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## European Technical Assessment

## ETA 18/1095 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-X  
SPIT PTH-EX

**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**

14 pages including 12 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 nailed-in plastic anchors SPIT PTH-X and SPIT PTH-EX consist of plastic sleeve with a plate made for fixing the thermal insulation system (ETICS) and an expansion nail. The sleeve anchor SPIT PTH-X is made of polypropylene and the accompanying specific expansion nail is made of reinforced polyamide.

The sleeve anchor SPIT PTH-EX is made of polypropylene and the accompanying specific expansion nail is made of steel strength class 5.8. The head of the expansion nail has reinforced polyamide coating.

The anchor have deformation zone on their sleeve. This deformation zone is for easier assembly during countersinking of the anchor plate into an insulation.

The anchors SPIT PTH-EX may additionally be combined with the additive anchor plates Ø90, IT PTH 100 and IT PTH 140, which are shown in Annex A5.

The anchor is installed in drilled hole by hammering in the expansion nail.

The illustration and the description of the product are given 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 Commission<sup>1</sup>, 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

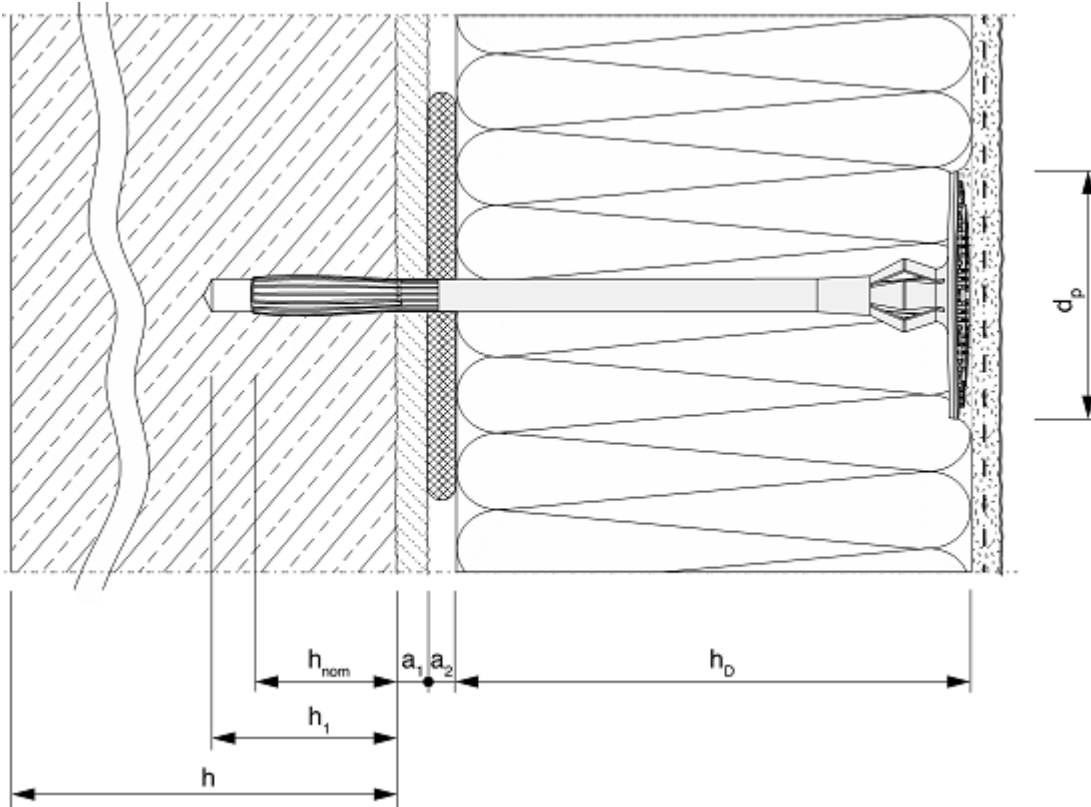
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Technical and Test Institute for Construction Prague.

