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European Technical Assessment

**ETA-18/0728
of 28/09/2018**

General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

S-IPH 10/p and S-IPH 10/s

Product family to which the construction product belongs

Nailed-in plastic anchors for fixing of external thermal insulation composite systems with rendering in concrete and masonry

Manufacturer

pgb-Polska Sp. z o.o.
ul. Fryderyka Wilhelma Redena 3
PL 41-807 Zabrze
Poland

Manufacturing plant

pgb-Polska Sp. z o.o.
ul. Fryderyka Wilhelma Redena 3
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This European Technical Assessment contains

15 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 330196-01-0604 "Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering"

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Specific Part

1 Technical description of the product

The S-IPH 10/p nailed-in plastic anchor consists of plastic sleeve with a plate made of polypropylene (virgin material) and an accompanying nail as an expansion pin made of the glass fibre reinforced polyamide.

The S-IPH 10/s nailed-in plastic anchor consists of plastic sleeve with a plate made of polypropylene (virgin material) and an accompanying nail with threaded end as an expansion pin made of galvanized steel with head coated of glass fibre reinforced polyamide.

The S-IPH 10/p and S-IPH 10/s anchors may in addition be combined with the additional plates type IWP $\phi 90$ mm and $\phi 140$ mm, made of the glass fibre reinforced polyamide or polypropylene.

The drawings and the description of the products are given in Annex A.

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

The performances given in clause 3 are only valid if the anchor 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 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	Annex C1
Edge distances and spacing	Annex B2
Plate stiffness	Annex C2
Displacements	Annex C3

3.1.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance of an anchor	Annex C2

3.2 Methods used for the assessment

The assessment of the product has been made in accordance with the EAD 330196-01-0604 "Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering".

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

According to the Decision 97/463/EC of the European Commission of 27 June 1997 the system 2+ of assessment and verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) applies.

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.

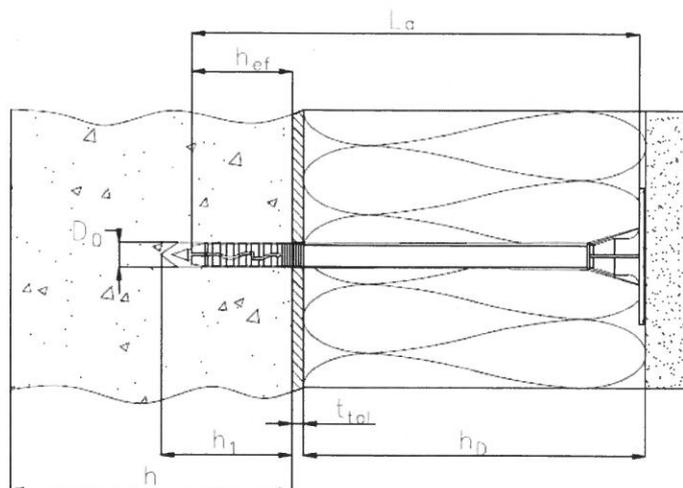
For the type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified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

Issued in Warsaw on 28/09/2018 by Instytut Techniki Budowlanej

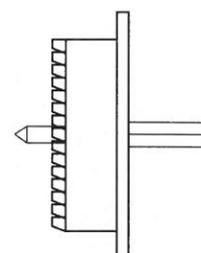
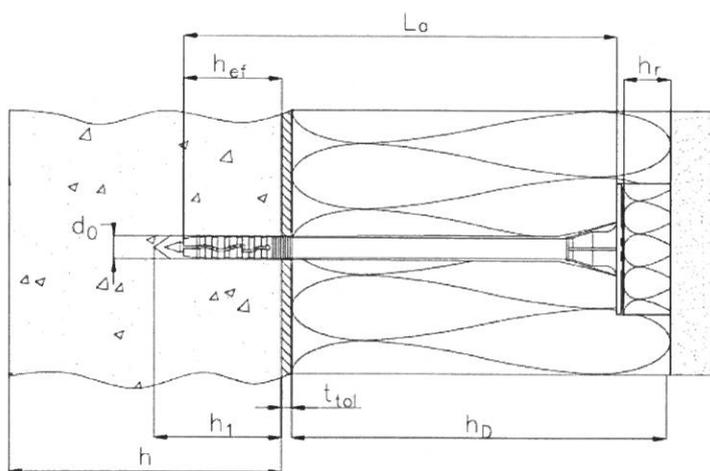


Anna Panek, MSc
Deputy Director of ITB

a)



b)



Special drill for installation

Intended Use

Fixing of external thermal insulation composite systems in concrete and masonry.

