

## STRUCTURAL PROTECTION

protective mats  
made from recycled rubber



MADE IN GERMANY





**KRAITEC® Structural Protection**  
PRODUCT RANGE

MADE IN GERMANY





## HIGH-QUALITY PROTECTIVE MATS

### MADE FROM RECYCLED RUBBER

**KRAITEC® top, protect, step** and **DAMTEC® sonic** are elastic products with outstanding resiliency for reliable service under heavy loads. They are made from high-quality recycled rubber granulate complying with exacting specifications thus taking an active part in protecting the environment.

#### KRAITEC® top, top plus, top PV and KRAITEC® protect

**KRAITEC® top** and **KRAITEC® protect** are used in buildings and structural systems (flat and green roofs, roof terraces, balconies, tunnel systems, etc.) wherever high-quality insulation or waterproofing requires secure physical protection, i. e. in areas subject to physical stressing. **KRAITEC® top plus** features a PVC fleece-lamination, **KRAITEC® top PV** a composite film laminate in case of incompatibilities with the roof waterproofing membranes.

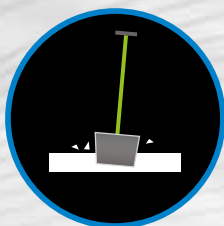
#### KRAITEC® step, step plus, step roof PVC & step roof FPO

**KRAITEC® step** slabs are an ideal elastic pavement for terraces and balconies as well as access and maintenance walkways on flat roofs of all types. Their convenient connector pin system makes installation fast and easy. They are available in a wide variety of colours which can be mixed and matched for eye-pleasing aesthetic design. **KRAITEC® step roof PVC** features PVC cladding and **KRAITEC® step roof FPO** FPO cladding on the bottom.

#### DAMTEC® sonic & DAMTEC® sonic drain plus

**DAMTEC® sonic** is a special structural protection mat in accordance with DIN 18195-10 for impact sound insulation on roof terraces, balconies and loggias. **DAMTEC® sonic** is installed in classic constructions with concrete slabs on a gravel bed and thermal insulation by means of PIR, EPS or XPS (warm roof and inverted roof). **DAMTEC® sonic drain plus** features a 3D textured profile and fleece lamination on the surface.

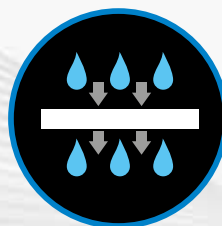
#### KRAITEC® Structural Protection



protects



insulates



has drainage  
channels



is rugged





KRAITEC® step



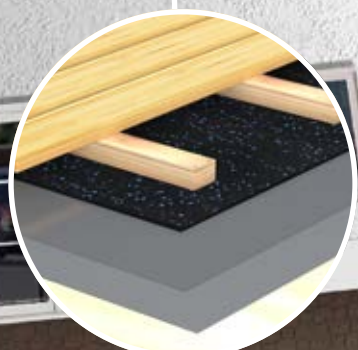
KRAITEC®



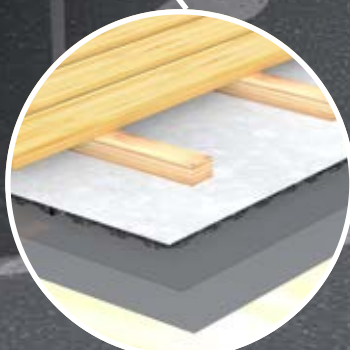
KRAITEC® top



KRAITEC® protect



DAMTEC® sonic



DAMTEC® sonic drain plus



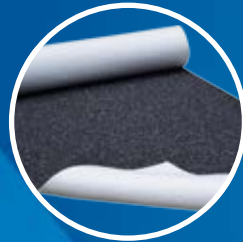
KRAITEC® pro



# APPLICATION SECTORS

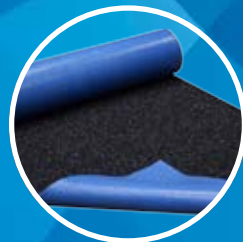
In addition to these applications KRAITEC® offers numerous product developments with laminations or claddings:

## KRAITEC® top plus



KRAITEC® top plus features PVC fleece-lamination on the underside that functions as an integrated separating layer in case of incompatibilities (e.g. softener migration) of the roof waterproofing membranes.

