# MİRCEK
## Heating Cabled Jackets

MİR Insulation®
DEFENCE · AVIATION · SPACE · HVAC
Insulation and Composite Products

MİRCEK®
Removable Insulation Covers

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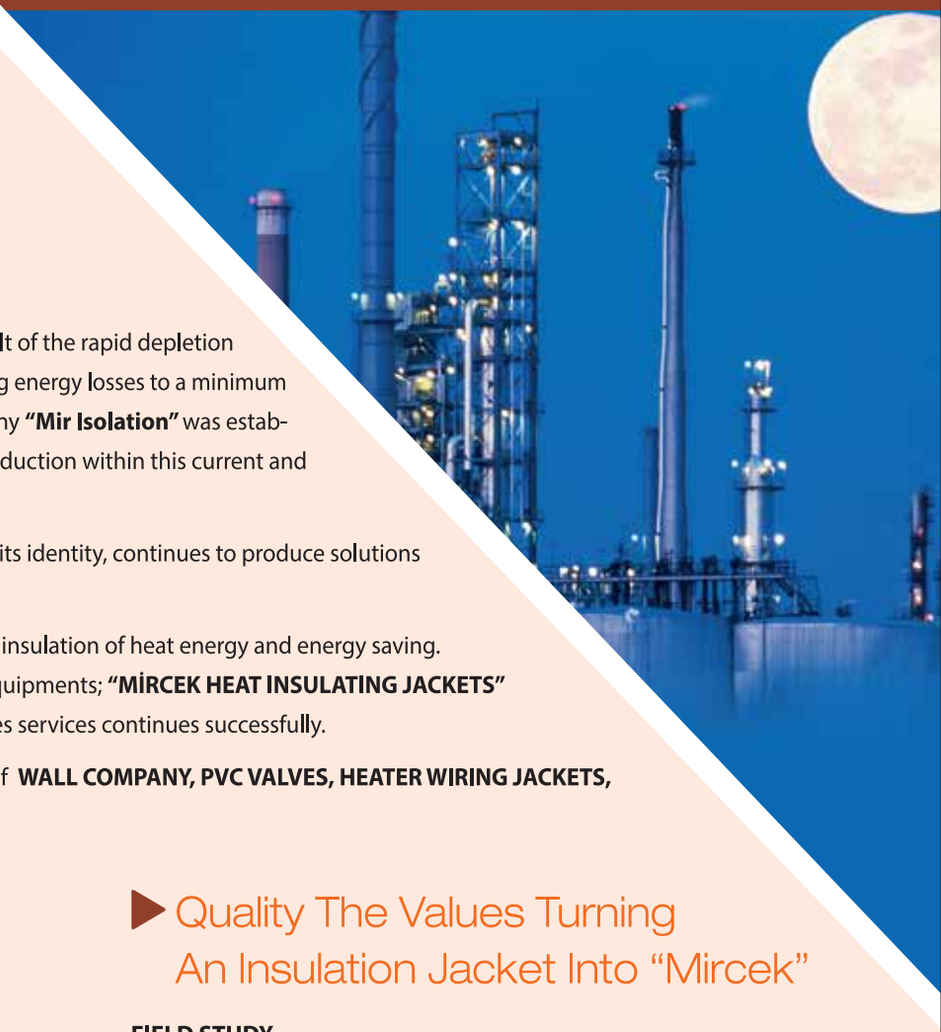
*No energy, no life!*



# No Energy, No Life!

The efficient use of all kinds of energy, which is the result of the rapid depletion of natural resources, has now become essential. Reducing energy losses to a minimum is also a very technical and important issue. Our company **"Mir Isolation"** was established in Ankara- Turkey in 2003 in order to perform production within this current and important **"energy saving industry".**

Our company, which is the producer and exporter with its identity, continues to produce solutions with innovative innovations in its field.

Valves, fittings, heat exchangers, pipes, etc. are used for insulation of heat energy and energy saving. Mir Insulation produces heat insulation jackets for all equipments; **"MİRCEK HEAT INSULATING JACKETS"** under the warranty brand under the sales and after-sales services continues successfully.