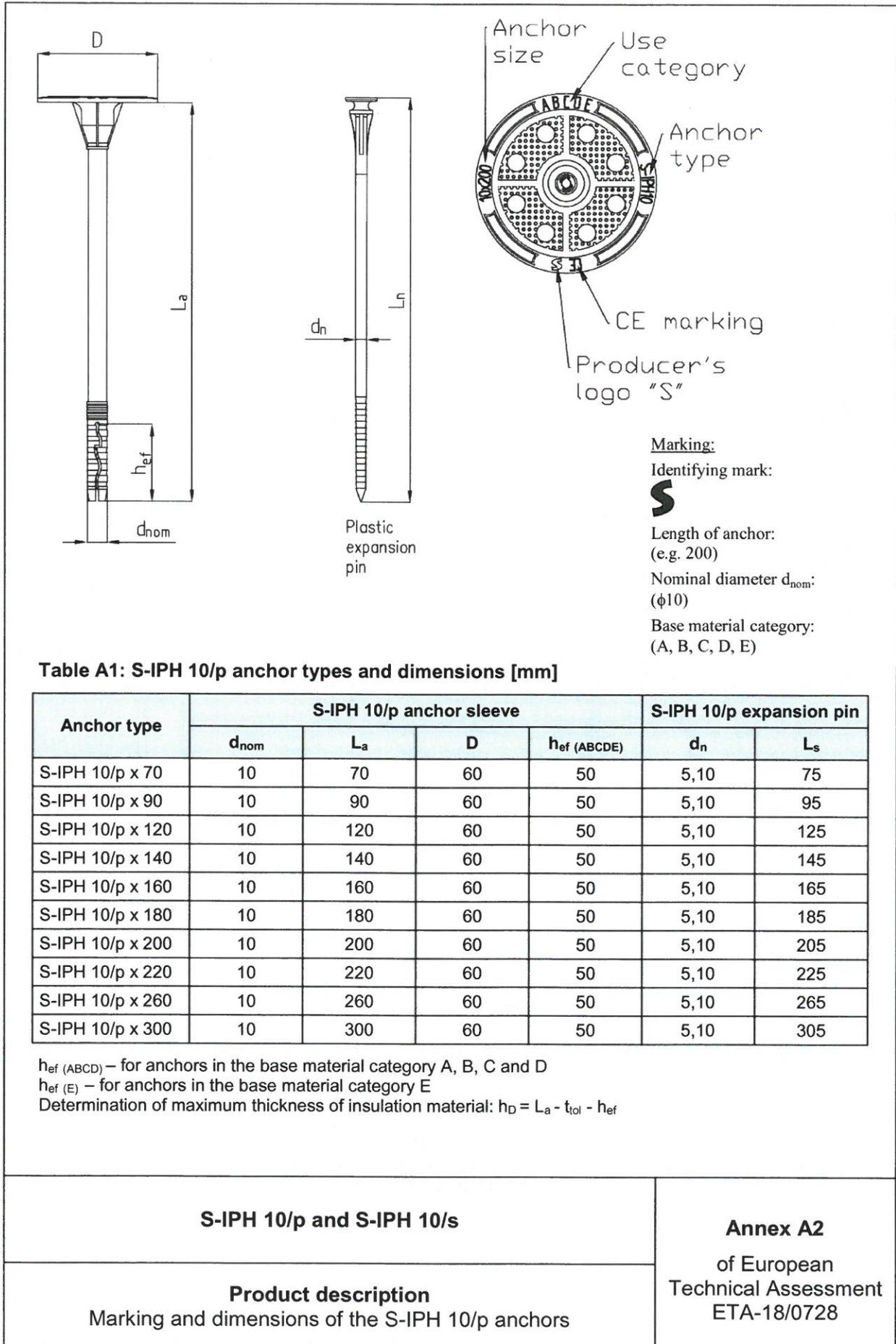
Legend

- d_0 = drill diameter
- h_{ef} = effective anchorage depth
- h_1 = depth of drill hole in base material
- h = thickness of base material
- h_D = thickness of insulation material
- t_{tol} = thickness of equalizing and/or non-load-bearing layer
- h_r = thickness of styrofoam disc

