

1.1 General information

DEVI's floor heating systems consist of deviflex™ heating cables or devimat™ heating mats, devireg™ temperature regulation thermostats, and installation accessories. The system can be connected into the network using the devicom™ network solutions.

Optimal comfort

All heat moves upwards! This simple fact explains why a floor heating system provides more comfortable heat than the alternative radiator system. A radiator system throws the heat up at head height, which then travels further up to the ceiling only to travel downwards and return as a cold draft around ones feet.

DEVI's floor heating system, on the other hand, provides pleasant heat for ones feet, body and head. As it produces only a very gentle upward air movement, the amount of travelling dust particles is reduced considerably, obviously making the system a great asset to people suffering from allergies or asthma.





Minimal energy consumption

Thanks to a heat distribution from the floor and a precise temperature control system with a devireg™ thermostat, the average room temperature can be reduced by 1-2°C compared with traditional radiator heating without influencing the thermal comfort level. This enables a reduction of the energy loss by up to 10-20%, which is both economical and environmentally beneficial.

A flexible system

DEVI's floor heating system ensures a comfortable room temperature, be it at home, at the office, in a workshop, sports hall or virtually anywhere where comfortable heat is required. Equally important is the fact that DEVI's floor heating system may be installed in all types of floor whether they are new concrete floors,

wooden floors or renovated floors.

An invisible heat source

DEVI's floor heating system is invisible. As the system is hidden under the floor, it gives excitingly new possibilities for furnishing and interior design and the problem of space-consuming and unattractive radiators no longer has to be considered.

High durability, no maintenance DEVI's floor heating system has a long life. Practically speaking one can count on DEVI's heating cables

can count on DEVI's heating cables and mats to last as long as the house in which they are installed – and no maintenance is required!

DEVI's heating cables and mats come with a 10-year quarantee

The deviflex[™] and the devimat[™] are provided with a 10-year guarantee. The devireg[™] thermostats have a life expectancy reflecting their stage of technical development at the time of installation. The devireg[™] thermostats are provided with a 2-year quarantee.





1.2 Direct heating in concrete floors

Direct heating systems require an installed output of up to 150 W/m² and the heating cables are placed near the floor surface. Normally, heating cables or mats are placed in the lower part of a concrete layer with a max. thickness of 5 cm.

The direct heating system may be installed either as a total heating system or as a supplementary heating system. As a total heating system the DEVI system is the only heating system in a room. As a supplementary heating system the DEVI system supplements another heating system in a room, e.g. electrical radiators.

The total heating system is designed to cover the total heat loss and provide full heating while the supplementary heating system is designed to provide a warm and comfortable floor.

Installed output

The installed output shows how many watts per m² (W/m²) have to be installed in order to cover the heat loss and provide the necessary heating. The heat loss mainly depends on the climate conditions and the insulation in the building. We will assume that information about the heat loss is available.

When the total heating output for a room is to be determined, the available area (m²) has to be estimated. This means that the area covered by cupboards, bathtubs, lavatories, etc. has to be deducted from the total area of the room. Therefore, the required installed output will be proportionally higher on the usable floor space.

In order to ensure a quickly responding heating system, the total calculated output has to be

increased by approx. 30%. The result of this calculation will reveal the required output for the heating element – cable or mat.

Normally, the calculated output for a new and well insulated building would be 40-60 W/m² and up to 150 W/m² in the bathrooms. If the calculated installed output is higher than 150 W/m², we recommend that additional heating systems be considered.

In houses with large glass and door areas we recommend the use of rim zone heating. The installed output in a rim zone area is approx. 200 W/m². For further information about rim zone heating, please refer to the paragraph "Accumulating heating".

Product choice

When DEVI's heating system is installed as a direct heating system, the deviflex™ cables with a maximum output of 18 W/m should be used. Besides, the devifast™ fitting bands will ensure a quick and easy installation.

Alternatively, the devimat™ (a preprepared cable mat) with a maximum output of 150 W/m² may be used.

When the total required output has been calculated, the cable with the nearest and higher output should be chosen.

To exploit the optimal comfort and economy of the system thermostats with simple or intelligent timers should be used – the devireg $^{\text{\tiny TM}}$ 540 or the devireg $^{\text{\tiny TM}}$ 550.