Issued in Prague on 30.01.2019

By  
**Ing. Mária Schaan**  
Head of the Technical Assessment Body

<sup>1</sup> Official Journal of the European Communities L 198/31 25.7.1997  
Page 2/14 of ETA 18/1095 issued on 30/01/2019  
English translation by TZÚS Prague – branch TIS

## SPIT PTH-X



$h_{nom}$  = overall plastic anchor embedment depth in the base material  
 $h_{ef}$  = effective anchorage depth  
 $h_1$  = drill hole depth  
 $h$  = thickness of base material  
 $h_D$  = thickness of insulation material

$a_1$  = thickness of equalization layer and/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  
 $L_a$  = total length of the anchor

Determination of total length of the anchor

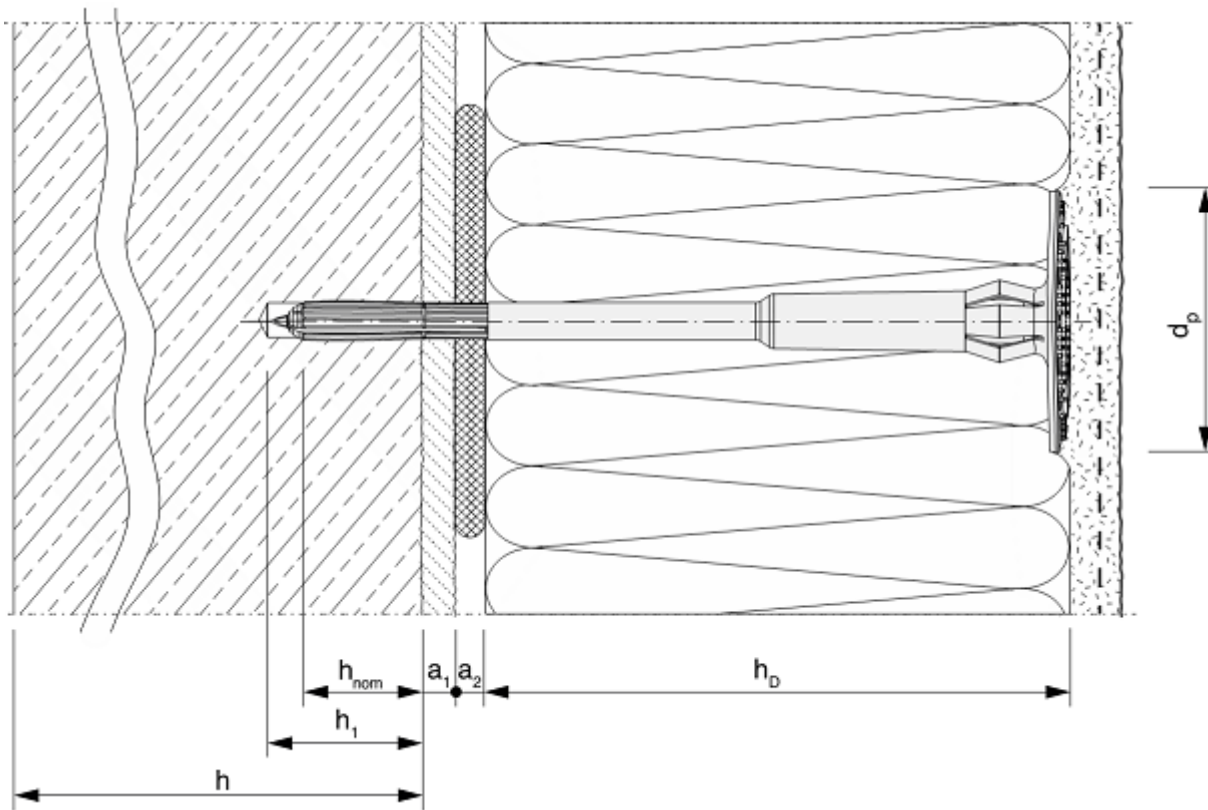
$$L_a \geq h_D + \min. h_{nom} + \max. a_1 + \max. a_2$$

**SPIT PTH-X**

**Product description**  
Installed conditions

**Annex A 1**

## SPIT PTH-EX



$h_{nom}$  = overall plastic anchor embedment depth in the base material

$h_{ef}$  = effective anchorage depth

$h_1$  = drill hole depth

$h$  = thickness of base material

$h_D$  = thickness of insulation material

$a_1$  = thickness of equalization layer and/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

