

## MARCOVIS FM-X3 STAINLESS STEEL TF - TH - CL TH Ø8xL - Ø10xL



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

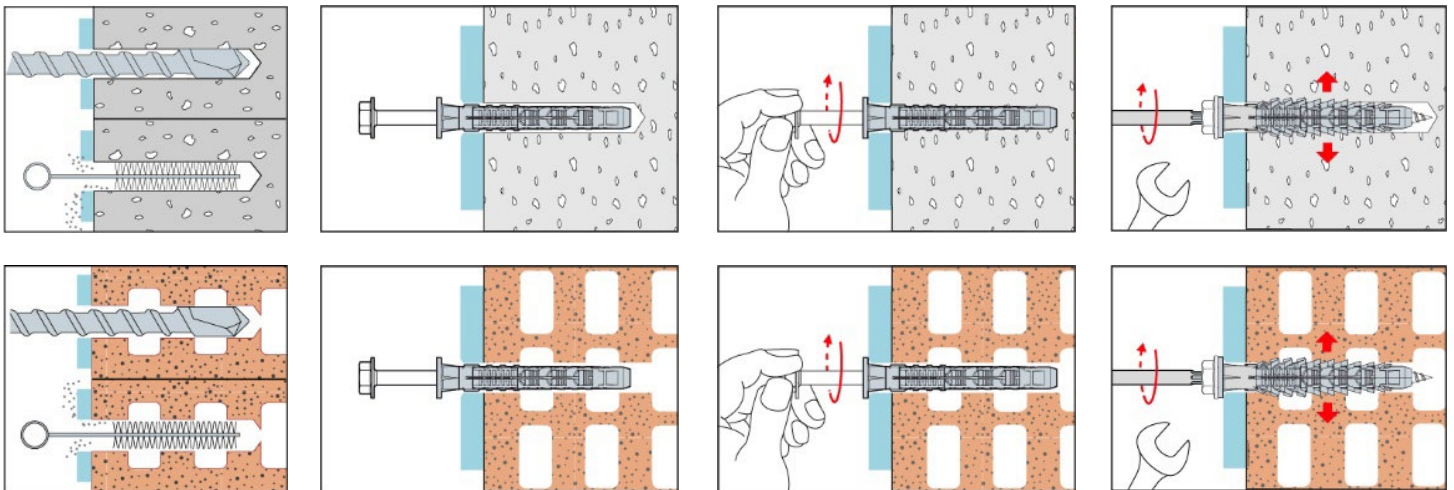
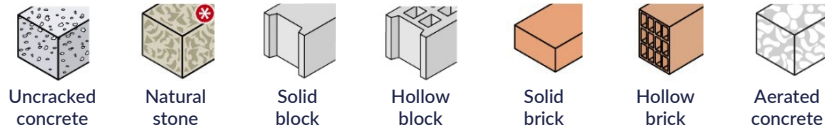
- Anchor for uncracked concrete, aerated concrete, solid masonry and hollow masonry.
- Application for light load and multiple use in non-structural (static or quasi-static).
- Structure subjected to external conditions or internal conditions without particular aggressive condition.

### MATERIAL & FINISH

#### Material:

- Screw: Stainless steel A4-70 (AISI 316) according to ISO 3506-1.
- Plug: Polyamide PA6 according to ISO 1874.

### INSTALLATION



- Minimal temperature of installation:  $\geq -10\text{ °C}$
- Maximal temperature of installation:  $\leq +40\text{ °C}$

\* On-site testing

Registration date: 16/02/2026 – Revision B

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## PERFORMANCES

Technical data according to ETA (daN) :

