

PRODUCT INFORMATION SHEET

KFX Vinylester Resin - Styrene Free (420ml)

High Performance Chemical Anchor

High Performance Chemical Injection Mortar System

For Cracked and Non-Cracked Concrete, Solid Stone and Perforated Stone Masonry

Ideal for Anchoring Heavy Loads

High Chemical Resistance

Short Curing Time



Order Code 03008

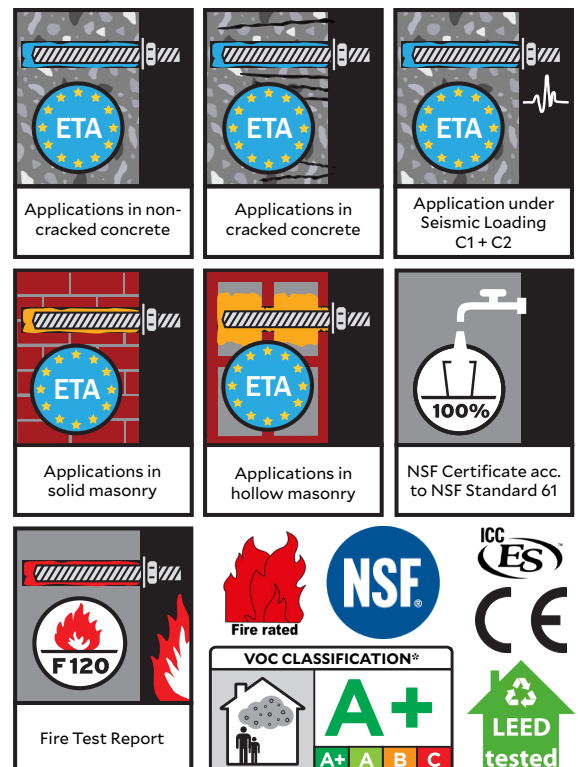
APPROVALS

Approvals

- European Technical Assessment for bonded fasteners acc to EAD 330499-01-0601 (Option 1, Seismic C1 and C2): ETA- 08/0237
- European Technical Assessment for injection anchors for use in masonry acc. to EAD 330076-00-0604: ETA-20/0557
- European Technical Assessment for post-installed rebar acc. to EAD 330087-00-0601: ETA-09/0277
- US-approval acc. to AC 308 in concrete (ICC-ES): ESR-2539
- ASTM C881
- Certified for drinking water applications acc. to NSF standard 61
- Fire resistance test report: EBB 170019_1

Base Material

- Cracked and non-cracked concrete, light-concrete, porous-concrete, solid masonry, hollow brick, natural stone (Attention! natural stone, can discolour; shall be checked in advance; hammer drilled bore holes, (perforated stone: rotary drilling)



PRODUCT INFORMATION SHEET

Product Overview

Description

The KFX RVF mortar is a 2-component reaction resin mortar based on a vinylester resin styrene-free and will be delivered in a 2 component cartridge system. This high performance product may be used in combination with a hand, battery or pneumatic tool and a static mixer. It was designed especially for the anchoring of threaded rods, reinforcing bars or internal threaded rod sleeves into concrete (also porous and light) as well as masonry. Based on the excellent standing behaviour the usability in combination with a special plastic sleeve in hollow material is given. The KFX RVF mortar product is characterised, by a huge range of applications as well as offering a high chemical resistance for applications in extreme ambiances e.g. in swimming pools (chlorine) or in closeness to the sea (salt). The wide range of certificates, national and international approvals, allows nearly every application.

Properties & Benefits

- For heavy anchoring - doweling and post-installed rebar connection.
- Overhead application; waterfilled bore holes.
- Suitable for attachment points with small edge- and axial distances due to an anchoring free of expansion forces.
- High chemical resistance.
- Low odour.
- High bending and pressure strength.
- Cartridge can be reused up to the end of the shelf life by replacing the static mixer or resealing cartridge with the sealing cap.

Applications Samples

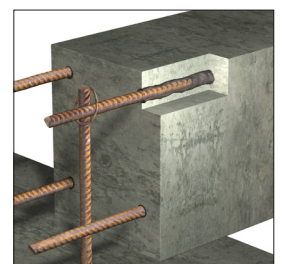
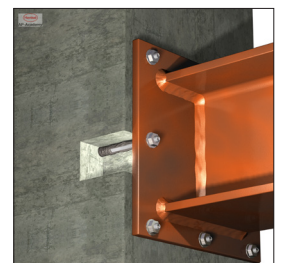
Suitable for the fixation of facades, roofs, wood constructions, metal constructions; metal profiles, columns, beams, consoles, railings, sanitary devices, cable trays, piping, post-installed rebar connection (reconstruction or reinforcement), etc.

Handling & Storage

- Storage: store in a cold and dark place, storage temperature: from +5°C up to +25 °C.
- Shelf life: 18 months for cartridges.

Applications & Intended Use

- **Base Material:**
Cracked and non-cracked concrete, light-concrete, porous-concrete, solid masonry, hollow brick, natural stone (Attention! natural stone, can discolour; shall be checked in advance; hammer drilled bore holes, (perforated stone: rotary drilling)
- **Anchor Elements:**
Threaded rods (zinc plated or hot dip, stainless steel and high corrosion resistance steel), reinforcing bars, internal threaded rods, profiled rod, steelsection with undercuts (e.g. perforated section)
- **Temperature Range:**
-20°C (-10°C) up to +40°C installation temperature
cartridge temperature min. +5°C; optimal +20°C,
base material temperature after full curing -40°C to +120°C



