INSTALLATION INSTRUCTIONS

impact protection
flooring systems
bordering systems
coverings

stilum

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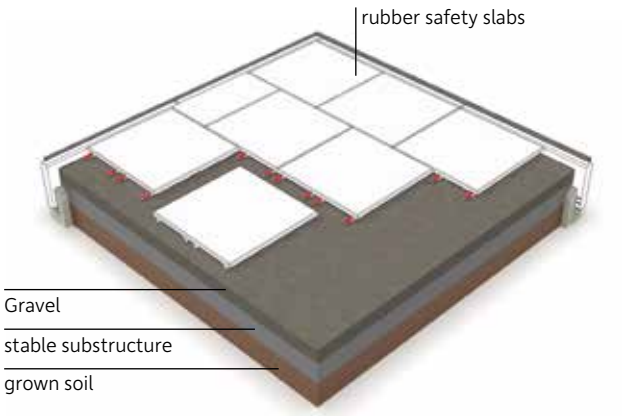
GENERAL INDICATION

After choosing the flooring system and defining the area according to manufacturer's instructions, we recommend to create a layout plan. This allows the optimum economical laying pattern to be achieved involving the least possible cutting waste. It is necessary to check the dimensional accuracy before starting installation. Production-related influences require larger manufacturing dimensions of up to 5 mm expansion in length and width. These are evened out within 48 hours after installation. The end row in the installation plan is only to be cut to the required size after 48 hours have elapsed. Dimensional tolerances of +/-1% are permissible with regard to length and width. The thickness tolerance is +/- 2 mm. Production-related influences require larger manufacturing dimensions of up to 5 mm length and width expansion, which are compensated after a storage period of 48 hours.
We strongly advice checking the dimensional accuracy of the slabs prior to commencement of laying work. With respect to length and width, dimensional tolerances of +/-1% are allowed. The tolerance of thickness is +/-2mm. The surface of the Terrasoft flooring should be protected from a durable interaction with sharp-edged stones e.g..
When using of storing the products in permanently humid surrounding, changes in shape, mould stains, algal formations and other humidity-related signs may appear. Goods and services delivered have to be stored in dry surrounding with sufficient air circulation. When storing the goods for a long time (more than 3 months), the packing (foil) has to be removed in order to prevent the above-mentioned effects caused by humidity (e.g. signs of mould).
Through the whole durability of the area, a permanent drainage effect of the subsoil must be ensured. Otherwise one-sided modifications in dimensions can be the result. When laying on firm substrates, a minimum slope of 2% is necessary.
For slabs until a height of 30 mm a laying on firm, even subrates is necessary.

PREPARATION OF THE SUBSOIL



Notes (subsoil)

gravel min. 25 mm
stable substructure min. 200 mm
grown soil

Installation of tiles on seepage capable resp. permeable water subsoil

First of all it is necessary to remove topsoil and ground to obtain a primary first subsoil. With binding, impermeable water grounds (e.g. clay soil) the fundamental base should be arranged with an according incline as well as a drainage for letting surface water drain off. After that a supporting substructure (grain 0/32 mm up to 0/56 mm) with min. 20 cm thickness is installed and compressed. Subsequently double-broken chippings (3/7 mm, min. 25 mm thick) with min. 2.5 % incline have to be installed as the surface compensation and slab support.
The laying of the butt-joint rubber floor elements in different thickness should follow in half offset staggered formation. Through the Terrasoft system plugs (with dowel effect) the durable connection is secured. Thereby, please pay attention that the elements are joined together as close as possible. Paving and puzzle elements join together form-closed and therefore result in to a durable firm compound.
Particularly important for a secure positioned surface appearance, is the arrangement of a firm edge bordering. For this, we recommend our Terrasoft bordering systems. For slabs until a height of 30 mm a laying on firm, even subrates is necessary.

