



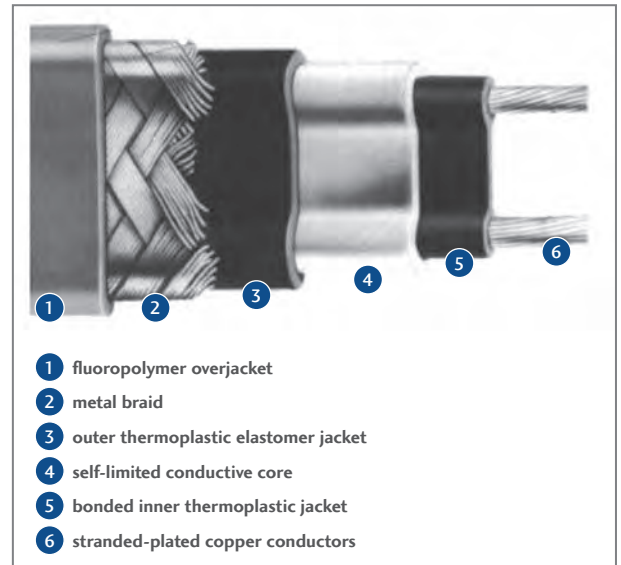
## Self-limiting Heating Tape Type KT-J for Frost Protection and Process Temperatures up to max. 65 °C

Type	Power	Art.-No.
KT23J	9 W/m at +10 °C	101228
KT25J	15 W/m at +10 °C	101229
KT28J	25 W/m at +10 °C	101230
KT210J	32 W/m at +10 °C	101231

All heating tapes are tailored according to the specific requirements of our customers.

## Description

The Klöpper-Therm heating tape type KT-J is a parallel heating cable with self-limiting characteristic. An irradiation cross-linked semiconductive polymer core material is extruded over the multi-stranded, tin-plated copper bus wires (1.22mm<sup>2</sup>). The semiconductive core material increases or decreases its heat output in response to temperature changes. Two jackets provide extra dielectric strength, moisture resistance and protection from impact and abrasion damage. The inner thermoplastic jacket is extruded over and bonded to the core material. A thermoplastic elastomer outer jacket is then extruded over the inner jacket. A tinned copper braid is installed over the second jacket, providing a continuous ground path. The braid is covered by a fluoropolymer overjacket, featuring an excellent chemical resistance. Thus, the heating tape provides an optimum protection against corrosive or chemical impacts.



## Principle of Operation

The parallel bus wires apply voltage along the entire length of the heating tape. The semiconductive core provides an infinite number of parallel conductive paths, permitting the heating tape to be cut to any length in the field with no dead or cold zones developing. The heating tape derives its self-limiting characteristic from the inherent properties of the semiconductive core material. As the core material temperature increases, the number of conductive paths in the core material decreases, automatically decreasing the heat output. As the temperature of the core material decreases, the number of conductive paths increases, causing the heat output to increase. This occurs at every point along the length of the heating tape, thus adjusting the power output to the varying conditions along the pipe. The self-limiting effect allows the heating tape to be overlapped without creating hot spots or burnout. Since the heating tape regulates its heat output itself, it provides an efficient use of power, producing heat only when and where it is needed and limiting the maximum sheath temperature at the same time.

## Application

The Klöpper-Therm heating tape type KT-J is highly suitable in maintaining the fluid flow of a medium under low ambient temperatures. Frost protection systems and systems with low power density such as product pipelines, fire protection, process water, dust suppression systems, hot water and anti-icing (domestic technique) are typical applications for this product.

## Rating Data of Heating Tapes

Type Designation	Watt/Meter at 10 °C	Service Voltage (V AC)	Maximum Length of Heating Tape (per Branch) (m)	Maximum Exposure Temperature Permanent (°C)	Maximum Exposure Temperature Temporary (°C)	Temperature Class (Gas Ex-Area)	Max. Surface Temperature (Dust Ex-Area)
KT23J	9	230	185	65	85	T6	T85 °C
KT25J	15	230	155	65	85	T6	T85 °C
KT28J	25	230	125	65	85	T5	T100 °C
KT210J	32	230	115	65	85	T5	T100 °C

\*The temperature classification of electrical equipment is applied in hazardous areas and defines the surface temperature the electrical devices do not exceed during proper operation. Regarding the marking of electrical equipment you have to distinguish between gas explosion and dust explosion hazard areas.

The heating tapes have been certified for use in hazardous areas, endangered by gases and dusts, of zones 1 and 2 or 21 and 22 according to EC Type Examination Certificate No. KEMA 04 ATEX 2146U. Klöppler-Therm delivers a complete range of connection boxes, connection and end seal kits, certified together with the heating tapes under EC-Type Examination Certificate No. KEMA 05 ATEX 2102X.

