

Translation: Trutek Fasteners Polska Sp. z o.o.



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NATIONAL TECHNICAL ASSESSMENT ITB-KOT-2025/2994 edition 1

National Technical Assessment was issued in accordance with the Regulation of the Minister of Infrastructure and Construction of 17 November 2016 on national technical assessments (Journal of Laws of 2016, item 1968) by the Building Research Institute in Warsaw, at the request of:

Trutek Fasteners Polska Sp. z o.o.
ul. Wojska Polskiego 3, 39-300 Mielec/Poland

The National Technical Assessment ITB-KOT-2025/2994 edition 1 is a positive assessment of the performance of the following construction products for their intended use::

**Trutek TIF dynamically embedded fasteners
for attaching thermal insulation**

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1. TECHNICAL DESCRIPTION OF THE PRODUCT

The subject of this National Technical Assessment are Trutek TIF dynamically embedded fasteners for fixing thermal insulation, manufactured by Trutek Fasteners Polska Sp. z o.o., ul. Wojska Polskiego 3, 39-300 Mielec/Poland, in production plants in Poland and China.

The National Technical Assessment covers product types specified by the manufacturer and resulting from the performance characteristics given in point 3 and the combination of materials used.

The National Technical Assessment covers the Trutek TIF60 and Trutek TIF90 anchors, consisting of a plastic sleeve with a plate (according to Fig. A1 and A2) and a steel pin (nail) (according to Fig. A3), dynamically mounted.

The Trutek TIF60 and Trutek TIF90 anchors sleeves are made of high-density polyethylene (HDPE), a virgin material, white (natural) in the case of the Trutek TIF60 anchor and black in the case of the Trutek TIF90 anchor, characterized by a differential scanning calorimetry (DSC) curve consistent with the pattern established in the National Technical Assessment procedure.

The pins (nails) of the Trutek TIF60 and Trutek TIF90 anchors are made of hardened carbon steel, grade 65A according to the GB/T 4354-2008 standard, with a tensile strength $R_m \geq 910$ MPa and a core hardness of $56 \div 59$ HRC according to the PN-EN ISO 6508-1:2024 standard, and coated with

a non-electrolytic zinc flake coating with a thickness of not less than $5 \mu\text{m}$, according to the PN-EN ISO 10683:2018 standard.

The shape and dimensions of the anchors covered by this National Technical Assessment are given in Annex A. The dimensional tolerances correspond to the tolerance class m according to the standard PN-EN 22768-1:1999.

2. INTENDED USE OF THE PRODUCT

Trutek TIF dynamically embedded fasteners are designed for mechanical fastening of thermal insulation made of expanded polystyrene (EPS) or mineral wool (MW) boards to substrates made of:

- normal concrete, reinforced or unreinforced, class C12/15 ÷ C50/60 according to the standard PN-EN 206+A2:2021,
- hollow core slabs made of normal concrete, class C12/15 ÷ C50/60 according to the PN-EN 206+A2:2021 standard, with a wall thickness of not less than 30 mm,
- solid ceramic bricks, according to the PN-EN 771-1+A1:2015 standard, with a compressive strength of not less than 20 N/mm^2 (class not lower than 20) and bulk density of not less than 2200 kg/m^3 ,
- solid silicate bricks, according to the PN-EN 771-2+A1:2015 standard, with a compressive strength of not less than 20 N/mm^2 (class not lower than 20) and bulk density of not less than 2200 kg/m^3 ,

- silicate blocks with holes (hollow), according to the PN-EN 771-2+A1:2015 standard, with a wall thickness of not less than 40 mm, compressive strength of not less than 12 N/mm² (class not lower than 12) and bulk density of not less than 1600 kg/m³,
- concrete blocks, according to the PN-EN 771-3+A1:2015 standard, with a compressive strength of not less than 15 N/mm² (class not lower than 15),
- structural timber according to the PN-EN 4081-1+A1:2019 standard, class C24 according to the PN-EN 338:2016 standard,
- OSB 3 boards according to the PN-EN 300:2007 standard, with a thickness of 18 mm and a density of not less than 550 kg/m³,
- wood wool boards according to EN 13168+A1:2015, 25 mm thick and with a density of not less than 600 kg/m³,
- steel sheet with a thickness of 1,25 ÷ 2,00 mm, made of S280GD steel grade according to the standard PN-EN 10346:2015,
- steel sheet with a thickness of 2,00 ÷ 4,00 mm, made of S235 steel grade according to the standard PN-EN 100251:2007,
- autoclaved aerated concrete (AAC), with a gross dry density of at least 650 kg/m³ (density class no lower than 650) and an average compressive strength of at least 6 N/mm² (compressive strength class no lower than 6) according to the PN-EN 771-4+A1:2015 standard,
- fibre-cement boards according to the PN-EN 12467+A2:2018 standard, 12.5 mm thick.