## KRAITEC® top PV



KRAITEC® top PV features a composite film laminate on the underside as an integrated separating layer in case of incompatibility with the roof waterproofing membranes.

## KRAITEC® step roof PVC



KRAITEC® step roof PVC features PVC cladding on the bottom as an integrated separating layer in case of incompatibility with the roofing felt.

## KRAITEC® step roof FPO



KRAITEC® step roof FPO features FPO cladding on the bottom. The FPO cladding enables permanent bonding to the FPO roofing felt by means of hot-air welding to prevent lifting or slipping.

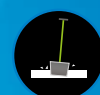
## KRAITEC® step plus



KRAITEC® step plus features geotextile laminate on the bottom side permitting installation directly on PVC waterproofing.



KRAITEC® top



PROTECTION



INSULATION



DRAINAGE



HEAVY LOADS



## KRAITEC® top

### STRUCTURAL PROTECTION - VERSATILE AND EFFECTIVE

**KRAITEC® top** is the versatile and effective protection mat for classical applications on flat roofs and building structures. Leading waterproofing manufacturers and installers worldwide work with this field-proven product. Its outstanding technical properties, high compressive strength and remarkable application versatility make **KRAITEC® top** the preferred protection mat for all classical flat roof systems.

**KRAITEC® top** is easy to install, highly cost-effective, durable, extremely rugged and can be walked on immediately after installation. Whether used as temporary protection for work over easily damaged membranes or as a permanent component in flat roof systems, this classic product is at home over waterproofing systems worldwide.

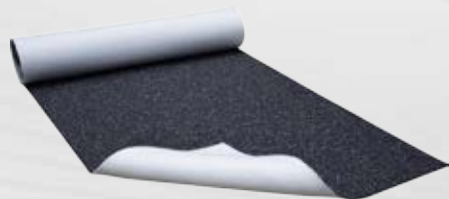
Due to these and other benefits **KRAITEC® top** is the largest-selling structural protection mat of **KRAIBURG Relastec**.

Technical Data	
Material	technical-grade recycled rubber granulate polyurethane-bonded
Density	approx. 810 kg/m <sup>3</sup>
Dimensions	<b>Mats</b> 1,000 x 2,000 mm and 1,150 x 2,300 mm (± 1.5 %) <b>Rolls</b> width 1,250 mm (± 1.5 %) (length dependent on material thickness)
Thickness	6, 8, 10 (± 0.6 mm) / 12, 15, 18, 20 (± 1.0 mm) additional thicknesses and sizes on request
Surface	grain-textured
Colour	black with multicoloured speckles
Tensile strength	approx. 0.3 N/mm <sup>2</sup> (DIN EN ISO 1798)
Elongation at break	approx. 40% (DIN EN ISO 1798)



