



Technical parameters of the heating cable Line™ T20

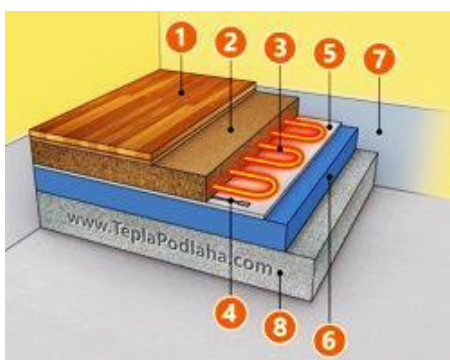
Heating cable type:	double-core wire with braiding
Operating voltage:	230 V / 50 Hz / AC
Output:	20 W/rmt
Coverage:	IP67
Heating cable length:	10 to 180 m for <u>indoor</u> applications
Heating cable diameter:	5 mm
Cold lead - supply length:	2.5 m +/- 10 cm
Min. installation temperature:	5 °C
Minimum bending radius:	60 mm
Declaration of conformity:	CE

issued in accordance with §13 art.1 of Act No. 264/99 Coll. and Government Regulation No. 194/2005 Coll. as amended by Government Regulation No. 318/2007 Coll. and No. 308/2004 Coll. as amended by Government Regulation No. 449/2007 Coll. The name: Line™T20 electric heating cables. Conformity assessment has been performed in accordance with: Government Regulation No. 194/2005 Coll. as amended by Government Regulation No. 318/2007 Coll. on electromagnetic compatibility of devices and Government Regulation No. 308/2004 Coll. as amended by Government Regulation No. 449/2007 Coll. on electric equipment. In conformity assessment regarding the product, there have been the following EU directives used as well as standards followed: EN 60730-1:2011, EN 60730-2-9:2010, EN 61000-3-2:2006+A2:2009, EN 61000-3-3:2008, Low Voltage Directive 2006/95/EC, Annex 4, EMC Directive 2004/108/EC, Annex II.

Before you start installing the heating cable:

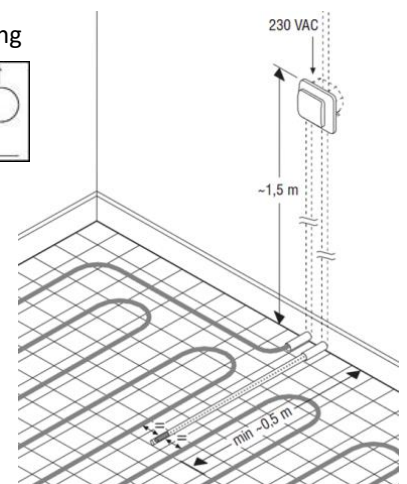
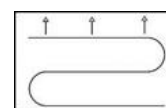
- a) The subfloor under the heating cable must be clean, without **sharp edges** and impurities.
- b) The heating cable must not be shortened, lengthened, mutually contacted or crossed, or in immediate proximity to the insulation. It must not be straightened, or under excessive tension in the connection spot and the terminal of the heating cable, as well as of the power lead. Fix the terminal and the connection spot out of shower place on the separation foil by an aluminium tape, and **not by a clip!**
- c) The bending radius of the heating cable must not be less than 30 mm. Min. gaps between the heating cable runs - 60 mm. Maximum distances between the cables with the output 20 W/m = 20 to 25 cm. Maximum installed capacity = 200 W/m².
- d) The connection between the heating cable and power lead as well as the terminal must be placed in the floor.
- e) Operate the heating cable using only a suitable thermostat with **a floor sensor** set to max. 45 °C
- f) In order to provide electrical safety, 30 mA residual current circuit breaker must be used. Follow the applicable standards.

