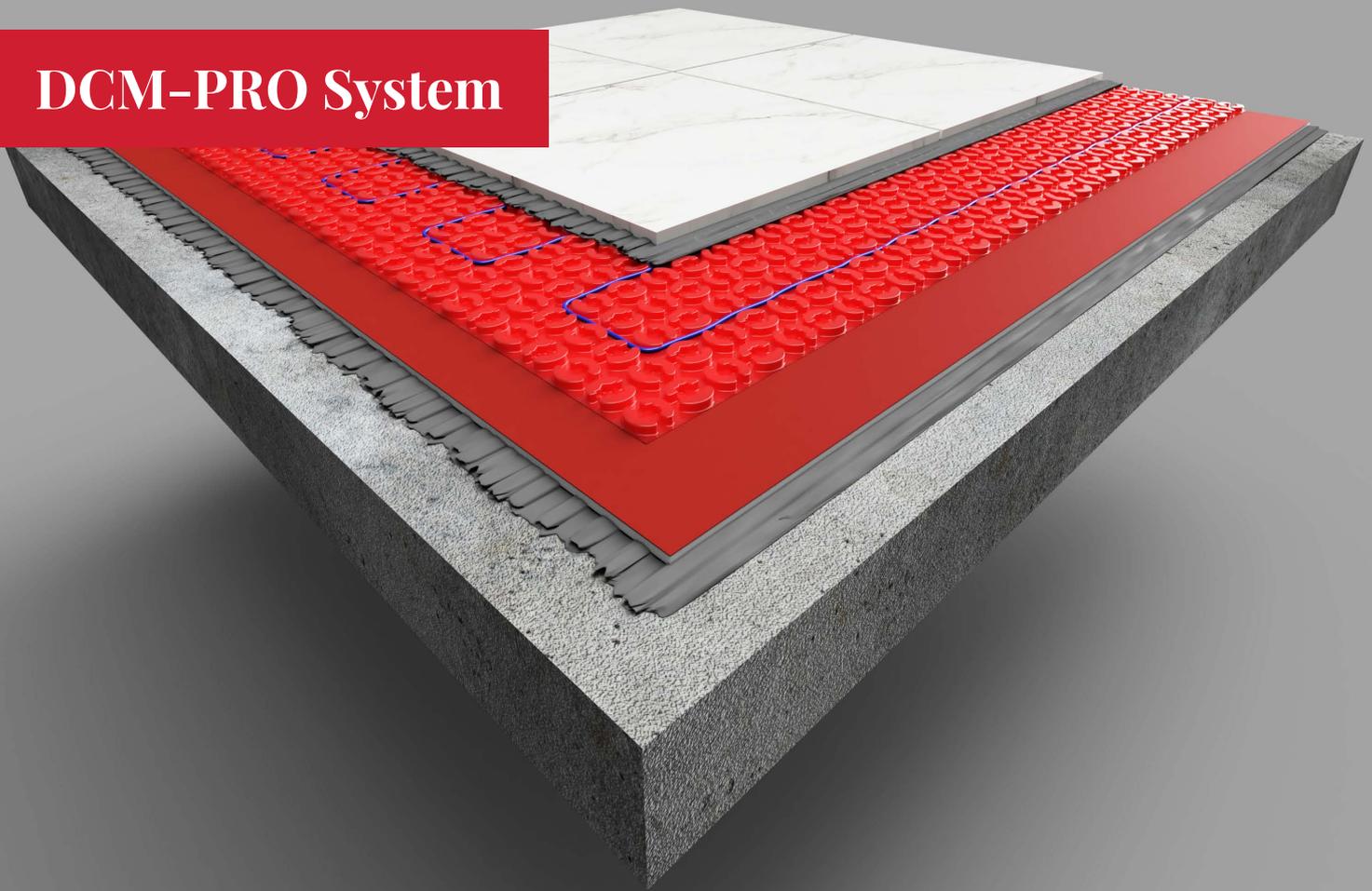# DCM-PRO System

Anti-Fracture Protection
DCM-PRO Peel and Stick uses viscous adhesive that permits continual movement whilst staying securely bonded to the supporting floor, adjusting to seasonal changes and absorbing stress cracks protecting the floor finish.