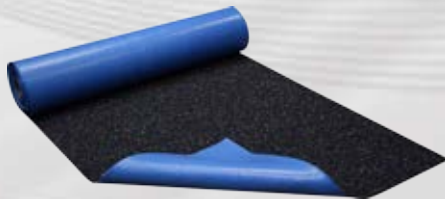
### KRAITEC® top plus

KRAITEC® top with  
PVC fleece-lamination



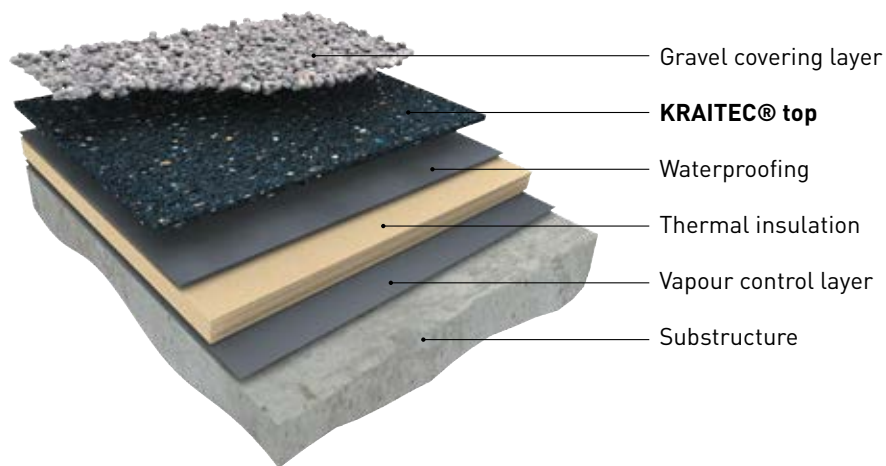
### KRAITEC® top PV

KRAITEC® top with  
composite film laminate



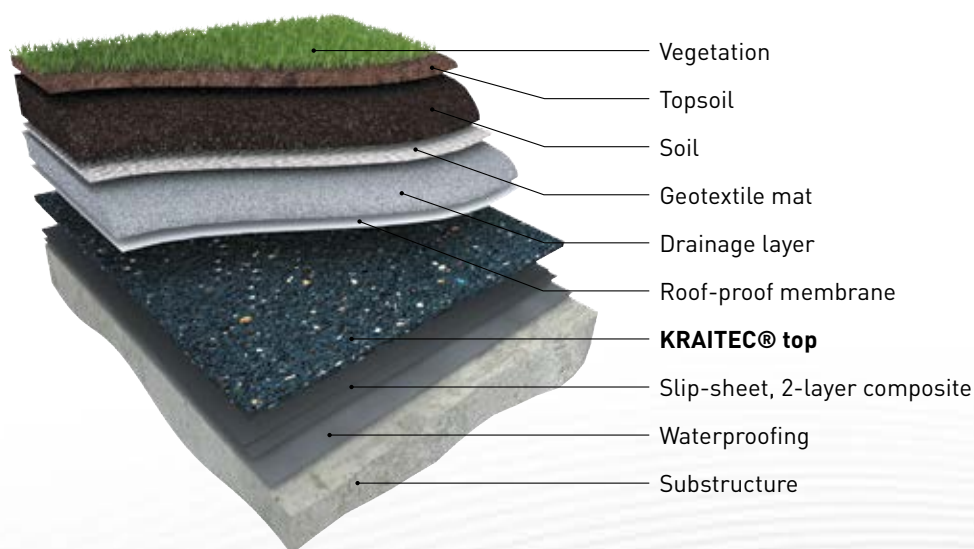
For additional information  
on KRAITEC® top product  
range please visit our  
website or ask for our  
KRAITEC® photovoltaics  
brochure.





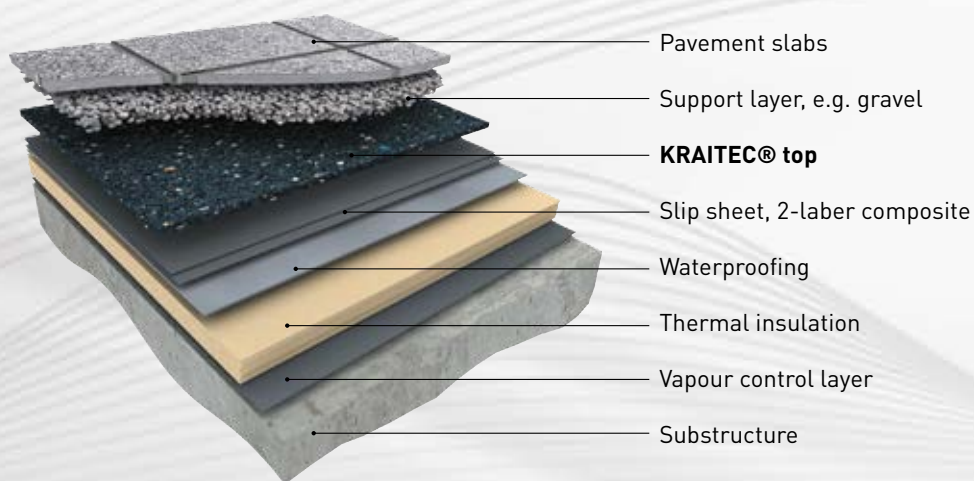
## ON FLAT ROOFS

**KRAITEC® top** is the optimum protection mat for flat roofs supporting foot traffic or heavy objects. It is often used under gravel-topped roofs to prevent damage to the waterproofing by sharp or abrasive aggregates or by subsequent maintenance work.