Floor composition



- 1 - flooring
- 2 - concrete/anhydrite max. 5 cm
- 3 - heating cable **Line™ T20**
- 4 - floor sensor
- 5 - aluminium foil with separation layer
- 6 - polystyrene about 5 -10 cm
- 7 - side dilations about 1 cm
- 8 - floor concrete

Mark - suitable flooring



Installation instructions

- 1. Measure the room and draw an installation plan of the heating cable, calculate correct spacing (cm) according to the formula: floor area to be heated (m²) x 100 / length (m) of the cable to be installed.
- 2. Within the fitting area, do not include built-up areas (e.g. bathtubs, corner showers, ...) to prevent the cable overheating.
- 3. Slide the power lead through the conduit into the box for thermostat in such a way that the connection will stay in the floor.
- 4. Lay the cable on 5-layer aluminium foil **Al Foil** or on the **concrete** on the floor with the correct spacing according to the installation plan. Keep placing the heating cable on the floor area in such a way that you will make a turn at the end of the heated area and continue in the opposite direction. Fix the cable by recommended fixing elements. During installation, do not step on the heating cable. Avoid sharp objects and careless pouring of concrete or anhydrite. Make sure there are no air gaps in the concrete or anhydrite. The heating cable must not be laid across the **expansion joints**. Connection of the heating cable and power lead must be laid in the floor and it must not be led through the conduit.

5. Insert the temperature sensor into the pipe - gooseneck in such a manner that it will be placed evenly **between** the heating cable loops and placed in the heating area 50 cm away from the wall. Seal the end of the conduit for sensor.
6. After the heating cable is laid, measure and check the resistance and then insulation condition by testing voltage >1000 VDC. Max. 2500 VDC. The insulation resistance value must be > 50 MΩ. The resistance must be within the tolerance. **Write down** the measured values into the warranty coupon.
7. Pour anhydrite or concrete over the heating cable. The concrete has to be enhanced by plasticizer.
8. After curing, measure and check the resistance and insulation condition again. **Write down** the values in the warranty coupon and check the cable spacing by **thermal imaging camera!**
9. Insert the floor temperature sensor only on the end of the conduit and connect the thermostat according to the wiring diagram.
10. You can put the heating cable into operation only after **complete drying out - maturing** of the construction material used. **The construction material** must not be dried by the heating cable, and its humidity must be measured **before laying the flooring**. The last 5 % of the humidity may be dried **by gradual temperature increase** of the floor under professional supervision.
11. Lay the flooring material; follow the instructions of its manufacturer. The flooring suitable for floor heating is marked either by words or marks, see the figure above.

Extended 22-year warranty – Line™ T20 heating cables

The warranty is valid only with correctly delivered documents:

1. When the Warranty coupon is correctly filled in, see below;
2. Document on purchase: invoice or purchase receipt;
3. Photo documentation: of the heating cable layout, location spot of the connection and the cable terminal;
4. The manufacturer's duty will be to repair or deliver a new product free of charge to the customer without any other extra costs related to the repair or the unit exchange.

The warranty is null and void, if the installation was not performed by professionally competent person or due to error caused by incorrect design, damage, incorrect installation or any other later damage. The warranty is not valid, if our complex system was not used, that means the heating cable **Line™T20**, aluminium foil **Al Foil** and thermostats with **floor sensor** like brand **Displej™**. Furniture and other objects must have legs with the minimum height of **5 cm**. The floor must not be covered by fur or **any other insulation material**. If we are asked to repair or replace such a product, all the costs will be charged.

Warranty coupon

Room:

Room No.:

Name of the facility:

Heating cable Line™ T20	Output (W)	Length (m)	Resistance (Ω) @ 20 °C +10/- 5 %	Resistance (Ω) before concrete application	Insulation resistance (MΩ) before concrete application	Resistance(Ω) after concrete application	Insulation resistance (MΩ) after concrete application
Line™ T20	200	10	264.50				
Line™ T20	300	15	176.33				
Line™ T20	400	20	132.25				
Line™ T20	500	25	105.80				
Line™ T20	600	30	88.17				
Line™ T20	700	35	75.57				
Line™ T20	850	42.5	62.24				
Line™ T20	1000	50	52.90				
Line™ T20	1200	60	44.08				
Line™ T20	1400	70	37.79				
Line™ T20	1600	80	33.06				
Line™ T20	1800	90	29.39				
Line™ T20	2000	100	26.45				
Line™ T20	2200	110	24.05				
Line™ T20	2400	120	22.04				
Line™ T20	2600	130	20.35				
Line™ T20	3200	160	16.53				

Date of sale / Stamp:	Installation date:	Stamp:
Electrician / Seller:	Name and surname, tel. No., e-mail:	Signature: