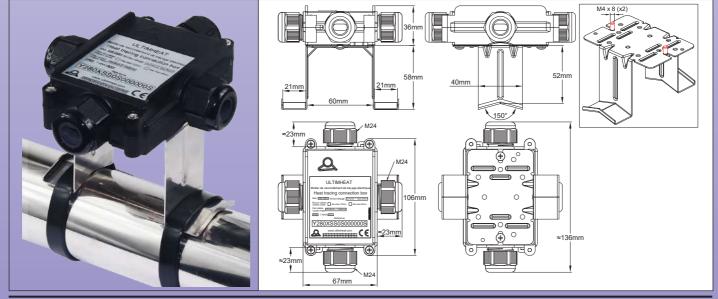




Pipe surface mounting



50mm offset mounting for pipes with thermal insulation (optional accessory)



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4 cross ways connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables



Applications

This box is used to connect **one power cable to 3 heating cables**, or to ensure the continuity of a power cable between several boxes, and connecting a single heating cable on each box.

It can be mounted on a flat surface, or on a pipe.

The terminal blocks are easily accessible and the connection is simple, including for self-regulating flat cables with metallic protective braid.

Main features

Material: Polyamide 6 black, 96mm × 67mm × 36mm (Cable glands not included). Excellent UV resistance.

Waterproof grade: IP65.

Mounting: 2 removable wall mounting bracket, holes distance 96mm. Pipe mounting with cable tie also possible with 2 small metal tabs screwed on backside.

Terminals:

- Screw terminals with captive toothed square washers accepting stranded or rigid conductors.
- The mechanical tightening of the cable is ensured by a screwed metal saddle, usable on round or flat cable.

This patented saddle also ensures the earthing of the metal braid of the heating cables.

- Wire gauge: $3 \times 1 \text{mm}^2$ to $3 \times 2.5 \text{mm}^2$.
- Maximum permissible intensity: 16A 250V.

Cables outlet: with M24 cable glands, with 70 shore NBR gaskets (Silicone is available on request).

- Maximum diameter of round cables: 8; 12mm depending on the gaskets installed.
- <u>Limit sizes of oblong cables:</u>
- from 8×5 to 9.5×6 mm
- from 9.5×2.5 to 11×3.5 mm
- from 11×4 to 13×6 mm
- from 12.5 × 8 to 14.2 × 9.2mm

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands.

Inviolability: The case can receive one or two seals (delivered with 5 red seals).

Sealing: supplied with 5 red plastic ties for use in the sealing holes.

Easy assembly: Assembly is made with full access to terminals when cover is removed. Mounting on wall or pipe can be made with cover removed or cover assembled.

Accessory: Bracket in stainless steel for offset mounting on pipe with up to 50mm insulation thickness. Can be screwed on the two M4 threads on backside. See types 6YTP in the accessories section.

Options:

- Version for 4 heating cables without power supply cable.
- Version for 2 heating cables and 2 power supply cables.
- Version with three cable glands, for 2 heating cables and 1 power supply cable (corresponds to the Y70 model rotated 90° relative to the piping).

Consult us for parts numbers of simplified models with only one dimension of cable gland gasket for round wire and flat wires, customized label, and specific set of accessories for pipe mounting (OEM versions).

Main part numbers

(These models include 2 small metal tabs for pipe surface mounting*).

Part numbers	Seals on side A**	Seals on side B**	Seals on side C**	Seals on side D**
Y280PFFF000000S0	Silicone seal for round cable dia. 12.2mm max.	Silicone seal for oblong cable max. size 13x6mm.	Silicone seal for oblong cable max. size 13x6mm.	Silicone seal for oblong cable max. size 13x6mm
Y280KNNN000000S0	NBR seal for round cable dia. 12.2mm max.	NBR seal for oblong cable max. size 13x6mm.	NBR seal for oblong cable max. size 13x6mm.	NBR seal for oblong cable max. size 13x6mm
Y280PSSS000000S0	Silicone seal for round cabledia. 12.2mm max.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.
Y280KXXX000000S0	NBR seal for round cable dia. 12.2mm max.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.

^{*} Models without the 2 small tabs, replace 0S0 by 000 in the part number.

Reference:

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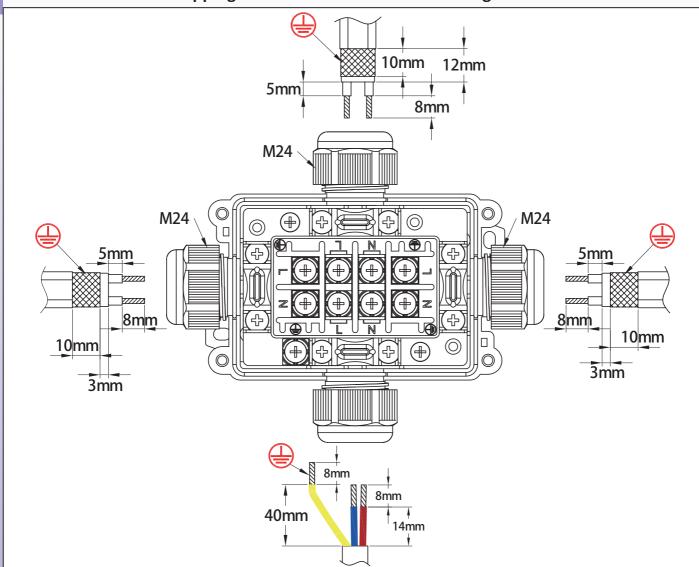
- Y280SS (Includes a set of gaskets for round cables, 3 sets of gaskets for oblong cables and 2 small metal tabs for pipe surface mounting).

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^{**} Silicone seals recommended for ambient temperature higher than 80°C.

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Stripping dimensions of round and oblong cables



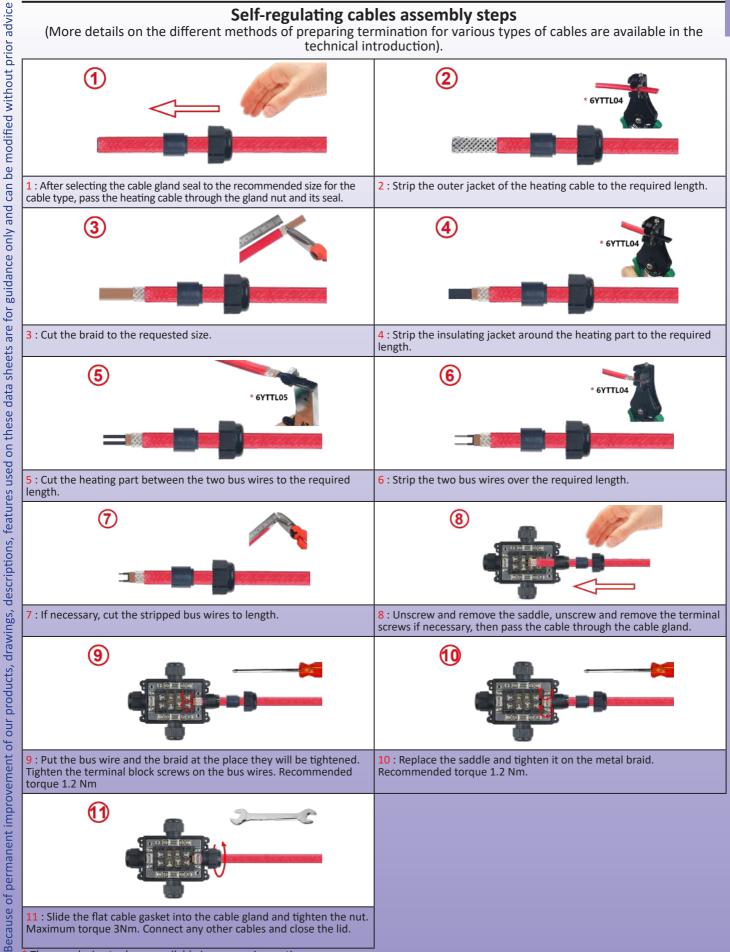
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4 cross ways connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables



Self-regulating cables assembly steps

(More details on the different methods of preparing termination for various types of cables are available in the technical introduction).



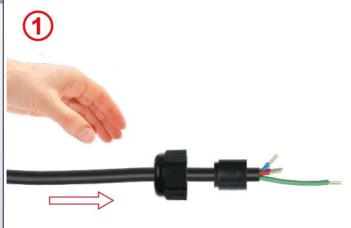
These exclusive tools are available in accessories section

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4 cross ways connection box for heat tracing cables, without thermostat, for traditional or self-regulating cables

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Round cable assembly steps



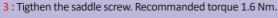


1 : Remove outer insulation on round cable as requested by drawing. Eventually, crimp cable shoes.

Slide the cable gland nut on the cable. Select the compatible diameter gasket and slide it on the cable.

2: Put line, neutral and ground wires inside the screw terminals and tigthen them. Recommended torque 1.2Nm.





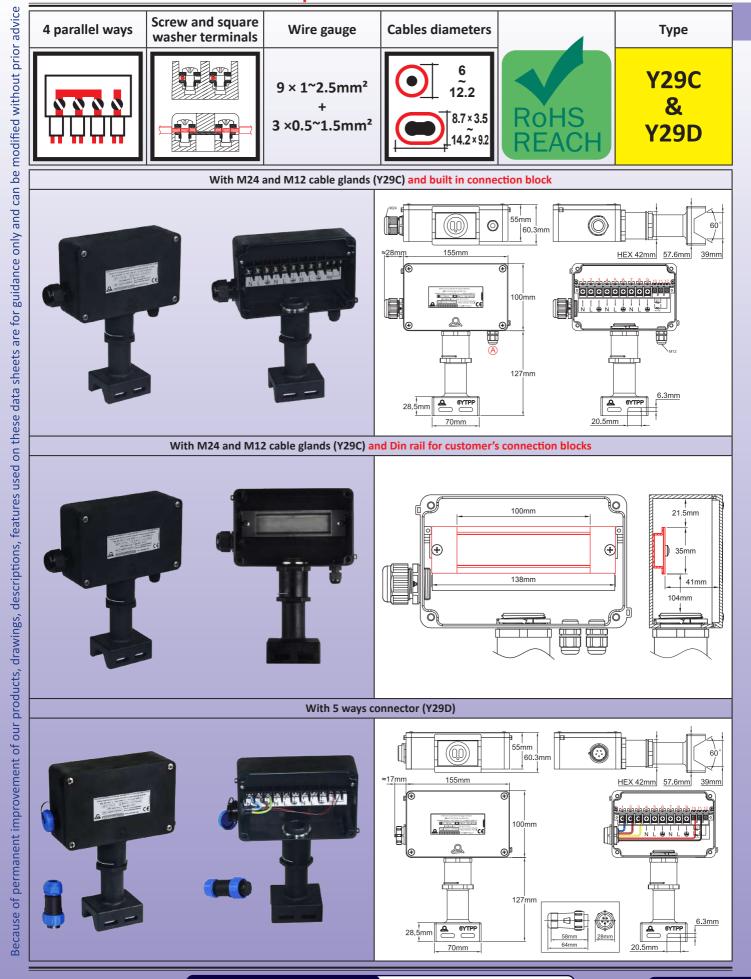


4 : Slide the round cable seal into the cable gland and tighten the nut. Maximum torque 3N.m.

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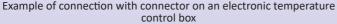
Connection box, with pipe mounting leg, for heat tracing cables, for two traditional or self-regulating cables, one power supply cable and temperature sensor cable













Example of connection by cable gland on an electronic temperature control box



Example of connection with a wall mounting ambient temperature electronic thermostat type 6F62NC.



Example of mounting on the rear side of a mechanical bulb and capillary thermostat for measurement of pipe temperature



Example of mounting an antifreeze disc thermostat type 49JB on a 20mm diameter hole made on a lateral side.



Example of mounting temperature sensor type TSJ on a 20mm diameter hole made on a lateral side.

Applications

This box allows to connect a power supply cable to 2 heating cables. It also allows the conductors of the temperature sensor cable to be connected. The mounting on a cylindrical foot allows a simple crossing of the thermal insulation of the piping and its protective sheath by a simple hole diameter 50mm. The foot can thus be placed at the same time as the temperature sensor and the heating cables, and remains on standby during the installation of the insulation and the protective sheath. The connection box then can be mounted when these operations are completed, and the cables can be connected at this time.

The terminal blocks are easily accessible and the connection is simple, including for self-regulating flat cables with metallic protective braid.

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Connection box, with pipe mounting leg, for heat tracing cables, for two traditional or self-regulating cables, one power supply cable and temperature sensor cable



Main features

Material: Polyamide 6 black, 160mm × 100mm × 60mm (Cable glands not included). Excellent UV resistance.

Waterproof grade: IP66, IP69K (Withstand hot pressure hot water washing).

Impact resistance: IK10 (highest), except cable glands and connector.

Mounting: It is made by a central foot in PPS resistant to temperature, being mounted on the pipe by two nylon cable ties or two metal hose clamps. The distance between the housing and the piping is 110 to 120mm (Varies depending on the diameter of the piping)

Terminal block: All terminals are fitted with screws with a vibration resistant square washer, allowing clamping on all types of conductors, flexible or rigid. The connection jumpers between the terminals are prewired and invisible.

- Allowable sections: 1mm² to 2.5mm² on the connection terminals of the power cables and the heating cables; 0.5mm² to 1.5mm² on the terminals for the temperature sensor.
- Maximum admissible current: 16A 250V

Power supply input:

3 possible solutions

-1 / By M24 cable glands, with NBR 70 Shore gasket (Silicone is possible on request).

Maximum cable diameter: 6; 8 or 12.2mm depending on the gasket installed. (Comes with a set of 3 gaskets covering the different ranges of diameters).

-2 / By 5-way waterproof connector (3 ways for power supply conductors and 2 ways for the temperature sensor)

-3 / By M25 cable gland (available on request).

Input of the temperature sensor cable, coming from the temperature control system:

- 2 possible solutions
- By the 5-way connector (see above).
- By M12 cable gland.

Heating cables outlet: By the central foot, with silicone seals

- Limit sizes of flat cables:
- from 8×5 to 9.5×6 mm
- from 9.5×2.5 to 11×3.5 mm
- from 11×4 to 13×6 mm

(Comes with a set of 3 fittings covering the different dimensions).

For more information on the different seals used, see the catalogue page about the 6YTPP pipe mounting feet.

Temperature sensor conductor output:

- Two possible solutions
- 1 / By the central foot, which has a passage for cables from 2.8 to 3mm, usual size for NTC, PT100 and thermocouples.
- 2 / By an M12 cable gland

Inviolability: The box can receive one or two seals (Comes with 5 red seals)

Easy assembly: Assembly is done with the lid open, with wide access.

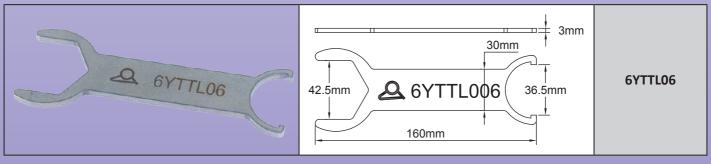
Compatibility: On its rear side, this box has M4 threaded inserts to mount mechanical thermostats of the Y0D8, Y0D9, Y0A8, Y0A9, Y0D9 series (see other pages of this catalogue), allowing a measurement of the ambient temperature or of the pipe surface temperature.

Standard variation: Replacement of the connection block by a Din rail for customer's connection blocks. **Options:**

- Additional M20x1.5 thread for antifreeze disc thermostat or ambient temperature sensor incorporation.
- Empty box without terminal block and without Din Rail
- Box without drilling or cable gland or foot threads.

Consult us for parts numbers of simplified models with only one dimension of cable gland gasket for round wire and flat wires and customized label, (OEM versions).

Wrench for leg assembly (To be ordered separately)



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Connection box, with pipe mounting leg, for heat tracing cables, for two traditional or self-regulating cables, one power supply cable and temperature sensor cable

0

Main references (1" foot included)

References					Leg seal with	Leg seal
Built in connection block	Rail Din	M24 cable gland	M12 cable gland	5 ways connector	temperature sensor crossing*	without temperature sensor crossing*
Y29CGYS300P6930	Y29CGYS300P6DN0	1	0	0	1	0
Y29CGYS316P6930	Y29CGYS316P6DN0	1	1	0	1	0
Y29EGYS326P6930	Y29EGYS326P6DN0	1	2	0	1	0
Y29DC6S300P6930	Y29DC6S300P6DN0	0	0	1	1	0
Y29DC6S316P6930	Y29DC6S316P6DN0	0	1	1	1	0
Y29CGYT300P6930	Y29CGYT300P6DN0	1	0	0	0	1
Y29CGYT316P6930	Y29CGYT316P6DN0	1	1	0	0	1
Y29EGYT326P6930	Y29EGYT326P6DN0	1	2	0	0	1
Y29DC6T300P6930	Y29DC6T300P6DN0	0	0	1	0	1
Y29DC6T316P6930	Y29DC6T316P6DN0	0	1	1	0	1

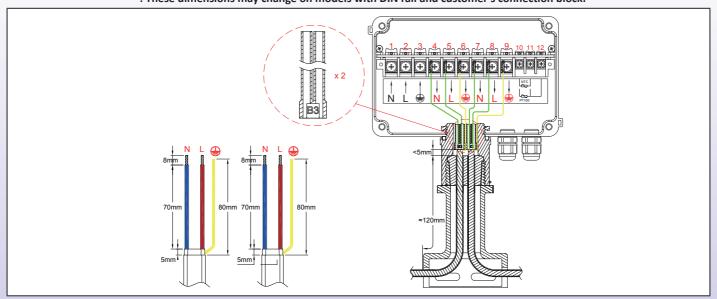
^{*} Supplied with a set of 3 seals covering the main dimensions of oblong heating cables and a cable passage plug if you use a single heating cable

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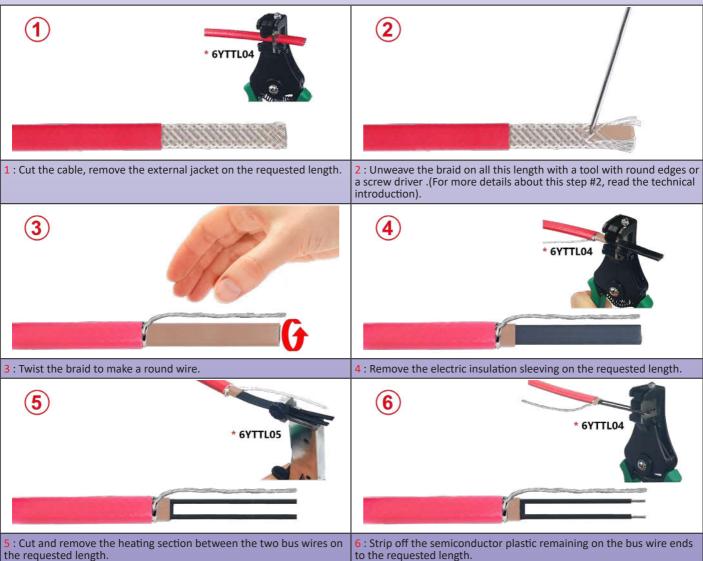
2

Stripping dimensions of heating cables*.

(More detailed instructions are available in the technical introduction).
*: These dimensions may change on models with DIN rail and customer's connection block.



Self-regulating cables assembly steps



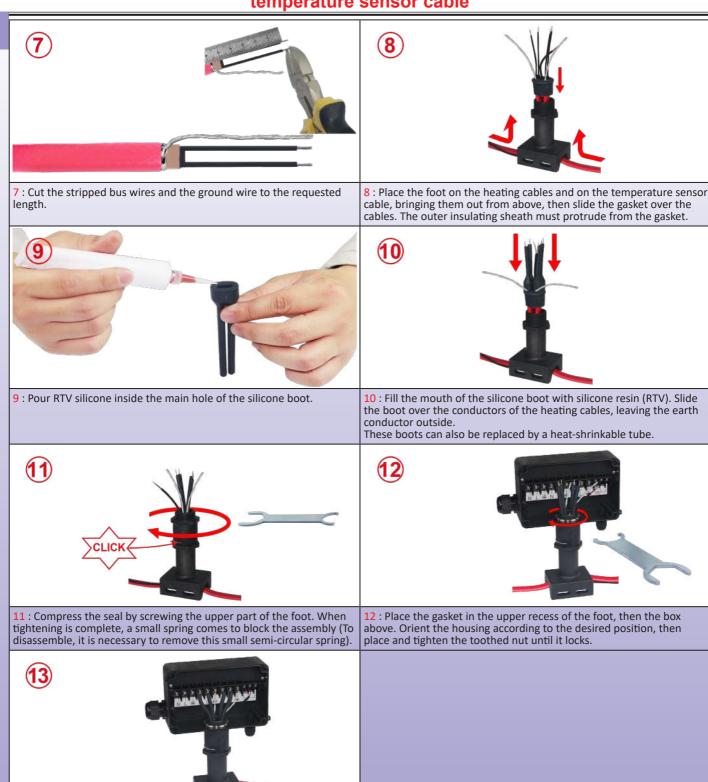
* These exclusive tools are available in accessories section

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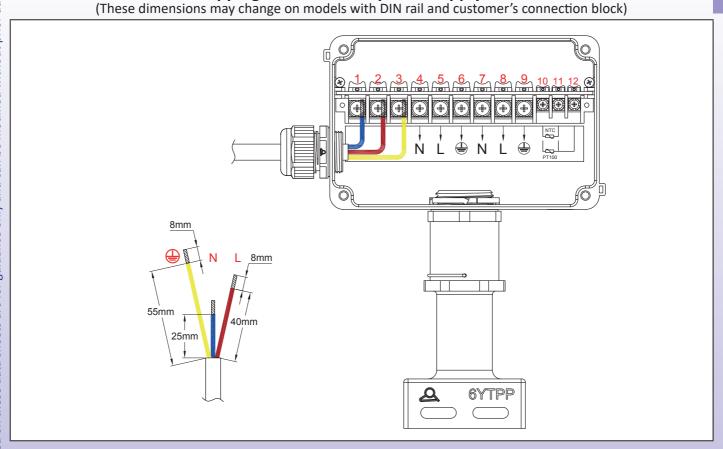
Connection box, with pipe mounting leg, for heat tracing cables, for two traditional or self-regulating cables, one power supply cable and temperature sensor cable



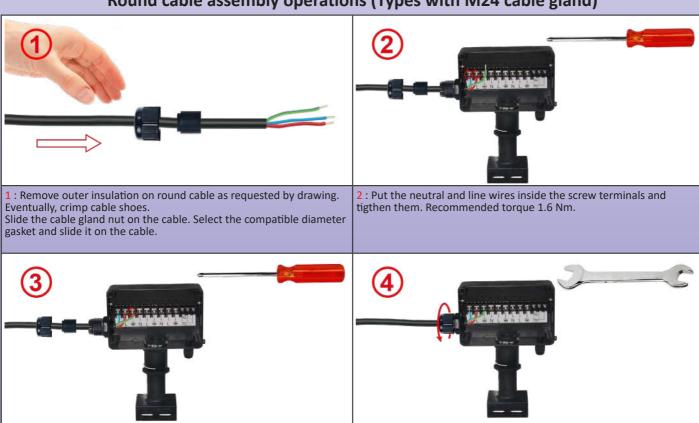
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13 : Connect the conductors and the temperature sensor according to the wiring diagram. Connect the power supply cable. Close the control box.



Round cable assembly operations (Types with M24 cable gland)



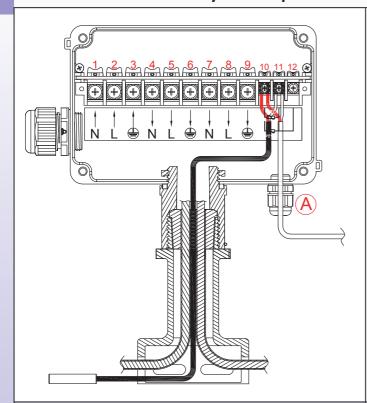
3 : Slide the ground wire inside the ground terminal and tigthen the

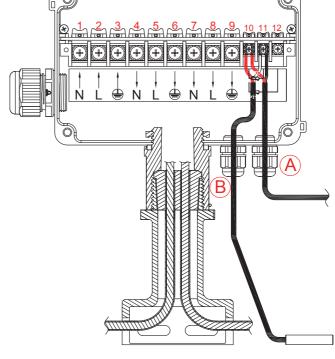
screw. Recommanded torque 1.6 Nm

Maximum torque 6N.m.

4 : Slide the round cable gasket into the cable gland and tighten the nut.

The 2 ways of temperature sensor cable wiring to the pipe





By the foot gasket:

The temperature sensor cable from the control system arrives through the M12 cable gland (A), and is connected to the terminal block. It then goes back to the piping through the foot gasket. A variant consists in having it arrive by the M24 cable gland or by the 5-way connector. The temperature sensor cable can be 2-conductor (NTC, Pt100 2-wire or thermocouple) and is then connected to terminals 10 and 11, or 3-wire (Pt100 3-wire) and is then connected to terminals 10, 11 and 12.

By independent M12 cable gland:

The temperature sensor cable from the control system arrives through the M12 cable gland (A), and is connected to the terminal block. It then goes back to the piping through a second M12 cable gland (B). A variant consists in making it arrive by the M24 cable gland or by the 5-way connector. The temperature sensor cable can be 2-conductor (NTC, Pt100 2-wire or thermocouple) and is then connected to terminals 10 and 11, or 3-wire (Pt100 3-wire) and is then connected to terminals 10, 11 and 12.

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Section 5 Connection boxes for heat tracing cables, with insulation piercing terminals, for self-regulating cables. Connections in industrial environments but not in hazardous environments. For hazardous environments see catalogue 4

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The unrivaled advantages of Ultimheat insulation piercing self-regulating heating cable connection boxes

(Compatible with self-regulating cables with polypropylene, silicone semiconductor, or fluorinated cores)

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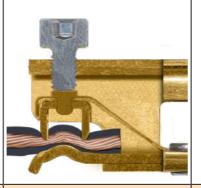
Heat tracing accessories



Insulation piercing terminals 4 technical improvements



1: Anti-vibration blocking and resistant to thermal cycles of the screws after tightening.



2: Double chisels reducing contact resistance with electrical conductors and eliminating hot spots.



3: Terminal opening spring facilitating insertion and allowing possible replacement of heating cables.



4: Captive screws: they don't fall down during connection

Connection on "cold" conductors 5 technical improvements



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1: Anti-vibration blocking of the terminal block screws, resistant to thermal cycles.

2: Terminals allow flexible stranded or rigid conductors from 0.75 to 4mm², stripped or not, and automatically compensate for variations in insulation thickness if the latter creeps

3: Large insertion hole with guide ramps. No tortuous circuit to make to these conductors.

4: Clearly identified earth terminal with anti-loosening notched washer

5: Captive screws: they don't fall down during connection

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Installation 3 technical improvements







1: Two built-in <u>tabs</u> for mounting on a flat wall.

2: Two removable <u>PA66 plastic</u> tabs, for fitting on pipes, providing a 10mm offset from the tube. Ideal and economical for applications with low insulation thickness and pipe temperature below 100°C. Clamping on metal or PVC piping can be made by nylon tie or metal clamp (These tabs are included as standard).

3: One stainless steel bracket, for offset mounting on piping, allowing the enclosure to be locked in after the insulation and its protection have been installed. Allow an insulation thickness of 50mm, and can be used on hot pipes. Clamping on metal or PVC piping by nylon tie or metal clamp. (Legs available as an accessory.)

Lids4 technical improvements



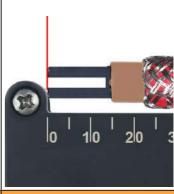
1: Four <u>captive</u> stainlesssteel screws tightening on metal inserts. <u>No screwing</u> <u>into the plastic, no fragile</u> <u>hinges.</u>



2: Riveted identification label, anodized aluminum, laser printed, weatherproof and tamperproof.



3: Two rings for safety seals located diagonally. These rings can also be used to attach mandatory labels.



4: Graduated scale in cm, engraved, with mechanical stop at 0 cm, to ease the stripping length measurement.

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Cable glands 5 technical improvements











1: Specially designed to comply with the high tear force requested by industrial and hazardous area standards, the built-in cable glands are made of black PA66, UV resistant. They are IP67 and IP69K, therefore they withstand immersion and high-pressure hot water washing.

2: Thanks to two springs, the locking saddle for round or flat cable maintains the earth continuity of the metal braid in the event of deformation of the cable. (Patented).

3: This locking saddle provides a powerful tightening of the cable which is independent of the tightening torque of the gland nut, avoiding any tearing.

4: Captive saddle screws.

5: A whole range of gaskets in 70 shore silicone and in 70 shore NBR makes it possible to cover all the dimensions of round or flat cables.

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2 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas



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Example of mounting at distance of the pipe with the stainless steel bracket of type 6YTQT



Applications

This box is used to connect a power supply cable to a self-regulating cable, or two self-regulating cables end to end. It can be mounted flat on a surface, or on a pipe, including with insulation up to 50mm thick.

It is designed to snap onto the pipe mounting bracket.

The terminal blocks are easily accessible and the connection is very simple, in particular for flat self-regulating cables with metallic protective braid.

Main features

Material: Fiberglass reinforced polyamide 66 black, 100mm × 45mm × 41mm (Cable glands not included). Superior UV resistance. This material is non-flammable (UL94V0) and offers the best grade of glow wire temperature resistance

Waterproof grade: IP67 and IP69K (high pressure hot water washing) **Shocks resistance:** The highest, IK10 (Cable gland not included).

- Wall mounting: 2 wall mounting lugs allow the mounting on a flat surface. Holes distance 70 × 55mm.
- Pipe mounting with 10mm offset: Two snap-on plastic legs supplied as standard allow attachment to a tube using a nylon hose clamp.
- Pipe mounting with 50mm offset: one snap-on metal stainless steel bracket allows the installation of a thermal insulation and its protection before snapping-on the box on it and making electric connections (Available as an accessory, see catalogue page on 6YTQT parts).
- The terminals intended for the self-regulating heating conductors are piercing the insulation layers with a double chisel blade, and retain the contact pressure by means of an elastic blade (patented).
- These terminals are designed to receive self-regulating heating cables with any distance between the bus wires between 2mm and 10mm.
- These terminals can also possibly be used for conventional conductors of power supply cables.
- The terminals for the conductors of the power supply cables are clamped with traditional pressure screw. We recommend them for this type of conductor, often flexible type, with many strands of small diameter, that can be damaged by the knives of the insulation piercing terminals.
- All terminals are protected against loosening by vibration or thermal shock.
- The mechanical tightening of the cable is ensured by a screwed metal saddle, usable on round or flat cable. This patented saddle also ensures the earthing of the metal braid of the heating cables.
- Wire gauge: 3 × 1mm² to 3 × 2.5mm²
- Maximum permissible intensity: 16A 250V.

Cables outlet: with M20 cable glands, with 70 shore NBR gaskets.

- Maximum diameter of round cables: 8; 12mm depending on the gaskets installed.
- Limit sizes of oblong cables:
- From 8×5 to 9.5×6 mm
- From 9.5 × 2.5 to 11 × 3.5mm
- From 11 × 4 to 13 × 6mm
- From 12.5 × 8 to 14.2 × 9.2mm

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands. **Inviolability:** The case can receive one or two seals (delivered with 5 red seals).

Sealing: supplied with 5 red plastic ties for use in the sealing holes.

Easy assembly: Assembly is made with full access to terminals when cover is removed. Mounting on wall or pipe can be made with cover removed or cover assembled.

Accessory: Bracket in stainless steel for offset mounting on pipe with up to 50mm insulation thickness. Designed to snap on the connection box without screws. See the accessories pages for models 6YTQT. **Options:**

Consult us for parts numbers of simplified models with only one dimension of cable gland gasket for round wire and flat wires, customized label, and specific set of accessories for pipe mounting (OEM versions).

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2 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas



Main references*

One self-regulating cable to one power supply cable (Y501).

Part numbers	Hole dimension of the seal of cable gland on side A	Hole dimension of the seal of cable gland on side B
Y501S2S500001	Silicone seal for round cable dia. 12mm max.	Silicone seal for oblong cable from 11 × 4 to 13 × 6mm.
Y501N2N500001	NBR seal for round cable dia. 12mm max.	NBR seal for oblong cable from 11 × 4 to 13 × 6mm.
Y501S7S800001	Set of 3 silicone seal for round cable dia. max. 8, 12mm.	Set of 4 silicone seals for oblong cables, from 8×5 to 9.5×6 mm; from 9.5×2.5 to 11×3.5 mm; from 11×4 to 13×6 mm; from 12.5×8 to 14.2×9.2 mm.
Y501N7N800001	Set of 3 NBR seal for round cable dia. max. 8, 12mm.	Set of 4 NBR seals for oblong cables, from 8×5 to 9.5×6 mm; from 9.5×2.5 to 11×3.5 mm; from 11×4 to 13×6 mm; from 12.5×8 to 14.2×9.2 mm.

