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European Technical Assessment

ETA-12/0572 of 29/03/2019

(English language translation – the original version is in Polish language)

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	S-PKK, S-PCK, S-SP, S-SPM
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. F. W. Redena 3 PL 41-807 Zabrze, Poland
Manufacturing plant	pgb-Polska Sp. z o.o. ul. F. W. Redena 3 PL 41-807 Zabrze, Poland
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"
This version replaces	ETA-12/0572 issued on 29/12/2017

Specific Part

1 Technical description of the product

The S-PKK, S-PCK, S-SP and S-SPM nailed-in plastic anchors consists of a plastic expansion sleeve with a collar and a steel nail as an expansion pin. The anchor sleeve is made of polyamide PA6 (virgin material). The nail is made of galvanized steel or stainless steel. The plastic anchor sleeve is expanded by hammering the nail, which will press the sleeve against the wall of the drilled hole.

The S-PKK anchor consists of a plastic expansion sleeve with a countersunk collar and a countersunk head nail.

The S-PCK anchor consists of a plastic expansion sleeve with a cylindrical collar and a countersunk head nail.

The S-SP anchor consists of a plastic expansion sleeve with a spherical collar and a countersunk head nail.

The S-SPM anchor consists of a plastic expansion sleeve with a countersunk collar and a nail with metric thread end.

The illustration 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 Annex C 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 and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	Annex C1
Displacements	Annex C1
Edge distances and spacings	Annex B2

3.1.2 Energy economy and heat retention (BWR 6)

No performance assessed.

3.2 Methods used for the assessment

The assessment of the products 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 the system 2+ of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) applies.

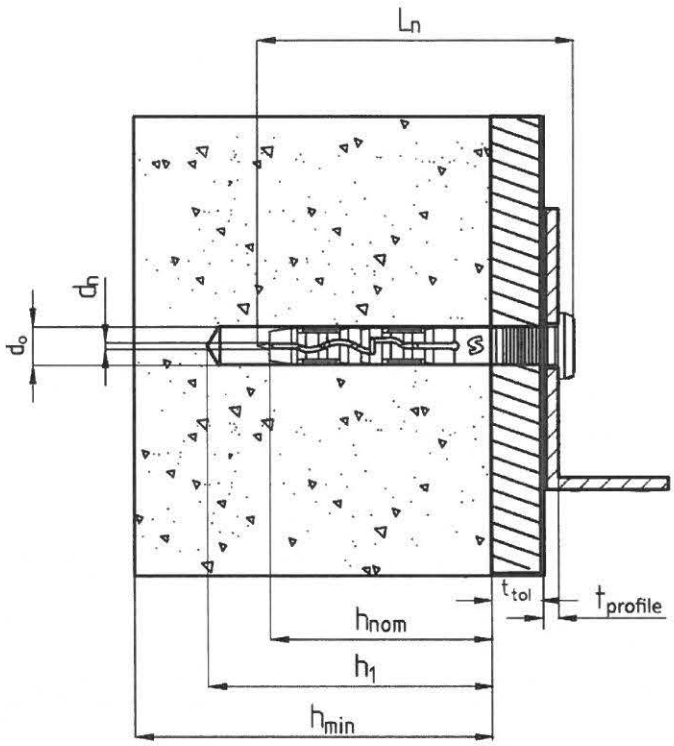
5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

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 29/03/2019 by Instytut Techniki Budowlanej

Anna Panek, MSc
Deputy Director of ITB



Intended Use

Multiple fixing of profiles for ETICS or VETURE Kits

Legend

d_0 = nominal diameter of drill bit

h_1 = depth of drill hole

h_{nom} = embedment depth

d_n = nominal diameter of the nail

L_n = total length of the nail

h_{min} = minimum thickness of the concrete member

t_{tol} = thickness of the equalizing layer and/or non load bearing coating

$t_{profile}$ = thickness of profile

t_{fix} = thickness of fixture (t_{tol} + $t_{profile}$)

S-PKK, S-PCK, S-SP, S-SPM	**Annex A1**
Product description Installation conditions	of European Technical Assessment ETA-12/0572

