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European Technical Assessment

ETA-04/0076 of 01/07/2018

(English language translation, the original version is in French language)

General Part

Nom commercial *Trade name*	**SPIT ISO**
Famille de produit *Product family*	**Cheville à clou pour fixation de système composite d'isolation thermique extérieure dans le béton et la maçonnerie** ***Nailed-in anchor for fixing of external insulation composite systems with rendering in concrete and masonry***
Titulaire *Manufacturer*	SPIT SAS route de Lyon F-26500 BOURG-LES-VALENCE France
Usine de fabrication *Manufacturing plants*	SORMAT plant 1 Société SPIT Route de Lyon F-26501 BOURG-Les-VALENCE
Cette évaluation contient: *This assessment contains*	13 pages incluant 10 annexes qui font partie intégrante de cette évaluation 13 *pages including 10 annexes which form an integral part of this assessment*
Base de l'ETE *Basis of ETA*	EAD 330196-01-0604, édition juillet 2017 *EAD 330196-01-0604, edition July 2017*
Cette évaluation remplace: *This assessment replaces*	ETE-04/0076 valide du 01/07/2018 ETA-04/0076 with validity from 01/07/2018 *Corrigendum*

Specific Part

1 Technical description of the product

The SPIT ISO anchor consists of a plastic expansion sleeve with a plate for fixing the thermal insulation and a plastic nail as an expansion element. The anchor sleeve is made of polypropylene and the nail is made of polypropylene or polyamide 6 depending on the anchor sizes. The sleeve expansion plastic is realized by knocking in of nail to hammer for push the plastic expansion sleeve against the wall of the drilled hole. The plate exists in three different diameters (Ø50 or Ø60) and Ø90 mm depending on the insulation system to be fixed. An additional plastic plate Ø 90mm can be used in conjunction with anchors having a plastic plate Ø 60mm (inserted between the fixture and the anchor). The plate of Ø 90mm is to use in the case of flexible insulation.

The installed anchor is shown in Annex A.

2 Specification of the intended use

The anchor is to be used as multiple fixing for the anchorage of profiles for external thermal insulation composite system (ETICS) in concrete and masonry.
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, 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

3.1 Mechanical resistance and stability (BWR 1)

For Basic Requirement Mechanical Resistance and Stability (BWR1) the same criteria are valid as for Basic Requirement Safety in use.

3.2 Sécurité en cas d'incendie (BWR 2)

Not relevant.

3.3 Hygiene, health and environment (BWR 3)

Regarding dangerous substances contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transported European legislation and national laws, regulations and administrative provisions). In order to meet provisions of the regulation (EU) No 305/2011, these requirements need also to be complied with, when they apply.

3.4 Safety in use(BWR 4)

Essential characteristic	Performance
Characteristic resistances in concrete and masonry	See Annex C1
Displacements	See Annex C1
Installation distances and dimensions of members	See Annex C1

3.5 Protection against noise (BWR 5)

Not relevant.

3.6 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Coefficient thermal transmittance	Voir Annexe C2

3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was determined for this product.

3.8 General aspects relating to fitness for use

Durability and Serviceability are only ensured if the specifications of intended use according to Annex B1 are kept.

4 Assessment and verification of constancy of performance (EVCP)

According to the Decision 97/463/EC of the European Commission , as amended, the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Product	Intended Use	Level or Class	Systeme
Nailed-in plastic anchor for fixing of external thermal insulation composite systems	Nailed-in plastic anchor for fixing of external thermal insulation composite systems with rendering on concrete and masonry	—	2+

5 Technical details necessary for the implementation of the AVCP system

Technical details necessary for the implementation of the Assessment and verification of constancy of performance (AVCP) system are laid down in the control plan deposited at Centre Scientifique et Technique du Bâtiment.

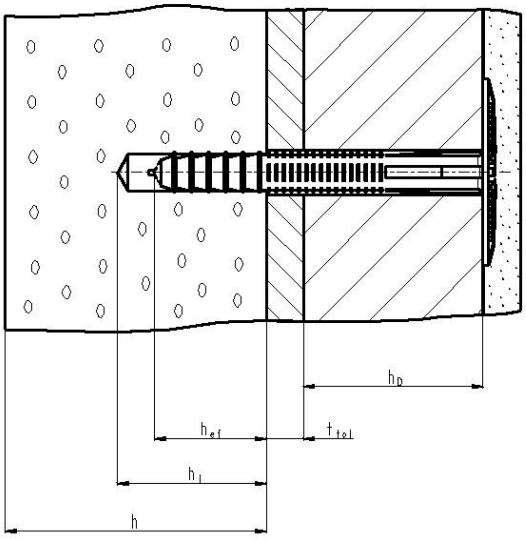
The manufacturer shall, on the basis of a contract, involve a notified body approved in the field of anchors for issuing the certificate of conformity CE based on the control plan.