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Laying slabs on firm substrates of concrete, screed or existing tiled areas

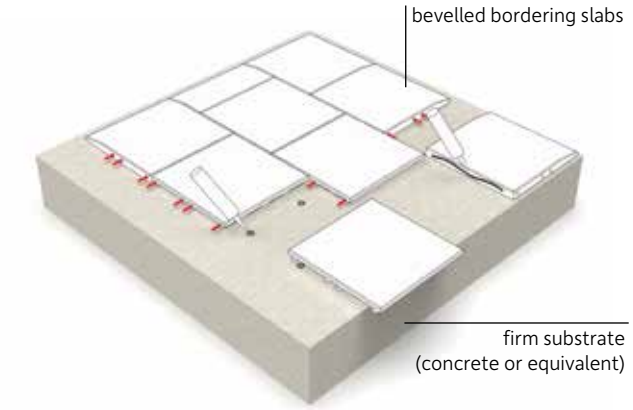
The creation of a correctly prepared substrate with sufficient gradient is an underlying requirement for successful laying. The most suitable substrate is a smooth sloping screeded surface with subsequently laid moisture insulation as a water-bearing stratum. Existing film layers and bituminous sealing strips should first be examined for their suitability as a substrate.

Existing slab and/or tile coverings must also be prepared as a smooth level substrate with moisture insulation layer on top.

Unevenness should be leveled out to avoid the formation of puddles. With this type of installation a firm edge bordering is also needed.

Should no edging trim be provided due the building circumstances we recommend using our inclined edge slabs in order to prevent the creation of tripping points.

In order to guarantee that the position of the slabs is permanently secured, these edging slabs are glued to the substrate and also linked using system plugs.



CROSS JOINT FORMATION

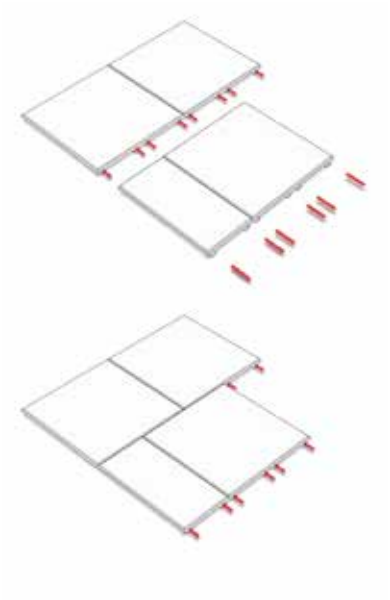
Installation in cross joint formation

Installation in cross joint formation is only recommended for overall or selective glueing on solid subsoils. Above all, elastic slabs with a thickness of up to 30 mm should be glued in any case.

HALF-OFFSET FORMATION

Laying in half-offset staggered formation

Terrasoft Floor tiles 500 x 500 mm are generally to be laid in half-offset formation. On account of the fact that the holes for the system plugs are applied on two tile sides, this type of installation is needed, so that an all-round compound is obtained.

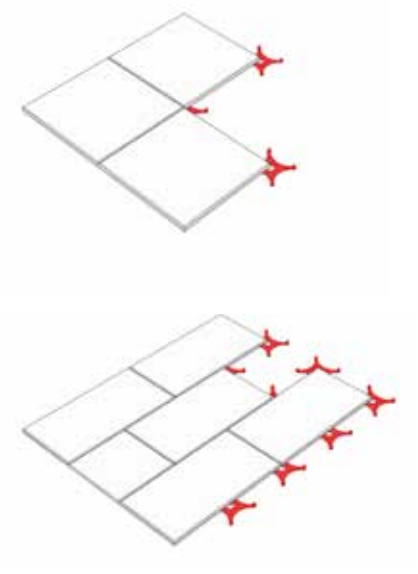


SYTEM PLUGS

System plugs serve for an optimum secure positioning of the slabs as well as for a simplified installation. The system plugs developed are an optimum installation facility with dowel character.