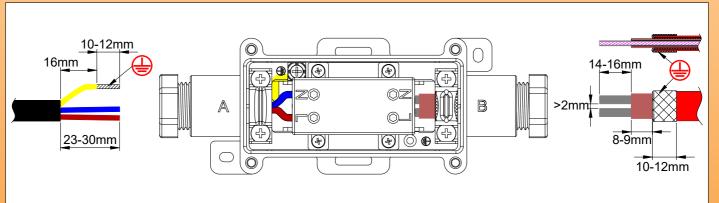
Two self-regulating cables end to end (Y502).

Part numbers	Hole dimension of the seal of cable gland on sides A and B		
Y502S5S500001	Silicone seal for oblong cable from 11×4 to 13×6 mm.		
Y502N5N500001	NBR seal for oblong cable from 11 × 4 to 13 × 6mm.		
Y502S8S800001	Set of 4 silicone seals for oblong cables, from 8×5 to 9.5×6 mm; from 9.5×2.5 to 11×3.5 mm from 11×4 to 13×6 mm; from 12.5×8 to 14.2×9.2 mm.		
Y502N8N800001	Set of 4 NBR seals for oblong cables, from 8×5 to 9.5×6 mm; from 9.5×2.5 to 11×3.5 mm; from 11×4 to 13×6 mm; from 12.5×8 to 14.2×9.2 mm.		

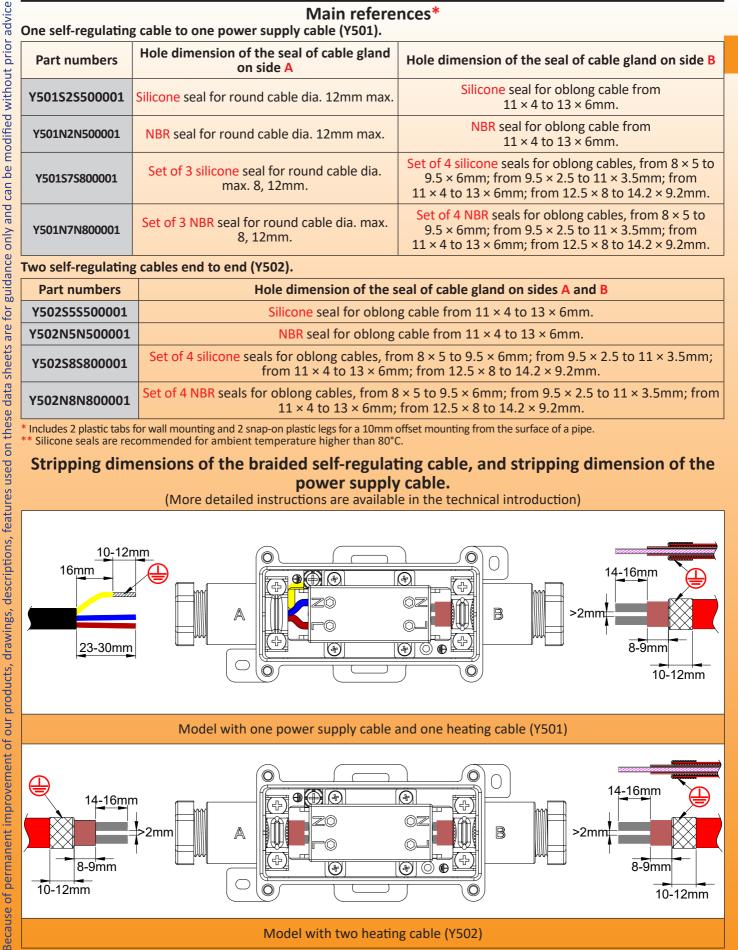
Includes 2 plastic tabs for wall mounting and 2 snap-on plastic legs for a 10mm offset mounting from the surface of a pipe.

Stripping dimensions of the braided self-regulating cable, and stripping dimension of the power supply cable.

(More detailed instructions are available in the technical introduction)



Model with one power supply cable and one heating cable (Y501)



Model with two heating cable (Y502)

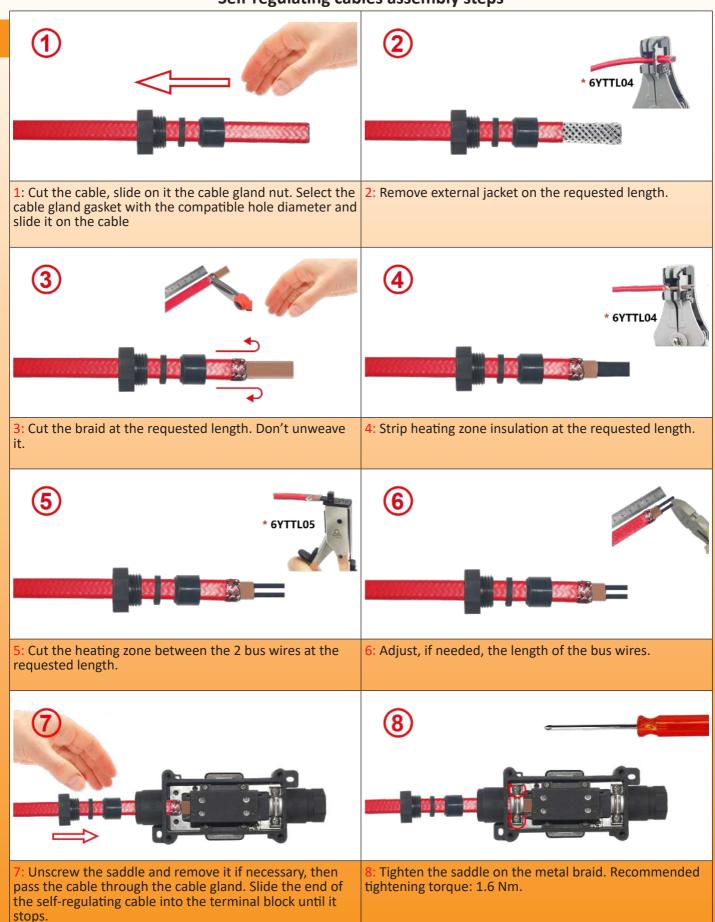
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^{*} Silicone seals are recommended for ambient temperature higher than 80°C.

2 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas

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Self-regulating cables assembly steps



These exclusive tools are available in accessories section

2 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas





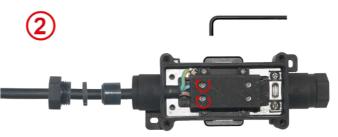


9: Tighten the terminal screw until electrical contact is made with the conductor of the heating cable. Tightening torque is around 1.5 Nm. This tightening torque may vary depending on the thickness and hardness of the material of the semiconductor thermoplastic compound. If necessary, check the continuity with an ohmmeter by measuring the resistance between the two terminals N and L.

10: Slide the flat cable gasket into the cable gland and tighten the nut. Max. tightening torque 3N.m. If not yet made connect the other cable and close the lid.

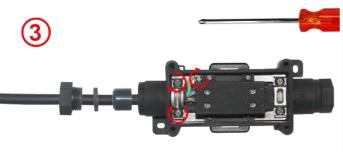
Round cable assembly steps





1: Remove outer jacket on 24mm. Then strip the conductors on 10mm. Eventually, crimp cable shoes. Slide the cable gland nut on the cable. Select the compatible diameter gasket and slide it too on the cable.

2: Put the neutral and line wires inside the screw terminals and tigthen them. Recommended torque 1.6 Nm.





Slide the ground wire under the ground terminal square washer and tigthen the screw. Recommanded torque 1.6 Nm.

4: Slide the round cable gasket into the cable gland and tighten the nut. Maximum tightening torque 3N.m.

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4 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas



1.Red seal

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Applications

This box is used to connect a power supply cable to 3 self-regulating cable. It can be mounted flat on a surface, or on a pipe, including with insulation up to 50mm thick.

It is designed to snap onto the pipe mounting brackets.

The terminal blocks are easily accessible and the connection is very simple, in particular for flat self-regulating cables with metallic protective braid.

Main features

Material: Fiberglass reinforced polyamide 66 black, 100mm × 95mm × 40mm (Cable glands not included). Superior UV

Waterproof grade: IP67 and IP69K (high pressure hot water washing) Shocks resistance: The highest, IK10 (Cable gland not included).

data sheets

- Wall mounting: 2 wall mounting lugs allow the mounting on a flat surface. Holes distance 80 x 110mm.
- Pipe mounting with 10mm offset: Two plastic legs supplied as standard allow attachment to a tube using a nylon hose clamps.
- Pipe mounting with 50mm offset: one snap-on metal stainless steel bracket allows the installation of a thermal insulation and its protection before snapping-on the box on it and making electric connections. (Available as an accessory, see catalogue page on 6YTQT parts).

Terminals:

- The terminals intended for the self-regulating heating conductors are piercing the insulation layers with a double chisel blade, and retain the contact pressure by means of an elastic blade (patented).
- These terminals are designed to receive self-regulating heating cables with any distance between the bus wires between 2mm and 10mm.
- These terminals can also possibly be used for conventional conductors of power supply cables.
- The terminals for the conductors of the power supply cables are clamped with traditional pressure screw. We recommend them for this type of conductor, often flexible type, with many strands of small diameter, that can be damaged by the knives of the insulation piercing terminals.
- All terminals are protected against loosening by vibration or thermal shock.
- The mechanical tightening of the cable is ensured by a screwed metal saddle, usable on round or flat cable.

This patented saddle also ensures the earthing of the metal braid of the heating cables.

- Wire gauge: $3 \times 1 \text{mm}^2$ to $3 \times 2.5 \text{mm}^2$.
- Maximum permissible intensity: 16A 250V.

Interconnection: The neutral terminals (N) are internally connected by a jumper and so are the Line (L) terminals.

Cables outlet: with M20 cable glands, with 70 shore NBR gaskets.

- Maximum diameter of round cables: 8; 12mm depending on the gaskets installed.
- Limit sizes of oblong cables:
- From 8×5 to 9.5×6 mm
- From 9.5×2.5 to 11×3.5 mm
- From 11 × 4 to 13 × 6mm
- From 12.5 × 8 to 14.2 × 9.2mm

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands. **Inviolability:** The case can receive one or two seals (delivered with 5 red seals)

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4 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas



Easy assembly: Assembly is made with full access to terminals when cover is removed. Mounting on wall or pipe can be made with cover removed or cover assembled.

Accessory: Bracket in stainless steel for offset mounting on pipe with up to 50mm insulation thickness. Designed to snap on the connection box. See the accessories pages on 6YTQT models.

Options:

- 3 output models (one cable gland is removed and replaced by a cap)
- Independent lines (internal jumpers between connectors are removed)

Consult us for parts numbers of simplified models with only one dimension of cable gland gasket for round wire and flat wires, customized label, and specific set of accessories for pipe mounting (OEM versions).

Main references*

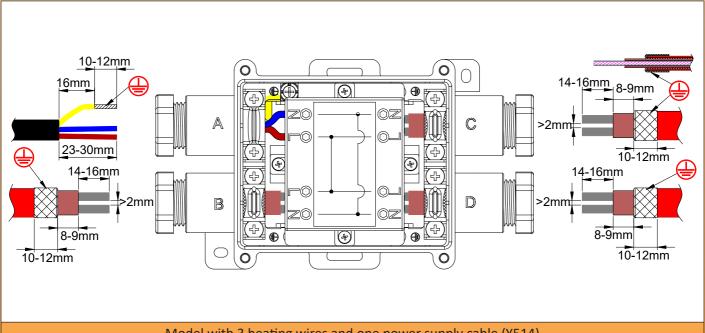
Model for 3 self-regulating cable and one power supply cable (Y514)

Part numbers	Hole dimension of the seal of cable gland on side A	Hole dimension of the seal of cable gland on side B, C, D
Y514N2N5N5N51	NBR seal for round cable dia. 12mm max.	NBR seal for oblong cable from 11 × 4 to 13 × 6mm.
Y514N7N8N8N81	Set of 3 NBR seal for round cable dia. max. 8, 12mm.	Set of 4 NBR seals for oblong cables, from 8 × 5 to 9.5 × 6mm; from 9.5 × 2.5 to 11 × 3.5mm; from 11 × 4 to 13 × 6mm; from 12.5 × 8 to 14.2 × 9.2mm.

^{*} Includes 2 plastic tabs for wall mounting and 2 snap-on plastic legs for a 10mm offset mounting from the surface of a pipe.

Stripping dimensions of the braided self-regulating cable, and stripping dimension of the power supply cable.

(More detailed instructions are available in the technical introduction)

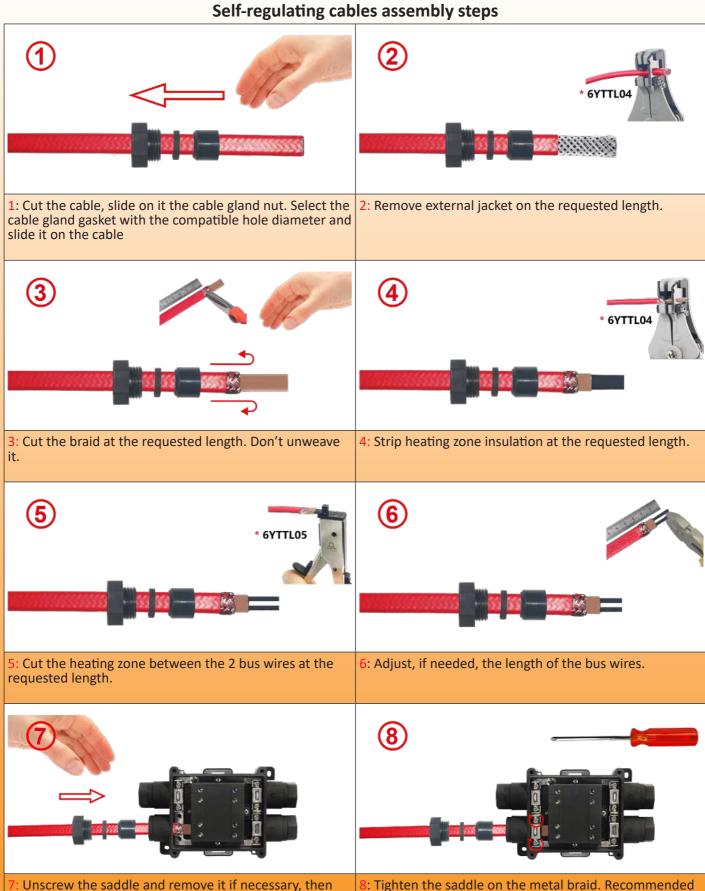


Model with 3 heating wires and one power supply cable (Y514)

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4 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas





pass the cable through the cable gland. Slide the end of the self-regulating cable into the terminal block until it

stops.

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Because of

8: Tighten the saddle on the metal braid. Recommended tightening torque: 1.6 Nm.

These exclusive tools are available in accessories section

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4 ways in line connection box for heat tracing cables, with insulation piercing terminals, for self-regulating cables, for industrial non-hazardous areas







9: Tighten the terminal screw until electrical contact is made with the conductor of the heating cable. Tightening torque is around 1.5 Nm. This tightening torque may vary depending on the thickness and hardness of the material of the semiconductor thermoplastic compound. If necessary, check the continuity with an ohmmeter by measuring the resistance between the two terminals N and L.

10: Slide the flat cable gasket into the cable gland and tighten the nut. Max. tightening torque 3N.m. If not yet made connect the other cable and close the lid.

Round cable assembly steps





1: Remove outer jacket on 24mm. Then strip the conductors on 10mm. Eventually, crimp cable shoes. Slide the cable gland nut on the cable. Select the compatible diameter gasket and slide it too on the cable. 2: Put the neutral and line wires inside the screw terminals and tigthen them. Recommended torque 1.6 Nm.

tighten the nut. Maximum tightening torque 3N.m.



4: Slide the round cable gasket into the cable gland and

3: Slide the ground wire under the ground terminal square washer and tigthen the screw. Recommanded torque 1.6 Nm.

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Section 6 Mechanical thermostats inside housing, for ambient temperature measurement, or with remote probe

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The advantages of mechanical thermostats

- Inexpensive
- Simple to use without the need for specially trained users.
 - Simple connection, usually with only 2 conductors.



In a 20mm diameter drill

(Nut in green)

·						
Thread	Body diameter	Wire gauge	Sensors	Body material	Туре	
M20 × 1.5	Ø18.2 × 15mm	0.5mm² (AWG24)	Disc thermostat	Anodized aluminum	49JB	
				6mm 67mm L 24mm	HEX24mm	
		Through cabinet wa	Il assembly versions	5		
1		16				

Applications

In a M20x1.5 thread (gasket in red)

In a 20mm diameter drill

These fixed setting thermostats have been designed to be mounted in holes dia. 20mm (With a lock nut and a gasket) or in M20x1.5 threads (With a gasket), originally intended for mounting cable glands on connection boxes or control boxes. They allow to easily install an ambient temperature control on these boxes, usually used as an anti-freeze function. The ambient temperature measurement is then made outside, 15mm from the wall, and the system is fully waterproof.

Main features

Housing: Black anodized aluminum with M20x1.5 thread.

Ingress protection: IP66.

Connection: 1.5mm² two-conductor cable (AWG15), 300V insulation.

Temperature set point:

Open: 10 +/- 3 °C (Heating off). Close: 4 +/- 3 °C (Heating on).

In a M20x1.5 thread

Other temperatures on request, consult us. **Electric rating:** 16A 250V, 10,000 cycles.

Accessories:

products,

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M20 x1.5 Nylon nut	4.5mm HEX 25mm	66NDM20545H25
70 shore NBR gasket	Ø18.5mm 1.8mm Ø26.5mm	66JPN18518265

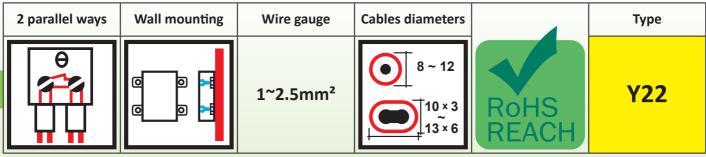
References

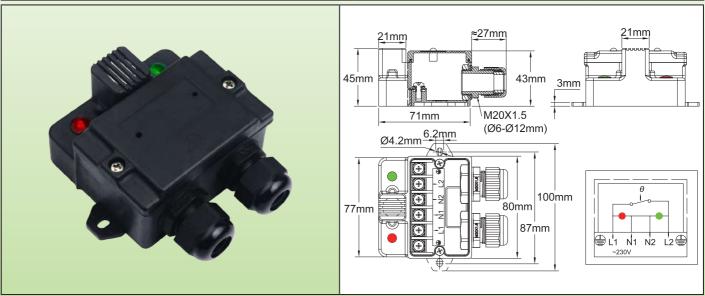
Cable length (L)				
300mm 1m 2m 3m				
49JBDJ01006KFRF8 49JBDJ01006KFR18 49JBDJ01006KFR28 49JBDJ01006KFR38				

Note: Some versions of these thermostats for applications to control ambient temperature in hazardous areas (dust or gas) are described in the catalogue 4. The thread is then M22x1.5 instead of M20x1.5, and products family reference becomes 4V.

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Applications

These boxes are particularly intended for the automatic start of antifreeze heating of small installations. They allow to connect a power supply cable to a conventional or self-regulating heating cable. In these models, the overmolded bimetallic, fixed-temperature thermostat is thermally isolated from the wall on which it is mounted, and its measurement surface is mechanically protected by a grid. It is located in front of the cabinet in order to be in a natural area for the circulation of ambient air. The box must therefore be mounted in a location representative of the ambient temperature around the installation to be protected. The two indicator lights allow to quickly check the operating status.

Main features

Mounting: Wall, by external side brackets. These tabs can be folded inwards. **Protection:** IP65 (IK03 on thermostat guard, IK10 the rest of the housing)

Material: ABS-PC black glass-fiber reinforced

Screws: Stainless steel, captives

Thermostat calibration: Contact opens at 10°C (stops heating), closes at 4°C (starts heating)

Output: 2 Cable glands M20, PA6, IP66.

Comes with two sets of gaskets in NBR 70 shore for round cable from 8 to 12mm, and one set for oblong cable up to 6 × 13mm

Electrical rating: Single pole, 16A 250V (10.000 cycles).

Pilot lights: Allow to visualize the power supply and thermostat contact position (230V line and neutral power supply is mandatory for the pilot lights).

Identification: The cover has a 20x40mm recess for a riveted stainless-steel identification plate or a sticker.

Customization: Laser printing on the stainless-steel identification plate or personalized label.

Connection: Built in 4mm² screw terminal block.

Options:

- Other calibration temperatures.
- Models without pilot lights.

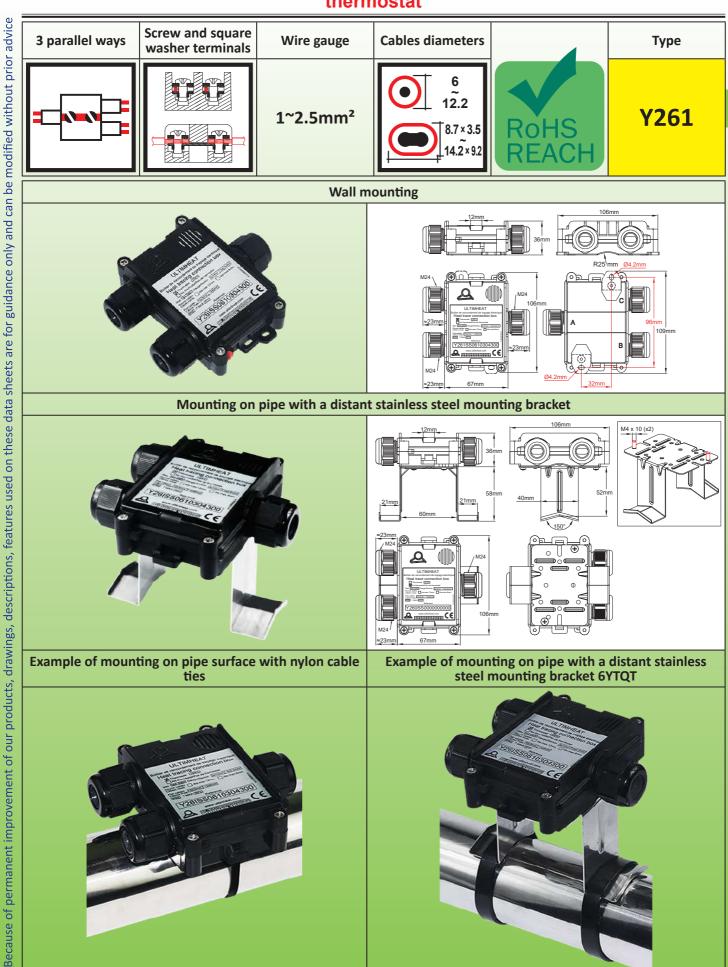
Reference

Y22D9J01006USUS0

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3 parallel ways connection box for heat tracing cables, with built-in antifreeze thermostat





Cat12-3-6-5 Contact us www.ultimheat.com

3 parallel ways connection box for heat tracing cables, with built-in antifreeze thermostat



Applications

This box allows to connect, with a good IP65 ingress protection, 2 rounds or flat heating cable to a round power cable or providing at the same time the continuity of the power line.

The built-in disc thermostat provides the anti-freeze function.

It can be mounted on a flat surface, or on a pipe.

Terminals positions provide easy access, wiring is simple, including for braided heating cables.

Compatible with all types of flexible heating wires, round or flat.

Main features

Material: Polyamide 66 black, 90mm × 67mm × 36mm (Cable glands not included). Excellent UV resistance.

Waterproof grade: IP65

Thermostat: rating 16A 230V, open by temperature rise at 10°C +/-3°C, close at 4°C+/-3°C (Other temperatures on request)

Mounting: 2 removable wall mounting bracket, holes distance 96mm. Pipe mounting with cable tie also possible, by using the 2 rings located on the side of the box

Terminals:

- Screw terminals with captive toothed square washers accepting rigid or flexible conductors.
- The mechanical tightening of the cable is ensured by a screwed metal saddle, usable on round or flat cable.

This patented saddle also ensures the earthing of the metal braid of the heating cables.

- Wire gauge: $3 \times 1 \text{mm}^2$ to $3 \times 2.5 \text{mm}^2$
- Maximum permissible intensity: 16A 250V

Cables outlet: with M24 cable glands, with 70 shore NBR gaskets (Silicone is available on request).

- Maximum diameter of round cables: 8; 12 or 14mm depending on the gaskets installed.
- Limit sizes of oblong cables:
- from 8×5 to 9.5×6 mm
- from 9.5×2.5 to 11×3.5 mm
- from 11 × 4 to 13 × 6mm

Y261SS06103004300

- from 12.5×8 to 14.2×9.2 mm

For more information about tightening possibilities on round and oblong cables, see the catalogue page on 6YTP cable glands.

Safety sealing: supplied with 5 red plastic ties for use in the sealing holes

Easy assembly: Assembly is made with full access to terminals when cover is removed. Mounting on wall or pipe can be made with cover removed or cover assembled.

Accessories: Stainless steel bracket for mounting distant from the pipe, see accessories page 6YTQT.

Options: Model for 3 heating wires without power supply cable and model for one heating wire and 2 power supply cables.

Main part numbers

Includes a set of gaskets for round cables, 2 sets of gaskets for oblong cables and 2 metal tabs

	for pipe mounting		
References	Seals on side A*	Seals on side B*	Seals on side C*
Y261PFF610304300	Silicone seal for round cable dia. 8mm max.	Silicone seal for oblong cable max. size 13x6mm	Silicone seal for oblong cable max. size 13x6mm
Y261KNN610304300	NBR seal for round cable dia. 8mm max.	NBR seal for oblong cable max. size 13x6mm	NBR seal for oblong cable max. size 13x6mm
Y261PSS610304300	Silicone seal for round cable dia. 8mm max.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of Silicone seal for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.
Y261KXX610304300	NBR seal for round cable dia. 8mm max.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm.	Set of NBR seals for oblong cables max. size 9.5x6; 11x3.5; 13x6 and 14.2x9.2mm

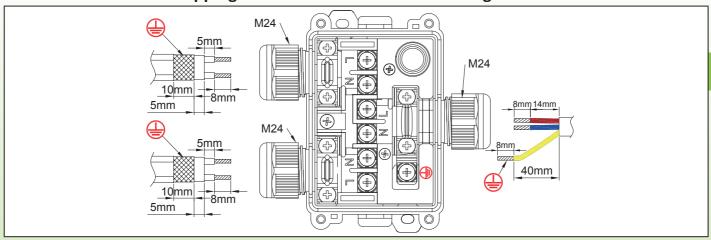
^{*} Silicone seals recommended for ambient temperature higher than 80°C

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3 parallel ways connection box for heat tracing cables, with built-in antifreeze thermostat



Stripping dimensions of round and oblong cables



Self-regulating cables assembly steps

(More details on the different methods of preparing termination for various types of cables are available in the technical introduction).





- 1: After selecting the cable gland seal to the recommended size for the cable type, pass the heating cable through the gland nut and its seal.
- 2: Strip the outer jacket of the heating cable to the required length.





3: Cut the braid to the requested size

4: Strip the insulating jacket around the heating part to the required length.





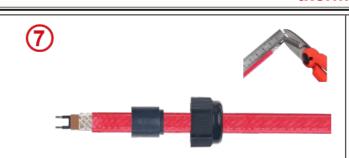
- 5: Cut the heating part between the two bus wires to the required length.
- 6: Strip the two bus wires over the required length.

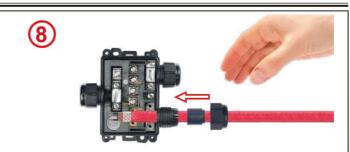
These exclusive tools are available in accessories section

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3 parallel ways connection box for heat tracing cables, with built-in antifreeze 🔎 thermostat







- 7: If necessary, cut the stripped bus wires to length.
- 8: Unscrew and remove the saddle, unscrew and remove the terminal screws if necessary, then pass the cable through the cable gland.



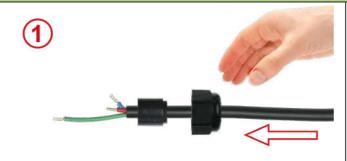


- 9: Put the bus wire and the braid at the place they will be tightened. Tighten the terminal block screws on the bus wires. Recommended torque 1.2 Nm
- 10: Replace the saddle and tighten it on the metal braid. Recommended torque 1.2 Nm



11: Slide the flat cable gasket into the cable gland and tighten the nut. Maximum torque 3Nm. Connect any other cables and close the lid.

Round cable assembly steps



- 1: Remove outer insulation on round cable as requested by drawing. Eventually, crimp cable shoes. Slide the cable gland nut on the cable. Select the compatible diameter gasket and slide it on the cable
- 2: Put the neutral, line and ground wires inside the screw terminals and tigthen them. Recommended torque 1.2 Nm

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3 parallel ways connection box for heat tracing cables, with built-in antifreeze thermostat



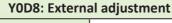


- 3: Tigthen the saddle screw. Recommanded torque 1.6 Nm
- 4: Slide the round cable seal into the cable gland and tighten the nut. Maximum torque 3N.m.

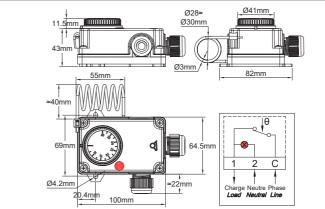
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"Pigtail" bulb room thermostat, with built-in pilot light and 2 M20 cable glands of heat tracing application

Enclosure	Туре	Operation	Contact	Measurement	Ranges °C	Types
IP55	Control	Mechanical	SPNC	Ambient		
Material					-+40°C	YOD8
PC-ABS			1:	74	-+4°C	& Y0D9

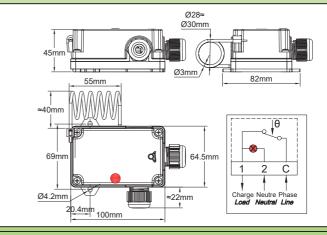






Y0D9: Internal adjustment





Example of wall mounting model connected on Y25 connection boxes for antifreeze protection of livestock waters

Example of assembly on Y29 connection box with pipe mounting leg





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"Pigtail" bulb room thermostat, with built-in pilot light and 2 M20 cable glands for heat tracing application



Applications

Ambient temperature control in professional premises where good protection against liquid splashes or dust is requested.

Output with 2 cable glands, allowing of heat tracing cables for freeze protection.

The connection of one heating cable can be done directly. For the connection of several heating cables, it is necessary to go through an intermediate box of types Y25, Y26, Y28, Y29 (See pages of these products)

Main features

Housing: Reduced height, IP44, black PC-ABS fiberglass reinforced, UL94V0. High impact and UV resistance. 2 removable wall mounting lugs.

Cable input: Two M20 cable glands. Mounting of cable glands can be modified in 3 positions. Special cable glands for oblong heat tracing cables are available on request. Available models are described on pages of 6YTP products

Set point adjustment: By °C printed knob for external adjustment models, by screw driver and printed dial on internal adjustment models. °F values available as an option.

Sensing element: Liquid filled "pigtail" bulb, mounted on the side of plastic housing

Adjustment ranges: 4-40°C (40-105°F).

Electrical connections: On screw terminals. (It is possible to connect 2 wires 1.5mm² on each terminal).

Mounting: Wall mounting, by two side lugs with holes for dia. 4mm screws, 69mm distance.

This thermostat can be mounted directly on the rear side of pipe mounting connection boxes type Y29.

Contact: SPNC (open on temperature rise).

Pilot light: Neon, 230V, standard in red, parallel connection on the load

Electrical rating, resistive loads: 16A 250V, 50 ~60Hz. Minimum storage temperature: -35°C (-30°F) Maximum ambient temperature: 60°C (140°F)

Selection of some part numbers with cable gland seals for round cables *

Temperature ranges °C (°F)	Internal adjustment**	External adjustment**	Differential	Max temperature on bulb
4-40 (40-105)	Y0D9KD104040QB3J	Y0D8KD104040QB3J	1±0.5°C (1.8±1°F)	60°C (140°F)

^{*} These products also exist with bulb and capillary sensing element: replace YOD by YOA in the reference. See the catalogue N°2 for the technical data sheets of all models and temperature ranges.