For a Variety of Floor Finishes
Designed for use under tile and stone floor, the DCM PRO can also be installed under other flooring types including vinyl, carpet and timber by adding a 10 mm layer of levelling compound to the membrane first.

Fastest to Install Heated Decoupling System
DCM-PRO Peel and Stick with it's self-adhesive underside can be affixed directly to the subfloor, eliminating the need to use tile adhesive below, significantly reducing installation time.

Variable Heat Output
Choice of Standard (13.8 W/m) or Low Wattage (5.1 W/m) cables, the heaters can be selected and installed to produce one of 10 standard powers (41 W/m² - 225 W/m²), allowing the system to be efficiently tailored to the space it is heating.

CE UKCA BEAB SAFETYNet™ Installation-Guarantee LIFETIME Warmup

Overview

Warmup DCM-PRO is an electric underfloor heating system that provides anti-fracture protection to tiled floor finishes. There are two alternative decoupling membranes within the range; one is backed with a standard non-woven fleece, the other a peel and stick adhesive, with which provides the fastest solution for installing electric underfloor heating.

The patented membranes provide a versatile solution for any heated floor, with the peel and stick version being ideal for rapid installation over Warmup insulation or smooth subfloors, while the fleece backed version is better suited to coarse and/or damp surfaces.

When not using DCM-PRO directly beneath a tile or stone floor finish, covering the system with 10 mm of levelling compound allows a wide variety of floor coverings to be laid over, including; tile, stone, vinyl, timber and carpet.

There are 10 installable system powers, using the standard and low wattage cables, making DCM-PRO an excellent solution for heating properties from modern energy efficient buildings to older ones with higher energy requirements.

The unique castellations allow the heating cable to be spaced precisely to achieve the intended power, drawing the heat from the cable, spreading it throughout the tile adhesive or levelling compound, to create even warmth across the heated floor.

The ease of adjustable cable placement to perfectly cover the entire heated area, cable markings that show remaining cable meterage and castellations that shield the cable from site traffic until the system is covered all add up to why DCM-PRO is an installers favourite.
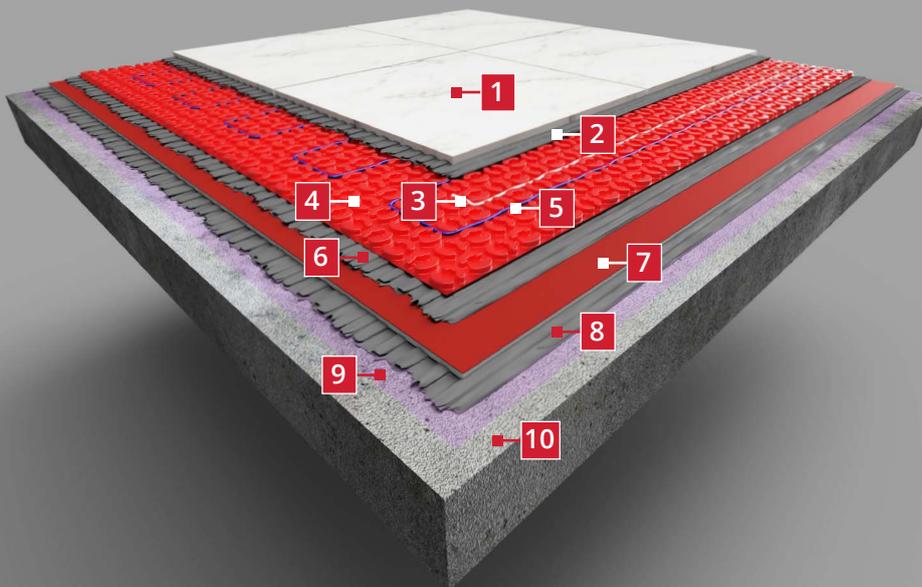
Warmup

