

fermacell focus MAXifloor Hollow Flooring System

As of: February 2016

fermacell[®]



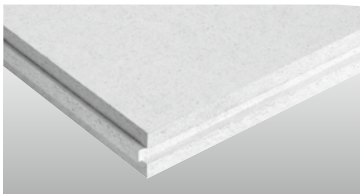
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The content corresponds to the latest fermacell installation guidelines. In principle, it should be used according to the latest documents. Please note that representations of details and drawings are shown schematically and should only be read in connection with the respective measurements and specification regarding the area of use. Subject to technical modifications at any time.

1. fermacell MAXifloor Hollow Flooring System at a glance



Product	Packaging unit	Consumption / m ²	Part number
fermacell MAXifloor Element			
Dimensions 1000 x 500 x 39 mm	20 boards/pallet	2 boards	87052

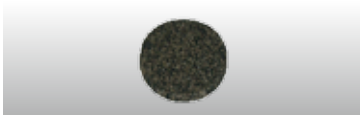


fermacell Floor Glue			
1 kg bottle (for bonding support pedestal and MAXifloor board as well as for gluing board joints)	18 bottles/carton	approx. 70 g or 14 m ² /bottle	79022



Pedestal			
Pedestal F1 - SHB M12, 35-57 mm	130 pcs./carton	approx. 4,5 Stk.	87155
Pedestal F2 - SHB M12, 50-72 mm	120 pcs./carton	approx. 4,5 Stk.	87156
Pedestal F3 - SHB M12, 60-97 mm	120 pcs./carton	approx. 4,5 Stk.	87157
Pedestal F4 - SHB M12, 76-130 mm	100 pcs./carton	approx. 4,5 Stk.	87058
Pedestal F5 - SHB M12, 110-170 mm	80 pcs./carton	approx. 4,5 Stk.	87059
Pedestal F6 - SHB M12, 150-210 mm	60 pcs./carton	approx. 4,5 Stk.	87060
Pedestal F7 - SHB M16, 190-320 mm	60 pcs./carton	approx. 4,5 Stk.	87061

Fire protection F 30 up to a support height of 210 mm and up to an installation height of 250 mm.
Other pedestals for installation heights > 250 mm on request.



Impact Sound Pads, 2 mm			
One-sided self-adhesive cork/rubber isolation pads, thickness 2 mm, Ø 100 mm	900 pcs./carton		87077



Support Adhesive			
PU support adhesive - EC1+ (600 ml foil bag)	20 pcs./carton		87076

2. **fermacell** MAXifloor Hollow Flooring System

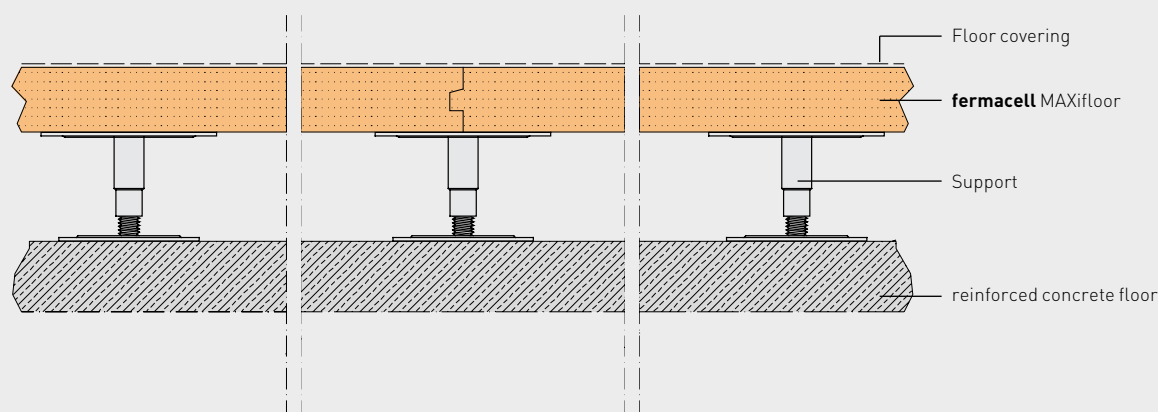
2.1 Characteristics of **fermacell** MAXifloor