Dimensions (nominal): width 11.9 mm, thickness 6.0 mm  
 Weight: 130 g/m  
 Minimum assembly temperature: -40 °C  
 Minimum bending radius: 12 mm at -40 °C

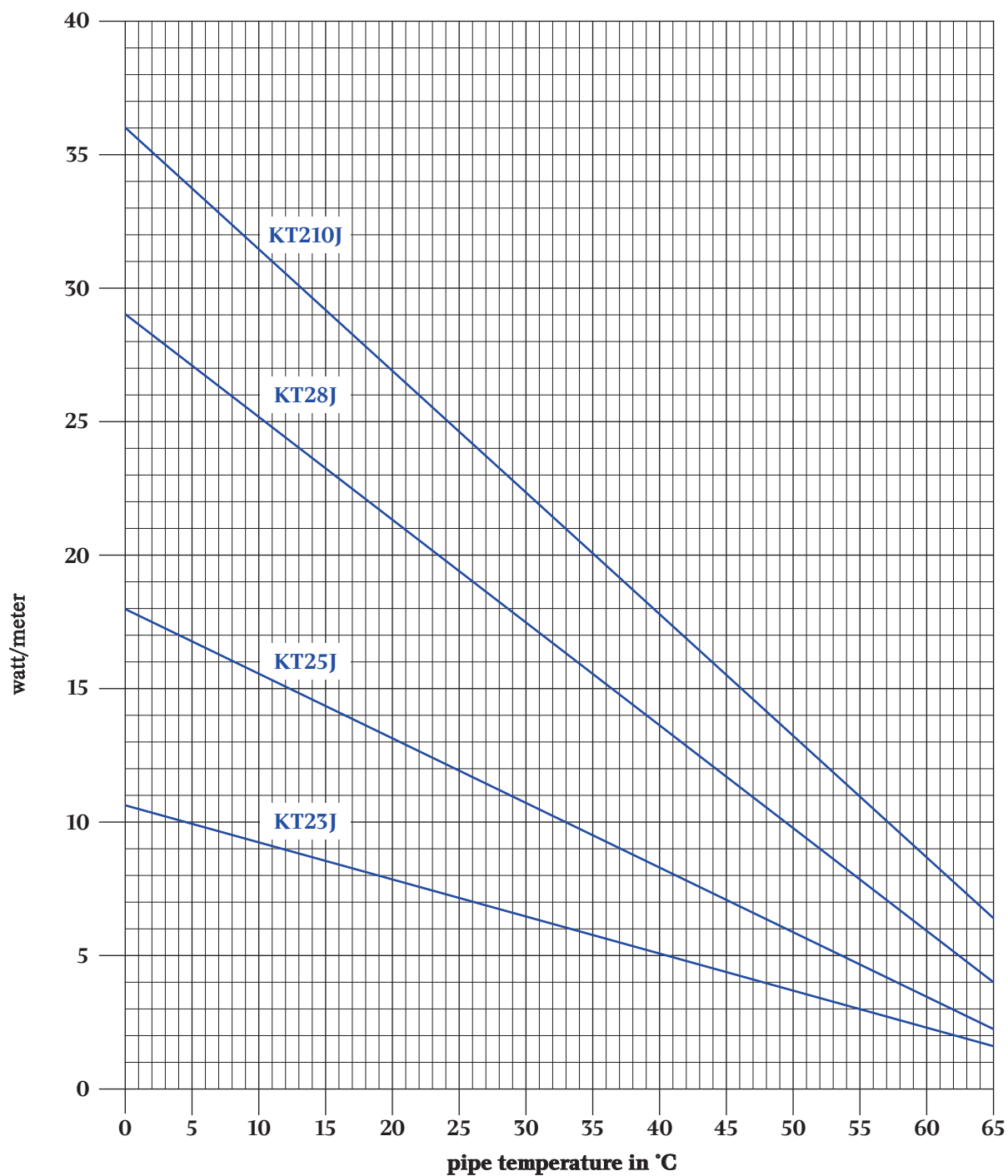
## Circuit Breaker Selection (C-Characteristic)

Type Designation	Start-up Temperatur (°C)	Max. Recommended Heating Tape Length (in Meters) vs. Circuit / Breaker Size			
		16 A	20 A	25 A	32 A
KT23J	+10	241**	302**	377**	482**
	-5	192**	240**	300**	384**
	-20	159	199**	249**	319**
	-30	143	179	224**	286**
KT25J	+10	170**	213**	266**	341**
	-5	135	169**	212**	271**
	-20	112	140	175**	225**
	-30	101	126	157**	202**
KT28J	+10	90	113	141**	180**
	-5	74	92	116	148**
	-20	63	78	98	125
	-30	57	71	89	114
KT210J	+10	57	72	89	115
	-5	48	60	75	96
	-20	41	52	65	83
	-30	38	47	59	76

### Remarks:

1. The circuit breaker size must be based on minimum start-up temperature, since the inrush current of the heating tapes increases with decreasing ambient temperature.
2. Do not exceed maximum recommended heating tape length per branch, indicated for each type of heating tape. The longer heating tape lengths marked with two stars (\*\*) are only possible by parallel connection of two or several branches (each of these branches must not exceed the recommended heating tape length per branch!) on the breaker. Do not exceed max. recommended length of heating tape indicated in the table.
3. When connecting two or more different wattage heating tapes in parallel on the same breaker, please use the 16 amps column (16A) and divide 16 amps by the maximum heating tape length indicated with reference to the desired minimum start-up temperature. Thus you get an amps/meter value for each type of heating tape. Multiply the length of each heating tape with the derived amps/meter value. The single amp values calculated have to be added up. The added value must not exceed the amperage rating of the breaker.
4. For electrical heating systems, Klöpper-Therm stipulates the use of a residual current device with a residual current rating not exceeding 300 mA. Residual current devices with a residual current rating of 30 mA should be used preferably.

## Power Output Rating at 230 V AC



**Remark:** The power rating is valid for applications on insulated steel pipes.