S-IPH 10/p and S-IPH 10/s

Product description
Installation conditions

Annex A1
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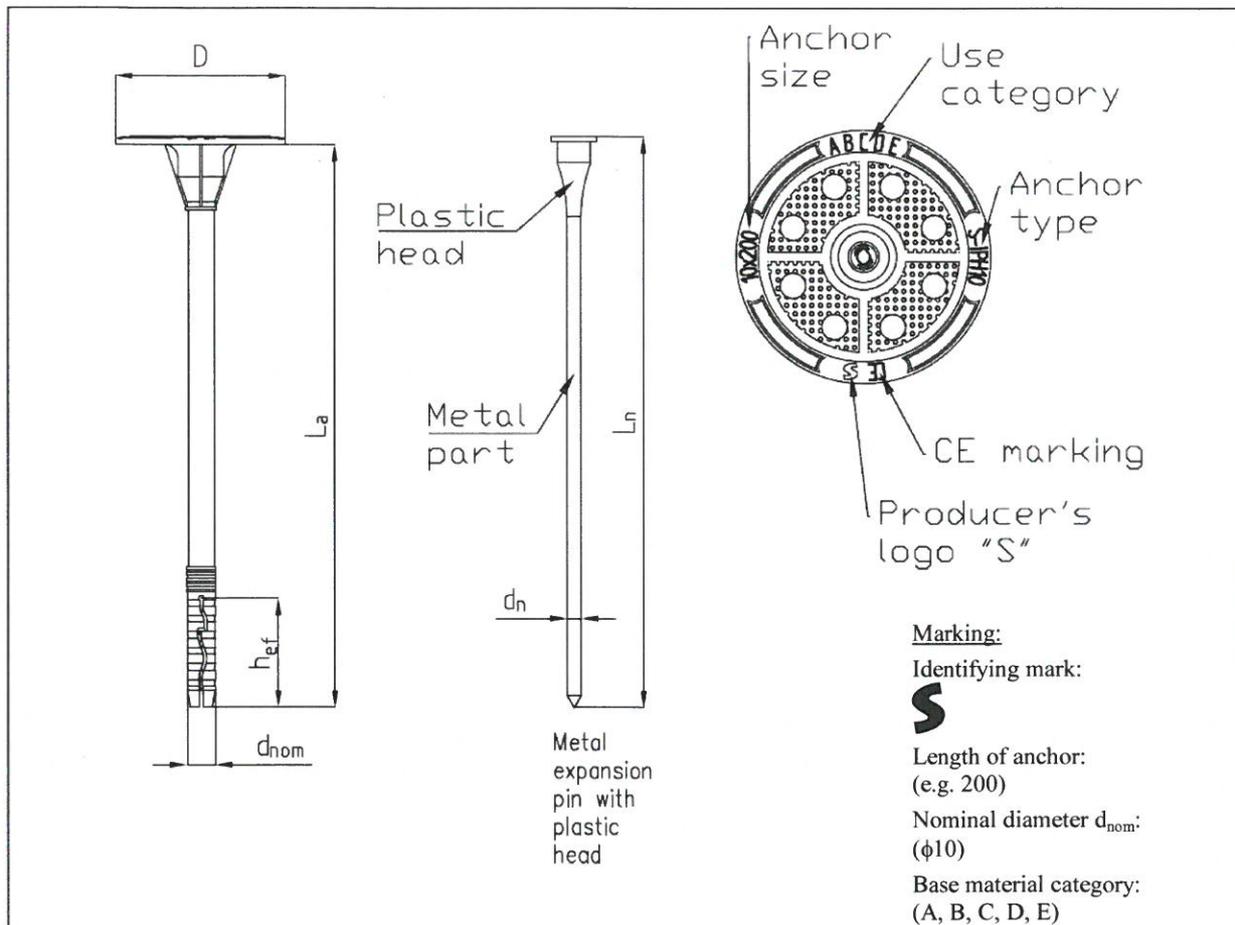


Table A2: S-IPH 10/s anchor types and dimensions [mm]