Due to the corrosive nature of the environment, Trutek TIF anchor pins made of hardened, galvanized carbon steel should be used in accordance with the PN-EN ISO 12944-2:2018 and PN-EN ISO 9223:2012 standards.

The installation and arrangement parameters of the anchors covered by this National Technical Assessment are given in Annex B.

The characteristic resistance of Trutek TIF anchors for pull-out and shear are given in Annex B.

Trutek TIF anchors, the characteristic resistances of the fastenings, given in Annex B, should be divided by the partial safety factors γ_m , taking the following values:

- for tension loads $\gamma_m = 2,00$,
- for shear loads $\gamma_m = 1,25$.

Trutek TIF fasteners are installed in the substrate using piston-type fasteners recommended by the manufacturer, in which the movement of the piston is caused by the firing of a gas charge.

Trutek TIF dynamically embedded anchors should be used in accordance with the technical design developed for a specific facility, taking into account

- Polish technical and construction standards and regulations, in particular the Regulation of the Minister of Infrastructure of 12 April 2002 on the technical conditions to be met by buildings and their location (Journal of Laws of 2022, item 1225, as amended),
- provisions of this National Technical Assessment,
- instructions regarding the conditions for performing fastenings using the above-mentioned anchors, developed by the manufacturer and delivered to recipients.

3. PERFORMANCE PROPERTIES OF THE PRODUCT AND METHODS USED FOR THEIR EVALUATION

3.1. Product performance properties

3.1.1. Characteristic resistances of fastener attachments. The characteristic resistances of fastener attachments for pull-out from the substrate and for shear are given in Annex B.

3.1.2. Strength properties of the sleeve plate. The stiffness of the sleeve plate of Trutek TIF60 anchors is not less than 0,3 kN/mm, and the load that breaks the plate is not less than 1,7 kN. The stiffness of the sleeve plate of Trutek TIF90 anchors is not less than 0,1 kN/mm, and the load that breaks the plate is not less than 1,7 kN.

3.1.3. Durability of fasteners. A zinc coating of the pins (nails), with a thickness of no less than 5 µm, ensures the durability of the fasteners within the range specified in point 2.

3.2. Methods used to assess performance

3.2.1. Characteristic resistances of anchor fastenings. The characteristic resistances of anchor fastenings are tested according to EAD 330965-01-0601.

3.2.2. Strength properties of the sleeve plate. The strength properties of the sleeve plate are tested according to EOTA Technical Report TR 026.

3.2.3. Fastener durability. Zinc coating thickness testing is performed according to PN-EN ISO 2178:2016 or PN-EN ISO 3497:2004.

4. PACKAGING, TRANSPORT AND STORAGE AS WELL AS PRODUCT MARKING METHOD

Trutek TIF dynamically inserted anchors should be delivered in manufacturer's packaging and stored and transported in a way that ensures the consistency of their technical properties.

The method of marking products with a construction mark should be consistent with the Regulation of the Minister of Infrastructure and Construction of 17 November 2016 on the method of declaring the performance of construction products and the method of marking them with a construction mark (Journal of Laws of 2023, item 873).

The product marking with the construction mark should be accompanied by the following information:

- the last two digits of the year in which the construction mark was first affixed to the construction product,
- the name and address of the manufacturer's registered office or an identification mark allowing for the unambiguous identification of the name and address of the manufacturer's registered office,
- the name and type designation of the construction product,
- the number and year of issue of the national technical assessment in accordance with which the performance was declared (ITB-KOT-2025/2994, edition 1),

- the number of the national declaration of performance,
- the level or class of the declared performance,
- the name of the certification body that participated in the assessment and verification of the constancy of performance of the construction product,
- the manufacturer's website address, if the national declaration of performance is available there.