PRODUCT INFORMATION SHEET

Mortar Properties

Properties	Test method	Result
UV resistance	-	Pass
Watertightness	DIN EN 12390-8	0 mm
Temperature stability	-	120 °C
pH-value	-	> 12
Density	-	1,77 kg / dm ³
Compressive strength	EN 196 Teil1	100 N / mm ²
Flexural strength	EN 196 Teil1	15 N / mm ²
E modulus	EN 12504-4	14000 N / mm ²
Shrinkage	-	< 0,3 %
Hardness Shore D	-	90
Electrical resistance	IEC 93	3,6 10 ⁹ W m
Thermal conductivity	IEC 60093	0,65 W/m·K

Reactivity

Temperature of base material			KFX RVF	
			Gelling and working time	Full curing time in dry base material ¹⁾
-10 °C	to	-6°C	90 min ²⁾³⁾	24 h ²⁾³⁾
-5 °C	to	-1°C	90 min ²⁾	14 h ²⁾
0 °C	to	+4°C	45 min	7 h
+5 °C	to	+9°C	25 min	2 h
+10 °C	to	+19°C	15 min	80 min
+20 °C	to	+29°C	6 min	45 min
+30 °C	to	+34°C	4 min	25 min
+35 °C	to	+39°C	2 min	20 min
+40°C			1,5 min	15 min
Cartridge temperature			+5 °C to +40 °C	

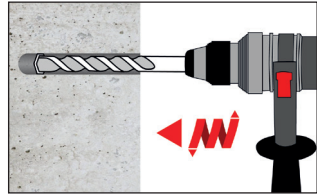
¹⁾ The curing times in wet concrete has to be doubled.
²⁾ The application is not permitted in masonry.
³⁾ The cartridge temperature must be conditioned to min. +15°C.

PRODUCT INFORMATION SHEET

Anchorage in Concrete

Installation Instructions

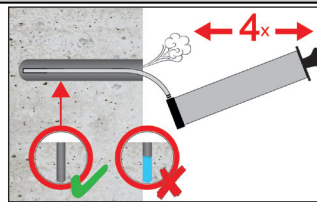
Drilling of the bore hole



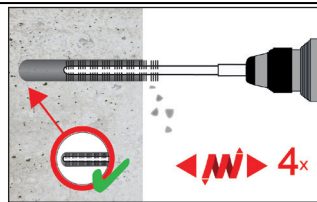
- 1a. Drill with hammer drill (HD) a hole into the base material to the size and embedment depth required by the selected anchor (see page 7), with hammer (HD), hollow (HDB) or compressed air (CD) drilling. The use of a hollow drill bit is only in combination with a sufficient vacuum permitted. In case of aborted drill hole, the drill hole shall be filled with mortar.

Attention! Standing water must be removed before cleaning.

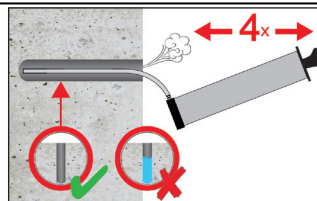
MAC: Cleaning for nominal drill hole diameter $d_o \leq 20\text{mm}$ and drill depth $h_o \leq 10d_{\text{nom}}$ (only uncracked concrete!)



- 2a. Starting from the bottom / back of the bore hole, blow the hole clean with a hand pump (see page 6) a minimum of four times.

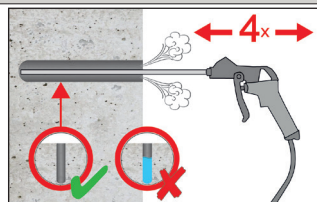


- 2b. Brush the hole with an appropriate sized wire brush $> d_{\text{b,min}}$ (see page 6) a minimum of four times in a twisting motion. If the bore hole ground is not reached with the brush, a brush extension must be used.

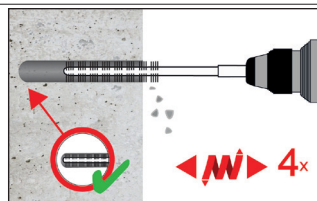


- 2c. Finally blow the hole clean again with a hand pump (see page 6) a minimum of four times.

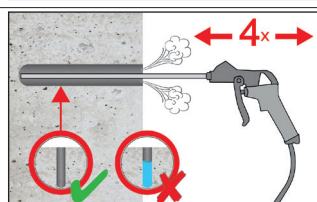
CAC: Cleaning for all drill hole diameter in uncracked and cracked concrete



- 2a. Starting from the bottom / back of the bore hole, blow the hole clean with compressed air (min. 6 bar) a minimum of four times until return air stream is free of noticeable dust. If the bore hole ground is not reached an extension must be used.



- 2b. Brush the hole with an appropriate sized wire brush $> d_{\text{b,min}}$ (see page 6) a minimum of four times in a twisting motion. If the bore hole ground is not reached with the brush, a brush extension must be used.



- 2c. Finally blow the hole clean again with compressed air (min. 6 bar) a minimum of four times until return air stream is free of noticeable dust. If the bore hole ground is not reached an extension must be used.

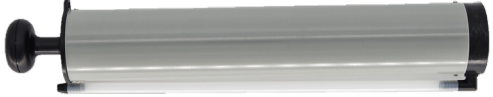
After cleaning, the bore hole has to be protected against re-contamination in an appropriate way, until dispensing the mortar in the bore hole. If necessary, the cleaning has to be repeated directly before dispensing the mortar. In-flowing water must not contaminate the bore hole again.