Anchor type	S-IPH 10/s anchor sleeve				S-IPH 10/s expansion pin	
	d_{nom}	L_a	D	h_{ef} (ABCDE)	d_n	L_s
S-IPH 10/s x 70	10	70	60	50	5,00	75
S-IPH 10/s x 90	10	90	60	50	5,00	95
S-IPH 10/s x 120	10	120	60	50	5,00	125
S-IPH 10/s x 140	10	140	60	50	5,00	145
S-IPH 10/s x 160	10	160	60	50	5,00	165
S-IPH 10/s x 180	10	180	60	50	5,00	185
S-IPH 10/s x 200	10	200	60	50	5,00	205
S-IPH 10/s x 220	10	220	60	50	5,00	225
S-IPH 10/s x 260	10	260	60	50	5,00	265
S-IPH 10/s x 300	10	300	60	50	5,00	305

h_{ef} (ABCD) – for anchors in the base material category A, B, C and D

h_{ef} (E) – for anchors in the base material category E

Determination of maximum thickness of insulation material: $h_D = L_a - t_{tol} - h_{ef}$

S-IPH 10/p and S-IPH 10/s	Annex A3 of European Technical Assessment ETA-18/0728
Product description Marking and dimensions of the S-IPH 10/s anchors	

Table A3: Materials

Designation	Material
Anchor sleeve S-IPH 10/p and S-IPH 10/s	Virgin material: Polypropylene (gray or natural)
Expansion pin S-IPH 10/p	Glass fibre reinforced polyamide (black)
Expansion pin S-IPH 10/s	Carbon steel ($f_{y,k} \geq 220$ MPa, $f_{u,k} \geq 360$ MPa), galvanized ≥ 5 μm according to EN ISO 4042, with head coated of glass fibre reinforced polyamide (black)

S-IPH 10/p and S-IPH 10/s

Product description
Materials

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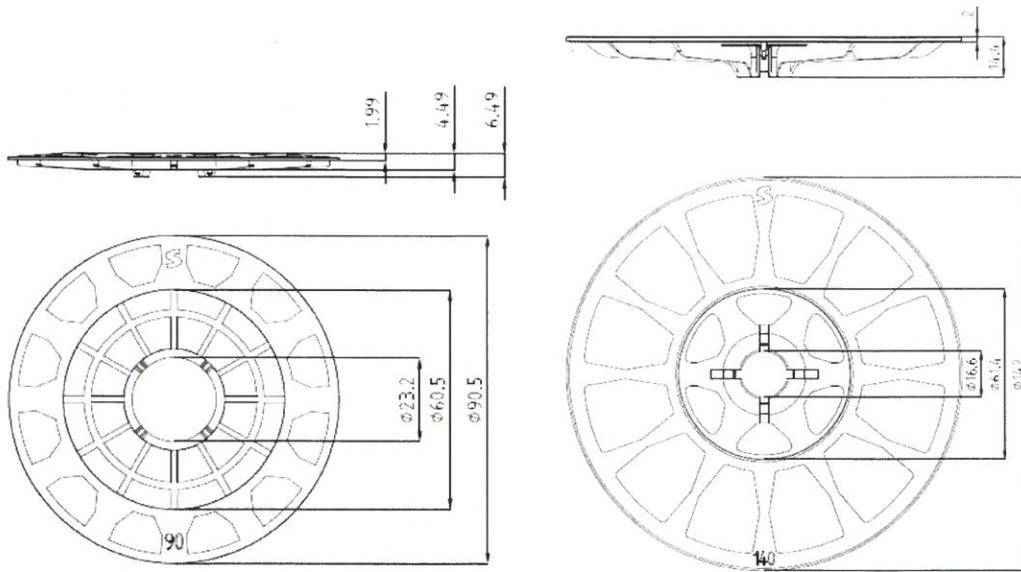


Table A4: Additional plate IWP ϕ 90 mm

Plate type	Outer diameter [mm]	Material
IWP ϕ 90	90	Glass fibre reinforced polyamide (gray) or Polypropylene (natural)

Table A5: Additional plate IWP ϕ 140

Plate type	Outer diameter [mm]	Material
IWP ϕ 140	140	Glass fibre reinforced polyamide (gray) or Polypropylene (natural)

S-IPH 10/p and S-IPH 10/s

Product description

Additional plate IWP ϕ 90 mm and IWP ϕ 140 mm used in combination with S-IPH 10/p and S-IPH 10/s anchor sleeve

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Specification of intended use

Anchorage subject to:

- Wind suction loads.
Note: The anchor shall not be used for the transmission of dead loads of the external thermal insulation composite system.

