elektra.eu

ELEKTRA®

electric
floor heating

- Heating mats
- Heating cables
- Heating foils
- Temperature controllers

PREMIUM
QUALITY
for everyone

Floor heating as the most favourable heating solution

Of all heating systems, floor heating's vertical temperature distribution in a room is the closest form of heating to the physiological body temperature distribution.
Floor heating is a low temperature heating solution (floors will reach temperature levels of approx. 26°C), the entire floor constitutes the heating element.
The advantages of these characteristics are as follows:

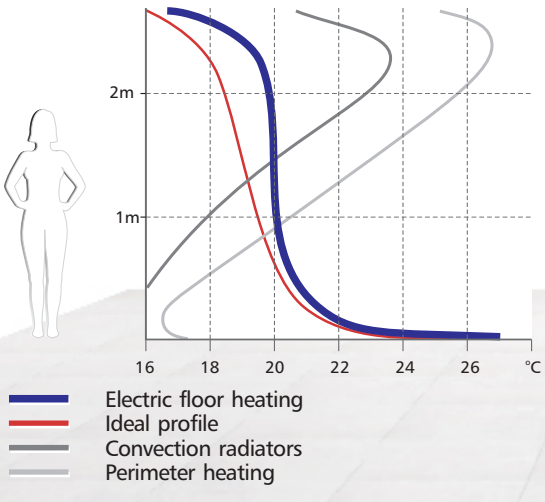
- no combustion and dust convection which causes allergies,
- no draughts,
- no drastic temperature differences in rooms,
- no dry air.

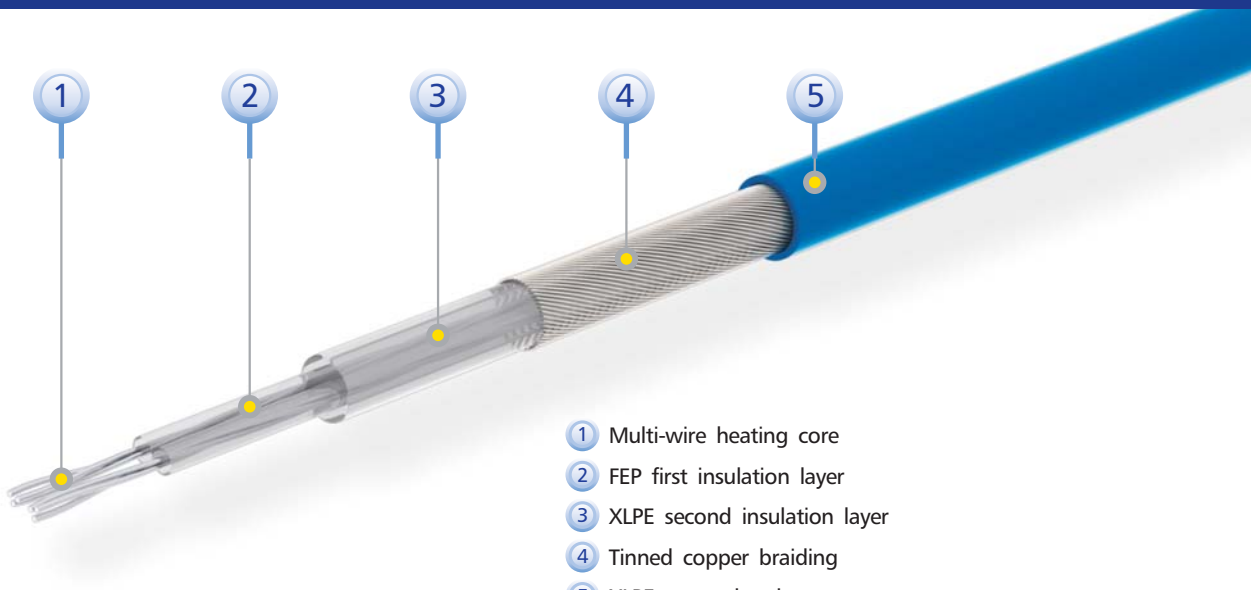
Due to their advantages, floor heating systems are especially recommended for allergy sufferers

Floor heating means:

- indoor climate comfort for users – even room temperature distribution, favourable warm floor,
- interior designs are not compromised by bulky heaters, boilers, chimneys, and water or gas pipes,
- low capital costs,
- decentralized heating – regulation and control of individual rooms possible.

