
Operating and Fitting Manual

IMPORTANT

Before you start handling and using rubber tiles, read carefully through this manual, which describes the basic conditions for storing, handling and laying rubber pavers.

The seller bears no liability for how third parties prepare the base for rubber pavers or rubber products and lay rubber pavers or rubber products. The seller bears no liability for any damage and injury during improper laying or handling of rubber tiles.

Owing to the production processes and the properties of the materials used for the production, the seller can guarantee a relatively identical colour shade of rubber pavers and other products only for a single separate and complete supply of rubber pavers and rubber products. All SBR rubber products – rubber pavers, curbs, rubber interlocking pavers, palisades and other products – may vary in shade within a single, specific supply because they are made of SBR black rubber granulate produced by recycling.

Rubber pavement must form a compact whole free of any unevenness, sharp edges and dirt.

Make sure no material based on petroleum or petroleum derivate is used in the installation and use of rubber pavement.

2. Storing, Shipping, Transport and Supplies

All the rubber products offered by the seller are shipped on pallets, tied with tape, packed in a film protecting the products or tied with tape and protected by net. A maximum quantity for keeping and storing on pallet is defined for each product and specified in the product's data sheet. If ordering less than a pallet they will be delivered in parcels.

Immediately after receiving a rubber paver or rubber product supply the buyer must remove packaging from the pallet and check the quality of the supplied goods and check for any damage to rubber pavers or products during transportation. The buyer must also check the quantity of the rubber tiles supplied and check whether the quantity supplied matches the quantity specified in the bill of delivery (the packing slip) and the purchase order. If you identify damaged rubber tiles or a quantity other than that specified in the purchase order, you must contact the seller and inform them immediately by email but no later 48 hours of the date you receive the goods.

Forklifts are recommended for unloading rubber paver or rubber product pallets from means of transport.

After you are delivered and accept rubber pavers or rubber products, you must store rubber tiles on pallets in dry environment.

Laying Rubber Pavement

Preparing the Base

We recommend that rubber pavement should be laid on suitably pre-conditioned base of concrete, asphalt or other stabilised surface.

If rubber pavement is laid on a base of gravel or crushed aggregate, you need to make sure that the base is properly conditioned and, in particular, compacted (machine-stabilised).

Square rubber tiles, used as flexible surface for multi-purpose sports grounds, are recommended to be

laid only on an impermeable base, such as concrete, asphalt, concrete interlocking pavers or other types, or a base partially permeable to water.

Any base must be compact and be conditioned with regard to the expected load and method of use of the surface of rubber tiles (this conditioning must be done in accordance with standard building procedures).

The bedding must be so conditioned as to make sure that it does not deform or sink over the use of the rubber pavement surface. Make sure no elevations or depressions occur as a result of weather changes and ground water effects. As rubber pavement follows the surface line of the base, it also follows any unevenness. Improperly conditioned base, unevenness, base elevations and depressions may result in rubber pavement damage.

The base must be so conditioned as to ensure proper drainage of water from subsoil. Accumulation and presence of water under rubber pavement or rubber products must be prevented. We recommend that surface should have an approximate gradient of 2% to facilitate and speed up the conducting of water from the safe rubber pavement surface.

The sole responsibility for base conditioning lies with the contractor or the client.

As rubber pavement is permeable to water, sufficient water drainage from the bedding must be ensured.

Always check the quality and the condition of the base before you start laying rubber pavers. If cracks, gaps or depressions greater than 2–3 mm are identified in a concrete, asphalt or other stabilised base, where water could collect over time, the surface must be re-levelled.

Permeable Base, Compacted

With stabilised bases, such as gravel, crushed aggregate and similar bases, you need to ensure that the base is sufficiently rammed down and compacted (machine-stabilised). We recommend that rubber pavers should only be laid on a base that is compact, would not be washed out by water and would not sink over the service of the rubber pavement (base conditioning must be done in accordance with standard building procedures). A gravel, crushed aggregate or similar base must be even and then sufficiently compacted to make sure no unevenness or depression will occur over the use of the rubber pavement. Before application, rubber pavers must be suitably cleaned of any dirt, such as leaves, wax or oil (and petroleum product or derivatives, in particular).

Even though its physical structure makes a compacted base permeable to water, adequate base drainage is advisable.

Always check the quality and the condition of the bedding before you start laying rubber pavers. If unevenness or depressions are identified in the compacted base that could cause issues for the laying of rubber pavers, you must re-level and smooth up the bedding surface.

Laying Process

Size tolerance is a typical property of rubber pavers made of rubber granulate, resulting from the basic property of rubber granulate – thermal expansion, which causes shrinkage at low temperatures and expansion at high temperatures. The size tolerance of a rubber paver may be +/- 5 mm in length and width and +/- 2 mm in thickness. What needs to be taken into account is that thin rubber pavers respond to ambient temperature changes more than thick pavers.

