

Bembé Parquet offers excellent floor coverings on underfloor heating systems for technically correct heating systems in accordance with DIN EN 1264, for standard-compliant screed in accordance with DIN 18560 and under consideration of the data sheet "interface coordination for heated floor constructions" of the Federal Association of Surface Heating (registered association) (BVF) – Feb 2005. Above all, wood offers two favorable features: a good heat transfer resistance and it also provides uniform heat distribution. By means of all-over adhesion, Bembé parquet can be installed on almost all classic underfloor warm water heating systems. Recent developments that do not require screed and make low installation heights possible, are only suitable to a certain extent due to their insufficient flexural strength of the weight distribution layer (e.g. sheet steel). Let us advise you.

The right planning

To make sure that the necessary connection height can be taken into consideration and that the heating can be ideally designed for the flooring, the decision to install a parquet floor has to be made by the contractor even before laying the screed and installing the underfloor heating. The joint plan should be kept in mind, too. The heat demand calculated for single rooms is also of great importance. Heat outputs above 29°C surface temperature do not comply with standards and lead to damage to the parquet floor. Smaller parquet elements are more suitable due to the risk of the appearance of joints. Beech and maple, for instance, are types of wood which often show an increased appearance of joints and modification (cupping) due to their active swelling and shrinkage behaviour.

Drying of the screed

Sufficient time needs to be scheduled for the drying of screed. The drying time of screed, among other aspects, depends on the type of screed, the thickness of the screed, the room temperature and the air moisture. Prior to the installation of the parquet floor, the following measures have to be taken:

1. Functional Heating

The functional heating and the leakage testing in accordance with DIN EN 1264, part 4, is performed by the heating engineer as a supplementary work. The functional heating serves as a crash test and not as a heating process in order to reach the readiness for covering. In accordance with DIN EN 1264, part 4, in case of cement screed, the heating of the screed shall not be performed earlier than 21 days after the screed was spread and in case of calcium sulphate screed not earlier than 7 days after the screed was spread. The functional heating starts with a flow temperature of 25°C which shall be maintained for 3 days. Afterwards, the maximum flow temperature is set and maintained for another 4 days. Please pay attention to specific indications of the screed manufacturer.

2. Covering heating

The readiness for covering is achieved through this heating step. For this step, the floor area has to be free from building

material and all other things that could cover the floor. In accordance with DIN 18356 and the data sheet "interface coordination for heated floor constructions", the heat up process has to be recorded by means of a heating protocol. The ready-for-covering heating process shall be completed immediately before the parquet is installed. In case of a longer period of time between the last heating day of the screed and the installation work, the screed must be heated up and heated down again in order to eliminate any subsequent accumulation of moisture in the heated screed.

The right readiness for laying the heating screed

Parquet is installed when the moisture of the test sample is in the acceptable range. When using the CM measuring device, the maximum screed moisture shall be 1.8 % max in case of cement screed and 0.3% in case of calcium sulphate screed. The sample shall be taken in the lower area of the screed. A measurement with the CM device may only be made, if the heating engineer or the screed layer designated the measuring points. DIN EN 1264, part 4 and the data sheet "interface coordination for heated floor constructions" specify one measuring point per room, if possible, and correspondingly more points in case of larger rooms (>50 m²). No underfloor heating pipe may be present within a distance of 10 cm (radius of 20 cm) around the measuring points marked by the screed layer or heating engineer. If measuring points are not available, they must be named subsequently by the heating engineer or screed layer.

The parquet installation

The heating should be turned off during the installation of the parquet floor. However, the ambient and surface temperature should not fall below 15°C. The time at which the parquet can be sanded and surface-treated depends on the setting time of the adhesive as well as on the type of parquet that is used.

Surface treatment of the parquet

Sealing coatings should bear the information that they are suitable for underfloor heating systems. Modern wax oil systems are also suitable.

Underfloor heating in operation

Parquet floors have been used successfully on hot water underfloor heating systems for years. It is crucial that certain laying instructions are followed and that the maximum surface temperature of the parquet floor does not exceed 29°C even in the peripheral zones. New buildings do not require higher temperatures. Non-observance can lead to damage (dry cracks, parts may come off) of the parquet floor.