** °F printing: replace last character (J) by K.

Knob printings				
°F Printing	°C Printing			
40-105°F	4-40°C			
100	40 35 30 25			



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"Pigtail" bulb room thermostats with metal housing, for heat tracing

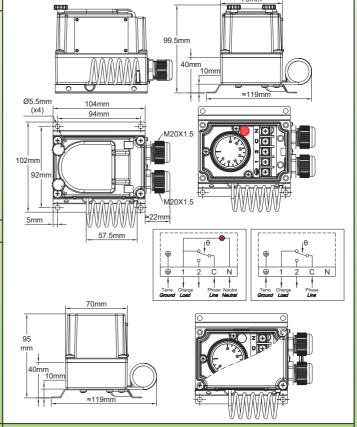
Enclosure	Туре	Operation	Contact	Measurement	Ranges °C	Types
IP65, IK10	Control	Mechanical	SPDT	Ambient	-+40°C	V4 4 9 C
Material						Y1A8G
Aluminum			1=	74	-+4°C	Y1B8G



Y1A8G: Internal adjustment (Without pilot light)



Example of assembly on two heat tracing cables of one Y1B2P, in combination with Y29 connection box



Example of assembly on two heat tracing cables, with Y27 connection box, for steel pipe antifreeze protection





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"Pigtail" bulb room thermostats with metal housing, for heat tracing



Applications

- Heavy duty industrial environments. Robust and durable electromechanical system. Insensitive to voltage variations.
- Outdoor antifreeze temperature control of heaters and heat tracing cables.
- Wall mounting for indoor or outdoor temperature control of cold rooms.
- Temperature control of industrial or commercial premises.
- Green houses and livestock stables temperature control.

Housing: Aluminum, IP65, IK10. Mounted on a SUS304 stainless steel wall mounting plate which keeps the temperature sensing element away from the wall. Grey RAL7032 epoxy painting. Stainless steel captive cover screws. Captive aluminum lid.

Set point adjustment ranges: 4-40°C (40-105°F)

Set point adjustment: By °C printed knob. All types have an adjustable rotation limit system located inside the knob that allows reducing the set point adjustment span. Types with external adjustment have a transparent window. This device allows seeing the pilot light and the knob position. °F values are available as an option.

Action: Temperature control.

Sensing element: Liquid filled "pigtail" bulb, mounted on the side of plastic housing.

Electrical connections: Inside, on screw terminal connection block.

Earthing: Internal and external screw terminal.

Pilot light: Allow to visualize thermostat contact output position. Standard for all models with transparent window.

Non standard and on special request only for models with plain aluminum cover.

Cable input and output: Two M20 cable glands, Black PA66.

Mounting: Wall mounting, by 4 holes for screws dia. 4 to 5mm, 94 × 92mm distance.

Identification: Metallic identification label, riveted.

Contact: SPDT

Electrical rating, resistive loads: 16A 250V, 50 ~60Hz: >100000 cycles. Electrical rating, inductive loads:

- Open on temperature rise contact (C-1): 6A 250V, 50 ~60Hz: >100000 cycles

- Close on temperature rise contact (C-2): 0.6A 250V 50 ~60Hz: >100000 cycles.

Minimum storage temperature: -35°C (-30°F) Maximum ambient temperature: 60°C (140°F)

Options: Models with bulb and capillary for distant measurement

For more technical information about the thermostat used inside this housing, see 8G thermostat technical data sheet in the catalog number 1.

References principales

Temperature adjustment ranges °C (°F)	References with external adjustment	References with internal adjustment	Differential °C (°F)
4-40°C (40-105°F)	Y1B8G4040AQ30001J	Y1A8G4040AQ30001J	1.6±1°C (2.9±2°F)

[°]F printing: replace last character (J) by K

Knob printings			
°F Printing	°C Printing		
40-105°F	4-40°C		
100 St. 100 St	40 25		

Similar products (For more information these models, see the catalogue number 2, second edition)				
Y1R8G	Y118G			
Thermostat with distant sensor and internal adjustment	Thermostat with distant sensor and adjustment under window			

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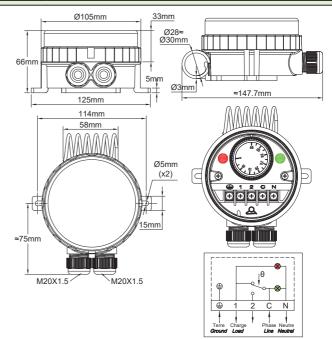


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"Pigtail" bulb room thermostats for heat tracing

Enclosure	Туре	Operation	Contact	Measurement	Ranges °C	Туре
IP66 IK10	Control	Mechanical	SPDT	Ambient	-+40°C	
Material						YF7GNC
PA66 & PC			#	34	-+4°C	TF/GNC









Example of assembly on 3 or more heat tracing cables, in combination with Y25 connection boxes

Example of assembly on 2 heat tracing cables, with one Y29 connection box, for metal pipe antifreeze protection

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2

"Pigtail" bulb room thermostats for heat tracing

Applications

- Equipment requesting a very strong resistance to water ingress. The transparent cover allows to visualize the set point and the 2 pilot lights. The mechanical temperature measurement is heavy duty and insensible to voltage changes.
- Outdoor antifreeze temperature control of heaters and heat tracing cables.

Wall mounting for indoor or outdoor temperature control of cold rooms.

- Temperature control of industrial or commercial premises.
- Green houses and livestock stables temperature control.

Housing: Protection class IP 66 upon EN 60529 (waterproof spray water under high pressure and sea splashes, totally dust tight). Body in black PA66, fiber glass reinforced. The transparent polycarbonate cover can be unscrewed by hand, but it is also possible to use a hook spanner. Mechanical impact resistance: IK10. High UV resistance.

Set point adjustment: By °C printed knob. All types have an adjustable rotation limit system located inside the knob that allows reducing the set point adjustment span. °F printed knobs available as an option.

Action: Temperature control. On-Off action

Sensing element: Liquid filled "pigtail" stainless steel bulb, mounted on the top side of the plastic housing.

Pilot lights: One pilot light visualizes the thermostat contact output position. The other visualizes the power supply input. Phase and neutral electrical line supply are mandatory for these pilot lights.

Set point adjustment ranges: 4-40°C (40-105°F)

Cable input and output: Two M20 cable glands, built-in black PA66.

Electrical connections: Inside, on screw terminal connection block. It is possible to connect 2 wires 1.5mm² on each

Earthing: Internal screw terminal.

Mounting: Wall mounting, by 2 legs with holes for screws dia. 4 to 5mm, 114mm distance

Identification: Identification label on backside.

Contact: SPDT

Electrical rating, resistive loads: 16A 250V, 50 ~60Hz: >100000 cycles,

Minimum storage temperature: -35°C (-30°F) Maximum ambient temperature: 60°C (140°F) Options: Models with remote temperature sensor

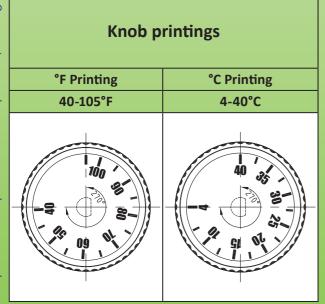
For more technical information about the thermostat mechanism used in this enclosure, see the 8G thermostat

technical data sheet in catalogue N°1

Main references used in heat tracing

Temperature adjustment ranges °C (°F)	Reference	Differential °C (°F)
4-40°C (40-105°F)	YF7GNC04040023ZJ	4±2°C(7.2±3.6°F)

[°]F printing: replace last character (J) by K



Model with bulb and capillary for distant measurement (Technical data sheet available in catalogue number 2, second edition) YF9GNC

Update 2025/06/27

Cat12-3-6-15

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Section 7 Electronic controllers, for ambient temperature measurement, with built-in or remote temperature sensor.

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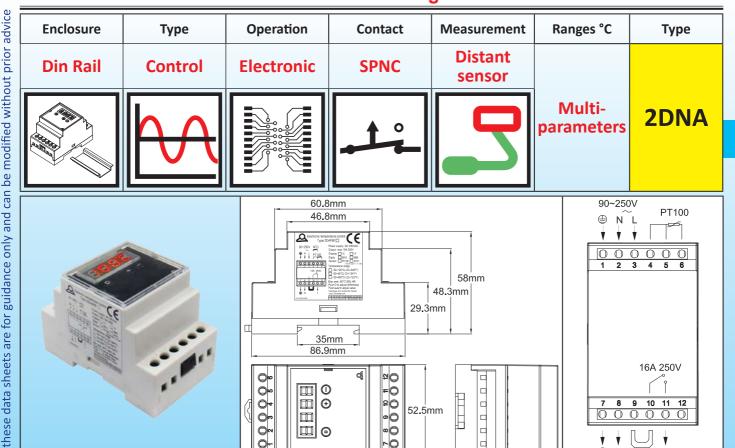


The advantages of electronic temperature control in heat tracing applications

- Increased accuracy.
- Different possible output actions (on certain models).
 - Adjustable differential.
- Greater distance between the probe and the control box.
- Possible separation between the probe and the control box facilitating the installation of the two separately.
 - Visible temperature display (on some models)

Digital display electronic controller, Din Rail mounting, ON-OFF, for heat tracing





Applications

- Indoor mounting, in a box or a cabinet with Din rail, for control of frost protection and electrical tracing systems. (Defrosting and snow removal of gutters, roofs, heated parking ramps).

This electronic temperature controller with the **simplest and the most instinctive setting by end user** was designed for easy incorporation inside cabinets with DIN rail mounting. It can be used by untrained operators. It provides simple On Off action temperature control.

It is possible to set °C or °F display, heating or cooling relay output, decimal display, sensor type and temperature range by internal Dip switches (Without access by end user).

End user has access to set point and differential setting only.

Adjustment of maximum temperature can be set without need to open the control.

Technical features

Dimensions: $86.9 \times 58 \times 52.5$ mm

Display: 3+1 digits, LED. The fourth digit is used to display °C or °F, upon setting made.

Set point setting: In normal use, the display shows the measured temperature. Push "+" or "-" keys will display the set point value, and at that time it can be adjusted with "+" and "-" keys. No action during 5 seconds will register the new set point value and bring back display to measured value.

Temperature differential setting: In normal use, the display shows the measured temperature. Push "D" key will display the differential value, at that time it can be adjusted with "+" and "-" keys. Push "D" again or no action during 5 seconds will register the new differential value and bring back display to the measured value.

Action: On-On

Temperature sensor: Pt100 (2 or 3 wires) or NTC 10Kohms @25°C, B= 3380 (2 wires) Temperature sensor can be selected by a dip switch on circuit (No access to final user)

Accuracy: +/-1% of scale

Temperature adjustment ranges:

- -30+120°C (-20+250°F), with 1° display
- -30.0 to +40.0°C (-20.0 + 99.9°F), with 1/10° display
- -30+400°C (-20+750°F), with 1° display

Temperature range and decimal digit can be selected by a dip switch on circuit (No access to final user).

Power supply: 90 to 240V, 50Hz or 60Hz.

Relay output: SPNO when there is no power supply, 16A 250V res., 100,000 cycles. Output Led displays relay position **Relay action:** Heating or cooling, open or close on temperature rise output relay action can be selected by a dip switch on circuit (No access to final user)

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Digital display electronic controller, Din Rail mounting, ON-OFF, for heat tracing



°C or °F display: can be selected by a dip switch on circuit (No access to final user).

Maximum possible set point adjustment by user: Push "D" button more than 10 seconds, display shows the maximum temperature that can be set by the user. Then it is possible to adjust this value with "+" and "-". Push again on "D" or do nothing during 5 seconds will register the maximum possible setting value and control will come back to the measured value.

Ambient: -20+60°C, 10-90% RH

Power: <4W Fail safe safety:

- If no power supply, relay output contact will open
- If Pt100 sensor or NTC is broken or not connected properly, relay output contact will open and display will show "EEE"
- If measured temperature is higher than allowed by the set range, display will show HHH
- If measured temperature is lower than -30.0°C or -20.0°F, display will show LLL

Electrical connections:

- Power input: Neutral, phase, ground, with 2.5mm² terminals
- Power output: Neutral, phase, ground, with 2.5mm² terminals for direct connection to the load.
- Temperature sensor: three 2.5mm² screw terminal

One removable jumper provides a potential free relay output for applications needing a separate circuit for relay, external timer or other.

Internal parameter settings: Process is given on request to approved distributors. This allows to store only one product and set parameters upon end user request.

Options: Waterproof wall mounting box

Standards: CE certificate by TUV, and ROHS and Reach components.

Main references used in heat tracing (Temperature sensor not included*)

References	Temperature range	Sensor	Display
2DNAP6FE	-30, 0 to + 40, 0°C	Pt100	88.8 <mark>C</mark> (°C)
2DNAP6FA	-30 + 120°C	NTC	888 <mark>C</mark> (°C)
2DNAP6FF	-20.0 + 99.9°F	Pt100	88.8 F (°F)
2DNAP6FB	-20 + 250°F	NTC	888F (°F)

^{*} For compatible temperature sensors, see TSR5 and TNR6 products pages in this catalogue.

Electronic room thermostats for heat tracing, metal box

Enclosure	Туре	Operation	Contact	Measurement	Ranges °C	Types
IP65, IK10	Control	Electronic	SPNC	Ambient	-+40°C	V4 4 2 D
Material						Y1A2P
Aluminum			1:	74	-+4°C	Y1B2P

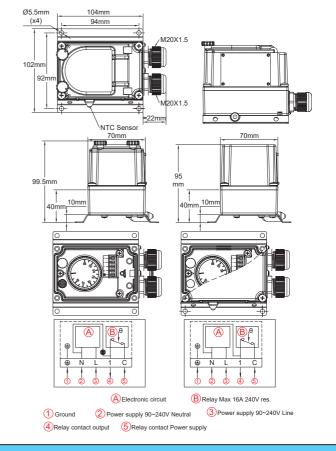




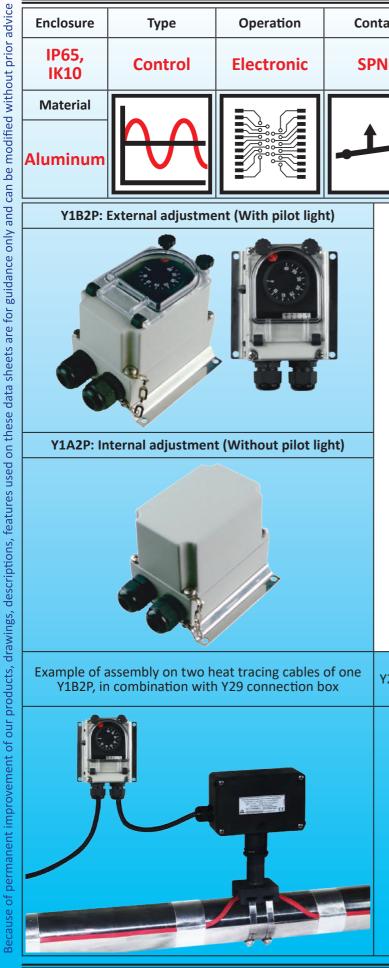
Y1A2P: Internal adjustment (Without pilot light)

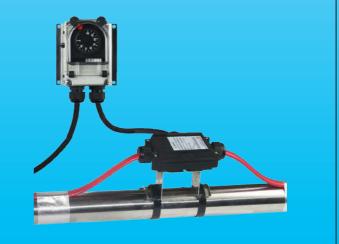


Example of assembly on two heat tracing cables of one Y1B2P, in combination with Y29 connection box



Example of assembly on two heat tracing cables, with Y26 connection box with stainless steel elevated bracket, for pipe antifreeze protection.





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2

Electronic room thermostats for heat tracing, metal box

Applications

- Heavy duty industrial environments
- Outdoor antifreeze temperature control of heaters and heat tracing cables.
- Wall mounting for indoor or outdoor temperature control of cold rooms.
- Temperature control of industrial or commercial premises.
- Green houses and livestock stables temperature control.

Technical features

Housing: Aluminum, IP65, IK10. Mounted on a SUS304 stainless steel wall mounting plate which keeps the temperature sensing element away from the wall. Grey RAL7032 epoxy painting. Stainless steel captive cover screws. Captive aluminum lid.

Operation: Microprocessor electronic control thermostat.

Adjustment ranges: -35-35°C (-30+95°F), 0-10°C (32-50°F), 4-40°C (40-105°F).

Set point adjustment: By °C printed knob. All types have an adjustable rotation limit system located inside the knob that allows reducing the set point adjustment span. Types with external adjustment have a transparent window. This device allows seeing the pilot light and the knob position. °F values are available as an option.

Sensing element: NTC probe, mounted on the side of plastic housing.

Cable input and output: Two M20 cable glands, Black PA66. Internal electrical connection on screw terminals. 2 phase power supply (Line+ Neutral, 220~250V, 50Hz~60Hz) are mandatory.

Earthing: Internal and external screw terminal.

Pilot light: Allow to visualize thermostat contact output position. Standard for all models with transparent window.

Non- standard and on special request only for models with plain aluminum cover. **Mounting:** Wall mounting, by 4 holes for screws dia. 4 to 5mm, 94 × 92mm distance.

Identification: Metallic identification label, riveted.

Contact: SPST. 16A (2.6), 250VAC. Open on temperature rise.

Electrical life: >100.000 cycles.

Minimum storage temperature: -35°C (-30°F) Maximum ambient temperature: 60°C (140°F) Options: Models with remote temperature sensor

For more technical information on the electronic part, see 2PE2N6 thermostat technical data sheet in catalog N°1

Main references used in heat tracing

Temperature adjustment ranges °C (°F)	Differential °C (°F)	References with external adjustment	References with internal adjustment
-35-35°C (-30+95°F)	0.5~0.8°C (0.9~1.4°F)	Y1B2PN6F235035AJ	Y1A2PN6F235035AJ
4-40°C (40-105°F)	0.5~0.8°C (0.9~1.4°F)	Y1B2PN6F204040AJ	Y1A2PN6F204040AJ

[°]F printing: replace last character (J) by K.

Knob printings			
°F Pri	nting	°C Pri	inting
-30+95°F	40+105°F	-35+35°C	4-40°C
	100 85 - 100 Mg		49 25 25

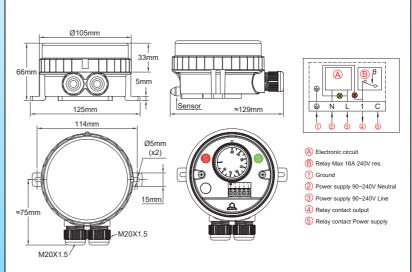
(For more information these models, see the catalogue number 2, second edition)				
Y1G2P	Y1I2P			
Electronic temperature control with distant sensor and internal adjustment	Electronic temperature control with distant sensor and adjustment under window			

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Electronic room thermostats for heat tracing

Г	Enclosure	Туре	Operation	Contact	Measurement	Ranges °C	Туре
	IP66, IK10	Control	Electronic	SPNC	Ambient	-+40°C	
	Material						YF62NC
	PA66 & PC	$\overline{\mathbf{M}}$		1:	34	35°C	TFOZINC







Example of assembly on two heat tracing cables, in combination with Y29 connection box



Example of assembly on one heat tracing cable, with Y24 connection box, for PVC pipe antifreeze protection

Applications

- Equipment requesting a very strong resistance to water ingress. The transparent cover allows to visualize the set point and the 2 pilot lights.
- Outdoor antifreeze temperature control of heaters and heat tracing cables.
- Wall mounting for indoor or outdoor temperature control of cold rooms.
- Temperature control of industrial or commercial premises.
- Green houses and livestock stables temperature control.
- Very small differential

Technical features

Housing: Protection class IP 66 upon EN 60529 (waterproof spray water under high pressure and sea splashes, totally dust tight). Body in black PA66, fiber glass reinforced. The transparent polycarbonate cover can be unscrewed by hand, but it is also possible to use a hook spanner. Mechanical impact resistance: IK10. High UV resistance.

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Electronic room thermostats for heat tracing

Set point adjustment: By °C printed knob. All types have an adjustable rotation limit system located inside the knob that allows reducing the set point adjustment span. °F printed knobs available as an option.

Operation: Microprocessor electronic thermostat.

Sensing element: NTC probe, mounted on the top of the plastic housing.

Pilot lights: One pilot light visualizes the thermostat contact output position. The other visualizes the power supply

input. Phase and line 230V power supply is mandatory for these pilot lights.

Set point adjustment ranges: -35-35°C (-30+95°F), 0-10°C (32-50°F), 4-40°C (40-105°F).

Differential: Differential is preset at the minimum value, but can be increased with a potentiometer located under the set point adjustment knob.

Cable input and output: Two M20 cable glands, built-in, black PA66.

Electrical connections: Inside, on screw terminal connection block. It is possible to connect 2 wires 1.5mm² on each

terminal.

Earthing: Internal screw terminal.

Mounting: Wall mounting, by 2 legs with holes for screws dia. 4 to 5mm, 114mm distance.

Identification: Identification label on backside.

Contact: SPST. 16A (2.6), 250VAC. Open on temperature rise.

Electrical life: >100.000 cycles.

Minimum storage temperature: -35°C (-30°F). Maximum ambient temperature: 60°C (140°F). Options: Models with remote temperature sensor

For more technical information see 2PE2N6 thermostat technical data sheet in catalog N°1.

Main references used in heat tracing

References with open on temperature rise contact	Temperature adjustment ranges °C (°F)*	Minimum differential °C (°F)
YF62NC350350000J	-35+35°C (-30+95°F)	0.5~0.8°C (0.9~1.4°F)
YF62NC000100000J	0+10°C (32-50°F)	0.5~0.8°C (0.9~1.4°F)
YF62NC040400000J	+4+40°C (40-105°F)	0.5~0.8°C (0.9~1.4°F)

^{* °}F printing: replace last character (J) by K.

Knob printings

°C Printing			°F Printing		
-35+35°C	0-10°C	4-40°C	-30+95°F	32-50°F	40+105°F
1.77 3. 01. 11. 11. 11. 11. 11. 11. 11. 11. 11	10 // 6 / 1 / 6 / 1 / 6 / 1 / 6 / 1 / 1 /	40 %	15 50 8 50 8 50 8 50 8 50 8 50 8 50 8 50	50 4/2 3/2	

Model with remote sensor

(Technical data sheet available in catalogue number 2, second edition)



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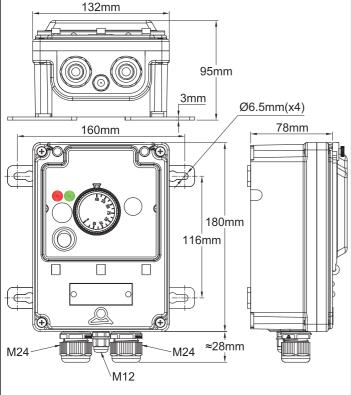
Electronic thermostat, NTC sensor, for heat trace pipe temperature control, remote wall mounting

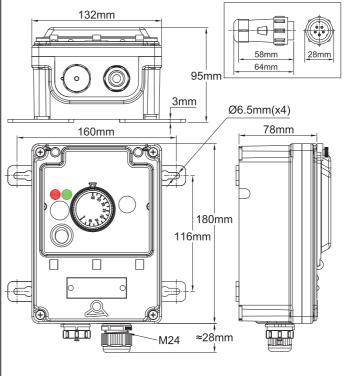


Temperature ranges	Mounting	Adjustment	Sensor	Action type	Types
-35+35°C (-30+95°F) 0-10°C (32-50°F) 4-40°C (40-105°F) 30-90°C (85-190°F) 30-110°C (85-230°F) 20-125°C (68-260°F)	Wall mounting	Printed knob	NTC thermistor	On-Off	Y8WR-X Y8WR-Y









Model with 3 cable glands (2 × M24 +1 × M12): Y8WR-X

Model with one 5 ways connector and one M24 cable gland: Y8WR-Y





Example of wiring to a connection box Y29C with offset pipe mounting leg

Example of wiring to a connection box Y29D with offset pipe mounting leg

Applications

These waterproof control boxes with wall mounting allow remote control of the surface temperature of the pipes. The connection to the heating elements is via a connection box with or without offset mounting foot, type Y26, Y27, Y28, Y29, or with a 3-conductor power cable and a separate NTC temperature sensor cable, or by an offset mounting foot connection box type Y29B and a single 5-conductor cable equipped with a 5-way connector. The use this model is simple and intuitive, similar to electromechanical thermostats, and does not need specially trained users. The use of a wired temperature measurement sensor, which can be disconnected, allows to overcome the problems of wall crossing of bulb thermostats, the capillary of which cannot be cut, and to proceed with installation of connection and control boxes after mounting the heating cables and the temperature sensor, installation of the pipe insulation and installation of the insulation protection sheath.

Main features

Enclosure: IP69K, reinforced PA66, with polycarbonate window access. Sealable cover and window.

Wall mounting: Four removable and rotatable legs.

Electrical connection:

- On internal terminal block for power supply on all models.
- On the model with 3 cable glands: On internal terminal block for the output and the temperature sensor.
- On the model with output by 5-way connector, the internal wiring of the power output and the temperature sensor to the connector is carried out.

Cable glands:

- Three cable glands model: Two M24 cable glands for power supply and power output and one M12 cable gland for the temperature sensor.
- 5-way connector model: A 5-way female connector mounted on the wall of the housing and a 5-way male connector to be mounted on cable, and an M24 cable gland for the power supply cable.

Miscellaneous devices: Main illuminated switch and safety fuse. Electronic thermostat: Adjustment by knob printed in °C or in °F.

Action: ON-Off. (The differential adjustment is possible by a potentiometer accessible by removing the knob) **Temperature sensor:** NTC, R @ 25°C: 10 Kohms (± 1%), B @ 25/50° 3380 Kohms (± 1%). Interchangeable sensors.

Power output: By 16A 230V resistive relay Power supply: 220-230V AC, 50-60Hz. Self-check: Open sensor circuit detection.

Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

Option: Pipe mounting bracket. Screwed on the back of the case, it allows mounting on a horizontal or vertical tube,

at a distance of about 50mm. (See accessories 6YTPT).

Electronic thermostat, NTC sensor, for heat trace pipe temperature control, remote wall mounting



Main part numbers, temperature sensor not included (With °C printed knob*)

Temperature ranges	Model with 3 cable glands (2 × M24 +1 × M12)	Model with one 5 ways connector and one M24 cable gland
-35+35°C (-30+95°F)	Y8WRC02100000AUX	Y8WRC02100000AUY
0-10°C (32-50°F)	Y8WRR02100000AUX	Y8WRR02100000AUY
4-40°C (40-105°F)	Y8WRD02100000AUX	Y8WRD02100000AUY
30-90°C (85-190°F)	Y8WRE02100000AUX	Y8WRE02100000AUY
30-110°C (85-230°F)	Y8WRF02100000AUX	Y8WRF02100000AUY
20-125°C (68-260°F)	Y8WRM02100000AUX	Y8WRM02100000AUY

^{*} For °F printed knobs, replace 100 by 102 in the reference.
** For models with backside mounted stainless steel bracket for pipe mounting, replace 021 by V21 in the reference.

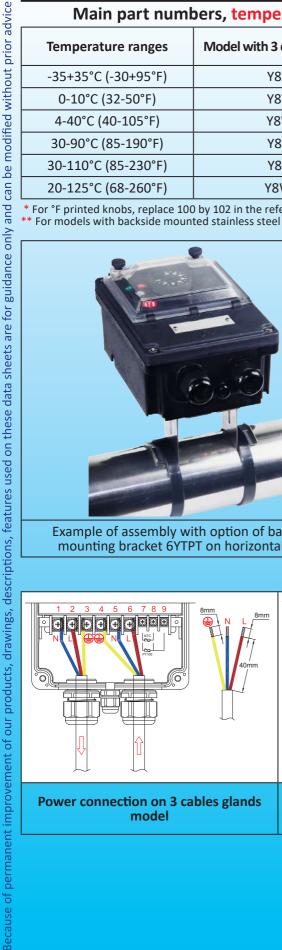


Example of assembly with option of backside mounting bracket 6YTPT on horizontal pipe

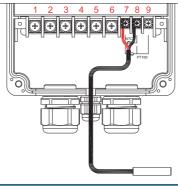


Example of assembly with option of backside mounting bracket 6YTPT on vertical pipe

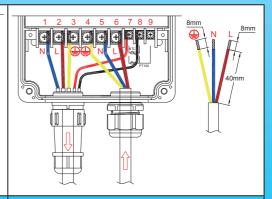
Wiring



Power connection on 3 cables glands model



Temperature sensor connection on 3 cable glands model



Power and temperature sensor connections on connector model

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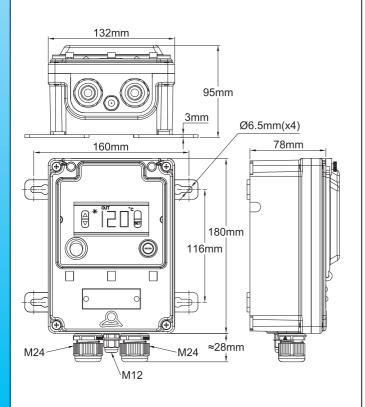
Electronic temperature controller with digital display, NTC sensor, for heat trace pipe temperature control, remote wall mounting

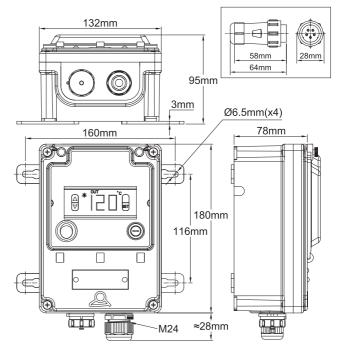


Temperature ranges	Mounting	Adjustment	Sensor	Action type	Types
-45+120°C (-49+250°F)	Wall mounting	Digital	NTC thermistor	On-Off	Y8WH-X Y8WH-Y









Model with 3 cable glands (2 × M24 +1 × M12): Y8WH-X

Model with one 5 ways connector and one M24 cable gland: Y8WH-Y

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Electronic temperature controller with digital display, NTC sensor, for heat trace pipe temperature control, remote wall mounting







Example of wiring to a Y29D pipe mounting connection box

Applications

These waterproof control boxes with wall mounting allow remote control of the surface temperature of the pipes. The connection to the heating elements is via a connection box with or without offset mounting foot type Y26, Y27, Y28, Y29, or with a 3-conductor power cable and a separate NTC temperature sensor cable, or by an offset mounting foot connection box type Y29B and a single 5-conductor cable equipped with a 5-way connector. The use this model with digital display is simple and intuitive, and does not need specially trained users.

The use of a wired temperature measurement sensor, which can be disconnected, allows to overcome the problems of wall crossing of bulb thermostats, the capillary of which cannot be cut, and to proceed with installation of connection and control boxes after mounting the heating cables and the temperature sensor, installation of the pipe insulation and installation of the insulation protection sheath.

Main features

Enclosure: IP69K, reinforced PA66, with polycarbonate window access. Sealable cover and window.

Wall mounting: Four removable and rotatable legs.

Electrical connection:

- On internal terminal block for power supply on all models.
- On the model with 3 cable glands: On internal terminal block for the output and the temperature sensor.
- On the model with output by 5-way connector, the internal wiring of the power output and the temperature sensor to the connector is carried out.

Cable glands:

- Three cable glands model: Two M24 cable glands for power supply and power output and one M12 cable gland for the temperature sensor.
- 5-way connector model: A 5-way female connector mounted on the wall of the housing and a 5-way male connector to be mounted on cable, and an M24 cable gland for the power supply cable.

Switching devices: Main illuminated switch and safety fuse

Controller: With very simple end-user interface. Change of set point is made without password, with up and down keys

Action: On-Off with adjustable differential.

Display: Can be selected in °C or °F

Sensor input: NTC, R@25°C: 10 Kohms (±1%), B@25/50°C: 3380 (±1%).

Power output: 16A 230V res. relay.

Display: 3 digits

Power supply: AC 220-230V 50-60Hz.

Accuracy: ±1°C (±2°F) or 0.3% end of scale ± one digit. **Self-testing:** Over-scale, under-scale, and open sensor circuit.

Contact us www.ultimheat.com Cat12-3-7-13

Electronic temperature controller with digital display, NTC sensor, for heat trace pipe temperature control, remote wall mounting



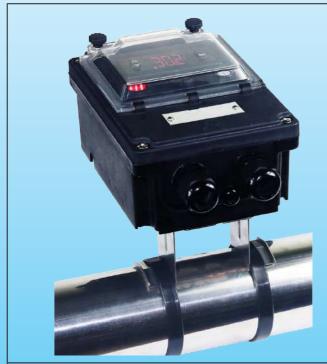
Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing. **Options:**

- Pt100 or K thermocouple sensor.
- Pipe mounting bracket. Screwed on the back of the case, it allows mounting on a horizontal or vertical tube, at a distance of about 50mm. (See accessories 6YTQT).

