

DELTA[®] protects property. Saves energy. Creates comfort.

PREMIUM QUALITY

DELTA[®]-GEO-DRAIN

//// //// //// //// *Quattro*

A new dimension of safety for thick waterproof coatings.

The first compact four-ply drainage sheet on the market.
Patent-protected.



- Protection and drainage system
- For thick waterproof coatings
- For vertical application in building construction

**Double drainage
at a stroke?**

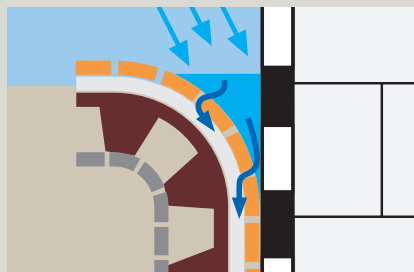
**DELTA® means perfect
foundation protection!**



■ **DELTA®-GEO-DRAIN Quattro**

This unique protection and drainage system offers maximum safety for thick viscoplastic coatings. This holds true even if driving rain is able to penetrate through an imperfectly installed upper edge trim.

In an absolutely watertight system, such rainwater would exert hydrostatic pressure on the waterproof coating. However, the micro-perforated slip film which, together with the additional filter cloth, acts as a backup drainage layer behind the dimpled sheet ensures that any water is drained off safely. In addition, the slip film prevents the transmission of movement to the waterproof coating.



■ **DELTA® Accessories**

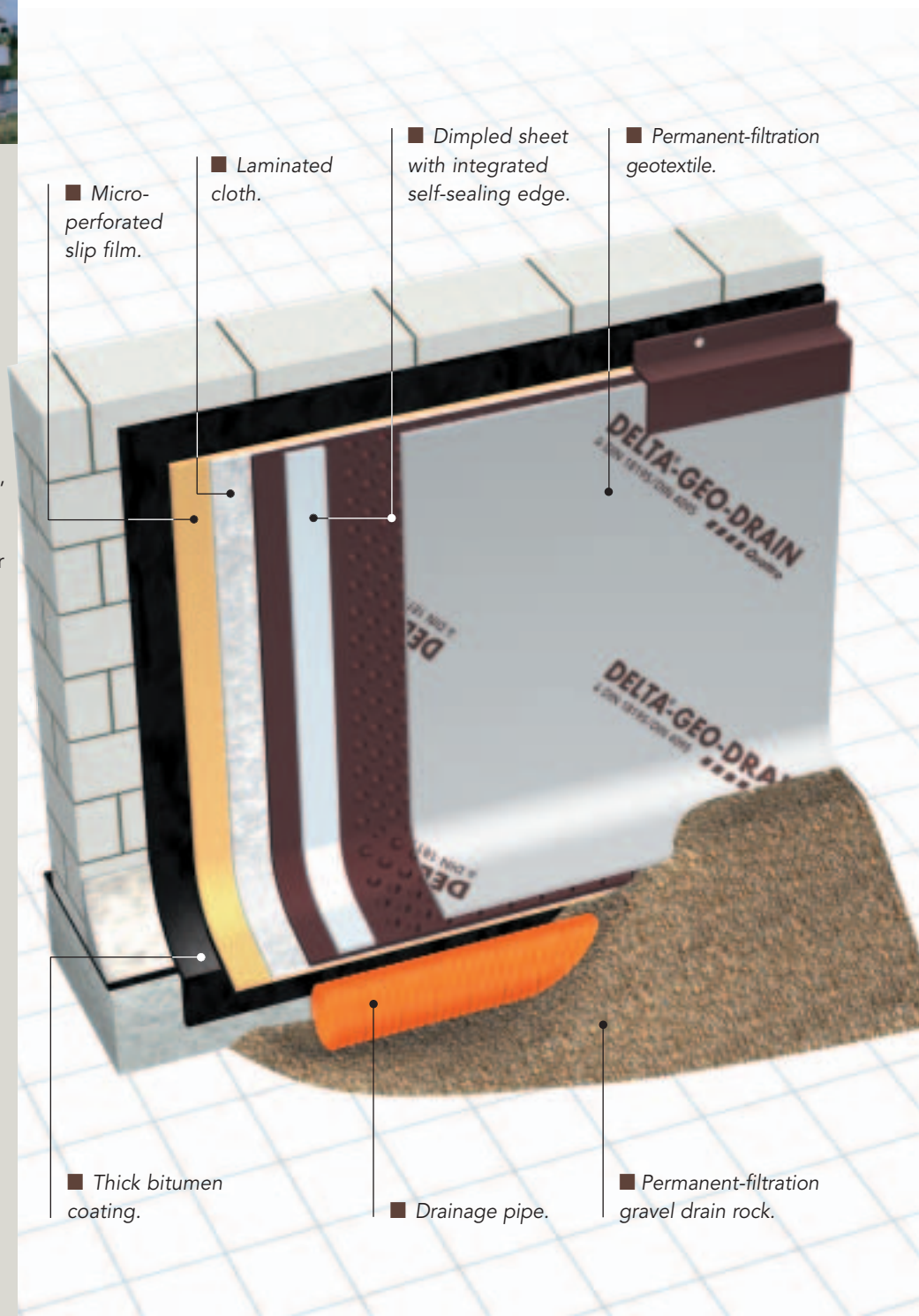
Why not use the advantages of the comprehensive range of DELTA® accessories: DELTA®-GEO-DRAIN CLIP, DELTA®-NOPPENBAHNEN-PROFIL, DELTA®-HAFTNAGEL and DELTA®-MS DÜBEL.