## ON LANDSCAPED ROOFS

**KRAITEC® top** is used as a highly rugged and durable separator layer on landscaped roofs supporting foot traffic and auxiliary structures (e. g. over parking areas or green roofs). It protects the waterproofing system installed below against damage due to compressive loading.



## ON ROOF TERRACES

**KRAITEC® top** plays an important part in construction of above-roof systems such as roof terraces. Installed directly below the terrace surfacing (e.g. concrete slabs or wood-planking\*), it protects the waterproofing and roof below against puncture and other damage under high loads. In addition it serves as an equalizing and sound insulating layer.

\*In applications without full-surface covering (e.g. installations under spaced-slat flooring or other noncontinuous surfacing), we recommend our odourless **KRAITEC® protect**.



## KRAITEC® protect

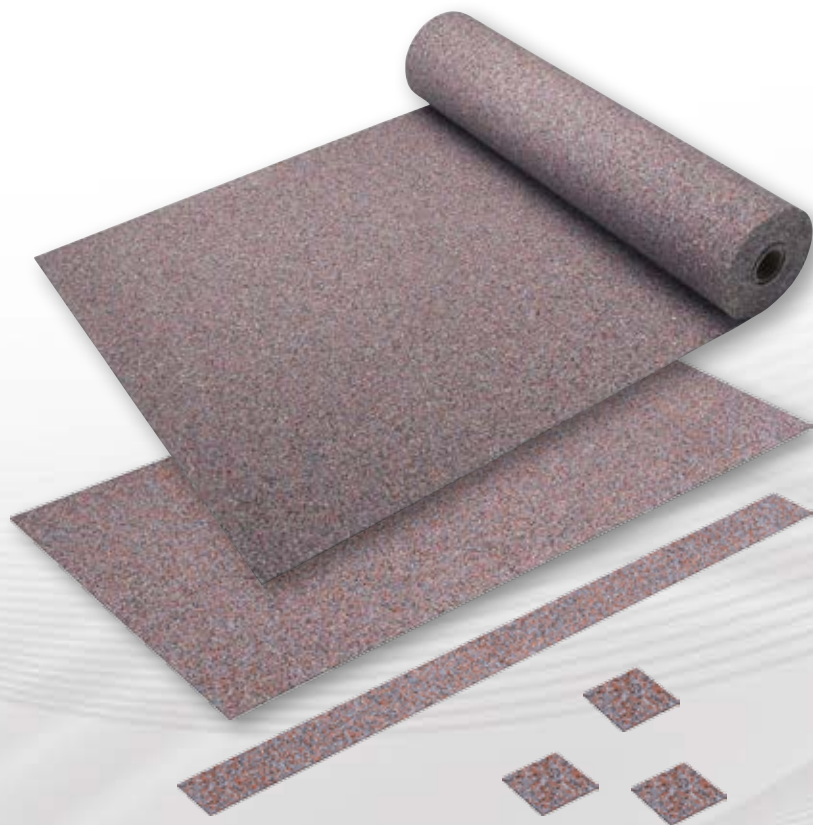
### HEAVY-DUTY STRUCTURAL PROTECTION

**KRAITEC® protect** is the heavy-duty protective sheet for extreme applications and structural loads. It is a premium product made from selected materials complying with strict specifications.

Due to its high density, **KRAITEC® protect** does not require weighing down prior to installation as do geotextiles. Made to exacting quality standards, **KRAITEC® protect** is extremely rugged and is the optimum solution wherever highest physical demands must be met.

Being odourless as well, we recommend **KRAITEC® protect** for applications without full-surface covering (e.g. installations under spaced-slat flooring or other noncontinuous surfacing) on terraces, loggias and balconies.

Technical Data	
Material	polyurethane-bonded recycled premium-grade (odourless) rubber granulate
Density	approx. 1,050 kg/m <sup>3</sup>
Dimensions	<b>Mats</b> 1,150 x 2,300 mm (± 1.5 %) <b>Rolls</b> width 1,250 mm (± 1.5 %) (length dependent on material thickness)
Thicknesses	6, 8, 10 (± 0.6 mm) / 12 (± 1.0 mm) Additional thicknesses and sizes on request
Surface	grain-textured
Colour	multicoloured
Tensile strength	approx. 0.8 N/mm <sup>2</sup> (DIN EN ISO 1798)
Elongation at break	approx. 125% (DIN EN ISO 1798)
Fire resistance	E <sub>fl</sub> (DIN EN 13501-1)
Temperature resistance	-30° to + 80° C
Deformation under traffic load tested thickness 10 mm	10 % at approx. 38 t/m <sup>2</sup> 20 % at approx. 80 t/m <sup>2</sup> (tet method based on DIN EN ISO 3386-2)
Coefficient of thermal expansion	approx. 10 x 10 <sup>-5</sup> / °C (test method based on DIN EN 13471)
Other data	conditionally resistant to acids and bases, water-resistant, rot-resistant, must be protected from constant exposure to UV radiation