In addition to this, our company produces production of **WALL COMPANY, PVC VALVES, HEATER WIRING JACKETS, HEAT TRACING and APPLICATIONS.**

## ▶ Mir Isolation "Business" Values

• The goal for us; increasing success + what we call "real existence" + increased reputation + increased investment + increasing value-added cycle.
• Mir Isolation aims to be an innovator, to use and even produce technology, to provide added value in the country and world, to increase its employment and to have a norm in the sector.
• Mir Insulation owns, educates, develops, sees staff under the employment roof. All the staff of Mir Isolation were not aware of the "flag".
• Mir Insulation gives importance to the following four concepts; HONESTY – SOLUTION – SPEED – QUALITY THE VALUES TURNING AN INSULATION JACKET INTO "MİRCEK"

TSEK 126 SINIF 1

TRB TS EN ISO 9001:2008

TÜRKAK Kalite Yönetim Sistemi TS EN ISO/IEC 17021 AB-0015-YS

## ▶ Quality The Values Turning An Insulation Jacket Into "Mircek"

**FIELD STUDY**
Making dimensional and temperature measurements with on-site exploration

**EXPERT ENGINEERING**
The most effective way to prevent heat loss and gain of the layer materials, structure, thickness, technical choices in terms of density,

**DESIGN**
It is not a standard model and mold, but a formal, functional and careful design of the dimensional requirements

**R & D**
Everything is under the scope of AR-GE to ensure that the product is quality, lasting, affordable and aesthetically pleasing

**INFORMATION**
Including documents identifying the product name, code, quantity, diameter, type type on bulk packagings

**SECURITY**
The fact that the product has a safe shipping packaging system

**ORIENTATION**
Orientating and long-term product labeling system to be placed on each product

**ADDED VALUE**
To provide the product with instructions to ensure safety during installation and instructions to speed up the installation work

**WARRANTY**
Guaranteed product maintenance during the warranty period and for many years

# Mircek Heating Cabled Jackets

***Heating cabled insulation jackets are used when mechanical equipment has following features;***

- Need supplementary heat reinforcement
- The temperature needs to be increased
- The process temperature must be maintained
- The risk of freezing cannot be solved by insulation alone.

## Industries in which Mircek Heater Cabled Jackets are used

| |
|---|
| Factories |
| Oil and Gas Industries |
| Mines, Dams, Ships and Tankers |
| Thermal, Hydroelectric and Nuclear Power Plants |
| Pipelines |
| Storage Tanks |
| Gas Tanks in Laboratories |

## Advantages of Mircek Heating Cabled Jackets

- Eliminates the risk of heat loss during transport of the fluid through the pipeline.
- Allows the system to operate with maximum efficiency.
- Enables safe opening and closure of systems.
- Maintains the viscosity of the fluid.
- Insulated detail allows significantly less energy use compared to other heater cabling.
- Prevents calibrating gases from condensing due to low temperature and sedimentation and degradation of homogeneity.
- Prevents the overall system from operating more to increase the heat of the equipment.
- Provides mounting convenience with the demountable feature of the jackets.
- Protect the cables from negative external effects if the heating cables are inside the jacket.
- While the heating cables near the bottom layer provide the necessary heat reinforcement, the insulation layer allows the desired surface temperature to be achieved on the top surface, thereby protecting work and worker safety.

## Why are Heating Cableed Insulation Jacket for Gas Tubes very important?

- Calibration gases condense when exposed to low heat and sedimentation begins by the effect of gravity. This causes the homogeneity of the gas to be impaired and the measurement stability to be negatively affected during calibration.
- Another effect that disturbs the homogeneity of the gas is that the calibration tube remains stationary for a long time. The inert gas components in the calibration tubes are separated by the impact of the gravity in parallel with their molecular weight, and the heavier components collapse into the lower layers. Insulation jackets with heating cables remove the effect of low heat and the inert gas with heat effect moves the mixture and keeps the components mixed and homogeneous.

## Why are Heating Cabled Insulation Jacket for fluids with High Viscosity very Important?

Many viscous and paste-like fluids that are difficult to pump are subjected to more severe consistency than desired due to the reduction of the heat level in some areas of the production line. Insulation jackets with heating cables protect the desired consistency of the reinforcement heat fluid and eliminate the risk of pausing on the production line.

