



INSTYTUT TECHNIKI BUDOWLANEJ



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European Technical Assessment

**ETA-13/0088
of 22/04/2024**



General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

FX

Product family to which the construction product belongs

Nailed-in plastic anchors for fixing of external thermal insulation composite systems (ETICS)

Manufacturer

RAWLPLUG S.A.
ul. Kwidzyńska 6
51-416 Wrocław
Poland

Manufacturing plants

Manufacturing Plants: no. 3 and no. 29

This European Technical Assessment contains

11 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-13/0088 issued on 20/03/2018

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Specific Part

1 Technical description of the product

The FX 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 polypropylene (PP) - virgin material. The nail is made of galvanized steel.

The collar is made in three versions (FX-..L.., FX-..K.. and FX-..C..).

The plastic anchor sleeve is expanded by hammering in a nail, which press the sleeve against the wall of the drilled hole.

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 and accessibility in use (BWR 4)

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

3.1.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	No performance assessed

3.2 Methods used for the assessment

The assessment has been made in accordance with EAD 330196-01-0604.

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

According to Decision 97/463/EC of the European Commission 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)

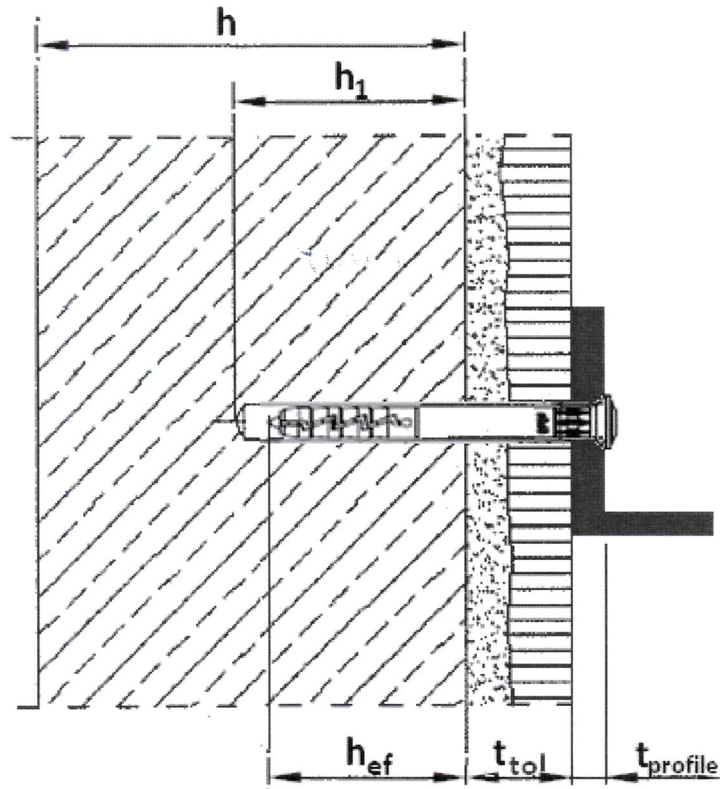
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

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 22/04/2024 by Instytut Techniki Budowlanej

A handwritten signature in blue ink, appearing to read 'Anna Panek'.

Anna Panek, MSc
Deputy Director of ITB



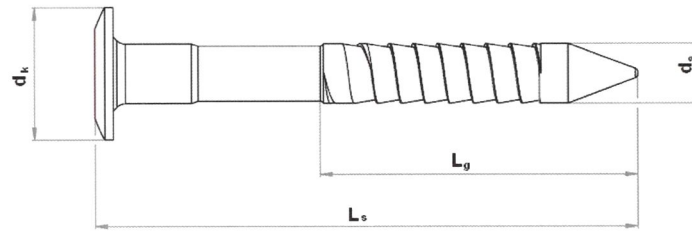
Intended Use

Multiple fixing of profiles for external thermal insulation composite systems (ETICS) according to EAD 040083-00-0404 or prefabricated units for external wall insulation (Veture Kits) according to EAD 040914-00-0404, in concrete and masonry

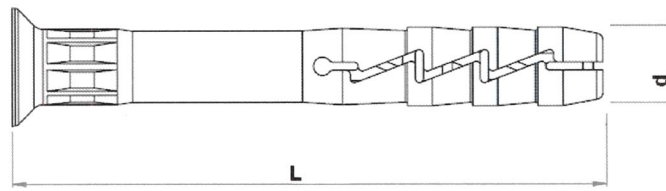
Legend

- h_{ef} = effective anchorage depth
- h_1 = depth of drill hole in base material
- h = thickness of base material
- t_{tol} = thickness of equalizing and/or non-load-bearing layer
- $t_{profile}$ = thickness of profile
- t_{fix} = thickness of fixture ($t_{tol} + t_{profile}$)