Indoor vertical temperature distribution for different type of heating





1. Multi-wire heating core
2. FEP first insulation layer
3. XLPE second insulation layer
4. Tinned copper braiding
5. XLPE outer sheath

ELEKTRA MD heating mat's heating cable structure

Efficiency of electric floor heating will depend upon the floor thermal insulation's thickness. This variable is especially significant for ground floors or floors positioned above unheated rooms.

Approved finishing materials for heated floors are as follows:

- floor tiles such as marble, ceramic, porcelain or terracotta,
- fitted carpet (of max. thickness 15 mm including underlay),
- PVC / Vinyl flooring,
- thin floor-glued wood parquet,
- laminate / engineered wood.

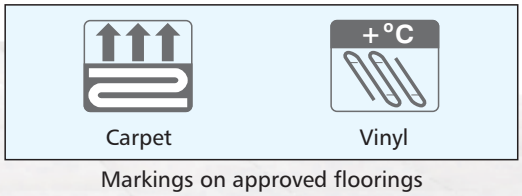
Each of the above materials (with the exception of floor tiles) must be approved by their producers for applications with floor heating. Also, they must be installed according to the producers' instructions.

Floor heating system can be developed on the basis of:

1. **ELEKTRA VCD heating cables**
   placed in a screed at construction stage.

2. **ELEKTRA MG/MD heating mats and ELEKTRA DM/UltraTec heating cables**
   placed in the layer of flexible adhesive or self-levelling compound laid directly under the finished floor on the floor base (concrete or timber).

3. **ELEKTRA WoodTec2™ heating foils**
   suitable for placing under laminate or engineered wood flooring.

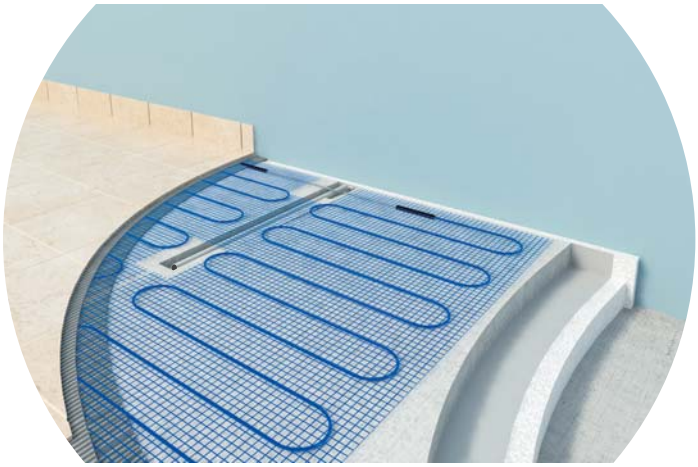


Markings on approved floorings

ALLERGY friendly

ELEKTRA VCD heating cables are usually used as a primary room heating, constituting the only heating element in a room.

ELEKTRA MG/MD heating mats and ELEKTRA DM and UltraTec heating cables are then normally used as supplementary heating systems, in order to achieve the warm floor. They can, however, constitute the primary heating system, if required.



ELEKTRA heating mat in a layer of flexible adhesive or self-levelling compound, directly under the floor

Warm floor

Heating system placed in a layer of flexible adhesive or self-levelling compound, directly under the floor

To achieve the warm floor, the following heat output options are recommended:

- **100-160 W per m²** of the floor – when tiles or stone are the floor finishing materials,
- **100 W per m²** of the floor – when PVC or engineered wood are the floor finishing materials.

For the shortening of the warm-up time, it is recommended to install higher heat output per 1 m² (approx. 160 W/m²) when the heating system is not intended for permanent operation e.g. in hotel rooms or offices, and additionally in situations when temperature controllers with temperature set-back option will be used for heating regulation purposes.

For the cases above, the following can be used:

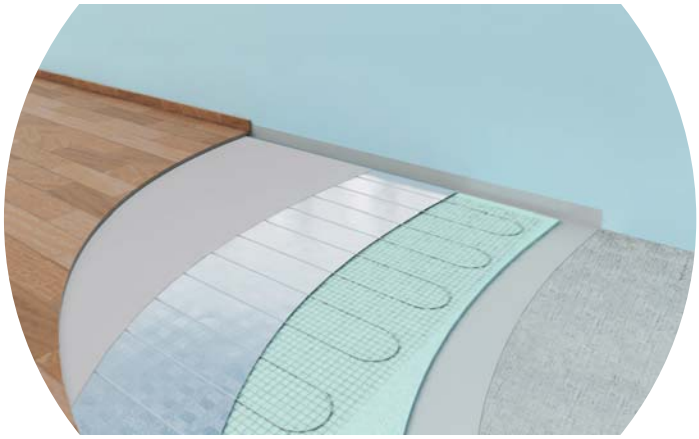
- ELEKTRA MG/MD heating mats,
- ELEKTRA DM and UltraTec heating cables.

