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European Technical Assessment

**ETA-21/1079
of 30/12/2021**

General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

TIF insulation fastener

Product family to which the construction product belongs

Powder-actuated fastener for the fixing of ETICS in concrete

Manufacturer

Trutek Fasteners Polska Sp. z o.o.
Al. Krakowska 38, Janki
05-090 Raszyn, Poland
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Manufacturing plant

Manufacturing plant No. 9

This European Technical Assessment contains

13 pages including 3 Annexes which form an integral part of this Assessment

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of

European Assessment Document EAD 330965-00-0601 "Powder-actuated fastener for the fixing of ETICS in concrete"

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Specific Part

1 Technical description of the product

TIF insulation fastener consist of a plastic sleeve and plate made of high-density polyethylene and a powder-actuated fastener (nail) made of coated tempered carbon steel, which is driven into the concrete using a powder-actuated fastening tool with a gas cartridge as propelling charge.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The performances given in Annex C are only valid if the fastener is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or Technical Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Performance of the product

3.1.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic tensions resistance	Annex C1
Edge distance and spacing	Annex C1
Plate stiffness	Annex C2
Displacement	Annex C2
Durability of the plastic part	no influence of high alkalinity

3.1.2 Energy economy and heat retention (BWR 6)

No performance assessed.

3.2 Methods used for the assessment

The assessment has been made in accordance with the EAD 330965-00-0601.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

According to Decision 97/463/EC of the European Commission the system 2+ of assessment and verification of constancy of performance applies (see Annex V to regulation (EU) No 305/2011).

5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

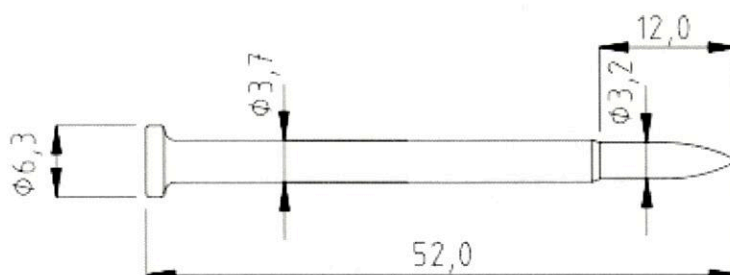
Issued in Warsaw on 30/12/2021 by Instytut Techniki Budowlanej

A handwritten signature in blue ink, appearing to read 'Anna Panek', is positioned above the printed name.