Base materials:

- Reinforced or unreinforced normal weight concrete (use category A), according to Annex C1 and C3.
- Solid masonry (use category B), according to Annex C1 and C3.
- Hollow or perforated masonry (use category C), according to Annex C1 and C3.
- Lightweight aggregate concrete (use category D), according to Annex C1 and C3.
- Autoclaved aerated concrete (use category E), according to Annex C1 and C3.
- For other base materials of the use categories A, B, C, D or E the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051, edition December 2016.

Application temperature range:

- 0°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C).

Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work with the partial safety factors $\gamma_M = 2,0$ and $\gamma_F = 1,5$, if there are no other national regulations.
- Verifiable calculation notes and drawings with anchor positions are prepared taking into account of the loads to be anchored.
- Fasteners are only to be used for multiple fixings of thermal insulation composite system (ETICS).

Installation:

- Hole shall be drilled by the drill modes according to Annex C1.
- Anchor installation shall be carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation shall be executed in temperature from 0°C to +40°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering shall not exceed 6 weeks.

S-IPH 10/p and S-IPH 10/s	Annex B1 of European Technical Assessment ETA-18/0728
Intended use Specifications	

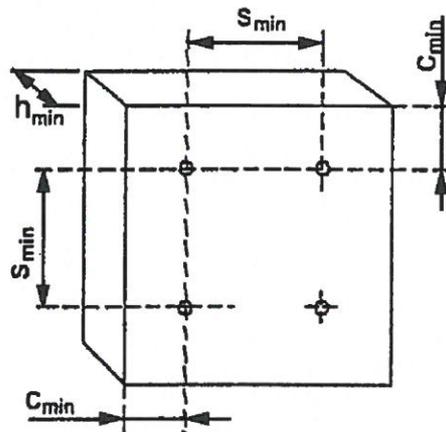
Table B1: Installation characteristics

Anchor type		S-IPH 10/p	S-IPH 10/s
Nominal diameter of drill bit	d_0 [mm]	10	10
Cutting diameter of drill bit	d_{cut} [mm]	$\leq 10,45$	$\leq 10,45$
Depth of drill hole for base material category A, B, C, D, E	h_1 [mm]	≥ 60	≥ 60
Effective anchorage depth for base material category A, B, C, D, E	h_{ef} [mm]	≥ 50	≥ 50

Table B2: Minimum thickness of base material, anchor spacing and edge distance

Anchor type		S-IPH 10/p and S-IPH 10/s
Minimum thickness of base material	h_{min} [mm]	100
Minimum spacing	s_{min} [mm]	100
Minimum edge distance	c_{min} [mm]	100

Diagram of spacing



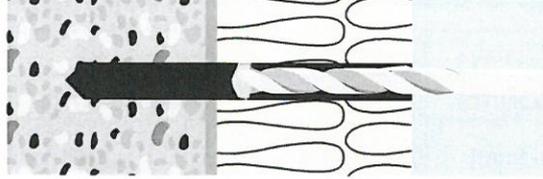
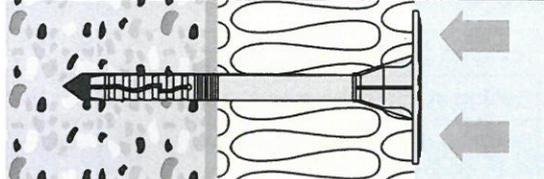
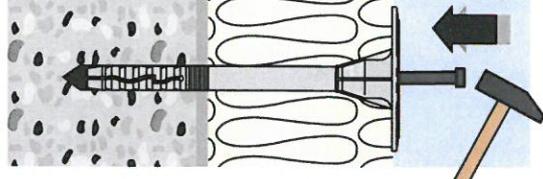
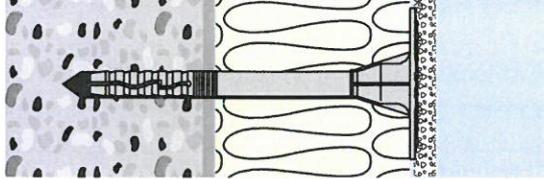
S-IPH 10/p and S-IPH 10/s

