



# Standard Heating Product Catalogue



**THERMOCOAX**  
*from vision to reality*

# THERMOCOAX

*from vision to reality*



## A Solutions Company

THERMOCOAX is the worldwide leading company of Mineral Insulated Cable Technology for more than 55 years.

- Over 50 countries are covered by THERMOCOAX products,
- More than 500km of mineral insulated cables are produced annually in our own cable manufacturing workshop,
- 100 000 thermocouples, 15 000 heating elements are delivered each year to high-tech industries,
- 30 km of signal transmission cables are destined each year to nuclear plants worldwide.

## The customer at the heart of our business

THERMOCOAX has always put the customer at the core of its activities.

In order to meet the most specific requirements, THERMOCOAX has specialised in an organization by market segments (Nuclear Energy, Aeronautic / Defense / Space, Semiconductors / Electronic, Petrochemical / Medical / Analytical, Gas turbines, Industries...). THERMOCOAX has supplied customized solutions specifically designed to meet any technological and financial customer requirements.

## The Market Demands – We Supply

With more than 55 years of experience, THERMOCOAX has acquired great knowledge to lead innovating projects in order to provide to its customers a ready-to-use custom solution.

[www.thermocoax.com](http://www.thermocoax.com)



Isopad

## Standard Product Range

Under the Isopad brand, THERMOCOAX specialises in the design and manufacture of electric heating solutions from frost protection to heat management systems upto 1000°C. Isopad design engineers have access to the world's most comprehensive range of heating products from self-regulating, constant wattage or mineral insulated heating cables and tapes to silicone heaters, heating jackets, heated hoses, radiant heaters and drum heaters.

THERMOCOAX has continuously developed innovative new products to meet the ever-increasing industry needs. Today, the Isopad brand is recognised as the undisputed leader in unique electrical heating solutions for Industrial, Photovoltaic, Packaging, Telecommunications and Food Service applications.

With over 50 years industrial experience solutions can be identified from within the range of standard products or fully engineered to meet any custom requirement.

From a single heating problem to a full scale design review and volume production in partnership with the original equipment manufacturer, Isopad offers the solution. **We also have a number of controllers and accessories to complete the range.**

## Customised Heating from the Experts

Isopad specialise in providing electric heating products which are often beyond the capabilities of most electrical heating providers and has an ethos of total customer satisfaction in providing much more than a product: a high quality solution to heating problems surpassed by none in the industry.

For custom heaters, the process typically begins with a questionnaire to capture as much information as possible to ensure the right heater is chosen for the specific needs of the client. The next stage involves a design review by a dedicated engineer before a quotation and detailed specification is issued for review. For customised heaters the post-order stage begins with the preparation of a detailed drawing for approval before manufacture begins. This ensures the supplied heater exactly meets the client's needs and offers the level of detail not always possible in a specification overview.

Isopad provide heating solutions into most industries imaginable from pharmaceutical to packaging companies, from perfume manufacturers to gas analyser providers. Orders are accepted from one off to full scale production, supporting every phase of design and product development from prototyping to production.

**Isopad has the product and the experience to solve your heating problem.**



## Heating Cables and Tapes

*Heating cables and tapes are one of the most versatile product lines in the Isopad range. Available in a vast array of technologies, the Isopad range is surpassed by none.*

*Isopad offers a variety of heating tapes and cables to give fast and efficient direct contact heating. They are suitable for a wide range of applications from simple frost or condensation protection through to process requirements up to 1000°C.*

*Where space is tight, heating tapes are the perfect solution, allowing high temperatures to be reached quickly and maintained on pipelines, containers and other irregular shapes. In addition pre-terminated tapes are available in a variety of popular lengths, ready to install and easy to use requiring no special skills or tools.*

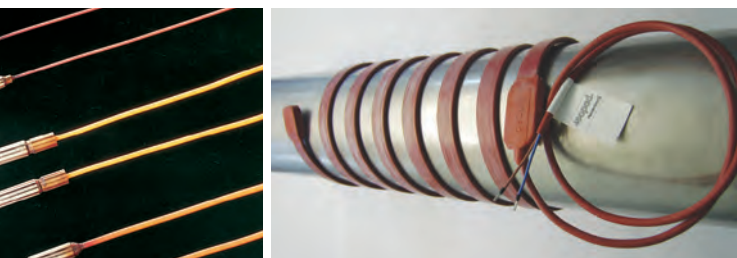


## Technology


### Constant wattage tapes

These flexible and rugged tapes are constructed from parallel resistive cores insulated with various materials from silicone to quartz glass. Strict manufacturing tolerances ensure these heaters have a uniform element resistance, and due to the relationship between current, resistance and power, they deliver a constant, predetermined power density along the entire length.

## Heating Cables and Tapes



### Mineral insulated heating cables

Mineral insulated (MI) heating cables and units are rugged, long lasting and suitable for extreme conditions for example, to 1000°C for very low vacuum/high pressure (or 600°C for  applications). They are constructed from a metallic tube and a conductor which is supported and insulated from the tube with an inorganic insulating powder, magnesium oxide. The conductor is usually Nichrome 80/20 although other materials such as copper and ferric can also be supplied for specific applications. The most common sheath materials are 321 stainless steel and Inconel 600, copper and cupronickel are also available.

Various methods can be employed to connect the MI heating element to the cold lead cable such as brazing or silver solder, however, no method offers the same temperature rating or proven longevity as that of the laser-welded cold lead joint developed and employed by Isopad. A significant improvement on previous jointing techniques, this laser welding provides a totally mechanically secure joint. As the welding is done at lower temperatures, heat stresses to the sheath material and the danger of the main failure mechanism of moisture ingress is avoided.

# Applications

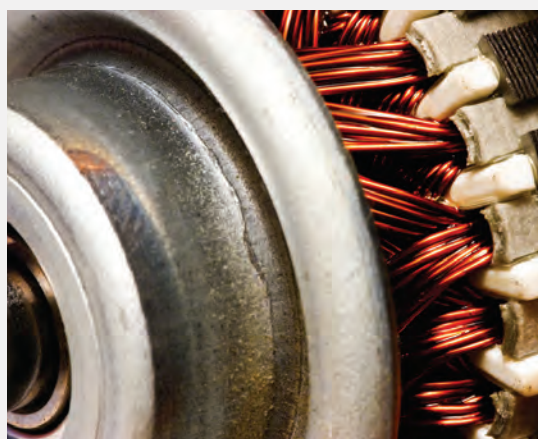
Due to the versatile nature and broad range of applications for Isopad heating cables and tapes it's impossible to list all of the industries serviced, the following are just a few.

## Food processing



Cables and tapes are used in a variety of ways in the food industry: for keeping freezer doors and drain lines frost free, heating conveyor systems, creating anti-stick surfaces, heat for sealing applications including lids on pre-packed foods and sealing plastic bags.

## Condensation protection for motors

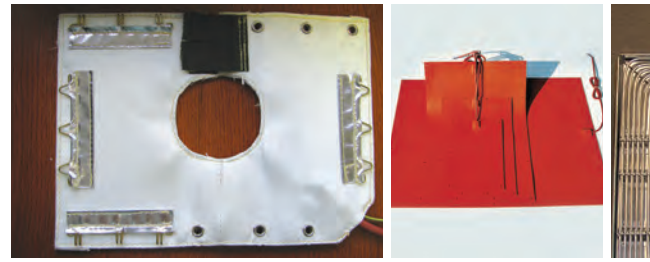


Isopad anti-condensation motor (ACM) heaters have been specifically designed in conjunction with major motor manufacturers to prevent condensation in motor windings which would otherwise lead to sudden or premature failure of the equipment; they are installed around the stator and are popular with manufacturers and motor rewind companies alike.



## Heating Panels

*Isopad heating panels are suitable for applications where uniform surface heating is required to maintain or increase the temperature of machine parts or equipment. Available in a variety of materials, sizes and fixing methods there is a panel in the Isopad range for almost all requirements.*



## Technology

### **Silicone heating panel (200°C)**

Isopad silicone panels are fully waterproof and suitable for applications up to 200°C. Formed by encapsulating a resistive heating element between two layers of semi vulcanised silicone rubber and then sealed under temperature and an even pressure to form a single vulcanised silicone sheet.

Uniform heat density is achieved using decades of experience at the design stage and the heating element is precisely laid using a numerically controlled 2 axis positioning system.

Isopad silicone panels use no adhesive and as they are essentially a single piece of silicone and there is no seam which is a common failure mechanism in panels manufactured using lower quality methods.

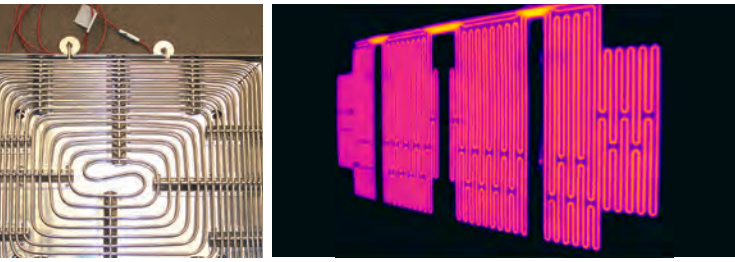
Isopad silicone panels provide good resistance to ozone, oxygen, weathering, ageing effects, bacterial and fungal attacks. They are also highly resistant to various chemicals such as alcohol, acetylene, mineral oil, acids, glucose, and glues. Isopad silicone heating panels can also be toughened with glass cloth when improved mechanical strength is required.

### **Glass silk heating panel (450°C)**

A highly flexible and versatile panel suitable for applications up to 450°C and produced by encapsulating a resistive heating element in glass silk. Isopad offer this product with several fixing methods from hooks and eyes, to lace, to Velcro depending on the client's specific needs.

### **Quartz cloth heating panel (900°C)**

Identical to the glass silk heating panel from a construction perspective the maximum operation temperature is increased from 450°C to 900°C by changing the insulation material to quartz cloth.



## Metal cased heating panel (1000°C)

At the core of an Isopad metal cased heating panel lies an MI heating cable which results in an inherently robust product. The MI element is precisely formed to achieve a uniform heat density and fixed to a metallic plate for use as a radiant or contact heater.

Isopad metal cased heating panels are ideally suited for use in high vacuum applications where it is essential to address the potential failure mechanisms at the design stage, for example

- Minimum number of vacuum feed-throughs
  - THERMOCOAX has access to the longest lengths of mineral insulated cable in the industry and therefore a minimum number of feed-throughs and cold-lead joints is possible
- High temperature, reliable cold-lead joints
  - Isopad cold-lead joints are laser welded which, not only increases the operation temperature compared to brazed joints, but also greatly improves the reliability of the joint
- Avoid introducing possible sources of volatile contamination
  - The all-metal construction is very suitable for use in high vacuum equipment as it prevents contamination from volatiles. Vacuum feed-throughs and sensors are supplied as part of the assembly to remove the risk of contamination prior to installation.

## Radiant heaters

Where heat transfer through physical contact is not possible or desirable, an Isopad radiant heater is the ideal solution. It combines the uniform heat density and robust properties of a mineral insulated heating cable with a highly polished, support plate. Directed heat with a withstand temperature up to 1000°C is possible and panels can be manufactured up to 5 square meters.

## Platen heaters

Isopad platen heaters are produced by mounting a mineral insulated cable within an aluminium plate which has been machined to exacting tolerances and controls. Typically weighing up to 500 kilos and measuring up to 5 square meters Isopad supply some of the largest heating platens in the industry. *Ask us for our dedicated Solar Brochure.*

# Applications

## Fluid storage and transportation

Transportation of chemicals, fuels, adhesives, paints, foodstuffs and beverages via road tankers and in Intermediate Bulk Containers (IBCs) is commonplace but it presents several issues which can make it difficult or even impossible, the two main issues are :

- Temperature maintenance to prevent spoiling
- Temperature heat-up to reduce viscosity and ease/allow removal

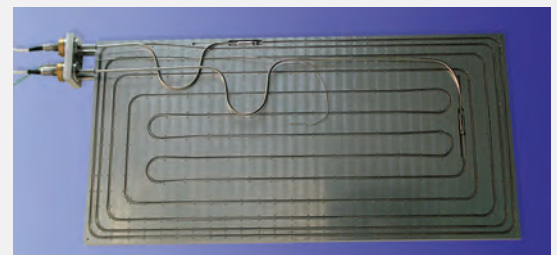
Isopad provide a complete range of IBC heating panels from silicone to metal cased which solve these problems. Popular with transportation companies and end users alike they not only improve efficiency but they also provide an additional revenue stream buy adding value to existing product lines.

## Food industry

In high throughput industries downtime can have a significant impact on productivity and cost. Isopad heating panels have been extensively used to improve the flow characteristics of ingredients and finished product within the food industry by applying gentle, controlled heat to the underside of hoppers, shoots and flues, reducing the need for full product line shut down to allow cleaning, in some instances removing it entirely.

## Thin film deposition

Isopad radiant heating plates and heating platens have been widely adopted within the thin film deposition industry, for example silicon deposition in PECVD processes used to manufacture thin film solar panels.



Constant and uniform heat density, integral sensors, minimum feed-throughs and stringent quality controls make the Isopad heating platen the preferred option by many, favouring it over other technologies. The large size possible with Isopad platens has facilitated the manufacture of some of the largest solar panels currently available.



## Heating Jackets

*Isopad heating jackets provide a convenient solution blending the versatility of a heating panel with the convenience of integral insulation. A heating panel excels when it is required to heat a flat surface, where a jacket is the product of choice when a uniform heat source is required to a surface in more than 2 planes, for example pipes, filter housings, valves and tees.*

*A distinct advantage is maintenance down-time; it is significantly quicker to remove a jacket with integral insulation than it is with other heating methods such as a heating tape with sensor, lagging and securing tape.*

*Isopad heating jackets can be manufactured to almost any shape, temperature range and operational consideration.*



## Technology

### **Silicone jackets (200°C)**

Isopad silicone jackets are fully waterproof and suitable for applications up to 200°C. At the core lies an Isopad silicone panel, insulated with silicone foam and fully encapsulated in silicone rubber.

There is often no need for mechanical fixing as the Isopad silicone jacket is flexible enough to open and position on to the product to be heated but rigid enough to hold itself in position.

Uniform heat density is achieved using decades of experience at the design stage and then the heating element is laid using a numerically controlled 2 axis positioning system.

Isopad silicone jackets provide good resistance to ozone, oxygen, weathering, ageing effects, bacterial and fungal attacks. They are also highly resistant to various chemicals such as alcohol, acetylene, mineral oil, acids, glucose and glues. Isopad silicone heating panels can also be toughened with glass cloth when improved mechanical strength is required.



## Heating Jackets



### Glass silk heating jacket (450°C)

A highly flexible, versatile jacket suitable for applications up to 450°C and produced by encapsulating a resistive heating element within a glass silk outer. Isopad offer this product with several fixing methods from hooks and eyes, to lace, to Velcro depending on the client's specific needs.

### Quartz cloth heating jacket (900°C)

Identical to the Glass silk heating jacket from a construction perspective the maximum operation temperature is increased from 450°C to 900°C by changing the insulation material to quartz cloth.

### Metal cased heating jacket (1000°C)

Isopad heating jackets can be designed utilising any of the heating cables and tapes within the Isopad range in order to form a robust and protected product. Available with ATEX approval, the Isopad metal cased heating jacket has provided a versatile solution where no other jacket is suitable.

# Applications

## Frost protection heaters

In 2010 it cost the UK an estimated £27m to rectify the damage caused by frozen pipes, in addition water supply, drainage and soil systems became inoperable for extended periods. Isopad heating jackets have been used to ensure key supply and waste services operate consistently in sub zero conditions, for example the jackets in the above image were designed for the soil system of a temporary toilet facility set-up by the military ensuring toilets remained operational in extreme conditions.



## Heating complex shapes



Isopad have designed and supplied countless heating jackets for complex shapes which not only ensures an even heat density but also reduces expensive site time at both installation and maintenance stages.

## Heaters for filtration systems

Heating filter housings aids filtration, separation and purification by eliminating condensation and residual water, reducing liquid viscosity and maintaining the temperature of the medium slightly above the dew point to prolong the life of the cartridge.



Heat promotes the flow of fluids through the filter cartridge, this reduces the load on the pumps and filters and results in longer maintenance intervals. By maintaining the medium at a constant working temperature, with no hot spots, there is no degradation or crystallisation of the liquid being filtered. Isopad filter heater jackets are permanently moulded to shape with integral insulating silicone foam, there is no need for straps or bolts to hold it to the filter housing, which reduces maintenance time.

## Heaters for intermediate bulk containers



Designed for caged, plastic, or metal tote tanks / IBCs, the wrap-around blanket design evenly heats a tote tank externally, helping to maintain a constant temperature.



## Heated Hoses

*Many products are heated in containers or processes to improve their flow characteristics or homogeneity. Moving these materials between processes or from storage vessels can be problematic as rigid pipe work combined with cumbersome heating methods can be undesirable at best and is often impossible. Isopad heated hoses solve these issues by seamlessly blending industry standard hoses and fittings with world leading heating technology into a flexible hose with integral heater and sensor.*

*Isopad hoses are designed and manufactured to optimise heat uniformity and control characteristics using an integrated temperature sensor and evenly distributed resistive heating element. Decades of engineering experience ensure the hose will maintain the medium being transferred at an even, pre-set temperature, avoiding hot spots or changes in viscosity, eliminating condensation, degradation and crystallisation.*

*The flexible properties of the heated hose eliminate many problems with alignment and machine vibration.*



## Technology

**Inner hose** is in direct contact with the liquid or gas. Standard hoses are high-quality polytetrafluoroethylene (PTFE) which exhibit many characteristics that make it the ideal choice from a very low coefficient of friction to a high chemical resistance and a temperature range of -70°C to 250°C. Other materials can be used to manufacture hoses for specific applications.

**Stainless steel braiding** is required for high pressure use. The PTFE inner hose is provided with a stainless steel braiding. Up to 3 layers of braiding can be applied to increase the operational pressure up to 500 bar @ 24°C (6 mm diameter inner).

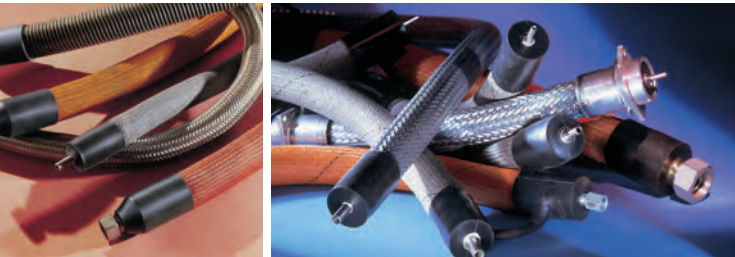
**Heating element** is precisely wound around the hose at a constant predetermined pitch to ensure accurate and uniform heat density.

**Temperature sensor** ensures accurate system control. Isopad heated hoses have an integral sensor, several types are available e.g. Pt100 resistance temperature device, type K thermocouple, type N thermocouple.

**Fleece** ensures the heating element and sensor pitch remains unchanged during the repeated manipulations the hose will endure during operation.

# Applications

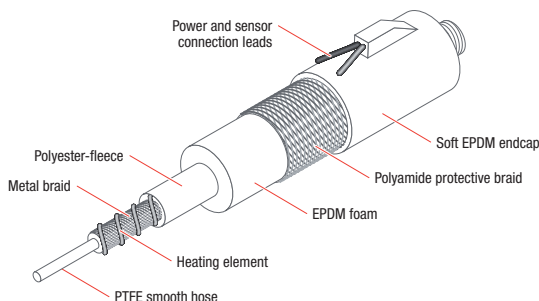
## Heated Hoses



**Insulation** material and thickness is calculated to minimise heat loss and ensure the maintain temperature specified by the client is achieved.

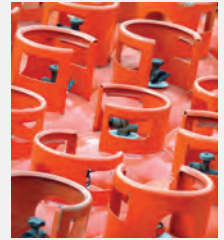
**Braiding** is not only aesthetically pleasing but it's also designed to ensure the insulation material remains undamaged and firmly held in place as well as meeting the static and dynamic bend requirements of the client.

**End cap** with cable entry has dual use, firstly to ensure the hose remains intact during operation and secondly it provides a secure and convenient location for both the power and sensor connection cables.



## Gas analysers

When analysing gas it is critical that the composition of the gas is unchanged between the gas sample point and the gas analyser itself, none of the constituent parts can change phase or the analysis will be inaccurate.



Isopad heated hoses have been extensively used in this field to maintain the temperature and prevent external contamination thus ensuring an accurate analysis, for example, exhaust gas analysing equipment used by leading car manufacturers.

## Automotive / robotic industry

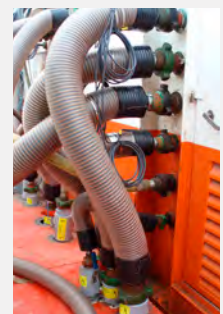


The automotive industry has been revolutionised by robotics but new challenges had to be overcome, for example, many car windcreens are secured using a "hot" adhesive applied using an articulated robotic arm, the glue must be maintained within a specific temperature range for optimised adhesion which is simply not possible using fixed pipe work or an unheated system.

Isopad, in partnership with a leading robotics company, designed a heated hose that could withstand the rigours of the automotive industry, this was particularly challenging due to the degree of articulation and the number of repetitions required by the client.

## Oil pumping

Oil transportation has become difficult as more and more heavy oil is extracted, there is currently more than twice the reserves of heavy oil than there are conventional oil. To meet the demands of this challenging industry Isopad design heavy duty heated hoses specifically to reduce the viscosity of oil to allow it to be pumped between containers and transporters.



Isopad hoses are also used with light oil in areas with severe winter conditions, the cold temperatures increase the viscosity of the light oil making it very difficult to pump unless heated.



isopad

## Drum Heaters

*Isopad offers a range of drum and base heaters that provide a reliable way to reduce viscosity, protect stored product from frost and enable product removal. Available in both nonhazardous and hazardous area versions with reliable temperature control, Isopad drum heaters offer the ideal heating solutions for viscous products stored in drums, for example: adhesives, asphalt, waxes/paraffin, chemicals, chocolate dyes and varnishes. Three types of drum heaters are available a metal drum heater, a soft jacket drum heater and a silicone drum heating band.*



## Technology

### Metal drum heater design

Isopad drum heaters have a unique "clam shell" design and castors, heaters can simply be wheeled up to and closed around the drum, eliminating overhead lifting. The clam shell design allows the heater to be stored open, against a wall taking up less space. Castors are antistatic and have parking brakes to prevent heater movement whilst in use.

Supplied as a complete unit with integral insulation and lid the Isopad drum heater is very efficient with the added benefit of allowing the drum to be heated at or close to where the product is needed.