PRODUCT INFORMATION SHEET


	<p>3. Attach a supplied static-mixing nozzle to the cartridge and load the cartridge into the correct dispensing tool (see page 6). After every working interruption longer than the recommended working time (see page 3) as well as for new cartridges, a new static-mixer shall be used.</p>
	<p>4. Prior to inserting the anchor rod into the filled bore hole, the position of the embedment depth shall be marked on the anchor rods.</p>
	<p>5. Prior to dispensing into the anchor hole, squeeze out separately a minimum of three full strokes and discard non-uniformly mixed adhesive components until the mortar shows a consistent grey colour.</p>
	<p>6. Starting from the bottom / back of the cleaned anchor hole fill the hole up to approximately two-thirds with adhesive. Slowly withdraw of the static mixing nozzle as the hole is filled avoids creating air pockets. If the bore hole ground is not reached with the static-mixing nozzle, a appropriate extension must be used. Observe the gel-/ working times given (see page 3).</p>
	<p>7. Piston plugs and mixer nozzle extensions shall be used for the following applications:</p> <ul style="list-style-type: none"> • Horizontal assembly (horizontal direction) and ground erection (vertical downwards direction): Drill bit-$\varnothing d_0 \geq 18$ mm and embedment depth $h_{ef} > 250$mm • Overhead assembly (vertical upwards direction): Drill bit-$\varnothing d_0 \geq 18$ mm
	<p>8. Push the threaded rod or reinforcing bar into the anchor hole while turning slightly to ensure positive distribution of the adhesive until the embedment depth is reached.</p> <p>The anchor should be free of dirt, grease, oil or other foreign material.</p>
	<p>9. Be sure that the anchor is fully seated at the bottom of the hole and that excess mortar is visible at the top of the hole. If these requirements are not maintained, the application has to be renewed. For overhead application the anchor rod shall be fixed (e. g. wedges).</p>
	<p>10. Allow the adhesive to cure to the specified time prior to applying any load or torque. Do not move or load the anchor until it is fully cured (see page 3).</p>
	<p>11. After full curing, the nut & washer can be installed and tightened up to the max. torque (see page 7) by using a calibrated torque wrench. It is optional to fill the annular gap between anchor and fixture with mortar. Therefore, substitute the washer by the filling washer and connect the mixer reduction nozzle to the tip of the mixer. The annular gap is filled with mortar, when mortar oozes out of the washer.</p>

PRODUCT INFORMATION SHEET**Installation Accessories**


Blow Out Pump	
Order Code	Description
03079	Hand held blow out pump. For use with Hole Cleaning Brush for hole preparation prior to resin injection.



Hole Cleaning Brush	
Order Code	Description
03081	Wire Brush for 10mm Hole
03082	Wire Brush for 12mm Hole
03083	Wire Brush for 14mm Hole
03084	Wire Brush for 16mm Hole
03085	Wire Brush for 18mm Hole
03086	Wire Brush for 20mm Hole
03087	Wire Brush for 22mm Hole
03088	Wire Brush for 24mm Hole
03089	Wire Brush Handle



Injection Gun for 410/420ml Cartridges	
Order Code	Description
03005	Heavy Duty Resin Injection Gun for 410 / 420ml Cartridges

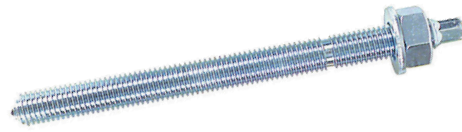


See Page 7 for Loadings & Setting Parameters

PRODUCT INFORMATION SHEET

Anchor Studs

The following studs must be used with KFX Resin to guarantee the anchor loadings on Page 7



Order Code	Size (mm)	Finish	Hole Cleaning Brush Req'd	Box Qty
03060	M8 x 110	BZP	03081	10
03061	M10 x 130	BZP	03082	10
03062	M12 x 160	BZP	03083	10
03063	M16 x 190	BZP	03085	10
03064	M20 x 260	BZP	03087	5
03090	M8 x 110	HDG	03081	10
03091	M10 x 130	HDG	03082	10
03092	M12 x 160	HDG	03083	10
03093	M16 x 190	HDG	03085	10
03094	M20 x 260	HDG	03087	5
03071	M8 x 110	A4 S/S	03081	10
03072	M10 x 130	A4 S/S	03082	10
03073	M12 x 160	A4 S/S	03083	10
03074	M16 x 190	A4 S/S	03085	10
03075	M20 x 260	A4 S/S	03087	5

Setting Parameters

Anchor size			M8	M10	M12	M16	M20
Outer diameter of anchor	$d = d_{nom}$	[mm]	8	10	12	16	20
Nominal drill hole diameter	d_o	[mm]	10	12	14	18	24
Effective embedment depth	$h_{ef,min}$	[mm]	60	60	70	80	90
	$h_{ef,max}$	[mm]	160	200	240	320	400
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	9	12	14	18	22
Maximum torque moment	$T_{inst} \leq$	[Nm]	10	20	40	80	120
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$			$h_{ef} + 2d_o$	
Minimum spacing	S_{min}	[mm]	40	50	60	80	100
Minimum edge distance	C_{min}	[mm]	40	50	60	80	100

PRODUCT INFORMATION SHEET

Recommended Loads

The recommended loads are only valid for single anchors for a roughly design, if the following conditions are valid:

- $c \geq 1,5 \times h_{ef}$ $s \geq 3,0 \times h_{ef}$ $h \geq 2 \times h_{ef}$
- $\psi_{sus} = 1,0$; percentage of dead load $\leq \psi_{sus}^0$ see table below
- The recommended loads have been calculated using the partial safety factors for resistances stated in ETA(s) and with a partial safety factor for actions of $\gamma_f=1.4$.

The partial safety factor for seismic action is $\gamma_1 = 1,0$.

If the conditions are not fulfilled the loads must be calculated acc. to EN 1992-4.

