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European Technical Assessment

**ETA 18/1102
of 30/01/2019**

(English language translation, the original version in Czech language)

**Technical Assessment Body issuing the
ETA**

Technical and Test Institute
for Construction Prague

Trade name of the construction product

SPIT PTH-S

**Product family to which the construction
product belongs**

Product area code: 33
Plastic anchors for fixing of external
thermal insulation composite systems with
rendering in concrete and masonry

Manufacturer

SPIT SAS
150 ROUTE DE LYON
26501 BOURG LES VALENCE CEDEX
FRANCE

Manufacturing plant(s)

SPIT SAS
150 ROUTE DE LYON
26501 BOURG LES VALENCE CEDEX
FRANCE

**This European Technical Assessment
contains**

17 pages including 15 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**

EAD 330196-01-0604

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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1. Technical description of the product

The anchors SPIT PTH-S consist of a plastic sleeve with a plate and an accompanying specific expansion screw for fixing for thermal insulation system (ETICS).

The plastic sleeve of anchor SPIT PTH-S is made of polypropylene and an accompanying specific expansion screw is made of steel strength class 5.8 or stainless steel. The head of the specific expansion screw has a plastic coating made of reinforced polyamide.

The anchors SPIT PTH-S for a surface assembly may additionally be combined with assembling tools MPS which are shown in Annex A6 and with the additive anchor plates Ø90, IT PTH 100 and IT PTH 140, which are shown in Annex A7.

The countersunk assembly may additionally be combined with assembling tools ZP, MPS, ZPS, ZPR and with Insulation covers IZ which are shown in Annex A5 and plate ZT 100 see Annex A7 with Insulation covers IZ which are shown in Annex A5.

The installed anchor SPIT PTH-S is shown in Annex A.

2. Specification of the intended use in accordance with the applicable EAD

The performances given in Section 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, but are to be regarded only as a means for choosing the 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 Safety in case of fire (BWR 2)

Not assessed based on EAD 330196-01-0604.

3.2 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance under tension loads	See Annex C 1
Displacement	See Annex C 1
Plate stiffness	See Annex C 2

3.3 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 2

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 Commission¹, the system 2+ of assessment verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) apply.

5. Technical details necessary for the implementation of the AVCP system, as provided in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Technical and Test Institute for Construction Prague.