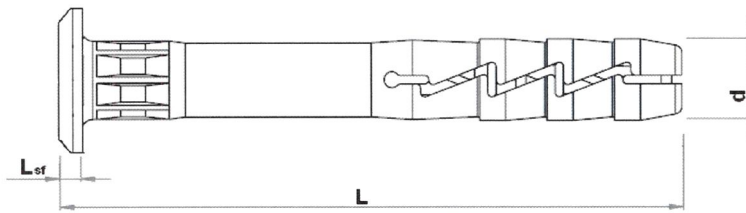
FX	Annex A1 of European Technical Assessment ETA-13/0088
Product description Installation conditions	



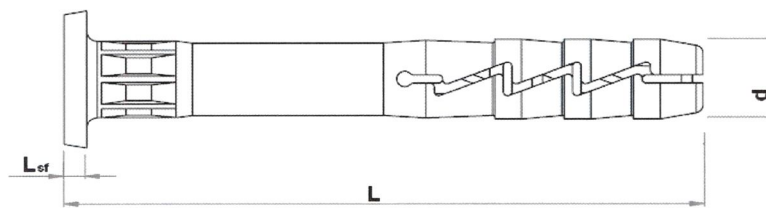
FX expansion pin



FX-..L.. sleeve



FX-..K.. sleeve



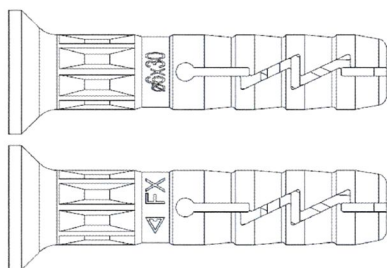
FX-..C.. sleeve

FX	Annex A2 of European Technical Assessment ETA-13/0088
Product description Types of expansion pins and expansion sleeves	

Table A3: Dimensions

Anchor index			Anchor sleeve		Expansion nail			t_{fix}
FX-..L..	FX-..K..	FX-..C..	L	d	L_s	d_s	d_k	-
			mm	mm	mm	mm	mm	mm
FX-05L025	–	FX-05C025	25	4,9	28	3,3	8,0	≤ 1
FX-05L030	FX-05K030	FX-05C030	30	4,9	33	3,3	8,0	≤ 5
FX-05L035	FX-05K035	FX-05C035	35	4,9	38	3,3	8,0	≤ 10
FX-05L040	FX-05K040	FX-05C040	40	4,9	43	3,3	8,0	≤ 15
FX-05L050	FX-05K050	FX-05C050	50	4,9	54	3,3	8,0	≤ 25
FX-06L030	FX-06K030	FX-06C030	30	5,9	34	3,8	9,0	≤ 1
FX-06L035	FX-06K035	FX-06C035	35	5,9	39	3,8	9,0	≤ 6
FX-06L040	FX-06K040	FX-06C040	40	5,9	44	3,8	9,0	≤ 11
FX-06L045	FX-06K045	FX-06C045	45	5,9	49	3,8	9,0	≤ 16
FX-06L050	FX-06K050	FX-06C050	50	5,9	54	3,8	9,0	≤ 21
FX-06L055	FX-06K055	FX-06C055	55	5,9	59	3,8	9,0	≤ 26
FX-06L060	FX-06K060	FX-06C060	60	5,9	64	3,8	9,0	≤ 31
FX-06L070	FX-06K070	FX-06C070	70	5,9	74	3,8	9,0	≤ 41
FX-06L080	FX-06K080	FX-06C080	80	5,9	84	3,8	9,0	≤ 51
FX-08L045	FX-08K045	FX-08C045	45	7,9	51	4,8	11,0	≤ 5
FX-08L060	FX-08K060	FX-08C060	60	7,9	66	4,8	11,0	≤ 20
FX-08L080	FX-08K080	FX-08C080	80	7,9	86	4,8	11,0	≤ 40
FX-08L100	FX-08K100	FX-08C100	100	7,9	106	4,8	11,0	≤ 60
FX-08L120	FX-08K120	FX-08C120	120	7,9	126	4,8	11,0	≤ 80
FX-08L140	FX-08K140	FX-08C140	140	7,9	146	4,8	11,0	≤ 100
FX-08L160	FX-08K160	FX-08C160	160	7,9	166	4,8	11,0	≤ 120

Marking:



KOELNER identifying mark

FX

anchor trade name

ø6x30

diameter x length (e.g. ø6 x 30 mm)

FX
Product description
 Dimensions and marking

Annex A3
 of European
 Technical Assessment
 ETA-13/0088

Table A4: Materials

Designation	Material
Anchor sleeve	Polypropylene (PP), grey, virgin material
Expansion pin made of steel	Carbon steel ($f_{y,k} \geq 285$ MPa, $f_{u,k} \geq 330$ MPa) galvanized ≥ 5 μm according to EN ISO 4042

FX**Product description**
Materials**Annex A4**
of European
Technical Assessment
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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 (ETICS) or prefabricated units for external wall insulation (Veture Kits).

