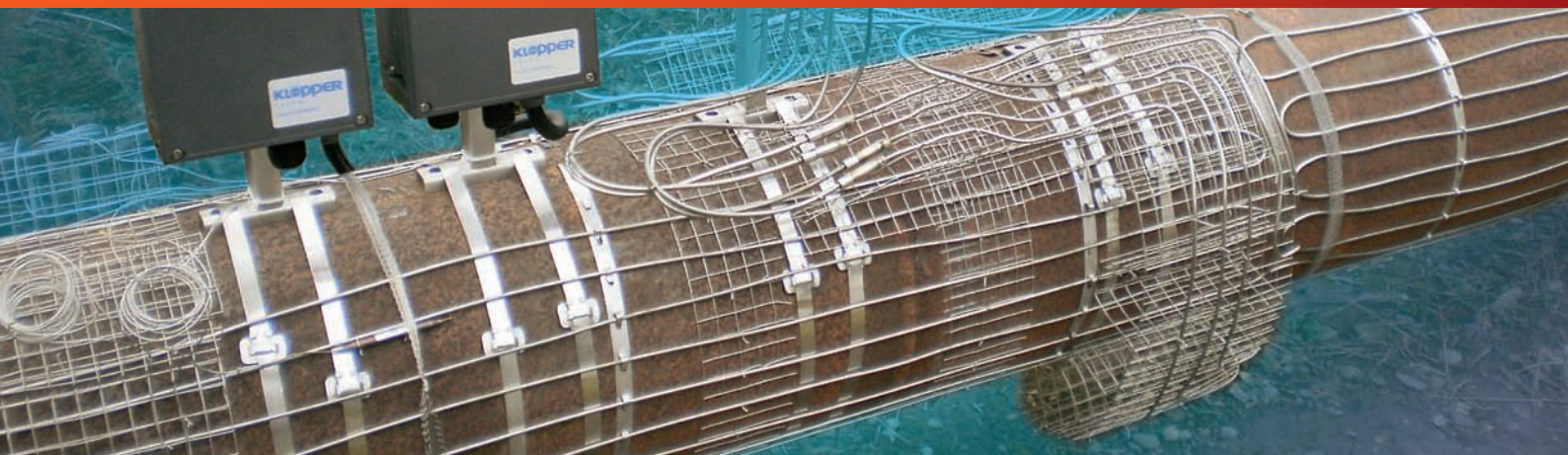


PRODUCT IN FOCUS

Our Heat Tracing Systems *for your Projects*



HEAT TRACING SYSTEMS

HEATERS

SURFACE HEATING SYSTEMS

BOILERS

KLÖPPER
THERM

Electric Heat Tracing Systems

are used in all industrial sectors in order to heat up products in pipelines and vessels to process temperatures, to maintain such temperatures or avoid a freezing of the products.

THE SYSTEM AT A GLANCE

For the worldwide use of our products and services we are fulfilling the high quality demands and expectations of our customers from design up to commissioning. Not only to keep these demands but to develop them continuously to the benefit of our customers. This is reached by our integrated management system and the clearly defined company. Each of our employees is involved in the management system and is responsible for the quality of our products and services.

Quality right from the Start

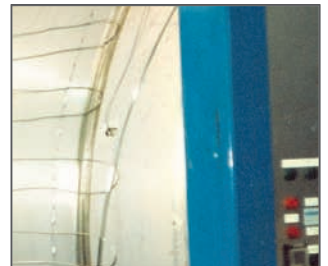
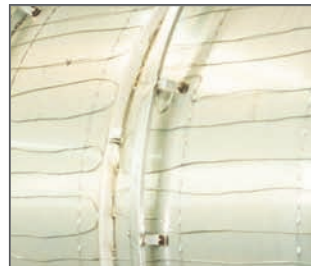
The Advantages of Heat Tracing

This type of heating offers several advantages: its high flexibility and adaptability to fulfil the specific customer requirements and the effective and economic exploitation of input energy. Our customers appreciate the high accuracy of temperature regulation and the low maintenance costs.