Manufactured in heavy gauge sheet steel with a double skin construction housing, the electric heating elements cover the entire inner surface. The heating elements are provided with reinforced thermal insulation to prevent heat loss through the outer wall. Inner walls are painted with a thermally conductive paint to give maximum heat transfer.

# Applications

## Drum Heaters



### Compatible drum materials

Isopad drum heaters can be used with ferrous and plastic drums as heat is provided via an electric heating element as opposed to induction heating.

### Energy efficient

Isopad drum heaters are designed to reduce energy consumption through a combination of thermal insulation and temperature control. The drum heater is the entire length of the drum and the surface is in close proximity to the drum itself which minimises the power required to heat the product, particularly in comparison to drum ovens or shorter drum heaters.

### Heating in hazardous areas

Isopad drum heaters are available with IECEx and ATEX system approval. Drum and base drum heaters for hazardous areas are equipped with a self-regulating heating system negating the need for a separate temperature limiting device.

### Soft jacket drum heater

Isopad soft jacket drum heaters are designed to wrap around a drum and combine the convenience of quick heat-up time and the precision of a digital controller. Fixed with a hook and loop Velcro fastening and insulated with glass silk cloth, these heaters can heat up to 232°C.

### Silicone drum heating band

Silicone band heaters consist of a resistance heating cable and silicone carrier. There are two versions available, one with an internal Pt100 sensor and temperature limiter to 180°C and the other with a built-in adjustable thermostat with a control range of 10°C to 218°C.

## Food production



Many products such as glucose, chocolate, molasses, syrup and honey are transported and stored in drums, yet the ambient temperature viscosity means they are very difficult or impossible to remove from the drum effectively. Isopad drum heaters are employed extensively in these industries to provide an efficient, safe method to heat the drum and the product sufficiently to remove it from the drum.

## Petroleum industries



Heavy oil and high wax content petroleum are notoriously difficult to remove from transportation drums due to their high viscosity, this is compounded by the difficulties associated with the direct application of heat within hazardous areas. Isopad ATEX / IECEx drum heaters offer the ideal solution solving both major issues by safely improving the flow characteristics.



## Gas Bottle Heaters

*Isopad gas bottle heaters have been designed specifically to solve the issues associated with gas usage in cold climates i.e. gas separation, gas liquefaction and reduced capacity. There are two versions available, a heavy duty metal version which is based on the same technology as our metal drum heater and is suitable for use in hazardous areas and a soft lag gas bottle heater.*



## Technology

### **Metal gas bottle heater Physical design**

Isopad gas bottle heaters have a unique “clam shell” design and castors, heaters can simply be wheeled up to and closed around the gas bottle, eliminating overhead lifting. The clam shell design allows the heater to be stored open, against a wall taking up less space. Castors are antistatic and have parking brakes to prevent heater movement while in use.

Manufactured in heavy gauge sheet steel with a double skin construction housing the electric heating elements that cover the entire inner surface. The heating elements are provided with reinforced thermal insulation to prevent heat loss through the outer wall. Inner walls are painted with a thermally conductive paint to give maximum heat transfer.

# Applications

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## Gas bottle heaters in a power station



Compressed gas is used during the commissioning and start-up phases of gas turbines, it's critical that a reliable and constant gas supply is available. ISOPAD Hazardous area gas bottle heaters were recently used to guarantee the bottled gas supply met the client's requirements during the start-up ignition sequence at a new plant in Yemen.

## Reduced gas cost

In cold climates, the volumetric output from a gas bottle reduces as the material in the bottle becomes / remains in a liquid state, for example, several Isopad customers were questioned by their gas supplier when they returned gas bottles which still contained useable material, the issue was the gas wasn't useable at the cold site owned by the customer and, in fact, the customer thought the bottles were empty. The solution was an Isopad gas bottle heater which allowed the client to use all of the material purchased thus reducing gas cost as well as delivery charges.

## Gas Bottle Heaters



## Heating in hazardous areas

Isopad gas bottle heaters carry IECEx and ATEX system approval. Hazardous area approved designs are equipped with a self-regulating heating system negating the need for a separate temperature limiting device.

## Soft lag gas bottle heater

Isopad soft jacket gas bottle heaters are available in different gas cylinder sizes with a 240 V power supply. Fixed with a hook and loop Velcro fastening and insulated with glass silk cloth, these heaters feature a grounded heating element.





1 HEATING CABLES AND TAPES

2 GAS BOTTLE HEATERS

3 DRUM HEATERS

4 HEATING PANELS

5 HEATING JACKETS

6 HEATED HOSES

**isopad** IT-ITW/SS **D100 OATO 011A**

**PTFE insulated heating tape**

isopad IT-ITW/SS preterminal resistance heating tape is specially designed for application in temperatures up to 200°C. The temperature depends on the power and usage. Please make sure that the heating tape does not exceed the maximum withstand temperature.

These highly flexible tapes can be easily coiled around pipelines and valves, supports, pumps, flanges, filters, gauges, or other devices of irregular shape. The resistance element forms a closed heating circuit with connection joints only at one tape end.

**Area Specifications**

Area classification	Nonhazardous, ordinary area
Ingress protection	IP64
Electrical protection class	Class I
Maximum withstand temperature (power off)	250°C

**Standard Manufacturing Sizes**

Width	7 mm ±10%
Thickness	3 mm ±10%

**Heater Construction**

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE / glass-alkali
Material of outer sheath	Stainless steel braid

**Lead Connection**

Connection dimension (L x W x H)	80 x 30 x 15 mm
Connection length	1.5 m
Cross-section	3 x 1.5 mm
Maximum operating temperature	150°C
Insulation material	Silicone

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Power per meter	Approximately 35 W/m
Maximum operating temperature	250°C

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D100  
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011A

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Datasheets >>>

DATA

# Standard Product Datasheet Index

		Temperature °C																			
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
<b>HEATING CABLES AND TAPES</b>																					
IT-CCH	Crankcase heating cable	120																			
IT-ACM	Anti-condensation heating tape	155																			
IT-GW27	Silicone constant wattage heating tape	200																			
IT-SIS10	Silicone insulated heating tape	200																			
IT-KDL	Silicone heating cable	220																			
IS-KTeS	PTFE insulated heating cable	260																			
IT-TeMS	PTFE insulated heating tape	260																			
IT-ITW-SS	PTFE insulated heating tape	260																			
IT-ITW-SSM	PTFE insulated heating tape	260																			
IS-SP	Glass silk heating cord	450																			
IT-ITH	Glassfibre-insulated heating tape	450																			
IT-S45	Glassfibre-insulated heating tape	450																			
IT-S20	Glass silk heating tape	450																			
IT-G25	Constant wattage series tape	450																			
IT-ITS-SS	Mineral insulated heating tape	600																			
IS-SP-H	Glass silk heating cord	900																			
IT-H	Quartz-glass insulated heating tape	900																			
<b>GAS BOTTLE HEATERS</b>																					
IGB-G	Glass cloth gas bottle heater	66																			
FIGB	Gas bottle heaters	120																			

		Temperature °C																			
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
<b>DRUM HEATERS</b>																					
IDR	Drum heater						300														
IBDR	Base drum heater						300														
IDR-IBDR-CON	Drum and base drum heater unit						300														
FIDR-SR	Flameproof drum heater	120																			
FIBDR-SR	Flameproof base drum heaters	120																			
IDR-G	Glass cloth drum heater					260															
IDR-SM	Silicone drum heating band				218																
<b>HEATING PANELS</b>																					
IP-DASI	Standard silicone heating mat				200																
IP-SM	Custom design silicone heating mat				200																
IRH	Isopad radiant heater																				1000
IPH	Isopad platen heater																				1000
<b>HEATING JACKETS</b>																					
IIBC-G	Glass cloth IBC heater	71																			
IJ-S	Silicone insulated heating jacket				200																
IJ-G	Glass-silk insulated heating jacket									450											
IJ-Q	Quartz-glass insulated heating jacket																				900
<b>HEATED HOSES</b>																					
IHH-ST1A/ ST1D	Heated hose to 100°C	100																			
IHH-ST2A/ ST2D	Heated hose to 200°C				200																
IHH-ST4A/ ST4D	Heated hose to 400°C									400											

The datasheets here show our standard range of products. Use the table below to help select the right product. In the electronic version, click the item to go to the relevant datasheet. Our engineers have good capabilities to generate new electric heating solutions, so if what you need is not here, email [isopad.info@thermocoax.com](mailto:isopad.info@thermocoax.com) with your requirements.

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**THERMOCOAX**  
*from vision to reality*

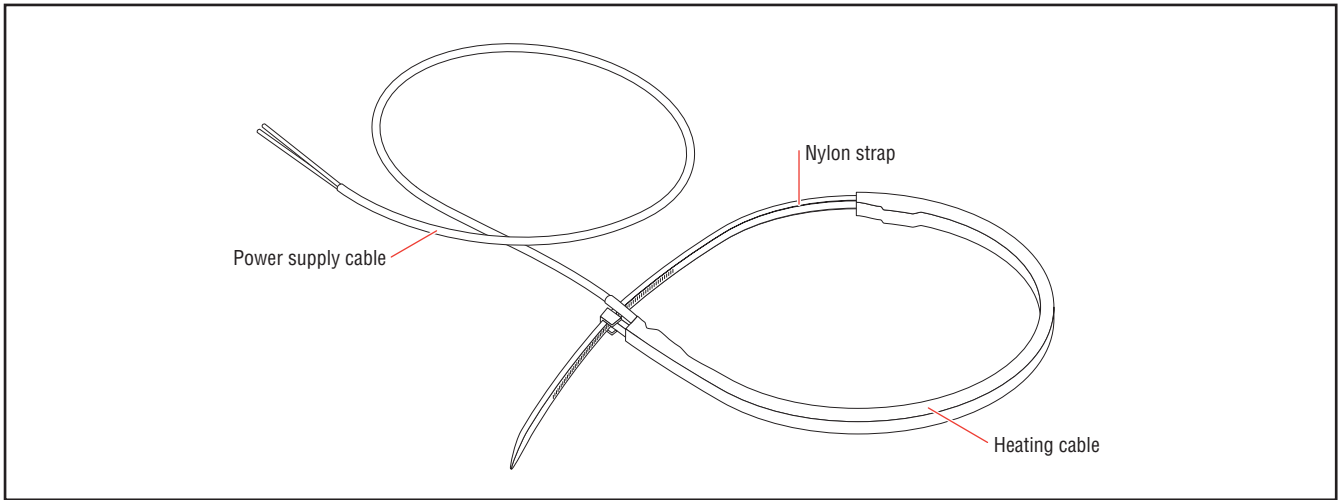
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## Crankcase heating cable

Isopad IT-CCH crankcase heating cables are designed to prevent motor damage and maintain efficiency by minimizing refrigerant gas absorption into the compressor oil. Their self-regulating properties ensure energy-efficient heating,

with no requirement for thermostat control and no risk of overheating. Crankcase heating cables are constructed with a high-powered self-regulating core, double insulated and attached to a flexible nylon-locking strap. It is a nonmetallic product

that will not suffer from corrosion and is most effective in the prevention of moisture and condensation ingress. The thin narrow profile gives flexibility for the heating cables to be fitted to a wide range of compressor shapes and sizes.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP54
Electrical protection class	See note
Maximum withstand temperature (power off)	120°C
Minimum installation temperature	-30°C

**Note:** These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

### Standard Manufacturing Sizes

Heated length	400 / 600 mm ±10%
Adjustable length	450 to 730 / 650 to 960 mm
Overall length	770 / 1000 mm

### Heater Construction

Type	Self-regulating heating cable
Material	Self-regulating heating element
Material of insulation	Fluoropolymer
Material of outer sheath	Polyethylene

### Lead Connection

Connection length	1.0 m
Maximum operating temperature	80°C
Insulation material	PVC

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	240 Vac
Nominal power	24 / 36 W
Maximum operating temperature	120°C

**Ordering Information**

<b>Part number</b>	<b>Length<sup>(1)</sup> (m)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>	<b>Nominal voltage (Vac)</b>
931302-000	0.4	24	240
504756-000	0.6	36	240

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

## Anti-condensation heating tape

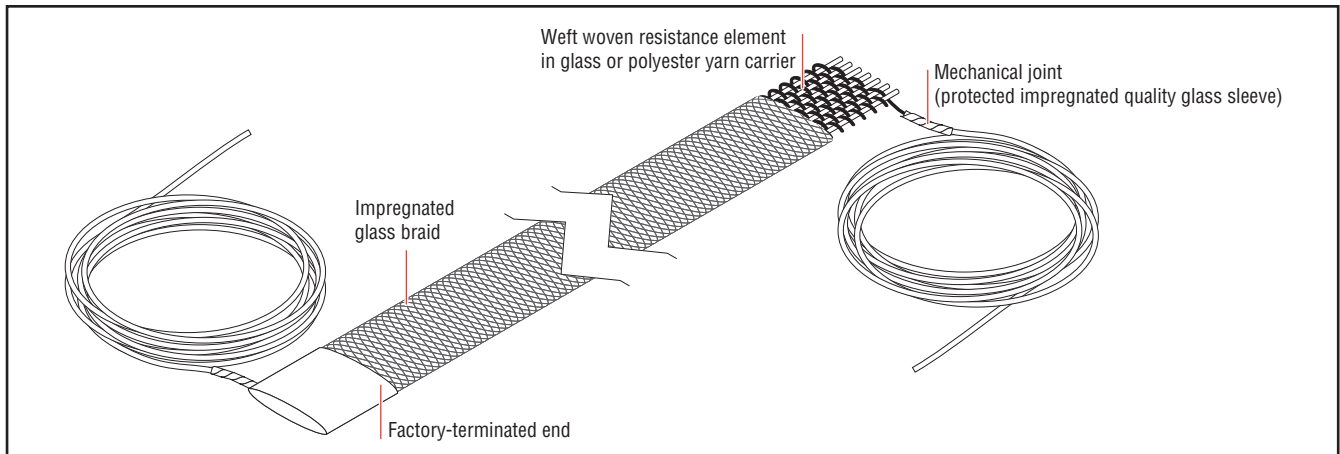
Isopad IT-ACM heating tape is specifically designed in conjunction with major motor manufacturers to prevent condensation within rotating electrical equipment, such as electric motors, generators, and even large shipboard alternators. The tapes are particularly useful on motors which operate in damp or wet conditions. They offer a low-cost, easily installed solution which can save the expense of costly rewinds and plant downtime.

The product line covers motor heating tapes for operation on 230 V, 115 V and 48 V, with lengths from 200 mm up to 1702 mm.

ACMs are factory-terminated heating tapes having a resistance element which is woven into a glass or polyester yarn carrier. The element/carrier assembly is sheathed in an acrylic adhesive-backed polyester-film-laminated glass-fibre tape.

The tape is terminated with cold leads and a glass-fibre braid outer sheath completes the assembly.

The appropriate ACM heating tape is fitted around the end of the motor windings and held in position using narrow gauge tape fixings (not cords). Normally, one ACM heating tape is installed to each of the stator windings.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP54
Electrical protection class	See note
Maximum withstand temperature (power off)	155°C
Minimum operating temperature	10°C

**Note:** These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

### Standard Manufacturing Sizes

Width	16 mm $\pm$ 10%
Thickness	2 mm $\pm$ 10%

### Heater Construction

Type	Resistance heating cable
Material	Weft woven various alloys in glass or polyester yarn carrier
Material of insulation	Acrylic adhesive backed, polyester-film laminated glass-fibre tape
Material of outer sheath	Impregnated woven glass-silk

### Lead Connection

Connection length	Terminated at each end with a 0.45 m cold lead
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**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	220 / 110 Vac
Maximum operating temperature	155°C
Minimum bend radius	30 mm
Minimum spacing	5 mm

**Ordering Information**

Nominal voltage	Part number	Length <sup>(1)</sup> (mm)	Standard motor frame size	Nominal power <sup>(2)</sup> (W)	Power per meter (W/m)
220 V	347164-000	305	90	25	81.9
	337962-000	432	100	26	60.2
	646924-000	686	112	21	30.6
	215434-000	686	132 + 160	40	58.3
	236126-000	762	180 + 200	26	34.1
	965682-000	1016	225 + 250	42	41.3
	113658-000	1067	280	54	50.6
	418282-000	1473	280	65	44.1
	644568-000	1702	315	99	58.2
	110 V	422416-000	305	90	22
754738-000		432	100	27	62.5
122040-000		686	112	21	30.6
120298-000		686	132 + 160	40	58.3
513882-000		762	180 + 200	25	32.8
440108-000		1016	225 + 250	39	38.4
061654-000		1067	280	50	46.9
899918-000		1473	280	67	45.5
586352-000		1702	315	103	60.5

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

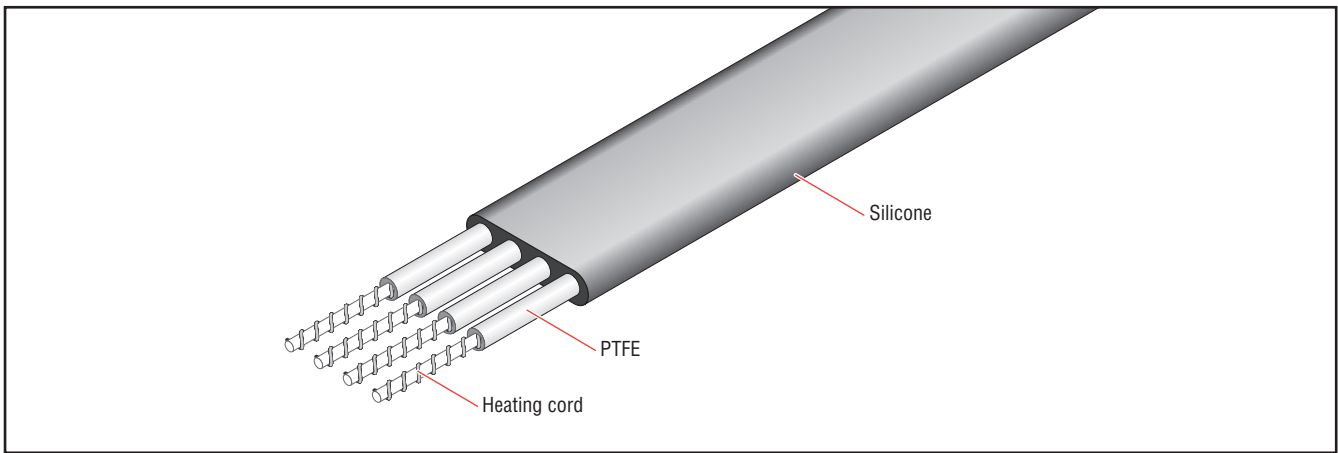


## Silicone constant wattage heating tape

Isopad IT-GW 27 is a factory-terminated heating tape constructed from a PTFE electrical insulated resistant wire extruded in silicone rubber.

The construction means it is suitable for use in wet environments. The outer jacket is smooth and may be washed down for cleaning, which also makes it suitable for use in dirty areas.

The IT-GW27 must be used with an appropriate temperature control. We also offer suitable controllers and sensors for your application.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP67
Electrical protection class	Class II
Maximum withstand temperature (power off)	200°C
Storage temperature	+5 to +30°C
Minimum installation temperature	-60°C

### Standard Manufacturing Sizes

Width	27 mm ±10%
Thickness	5 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE
Material of outer sheath	Silicone

### Lead Connection

Connection length	1.0 m
Cross section	2 x 1.5 mm <sup>2</sup>
Maximum operating temperature	180°C
Insulation material	Silicone

### Technical Data

Frequency	50-60 Hz
Nominal operating voltage	230 Vac

**Technical Data**

Power per meter	Up to 150 W/m (depending on application)
Maximum operating temperature	200°C
Minimum bend radius	25 mm
Minimum spacing	5 mm

**Ordering Information**

Type	Part number	Length <sup>(1)</sup> (m)	Nominal power <sup>(2)</sup> (W)	Nominal voltage (Vac)
IT-GW27	1235-88303562	3.6	551	230
	1235-88303563	4.0	270	230
	1235-88303564	5.4	733	230
	1235-88303565	6.0	330	230
	1235-88303566	8.0	367	230
	1235-88303567	9.0	864	230
	1235-88303568	10.0	588	230
	1235-88303569	12.0	1320	230
	1235-88303570	15.0	1567	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

Special versions on request

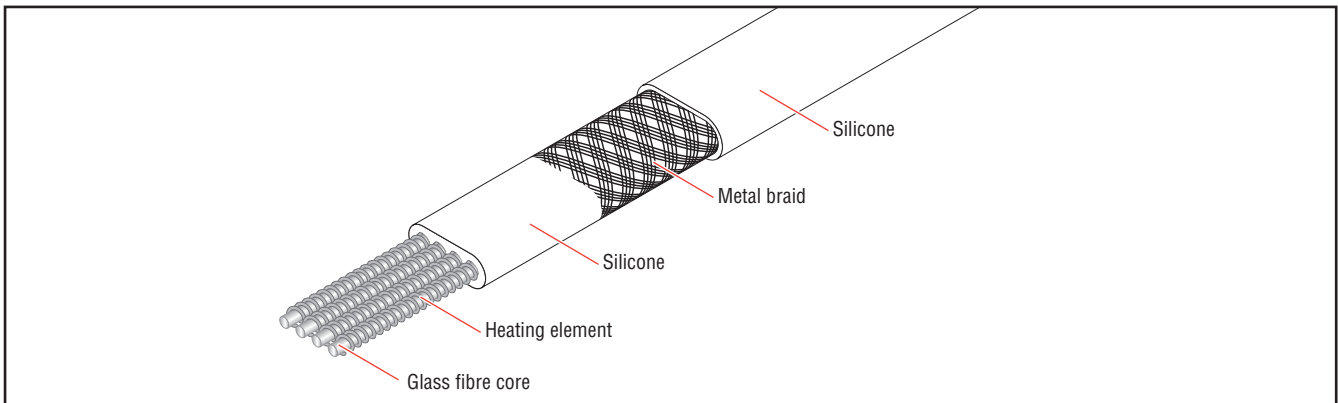
## Silicone insulated heating tape

Isopad IT-SiS10 is a preterminated, flexible, and waterproof silicone insulated heating tape of the highest quality. It is manufactured according to the latest safety-technology regulations. Four silicone

insulated heating conductors are embedded in a protective overbraid made of cupronickel. The temperature depends on the power and application. Please make sure

that the heating tape does not exceed the maximum withstand temperature.