$L_a$  = total length of the anchor

Determination of total length of the anchor

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

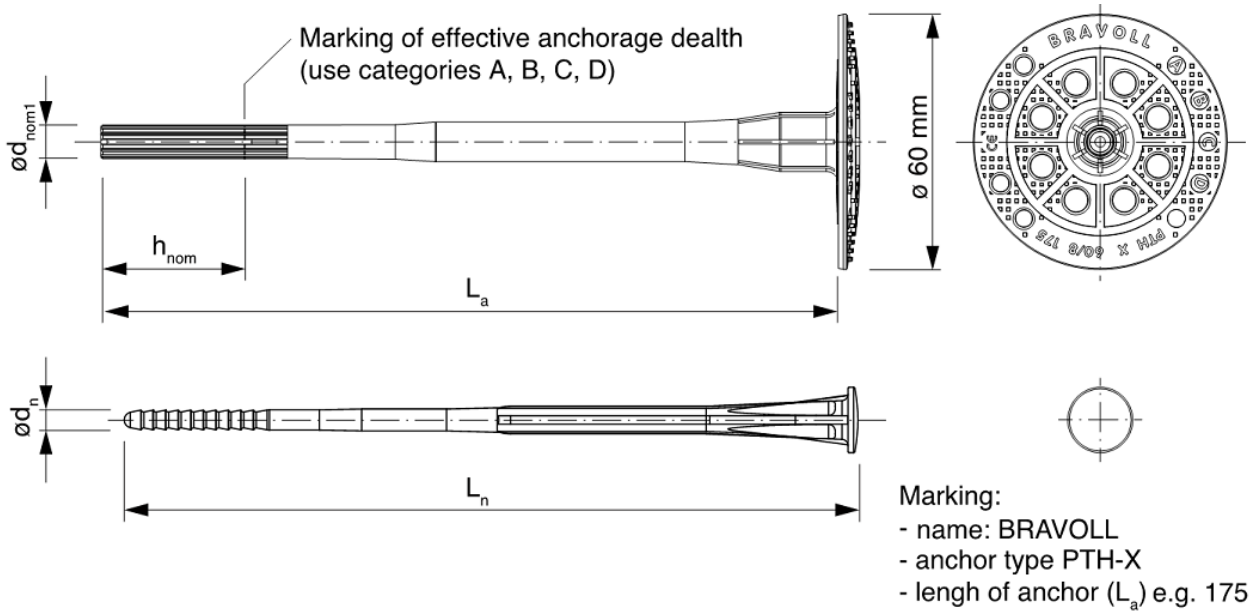
**SPIT PTH-EX**

**Product description**  
Installed conditions

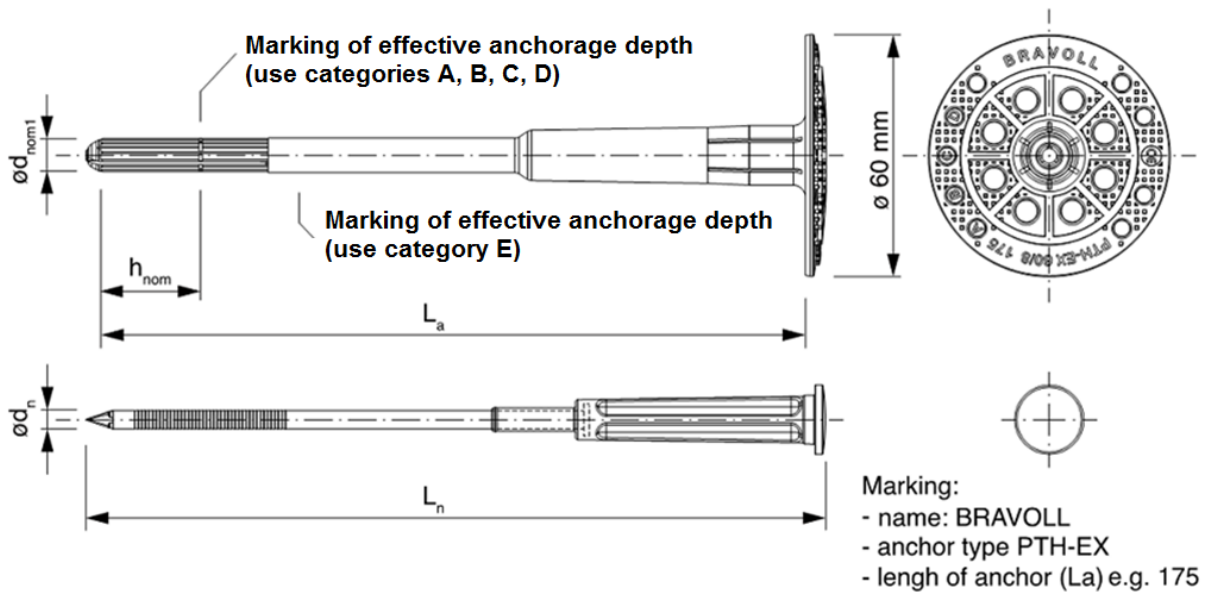
**Annex A 2**

## Anchor sleeve and expansion nail

### SPIT PTH-X



### SPIT PTH-EX



SPIT PTH-X, SPIT PTH-EX

Product description  
Dimensions

Annex A 3

**Table A1: Dimensions [mm]**

Anchor type	Anchor sleeve			Anchor plate	Expansion nail	
	Ød <sub>nom</sub>	h <sub>nom</sub>				L <sub>a</sub>
Use category		A, B, C, D	E	Ød <sub>p</sub>	L <sub>n</sub>	