Main part numbers*, temperature sensor not included

Part numbers	Output to heating elements and temperature sensors		
Y8WHQ02100000AUX	Model with 3 cable glands (2 × M24 +1 × M12)		
Y8WHQ02100000AUY	Model with one 5 ways connector and one M24 cable gland		

^{*} For models with backside mounted stainless steel bracket for pipe mounting, replace 021 by V21 in the reference.

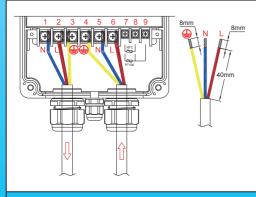


Example of assembly with backside mounting bracket on horizontal pipe option

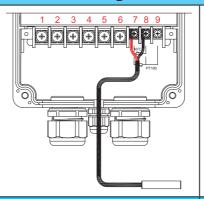


Example of assembly with backside mounting bracket on vertical pipe option

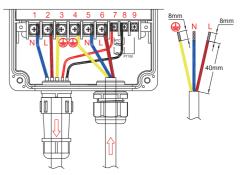
Wiring



Power connection on 3 cables glands model



Temperature sensor connection on 3 cable glands model



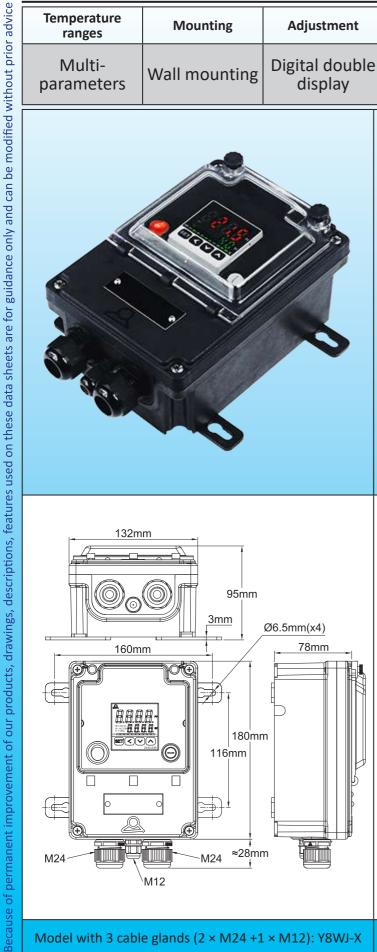
Power and temperature sensor connections on connector model

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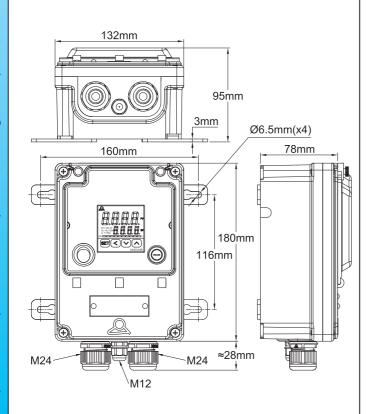
Electronic temperature controller with double digital display, multi-sensors, PID or ON-OFF action, for heat trace pipe temperature control, remote wall mounting

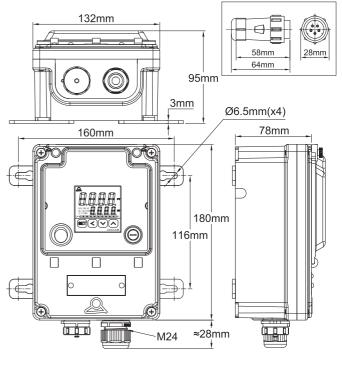
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Temperature ranges	Mounting	Adjustment	Sensor	Action type	Types
Multi- parameters	Wall mounting	Digital double display	Multi- parameters	Multi- parameters	Y8WJ-X Y8WJ-Y





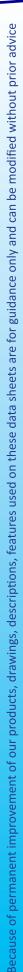




Model with 3 cable glands (2 × M24 +1 × M12): Y8WJ-X

Model with one 5 ways connector and one M24 cable gland: Y8WJ-Y

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Example of wiring to a pipe mounting connection box Y29C

Example of wiring to a Y29D pipe mounting connection

Applications

These waterproof control boxes with wall mounting allow remote control of the surface temperature of the pipes. The connection to the heating elements is via a connection box with or without offset mounting foot type Y26, Y27, Y28, Y29, or with a 3-conductor power cable and a separate NTC temperature sensor cable, or by an offset mounting foot connection box type Y29B and a single 5-conductor cable equipped with a 5-way connector.

The electronic controller used is designed to be the most universal. It is totally configurable. Its use requires reading and understanding of its instructions of use.

It includes an auto-tune function allowing automatic adjustment of PID parameters. The incorporation of a microprocessor using Fuzzy Logic technology makes it possible to reach a predetermined setpoint as quickly as possible, with a minimum of overheat during disturbances related to the ramp-up or the external load. A 20A 250V solid state relay board is included in standard.

The temperature sensor input is configurable, and in particular allows the use of Pt100 RTD

The use of a wired temperature measurement sensor, which can be disconnected, allows to overcome the problems of wall crossing of bulb thermostats, the capillary of which cannot be cut, and to proceed with installation of connection and control boxes after mounting the heating cables and the temperature sensor, installation of the pipe insulation and installation of the insulation protection sheath.

Main features

Enclosure: IP69K, reinforced PA66, with polycarbonate window access. Sealable cover and window. Wall mounting: Four removable and rotatable legs.

Electrical connection:

- On internal terminal block for power supply on all models.
- On the model with 3 cable glands: On internal terminal block for the output and the temperature sensor.
- On the model with output by 5-way connector, the internal wiring of the power output and the temperature sensor to the connector is carried out.

Cable glands:

- Three cable glands model: Two M24 cable glands for power supply and power output and one M12 cable gland for the temperature sensor.
- 5-way connector model: A 5-way female connector mounted on the wall of the housing and a 5-way male connector to be mounted on cable, and an M24 cable gland for the power supply cable.

Switching devices: Main illuminated switch and safety fuse.

Controller: Double display, of process value and of set-point.

Action: PID with automatic parameters adjustment by auto-tune function. It can also be set in ON-OFF action with adjustable differential

Sensor input: Configurable for Pt100, K thermocouple and other sensors

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Electronic temperature controller with double digital display, multi-sensors, PID or ON-OFF action, for heat trace pipe temperature control, remote wall mounting

Power output: 20A 230V solid state relay.

Alarm: 3A 230V relay.

can be modified

only and

Because of permanent improvement of our products,

Display: 4 digits display configurable in °C or °F

Power supply: AC 220-230V 50-60Hz.

Accuracy: $\pm 1^{\circ}$ C ($\pm 2^{\circ}$ F) or 0.3% end of scale \pm one digit. **Self-testing:** Over-scale, under-scale, and open sensor circuit.

Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

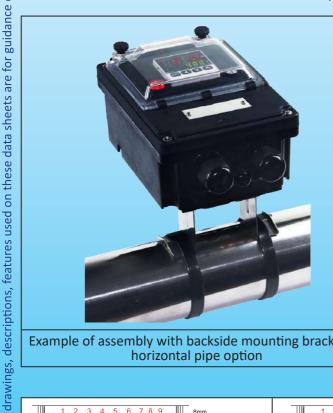
Option: Pipe mounting bracket. Screwed on the back of the case, it allows mounting on a horizontal or vertical tube,

at a distance of about 50mm. (See accessories 6YTPT).

Main part numbers*, temperature sensor not included

Part numbers Output to heating elements and temperature sensors	
Y8WJU021D0000AUX	Model with 3 cable glands (2 × M24 +1 × M12)
Y8WJU021D0000AUY	Model with one 5 ways connector and one M24 cable gland

For models with backside mounted stainless steel bracket for pipe mounting, replace 021 by V21 in the reference

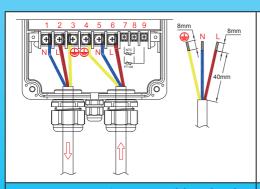


Example of assembly with backside mounting bracket on horizontal pipe option

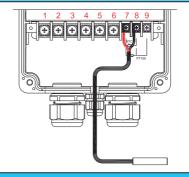


Example of assembly with backside mounting bracket on vertical pipe option

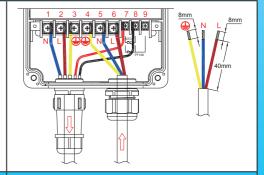
Wiring



Power connection on 3 cables glands model



Temperature sensor connection on 3 cable glands model



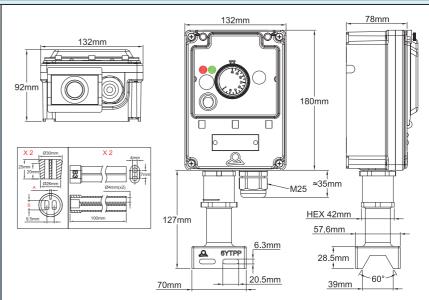
Power and temperature sensor connections on connector model

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Temperature ranges	Mounting	Adjustment	Sensor	Action type	Types
-35+35°C (-30+95°F) 0-10°C (32-50°F) 4-40°C (40-105°F) 30-90°C (85-190°F) 30-110°C (85-230°F) 20-125°C (68-260°F)	Vertical foot mounting on pipe	Printed knob	NTC thermistor	On-Off	Y8WR-Z







Example of assembly on pipe

Applications

These waterproof control boxes designed for **vertical mounting on pipes** allow to control the surface temperature of pipes **on site**. The connection to the heating elements and the temperature sensor is made by a pipe mounting foot incorporating the seal.

The use this model is simple and intuitive, similar to electromechanical thermostats, and does not need specially trained users.

The use of a wired temperature measurement sensor, which can be disconnected, overcomes the wall crossing problems of bulb thermostats, the capillary of which cannot be cut. Then proceeding to installation of the temperature control unit after mounting the heating cables and the temperature sensor is possible, as well as after installation of the pipe insulation and its protective sheath if they exist.

Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

Electronic thermostat, NTC sensor, for heat trace pipe temperature control, vertical foot mounting on pipe



Main features

Enclosure: IP69K, reinforced PA66, with polycarbonate window access. Sealable cover and window.

Assembly: Pipe mounting by PPS foot with heating cables crossing watertight seal. Two passages are provided in the foot for tightening it on the pipe by two nylon ties or metal hose clamps.

Cable gland and foot: Mounted on a removable board, facilitating assembly. This board has an M25 cable gland for the power supply cable. The heating cables exit through the foot. (The PPS foot is shipped unassembled on the box) Foot gasket: Is mounted inside the foot as standard, a silicone seal designed for two heating cables and one hole for temperature sensor cable dia. 2 to 3mm. (For more information about these seals, see the catalogue page on 6YTPP pipe mounting legs)

Accessories: Are included two flexible boots in silicone with two bus wire funnels, length 100mm, intended to shield the conductors of the self-regulating cables after cutting off the heating zone. (For more information about these boots, see the accessories pages 6YTNB in this catalogue).

Electrical connection: On internal terminal block with screw terminals

Cable gland: One M25 cable gland for the power supply cable. **Miscellaneous devices:** Main illuminated switch and safety fuse. **Electronic thermostat:** Adjustment by knob printed in °C or in °F.

Action: ON-Off. (The differential adjustment is possible by a potentiometer accessible by removing the knob) **Temperature sensor:** NTC, R @ 25°C: 10 Kohms (± 1%), B @ 25/50° 3380 Kohms (± 1%). Interchangeable sensors.

Power output: By 16A 230V resistive relay Power supply: 220-230V AC, 50-60Hz. Self-check: Open sensor circuit detection.

Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

Option: pipe seals with different cables section holes (See the range of 6YTRP seals in the various accessories pages)

Main part numbers, temperature sensor not included* (With °C printed knob**)

		Part numbers***		
Temperature ranges	Two holes for heating cables from 11x4mm to 13x6mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP11)	Two holes for heating cables from 9.5x2.5mm to 11x3.5mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP1).	Two holes for heating cables from 8x5mm to 9.5x6mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP21).	
	25mm 13 x 6mm (x2) (x2) (x2) (x3) (x4) (x4) (x4) (x4) (x4) (x4) (x4) (x4	25mm 030mm 11 x 3.5mm (v2) 9.5mm P1	25mm 9.5 x 6mm (x2) 9.5 mm P21	
-35+35°C (-30+95°F)	Y8WRC02100200AUZ	Y8WRC02100100AUZ	Y8WRC02100300AUZ	
0-10°C (32-50°F)	Y8WRR02100200AUZ	Y8WRR02100100AUZ	Y8WRR02100300AUZ	
4-40°C (40-105°F)	Y8WRD02100200AUZ	Y8WRD02100100AUZ	Y8WRD02100300AUZ	
30-90°C (85-190°F)	Y8WRE02100200AUZ	Y8WRE02100100AUZ	Y8WRE02100300AUZ	
30-110°C (85-230°F)	Y8WRF02100200AUZ	Y8WRF02100100AUZ	Y8WRF02100300AUZ	
20-125°C (68-260°F)	Y8WRM02100200AUZ	Y8WRM02100100AUZ	Y8WRM02100300AUZ	

^{*} For compatible temperature sensors, see the page on TNR6 products in this catalogue

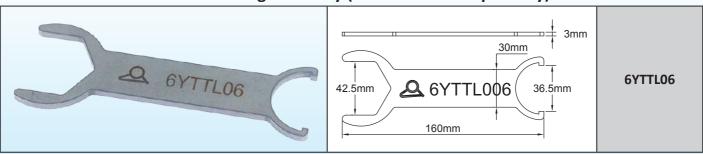
** For °F printed knobs, replace 100 by 102 in the reference

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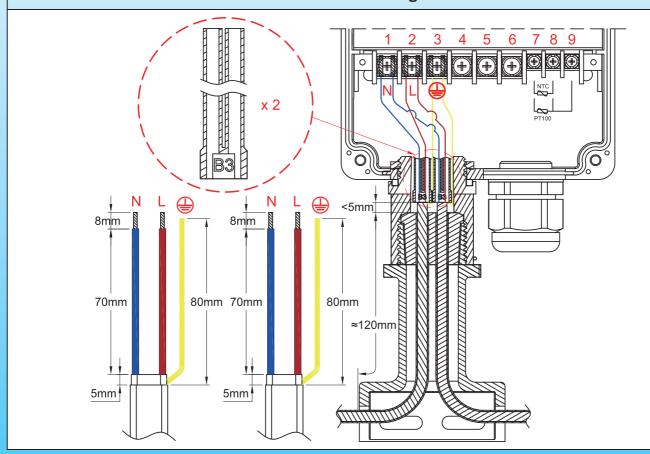
^{***} This seal is shipped with a plug allowing to use only one heating cable.

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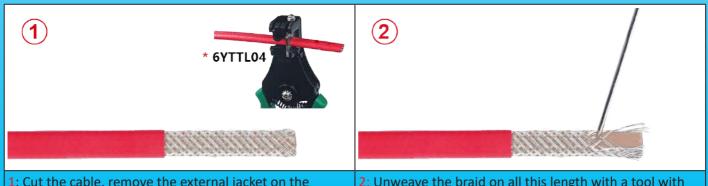
Wrench for leg assembly (To be ordered separately)



Stripping dimensions of the braided self-regulating cables, and of the power supply cable and their wiring.



Self-regulating cables assembly steps



1: Cut the cable, remove the external jacket on the requested length

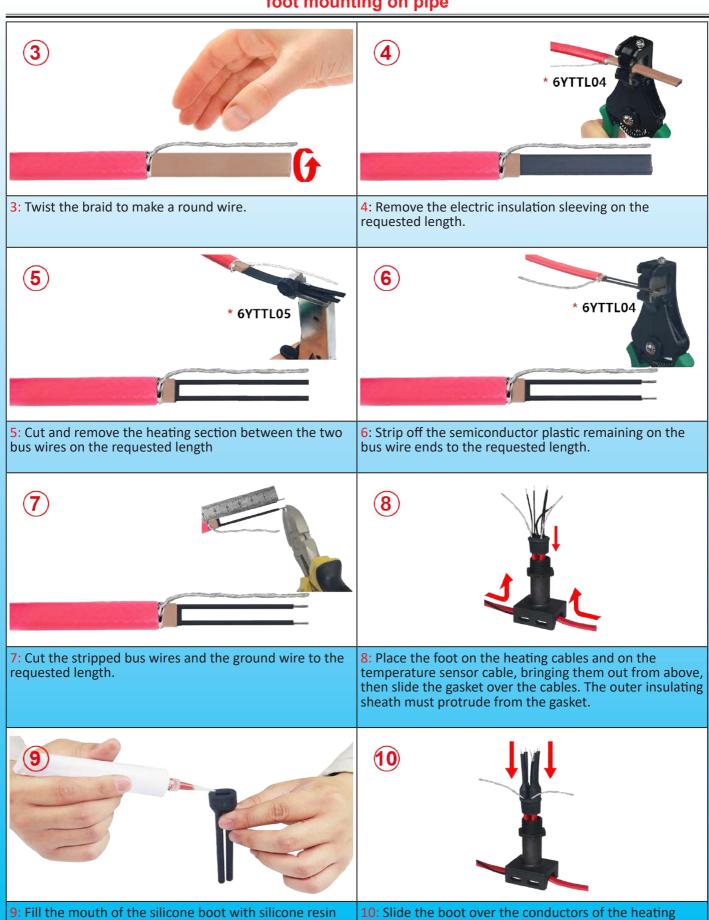
2: Unweave the braid on all this length with a tool with round edges or a screw driver .(For more details about this step #2, read the technical introduction)

* These exclusive tools are available in accessories section

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Electronic thermostat, NTC sensor, for heat trace pipe temperature control, vertical foot mounting on pipe





* These exclusive tools are available in accessories section

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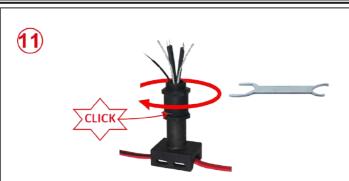
(RTV).

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cables, leaving the earth conductor outside.

Electronic thermostat, NTC sensor, for heat trace pipe temperature control, vertical foot mounting on pipe







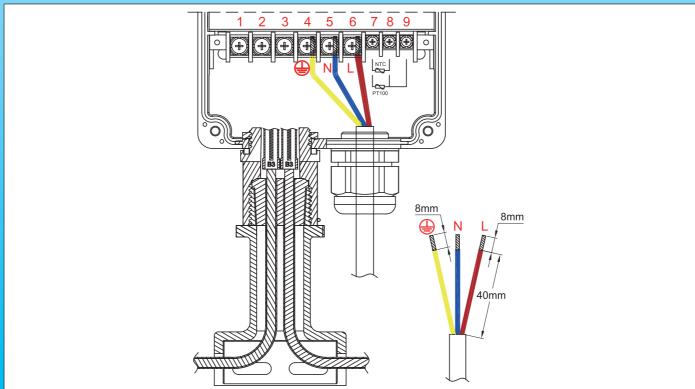
11: Compress the seal by screwing the upper part of the foot. When tightening is complete, a small spring comes to block the assembly (To disassemble, it is necessary to remove this small semi-circular spring).

12: Place the gasket in the upper recess of the foot, then the control unit above. Orient the housing according to the desired position, then place and tighten the toothed nut until it locks.



13: Connect the conductors and the temperature sensor according to the wiring diagram. Connect the power supply cable. Close the control box.

Stripping dimensions and wiring of the power supply cable



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Electronic temperature controller with digital display, NTC sensor, for heat trace pipe temperature control, vertical foot mounting on pipe

Temperature ranges	Mounting	Adjustment	Sensor	Action type	Туре
-45+120°C (-49+250°F)	Vertical foot on pipe	Digital	NTC thermistor	On-Off	Y8WH-Z



Example of assembly on pipe

Applications

These waterproof control boxes designed for **vertical mounting on pipes** allow to control the surface temperature of pipes **on site**. The connection to the heating elements and the temperature sensor is made by a pipe mounting foot incorporating the seal.

The use this model is simple. The use of a wired temperature measurement sensor, which can be disconnected, overcomes the wall crossing problems of bulb thermostats, the capillary of which cannot be cut. Then proceeding to installation of the temperature control unit after mounting the heating cables and the temperature sensor is possible, as well as after installation of the pipe insulation and its protective sheath if they exist.

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Electronic temperature controller with digital display, NTC sensor, for heat trace pipe temperature control, vertical foot mounting on pipe

Main features

Enclosure: IP69K, reinforced PA66, with polycarbonate window access. Sealable cover and window.

Assembly: Pipe mounting by PPS foot with heating cables crossing watertight seal. Two passages are provided in the foot for tightening it on the pipe by two nylon ties or metal hose clamps.

Cable gland and foot: Mounted on a removable board, facilitating assembly. This board has an M25 cable gland for the power supply cable. The heating cables exit through the foot. (The PPS foot is shipped unassembled on the box) Foot gasket: Is mounted inside the foot as standard, a silicone seal designed for two heating cables and one hole for temperature sensor cable dia. 2 to 3mm. (For more information about these seals, see the catalogue page on 6YTPP pipe mounting legs)

Accessories: Are included two flexible boots in silicone with two bus wire funnels, length 100mm, intended to shield the conductors of the self-regulating cables after cutting off the heating zone. (For more information about these boots, see the accessories pages 6YTNB in this catalogue).

Electrical connection: On internal terminal block with screw terminals

Cable gland: One M25 cable gland for the power supply cable. **Miscellaneous devices:** Main illuminated switch and safety fuse.

Controller: With very simple end-user interface. Change of set point is made without password, with up and down

keys.

Action: On-Off with adjustable differential. **Display:** Can be selected in °C or °F

Sensor input: NTC, R@25°C: 10 Kohms (±1%), B@25/50°C: 3380 (±1%).

Power output: 16A 230V res. relay.

Display: 3 digits

Power supply: AC 220-230V 50-60Hz.

Accuracy: ±1°C (±2°F) or 0.3% end of scale ± one digit. **Self-testing:** Over-scale, under-scale, and open sensor circuit.

Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

Options:

- Pt100 or K thermocouple sensor.

Part numbers, temperature sensor not included**

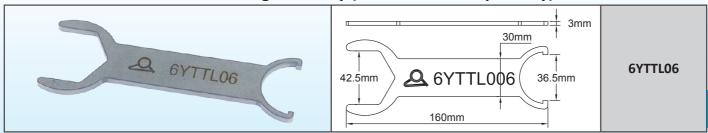
Part numbers		Holes in the leg seal*
Y8WHQ02100200AUZ	Two holes for heating cables from 11x4mm to 13x6mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP11).	Ø30mm 13 x 6mm (x2) 9.5mm 9.5mm
Y8WHQ02100100AUZ	Two holes for heating cables from 9.5x2.5mm to 11x3.5mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP1).	Ø30mm Ø3mm 11 x 3.5mm (x2) 9.5mm
Y8WHQ02100300AUZ	Two holes for heating cables from 8x5mm to 9.5x6mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP21).	Ø30mm Ø3mm 9.5 x 6mm (x2) P21

^{*} This seal is shipped with a plug allowing to use only one heating cable

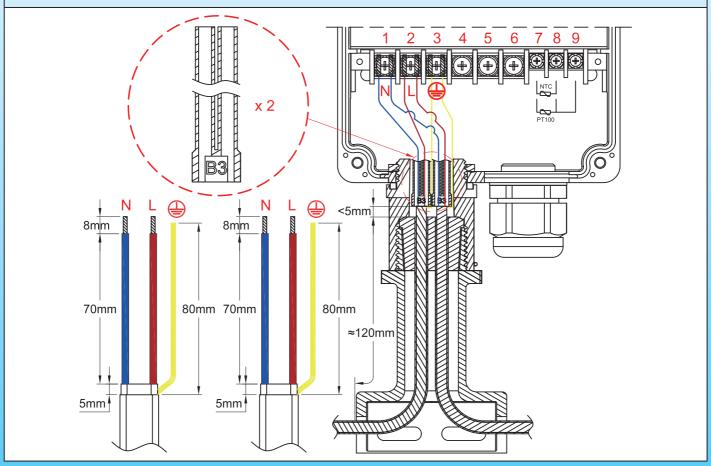
Cat12-3-7-24 Contact us www.ultimheat.com

^{**} For compatible temperature sensors, see the page on TNR6 products in this catalogue.

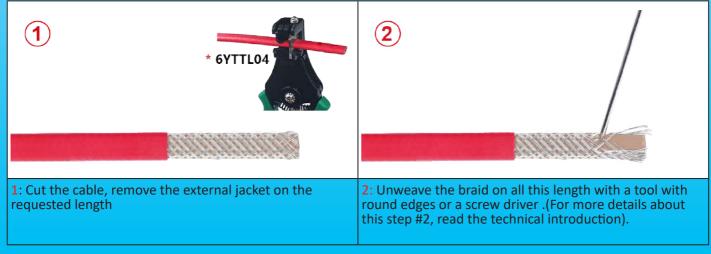
Wrench for leg assembly (To be ordered separately)



Stripping dimensions of the braided self-regulating cables



Self-regulating cables assembly steps

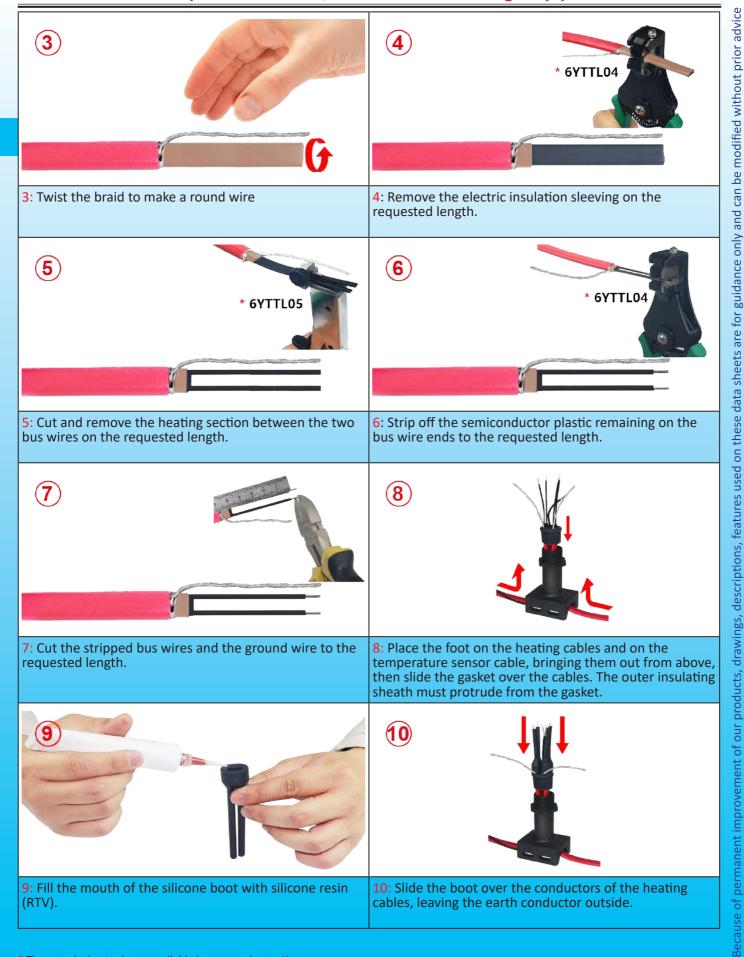


* These exclusive tools are available in accessories section

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Electronic temperature controller with digital display, NTC sensor, for heat trace pipe temperature control, vertical foot mounting on pipe



* These exclusive tools are available in accessories section

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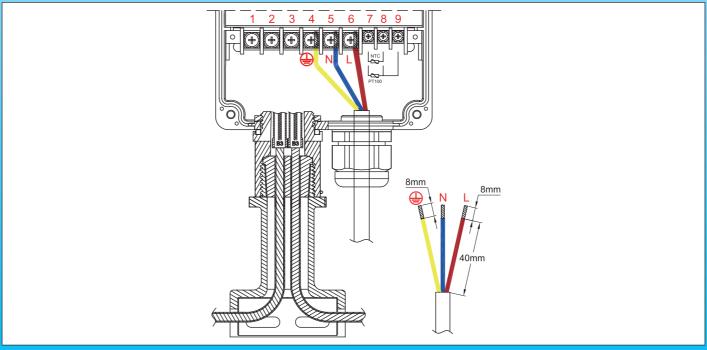
11: Compress the seal by screwing the upper part of the foot. When tightening is complete, a small spring comes to block the assembly (To disassemble, it is necessary to remove this small semi-circular spring).

12: Place the gasket in the upper recess of the foot, then the control unit above. Orient the housing according to the desired position, then place and tighten the toothed nut until it locks.



13: Connect the conductors and the temperature sensor according to the wiring diagram. Connect the power supply cable. Close the control box

Stripping dimensions and wiring of the power supply cable

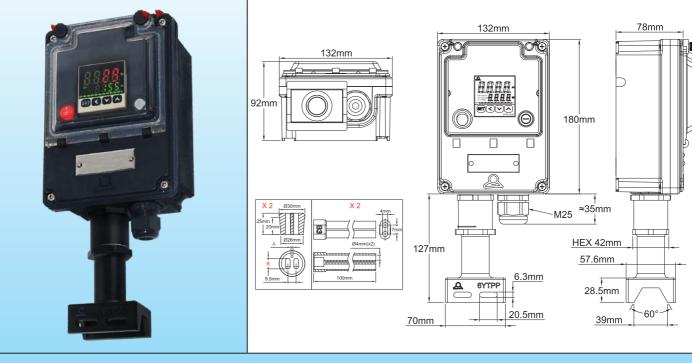


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Electronic temperature controller with double digital display, multi-sensors, PID or ON-OFF action, for heat trace pipe temperature control, vertical foot mounting on pipe



Temperature ranges	Mounting	Adjustment	Sensor	Action type	Туре
Multi-parameters	Vertical foot on pipe	Digital double display	Multi- parameters	Multi- parameters	Y8WJ-Z





Example of assembly on pipe

Applications

These waterproof control boxes designed for vertical mounting on pipes allow to control the surface temperature of pipes on site. The connection to the heating elements and the temperature sensor is made by a pipe mounting foot incorporating the seal.

The electronic controller used is designed to be the most universal. It is totally configurable. Its use requires reading and understanding of its instructions of use.

It includes an auto-tune function allowing automatic adjustment of PID parameters. The incorporation of a microprocessor using Fuzzy Logic technology makes it possible to reach a predetermined setpoint as quickly as possible, with a minimum of overheat during disturbances related to the ramp-up or the external load. A 20A 250V solid state relay board is included in standard.

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Electronic temperature controller with double digital display, multi-sensors, PID or ON-OFF action, for heat trace pipe temperature control, vertical foot mounting on pipe



The temperature sensor input is configurable, and in particular allows the use of Pt100 RTD

The use of a wired temperature measurement sensor, which can be disconnected, allows to overcome the problems of wall crossing of bulb thermostats, the capillary of which cannot be cut, and to proceed with installation of connection and control boxes after mounting the heating cables and the temperature sensor, installation of the pipe insulation and installation of the insulation protection sheath.

Main features

Enclosure: IP69K, reinforced PA66, with polycarbonate window access. Sealable cover and window.

Wall mounting: Four removable and rotatable legs.

Assembly: Pipe mounting by PPS foot with heating cables crossing watertight seal. Two passages are provided in the

foot for tightening it on the pipe by two nylon ties or metal hose clamps.

Cable gland and foot: Mounted on a removable board, facilitating assembly. This board has an M25 cable gland for the power supply cable. The heating cables exit through the foot. (The PPS foot is shipped unassembled on the box) Foot gasket: Is mounted inside the foot as standard, a silicone seal designed for two heating cables and one hole for temperature sensor cable dia. 2 to 3mm. (For more information about these seals, see the catalogue page on 6YTPP pipe mounting legs)

Accessories: Are included two flexible boots in silicone with two bus wire funnels, length 100mm, intended to shield the conductors of the self-regulating cables after cutting off the heating zone. (For more information about these boots, see the accessories pages 6YTNB in this catalogue).

Electrical connection: On internal terminal block with screw terminals

Cable gland: One M25 cable gland for the power supply cable. **Switching devices:** Main illuminated switch and safety fuse Controller: Double display, of process value and of set-point

Action: PID with automatic parameters adjustment by auto-tune function. It can also be set in ON-OFF action with

adjustable differential

Sensor input: Configurable for Pt100, K thermocouple and other sensors

Power output: 20A 230V solid state relay.

