TECHNICAL DATA SHEET N°4527

MARCOVIS FM-X3 ZINC PLATED TF – TH – CL TH Ø8xL – Ø10xL

TF TH CL TH

ETA-19/0245
EAD 330284

FIRE R90
TR 020

PRODUCT DEFINITION

- Long multi-expansion metalloplastic anchor with three possible implantation depths.
- Delivered assembly (plug + screw).

SCOPE OF APPLICATION

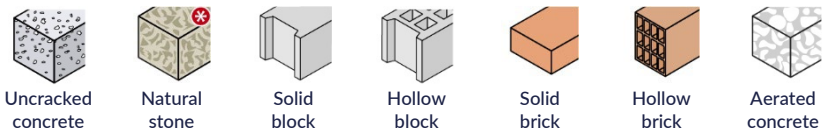
- Anchor for uncracked concrete, aerated concrete, solid masonry and hollow masonry.
- Application for light load and multiple use in non-structural (static or quasi-static).
- Structure subjected to dry internal conditions.

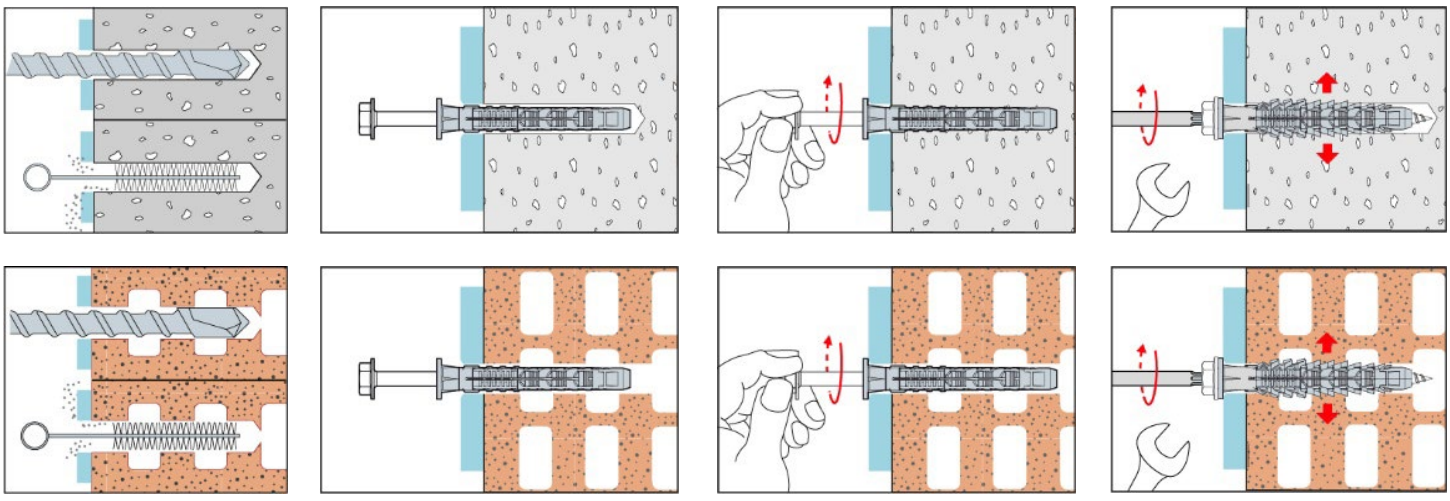
MATERIAL & FINISH

Material:
- Screw: Steel class 6.8.
- Plug: Polyamide PA6 according to ISO 1874.

Finish:
- Coating: Electrogalvanized.
- Thickness ≥ 5 µm according to EN ISO 4042.

INSTALLATION





- Minimal temperature of installation: ≥ -10 °C
- Maximal temperature of installation: ≤ +40 °C

* On-site testing

Registration date: 16/02/2026 – Revision C
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PERFORMANCES

Technical data according to ETA (daN) :

- The technical data allowing the precise calculation of anchor MARCOVIS FM-X3 are availed in the European Technical Assessment of this anchor. To obtain the European technical Assessment or for precise calculation, you can use the SPECIF Anchors software or contact our anchor Departement.
- MARCOVIS FM-X3: ETA n° 19/0245 according to EAD 330284-00-0604.
- We are communicating in this technical data sheet, on the following pages, some examples of pre-calculated loads according to this ETA allowing you to assess the main performance of the anchors.
- To obtain the European Technical Assessment or for precise calculation, you can use the SPECIF Anchors software or contact our Anchor Department.