Typical Floor Build-Up

Tile floor finishes - Peel and Stick
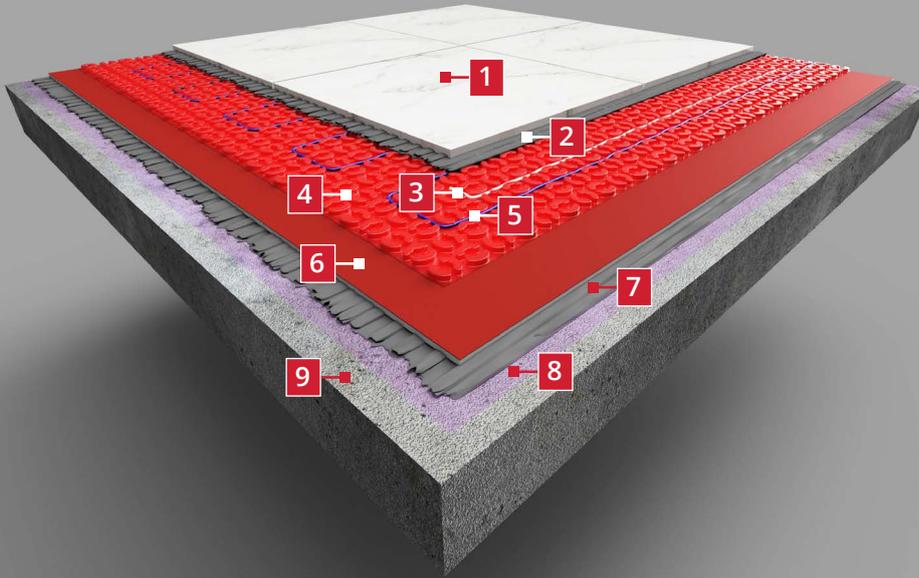
1	**Tile floor finish**
2	**Flexible tile adhesive**
3	**Floor sensor** *Tab tape the sensor to the subfloor. Do not tape over the sensor tip!*
4	**Decoupling membrane with adhesive backing** *Apply pressure to the membrane to ensure a secure bond to the subfloor*
5	**Heating cable** *DO NOT cut at any stage!*
6	**Warmup Ultralight (optional)** *Adding Warmup Ultralight below DCM-PRO can help improve the response time of the system, particularly when installing over screed or concrete*
7	**Flexible tile adhesive (optional)** *Required if installing Warmup Ultralight*
8	**Warmup primer** *Refer to tile adhesive manufacturers instructions for priming requirements*
9	**Pre-insulated subfloor with a surface regularity of SR1***

* If installing the optional Warmup Ultralight, refer to its installation manual for its sub floor requirements.

Tile floor finishes - Fleece

1	**Tile floor finish**
2	**Flexible tile adhesive**
3	**Floor sensor** *Tab tape the sensor to the subfloor. Do not tape over the sensor tip!*
4	**Decoupling membrane with fleece backing** *Apply pressure to the membrane to ensure a secure bond to the adhesive*
5	**Heating cable** *DO NOT cut at any stage!*
6	**Flexible tile adhesive** *Required if installing decoupling membrane with fleece backing*
7	**Warmup Ultralight (optional)** *Adding Warmup Ultralight below DCM-PRO can help improve the response time of the system, particularly when installing over screed or concrete*
8	**Flexible tile adhesive (optional)** *Required if installing Warmup Ultralight*
9	**Warmup primer** *Refer to tile adhesive manufacturers instructions for priming requirements*
10	**Pre-insulated subfloor with a surface regularity of SR1***