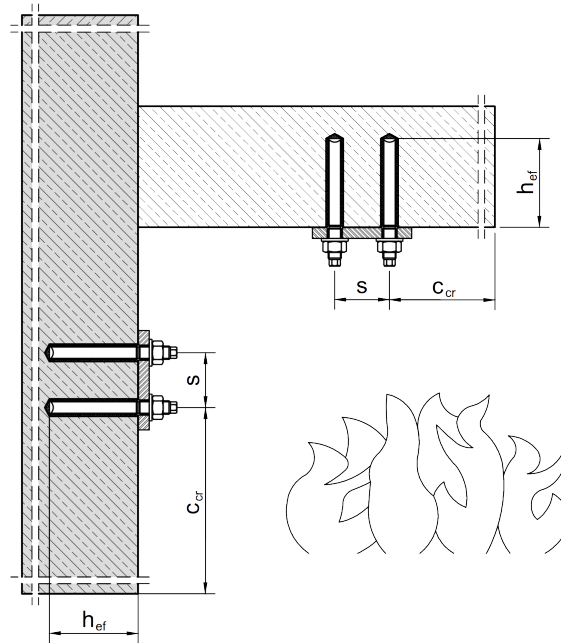
For further details observe ETA-08/0237.

<ul style="list-style-type: none"> • Property class 8.8 • Concrete - C20/25 • Hammer drilling (HD, CD, HDB) • Dry, wet concrete 				M8	M10	M12	M16	M20
Recommended tension load	40°C / 24°C ¹⁾ $\psi_{sus}^0 = 0,73$	uncracked	$N_{rec,stat}$ [kN]	8,6	13,5	19,7	27,3	43,3
		cracked	$N_{rec,stat}$ [kN]	3,8	5,6	9,1	13,7	23,3
	$N_{rec,eq,C1}$ [kN]		3,4	4,9	8,5	12,9	22,0	
	80°C / 50°C ¹⁾ $\psi_{sus}^0 = 0,65$	uncracked	$N_{rec,stat}$ [kN]	7,2	10,1	14,8	22,4	38,1
		cracked	$N_{rec,stat}$ [kN]	2,4	3,9	6,6	10,0	17,0
	$N_{rec,eq,C1}$ [kN]		2,1	3,5	6,2	9,4	16,0	
120°C/72°C ¹⁾ $\psi_{sus}^0 = 0,57$	uncracked	$N_{rec,stat}$ [kN]	5,3	7,3	10,7	16,2	27,6	
	cracked	$N_{rec,stat}$ [kN]	1,9	2,8	4,9	7,5	12,7	
$N_{rec,eq,C1}$ [kN]		1,7	2,5	4,6	7,0	11,9		
Recommended shear load without lever arm ^{2) 3)}	uncracked	$V_{rec,stat}$ [kN]	6,3	9,7	14,3	20,8	34,1	
		$V_{rec,stat}$ [kN]	3,8	6,7	11,7	14,8	24,2	
	cracked	$V_{rec,eq,C1}$ [kN]	3,0	5,1	9,4	14,2	24,2	
Embedment depth	h_{ef} [mm]	80	90	110	125	170		
Edge distance	$c \geq$ [mm]	120	135	165	187,5	255		
Axial distance	$s \geq$ [mm]	240	270	330	375	510		
¹⁾ Short term temperature/ Long term temperature. ²⁾ Shear loads are valid for all specified temperature ranges. ³⁾ In case of seismic action, the annular gap between the anchor rod and the through hole of the attachment must be filled with mortar, otherwise $a_{gap} = 0,5$ acc. to ETA-08/0237 must be taken into account. $N_{rec,stat}/V_{rec,stat}$ = Recommended load under static and quasi-static action $N_{rec,eq}/V_{rec,eq}$ = Recommended load under seismic action								

PRODUCT INFORMATION SHEET

Recommended Loads

The present recommended loads of fire resistance is assessed with respect to its fire resistance properties as anchor applications in walls and ceilings. The evaluation is based on tests according to DIN EN 1363-1:2012 and Technical Report 020.



The recommended tension and shear loads under fire exposure of the following table are only valid if the following conditions are met:

- Uncracked concrete: Property class min. C20/25
- $c \geq 2,0 \times h_{ef}$
- $s \geq 4,0 \times h_{ef}$
- Threaded rod zinc plated: Property class min. 5.8 (EN 1993-1-8:2005+AC:2009)
- Threaded rod made of stainless steel and high corrosion resistance steel: Property class min. 70 (EN ISO 3506-1:2009)

The recommended loads have been calculated using the partial safety factor for resistances under fire exposure of $\gamma_{M,fi} = 1.0$ and with a partial safety factor for actions of $\gamma_F = 1.0$.

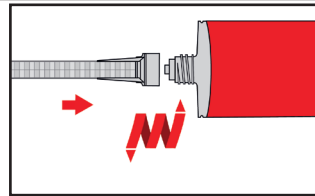
Anchor size	h_{ef} [mm]	Fire resistance time in minutes			
		R30 max F [kN]	R60 max F [kN]	R90 max F [kN]	R120 max F [kN]
M8	≥ 80	1,6	1,1	0,6	0,3
M10	≥ 90	2,6	1,8	0,9	0,5
M12	≥ 110	3,4	2,6	1,8	1,4
M16	≥ 125	6,2	4,8	3,4	2,7
M20	≥ 170	9,8	7,5	5,3	4,2
M24	≥ 210	14,0	10,8	7,6	6,0

PRODUCT INFORMATION SHEET

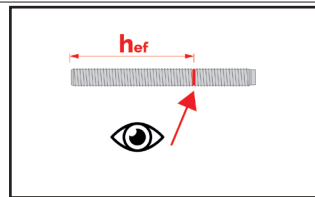
Anchorage in Masonry

Installation Instructions

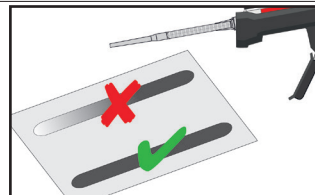
Preparation of cartridge



1. Remove the cap and attach the supplied static-mixing nozzle to the cartridge and load the cartridge into the correct dispensing tool (see page 13). For every working interruption longer than the recommended working time (see page 3), as well as for new cartridges, a new static-mixer should be used.