Issued in Prague on 30.01.2019

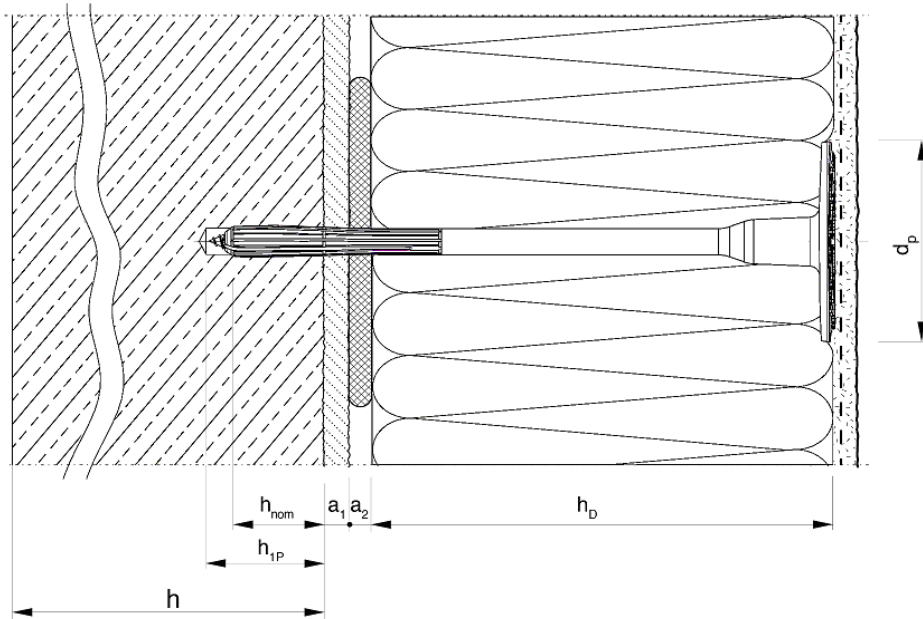
By

Ing. Mária Schaan

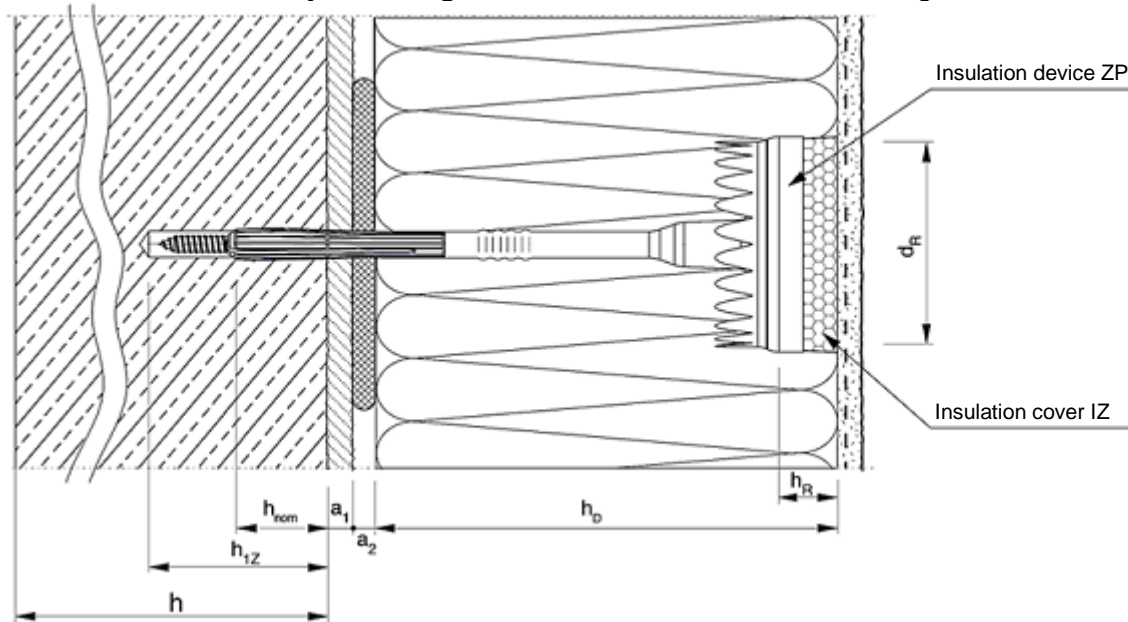
Head of the Technical Assessment Body

¹ Official Journal of the European Communities L 198/31 25.7.1997

Surface assembly for fixing of ETICS in categories A, B, C and D



Countersunk assembly for fixing of ETICS with ZP and MPS in categories A, B, C and D



h_{nom} = overall plastic anchor embedment depth in the base material
 h_{ef} = effective anchorage depth
 h_{1p} = drill hole depth – surface assembly
 h_{1Z} = drill hole depth – countersunk assembly
 h = thickness of base material
 h_D = thickness of insulation material

h_R = thickness of insulation cover
 a_1 = thickness of equalization layer or non-load bearing coating
 a_2 = thickness of compound and toleration of thickness of equalization layer or non-load bearing coating
 d_p = diameter of plate
 h_R = diameter of insulation cover
 L_a = total length of the anchor

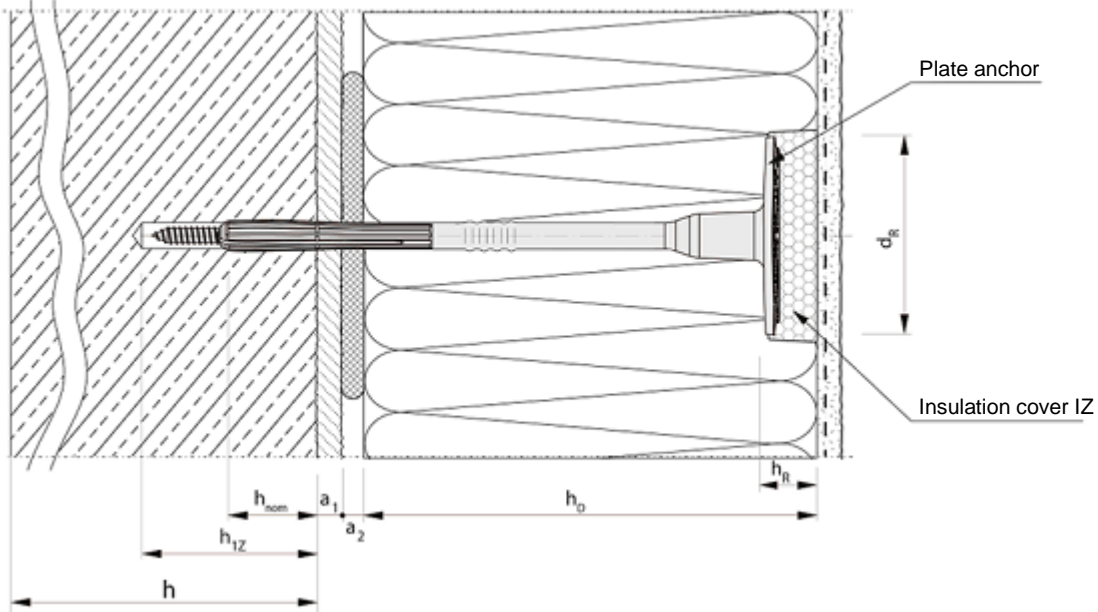
Determination of total length of the anchor
 $L_a \geq h_D + \min. h_{nom} + \max. a_1 + \max. a_2$

SPIT PTH-S

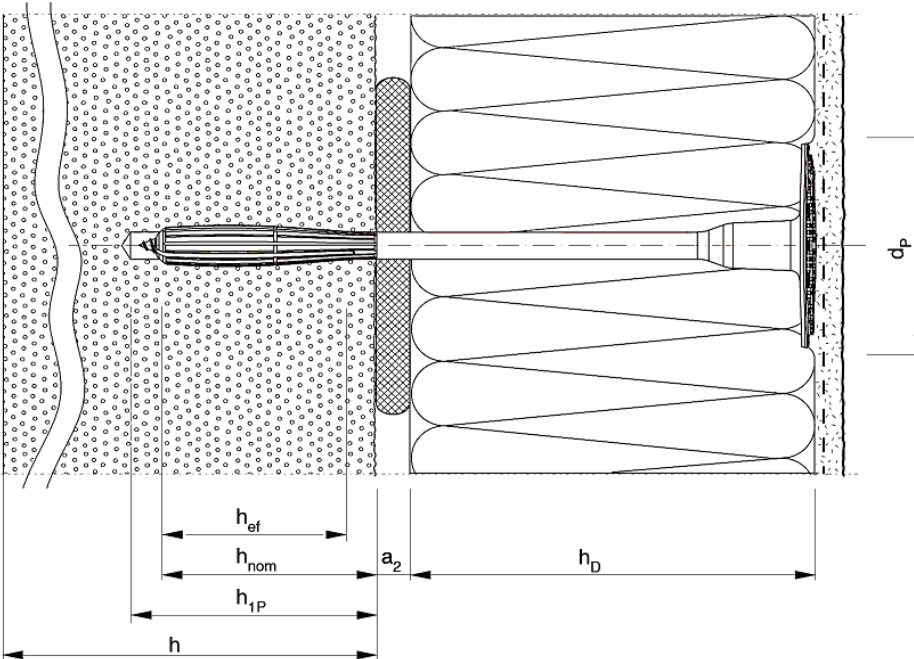
Product description
 Installed conditions