Installation

Heating cables or mats should be installed approx. 3-5 cm below floor surface and with a C-C distance of 5-15 cm.

For the installation of deviflex™

heating cables we recommend the use of devifast™ fitting bands.
Alternatively, the cables may be attached to concrete armouring.

It is important that the floor construction is well insulated so the downward heat loss is kept to a minimum.





Another important element is the vertical rim zone insulation. This insulation must be efficient in order to prevent heat from being transported to the walls or the adjoining rooms. Besides, it should be able to respond to the horizontal expansibility of the floor construction.

Finally, the insulation must comply with general and local regulations.

In connection with wet rooms (bathrooms etc.) a damp proof membrane should always be used in order to prevent moisture from entering the floor construction.

For more detailed installation instructions, please refer to the paragraph "General installation guide".

Floor surfaces

Nearly all types of floor surfaces are suited for floors in which heating cables have been installed, but the supplier of the floor surface should always be consulted with regard to the adhesives to be used etc. The supplier's instructions must be very carefully followed when wooden floors are installed directly on concrete constructions in which floor heating has been installed. For further information about heating in wooden floors, please refer to the paragraph "Wooden floors".

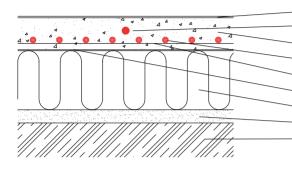
Flooring materials with a high insulation value, like thick wool carpets, can limit the heat distribution from the floor. In these cases, please consult the supplier of the flooring material for further information.

Example

The heat loss in a 20 m² kitchen is 1200 W. The floor is to be covered with tiles. Cupboards etc. will cover 7 m² of the floor area. This leaves $20 \text{ m}^2 - 7 \text{ m}^2 = 13 \text{ m}^2$ to install the cables.

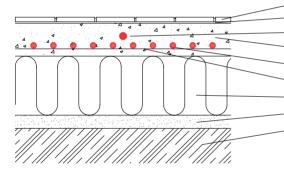
- 1) The required installed output should be 30% higher than the calculated heat loss: 1200 W x 1.3 =1560 W.
- 2) Choice of nearest cable: If we choose the deviflex™ DTIP-18, the nearest cable is 1625 W, 90 m.
- 3) Calculation of C-C distance: 13 m² x (100 cm/m)/(90 m) = 14.44 cm. By means of devifast™ fitting bands we install the cable with a C-C distance of 15 cm.
- 4) Choice of thermostat for the total heating system: We recommend the devireg[™] 540 or 550.

Concrete floor on ground - dry rooms



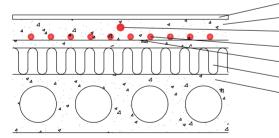
Flooring
Sensor from devireg™
Reinforced concrete
deviflex™ heating cable
devifast™ fitting
Damp proof membrane
Insulation and capillary layer
Sandbed
Ground

Concrete floor on ground - wet rooms



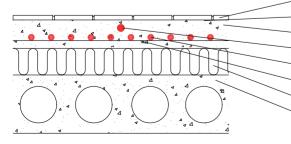
Flooring
Damp proof membrane
Sensor from devireg™
Reinforced concrete
deviflex™ heating cable
devifast™ fitting
Insulation and capillary layer
Sandbed
Ground

Storey partition - dry rooms



Flooring
Reinforced concrete
Sensor from devireg™
deviflex™ heating cable
devifast™ fitting
Insulation
Precast concrete element

Storey partition - wet rooms



Tiles
Damp proof membrane
Reinforced concrete
Sensor from devireg™
deviflex™ heating cable
devifast™ fitting
Insulation
Precast concrete element



1.3 Accumulating heating in concrete floors

DEVI's accumulating heating is designed to be used on the ground floor of houses, offices, and factories where there is an opportunity to use electricity during low tariff periods. The heating cables are embedded in a thick layer of concrete (7-15 cm) that accumulates the heat produced during the low tariff period.

Installed output

As already described in the previous paragraph the heat loss in a room needs to be known in order to calculate the installed output for accumulating heating.