Recommended load F(#):

MARCOVIS FM-X3 IN CONCRETE			Ø8		Ø10	
(Hammer drilling)	h_{nom}	(mm)	40	50	50	70
Concrete ≥ C16/20 – 24 °C / 40 °C	F	(daN)	60	79	159	258
Concrete ≥ C16/20 – 50 °C / 80 °C	F	(daN)	60	79	139	198
Concrete C12/15 – 24 °C / 40 °C	F	(daN)	48	60	119	179
Concrete C12/15 – 50 °C / 80 °C	F	(daN)	36	48	99	139

MARCOVIS FM-X3 IN AERATED CONCRETE			Ø10	
(Hammer drilling)	h_{nom}	(mm)	70	90
Aerated concrete AAC2 – 24 °C / 40 °C – fb ≥ 2,0 MPa et ρ ≥ 0,35 kg/dm³	F	(daN)	14	21
Aerated concrete AAC2 – 50 °C / 80 °C – fb ≥ 2,0 MPa et ρ ≥ 0,35 kg/dm³	F	(daN)	11	11
Aerated concrete AAC6 – 24 °C / 40 °C – fb ≥ 6,0 MPa et ρ ≥ 0,65 kg/dm³	F	(daN)	71	89
Aerated concrete AAC6 – 50 °C / 80 °C – fb ≥ 6,0 MPa et ρ ≥ 0,65 kg/dm³	F	(daN)	43	54

MARCOVIS FM-X3 IN HOLLOW BLOCK			Ø8	Ø10	
(Drilling without percussion)	h_{nom}	(mm)	50	50	70
LECA UNIVERSALBLOKK 20 – 24 °C / 40 °C – fb ≥ 3,0 MPa – ρ ≥ 0,77 kg/dm³	F	(daN)	34	43	43
LECA UNIVERSALBLOKK 20 – 50 °C / 80 °C – fb ≥ 3,0 MPa – ρ ≥ 0,77 kg/dm³	F	(daN)	34	34	43

MARCOVIS FM-X3 IN SOLID BRICK			Ø8	Ø10
(Hammer drilling)	h_{nom}	(mm)	50	50
MZ2,0/20 TOOTHED 3DF – 24 °C / 40 °C – fb ≥ 20 MPa – ρ ≥ 2,0 kg/dm³	F	(daN)	100	114
MZ2,0/20 TOOTHED 3DF – 50 °C / 80 °C – fb ≥ 20 MPa – ρ ≥ 2,0 kg/dm³	F	(daN)	100	114

(#) $F = F_{Rd} / \gamma_M$ avec $\gamma_M = 1,4$ - $F_{Rd} = N_{Rk,c} / \gamma_{Mc}$ avec $\gamma_{mc} = 1,8$ for concrete - $F_{Rd} = F_{Rk} / \gamma_{Mm}$ avec $\gamma_{Mm} = 2,0$ for aerated concrete et $\gamma_{Mm} = 2,5$ for other masonry

F_{Rd}: Ultimate load or design – $N_{Rk,c}$ et F_{Rk}: characteristic resistance – γ_M, γ_{Mc} et γ_{Mm}: partial safety factors – ρ: density – fb: compressive strength