## Materials forming Mircek Heating Cabled Jackets

### Parameters required during planning phase

While the insulation jacket with heating cable is being designed; heating cable, insulation material, non-combustible and liquid impervious coating materials and other complementary products and control systems (thermostats, boat, coupling etc.) should be selected in accordance with the following parameters for each project.

**1-** Working heat of the equipment

**2-** Fluid type (chemical, water, gas etc.)

**3-** Outdoor temperature
**4-** Desired temperature range for storing fluid
**5-** Dimensional values of the equipment (surface area, diameter, length etc.)
**6-** Preferred voltage
**7-** Other electrical-electronic systems with which the equipment may interact

## Insulation Materials

**Needled Glass Fiber Mattress**
**Heat resistance:** 650 C
**Density:** 130 kg/m3
**Thickness:** 13-25 mm

**Silica Aerogel (pyro gel)**
**Heat resistance:** 650 C
**Density:** 180 kg/m3
**Thickness:** 5-10 mm

**Elastomer Rubber Foam**
**Heat resistance:** 85 C
**Density:** 60 kg/m3
**Tickets:** 6-9-13-19-25-32 mm

**Ceramic Fiber Mattress**
**Heat resistance:** 1260 C
**Density:** 96 - 128 kg/m3
**Thickness:** 6 -13 -25- 50 mm

**Polyester Felt**
**Heat resistance:** 150 C
**Density:** 30 kg/m3
**Thickness:** 10-20-30-40-50-60-80 mm

**Water Repellent Polyester Felt**
**Heat resistance:** 100 C
**Density:** 24 kg/m3
**Thickness:** 10-20-30-40-50 mm

## Fabrics

The working temperature of the fabric type equipment suitable for the thermal insulation pad should be selected according to such factors as the fluid type.

**Glass Fiber Fabrics**
**Heat resistance:** 400-550 C
**Weight:** between 200-2000 gr/m2
**Thickness:** between 0,18 / 3 mm

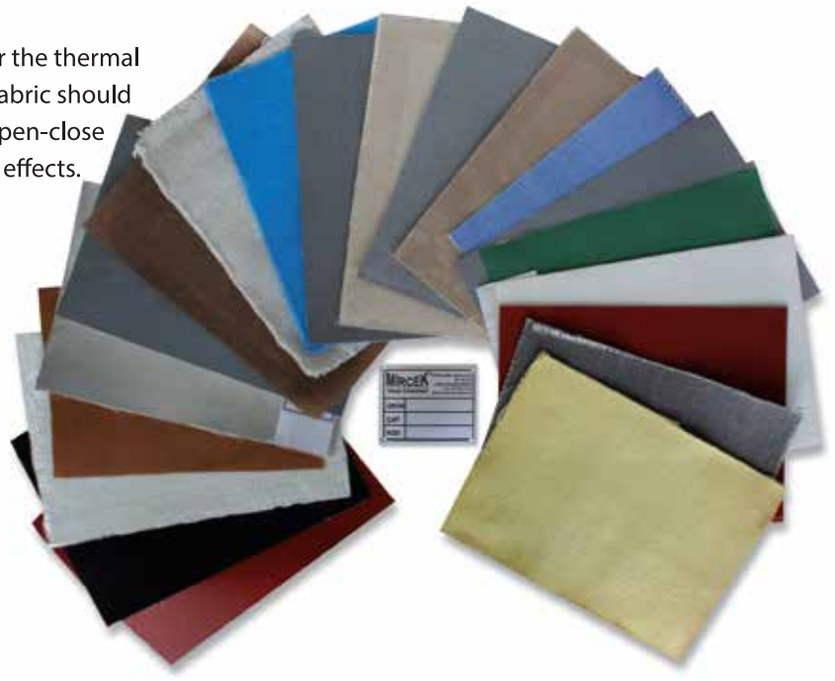
**Ceramic Fabrics**
**Heat resistance:** 1000 C
**Weight:** between 1000 -2500 gr/m2
**Thickness:** between 2 / 5 mm

**Silica Fabrics**
**Heat resistance:** 700 C
**Weight:** between 180 - 1400 gr/m2
**Thickness:** between 0,22 / 2,10 mm

**Aramid Fabrics**
**Heat resistance:** 250 C
**Weight:** 480 gr/m2
**Thickness:** 0,4 mm

# Fabric Coatings

After choosing the appropriate fabric type for the thermal insulation jacket, the type of coating on the fabric should be selected considering the factors such as open-close environment, ambient temperature, external effects.