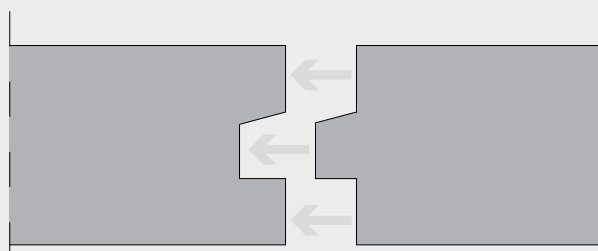
fermacell MAXifloor Element, thickness	39 mm
Element dimensions	1 000 x 500 mm
Element weight	23,8 kg
Construction height	≥ 70 mm
Element class 2 according to BS EN 13213 Element class 3 according to DIN EN 13213	Load level 3 000 N (point load) Load level 4 000 N (point load)
Safety factor	2
Fire protection	F 30
Standard edge level difference $D_{n,f,w,P}$ [dB]	43 to 49 dB
Standard edge impact sound level $L_{n,f,w,P}$ [dB]	84 to 55 dB
Impact sound improvement $\Delta L_{w,P}$ [dB]	13 to 26 dB

2.2 Areas of application

Modern technical progress increasingly calls for the smooth integration of building services and communications technology in modern flooring systems. The installation of **fermacell** MAXifloor guarantees a future-oriented, functional and flexible solution. The hollow flooring system is suitable for new construction and conversion.

Construction of the **fermacell** MAXifloor Element





The simple tongue and groove profile enables fast and simple installation.

2.3 Installation conditions – General

Structural floors, designed for the maximum permissible floor loading capacity, are a suitable substrate. Ensure that relevant traffic loads and the floor construction loads are taken into account. Stable, load-bearing solid floors or wooden joisted floors are also suitable as structural decks.

Like all construction materials, the **fermacell** MAXifloor Elements are also subject to a differential movement with changes in temperature and humidity. Glues are also affected in regard to curing times. The **fermacell** MAXifloor, the support adhesive and the **fermacell** Floor Glue are designed for use under normal climatic conditions, temperatures from 15 °C – 25 °C at a relative humidity of 40 % – 65 %. If the installation conditions differ from these parameters, then please contact the client/specifier. Special measures can then be taken or agreed on the basis of this information.

The construction must be protected from moisture ingress. The installation area must be dry and free from excess moisture before and after the installation of the **fermacell** MAXifloor Ele-

ments, as well as during the useful life of the building. Components adjacent to soil must be permanently protected from moisture penetration in the floor and wall areas. The exterior walls of the installation area should be tanked as required, to the relevant standards.

Structural floors must be dry. The potential shrinkage of the subsurface must be complete. Refer to manufacturers guidelines for the drying time of the substrate material/system. Any release agents (oils, cement slurries, etc.) on the structural floor must be removed.

The structural floor must be checked for evenness before installation. The structural floor must meet the country standard requirements for level and tolerance.

The limit values must not exceed the following deviation from level in mm, based on the measurement point distance:

Measurement point distance [m]	Inside measurement [mm]
1,0	8
4,0	12
10	15
15	20

Any additional levelling or enabling works must be carried out, and allowed to dry, before the installation of the hollow flooring system. Services and cable layouts should be planned and completed prior to the installation of **fermacell** MAXifloor. This applies in particular to the grid plans for the ventilation ducts, especially those that run parallel to wall constructions; these must be offset by a distance of at least 110 mm from the walls. The location of edge supports must be allowed for. With regard to pre-existing building services, any protective measures must be agreed with the project management team.

Main construction expansion joints must be taken into account in advance when planning the layout of the MAXifloor. The metre level offset reference point must be specified correctly and we recommend coordinating this with the project management team to agree set out conditions at an early stage. In addition, the finished construction height of the hollow flooring system must also be determined in advance. In this case ensure that the thickness of the surface finish is taken into account as well.

2.4 Storage of fermacell MAXifloor

fermacell MAXifloor is delivered shrink-wrapped on pallets.

When storing pallets and MAXifloor elements, the load-bearing capacity of the structural floor must be taken into account. Do not store the elements on their edge and ensure that they are protected from excessive humidity and rain. Do not store outside!