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MARCOVIS FM-X3 IN HOLLOW BRICK			Ø8	Ø10	
(Drilling without percussion)	h_{nom}	(mm)	50	50	70
POROTON P800 30.19.25 – 24 °C / 40 °C – fb ≥ 10,5 MPa – ρ ≥ 0,898 kg/dm³	F	(daN)	43	57	43
POROTON P800 30.19.25 – 50 °C / 80 °C – fb ≥ 10,5 MPa – ρ ≥ 0,898 kg/dm³	F	(daN)	43	43	43
BIO PLAN 45-25/19,9 – 24 °C / 40 °C – fb ≥ 12 MPa – ρ ≥ 0,96 kg/dm³	F	(daN)	43	57	57
BIO PLAN 45-25/19,9 – 50 °C / 80 °C – fb ≥ 12 MPa – ρ ≥ 0,96 kg/dm³	F	(daN)	43	43	43
DOPPI UNI 12x25x12 – 24 °C / 40 °C – fb ≥ 22 MPa – ρ ≥ 0,94 kg/dm³	F	(daN)	43	57	57
DOPPI UNI 12x25x12 – 50 °C / 80 °C – fb ≥ 22 MPa – ρ ≥ 0,94 kg/dm³	F	(daN)	43	43	43
BIO PLAN 45-25/19,9T-0,09 – 24 °C / 40 °C – fb ≥ 8 MPa – ρ ≥ 0,83 kg/dm³	F	(daN)	43	43	26
BIO PLAN 45-25/19,9T-0,09 – 50 °C / 80 °C – fb ≥ 8 MPa – ρ ≥ 0,83 kg/dm³	F	(daN)	43	43	26
SM B 15/19 – 24 °C / 40 °C – fb ≥ 28 MPa – ρ ≥ 0,9 kg/dm³	F	(daN)	57	57	57
SM B 15/19 – 50 °C / 80 °C – fb ≥ 28 MPa – ρ ≥ 0,9 kg/dm³	F	(daN)	43	43	43
LEGGERO – 24 °C / 40 °C – fb ≥ 8,0 MPa – ρ ≥ 0,56 kg/dm³	F	(daN)	34	26	26
LEGGERO – 50 °C / 80 °C – fb ≥ 8,0 MPa – ρ ≥ 0,56 kg/dm³	F	(daN)	26	26	21
POROTON P700 TS INC.35 – 24 °C / 40 °C – fb ≥ 11,0 MPa – ρ ≥ 0,751 kg/dm³	F	(daN)	43	34	34
POROTON P700 TS INC.35 – 50 °C / 80 °C – fb ≥ 11,0 MPa – ρ ≥ 0,751 kg/dm³	F	(daN)	43	34	34

(#) $F = F_{Rd} / \gamma_M$ avec $\gamma_M = 1,4$ - $F_{Rd} = N_{Rk,c} / \gamma_{Mc}$ avec $\gamma_{mc} = 1,8$ for concrete - $F_{Rd} = F_{Rk} / \gamma_{Mm}$ avec $\gamma_{Mm} = 2,0$ for aerated concrete et $\gamma_{Mm} = 2,5$ for other masonry

F_{Rd}: Ultimate load or design – $N_{Rk,c}$ et F_{Rk}: characteristic resistance – γ_M, γ_{Mc} et γ_{Mm}: partial safety factors – ρ: density – fb: compressive strength

Minimum edge distance C_{min} and minimum spacing S_{min}:

MARCOVIS FM-X3 IN CONCRETE			Ø8		Ø10	
	h_{nom}	(mm)	40	50	50	70
Concrete ≥ C16/20	S_{min}	(mm)	85	85	140	140
Concrete ≥ C16/20	C_{min}	(mm)	60	60	100	100
Concrete C12/15	S_{min}	(mm)	85	85	210	210
Concrete C12/15	C_{min}	(mm)	70	70	70	70

MARCOVIS FM-X3 IN AERATED CONCRETE			Ø10	
	h_{nom}	(mm)	70	90
Aerated concrete AAC2 et AAC6	S_{min}	(mm)	250	250
Aerated concrete AAC2 et AAC6	C_{min}	(mm)	100	105

MARCOVIS FM-X3 IN HOLLOW MASONRY			Ø8	Ø10	
	h_{nom}	(mm)	50	50	70
Hollow masonry	S_{min}	(mm)	250	250	250
Hollow masonry	C_{min}	(mm)	100	100	100

MARCOVIS FM-X3 IN SOLID MASONRY			Ø8	Ø10
	h_{nom}	(mm)	50	50
Solid masonry	S_{min}	(mm)	250	250
Solid masonry	C_{min}	(mm)	100	125