The heating mats' structure is a thin heating cable fastened to a 50-cm-wide fiberglass mesh. The mats are simpler in installation than cables themselves: self-adhesive properties facilitate floor fastening of the mats, when the DM or UltraTec cables must be attached to the floor.

1. Multi-wire heating core
2. FEP insulation layer
3. Tinned copper braiding
4. FEP outer sheath

ELEKTRA UltraTec heating cable structure

Heating cables are simpler to fit onto irregularly shaped area than mats



ELEKTRA WoodTec2™ heating foil under laminate flooring

Heating systems laid on the levelling layer under laminate floor panels or engineered wood floorings – dry installation:

ELEKTRA WoodTec2™ heating foils laid with the dry method on the levelling layer. These heating mats' structure is a thin heating cable fixed to a fiberglass mesh covered with a layer of aluminium foil. The foil acts as a protective sheath for the heating cable, as well as a radiator transferring heat from the heating cables directly to laminate floor panels or engineered wood floorings.

Primary heating

Primary heating (only heat source) requires having your heating system and its controls designed by a qualified designer, dealer or installer.

Products

ELEKTRA MG/MD heating mats

Single side supplied **ELEKTRA MD** mat, 3.9 mm thick, terminated at one side with a power supply conductor and a connecting joint at the other.

Double side supplied **ELEKTRA MG** mat, 3 mm thick, terminated at both sides with power supply conductors.

ELEKTRA MD mats are simpler to install, featuring only one power supply conductor.

In double side supplied ELEKTRA MG mats, both power supply conductors need to be run to the connection box. Due to insignificant thickness, the mats are best suited for areas where floor levels should not become excessively elevated.

Heating mat's heat outputs:
- MG – 160 W/m^2,
- MD – 100, 160 and 200 W/m^2

160 W/m^2 heat output heating mats are especially suited for installation under ceramic and stone floorings. 200 W/m^2 can be used for high heat loss areas such as conservatories. 100 W/m^2 heat output heating mats can be installed under any flooring type.

Product type		Place of installation	Stage on which the heating system will be constructed	Mat or cable's thickness [mm]	Number of power supply conductors
Heating mats	**MG**	directly under the floor, in the layer of flexible adhesive or self-levelling compound	finishing works or renovation	3	2
	MD			3.9	1
Thin heating cables	**DM**			4.3	1
	UltraTec			2 x 3	1
Heating cables	**VCD**	screed	new construction	5 x 7	1
Heating foils	**WoodTec2™**	directly under engineered wood, in the levelling layer	finishing works or renovation	2.8	1

ELEKTRA DM and UltraTec heating cables

Heat output 10 W/m. Terminated at one side with a 2.5 m-long power supply conductor.
ELEKTRA DM – thickness 4.3 mm.
ELEKTRA UltraTec – dimensions 2 x 3 mm.
ELEKTRA UltraTec cables are especially suited for areas where floor elevation is restricted. Installation directly under the flooring in the layer of elastic glue or self-levelling slab.

ELEKTRA WoodTec2™ heating foils

ELEKTRA WoodTec2™ – single side supplied, approx. 2.8 mm thick, terminated at one side with a power supply conductor and a termination at the other.
ELEKTRA WoodTec2™ heating foils are simpler to lay, as featuring one power supply conductor only.

ELEKTRA VCD heating cables

A double-core cable, terminated at one side with a 2.5 m-long "cold tail" power supply conductor and a termination at the other.
For room heating applications, unit output power of 7, 10 and 17 W/m is suitable. Installation in concrete slab.

Heating mat and cable's selection

ELEKTRA MG / MD heating mats

When selecting the proper dimensions of one or several (if room size requires it) heating mats (the 50 cm-wide width is always constant), it is necessary to adequately plan the layout – on the entire floor or its fragments only.
Mats **shall not** be placed where fixed furnishings are planned (floor-based cupboards, bathtubs, toilets etc.) Mats will be properly shaped by trimming the mesh and turning in the required direction.
Use the tables below to select the product of the length corresponding to the layout requirements.
Note: Heating mats must not be shortened.

ELEKTRA VCD, DM and UltraTec heating cables

For the correct selection of the heating cable, calculate its heat output as follows:
Cable's Heating Output = P x S, where:

P – assumed heat output per 1 m^2 of the floor,
S – floor area to be heated, free of fixed furnishings.