**Polyurethane Coated Fabrics**
**Heat resistance:** 400-550 °C
**Effects:** Increases thermal resistance rate

**Aluminum Foil Coated Fabrics**
**Heat resistance:** 150-200 °C
**Effects:** Reflects the heat

**Steel Wire Reinforced Fabrics**
**Heat resistance:** 1000 °C
**Effects:** Increases tearing strength and high temperature resistance.

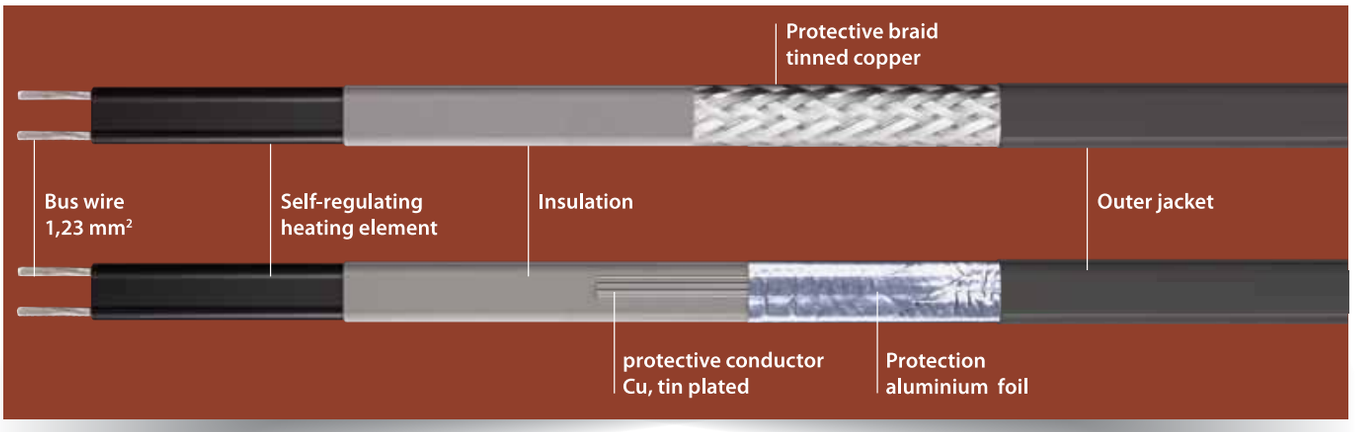
**Silicone Coated Fabrics**
**Heat resistance:** 230-260 °C
**Effects:** Provides water and steam impermeability

**Vermiculite Coated Fabrics**
**Heat resistance:** 500-700 °C
**Effects:** Provides acid, alkali resistance.

**Teflon coated fabrics**
**Heat resistance:** 260 °C
**Effects:** Provides Oil, gas impermeability.

# Heating Cable

In our insulating jackets with heating cables, we have alternative cable options that can respond to every need in the industrial field.




## Self-Regulating (Auto regulated) Heating Cables

- Usable between -45 and 210 C
- 5/15 mm diameter range
- Voltage 220/380 V
- Application temperature -50 / 260 C (max 900 C without Humidity)
- Cuttable
- Flexible
- In round / flat form
- It has exproof / non-exposed features.

## Ex-proof Feature

The term "exproof" means ensuring the feature that electric tools and fittings used in explosive atmospheres do not cause this explosion. Heating cable with ex-proof feature, termination material, termination connection, junction box, couplings etc. should be used especially in RMS-A stations and natural gas cycle plants and establishments using calibration gas.