Recommended bending moment $M^{(\#\#)}$:

SPECIAL SCREW MARCOVIS FM-X3			Ø8	Ø10
Concrete, aerated concrete, solid masonry and hollow masonry	M	(N.m)	8,08	12,98

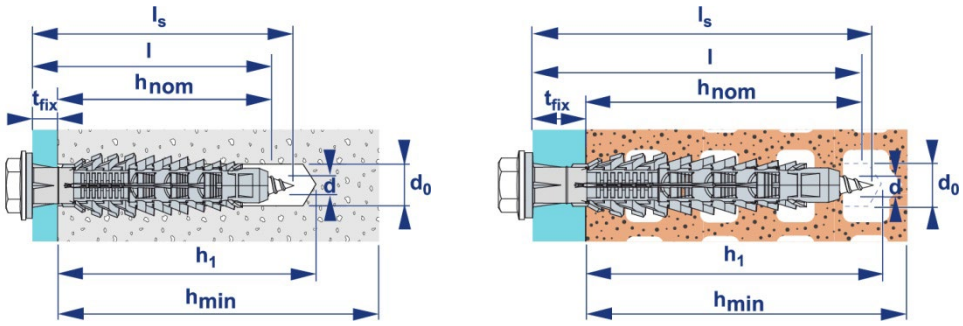
(##) $M = M_{Rd} / \gamma_M$ avec $\gamma_M = 1,4$ - $M_{Rd} = M_{Rk,s} / \gamma_{Ms}$ avec $\gamma_{Ms} = 1,25$

M_{Rd}: ultimate moment or design – $M_{Rk,s}$: characteristic moment – γ_M et γ_{Ms} : partial safety factors

Max torque T_{max}:

MARCOVIS FM-X3			Ø8	Ø10
Concrete	T_{max}	(N.m)	9	15

DIMENSIONS & CODES



MARCOVIS FM-X3 TF TX	d0 (mm)	tfix (mm)			l (mm)	h1 (mm)	hnom (mm)			hmin(3) (mm)			df (mm)	dw (mm)	d (mm)	Ls (mm)	Torx	Code
		1(1)	2(1)	3(2)			1(1)	2(1)	3(2)	1(1)	2(1)	3(2)						
Ø8x60	8	20	10	-	60	hnom + 15	40	50	-	100	100	-	8,5	11,5	6	68	Tx30	352 040
Ø8x80		40	30	-	80											88		352 042
Ø8x100		60	50	-	100											108		352 044
Ø8x120		80	70	-	120											128		352 046
Ø10x60	10	10	-	-	60	hnom + 15	50	-	-	100	-	-	10,5	13,5	7	68	Tx40	352 048
Ø10x80		30	10	-	80		50	70	-	100	120	-				88		352 050
Ø10x100		50	30	10	100		50	70	90	100	120	240				108		352 052
Ø10x120		70	50	30	120											128		352 054
Ø10x140		90	70	50	140											148		352 056
Ø10x160		110	90	70	160											168		352 058
Ø10x200		150	130	110	200											208		352 057
Ø10x230		180	160	140	230											238		352 065
Ø10x260		210	190	170	260											268		352 059
Ø10x290		240	220	200	290											298		352 061

MARCOVIS FM-X3 TH	d0 (mm)	tfix (mm)			l (mm)	h1 (mm)	hnom (mm)			hmin(3) (mm)			df (mm)	dw (mm)	d (mm)	Ls (mm)	Th Torx	Code
		1(1)	2(1)	3(2)			1(1)	2(1)	3(2)	1(1)	2(1)	3(2)						
Ø10x60	10	10	-	-	60	hnom + 15	50	-	-	100	-	-	10,5	19	7	68	Th13 Tx40	352 100
Ø10x80		30	10	-	80		50	70	-	100	120	-				88		352 102
Ø10x100		50	30	10	100		50	70	90	100	120	240				108		352 104
Ø10x120		70	50	30	120											128		352 106
Ø10x140		90	70	50	140											148		352 108
Ø10x160		110	90	70	160											168		352 110