The outer jacket is smooth and may be washed down for cleaning.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP67
Electrical protection class	Class I
Maximum withstand temperature (power off)	200°C
Storage temperature	-20°C to +55°C
Minimum installation temperature	-20°C

### Standard Manufacturing Sizes

Width	11 mm ±10%
Thickness	5 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Silicone
Material of outer sheath	Silicone

### Lead Connection

Connection length	1.5 m
Cross section	3 x 1.5 mm <sup>2</sup>
Maximum operating temperature	200°C
Insulation material	Silicone

### Technical Data

Frequency	50-60 Hz
Nominal operating voltage	230 Vac

**Technical Data**

Power per meter	100 W/m
Maximum operating temperature	200°C
Minimum bend radius	15 mm
Minimum spacing	5 mm

**Ordering Information**

	Part number	Length <sup>(1)</sup> (m)	Nominal Power <sup>(2)</sup> (W)	Nominal Voltage (Vac)
<b>Outer lengths and power specifications, etc., available upon request</b>	115096-000	1.0	100	230
	328552-000	1.5	150	230
	162874-000	2.0	200	230
	021826-000	3.0	300	230
	910894-000	5.0	500	230
	612242-000	7.0	700	230
	716918-000	10.0	1000	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

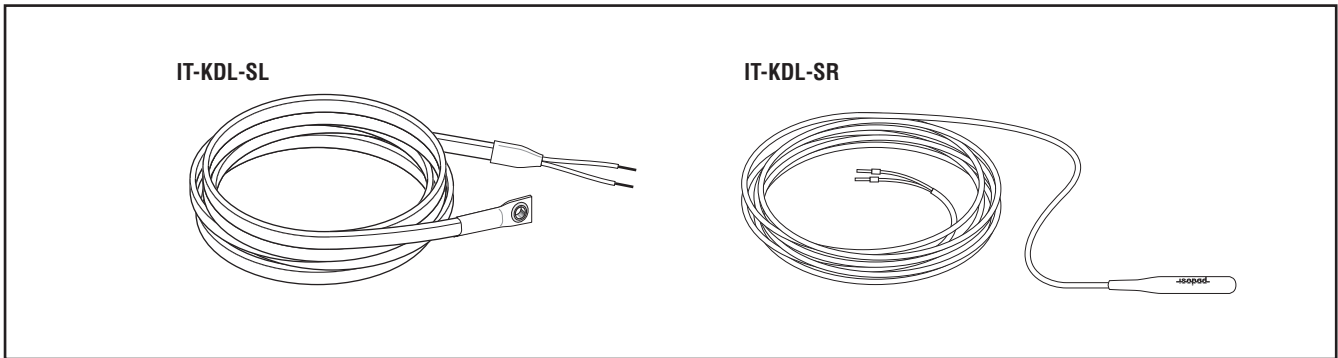
<sup>(2)</sup> Tolerances ±10%

## Silicone heating cable

Isopad IT-KDL heating cables are specifically designed for internal and external heating of refrigeration drainlines and freezer doors. KDLs are constructed from silicone rubber, making them

water resistant, and are supplied factory terminated in standard lengths. IT-KDL-SRs are specially produced in a small round form, making them very flexible and ideal for small bore drainlines.

Flexible SL and SR versions are standard; SLS and SRS variants are constructed with a steel braiding.



### Area Specifications

	IT-KDL-SL	IT-KDL-SR
Area classification	Nonhazardous, ordinary area	Nonhazardous, ordinary area
Ingress protection	IP67	IP67
Electrical protection class	Class II	See note
Maximum withstand temperature (power off)	220°C	200°C
Minimum installation temperature	-50°C	-40°C

**Note:** These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company - please refer to the manual for further information.

### Standard Manufacturing Sizes

	IT-KDL-SL	IT-KDL-SR
Width	9.5 mm ±10%	-
Thickness	6.25 mm ±10%	-
Outer diameters	-	5 mm ±10% (7.5 mm ±10% over moulded end)

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Silicone
Material of outer sheath	Silicone

**Technical Data**

	IT-KDL-SL	IT-KDL-SR
Frequency	50-60 Hz	50-60 Hz
Nominal operating voltage	230 Vac	230 Vac
Power per meter	40 W/m	40 W/m
Maximum operating temperature	220°C	200°C
Minimum bend radius	20 mm	5 mm
Minimum spacing	10 mm	10 mm

**Ordering Information**

	Part number	Length <sup>(1)</sup> (m)	Nominal power <sup>(2)</sup> (W)	Nominal voltage (Vac)
IT-KDL-SL	281332-000	1	40	230
	643140-000	2	80	230
	421844-000	3	120	230
	311936-000	4	160	230
	159372-000	5	200	230
	778676-000	6	240	230
IT-KDL-SR	057068-000	1	40	230
	456554-000	2	80	230
	998142-000	3	120	230
	863032-000	4	160	230
	148900-000	5	200	230
	361534-000	6	240	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

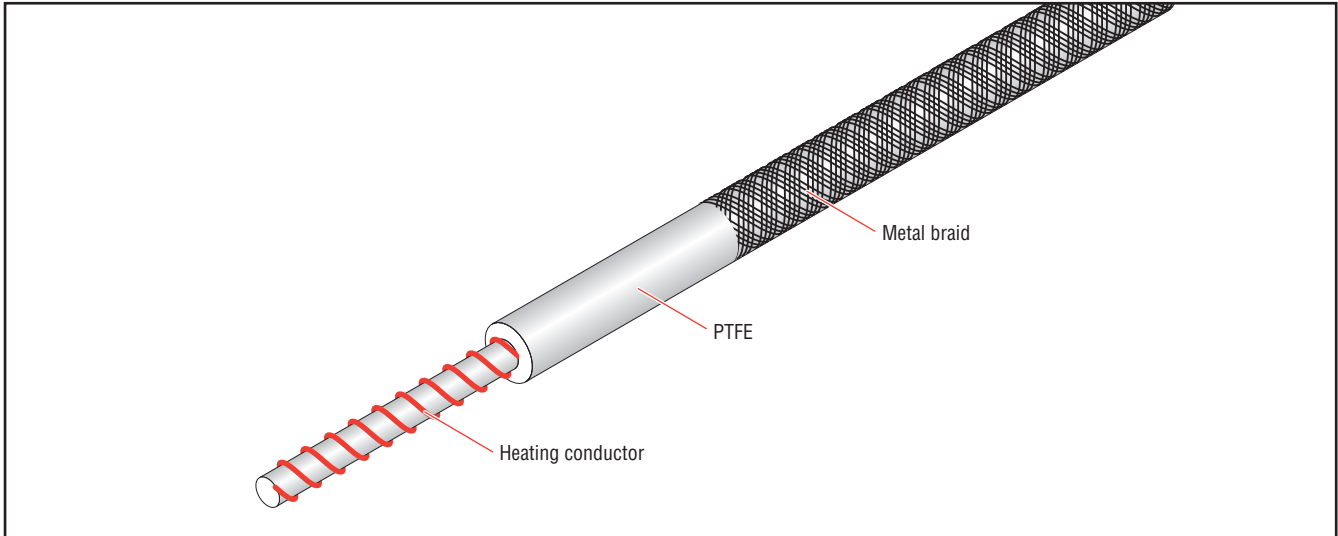
<sup>(2)</sup> Tolerances ±10%

## PTFE insulated heating cable

Isopad IS-KTeS is a preterminated PTFE insulated heating cable suitable for use where no excessive mechanical loads are expected and moisture may be present.

This flexible and easily installed cable provides inexpensive and versatile heating. Applications include heat tracing of pipes, small containers, tools, machines,

extremely thin and short pipes, and machine parts with limited mounting space.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP65
Electrical protection class	Class I
Maximum withstand temperature (power off)	260°C
Maximum withstand temperature (power on)	Depends upon power

### Standard Manufacturing Sizes

Outer diameter (OD)	2.5 to 3.5 mm
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### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE
Material of outer sheath	Copper-nickel braid

### Lead Connection

Connection length	Terminated at each end with a 1.5 m cold lead
Cross section	1.0 mm <sup>2</sup>
Maximum operating temperature	260°C
Insulation material	PTFE

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Power per meter	20 W/m
Maximum operating temperature	260°C
Minimum bend radius	10 mm
Minimum spacing	5 mm

**Ordering Information**

	<b>Part number</b>	<b>Length<sup>(1)</sup> (m)</b>	<b>Nominal Power<sup>(2)</sup> (W)</b>	<b>Nominal Voltage (Vac)</b>
	680108-000	2.20	50	230
	970664-000	4.40	100	230
	414978-000	7.00	140	230
	869130-000	11.00	250	230
	037962-000	16.00	330	230
<b>Other lengths and power specifications, etc., available upon request</b>	927424-000	22.00	500	230
	073216-000	28.00	630	230
	206840-000	40.00	920	230
	736072-000	58.00	1300	230
	380470-000	80.00	1740	230
	480964-000	112.00	2360	230
	335974-000	156.00	3120	230

<sup>(1)</sup> Tolerances  $\pm$  (2% + 100 mm)

<sup>(2)</sup> Tolerances  $\pm$ 10%

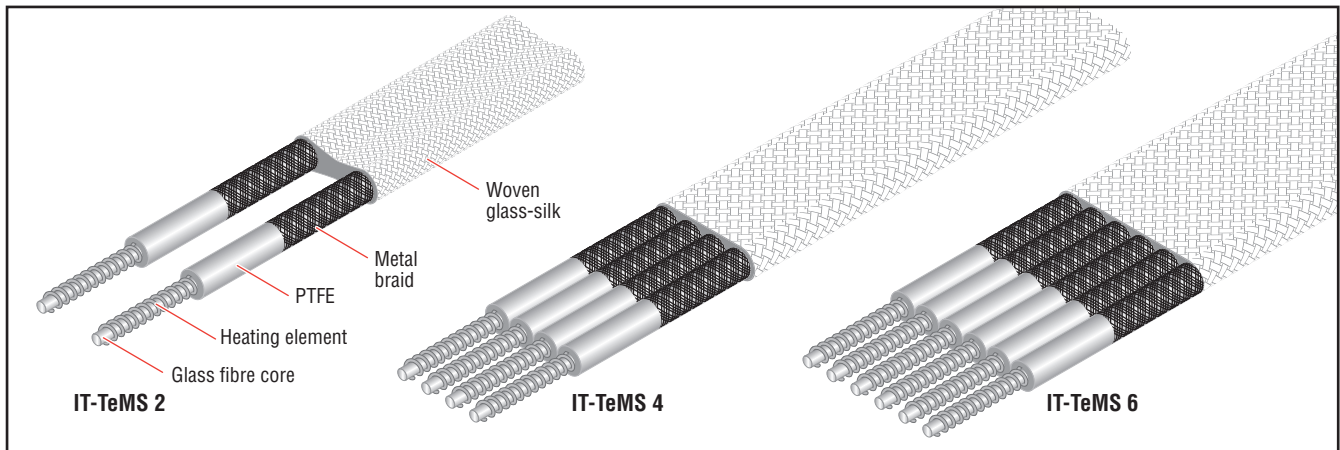


## PTFE insulated heating tape

Isopad IT-TeMS is a preterminated and flexible heating tape. IT-TeMS 2 is used in applications ranging from simple frost protection to temperature maintenance on short pipework and apparatus as well as for general container heating applications.

If more power is required, the use of the TeMS 4 or TeMS 6 heating tapes is recommended. The parallel arrangement of the heating conductors ensures a wide heat-transfer surface.

The temperature depends on the power and application. Please make sure that the heating tape does not exceed the maximum withstand temperature.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP64
Electrical protection class	Class I
Maximum withstand temperature (power off)	260°C

### Standard Manufacturing Sizes

Width	IT-TeMS 2 is 25 mm, IT-TeMS 4 is 26 mm, IT-TeMS 6 is 27 mm $\pm 10\%$
Thickness	4 mm $\pm 10\%$

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material insulation	PTFE
Material of outer sheath	Woven glass-silk

### Lead Connection

Connection length	1.5 m
Cross section	3 x 1.5 mm <sup>2</sup>
Maximum operating temperature	180°C
Insulation material	Silicone

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Maximum operating temperature	260°C
Minimum bend radius	10 mm
Minimum spacing	5 mm

**Ordering Information**

<b>IT-TeMS 2</b>	<b>Part number</b>	<b>Length<sup>(1)</sup> (m)</b>	<b>Nominal Power<sup>(2)</sup> (W)</b>	<b>Nominal Voltage (Vac)</b>
	584 216-000	1.10	50	230
	411 376-000	2.20	100	230
	067 444-000	3.50	140	230
<b>Other lengths and power specifications, etc., available upon request</b>	846 778-000	5.50	250	230
	700 890-000	8.00	340	230
	426 148-000	11.00	500	230
	943 982-000	14.00	610	230
	852 336-000	18.00	730	230
<b>IT-TeMS 4</b>	458 786-000	1.10	100	230
	149 158-000	2.20	200	230
<b>Other lengths and power specifications, etc., available upon request</b>	802 292-000	3.50	280	230
	124 922-000	5.50	490	230
	299 284-000	8.00	670	230
	718 760-000	11.00	990	230
	927 204-000	14.00	1260	230
<b>IT-TeMS 6</b>	755 718-000	1.00	160	230
	533 964-000	2.00	330	230
<b>Other lengths and power specifications, etc., available upon request</b>	184 778-000	3.00	490	230
	824 016-000	5.00	820	230
	064 196-000	7.00	1150	230
	744 968-000	10.00	1640	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

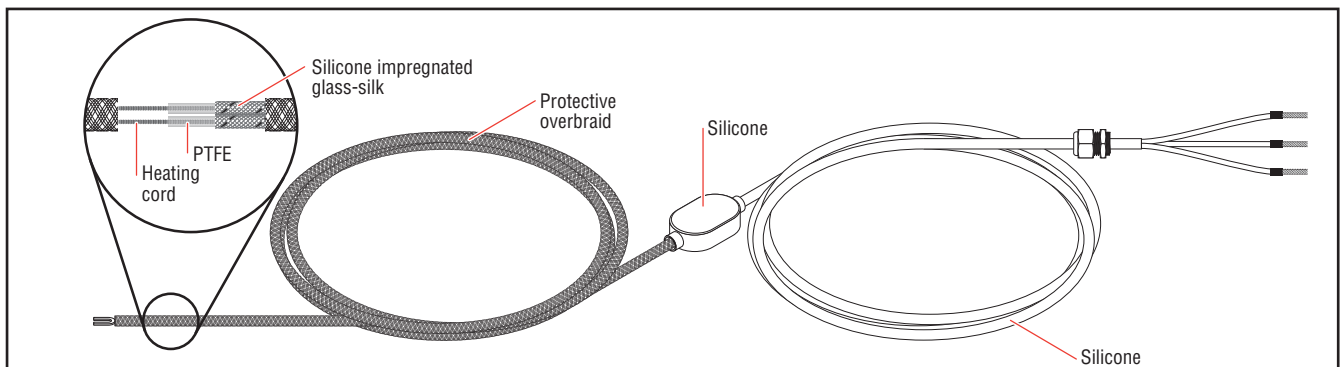
## PTFE insulated heating tape

Isopad IT-ITW/SS preterminated resistance heating tape is specially designed for application in temperatures up to 200°C. The temperature depends on the power and usage. Please make sure that the

heating tape does not exceed the maximum withstand temperature.

These highly flexible tapes can be easily coiled around pipelines and valves,

supports, pumps, flanges, filters, gauges, or other devices of irregular shape. The resistance element forms a closed heating circuit with connection joints only at one tape end.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP64
Electrical protection class	Class I
Maximum withstand temperature (power off)	260°C

### Standard Manufacturing Sizes

Width	7 mm ±10%
Thickness	3 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE / glass-silk
Material of outer sheath	Stainless steel braid

### Lead Connection

Connection dimension (L x W x H)	60 x 30 x 15 mm
Connection length	1.5 m
Cross section	3 x 1.5 mm
Maximum operating temperature	180°C
Insulation material	Silicone

### Technical Data

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Power per meter	Approximately 35 W/m
Maximum operating temperature	260°C

**Technical Data**

Minimum bend radius	7.5 mm
Minimum spacing	5 mm

**Ordering Information**

	Part number	Length <sup>(1)</sup> (m)	Nominal power <sup>(2)</sup> (W)	Nominal voltage (Vac)	Power per meter (W/m)
	293448-000	2.0	80	230	40
	130782-000	3.0	110	230	36.7
	539544-000	4.0	130	230	32.5
	944136-000	5.0	170	230	34
<b>Other lengths and power specifications, etc., available upon request</b>	691860-000	8.0	280	230	35
	060142-000	10.0	370	230	37
	955206-000	14.0	480	230	34.3
	429780-000	18.0	590	230	32.8
	301866-000	20.0	750	230	37.5
	021558-000	25.0	840	230	33.6

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

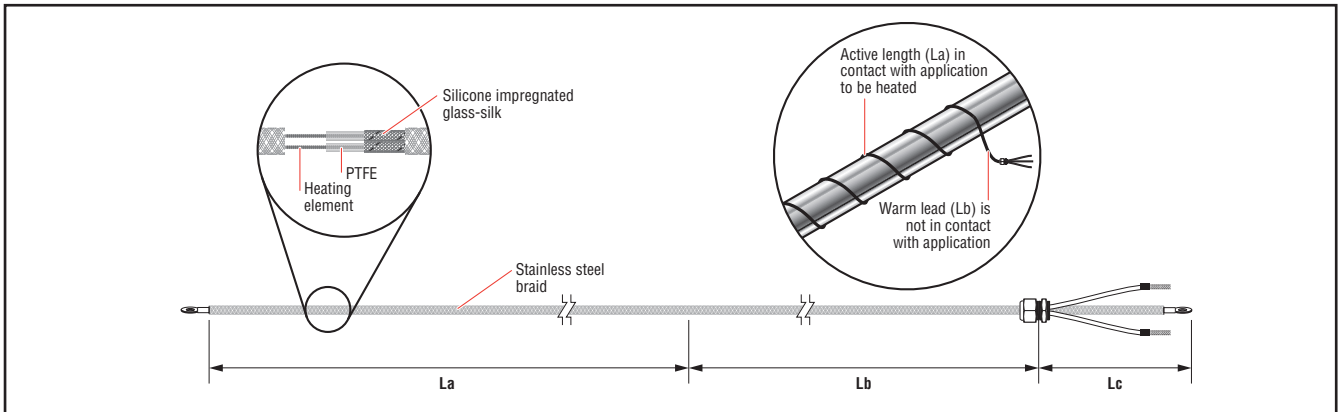
<sup>(2)</sup> Tolerances ±10%

## PTFE insulated heating tape

Isopad IT-ITW/SS-M is a factory-terminated heating tape having a go-and-

return series-resistance heating element insulated with a PTFE sheath covered with

a stainless-steel braid complete with M20 gland.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP64
Electrical protection class	Class I
Maximum withstand temperature (power off)	260°C
Minimum installation temperature	-70°C

### Standard Manufacturing Sizes

Width	8 mm ±10%
Thickness	3 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE / silicone impregnated glass-silk
Material of outer sheath	Stainless steel braid

### Lead Connection

Warm lead (Lb) pipe to gland	Short or long warm lead, for length see Ordering Information
Glands	Brass M20
Tails (Lc) gland to crimp pins	Warm tail 150 mm long Conductors insulation with PTFE and glass braid Separate braided earth lead

### Technical Data

Frequency	50-60 Hz
Nominal operating voltage	240 / 110 Vac
Power per meter	33 / 44 / 55 W/m

**Technical Data**

Maximum operating temperature	170°C at 33 W/m 140°C at 44 W/m 110°C at 55 W/m
Minimum bend radius	7.5 mm
Minimum spacing	10 mm

**Ordering Information**

Output		33 W/m			44 W/m			55 W/m		
Maximum pipe temperature (power on)		170°C			140°C			110°C		
Voltage	Part number	Active length (La) <sup>(1)</sup> (m)	Nominal power <sup>(2)</sup> (W)	Part number	Active length (La) <sup>(1)</sup> (m)	Nominal power <sup>(2)</sup> (W)	Part number	Active length (La) <sup>(1)</sup> (m)	Nominal power <sup>(2)</sup> (W)	
240 V	847952-000	1.4	55	002178-000	1.2	65	557710-000	1.0	76	
	589014-000	2.7	96	718330-000	2.3	113	850242-000	2.0	128	
	982248-000	4.0	134	204374-000	3.5	161	682904-000	3.0	179	
	597582-000	5.0	185	335040-000	4.4	208	531646-000	4.0	230	
	968558-000	6.5	212	107772-000	5.5	253	106750-000	5.0	280	
	501660-000	8.0	267	448548-000	6.9	314	903780-000	6.0	360	
	816604-000	10.0	323	148750-000	8.3	387	544222-000	7.5	430	
	841870-000	11.0	377	856882-000	9.4	435	716584-000	8.5	480	
	296864-000	12.0	425	955144-000	10.5	484	043498-000	9.5	535	
	-	-	-	-	-	-	-	315 700-000	10.85	556
110 V	633594-000	1.4	44	929724-000	1.2	50	740004-000	1.0	58	
	606686-000	2.7	81	209176-000	3.5	122	775996-000	2.0	105	
	388864-000	5.0	167	398898-000	4.4	188	574268-000	3.0	141	
	334416-000	6.5	193	923494-000	6.9	256	270328-000	4.0	254	
	756106-000	8.0	222	-	-	-	540440-000	5.0	242	
	-	-	-	-	-	-	351888-000	6.0	293	
	856262-000	10.0	280	-	-	-	483726-000	7.5	367	
	-	-	-	-	-	-	443400-000	8.5	448	
	-	-	-	-	-	-	357032-000	10.5	564	

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

## Glass silk heating cord

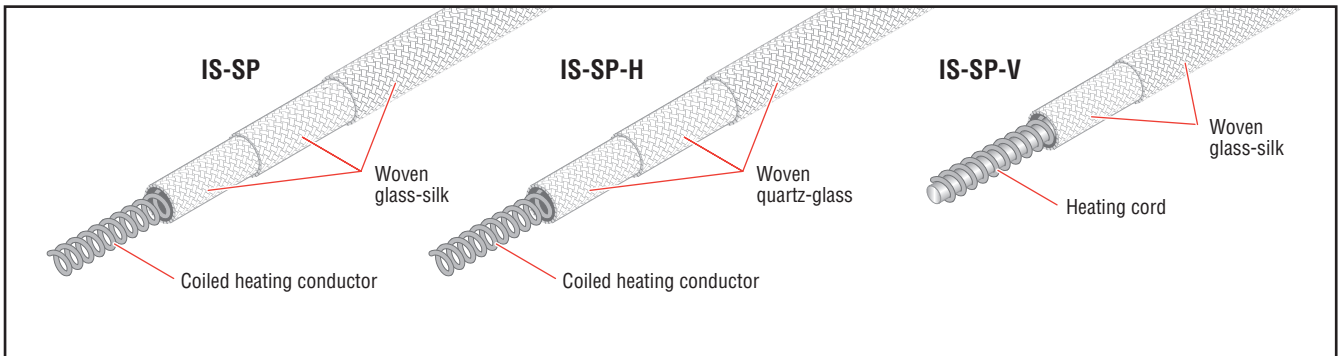
Isopad IS-SP is a preterminated, very flexible heating cord consisting of a glass silk insulated, flexible fabric weave with interior heating conductors. IS-SP-H is a higher temperature variant and SP-V is made with a central core to the spiral heating element.