We are choosing suitable materials independently of the manufacturer. You can expect harmonized components and engineering, delivery and assembly from one source.

Our services comprise:

- ▶ determination of customer-specific demand
- ▶ elaboration and proposal of solutions
- ▶ engineering especially for plants in explosion-endangered areas
- ▶ delivery of heating materials
- ▶ construction of switch and control cabinets by using control devices especially designed for heating control
- ▶ planning and execution of cabling works
- ▶ assembly/site management
- ▶ commissioning or handing over of the plant ready for use
- ▶ turnkey plants
- ▶ documentation
- ▶ support service by our service technicians



Our Management System

IECEX Quality Assessment Report

Quality Management System according to DIN EN ISO 9001

Safety Management according to SCC**-Catalogue

Ex-Directive 94/9/EC (ATEX)

Pressure Equipment Directive according to DgRI 97/23/EC

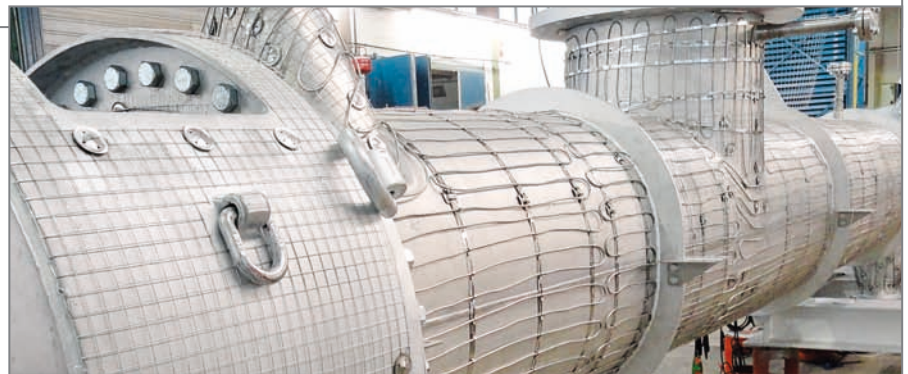
AD 2000 HPO

ASME U-Stamp



Heating Cables,

- for use in:
- ▶ the chemical industry, refineries, power stations etc.
 - ▶ explosion-endangered areas



Series Resistance Heating Cables

are mainly 1-core cables with these features:

- ▶ defined Ohm-resistance per meter
- ▶ constant heating power across the overall temperature range
- ▶ variable connecting voltage up to 750 V
- ▶ optimal monitoring by series connection of resistances
- ▶ simple heating circuit setup for long pipelines with only one feed
- ▶ low cabling works
- ▶ useable in explosion-endangered areas even in ATEX-certified design

Series Resistance Heating Cables

are divided into two main groups:

One-Core Plastic Heating Cables (EKL)

can be used for operating temperatures up to 260°C max. Conductor insulation and outer sheath are made of fluoropolymere. Therefore these heating cables are especially suitable for use in the chemical industry with aggressive ambient conditions. Depending on the requirements, one-core plastic heating cable are available in different types of construction.

Mineral-insulated Heating Cables (MI)

are especially used for extremely high temperatures up to 800°C. In case of long transfer tubes, they present a cost-efficient alternative in comparison to one-core plastic heating cables provided that corrosion can be excluded. Mineral-insulated heating cables are available with different outer sheaths of copper, copper-nickel and stainless steel in different materials.



Heating Tapes



Self-limiting Heating Tapes (SBH)

dispose of a heating element between their two connection ends permitting a lower flow of current at higher temperatures and thus reducing power output in a self-limiting way.

The main features are:

- ▶ temperature-dependent power output
- ▶ connecting voltage 230 ... 277 V
- ▶ easy handling
- ▶ lengths adjustable nearly infinitely
- ▶ useable in explosion-endangered areas

Self-limiting heating tapes are for frost protection as well as to maintain the temperature of process temperatures up to 150°C, periodically until max. 250°C saturated steam.