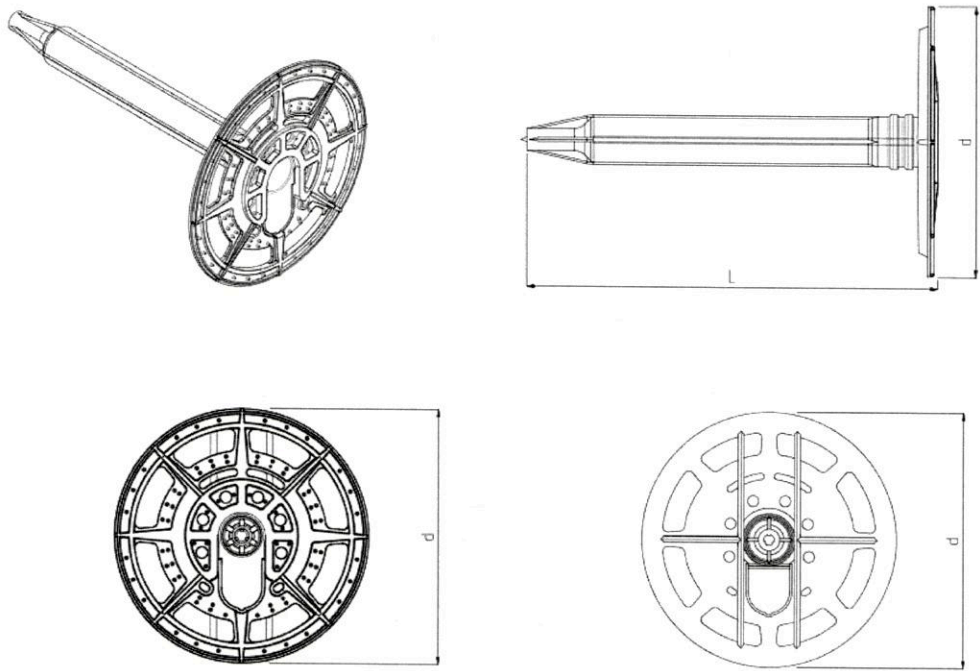
Anna Panek, MSc
Deputy Director of ITB

Table A1: Dimensions

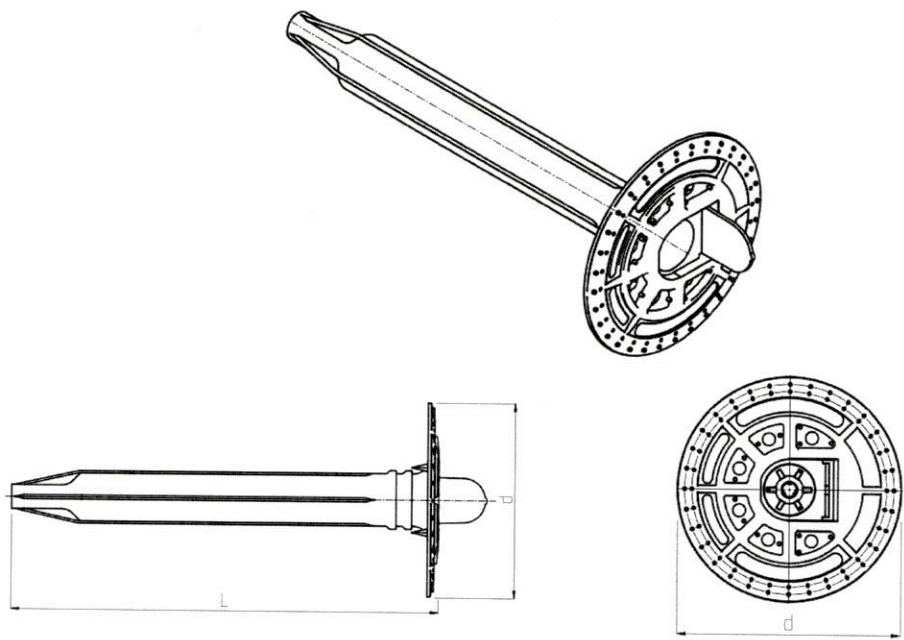
Dimensions		Fastener size	
		TIF60	TIF90
Sleeve			
Length	L [mm]	75	80
		95	100
		115	120
		135	140
		145	150
		155	160
		175	180
		195	200
Diameter of plate	d [mm]	60	90
Powder-actuated fastener (nail)			
Diameter	d [mm]	3.2 / 3.7	3.2 / 3.7
Length	L [mm]	52	52

TIF insulation fastener – powder-actuated fastener (nail)**TIF insulation fastener****Product description**
Dimensions**Annex A1**
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TIF90 – plastic sleeve with plate



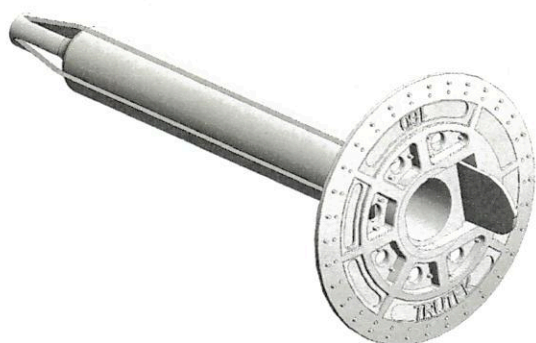
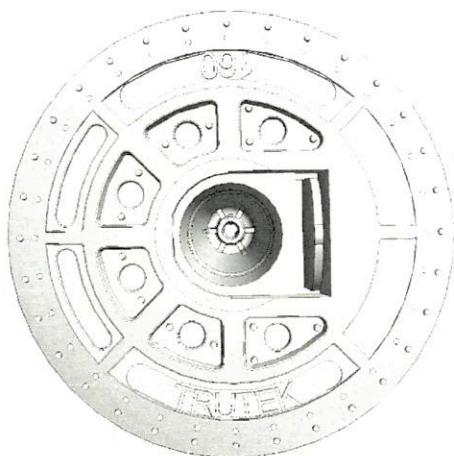
TIF60 – plastic sleeve with plate



TIF insulation fastener	Annex A1 of European Technical Assessment ETA-21/1079
Product description Dimensions	