Annex A 1

Countersunk assembly for fixing of ETICS with ZPS or ZPR in categories A, B, C and D



Surface assembly for fixing of ETICS in category E



h_{nom} = overall plastic anchor embedment depth in the base material
 h_{ef} = effective anchorage depth
 h_{1P} = drill hole depth – surface assembly
 h_{1Z} = drill hole depth – countersunk assembly
 h = thickness of base material
 h_D = thickness of insulation material

h_R = thickness of insulation cover
 a_1 = thickness of equalization layer or non-load bearing coating
 a_2 = thickness of compound and toleration of thickness of equalization layer or non-load bearing coating
 d_P = diameter of plate
 h_R = diameter of insulation cover
 L_a = total length of the anchor

Determination of total length of the anchor

$$L_a \geq h_D + \min. h_{nom} + \max. a_1 + \max. a_2$$

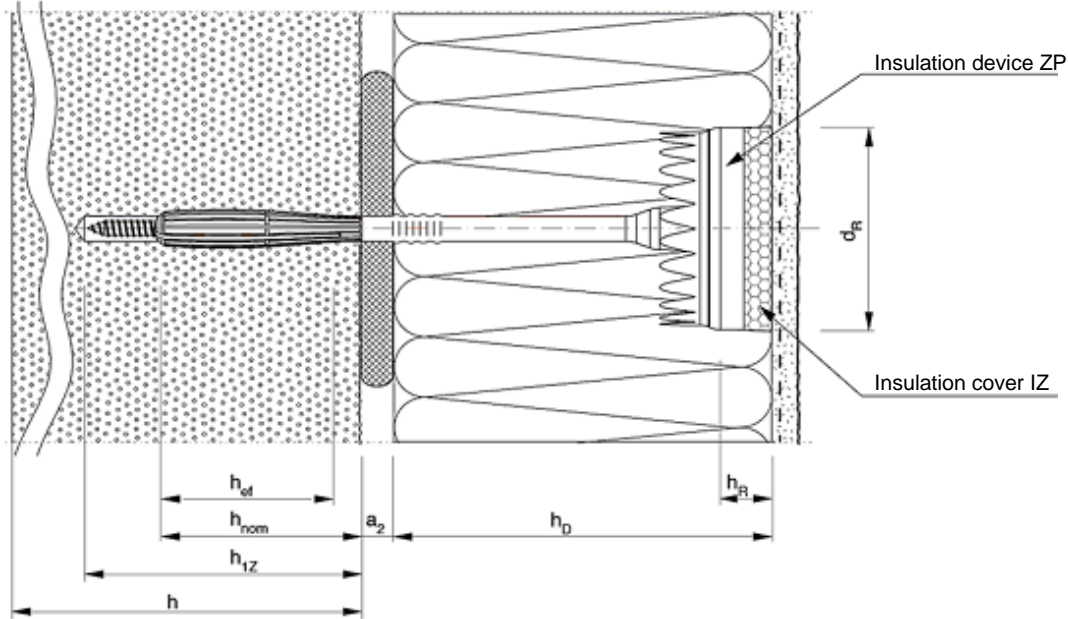
SPIT PTH-S

Product description

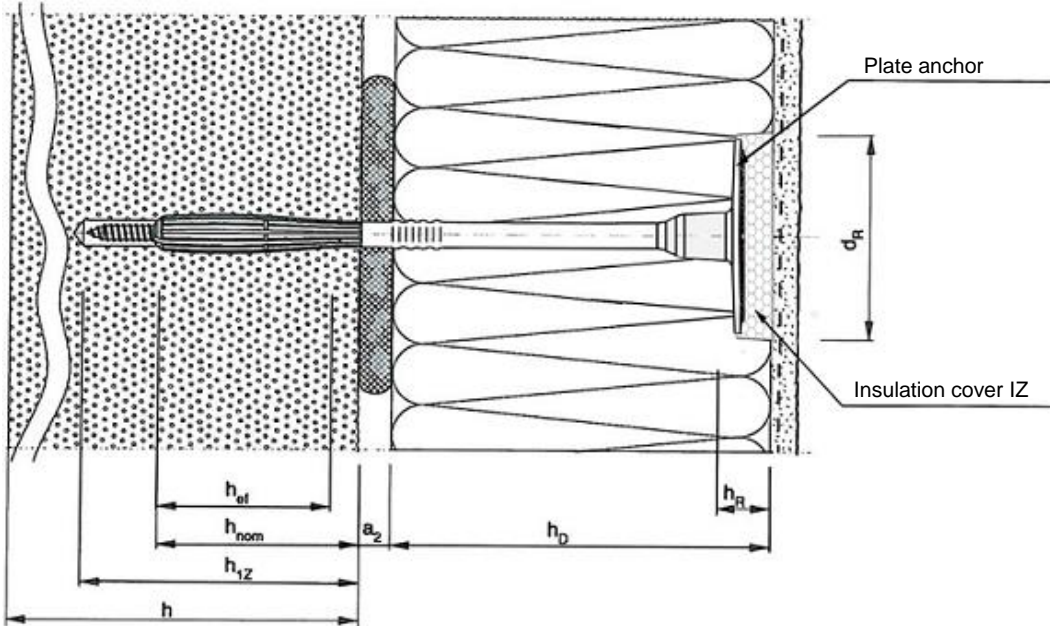
Installed conditions

Annex A 2

Countersunk assembly for fixing of ETICS with ZP and MPS in category E



Countersunk assembly for fixing of ETICS with ZPS or ZPR in category E



h_{nom} = overall plastic anchor embedment depth in the base material
 h_{ef} = effective anchorage depth
 h_{1p} = drill hole depth – surface assembly
 h_{1Z} = drill hole depth – countersunk assembly
 h = thickness of base material
 h_D = thickness of insulation material