Issued in Marne La Vallée le **0 1 / 0 7 / 2 0 1 8** by

The Direction Technique

The original French version is signed

Schema of the SPIT ISO anchor in use



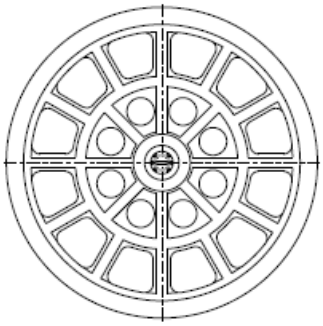
Intended use : anchorage of ETICS in concrete and masonry.

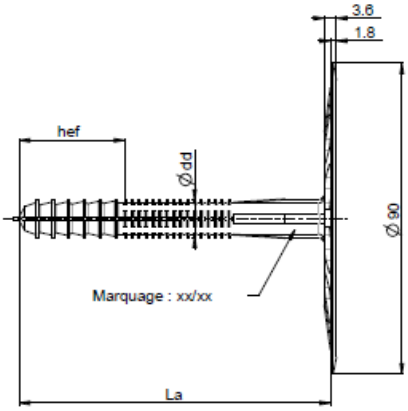
h_D : thickness of the insulation
h_{ef} : effective anchorage depth
h : thickness of base material
h_1 : depth of drilled hole
t_{tol} : thickness of equalizing layer or non-load bearing coating

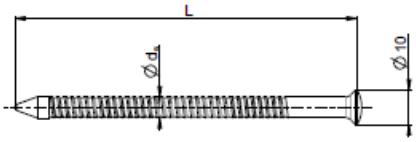
SPIT ISO	
Description of the product Installed anchor	**Annex A1**

ISO plate 90 mm :

ISO 10-40/60
ISO 10-70/80

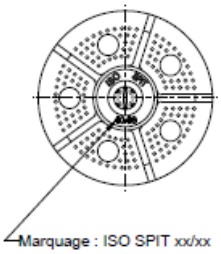


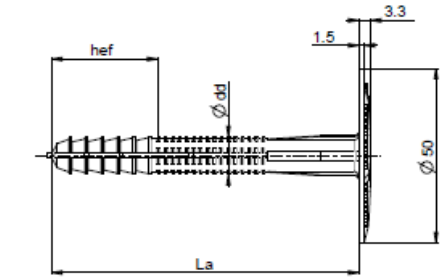


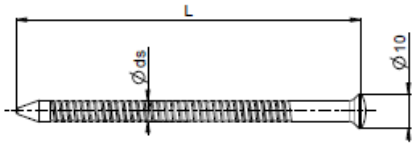


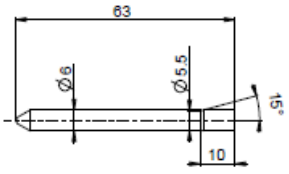
ISO plate 50 mm :

