Expandet EVL Xtreme Pro Winter Injection Mortar

Expandet EVL Xtreme Pro is the professional fixing solution at low temperatures – uniquely allowing for cartridge temperature of -20° C. Provides expansion free, safe and fast anchorage of threaded rod, socket anchors with internal thread, rebar etc. in most types of base materials. EVL Xtreme Pro is also suitable for use in wet, flooded holes. ETA and CE-marked in option 1 (cracked concrete) for base materials with temperatures down to -20°C (Professional silicon gun with 500 kg pressure is recommended).

ADVANTAGES

- Functional at cartridge temperature -20° C.
- EVL Xtreme Pro for use in concrete, solid & hollow brick, Light weight concrete & aerated concrete.
- ETA and CE marked use in loadbearing constructions when using steel grade 5.8, 8.8, 10.9, A4-50 & A4-70 in concrete.
- Wide range of embedment depth - allows for optimized embedment depth.
- Can be used close to the edge and with a small spacing.
- Applicable in dry/wet and flooded holes.
- Seismic
- Anchorages can be designed in Expandet Anchor Calculation Programme. For download go to www.expandet.dk

ACCESSORIES

Wide range of accessories.

EVL Xtreme Pro - Maximum working time and minimum curing time

Temperature[1)]	Geltime	Curingtime
-20°C → -16°C	90 min	24 h
-15°C → -11°C	90 min	14 h
-10°C → -6°C	45 min	7 h
-5°C → -1°C	25 min	2 h
0°C → +4°C	15 min	80 min
+5°C →+9°C	6 min	45 min
+10°C	4 min	25 min

1) In concrete
* Cartridge temp. from + 10°C to -20°C
• In wet concrete the curing time must be doubled

ETA - Option 1

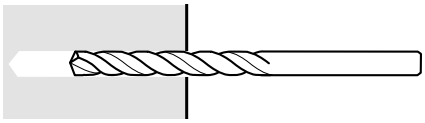
ÉMISSIONS DANS L'AIR INTÉRIEUR A+ A+ A B C

LEED tested

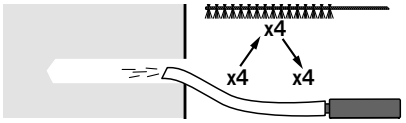
Fire Tested R120

Seismic C1

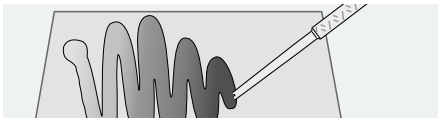
INSTALLATION:



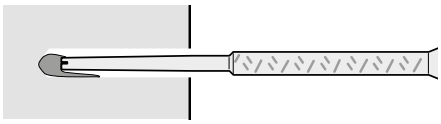
1] Drill a hole with correct diameter and depth



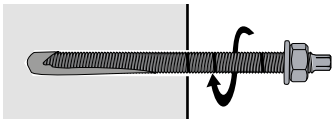
2] Clean the drilled hole thoroughly - follow above illustration



3] Eject approximately 10-15 cm mortar in order to ensure correct mixing ratio for injection



4] Insert the mixer into the drilled hole, and while the mixer is slowly retracted inject the correct volume of styrene free injection mortar



5] Insert the treaded rod or socket in a slowly rotating motion, complying with specified embedment depth. For optimal filling of the hole excess mortar should flow out. Observe temperature dependent curing time - see cartridge or matrix on the following page
OBS: Use allways oil free treaded rod!

6] After ended curing time the fixing can be loaded - installation is finished

Expandet EVL Xtreme Pro Winter Injection Mortar

EXPANDET EVL XTREME PRO, WINTER - STYRENE FREE INJECTION MORTAR in concrete

TYPE DIMENSION	EXPANDET ARTICLE NO.	PCS. PER CARTON		EAN 13 PER CARTRIDGE
300 ml incl. mixer nozzle	805300	12		5708620103808