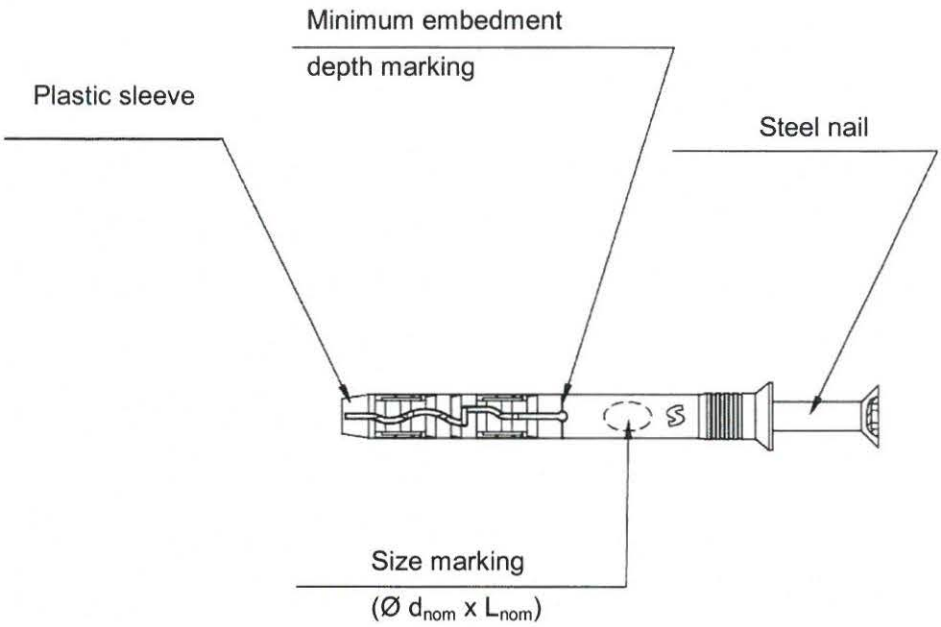
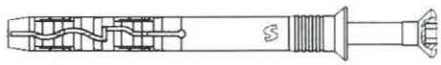
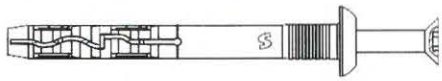
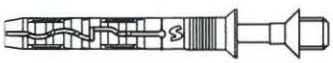
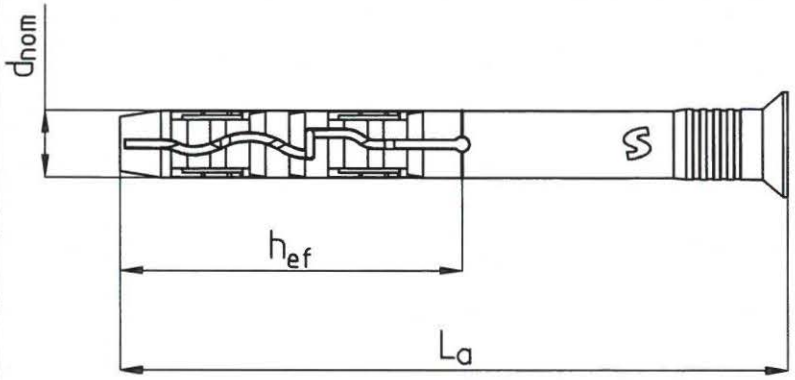
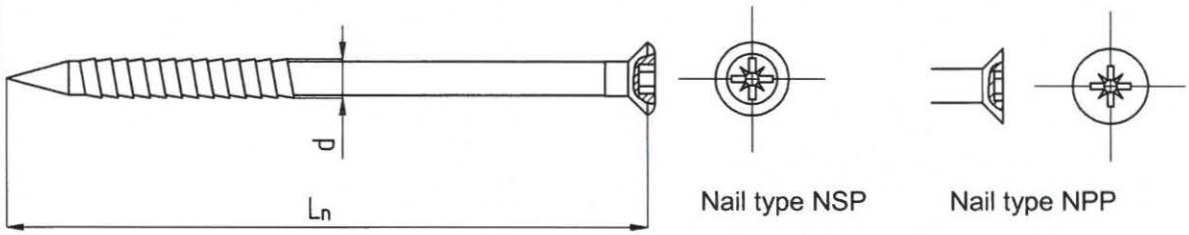


Table A1: Anchor types

Type	Description	Drawing
S-PKK	Countersunk head sleeve + countersunk head nail	
S-PCK	Cylindrical head sleeve + countersunk head nail	
S-SP	Spherical head sleeve + countersunk head nail	
S-SPM	Countersunk head sleeve + metric thread head nail	