Alarm: 3A 230V relay.

Display: 4 digits display configurable in °C or °F

Power supply: AC 220-230V 50-60Hz. Accuracy: ±1°C (±2°F) or 0.3% end of scale ± one digit.

Self-testing: Over-scale, under-scale, and open sensor circuit.

Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

Part numbers, temperature sensor not included**

References		Holes in the leg seal*
Y8WJU021D0200AUZ	Two holes for heating cables from 11x4mm to 13x6mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP11).	25mm
Y8WJU021D0100AUZ	Two holes for heating cables from 9.5x2.5mm to 11x3.5mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP1).	25mm
Y8WJU021D0300AUZ	Two holes for heating cables from 8x5mm to 9.5x6mm and one hole for temperature sensor cable diameter 2 to 3mm (Seal reference 6YTP21).	9.5 x 6mm (x2) P21

^{*} This seal is shipped with a plug allowing to use only one heating cable.

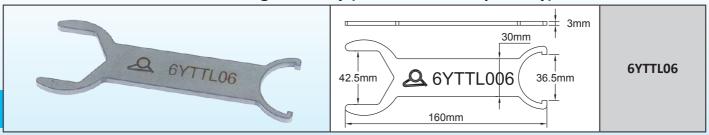
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^{**} For compatible temperature sensors, see the page on TSR5 products in this catalogue.

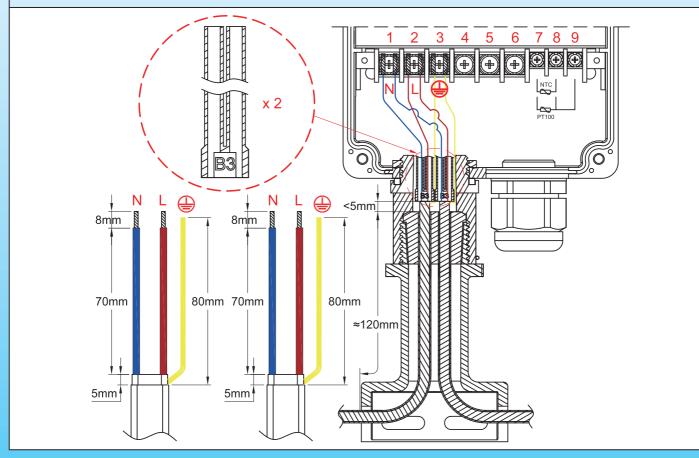


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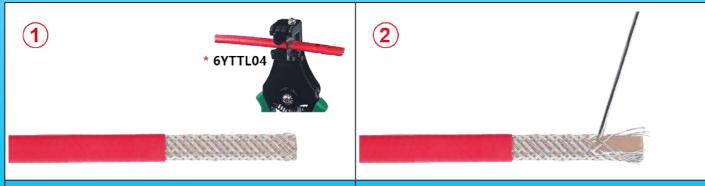
Wrench for leg assembly (To be ordered separately)



Stripping dimensions of the braided self-regulating cables



Self-regulating cables assembly steps



1: Cut the cable, remove the external jacket on the requested length

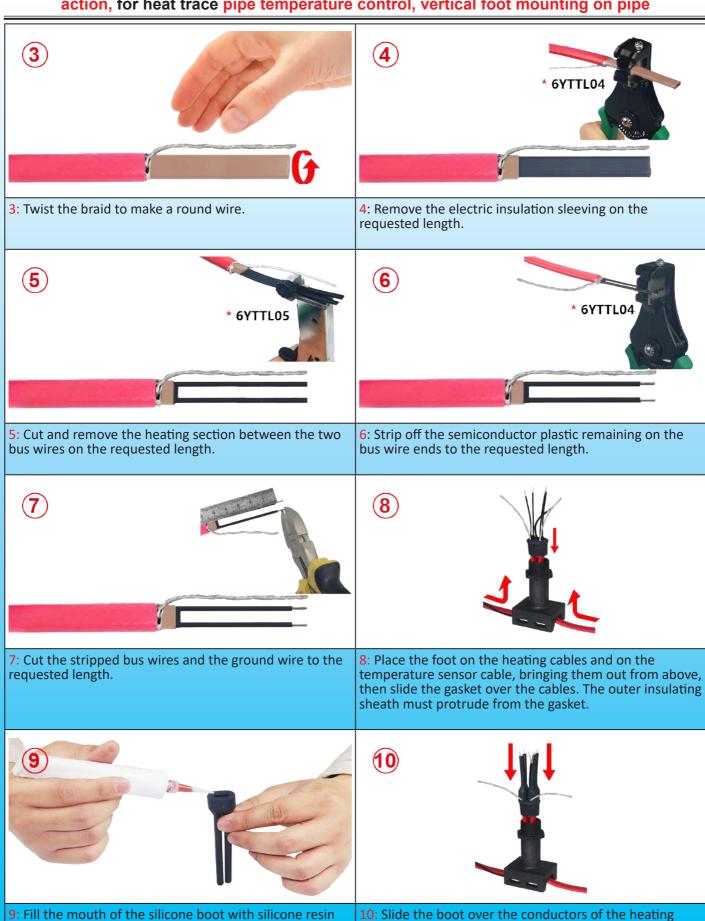
2: Unweave the braid on all this length with a tool with round edges or a screw driver .(For more details about this step #2, read the technical introduction).

* These exclusive tools are available in accessories section

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Electronic temperature controller with double digital display, multi-sensors, PID or ON-OFF action, for heat trace pipe temperature control, vertical foot mounting on pipe





* These exclusive tools are available in accessories section

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(RTV).

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cables, leaving the earth conductor outside.

Electronic temperature controller with double digital display, multi-sensors, PID or ON-OFF action, for heat trace pipe temperature control, vertical foot mounting on pipe







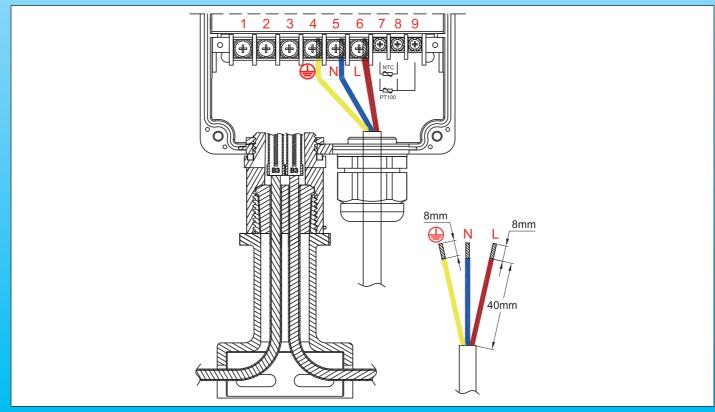
11: Compress the seal by screwing the upper part of the foot. When tightening is complete, a small spring comes to block the assembly (To disassemble, it is necessary to remove this small semi-circular spring)

12: Place the gasket in the upper recess of the foot, then the control unit above. Orient the housing according to the desired position, then place and tighten the toothed nut until it locks.



13: Connect the conductors and the temperature sensor according to the wiring diagram. Connect the power supply cable. Close the control box.

Stripping dimensions and wiring of the power supply cable

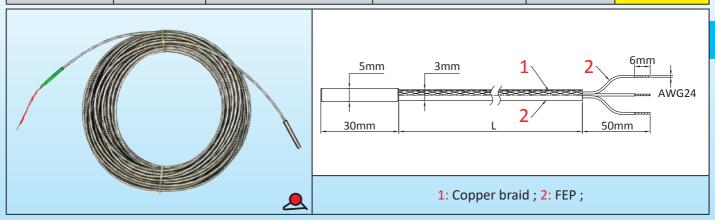


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Temperature sensors: 100 Ohms platinum RTD, dia. 5mm × 30mm stainless steel probe for use in heat tracing.



Temperature range	Cable Probe protection		Temperature sensing device	Signal type	Туре
20- 200°C (120- 390°F)	FEP	Stainless steel probe, dia.5mm × 30mm	Pt100 platinum resistance	Ohms, linear	TSR5



Main applications

The main advantage of these PT100 sensors in the temperature measurement of flexible heating elements is their robustness. Because of their small size, they can be glued or incorporated into flexible flat elements. They are resistant to shocks and vibrations, but their reaction time is longer, and they are more expensive than models with encapsulated measuring element.

Main features

The platinum resistivity has excellent repeatability, and high accuracy over an extended temperature range. The resistance variation curve of platinum as a function of temperature is much more linear than that of thermocouples or thermistors. Electronic controllers using Pt100 are simpler and less expensive than thermocouple ones.

In addition, they do not need temperature-compensated cable such as thermocouples. Pt100 are used worldwide and are interchangeable, using the DIN 43760 curve.

Construction: A platinum film is deposited on a ceramic substrate, conductors are welded to it, and the whole is inserted in a stainless-steel protection probe.

Mounting: The end with the measuring element Pt100 is then fixed on the flexible heating element with a protective cap of type 9BFS3, 9BFM1, or 9BFV2 (see technical pages on the silicone caps), which can be vulcanised or glued.

Temperature range: Use temperature limited to 200°C due to FEP insulated cable.

Accuracy and tolerances:

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- Nominal value at 0°C: 100 Ohms.
- Nominal value at 100°C: 138.51 Ohms

The international standard IEC 751-1983 and DIN EN 60751 2009-05 give the parameters of the temperature response curve.

Class B, the most common, has a tolerance of $\pm 0.3^{\circ}$ C at 0°C. ($\pm 0.12 \Omega$ at 0°C).

Color Code: The two red wires are connected together to their solder on one of the terminals of the ceramic substrate, and the white wire is connected to the other terminal.

Cable composition: 3 × 0.35mm², (AWG24), FEP insulation + braid + FEP sleeving, T 200°C, O.D. 3mm

Main parts numbers (Accuracy class B)

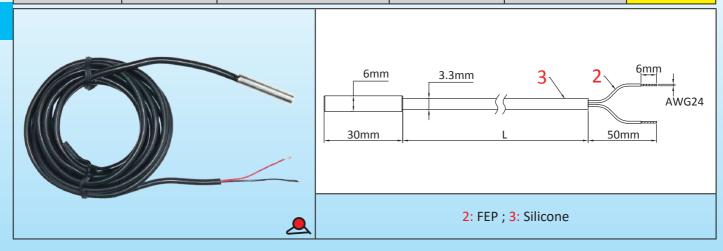
Part number	Cable length (mm)
TSR50030I0200BK6	200
TSR50030I0500BK6	500
TSR50030I1000BK6	1000
TSR50030I2000BK6	2000
TSR50030I3000BK6	3000

lote: These temperature sensors are not manufactured by Ultimheat, and the information given is that of our suppliers.

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Temperature sensors: 10 kohms NTC, dia. 6mm × 30mm nickel plated copper probe for use in heat tracing.

Tei	mperature range	Cable insulation	Probe protection	Temperature sensing device	Signal type	Туре
) - 120°C 3 - 390°F)	FEP	Nickel plated copper probe, dia.6mm × 30mm	10 Kohms thermistor	Ohms Logarithmic	TNR6



Main applications

The main advantage of these NTC sensors in the temperature measurement of flexible heating elements is their robustness and a relatively short response time. Because of their small size, they can be glued or incorporated into flexible flat elements. They are resistant to shocks and vibrations, but their temperature resistance is limited.

Main features

The thermistor is particularly economical. Its accuracy is correct for temperature ranges from 0 to 120°C. Its resistance decreases logarithmically with temperature. Its repeatability is good, but the interchangeability of the sensors between different suppliers is average. This is the reason why most electronic controllers using these thermistor sensors have a zero-correction system. These regulators are generally simple and inexpensive.

Construction: The measuring element is a glass bead encasing the sintered alloy with a negative temperature coefficient, from which two wires emerge. The conductors of the connecting cable are welded therein, and the assembly is inserted into a nickel-plated copper protection tube with low thermal inertia.

Mounting: The end with the NTC measuring element is then attached to the flexible heating element with a protective cap of type 9BFS4, 9BFM2 or 9BFV3 (see technical pages on silicone caps), which can be vulcanized or bonded.

Temperature range: The operating temperature is limited to 120°C.

Accuracy and tolerances:

- Nominal value at 25°C: 10 Kohms +/- 1%. B = 3380 +/- 1%

Color Code: The two conductors are identical in color and each corresponds to one of the terminals of the thermistor. Due to the high resistance of the measuring element, a third conductor is not necessary.

Composition of the cable: 2 × 0.35mm², (AWG24) silicone insulation with FEP sleeving, outer diameter 3.3mm.

Main parts numbers (accuracy class 1%)

Part number	Cable length (mm)
TNR60030C02001F4	200
TNR60030C05001F4	500
TNR60030C10001F4	1000
TNR60030C20001F4	2000
TNR60030C30001F4	3000

Note: These temperature sensors are not manufactured by Ultimheat, and the information given is that of our suppliers.

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Thread	Body d	liameter	Wire gauge	Sensors	Body n	naterial	Types
M20 × 1.5 Ø18.2 × 15mm		0.5mm² (AWG24)	Pt100 NTC Thermocouple	Anoo alum	dized inum	TNJB TPJB TSJB TJJB	
Pt100 (TSJB)			NTC (TNJB)	Thermocoupl (TPJB)	le K	The	ermocouple J (TJJB)
Ø18.2mm		Silicone AWG24	Ø18.2mm	FEP+ FEP AWG24 3mm 9mm M20x1.5 Ø18.2mm	6mm 3.3mm L	FEP+ FEP AWG24 3mm 9mm M20x1	Ø18.2mm
		TI	nrough cabinet w	all assembly versions	s		
In a M20x1.5 threa in red)	d (Gasket		m diameter drill it in green)	In a M20x1.5 th	nread	In a 20r	nm diameter drill

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Applications

These temperature sensors have been designed to be mounted in holes dia. 20mm (With a lock nut and a gasket) or in M20x1.5 threads (With a gasket), originally intended for mounting cable glands on connection boxes or control boxes. They allow to easily install an ambient temperature sensor on these boxes. The ambient temperature measurement is then made outside, 15mm from the wall, and the system is fully waterproof.

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Main features

Pt 100 3 wires RTD temperature sensor:

- Connection: 3 wires 0.5mm² (AWG24), FEP insulation + metallic braid + FEP. The 2 white wires are connected to one pole of the Pt100, the red wire to the other pole.

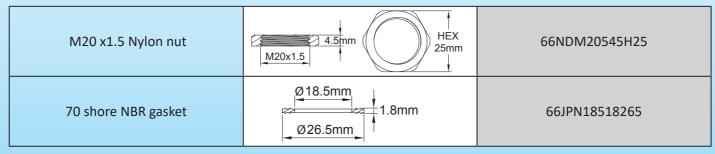
Negative temperature coefficient (NTC) thermistor temperature sensor:

- Connection: Black 2 wires 0.5mm² cable (AWG24), FEP + Silicone insulation. A black wire, a red wire. Each of these wires corresponds to a pole of the thermistor. Resistance variation curve: value 10 Kilo-ohms at 25°C, coefficient B 3380. **K thermocouple sensor:**
- Connection: Green 2 wire 0.5mm² cable (AWG24), FEP + FEP insulation. Colour code according to IEC 584-3. The white wire is negative, the green wire is positive. (Colour code upon other standards on request).

J thermocouple sensor:

- Connection: Black 2 wire 0.5mm² cable (AWG24), FEP + FEP insulation. Colour code according to IEC 584-3. The white wire is negative, the black wire is positive. (Colour code upon other standards on request).

Accessoires:



References

Conseq type	Cable length (L)						
Sensor type	300mm	1m	2m	3m			
Pt100	TSJBD150A0302BK6	TSJBD150A1002BK6	TSJBD150A2002BK6	TSJBD150A3002BK6			
NTC (10 Kohms @ 25°C)	TNJBD150A03022F6	TNJBD150A10022F6	TNJBD150A20022F6	TNJBD150A30022F6			
Thermocouple K	TPJBD150A03022D6	TPJBD150A10022D6	TPJBD150A20022D6	TPJBD150A30022D6			
Thermocouple J	TJJBD150A03022D6	TJJBD150A10022D6	TJJBD150A20022D6	TJJBD150A30022D6			





Section 8 Various assemblies made on heating cables supplied by customer

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Why we make assemblies on heating wires supplied by customers?

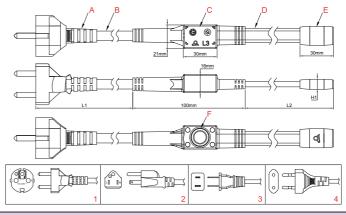
- We have the knowledge of the multiple techniques for connecting heating cables and we use the technique most suited to each model.
 - Our state-of-the-art industrial equipment, with the production of hundreds of thousands of various cable connections each year, is generally more efficient than that available to our customers.
 - Thanks to this equipment, assembly times and costs are greatly reduced.
- The finish is professional and the operation is guaranteed and tested.

Thermostats overmolded on heat tracing cables supplied by customer



Heating cable type	Plug style	Cord length	Cables gauge	Set point		Туре
Self- regulating, constant power, Serial	Euro UL	2m 3m	2 × 0.75mm ² 2 × 1mm ² 3 × 1mm ² 3 × 1.5mm ²	4+/-3°C	RoHS REACH	49C





- A: Plug (Model depends of country)
- B: Power supply cable
- C: PA66 overmolding on the power supply cord
- D: Heating cable (Supplied by customer)
- E: PA66 overmolding of the cable termination
- F: Fixed temperature setting disc thermostat

Applications

This system allows to make a set comprising a power supply cord, a heating cable and an anti-freeze thermostat in a professional, waterproof and economical manner. Overmolding a disc thermostat on a heating cable allows to switch it on when the ambient temperature falls below a certain threshold, and to switch it off when the temperature rises. Overmolding improves the mechanical strength of the assembly and provides a superior ingress protection to water. Thanks to the special process developed in our laboratories, Polyamide 66 injection molding does not overheat the disc of the thermostat, avoiding in this way the set point temperature drift that this operation usually brings. The production is carried out in the factory only, with the heating cable supplied by the customer. It is compatible with all types of flat or round heating cables of the self-regulating parallel type or of constant power, or of the serial type with two conductors side by side. The cable may or may not include a metal braid and an outer jacket. The plug is variable depending on the country of destination, the voltage, the intensity and the number of conductors.

A MOQ of 1000 pieces is required.

Main features

Material: Overmolding in flexible black polyamide. Excellent UV resistance.

Part sensitive to temperature: Stainless steel cup, not over molded to improve temperature measurement.

Ingress protection: IP67

Contact: Open by temperature rise.

Electrical rating:

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- 10A Resistive, 250V AC, 100,000 cycles, or 16A Resistive, 250V AC, 30,000 cycles

Temperature calibration: Contact opens at 10±3°C and closes at 4±3°C. Contact us for other temperatures. **Power supply cord:**

- For heating cables with metal braid: Three conductors, type H05VVF (PVC insulation), with European or US overmolded plug. Section depending on the power of the heating cable used.
- For heating cables without metal braid: Two conductors, type H05VVF (PVC insulation), with European or US overmolded plug without earth. Section depending on the power of the heating cable used.

Connection of heating cable: This device is over-molded on heating cable supplied by the customer only. The molding tools are then adapted to the dimensions of cables.

Options:

- Other thermostat set point calibration
- Blister or customer packaging
- Other style of plug (UK, Japan, Australia).
- Other type of cable insulation (Rubber, Rubber + PVC).

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Thermostats overmolded on heat tracing cables supplied by customer



Main part numbers (with thermostat opens at 10±3°C and closes at 4±3°C)

Туре	Plug	Maximum rating	Cable gauge	Cord length	Part number
	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 0.75mm²	2m	49C0TTPPP8LLLA4
	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 0.75mm²	3m	49C0TTPPP8LLLB4
4	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 1mm²	2m	49C0TTPPP8LLLC4
	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 1mm²	3m	49C0TTPPP8LLLD4
	Europe (CEE 7/7)	10A 250V	$3 \times 1 \text{mm}^2$	2m	49C0TTPPP8LLLE1
	Europe (CEE 7/7)	10A 250V	3 × 1mm ²	3m	49C0TTPPP8LLLF1
1	Europe (CEE 7/7)	16A 250V	3 × 1.5mm ²	2m	49C0TTPPP8LLLG1
·	Europe (CEE 7/7)	16A 250V	3 × 1.5mm²	3m	49C0TTPPP8LLLH1
	USA (Nema 1/15)	10A 125V	2 × AWG18 (2 × 0.75mm²)	2m	49COTTPPP8LLLJ3
3	USA (Nema 1/15)	10A125V	2 × AWG18 (2 × 0.75mm²)	3m	49COTTPPP8LLLK3
	USA, Canada (NEMA 5-15)	10A 125V	3 × AWG18 (3 × 0.75mm²)	2m	49COTTPPP8LLLL2
	USA, Canada (NEMA 5-15)	10A 125V	3 × AWG18 (3 × 0.75mm²)	3m	49C0TTPPP8LLLM2
	USA, Canada (NEMA 5-15)	13A 125V	3 × AWG16 (3 × 1.25mm²)	2m	49C0TTPPP8LLLN2
2	USA, Canada (NEMA 5-15)	13A 125V	3 × AWG16 (3 × 1.25mm²)	3m	49COTTPPP8LLLP2
	USA, Canada (NEMA 5-15)	15A 125V	3 × AWG14 (3 × 2mm²)	2m	49C0TTPPP8LLLQ2
	USA, Canada (NEMA 5-15)	15A 125V	3 × AWG14 (3 × 2mm²)	3m	49C0TTPPP8LLLR2

TT: Variable characters, depends of the type of cable supplied by the customer (Self-regulating with PE core, self-regulating with silicone core, constant power, serial with 2 conductors side by side, with or without braid or grounding ribbon, etc.).

PPP: Total cable power in decawatts.

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V: Supply voltage, with 8 = 230V (220-240V) and 6 = 115V (110-120V).

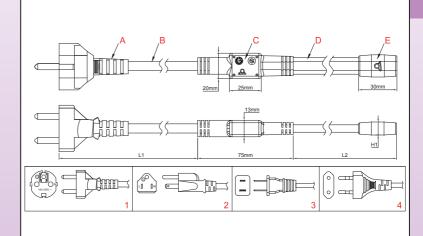
LLL: length L2 of the heating cable in decimetres.

Overmolding of terminations heating cable supplied by customer $\stackrel{\textstyle extstyle }{\sim}$



Heating cable type	Plug style	Cord length	Cables gauge		Туре
Self-regulating, constant power, Serial	Euro UL	2m 3m	2×0.75 mm ² 2×1 mm ² 3×1 mm ² 3×1.5 mm ²	RoHS REACH	9UW





- A: Plug (Model depends of country)
- B: Power supply cable
- C: PA66 overmolding on the power supply cord
- D: Heating cable (Supplied by customer)
- E: PA66 overmolding of the cable termination

Applications

This system makes it possible to produce a set comprising a power cable and a heating cable in a professional, waterproof and economical manner. The production is carried out in the factory only, with the heating cable supplied by the customer.

It is compatible with all types of flat or round heating cables of the self-regulating parallel type or of constant power, or of the serial type with two conductors side by side. The cable may or may not include a metal braid and an outer jacket. The plug is variable depending on the country of destination, the voltage, the intensity and the number of conductors.

A minimum of production of 1000 pieces is required.

Main features

Material: Overmolding in flexible black polyamide. Excellent UV resistance.

Waterproof: IP67 Power supply cord:

- For heating cables with metal braid: Three conductors, type H05VVF (PVC insulation), with European or US overmolded plug. Section depending on the power of the heating cable used.
- For heating cables without metal braid: Two conductors, type H05VVF (PVC insulation), with European or US overmolded plug without earth. Section depending on the power of the heating cable used.

Options:

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descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

- Blister or customer packaging
- Other style of plug (UK, Japan, Australia).
- Other type of cable insulation (Rubber, Rubber + PVC).

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Overmolding of terminations heating cable supplied by customer



Main part numbers

Туре	Plug	Maximum	Cable gauge	Cord length	Part number
	Europe (CEE 7/16 "Europlug")	rating 6A 250V	2 × 0.75mm²	2m	9UWTTPPPP8LLLA4
	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 0.75mm²	3m	9UWTTPPPP8LLLB4
4	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 1mm²	2m	9UWTTPPPP8LLLC4
-	Europe (CEE 7/16 "Europlug")	6A 250V	2 × 1mm²	3m	9UWTTPPPP8LLLD4
	Europe (CEE 7/7)	10A 250V	3 × 1mm²	2m	9UWTTPPPP8LLLE1
16 A 250 B -	Europe (CEE 7/7)	10A 250V	3 × 1mm²	3m	9UWTTPPPP8LLLF1
1	Europe (CEE 7/7)	16A 250V	3 × 1.5mm ²	2m	9UWTTPPPP8LLLG1
	Europe (CEE 7/7)	16A 250V	3 × 1.5mm²	3m	9UWTTPPPP8LLLH1
	USA (Nema 1/15)	10A 125V	2 × AWG18 (2 × 0.75mm²)	2m	9UWTTPPPP8LLLJ3
3	USA (Nema 1/15)	10A125V	2 × AWG18 (2 × 0.75mm²)	3m	9UWTTPPPP8LLLK3
	USA, Canada (NEMA 5-15)	10A 125V	3 × AWG18 (3 × 0.75mm²)	2m	9UWTTPPPP8LLLL2
	USA, Canada (NEMA 5-15)	10A 125V	3 × AWG18 (3 × 0.75mm²)	3m	9UWTTPPPP8LLLM2
	USA, Canada (NEMA 5-15)	13A 125V	3 × AWG16 (3 × 1.25mm²)	2m	9UWTTPPPP8LLLN2
2	USA, Canada (NEMA 5-15)	13A 125V	3 × AWG16 (3 × 1.25mm²)	3m	9UWTTPPPP8LLLP2
	USA, Canada (NEMA 5-15)	15A 125V	3 × AWG14 (3 × 2mm²)	2m	9UWTTPPPP8LLLQ2
	USA, Canada (NEMA 5-15)	15A 125V	3 × AWG14 (3 × 2mm²)	3m	9UWTTPPPP8LLLR2

TT: Variable characters, depends of the type of cable supplied by the customer (Self-regulating with PE core, self-regulating with silicone core, constant power, serial with 2 conductors side by side, with or without braid or grounding ribbon, etc.). PPPP: Total cable power in watts.

V: Supply voltage, with 8 = 230V (220-240V) and 6 = 115V (110-120V). LLL: Length L2 of the heating cable in decimetres.





Section 9 Heating cables terminations and small accessories

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Silicone molded parts

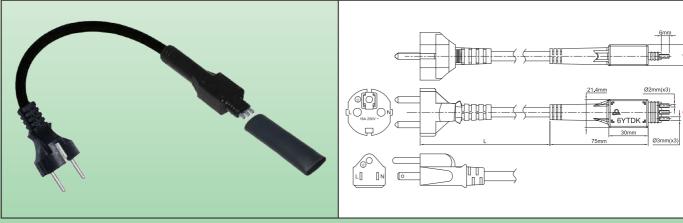
- We have developed a range covering the various applications in heating cables, because this solution is often the most economical and easy to implement.
- Molding ourselves flexible silicone caps for over 10 years to protect electrical connections in electrothermal applications, our experience allows us to offer effective technical solutions.

Small accessories

- The complete integration in our factory of the cutting, stamping and welding operations of the stainless steel parts is at the origin of the various accessories for fixing the boxes and the heating cables.



Temperature	Plug style	Cord length	Cables gauge		Туре
Open 10°C+/-3°C Close 4°C +/- 3°C	Euro UL	2m 3m	3 × 1mm ² 3 × 1.5mm ²	RoHS REACH	6YTDKA



Applications

This system allows to **professionally, waterproof and economically** connect a power cord including a frost protection fixed temperature thermostat on a heating cable. **Assembly is possible on the field or in the workshop,** and does not require special tools.

It is compatible with all types of flat or round parallel heating cables. It is particularly suitable for domestic installations for frost protection of meters, pumps, pipes.

Main features

Material: Thermostat body overmolded in black polyamide. Excellent UV resistance.

Thermostat: Electrical rating 16A 230V, contact opens by temperature rise to 10° C +/- 3° C, closes by temperature drop to 4° C +/- 3° C. (Other temperatures on request)

Water resistance: IP66

Fixing: Can be fixed on a tube using a nylon hose clamp.

Connection cord: Type H05VVF (PVC insulation) with three conductors, with European or US overmolded plug. (Other models possible with minimum order). Gauge 3x1mm² or 3x1.5mm² depending on the power of the heating cable used.

Options:

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- Custom OEM versions
- Other style of plug (UK, Japan, Australia).
- Other type of cable insulation (Rubber, Rubber + PVC).
- Cable and plug without earth conductor.

Main part numbers

Plug	Cable gauge	Cord length	Part numbers *
Europe (CEE 7/7, 16A)	3 × 1mm ²	2m	6YTDKABPE2001060
Europe (CEE 7/7, 16A)	3 × 1.5mm ²	2m	6YTDKAAPE2001060
Europe (CEE 7/7, 16A)	3 × 1mm ²	3m	6YTDKABPE3001060
Europe (CEE 7/7, 16A)	3 × 1.5mm ²	3m	6YTDKAAPE3001060
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1mm ²	2m	6YTDKABPU2001060
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1.5mm²	2m	6YTDKAAPU2001060
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1mm ²	3m	6YTDKABPU3001060
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1.5mm²	3m	6YTDKAAPU3001060

Double wall shrinkable sleeve not included.

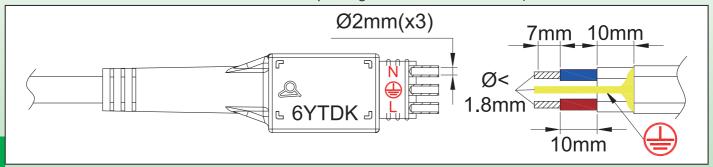
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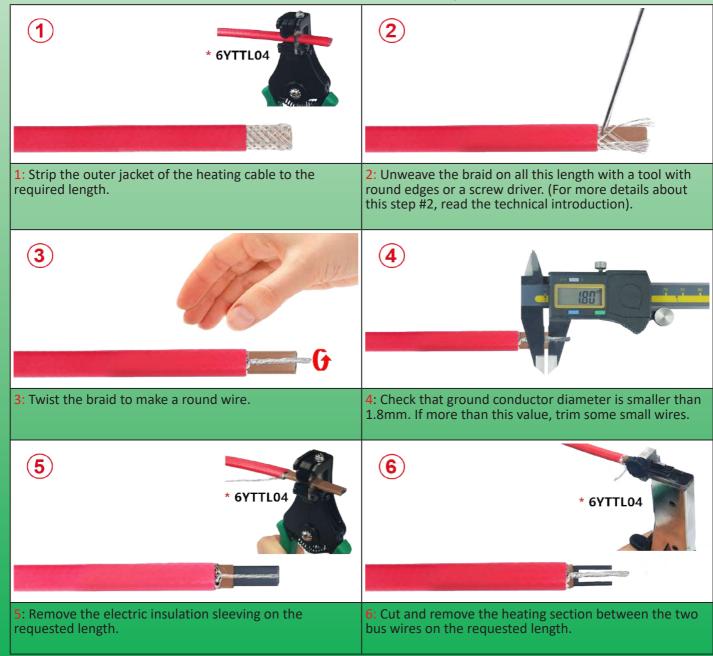
Heating cable wiring dimensions

(See the technical introduction for the cable end stripping operations, which are different depending of the model of the cable)

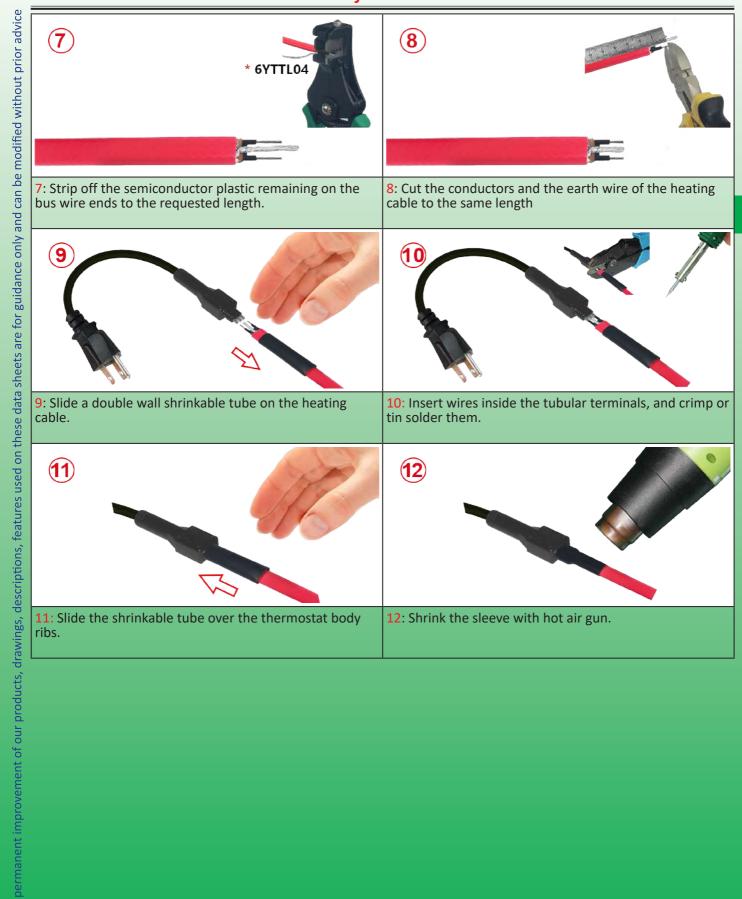


Assembly steps of the thermostatic cord on self-regulating cable

(See the technical introduction for constant power cable)

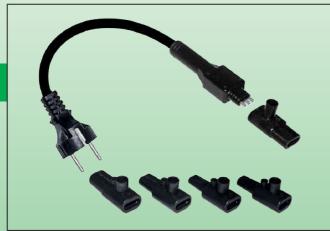


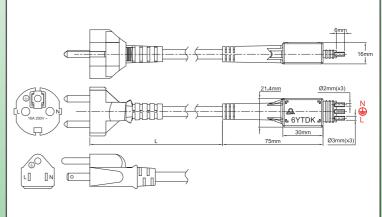
* These exclusive tools are available in accessories section





Temperature	Plug style	Cord length	Cables gauge		Туре
Open 10°C+/-3°C Close 4°C +/- 3°C	Euro UL	2m 3m	3 × 1mm ² 3 × 1.5mm ²	RoHS REACH	6YTDKB





Applications

This system allows to **professionally, waterproof and economically** connect a power cord including a frost protection fixed temperature thermostat on a heating cable. **Assembly is possible on the field or in the workshop,** and does not require special tools.