* If installing the optional Warmup Ultralight, refer to its installation manual for its sub floor requirements.
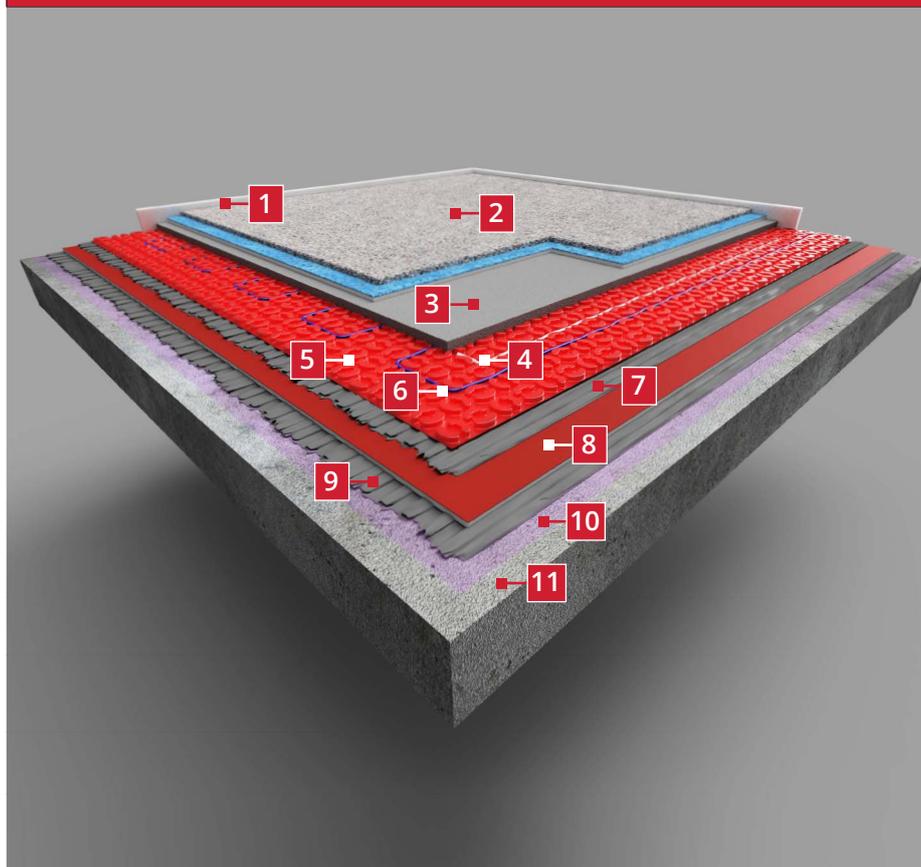
All floor finishes

#	Item
1	**Perimeter strip**
2	**Floor finish**
3	**10 mm levelling compound**
	Levelling compound used must be compatible with electric underfloor heating. The levelling compound must be applied as a single layer.
4	**Floor sensor**
	Tab tape the sensor to the subfloor. Do not tape over the sensor tip!
5	**Decoupling membrane**
	Apply pressure to ensure a secure bond
6	**Heating cable**
	DO NOT cut at any stage!
7	**Flexible tile adhesive**
	Required if installing decoupling mat with fleece backing
8	**Warmup Ultralight (optional)**
	Adding Warmup Ultralight below DCM-PRO can help improve the response time of the system, particularly when installing over screed or concrete
9	**Flexible tile adhesive (optional)**
	Required if installing Warmup Ultralight
10	**Warmup primer**
	Refer to tile adhesive manufacturers instructions for priming requirements
11	**Pre-insulated subfloor with a surface regularity of SR1***

* If installing the optional Warmup Ultralight, refer to its installation manual for its sub floor requirements.

Technical Specification

Warmup DCM-PRO cable

Product Code	DCM-C-X *(DCM-PRO)* DCM-C-LW-X *(DCM-PRO Low wattage)*	**Cable sheath**	Blue (DCM-PRO), Green (DCM-PRO Low wattage)
Connection	3.0 m long coldtail Flat 2 core cable with earth braid	**IP rating**	X7
Operating Voltage	230 V AC: 50 Hz	**Inner / Outer Insulation**	ETFE / PVC
Output rating	(3 castellations - 90 mm) DCM-C: 150 W/m² ; DCM-C-LW: 55 W/m²	**Earth protection**	Metal braiding surrounding heating cores
Heating cores	Dual core, multi-strand heating element	**Minimum installation temperature**	-10 °C
ASTM C627	Commercial usage	**Spacing**	60 mm / 90 mm / 120 mm

Warmup DCM-PRO mat

|			
Product Code	DCM-F-X (Fleece) / DCM-PS-X (Peel and Stick)	**Colour**	Red
Dimensions	1040 mm x 985 mm x 5.8 mm (DCM-PS-X) / 6.0 mm (DCM-F-X) (Sheet covering 1 m²) / 15,300 mm x 985 mm x 5.8 mm (DCM-PS-X) / 6.0 mm (DCM-F-X) (Roll covering 15 m²)	**Composition**	Polypropylene mat with fleece / self-adhesive backing