## Technical information

### Data

| | |
|---|---|
| Outer jacket | TPE-O |
| Bus wire | 1,23 mm² nickel plated copper |
| Maximum exposure temperature (power off) | 80 °C |
| Maximum exposure temperature (power on) | 65 °C |
| Nominal voltage | 230 V |
| Bending radius, minimum | 25 mm |
| Installation temperature, min. | – 50 °C |
| Classification | II 2G Ex e IIC Gb II 2D Ex tb IIIC Db |
| Certificates | IECEx EPS 12.0006U<br>12ATEX1431U |

**Heating circuit lengths ELSR- LS -…-2 on the following conditions**

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- One (1) single end power input heating cable

| Switch-on temperature (°C) | Nominal cutout value (A) | Heating circuit length (m) for | | | |
|---|---|---|---|---|---|
| | | ELSR- LS - 10-2 | ELSR- LS - 15-2 | ELSR- LS - 25-2 | ELSR- LS - 30-2 |
| 10 | 10 | 152,0 | 103,0 | 64,0 | 49,0 |
| | 16 | 196,0 | 160,5 | 103,0 | 78,0 |
| | 20 | 196,0 | 160,5 | 126,0 | 97,5 |
| | 25 | 196,0 | 160,5 | 126,0 | 112,5 |
| 0 | 10 | 141,0 | 84,0 | 54,0 | 44,0 |
| | 16 | 188,5 | 134,0 | 87,0 | 70,0 |
| | 20 | 188,5 | 145,0 | 108,0 | 87,5 |
| | 25 | 188,5 | 145,0 | 116,0 | 104,0 |
| -10 | 10 | 119,0 | 71,0 | 47,0 | 38,0 |
| | 16 | 173,5 | 114,0 | 75,0 | 61,0 |
| | 20 | 173,5 | 133,0 | 94,0 | 76,0 |
| | 25 | 173,5 | 133,0 | 107,5 | 95,0 |
| -20 | 10 | 103,0 | 62,0 | 37,5 | 33,0 |
| | 16 | 161,0 | 99,0 | 60,0 | 53,0 |
| | 20 | 161,0 | 124,0 | 75,0 | 66,0 |
| | 25 | 161,0 | 124,0 | 94,0 | 83,0 |

**self-regulating heating cable**

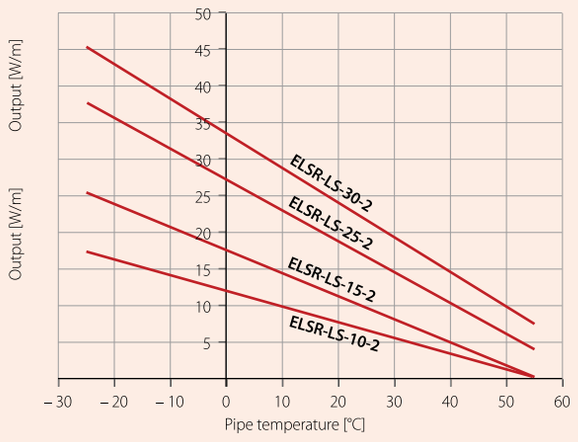
### Design

| | |
|---|---|
| BO | Protective braid and a thermoplastic outer jacket |
| AO | Aluminium foil and a thermoplastic outer jacket |

| Type | Nominal output | Dimensions approx. (mm) | Weight approx. (g/m) | Art. No. |
|---|---|---|---|---|
| ELSR-LS-10-2-AO | 10 W/m at 10 °C | 10,3 x 5,5 | 78 | B0223104 |
| ELSR-LS-10-2-BO | 10 W/m at 10 °C | 10,8 x 5,6 | 98 | B0223102 |
| ELSR-LS-15-2-AO | 15 W/m at 10 °C | 10,3 x 5,5 | 78 | B0223154 |
| ELSR-LS-15-2-BO | 15 W/m at 10 °C | 10,8 x 5,6 | 98 | B0223152 |
| ELSR-LS-25-2-AO | 25 W/m at 10 °C | 10,3 x 5,5 | 78 | B0223254 |
| ELSR-LS-25-2-BO | 25 W/m at 10 °C | 10,8 x 5,6 | 98 | B0223252 |
| ELSR-LS-30-2-AO | 30 W/m at 10 °C | 10,3 x 5,5 | 78 | B0223304 |
| ELSR-LS-30-2-BO | 30 W/m at 10 °C | 10,8 x 5,6 | 98 | B0223302 |

### ELSR-LS-…-2 output

(on insulated metallic pipes in accordance with EN 62395-1)