Professional Injection Gun (H245) is recomended for EVL Xtreme Pro

Design load capacities in non-cracked concrete C20/25

Dimension of threaded rod (mm)	M8	M10	M12	M16	M20	M24	M27	M30
Effective anchorage depth, h_{ef} (mm)	80	90	110	125	170	210	240	270
Drill hole diameter (mm)	10	12	14	18	22	26	30	35
Minimum thickness of submaterial, h_{min} (mm)	110	120	140	161	218	266	304	340
Tension load, Design resistance N_{Rd}, kN◆								
4.6 steel	7,5	11,5	17,0	31,5	49,0	70,5	92,0	112,0
5.8 steel	13,4	18,9	27,6	39,2	62,2	85,4	104,3	124,5
8.8 steel	13,4	18,9	27,6	39,2	62,2	85,4	104,3	124,5
A4-70 Stainless Steel	13,4	18,9	27,6	39,2	62,2	85,4	104,3	124,5
A4-80 Stainless Steel	13,4	18,9	27,6	39,2	62,2	85,4	104,3	124,5
HCR steel	13,4	18,9	27,6	39,2	62,2	85,4	104,3	124,5
Shear load, Design resistance V_{Rd}, kN◆								
4.6 steel	4,2	7,2	10,2	18,6	29,3	42,5	55,1	67,1
5.8 steel	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
8.8 steel	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-70 Stainless Steel	8,3	12,8	19,2	35,3	55,1	79,5	103,2	125,6
A4-80 Stainless Steel	11,3	17,3	25,6	47,4	73,7	106,0	138,3	168,4
HCR Steel	10,4	16,0	24,0	44,0	68,8	99,2	128,8	156,8

◆ Design resistance is valid for a single anchor in dry/wet non-cracked concrete C20/25 not influenced by edge distance and/or spacing.
Ψre,N = 1 (Normal reinforcement according to TR029 5.2.2.3 - 5.2i & 5.2.2.4 - 5.3d).

Design load capacities in cracked concrete C20/25

Dimension of threaded rod (mm)	M8	M10	M12	M16	M20	M24	M27	M30
Effective anchorage depth, h_{ef} (mm)	80	90	110	125	170	210	240	270
Drill hole diameter (mm)	10	12	14	18	24	28	32	35
Minimum thickness of submaterial, h_{min} (mm)	110	120	140	161	218	266	304	340
Tension load, Design resistance N_{Rd}, kN◆								
4.6 steel	5,4	7,9	12,7	19,2	32,6	48,4	73,5	88,7
5.8 steel	5,4	7,9	12,7	19,2	32,6	48,4	73,5	88,7
8.8 steel	5,4	7,9	12,7	19,2	32,6	48,4	73,5	88,7
A4-70 Stainless Steel	5,4	7,9	12,7	19,2	32,6	48,4	73,5	88,7
A4-80 Stainless Steel	5,4	7,9	12,7	19,2	32,6	48,4	73,5	88,7
HCR Steel	5,4	7,9	12,7	19,2	32,6	48,4	73,5	88,7
Shear load, Design resistance V_{Rd}, kN◆								
4.6 steel	4,2	7,2	10,2	18,6	29,3	42,5	55,1	67,1
5.8 steel	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
8.8 steel	9,7	18,4	27,0	46,1	78,3	112,8	147,2	179,2
A4-70 Stainless Steel	8,3	12,8	19,2	35,3	55,1	79,5	103,2	125,6
A4-80 Stainless Steel	9,7	17,3	24,1	46,1	73,7	106,0	138,4	168,4
HCR Steel	9,7	16,0	24,0	44,0	68,8	99,2	128,8	156,8

◆ Design resistance is valid for a single anchor in dry/wet cracked concrete C20/25 not influenced by edge distance and/or spacing.
Ψre,N = 1 (Normal reinforcement according to TR029 5.2.2.3 - 5.2i & 5.2.2.4 - 5.3d).

Expandet Injection Mortars ESI Xtreme Pro & EVL Xtreme Pro for fixing of rebar in concrete C20/25 calculated as an anchor in accordance with ETAG 001, TR029.

Below given design loads do not consider reduction due to edge distances or spacing. The rebar is designed as an anchor and thus do not consider requirements given in EC2 for rebar connections.

In case of the design of post installed rebar acc. to EC2 please see page 84 – for details also see Expandet technical datasheet (ETA acc. EOTA TR023 using ESI Xtreme Pro).

Design load tension capacities

Rebar as an anchor with ESI Xtreme Pro in concrete C20/25.