Size change can also occur if you keep rubber pavers on pallets or at places with changing temperatures. If kept on pallets, the rubber pavers in low layers are exposed to a greater pressure, which results in a greater compression and greater size changes. We recommend the following to minimise size changes:

- (a) About 24 hours prior to laying, distribute onto the bedding all the rubber pavers you are going to lay so that the pavers can restore their original size and adapt to the ambient temperature;
- (b) Make sure that all rubber pavers have the same temperature for the laying process and the

ambient temperature is relatively stable.

Check the current ambient temperature and weather on the day you are going to lay the pavers. Rubber pavers must be laid within the temperature range of 5°–30 °C. If using a polyurethane glue, you should not lay rubber pavers during rainy or damp weather and outside the temperature range of 10°–25 °C.

If you lay rubber pavers at higher temperatures than indicated above and the temperature drops at a later time, thermal expansion may cause the pavers to shrink and gaps may occur between pavers. If you lay rubber pavers at considerably lower temperatures than those indicated above (less than 0 °C), the pavers may shrink to lower sizes. When weather temperatures reach 30°–40 °C in summer, rubber pavers may expand, with unevenness and curvy surface as a result.

What is also of importance is to make sure that both rubber pavers and their bedding are free of any dirt.

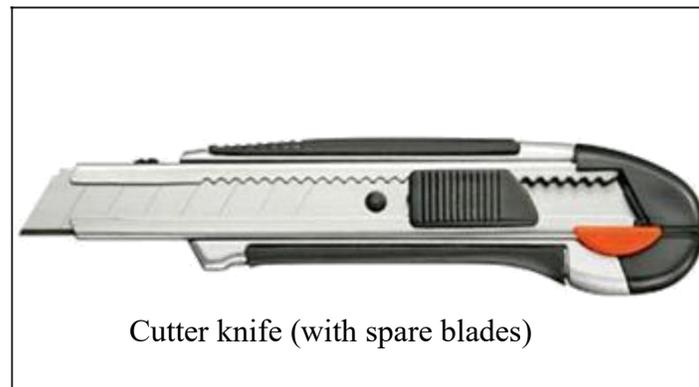
For the laying process we recommend using polyurethane-based glues. As humidity speeds up the solidification of the glue, it is very important that you work in a dry environment and use rubber pavers that are dry.

IMPORTANT

When fitting and laying rubber pavement, always take account of the possible rubber paver size changes due to weather conditions and, in particular, the common thermal expansion due to temperature changes. It is a natural property of rubber pavers, so such rubber paver size changes are not a defect and are no justified reason for complaint. Please note that if you lay rubber pavement between fixed construction elements, such as walls, stairs or curbs, at a time of too low temperatures, flexible rubber pavement will only absorb pavement thermal expansion to some degree.

3.5 Recommended Equipment and Tools to Lay Rubber Pavement

- (a) Working clothes, protective and rubber gloves, knee pads
- (b) Cutter knife with spare blades, hand saw, electric jig saw or other similar cutting tool



- (c) Marker or chalk
- (d) String
- (e) Protractor
- (f) Rubber mallet
- (g) Dispenser or brush for glue
- (h) Polyurethane glue – if requested, we supply the glue along with pavers for a surcharge.

3.6 Laying Process

Rubber pavers must be laid and joined in accordance with general building procedures, such as observing the right angle, and the instructions given below.

(a) Laying of Rubber Pavers with Polyurethane Glue

If you use a polyurethane glue for the laying of rubber pavement, you must follow our user manual and the instructions from manufacturer of the glue about the time of working with the glue because current weather conditions, such as humidity and temperature of air and bedding, can have a considerable effect on the solidification and curing of the glue applied. Also, you should make sure that your polyurethane glue has no effect on your rubber pavers and bedding and, in particular, that the glue will cause no damage to the pavers and the bedding.

When you lay rubber pavers, put them with their rough surface down. Polyurethane glue is suitable for all rubber pavers. For the base we recommend concrete, asphalt or other stabilised impermeable material on which rubber pavers can be glued.

Before applying the polyurethane glue onto the base or rubber pavers, make sure the base and the pavers are clean and dry in order to preserve the full adhesive capacity of the glue and the full solidification and curing times specified and recommended by the manufacturer and required for the proper fitting of rubber pavers. The glue is to be applied on one or both surfaces, depending on type. Working with rubber pavers, the glue is to be applied on the rough, i.e. the bottom, surface, which is contact with the base. If it is a base that does not permit gluing pavers to the base, apply the glue on the sides of the pavers and glue together individual pavers. The polyurethane glue must be applied to the paver sides no higher than one half of paver thickness so that the glue is not squeezed out when pavers are pressed together.