To ensure that the system responds quickly a safety factor of approx. 1.3 has to be included in the calculation.

A low tariff period of e.g. eight hours means that the cables/mats have eight hours to generate the required amount of heat to be released over approximately the next 16 hours before the next low tariff period sets in.

The following equation is used to calculate the total required output for accumulating heating systems:

Calculated heat loss x T x C

t

Where:

- T = hours of use (24)
- C = security factor, approx. 1.3
- t = Period of heat generation (time of low tariff availability), hours.

Normally, the installed output of an accumulating heating system is 125-200 W/m². If the calculation reveals an installed output over 200 W/m², the heating system should be supplemented by direct rim zone heating.

Rim zone heating

Rim zone heating fulfils the following purposes:

- In houses with large glass and door surfaces it protects against cold drafts.
- 2. In houses with high heat losses it functions as a supplementary heat source.

A rim zone area is an area where the output per square metre is increased so more heat is generated in the rim zone area. This may be done by laying the cable in front of a large glass surface and decreasing the C-C distance until the required output is achieved. The width of a rim zone area is usually 0.5–1.5 m. The recommended output in a rim zone area is 200-250 W/m².

Rim zone areas require separate thermostats and sensors to control

them. The rim zone heating can be regulated by a thermostat with a combined room and floor sensor or a thermostat with a floor sensor alone

As a rim zone system is a directly acting heating system, it should not be covered by more than 3 cm of concrete. Together with the high output this will ensure that it responds quickly and efficiently to temperature changes.

With regard to wooden flooring, please refer to the paragraph "Wooden floor"

Product choice

When DEVI's accumulating heating system is installed, the deviflex™ with a minimum output of 18 W/m should be used. Besides, the devifast™ fitting bands will ensure a quick and easy installation.







Alternatively, the devimat[™] (a preprepared cable mat) with an output of up to 200 W/m² can be used.

To control the temperature of the accumulating heating system a thermostat from the devireg[™] 700 series should be used.

The devireg[™] 700 series consists of electronic controls designed to save energy and regulate the floor storage heating during low tariff periods. The devireg[™] 700 series consists of two types of interacting thermostats:

- The master unit, which is connected to an outdoor sensor in order to constantly measure the outdoor temperature. The devireg™ 700 and 750 are master units.
- The slave unit, which has a floor sensor measuring the remaining heat in the floor and limiting the floor temperature. The devireg[™] 751/752/753 and 754 are all slave units.

The devireg[™] 700 or 750 can control the temperature in as many as 400 different rooms or areas via slave units.

Installation

Accumulating heating cables must have a minimum output of 18 W/m and the maximum output must not exceed 200 W/m².

A suitable insulation should be laid below the cables according to the building standards. When the cables are laid, special care must be taken to avoid that they get into contact with the insulating material or become enveloped by it in any way.

The cables are attached to devifast™ fitting bands or the steel reinforcement with an appropriate C-C distance.

As the rim zone system is a directly

acting heating system, it should not be covered by more than 3 cm of concrete. Together with the high output this will ensure that it responds quickly and efficiently to temperature changes.

It is important that the floor construction is well insulated so the downward heat loss is kept to a minimum.

Another important element is the vertical rim zone insulation.

This insulation must be efficient in order to prevent heat from being transported to the walls or adjoining rooms. Besides, it should be able to respond to the horizontal expansibility of the floor construction.

Finally, the insulation must comply with general and local regulations.

In connection with wet rooms (bathrooms etc.) a damp proof membrane should always be used in order to prevent moisture from entering the floor construction.

For further information about installation, please refer to the paragraph "General installation guide".

Floor surfaces

Nearly all types of floor surfaces are suited for floors in which accumulating heating has been installed but the suppliers of the floor surface should always be consulted with regard to the temperature tolerance and the adhesives to be used etc. The supplier's instructions must be very carefully followed when wooden floors are laid directly on concrete constructions in which accumulating heat has been installed. Particularly important is the information about the maximum temperature tolerance of the floor surface material.

Floor surface materials with a high insulation value, like thick wool carpets, may limit the heat distribu-

tion from the floor. In these cases, please consult the supplier of the floor surface material for further information.