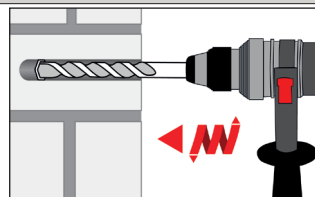


2. Prior to inserting the anchor rod into the filled bore hole, the position of the embedment depth should be marked on the anchor rods.

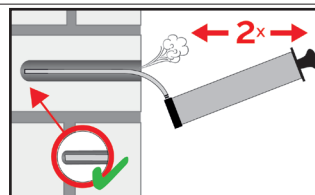


3. Prior to dispensing into the anchor hole, squeeze out separately a minimum of three full strokes and discard non-uniformly mixed adhesive components, until the mortar shows a consistent grey colour.

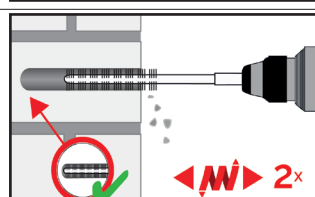
Installation in solid masonry (without sleeve)



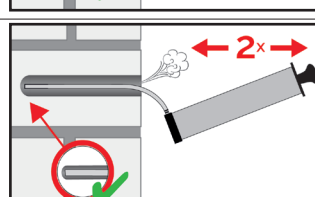
4. Holes to be drilled perpendicular to the surface of the base material by using a hard-metal tipped hammer drill bit. Drill a hole, with drilling method according to page 12, into the base material, with nominal drill hole diameter and bore hole depth according to the size and embedment depth required by the selected anchor. In case of aborted drill hole the, hole should be filled with mortar.



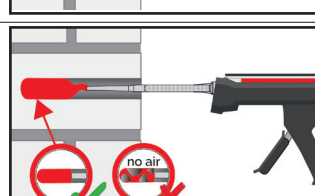
- 5a. Starting from the bottom or back of the bore hole, blow the hole clean with handpump (see page 13) a minimum of two times.



- 5b. Attach an appropriate sized wire brush $> d_{b,min}$ (see page 13) to a drill or a cordless screwdriver and brush the hole clean a minimum of two times in a twisting motion. If the bore hole ground is not reached with the brush, a brush extension must be used.

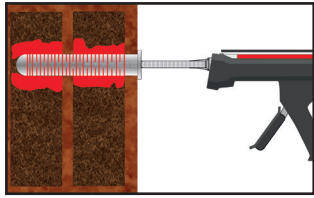
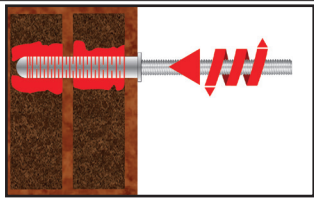
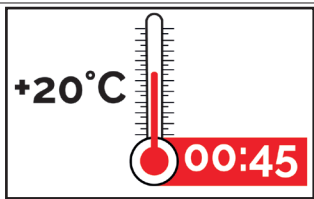
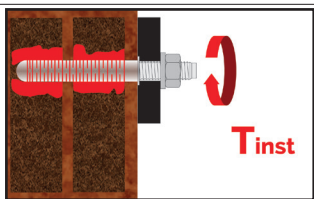


- 5c. Finally blow the hole clean again with handpump a minimum of two times.



6. Starting from the bottom / back of the cleaned anchor hole fill the hole up to approximately two-thirds with adhesive. Slowly withdraw of the static mixing nozzle as the hole is filled avoids creating air pockets. Observe the gel-/ working times given (see page 3).

PRODUCT INFORMATION SHEET
Installation Instructions in Masonry (Continued)

	<p>7. Starting from the bottom / back fill the sleeve with adhesive. For embedment depth equal to or larger than 130 mm an extension nozzle should be used. For quantity of mortar, see cartridge label installation instructions. For push through installation the sleeve within the fixture must also be fully filled with mortar. Observe the gel-/working times given in the tables on page 3)</p>
	<p>8. Push the threaded rod into the anchor hole while turning slightly to ensure positive distribution of the adhesive until the embedment depth is reached. The anchor shall be free of dirt, grease, oil or other foreign material.</p>
	<p>9. Allow the adhesive to cure to the specified curing time prior to applying any load or torque. Do not move or load the anchor until it is fully cured. (See page 3).</p>
	<p>10. After full curing, the fixture can be installed with up to the max. installation torque (See parameters of brick on page 12) by using a calibrated torque wrench.</p>


PRODUCT INFORMATION SHEET
Installation Parameters

Solid brick and autoclaved aerated concrete			M8	M10	M12	M16			
Nominal drill hole diameter	d_o	[mm]	10	12	14	18			
Effective anchorage depth	h_{ef}	[mm]	80	90	100	100			
Drill hole depth	h_o	[mm]	80	90	100	100			
Minimum wall thickness	h_{min}	[mm]	$h_{ef} + 30$						
Diameter of clearance hole in the fixture	d_f	[mm]	9	12	7	14	9	18	12
Diameter of steel brush	$d_b \geq$	[mm]	03081	03082	03083	03085			
Min. brush diameter	$d_{b,min}$	[mm]	10,5	12,5	14,5	18,5			
Max. installation torque	$T_{inst,max}$	[Nm]	see tables on pages 15-17						


Hollow brick and solid brick with sleeve			M8	M8/M10	M12 /M16			
Perforated sleeve			03013	03013	03013	03015	03015	03015
Nominal drill hole diameter	d_o	[mm]	12	16	16	20	20	20
Effective anchorage depth	h_{ef}	[mm]	80	85	130	85	130	200
Drill hole depth	h_o	[mm]	85	90	135	90	135	205
Minimum wall thickness	h_{min}	[mm]	115	115	175	115	175	240
Diameter of clearance hole in the fixture	d_f	[mm]	9	9 (M8) / 12 (M10)		14 (M12) / 18 (M16)		
Diameter of steel brush	$d_b \geq$	[mm]	03082	03084		03086		
Min. brush diameter	$d_{b,min}$	[mm]	12,5	16,5		20,5		
Max. installation torque	$T_{inst,max}$	[Nm]	see tables on pages 15-17					

