

TenCate GeoDetect® S-BR

Fiber Optic Sensing Geosynthetics

OUR COMPANY

TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

OUR PRODUCT

The use of fiber optics in structural health monitoring systems for civil engineering applications have been widely used for many years. By integrating fiber optic sensing into a geotextile fabric, TenCate GeoDetect® is the first system designed specifically for geotechnical applications. The TenCate GeoDetect® S-BR solution embodies a geocomposite fabric, fiber optics, software and instrumentation to provide a clearly innovative solution for the multifunctional requirements of a geotechnical application, e.g. in-plane drainage capability, anchoring interface with the soil, protection of the optical fiber, reinforcement and data capture. TenCate GeoDetect® S-BR uses stimulated Brillouin and Raman scattering technology in single mode and multimode fibers to measure strain and temperature changes as low as 0.02% and 0.1 C° respectively, and with spatial resolutions of 1 m at distances up to 20 km with suitable instrumentation.

- The TenCate GeoDetect® S-BR is a customizable solution that provides objective, highly precise, and timely in-situ performance information. This allows the design professional and owner to understand system performance in addition to providing alerts for negative “geo-events” (subsidence) and other potentially deleterious events.

Once TenCate GeoDetect® S-BR is connected to instrumentation, the intelligent measurement equipment automatically adjusts the measurement settings such as:

- Distance and sampling interval
- Measurement contrast optimization
- Temperature and strain measurement range

The TenCate GeoDetect® solution is an innovation that combines the benefits of geosynthetic materials with the latest sensing and measurement technologies to provide owners with unique information that reduces risk by providing early notification of an unexpected change in soil conditions.

- Solutions that have a positive impact on sustainability with lower risk and longer lasting structures due to its ability to monitor appropriate performance.

OUR APPLICATIONS

The TenCate GeoDetect® S-BR solution is ideal for:

- Walls
- Embankments
- Slopes
- Levees
- Roads/Rails
- Landfills
- Pipelines

OUR SERVICE

TenCate offers complete technical assistance. Our comprehensive service includes assistance during design, specification and throughout the process. TenCate makes the difference.

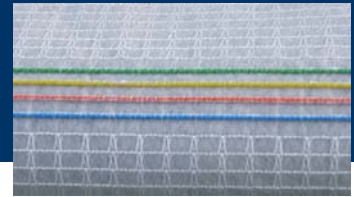


Protective Fabrics
 Space Composites
 Aerospace Composites
 Advanced Armour

Geosynthetics
 Industrial Fabrics
 Grass

TenCate GeoDetect® S-BR

Fiber Optic Sensing Geosynthetics



TenCate GeoDetect® Fiber Optic

TECHNICAL DATA

Fiber Optic		Units		BR
Minimum diameter		mm		2
Minimum strain detection		%		0.02
Temperature resolution		°C		0.1
Number of tight buffered single mode cable				2
Number of loose tube with one multimode and one single mode fiber				1 (2)
Connection to the textile				Rachel (tight) knitting yarn
TenCate GeoDetect® S Composite Strip	Test Method	Units		Typical Values
Tensile strength	EN ISO 10319	kN/m	MD/CD	37/12
Elongation at maximum strength	EN ISO 10319	%	MD/CD	11.5/85
Tensile strength at 2% strain	EN ISO 10319	kN/m	MD	7.5
Tensile strength at 5% strain	EN ISO 10319	KN/m	MD	14
Friction properties in contact with sand (:40°)	EN ISO 12957-1	degrees		30°
Puncture resistance (CBR)	EN ISO 12236	kN		2.4
In the plane water flow capacity @ 20 kPa	EN ISO 12958	m3/s/m		20 10-7
Weight per unit area (without optical cables)		g/m ²		290
Standard width (Other width on demand) ¹		m		1
Standard Length(on demand) ¹		m		10

MD: Machine Direction, also direction of the optical cables

CD: Cross Direction

(1) Custom roll sizes available

The values given are average values obtained in our laboratory and in accredited testing institutes. The information given in this datasheet is to the best of our knowledge true and correct. However new research results and practical experience can make revision necessary. The right is reserved to make changes without notice at any time. No guarantee or liability can be drawn from the information mentioned herein.

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