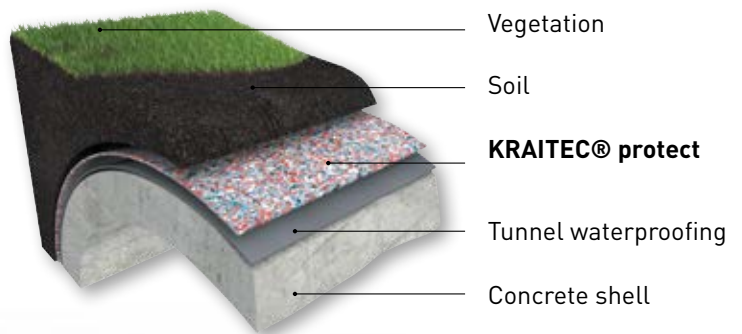


## KRAITEC® protect

### APPLICATION SECTORS

#### I. In Tunnel Systems

**KRAITEC® protect** has outstanding physical properties which make it ideal for use over waterproofing subjected to extreme compressive loads or dumping of gravel or soil. It has excellent puncture resistance and can take rough treatment of all kinds without damage. **KRAITEC® protect** provides outstanding protection over waterproofed surfaces in tunnels whether horizontal or vertical.



#### II. Green Roof\*

Due to its outstanding physical properties **KRAITEC® protect** is as well suited for extreme applications e. g. on flat and green roofs (according to DIN 18195 Teil 10).



#### III. Pads and stripes

The protection mat, **KRAITEC® protect**, is ideal in pad or strip format as a safe-guard layer for surfaces with open joints (e.g. support pads, lath constructions on terraces).



\* Photos taken at **Sportpark Lech am Arlberg**, Vorarlberg/Austria where **KRAITEC® protect** has again proven its outstanding properties





## DAMTEC® sonic

### STRUCTURAL PROTECTION MAT FOR IMPACT SOUND INSULATION

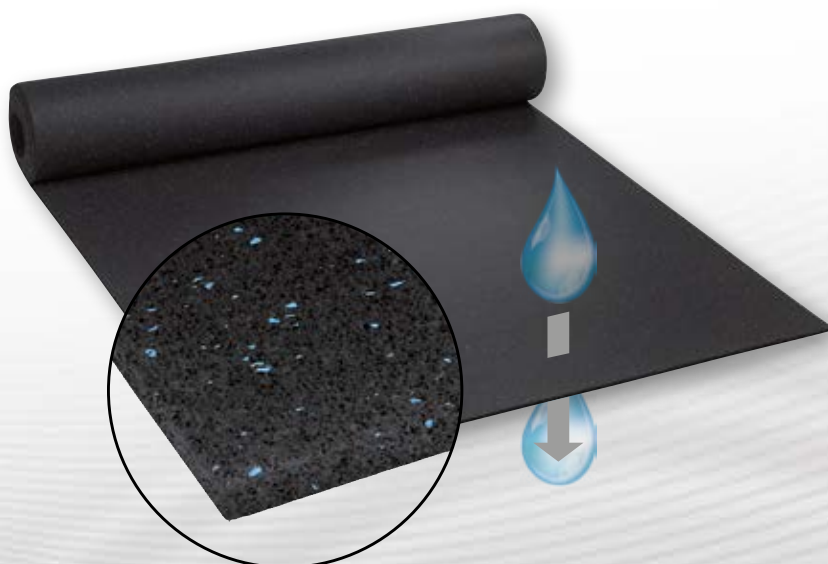
Peace and quiet is a basic need that is highly valued in our time. Effective impact sound insulation increases quality of life; effective vibration isolation creates a pleasant living and working atmosphere.