The national declaration of performance should be accompanied by or made available, where appropriate, a safety data sheet and/or information on hazardous substances contained in the construction product, as referred to in Article 31 or 33 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency.

Furthermore, the labelling of a construction product that constitutes a hazardous mixture under the REACH Regulation should be in accordance with the requirements of Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (CLP), amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

5. EVALUATION AND VERIFICATION OF CONSTANCY OF PERFORMANCE

5.1. National system for assessment and verification of constancy of performance

Pursuant to the Regulation of the Minister of Infrastructure and Construction of 17 November 2016 on the method of declaring the performance of construction products and the method of marking them with a construction mark (Journal of Laws of 2023, item 873), the 2+ system of assessment and verification of constancy of performance applies.

5.2. Type testing

The performance characteristics assessed in point 3 constitute a type test of the product as long as there are no changes to the raw materials, ingredients, production line or production plant.

5.3. Factory production control

The manufacturer should have a factory production control system implemented at the production facility. All elements of this system, requirements, and provisions adopted by the manufacturer should be systematically documented in the form of policies and procedures, including records of conducted tests. Factory production control should be adapted to the production technology and ensure that the declared performance characteristics of the product are maintained during serial production.

Factory production control includes the specification and testing of raw materials and components, inspection and testing during the manufacturing process, and control tests (as per section 5.4) conducted by the manufacturer in accordance with the established test plan and the principles and procedures specified in the factory production control documentation.

Production control results should be systematically recorded. The records should confirm that products meet the criteria for assessing and verifying constancy of performance. Individual products or product batches and their associated production details must be fully identifiable and traceable.

5.4. Control tests

Control tests should be carried out in accordance with the established test plan and according to the principles and procedures specified in the factory production control documentation, but not less frequently than indicated in Table 1.

Table 1

Control tests	Frequency
Shape and dimensions	For each batch of products ¹⁾
Thickness of zinc coating	For each batch of products ¹⁾
Characteristic resistance of anchor	Once every 5 years
¹⁾ The batch size of products should be specified in the factory production control documentation.	

6. INSTRUCTION

6.1. The National Technical Assessment ITB-KOT-2025/2994 issue 1 is a positive assessment of the performance of those essential characteristics of Trutek TIF dynamically mounted fasteners which, in accordance with the intended use resulting from the provisions of the Assessment, have an impact on the fulfillment of the basic requirements by the construction works in which the product will be used.

6.2. The National Technical Assessment ITB-KOT-2025/2994 issue 1 is not a document authorizing the marking of a construction product with a construction mark.

Pursuant to the Act of 16 April 2004 on construction products (Journal of Laws of 2021, item 1213), products covered by this National Technical Assessment may be placed on the market or made available on the domestic market if the manufacturer has assessed and verified the constancy of performance, prepared a national declaration of performance in accordance with the National Technical Assessment ITB-KOT-2025/2994, edition 1, and marked the products with a construction mark, in accordance with applicable regulations.

6.3. National Technical Assessment ITB-KOT-2025/2994, edition 1, does not infringe upon any rights arising from the provisions on the protection of industrial property, in particular the Act of 30 June 2000 - Industrial Property Law (Journal of Laws of 2023, item 1170). Ensuring these rights is the responsibility of the users of this National Technical Assessment ITB.

6.4. By issuing the National Technical Assessment, ITB does not take responsibility for any possible infringement of exclusive and acquired rights.

6.5. The National Technical Assessment does not release the manufacturer of products from responsibility for their proper quality, or construction contractors from responsibility for their proper use.

6.6. The validity of the National Technical Assessment may be extended for subsequent periods, not exceeding 5 years.

7. LIST OF DOCUMENTS USED IN THE PROCEEDINGS

7.1. Reports, test reports, assessments, classifications

1. LZK00-02844/25/R67NZK. Test report. Department of Building Structures, Geotechnics and Concrete, ITB, Katowice, 2025.
2. LZK00-02844/22/R43NZK. Test report. Department of Building Structures, Geotechnics and Concrete, ITB, Katowice, 2022.
3. LZK00-02844/21/R37NZK. Test report. Department of Building Structures, Geotechnics and Concrete, ITB, Katowice, 2021.