Example 1

A 13 m² office with an available floor space of 12 m² has to be heated with an accumulative heating system. The total heat loss has been calculated to 650 W. The entire low tariff period lasts for 10 hours (8 hours in the evening and 2 hours during the day).

1) Required installed output:

 $\frac{650 \text{ W} \times 24 \text{ hours} \times 1.3}{10 \text{ hours}} = 2028 \text{ W}$

- Choice of nearest cable: if we choose the deviflex[™] DTIP-18, the nearest cable is 2135 W,
 118 m.
- Calculation of C-C distance:
 12 m² x (100 cm/m)/(118 m) =
 10.17 cm. By means of devifast™ fitting bands we install the cable with a C-C distance of 10 cm.
- Choice of thermostat: the accumulating heating system can be controlled by the devireg[™] 750.

Example 2

In this example the low tariff period lasts for 8 hours. A 26 m² storage has a usable floor space of 23 m². The total heat loss has been calculated to 1320 W.

1) Total required installed output:

 $\frac{1320 \text{ W x } 24 \text{ hours x } 1.3}{8 \text{ hours}} = 5148 \text{ W}$

2) Choice of nearest cable: if we choose the deviflex™ DSIG-20, the nearest cable is 4565 W, 228 m.

The chosen cable cannot provide the required output. Therefore, a rim zone system below the windows



could be a satisfactory solution. If we subtract the 4565 W from the required output (5148 W), we can see that the required output still exceeds the output of the cable as we need an additional 583 W. As the rim zone system is a directly acting heating system as opposed to accumulating heating, the 583 W must be converted back to their original status.

This is best done by dividing the 583 W of storage heat by 3 (24 h/8 h) which means that the security factor is still included in the final result.

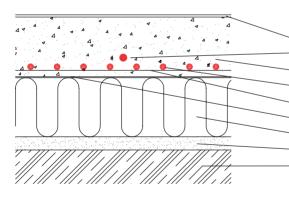
583 W/3 = 194 W of directly acting heat.

If we choose the deviflex™ DTIP-18, the nearest cable is 270 W, 15 m.

- Calculation of C-C distance:
 23m² x (100 cm/m)/(228 m) =
 10 cm.
- 4) The C-C distance of the rim zone. If the area of the rim zone is 0.5 m x 2.4 m = 1.2m², this gives a c-c distance of : 1.2 m² x (100 cm/m)/(15 m) = 8 cm.
- 5) Choice of thermostat: in this example, the accumulating heating system can be controlled by a devireg™ 750.

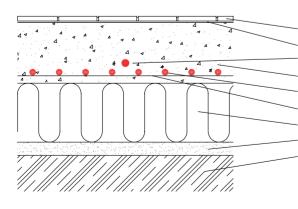
The rim zone can be controlled by a devireg[™] 540.

Floor with accumulating heating - dry rooms



Flooring
Sensor from devireg™
Reinforced concrete
deviflex™ heating cable
devifast™ fitting
Damp proof membrane
Insulation and capillary layer
Sandbed
Ground

Floor with accumulating heating - wet rooms



Tiles

Damp proof membrane
Sensor from devireg™
Reinforced concrete
deviflex™ heating cable
devifast™ fitting
Insulation and capillary layer
Sandbed
Ground



1.4 Heating in renovated floors and thin floors

DEVI has designed a special system for house renovations where the construction height of the floors needs to be low. The devimat™ application requires a height of approx. 12 mm, including the floor surface. The system can be installed on the existing tiles, wooden floors or concrete floors.

Typical areas of use are kitchens and bathrooms but the heating system can be used anywhere in a house in connection with a renovation.

Installed output

The installed output per m² is calculated in the same way as for direct heating in concrete floors. Please refer to the relevant paragraph.

Product choice

When the installed output per m² has been calculated, one of the following heating elements may be installed in the renovated floors:

- 1. The devimat[™] 100 W/m².
- 2. The devimat[™] 150 W/m²
- The deviflex[™] with a max. of 10 W/m

If the floor height is crucial, the devimat™ is recommended. Since the devimat™ is only 3-5 mm thick (including tile glue/adhesive) and since it is installed directly on the existing floor, the increase in the floor height will be minimal. The net of the devimat™ is self adhesive and ensures a quick and easy installation.