2.5 Pretreatment of the base floor

The structural floor must be clean and free from any waste, debris, oils etc. Use a suitable industrial vacuum cleaner for any fine cleaning.

If additional thermal insulation is required on top of the structural floor, we recommend the following construction:

- Extruded hard foam, 33 kg/m³, t ≤ 60 mm, tightly butted and fully adhered to structural floor.
- For a double-layer solution, the joints must be offset by a minimum of 200 mm (maximum overall height t ≤ 60 mm).
- Alternatively, a foam glass, fully adhered to structural floor may be used. Check with our Technical Team for further clarification.
- Finally, cover with a layer of galvanised sheet steel, t = 1 mm, minimum 100 mm overlap at the sheet edges.

Before fitting the thermal insulation, any remaining cavities must be filled with the **fermacell** Dry Levelling Compound.

For structural base floors with plastic or similar waterproofing membranes, the support feet must be bonded to galvanised sheet steel plates (minimum size 200 mm x 200 mm x 2 mm). The surfaces to be bonded must be primed first.

The surface of the galvanised steel sheet must be primed before applying the support adhesive. The primer must be suitable for use with a 1K polyurethane adhesive, e.g. Sika® primer-204N.

2.6 Materials scheduling

If necessary, an installation schematic for the existing room layout should be produced for the floor elements prior to commencing installation.

Based on designated inspection openings or cable ducts, the **fermacell** MAXifloor can be arranged to reduce waste at the perimeters. After producing the grid layout, the exact quantities of support feet and floor elements can be determined.

2.7 Working with fermacell MAXifloor Elements

The **fermacell** MAXifloor Elements can be cut to size with a circular saw with a guide. Cut-outs can be formed with an electric jigsaw or handsaw. Pipe penetrations can be created with a core drill. When using any mechanical cutting tools, ensure that a vacuum attachment is used, and that suitable PPE is worn. The saw should have a low speed setting. Take into account the underlying construction when setting the saw depth. Carbide tipped saw blades with a lower number of teeth are recommended, typically 16 teeth.

3. Accessory components

3.1 Inspection hatches and opening

Inspection openings should be designed and located before installation. The inspection frame is installed during the installation of the flooring elements. The aluminium frame, either 600 x 600 mm or 1200 x 600 mm, is aligned, levelled and fixed to the supports with **fermacell** Floor Glue. The MAXifloor Elements are installed according to installation grid layout and glued to the frame edge rebate.

The aluminium frame is available with a pre attached, fully height-adjustable separator bar to accommodate different floor coverings. An aluminium finish is also available. The separator bar should be locked in position during installation.

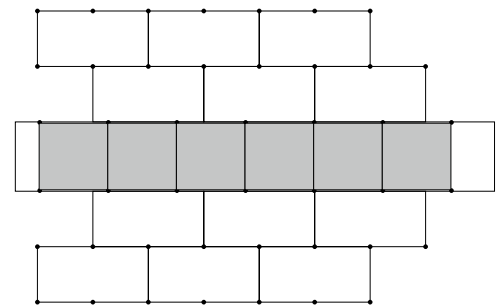
Should an inspection opening be required after the installation of **fermacell** MAXifloor, the frame and the board joints must be supported with additional glued supports.

3.2 Inspection channel

It is recommended to set and align inspection hatches prior to the installation of the floor elements. The installation of **fermacell** MAXifloor Elements should start with full boards around the inspection hatches (standard widths 600, 1200 & 1800 mm).

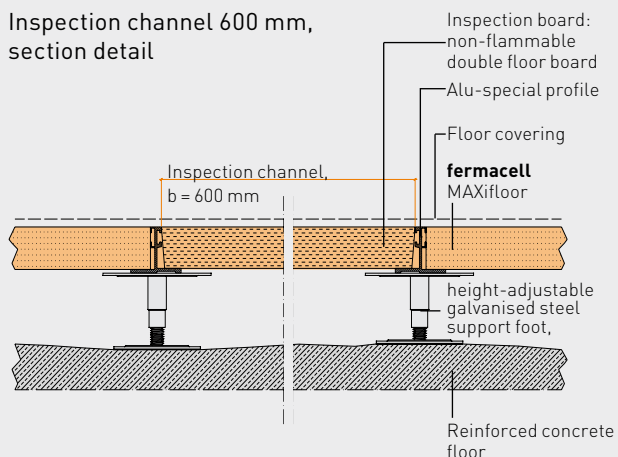
The channel sections (length 3.0 m) should be fixed to the supports to the correct height and alignment with **fermacell** Floor Glue. The channel sections are joined with the supplied brackets.