PRODUCT INFORMATION SHEET**Installation Accessories**

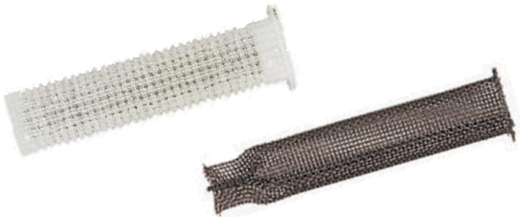
Blow Out Pump	
Order Code	Description
03079	Hand held blow out pump.




Hole Cleaning Brush	
Order Code	Description
03081	Wire Brush for 10mm Hole
03082	Wire Brush for 12mm Hole
03083	Wire Brush for 14mm Hole
03084	Wire Brush for 16mm Hole
03085	Wire Brush for 18mm Hole
03086	Wire Brush for 20mm Hole
03087	Wire Brush for 22mm Hole
03088	Wire Brush for 24mm Hole
03089	Wire Brush Handle



Mesh Resin Sleeves				
Order Code	Type	Size (mm)	Drill Hole Ø (mm)	Stud Ø
03013	Plastic	16 x 85	16	M8/M10
03015	Plastic	20 x 85	20	M12/M16
03023	Wire	16 x 1000	22	M16
03024	Wire	20 x 1000	28	M20



Injection Gun for 410/420ml Cartridges	
Order Code	Description
03005	Heavy Duty Resin Injection Gun for 410 / 420ml Cartridges



PRODUCT INFORMATION SHEET

Calculation of Recommended Loads

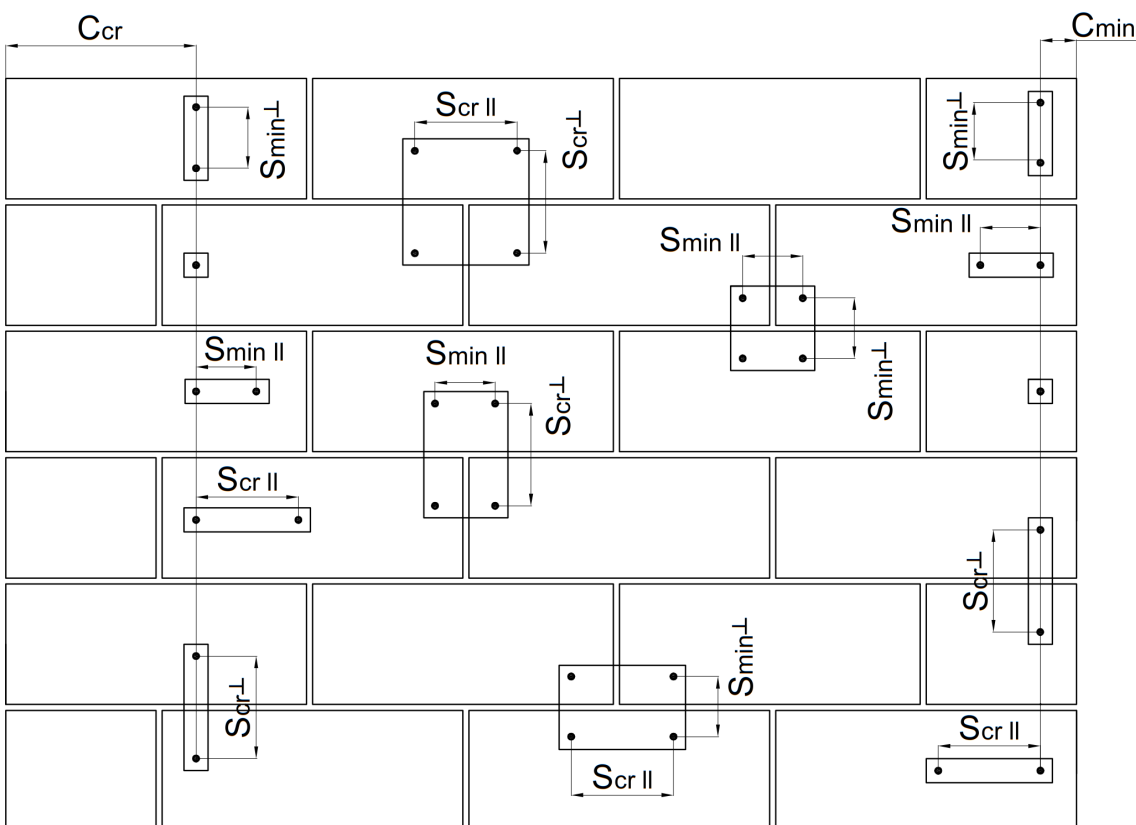
The recommended loads given are for preliminary planning purposes only and do not replace dimensioning.

The following conditions must be met:

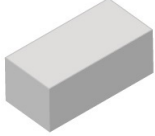
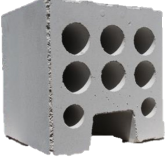
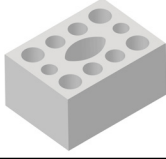





- Dry environment
- Temperature range 24/40°C (long-term/short-term)
- Spacing distance $s \geq s_{cr}$
- Edge distance $c \geq c_{cr}$
- Strength class of masonry mortar at least M2.5
- Brick strength as well as density and dimensions
- Joints are visible
- Vertical joint is mortared
- Strength class of the threaded rod is min. 5.8 or higher
- Drilling method:
 "rotary drilling" in hollow brick and autoclaved aerated concrete (AAC),
 "hammer drilling" in solid brick

The recommended loads take into account all partial safety factors (resistance 2.5; action 1.4) and all failure modes. An interaction between tension and transverse tension was not taken into account.