If the floor height is not crucial, the deviflex™ cables are recommended. This is often the case if the old floor is removed, before the new floor surface is installed.

If there are any wooden constructions under or above the devimat[™], the devimat[™] 100 W/m² must always be used. For further information about heating in wooden floors, please refer to the paragraph "Heating in wooden floors".

To exploit the optimal comfort and economy of the system thermostats with simple or intelligent timers should be used – the devireg[™] 540 or the devireg[™] 550.

Installation

Renovation with devimat™

The total thickness of the devimat™ (including tile glue/adhesive) is 3-5 mm. The width covers 50 cm while the length ranges from 1 to 22m. The net of the devimat™ is self adhesive and ensures a quick and easy installation.

It is very important to choose a mat with the right dimensions since the mat cannot be shortened. To make your choice easier you can use the DEVI matplanner – a programme especially designed to help choose the right devimat™. The DEVI matplanner can be found on www.devi.com.







The installation of the devimat™ should be started from the wall and directed towards the opposite wall. Here, the mat needs to be turned back by cutting the net of the devimat™ (NB! DO NOT cut the cable!). This process has to be continued until the entire surface has been covered with the devimat™.

Renovation with deviflex™ cables

If the floor height is not crucial, deviflex™ heating cables 10 W/m can be used. The max. C-C distance is 10 cm, ensuring that cold zones on the floor surface are avoided. Floor heigt will be 10-30 mm.

When deviflex[™] heating cables are to be installed, we recommend the use of devifast[™] fitting bands. The devifast[™] is designed so the C-C distance can be chosen at intervals of 2.5 cm, e.g. 5 cm, 7.5 cm, or 10 cm.

The min. bending diameter for a heating cable is 6 times the cable diameter.

It is also possible to attach the cables directly to wire mesh netting with a diameter of 1 mm and a masking size of 20 x 20 mm. This net is attached to the existing floor. Alternatively, the cables may be attached to the net with a glue gun. If a thermostat with a floor sensor is used, the sensor must be protected by a plastic pipe with a min. diameter of 9 mm. The bigger the diameter of the pipe is, the easier it is to place in the sensor. The pipe has to be sealed at the end so the concrete does not enter it.



If the cable or heating mat is laid on an existing wooden floor, it is necessary to ensure that the construction is stable even under heavy load. If the floor heating is installed on an existing wooden floor, a damp proof membrane should be used in order to prevent any moisture absorption from the compound.

For further information about installation, please refer to the paragraph "General installation guide".

Floor surfaces

All floor surfaces are well suited for floor heating but the cables must be covered with at least 20-25 mm of concrete if the covering material consists of wood or plastic. The supplier of the floor surface should be informed that heating cables are being installed and consulted with regard to the glue to be used etc. The manufacturer's instructions must be followed very carefully when installing DEVI's floor heating system in wooden floors.

Particular attention should be paid to the installation and the maximum temperature tolerance of the floor surface. The maximum temperature permitted on a wooden floor surface installed directly on top of a concrete base is 27°C.

Example

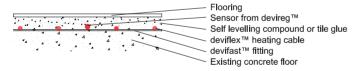
A 6 m² bathroom is to be renovated. The usable floor space is 5 m². The floor surface is to consist of tiles. The DEVI system is the only heating

system in the bathroom.

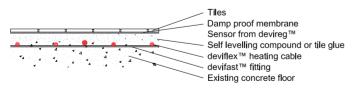
- We choose the devimat[™] DSVF-150 for 5 m² with a total output of 750 W/m².
- We choose a thermostat with combined floor and room sensors and a timer function: the devireg™ 540.