SPIT PTH-X	8	35		115-255	60	115-255
SPIT PTH-EX	8	25	55	115-355	60	120-360

**Table A2: Materials**

Designation	Color	Material
Anchor sleeve SPIT PTH-X	natural, yellow	Copolymer polypropylene PP - virgin plastic
Expansion nail SPIT PTH-X	natural	Reinforced polyamide
Anchor sleeve SPIT PTH-EX	orange, brown, yellow, natural, blue	Copolymer polypropylene PP - virgin plastic
Expansion nail SPIT PTH-EX	nail is color of galvanized and pins head is color natural	Steel strength class 5.8, galvanized ≥ 5µm 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

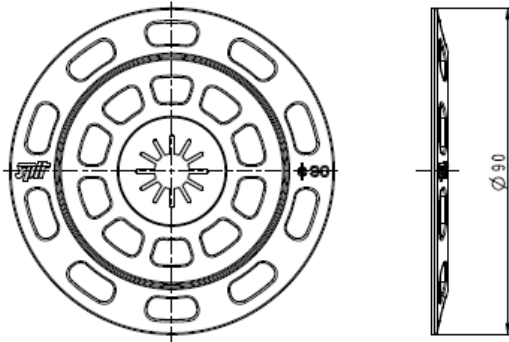
**SPIT PTH-X, SPIT PTH-EX****Product description**