Then, use the product table to select the cable which features the heat output closest to the calculated one.

ELEKTRA WoodTec2™ heating foils

When selecting the WoodTec2™ heating foil, follow the guidelines for ELEKTRA MG/MD mats.

ELEKTRA MG double side supplied heating mats

Type	Dimensions [m x m]	Heating area [m²]	Power output [W]
160 W/m²			
MG 160/1.0	0.5 x 2.0	1.00	160
MG 160/3.0	0.5 x 6.0	3.00	480
MG 160/3.5	0.5 x 7.0	3.50	560
MG 160/7.0	0.5 x 14.0	7.00	1120
MG 160/9.0	0.5 x 18.0	9.00	1440

ELEKTRA WoodTec2™ heating foils

Type	Dimensions [m x m]	Heating area [m²]	Power output [W]
70 W/m²			
WoodTec2™ 70/2.0	0.5 x 4.0	2.00	140
WoodTec2™ 70/3.0	0.5 x 6.0	3.00	210
WoodTec2™ 70/4.0	0.5 x 8.0	4.00	280
WoodTec2™ 70/6.0	0.5 x 12.0	6.00	420
WoodTec2™ 70/8.0	0.5 x 16.0	8.00	560
WoodTec2™ 70/11.0	0.5 x 22.0	11.00	770
WoodTec2™ 70/13.0	0.5 x 26.0	13.00	910
140 W/m²			
WoodTec2™ 140/3.0	0.5 x 6.0	3.00	420
WoodTec2™ 140/4.0	0.5 x 8.0	4.00	560
WoodTec2™ 140/5.0	0.5 x 10.0	5.00	700
WoodTec2™ 140/6.0	0.5 x 12.0	6.00	840
WoodTec2™ 140/8.0	0.5 x 16.0	8.00	1120
WoodTec2™ 140/10.0	0.5 x 20.0	10.00	1400

ELEKTRA MD single side supplied heating mats

Type	Dimensions [m x m]	Heating area [m²]	Power output [W]
100 W/m²			
MD 100/1.0	0.5 x 2.0	1.00	100
MD 100/1.5	0.5 x 3.0	1.50	150
MD 100/2.0	0.5 x 4.0	2.00	200
MD 100/2.5	0.5 x 5.0	2.50	250
MD 100/3.0	0.5 x 6.0	3.00	300
MD 100/3.5	0.5 x 7.0	3.50	350
MD 100/4.0	0.5 x 8.0	4.00	400
MD 100/4.5	0.5 x 9.0	4.50	450
MD 100/5.0	0.5 x 10.0	5.00	500
MD 100/6.0	0.5 X 12.0	6.00	600
MD 100/8.0	0.5 x 16.0	8.00	800
MD 100/10.0	0.5 x 20.0	10.00	1000
MD 100/12.0	0.5 x 24.0	12.00	1200
160 W/m²			
MD 160/0.5	0.5 x 1.0	0.50	80
MD 160/1.0	0.5 x 2.0	1.00	160
MD 160/1.5	0.5 x 3.0	1.50	240
MD 160/2.0	0.5 x 4.0	2.00	320
MD 160/2.5	0.5 x 5.0	2.50	400
MD 160/3.0	0.5 x 6.0	3.00	480
MD 160/3.5	0.5 x 7.0	3.50	560
MD 160/4.0	0.5 x 8.0	4.00	640
MD 160/5.0	0.5 x 10.0	5.00	800
MD 160/6.0	0.5 x 12.0	6.00	960
MD 160/7.0	0.5 x 14.0	7.00	1120
MD 160/8.0	0.5 x 16.0	8.00	1280
MD 160/9.0	0.5 x 18.0	9.00	1440
MD 160/10.0	0.5 x 20.0	10.00	1600
200 W/m²			
MD 200/1.0	0.5 x 2.0	1.00	200
MD 200/1.5	0.5 x 3.0	1.50	300
MD 200/2.0	0.5 x 4.0	2.00	400
MD 200/2.5	0.5 x 5.0	2.50	500
MD 200/3.0	0.5 x 6.0	3.00	600
MD 200/3.5	0.5 x 7.0	3.50	700
MD 200/4.0	0.5 x 8.0	4.00	800
MD 200/4.5	0.5 x 9.0	4.50	900
MD 200/5.0	0.5 x 10.0	5.00	1000
MD 200/6.0	0.5 x 12.0	6.00	1200
MD 200/7.0	0.5 x 14.0	7.00	1400
MD 200/8.0	0.5 x 16.0	8.00	1600
MD 200/10.0	0.5 x 20.0	10.00	2000