Marking

TIF60



TIF90

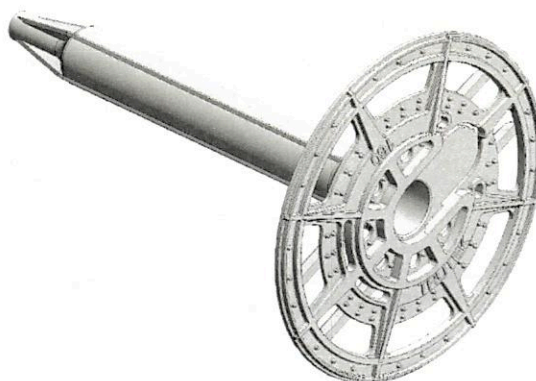
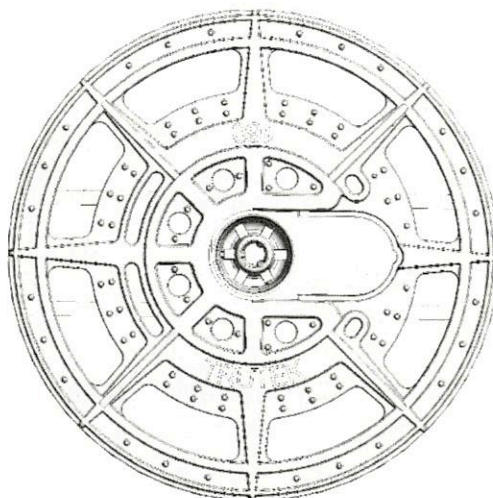


Table A2: Materials

Element	Material	Coating
Sleeve with plate	polyethylene HDPE colour: white	-
Nail	tempered carbon steel with core hardness of 56 - 59 HRC $f_{u,k} \geq 322 \text{ MPa}$ $f_{y,k} \geq 217 \text{ MPa}$	zinc plated $\geq 5 \mu\text{m}$ EN ISO 4042

TIF insulation fastener

Product description
Marking and materials

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Specification of intended use

Anchorage subject to:

- Multiple fixings of external thermal insulation composite system.
- The fastener may only be used for transmission of wind suction loads and shall not be used for the transmission of dead load of the external thermal insulation composite system (ETICS).

Base material:

- Reinforced or unreinforced normal weight concrete of strength classes C12/15 at minimum and C35/45 at maximum according to EN 206-1.
- Uncoated concrete of new construction.

Temperature range:

- -20°C to +60°C

Use conditions (environmental conditions):

- Structures subject to dry conditions.

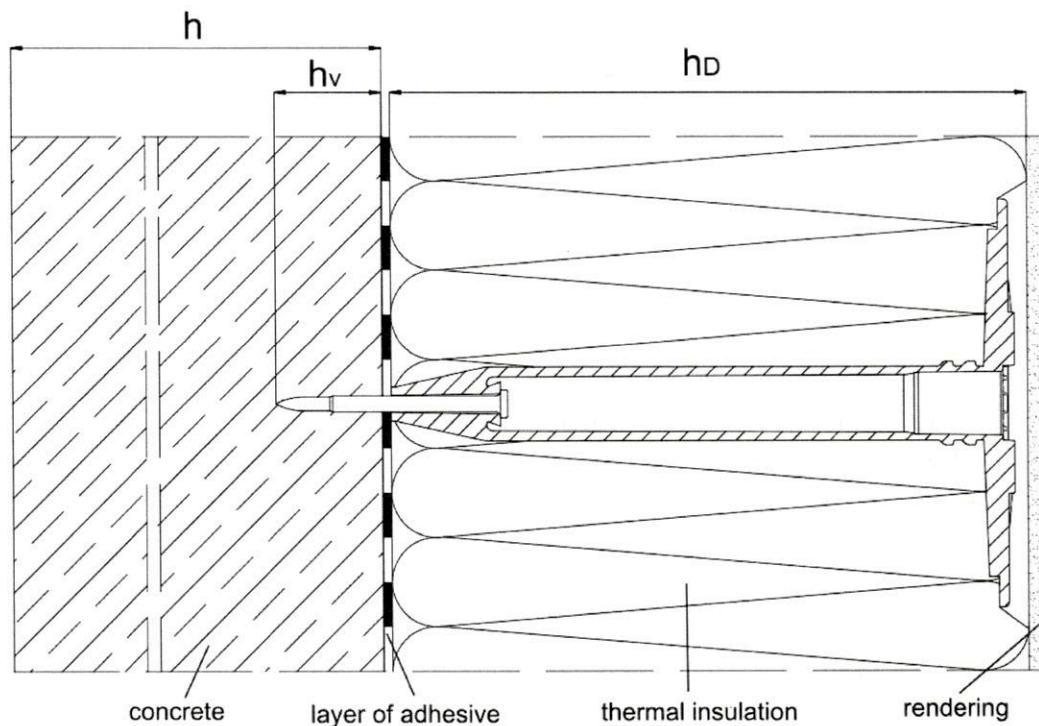
Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages.
- Design: $N_{Ed} \leq N_{Rd}$
with:
 N_{Ed} - design value of wind action
 N_{Rd} - design value of resistance of the fixing element,
either controlled by pullout of the fastener ($N_{Rd,p} = N_{Rk,p} / \gamma_M$) or
failure of the plastic part ($N_{Rd,PI} = N_{Rk,PI} / \gamma_{MPI}$)
 $N_{Rk,p}$ and $N_{Rk,PI}$ see Annex C1
 $N_{Rd} = \min (N_{Rd,p}; N_{Rd,PI})$
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the fixing elements is indicated on the design drawings.