Dimensions

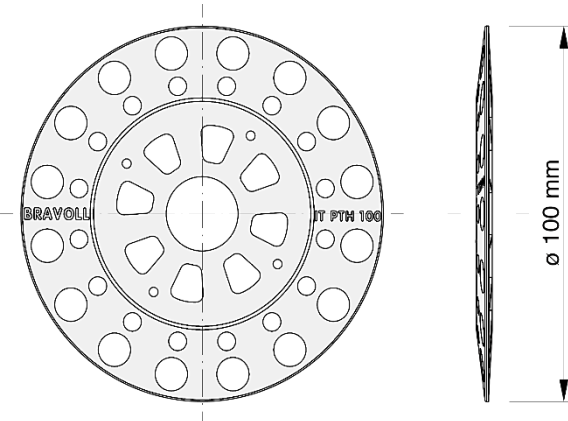
Materials

**Annex A 4**

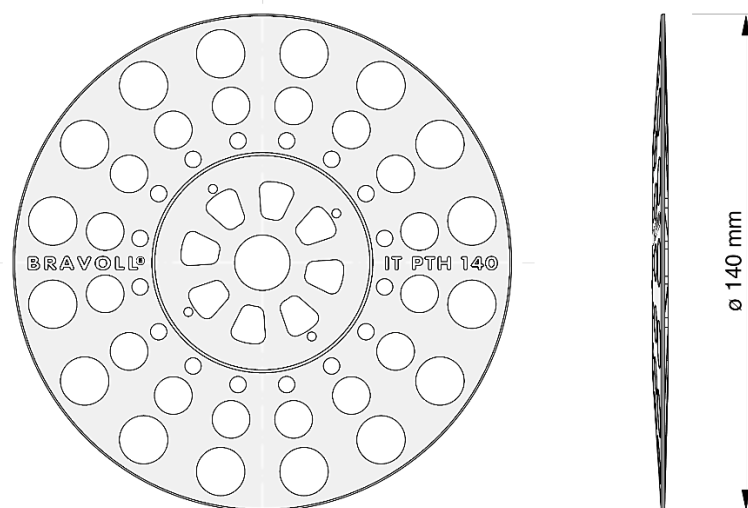
**Plate Ø90**



**Plate IT PTH 100**



**Plate IT PTH 140**



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

**Product description**  
Additional plate in combination with SPIT PTH-EX

**Annex A 5**

## 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 LAC (Use category D), according to Annex B3-B4.
- Autoclaved aerated concrete AAC4 and AAC6 (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-X are used for the categories A, B, C and D.
- The anchors SPIT PTH-EX 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-X, SPIT PTH-EX**

**Intended use**  
Specifications

**Annex B 1**



**Installation:**

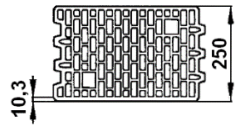
The fitness for use of the anchor can only be assumed if the following conditions of installation are met:

- 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, lightweight aggregate concrete hollow blocks (LAC) and Autoclaved aerated concrete may only be drilled using the rotary drill. Other drilling methods may also be used if job-site tests according to EOTA TR 051 evaluate the influence of hammer or impact drilling.)
- 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-X, SPIT PTH-EX****Intended use**  
Installation**Annex B 2**

## Types of base materials

**Table B1: Base materials**

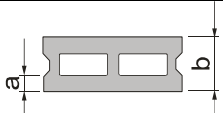
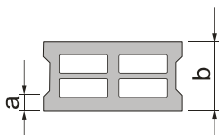
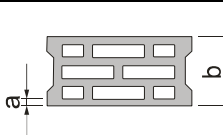
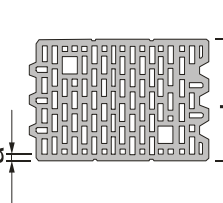
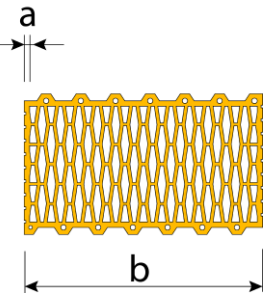
Base material	Use category	Bulk density class [kg/dm <sup>3</sup> ]	Min. compressive strength $\beta$ [N/mm <sup>2</sup> ]	General remarks	Drilling method
Concrete C12/15 according to EN 206-1	A				Hammer drilling
Concrete C16/20 – C50/60 according to EN 206-1	A				Hammer drilling
Solid clay bricks according 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	$\geq 0,7$	12	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 AAC4 according to EN 771-4	E	$\geq 0,5$	4	Only SPIT PTH-EX	Only rotary drilling
Autoclaved aerated concrete AAC6 according to EN 771-4	E	$\geq 0,6$	6	Only SPIT PTH-EX	Only rotary drilling

**SPIT PTH-X, SPIT PTH-EX**

**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-X SPIT PTH-EX
	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-X, SPIT PTH-EX**

**Intended use**  
Base materials

**Annex B 4**

## Installation

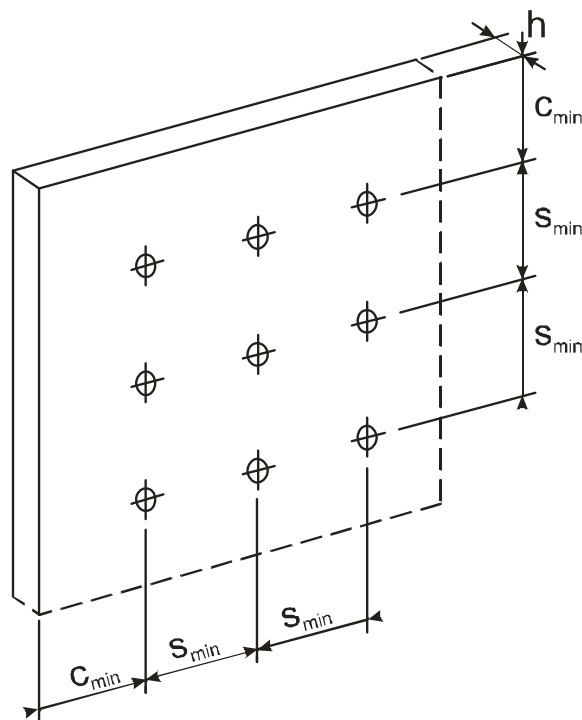
**Table B3: Installation characteristics**