ISO 10-40/60
ISO 10-70/80





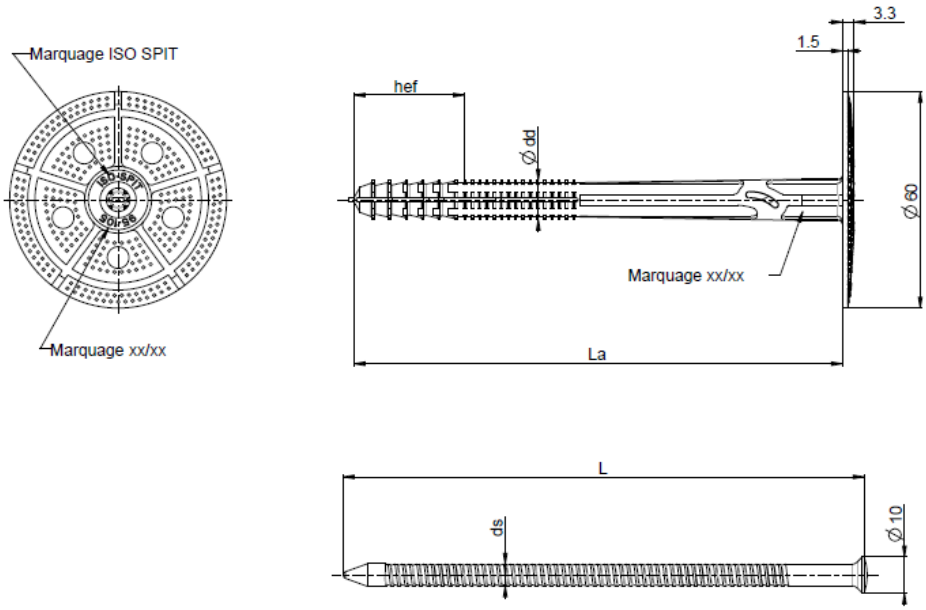




SPIT ISO	
Description of the product Different components of the anchor : sleeve and nails	**Annex A2**

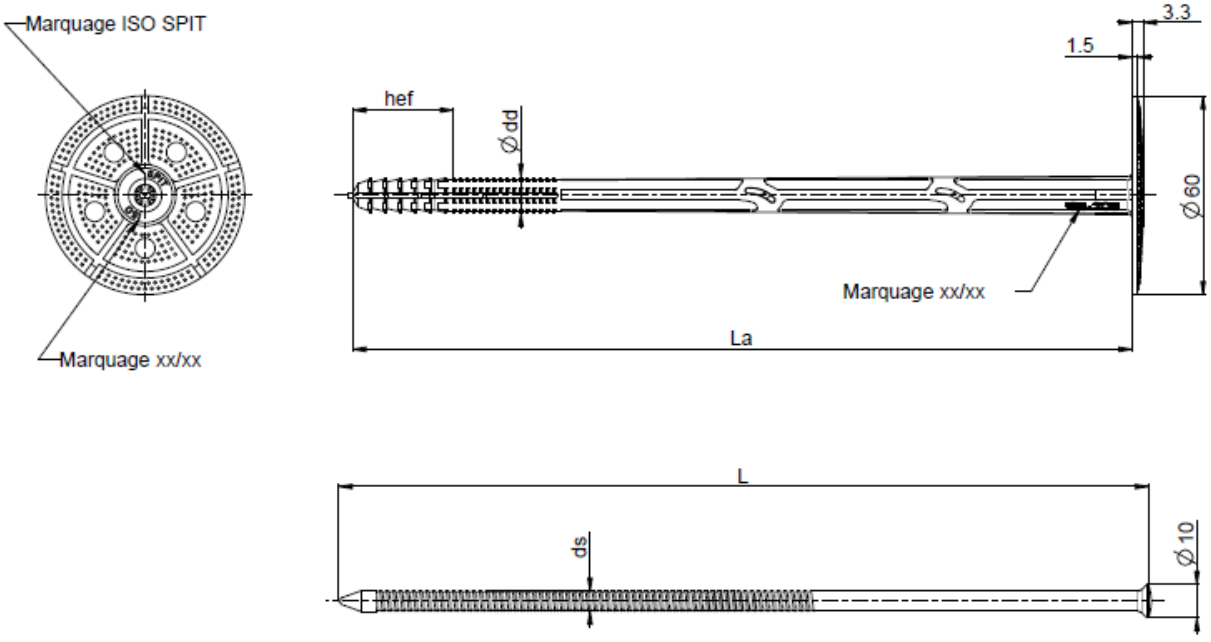
ISO plate 60 mm :

ISO 10-45/65
ISO 10-75/85
ISO 10-95/105
ISO 10-115/125
ISO 10-135/145
ISO 10-155/165



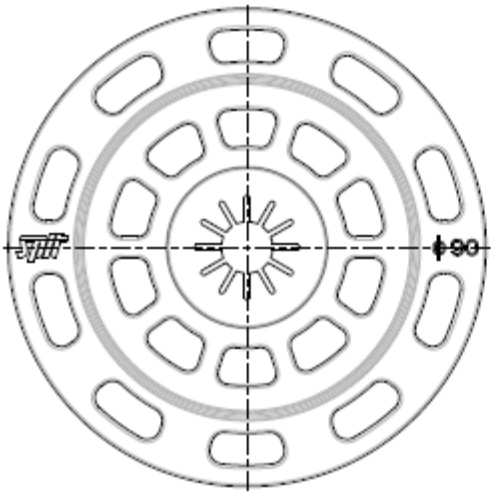
ISO plate Ø60 mm :