adjusted if necessary. This is carried as per the drawings below. For special transition sections with a cladding bar, this bar must be locked in to initial position.

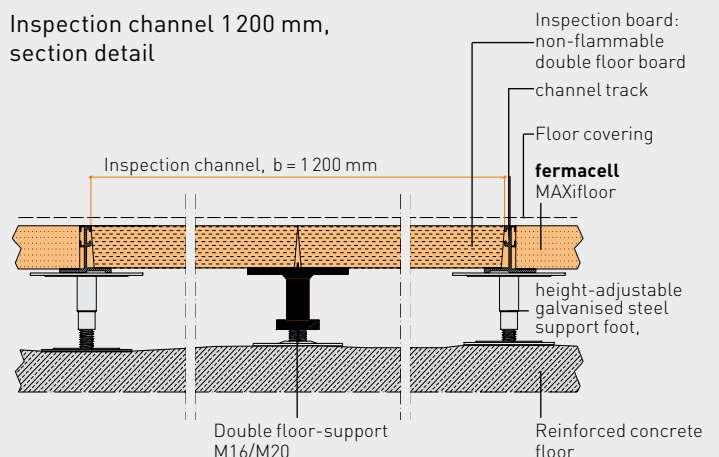


Inspection channel made of non-flammable double floor boards

Inspection channel 600 mm, section detail



Inspection channel 1200 mm, section detail



3.3 Separating joint for acoustic decoupling

The separating joint should be placed in during the installation of the system. An isolation strip should be glued into the joint for acoustic decoupling and protection. The same materials as for decoupled wall junctions are suitable for this type of application.

3.4 Expansion joints

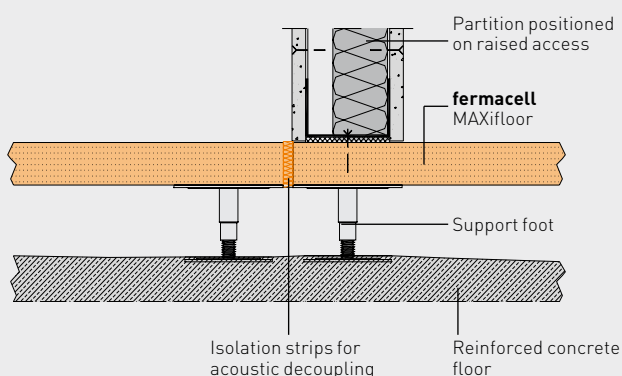
fermacell MAXifloor has a very low expansion and contraction rate due to changes in climate conditions. Expansion joints must be installed at maximum 20 lm intervals.

Existing expansion joints in the building must be expressed in the hollow floor construction. In this case, movement joint profiles should be used. The joint profile must be aligned and levelled flush with the upper edge of the hollow floor and then glued and screwed together. The final rubber profile must be supplied by the floor installer, and fitted flush with the floor covering!

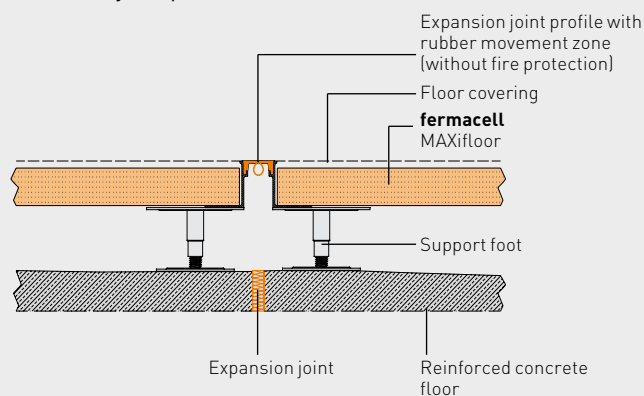
3.5 Cut-outs for heating pipes

All services within the MAXifloor should be insulated or protected as per current regulations. Any cut-outs should be custom-fit. The area between the MAXifloor and heating pipes can be further supported with a non-slip galvanized sheet metal or suitable plastic strip or similar, thus allowing any filling material to be laid e.g. **fermacell** Joint Filler. Any other gaps or recesses should be filled with **fermacell** Joint Filler.