It is compatible with all types of flat or round parallel heating cables. It is particularly suitable for domestic installations for frost protection of meters, pumps, pipes.

Main features

Material: Thermostat body overmolded in black polyamide. Excellent UV resistance.

Thermostat: Electrical rating 16A 230V, contact opens by temperature rise to 10° C +/- 3° C, closes by temperature drop to 4° C +/- 3° C. (Other temperatures on request)

Water resistance: IP66

Fixing: Can be fixed on a tube using a nylon hose clamp.

Connection cord: Type H05VVF (PVC insulation) with three conductors, with European or US overmolded plug. (Other models possible with minimum order). Gauge 3x1mm² or 3x1.5mm² depending on the power of the heating cable used.

Options:

- Custom OEM versions
- OEM versions with only one dimension of silicone sleeve.
- Other style of plug (UK, Japan, Australia).
- Other type of cable insulation (Rubber, Rubber + PVC).
- Cable and plug without earth conductor.

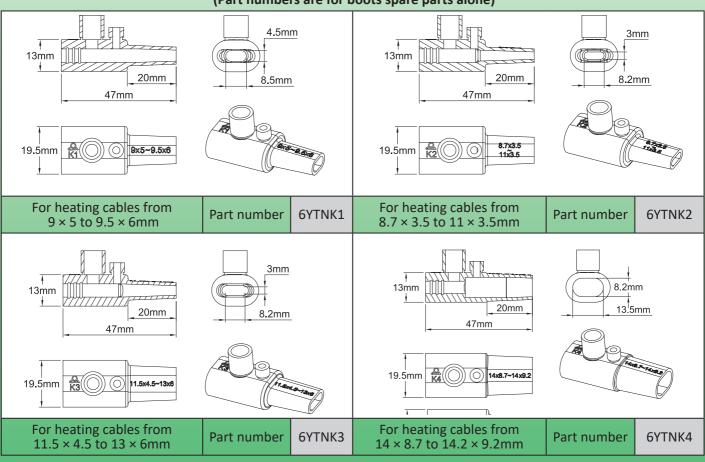
Main part numbers

Plug	Cable gauge	Cord length	Part number with silicone boots K1	Part number with silicone boots K2	Part number with silicone boots K3	Part number with silicone boots K4
Europe (CEE 7/7, 16A)	3 × 1mm ²	2m	6YTDKBBPE2001061	6YTDKBBPE2001062	6YTDKBBPE2001063	6YTDKBBPE2001064
Europe (CEE 7/7, 16A)	3 × 1.5mm ²	2m	6YTDKBAPE2001061	6YTDKBAPE2001062	6YTDKBAPE2001063	6YTDKBAPE2001064
Europe (CEE 7/7, 16A)	3 × 1mm ²	3m	6YTDKBBPE3001062	6YTDKBBPE3001062	6YTDKBBPE3001062	6YTDKBBPE3001062
Europe (CEE 7/7, 16A)	3 × 1.5mm ²	3m	6YTDKBAPE3001061	6YTDKBAPE3001062	6YTDKBAPE3001063	6YTDKBAPE3001064
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1mm²	2m	6YTDKBBPU2001061	6YTDKBBPU2001062	6YTDKBBPU2001063	6YTDKBBPU2001064

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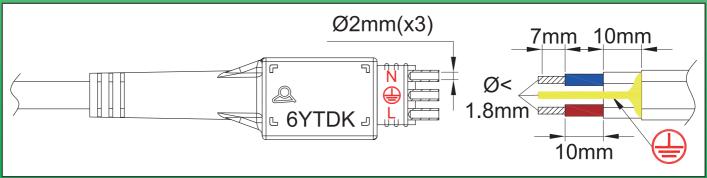
Plug	Cable gauge	Cord length	Part number with silicone boots K1	Part number with silicone boots K2	Part number with silicone boots K3	Part number with silicone boots K4
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1.5mm ²	2m	6YTDKBAPU2001061	6YTDKBAPU2001062	6YTDKBAPU2001063	6YTDKBAPU2001064
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1mm²	3m	6YTDKBBPU3001061	6YTDKBBPU3001062	6YTDKBBPU3001063	6YTDKBBPU3001064
USA, Canada (NEMA 5-15, 3 Pin - 15 Amp)	3 × 1.5mm²	3m	6YTDKBAPU3001061	6YTDKBAPU3001062	6YTDKBAPU3001063	6YTDKBAPU3001064

Silicone boots (Part numbers are for boots spare parts alone)



Heating cable wiring dimensions

(See the technical introduction for the cable end stripping operations, which are different depending of the model of the cable)

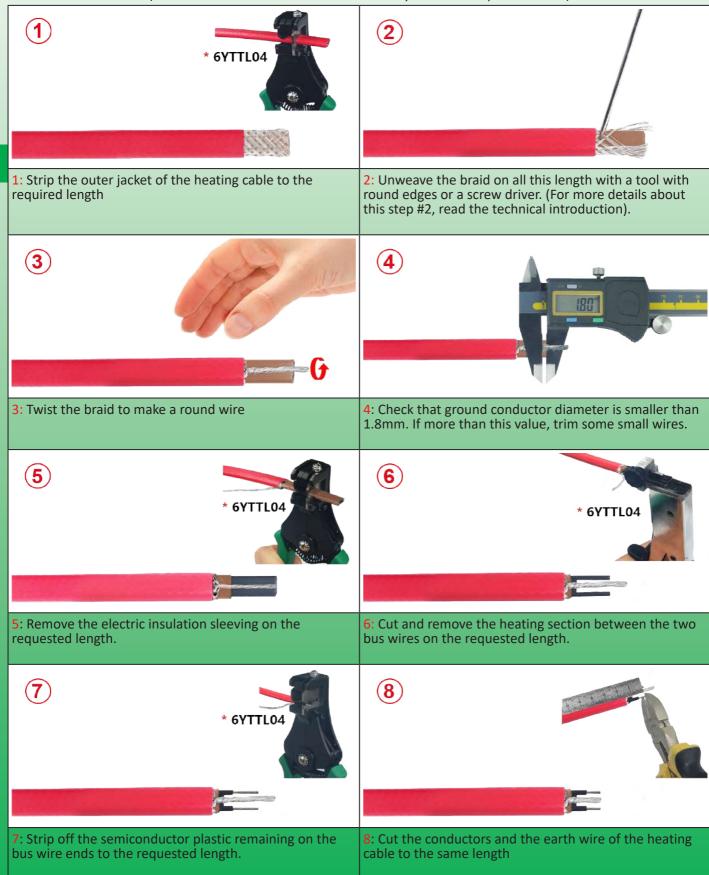


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Assembly steps of the thermostatic cord with self-regulating cable

(See the technical introduction for assembly on constant power cables)



* These exclusive tools are available in accessories section



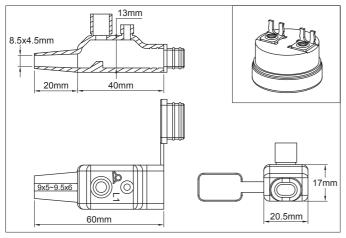


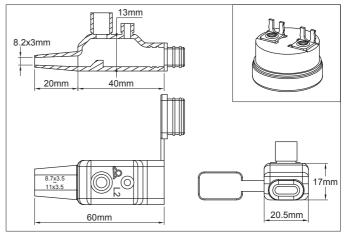
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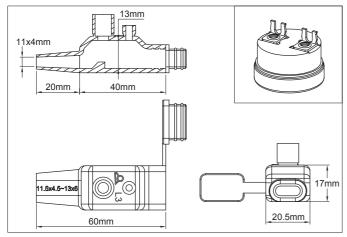
Material	Pull test nominal strength	Cables types	Asssembly		Туре
Silicone	>12DaN*	Oblongs	Silicone RTV filling	RoHS REACH	6YTNL

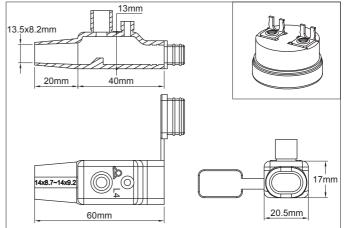
* Variable value from 12 to 21DaN depending on the models and sections of cables. See the test results in the technical introduction











Silicone sleeves for connection of heating cables and power supply cords on thermostats (field or workshop assembly). Installation on the free end of the heating cable, for oblong heating cables, limited to series models with two side by side bus wires. Connection by soldering. Sealing of the connection by silicone sleeve + RTV.



Applications

These silicone caps allow to install by an **economical and waterproof** way, in the workshop or even on the field, a **fixed temperature disc thermostat at the free end of a series heating cable with two-conductors side by side.** At the same time, they close and seal this end. They eliminate the use of heat shrink sleeves. These caps are more particularly intended for domestic applications. They cannot be used on parallel cables of self-regulating or of constant power types.

Main features

Boot material: UL 94-VO, black or orange silicone (other colors on request). Temperature resistance 220°C. **Boot dimensions:** The elasticity of the silicone, higher than 200%, allows it to fit the exact shape of the cable. We recommend selecting a cap that is slightly smaller than the cable section to avoid the resin tearing during the filling. **Thermostat:** It is possible to deliver this boot with a thermostat for soldering on the wires of the heating cable. Open temperature 10 +/- 3°C, close temperature 4 +/- 3°C, electrical rating16A 250V. Other temperatures on request. **Options:** We can produce any special dimensions or design with MOQ of 1000 pieces.

Main part numbers (Black silicone*)

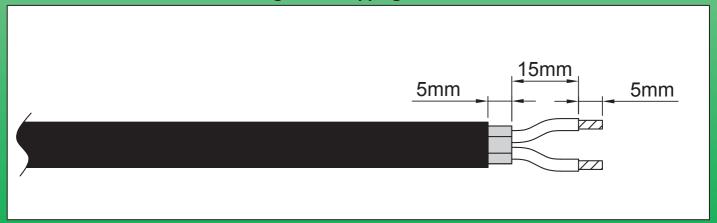
Reference of the boot alone	Hole dimension	Minimum and maximum** cable dimensions	Boot identification
6YTNL01N09800045	8.5 × 4.5mm	9 × 5mm ~ 9.5 × 6mm	L1
6YTNL02N08620032	8.2 × 3mm	8.7 × 3.5mm ~ 11 × 3.5mm	L2
6YTNL03N13006075	11 × 4mm	11.5 × 4.5mm ~ 13 × 6mm	L3
6YTNL04N10005546	13.5 × 8.2mm	14 × 8.7mm~14 × 9.2mm	L4

Orange colour, replace the 8th character N by M.

Thermostat part number (To be ordered separately).



Heating wires stripping dimensions

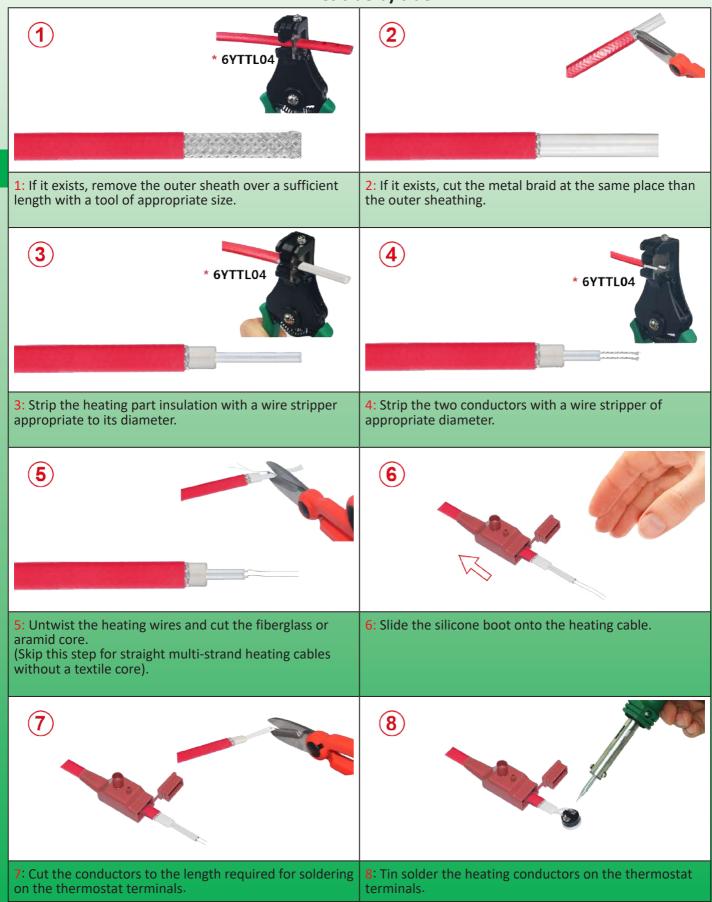


^{**} The maximum dimensions are given for information only and can be increased within the elastic limit of the silicone.

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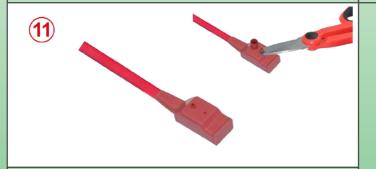
Methods of incorporating a fixed setting disc thermostat on a serial type heating cable with 2 wires side by side.



* These exclusive tools are available in accessories section



10: Place the assembly on a horizontal surface and fill with liquid RTV silicone through the filling funnel until this silicone begins to rise in the small degassing opening. Leave to cure for approximately 24 hours.



11: When the silicone is hardened, cut the filling and degassing funnels.

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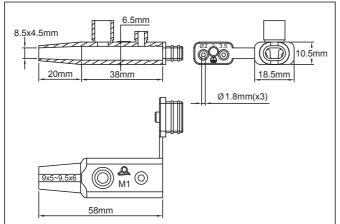
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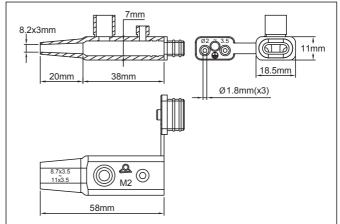
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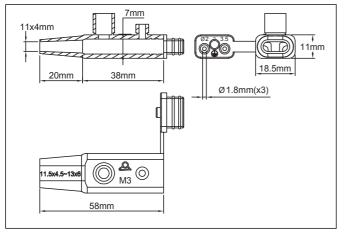
Material	Pull test nominal strength	Heating cables types	Asssembly		Туре
Silicone	> 8DaN*	Oblongs	Silicone RTV filling	RoHS REACH	6YTNM

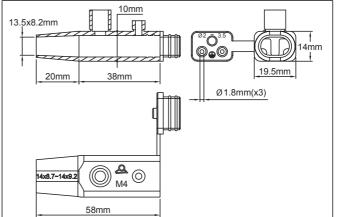
^{*} Variable value from 8 to 18DaN depending on the models and sections of cables. See the test results in the technical introduction











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Silicone sleeves for connection of heating cable on power supply wires (field or workshop assembly). Filling with room temperature vulcanizing silicone resin (RTV)



Applications

These silicone caps allow to install by an economical, waterproof and temperature resistant way, in the workshop or even on the field, of power supply wires (said "cold wires") on oblong heating cables. They eliminate the use of heat shrink sleeves. These caps are more particularly intended for domestic applications.

Main features

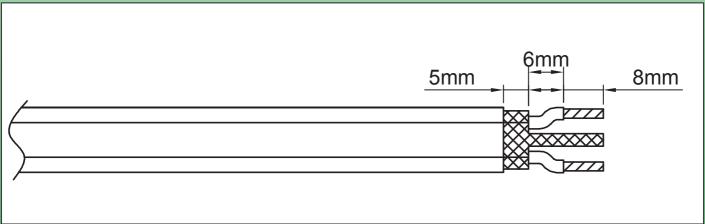
Boot material: UL 94-VO, black or orange silicone (other colors on request). Temperature resistance 220°C. **Boot dimensions:** The elasticity of the silicone, higher than 200%, allows it to fit the exact shape of the cable. We recommend selecting a cap that is slightly smaller than the cable section to avoid the resin tearing during the filling. **Options:** We can produce any special dimensions or design with MOQ of 1000 pieces.

Main part numbers (Black silicone*)

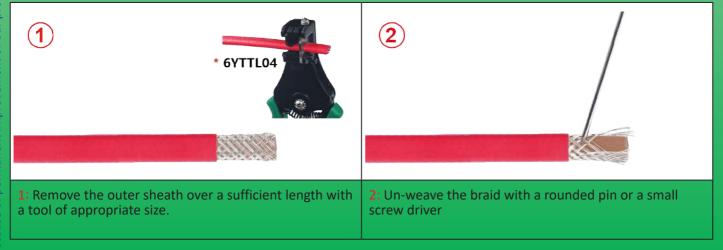
Reference	Hole dimension	Minimum and maximum** cable dimensions	Boot identification
6YTNM01N08504545	8.5 × 4.5mm	9 × 5mm ~ 9.5 × 6mm	M1
6YTNM02N08203032	8.2 × 3mm	8.7 × 3.5mm ~ 11 × 3.5mm	M2
6YTNM03N11004075	11 × 4mm	11.5 × 4.5mm ~ 13 × 6mm	M3
6YTNM04N13508246	13,.5 × 8.2mm	14 × 8.7mm ~ 14 × 9.2mm	M 4

^{*} Orange colour, replace the 8th character N by M.

Heating wires stripping dimensions



Connection steps of power supply wires ("cold wires") on a self-regulating heating cable. (Methods for other types of heating wires are described in the technical introduction).



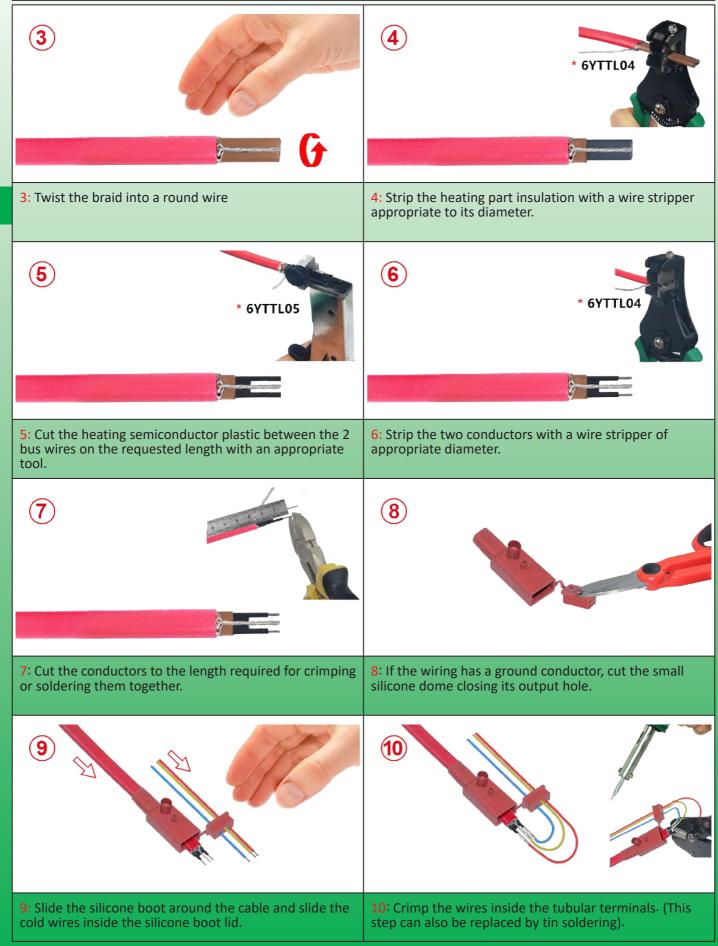
* These exclusive tools are available in accessories section

^{**} The maximum dimensions are given for information only and can be increased within the elastic limit of the silicone.

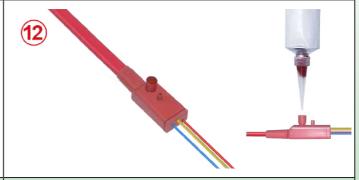
Silicone sleeves for connection of heating cable on power supply wires (field or workshop assembly). Filling with room temperature vulcanizing silicone resin (RTV)



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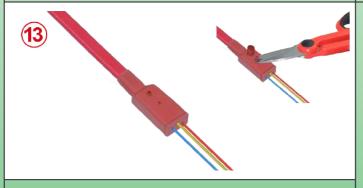


* These exclusive tools are available in accessories section



11: Slide the silicone boot on the connected wires. Then close the lid.

12: Place the assembly on a horizontal surface and fill with liquid RTV silicone through the filling funnel until this silicone begins to rise in the small degassing hole. Leave to cure for approximately 24 hours.

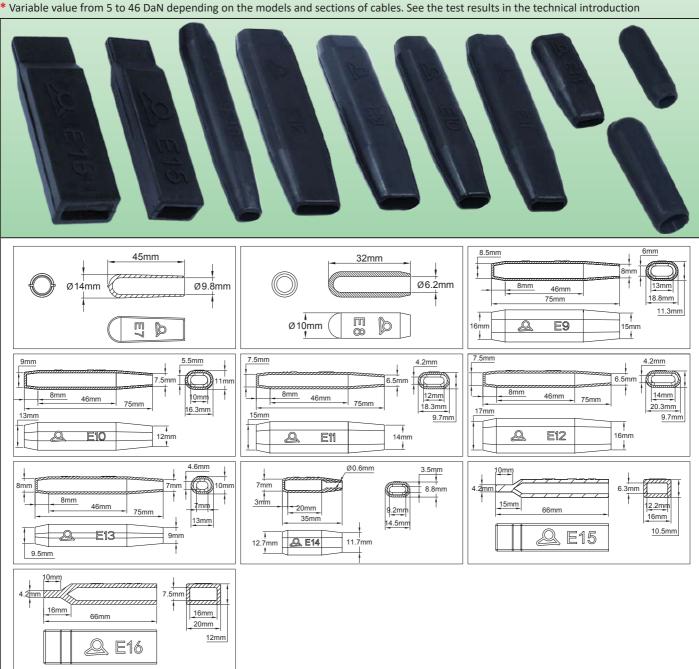


13: When the silicone is hardened, cut the filling and degassing funnels.

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Termination caps for closing the free end of round and flat heating cables (workshop or field use). Can be mounted dry, or filled with room temperature vulcanizing silicone resin (RTV)

Pull test nominal Material **Cables types Asssembly Type** strength Round or **Silicone** >5DaN* 6YTNE Glued oblong



Applications

Sealing the free end of heating cables, in particular constant power cables or self-regulating cables, is simplified by these very economical cable end boots, which eliminate the use of heat-shrink sleeves. These boots are intended for domestic applications

Main features

Boot dimensions: The elasticity of the silicone, higher than 200%, allows it to fit the exact shape of the cable. We

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nent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

Boot material: UL 94-VO, black silicone (other colors on request). Temperature resistance 220°C. Cat12-3-9-18 Contact us

Termination caps for closing the free end of round and flat heating cables (workshop or field use). Can be mounted dry, or filled with room temperature vulcanizing silicone resin (RTV)



recommend selecting a cap that is 10 to 20% smaller than the cable section. We also recommend to stick it with RTV silicone resin to avoid its accidental tearing,

Options:

- These boots can be made with partial filling in silicone gel.
- We can produce any special dimensions or design with MOQ of 1000 pieces.

Main part numbers (Black silicone**, without silicone gel filling)

Reference	Hole dimension	Minimum cable dimensions*	Boot identification
6YTNE07N09800045	Dia. 9.8mm	Dia. 11.5mm	E7
6YTNE08N08620032	Dia. 6.2mm	Dia. 7.5mm	E8
6YTNE09N13006075	13 × 6mm	15.5 × 7.2mm	E9
6YTNE10N10005546	10 × 5.5mm	12 × 6.6mm	E10
6YTNE11N12004275	12 × 4.2mm	14.4 × 5mm	E11
6YTNE12N14004275	14 × 4.2mm	16.8 × 5mm	E12
6YTNE13N06804675	6.8 × 4.6mm	8.2 × 5.5mm	E13
6YTNE14N09203575	9.2 × 3.5mm	11 × 4.2mm	E14
6YTNE15N12206366	12.2 × 6.3mm	14.5 × 7.5mm	E15
6YTNE16N16007566	16 × 7.5mm	19 × 9mm	E16

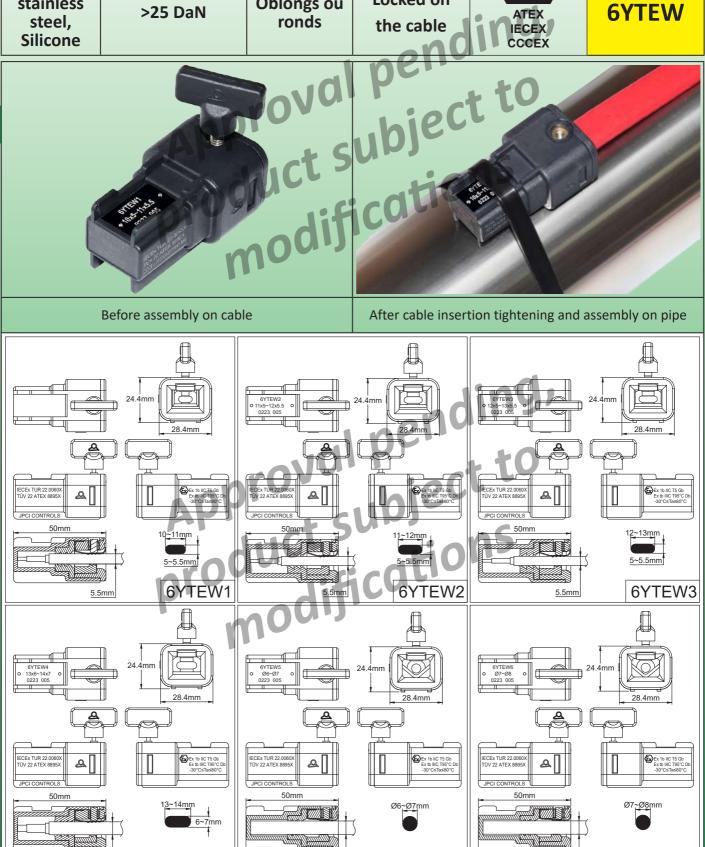
^{*} Dimensions for glued boot, allowing to comply with the minimum pull strength.

^{**} Orange colour, replace the 8th character N by M

Pressure screw-clamping IP67 waterproof PA66 termination caps (End seals) for closing the free end of oblong or round heating cables.

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	Materials	Minimum tear strength	Heating cables types	Asssembly	(C.)	Туре
	PA66, stainless steel, Silicone	>25 DaN	Oblongs ou ronds	Locked on the cable	ATEX DECEX COCEX	6YTEW



6YTEW4

6YTEW5

6YTEW6

Ø7~Ø8mm

Pressure screw-clamping IP67 waterproof PA66 termination caps (End seals) for closing the free end of oblong or round heating cables.



Applications

These cable ends are used to close quickly and without the need for gluing or filling with resin or the terminations of flexible self-regulating or constant power heating cables. They are instantly tightened and blocked on the cables without special tool or equipment.

Their tightening on the cable is made by a butterfly screw which will break at a preset torque. Unscrewing is then impossible. Once installed, they provide an IP67 seal at the end of the cable.

Their range of dimensions allows them to be used on most existing heat tracing heating cables <u>in industrial or explosive environments</u>. Their tear resistance is guaranteed regardless of the material of the outer sheath of the heating cable (Polyolefins, PVC, fluoroelastomers, FEP a.s.o.)

Main features

Body material: UV resistant PA66. Internal seal is in silicone).

The wings of the body allow to move it away from the piping and improve its cooling. They also allow stable clamping on the piping by a cable tie. A notch prevents the cable tie from slipping

Maximum temperature resistance: + 80°C. (For higher temperatures, see silicone cable end boots 6YTNJ with silicone resin filling).

Resistance at minimum temperature: - 30°C (For lower temperatures, see the silicone cable end boots 6YTNJ with silicone resin filling).

Tear resistance: Greater than 25 DaN for all models.

This value is equal to or greater than required by standard EN60079-0 for cable terminations in explosive environments and higher than required by standard IEC 62395-1 for heating cables in industrial environment.

Options: Special dimensions possible, with minimum order of 1000 pieces.

Other models: In some cases, especially for constant power cables with a bus wires spacing of less than 5mm, it is necessary to use the version with silicone gel filling.

Warning: These products cannot be used on cables with an external metallic braid not covered by an outer jacket because in this case the waterproofing cannot be achieved. Then use terminations with silicone resin filling. (See types 6YTNJ at the end of this catalogue).

Classification for hazardous areas:

Gaz: ⊞II 2G Ex eb IIC T5 Gb Dust: ⊞II 2D Ex tb IIIC T95°C Db

Certificates:

ATEX: TÜV 22 ATEX 8895X IECEx: IECEx TUR 22.0060X

Main part numbers

Part number*	Minimum cable size	Maximum cable size	Identification
6YTEW16S0F5010	10 × 5mm	11×5.5mm	W1
6YTEW26S0F50110	11 × 5mm	11 × 5mm 12 × 5,5mm	
6YTEW36S0F50120	12 × 5mm	13 × 5,5mm	W3
6YTEW46S0F60130	13 × 6mm	14 × 7mm	W4
6YTEW56S0R60000	Dia. 6mm	Dia. 7mm	W5
6YTEW66S0R70000	Dia. 7mm	Dia. 8mm	W6

^{*} Types with silicone gel filling: replace S0 by SG in the reference

Pressure screw-clamping IP67 waterproof PA66 termination caps (End seals) for closing the free end of oblong or round heating cables.



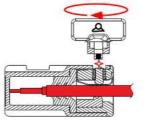
Heating wires stripping dimensions.

(See the technical introduction for explanation of these dimensions that can be reduced in some cases)

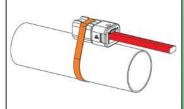
(See the technical introduction for explanation of these differentials that can be reduced in some cases)					
Self-regulating cable with jacketed braid and with clearance between bus wires equal or bigger than 5mm.	Self-regulating cable with jacketed braid and distance between bus wires lower than 5mm.	Constant power cable with jacketed braid, clearance between bus wires equal or bigger than 5mm	Constant power cable with jacketed braid, clearance between bus wires lower than 5mm		
10mm 25mm 0-2mm	3 -5mm 5mm	2 5mm 0mm 10mm 0-2mm	5mm 0mm 10mm 0-2mm		
There must be a minimum of 10mm distance between the semiconductor core and the metal braid.	One conductor wire must be cut to maintain a 5mm minimum clearance between the 2 bus wires. There must be a minimum of 10mm distance between the semiconductor core and the metal braid.	There must be a minimum of 10mm distance between the bus wires and the metal braid. The small heating wire must not protrude from its insulating jacket	One conductor wire must be cut to maintain a 5mm minimum clearance between the 2 bus wires. There must be a minimum of 10mm distance between the bus wire and the metal braid. The small heating wire must be cut to not protrude from its insulating jacket. It is mandatory to use the termination with silicone gel filling.		