Advantages:

- simplest installation of Terrasoft Floor systems
- unproblematic adjustment through conical point of the system connector
- the firm anchoring of the slabs minimizes the creation of points e. g. caused by heavy wear and tear
- self-aligning fixture – a glueing is therefore not necessay in most cases



CROSS CONNECTOR

In order to guarantee a long-lasting connection between the slabs for installations with cross joints and in order to avoid shifting of the slabs, we recommend using the Cross connectors for Elastic slabs dimensioned 400 x 400 x 30 mm. They are introduced into the corresponding notches below the slabs and glued selectively.

The new cross connectors for terrace systems can also be applied for the new slabs dimensioned 630 x 315 x 40 mm. This slab of universal use can be installed in half-offset formation, in cross joint formation or in L-shape and is durably fastened by means of the Cross connectors. In addition, we recommend selective gluing.

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SURFACE ADHESION

The surface adhesion is mainly for the fixation of solid rubber products.

Preparation of the subsoil

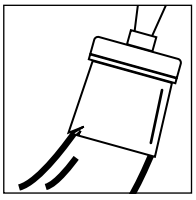
The concrete foundation must be rough, clean and dry. Please pay attention that the glueing areas are free of oil, greases and other residues e.g. colours, rubber abrasion, cement mist etc.
The surface and environment temperature must be at least 8 °C resp. at least 3 °C above the dew point temperature. Air temperature not higher than 80%.

Adhesion priming

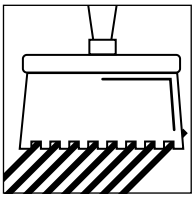
Fill adhesion priming in another pot and apply thinly on the subsoil by rolling or painting.
If necessary, subsequently smooth put to avoid puddles.
The drying depends on the air humidity.
With a high air humidity the drying is delayed. In the drying time, a direct water admission should be avoided.
Under certain circumstances, it may be necessary to grind the dried adhesion priming. The grinding dust should be removed thoroughly.

Glueing process

Admit 1.5 kg hardener to 10 kg glueing and mix it at a low rotative speed achieving a mass free of mist.
When glueing rubber on concrete, the glueing mass should be applied and compressed on the concrete surface with a toothed spatula (4 mm).
Please pay attention that the area is not stepped on for 48 hours.



adhesion priming



glueing process

JOINT FILLER

The joint filler is applied when already laid elements should be glued together upon the impact edges. This way, it is not possible to take away single elements.

Processing

With the supplied plastic nozzle, an exact dosage is achieved by simply pressing the middle of the bottle.
Please pay attention that the joint filler remains liquid during the processing period. The joint should not be larger than 3 mm.
Please pay attention that the surface is not stepped on for 48 hours.

CARE INSTRUCTIONS

A regular care of the layed slabs serves the security and increases its attractive appearance and the life span.

- The dust on Terrasoft areas can be swept off with a broom with hard bristles. The can also be cleaned with a high-pressure cleaner. This also removes dirt residues from the porous surface of the slabs.
- Depending on the degree of soiling, a deep cleaning, e.g. be carried out with a high-pressure cleaner.
- Coloured surfaces can be subsequently refined through application of a special spray coating. In the case of EPDM paving slabs, aggressive soiling due to environmental influences can be removed by sanding down the surface.
- Fouling with moss or grass in the joint area can lead to the panels being pushed apart or pushed up. Be sure to remove such growth early.
- Decolourations of the surface can occur through durable remaining ram moisture on the substrates as well as diverse plants in the direct surroundings of the slabs.
- External influences can have an effect on the condition of the surfaces. Weather, UV radiation, dust from the air, sites near the coast with high salinity or sand areas near the ímpact protection slabs can have a negative effect on lack of care.
- In cases of abrasion slabs have to be replaced

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PHYSICAL SPECIFICATIONS

Our floor tiles offer a very big range in design trough their various colours. Do you need a special colour that is not in our standard programme? Ask our sales executive. Terrasoft floor tiles can be produced exclusively for you in the desired colour prior that a respective square meter volume is involved.