If a parquet floor is largely covered with carpet, heat might build up. In order to maintain the ambient temperature, the underfloor heating increases its temperature. The consequences are increasing heating costs and damage on the parquet or the substructure.

The indoor climate

Wood is a natural building material. As in the case of every organic material, there is also a relation between wood volume and relative humidity. For this reason, we recommend keeping the relative humidity between 50 and 60 % when the underfloor heating is in operation. At this air humidity, hardly any modifications will occur that exceed the normal level. The observation of an indoor climate with a relative humidity of 50 to 60 % and a temperature of 20°C is also recommended for individual well-being and cosiness in the room. If the air is too dry, suitable measures to humidify the air have to be taken. Otherwise, the physical properties of the natural wood product and the indoor climatic conditions during the heating period may lead to an increased appearance of joints.

The heat transfer resistance of a component (also thermal resistance) is used to assess the thermal insulation. In order to achieve sufficient heat emission to the room to be heated, the heat transfer resistance of the floor covering should not be greater than 0.15 m² K/W. If a floor consists of different material layers, the total resistance is calculated as the sum of the heat transfer resistances of the single layers. The heat transfer resistances of Bembé parquet floors are throughout within the medium to favourable range (see table).

HEAT TRANSFER RESISTANCE OF BEMBÉ PARQUET FLOORS

The upper limit for the suitability of a floor covering on underfloor heating systems is 0.15 m² K/W

Multilayer Parquet

Comfort Tabis 11 mm	≤ 0.07 m ² K/W
Comfort Tabis 14 mm	≤ 0.09 m ² K/W
Comfort Tabis Smart 9.3 mm	≤ 0.05 m ² K/W
Comfort Tabis Flair 11 mm	≤ 0.07 m ² K/W
Comfort Tabis Variant 11 mm	≤ 0.07 m ² K/W
Comfort Tabis Plank 11 mm	≤ 0.07 m ² K/W
Comfort Tabis Plank Grande 11 mm	≤ 0.07 m ² K/W
TopLine Plank XXL 9 mm	≤ 0.07 m ² K/W
TopLine Diele balance 14 mm	≤ 0.07 m ² K/W
3-Strip Plank Calais 13.5 mm	≤ 0.11 m ² K/W
Cottage Plank Corniche 13.5 mm	≤ 0.11 m ² K/W
Cottage Plank Corniche Smart 12 mm	≤ 0.10 m ² K/W
Edelholzdiele Duplex Solution 10 mm	≤ 0.05 m ² K/W
Edelholz Triplex 14 mm	≤ 0.07 m ² K/W

The heat transfer resistances indicated apply for parquet floors made out of oak, fumed oak and others.

Due to the different swelling gradients of the individual types of wood, some types of solid parquet and multilayer parquet with large element sizes are only recommendable to a limited extend.

Solid Wood Parquet

Stabilo 10 mm	≤ 0.05 m ² K/W
Stabilo 16 mm	≤ 0.08 m ² K/W
Stabilo 23 mm	≤ 0.12 m ² K/W
Stabilette 18 mm	≤ 0.09 m ² K/W
Mosaic Parquet 8 mm	≤ 0.04 m ² K/W
Master Parquet 8 mm	≤ 0.04 m ² K/W
Endgrain Floor 18 mm	≤ 0.06 m ² K/W
Strip Parquet 16 mm	≤ 0.08 m ² K/W
Strip Parquet 22 mm	≤ 0.11 m ² K/W
Solid Wood Plank Yukon 14 mm	≤ 0.07 m ² K/W
Solid Wood Plank Yukon 20 mm	≤ 0.10 m ² K/W
Solid Wood Plank Edelholz 14 mm	≤ 0.07 m ² K/W
Solid Wood Plank Edelholz 20 mm	≤ 0.10 m ² K/W
Favorite Parquet 10 mm	≤ 0.05 m ² K/W
Residence Parquet 22 mm	≤ 0.12 m ² K/W