Decoupled hollow flooring system with showing a partition with support



Expansion joint with movement joint profile



3.6 Fire protection partitions

Fire protection below partitions in the cavity of the **fermacell** MAXifloor can be created by installing gypsum blocks to EN 12859.

The thickness of the gypsum blocks as well as the installation and type of fixing between the structural floor and the MAXifloor Element must be verified depending on the fire resistance to be achieved.

Should cables or other penetrations be required through a fire protection partition, approved fire topping systems should be used.

3.7 Special installations

If recesses, such as electrical boxes, are required then additional supports should be installed at the discretion of the system designer. Ensure that a clear area of minimum 110 mm is left around all MAXifloor supports.

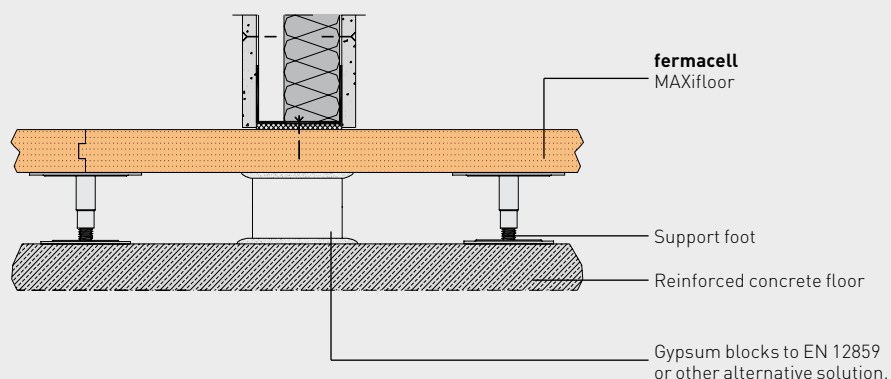
3.8 Additional measures for extra high loads

If heavy loads are required to be transported across the MAXifloor then the entire transport area should be fully covered over with load distribution boards. The load-bearing capacity of each load distribution board must be checked.

Additional supports are advised in the transportation, set-down and repositioning area to increase the load-bearing capacity. Additional measures must also be taken into account for the starting points of the required lifting devices.

All extra heavy goods transported in this way must be set down with utmost caution in order to avoid extreme localised loading.

Details representation of a fire protection solution in the cavity



4. Surface finishing

4.1 Pretreatment

fermacell MAXifloor Elements are supplied pre-primed as standard. Therefore, additional priming is not required in most areas of use.

If an adhesive manufacturer stipulates a primer in the system, this must be carried out according to the manufacturer's specifications. In all cases, the primer must be suitable for use with gypsum fibreboards in floor applications.

4.2 Floors exposed to humidity

For these applications such as shower areas in domestic areas, hospitals, offices, administrative offices, etc and similar buildings, the floor system must be treated. This is also required for floor areas with high humidity exposure, such as bathrooms or entrance areas.

In these cases the **fermacell** MAXifloor must be coated with a suitable paint or sealing system. These substrates should also be sealed accordingly; suitable waterproofing systems should comprise of at least a primer, sealing tape, waterproofing sealing system and adhesive and they must be approved by the gypsum fibreboard manufacturer .

The **fermacell** MAXifloor is not suitable for areas of high humidity, such as swimming pools or public shower areas, which are subject to frequent, daily use. Suitable alternative solutions should be sought for these areas.

4.3 Textile, PVC, cork and other floor coverings

A deep primer is recommended when installing carpet tiles and non-water-proof coverings. Double-sided adhesive tape is normally suitable for fixing the carpet in place.

Where a full surface adhesion is required for carpets, etc. then a suitable adhesive system which allows subsequent removal and relaying should be used.