Base materials:

- Normal weight concrete (base material group A), according to Annex C1.
- Solid masonry (base material group B), according to Annex C1.
- Hollow or perforated masonry (base material group C), according to Annex C1.
- Lightweight aggregate concrete (base material group D), according to Annex C1.
- Autoclaved aerated concrete (base material group E), according to Annex C1.
- For other base materials of the base material groups 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 April 2018.

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 profiles for external thermal insulation composite system (ETICS) according to according to EAD 040083-00-0404 or prefabricated units for external wall insulation (Veture Kits) according to EAD 040914-00-0404.

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.

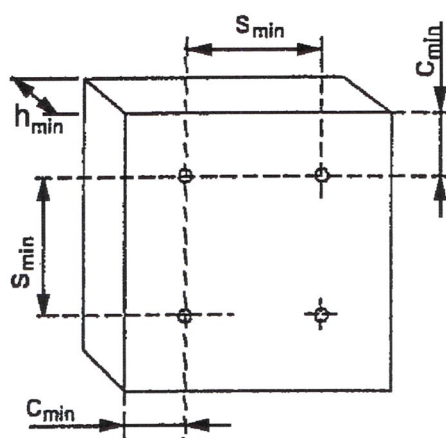
FX	Annex B1 of European Technical Assessment ETA-13/0088
Intended use Specification	

Table B1: Installation characteristics

Anchor type		FX-05	FX-06	FX-08
Drill hole diameter	d_0 [mm]	5,0	6,0	8,0
Cutting diameter of drill bit	d_{cut} [mm]	$\leq 5,40$	$\leq 6,40$	$\leq 8,45$
Depth of drill hole for base material group A, B, C, D, E	h_1 [mm]	≥ 35	≥ 40	≥ 50
Effective anchorage depth for base material group A, B, C, D, E	h_{ef} [mm]	25	29	40

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

Anchor type		FX
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

FX

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

Annex B2
of European
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Table C1: Characteristic resistance under tension loads, N_{Rk} , in concrete and in masonry for single anchor




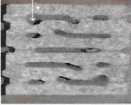
Base material	Reffering standard	Bulk density [kg/dm ³]	Compressive strength [N/mm ²]	Drill method	N_{Rk} [kN]		
					FX-05	FX-06	FX-08
Concrete C12/15 (base material group A)	EN 206-1	–	–	hammer	0,1	0,2	0,3
Concrete C20/25 - C50/60 (base material group A)	EN 206-1	–	–		0,2	0,4	0,5
Solid clay brick (base material group B) 	EN 771-1	≥ 1,7	≥ 30,0	hammer	0,2	0,2	0,6
Solid calcium silicate brick (e.g. KS NF 20-2.0) (base material group B) 	EN 771-2	≥ 2,0	≥ 20,0	hammer	0,2	0,3	0,75
Calcium silicate hollow block (eg. KS L-R(P) 8 DF) (base material group C) $a^{(1)} = 30$ mm 	EN 771-2	≥ 1,6	≥ 12,0	rotary	0,3	0,3	–
Lightweight concrete hollow block Hbl (base material group D) $a^{(1)} = 30$ mm 	DIN 18151	≥ 0,8	≥ 2,0	rotary	0,2	0,2	0,4
Lightweight concrete block LAC 20 (base material group D)	EN 771-3	≥ 1,56	≥ 20,0	rotary	0,3	0,3	0,5
Autoclaved aerated concrete block AAC 2 (base material group E)	EN 771-4	≥ 0,35	≥ 2,0	rotary	0,1	0,1	0,1
Partial safety factor $\gamma_M^{(2)}$	2,0						
⁽¹⁾ Minimum values "a". For elements with lower value of "a" the load tests on the construction site are required							
⁽²⁾ Valid in absence of other national regulations							

Table C2: Displacements

Base material acc. to Table C1	$\frac{N_{Rk}}{3}$ [kN]			δ (for $\frac{N_{Rk}}{3}$) [mm]		
	FX-05	FX-06	FX-08	FX-05	FX-06	FX-08
Concrete C12/15	0,03	0,07	0,10	0,10	0,26	0,25
Concrete C20/25 - C50/60	0,07	0,13	0,17	0,12	0,35	0,38
Solid clay brick	0,07	0,07	0,20	0,24	0,24	0,57
Solid calcium silicate brick	0,07	0,10	0,25	0,39	0,24	0,68
Calcium silicate hollow block	0,10	0,10	–	0,27	0,23	–
Lightweight concrete hollow block	0,07	0,07	0,13	0,24	0,14	0,84
Lightweight concrete block LAC 20	0,10	0,10	0,17	0,13	0,27	0,29
Autoclaved aerated concrete block AAC 2	0,03	0,03	0,03	0,07	0,10	0,09

FX	Annex C1 of European Technical Assessment ETA-13/0088
Performances Characteristic resistance and displacements	