Rubber granule percentage tyres recycling granule/EPDM:	90 %
Binder	approx. 10 % Polyurethan
Hardness	65 – 70 Shore A
Destination of soluble proportions	according to EN 71
Thermal conductivity value	0,08 W/m´k
Permeable to water Amount of water infiltration I_A DIN EN 12616:2003-07	7736,6 mm/h
Gross density DIN EN ISO 2811-1:2016-08	1,1911 g/cm³
Durability	acid and solution resistant
Tensile strength/elongation at break DIN EN 12230:2003-04	0,41 MPa
Coefficient of sliding friction DIN V 18035-6:2004-104	relatively to very non-slipping min. 0,53 (wet process) max. 0,79 (dry process)
Abrasion resistance DIN EN 5470-1:2017-04	loss of mass: 356,0 mg
Surface resistance	> 10 Ohm (testing voltage 1000 V)
Ozone tear durability	no tears (48 h, 50 pphm, 25°C, 02/10 % elongation)
Cold resistance to rupture	no rupture (24 h/-40°C)
Cold durability	no tears (65 Shore A)
TÜV certified	DIN EN 1176/1177:2018
Migration of certain elements	EN 71
Disposal	acc. AVV waste code 191204

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TERRASOFT® FIRE PROTECTION PROPERTIES

You can add fire protection features to the products from the Terrasoft range. Please refer to our price list for additional charges.
The following tables provide an overview of the relevant standards and classifications.

FIRE BEHAVIOUR	**Classification: DIN EN 13501-1** **Fire behaviour E/E_{fl}** „normally flamable“ Test procedure: DIN EN ISO 11925-2 Europ. Class	**Classification: DIN EN 13501-1** **Fire behaviour B_{fl}-s1** no smoke development, no burning droplets/particles Test procedure: DIN EN ISO 9239-1:2010 and DIN EN ISO 11925-2, Europ. Class
TERRASOFT SLABS	✓	
TERRASOFT SLABS WITH FIRE PROTECTION PROPERTIES		✓

The standards on which the test reports are based can be found in the following table:
Allocation of the building authority designations of building materials to the national classifications according to DIN 4102-1 and European classifications according to DIN EN 13501-1

National Class acc. to DIN 4102-1	Building authority requirement	European class acc. to DIN EN 13501-1	Additional requirements	
			no smoke	no burning droplets/particles
A 1	non-flammable	A 1	x	x
A 2		A 2 - s1, d0	x	x
B 1*)	low flammability	**B - s1, d0 or C - s1, d0**	x	x
		A 2 - s1, d0 or A 2 - s3, d0		x
		B - s2, d0 or B - s3, d0		x
		C - s2, d0 or C - s3, d0		x
		A 2 - s1, d1 or A 2 - s1, d2	x	
		B - s1, d1 or B - s1, d2	x	
		C - s1. d1 or C s1, d2	x	
		A 2 - s3, d2 / B - s3, d2 / C - s3, d2		
B 2*)	normal flammability	D - s1, d0 or D - s2, d0		x
		D - s3, d0 or E		x
		D - s1, d1 or D - s2, d1		
		D - s3, d1 or D - s1, d2		
		D - s2, d2 or D - s3, d2		
		E - d2		
B 3**)	high flammability**)	F**)		

Source: https://www.baunetzwissen.de/brandschutz/fachwissen/grundlagen/baustoffklassen-3190153

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IMPACT RESISTANT PLAYGROUND SURFACE

Correct implementation of European Standard EN 1176/1177

Playground surfacing systems are required to comply with product safety legislation.

Adherence to the safety requirements contained in this legislation must be verified in the form of a certificate from an approved test body following successful completion of testing. We have provided a simplified and summarized explanation of how to implement this standard for planners and decision makers who decide in favour of surfacing systems.

It may be assumed that the most serious of all probable accident risks occurring in children's playgrounds is that of head injuries. Consequently, priority has been assigned to the creation of a criterion to evaluate the effiency of floor surfacing systems which minimize this injury potential.

As a consequence, not only test procedures but also criteria for the choice of playground floors are determined which represent the upper limit of capacity to avoid head injuries, applicable for play equipment installed in accordance with EN 1176.