DCM-PRO cable

Product Code	Power (W)	Current (A)	Resistance (Ω)	Resistance Band (Ω)		Cable Length (m)	Heated area at different spacings, m²				
							Castellations				
							2	2/3	3	3/4	4
							60mm	60/90mm	90mm	90/120mm	120mm
							225 W/m²	~180 W/m²	150 W/m²	~130 W/m²	112.5 W/m²
DCM-C-1	150	0.7	352.7	335.0 -	370.3	10.9	0.7	0.8	1.0	1.2	1.3
DCM-C-1.5	225	1.0	235.1	223.3 -	246.9	16.3	1.0	1.3	1.5	1.8	2.0
DCM-C-2	300	1.3	176.3	167.5 -	185.1	21.8	1.3	1.7	2.0	2.3	2.7
DCM-C-2.5	375	1.6	141.1	134.1 -	148.2	27.2	1.7	2.1	2.5	2.9	3.3
DCM-C-3	450	2.0	117.6	111.7 -	123.5	32.7	2.0	2.5	3.0	3.5	4.0
DCM-C-3.5	525	2.3	100.8	95.8 -	105.8	38.1	2.3	2.9	3.5	4.1	4.7
DCM-C-4	600	2.6	88.2	83.8 -	92.6	43.5	2.7	3.3	4.0	4.7	5.3
DCM-C-4.5	675	2.9	78.4	74.5 -	82.3	49.0	3.0	3.8	4.5	5.3	6.0
DCM-C-5	750	3.3	70.5	67.0 -	74.0	54.4	3.3	4.2	5.0	5.8	6.7
DCM-C-6	900	3.9	58.8	55.9 -	61.7	65.3	4.0	5.0	6.0	7.0	8.0
DCM-C-7	1050	4.6	50.4	48.0 -	52.9	76.2	4.7	5.8	7.0	8.2	9.3
DCM-C-8	1200	5.2	44.1	42.0 -	46.3	87.1	5.3	6.7	8.0	9.3	10.7
DCM-C-9	1350	5.9	39.2	37.2 -	41.2	98.0	6.0	7.5	9.0	10.5	12.0
DCM-C-10	1500	6.5	35.3	33.5 -	37.1	108.8	6.7	8.3	10.0	11.7	13.3
DCM-C-12	1800	7.8	29.4	27.9 -	30.9	130.6	8.0	10.0	12.0	14.0	16.0
DCM-C-14	2100	9.1	25.2	23.9 -	26.5	152.4	9.3	11.7	14.0	16.3	18.7
DCM-C-16	2400	10.4	22.0	20.9 -	23.1	174.1	10.7	13.3	16.0	18.7	21.3