- The technical data allowing the precise calculation of anchor MARCOVIS FM-X3 are available 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 Department.
- 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 $\geq$ C16/20 - 24 °C / 40 °C	F	(daN)	60	79	159	258
Concrete $\geq$ 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 - $f_b \geq 2,0$ MPa et $\rho \geq 0,35$ kg/dm <sup>3</sup>	F	(daN)	14	21
Aerated concrete AAC2 - 50 °C / 80 °C - $f_b \geq 2,0$ MPa et $\rho \geq 0,35$ kg/dm <sup>3</sup>	F	(daN)	11	11
Aerated concrete AAC6 - 24 °C / 40 °C - $f_b \geq 6,0$ MPa et $\rho \geq 0,65$ kg/dm <sup>3</sup>	F	(daN)	71	89
Aerated concrete AAC6 - 50 °C / 80 °C - $f_b \geq 6,0$ MPa et $\rho \geq 0,65$ kg/dm <sup>3</sup>	F	(daN)	43	54

MARCOVIS FM-X3 IN HOLLOW BLOCK			Ø8		Ø10	
(Drilling without percussioin)	$h_{nom}$	(mm)	50	50	70	
LECA UNIVERSALBLOKK 20 - 24 °C / 40 °C - $f_b \geq 3,0$ MPa - $\rho \geq 0,77$ kg/dm <sup>3</sup>	F	(daN)	34	43	43	
LECA UNIVERSALBLOKK 20 - 50 °C / 80 °C - $f_b \geq 3,0$ MPa - $\rho \geq 0,77$ kg/dm <sup>3</sup>	F	(daN)	34	34	43	

MARCOVIS FM-X3 IN SOLID BRICK			Ø8		Ø10	
(Drilling without percussioin)	$h_{nom}$	(mm)	50	50		
MZ2,0/20 TOOTHED 3DF - 24 °C / 40 °C - $f_b \geq 20$ MPa - $\rho \geq 2,0$ kg/dm <sup>3</sup>	F	(daN)	100	114		
MZ2,0/20 TOOTHED 3DF - 50 °C / 80 °C - $f_b \geq 20$ MPa - $\rho \geq 2,0$ kg/dm <sup>3</sup>	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 -  $\gamma_M, \gamma_{Mc}$  et  $\gamma_{Mm}$ : partial safety factors -  $\rho$ : density -  $f_b$ : 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/dm <sup>3</sup>	F	(daN)	43	57	43	
POROTON P800 30.19.25 - 50 °C / 80 °C - fb ≥ 10,5 MPa - ρ ≥ 0,898 kg/dm <sup>3</sup>	F	(daN)	43	43	43	
BIO PLAN 45-25/19,9 - 24 °C / 40 °C - fb ≥ 12 MPa - ρ ≥ 0,96 kg/dm <sup>3</sup>	F	(daN)	43	57	57	
BIO PLAN 45-25/19,9 - 50 °C / 80 °C - fb ≥ 12 MPa - ρ ≥ 0,96 kg/dm <sup>3</sup>	F	(daN)	43	43	43	
DOPPI UNI 12x25x12 - 24 °C / 40 °C - fb ≥ 22 MPa - ρ ≥ 0,94 kg/dm <sup>3</sup>	F	(daN)	43	57	57	
DOPPI UNI 12x25x12 - 50 °C / 80 °C - fb ≥ 22 MPa - ρ ≥ 0,94 kg/dm <sup>3</sup>	F	(daN)	43	43	43	
BIO PLAN 45-25/19,9T-0,09 - 24 °C / 40 °C - fb ≥ 8 MPa - ρ ≥ 0,83 kg/dm <sup>3</sup>	F	(daN)	43	43	26	
BIO PLAN 45-25/19,9T-0,09 - 50 °C / 80 °C - fb ≥ 8 MPa - ρ ≥ 0,83 kg/dm <sup>3</sup>	F	(daN)	43	43	26	
SM B 15/19 - 24 °C / 40 °C - fb ≥ 28 MPa - ρ ≥ 0,9 kg/dm <sup>3</sup>	F	(daN)	57	57	57	
SM B 15/19 - 50 °C / 80 °C - fb ≥ 28 MPa - ρ ≥ 0,9 kg/dm <sup>3</sup>	F	(daN)	43	43	43	
LEGGERO - 24 °C / 40 °C - fb ≥ 8,0 MPa - ρ ≥ 0,56 kg/dm <sup>3</sup>	F	(daN)	34	26	26	
LEGGERO - 50 °C / 80 °C - fb ≥ 8,0 MPa - ρ ≥ 0,56 kg/dm <sup>3</sup>	F	(daN)	26	26	21	
POROTON P700 TS INC.35 - 24 °C / 40 °C - fb ≥ 11,0 MPa - ρ ≥ 0,751 kg/dm <sup>3</sup>	F	(daN)	43	34	34	
POROTON P700 TS INC.35 - 50 °C / 80 °C - fb ≥ 11,0 MPa - ρ ≥ 0,751 kg/dm <sup>3</sup>	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 -  $\gamma_M, \gamma_{Mc}$  et  $\gamma_{Mm}$ : partial safety factors -  $\rho$ : 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)	5,94	11,87