h_R = thickness of insulation cover
 a_1 = thickness of equalization layer or non-load bearing coating
 a_2 = thickness of compound and toleration of thickness of equalization layer or non-load bearing coating
 d_p = diameter of plate
 h_R = diameter of insulation cover
 L_a = total length of the anchor

Determination of total length of the anchor

$$L_a \geq h_D + \min. h_{nom} + \max. a_1 + \max. a_2$$

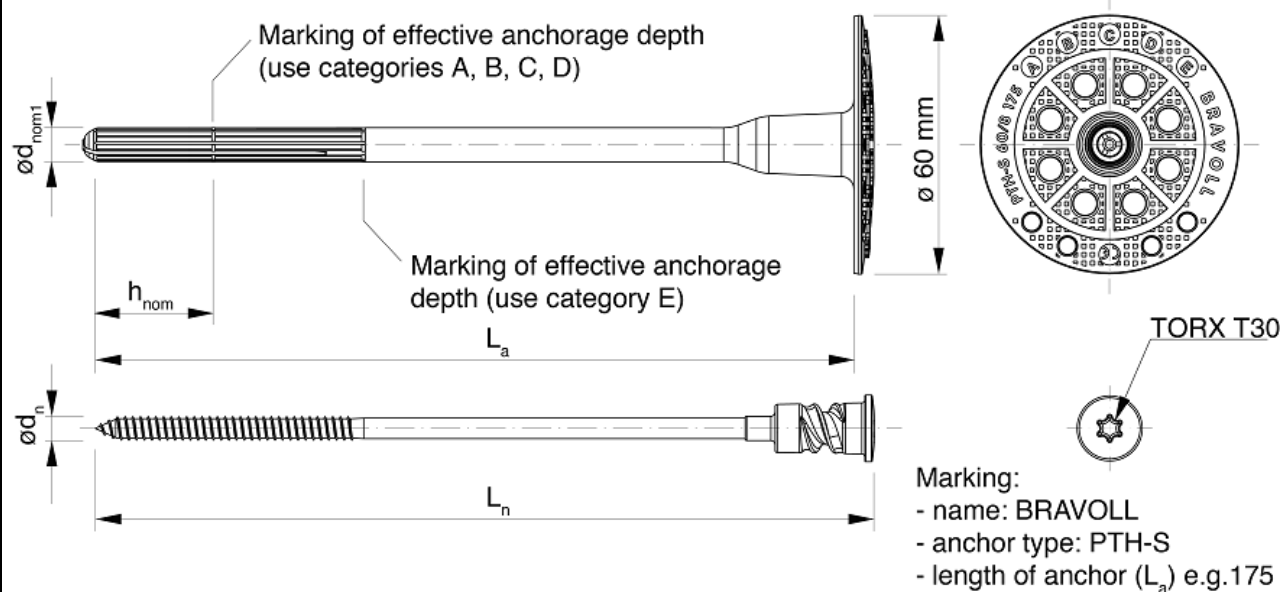
SPIT PTH-S

Product description

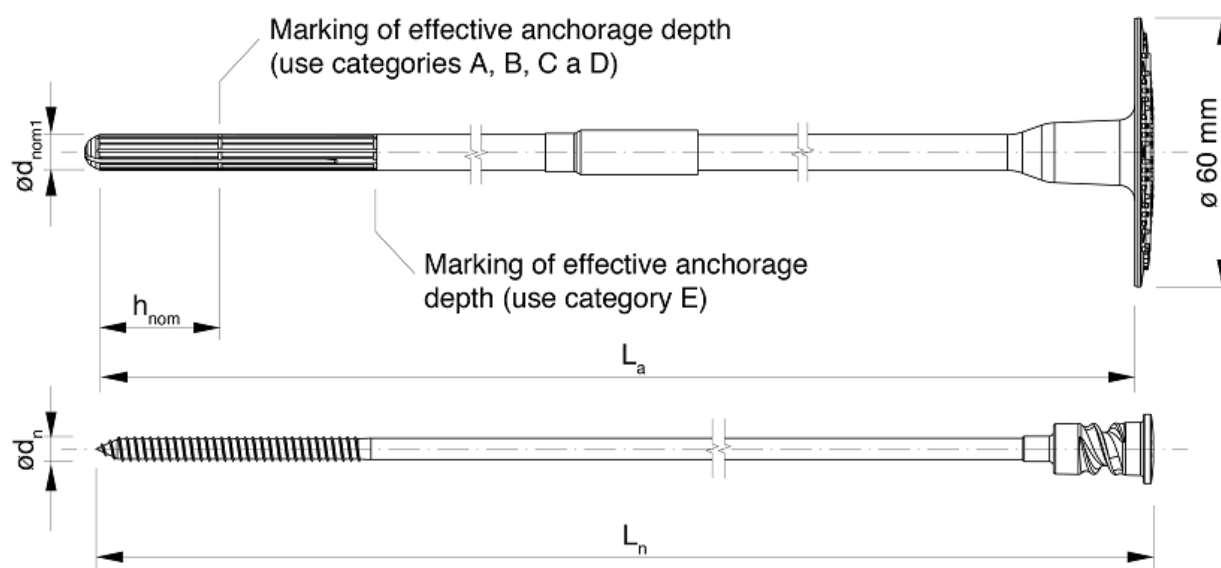
Installed conditions

Annex A 3

SPIT PTH-S - anchor shape L_a 95 – 335 mm



SPIT PTH-S - anchor shape L_a 355 – 555 mm

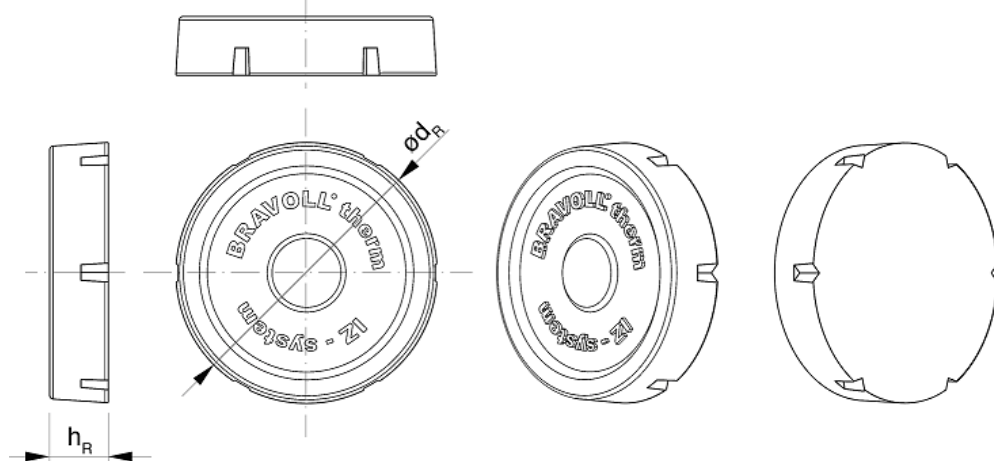


SPIT PTH-S

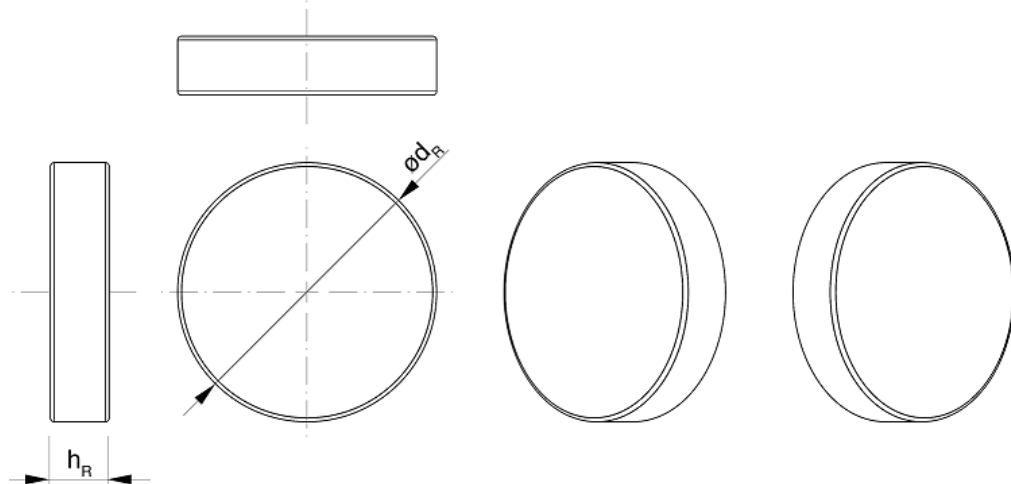
Product description
 Dimensions

Annex A 4

Insulation cover IZ for EPS



Insulation cover IZ for MW

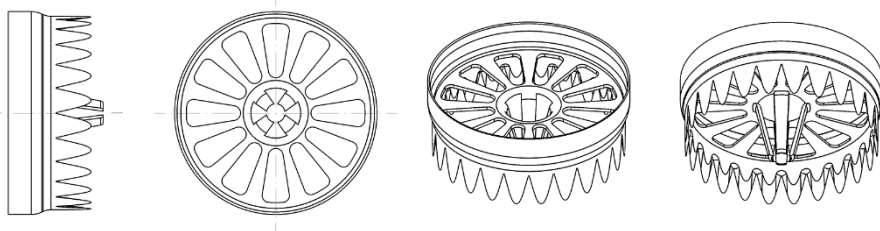


Insulation cover IZ

Product description
Insulation cover