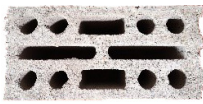

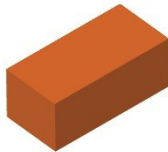
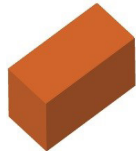





If one or more of the conditions listed above are not fulfilled, the application must be recalculated according to TR054 and the requirements of the relevant ETA.










PRODUCT INFORMATION SHEET
Recommended Loads

Naming Compressive strength Density Dimensions	Picture	Anchor rods	Perforated sleeve	T_{inst}	c_{cr}	c_{min}	s_{cr}	s_{min}	N_{rec}	V_{rec}
				[Nm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]
Calcium silica solid bricks acc. to EN 771-2										
Solid limestone KS 20 N/mm ² $r \geq 2,0 \text{ kg/dm}^3$ $\geq 240 \times 115 \times 71 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	10	250	60	250	75	1,7	1,7
Calcium silica hollow bricks acc. to EN 771-2										
Perforated limestone KS-L 8DF 12 N/mm ² $r \geq 1,4 \text{ kg/dm}^3$ $\geq 248 \times 240 \times 238 \text{ mm}$		M8 to M16	16x130 20x130 20x200	5	240	50	250	50	1,4	1,0
Perforated limestone KS-L 3DF 12 N/mm ² $r \geq 1,4 \text{ kg/dm}^3$ $\geq 240 \times 175 \times 113 \text{ mm}$		M8 to M16	16x85; 16x130 20x85; 20x130	5	240	60	240	120	0,63	1,0
Perforated limestone KS-L 12DF 12 N/mm ² $r \geq 1,4 \text{ kg/dm}^3$ $\geq 498 \times 175 \times 238 \text{ mm}$		M8 to M16	16x130 20x130	4	500	50	500	50	1,0	1,0
Autoclaved aerated concrete acc. to EN 771-4										
AAC 2 2 N/mm ² $r \geq 0,35 \text{ kg/dm}^3$ $\geq 449 \times 240 \times 249 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	5	210	50	300	50	0,34	0,43
AAC 4 4 N/mm ² $r \geq 0,5 \text{ kg/dm}^3$ $\geq 449 \times 240 \times 249 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	5	210	50	300	50	0,86	1,3
AAC 6 6 N/mm ² $r \geq 0,6 \text{ kg/dm}^3$ $\geq 449 \times 240 \times 249 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	5	210	50	300	50	1,1	1,7
Lightweight concrete solid block acc. to EN 771-3										
VBL 2 N/mm ² $r \geq 0,6 \text{ kg/dm}^3$ $\geq 240 \times 300 \times 113 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	2	150	60	300	120	0,86	0,86

PRODUCT INFORMATION SHEET

Naming Compressive strength Density Dimensions	Picture	Anchor rods	Perforated sleeve	T_{inst}	c_{cr}	c_{min}	s_{cr}	s_{min}	N_{rec}	V_{rec}
				[Nm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]
Hollow light weight concrete brick acc. to EN 771-3										
HBL 3 N/mm ² $r \geq 1,0 \text{ kg/dm}^3$ $\geq 500 \times 250 \times 240 \text{ mm}$		M8 to M16	16x85; 16x130 20x85; 20x130	2	250	50	500	50	0,34	0,57
Hollow concrete brick acc. to EN 771-2										
Perforated concrete block Bloc Creux B40 5 N/mm ² $r \geq 0,8 \text{ kg/dm}^3$ $\geq 495 \times 195 \times 190 \text{ mm}$		M8 to M16	16x130 20x130	4	170	50	200	50	0,57	1,7
Solid clay brick acc. to EN 771-1										
Solid clay brick Mz-1DF 20 N/mm ² $r \geq 2,0 \text{ kg/dm}^3$ $\geq 240 \times 115 \times 55 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	10	250	60	250	65	2,0	2,3
Solid clay brick Mz-2DF 20 N/mm ² $r \geq 2,0 \text{ kg/dm}^3$ $\geq 240 \times 115 \times 113 \text{ mm}$		M8 to M16	without 12x80 16x85; 16x130 20x85; 20x130; 20x200	10	250	50	250	50	2,1	2,3
Hollow clay brick acc. to EN 771-1										
Hollow clay brick HLZ 16DF 20 N/mm ² $r \geq 1,25 \text{ kg/dm}^3$ $\geq 300 \times 240 \times 249 \text{ mm}$		M8 to M16	12x80 16x85; 16x130 20x85; 20x130; 20x200	5	300	50	300	50	0,71	2,3
Hollow clay brick BGV Thermo 10 N/mm ² $r \geq 0,60 \text{ kg/dm}^3$ $\geq 500 \times 200 \times 314 \text{ mm}$		M8 to M16	12x80 16x85; 16x130 20x85; 20x130	2	500	120	500	120	0,26	1,0
Hollow clay brick Calibric R+ 12 N/mm ² $r \geq 0,6 \text{ kg/dm}^3$ $\geq 500 \times 200 \times 314 \text{ mm}$		M8 to M16	16x85; 16x130 20x85; 20x130	2	500	120	500	120	0,34	1,6
Hochlochziegel Urbanbric 12 N/mm ² $r \geq 0,7 \text{ kg/dm}^3$ $\geq 560 \times 200 \times 274 \text{ mm}$		M8 to M16	12x80 16x85; 16x130 20x85; 20x130	2	560	120	560	100	0,34	1,3
Hollow clay brick Porotherm Homebric 10 N/mm ² $r \geq 0,7 \text{ kg/dm}^3$ $\geq 500 \times 200 \times 299 \text{ mm}$		M8 to M16	12x80 16x85; 16x130 20x85; 20x130	2	500	120	500	300	0,34	0,86