As you have chosen in favour of impact protection systems, you will be aware that six individual certified height measurements exist for different fall heights from 3 m.

The relevant generally applicable certificate is provided overleaf. After selecting the right slab, what is important is the surface area from which use of the playground apparatus begins and which encompasses at least the impact area.

The impact area is the surface on which a user can land after dropping through the falling space.

The following points must be taken into consideration when defining this area:

Up to a free fall height (free fall height=pedestal height, upper rung or upper handle position for hanging apparatus) of 1,5m, an additional falling space length of at least 1.5m must be provided around the apparatus.

With a free fall height of more than 1.5 m the falling space to be protected with the relevant drop protection measures must be calculated as follows:

$$\text{Required minimum falling space length:} \quad \frac{\text{free fall height} + 0{,}75\ \text{m}}{1{,}5\ \text{m}}$$

TECHNICAL INSPECTION AND MAINTENANCE

Controlling and Maintenance

In order to ensure the safety of the product in a responsible way, the plates installed need to be inspected and maintained in regular intervals. Due to their material quality Terrasoft impact-absorbing plates are designed for a long useful life with short maintenance intervals. Even so, the clear guidelines laid down in DIN EN 1176/1177 are also binding for Terrasoft elastic/safety slabs. To ensure the safety of the impact protection, the installed slabs require regular inspection and maintenance. Due to their high quality, Terrasoft impact protection slabs are designed for a long service life. The clear requirements of DIN EN 1176/1177 are binding for Terrasoft impact protection slabs. The external influence and impact on durability of impact protection qualities is not exactly forseeable. External influences can be high exposure or high-risk locations regarding vandalism. Furthermore, weather conditions, UV radiation, high frequentation areas (i.e. under swings or seesaws), unregular maintenance etc. can influence the impact protection qualities. Dust loading of the air, locations near the coast with high salt concentration or sand areas nearby can have a negative influence if maintenance is insufficient. With regular maintenance and care, Terrasoft system's impact protection can be expected for up to 10 years. This outperforms the durableness of all alternative impact protection systems by far, especially as the costs for maintenance and securing of impact protection are far lower compared to sand, bark mulch or wood chips.

Warning!

Maintenance intervals need to be shortened with high frequentation of the area, high risks of vandalism, extreme weather conditions or locations near the coast. This applies to different locations on play and recreation areas. High frequentation on the impact protection areas i.e. by teenagers, in entrance areas or dirt require respective maintenance intervals. In cases of abrasion i.e. with a punctual frequentation like under some playground equipment, slabs have to be replaced. For replacement or repairing, only spare parts of the manufacturer are to be used. Checking of maintenance intervals and controlling of professional execution of installation and repair works are duty of the operator, who generally is responsible for maintenance. During installation and maintenance work, the area hast to be visibly closed for children.

It has to be ensured that the drainage system constantly works. Keep yourself informed about the resulting requirements and duties, like they are at least partly specified in EN 1176/1177.

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COLOURS & SURFACES

COLOURED RUBBER GRANULATE


redbrown


green


anthracite

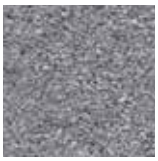
These floor tiles, consisting of a secondary caoutchouc-, fibre-, granule mixture are encased with a coloured binder. Colour shades may vary for production reasons, however, do not represent a raise of claim.

COLOURED RUBBER GRANULATE, SPRAY COATED


redbrown


green


anthracite


grey


metallic


silvergrey


blue

COLOURED RUBBER GRANULATE WITH EPDM TOP LAYER, UNGROUND


Signal yellow


Signal red


Signal green


blue


Signal orange


black

The basic construction and the drainage of the EPDM tiles also consist of a fibre granule mixture. On this support a coloured granule is applied with a transparent binder. The different mixture of the granulated material allow an extensive colour spectrum.

Special colours on request.

The colour patches are showing sections of the slabs. Colours not guaranteed - may vary in printing.

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