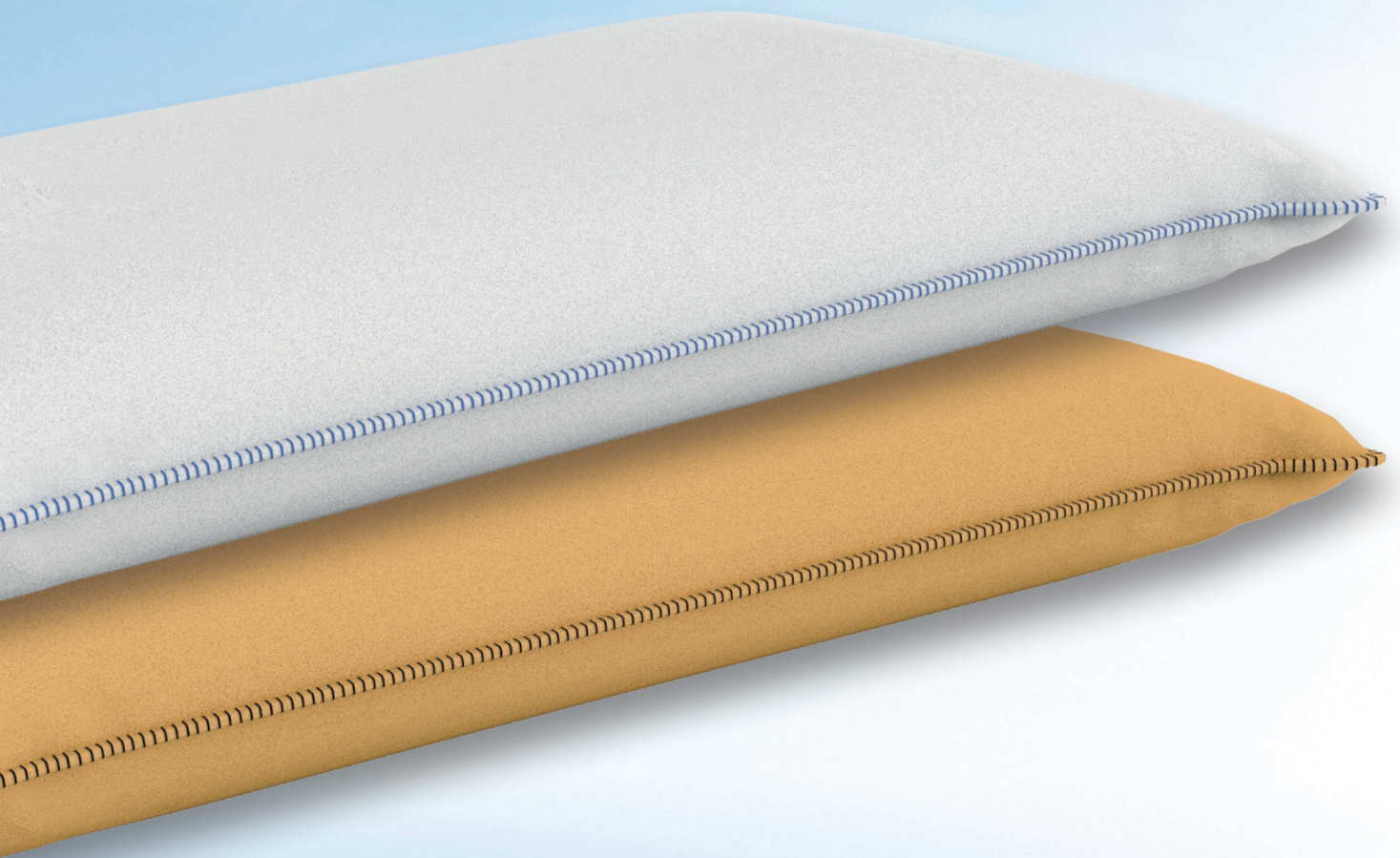


# SECUTEX® Soft Rock

Geotextile sand containers





**Secutex® Soft Rock** are geotextile sand bags or containers manufactured from needle-punched Secutex® non-woven filter geotextiles. Geotextile sand containers (GSC) are made for encapsulating granular material and are used as building element.

In addition to single-layer nonwoven GSCs for covered applications, double-layer nonwoven GSCs are available. They have an integrated surface protection made of rough fibres for exposed conditions and are visually well suited for a sandy environment.

## TYPICAL APPLICATIONS FOR SECUTEX® SOFT ROCK

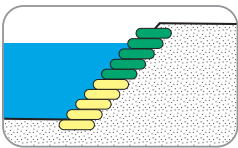


Figure 1:  
Erosion/river  
bank protection

### River bank protection

Secutex® Soft Rock provides an alternative solution to conventional erosion control systems made of rocks or concrete. With the use of GSCs and an underlying filter geotextile Secutex® H an effective erosion protection system can be achieved. Secutex® Soft Rock made of single or double-layered nonwovens can be applied with or without an additional protection layer for covered or uncovered applications.