The temperature depends on the power and application. Please make sure that the heating cord does not exceed the maximum withstand temperature.

Owing to its small dimensions, the heating cord is used for heating up and

compensating for heat loss on short pipes, glass apparatus, or other structures, mainly for laboratory requirements.

The heating cord is not moisture-protected and must only be used in dry areas.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP20
Electrical protection class	See note
Maximum withstand temperature (power off)	450°C for IS-SP and IS-SP-V, 900°C for IS-SP-H
Storage temperature	-40 to +50°C
Minimum installation temperature	-40°C

Note: These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

### Standard Manufacturing Sizes

Outer diameter (OD)	Maximum 6 mm
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### Heater Construction

Type	Resistance heating cable
Material	Nickel-chrome-alloy
Material of insulation	Glass-silk for IS-SP and IS-SP-V, quartz-glass for IS-SP-H
Material of outer sheath	Woven glass-silk for IS-SP and IS-SP-V, woven quartz-glass for IS-SP-H

### Lead Connection

Connection length	Terminated at each end with a 1.5 m cold lead
Cross section	1.0 mm <sup>2</sup> for IS-SP and IS-SP-V, 1.5 mm <sup>2</sup> for IS-SP-H
Maximum operating temperature	200°C for IS-SP and IS-SP-V, 450°C for IS-SP-H
Insulation material	Silicone-glass-silk for IS-SP and IS-SP-V, glass-silk for IS-SP-H

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Power per meter	170 W/m for IS-SP and IS-SP-V, 450 W/m for IS-SP-H depending on the application
Maximum operating temperature	450°C for IS-SP and IS-SP-V, 900°C for IS-SP-H
Minimum bend radius	5 mm
Minimum spacing	5 mm

**Ordering Information**

	Part number	Length <sup>(1)</sup> (m)	Nominal Power <sup>(2)</sup> (W)	Nominal Voltage (Vac)
	175192-000	0.5	50	230
	209402-000	1.0	160	230
	490504-000	1.5	220	230
<b>These part numbers are for IS-SP only. IS-SP-V and IS-SP-H variants, other lengths and power specifications, etc., available upon request</b>	030246-000	2.0	330	230
	217452-000	2.5	380	230
	920078-000	3.0	490	230
	610730-000	4.0	600	230
	927312-000	5.0	710	230
	514784-000	6.0	820	230

<sup>(1)</sup> Tolerances <2.0 m ± (1% + 50 mm)  
>2.0 m ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%



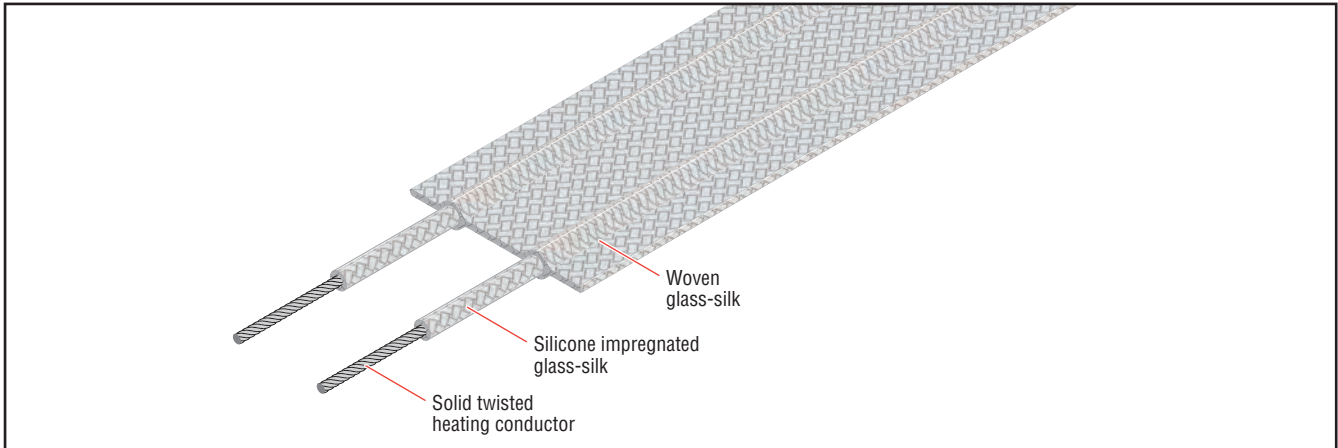
## Glassfibre-insulated heating tape

Isopad IT-ITH is a factory-terminated heating tape with go-and-return series resistance heating elements. They are suitable for high temperature applications

in indoor locations or areas where there is no risk of moisture ingress.

It is electrically insulated with a silicone varnished glass braid and the heating

element is enclosed in a glass woven carrier and terminated with cold tails and a M20 gland.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP20
Electrical protection class	See note
Maximum withstand temperature (power off)	450°C
Storage temperature	-20 to +50°C
Minimum installation temperature	-20°C

Note: These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

### Standard Manufacturing Sizes

Width	30 mm ±10%
Thickness	4 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Glass-silk
Material of outer sheath	Woven glass-silk

### Lead Connection

Connection length	0.6 m
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**Lead Connection**

Cross section	2 x 1.0 mm <sup>2</sup>
Maximum operating temperature	450°C
Insulation material	Glass-silk

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	240 / 110 Vac
Power per meter	75 / 150 W/m
Maximum operating temperature	450°C
Minimum bend radius	15 mm
Minimum spacing	5 mm

**Ordering Information**

Power per meter		75 W/m		150 W/m		
Nominal voltage	Part number	Length <sup>(1)</sup> (m)	Nominal Power <sup>(2)</sup> (W)	Part number	Length <sup>(1)</sup> (m)	Nominal Power <sup>(2)</sup> (W)
240 V	127826-000	1.1	87	698158-000	0.8	120
	355644-000	2.2	164	492204-000	1.5	240
	264108-000	3.1	232	514720-000	2.2	327
	973710-000	3.9	295	325606-000	2.8	411
	278420-000	5.1	376	979028-000	3.6	533
	868414-000	6.7	496	930930-000	4.7	707
	466228-000	8.4	618	298266-000	5.9	880
	170822-000	9.2	681	056372-000	6.5	963
	219944-000	10.1	743	002600-000	7.1	1056
	-	-	-	-	596744-000	8.3
-	-	-	-	880458-000	9.5	1397
-	-	-	-	767952-000	10.7	1574
110 V	587656-000	1.1	69	666324-000	0.8	126
	889796-000	2.2	138	426438-000	1.5	202
	975976-000	3.1	225	493776-000	2.2	317
	205392-000	3.9	280	563450-000	2.8	389
	558546-000	5.1	384	200410-000	3.6	544
	045818-000	6.7	438	878192-000	4.7	625
	410820-000	8.4	558	468368-000	5.9	795
	171030-000	9.2	674	961370-000	6.5	954

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

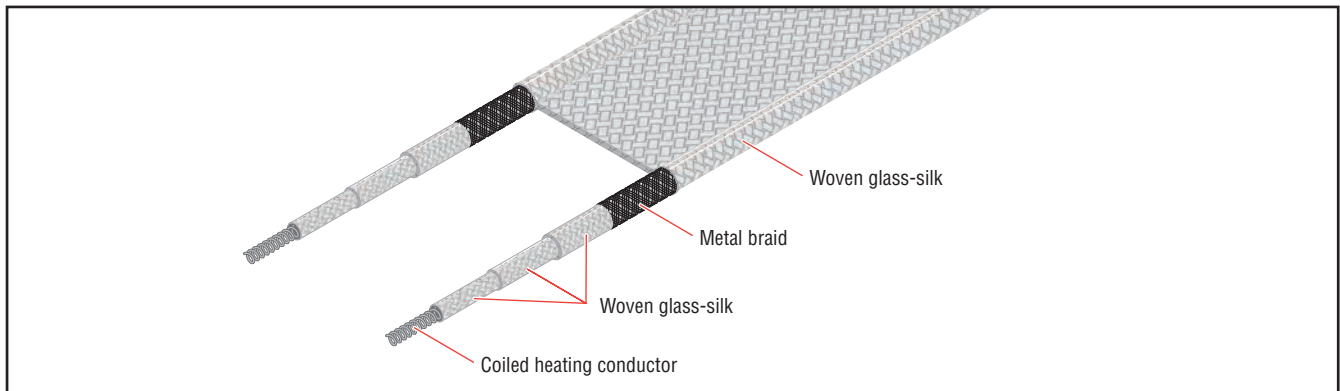
## Glassfibre-insulated heating tape

Isopad IT-S45 is a preterminated, flexible heating tape consisting of a glassfibre insulated, flexible fabric weave with interior heating conductors. The protective overbraid of the coiled heating conductors

meets the requirements of Protection Class I.

The temperature depends on the power and application. Please make sure that the heating tape does not exceed the maximum withstand temperature.

This heating tape is typically used for heating up and compensating for heat losses on short pipes and small-sized structures. The heating tape is not moisture-protected and must only be used in dry areas.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP20
Electrical protection class	Class I
Maximum withstand temperature (power off)	450°C
Storage temperature	-40 to +50°C
Minimum installation temperature	-40°C

### Standard Manufacturing Sizes

Width	30 mm ±10%
Thickness	5 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Nickel-chrome-alloy
Material of insulation	Glass-silk
Material of outer sheath	Copper-nickel braid
Carrier	Glass-silk woven fabric

### Lead Connection

Connection length	1.0 m
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**Lead Connection**

Cross section	2 x 1.0 mm <sup>2</sup>
Maximum operating temperature	200°C
Insulation material	PTFE

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Power per meter	250 W/m
Maximum operating temperature	450°C
Minimum bend radius	15 mm
Minimum spacing	5 mm

**Ordering Information**

	Part number	Length <sup>(1)</sup> (m)	Nominal Power <sup>(2)</sup> (W)	Nominal Voltage (Vac)
	386552-000	0.5	100	230
	542364-000	1.0	250	230
	051330-000	1.5	375	230
<b>Other lengths and power specifications, etc., available upon request</b>	111280-000	2.0	500	230
	870574-000	2.5	625	230
	873740-000	3.0	750	230
	596276-000	4.0	1000	230
	932450-000	5.0	1250	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

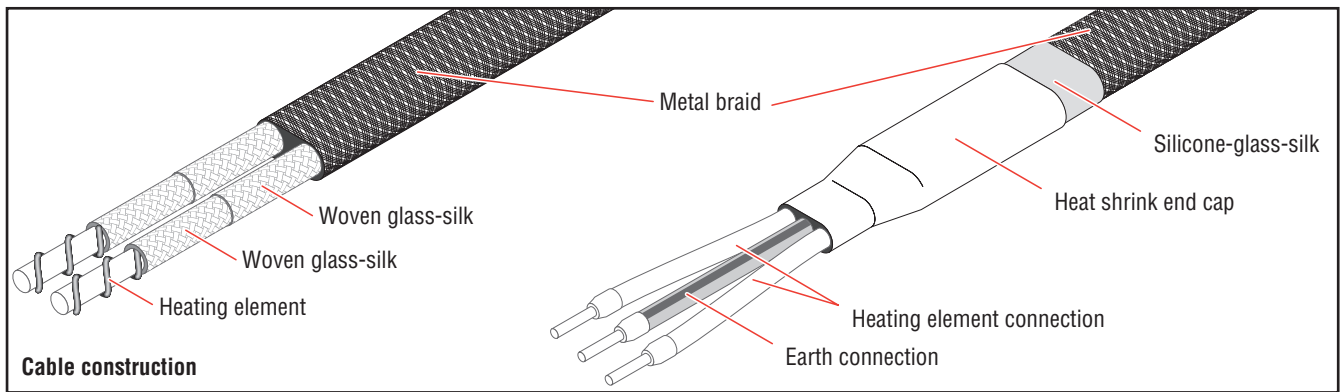
## Glass silk heating tape

Isopad IT-S20 is a preterminated, flexible heating tape with a copper-tinned outer braiding serving as a protective earth braid. The temperature depends on the power and application.

Please make sure that the heating tape does not exceed the maximum withstand temperature.

This heating tape enables maximum power to be installed even in the case of small surfaces.

The heating tape can be used for temperature modification of pipes and structures in the industrial and laboratory sectors.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP20
Electrical protection class	Class I
Maximum withstand temperature (power off)	450°C
Storage temperature	-40 to +50°C
Minimum installation temperature	-40°C

### Standard Manufacturing Sizes

Width	12 mm ±10%
Thickness	7 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Glass-silk
Material of outer sheath	Copper-nickel braid

### Lead Connection

Connection length	1.0 m
Cross section	2 x 1.5 mm <sup>2</sup>
Maximum operating temperature	200°C
Insulation material	Silicone-glass-silk

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Maximum power per meter	220 W/m
Maximum operating temperature	450°C
Minimum bend radius	15 mm
Minimum spacing	5 mm

**Ordering Information**

	<b>Part number</b>	<b>Length<sup>(1)</sup> (m)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>	<b>Nominal voltage (Vac)</b>
	263604-000	0.5	110	230
	114346-000	1.0	220	230
	704368-000	1.5	330	230
<b>Other lengths and power specifications, etc., available upon request</b>	153620-000	2.0	440	230
	443830-000	3.0	650	230
	054874-000	5.0	1090	230
	522884-000	7.0	1530	230
	261076-000	10.0	2180	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

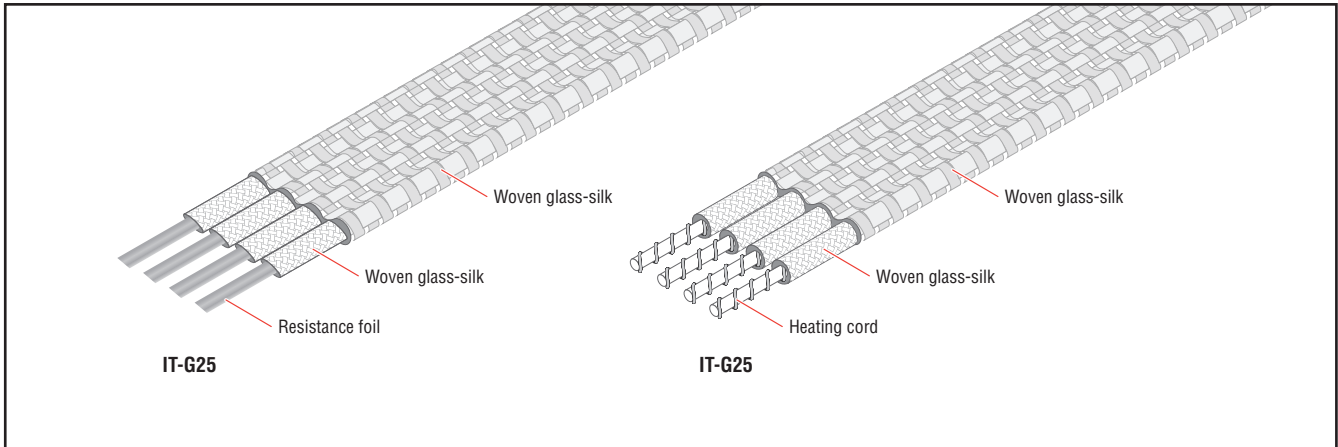
<sup>(2)</sup> Tolerances ±10%

## Constant wattage series tape

The Isopad IT-G25 type is a factory-terminated heating tape constructed from resistance foil or wire heating elements.

The elements are stitched into a total of six layers (three per side) of glass tape, which acts as a carrier.

These tapes are suitable for indoor use or areas where there is no risk of moisture ingress.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP20
Electrical protection class	See note
Maximum withstand temperature (power off)	450°C
Storage temperature	-40 to +50°C
Minimum installation temperature	-40°C

**Note:** These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

### Standard Manufacturing Sizes

Width	25 mm ±10%
Thickness	2 or 4 mm ±10%, depending on design

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Glass-silk
Material of outer sheath	Woven glass-silk

### Lead Connection

Connection length	1.0 m
Cross section	2 x 1.0 mm <sup>2</sup>
Maximum operating temperature	450°C
Insulation material	Glass-silk

### Technical Data

Frequency	50-60 Hz
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**Technical Data**

Nominal operating voltage	230 Vac
Maximum power per meter	650 W/m
Maximum operating temperature	450°C
Minimum bend radius	25 mm
Minimum spacing	5 mm

**Ordering Information**

	<b>Part number</b>	<b>Length<sup>(1)</sup> (m)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>	<b>Nominal voltage (Vac)</b>
	017628-000	1.8	1084	230
	891490-000	1.8	661	230
	396998-000	3.6	1630	230
	131950-000	3.6	1084	230
<b>Other lengths and power specifications, etc., available upon request</b>	940384-000	5.4	1451	230
	604576-000	5.4	748	230
	207500-000	7.5	780	230
	667 608-000	7.5	1901	230
	743210-000	9.0	1735	230
	068742-000	12.0	1304	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

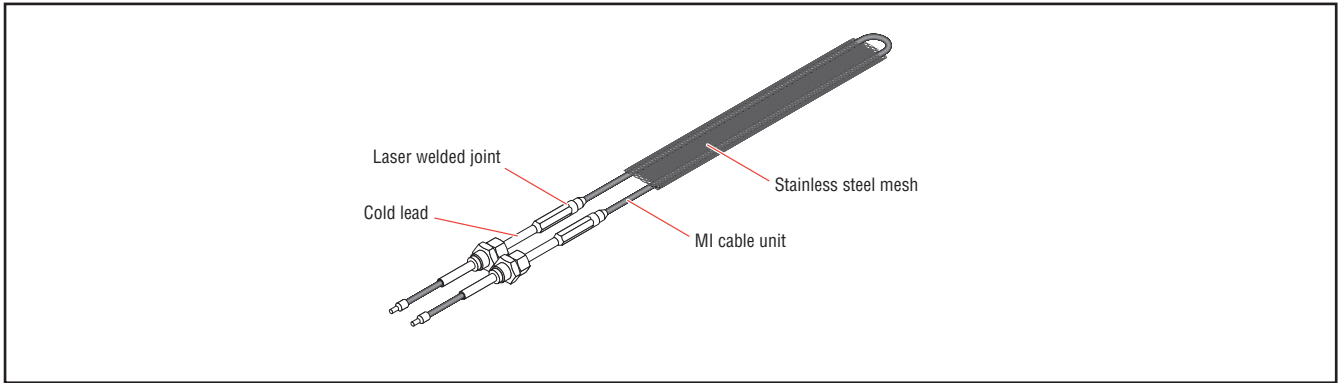


## Mineral insulated heating tape

Isopad IT-ITS/SS is a factory-terminated mineral insulated heating tape with laser-welded joints. The tape has a go-and-return

mineral insulated element embedded in a highly compressed mineral insulant covered by a malleable metal sheath.

This tape is excellent for use where high mechanical protection and high resistance to corrosion is needed.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP68
Electrical protection class	Class 1
Maximum withstand temperature (power off)	600°C
Minimum installation temperature	-40°C

### Standard Manufacturing Sizes

Width	25 mm ±10%
Thickness	4 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Nickel-chrome-alloy
Material of insulation	Magnesium oxide (MgO)
Material of outer sheath	Stainless steel

### Lead Connection

Glands	Brass M20
Cold lead	Laser welded hot to cold joint with 500 mm long mineral insulated cold lead
Terminating tails	150 mm long stranded nickel with PVC sleeve

### Technical Data

Frequency	50-60 Hz
Nominal operating voltage	240 / 110 Vac
Power per meter	50 / 100 / 200 / 300 W/m
Maximum operating temperature	500°C at 50 / 100 W/m 400°C at 200 W/m 300°C at 300 W/m

**Ordering Information**

<b>Output</b>		<b>50 W/m</b>		<b>100 W/m</b>		
<b>Maximum pipe temperature (power on)</b>		<b>500°C</b>		<b>500°C</b>		
<b>Nominal voltage</b>	<b>Part number</b>	<b>Length<sup>(1)</sup> (mm)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>	<b>Part number</b>	<b>Length<sup>(1)</sup> (mm)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>
240 V	621824-000	7590	379	648526-000	5370	537
	124116-000	9560	478	443082-000	6760	676
	532334-000	12000	600	763344-000	8490	849
110 V	511432-000	4380	219	456148-000	3100	310
	156760-000	5500	275	460350-000	4920	492
	756964-000	6960	348	567244-000	6150	615
<b>Output</b>		<b>200 W/m</b>		<b>300 W/m</b>		
<b>Maximum pipe temperature (power on)</b>		<b>400°C</b>		<b>300°C</b>		
<b>Voltage</b>	<b>Part number</b>	<b>Length<sup>(1)</sup> (mm)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>	<b>Part number</b>	<b>Length<sup>(1)</sup> (mm)</b>	<b>Nominal power<sup>(2)</sup> (W)</b>
240 V	356910-000	4780	956	135114-000	4900	1470
	004442-000	6000	1200	225684-000	6200	1859
	338346-000	7590	1518	656376-000	7750	2324
110 V	192802-000	3480	696	845712-000	3550	1065
	362256-000	5500	1100	505374-000	5660	1697
	384928-000	6930	1386	350238-000	7100	2130

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

<sup>(2)</sup> Tolerances ±10%

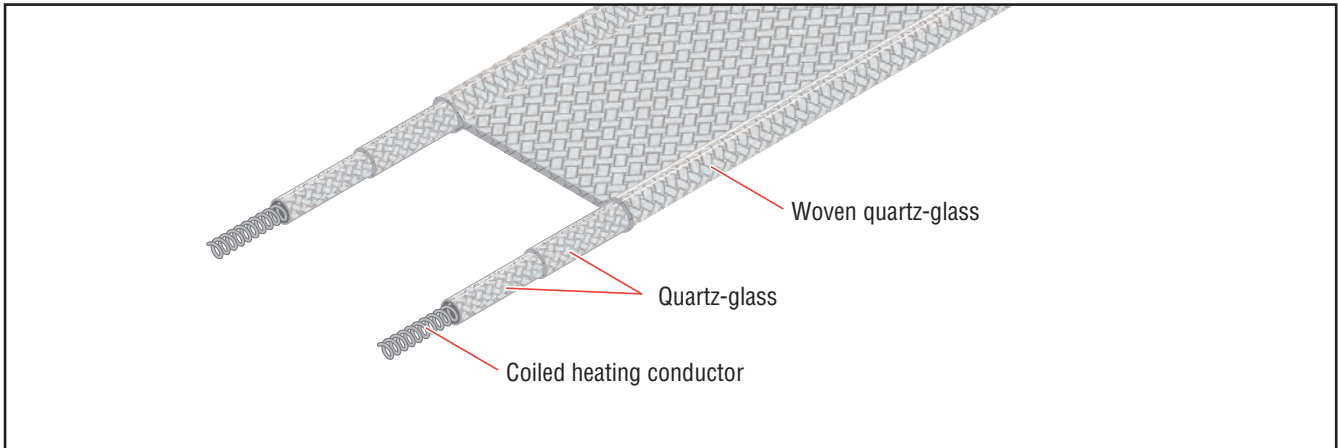
Nonstandard versions are available

## Quartz-glass insulated heating tape

Isopad IT-H heating tape is suitable where high power input is needed or where work has to be carried out at high temperatures.