ELEKTRA VCD heating cables

Type	Length [m]	Power output [W]
7 W/m*		
VCD 7/75	11.0	75
VCD 7/115	16.0	115
VCD 7/140	20.0	140
VCD 7/195	28.0	195
VCD 7/265	38.0	265
VCD 7/305	44.0	305
VCD 7/350	50.0	350
VCD 7/475	68.0	475
VCD 7/590	84.0	590
VCD 7/770	109.0	770
VCD 7/925	132.0	925
VCD 7/1020	145.0	1020
VCD 7/1210	173.0	1210
VCD 7/1320	186.0	1320
VCD 7/1460	208.0	1460
VCD 7/1610	228.0	1610
VCD 7/1700	243.0	1700

* non-stock items

Type	Length [m]	Power output [W]
10 W/m		
VCD 10/70	7.5	70
VCD 10/90	9.0	90
VCD 10/110	11.0	110
VCD 10/135	13.5	135
VCD 10/170	16.5	170
VCD 10/200	20.0	200
VCD 10/235	23.5	235
VCD 10/265	27.0	265
VCD 10/315	32.0	315
VCD 10/370	36.5	370
VCD 10/415	42.0	415
VCD 10/460	46.0	460
VCD 10/570	57.0	570
VCD 10/700	70.0	700
VCD 10/910	92.0	910
VCD 10/1100	111.0	1100
VCD 10/1220	122.0	1220
VCD 10/1450	144.0	1450
VCD 10/1560	156.0	1560
VCD 10/1740	174.0	1740
VCD 10/1920	191.0	1920
VCD 10/2030	203.0	2030
VCD 10/2260	225.0	2260
17 W/m		
VCD 17/100	5.5	100
VCD 17/140	8.5	140
VCD 17/180	10.0	180
VCD 17/215	13.0	215
VCD 17/260	15.5	260
VCD 17/305	18.0	305
VCD 17/350	20.5	350
VCD 17/410	24.5	410
VCD 17/480	28.0	480
VCD 17/545	32.0	545
VCD 17/610	35.0	610
VCD 17/745	43.0	745
VCD 17/910	54.0	910
VCD 17/1200	70.0	1200
VCD 17/1430	85.0	1430
VCD 17/1590	93.0	1590
VCD 17/1900	110.0	1900
VCD 17/2030	120.0	2030
VCD 17/2280	133.0	2280
VCD 17/2490	147.0	2490
VCD 17/2660	155.0	2660
VCD 17/2950	172.0	2950

ELEKTRA DM heating cables

Type	Length [m]	Power output [W]
10 W/m		
DM 10/90	8.5	90
DM 10/135	13.5	135
DM 10/145	15.0	145
DM 10/220	22.5	220
DM 10/285	28.5	285
DM 10/320	32.0	320
DM 10/400	40.0	400
DM 10/450	45.0	450
DM 10/555	55.0	555
DM 10/690	70.0	690
DM 10/780	78.0	780
DM 10/980	98.0	980
DM 10/1100	110.0	1100
DM 10/1320	132.0	1320
DM 10/1650	165.0	1650
DM 10/2050	203.0	2050

ELEKTRA UltraTec heating cables

Type	Length [m]	Power output [W]
10 W/m		
UltraTec 10/90	8.5	90
UltraTec 10/135	13.5	135
UltraTec 10/145	15.0	145
UltraTec 10/220	22.5	220
UltraTec 10/285	28.5	285
UltraTec 10/320	32.0	320
UltraTec 10/400	40.0	400
UltraTec 10/450	45.0	450
UltraTec 10/555	55.0	555
UltraTec 10/690	70.0	690
UltraTec 10/780	78.0	780
UltraTec 10/980	98.0	980
UltraTec 10/1100	110.0	1100
UltraTec 10/1320	132.0	1320
UltraTec 10/1650	165.0	1650
UltraTec 10/2050	203.0	2050

Floor heating system's control

Each room to be heated should be controlled with a separate temperature controller for regulation of the heating circuit.

Heating mats or cables will be connected to domestic electric circuit through a temperature controller which will ensure maintaining the required floor or air temperature.

In case the warm floor is required, temperature controllers equipped with floor temperature sensors are recommended, which enable maintaining the desired floor temperature.