#### Application advantages of Secutex® Soft Rock

- Long-term abrasion and robustness performance
- Soft and flexible construction elements adopt very well to surrounding conditions
- Economic solution in comparison to conventional revetment systems

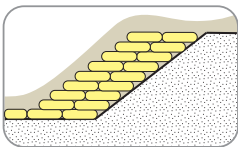


Figure 2:  
Coastal and  
dune protection

### Coastal and dune protection

Secutex® Soft Rock is installed in front of or above soil materials in order to retain the soil material behind or underneath while providing sufficient resistance to hydraulic loads. In consideration of their soft and adaptable properties, GSCs are best suited for coastal protection systems, for example in front of or inside sand dunes.

#### Application advantages of Secutex® Soft Rock

- Stability under dynamic load (wave run-up, wave overflow, etc.)
- Erosion stable encapsulation of the fill material in the GSC
- Sufficient resistance to abrasion
- Water can flow through the structure without damage

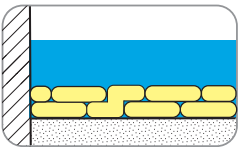


Figure 3:  
Scour protection

### Scour protection

GSCs are installed as scour protection system in the water around structures, e.g. offshore wind turbine foundations or bridge foundations.

#### Application advantages of Secutex® Soft Rock

- GSCs represent filter and armour in one unit
- No additional granular layer required
- No scour during construction phase as installed prior to monopile installation

## ADVANTAGES OF SECUTEX® SOFT ROCK

Secutex® Soft Rock is the choice for soft and flexible erosion and scour protection systems. Secutex® Soft Rock GSCs provide the filter and ballast function in one element. They are an alternative solution to conventional revetment systems with granular filters, rip-raps and/or armour stones.

### In-situ soil as fill material

The ingenuity of Secutex® Soft Rock constructions rests on the ability to fill them with locally available sand. The filter-stable nonwovens provide robust, flexible construction elements that are similar to the natural coastal and marine environment but with greater erosion control.

### Stability under hydraulic load

The dynamic interaction between waves and/or currents and waterfront soils and structures complicates hydraulic engineering. Beach-fronts require long-term protection, and the solution must be flexible, durable, and minimise the impact on marine environments. Lightweight, robust nonwoven geotextiles enable these engineered installations to encapsulate sand for the creation of long-term performing geotextile containers.

### Secutex® Soft Rock as building material

The roughened surface of the needle-punched nonwoven geotextiles of Secutex® Soft Rock offers better frictional behaviour than comparable systems made of woven fabrics. Thus, Secutex® Soft Rock reduces the sliding between stacked sand-filled containers or bags when subject to currents and waves. Additionally, sand and sedimentation embed themselves within the nonwoven structure, which gives it a natural protection layer.

Product type	Theoretical fill volume	Enviroment of the application
Secutex® Soft Rock R 601	1.0m³	Covered
Secutex® Soft Rock R 801	1.0m³ 1.5m³	Covered
Secutex® Soft Rock RS 801a	1.0m³	Covered
Secutex® Soft Rock RS 1001a	1.0m³	Uncovered
Secutex® Soft Rock RS 1201*	1.0m³ 1.5m³ 2.0m³ 2.5m³	Uncovered

\*Special equipment is required for filling and transport.

Table 1: Typical Secutex® Soft Rock sizes

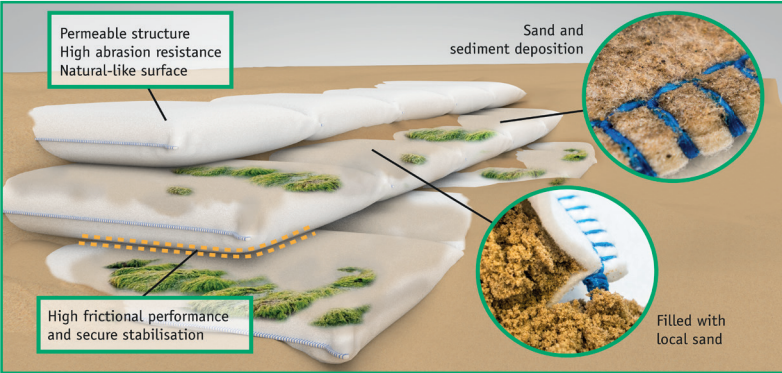


Figure 4: Advantages of Secutex® Soft Rock GSCs



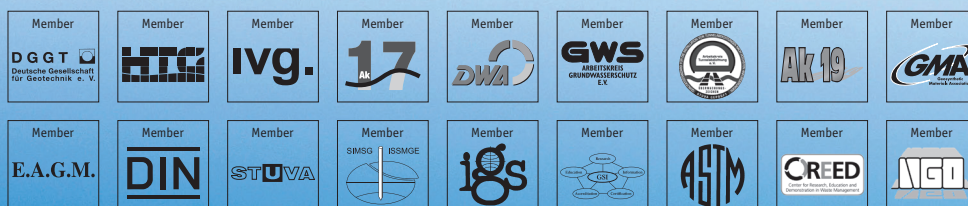


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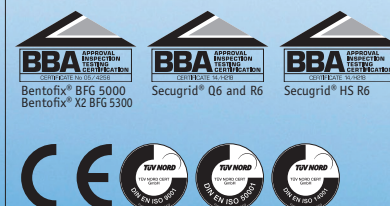
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