Anchor types	SPIT PTH-X	SPIT PTH-EX	
Use category	A, B, C, D	A, B, C, D	E
Nominal diameter of drill bit $d_o$ [mm]	8	8	8
Min. diameter of drill bit $d_{cut, min} \geq$ [mm]	8,0	8,0	8,0
Max. diameter of drill bit $d_{cut, max} \leq$ [mm]	8,45	8,45	8,45
Depth of drill hole $h_1 \geq$ [mm]	45	35	65
Overall embedment depth $h_{nom} \geq$ [mm]	35	25	55

**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-X SPIT PTH-EX	100	100	100

Scheme of distance and spacing.



**SPIT PTH-X, SPIT PTH-EX**

**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 <sup>3</sup> ]	Min. compressive strength $\beta$ [N/mm <sup>2</sup> ]	SPIT PTH-X [kN]	SPIT PTH-EX [kN]
Concrete C 12/15 according to EN 206-1	A			0,6	0,9
Concrete C 16/20 –C50/60 according to EN 206-1	A			0,75	1,2
Solid clay bricks according to EN 771-1	B	$\geq 1,7$	20	0,75	0,9
Calcium silicate solid units according to EN 771-2	B	$\geq 1,8$	12	0,75	0,9
Vertically perforated clay bricks according to EN 771-1	C	$\geq 0,7$	12	0,5	0,6
Vertically perforated clay bricks according to ÖNORM B6124	C	$\geq 0,9$	10	0,4	0,75
Lightweight concrete hollow block according to EN 771-3	D	$\geq 0,5$	4	0,6	0,75
Lightweight aggregate concrete hollow blocks LAC according to EN 1520	D	$\geq 1,2$	4	0,5	0,6
Autoclaved aerated concrete AAC4 according to EN 771-4	E	$\geq 0,5$	4		0,75
Autoclaved aerated concrete AAC6 according to EN 771-4	E	$\geq 0,6$	6		0,95
Partial safety factor	$\gamma_M =$			2,0*	

\* in the absence of other national regulations

**Table C2: Displacement under tension loads**

Anchor type	SPIT PTH-X		SPIT PTH-EX	
	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	0,2	<b>0,53</b>	0,3	<b>0,71</b>
C16/20 EN 206-1	0,25	<b>0,59</b>	0,4	<b>0,56</b>
C50/60 EN 206-1	0,25	<b>0,59</b>	0,4	<b>0,56</b>
Solid clay bricks EN 771-1	0,25	<b>0,57</b>	0,3	<b>0,91</b>
Calcium silicate masonry units EN 771-2	0,25	<b>0,51</b>	0,3	<b>0,54</b>
Vertically perforated clay bricks ÖNORM B6124	0,13	<b>0,27</b>	0,25	<b>0,51</b>
Perforated clay bricks POROTHERM P+D 44 EN 771-1	0,17	<b>0,39</b>	0,2	<b>0,49</b>
Lightweight concrete hollow blocks EN 771-3	0,2	<b>0,43</b>	0,25	<b>0,59</b>
Lightweight aggregate concrete EN 1520 LAC)	0,17	<b>0,42</b>	0,2	<b>0,32</b>
Autoclaved aerated concrete AAC4 EN 771-4			0,25	<b>0,32</b>
Autoclaved aerated concrete AAC6 EN 771-4			0,32	<b>0,40</b>

**SPIT PTH-X, SPIT PTH-EX****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 $\chi$ [W/K]
SPIT PTH-X	80-220	0,000*
SPIT PTH-EX	90-330	0,001

\*The thermal bridge effect of the anchor SPIT PTH-X is smaller than 0,0005 W/K and can therefore be neglected in the calculation.

**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-X	60	1,50	0,6
SPIT PTH-EX	60	1,40	0,6

**SPIT PTH-X, SPIT PTH-EX**

**Performances**

Point thermal transmittance  
Plate stiffness

**Annex C 2**