The high-quality quartz glass allows a working element temperature of up to 900°C. This tape should only be used in

dry atmospheres with additional electrical protection and always with a temperature regulator.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP20
Electrical protection class	See note
Maximum withstand temperature (power off)	900°C
Storage temperature	-40 to +50°C
Minimum installation temperature	-50°C

Note: These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

### Standard Manufacturing Sizes

Width	30 mm ±10%
Thickness	6 mm ±10%

### Heater Construction

Type	Resistance heating cable
Material	Nickel-chrome-alloy
Material of insulation	Quartz-glass
Material of outer sheath	Woven quartz-glass

### Lead Connection

Connection length	0.35 m
Cross section	2 x 1.5 mm <sup>2</sup>
Maximum operating temperature	450°C
Insulation material	Glass-silk

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	230 Vac
Power per meter	Maximum 380 W/m
Maximum operating temperature	900°C
Minimum bend radius	15 mm
Minimum spacing	5 m

**Ordering Information**

	<b>Part number</b>	<b>Length<sup>(1)</sup> (m)</b>	<b>Nominal Power<sup>(2)</sup> (W)</b>	<b>Nominal Voltage (Vac)</b>
<b>Outer lengths and power specifications, etc., available upon request</b>	740644-000	0.5	180	230
	802236-000	1.0	380	230
	433904-000	1.5	540	230
	965602-000	2.0	760	230
	890228-000	2.5	930	230
	444118-000	3.0	1090	230

<sup>(1)</sup> Tolerances <2000 mm ± (1% + 50 mm)  
>2000 mm ± (2% + 100 mm)

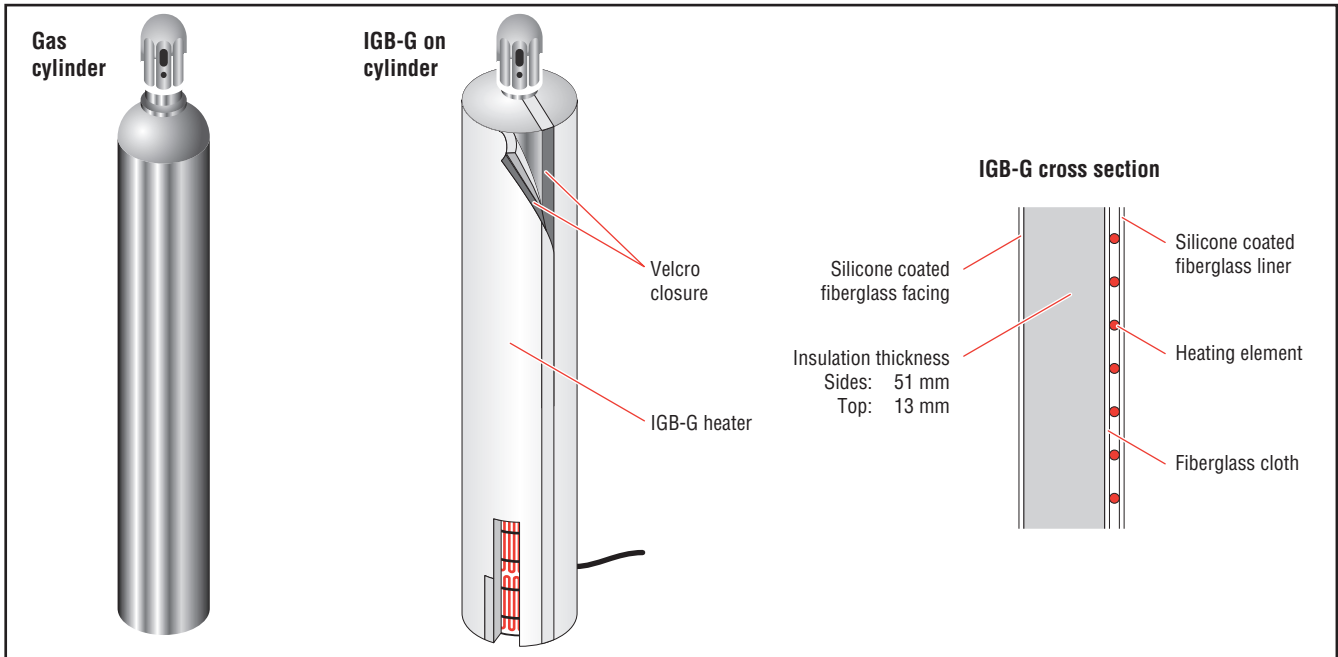
<sup>(2)</sup> Tolerances ±10%

## Soft lag gas bottle heater

Isopad IGB-G soft jacket gas bottle heaters are designed to wrap around a gas bottle and heat the contents while insulating to keep the heat exactly where it needs to be. Waste associated with condensed gas can

be reduced by heating gas cylinders. Gases known to benefit from this process are SF<sub>6</sub>, propane, nitrogen, oxygen, BCl<sub>3</sub>, WF<sub>6</sub>, and HF. These heaters are available in different gas cylinder sizes with a 240 V power

supply. Isopad offers a variety of different versions, which can be tailored individually to the application.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP51
Electrical protection class	Class I
Maximum withstand temperature (power off)	66°C

### Standard Manufacturing Sizes

Outer diameter	203, 229 or 381 mm
Gas bottle size	40, 50 or 125 Litre

### Heater Construction

Heating element	Grounded
Material of insulation	Glass-silk cloth (sides 51 mm, top 13 mm)
Material of carrier	Silicone-impregnated glass-silk
Fixation and closure type	Hook and loop velcro outer sheath

### Lead Connection

Connection length	3 m
Insulation material	Silicone

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	240 Vac

**Ordering Information**

Part number	Diameter (mm)	Length (mm)	Nominal Power (W)	Nominal Voltage (Vac)
1235-99910715	203	1219	150	240
1235-99910716	229	1295	150	240
1235-99910717	381	1092	150	240

**Accessories**

Insulated pad	Placed between gas bottle and floor. Further insulates the gas bottle from heatsinks such as concrete floor.
Valve cover	Placed on top. Reduces the amount of heat loss through the gas bottle.

Part number	Description
1235-99910721	Insulated gage/valve cover
1235-99910718	Insulated pad 203 mm gas bottle
1235-99910719	Insulated pad 229 mm gas bottle
1235-99910720	Insulated pad 381 mm gas bottle

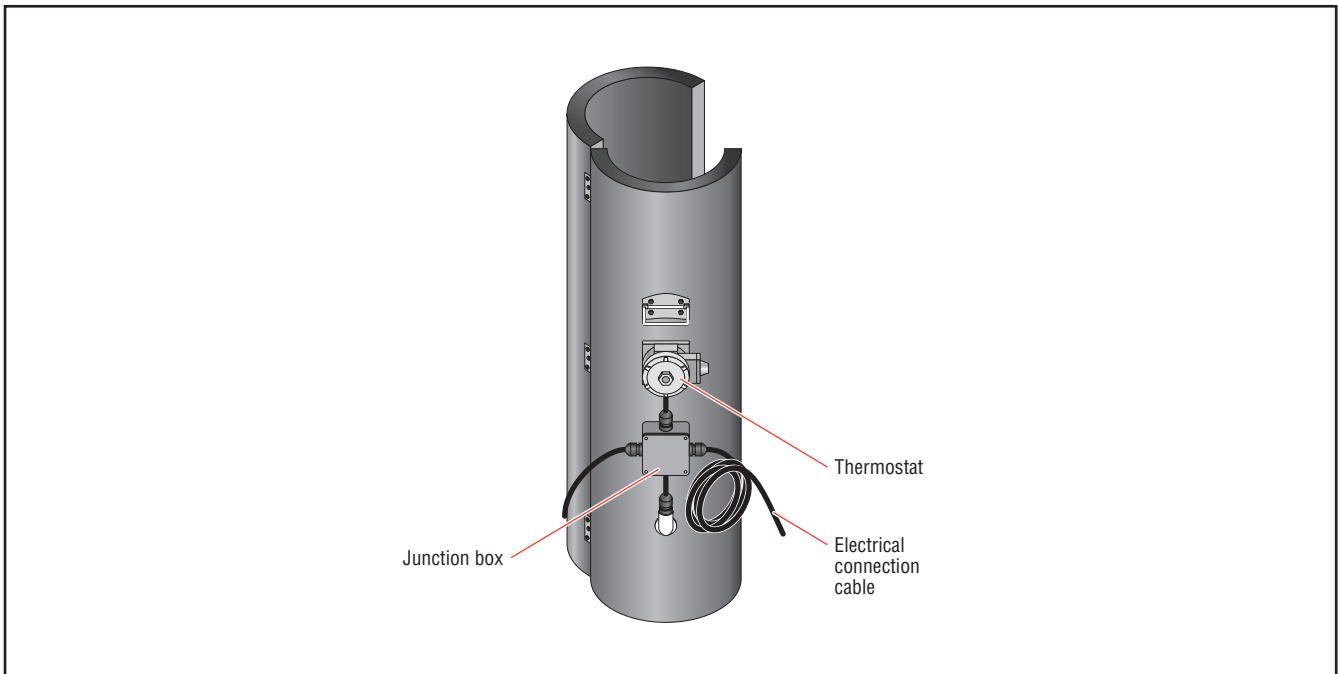
## Hazardous area gas bottle heaters

Gases today are usually supplied in metal bottles and whilst the removal of the gas is no problem in many applications, in the case of higher-quality gases the cylinder needs to be heated to guarantee complete removal of all of the gas. The heaters keep the bottles free from ice, maintain a constant pressure within the bottle, and enable the gas to be kept at an optimum processing temperature.

In hazardous area conditions additional safety is recommended.

These gas bottle heaters are designed to control gaseous media within their classified area and temperature class. These heaters are fully system approved by Baseefa according to the latest standards of ATEX and IECEx. They can be used in hazardous or nonhazardous, ordinary

areas. A solid metal housing provides full protection against external forces. Self regulating heating cables ensure safe operation within the several temperature classes additionally controlled by a mechanical thermostat for maintaining individual required gas temperature. Quick-snap fasteners and castors provide ease of installation around the gas bottle.



### Area Specifications

Area classification	Hazardous area
Zone	Gas 1, 2 Dust 21, 22
Temperature class	T2, T4, T6
Ingress protection	IP6X (IP65)
Electrical protection class	Class I
Ambient temperature range	-40 to +50°C

### Certifications

Approvals	System approval by Baseefa
Number of certificate	Baseefa08ATEX0280X / IECEx BAS 08.0088X
Marking	Ex II GD Ex de IIC T2 ... T6 Ex tD A21 IP6X T240°C ... T80°C
Norms	EN, IEC Standard

**Standard Manufacturing Sizes**

Height	750, 1130, 1350, 1400 mm
Inner diameter	150, 214, 239, 328 mm
Outer diameter	250, 314, 339, 428 mm
Other dimensions available on request	

**Heater Construction**

Type	Self-regulating heating cable
Carrier	Sheet metal steel
Material of thermal insulation	Glass-fibre
Thickness	40 mm
Outer protection	Sheet metal steel
Paint	Matt black heat resistant and structured blue paint
Fixation and closure type	Quick-snap fastener

**Connection**

Junction box (type)	STAHL Series 8118
Ingress protection	IP66
Maximum ambient temperature	-50 to +55°C
Maximum connecting cross section	4 mm <sup>2</sup>
Terminals	8
Glands	4 x M25
Housing material	Polyester glass-fibre reinforced
Connection lead length	2 m
Lead cross section	4 mm <sup>2</sup>
Maximum operating temperature	180°C
Connection lead insulation material	Silicone

**Temperature Control**

Thermostat (type)	RAYSTAT-EX-02
Sensor type	Capillary tube
Controller range	-4 to +163°C
Ingress protection	IP65
Maximum ambient temperature	-40 to +60°C
Housing material	Aluminium

**Technical Data**

Frequency	50-60 Hz
Maximum operating voltage	277 Vac (~1ph)
Maximum operating temperature	65 to 120°C (depends on heating cable type and temperature class)
Operating voltage and power output depending on design	

**Options**

Design with other housing materials (e.g. stainless steel)  
 Alternative junction box type JBU-100-L-E with signal lamp for operating status (ON/OFF)

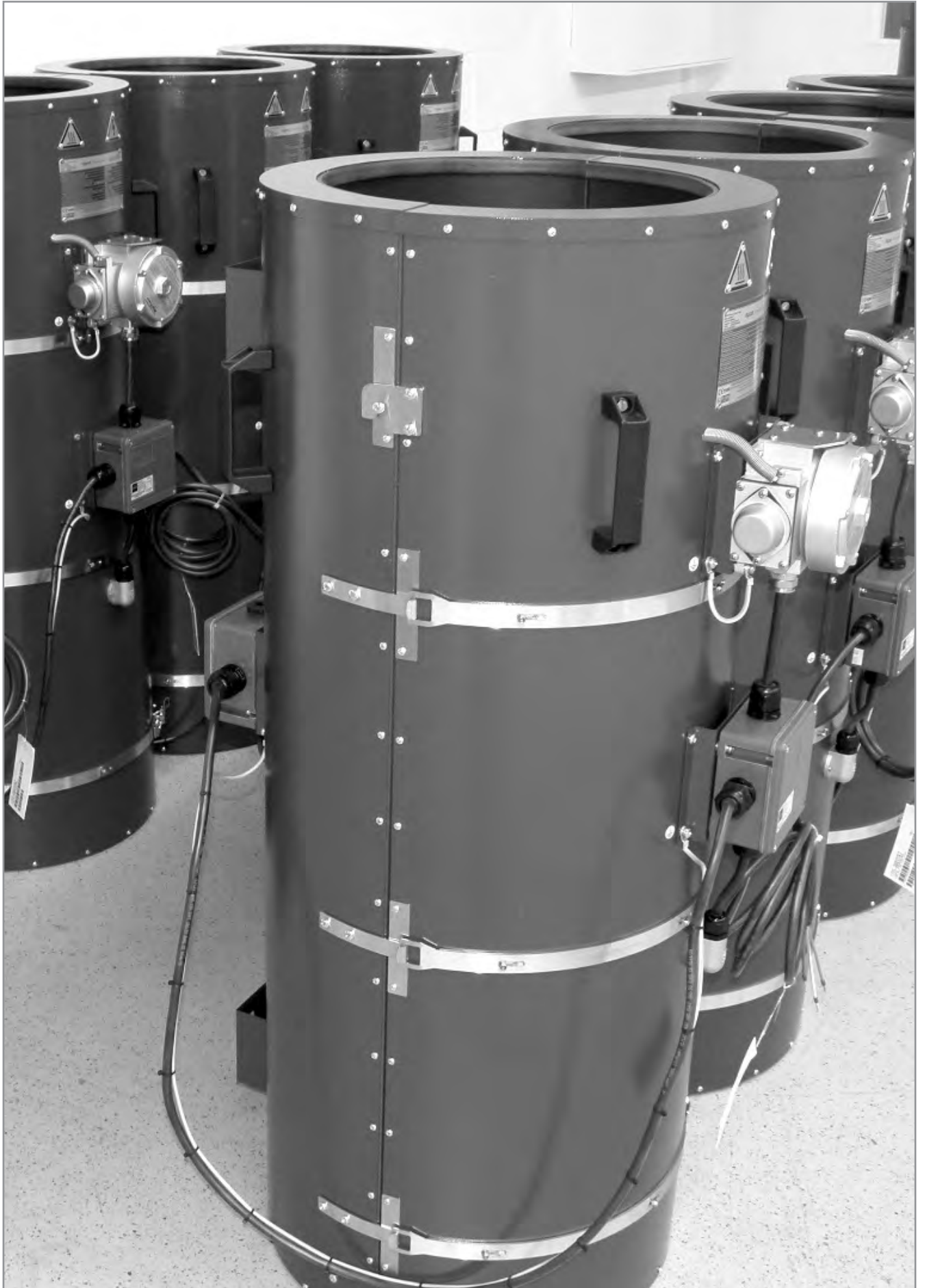


**Ordering Information**

Part number	For standard sizes (Ltr)	Height <sup>(1)</sup> (H) (mm)	Inner diameter <sup>(1)</sup> (ID) (mm)	Outer diameter <sup>(1)</sup> (OD) (mm)	Nominal power <sup>(2)</sup> (W)	Nominal voltage (Vac)	Weight (kg)
1235-08250101	10	750	150	250	630	230	14
1235-08250102	10	750	150	250	640	230	14
1235-08250103	10	750	150	250	290	230	14
1235-08250201	20	750	214	314	820	230	18
1235-08250202	20	750	214	314	830	230	18
1235-08250203	20	750	214	314	380	230	18
1235-08250401	40	1400	214	314	1550	230	30
1235-08250402	40	1400	214	314	1570	230	30
1235-08250403	40	1400	214	314	710	230	30
1235-08250501	50	1350	239	339	1490	230	32
1235-08250502	50	1350	239	339	1510	230	32
1235-08250503	50	1350	239	339	680	230	32
1235-08250801	79	1130	328	428	1510	230	37
1235-08250802	79	1130	328	428	1540	230	37
1235-08250803	79	1130	328	428	700	230	37

<sup>(1)</sup> Tolerances according to DIN ISO 2768 c

<sup>(2)</sup> Tolerances  $\pm 10\%$  at 230 Vac and  $+10^{\circ}\text{C}$



## Drum and base drum heaters

These types of Isopad drum and base drum heaters are used to provide medium flow and process temperature in ordinary environments. The special design including a high powered resistance heating cable embedded in a solid metal housing ensures the maximum on power output at operating conditions. These heating units can be used for higher temperatures and faster heat up times. These heaters are designed for standard drum sizes of 200L.

### Drum Heater

The drum heater is made out of a two-piece metal housing to be opened and closed via hinges and fasteners standing on

special castors. The solid design ensures stable operation even on unlevel surfaces. The metal housing carries the heating cable and evenly distributes the temperature to the drum. A mechanical thermostat regulates the operating temperature. Each drum heater includes a lid. To reduce heat loss at top it is recommended to use our insulated lid.

### Base Drum Heater

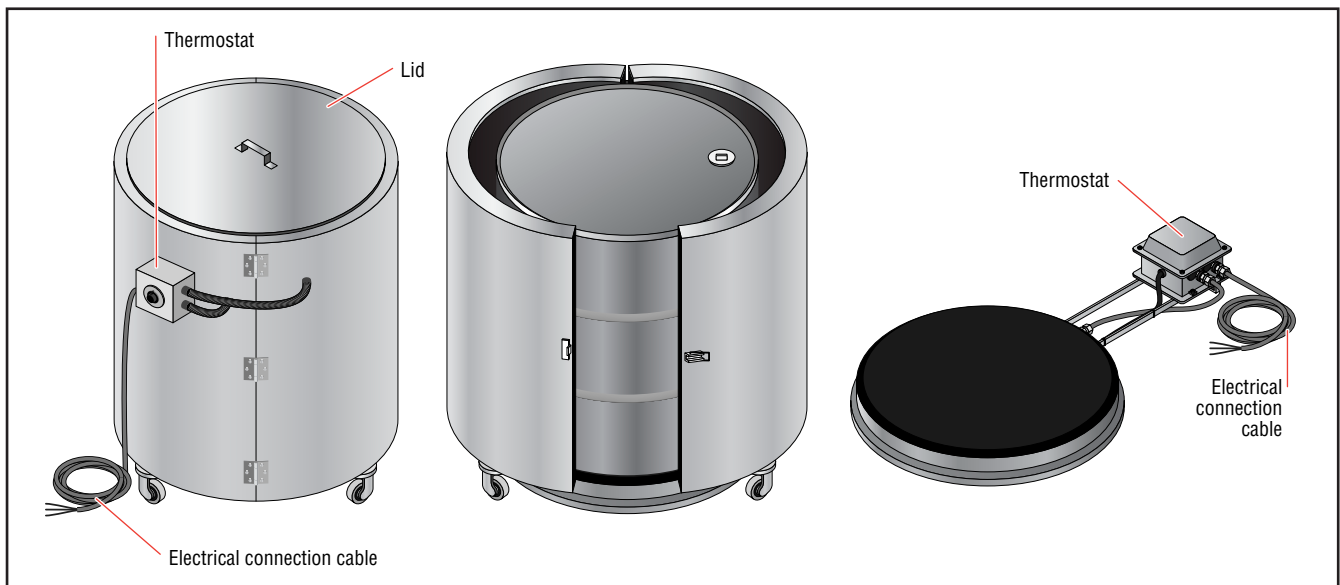
The base drum heater is a perfect addition to the drum heater to prevent heat loss from below. A metal housing carries the heating cable and evenly distributes the temperature to the drum. An aluminum

casted mechanical thermostat regulates the operating temperature by achieving a maximum on safety during operation.

### Drum and Base Drum Heater Unit

A combination of a drum and base drum heater was created to just use a single control mechanism. The Base drum heater can be connected to the drum heater and is thereby controlled by one thermostat. This unit was designed for drum sizes of 200L.

For hazardous area drum heater systems see our FIDR-SR/FIBDR-SR datasheet.



