9.1 C-C distance

The C-C distance is the distance between the cables.

In an average house the C-C distance should not exceed 15 cm if the cables are installed as part of a total heating system. If the C-C distance is higher, cold zones may form on the floor surface. The bigger the C-C distance is, the more concrete should be applied to the cables to ensure an even temperature on the floor surface.

When deviflex™ heating cables are installed, we recommend the use of devifast™ fitting bands. These bands are designed to ensure a C-C distance at regular intervals of 2.5 cm, e.g. 10 cm, 12.5 cm, 15 cm, 17.5 cm, etc.

Two different formulas may be used to calculate the C-C distance:

1)

$$\frac{\text{Sum of usable floor space [m}^2\text{] x 100 [cm/m]}}{\text{Cable length [m]}} = \text{C-C distance [cm]}$$

2)

$$\frac{\text{Output per m cable [W/m] x 100 [cm/m]}}{\text{Output per m}^2\text{ usable floor space [W/m}^2\text{]}} = \text{C-C distance [cm]}$$

Example 1
The deviflex™ DTIP-18, 535 W, 29 m is to be installed in a bathroom with a usable floor space of 3 m².

The calculated C-C distance is:

$$\frac{3\ \text{m}^2 \times 100\ \text{cm/m}}{29\ \text{m}} = 10.35\ \text{cm}$$

If we use devifast™ fitting bands, we can install the heating cable in this bathroom with a C-C distance of 10 cm.

Example 2
For a floor renovation we choose a deviflex™ DTIP-10 cable (10 W/m). If the calculated output is 120 W/m², the calculated C-C distance is:

$$\frac{10\ \text{W/m} \times 100\ \text{cm/m}}{120\ \text{W/m}^2} = 8.3\ \text{cm}$$

The table shows the C-C distances and corresponding outputs per m²:

C-C distance	20W/m cable	18 W/m cable	17 W/m cable	10 W/m cable
5 cm	400 W/m²	360 W/m²	340 W/m²	200 W/m²
7.5 cm	266 W/m²	240 W/m²	227 W/m²	133 W/m²
10 cm	200 W/m²	180 W/m²	170 W/m²	100 W/m²
12.5 cm	160 W/m²	144 W/m²	136 W/m²	80 W/m²
15 cm	133 W/m²	120 W/m²	113 W/m²	66 W/m²
17.5 cm	114 W/m²	103 W/m²	97 W/m²	57 W/m²
20 cm	100 W/m²	90 W/m²	85 W/m²	50 W/m²
22.5 cm	89 W/m²	80 W/m²	76 W/m²	
25 cm	80 W/m²	72 W/m²	68 W/m²	

9.2 The devifast™ fitting bands

If we want to calculate the length of a devifast™ fitting band, we first have to determine the distance between the fitting bands.

For concrete floors where the cable is covered with 3 cm of concrete or more and the C-C distance is more than 10 cm, the distance between the devifast™ fitting bands can be up to 1 m.

For thin floors where the cable is covered with 1-2 cm of self-levelling compound and the C-C distance is 10 cm or less, the max. distance between the devifast™ fitting bands is 25 cm.

Below is the formula for calculation of C-C distance.

$$\frac{\text{Sum of usable floor space [m}^2\text{] x 100 [cm/m]}}{\text{Distance between devifast™ [cm]}} + l_W \text{ [m]} = \text{length of devifast™ [m]}$$

l_W is the length of the wall parallel to which the devifast™ is installed.

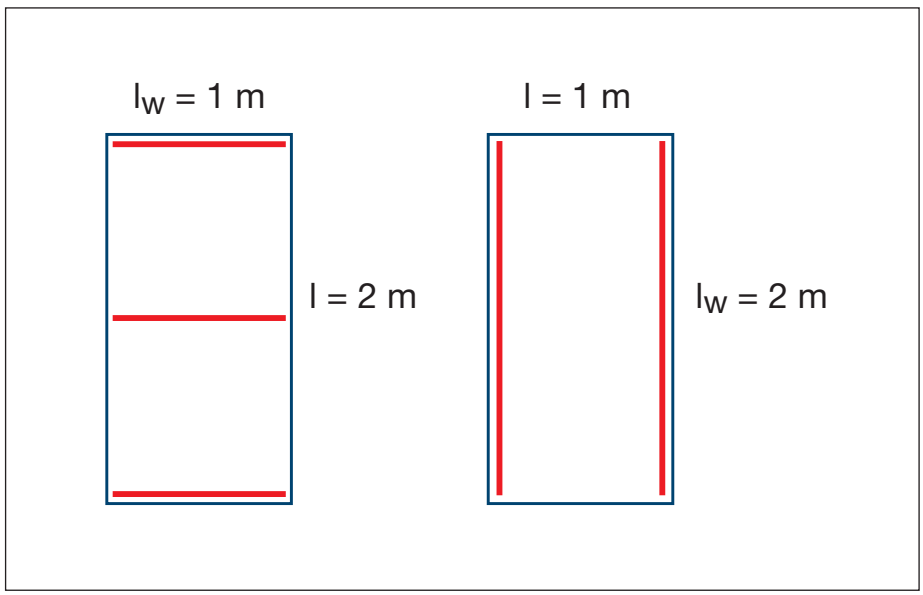
Example
The usable floor space is 1 m x 2 m = 2 m².

If we install devifast™ fitting bands parallel to a 1 m wall and the distance between the devifast™ fitting bands is 1 m, we need a fitting band with a length of:

$$\frac{2 \text{ m}^2 \text{ x } 100 \text{ cm/m}}{100 \text{ cm}} + 1 \text{ m} = 3 \text{ m}$$

If we install devifast™ fitting bands parallel to a 2 m wall and the distance between the devifast™ fitting bands is 1 m, we need a fitting band with a length of:

$$\frac{2 \text{ m}^2 \text{ x } 100 \text{ cm/m}}{100 \text{ cm}} + 2 \text{ m} = 4 \text{ m}$$



As we can see from this example, the length of a devifast™ fitting band may vary although the area and the distance between the devifast fitting bands remain the same