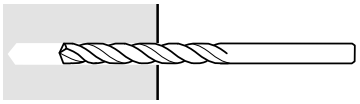
h_1	h_{nom}	Rebar diameter (mm)						
Depth of drill hole mm	Embedment depth mm	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
		Drill diameter (mm) hammerdrill or compressed air drill						
		12	14	16	20	25	32	40
100	100	14,0	20,9	25,1	28,0	28,0	28,0	
120	120	16,8	25,1	30,2	36,9	36,9	36,9	
140	140	19,5	29,3	35,2	46,5	46,5	46,5	46,5
160	160	20,0	30,7	40,2	53,6	56,8	56,8	56,8
180	180			44,3	52,7	67,8	67,8	67,8
200	200					79,4	79,4	79,4
220	220					91,5	91,5	91,5
240	240					100,5	104,3	104,3
256	256					107,2	114,9	114,9
265	265					111,0	121,0	121,0
280	280					117,3	131,4	131,4
310	310					123,6	147,2	147,2
320	320						151,9	151,9
400	400						189,9	189,9
450	450						192,9	213,6
480	480							277,9
640	640							303,8

1) Design resistance for tension is valid for a single anchor in dry/wet non-concrete C20/25 not influenced by edge distance and/or spacing: ≥ 1,5 x hnom and ≥ 3 x hnom.

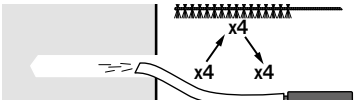
Consumption per hole (ml)

h_1	h_{nom}	Rebar diameter (mm)						
Depth of drill hole mm	Embedment depth mm	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
		Drill diameter (mm) hammerdrill or compressed air drill						
		12	14	16	20	25	32	40
100	100	9,1	10,8	12,6	16,3	24,8	43,6	60,5
120	120	10,9	13,0	15,1	19,6	29,8	52,3	72,6
140	140	12,7	15,2	17,6	22,9	34,8	61,0	84,7
160	160	14,5	17,3	20,1	26,1	39,7	69,8	96,8
180	180			22,7	29,4	44,7	78,5	109,0
200	200					49,7	87,2	121,1
220	220					54,6	95,9	133,2
240	240					59,6	104,6	145,3
265	265					65,8	115,5	160,4
280	280					69,5	122,1	169,5
310	310					77,0	135,2	187,6
320	320						139,5	193,7
400	400						174,4	242,1
450	450						196,2	272,4
480	480							290,5
640	640							387,4

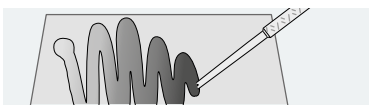
INSTALLATION:



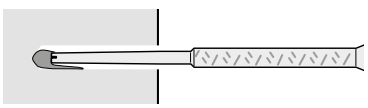
1] Drill a hole in correct diameter and depth. Use either hammer drill or compressed air drilling



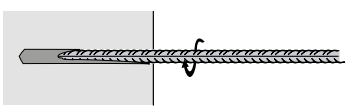
2] Blow 4 times with hand pump. Holes deeper than 240mm must be compressed with air min. 6 bar (oil free)



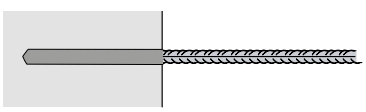
3] Eject approximately 10-15 cm mortar in order to ensure correct mixing ratio for injection



4] Insert the mixer into the drilled hole, and while the mixer is slowly retracted inject the correct volume of styrene free injection mortar



5] Insert reinforcement bar in a slowly rotating motion. For optimal filling of the hole excess mortar should flow out. Observe temperature dependent curing time



6] Installation is finished

Expandet ESI Xtreme Pro Injection Mortar and EVL Xtreme Pro Winter Injection Mortar in masonry type solid and hollow bricks

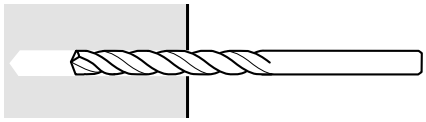
Masonry Use Cat: B, C & C

ÉMISSIONS DANS L'AIR INTÉRIEUR A+ A+ A B C

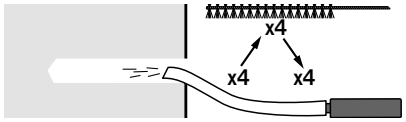
LEED tested

Solid Brick, Aerated Concrete, Lightweight Aggregate Concrete (LAC) and Solid Sand-Lime Brick/Block.