Intended use
Installation characteristics, minimum thickness of base material, edge distance and spacing

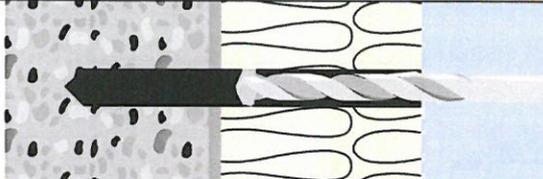
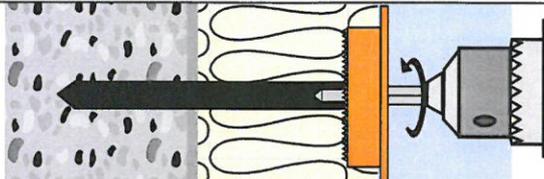
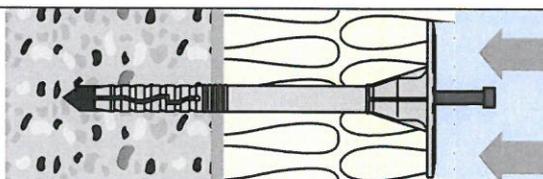
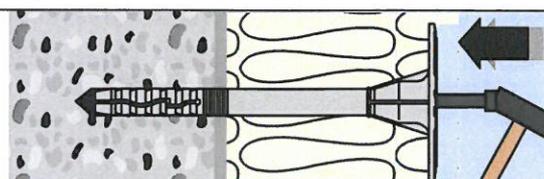
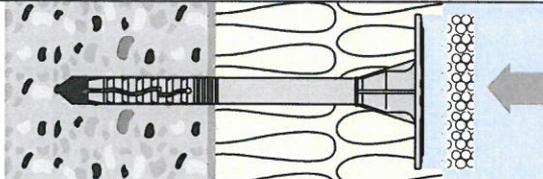
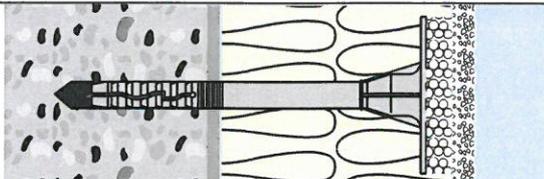
Annex B2
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Installation instruction

a)

 <p>1. Drill the hole by corresponding drilling method acc. to Annex C1. Drill perpendicular.</p>	 <p>2. Clean the hole. Set-in the anchor and make sure that the plate bottom is flush with the ETICS surface.</p>
 <p>3. Nail-in the expansion pin.</p>	 <p>4. Correctly installed anchor.</p>

b)

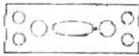
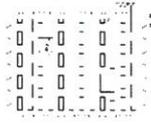
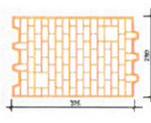
 <p>1. Drill the hole by corresponding drilling method acc. to Annex C1. Drill perpendicular.</p>	 <p>2. Clean the drill hole. Drill the recess in the installation for the installation with the corresponding tool.</p>
 <p>3. Set-in the anchor and make sure that the plate bottom is flush with the ETICS surface.</p>	 <p>4. Nail-in the expansion pin.</p>
 <p>5. Place the Styrofoam disc.</p>	 <p>6. Correctly installed anchor.</p>

S-IPH 10/p and S-IPH 10/s

Intended use
Installation instruction

Annex B3
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Table C1: Characteristic resistance to tension loads N_{Rk} in concrete and in masonry for single S-IPH 10/p and S-IPH 10/s anchors