	IDR drum heater	IDBR base drum heater
<b>Area Specifications</b>		
Area classification	Nonhazardous, ordinary area	Nonhazardous, ordinary area
Ingress protection	IP52	IP52
Electrical protection class	Class I	Class I
Ambient temperature range	-20 to +40°C	-20 to +40°C
<b>Standard Manufacturing Sizes</b>		
Height	980 mm including castors	75 mm heating surface
Inner diameter	650 mm	-
Outer diameter	770 mm	570 mm
Other dimensions on request		

**Heater Construction**

Type	Resistance heating cable	Resistance heating cable
Material	Various alloys	Various alloys
Material of heater insulation	Glass-silk	Glass-silk
Carrier	Woven glass-silk	Woven glass-silk
Material of thermal insulation	Glass-fibre	Mineral-fibre
Thickness	50 mm	50 mm
Outer protection type	Sheet steel	Sheet steel
Paint	Matt black heat resistant and hammer trimate silver-grey	Matt black heat resistant and hammer trimate silver-grey
Fixation and closure type	Quick-snap fastener	–

**Lead Connection**

Connection length	2 m	3 m
Cross section	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
Maximum operating temperature	80°C	80°C
Insulation material	PVC	Armoured PVC

**Temperature Control**

Thermostat type	TS-C	TSW
Sensor type	Capillary tube	Capillary tube
Controller range	50 to 300°C	50 to 300°C
Ingress protection	IP52	IP65
Maximum ambient temperature	–25 to +40°C	–20 to +80°C
Housing dimension (LxWxH)	110 x 110 x 90 mm	170 x 150 x 100 mm
Housing material	Thermoplast PS	Aluminium cast

**Technical Data**

Frequency	50-60 Hz	50-60 Hz
Nominal operating voltage	230 / 400 Vac (~1ph / ~3ph)	230 Vac (~1ph)
Nominal power	4000 W	900 W
Maximum operating temperature	300°C	300°C

**Options**

Alternative controller setting range 0°C to +43°C or +30°C to +110°C  
 Additional insulation-lid for reduction of heat loss (see order information accessories)

**Ordering Information**

Part number	Description	For standard sizes (Ltr)	Height <sup>(1)</sup> (mm)	Inner diameter <sup>(1)</sup> (ID) (mm)	Outer diameter <sup>(1)</sup> (OD) (mm)	Nominal power <sup>(2)</sup> (W)	Nominal voltage (Vac)	Weight (kg)
151746-000	Drum heater	200	990	650	770	4000	230 ~1ph	46
150560-000	Drum heater	200	990	650	770	4000	400 ~3ph	46
514096-000	Base drum heater	200	–	–	–	900	230 ~1ph	20
931092-000	Drum and base drum heater combination	200	–	–	–	4900	230 ~1ph	60
1235-99900673	Drum and base drum heater combination	200	–	–	–	4900	400 ~3ph	60
463570-000	Insulated lid	200	85	790	798	–	–	20

<sup>(1)</sup> Tolerances according to DIN ISO 2768 c

<sup>(2)</sup> Tolerances  $\pm 10\%$

## Hazardous area drum and base drum heaters

These Isopad drum and base drum heaters are used to provide medium flow and process temperature in hazardous environments. The special design including a self-regulating heating cable embedded in a solid metal housing ensures the maximum in safety at operating conditions. Using this design an additional temperature limiter is not necessary.

These heaters are designed for standard drum sizes of 200 L and are fully system approved by Baseefa according to the latest standards of ATEX and IECEx.

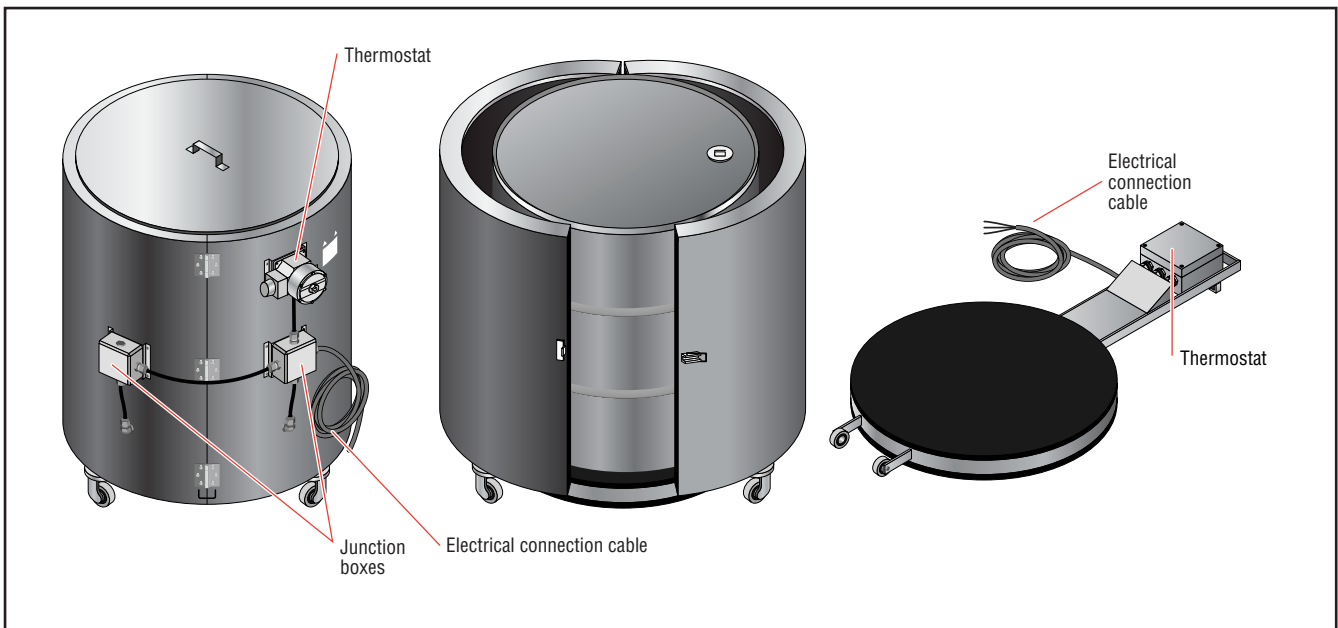
### Drum Heater

The drum heater is made out of a two-pieced metal housing to be opened and closed via hinges and fasteners standing on conductive castors. The solid design ensures stable operation even on unlevel surfaces. The metal housing carries the heating cable and evenly distributes the temperature to the drum. A mechanical thermostat regulates the operating temperature. Each drum heater includes a lid. To reduce heat loss at top it is recommended to use our insulated lid.

### Base Drum Heater

The base drum heater is a perfect addition to the the drum heater to prevent heat loss from below. A solid aluminium plate carries the heating cable and evenly distributes the temperature to the drum. An electro-mechanical thermostat regulates the operating temperature. The framework is made out of solid steel and comes with castors for easy transportation.

For ordinary area drum heater systems see our IDR, IBDR/IDR-IBDR-CON datasheet.



	FIDR-SR drum heater	FIBDR-SR base drum heater
<b>Area Specifications</b>		
Area classification	Hazardous area	Hazardous area
Zone	Gas 1,2 Dust 21, 22	Gas 1,2 Dust 21, 22
Temperature class	T2, T4, T6	T2, T4, T6
Ingress protection	IP6X (IP65)	IP6X (IP65)
Electrical protection class	Class I	Class I
Ambient temperature range	-40 to +50°C	-40 to +50°C

**Certifications**

Approvals	System approval by Baseefa	System approval by Baseefa
Number of certificate	Baseefa08ATEX0280X / IECEx BAS 08.0088X	Baseefa08ATEX0280X / IECEx BAS 08.0088X
Marking	Ex II 2 GD Ex de IIC T2 ... T6 Ex tD A21 IP6X T240°C ... T80°C	Ex II 2 GD Ex e iam IIC T2 ... T6 Ex tD A21 IP6X T240°C ... T80°C
Norms	EN, IEC Standard	EN, IEC Standard

**Standard Manufacturing Sizes**

Length	–	1100 mm including castors
Height	990 mm including castors	75 mm heating surface
Inner diameter	650 mm	–
Outer diameter	770 mm	546 mm
Other dimensions on request		

**Heater Construction**

Type	Self-regulating heating cable	Self-regulating heating cable
Carrier	Sheet steel	Aluminium plate, anodised black
Material of thermal insulation	Glass-fibre	Mineral-fibre
Thickness	50 mm	50 mm
Outer protection	Sheet steel	Sheet steel
Paint	Matt black heat resistant and structured blue paint	Structured blue paint
Fixation and closure type	Quick-snap fastener	–

**Connection**

Junction box (type)	STAHL Series 8118	–
Ingress protection	IP66	–
Maximum ambient temperature	–50 to +55°C	–
Maximum connecting cross section	4 mm <sup>2</sup>	–
Terminals	8	–
Glands	4 x M25	–
Housing material	Polyester glass-fibre reinforced	–
Connection lead length	2 m	2 m
Lead cross section	4 mm <sup>2</sup>	2.5 mm <sup>2</sup>
Maximum operating temperature	180°C	180°C
Connection lead insulation material	Silicone	Silicone

**Temperature Control**

Thermostat type	RAYSTAT-EX-02	RAYSTAT-EX-03
Sensor type	Capillary tube	Pt100 2-wire
Controller range	–4 to +163°C	0 to +499°C
Ingress protection	IP65	IP66
Maximum ambient temperature	–40 to +60°C	–50 to +55°C
Housing material	Aluminium	Polyester glass-fibre reinforced

**Technical Data**

Frequency	50-60 Hz	50-60 Hz
Maximum operating voltage	277 Vac (~1ph)	254 Vac (~1ph)
Nominal operating voltage	Depending on design	Depending on design
Nominal power	Depending on design	Depending on design
Maximum operating temperature	65 to 120°C (depending on heating cable type and temperature class)	65 to 120°C (depending on heating cable type and temperature class)

**Options**

Design with other housing materials (e.g. stainless steel). Additional insulated lid for reduction of heat loss.  
For drum heaters: alternative junction box type JBU-100-L-E with signal lamp for operating status (ON/OFF)

**Ordering Information**

Part number	For standard sizes (Ltr)	Height <sup>(1)</sup> (mm)	Inner diameter <sup>(1)</sup> (ID) (mm)	Outer diameter <sup>(1)</sup> (OD) (mm)	Nominal power <sup>(2)</sup> (W)	Nominal voltage (Vac)	Weight (kg)
<b>Drum heaters</b>							
1235-08230101	200	990	650	770	3930	230	60
1235-08230102	200	990	650	770	3990	230	60
1235-08230103	200	990	650	770	1810	230	60
<b>Base drum heaters</b>							
1235-08240101	200	78	–	546	1150	230	20
1235-08240102	200	78	–	546	1170	230	20
1235-08240103	200	78	–	546	530	230	20
<b>Insulated lid</b>							
1235-08021000	200	85	790	798	–	–	20

<sup>(1)</sup> Tolerances according to DIN ISO 2768 c

<sup>(2)</sup> Tolerances  $\pm 10\%$  at 230 Vac and  $+10^\circ\text{C}$



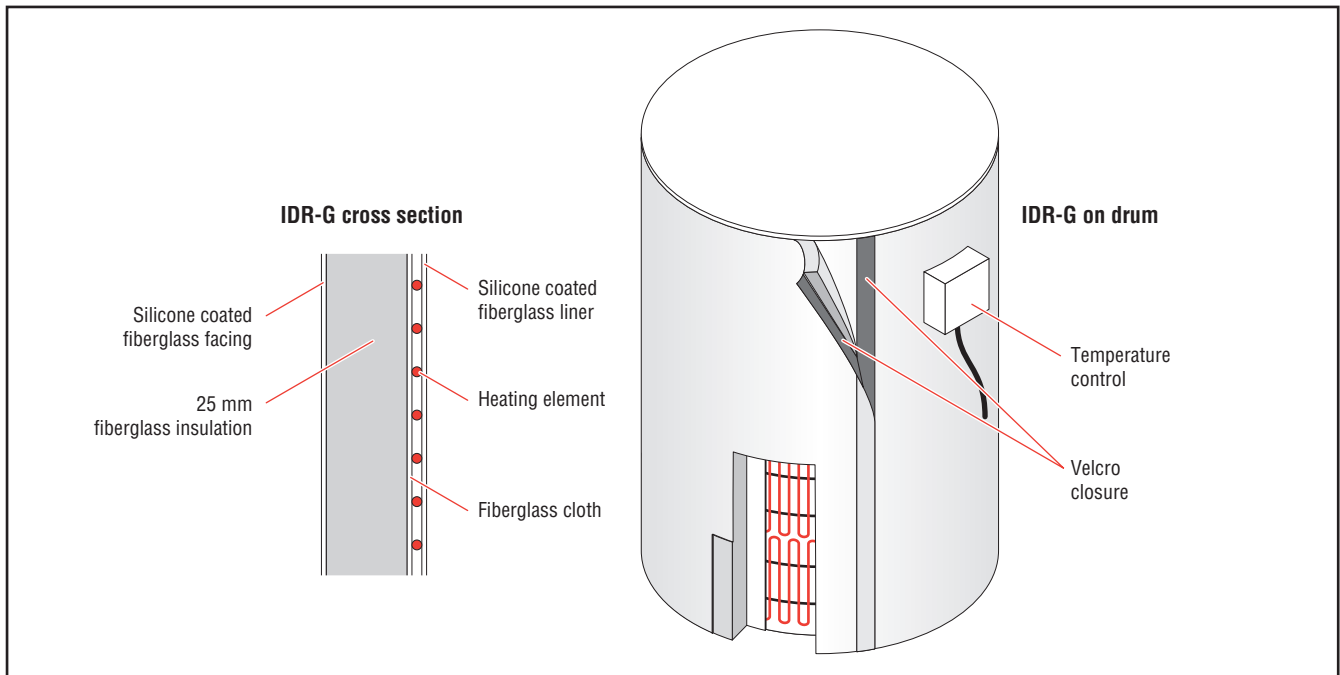
## Soft jacket drum heater

Isopad IDR-G soft jacket drum heaters are designed to wrap around a drum and heat the contents. They are insulated to maximize heat efficiency.

These combine the convenience of quick heat-up time and the precision of a digital controller to present you with a practical, efficient means of freeze protection, viscosity control, and maintenance of materials at elevated temperatures.

Drum heaters of the Series IDR-G are intended for use only in dry, indoor areas.

For more details and special design, please contact your local representative.



3. DRUM HEATERS

### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP51
Electrical protection class	Class I
Maximum withstand temperature (power off)	260°C

### Standard Manufacturing Sizes

Outer diameter (OD)	565 mm
Drum size	200 ltr
Weight	Approximately 15 kg

### Heater Construction

Heating element	Grounded
Material of insulation	25 mm glass-silk cloth
Material of outer sheath	Silicone-impregnated glass-silk
Digital on/off temperature controller	10 to 232°C for metal drums; 10 to 71°C for poly drums
Fixation and closure type	Hook and loop velcro outer sheath

**Lead Connection**

Connection length	1.8 m
Insulation material	Silicone

**Technical Data**

Nominal operating voltage	240 Vac
Power output	550 to 600 W for metal drums; 770 W for poly drums
Dielectric strength	>2000 V
Recommended storage temperature	-20 to 40°C

**Ordering Information**

Part number	Product description	Drum size (L)	Nominal Power <sup>(1)</sup> (W)	Nominal Voltage (Vac)
1235-99205938	IDR-G/208L/240V/1600W	200	1600	240

Special versions on request

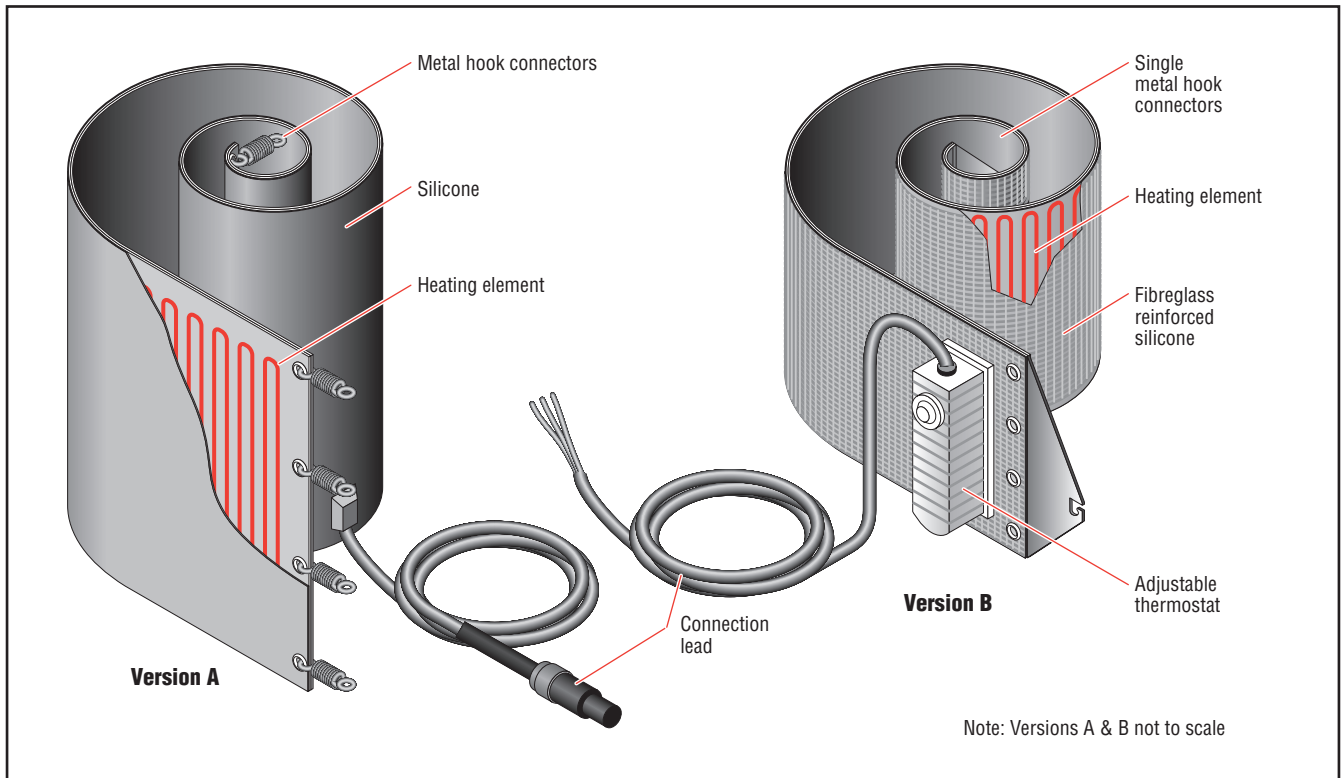
<sup>(1)</sup> Tolerance: ±10%

## Silicone drum heating band

Heaters are often used to promote effective processing of high viscosity media or gases in barrels, drums, or gas cylinders. These silicone heating bands are a simple, low-

cost way to heat drums and gas bottles. There are two versions available. One (Version A) is supplied with internal Pt100 sensor and temperature limiter to 180°C.

The other (Version B) is supplied complete with a built-in adjustable thermostat with a control range of 10°C to 218°C. An external controller-box is available.



3. DRUM HEATERS

### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP65
Electrical protection class	Class I
Storage temperature	-20 to +50°C
Minimum installation temperature	-20°C

### Standard Manufacturing Sizes

Length	1760 / 1677 / 1384 mm ± 4%
Width	230 / 102 mm ± 2.5%

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of carrier	Version A is silicone or silicone-glass-silk. Version B is fiberglass reinforced silicone.

**Lead Connection**

Sensor type Version A optional Pt100

Connection length, lead cross section, maximum operating temperature, connection lead material and thermostat depend on design

**Technical Data**

Frequency 50-60 Hz

Maximum operating voltage 230 / 240 / 120 Vac

Maximum power 1100 / 1200 / 1000 W

Maximum operating temperature 218°C (or 180°C if optional temperature limiter is included)

Minimum bend radius, maximum area load and maximum compression strength depend on design

**Ordering Information**

Part number	For standard sizes (Ltr) (m <sup>2</sup> )	Length <sup>(1)</sup> (L) (mm)	Width <sup>(1)</sup> (H) (mm)	Nominal Voltage (Vac)	Nominal Power <sup>(2)</sup> (W)
<b>Version with internal Pt100 sensor and temperature limiter to 180°C (Version A)</b>					
171538-000	200	1760	230	230	1100
257692-000 (Controller for 1 band heater)				230	
972114-000 (Controller for 3 band heaters)				230	
<b>Versions with adjustable thermostat 10°C to 218°C (Version B)</b>					
791428-000	200	1677	102	240	1200
631912-000	110	1384	102	240	1000
118374-000	200	1677	102	120	1200
450166-000	110	1384	102	120	1000

<sup>(1)</sup> Tolerances < 400 (±2.5) / > 400 (±4.0)<sup>(2)</sup> Tolerances ±10%

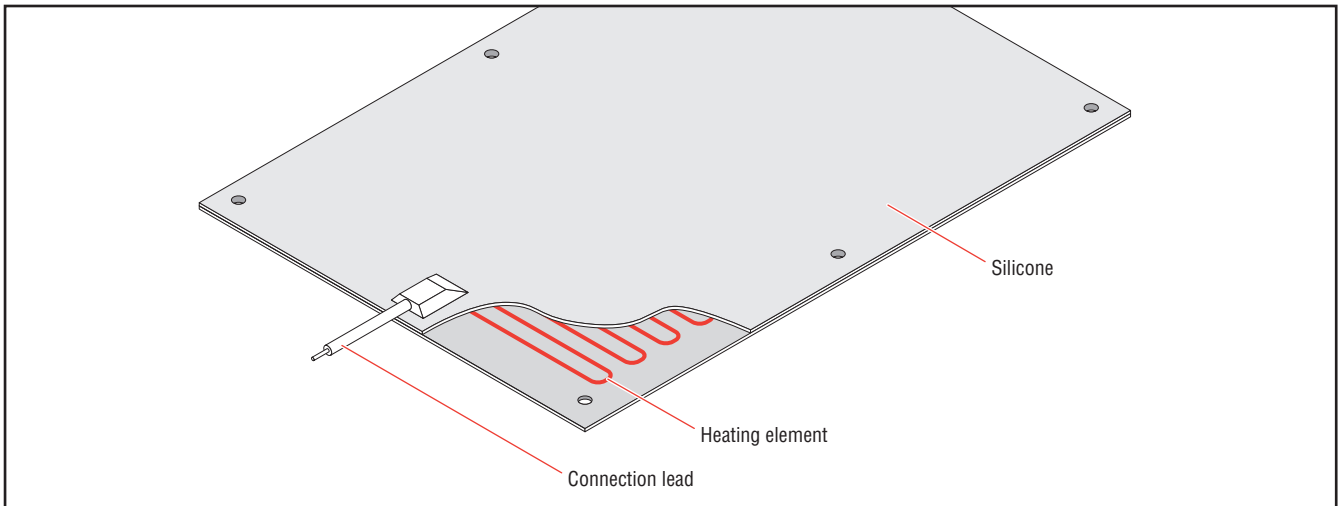
## Standard silicone heating mat

Isopad IP-DASI silicone heating mats for industrial use are selected where excellent flexibility and high temperature resistance in thermal processes are required. The processed silicones have good resistance to ozone, oxygen, weathering, ageing effects, bacterial and fungal attacks. They are also highly resistant to various chemicals such as alcohol, acetylene, mineral oil, acids, glucose, and glues.

Used according to the manual instructions, IP-DASI heaters do not exceed the maximum panel temperature of 200°C, so no temperature sensor or controller is necessary.

The maintain temperature depends on the local environment. If you want more precise control, you can add an optional Isopad or DigiTrace controller and temperature sensor.