# Usage areas of MİRCEK Heating Cabled Jackets

| | |
|---|---|
| IBC Tanks | Silos |
| Heating Elements | Paint Bucket |
| Gas Taps | Indicators |
| Melting Boilers | Pipeline and Valves |
| Rolls | Anti freezing |
| Fire hydrants | Viscose Barrels |
| Pressure Regulators | Instruments |

## Features Of Heating Cabled Insulating Jackets Produced For Ibc Tanks

• **Outer and inner layers:** Teflon / Polyester / Silicone coated fireproof fabric
• Polyester felt insulation (Standard / Water repellent)
• Silicone insulated heating cable
• Buckle belt connection with adjustable and fast insertion and removal features
• 3-meter power cable
• Dual power cycle
• **Heating time:** approx. 2 * 1000W to +15 ° C + 50 ° C for 48 hours (1000 L water) (with insulation cap)
• Thermostat 0-90 C
• IP40 Protection
• Insulated Cover

## Features Of Heating Cabled Insulating Jackets Produced For Barrel, Casks, Gas Tubes And Cylindrical Containers

• Heating capacity 0-90 C
• Standard production of standard 25 L, 50 L, 105 L, 200L sizes
• Outer and inner layers: Teflon / Polyester / Silicone coated fireproof fabric
• Polyester felt insulation (Standard / Water repellent)
• Silicone insulated heating cable
• Buckle belt connection with adjustable and fast insertion and removal features
• 3-meter power cable
• Possibility to set thermostat 0-40 C or 0-90 C
• Warm-up time between 450W and +15 C +60 C for 48 hours (200 L water)
• IP40 Protection

## Features Of Insulating Jackets Produced For Melting And Viscous Bars (0-200 C)

**Outer and inner layers:** Silicone coated fireproof fabric (230 C strength)

- Needled glass fiber felt (500 C strength)
- Silicone insulated heating cable
- Buckle belt connection with adjustable and fast insertion and removal features
- High temperature resistant stainless metal fastener connection
- 3-meter power cable
- Thermostat 0-200 C intermittent setting
- Heating time 1200W to +15 C +60 C to 24 hours (200 L water)
- IP40 Protection

## Sub-products Completing Heating Cabled Insulation Jackets

| |
|---|
| **Sleeve** |
| **Thermostat** |
| **Termination Kit** |
| **Boat** |
| **Control Panel** |

Products can be varied and quoted depending upon the project.

***Please contact us.***

# Mircek Pipeline Heating and Heat Tracing

The pipeline heating method we use with heating cables to protect gas, liquid, viscous fluids from frost, heat loss, or heating in industrial pipelines is a method of heating.

With the details of the cable power generated by considering the pipeline environment, fluid type, pipe spacing and many other factors, every product in the system can be pumped and maintain its fluidity. Reliability and longevity provided by modern heating cables improve our heat tracing applications positively.

## Our Heating Cabinets for Energy Efficiency and Control Facility in Industrial Facilities

- **Flexible**
- **Different powers**
- **Has advanced automation control system equipment**

# Advantages of Mircek Heat Tracing

**1-** Keeping the fluids constant at the desired temperature
**2-** The risk of loss of fluid due to heat loss during transfer by piping
**3-** Easy control of electricity energy
**4-** No maintenance of heating cables

**5-** The cables do not have the risk of burning themselves due to overheating

**6-** Compliance with every environment and process

**7-** High reliability and practicality

## For uninterrupted operation in industrial facilities; Heat Tracing

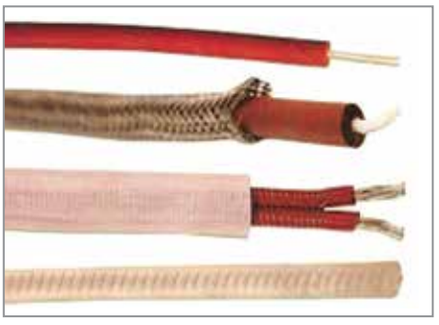
The most adverse event in industrial installations is the system stoppage. One of the biggest benefits of our pipe is that they remove the risk of blocking of heating and heat monitoring applications with heater cables; pumps, valves, filters, transmitters, and other measuring devices.

## Cable Selection

### ▶ Our Most Preferred Cable Types for Heat Tracing Applications

**1-** Self-limiting heating cables (self limiting)

**2-** Serial resistance heating cables (very high resistance to heat)



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