**DAMTEC® sonic** is a special structural protection mat in accordance with DIN 18195-10 for impact protection on roof terraces, balconies and loggias.

**DAMTEC® sonic** is installed in classic constructions with concrete slabs on a gravel bed and thermal insulation by means of PIR, EPS or XPS (warm roof and warm roof).

**By using reinforced concrete with a minimum thickness of 140 mm, the following constructions reach increased sound insulation values in accordance with DIN 4109 /supplement 2.**

Technical Data	
Material	Recycling based rubber granulate bonded with polyurethane elastomer
Density	approx. 780 kg/m <sup>3</sup>
Thickness	8 mm (± 0.3 mm)
Width of strips	1,250 mm (± 1.5 % mm)
Length	Length [m] on request (± 1.5%)
Colour	black / blue colour particles
Surface	Granule structure
Tensile strength	approx. 0.3 N/mm <sup>2</sup> (EN ISO 1798)
Elongation at break	approx. 30% (EN ISO 1798)
Fire resistance	E <sub>fl</sub> (DIN EN 13501-1)
Temperature resistance	-30° to 80° C
Deformation under traffic load	10 % at approx. 17 t/m <sup>2</sup> 15 % at approx. 32 t/m <sup>2</sup> 20 % at approx. 47 t/m <sup>2</sup> test method based on DIN EN ISO 3386-2







## DAMTEC® sonic drain plus

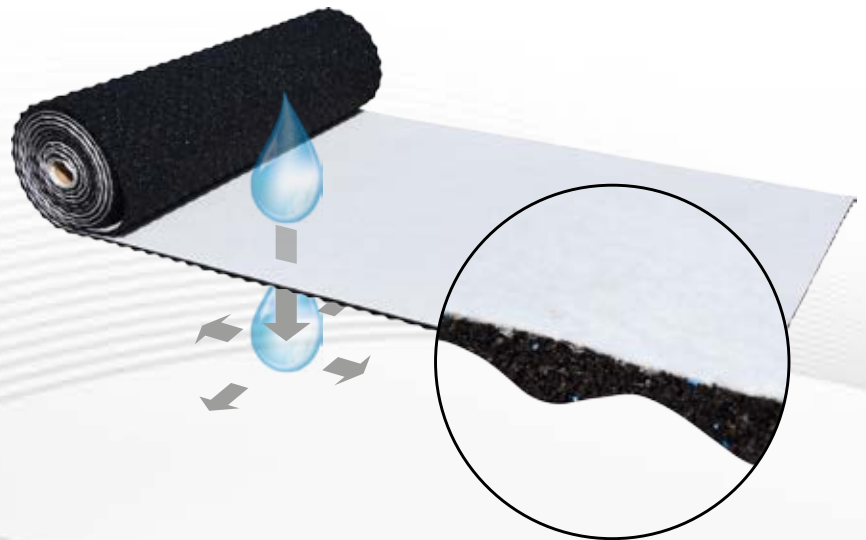
### FLEECE-LAMINATED STRUCTURAL PROTECTION MAT FOR SOUND INSULATION

**DAMTEC® sonic drain plus** is a special fleece-laminated drainage protection mat in accordance with DIN 18195-10 for impact sound insulation on roof terraces, balconies and loggias.

**DAMTEC® sonic drain plus** is installed for example in classic constructions with concrete slabs on a gravel bed and thermal insulation by means of PIR, EPS or XPS (warm and inverted roof).

#### Technical Data

<b>Material</b>	Recycled rubber granules bonded with PU elastomer
<b>Density</b>	approx. 700-800 kg/m <sup>3</sup>
<b>Thickness</b>	15/6 mm (± 1.0 mm)
<b>Roll width</b>	1,200 mm (± 1.5 % mm)
<b>Roll length</b>	8.0 m (± 1.5%)
<b>Colour</b>	Black with blue colour particles
<b>Surface</b>	Fleece lamination
<b>Lower side</b>	Granule structure, with profile
<b>Tensile strength</b>	approx. 0.3 N/mm <sup>2</sup> (DIN EN ISO 1798)
<b>Elongation at break</b>	approx. 30% (DIN EN ISO 1798)
<b>Fire resistance</b>	E <sub>n</sub> (DIN EN 13501-1)
<b>Temperature resistance</b>	-30° to 80° C
<b>Traffic load</b>	10 % at approx. 0.95 t/m <sup>2</sup> 15 % at approx. 1.88 t/m <sup>2</sup> 20 % at approx. 3.18 t/m <sup>2</sup> test method based on DIN EN 826