PRODUCT INFORMATION SHEET

Naming Compressive strength Density Dimensions	Picture	Anchor rods	Perforated sleeve	T _{inst}	c _{cr}	c _{min}	s _{cr}	s _{min}	N _{rec.}	V _{rec.}
				[Nm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]
Hollow clay brick Brique Creuse C40 12 N/mm ² r ≥ 0,7 kg/dm ³ ≥ 500x200x200 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130	2	500	120	500	100	0,34	0,43
Hollow clay brick Blocchi Leggeri 12 N/mm ² r ≥ 0,6 kg/dm ³ ≥ 250x120x250 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130	2	250	60	250	100	0,17	1,0
Hollow clay brick Doppio Uni 28 N/mm ² r ≥ 0,9 kg/dm ³ ≥ 250x120x120 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130	2	250	100	250	100	0,34	0,71
Hollow clay brick with insulation EN 771-1										
Coriso WS07 6 N/mm ² r ≥ 0,55 kg/dm ³ ≥ 248x365x249 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130; 20x200	5	250	50	250	50	0,43	1,4
T7MW 8 N/mm ² r ≥ 0,59 kg/dm ³ ≥ 248x365x249 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130; 20x200	5	250	50	250	50	0,57	0,86
T8P 6 N/mm ² r ≥ 0,56 kg/dm ³ ≥ 248x365x249 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130; 20x200	4	250	50	250	50	0,43	1,3
MZ90-G 12 N/mm ² r ≥ 0,68 kg/dm ³ ≥ 248x365x249 mm		M8 to M16	12x80 16x85; 16x130 20x85; 20x130; 20x200	4	250	50	250	50	0,86	1,1

PRODUCT INFORMATION SHEET**Chemical Resistance**

Chemical Agent	Concentration	Resistant	Not resistant
Accumulator acid		x	
Acetic acid	10%	x	
Acetic acid	40%		x
Laitance			x
Acetone	5%		x
Acetone	10%		x
Acetone	100%		x
Ammonia, aqueous solution	5%	x	
Ammonia, aqueous solution	32%		x
Aniline	100%	x	
Beer	100%	x	
Chlorine	All		x
Benzol	100%		x
Boric Acid, aqueous solution		x	
Calcium carbonate, suspended in water	All	x	
Calcium chloride, suspended in water		x	
Calcium hydroxide, suspended in water		x	
Chlorinated lime (Calcium hypochlorite)	10%		x
Carbon tetrachloride	100%	x	
Caustic soda solution	10%	x	
Caustic soda solution	40%		x
Citric acid	10%		x
Citric acid	50%		x
Citric acid	All	x	
Chlorine water, swimming pool	All	x	
Demineralized water	All		x
Diesel oil	100%	x	
Ethyl alcohol, aqueous solution	100%		x
Ethyl alcohol, aqueous solution	50%		x
Formic acid	10%		x
Formic acid	30%		x
Formic acid	100%		x
Formaldehyde, aqueous solution	20%		x
Formaldehyde, aqueous solution	30%	x	
Freon		x	
Fuel Oil		x	
Gasoline (premium grade)	100%	x	
Glycol (Ethylene glycol)		x	
Hydraulic fluid	Conc.	x	
Hydrochloric acid (Muriatic Acid)	Conc.		x
Hydrogen peroxide	10%		x
Hydrogen peroxide	30%		x
Isopropyl alcohol	100%		x
Lactic acid	10%		x
Lactic acid	All	x	
Linseed oil	100%	x	
Lubricating oil	100%	x	
Magnesium chloride, aqueous solution	All	x	
Methanol	100%		x
Standard benzene		x	
Motor oil (SAE 20 W-50)	100%	x	
Nitric acid	10%		x
Oleic acid	100%	x	
Perchloroethylene	100%	x	
Petroleum	100%	x	
Phenol, aqueous solution	8%		x

Results shown in the table are applicable to brief periods of chemical contact with full cured adhesive (e.g. temporary contact with adhesive during a spill).

PRODUCT INFORMATION SHEET

Chemical Agent	Concentration	Resistant	Not resistant
Benzyl alcohol	100%		x
Phosphoric acid	85%	x	
Phosphoric acid	10%	x	
Potash lye (Potassium hydroxide)	10%	x	
Potash lye (Potassium hydroxide)	40%		x
Potassium carbonate, aqueous solution	All	x	
Potassium chlorite, aqueous solution	All	x	
Potassium nitrate, aqueous solution	All	x	
Sea water, salty	All	x	
Sodium carbonate	All	x	
Sodium chloride, aqueous solution	All	x	
Sodium phosphate, aqueous solution	All	x	
Sodium silicate	All	x	
Sulfuric acid	10%	x	
Sulfuric acid	30%		x
Sulfuric acid	70%		x
Tartaric acid	All	x	
Tetrachloroethylene	100%	x	
Toluene			x
Trichloroethylene	100%		x
Turpentine	100%	x	

Results shown in the table are applicable to brief periods of chemical contact with full cured adhesive (e.g. temporary contact with adhesive during a spill).

Note: This technical data sheet replaces all previous versions. The instructions in this documentation are based on tests and experience and have been prepared to the best of our knowledge and conscience. Due to the variety of different materials and substrates and the many different possible applications beyond our control, we assume no responsibility for the results achieved. Since the construction and nature of the substrate and the processing conditions are beyond our control, we do not accept any liability for this publication. In any case, it is recommended to carry out appropriate tests before use.

All data provided is correct at the time of publishing, but is subject to change by Kernow Fixings; please contact one of the Kernow team on 01726 624600 or sales@kernow-how.com to obtain the latest product information at the time of purchase.