DCM-PRO low wattage cable

Product Code	Power (W)	Current (A)	Resistance (Ω)	Resistance Band (Ω)		Cable Length (m)	Heated area at different spacings, m²				
							Castellations				
							2	2/3	3	3/4	4
							60mm	60/90mm	90mm	90/120mm	120mm
							82.5 W/m²	~66 W/m²	55 W/m²	~47 W/m²	41.3 W/m²
DCM-C-LW-1	55	0.2	961.8	913.7 -	1009.9	10.9	0.7	0.8	1.0	1.2	1.3
DCM-C-LW-1.5	83	0.4	641.2	609.1 -	673.3	16.3	1.0	1.3	1.5	1.8	2.0
DCM-C-LW-2	110	0.5	480.9	456.9 -	505.0	21.8	1.3	1.7	2.0	2.3	2.7
DCM-C-LW-2.5	138	0.6	384.7	365.5 -	404.0	27.2	1.7	2.1	2.5	2.9	3.3
DCM-C-LW-3	165	0.7	320.6	304.6 -	336.6	32.7	2.0	2.5	3.0	3.5	4.0
DCM-C-LW-3.5	193	0.8	274.8	261.1 -	288.6	38.1	2.3	2.9	3.5	4.1	4.7
DCM-C-LW-4	220	1.0	240.5	228.4 -	252.5	43.5	2.7	3.3	4.0	4.7	5.3
DCM-C-LW-4.5	248	1.1	213.7	203.1 -	224.4	49.0	3.0	3.8	4.5	5.3	6.0
DCM-C-LW-5	275	1.2	192.4	182.7 -	202.0	54.4	3.3	4.2	5.0	5.8	6.7
DCM-C-LW-6	330	1.4	160.3	152.3 -	168.3	65.3	4.0	5.0	6.0	7.0	8.0
DCM-C-LW-7	385	1.7	137.4	130.5 -	144.3	76.2	4.7	5.8	7.0	8.2	9.3
DCM-C-LW-8	440	1.9	120.2	114.2 -	126.2	87.1	5.3	6.7	8.0	9.3	10.7
DCM-C-LW-9	495	2.2	106.9	101.5 -	112.2	98.0	6.0	7.5	9.0	10.5	12.0
DCM-C-LW-10	550	2.4	96.2	91.4 -	101.0	108.8	6.7	8.3	10.0	11.7	13.3
DCM-C-LW-12	660	2.9	80.2	76.1 -	84.2	130.6	8.0	10.0	12.0	14.0	16.0
DCM-C-LW-14	770	3.4	68.7	65.3 -	72.1	152.4	9.3	11.7	14.0	16.3	18.7
DCM-C-LW-16	880	3.8	60.1	57.1 -	63.1	174.2	10.7	13.3	16.0	18.7	21.3

Cable section
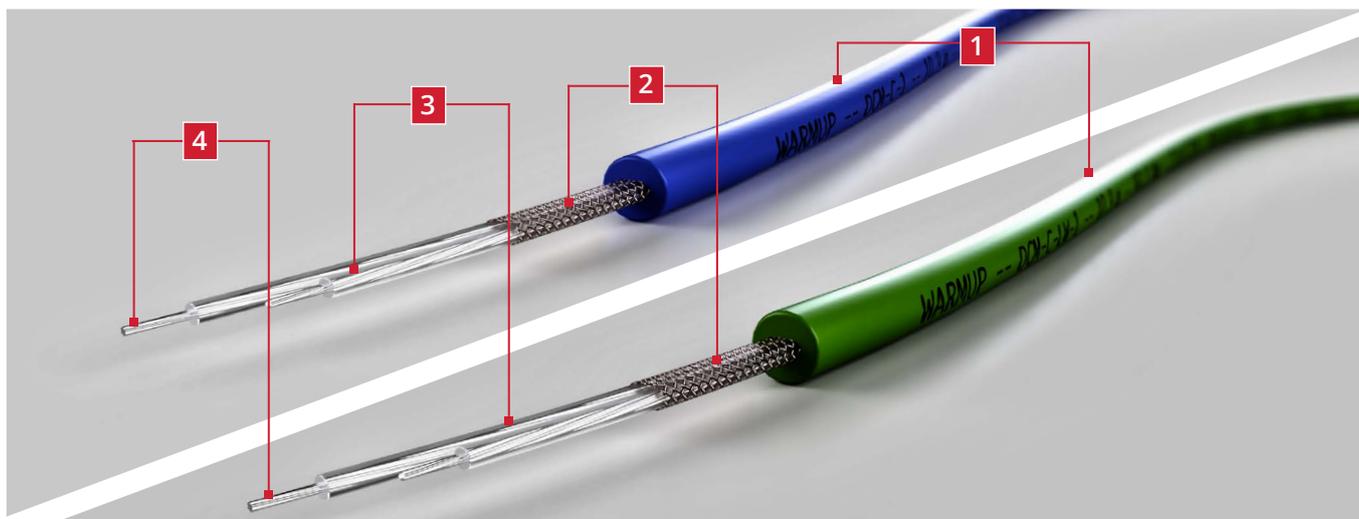
1	PVC outer insulation
2	Earth braiding surrounding heating cores
3	ETFE inner insulation
4	Dual core, multi-strand heating element

Cable selection

When selecting DCM-PRO for use as the primary heating system within a room or property it is important to match the heater power to the design heat load.