Sleeve type PSPKK

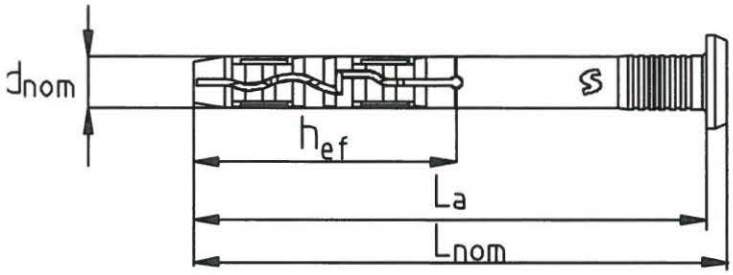


Nail type NSP

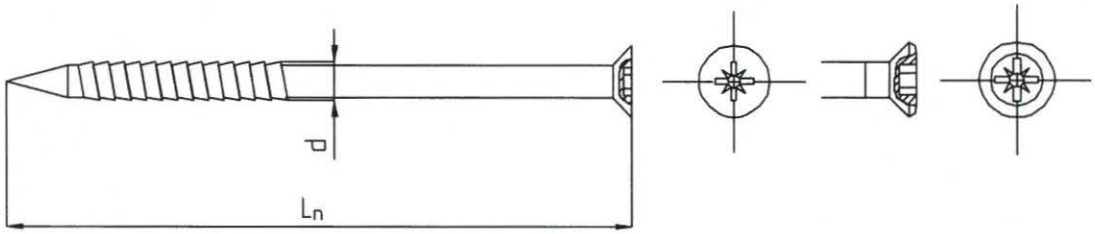
Nail type NPP

Table A2: S-PKK anchor types and dimensions [mm]

Anchor type	Anchor sleeve			Nail	
	d_{nom}	L_a	h_{ef}	d	L_n
S-PKK / 5 x 30	5	30	25	3,5	35
S-PKK / 5 x 40	5	40	25	3,5	45
S-PKK / 5 x 50	5	50	25	3,5	55
S-PKK / 6 x 40	6	40	30	3,9	45
S-PKK / 6 x 50	6	50	30	3,9	55
S-PKK / 6 x 60	6	60	30	3,9	65
S-PKK / 6 x 80	6	80	30	3,9	85
S-PKK / 8 x 45	8	45	40	4,9	50
S-PKK / 8 x 60	8	60	40	4,9	65
S-PKK / 8 x 80	8	80	40	4,9	85
S-PKK / 8 x 100	8	100	40	4,9	105
S-PKK / 8 x 120	8	120	40	4,9	125
S-PKK / 8 x 140	8	140	40	4,9	145
S-PKK / 10 x 80	10	80	50	6,9	85
S-PKK / 10 x 100	10	100	50	6,9	105
S-PKK / 10 x 120	10	120	50	6,9	125
S-PKK / 10 x 140	10	140	50	6,9	145
S-PKK / 10 x 160	10	160	50	6,9	165



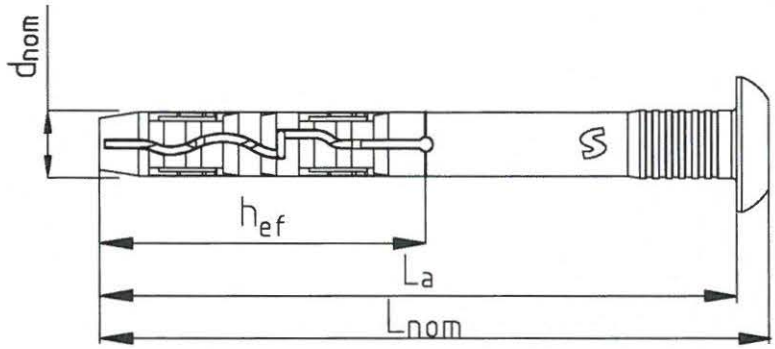
Sleeve type PSPCK



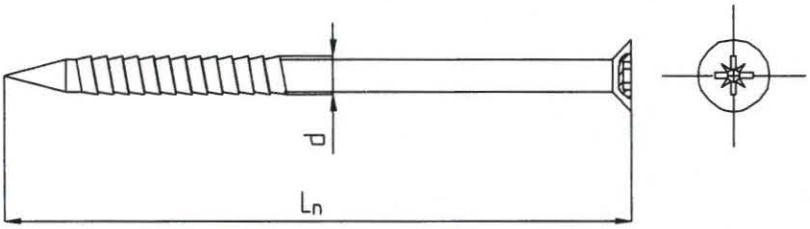
Nail type NPP Nail type NPP

Table A3: S-PCK anchor types and dimensions [mm]