Installation instruction

Prepare the end of the cable according to the dimensions given in the table above. - Check that its dimensions are compatible with those written on the selected termination cap. - Check that the calculated or measured operating temperature 48mm does not exceed the limit value of 120° C at the termination cap. - Insert the cable into the termination cap, push it strongly until it comes to a stop. (It must penetrate 48mm)



- Tighten the wing screw until it breaks flush with the termination
- This screw is calibrated to break when the torque necessary for the pulling force of the cable to comply with standards is reached. The whole assembly is no longer removable. (When the application requests subsequent disassembly, it is possible to replace, before installation, the wing screw with a simple M4×8mm grub screw, with hexagonal hollow head. The recommended tightening torque is then 1.3 Nm)

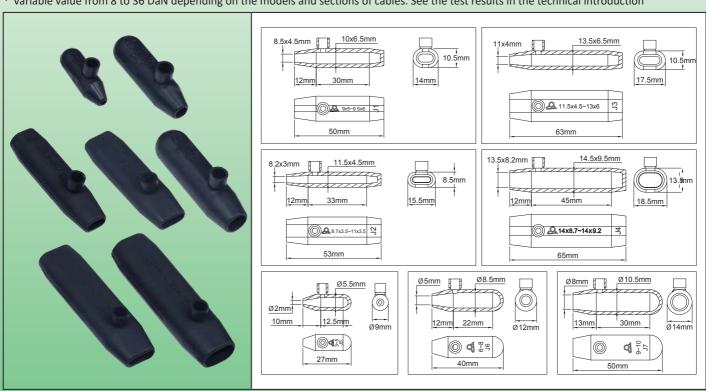


- Fix the cable termination cap on the piping or on the surface, using a nylon tie or a metal clamp and placing it on the notch provided, to prevent it from slipping.
- Tightening should be moderate so as not to damage the termination cap. If the pipe temperature can rise temperatures up to 80°C, keep the termination away of the tube

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Material	Pull test nominal strength	Heating cables types	Asssembly		Туре
Silicone	>8 DaN*	All	Silicone RTV filling	RoHS REACH	6YTNJ

Variable value from 8 to 36 DaN depending on the models and sections of cables. See the test results in the technical introduction



Applications

These silicone caps allow to install by an **economical**, waterproof and temperature resistant way, in the workshop or even on the field, an end seal on heating cables. They eliminate the use of heat shrink sleeves.

Main features

Boot material: UL 94-VO, black or orange silicone (other colors on request). Temperature resistance 220°C. **Boot dimensions:** The elasticity of the silicone, higher than 200%, allows it to fit the exact shape of the cable. We recommend selecting a cap that is slightly smaller than the cable section to avoid the resin tearing during the filling. **Options:** We can produce any special dimensions or design with MOQ of 1000 pieces.

Main part numbers (Black silicone*)

Reference	Hole dimension	Minimum and maximum** cable dimensions	Boot identification
6YTNJ01N08504550	8.5 × 4.5mm	9 × 5mm ~ 9.5 × 6mm	J1
6YTNJ02N08203053	8.2 × 3mm	8.7 × 3.5mm ~ 11 × 3.5mm	J2
6YTNJ03N11004063	6YTNJ03N11004063		J3
6YTNJ04N13508265	13.5 × 8.2mm	14 × 8.7mm ~ 14 × 9.2mm	J4
6YTNJ05N00200027	NJ05N00200027 Ø 2mm		J5
6YTNJ06N00500040	Ø 5mm	Ø 6mm ~ Ø 8mm	J6
6YTNJ07N00800050	Ø 8mm	Ø 9mm ~ Ø 10mm	J7

Orange colour, replace the 8th character N by M.

be modified without prior advice

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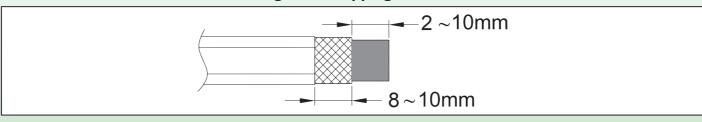
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^{**} The maximum dimensions are given for information only and can be increased within the elastic limit of the silicone.

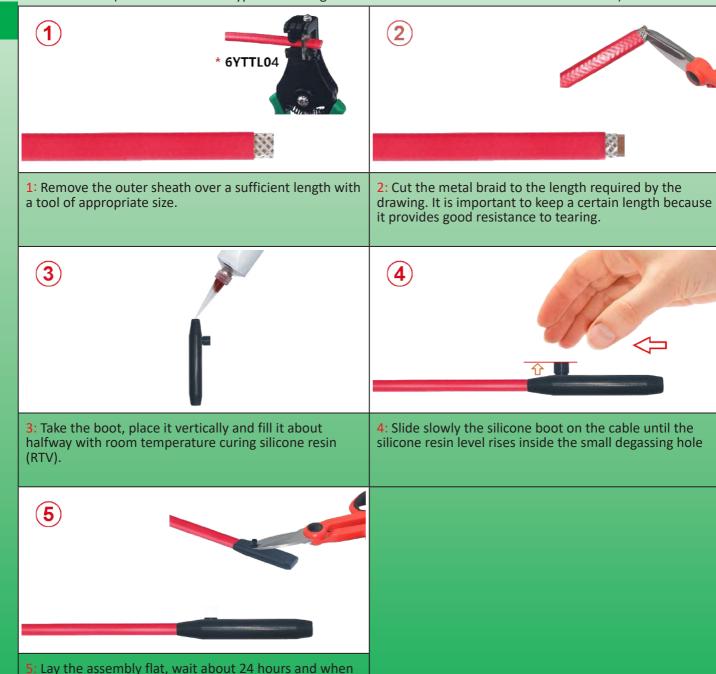
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Heating wires stripping dimensions



Assembly steps on a self-regulating heating cable.

(Methods for other types of heating wires are described in the technical introduction).



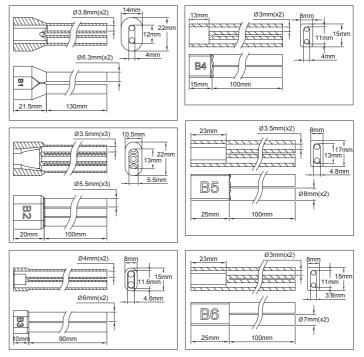
* These exclusive tools are available in accessories section

the silicone is cured, cut the degassing orifice. Do not energize until the silicone resin has polymerized.



Material	Pull test nominal strength	Heating cables types	Asssembly		Туре
Silicone	Poor	Self- regulating	Slided on conductors	RoHS REACH	6YTNB





Applications

These silicone caps are used to **recreate electrical insulation** to the conductors of the self-regulating cables when the heating zone has been removed to suppress heating over a certain length. Indeed, the semiconductor plastic remaining around the wires is an electrical conductor and not an insulator.

They consist of 2 or 3 flexible tubes connected by a collector, and must be put on the bus wires. They are mainly used in the connection of heating cables on terminal blocks of electrical tracing distribution boxes, in order to avoid heating them inside.

Main features

Boot material: UL 94-VO, black or orange silicone (other colors on request). Temperature resistance 220°C. **Boot dimensions:** The elasticity of the silicone, higher than 200%, allows it to fit the exact shape of the cable. We recommend choosing a boot with a hole slightly smaller than the cable section, in order to block its position. For the same purpose, it is mandatory to fill with RTV silicone resin the collector.

The chimneys of the boots must be cut to the length of the bus wires and must allow only the naked length of the conductor necessary to connect to the terminal block.

Options: We can produce any special dimensions or design with MOQ of 1000 pieces.

Main part numbers (Black silicone*)

Reference	Entry hole dimension	Quantity of tubes	Maximum sleeving length of bus wires	Boot identification
6YTNB01N120040A5	12 × 4mm	2	130mm	B1
6YTNB02N125055A2	12.5 × 5.5mm	3	100mm	B2
6YTNB03N116046A0	11.6 × 4.6mm	2	90mm	В3
6YTNB04N110040A1	11 × 4mm	2	100mm	B4

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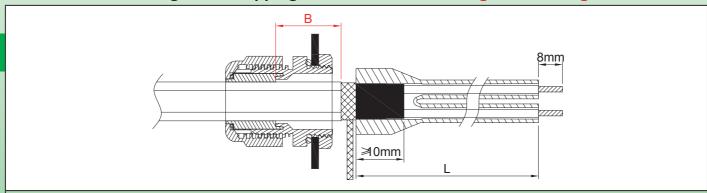
Sheathing and insulation boot for self-regulating heating cable conductors after removal of the heating zone.



Reference	Entry hole dimension	Quantity of Maximum sleeving length of bus wires		Boot identification
6YTNB05N130048A2	13 × 4.8mm	2	100mm	B5
6YTNB06N110038A2	11 × 3.8mm	2	100mm	В6

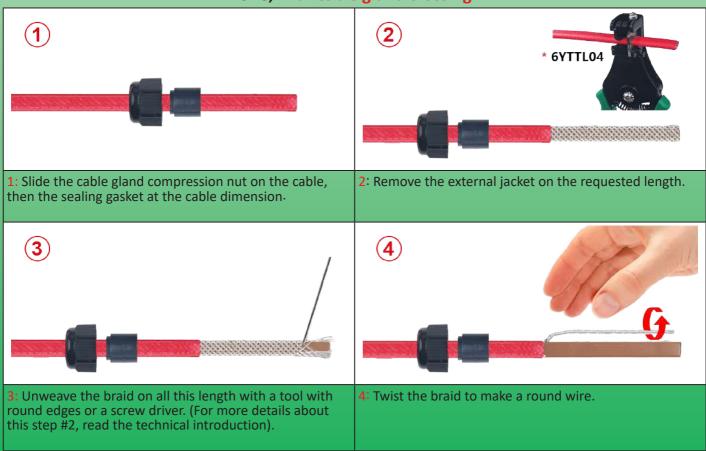
^{*} Orange colour, replace the 8th character N by M.

Heating wires stripping dimensions with cable gland crossing.



Distance B should be kept to a minimum to avoid heating the inside of the cabinet. The length L depends on the distance to connection terminals.

Steps of re-insulation of self-regulating heating cable bus wires after removing the heating zone, with cable gland crossing.



* These exclusive tools are available in accessories section

Sheathing and insulation boot for self-regulating heating cable conductors after removal of the heating zone.







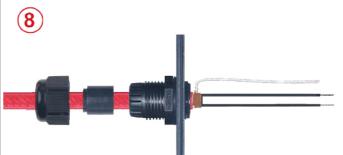
5: Remove the electric insulation sleeving on the requested length.

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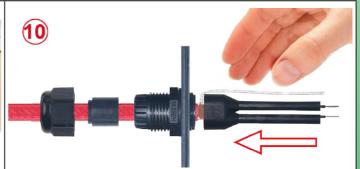
6: Cut and remove the heating section between the two bus wires on the requested length.



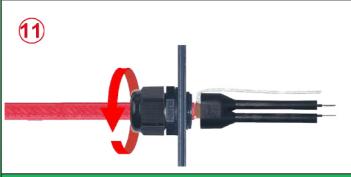


- 7: Strip off the semiconductor plastic remaining on the bus wire ends to the requested length.
- 8: Push the cable through the cable gland.





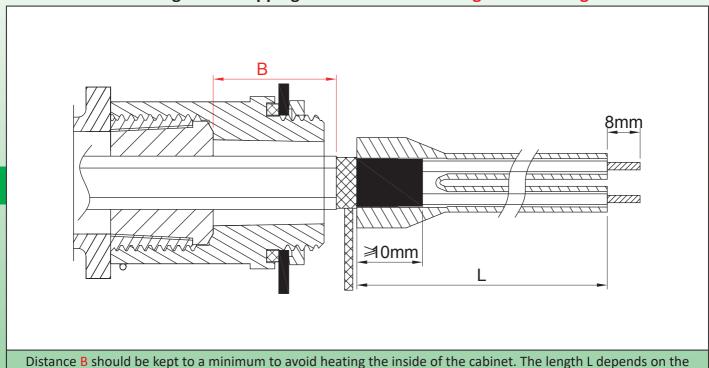
- 9: Pour silicone resin (RTV) in the wires input hole of the silicone boot
- **10**: Slide the insulating boot over the conductors of the heating cables, leaving the earth conductor outside, or with the earth conductor inside if the boot has 3 tubes.



- 11: Tighten the cable gland nut on the sealing gasket.
- * These exclusive tools are available in accessories section

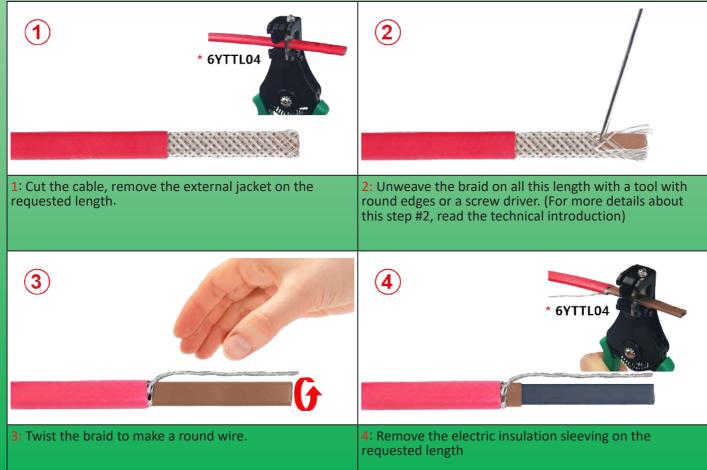
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Heating wires stripping dimensions with foot gasket crossing.



distance to connection terminals.

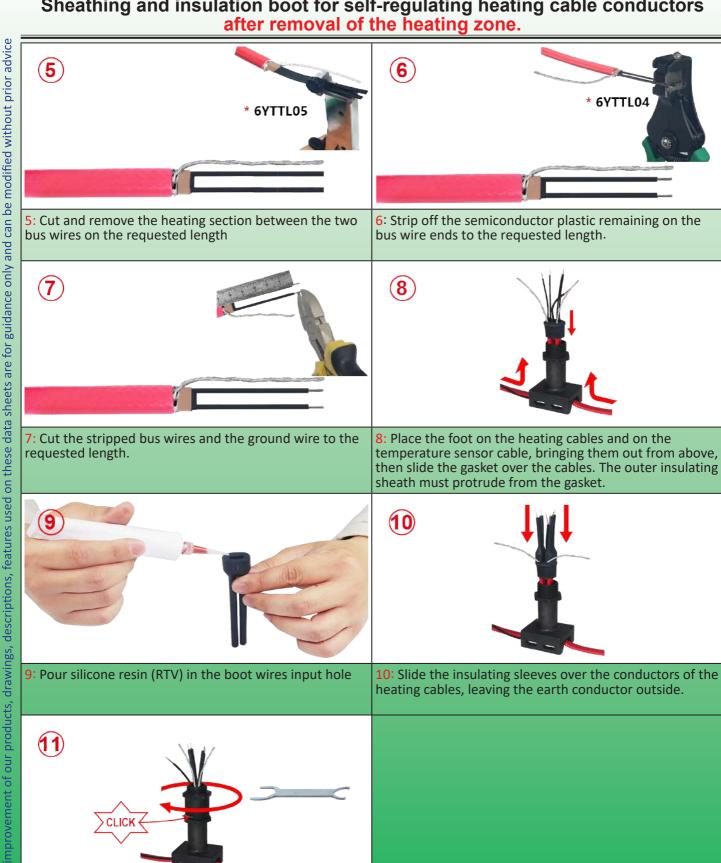
Steps of re-insulation of self-regulating heating cable bus wires after removing the heating zone, with foot gasket crossing.



* These exclusive tools are available in accessories section

Sheathing and insulation boot for self-regulating heating cable conductors







11: Compress the seal by screwing the upper part of the foot. When tightening is complete, a small spring comes to block the assembly (To disassemble, it is necessary to remove this small semi-circular spring).

* These exclusive tools are available in accessories section

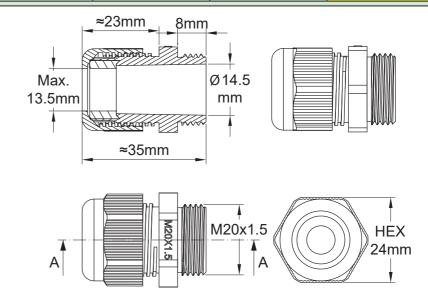
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Material	Thread	Round cables diameter	Sizes of oblong cables		Туре
PA6	M20	4mm ~ 12mm	4 × 11mm ~ 6 × 13mm	RoHS REACH	6YTP (M20)





Applications

These cable glands have a **reduced length of thread**, this allows to mount them on enclosures with a thin wall, without too much encroaching on the interior space. Their design allows to use seals for **round and oblong cables**.

Main features

Ingress protection: IP68

Vibration resistance: Self-locking compression nut.

Material of the body: PA6 UL94V2

Allowable cables dimensions: Round cables up to 12mm diameter and oblong cable up to 13 × 6mm.

Seals material: 65 shore silicone or NBR 70 shore.

For more information on tightening torques and cable pull force, see the technical introduction.

Main references

Cohles Sool	Seal	References without M20 thread gasket	References with NBR O-ring M20 thread gasket	References with M20 thread flat gasket in silicone	References with NBR O-ring M20 thread gasket and locknut	References with M20 thread flat gasket in silicone and locknut
diameter	ables Seal - nmeter material					
4mm ~	NBR 70 shore	6YTPEM20S040080N	6YTPFM20S040080N	6YTPGM20S040080N	6YTPIM20S040080N	6YTPKM20S040080N
8mm	Silicone 65 shore	6YTPEM20S040080S	6YTPFM20S040080S	6YTPGM20S040080S	6YTPIM20S040080S	6YTPJM20S040080S
8mm ~	NBR 70 shore	6YTPEM20S080120N	6YTPFM20S080120N	6YTPGM20S080120N	6YTPIM20S080120N	6YTPKM20S080120N
12mm	Silicone 65 shore	6YTPEM20S080120S	6YTPFM20S080120S	6YTPGM20S080120S	6YTPIM20S080120S	6YTPJM20S080120S
1 v 11mm ~	NBR 70 shore	6YTPEM20SF60130N	6YTPFM20SF60130N	6YTPGM20SF60130N	6YTPIM20SF60130N	6YTPKM20SF60130N
4 × 11mm ~ - 6 × 13mm	Silicone 65 shore	6YTPEM20SF60130S	6YTPFM20SF60130S	6YTPGM20SF60130S	6YTPIM20SF60130S	6YTPJM20SF60130S

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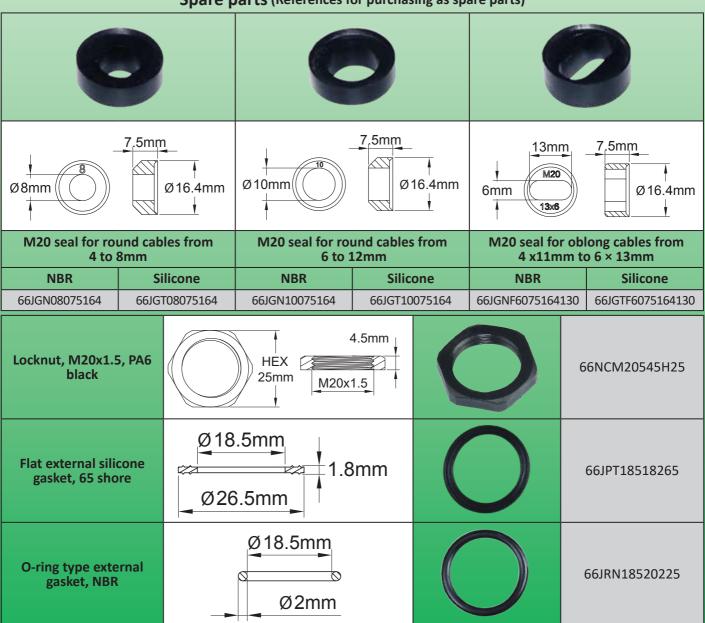
M20 cable gland, short thread, in black PA6, IP68, with seals for round and oblong cables

Cables Seal		References without M20 thread gasket	References with NBR O-ring M20 thread gasket	References with M20 thread flat gasket in silicone	References with NBR O-ring M20 thread gasket and locknut	References with M20 thread flat gasket in silicone and locknut
Cables diameter	material					
	NBR 70 shore	6YTPEM20SSRF000N	6YTPFM20SSRF000N	6YTPGM20SSRF000N	6YTPIM20SSRF000N	6YTPKM20SSRF000N
Set of all dimensions*	Silicone 65 shore	6YTPEM20SSRF000S	6YTPFM20SSRF000S	6YTPGM20SSRF000S	6YTPIM20SSRF000S	6YTPJM20SSRF000S

Set of seals for all dimensions of round and oblong cables, with only one cable gland body.

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Spare parts (References for purchasing as spare parts)

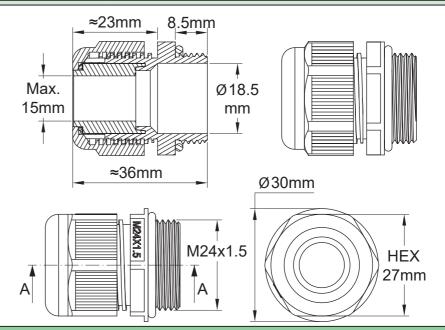




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Material	Thread	Round cables diameter	Sizes of oblong cables		Туре
PA6	M24	6mm ~ 14mm	8 × 5mm ~ 14.2 × 9.2mm	RoHS REACH	6YTP (M24)





Applications

This cable gland has been developed for applications in which the standard M25 model is too bulky. The reduced length of the thread (8.5mm) makes it possible to mount it on enclosures with a thin wall, without too much encroaching on the interior space. Its design allows to use seals for round and oblong cables of all usual dimensions of flexible heating cables.

Main features

Ingress protection: IP68

Vibration resistance: Self-locking compression nut.

Material of the body: PA6 UL94V2

Allowable cables dimensions: Round cables up to 14mm diameter and oblong cable up to 14.2×9.2 mm.

Seals material: 65 shore silicone or NBR 70 shore.

For more information on tightening torques and cable pull force, see the technical introduction.

Main references

		References without M24 thread gasket	References with NBR O-ring M24 thread gasket	References with M24 thread flat gasket in silicone	References with NBR O-ring M24 thread gasket and locknut	References with M24 thread flat gasket in silicone and locknut
	Seal material					
	NBR 70 shore	6YTPEM24S060080N	6YTPFM24S060080N	6YTPGM24S060080N	6YTPIM24S060080N	6YTPKM24S060080N
6mm ~ 8mm	Silicone 65 shore	6YTPEM24S060080S	6YTPFM24S060080S	6YTPGM24S060080S	6YTPIM24S060080S	6YTPJM24S060080S
	NBR 70 shore	6YTPEM24S080120N	6YTPFM24S080120N	6YTPGM24S080120N	6YTPIM24S080120N	6YTPKM24S080120N
8mm ~ 12mm	Silicone 65 shore	6YTPEM24S080120S	6YTPFM24S080120S	6YTPGM24S080120S	6YTPIM24S080120S	6YTPJM24S080120S

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M24 cable gland, short thread, in black PA6, IP68, with seals for round and oblong cables

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		References without M24 thread gasket	References with NBR O-ring M24 thread gasket	References with M24 thread flat gasket in silicone	References with NBR O-ring M24 thread gasket and locknut	References with M24 thread flat gasket in silicone and locknut
Cables diameter r	Seal material					
	NBR 70 shore	6YTPEM24S100140N	6YTPFM24S100140N	6YTPGM24S100140N	6YTPIM24S100140N	6YTPKM24S100140N
10mm~14mm	Silicone 65 shore	6YTPEM24S100140S	6YTPFM24S100140S	6YTPGM24S100140S	6YTPIM24S100140S	6YTPJM24S100140S
Q v Frama ~	NBR 70 shore	6YTPEM24SF60095N	6YTPFM24SF60095N	6YTPGM24SF60095N	6YTPIM24SF60095N	6YTPKM24SF60095N
8 × 5mm ~ — 9.5 × 6mm	Silicone 65 shore	6YTPEM24SF60095S	6YTPFM24SF60095S	6YTPGM24SF60095S	6YTPIM24SF60095S	6YTPJM24SF60095S
9.5 × 2.5mm ~	NBR 70 shore	6YTPEM24SF35110N	6YTPFM24SF35110N	6YTPGM24SF35110N	6YTPIM24SF35110N	6YTPKM24SF35110N
11×3.5mm	Silicone 65 shore	6YTPEM24SF35110S	6YTPFM24SF35110S	6YTPGM24SF35110S	6YTPIM24SF35110S	6YTPJM24SF35110S
11 × 4mm ~	NBR 70 shore	6YTPEM24SF60130N	6YTPFM24SF60130N	6YTPGM24SF60130N	6YTPIM24SF60130N	6YTPKM24SF60130N
13 × 6mm	Silicone 65 shore	6YTPEM24SF60130S	6YTPFM24SF60130S	6YTPGM24SF60130S	6YTPIM24SF60130S	6YTPJM24SF60130S
12 F y 0mama	NBR 70 shore	6YTPEM24SF92142N	6YTPFM24SF92142N	6YTPGM24SF92142N	6YTPIM24SF92142N	6YTPKM24SF92142N
12.5 × 8mm ~14.2 × 9.2mm	Silicone 65 shore	6YTPEM24SF92142S	6YTPFM24SF92142S	6YTPGM24SF92142S	6YTPIM24SF92142S	6YTPJM24SF92142S
Sot of all	NBR 70 shore	6YTPEM24SSRF000N	6YTPFM24SSRF000N	6YTPGM24SSRF000N	6YTPIM24SSRF000N	6YTPKM24SSRF000N
Set of all dimensions*	Silicone 65 shore	6YTPEM24SSRF000S	6YTPFM24SSRF000S	6YTPGM24SSRF000S	6YTPIM24SSRF000S	6YTPJM24SSRF000S

^{*} Set of seals for all dimensions of round and oblong cables, with only one cable gland body.

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Spare parts (References for purchasing as spare parts)



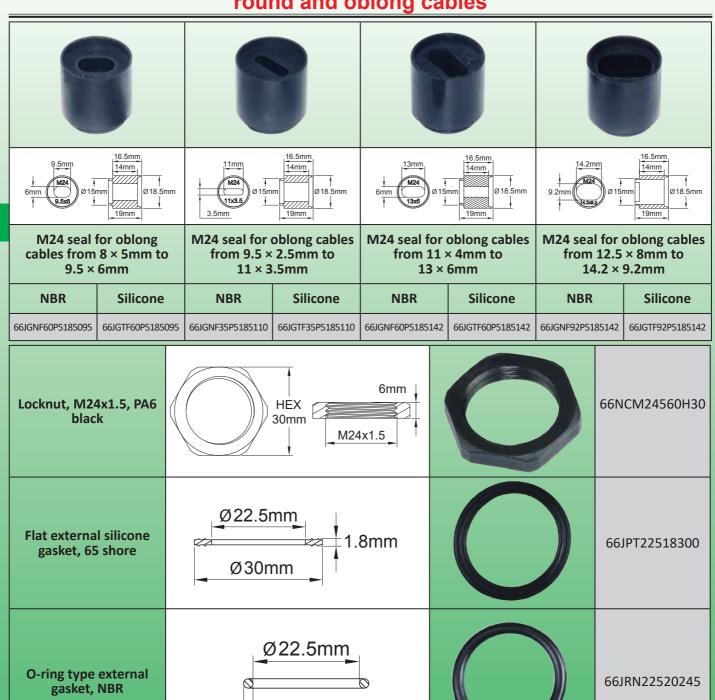
M24 cable gland, short thread, in black PA6, IP68, with seals for round and oblong cables



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Ø2mm

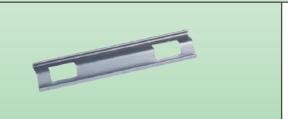
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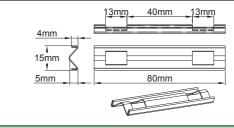
Stainless steel devices for mounting temperature sensors probes and thermostat bulbs on pipes surface.



	Material	Compatibility	Mounting on pipe	Asssembly		Туре
-	Stainless steel	Thermostat bulbs and temperature sensors probes	Hose metal clamps	On pipe surface	RoHS REACH	6ҮТВА

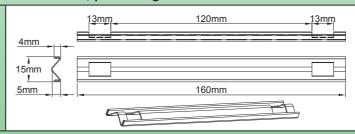
Mounting bracket for temperature sensors dia 5 and 6mm, probe length 40mm max.





Mounting bracket for thermostat bulbs dia 5 and 6mm, probe length 120mm max.









Example of the temperature sensor model after installation

Example of the thermostat bulb model after installation

Applications

The main problem with measuring the surface temperature of pipes is to maintain permanent thermal contact between the temperature measuring device and the tube. These plates, specially developed for this application, are flexible and elastic, in order to keep their tightness on the tube permanently, despite thermal expansions. They adapt automatically to the diameter of the tube and do not deform the measuring devices.

Main features

Sensor diameter: 5 to 6.5mm.

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Material: 304 stainless steel, 0.5mm thickness

Fixing: By metal hose clamps (Nylon cable ties are not recommended).

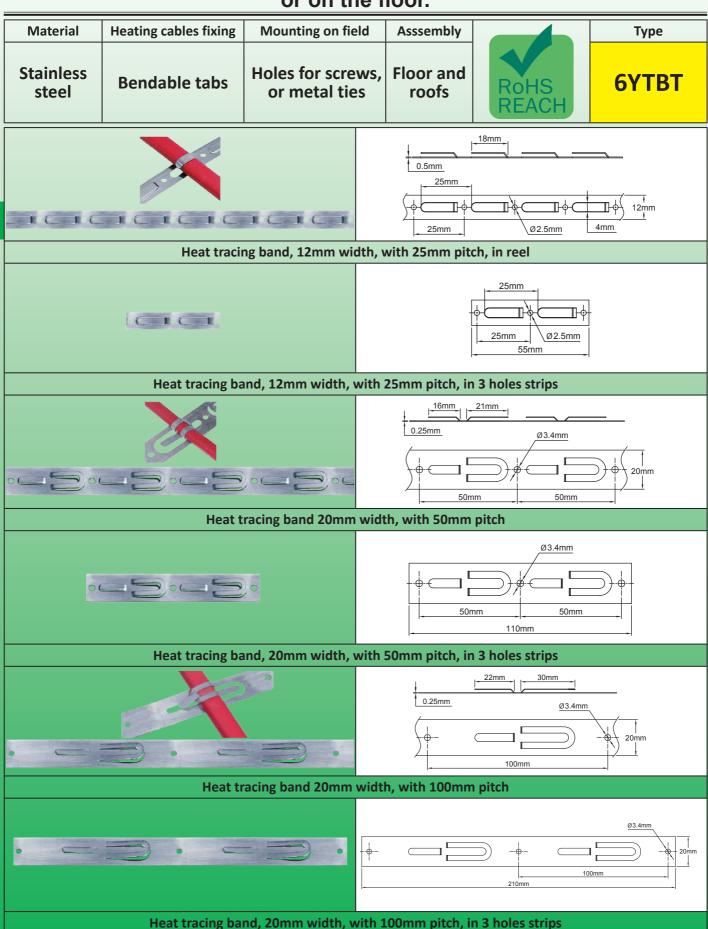
Part numbers

Length 80mm	6YTBA015503040H0	
Length 160mm	6YTBA015503040P0	

Bands for mounting electric heat tracing cables on pipes, on roofs or on the floor.

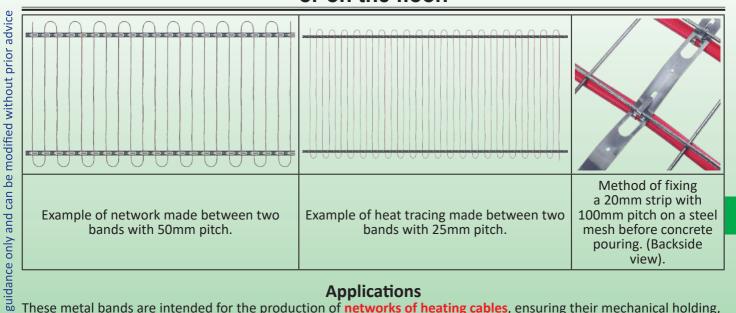


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Applications

These metal bands are intended for the production of networks of heating cables, ensuring their mechanical holding, their spacing, and their fixing on a support.