The following table recommends the installed power of DCM-PRO for various design heat loads when installed beneath a standard tiled floor, on Warmup Ultralight over a pre insulated subfloor.

The table includes a power allowance to achieve a responsive floor when the subfloor is sufficiently insulated to limit downwards heat loss to no more than 10% that of the design heat load.

When installing directly onto a screed or concrete subfloor without Warmup insulation, 225 W/m² is always recommended due to the longer response times.

Range		Installed Power	Cable Spacing	Design Heat Load
Standard Wattage		225.0 W/m²	2	≤ 119 W/m²
		180.0 W/m²	2-3	≤ 95 W/m²
		150.0 W/m²	3	≤ 78 W/m²
		128.6 W/m²	3-4	≤ 69 W/m²
		112.5 W/m²	4	≤ 56 W/m²
Low Wattage		82.5 W/m²	2	≤ 48 W/m²
		66.0 W/m²	2-3	≤ 38 W/m²
		55.0 W/m²	3	≤ 29 W/m²
		47.1 W/m²	3-4	≤ 24 W/m²
		41.3 W/m²	4	≤ 23 W/m²

System performance

**Floor sensor setting for target heat output**
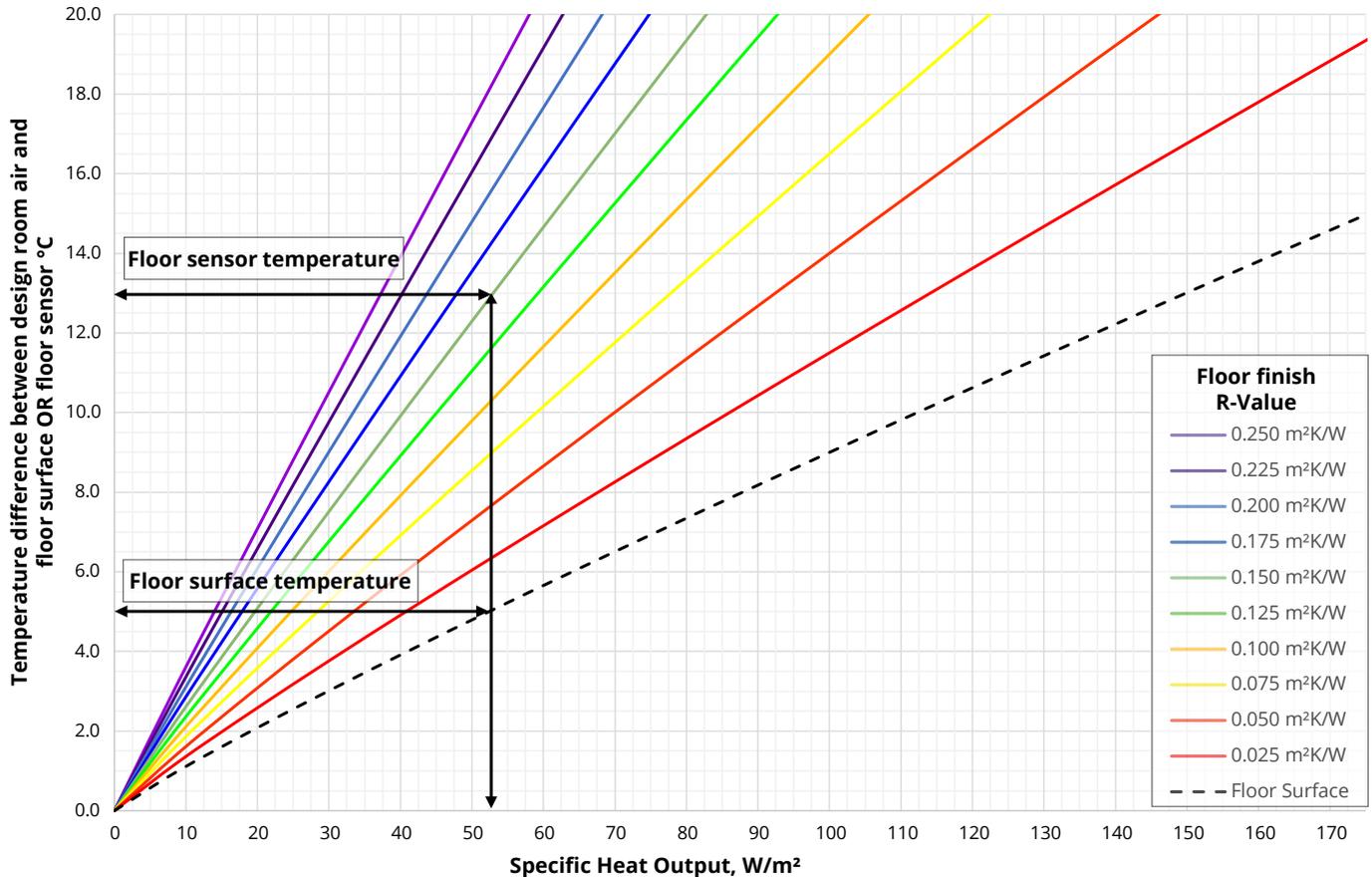
Using the graph above it is possible to get the specific heat output of an eUFH system based on the temperature difference between the design room air temperature and the floor surface or floor sensor temperature by floor finish.