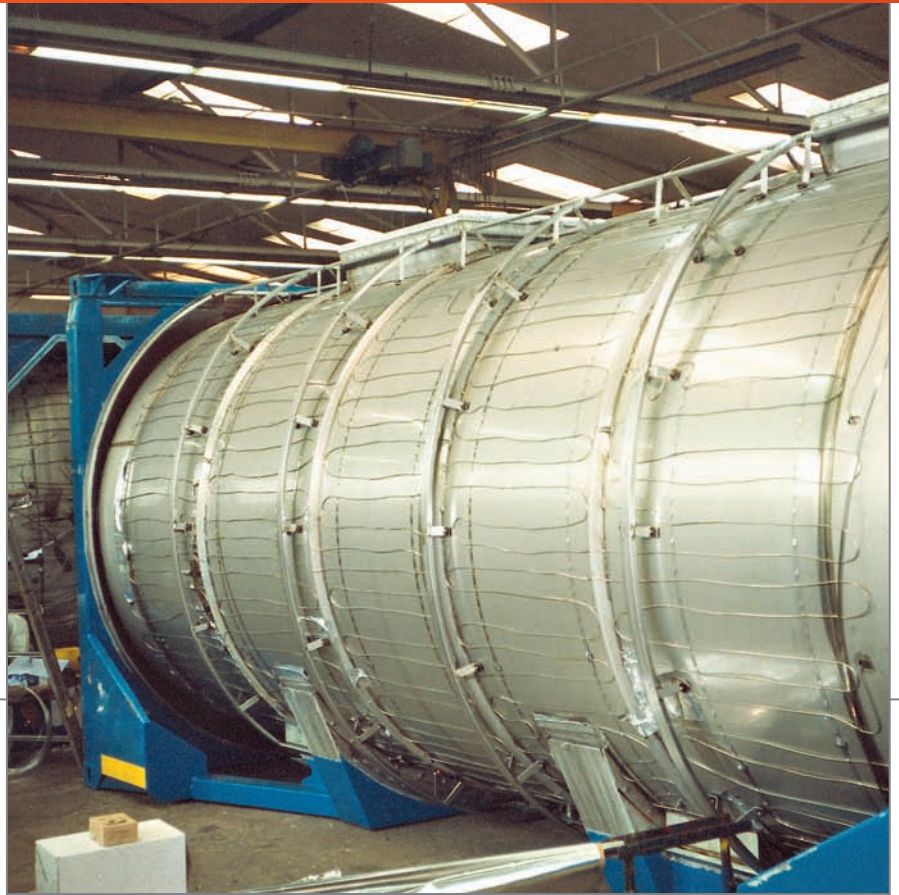
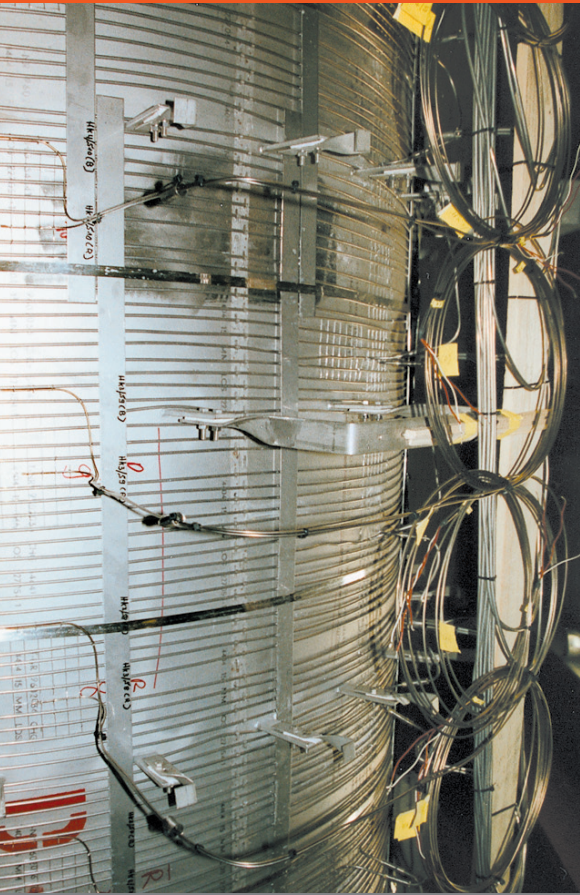
Parallel Heating Tapes (PHB)

have no temperature-dependent heating element in contrast to self-limiting heating tapes and thus provide a constant heat output.