Special customized heating panels are available on demand; see our IP-SM datasheet for options. Please contact your local sales person for more details.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP65
Electrical protection class	Class II
Maximum withstand temperature (power off)	200°C
Storage temperature	-20 to +40°C
Minimum installation temperature	-45°C

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Carrier	Silicone mat
Material insulation	Silicone
Fixing and closure type	Holes 4 mm diameter

### Lead Connection

Connection length	1.0 m
Cross section	2 x 0.75 mm <sup>2</sup>
Maximum operating temperature	180°C
Insulation material	Silicone

**Technical Data**

Frequency	50-60 HZ
Nominal operating voltage	230 Vac
Minimum insulation resistance	100 MΩ
Maximum operating temperature	200°C
Minimum bend radius	15 mm
Maximum area load	35 W/dm <sup>2</sup>
Maximum compression strength	40 N/cm <sup>2</sup>

**Ordering Information**

Part number	For standard sizes	Length <sup>(1)</sup> (L) (mm)	Width <sup>(1)</sup> (W) (mm)	Thickness <sup>(2)</sup> (S) (mm)	Nominal Voltage (Vac)	Nominal Power <sup>(3)</sup> (W)	Weight (kg)
375894-000	DINA4	297	210	3.3	230	220	0.35
524736-000	DINA3	420	297	3.3	230	440	0.7
188460-000	DINA2	594	420	3.3	230	980	1.2
611654-000	DINA1	841	594	3.3	230	1960	2.3

<sup>(1)</sup> Tolerances <400 mm ±2.5 mm  
>400 mm ±4.0 mm

<sup>(2)</sup> Tolerances ±0.5 mm

<sup>(3)</sup> Tolerances ±10%

## Custom design silicone heating mat

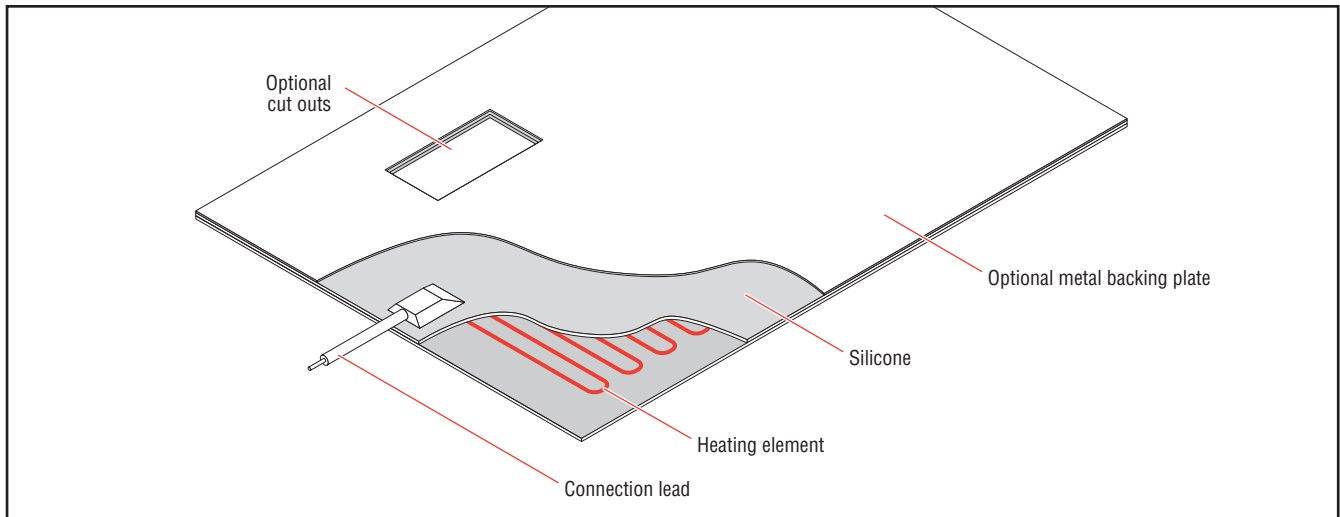
Isopad IP-SM silicone heating mats for industrial use are selected where excellent flexibility and high temperature resistance in thermal processes are needed. The processed silicones have good resistance to ozone, oxygen, weathering, ageing effects, bacterial and fungal attacks. They are also highly resistant to chemicals such as alcohol, acetylene, mineral oil, acids, glucose and glues.

Panels customized to your specification are designed with various options on insulated and metal backings, fixings, cutouts, and controllers. We will advise on the best options for your needs, and as each is different we supply a new technical specification.

To achieve exact surface temperatures, the heating panels are equipped on demand

with Isopad or DigiTrace controllers and temperature sensors.

We also provide a range of standard sizes; see our IP-DASI datasheet. For more details on custom or standard versions, contact your local sales representative.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP65 (max. IP67)
Electrical protection class	Class II (see note)
Storage temperature	-20 to +40°C
Minimum installation temperature	-45°C

Note: Electrical protection class I with metal sheath

### Standard Manufacturing Sizes

Length	2000 mm (other sizes on request)
Tolerances	<400 mm (±2.5) / >400 mm (±4.0) (special sizes excluded)
Width	900 mm (other sizes on request)
Tolerances	<400 mm (±2.5) / >400 mm (±4.0) (special sizes excluded)
Thickness	2.0 to 4.5 mm (other sizes on request)
Tolerances	±0.5 mm (special sizes excluded)

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### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material insulation	Silicone
Carrier	Silicone or silicone-glass-silk mat
Thermal insulation	On request, e.g. silicone foam mats
Outer protection type	On request, e.g. stainless steel or aluminium sheet metal
Fixation and closure type	Diverse methods according to application, e.g. adhesive foil, holes, hooks, eyelets, velcro tape, etc.

General: on request the heating mats can be manufactured with 2-dimensional contours and cut-outs or can be pre-formed for special applications.

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### Lead Connection

Connection lead length, lead cross section, maximum operating temperature and connection lead material depend on design

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### Temperature Control

Sensor type	PT100, Fe-CuNi/J or NiCr-Ni/K according to DIN IEC
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Sensor lead length, lead cross section, maximum operating temperature and sensor lead material depend on design

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### Technical data

Frequency	50-60 Hz
Maximum operating voltage	480 Vac (~1ph/~3ph)
Nominal power	±10% depending on design
Minimum installation resistance	100 MΩ
Maximum operating temperature	200°C (150°C for versions with adhesive foil)
Minimum bend radius, maximum area load and maximum compression strength depend on design	

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### Ordering Information

Contact your local representative to discuss your requirements.



## Isopad radiant heater

Isopad radiant heaters (IRH) have been designed as a reliable non-contact electric heat source providing temperatures up-to 1000°C. The uniform heat density makes them ideal for PECVD vacuum coating processes and they have been widely adopted in high quality applications such as thin film solar panel manufacture.

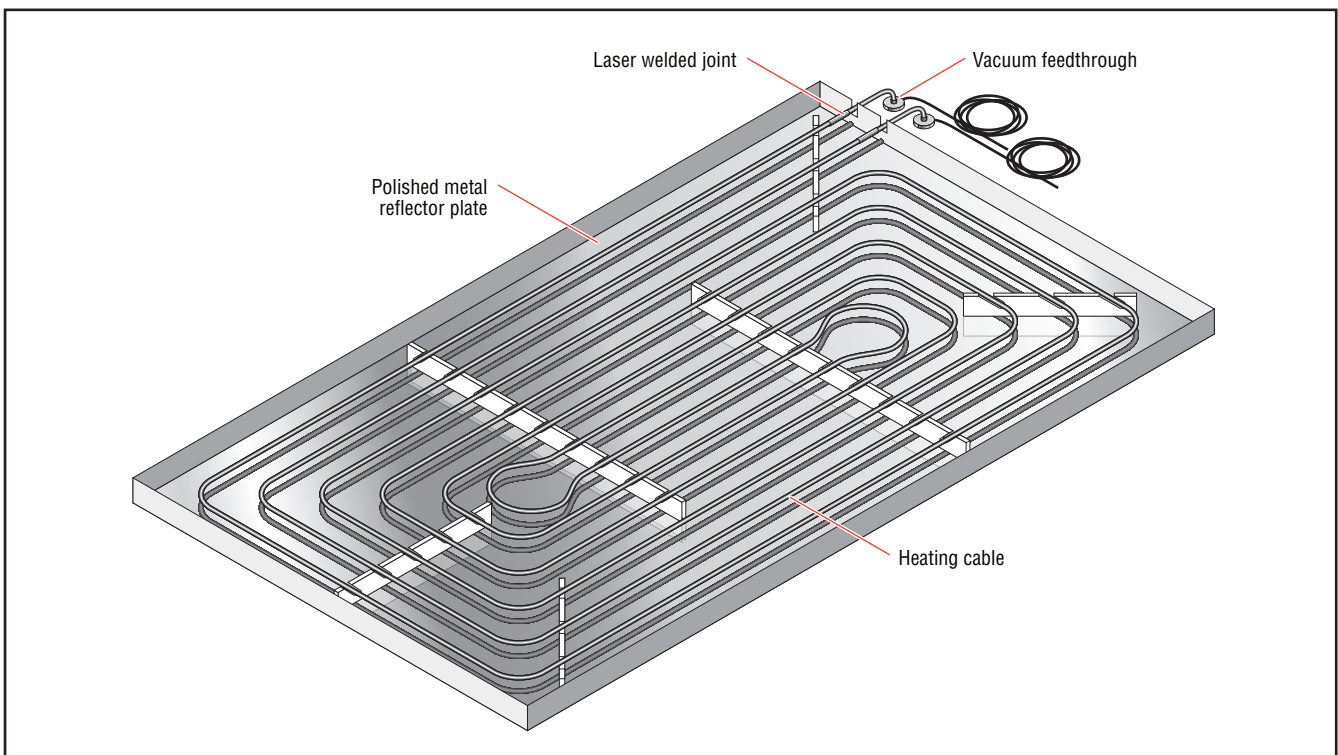
At the core is a mineral insulated (MI) heating cable which is manufactured into

a hermetically sealed heating element utilising laser welding technology, then formed to deliver optimum heat density and finally attached to a metallic plate which directs the heat to where it's required.

The lightweight, all-metal construction combined with the long element lengths made possible by MI cables minimise the number of vacuum feedthroughs required thus reducing the number of failure modes

in the final assembly. Additional reliability is achieved using multiple temperature sensors with the option of fully integrated and vacuum tested power and sensor feedthroughs .

Thermocoax can provide a customised radiant heater to specific customer design requirements or engineer from a simple design outline.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP68
Electrical protection class	Class I
Maximum withstand temperature (power off)	1000°C
Minimum installation temperature	-60°C

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Magnesium Oxide (MgO)
Material of outer sheath	Depending on design

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**Technical Data**

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Maximum operating voltage	300/500 Vac
Maximum operating temperature	1000°C

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**Options**

Vacuum feedthrough of different style for heater and sensor connection; the length of the cold lead, the number of wires and optional vacuum feedthrough can be designed to customer requirements in terms of space, temperature and electrical needs.

## Isopad platen heater

Isopad platen heaters (IPH) have been designed to blend the benefits of an electric radiant heat source and the design requirements of press plates. Due to a uniform heat density they are ideally suited to coating and lamination processes and have been widely adopted in high quality applications such as solar panel manufacture.

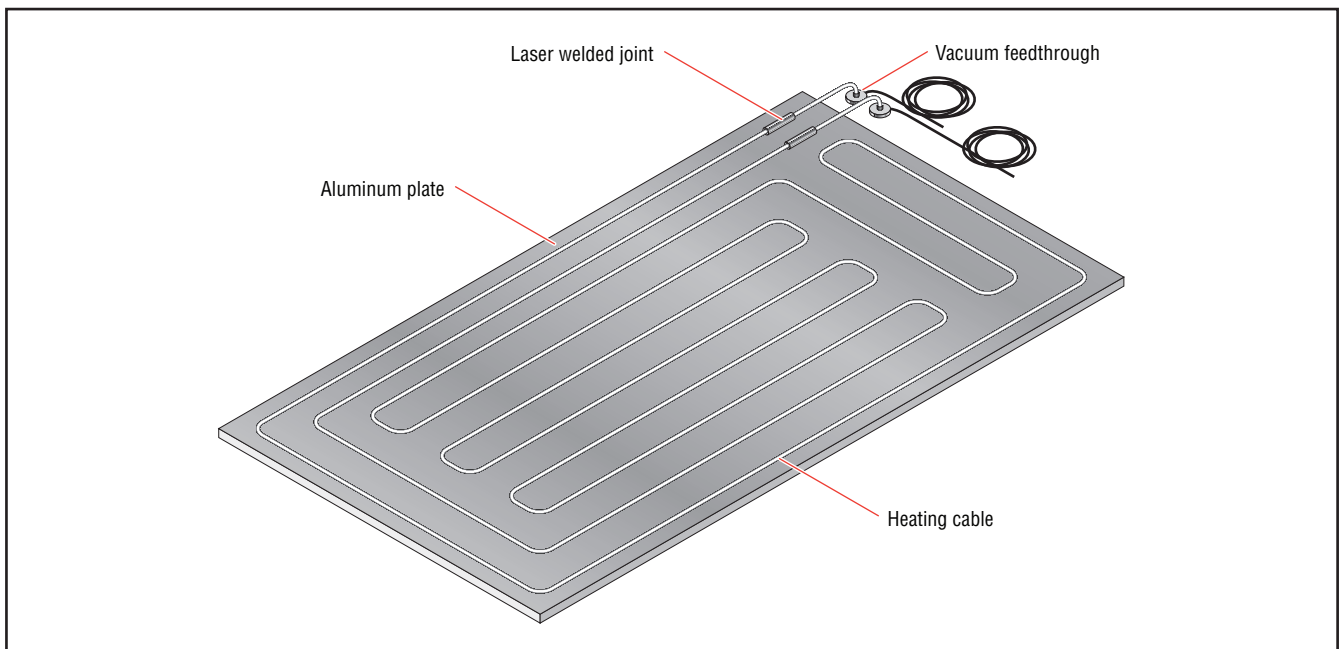
At the core is a mineral insulated (MI) heating cable which can supply temperatures

up-to 1000°C, the MI heating cable is manufactured into a hermetically sealed heating element utilising laser welding technology, formed to deliver optimum heat density then fully encapsulated in a metallic platen ready for use.

The long element lengths made possible by MI cables minimise the number of vacuum feedthroughs required thus reducing the number of failure modes in the final

assembly. Additional reliability is achieved using multiple temperature sensors with the option of fully integrated and vacuum tested power and sensor feedthroughs.

Thermocoax can provide a customised platen heater to specific customer design requirements or engineer from a simple design outline.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP68
Electrical protection class	Class I
Maximum withstand temperature (power off)	1000°C
Minimum installation temperature	-60°C

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Magnesium oxide (MgO)
Material of outer sheath	Depending on design

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**Technical Data**

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Maximum operating voltage	300/500 Vac
Maximum operating temperature	1000°C (depending on plate material)

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**Options**

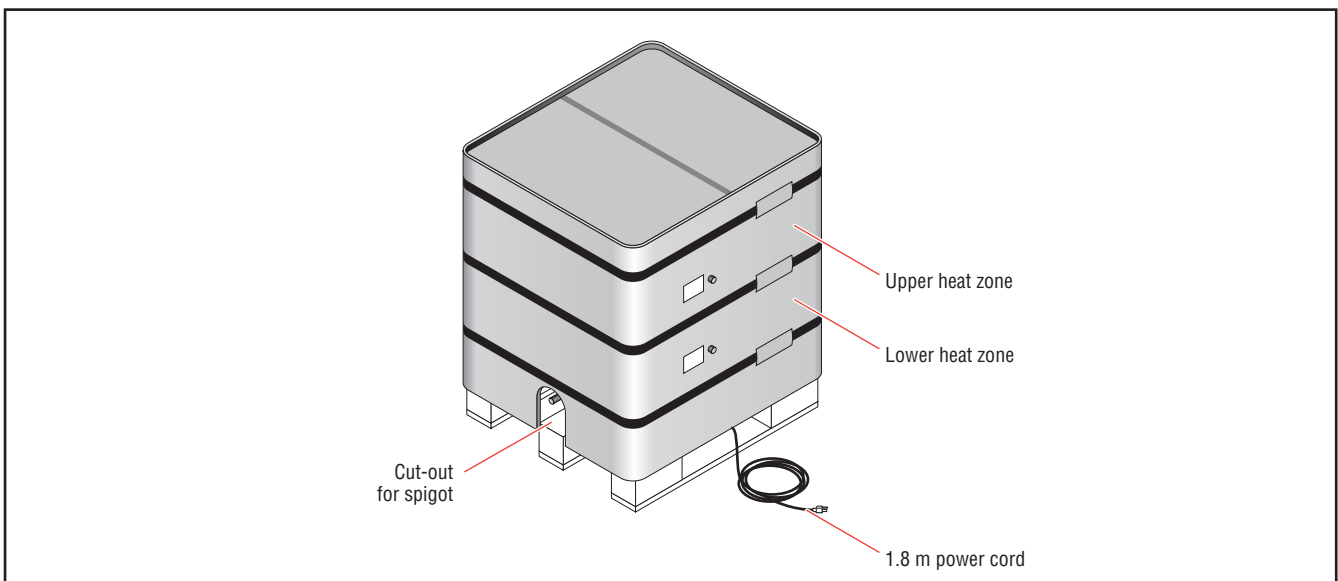
Vacuum feedthrough of different style for heater and sensor connection; the length of the cold lead, the number of wires and optional vacuum feedthrough can be designed to customer requirements in terms of space, temperature and electrical needs.

## Soft jacket IBC heater

Isopad IIBC-G soft jacket heater fits several IBC and tote tank sizes with adjustable nylon straps and buckles. Controls temperature with adjustable thermostats. Protects contents and tote tank surface from heat damage with manual reset highlimit safety thermostats.

Designed for caged, plastic, or metal tote tanks/IBCs. The wrap-around blanket design allows you to heat a tote tank/IBC externally without changing the IBC or tote tank. Fits containers with width from 1016 x 1016 mm to 1219 x 1219 mm. Does not contaminate or scorch your product. Fitted using adjustable

nylon straps with buckles. An optional top cover is available to reduce heat loss and accelerate heat-up. Built-in adjustable thermostats allow you to control the temperature, and two separate heat zones allow you to adjust heater output when content levels are lower.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP51
Electrical protection class	Class I
Voltage	240 Vac power cord 1.8 m
Power output	2880 W
Temperature range	10 to 71°C, built-in thermal cut-out set at 91°C for each heat zone

### Heater Construction

Material	Silicone-impregnated cloth facing and liner
Insulation	6 mm fibreglass insulation

### Ordering Information

Part number	Product description	Height (mm)	Minimum tank perimeter (mm)	Maximum tank perimeter (mm)	Wattage at 240 Vac (W)	Weight (kg)
1235-99840013	IIBC-G/914MM/240V/2880W	914	4064	4877	2880	15
1235-99840014	IIBC-G/1067MM/240V/2880W	1067	4064	4877	2880	18

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**Ordering Information**

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1235-99840015	IIBC-G/1220MM/240V/2880W	1220	4064	4877	2880	21
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**Accessories**

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<b>Part number</b>	<b>Description</b>
1235-99840016	IIBC-G/Insulated top cover

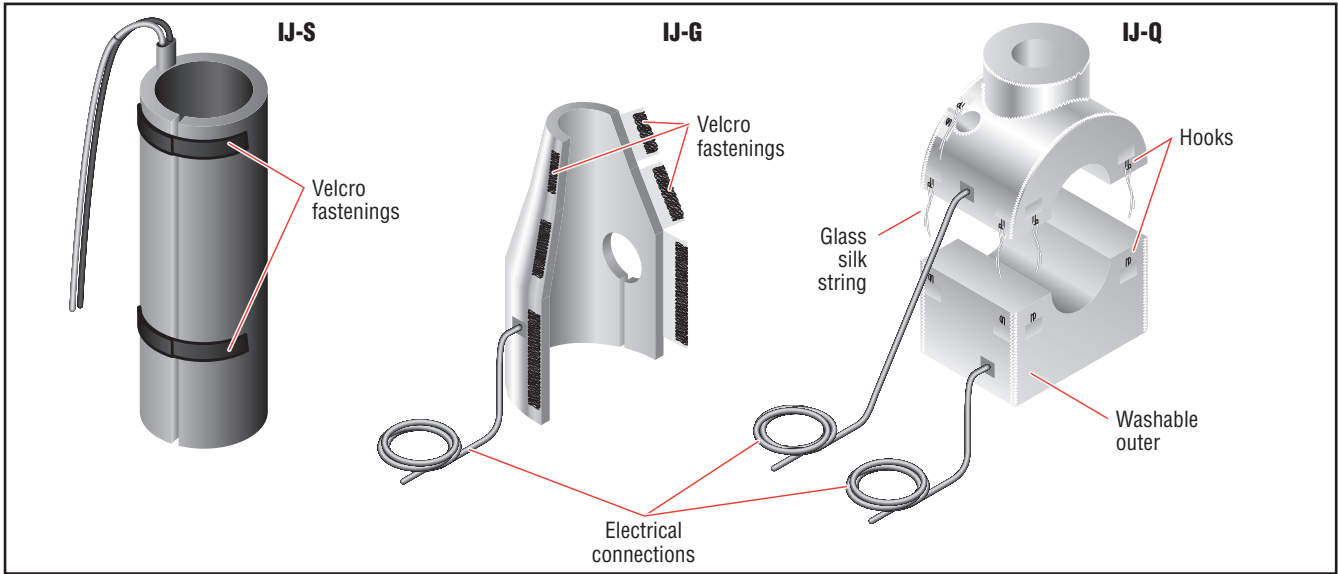
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## Heating jackets

In our jacket heaters there are three components: a heater, the insulation for that heater, and the carrier for that assembly. The outer carriers on these

versions may be washable. Different shapes are manufactured to customer requirements and many attachment and fixing methods are available. A small

number of jacket versions are available with hazardous area approval.



	IJ-S	IJ-G	IJ-Q
<b>Area Specifications</b>			
Area classification	Nonhazardous, ordinary area	Nonhazardous, ordinary area	Nonhazardous, ordinary area
Ingress protection	IP65	IP20	IP20
Electrical protection class	Class II; Class I with metal sheath	See note	See note
Maximum withstand temperature (power off)	200°C	450°C	900°C

Note: These are components for further installation. The protective arrangements of Protection Class I or Class II must be followed during installation of the components and are the responsibility of the assembly company. Please refer to the manual for further information.