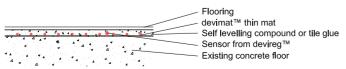
Renovated floor on existing concrete floor - dry rooms



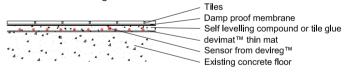
Renovated floor on existing concrete floor - wet rooms



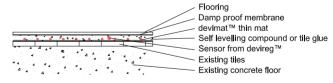
Thin floor on existing concrete floor - dry rooms



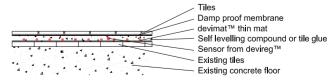
Thin floor on existing concrete floor - wet rooms



Renovated thin floor on existing tiles - dry rooms



Renovated thin floor on existing tiles - wet rooms





1.5 Heating in wooden floors

DEVI's heating system can be installed in all kinds of wooden floors as long as the installation prefaces are observed. The devireg™ 550 or 540 electronic thermostats, by means of which the temperature of the floor may be limited, ensure that the temperature in the floor construction always corresponds to the tolerance level that the manufacturer of the floor surface has recommended.

Installed output

The installed output per m² is calculated in the same way as for direct heating in concrete floors. There are few limitations to be observed when installing floor heating in the wooden floors, though:

- 1. The installed output in wooden floors on joists must not exceed 80 W/m².
- 2. The installed output in wooden floors lying on or under concrete must not exceed 100 W/m².
- 3. The installed output in floors lying om wood must not exceed 100 W/m².

If the calculation reveals an installed output exceeding 80 W/m² and 100 W/m² respectively, an additional heating system has to be used to ensure a comfortable temperature in the room.

Product choice

We recommend the deviflex[™] with a max. output of 10 W/m or the devimat[™] 100 (100 W/m²).

To control the heating in the wooden floors the devireg[™] 550 or devireg[™] 540 are the better choices. Both of these thermostats are equipped with built-in room sensors regulating the room temperature and floor sensors limiting the temperature in the floor. The tempe-



rature on the floor surface should not exceed 27°C. As an extra safety factor the devireg™ 550/540 will disconnect the heating system if the sensor should fail.

Installation

Under or on wooden floors

When heating is installed in wooden floors on concrete or on existing wooden floors, the surface temperature of the wooden floor should not exceed 27°C. Therefore, a floor sensor should always be used in order to control the temperature in the floor. The floor sensor has to be connected to the electronic thermostat with the temperature limiting feature. We recommend the devireg[™] 550 or devireg[™] 540 for applications in wooden floors.

The maximum installed output should not exceed 100 W/m².

The supplier of the wooden floor should be informed that heating is being installed so the right type of adhesive is used etc. The floor manufacturer's recommendations regarding the installation of floor heating installation under wooden floors should always be followed.

Some suppliers have certain requirements regarding the start up of a heating system under wooden floors. For example before the wooden floor is laid:

- The floor heating system must have been switched on for at least 3 weeks.
- The system must have been working under max. output for 4 days.
- After the wooden floor has been installed, the concrete temperature must be below 18°C.
- The floor temperature must be increased slowly during the first week.

Wooden floors on joists

When heating is installed in wooden floors supported by joists, the heating cables should not exceed



10 W/m and the maximum output should not exceed 80 W/m². The floor heating in floors on joists will work optimally if there is a distance of 3-5 cm between the cables and the flooring.

The heating cables are installed on mesh netting (chicken wire), which is fastened to the sleepers. The mesh netting is installed so there is a minimum distance of 30 mm between the netting and the under side of the floor surface.

The heating cable must not get into direct contact with the insulation and it should not be allowed to touch the woodwork for long periods at a time. The distance between the cable and the wooden planks and joists should be at least 30 mm. A path should be made every time the cable crosses a joist and the path should be covered with metal (i.e. aluminium tape).

There must never be more than one cable in each path. The bending diameter of the cables must not be less than 6 times the cable diameter. The cable should be attached to the mesh netting at 30 cm intervals.

Types of floor surfaces

DEVI's floor heating systems may be used in connection with all known types of wood, both in plank form and laminated. It is important that the manufacturer's recommendations for maximum temperatures are carefully followed.

With regards to the thickness of the wooden floor, floor heating should only be installed as a total heating system if:

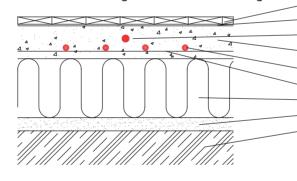
- The maximum thickness of soft wood (density 400-600 kg/m³ – pine etc.) is 2 cm.
- The maximum thickness of hard wood (density over 600 kg/m³ beach, oak etc.) is 3 cm.