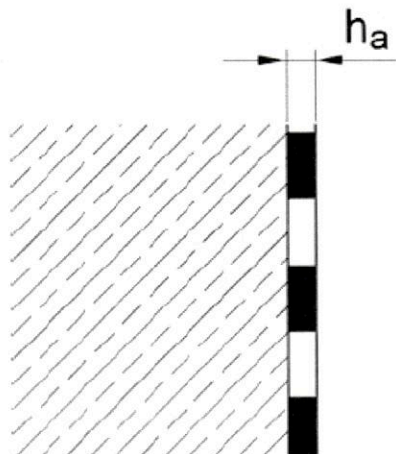
Installation of fasteners:

- The installations is only carried out according to the manufacturer's instructions, Annex B3.
- The installations is carried out by the TGT IS200 gas fastening tool with a TGC-165S gas cartridges.
- Fastener installation is carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- The minimum setting temperature of the fastener is +5°C.
- Exposure to UV due to solar radiation of the fastener not protected by rendering ≤ 6 weeks.

TIF insulation fastener	Annex B1 of European Technical Assessment ETA-21/1079
Intended use Specifications	



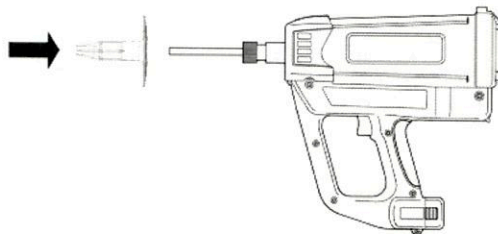
- h – thickness of member
 h_D – thickness of insulation material
 $h_v = h_{ef}$ – anchorage depth in concrete; $h_{ef} \geq 20 \text{ mm}$



- h_a – thickness of equalizing layer or adhesive; $h_a \leq 20 \text{ mm}$

TIF insulation fastener	Annex B2 of European Technical Assessment ETA-21/1079
Intended use Installation parameters – uncoated concrete	

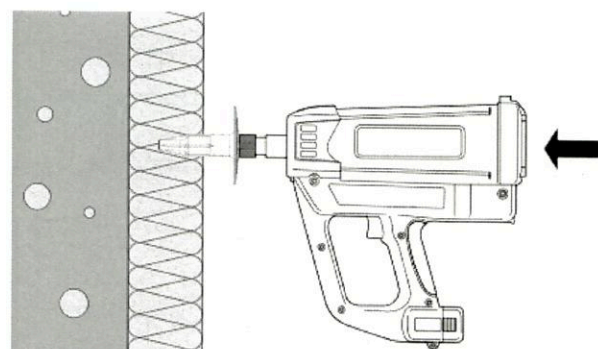
1)



Place the fastener on the guide of the fastening tool.

The fastening tool has to be properly prepared for operation, i.e. it has to be equipped with a charged battery and an appropriate gas cartridge.

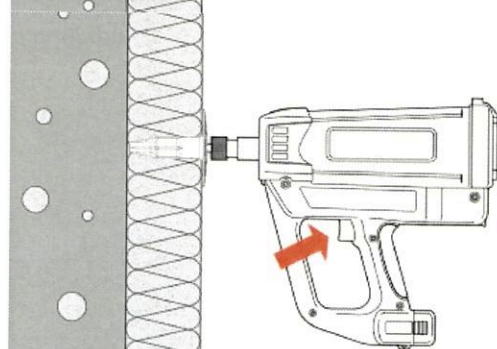
2)



Firmly press the fastening tool with the fastener placed on the guide, piercing the thermal insulation layer / board.