Base material		Bulk density [kg/dm ³]	Compressive strength [N/mm ²]	Referring standard	N_{Rk} [kN]		Drill method
					S-IPH 10/p	S-IPH 10/s	
Concrete C12/15 (use category A)				EN 206	0,70	0,70	hammer
Concrete C16/20 + C50/60 (use category A)				EN 206	1,00	1,00	hammer
Clay bricks MZ (use category B)		≥ 2,0	≥ 20,0	EN 771-1	1,20	1,20	hammer
Clay bricks MZ+H (use category B)		≥ 2,0	≥ 20,0	EN 771-1	0,55	0,85	hammer
Calcium silicate bricks (use category B)		≥ 2,0	≥ 20,0	EN 771-2	1,20	1,20	hammer
Calcium silicate hollow blocks KSL (use category C)	 	≥ 1,6	≥ 12,0	EN 771-2	0,65	0,75	rotary
Vertically perforated clay bricks Porotherm (use category C)	 	≥ 1,2	≥ 12,0	EN 771-1	0,40	0,45	rotary
Vertically perforated clay bricks MAX (use category C)	 	≥ 0,8	≥ 10,0	EN 771-1	0,35	0,40	rotary
Lightweight concrete blocks LAC (use category D)		≥ 0,88	≥ 5,0	EN 771-3	0,45	0,65	rotary
Lightweight concrete blocks LAC+H (use category D)		≥ 0,88	≥ 5,0	EN 771-3	0,15	0,15	rotary
Autoclaved concrete blocks AAC 2 (use category E)		≥ 0,35	≥ 2,0	EN 771-4	0,35	0,30	rotary
Autoclaved concrete blocks AAC 7 (use category E)		≥ 0,65	≥ 3,5	EN 771-4	0,40	0,40	rotary
Partial safety factor for anchor resistance, $\gamma_M^{(1)}$		2,0					
⁽¹⁾ in the absence of national regulations							

S-IPH 10/p and S-IPH 10/s

Performances
Characteristic resistance

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Table C2: Plate stiffness according to EOTA Technical Report TR 026

Anchor type	Diameter of the anchor plate d_{plate} [mm]	Characteristic load resistance of the anchor plate F [kN]	Plate stiffness c [kN/mm]
S-IPH 10/p and S-IPH 10/s	60	1,43	0,4

Table C3: Point thermal transmittance according to EOTA Technical Report TR 025

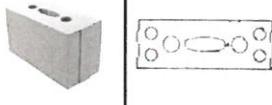
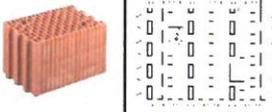
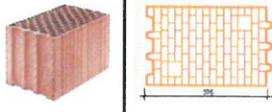
Anchor type	Insulation thickness H_D [mm]	Point thermal transmittance χ [W/K]
S-IPH 10/p	40	0,001
	150	0,000
	230	0,000
S-IPH 10/s	40	0,002
	150	0,003
	230	0,003

S-IPH 10/p and S-IPH 10/s

Performances
Plate stiffness and point thermal transmittance

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Table C4: Displacements for S-IPH 10/p and S-IPH 10/s anchors

Base material		Bulk density [kg/dm ³]	Compressive strength [N/mm ²]	$\frac{N_{RK}}{3}$ [kN]		$\delta \left(\frac{N_{RK}}{3} \right)$ [mm]	
				S-IPH 10/p	S-IPH 10/s	S-IPH 10/p	S-IPH 10/s
Concrete C12/15 (use category A)				0,23	0,23	0,08	0,11
Concrete C16/20 + C50/60 (use category A)				0,33	0,33	0,12	0,16
Clay bricks MZ (use category B)		≥ 2,0	≥ 20,0	0,40	0,40	0,20	0,14
Clay bricks MZ+H (use category B)s		≥ 2,0	≥ 20,0	0,18	0,28	0,10	0,17
Solid calcium silicate bricks (use category B)		≥ 2,0	≥ 20,0	0,40	0,40	0,20	0,14
Calcium silicate hollow blocks (use category C)		≥ 1,6	≥ 12,0	0,22	0,25	0,10	0,17
Vertically perforated clay bricks Porotherm (use category C)		≥ 1,2	≥ 12,0	0,13	0,15	0,08	0,15
Vertically perforated clay bricks MAX (use category C)		≥ 0,8	≥ 10,0	0,12	0,13	0,07	0,07
Lightweight concrete blocks LAC (use category D)		≥ 0,88	≥ 5,0	0,15	0,22	0,10	0,09
Lightweight concrete blocks LAC+H (use category D)		≥ 0,88	≥ 5,0	0,05	0,05	0,10	0,09
Autoclaved concrete blocks AAC 2 (use category E)		≥ 0,35	≥ 2,0	0,12	0,10	0,10	0,09
Autoclaved concrete blocks AAC 7 (use category E)		≥ 0,65	≥ 3,5	0,13	0,13	0,10	0,09

S-IPH 10/p and S-IPH 10/s**Performances
Displacements****Annex C3**
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