CONNECTION COMPONENTS AND ACCESSORIES:

For all heating cables and heating tapes there are connection components available easy-to-install and different fixing materials.





Special Heating Systems

Individual solutions are our speciality. Heating systems by Klöpper-Therm are sophisticated complete solutions with optimally matched components, including delivery and installation. Everything from a single source – with no go-betweens.

Our special heating systems are well equipped for particular requirements. They offer an effective and economic use of energy, perfect temperature regulation and low maintenance costs. Flexible installation, transportable systems and concepts have already proven themselves many times in practice – even in explosion-endangered areas.



Reactor Heating

- ▶ high power density at temperatures up to 650°C
- ▶ design as per customer requirements
- ▶ quick and easy installation thanks to fully wired heating mats

Heating Hoses

- ▶ ideal for transporting gaseous or liquid substances over short or long distances
- ▶ maintaining the temperature of media constantly

Heating Systems for Tank Trucks and Containers

- ▶ heating systems for a maintain temperature of up to 250°C
- ▶ matching control
- ▶ transportable solutions as an option

Foundation Heating

- ▶ frost protection for liquid gas tank foundations e.g. LNG-tanks
- ▶ exchangeable and easy to install

Heating Shells

- ▶ ideal for big gate valves / rotary valves
- ▶ perfect heat transfer due to large contact surface
- ▶ individual manufacture according to customer request



UNIPLEX III



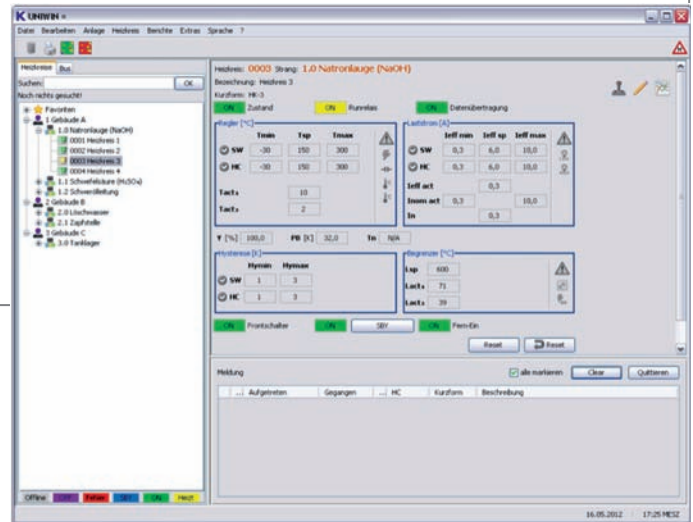
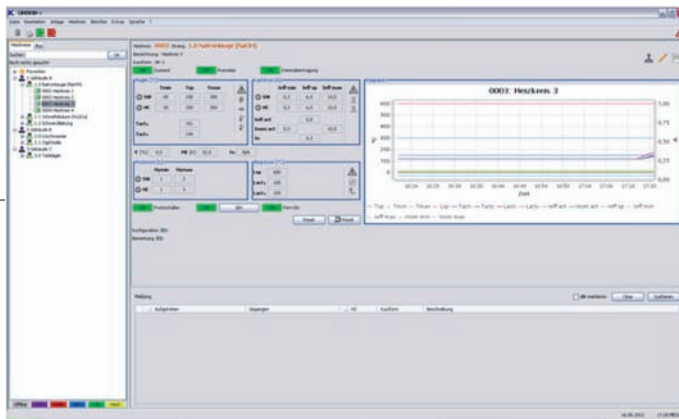
Control

The latest version of heating controller UNIPLEX made by Klöppler-Therm again satisfies with development competence and future-oriented technology in one device. Especially designed for the control and monitoring of electric heating systems, it combines several functional elements in one device. Temperature controller, safety temperature limiter and current regulator are arranged in a space-saving way on a 19" plug-in board in European standard size.