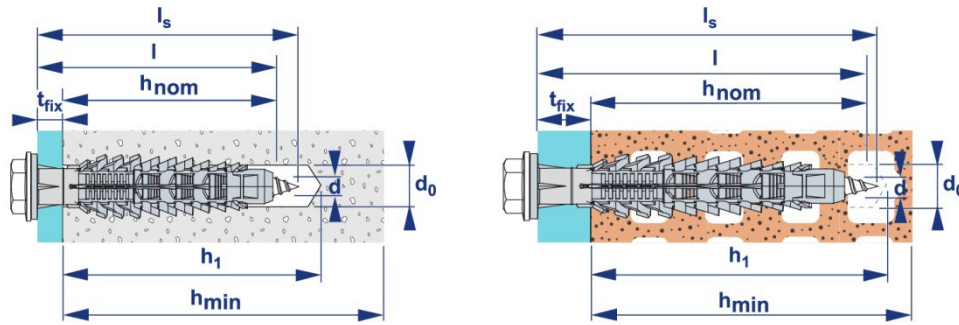
(##)  $M = M_{Rd} / \gamma_M$  avec  $\gamma_M = 1,4$  -  $M_{Rd} = M_{Rk,s} / \gamma_{Ms}$  avec  $\gamma_{Ms} = 1,56$

$M_{Rd}$ : ultimate moment or design -  $M_{Rk,s}$ : characteristic moment -  $\gamma_M$  et  $\gamma_{Ms}$ : 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	d <sub>0</sub> (mm)	t <sub>fix</sub> (mm)			l (mm)	h <sub>1</sub> (mm)	h <sub>nom</sub> (mm)			h <sub>min</sub> <sup>(3)</sup> (mm)			d <sub>f</sub> (mm)	d <sub>w</sub> (mm)	d (mm)	L <sub>s</sub> (mm)	Torx	Code
		1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>			1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>	1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>						
Ø8x60	8	20	10	-	60	h <sub>nom</sub> + 15	40	50	-	100	100	-	8,5	11,5	6	68	Tx30	352 080
Ø8x80		40	30	-	80											88		352 082
Ø8x100		60	50	-	100											108		352 084
Ø8x120		80	70	-	120											128		352 086
Ø10x60	10	10	-	-	60	h <sub>nom</sub> + 15	50	-	-	100	-	-	10,5	13,5	7	68	Tx40	352 088
Ø10x80		30	10	-	80		50	70	-	100	120	-				88		352 090
Ø10x100		50	30	10	100		50	70	90	100	120	240				108		352 092
Ø10x120		70	50	30	120											128		352 094
Ø10x140		90	70	50	140											148		352 096
Ø10x160		110	90	70	160											168		352 098
Ø10x260		210	190	170	260											268		-
Ø10x290		240	220	200	290											298		-