Annex A 5

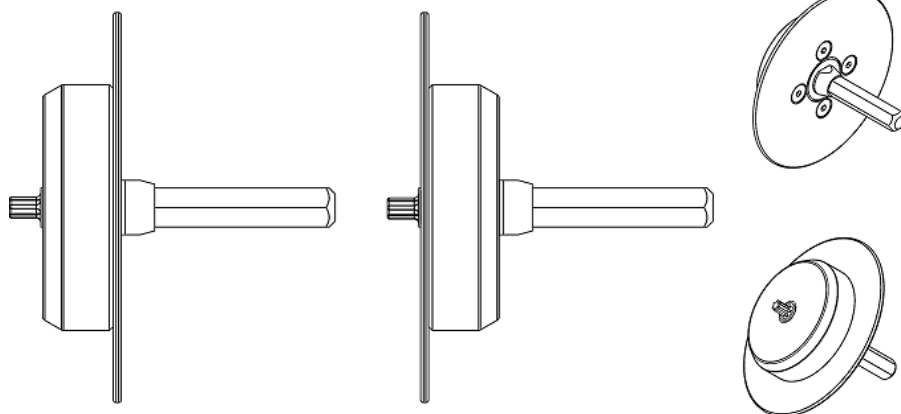
Assembling tool ZP



Assembling tool MPS

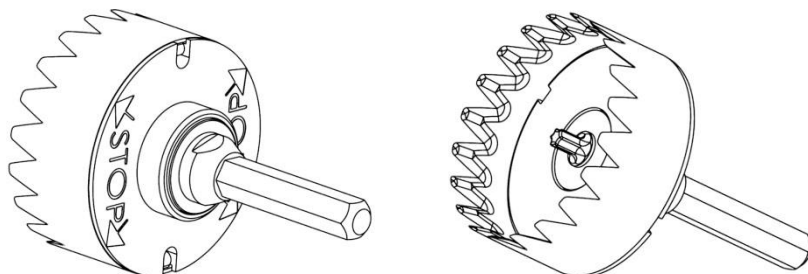
- for countersunk assembly

- for surface assembly



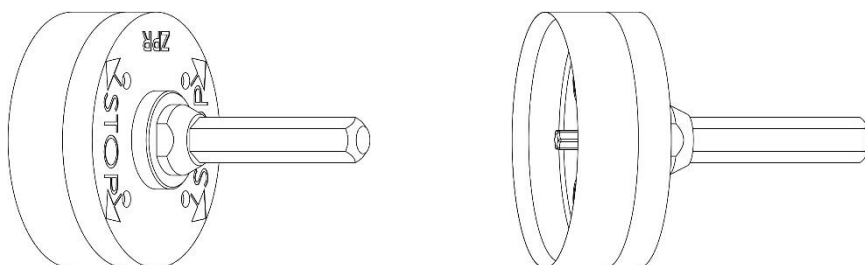
Assembling tool ZPS

- for countersunk assembly



Assembling tool ZPR

- for countersunk assembly



Assembling tools ZP, MPS, ZPS, ZPR

Product description
Assembling tool

Annex A 6

Plate Ø90

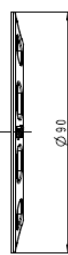
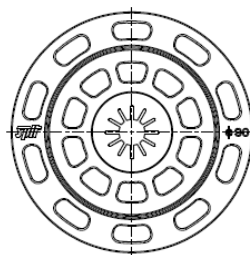


Plate IT PTH 100

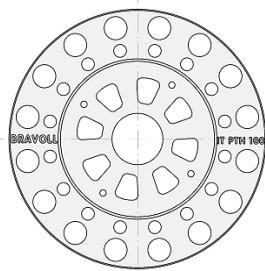


Plate IT PTH 140

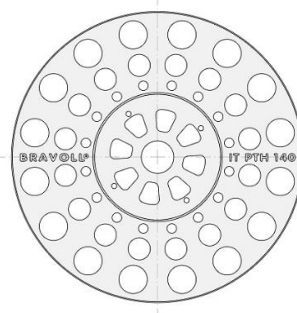


Plate ZT 100

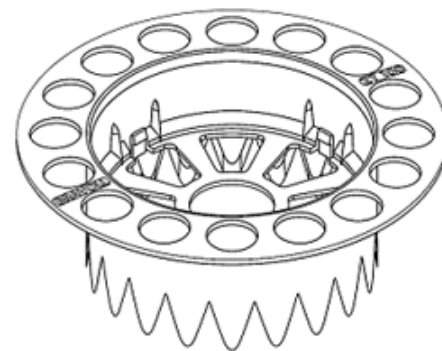
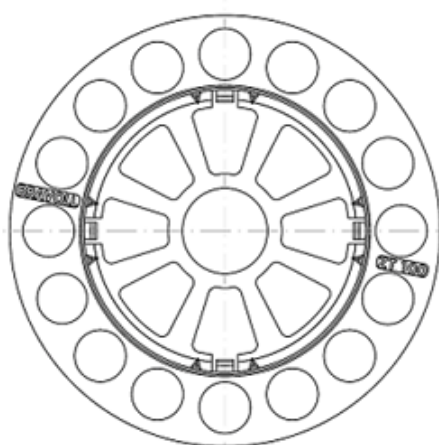
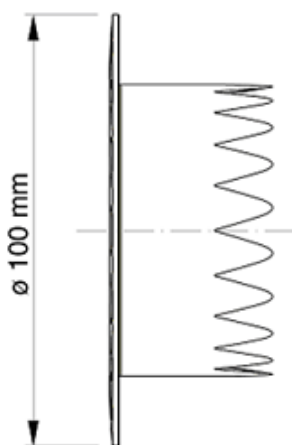


Plate SPIT Ø90 and IT PTH 100, IT PTH 140 and ZT 100

Additional plate in combination with SPIT PTH-S

Annex A 7

Table A1: Dimensions [mm]

Anchor type	Anchor sleeve					Expansion screw
	d _{nom1}	h _{ef}	h _{nom}	h _{nom}	L _a	
Category of material			A, B, C, D	E		L _n
SPIT PTH-S	8	45	25	65	95-555	103-563

Table A2: Materials

Designation	Color	Material
Anchor sleeve SPIT PTH-S	Natural	Copolymer polypropylene PP – virgin plastic
Expansion screw SPIT PTH-S	Galvanized screw with natural colour head moulding	Steel strength class 5.8, galvanized $\geq 5\mu\text{m}$ with head of pin has plastic coating
		Stainless steel
Plate Ø90	Natural	Copolymer polypropylene PP
Plate IT PTH 100 Plate IT PTH 140	Natural	Reinforced polyamide
Assembling tool ZP	Natural	Reinforced polyamide
Plate ZT 100	Natural	Reinforced polyamide
Insulation cover IZ-EPS	White, grey	Polystyrene EPS 100
Insulation cover IZ-MW	Brown	Mineral wool HD

SPIT PTH-SDimensions
Materials**Annex A 8**

Specifications of intended use

Anchorage subject to:

- Multiple fixing for the anchorage of bonded thermal insulation composite systems (ETICS).