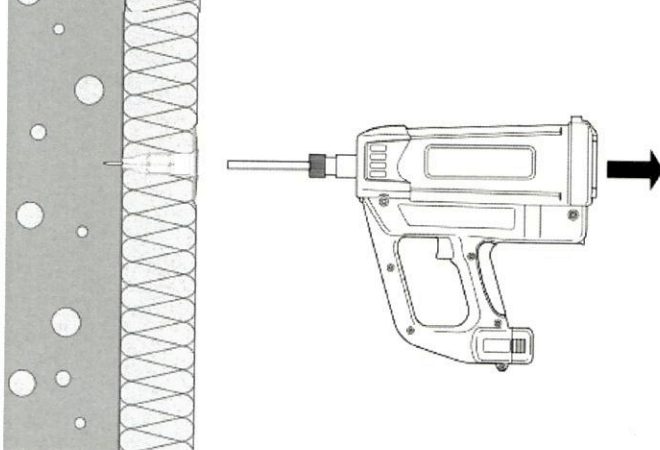
The fastener has to be inserted perpendicular to the substrate surface and fully sink into insulation material.

3)



Press the trigger when the fastening tool is fully pressed (to the stop).

4)



After fixing, withdraw the fastening tool and close the flap closing the inner space of the fastener.

The plate of properly fixed fastener should slightly sink into the insulation material.

TIF insulation fastener

Intended use
Installation instructions

Annex B3

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Fastening tool – TGT IS200



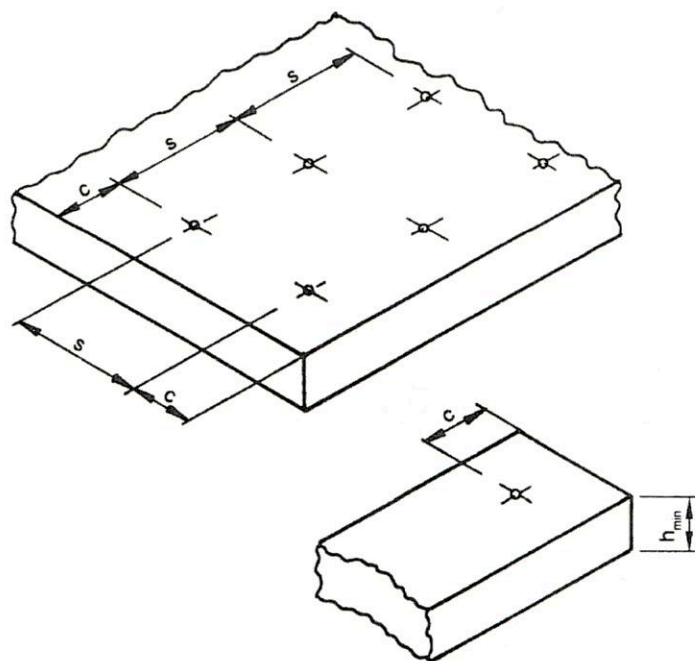
Gas cartridge – TGC-165S



TIF insulation fastener	Annex B4 of European Technical Assessment ETA-21/1079
Intended use Tools	

Table C1. Characteristic resistance, spacing and edge distance

TIF90, TIF60		
Characteristic resistance – fastener pull-out	$N_{Rk,p}$ [kN]	0.75
Partial safety factor – fastener pull-out ¹⁾	γ_M	2.0
Characteristic resistance – plastic plate	$N_{Rk,Pl}$ [kN]	0.80
Partial safety factor – plastic plate ¹⁾	γ_{MPI}	1.3
Minimum spacing	s_{min} [mm]	200
Minimum edge distance	c_{min} [mm]	100
Minimum thickness of concrete member	h_{min} [mm]	100
¹⁾ in the absence of other national regulations		

**TIF insulation fastener****Performances**

Characteristic resistance, spacing and edge distance

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Table C2. Displacement

TIF90, TIF60		
Tension load	N [kN]	0.25
Displacement	δ_0 [mm]	0.90

Table C3. Plate stiffness

Fastener type	Diameter of the plate [mm]	Load resistance of the plate, kN	Plate stiffness c, kN/mm
TIF90	90	1.7	0.1
TIF60	60		

TIF insulation fastener

Performances
Displacement, plate stiffness

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