MARCOVIS FM-X3 TH	d <sub>0</sub> (mm)	t <sub>fix</sub> (mm)			l (mm)	h <sub>1</sub> (mm)	h <sub>nom</sub> (mm)			h <sub>min</sub> <sup>(3)</sup> (mm)			d <sub>f</sub> (mm)	d <sub>w</sub> (mm)	d (mm)	L <sub>s</sub> (mm)	Th Torx	Code
		1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>			1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>	1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>						
Ø10x60	10	10	-	-	60	h <sub>nom</sub> + 15	50	-	-	100	-	-	10,5	19	7	68	Th13 Tx40	352 124
Ø10x80		30	10	-	80		50	70	-	100	120	-				88		352 126
Ø10x100		50	30	10	100		50	70	90	100	120	240				108		352 128
Ø10x120		70	50	30	120											128		352 130
Ø10x140		90	70	50	140											148		352 132
Ø10x160		110	90	70	160											168		352 134

(1) : Reference value for all materials

(2) : Reference value for aerated concrete only

(3) : Reference value for concrete

d: diameter of screw - t<sub>fix</sub>: maximum thickness of the element to be fixed - l: anchor length - d<sub>0</sub>: diameter of drilling - h<sub>1</sub>: min depth support drilling - h<sub>nom</sub>: minimum installation depth - h<sub>ef</sub>: effective anchoring depth - h<sub>min</sub>: min thickness support - d<sub>f</sub>: through hole diameter - S<sub>w</sub>: flat opening - d<sub>w</sub>: diameter of head screw - L<sub>s</sub>: screw length

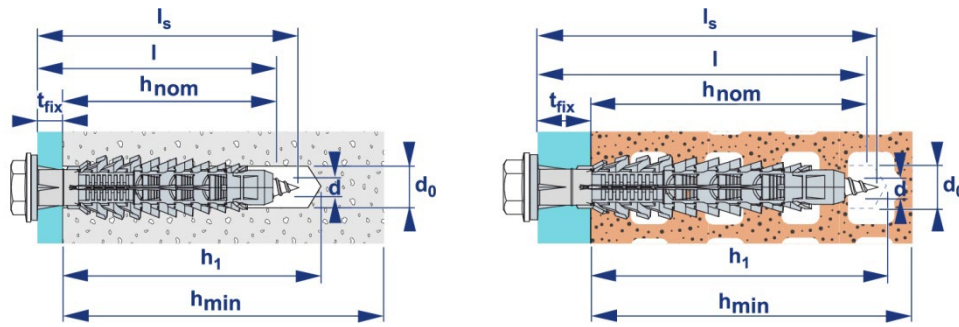
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MARCOVIS FM-X3 CL TH	d <sub>0</sub> (mm)	t <sub>fix</sub> (mm)			l (mm)	h <sub>1</sub> (mm)	h <sub>nom</sub> (mm)			h <sub>min</sub> <sup>(3)</sup> (mm)			d <sub>f</sub> (mm)	d <sub>w</sub> (mm)	d (mm)	L <sub>s</sub> (mm)	TH Torx	Code
		1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>			1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>	1 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(2)</sup>						
Ø10x60	10	10	-	-	60	h <sub>nom</sub> + 15	50	-	-	100	-	-	10,5	19	7	68	TH 13	352 144
Ø10x80		30	10	-	80		50	70	-	100	120	-				88		352 145
Ø10x100		50	30	10	100		50	70	90	100	120	240				108		Tx 40
Ø10x120		70	50	30	120											128	352 152	
Ø10x140		90	70	50	140											148	352 153	
Ø10x160		110	90	70	160											168	352 154	

- (1) : Reference value for all materials  
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d: diameter of screw - t<sub>fix</sub>: maximum thickness of the element to be fixed - l: anchor length - d<sub>0</sub>: diameter of drilling - h<sub>1</sub>: min depth support drilling - h<sub>nom</sub>: minimum installation depth - h<sub>ef</sub>: effective anchoring depth - h<sub>min</sub>: min thickness support - d<sub>f</sub>: through hole diameter - S<sub>w</sub>: flat opening - d<sub>w</sub>: diameter of head screw - L<sub>s</sub>: 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 - LABELING

- MARCOVIS FM-X3 IN + 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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