For dense surface coverings, use an adhesive with a low water content.

For thin floor coverings (textile, PVC, etc.) in sheets or tiles, we advise the use of a feather screed to level the floor. A suitable screed system should be used, and it should be compatible with a gypsum based screed., e.g. **fermacell** Self Levelling Compound. Refer to the screed manufacturer's installation and drying time recommendations.

Remove any high spots or protruding edges, connectors or slight irregularities by filling with **fermacell** Filler for larger irregularities, e.g. joints, which are not tight butted it may be necessary to pre-fill with a suitable material to prevent subsequent shrinkage, prior to any full surface levelling system.

For thick carpets, e.g. with a foam backing, feather out joints and fill any fixing heads with **fermacell** Joint Filler .

4.4 Parquet, wood-block paving, laminate

- Feather filling to the joints and fixing heads is not required.
- Laminate can be laid as a floating floor installation on **fermacell** MAXifloor.
- **fermacell** MAXifloor is suitable as a subsurface for adhesion of multilayer parquet according to DIN EN 13489 (e.g. pre-finished parquet elements) and mosaic parquet to DIN EN 13488. For local country requirements, refer to the relevant country standard.
- Three-layer parquet can be laid as a floating floor or bonded installation (please refer to manufacturer's specifications).
- To allow for differential movement mosaic parquet must be installed in a grid, which enables the expansion of the parquet floor (in the event of swelling) in different directions, e.g. herringbone or cube pattern.
- The adhesive bonding of solid wood parquet strips according to the relevant country standard or DIN EN 13226, or for lamparquet according to DIN EN 13227 or mosaic parquet (installed parallel) should only be carried out after consultation and written approval of the adhesive manufacturer.

- The parquet floor must be installed in compliance with current regulations and to the manufacturer's guidelines.
- The moisture content of the parquet during installation must be to the relevant standards.
- Only use primers and parquet adhesives, which are specifically suitable for gypsum fibreboards substrates and fit to the adhesive manufacturer's guidelines.

4.5 General information about ceramic and natural stone tiles*

The tiles must be approved by the manufacturer for the area of application. A thin-bed adhesive system should be used for the floor covering. Polymer-modified powder cement adhesives (so-called flexible adhesive), dispersion adhesives or reaction resin adhesives, which are suitable for use with gypsum based boards for use in floors are suitable. Refer to manufacturer's guidelines. Anhydrous or low water content systems are preferred.

The surface of the MAXifloor should only be covered/finished when there is no additional humidity exposure from the building and the elements have acclimatised and adjusted to the dry internal climate.

Do not pre-soak tiles. At least 80 % of back surface of the tile must be in contact with the adhesive bed – if required do a test section.

The perimeter strip should only be cut off/back at floor level after tiling and jointing of the floor surface has been completed.

* Please note the installation guidelines per country for 'natural stone tiles' – refer to relevant standards.



Tip:

Feather filling to the joints and fixing heads is not required for **fermacell** MAXifloor for the installation of parquet flooring.

Tiles should be installed out with a gap for grouting. Closely-butted tiles are not advised. Only grout the tiles once the adhesive has hardened and any residual moisture has had a chance to be released from the joints (normally \approx 48 hrs – depending on the room climate). Internal corners should be sealed with an elastic material, e.g. silicone.

The filling of the **fermacell** MAXifloor in the joint area is only necessary when using dense adhesive systems (see section "Floors exposed to humidity", page 13).

4.6 Ceramic tiles

fermacell MAXifloor is suitable for the laying of mosaic or floor tiles. Tile sizes of \geq 300 mm are often not suitable for use with a thin-bed adhesive system installation, due to the flatness of the tile not being guaranteed. If the tile is fully 'flat' then they can be used, but check with the manufacturer first.

4.7 Natural stone tiles and floor boards

Tile suppliers divide natural stones into granite and marble-like stone categories, based on their technical properties.

Natural stones can have very different structures, which rule out their use on the **fermacell** MAXifloor. We advise that the following properties are checked to ensure suitability - , different porosities, layering and/or schistosity levels. The compressive and flexural strengths of the individual materials should be checked. There must be no residual tension in the natural stone material.