The example above shows that for a design room air temperature of 20°C and floor surface temperature of 25°C. Based on the temperature difference of 5°C the resulting heat output would be 52.5 W/m². Based on a 0.150 m²K/W (1.5 Tog) floor finish the floor sensor would have to be set to 33°C to achieve this heat output.

i The design floor surface temperature difference should not be more than 9 °C in occupied areas, 15 °C in unoccupied areas.

i Heat output is limited by the floor finish resistance combined with the maximum probe setting of 40 °C.

i Temperature limits of the floor finish or its adhesive may adversely limit the design heat output.

Components
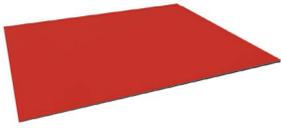
Warmup Ultralight (optional) - WCI-6 / WCI-16
Adding Warmup Ultralight below the membrane will improve the response time of the system, particularly when installing over screed or concrete. In addition it will provide better heat spread and decoupling.

Warmup 6iE - 6iE-01-OB-DC / 6iE-01-BP-LC
The world's first UFH thermostat with a smartphone touchscreen providing effortless control at your fingertips. Connected to the internet by WiFi, it can be controlled from a smart phone, tablet or computer as well as its own touchscreen interface. Working automatically; it learns your routines and location through background communication with your smartphone. Using this knowledge it suggests ways to save energy.

Warmup Element - RSW-01-WH-RG (ELM-01-WH-RG) / RSW-01-OB-DC (ELM-01-OB-DC)
Warmup's Element WiFi Thermostat has been designed with simplicity and stylish functionality in mind. It brings energy-efficient heating control to all Warmup floor heaters. Combining smart technology with simple, contemporary design, the Element WiFi Thermostat is the perfect all-rounder to control Warmup heating systems.

Warmup Primer - ACC-PRIMER
A ready to use, bond enhancing and solvent-free single component primer for the preparation of absorbent and non-absorbent floors and walls with or without surface heating.

Warmup perimeter strip - DCM-E-25
High quality foam perimeter strip, to allow for differential movement between finished floor level and walls when self-levelling over the StickyMat system.

3-Ply waterproof tape - DCM-T-50 / DCM-R-I / DCM-R-E
Special 3-ply tape made from thin non-woven fleece and a flexible membrane. Internal and external preformed corners are also available.

Mapei Ultraplan Renovation Screed 3240 - ACC-SELFLEVEL
Fibre reinforced levelling compound designed for use in the refurbishment of existing floors in both commercial and domestic applications. Used for interior levelling, smoothing and infilling differences in thickness from 3 to 40 mm on new or existing concrete, screeds, stone, terrazzo and ceramic tiles, old and new timber floors, floor boards, chipboard panels, plywood, parquet for use in dry locations as an underlayment for floor finishes such as tile, stone, vinyl, carpet and wood flooring.

Contact