<b>Heater Construction</b>			
Type	Resistance heating cable	Resistance heating cable	Resistance heating cable
Material	Various alloys	Various alloys	Various alloys
Material of insulation	Depending on design	Depending on design	Quartz-glass
Material of outer sheath	Silicone	Glass-silk with PTFE, Silicone or Aluminium coating	Quartz-glass
Thickness of thermal insulation	6 to 12 mm	10 to 100 mm	10 to 100 mm

<b>Temperature Control</b>			
Sensor type	PT100, Fe-CuNi/J or NiCr-Ni/K acc. to DIN	PT100, Fe-CuNi/J or NiCr-Ni/K acc. to DIN	NiCr-Ni Type K

<b>Technical Data</b>			
Frequency	50-60 Hz	50-60 Hz	50-60 Hz
Maximum operating voltage	400 Vac	240 Vac	240 Vac
Maximum area load	0.7 W/cm <sup>2</sup>	1.5 W/cm <sup>2</sup>	3.6 W/cm <sup>2</sup>



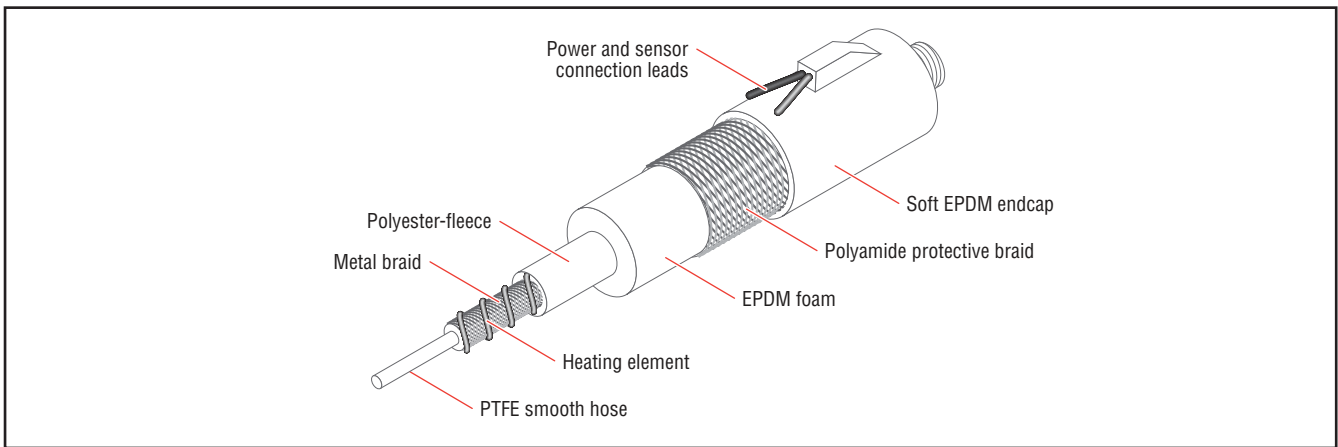


## Heated hose, standard range for liquid and gaseous media

Isopad IHH-ST1A/ST1D is a flexible heated hose for liquid and gaseous media with a maximum operating temperature of 100°C. The standard versions have smooth PTFE inner hose constructions with stainless steel braiding for pressurized operation. The thermal insulation consists of polyester fleece and ethylene propylene diene monomer (EPDM) foam.

Mechanical protection is provided by a polyamide braid and soft EPDM endcaps. Built-in Pt100 sensors provide optimum temperature control for the medium. The evenly wrapped resistance heating cable allows an homogeneous heat distribution throughout the hose.

The standard versions can be used for a wide range of applications. Special designs are available on request with focus on the performance level and/or environmental influences. See our list of options for your desired design on page 3.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP54
Electrical protection class	Class I
Maximum withstand temperature (power off)	100°C
Ambient temperature range	-20 to +40°C

### Standard Manufacturing Sizes

Length	Up to 19 m <sup>(1)</sup>
Tolerances	According to DIN 20066
Nominal width	4, 6, 8, 10, 13 mm

<sup>(1)</sup> Available in steps of 0.1 m

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE
Material of outer sheath	Copper-nickel braid
Carrier	Stainless steel braid
Inner hose	Smooth PTFE hose
Fittings	AGR or DKR according to ISO 228/1
Fitting material	Galvanized steel
Thermal fabric fibre insulation	Polyester-fleece of 4 to 5 mm thickness

**Heater Construction**

Thermal foam insulation	EPDM of 9 to 11 mm thickness
Outer protection	Polyamide braid

**Lead Connection**

Connection length	1.5 m
Cross section	Depending on design
Maximum operating temperature	180°C
Insulation material	Silicone

**Temperature Control**

Sensor type	Pt100 two-wire DIN Class B
Sensor lead length	1.5 m
Lead cross section	Depending on design
Maximum operating temperature	180°C
Sensor lead material	Silicone

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	120 or 230 Vac
Nominal power	Depending on design
Power per meter	Maximum 110 W/m (see performance table)
Minimum insulation resistance	100 MΩ
Maximum operating temperature	100°C
Maximum operating pressure	See performance table
Minimum bend radius	See performance table

**Performance Table**

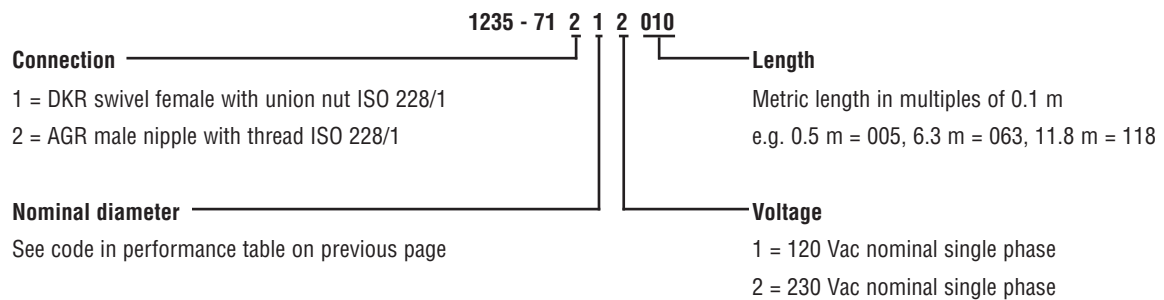
Nominal diameter		Power (W/m) at 100°C	Maximum static pressure (bars)		Minimum bend radius (mm)	
Code	mm		at 20°C	at 100°C	Static	Dynamic <sup>(1)</sup>
1	4	70	250	238	100	200
2	6	80	240	228	150	300
3	8	90	200	190	200	400
4	10	100	175	166	140	480
5	13	110	150	143	270	540

<sup>(1)</sup>Dynamic performance represents two dimensional single piston stroke per second (1 Hz) with compressed air (medium) 6 bars at 100°C operating and 20°C ambient temperature. Dynamic performance of heated hoses is recommended to be tested for each individual application.

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**Ordering Information - Part Number Configurator (for standard versions only, not applicable for special versions)**


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**Example:** 1 m heated hose, 4 mm nominal diameter, 230 V supply voltage, AGR connection  
**Part Number: 1235-71212010**

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**Options for Special Versions**


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If your requirements are not met by the above specifications, we can tailor-make a heated hose to suit you. Variations depend on design and can include:

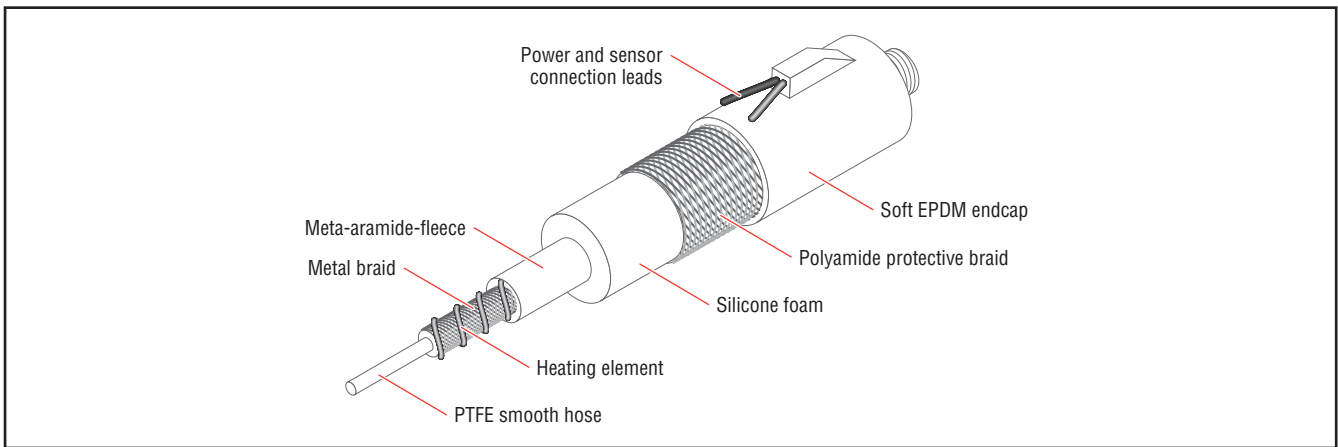
- Other nominal sizes and inner hoses, e.g. supplied components for individual heating
  - Sizes up to 120 m
  - Sensor types, e.g. thermocouples Type K, Type J, etc.
  - Supply voltage up to 400 V, single-phase or three-phase
  - Higher power outputs
  - Increased ingress protection, e.g. IP65 for outdoor applications
  - Increased pressure resistance, up to 475 bar at 100°C (depending on nominal diameter)
  - Other materials, e.g. for applications recommending silicone free production
  - Approved components for the use in hazardous areas according to IECEx and ATEX
  - Replaceable inner hoses for nonpressurized gas analysis
  - Premounted plugs and special supply and messenger leads
  - Controlling devices and high temperature lock-out thermostats
-

## Heated hose, standard range for liquid and gaseous media

Isopad IHH-ST2A/ST2D is a flexible heated hose for liquid and gaseous media with a maximum operating temperature of 200°C. The standard versions have smooth PTFE inner hose constructions with stainless steel braiding for pressurized operation. The thermal insulation consists of meta-aramide fleece and silicone foam.

Mechanical protection is provided by a polyamide braid and soft ethylene propylene diene monomer (EPDM) endcaps. Built-in Pt100 sensors provide optimum temperature control for the medium. The evenly wrapped resistance heating cable allows an homogeneous heat distribution throughout the hose.

The standard versions can be used for a wide range of applications. Special designs are available on request with focus on the performance level and/or environmental influences. See our list of options for your desired design on page 3.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP54
Electrical protection class	Class I
Maximum withstand temperature (power off)	200°C
Ambient temperature range	-20 to +40°C

### Standard Manufacturing Sizes

Length	Up to 19 m <sup>(1)</sup>
Tolerances	According to DIN 20066
Nominal width	4, 6, 8, 10, 13 mm

<sup>(1)</sup> Available in steps of 0.1 m

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	PTFE
Material of outer sheath	Copper-nickel braid
Carrier	Stainless steel braid
Inner hose	Smooth PTFE hose
Fittings	AGR or DKR according to ISO 228/1
Fitting material	Galvanized steel
Thermal fabric fibre insulation	Meta-aramide-fleece of 4 to 5 mm thickness

**Heater Construction**

Thermal foam insulation	Silicone of 9 to 11 mm thickness
Outer protection	Polyamide braid

**Lead Connection**

Connection length	1.5 m
Cross section	Depending on design
Maximum operating temperature	180°C
Insulation material	Silicone

**Temperature Control**

Sensor type	Pt100 two-wire DIN Class B
Sensor lead length	1.5 m
Lead cross section	Depending on design
Maximum operating temperature	180°C
Sensor lead material	Silicone

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	120 or 230 Vac
Nominal power	Depending on design
Power per meter	Maximum 140 W/m (see performance table)
Minimum insulation resistance	100 MΩ
Maximum operating temperature	200°C
Maximum operating pressure	See performance table
Minimum bend radius	See performance table

**Performance Table**

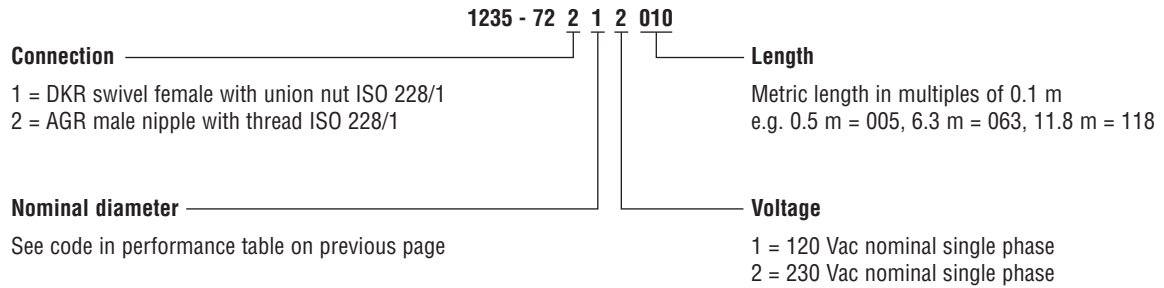
Nominal diameter		Power (W/m) at 200°C	Maximum static pressure (bars)		Minimum bend radius (mm)	
Code	mm		at 20°C	at 200°C	Static	Dynamic <sup>(1)</sup>
1	4	90	250	208	100	200
2	6	100	240	199	150	300
3	8	110	200	166	200	400
4	10	120	175	145	140	480
5	13	140	150	125	270	540

<sup>(1)</sup>Dynamic performance represents two dimensional single piston stroke per second (1 Hz) with compressed air (medium) 6 bars at 100°C operating and 20°C ambient temperature. Dynamic performance of heated hoses is recommended to be tested for each individual application.

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**Ordering Information - Part Number Configurator (for standard versions only, not applicable for special versions )**


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**Example:** 1 m heated hose, 4 mm nominal diameter, 230 V supply voltage, AGR connection  
**Part Number: 1235-72212010**

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**Options for Special Versions**


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If your requirements are not met by the above specifications, we can tailor-make a heated hose to suit you. Variations depend on design and can include:

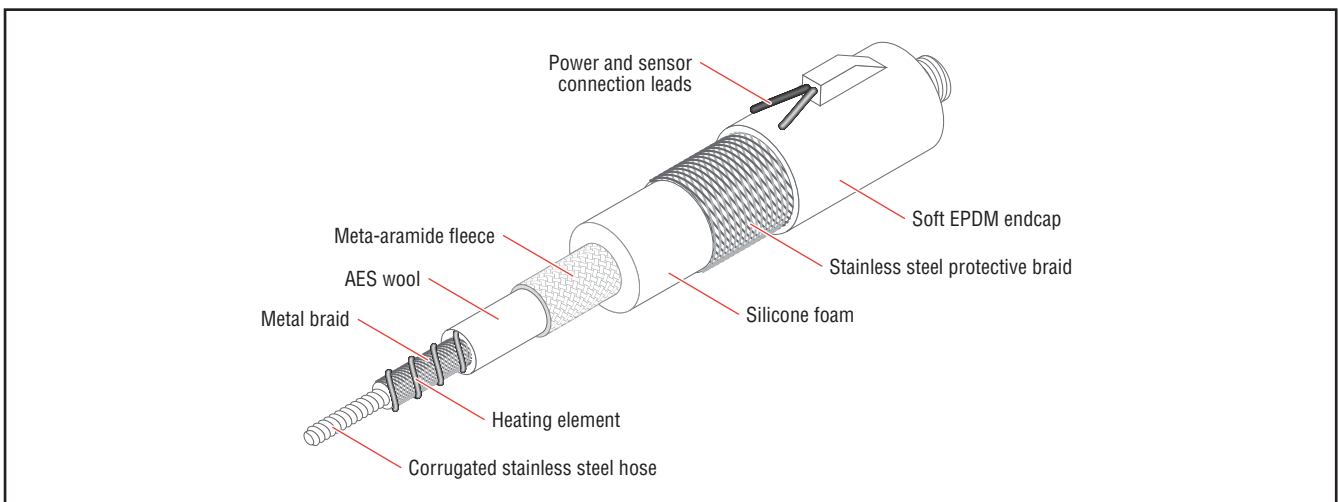
- Other nominal sizes and inner hoses, e.g. supplied components for individual heating
  - Sizes up to 120 m
  - Sensor types, e.g. thermocouples Type K, Type J, etc.
  - Supply voltage up to 400 V, single-phase or three-phase
  - Higher power outputs
  - Increased ingress protection, e.g. IP65 for outdoor applications
  - Increased pressure resistance, up to 415 bar at 200°C (depending on nominal diameter)
  - Other materials, e.g. for applications recommending silicone free production
  - Approved components for the use in hazardous areas according to IECEx and ATEX
  - Replaceable inner hoses for nonpressurized gas analysis
  - Premounted plugs and special supply and messenger leads
  - Controlling devices and high temperature lock-out thermostats
-

## Heated hose, standard range for liquid and gaseous media

Isopad IHH-ST4A/ST4D is a flexible heated hose for liquid and gaseous media with a maximum operating temperature of 400°C. The standard versions have corrugated stainless steel inner hose constructions with stainless steel braiding for pressurized operation. The thermal insulation consists of high temperature fleece and silicone foam.

Mechanical protection is provided by a stainless steel braid and soft ethylene propylene diene monomer (EPDM) endcaps. Built-in Pt100 sensors provide optimum temperature control for the medium. The evenly wrapped resistance heating cable allows an homogeneous heat distribution throughout the hose.

The standard versions can be used for a wide range of applications. Special designs are available on request with focus on the performance level and/or environmental influences. See our list of options for your desired design on page 3.



### Area Specifications

Area classification	Nonhazardous, ordinary area
Ingress protection	IP54
Electrical protection class	Class I
Maximum withstand temperature (power off)	400°C
Ambient temperature range	-20 to +40°C

### Standard Manufacturing Sizes

Length	Up to 19 m <sup>(1)</sup>
Tolerances	According to DIN 20066
Nominal width	6, 8, 10, 13 mm

<sup>(1)</sup> Available in steps of 0.1 m

### Heater Construction

Type	Resistance heating cable
Material	Various alloys
Material of insulation	Glass-silk
Material of outer sheath	Woven glass-silk
Carrier	Stainless steel braid
Inner hose	Corrugated stainless steel hose
Fittings	AGR or DKR according to ISO 228/1

**Heater Construction**

Fitting material	Stainless steel
Thermal fabric fibre insulation	Meta-aramide-fleece + AES-wool of 8 to 12 mm thickness
Thermal foam insulation	Silicone of 9 to 11 mm thickness
Outer protection	Stainless steel braid

**Lead Connection**

Connection length	1.5 m
Cross section	Depending on design
Maximum operating temperature	180°C
Insulation material	Silicone

**Temperature Control**

Sensor type	Pt100 two-wire DIN Class B
Sensor lead length	1.5 m
Lead cross section	Depending on design
Maximum operating temperature	180°C
Sensor lead material	Silicone

**Technical Data**

Frequency	50-60 Hz
Nominal operating voltage	120 or 230 Vac
Nominal power	Depending on design
Power per meter	Maximum 150 W/m (see performance table)
Minimum insulation resistance	100 MΩ
Maximum operating temperature	400°C
Maximum operating pressure	See performance table
Minimum bend radius	See performance table

**Performance Table**

Nominal diameter		Power (W/m) at 400°C	Maximum static pressure (bars)			Minimum bend radius (mm)	
Code	mm		at 20°C	at 400°C	Static	Dynamic <sup>(1)</sup>	
2	6	120	125	62	50	160	
3	8	130	125	62	65	250	
4	10	140	100	50	75	260	
5	13	150	85	42	90	280	

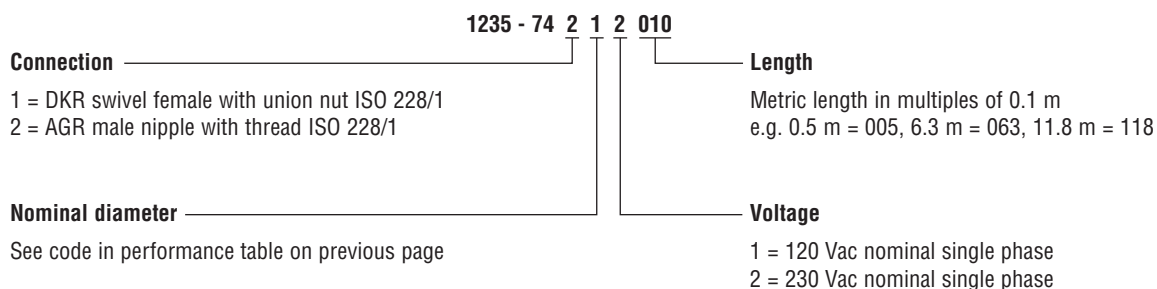
<sup>(1)</sup>Dynamic performance represents two dimensional single piston stroke per second (1 Hz) with compressed air (medium) 6 bars at 100°C operating and 20°C ambient temperature. Dynamic performance of heated hoses is recommended to be tested for each individual application.



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**Ordering Information - Part Number Configurator (for standard versions only, not applicable for special versions )**


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**Example:** 1 m heated hose, 4 mm nominal diameter, 230 V supply voltage, AGR connection  
**Part Number: 1235-7421010**

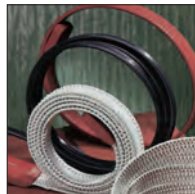
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**Options for Special Versions**


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If your requirements are not met by the above specifications, we can tailor-make a heated hose to suit you. Variations depend on design and can include:

- Other nominal sizes and inner hoses, e.g. supplied components for individual heating
- Sizes up to 120 m
- Sensor types, e.g. thermocouples Type K, Type J, etc.
- Supply voltage up to 400 V, single-phase or three-phase
- Higher power outputs
- Increased ingress protection e.g IP65 for outdoor applications
- Increased pressure resistance
- Other materials eg. for applications recommending silicone free production
- Replaceable inner hoses for nonpressurized gas analysis
- Premounted plugs and special supply and messenger leads
- Controlling devices and high temperature lock-out thermostats



**France :**  
**THERMOCOAX SAS**  
40 Bd Henri Sellier  
F 92156 SURESNES Cedex  
Tél. : +33 1 41 38 80 50  
Fax : +33 1 41 38 80 70  
info@thermocoax.com

**Germany :**  
**THERMOCOAX ISOPAD GmbH**  
Englerstrasse 11  
D-69 126 HEIDELBERG  
Tél. : +49 6221 3043-0  
Fax : +49 6221 3043-956  
isopad.info@thermocoax.com

**USA :**  
**THERMOCOAX Inc.**  
6825 Shiloh Road East,  
Ste B-3  
ALPHARETTA, GA 30005  
Tél. : +1 800 298 3345  
Fax : +1 678 947 4450  
info@thermocoax.us

**UK :**  
**THERMOCOAX UK Ltd.**  
Office N° 5  
Manor Farm  
Aubourn,  
Lincolnshire LN5 9DX  
Tél. : +44 (1522) 789 900  
Fax : +44 (1522) 789 902  
info-uk@thermocoax.com

**CHINA :**  
法国热缆公司  
四川省成都市蛟龙工业港双流  
园区涪江路11座  
电话: : 13701325459  
info-china@thermocoax.com

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