For floor heating systems intended as primary heating, the most important issue for the users will be achieving the optimal room temperature. For these applications, temperature controllers with built-in air sensors and limiting floor sensors will be recommended.

ELEKTRA MWD5 WiFi programmable temperature controller

Types of temperature controllers:

- manual temperature controllers for maintaining steady temperature levels,
- programmable controllers featuring options for programming temperature levels in daily and weekly cycles.

Temperature controllers can regulate heating circuits consisting of one or more heating mats (or cables), of total heat output of 3600 W.

For outputs exceeding max. permissible controller's terminal loads (3600 W), heating circuits should be equipped with a contactor.

Properly selected temperature controllers will save as much as 30% of the energy consumption for the heating purposes

ELEKTRA MCD5 programmable temperature controller

Programmable temperature controllers

Equipped with air- and floor temperature sensors. Temperature measurement selection possible, via: air sensor, floor sensor and both air and floor (limiting) sensor. Programmable controllers feature adaptive function (controllers will automatically “learn” thermal floor inertia) to maximize the precision of temperature setting in the given time period. Another featured function is a holiday mode: in the period of 1-30 days it is possible to program one fixed temperature level from the range of 10 - 30°C, later the temperature will automatically return to the comfort level.

Wi-Fi

- **ELEKTRA MWD5 WiFi temperature controller**

Temperature controller model with the WiFi functionality and all other features of the MCD5 controller. Temperature control takes place via a touch screen or a decicated iOS or Android smartphone app.

- **ELEKTRA MCD5 programmable temperature controller**

ELEKTRA MCD5 is equipped with a 2-inch colour touch screen. It enables programming of 6 events per day. The controller features a calendar enabling entering the start and finish date of absence. During this time the heating will be off or only the set min. temperature will be maintained. Due to the application of the QR code it is possible to execute the fast view of the controller's settings with a smartphone.

- **ELEKTRA ELR20 temperature controller**

Temperature controller with a large (2.9") LCD display, user's friendly operation, enables programming of six events daily. Especially designed for the purposes of the control of heating systems, in particular underfloor heating. Equipped with a builtin air sensor, as well as floor sensor for floor temperature measurements and floor temperature limiting.

Wi-Fi

- **ELEKTRA ELR30 WiFi temperature controller**

New temperature controller with remote control via WiFi/Bluetooth network and user-friendly app. It enables programming of 4 events per day. It is characterized by its large size (65 x 55 mm) and easy to use high-contrast LCD display. The controller features an "Open Window" function – it detects a sudden temperature drop due to an open window – and a favorite temperature function, which allows to set the required temperature with just one click.

Wi-Fi

typ	ELEKTRA MWD5 WiFi	ELEKTRA MCD5	ELEKTRA ELR20	ELEKTRA ELR30 WiFi
WiFi	+	–	–	+
Touch screen	+	+	–	–
Floor sensor	+	+	+	+
Air sensor	+	+	+	+
Installation	flush	flush	flush	flush
Comfort temperature range (°C)	from +5 to +40	from +5 to +40	from +5 to +90	from +5 to +90
Temperature setback (°C)	from +5 to +40	from +5 to +40	from +50 to +90	from +50 to +90
Max. load (W)	3600	3600	3600	3600
Switch	2-pole	2-pole	1-pole	1-pole
IP protection rating	21	21	20	20
Dimensions: height x width x depth (mm)	82 x 82 x 40	82 x 82 x 40	90 x 86 x 45	86 x 86 x 46

Product selection guide

		In-screed Heating			Heating Directly Under Floor Finish						
					In adhesive or Self-Leveling Screed / Compound					Dry Installation	
		Heating Cables					Heating Mats			Heating Foils	
Type of Heating	Type of Floor	VCD 7	VCD 10	VCD 17	DM	UltraTec	MG 160	MD 100	MD 160	WoodTec2™	Temperature Controllers
Primary	Stone Ceramic	+	+	+	+	+	+	+	+	–	MWD5 WiFi MCD5 ELR20 ELR30 WiFi
	Carpet, Vinyl or glued down wooden flooring	+	+	–	+	+	–	+	–	–	
	Laminate flooring and engineered wood	+	+	–	+	+	–	+	–	+	
Warm Floor	Stone Ceramic	–	–	–	+	+	+	+	+	–	MWD5 WiFi MCD5 ELR20 ELR30 WiFi
	Vinyl or glued down wooden flooring	–	–	–	+	+	–	+	–	–	
	Laminate flooring and engineered wood	–	–	–	–	–	–	–	–	+	

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