After you apply the glue and lay the rubber pavers onto the base, you need to use a rubber mallet to knock pavers together to remove any air bubbles between the glued surfaces (for this never use any hard and sharp tools, such as steel ones, which could damage or destroy the rubber pavers).

When you have laid all your pavers and used a polyurethane glue, we recommend you should leave the pavement intact and not tread on it until the glue has completely cured so that no unevenness would occur on the surface. The curing time of a polyurethane glue (the time after which you can step on the pavement) depends on the glue type and weather conditions and ranges from 24 to 48 hours (waiting for 48 hours to let the glue cure is recommended).

Laying of Square Rubber Pavers Using Plastic Joining Pins

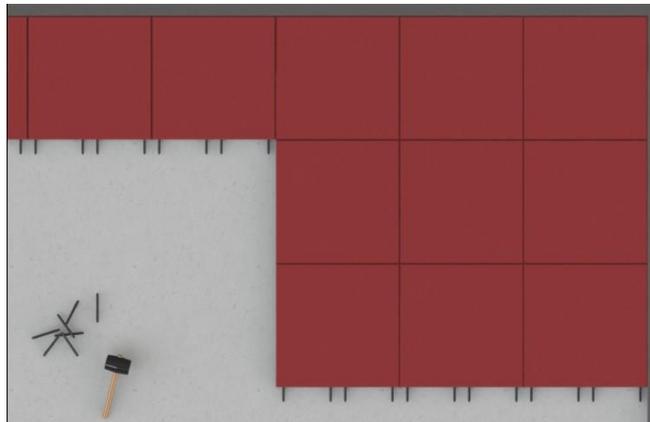
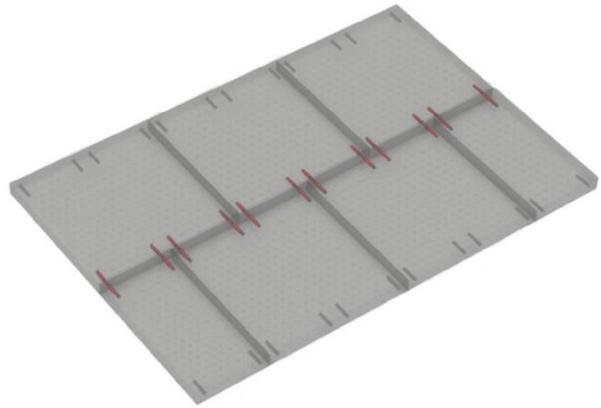
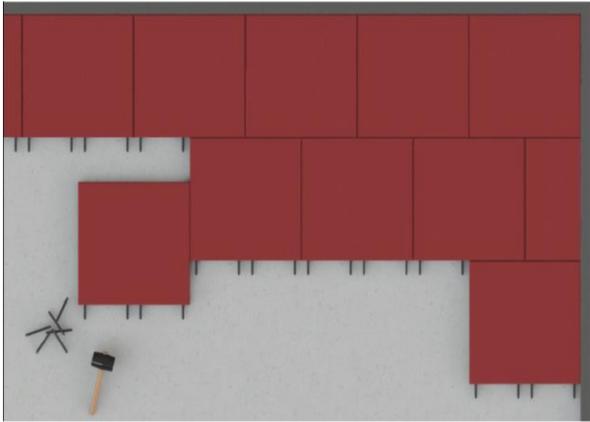
Square rubber pavers require plastic joining pins; the corresponding quantity of pins is supplied along with rubber pavers (see the figures shown below). Square rubber pavers have four pin holes on the opposite sides.

Before you start laying the rubber pavement, make sure both the base and the pavers are clean.

Fitting the pavers, you need to insert pins in the holes on one side only and then make a paver line without joining the pavers with pins. Laying the next line, you need to insert pins on one side of the pavers and then push the paver holes onto the pins projecting from the previous line. Follow the same procedure in laying additional lines.

It is important that rubber pavers be aligned and pushed close together to prevent occurrence of major gaps as a result of temperature changes. A rubber mallet is the best tool for this job. You should never use hard and sharp tools, such as steel ones, to push rubber pavers close together. These tools might damage or destroy rubber pavers, which are made of rubber granulate.

We recommend that square pavers should **only** be laid in the brickwork bond, i.e. next line pavers by a paver half off the centres of previous line pavers (as shown in the figures below). This bond provides a very compact and homogeneous surface.



Chessboard Bond for Square Pavers (as above)

If you join rubber pavers with plastic pins, we recommend gluing the pavers onto the base to prevent theft (the same applies to the brickwork bond).

Square rubber pavers thick 20 mm and less cannot be joined with plastic pins and **have to** be glued to the base with a polyurethane glue.

When using a polyurethane glue, you should follow the operating manual and, in particular, the glue manufacturer's manual and the instructions.