

Concrete Curing Cable – Installation guide

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Purpose

Concrete Curing Cable is used to make the curing process run in cold periods with temperatures around or below the freezing point.

Tasks where the normal concrete hardening process shall proceed can make use of concrete hardening cable.

Power requirement for Concrete Curing Cable is approx. 400 W/m³.

Avoid power higher than 400 W/m³ because of higher power can damage the cement in the concrete and thereby ruin the concrete finish quality and strength.

Controlling

Concrete Curing Cable shall be controlled by a thermostat. Place the sensor in between two heating cable strings. Set the temperature on the thermostat to 2-3 degrees.

At temperatures from -10 degrees and down the concrete must be insulated from the outside to ensure the curing process to run properly.

In thin concrete layers (with only one heating cable layer)

The heating cables in this case must have a mutual distance of max. 35 cm (see fig. 1)

Fig. 1 Shows W/m heating cable and C-C distance under specific concrete thicknesses

Concrete dimensions	Concrete thickness	Concrete volume	Cable to cable distance (C-C)	Total Power	Power per meter cabel	Power capacity per m ³ concrete
[l x b]	[m]	[m ³]	[cm]	[W]	[W/m]	[W/m ³]
1m x 1m	0,1	0,1	35	40	14	400
	0,12	0,12	33	48	16	
	0,15	0,15	33	60	20	
	0,2	0,2	31	80	25	
	0,25	0,25	30	100	30	
	0,3	0,3	33	120	40	
	0,35	0,35	29	140	40	
	0,4	0,4	25	160	40	
	0,45	0,45	22	180	40	

In thick concrete constructions. Calculation of required power

Calculate the volume (how many m³) of the concrete needed to be frost-protected.

Volume [m³] = length [m] x height [m] x width [m].

Ex.:

Concrete structure measuring 3.0m x 2.5m x 0.15m

Concrete volume [m³] = 3.0 x 2.5m x 0.15m = 1.125m³

Required power is: 400W/m³ x 1.125 m³ = **450W**

Installation:

- These instructions must be followed.
- Relevant laws, standards, rules or similar for the specific use area must be respected.
- Concrete Curing Cable must be attached to the steel reinforcement grid in the concrete construction.
- The heating cable must be able to move slightly after fixation. Cable ties or similar used to fixate the cable should not be tight. Leave a little room for the cable to work in against the reinforcement grid.
- Heating cables must not cross or be placed closer than 4 cm.
- Do not place the heating cable in or out of insulating materials or heat sources.
- The heating cables minimum bending diameter is 8 cm.
- Heating cables must be positioned so they under no circumstances cause harmful heating of nearby flammable materials. The cables during normal operation should not cause higher temperatures of adjacent combustible parts than 80 ° C.
- The heating cable must be placed in such a way that they do not prevent proper cooling of nearby electrical wiring, lighting fixtures and the like.
- If protection against indirect contact of live parts is performed by automatic disconnection of mains supply, the protective conductor must be connected to a conductive screen in the heating cable or, if no screen is available, to any metallic parts (pipes, tanks, etc.) that the cable is placed against.
- When selecting and laying heating cables ensure that the cables can withstand the mechanical, chemical and thermal influences to which they may be exposed.
- The concrete hardening cable must be connected to a Residual Current Device (HFI or HPFI) max. 30mA.
- Insulation resistance. Heating cable insulation resistance must be measured before the installation is turned on.