They are used for example for holding on the ground, before the concrete is laid, in the construction of ramps and antifreeze heating passages, or heated floors in cold rooms, but also for snow and ice melting on roofs.

Main features

Material: 304 stainless steel or zinc plated steel.

of permanent improvement of our products, drawings, descriptions, features used

Fixing: These strips have holes at regular intervals allowing them to be fixed on a support, such as a wall, a reinforcement grid for concrete, or a roof.

Versions: In rolls of 25 meters under cardboard reel, (for use in continuous strips for unrolling on the ground) or in small strips of 2 hooks and 3 holes for fixing on roofs.

Part numbers

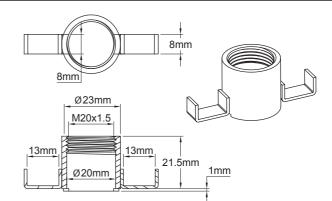
Width	dth Pitch Maximum size of heating cable		Material	Reference in reels	Reference of 3 holes strips
12mm	12mm 25mm Ø8mm/9.5 × 6mm		304 Stainless-steel	6YTBT01250304B25	6YTBT01250304BE5
12mm	25mm	Ø8mm/9.5 × 6mm	Zinc plated steel	6YTBT01250SGCB25	6YTBT01250SGCBE5
20mm	50mm	Ø8mm/9.5 × 6mm	304 Stainless-steel	6YTBT02025304C25	6YTBT02025304CK0
20mm	50mm	Ø8mm/9.5 × 6mm	Zinc plated steel	6YTBT02025SGCC25	6YTBT02025SGCCK0
20mm	20mm 100mm Ø12mm/14.2 × 9.2mm		304 Stainless-steel	6YTBT02025304D25	6YTBT02025304DU0
20mm	100mm	Ø12mm/14.2 × 9.2mm	Zinc plated steel	6YTBT02025SGCD25	6YTBT02025SGCDU0

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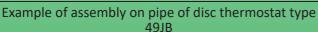
Supports in stainless steel for mounting M20x1.5 disc thermostats and M20x1.5 temperature sensors on pipe walls.

Material	Fixing	Distance to pipe	Asssembly on box		Туре
Stainless steel	On pipe	0mm	M20 × 1.5	RoHS REACH	6YTQS











Example of assembly on pipe of Pt100 temperature sensor type TSJB

Applications

This stainless-steel device is used to **mount temperature sensors or fixed temperature thermostats** with M20x1.5 threads **on pipe**. The contact with the pipe wall is preserved, despite the thermal expansions, by the elasticity of the two lateral legs.

Main features

Material: 304 stainless steel. Can also be produced in 316 stainless steel (MOQ apply).

Disc thermostat or temperature sensor fixing: By the M20x1.5 thread.

Compatible types: TSJB, TNJB, TPJB, TJJB, 49JB.

Pipe mounting: By metal hose clamp or by Nylon cable ties.

Part numbers (In 304 stainless steel*)

Reference	Material		
6YTQS2420	304 Stainless-steel		
6YTQS2620	316 Stainless-steel		

^{*} Nickel plated steel available on request.

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bottom	of the boxes.	Mounting on p	pipes by nylon	ties or metal c	lamps.
Material Stainless steel	Fixing On pipe	Distance to pipe	Screws or Snap-on	RoHS REACH	6YTPT 6YTQT
		22mm 5mm 106mm 21mm 47.2 mm 45.2mm			
		Type 6Y			
	Type of			20mm M4(x4) 150°mm 40mm	58mm 53mm
		Type 6Y	TQTW46		_

Type 6YTPTV499

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Stainless steel mounting feet for connection boxes, snapped-on or screwed on the bottom of the boxes. Mounting on pipes by nylon ties or metal clamps.



Applications

These metal brackets allow to mount connection boxes for heating cables on pipes, keeping a distance of about 50mm with the pipes, which allows thermal insulation and its protection to be installed. The snap-in models allow this insulation to be carried out after the heating cables have been laid and before the boxes have been laid and connected. The removable legs, fixed by 2 screws on the side of the bracket body can be mounted on the pipe before the thermal insulation, then requesting only two straight cut on it before to screw the legs on the bracket body. The use of stainless-steel limits thermal conduction by the feet from the pipe to the box.

Main features

Material: 304 stainless steel. Can also be produced in 316 stainless steel and in zinc plated steel (MOQ apply). Pipe mounting: By metal hose clamp or by Nylon cable ties.

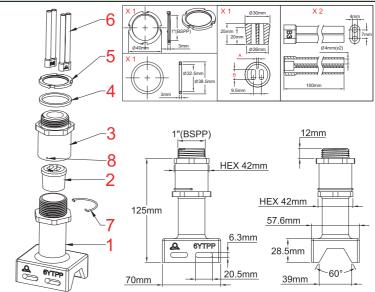
Main part numbers (In 304 stainless steel*)

Reference	Compatibility	Type of mounting on the box
6YTPTE440	Boxes of type Y50 and Y51	Snap-on
6YTPTW46	Boxes of type Y9 (Catalogue 4)	Snap-on
6YTPTE499	Boxes of type Y27, Y28, Y8	M4 screws

^{*} Economic version in galvanized steel: replace the 7th character (4) with S. Food version in stainless steel 316: replace the 7th character (4) with 6.



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1: Lower part of the foot; 2: Heating cable and temperature sensor sealing gasket; 3: Upper part of the foot; 4: Box gasket; 5: Box locking nut; 6: Bus wires insulator boot; 7: Self locking spring; 8: Self locking spring pin passage 9: Locking blind hole.

Applications

These PPS feet allow mounting of heating cable connection boxes on the pipes, keeping a space of about 120mm with the pipes, which allows thermal insulation and its protection to be installed. The foot also serves as a waterproof passage for one or two heating cables and possibly a temperature sensor cable. The tightening of the seal is selflocking to avoid prohibited unscrewing.

Main features

Boot material: PPS (Polyphenyl sulphide). This hard, semi-crystalline material has exceptional chemical resistance, good thermal stability and high resistance to fire and high temperatures.

Sealing gasket: Silicone, with many possible combinations of cable holes section. Special dimensions on request. Stripped bus wire insulation boot: Supplied in standard.

Assembly on the box: By a 32.5mm diameter hole drill. The tightening is done by a grooved nut, with locking lugs. In addition to a large part of the boxes in this catalog, these feet are also compatible with all boxes available on the market whose size allows to drill a 32.5mm hole on one of their faces.

Pipe mounting: By 2 metal hose clamps or by 2 Nylon cable ties.

Main part numbers

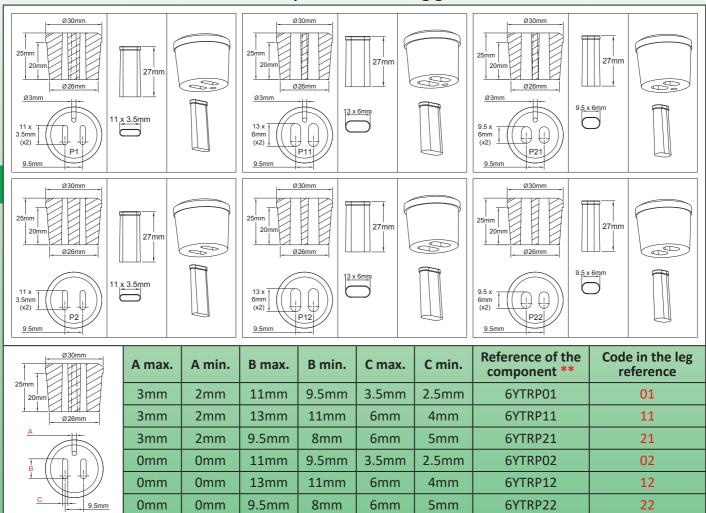
Reference	Gasket type	Compatibility with products of this catalogue*
6YTPPCP98 <mark>01</mark> B32	6YTRP01	Y29C, Y29D, Y7PB13D, Y8W-Z
6YTPPCP98 <mark>11</mark> B32	6YTRP11	Y29C, Y29D, Y7PB13D, Y8W-Z
6YTPPCP98 <mark>21</mark> B32	6YTRP21	Y29C, Y29D, Y7PB13D, Y8W-Z
6YTPPCP98 <mark>02</mark> B32	6YTRP02	Y29C, Y29D, Y7PB13D, Y8W-Z
6YTPPCP98 <mark>12</mark> B32	6YTRP12	Y29C, Y29D, Y7PB13D, Y8W-Z
6YTPPCP98 <mark>22</mark> B32	6YTRP22	Y29C, Y29D, Y7PB13D, Y8W-Z

These feet are also compatible with all boxes available on the market whose size allows to drill a 32.5mm hole on one of their faces.

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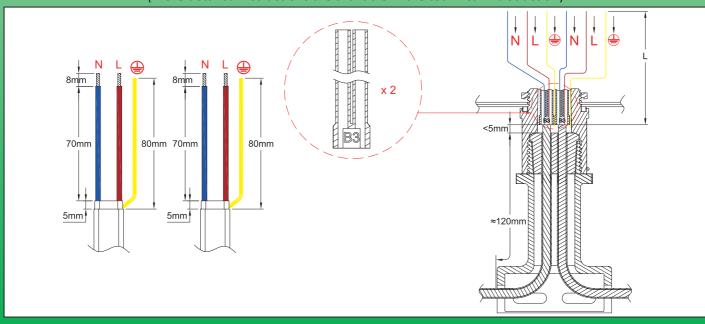
Main waterproof foot sealing gaskets *



^{*} The sealing gaskets are delivered with a plug allowing to close one of the 2 orifices for the heating cables, for cases where the foot uses only one heating cable.

Stripping dimensions of heating cables.

(More detailed instructions are available in the technical introduction)

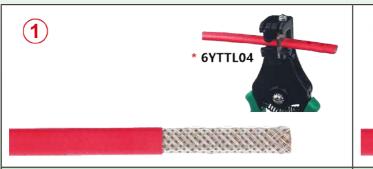


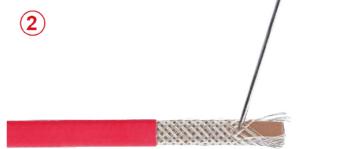
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^{**} This reference must be used to purchase the sealing gasket alone as a spare part.

2

Self-regulating cables assembly steps





1: Cut the cable, remove the external jacket on the requested length.

2: Unweave the braid on all this length with a tool with round edges or a screw driver. (For more details about this step #2, read the technical introduction).





3: Twist the braid to make a round wire.

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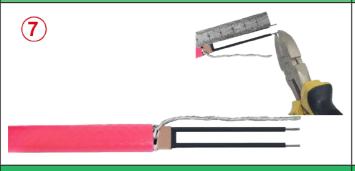
4: Remove the electric insulation sleeving on the requested length





5: Cut and remove the heating section between the two bus wires on the requested length.

6: Strip off the semiconductor plastic remaining on the bus wire ends to the requested length.





7: Cut the stripped bus wires and the ground wire to the requested length.

8: Place the foot on the heating cables and on the temperature sensor cable, bringing them out from above, then slide the gasket over the cables. The outer insulating sheath must protrude from the gasket.

* These exclusive tools are available in accessories section







9: Pour RTV silicone inside the main hole of the silicone boot.

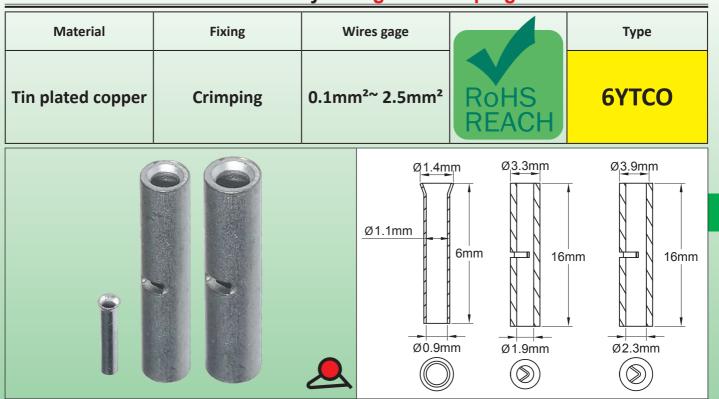
10: Slide the insulating sleeves over the conductors of the heating cables, leaving the ground conductor outside.



11: Compress the seal by screwing the upper part of the foot. When tightening is complete, a small spring comes to block the assembly (To disassemble, it is necessary to remove this small semi-circular spring). Then it is possible too install this leg throw a 32.5mm hole on the selected enclosure.

Tinned tubular copper terminals for connecting heating wire conductors and to end by hexagonal crimping.





Applications

Allows the connection of conductors of different gages, including heating wires wounded on fiberglass or aramid

The terminals must be protected by a retractable sheath if a waterproof connection sleeve with silicone filling is not used.

This technique can be used on all types of heating wires

Main features

Material: Tin plated copper

Conductors stripping length: 7±1mm

Part numbers

Wire gauge (mm²)	Internal diameter	Outside diameter	Part numbers (100 pcs box)
0.1 ~ 0.5	0.9	1.1	6YTCORC009011006
0.5 ~ 1.5	1.9	3.3	6YTCORC019033016
1.5 ~ 2.5	2.3	3.9	6YTCORC023036016

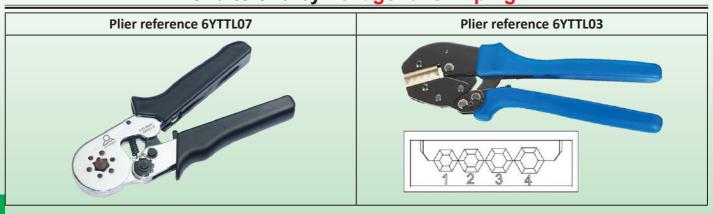
Selection of the plier and crimping cavity according to the cross-section of the conductor and the terminal model

Tubular connector	Tool	2 conductors dia 0.1 a 0.3mm twisted together	Conductor wounded on fiberglass core dia. 0.5 to 0.8mm	0.75mm ²	AWG18 (0.8mm²)	1.5mm²	AWG15 (1.65mm²)	2.5mm²
0.9 × 1.1	6YTTL07	Yes	No	No	No	No	No	No
1.9 × 3.3	6YTTL03	No	N°1	N°1	N°1	N°2	N°2	No
2.3 × 3.9	6YTTL03	No	No	No	No	N°2	N°2	N°3

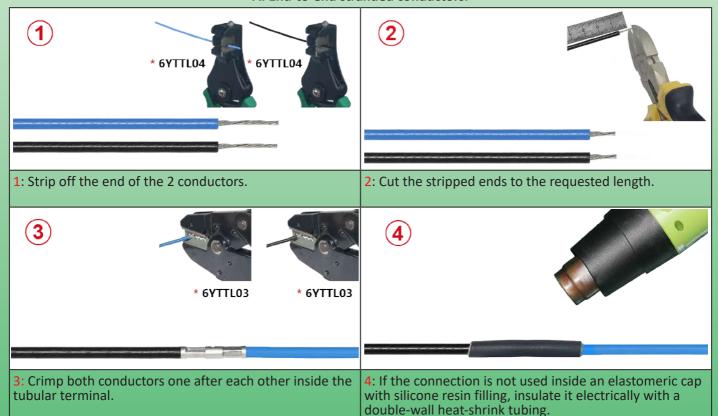
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Tinned tubular copper terminals for connecting heating wire conductors end to end by hexagonal crimping.

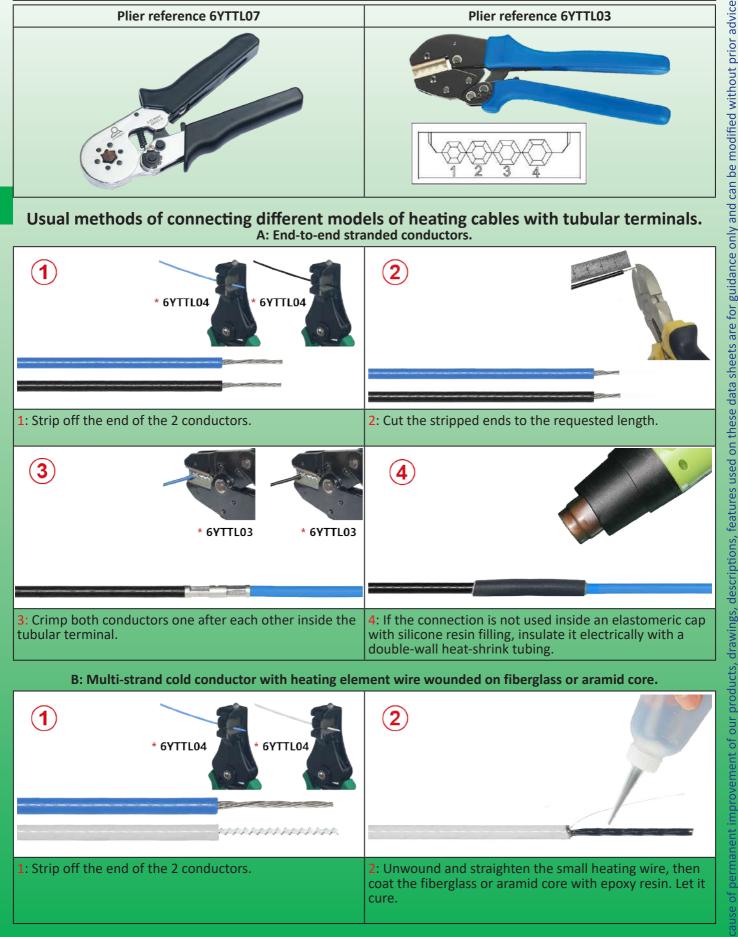




Usual methods of connecting different models of heating cables with tubular terminals. A: End-to-end stranded conductors.



B: Multi-strand cold conductor with heating element wire wounded on fiberglass or aramid core.

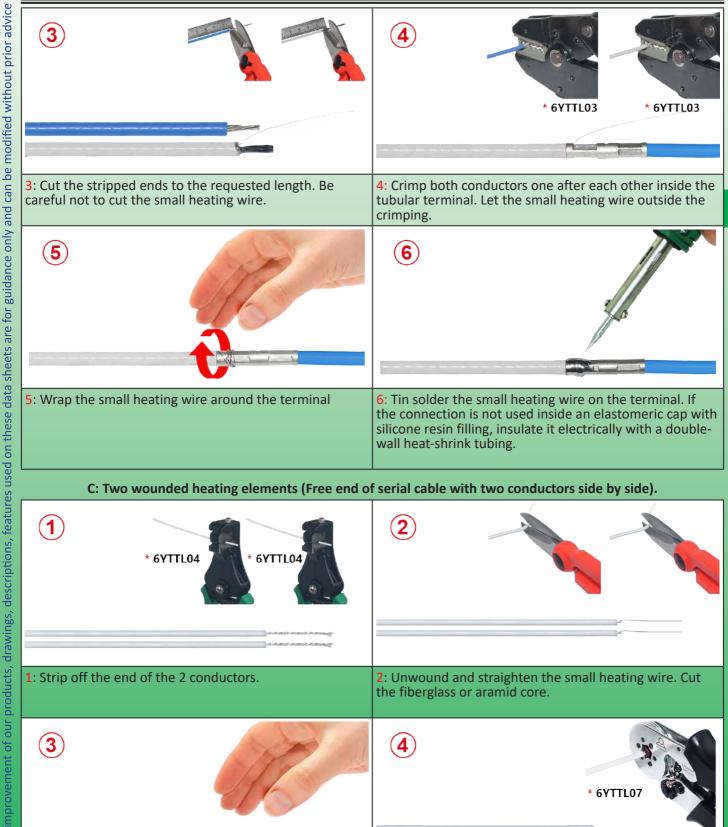


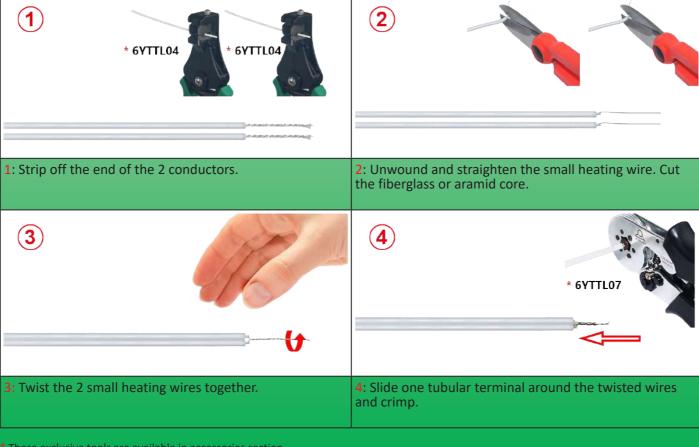
* These exclusive tools are available in accessories section

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Tinned tubular copper terminals for connecting heating wire conductors end to end by hexagonal crimping.





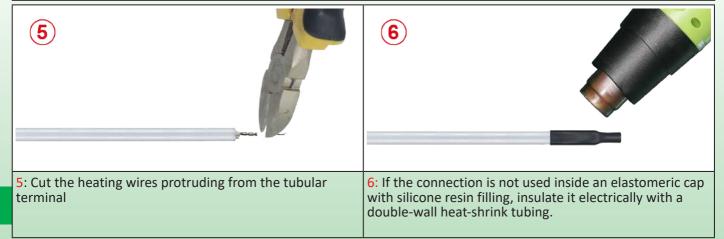


These exclusive tools are available in accessories section

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Tinned tubular copper terminals for connecting heating wire conductors end to end by hexagonal crimping.



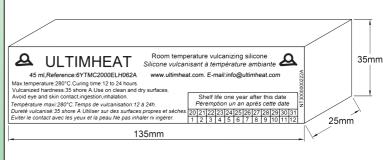


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Liquid RTV silicone for filling

2	Material	Conditioning	Temperature resistance	Vulcanizing		Туре
מונים אוניוספר בייט	Silicone	45ml tube	280°C	Room temperature	RoHS REACH	6YTMC
ζ.						





Applications

Room temperature vulcanizing silicone resin. Very smooth, fills the silicone boots well and without bubbles. Very good temperature resistance.

Main features

Color: Red
Packaging: 45 ml tube with special nozzle that directs the liquid silicone in the desired location without spilling.

Vulcanization time at room temperature: 12 to 24 hours depending on thickness.

Vulcanized hardness: 35 Shore A. Volume resistivity: 4 x10¹⁵ ohms/cm.

Attention, this value is reached after vulcanization. The product is electrically conductive when liquid.

Elongation: >150%.

Insulation breakdown voltage: 16KV/mm.

Adhesiveness: Very good adhesion on clean silicone surfaces, dry and degreased, and on the jackets of heating cables

and metallic braids.

Storage: Keep in a cool and dry place (15-25°C, HR< 55%). Shelf life 12 months in unopened tube.

Packing: Tube and nozzle under carton with expiration date.

Part number

6YTMC2000ELH062A

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Section 10 Special tools

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Special tools

- Preparing the ends of heating cables and in particular cables with metallic braid and self-regulating cables can be tedious and often unfortunate and expensive. We have developed a range of hand tools to save time and achieve a professional and safe result.
- These tools are made in our factory, generally from mechanical bodies existing on the market.

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Hexagonal crimping plier for small size wires.



Use	Use Wire gauge		Туре	
Workshop or field	0.5mm ² ~2.5mm (AWG22~AWG14		6YTTL03	
		© <u>A</u> 6YTTL	230mm	
410				
Case		Crimping ex	xample on 1mm² wires	

Applications

Manual pliers with hexagonal crimping for tubular butt connectors. These pliers are used to connect a heating cable end to end to a power cable or two heating cables together. It allows quick and economical connection of conductors of equal or different dimensions.

The dimensions of the jaws have been specially studied for applications in heating cables on **small diameter** conductors.

Main features

Allows crimping of non-insulated butt connectors according to DIN.

- Constant crimp size thanks to the ratchet system.
- The force is amplified thanks to the reduction mechanism.
- Easy cable exit thanks to the ratchet unlocking system
- Low weight (500 grs).

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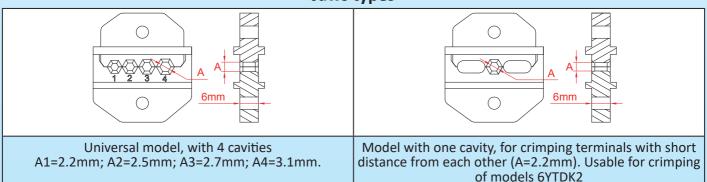
Because of permanent improvement of our products,

- Compatible butt connectors: Diameter 3.3 and 3.9 according to DIN 46267 Part 1
- Shipped inside a professional case, with 2 sets of jaws

Part number

6YTTL03

Jaws types



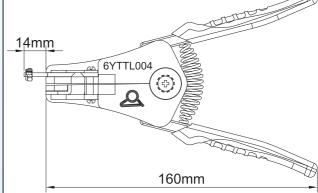
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Exclusive stripping

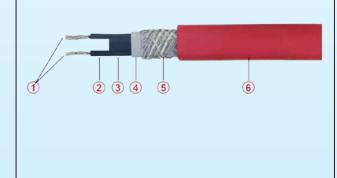
ng pliers for heat tracing cables with dedicated cutting blades according to all cable dimensions.	2
	(I)

Use	Wire gauge	Cables styles		Туре
Workshop or field	0.5mm ² ~2.5mm ² (AWG22~AWG14)	Round of oblongs	RoHS REACH	6YTTL04





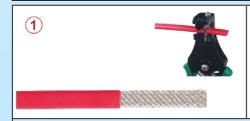


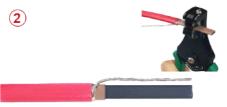


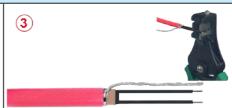
Case with all sets of stripping jaws

Common composition of a self-regulating cable

- 1: Metal conductors, from 1 to 2mm²
- 2: Conductors still covered with semiconductor compound (the one whose stripping is the most difficult)
 - 3: Heating semiconductor area
- 4: Electrical insulation jacket of the heating zone
 - 5: Metal braid or ribbon + earth conductor
 - 6: Outer protection jacket







Possible operations with this tool:

- 1: Remove the outer jacket
- 2: Remove the electrical insulating jacket

3: Strip the bus wires

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Exclusive stripping pliers for heat tracing cables with dedicated cutting blades according to all cable dimensions.



Special stripping pliers particularly suitable for oblong heating cables with two conductors.

The stripping and stripping of these oblong conductors is a long and difficult operation, causing a lot of waste. We have specially developed these tools in order to reduce waste and considerably reduce installation times.

Main features

There are a whole series of models in various sizes of heating cables. These cables can have up to 4 different layers made of several materials. For more information, see the technical introduction to this catalog which describes them. These layers can be made of different materials, more or less flexible, the most rigid and difficult to remove being that of carbon filled polyethylene core used in the low and medium temperature self-regulating cables.

Jaws: They exist in two configurations.

- Bus wire stripping jaws. They are differentiated by the spacing of the conductors and their diameter. In the case of self-regulating cables with carbon filled polyethylene, we recommend stripping the wires one by one. Softening the polyethylene core with a lighter or heat gun may be necessary in some cases.
- Protective jackets removal jaws: They are defined by the external dimension of the cable after jacket removal. These jaws have a cutting depth adjustment to avoid to cut the braid

Production of special clamps: Possible on request, send us cable samples

Each plier is shipped in a plastic professional case with a set of 6 jaws described below. Selected jaws numbers must be provided with order

Part number

6YTTL04

Jaws spare parts numbers

Jaws for bus wires stripping

Size	Bus wires distance	Wires diameter	Gauge	Marking	Part numbers
A1 3.8mm Ø1.5mm 7mm		1 to 1.5mm	0.5 to 1.5mm²	A1	6YTTL04A1
A2 Ø1.9mm 3.8mm 7mm	2.5 3.8 5 7	1.5 to 1.9mm	2 to 2.5mm²	A2	6YTTL04A2
A3 Ø2.3mm 3.8mm 7mm		1.9 to 2.3mm	2.5 to 4mm²	АЗ	6YTTL04A3

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Jaws for oblong cables outer and inner jackets removal

Size	Cable outside dimension after jacket removal	Marking	Part numbers	Size	Cable outside dimension after jacket removal	Marking	Part numbers
15mm 15mm R2.5mm	5×10mm	B1	6YTTL04B1	15mm 15mm R0.9mm	1.8 × 9.8mm	В7	6YTTL04B7
B2 2.1mm R1.1mm	2.1 × 7mm	B2	6YTTL04B2	15mm 15mm 12.7mm	7.2 × 12.7mm	B8	6YTTL04B8
B3 R2.75mm	5.5 × 10.5mm	В3	6YTTL04B3	15mm 15mm 89 3.7mm R2mm	3.7 × 9.3mm	В9	6YTTL04B9
15mm B4 2.2mm	2.2 × 7.5mm	B4	6YTTL04B4	15mm B10 7.7mm	7.7 × 12.7mm	B10	6YTTL04B10
85 6.8mm R3.4mm	6.8 × 10.5mm	B5	6YTTL04B5	15mm 15mm 811 4.2mm R2mm	4.2 × 9.3mm	B11	6YTTL04B11
B6 R2.5mm	5 × 12mm	В6	6YTTL04B6				

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Guillotine notching plier for cutting the heating zone between the conductors of oblong self-regulating cables



Use	Notch width	Cables styles		Туре
Workshop or field	1.5mm 2mm 3.3mm	Oblongs, self-regulatin	ROHS REACH	6YTTL05
	6YTTLD5 Q	1.5mm 5mm 4.5mm	3.3mm 5mm 4.5mm	2mm
		6YTTL05A	6YTTL05B	6YTTL05C
		1 2 3 4 5	2 3 4 5	6
Types of cuts that can be made 1: Short section of the heating zone for use in conventional connection boxes. 2: Long section of the heating zone for connection for use in the tube mounting feet. 3: Short section of the heating zone for connection in boxes with insulation piercing system to respect the 5mm distance between bus wires 4: Half-width section of the heating zone for connection in boxes with insulation piercing system to respect the 5mm distance between bus wires. 5: Half-width section with insulation for termination on free end of the			Common composition of 1: Metal conductors 2: Conductors still covere compound (the one who difficu 3: Heating semice 4: Electrical insulation jack 5: Metal braid or ribbo 6: Outer prote	, from 1 to 2mm ² . Id with semiconductor se stripping is the most alt). In onductor area. Set of the heating zone. In + earth conductor.

Applications

We **specially developed this guillotine hand shear** to solve two specific problems with low and medium temperature self-regulating cables:

- The difficulty of cutting the carbon filled polyethylene heating zone between the 2 bus wires.

cable without silicone gel filling or without RTV filling.

- The obligation to maintain a mandatory insulation distance between the bus wires of these heating cables when they are connected to a terminal block or to one cable end seal. This minimum insulation distance depends on the use of the cable: in an industrial environment in a non-explosive atmosphere, this distance can range from 2 to 3.6mm depending on the materials. In an industrial environment and explosive atmosphere, using a type EX "e" connection, this minimal distance is 5mm. (See standards EN60079-7 and EN60947).

This tool allows to cut easily the polyethylene matrix to respect these distances in all cases.

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Main features

According to the different models of the different manufacturers of self-regulating heating cables, the distance between the bus wires is highly variable, ranging from 1.5 to 4.2mm.

Jaws:

Notch length: 5mm for each manual cutting operation.

Notch width: They exist in three configurations, allowing to cover the different spacings between existing between bus wires.

- Cables with distance between bus wires from 1.5 to 2mm.
- Cables with distance between bus wires from 2 to 3.3mm.
- Cables with distance between bus wires from 3.3 to 4.2mm.

This last model also allows cutting cables and conductors according to type 4 and 5 cuts.

Production of special pliers: Possible on request, send us cable samples.

Each guillotine notching plier is delivered in a professional box with a set of cable dimension guides

Part numbers

6YT	TL05A	Guillotine notching plier for cables with distance between bus wires from 1.5 to 2mm.
6YT	TTL05B	Guillotine notching plier for cables with distance between bus wires from 2 to 3.3mm.
6ҮТ	TTL05C	Guillotine notching plier for cables with distance between bus wires from 2 to 3.3mm and types 4 and 5 cuts.
6YT	TL05D	Set of 3 guillotine notching pliers with the 3 sets of jaws.



Tool case





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