The main features:

- ▶ high safeness by safety temperature limiter (STB), certified according to ATEX and SIL-2-graded
- ▶ configurable as PI or 2-level-controller
- ▶ continuous control of heating circuit by driving a solid state relay (SSR)
- ▶ adjusting the desired effective heating current by an integrated current controller (pulse width modulation), reduces the number of heating cables or resistance types used
- ▶ adapting the heating current to variable maintenance temperatures
- ▶ large display indicating nominal, real and control values (control value indicated in bars)
- ▶ comfortable operating menu in different languages (language switch)
- ▶ serial RS-485-interface and Ethernet interface for coupling to superordinate systems
- ▶ front-USB-connection for diagnosis/configuration
- ▶ password-protected access on three levels
- ▶ reset of limiter by tool/code entry
- ▶ different monitoring methods of limit values for temperature and current
- ▶ automatic self-testing
- ▶ extended applications by additional control and limiting measuring sensors
- ▶ connection of 4-20 mA sensors or set point devices

UNIWIN



Visualisation

The visualising software UNIWIN allows the heating controllers UNIPLEX III to be clearly displayed and easily operated and offers access to the current state of heating circuits connected. Plants consisting of a number of individual electric heating systems can be configured as logical, procedural groups by the UNIWIN software. The system structure can be matched to these groups. For a perfect overview, all important heating circuit and system data, the state overview and a message archive with different sorting and selecting functions are permanently accessible on the processor.

The main features:

- ▶ clear display of heating circuits and groups of heating circuits (buses) by file structure on the left screen page
- ▶ state overview of individual heating circuits or groups of heating circuits (strands)
- ▶ detailed overview of single heating circuit data
- ▶ trend curves for temperatures and currents
- ▶ resetting of alarm signals of the heating controllers
- ▶ different user levels with allotted authorizations
- ▶ extensive alarm and message archive (current messages of the heating circuit are always visible in the bottom part of the screen page)
- ▶ new, incoming messages are signaled by flashing in the state overview
- ▶ selection of several menu languages is possible
- ▶ system documentation by storage of photos and circuit diagrams, isometrics etc. in scv-, jpg-, png-, pdf-formats
- ▶ integrated search functions (heating circuits, strands, strand groups)
- ▶ software based on Java™
- ▶ compatible with all modern operating systems such as Windows or Linux
- ▶ storage of all data in one data base

Connection Components + Accessories



Switch and Control Cabinets

Klöppler-Therm plans and supplies complete distribution and control units for erection in distribution stations or outdoor installation, here also in explosion-endangered areas. The heating- and customer-specific requirements are taken into account in the design calculation.

Accessories:

A wide range of accessories for electric heating systems completes our scope of supply:

- ▶ connection components easy-to-install for heating cables and heating tapes:
 - > cold cables
 - > connection sleeves
 - > connection and end seal kits
 - > isolation entries
- ▶ measuring sensors
 - > resistance thermometer Pt 100
 - > thermocouples
 - > capillary thermostats
- ▶ connection and control boxes
 - > polyester or stainless steel, type of protection IP 65
 - > installation of thermostats, switches, signal lamps etc.
 - > fixation materials
 - > for easy installation of heating cables, heating tapes and connection components for different applications



Take us for granted. Gladly at any Time.

Apart from careful planning and manufacturing, a professional installation is essential for the proper function of a heating system.

Our skilled and qualified assembly team offers you this service.

Our employees install, test and put our heating systems including respective control units into operation.

The quality of our work is guaranteed by regular training measures and the application of our management system and the SCC** catalogue (safety, health and environment).

A continuous maintenance of our heating systems and a detailed technical documentation complete our service package.

SERVICE PROMISES

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