Base materials

- Reinforced or unreinforced normal weight concrete (Use category A), according to Annex B3.
- Solid brick (Use category B), according to Annex B3.
- Calcium silicate solid units (Use category B), according to Annex B3.
- Vertical perforated brick (Use category C), according to Annex B3-B4.
- Vertically perforated clay bricks according to ÖNORM B 6124 (Use category C), according to Annex B3-B4.
- Lightweight aggregate concrete hollow blocks (Use category D), according to Annex B3-B4.
- Autoclaved aerated concrete P2-400 (Use category E) according to Annex B3.
- The characteristic tension resistance of the anchor may be determined by means of job site tests according to EOTA TR 051, edition December 2016, carried out on the material actually used, if a characteristic resistance of the base material does not exist (for example masonry made of other solid masonry units or made of perforated clay bricks).

Use conditions

- The anchor may only be used for transmission of wind suction loads and shall not be used for the transmission of dead loads of the thermal insulation composite system. The dead loads have to be transmitted by the bonding of the thermal insulation composite system.

Use categories:

- The anchors SPIT PTH-S are used for the categories A, B, C, D and E.

Design:

- The design of anchorages is carried out in compliance with EAD 330196-01-0604, "Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering" under the responsibility of an engineer experienced in anchorages.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials, the thickness of insulation and the dimensions of the anchorage as well as of the relevant tolerances.
- Proof of direct local application of load on the base material shall be delivered. The anchor shall only be used for the transmission of wind suction loads. All other loads such as dead load and restraints shall be transmitted by the adhesion of the relevant external thermal insulation composite system

SPIT PTH-S	Annex B 1
Intended use Specification	

Installation:

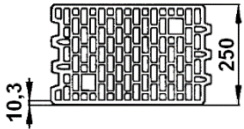
The fitness for use of the anchor can only be assumed if the following conditions of installation are met:

- Anchor installation carried out by appropriately qualified personnel under the supervision of the person responsible for technical matters on site.
- Use of the anchor only as supplied by the manufacturer without exchanging any component of the anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings using the tools.
- Checks before placing the anchor, to ensure that the characteristic values of the base material in which the anchor is to be placed, is identical with the values, which the characteristic loads apply for.
- Observation of the drill method (Drill holes in masonry made of perforated clay bricks, vertically perforated clay bricks and lightweight aggregate concrete hollow blocks (LAC) may only be drilled using the rotary drill. Other drilling methods may also be used if job-site tests according to Annex B 5 evaluate the influence of hammer or impact drilling.)
 - SPIT PTH-S:
 $h_{nom} \geq 25 \text{ mm (A, B, C, D)}$
 $h_{nom} \geq 65 \text{ mm (E)}$
- Placing drill holes without damaging the reinforcement
- Temperature during installation of the anchor $\geq 0^{\circ}\text{C}$.
- Exposure to UV due to solar radiation of the anchor not protected by rendering 6 weeks.

SPIT PTH-S	Annex B 2
Intended use Installation	

Types of base materials

Table B1: Base materials

Base material	Use category	Bulk density class [kg/dm ³]	Min. compressive strength β [N/mm ²]	General remarks	Drilling method
Concrete C12/15 according to EN 206-1	A				Hammer drilling
Concrete C16/20 – C50/60 according to EN 206-1	A				Hammer drilling
Solid clay bricks according to EN 771-1	B	$\geq 1,7$	20	Vertically perforation up to 15%	Hammer drilling
Calcium silicate solid units according to EN 771-2	B	$\geq 1,8$	12		Hammer drilling
Vertically perforated clay bricks according to EN 771-1	C	$\geq 0,7$	10	Vertically perforation more than 15% and less than 55%	Only rotary drilling
Vertically perforated clay bricks according to ÖNORM B 6124	C	$\geq 0,9$	10		Only rotary drilling
Lightweight concrete hollow block according to EN 771-3	D	$\geq 0,5$	4	see Annex B4	Only rotary drilling
Lightweight aggregate concrete hollow blocks LAC according to EN 1520	D	$\geq 1,2$	4		Only rotary drilling
Autoclaved aerated concrete P2-400 according to EN 771-4	E	$\geq 0,4$	2		Only rotary drilling

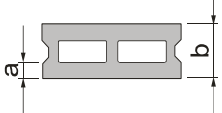
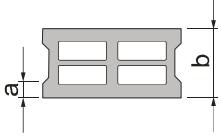
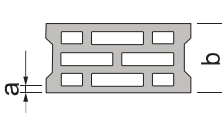
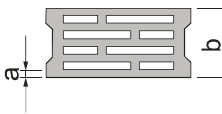
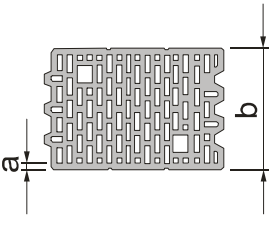
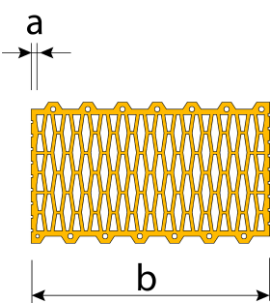
SPIT PTH-S