#### Water drainage capacity (q<sub>stress/gradient</sub>)

Test direction: MD hard/hard	Hydraulic gradient i = 0.010	Hydraulic gradient i = 0.020
2 kPa	0,143 l/(m·s)	0,228 l/(m·s)
15 kPa	0,078 l/(m·s)	0,129 l/(m·s)
50 kPa	0,008 l/(m·s)	0,018 l/(m·s)



For detailed information and technical documentation please ask for our DAMTEC® sonic brochure.





Also available as **KRAITEC® step color** and **step neon** version with coloured EPDM surface and a wide range of eye-pleasing colours!

## KRAITEC® step

INNOVATIVE, VERSATILE AND A VARIETY OF DESIGN OPTIONS

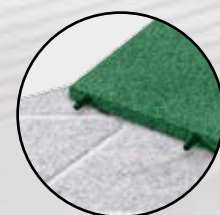
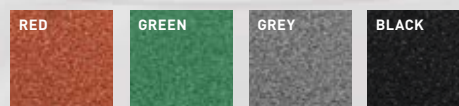
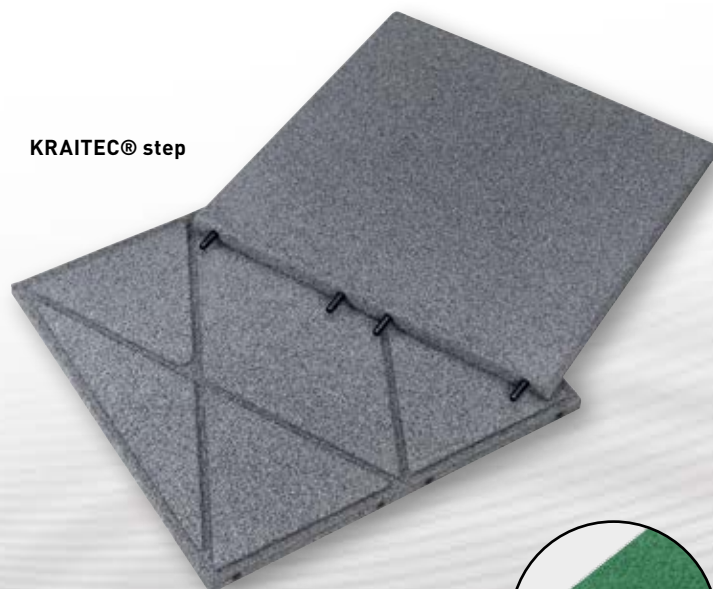
The coloured polyurethane binding agents used to bond the granulated tyre granulates in **KRAITEC® step** provide a variety of colours which can be mixed and matched in eye-pleasing combinations. But also with a single coloured **KRAITEC® step** surface you will always have a decorative, modern and warm surface for terraces and balconies, easily to be installed with integrated connector pins. Drainage channels on the bottom side ensure secure removal of water. The slabs are easily installed on any paved level subsurface.

**KRAITEC® step** can be conveniently installed directly over bituminous membranes. For problematic material combinations we recommend **KRAITEC® step plus** with polyester geotextile laminate (300 g/m<sup>2</sup>) on the bottom side.

Whether grey, black, green or red in colour, these rugged slabs can be used as support pads under solar power units or other heavy objects installed on roofs and are also used as walkway slabs on flat and green roofs. Being both a walkway and a protective mat, **KRAITEC® step** allows low structural heights.