7.2. Standards and related documents

PN-EN 206+A2:2021	<i>Concrete. Requirements, performance, production, and compliance</i>
PN-EN 300:2007	<i>Strand Boards (OSB). Definitions, Classification, and Technical Requirements</i>
PN-EN 338:2016	<i>Structural timber. Strength classes</i>
PN-EN 771-1+A1:2015	<i>Requirements for masonry units. Part 1: Clay masonry units</i>
PN-EN 771-2+A1:2015	<i>Requirements for masonry units. Part 2: Calcium silicate masonry units</i>
PN-EN 771-3+A1:2015	<i>Requirements for masonry units. Part 3: Aggregate concrete masonry units (with normal and lightweight aggregates)</i>
PN-EN 771-4+A1:2015	<i>Requirements for masonry units. Part 4: Autoclaved aerated concrete masonry units</i>
PN-EN ISO 2178:2016	<i>Non-magnetic coatings on magnetic substrates. Coating thickness measurement. Magnetic steel method</i>
PN-EN ISO 3497:2004	<i>Metal coatings. Coating thickness measurements. X-ray spectrometry methods</i>
PN-EN 4081-1+A1:2019	<i>Timber structures. Strength-graded structural timber with rectangular cross-section. Part 1: General requirements</i>
PN-EN ISO 6508-1:2024	<i>Metals. Rockwell hardness test. Part 1: Test method</i>
PN-EN ISO 9223:2012	<i>Corrosion of metals and alloys. Corrosiveness of atmospheres. Classification, definition, and evaluation</i>
PN-EN 10025-1:2007	<i>Hot-rolled products of structural steels. Part 1: General technical delivery conditions</i>
PN-EN 10346:2015	<i>Continuously hot-dip coated steel flat products for cold forming. Technical delivery conditions</i>
PN-EN 10683:2018	<i>Fasteners. Non-electrolytic zinc flake coatings</i>
PN-EN 12467+A2:2018	<i>Fiber-cement flat sheets. Product properties and test methods</i>
PN-EN ISO 12944-2:2018	<i>Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Part 2: Classification of environments</i>
PN-EN 13168+A1:2015	<i>Thermal insulation products for construction. Factory-made wood wool (WW) products. Specifications</i>
PN-EN 22768-1:1999	<i>General tolerances. Tolerances for linear and angular dimensions without individual tolerance markings</i>
EAD 330965-01-0601	<i>Powder-actuated fastener for the fixing of ETICS in concrete</i>
EOTA TR 026	<i>Plate stiffness of plastic anchors for ETICS</i>

ATTACHMENTS

Appendix A. Shape and dimensions10
Appendix B. Assembly and layout parameters and characteristic resistance12

Appendix A.