Example

In a 20 m² kitchen the calculated heat loss is 1100 W. The usable floor area is only 15 m². The floor is wood on concrete.

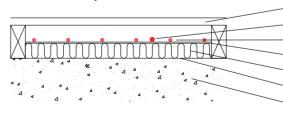
- 1) The total required output should be 30% higher: 1100 W x 1.3 = 1430 W.
- 2) Choice of cable with the nearest output: DTIP-10, 1500 W, 150 m.
- Total installed output per m²: 1500 W/15 m² = 100 W/m².
 This is appropriate for floor heating underneath wooden flooring.
- 4) Calculation of C-C distance: as this cable covers up to 15 m², the calculated C-C distance is 15 m² x (100 cm/m)/(150 m) = 10 cm.
- 5) Choice of thermostat: the devireg[™] 550.

Concrete floor on ground - wooden flooring

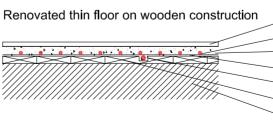


Flooring (wood)
Damp proof membrane
Sensor from devireg™
Reinforced concrete
deviflex™ heating cable
devifast™ fitting
Insulation and capillary layer
Sandbed
Ground

Wood floor on joists



Flooring (wooden)
Sensor from devireg™
deviflex™ heating cable
Chicken wire
Insulation
Damp proof membrane
Reinforced concrete



Flooring
devimat™ thin mat
Self levelling compound or tile glue
Damp proof membrane
Sensor from devireg™
Existing wooden floor
Existing floor construction

1.6 Product choice

The table below can be used as a guide for choosing the heating element.

Purpose of use	Normal output/m²	Max. output/m²	deviflex™ max. 18 W/m	deviflex™ max. 10 W/m	devimat™ 120	Thin devimat™ 100	Thin devimat™ 150
Direct heating, new construction	70-120	150	Х		X		
Direct heating, renovation or thin floors	100-150	150		x		X	Х
Accumulating heating	125-200	200	Х				
Rim zone heating	200-250	250	Х				
Heating in wooden floors	80-100	100		X		Х	
Heating in wooden floor on joists	60-80	80		Х			

Choice of devireg[™] thermostat

DEVI has developed a wide range of devireg™ electronic thermostats to control the DEVI heating systems. Electronic thermostats regulate the temperature quickly and precisely and by choosing the optimal thermostat both comfort and financial benefits may be achieved.

Before choosing a devireg™ thermostat the following parameters should be considered.

Sensor type

- Floor sensors are recommended with supplementary heating systems to ensure a pleasant floor temperature.
- Room sensors are recommended where the DEVI heating system is the only heat source in the room, and where the heating system is designed to supply full room heating.
- 3. A combination of both floor and room sensors is recommended in applications where the floor temperature needs to be limited

but where the heating system is designed to supply full room heating, e.g. wooden floors.

Installation

The devireg™ thermostats can be installed on the wall, in the wall or on a DIN rail. If the thermostat uses an external sensor type, the thermostat can be mounted both in and outside the room. This is useful where the user should not be able to adjust the control, e.g. hotels, schools etc. Thermostats with room sensor on both floor and room sensors must always be installed in the room with the heating element.

Relay type

All devireg™ thermostats are equipped with a relay and therefore, they are able to control a contactor. Without an extra contactor each thermostat has a maximum load of the total output of the heating element. This can be calculated as: maximum output = voltage power supply x relay ampere. (Example: 230 V x 16 A = 3680 W).

Timer thermostats

The devireg[™] 550 is equipped with an intelligent timer while the devireg[™] 540 has an ordinary timer.

The intelligent part is that the devireg[™] 550 automatically finds out when to start heating in order to reach the user set temperature at the desired time. This will be adjusted during the year, depending for example on the thermal conditions of a room.

Being equipped with an ordinary timer system, the devireg[™] 540 does not start heating until a given user set time of the day.

Network

When more devireg[™] 550's are installed in a house or an apartment, they can be combined in a network where one of the devireg[™] 550's controls the others. This network function may also be used in combination with the devicom[™] – a device allowing a simultaneous monitoring and regulation of up to 31 devireg[™] 550's via PC.