Technical Data	
Material	polyurethane-bonded recycled rubber granulate
Area weight	approx. 20.8 kg/m <sup>2</sup> (approx. 5.2 kg/slab)
Thickness	30 mm (± 2.0 mm)
Dimensions	500 x 500 mm (± 1.5 %)
Surface	smooth with drainage channels / geotextile (KRAITEC® step plus)
Lowest side	glatt mit Drainagerillen, bzw. Vlies (PES, Polyester-Vlies, 300 g/m <sup>2</sup> )
Colour	red, green, grey, black
Fire resistance	E <sub>fl</sub> (DIN EN 13501-1) B <sub>roof</sub> (t1) (DIN EN 13501-5)
Temperature resistance	-30° to + 80° C
Deformation under traffic load	10 % at approx. 18 t/m <sup>2</sup> 20 % at approx. 38 t/m <sup>2</sup> test method based on DIN EN ISO 3386-2
Other data	4 integrated connector pins/slab
Packaging	180 slabs per one-way pallet 105 x 105 cm Weight: approx. 950 kg/pallet

KRAITEC® step



KRAITEC® step plus





## KRAITEC® step roof PVC and step roof FPO

### STRUCTURAL PROTECTION WITH PVC CLADDING OR FPO CLADDING

**KRAITEC® step roof PVC** is a protective mat made of rubber granules with PVC cladding on the bottom that is used on flat roofs with PVC foil covering as a walkway for maintenance, inspection and installation. **KRAITEC® step roof FPO** is used on flat roofs with FPO foil covering.






**KRAITEC® step roof PVC** and **KRAITEC® step roof FPO** are also used as a protective layer under roof structures (e.g. solar installations, antennas, etc.).

The claddings of **KRAITEC® step roof PVC** and **KRAITEC® step roof FPO** enable permanent bonding to the roofing felt by means of hot-air welding to prevent lifting or slipping.



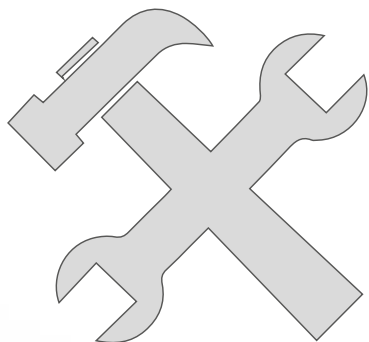




-  We turn waste rubber materials into new raw materials and products, making a valuable contribution to waste reduction and the protection of the environment.
-  We invest in innovative and environmentally friendly production methods and technologies.
-  Our products are subject to continuous quality testing and further development, whereby environment concerns are given priority. We are always on the lookout for even more environmentally friendly alternatives that enable us to further reduce emissions and protect resources.
-  All employees of KRAIBURG Relastec undertake to implement sustainable practices in their daily work and to protect the environment wherever they can.
-  We expect the same from our suppliers and constantly monitor their performance.

**KRAITEC®**

**ENVIRONMENTAL PROTECTION, TECHNICAL SERVICE & LOCATIONS**



**Feel free to use our Technical Service!**

No matter whether by phone or on-site, our KRAITEC® technical service will give you professional advice every time during the whole planning and execution of your projects.

Fon: +49 (0) 3901 8304-63  
 Mobile: +49 (0) 151-42 65 60 57  
 Fax: +49 (0) 3901 8304-463  
[technik-kraitec@kraiburg-relastec.com](mailto:technik-kraitec@kraiburg-relastec.com)



**Production Plant/Loading address:**  
**KRAIBURG Relastec GmbH & Co. KG**

Fuchsberger Straße 4  
 D-29410 Salzwedel

**Sales Office & Marketing:**  
**KRAIBURG Relastec GmbH & Co. KG**

Kehlsteinstraße 2  
 D-84529 Tittmoning



Additional KRAITEC® brochures



KRAITEC® Photovoltaics



KRAITEC® step



DAMTEC® sonic



KRAITEC® reference projects





## PROTECTIVE MATS FOR STRUCTURAL PROTECTION made from recycled rubber

KRAIBURG Relastec GmbH & Co.KG  
Fuchsberger Straße 4 · D-29410 Salzwedel

### Sales Germany:

Tel. +49 (0) 8683 701 -167

Fax +49 (0) 8683 701 -4167

[kraitec@kraiburg-relastec.de](mailto:kraitec@kraiburg-relastec.de)

[www.kraiburg-relastec.com/kraitec](http://www.kraiburg-relastec.com/kraitec)

### Sales International:

Tel. +49 (0) 8683 701 -285

Fax +49 (0) 8683 701 -4285

[kraitec@kraiburg-relastec.com](mailto:kraitec@kraiburg-relastec.com)

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