Intended use
Base materials

Annex B 3

Types of base materials

Table B2: Specification

Geometry	Thickness of brick b [mm]	Outer web in longitudinal direction a [mm]	Anchor type
			SPIT PTH-S
	175	50	●
	240 300	50	●
	175	35	●
	240 300 365	35	●
	240 300 365	30	●
Reference brick ÖNORM B6124 	250	10,3	●
	250	10,1	●

SPIT PTH-S

Intended use
Base materials

Annex B 4

Installation

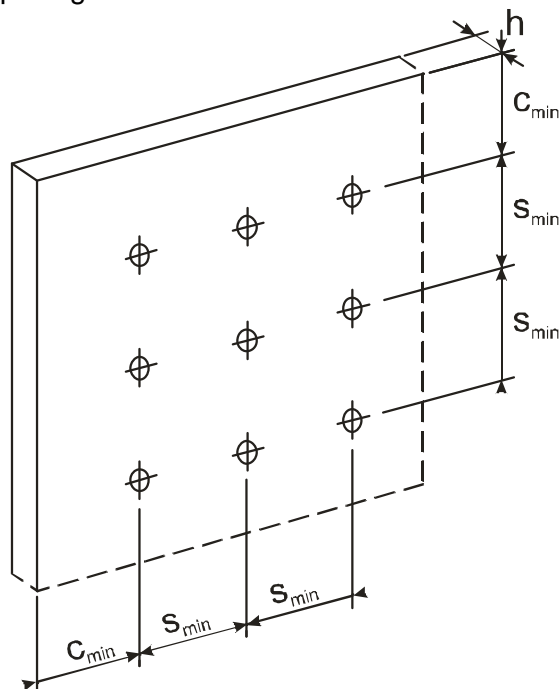
Table B3: Installation characteristics

Anchor types		SPIT PTH-S	
Category of material		A, B, C, D	E
Nominal diameter of drill bit	d_o [mm]	8	8
Min. diameter of drill bit	$d_{cut, min} \geq$ [mm]	8,0	8,0
Max. diameter of drill bit	$d_{cut, max} \leq$ [mm]	8,45	8,45
Depth of drill hole			
- Countersunk assembly	$h_{1Z} \geq$ [mm]	55	95
- Surface assembly	$h_{1P} \geq$ [mm]	35	75
Overall embedment depth	$h_{nom} \geq$ [mm]	25	65

Table B4: Minimum thickness of base material, edge distance and anchor spacing

Anchor type	Minimum thickness of base material h [mm]	Minimum spacing s_{min} [mm]	Minimum edge distance c_{min} [mm]
SPIT PTH-S	100	100	100

Scheme of distance and spacing.



SPIT PTH-S

Intended use

Installation characteristics
Edge and axial distances

Annex B 5

Table C1: Characteristic resistance to tension loads for single anchor

Base material	Use category	Bulk density class [kg/dm ³]	Min. compressive strength f_c [N/mm ²]	SPIT PTH-S [kN]
Concrete C 12/15 according to EN 206-1	A			1,5
Concrete C 16/20 –C50/60 according to EN 206-1	A			1,5
Solid clay bricks according to EN 771-1	B	$\geq 1,7$	20	1,5
Calcium silicate solid units according to EN 771-2	B	$\geq 1,8$	12	1,2
Lightweight concrete hollow block according to EN 771-3	C	$\geq 0,5$	4	1,5
Lightweight aggregate concrete hollow blocks LAC according to EN 1520	C	$\geq 1,2$	4	1,0
Vertically perforated clay bricks according to EN 771-1	D	$\geq 0,7$	10	0,75
Vertically perforated clay bricks according to ÖNORM B6124	D	$\geq 0,9$	10	0,6
Autoclaved aerated concrete P2-400 e.g. according to EN 771-4	E	$\geq 0,4$	2	0,6
Partial safety factor	$\gamma_M =$	2,0*		

* in the absence of other national regulations

Table C2: Displacement under tension loads

Assembly	Surface		Countersunk	
Material	Tension load N_{Sk} [kN]	Displacements $\Delta\delta_N$ [mm]	Tension load N_{Sk} [kN]	Displacements $\Delta\delta_N$ [mm]
C12/15 EN 206-1	0,5	0,88	0,5	0,51
C16/20 EN 206-1	0,5	0,88	0,5	0,66
C50/60 EN 206-1	0,5	0,69	0,5	0,61
Solid clay bricks EN 771-1	0,5	0,73	0,5	0,59
Vertically perforated clay bricks ÖNORM B6124	0,2	0,56	0,25	0,36
Perforated clay bricks POROTHERM P+D 44 EN 771-1	0,25	0,66	0,3	0,56
Calcium silicate solid units EN 771-2	0,4	0,72	0,5	0,62
Lightweight concrete hollow blocks EN 771-3	0,5	0,68	0,5	0,72
Lightweight aggregate concrete EN 1520 (LAC)	0,5	0,85	0,4	0,60
Autoclaved aerated concrete P2-400 according to EN 771- 4	0,25	0,50	0,2	0,31

SPIT PTH-S**Performances**

Characteristic tension load
Displacement under tension load

Annex C 1

Table C3: Point thermal transmittance

Anchor type	Insulation thickness h_D [mm]	Point thermal transmittance χ [W/K]
SPIT PTH-S	60 - 530	0,002

Table C4: Plate stiffness

Anchor type	Diameter of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
SPIT PTH-S	60	2,6	0,9

SPIT PTH-S**Performances**

Point thermal transmittance

Plate stiffness

Annex C 2