Anchor type	Anchor sleeve				Nail	
	d_{nom}	L_{nom}	L_a	h_{ef}	d	L_n
S-PCK / 5 x 30	5	31	29	25	3,5	35
S-PCK / 5 x 40	5	43	40	25	3,5	45
S-PCK / 5 x 50	5	51	49	25	3,5	55
S-PCK / 6 x 35	6	35	32	30	3,9	40
S-PCK / 6 x 40	6	43	40	30	3,9	45
S-PCK / 6 x 60	6	63	60	30	3,9	65
S-PCK / 6 x 80	6	83	80	30	3,9	85
S-PCK / 8 x 60	8	63	60	40	4,9	65
S-PCK / 8 x 80	8	83	80	40	4,9	85
S-PCK / 8 x 100	8	102	98	40	4,9	105
S-PCK / 8 x 120	8	122	118	40	4,9	125
S-PCK / 8 x 140	8	142	138	40	4,9	145



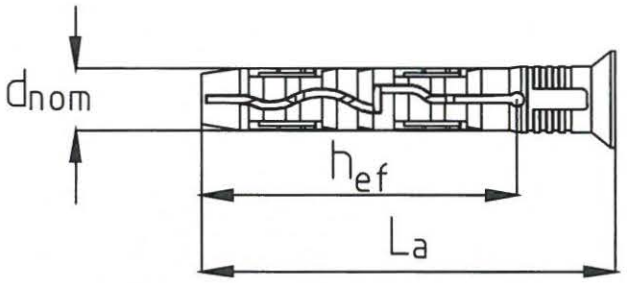
Sleeve type P00SP



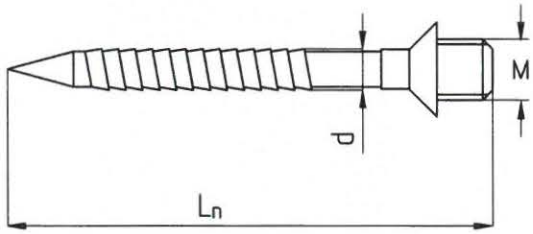
Nail type NPP

Table A4: S-SP anchor types and dimensions [mm]

Anchor type	Anchor sleeve				Nail	
	d_{nom}	L_{nom}	L_a	h_{ef}	d	L_n
S-SP / 6 x 40	6	41	38	30	3,9	50
S-SP / 6 x 60	6	61	58	30	3,9	70
S-SP / 6 x 80	6	81	78	30	3,9	85



Sleeve type PSPKK



Nail type NSPM

Table A5: S-SPM anchor types and dimensions [mm]

Anchor type	Anchor sleeve			Nail		
	d_{nom}	L_a	h_{ef}	d	L_n	M
S-SPM / M6	6	40	30	3,9	50	6
S-SPM / M7	6	40	30	3,9	50	7
S-SPM / M8	8	45	40	4,9	50	8

Table A6: Materials

Designation	Material
Anchor sleeve	Polyamide PA6, light grey, virgin material
Expansion pin (nail) made of carbon steel	Carbon steel: tensile strength $f_{u,k} \geq 420$ MPa and tensile yield strength $f_{y,k} \geq 320$ MPa ▪ Zinc plating ≥ 5 µm; electroplated acc. to EN ISO 4042 ▪ Non-electrolytically applied zinc flake coatings ≥ 5 µm acc. to EN ISO 10683
Expansion pin (nail) made of stainless steel	Stainless steel grade 1.4301, 1.4306, 1.4307 (AISI 304) or 1.4401, 1.4404, 1.4571 (AISI 316) according to EN 10088 Tensile strength $f_{u,k} \geq 600$ MPa and tensile yield strength $f_{y,k} \geq 360$ MPa

Specification of intended use

Anchorages 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.
- Solid masonry (use category B), according to Annex C1.
- For other base materials of the use category A and B the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051, edition December 2016.