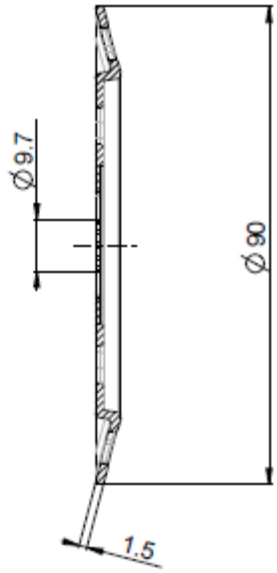
ISO 10-175/185
ISO 10-195/205



SPIT ISO	
Description of the product Different components of the anchor : sleeve and nails	**Annex A3**

Plate Ø90 :





SPIT ISO	
Description of the product Different components of the anchor : sleeve and nails	**Annex A4**

Table A1 : Materials

Designation	Material	
	Nail	Plastic expansion sleeve
ISO 10 - 10/30	Polypropylene (white shade)	Polypropylene
ISO 10 - 40/60	Glass Fiber reinforced Polyamide (white, orange or black shade)	
ISO 10 - 45/65		
ISO 10 - 70/80		
ISO 10 - 75/85		
ISO 10 - 95/105		
ISO 10 - 115/125		
ISO 10 - 135/145		
ISO 10 - 155/165		
ISO 10 - 175/185		
ISO 10 - 195/205		

Table A2 : Dimensions of components

Anchor type	Diameter of the expansion sleeve d_d	Length of the expansion sleeve L_d	Length of the anchor $L_d + 3$	Diameter of the plate -	Diameter of the nail d_s	Length of the nail L
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
ISO 10 - 10/30	10	60	63	50	6	63
ISO 10 - 40/60		90	93	50		100
				90		
ISO 10 - 45/65		95	98	60		105
ISO 10 - 70/80		110	113	50		120
				90		
ISO 10 - 75/85		115	118	90		125
ISO 10 – 95/105		135	138	60		145
ISO 10 - 115/125		155	158	60		165
ISO 10 - 135/145		175	178			185
ISO 10 - 155/165		195	198			205
ISO 10 - 175/185		215	218			225
ISO 10 - 195/205		235	238			245

SPIT ISO

Description of the product
Dimensions, Material

Annex A5

Table A3 : Installation data

Anchor type	Thickness maximum of insulation + coating primer no supporting	Length of the expansion sleeve	Drill hole diameter	Depth of the drilled hole	Embedment depth
	$h_D + t_{tol}$ [mm]	L_a [mm]	d_0 [mm]	h_0 [mm]	h_{ef} [mm]
ISO 10 - 10/30	30	60	10	50	30
ISO 10 - 40/60	60	90			
ISO 10 - 45/65	65	95			
ISO 10 - 70/80	80	110			
ISO 10 - 75/85	85	115			
ISO 10 – 95/105	105	135			
ISO 10 - 115/125	125	155			
ISO 10 - 135/145	145	175			
ISO 10 - 155/165	165	195			
ISO 10 - 175/185	185	215			
ISO 10 - 195/205	205	235			

Determination of the maximum thickness of insulation with SPIT ISO:

$$h_D = L_a - t_{tol} - h_{ef}$$

h_D : thickness of the insulation
L_a : Length of the expansion sleeve
t_{tol} : thickness of equalizing layer or non-load bearing coating
h_{ef} : effective anchorage depth

As example, for the SPIT **ISO 10-115/125** :

L_a = 155 mm
t_{tol} = 5 mm
h_{ef} = 30 mm

h_D = 155 – 5 – 30

$h_{D\,max}$ = **120 mm** thickness of the insulation

SPIT ISO	**Annex A6**
Description of the product Installation data	

Specifications of intended use

Anchorages subject to:

- 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.