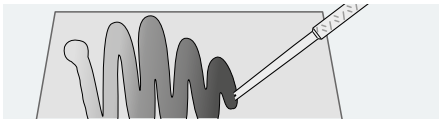
INSTALLATION:

1] 

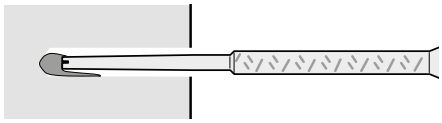
Drill a hole with correct diameter and depth

2] 

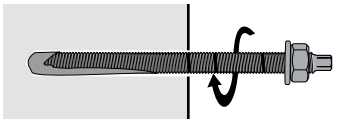
Clean the drilled hole thoroughly - follow above illustration

3] 

Eject approximately 10-15 cm mortar in order to ensure correct mixing ratio for injection

4] 

Insert the mixer into the drilled hole, and while the mixer is slowly retracted inject the correct volume of styrene free injection mortar

5] 

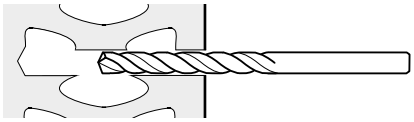
Insert the threaded rod or socket in a slowly rotating motion. for optimal filling of the hole excess mortar should flow out. Observe temperature depending on curing time.
OBS: Use always oil free threaded rods!

6] 

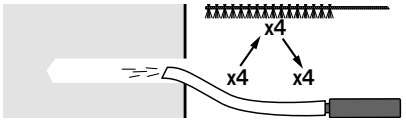
After ended curing time the fixing can be loaded and the installation is finished

In hollow materials with sleeve.

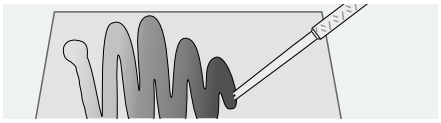
INSTALLATION:

1] 

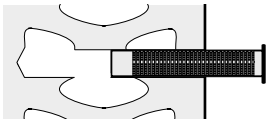
Drill a hole with correct diameter and depth

2] 

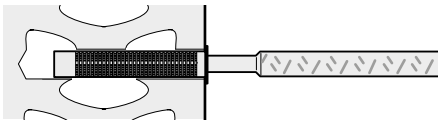
Clean the drilled hole thoroughly

3] 

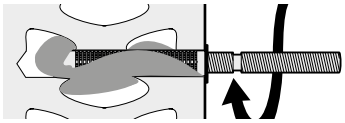
Eject approximately 10-15 cm mortar in order to ensure correct mixing ratio for injection

4] 

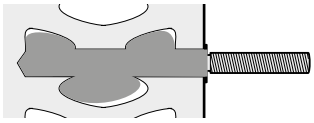
Insert sleeve flush with wall

5] 

Inject mortar from bottom of drilled hole - fill the sleeve completely

6] 

Insert the threaded rod or socket in a slowly rotating motion. for optimal filling of the hole excess mortar should flow out. Observe temperature depending on curing time.
OBS: Use always oil free threaded rods!

7] 

After ended curing time the fixing can be loaded and the installation is finished

Installation specifics & Design loads for ESI & EVL Xtreme Pro in different masonry types according ETA at ambiant temperatures (24/40)

ESI & EVL Xtreme Pro in Solid Clay Brick (Mz-DF) using hammer or rotary drilling[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	–	10	80	240 x 115 x 55	20	1,80 (2,65)	2,00 (2,94)
M10	–	12	90			2,20 (3,24)	2,00 (2,94)
M12	–	14	100			2,40 (3,53)	2,00 (2,94)
M16	–	18	100			2,40 (3,53)	3,20 (4,71)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

ESI & EVL Xtreme Pro in Solid Calsium silica Brick KS-NF using hammer or rotary drilling[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	–	10	80	240 x 115 x 71	20	2,40 (3,53)	1,60 (2,35)
M10	–	12	90			2,40 (3,53)	1,80 (2,65)
M12	–	14	100			2,40 (3,53)	1,60 (2,35)
M16	–	18	100			2,00 (2,94)	1,60 (2,35)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