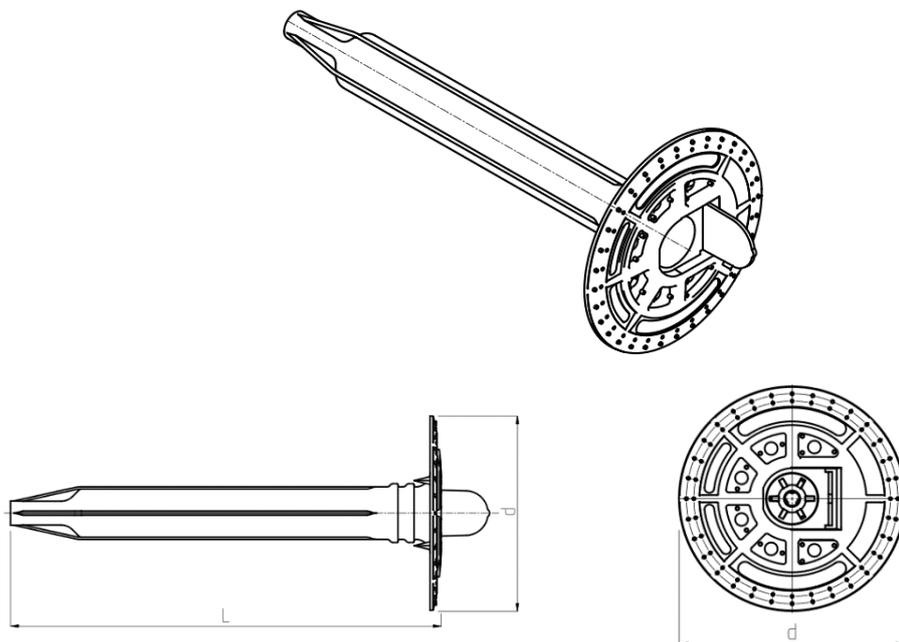


Fig. A1. Trutek TIF60 plastic sleeve

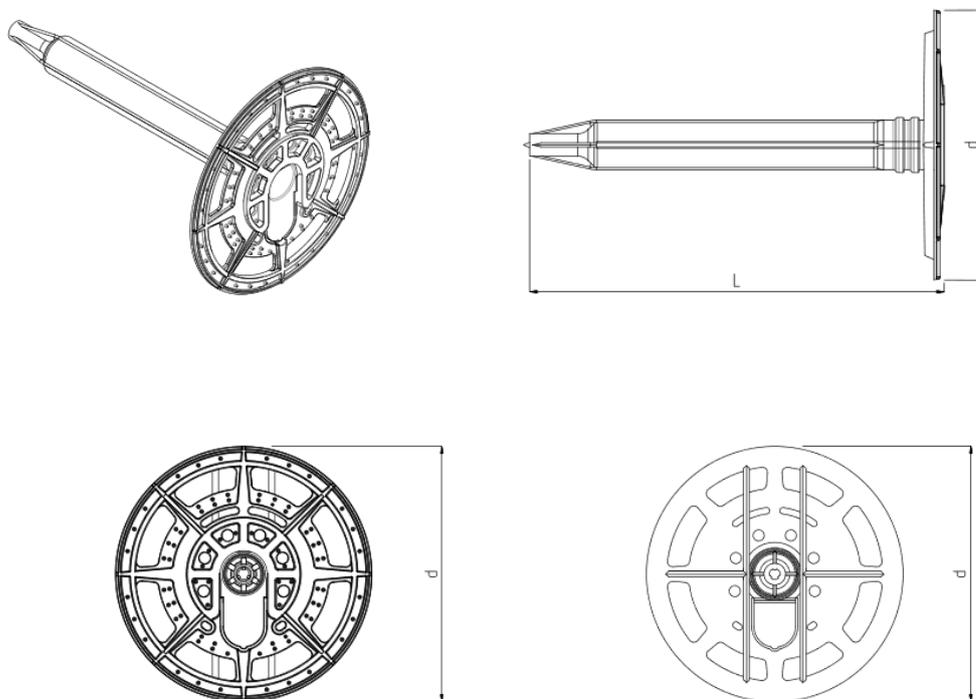


Fig. A2. Trutek TIF90 plastic sleeve

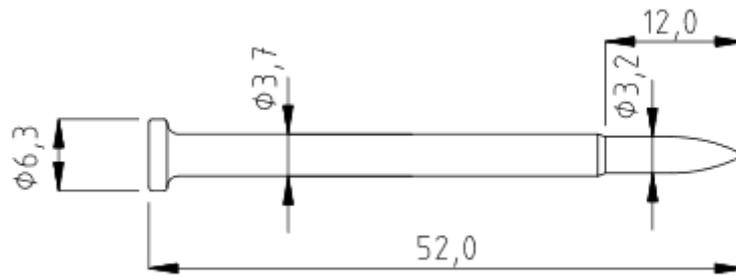


Fig. A3. Dynamically inserted pin (nail)

Table A1. Dimensions of Trutek TIF60 and Trutek TIF90 anchors

Anchor	Sleeve		Dynamically inserted pin (nail)	
	Diameter of the plate d, mm	Length L, mm	Shank diameter d, mm	Length L, mm
Trutek TIF60	60	40	3,2 / 3,7	52
		50		
		60		
		70		
		75		
		95		
		115		
		135		
		145		
		155		
		175		
195				
Trutek TIF90	90	80	3,2 / 3,7	52
		100		
		120		
		140		
		150		
		160		
		180		
		200		

Appendix B.