Base materials:

- Use category « A » : Reinforced or unreinforced normal weight concrete, with strength class ≥ C12/15, according to EN 206 according annex B2;
- Use category « B » : solid masonry according to Annex B2 ;
- For other base materials of the use categories « A », or « B », the characteristic resistance of the anchor may be determined by job site tests according to TR 051, Edition December 2016 (EOTA).

Design:

- The design of anchorages is carried out in compliance with EAD 330196-00-0604 (June 2016), "Plastic anchors for fixing of external thermal insulation composite systems with rendering" under the responsibility of an engineer experienced in anchorages. In the absence of national regulations, the partial safety factors γ_M=2.2 and γ_M=1.5 must be taken into account.
- 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 with the bi-chromated steel nail shall be used with a thermal insulation cover of at least 50mm

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on the site.
- Use of the anchor only as supplied by the manufacturer without exchanging the components of an anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings prepared for that purpose and using the appropriate tools.
- Checks before placing the anchor to ensure that the characteristic values of the base material in which the anchor is to be placed are identical to the values to which the characteristic loads apply.
- Observation of the drilling method : in the case of horizontally perforated clay bricks, the drilled hole is carried out using a rotary drill. In the case of other base materials covered in this Assessment, the drilled hole is carried out using hammer or impact drilling.
- Placing drill holes without damaging the reinforcement.
- Temperature during installation of the anchor ≥ 0°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering 6 weeks.

SPIT ISO	**Annexe B1**
Intended Use Specifications	

Table B1 : Base materials

Base material	Dimensions L x l x H [mm]		References	Compressive strength [MPa]
Concrete C15/20	[EN 206]		EN 206	[EN 206]
Concrete C50/60	[EN 206]		EN 206	[EN 206]
Clay brick		220x110x 55	NF EN 771-1	4.7 (bending test)
Aggregates concrete solid masonry units		500x150x200	NF EN 771-3	12.5
Horizontally perforated clay bricks		500x200x200	NF EN 771-1	5.9
Aggregates concrete hollow masonry units		500x200x200	NF EN 771-3	8.2

Table C1 : Characteristic resistance to tension loads N_{Rk} in concrete and masonry for a single anchor in daN

Base material	**Characteristic resistance to tension loads N_{Rk} in daN**	
	SPIT ISO with polypropylene nail	**SPIT ISO** with PA6 bonded fibreglass nail
Concrete C15/20	20	60
Concrete C20/25 to C50/60	30	75
Clay brick	30	75
Horizontally perforated clay bricks	10	40
Aggregates concrete solid masonry units	30	60
Aggregates concrete hollow masonry units	15	30

Table C2 : Minimum spacing and edge distances, dimension of members

Minimum spacing	$S_{min} \geq 100$ mm
Minimum edge distance	$C_{min} \geq 100$ mm
Minimum thickness of member	$h \geq 100$ mm

Table C3 : Displacements behavior for Spit ISO

Base Material	for a tensile load N [daN]	Displacements δ [mm]
Concrete C15/20 (EN 206)	60.0	0.2
Concrete C20/25 to C50/60 (EN 206)	75.0	0.2
Clay bricks (NF EN 771-1)	75.0	0.3
Horizontally perforated clay bricks (NF EN 771-1)	40.0	0.1
Aggregates concrete solid masonry units (NF EN 771-3)	60.0	0.2
Aggregates concrete hollow masonry units (NF EN 771-3)	30.0	0.3

Table C4 : Point thermal transmitttance

The point thermal transmittance (CHI-value) of the anchor according EOTA Technical Report TR 025 "Determination of point thermal transmittance of plastic anchors for the anchorage of external thermal insulation composite systems (ETICS)" is given in the following table for use category A, B and C respectively.

Anchor Type	Insulation thickness, h_D	Point thermal transmittance, χ
	[mm]	[W/K]
ISO 10	From 30 to < 150	0.001
	From ≥ 150 to 200	0.000

Table C5 : Plate stiffness

The plate stiffness of the anchor according EOTA Technical Report TR 026 "Evaluation of plate stiffness from plastic anchors for fixing of external thermal insulation composite systems with rendering (ETICS)" is given in the following table.

Anchor Type	Diameter of the anchor plate	Load resistance of the anchor plate	Plate stiffness
	[mm]	[kN]	[kN/mm]
ISO 10	50	1.0	0.3
	60	1.0	0.5
	60 + plate ϕ90	1.10	0.5
	90	1.08	0.3