When installing natural stone in the form of tiles and sheets, the supporting foot grid spacing must be decreased by the use of a diagonal support section.

There are three installation methods, which are currently accepted and used in general construction, for installation of natural stone: Thin-bed, medium-bed and thick-bed installation.

Thick-bed installations should be used. Medium-bed installation is possible if an additional sealing measure has been applied before laying the tiles on the **fermacell** MAXifloor. The drying times for each of the individual sections of the installation must be observed.

The thin-bed installation method is suitable for natural stone tiles if the tiles are calibrated. The tile size must be \leq 300 mm.

Natural stone floor boards should be $>$ 20 mm thick. Tile sizes of \leq 300 mm are recommended.

Sufficient drying times must be allowed for the finishes and their associated systems to ensure a trouble free installation and finished product. If the natural stone finish must be covered to protect it from soiling, the cover material must be vapour diffusive (e.g. cardboard) and it must not affect the system drying times.



Tip:

Installed natural stone surfaces must be protected from liquid penetrating from above. Sealing/waterproofing is required in this regard.

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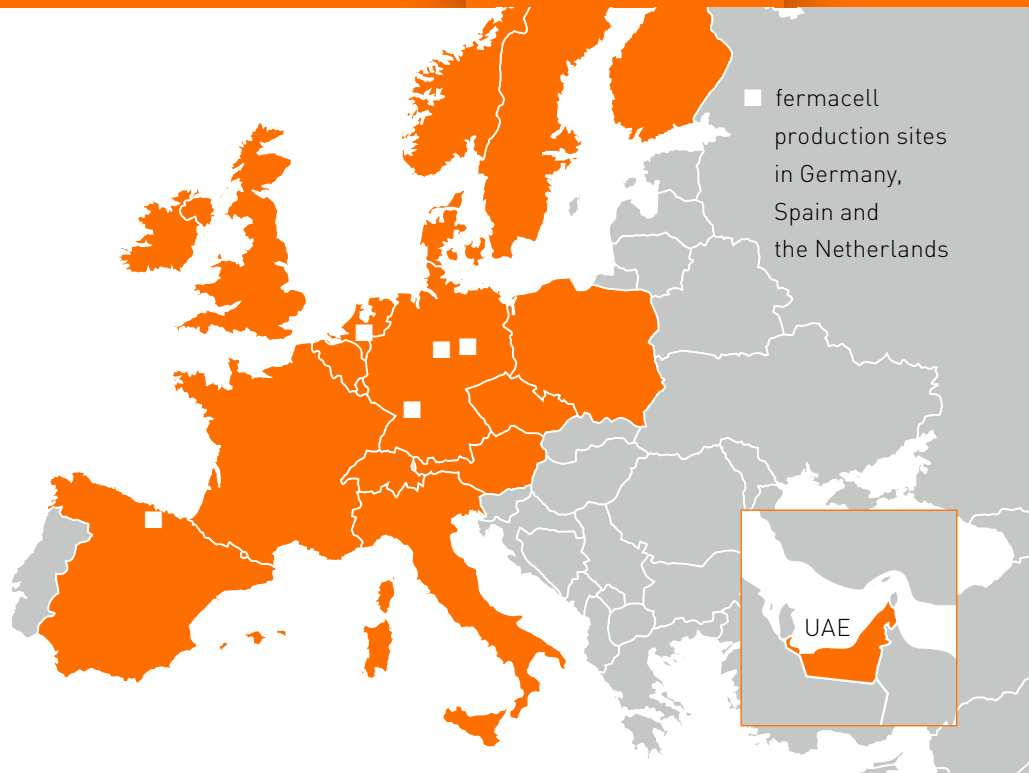
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fermacell[®]

A European business

The fermacell product range is today manufactured in 5 factories across Germany, the Netherlands and Spain.

With sales operations across Europe and one in the Middle East, fermacell products are used in construction projects from Aberdeen to Sicily and from Madrid to Warsaw. UK and international case studies demonstrate that construction industry professionals across Europe understand and value fermacell as the "ultimate building board".



Orejo Factory, Spain



Calbe Factory, Germany



Wijchen Factory, the Netherlands