Table B1. Parameters for the installation and arrangement of anchors and the characteristic resistance of Trutek TIF60 and Trutek TIF90 anchors in concrete, masonry, wood and wood-based substrates

Pos.	Anchor	Type of substrate	h_{ef} ¹⁾ mm	h_{min} ²⁾ mm	s_{min} ³⁾ mm	c_{min} ⁴⁾ mm	N_{Rk} ⁵⁾ kN	V_{Rk} ⁶⁾ kN
1	2	3	4	5	6	7	8	9
1	Trutek TIF60 Trutek TIF90	Normal concrete, reinforced or unreinforced, class C12/15 according to PN-EN 206+A2:2021	25	100	200	100	0,50	
		Hollow core slab made of normal concrete, class C12/15 according to PN-EN 206+A2:2021, with a wall thickness of at least 30 mm						
2		Normal concrete, reinforced or unreinforced, class C16/20 ÷ C50/60 according to PN-EN 206+A2:2021	25	100	200	100	0,75	
		Hollow core slab made of normal concrete, class C16/20 ÷ C50/60 according to PN-EN 206+A2:2021, with a wall thickness of at least 30 mm						
3		Ceramic brick, solid, according to the PN-EN 771-1+A1:2015 standard, class not lower than 20 and bulk density not lower than 2,2 kg/dm ³	25	100	200	100	0,75	
4		Solid silicate brick, according to the PN-EN 771-2+A1:2015 standard, class not lower than 20 and bulk density not lower than 2,2 kg/dm ³	25	100	200	100	0,75	
5		Silicate hollow block with holes (hollow), according to PN-EN 771-2+A1:2015, with a wall thickness of no less than 40 mm, class no lower than 12, and bulk density no less than 1,6 kg/dm ³	25	100	200	100	0,75	
6		Concrete block, according to the PN-EN 771-3+A1:2015 standard, class not lower than 15	25	100	200	100	0,25	
7		Autoclaved aerated concrete (AAC), density class no lower than 650 and compressive strength class no lower than 6 according to the standard PN-EN 771-4+A1:2015	25	100	200	100	0,10	
8		Structural timber according to PN-EN 4081-1+A1:2019, class C24 according to PN-EN 338:2016	25	-	200	100	0,50	
9		OSB 3 board according to the standard PN-EN 300:2007, 18 mm thick and with a density of at least 0,55 kg/dm ³	18	-	200	100	0,15	
10	Wood wool board according to EN 13168+A1:2015, 25 mm thick and with a density of not less than 0,6 kg/dm ³	25	-	200	100	0,55		
11	Fiber-cement board according to PN-EN 12467+A2:2018 12,5 mm thick	12,5	-	200	100	0,15		

¹⁾ h_{ef} – effective anchorage depth
²⁾ h_{min} – minimum substrate thickness
³⁾ s_{min} – minimum spacing of anchors
⁴⁾ c_{min} – minimum distance of the anchor from the edge of the substrate
⁵⁾ N_{Rk} – characteristic tension resistance
⁶⁾ V_{Rk} – characteristic shear resistance

Table B2. Parameters for the assembly and arrangement of anchors and characteristic resistance of Trutek TIF60 and Trutek TIF90 anchors in metal substrates

Pos.	Anchor	Type of substrate	$s_{min}^{1)}$ mm	$c_{min}^{2)}$ mm	$N_{Rk}^{3)}$ kN	$V_{Rk}^{4)}$ kN
1	2	3	4	5	6	7
1	Trutek TIF60 Trutek TIF90	Steel sheet made of S280GD steel grade according to the standard PN-EN 10346:2015, thickness 1,25 ÷ 2,00 mm	200	100	0,75	
2		Steel sheet made of S235 steel grade according to the standard PN-EN 10025-1:2007, thickness 2,00 ÷ 4,00 mm	200	100	0,75	
¹⁾ s_{min} – minimum spacing of anchors ²⁾ c_{min} – minimum distance of the anchor from the edge of the substrate ³⁾ N_{Rk} – characteristic tension resistance ⁴⁾ V_{Rk} – characteristic shear resistance						