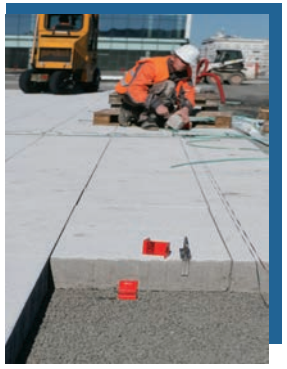
**Large sizes without protection are at risk of displacement and distortion**

# Verschi 485

The Verschi 485 is a corner construction for securing layouts in linear-pattern tiling installations and is laid in a row, with each size (minimum size 16x25) having to be secured. An abutment forms a complete row.



This abutment is repeated 5 to 7 times in the area at risk. The abutments therefore provide secure protection from being displaced. The Verschi 485 is driven in with a club hammer and lies on the element flush with the protruding vertical surface. The horizontal part lies on the bedding, while the component pointing downwards penetrates the base course when you drive through the bedding.

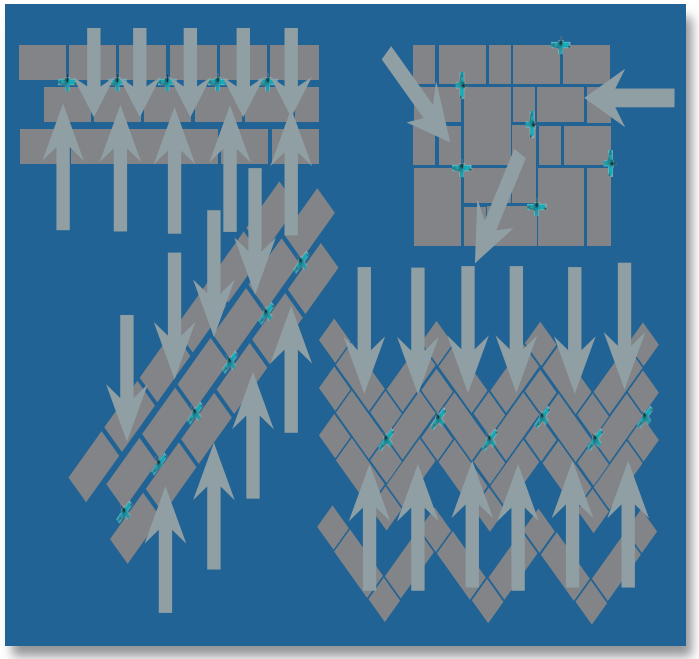

The Verschi 485 is therefore firmly established in the superstructure. The following stone element gives the Verschi 485 tracking force and is fixed in a stable position. The end position is completed by the compaction operation.

# Verschi vario +

**Multi-functional application**

**in the road construction subject to traffic load**

Possible installation examples



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# Verschi 485 & Verschi vario +

## Anti-slip protection for dynamic load


Anti-slip protection against movement for paving stones/large-sized slabs made of natural stone or concrete in areas of heavy traffic for use with

## bound and unbound base layers

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## Why use anti-slip protection?

The traffic loads in inner city traffic areas, such as pedestrian zones, town squares and other prestigious design areas, are increasing all the time. Often large paving stones and flags are used artistically as surfacing materials for these areas. Heavy goods vehicles drive over the areas addressed in this application area. Loads arise as a result of driving around bends, braking and acceleration.

Strong thrust, shearing and torsion forces must be absorbed and removed by these movement profiles without causing any damage. The anti-slip protection has been developed for these application areas. Application areas are both bound and unbound construction methods. The Verschi vario + has been developed from the prototype models:

DPMA 20 2012 000 673.8 and DPMA 20 2006 018 073.7

Prototype products were initially only able to absorb shearing forces for linear installations. This anti-slip protection offers a wide range of application options thanks to the combination of different functional properties of both products and additional modules. The newly developed product VERSCHI vario + offers resistance against dynamic traffic loads up to 10 t axle load (buses, lorries and heavy utility vehicles). This has been tested at the Technical University of Dresden.

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## Planers have to plan based on 'state-of-the-art technology' and companies have to implement projects based on 'state-of-the-art technology'.

In its policy document, Germany's road and research association pointed to the significance of preventing displacements and distortions, information sheet MFG/R2 (January 2014) 'state-of-the-art technology'.

### Information about planning and implementation

• According to SLG's the paving stone brochure 2014 (Germany's trade association for road, agriculture and gardening), the displacements are to be interpreted as a visual defect, if a joint's central axis is offset by more than 5 mm. These situations already arise in the first months following approval for traffic (warranty period).

• The construction company must take up these displaced areas and re-lay them free from irregularities. The problem with the situation is that it is likely to reoccur after a relatively short period of time – ongoing order!

• Such operations cost TIME, IRRITATION, MONEY and also mean a loss of image for the company carrying out the work.

• Concern should certainly be raised if anti-slip protection has not be taken into account for the areas at risk in the planning phase. You can find a prepared list of concerns on the website www.vikingrock-boehnke.de (independent expert – large sizes).

• The corresponding areas are reliably protected against problematic shifts when you use anti-slip protection. It is therefore possible to prevent displacement, distortion or compression and expansion of the bracing.

• Critical and at-risk areas according to the German Directive for the Standardisation of Traffic Area Surfaces: 12 bends, gradients >5%, stopping areas, turning points or track-moving areas. Anti-slip protection must be used consistently here. Only these areas are protected.

• Cross joint bracings subject to traffic load are particularly at risk. These bracings should be avoided according to DIN 18318. Should these bracings be used, however, for various reasons, anti-slip protection should be applied according to the information leaflet of the Road and Transportation Research Association (FGSV).

#### Help

The engineers at NUPFAHL GmbH are happy to assist with the planning and implementation of projects using natural stone in large sizes, taking account of the axle loads and the expected axle transition (calculation of minimum thickness).

#### Anchor positions

We pass on our experience of anchor positioning to you in this implementation plan. Over the past 10 years around 500 building projects have been protected using the anti-slip protection provided by our company. We would be delighted to receive your tiling installation plan.

#### Technical information

The newly developed VERSCHI vario+ has a universal protective effect thanks to its variety of applications. This anchor is given a variety of additional modules depending on the protective effect: e.g. possible movement profiles.

#### Technical documents

Please request further documents about:

- the thickness calculation
- the current policy
- text for invitations to tender, installation videos
- technical outline/ tiling installation
- information: superstructure installation examples using Verschi products.