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 experiences in anchorages and masonry work with the partial safety factors γ_M = 2,0 and γ_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 fixing of profiles ETICS or VETURE Kits, according to EAD 330196-01-0604, fig. 1.3.

Installation:

- Hole shall be drilled by using a hammer drill.
- 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.

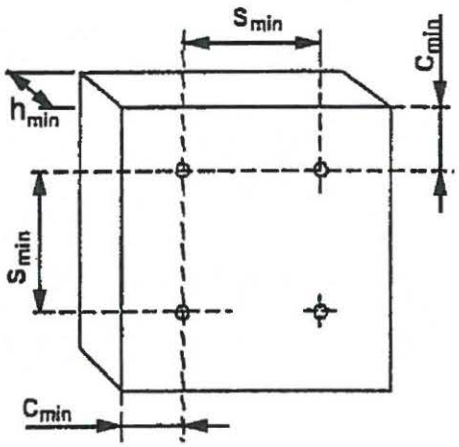
Table B1: Installation characteristics

Anchor diameter		**Ø5**	**Ø6**	**Ø8**	**Ø10**
Nominal diameter of drill bit	d_{nom} [mm]	5,0	6,0	8,0	10,0
Cutting diameter of drill bit	d_{cut} [mm]	≤ 5,40	≤ 6,40	≤ 8,45	≤ 10,45
Depth of drill hole	h_1 [mm]	≥ 35	≥ 40	≥ 50	≥ 60
Effective anchorage depth	h_{ef} [mm]	≥ 25	≥ 30	≥ 40	≥ 50

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

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-PKK, S-PCK, S-SP, S-SPM	**Annex B2**
Intended use Installation characteristics, minimum thickness of base material, anchor spacing and edge distance	of European Technical Assessment ETA-12/0572

Installation instruction

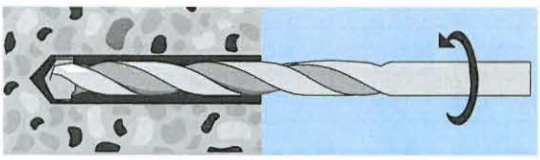
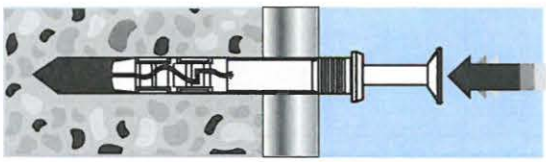
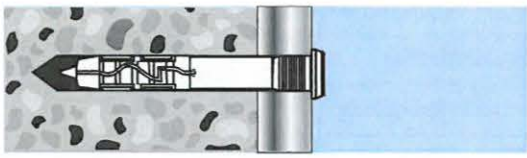
 1. Drill the hole by means of hammer drilling. Drill perpendicular.	 2. Clean the drill hole.
 3. Nail-in the expansion pin by means of a hammer.	 4. Correctly installed anchor.

Table C1: Characteristic resistance to tension loads N_{Rk} [kN] for single anchor

Base material	Referring standard	N_{Rk} [kN]			
		Ø5	Ø6	Ø8	Ø10
Concrete C12/15	EN 206	0,45	0,55	0,65	1,40
Concrete C20/25 ÷ C50/60	EN 206	0,65	0,80	1,50	1,50
Clay bricks MZ	EN 771-1	0,70	0,75	0,80	1,50
Calcium silicate bricks KS	EN 771-2	0,70	0,70	0,80	1,50
Partial safety factor for anchor resistance, γ_M [1)]	2,0				

[1)] Valid in the absence of national regulations

Table C2: Displacements behaviour

Base material	$\frac{N_{Rk}}{3}$ [kN]				$\delta(\frac{N_{Rk}}{3})$ [mm]			
	Ø5	Ø6	Ø8	Ø10	Ø5	Ø6	Ø8	Ø10
Concrete C12/15	0,15	0,18	0,22	0,47	0,23	0,21	0,11	0,36
Concrete C20/25 ÷ C50/60	0,22	0,27	0,50	0,50	0,33	0,30	0,26	0,39
Clay bricks MZ	0,23	0,25	0,27	0,50	0,37	0,23	0,68	0,20
Calcium silicate bricks KS	0,23	0,23	0,27	0,50	0,26	0,32	0,61	0,56