(1) : Reference value for all materials
(2) : Reference value for aerated concrete only
(3) : Reference value for concrete

d: diameter of screw - t_{fix}: maximum thickness of the element to be fixed - l: anchor length - d_0: diameter of drilling - h_1: min depth support drilling - h_{nom}: minimum installation depth - h_{ef}: effective anchoring depth - h_{min} : min thickness support - d_f: through hole diameter - S_w: flat opening – d_w: diameter of head screw – L_v: screw length

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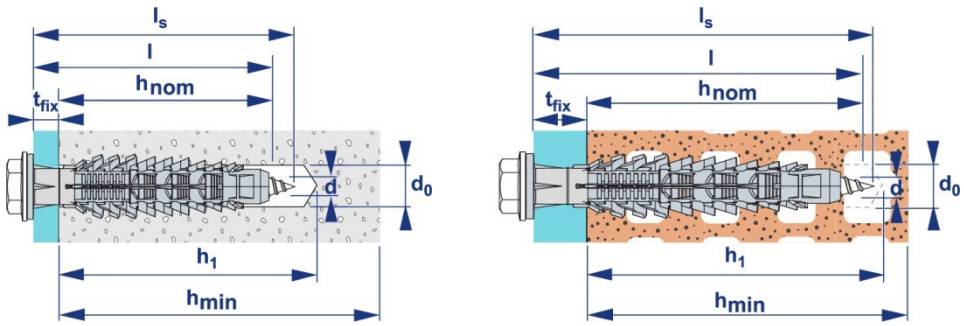

MARCOVIS FM-X3 CL TH	d_0 (mm)	t_{fix} (mm)			l (mm)	h_1 (mm)	h_{nom} (mm)			h_{min} (3) (mm)			d_f (mm)	d_w (mm)	d (mm)	L_s (mm)	TH Torx	Code
		1 (1)	2 (1)	3 (2)			1 (1)	2 (1)	3 (2)	1 (1)	2 (1)	3 (2)						
Ø10x60	10	10	-	-	60	h_{nom} + 15	50	-	-	100	-	-	10,5	19	7	68	TH 13 Tx 40	352 136
Ø10x80		30	10	-	80		50	70	-	100	120	-				88		352 137
Ø10x100		50	30	10	100		50	70	90	100	120	240				108		352 138
Ø10x120		70	50	30	120											128		352 139
Ø10x140		90	70	50	140											148		352 143
Ø10x160		110	90	70	160											168		352 147

(1) : Reference value for all materials
(2) : Reference value for aerated concrete only
(3) : Reference value for concrete

d: diameter of screw - t_{fix}: maximum thickness of the element to be fixed - l: anchor length - d_0: diameter of drilling - h_1: min depth support drilling - h_{nom}: minimum installation depth - h_{ef}: effective anchoring depth - h_{min} : min thickness support - d_f: through hole diameter - S_w: flat opening – d_w: diameter of head screw – L_v: screw length

CONFORMITY

- European Technical Assessment: ETA-19/0245 according to EAD 330284-00-0604.
- Fire resistance R90 according to TR 020 for MARCOVIS FM-X3 Ø10 in the case of a non-permanent axial loading permanent.
- CE marking.

MARKING - LABELLING

- MARCOVIS FM-X3 ZN + TF or TH or CL TH + Ø x Length + CODE.

QUALITY CONTROL

- ISO 9001 certified quality management system according to the certificate in force.

NOTA

These products are intended for professional installers landlords whose the related service includes supply and installation. In accordance with rules and normative regulation, it's their responsibility to check that the use of these products is in conformity to themselves needs and their customers. They have to insure as well the adequacy of this material with their real operating conditions. The company excludes any guarantee for the use that does not respect these conditions. His responsibility is limited to the strict compliance with the specifications stipulated on the customer's purchase order. The guarantee is limited to the replacement of defective parts acknowledged by the Company's technical service, without workforce costs and travel expenses. It excludes material damage or physical injury and others direct or indirect damages, material or immaterial, which may result from defective parts including installation that not complying with the use for which they are designed and produced.

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