DELTA® quality branded products made by Dörken.

**For draining off water before it reaches the
waterproof coating:**

DELTA®-GEO-DRAIN

High compressive strength. Am



■ *Micro-perforated slip film.*

■ *Laminated cloth.*

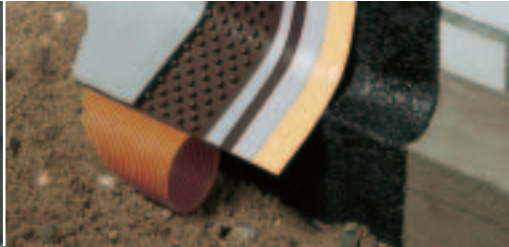
■ *Dimpled sheet with integrated self-sealing edge.*

■ *Permanent-filtration geotextile.*

■ *Thick bitumen coating.*

■ *Drainage pipe.*

■ *Permanent-filtration gravel drain rock.*



DELTA®-NOPPENBAHNEN-PROFIL with DELTA®-GEO-DRAIN CLIP. Sheets end on top of the drain pipe.

Integrated self-adhesive border for precise installation.

N Quattro

ple safety margin. Easy application.

DELTA®-GEO-DRAIN Quattro ...

- ... being a four-ply material, is a compact unit that can be applied swiftly straight off the roll without any need for special grade backfill.
- ... keeps water from accumulating between the thick coating and the slip film, effectively preventing the buildup of water pressure on the waterproof coating.
- ... features ample safety margins for sheet movements as well as improved slip performance.
- ... offers high resistance to compression thanks to its special dimple design.
- ... incorporates an additional damping membrane.
- ... dependably drains off any seepage, surface water, and wall runoff.
- ... features outstanding drainage capacity for handling unusually large quantities of water.
- ... complies with the requirements of DIN 18195, DIN 4095, and the "Guideline for Planning and Executing Thick Waterproof Coatings".
- ... effectively drains off methane and radon gas.
- ... is absolutely rot-proof thanks to its material additives.
- ... is patent-protected.
- ... can be installed at depths of up to 10 m.



DELTA®-GEO-DRAIN Quattro – a compact unit that can be swiftly installed in one go.



Why not profit from the DELTA®System?

Layer one: Micro-perforated slip film.
This sheet distributes permanent soil pressure. Its micro-perforation allows any water penetrating between the waterproofing and the slip film to escape into the laminated drainage layer.

Layer two: Laminated cloth.
This cloth absorbs impacts and serves as a backup drainage layer. Even water coming in through an imperfectly mounted edge-

sealing strip will be safely drained off.

Layer three: Dimpled sheet with self-adhesive border.
The dimples that face towards the soil create a maximum-capacity drainage layer that covers the entire surface.

Layer four: Permanent-filtration geotextile.
Fused to the dimpled sheet, this filter cloth reliably keeps the dimple structure from clogging up.

Needless to say, we have a range of perfect accessories, of which you find additional information on the next page.

DELTA®-GEO-DRAIN Quattro

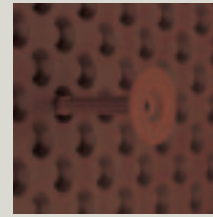
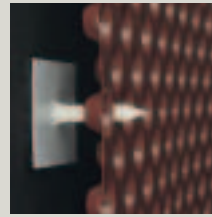
Technical Data Overview:

Dimpled sheet material	HDPE
Geotextile material	Polypropylene
Dimple height	approx. 9 mm
Compressive strength	approx. 400 kN/m ²
Air gap between dimples	approx. 7.7 l/m ²
Service temperature range	-30 °C to +80 °C
Roll size	12.5 m x 2 m
Geo-composite for application in drainage systems	D + F
Tensile strength	MD 6 kN/m/CMD 6 kN/m (EN 10319)
Dynamic perforation	40 mm (EN 918)
Characteristic opening size	150 µm (EN ISO 12956)
Water permeability	8 · 10 ⁻² m/s (EN ISO 11058)
Water flow capacity in the plane	3.1 · 10 ³ m ² /s (EN ISO 12958) at 20 kN/m ²
Durability	To be covered within two weeks after installation. Will endure for 25 years in natural soil having a pH value between 4 and 9 at a soil temperature of 25 °C max.

DELTA®-Accessories for DELTA®-GEO DRAIN Quattro.

Dörken makes your life easier – systematically.

You are sure to appreciate these handy DELTA®-Accessories:



DELTA®-NOPPEN-BAHNEN-PROFIL
Edge sealing strip.

DELTA®-HAFTNAGEL
Self-adhesive pin aids installation.

DELTA®-MS DÜBEL
Plastic wall plug for sheet attachment.

DELTA®-GEO-DRAIN CLIP
Installation clip for swift and easy fastening.

DELTA®

DELTA® System ...

... for owners:

" ... What I get is a mature problem solution provided at a fair price by the top specialist in quality branded products!"

... for workers:

" ... What I get is a complete system made by a single manufacturer that enables me to do anything to the owner's entire satisfaction. There is no safer way!"

... for planners:

" ... I can be certain that both innovative and standard products will be used in implementing my roof and cellar plans in a systematic and forward-looking way."



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A company of the Dörken Group.

■ Standard requests for tender and detailed installation instructions for all DELTA® products may be obtained from www.doerken.de as PDF files for you to print out and save.