ESI & EVL Xtreme Pro in Solid light weight concrete (Leca) using rotary drilling only[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	–	10	80	300 x 123 x 248	2	1,20 (1,76)	1,20 (1,76)
M10	–	12	90			1,40 (2,06)	1,40 (2,06)
M12	–	14	100			1,20 (1,76)	1,40 (2,06)
M16	–	18	100			1,20 (1,76)	1,40 (2,06)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

ESI & EVL Xtreme Pro in Clay Hollow Brick (Doppio Uni) using rotary drilling[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	16 x 85	16	90	250 x 120 x 120	16	0,30 (0,44)	0,60 (0,88)
M10	16 x 85	16	90			0,30 (0,44)	0,60 (0,88)
M12	20 x 85	20	90			0,30 (0,44)	0,60 (0,88)
M16	20 x 85	20	90			0,30 (0,44)	0,60 (0,88)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

Installation specifics & Design loads for ESI & EVL Xtreme Pro in diffe-rent masonry types according ETA at ambiant temperatures (24/40)

ESI & EVL Xtreme Pro in Clay hollow brick Calibric R+ using rotary drilling only[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	16 x 85	16	90	500 x 200 x 314	12	0,48 (0,71)	2,20 (3,24)
M8	16 x 130	16	135			0,60 (0,88)	2,20 (3,24)
M10	16 x 85	16	90			0,48 (0,71)	2,20 (3,24)
M10	16 x 130	16	135			0,60 (0,88)	2,20 (3,24)
M12	20 x 85	20	90			0,48 (0,71)	3,40 (5,00)
M16	20 x 85	20	90			0,48 (0,71)	3,40 (5,00)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

ESI & EVL Xtreme Pro in Clay hollow brick BGV Thermo using rotary drilling only[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	16 x 85	16	90	500 x 200 x 314	10	0,36 (0,53)	1,40 (2,06)
M8	16 x 130	16	135			0,80 (1,18)	1,60 (2,35)
M10	16 x 85	16	90			0,36 (0,53)	1,40 (2,06)
M10	16 x 130	16	135			0,80 (1,18)	1,60 (2,35)
M12	20 x 85	20	90			0,36 (0,53)	1,60 (2,35)
M16	20 x 85	20	90			0,36 (0,53)	1,60 (2,35)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

ESI & EVL Xtreme Pro in Hollow Light weight contrete Bloc B40 using rotary drilling only[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	16 x 85	16	90	494 x 200 x 190	4	0,48 (0,71)	1,20 (1,76)
M8	16 x 130	16	135			0,48 (0,71)	1,20 (1,76)
M10	16 x 85	16	90			0,48 (0,71)	1,20 (1,76)
M10	16 x 130	16	135			0,48 (0,71)	1,20 (1,76)
M12	20 x 85	20	90			0,48 (0,71)	1,20 (1,76)
M16	20 x 85	20	90			0,48 (0,71)	1,20 (1,76)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70

ESI & EVL Xtreme Pro in Hollow Calsium silicate brick KS L-3DF using rotary drilling only[1)]

THREADED ROD DIAMETER[3)] (MM)	SLEEVE (MM)	DRILL DIAMETER (MM)	DRILL/ EMBEDMENT DEPTH IN BRICK (MM)	BRICK SIZE (LENGHT X WIDTH X HEIGHT) (MM)	MIN. COM-PRESSIVE STRENGHT (N/MM²)	DESIGN LOAD, TENSION [2)] (kN)	DESIGN LOAD, SHEAR (kN)
M8	16 x 85	16	90	240 x 175 x 113	14	1,00 (1,47)	2,40 (3,53)
M8	16 x 130	16	135			1,00 (1,47)	2,40 (3,53)
M10	16 x 85	16	90			1,00 (1,47)	2,40 (3,53)
M10	16 x 130	16	135			1,00 (1,47)	2,40 (3,53)
M12	20 x 85	20	90			2,60 (3,82)	2,40 (3,53)
M16	20 x 85	20	90			2,60 (3,82)	2,40 (3,53)

[1)] Basic load capacities for the brick without edge distance and/or spacing. For details and other configurations see ETA
[2)] Values in brackets () are with γm 1,7 according to Danish National Annex
[3)] Threaded rod: Zinc plated or Hot dipped galvanised minimum: ≥ 5.6 steel. Stainless steel A4: ≥ class 70