TECHNICAL DATA SHEET

PURE EPOXY FX-EP5

HIGH LOAD EPOXY ANCHOR

FX-EP5 is solvent-free, two-component pure epoxy chemical anchoring injection system, Used for high performance and critical structural applications.

- PRODUCE NAME : Injection Cartridge (Pure epoxy resin)
- PRODUCT CODE : FX-EP5
- SIZE : 585ML
- RATIO : 3:1
- COLOR : PART A-Red
  PART B-White
  MIXED- Red
- APPROVAL:

ETA Option 7 approved.
Includes flooded holes,
and wet and dry concrete
conditions.

PRODUCT USAGE

For the fixing of non-expanding anchors in the following :

STRUCTURAL WORK

- ✓ Rebar / steel reinforcement anchoring in new and refurbishment works.
- ✓ Threaded rods
- ✓ Bolts and special fastening systems

MECHANICAL AND ELECTRICAL SERVICES INSTALLATION

- ✓ Anchoring of supports for ducting and equipment.

METAL WORK AND CARPENTRY

- ✓ Fixing of handrails, balustrades and supports.
- ✓ Fixing of railings.
- ✓ Fixing of window and door frames.

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UNDERWATER WORK

- ✓ Underwater use.
- ✓ Installation in water-filled drill holes.

For fixing of the following substrates :

- ✓ Concrete
- ✓ Hard natural and reconstituted stone
- ✓ Solid rock
- ✓ Hollow and solid masonry
- ✓ Steel
- ✓ Wood

ADVANTAGES

- ☑ Non-cracked concrete
- ☑ Can be uses in damp area
- ☑ Can be used for underwater installation
- ☑ High load capacity
- ☑ Styrene-free
- ☑ Low odor
- ☑ Non-sag, even overhead
- ☑ Non contraction after harden
- ☑ High stability
- ☑ No transportation restrictions





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TEST REPORT

PROPERTY APPRAISAL

Test Item	Test Method	Test Result
Compressive Strength (N/mm^2)	ASTM D695-15	95.8
Compression modulus (N/mm^2)		2292
Flexural Strength (N/mm^2)	ASTM D790-15ε1 Procedure AI	39.5
Flexural modulus (N/mm^2)		5767
Tensile Strength (N/mm^2)	ASTM D638-14 (Type I Specimen，5mm/min)	13.8

TEST OF ANCHORS IN CONCRETE

Pressure		Destroy Haul Strength (kgf)	Safety Haul Strength (kgf)	Working Standard (mm)	
Concrete Strength		4000 psi	4000 psi	Hole Diameter	Hole Depth
Steel Strip No.	#3 (Φ10)	3600	1646	13	90
	#4 (Φ13)	5760	2879	16	115
	#5 (Φ16)	15080	4570	20	125
	#6 (Φ19)	22920	6708	25	160
	#8 (Φ25)	29586	10749	32	215
	#10 (Φ32)	34431	15046	40	300

*** For information only - not for specification purposes.***

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TECHNICAL DATA

DENSITY

- Part A: 1.70 kg/l (±0.5kg)
- Part B: 1.30 kg/l (±0.5kg)
- 1.68 kg/l (part A+B mixed) (±0.5kg)

SAG FLOW

- Non-sag, even overhead, but need to use wedges to fix rebars before curing.
  One rebar needs two wedges to fix in symmetrical angle.

LAYER THICKNESS

- 5 mm max.

CURING TIME

Concrete temperature	Minimum curing time in dry concrete	Maximum curing time in dry concrete
+10°C to +15°C	10 hr	48 hr
+15°C to +20°C	150 mins	30 hr
+20°C to +25°C	60 mins	24 hr
+25°C to +30°C	30 mins	15 hr
+30°C to +35°C	15 mins	10 hr
+35°C to +40°C	8 mins	6 hr

Concrete temperature	Minimum curing time in wet concrete	Maximum curing time in wet concrete
+10°C to +15°C	12 hr	72 hr
+15°C to +20°C	180 mins	45 hr
+20°C to +25°C	80 mins	36 hr
+25°C to +30°C	40 mins	20 hr
+30°C to +35°C	20 mins	12 hr
+35°C to +40°C	11 mins	8 hr

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APPLICATION CONDITIONS / LIMITATIONS

SUBSTRATE & AMBIENT TEMPERATURE

- +10°C min. / +40°C max.

MATERIAL TEMPERATURE

- Must be at a temperature of between +10°C and +40°C for application.

DEW POINT

- Substrate temperature during application must be at least 10°C above dew point.

STORAGE CONDITION & SHELF-LIFE

- 24 months from date of production if stored properly in original unopened, sealed and undamaged packaging in cool and dry conditions at temperatures between +5°C and +25°C.
- Protect from direct sunlight.

It is normal that the cured glue material may be discolored by sunlight exposure.

All FX-EP5 cartridges have the manufacture date printed on the label.

ORDER INFORMATION

SIZE :	585ml
PART# :	FX-EP5
CASE QTY :	12 PCS/ CARTON
PALLET QTY :	90 CTNS/ PALLET
DISPENSING TOOL :	WT-296C585

APPLICATION INSTRUCTIONS

- MIXING : Part A : Part B = 3 : 1 by volume

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APPLICATION METHOD

STEP1. BORE HOLE DRILLING

- Drilling of hole with an electric drill to the diameter and depth required by the selected reinforcing bar. Drill hole diameter must be in accordance with anchor size

SETTING DETAILS (According ETA-21/0424, Issue 16.07.2021)

Threaded rod installation								
Size	M8	M10	M12	M16	M20	M24	M27	M30
Nominal drill hole diameter $Ød_0$ [mm]	10	12	14	18	22	28	30	35
Cleaning brush diameter [mm]	11	14	16	20	25	30	40	40
Maximum installation torque $T_{inst, max}$ [N·m]	10	20	40	80	150	200	270	300
Minimum embedment depth $h_{ef, min}$ [mm]	60	60	70	80	90	96	108	120
Maximum embedment depth $h_{ef, max}$ [mm]	160	200	240	320	400	480	540	600
Minimum edge distance c_{min} [mm]	40	45	45	50	55	60	75	80
Minimum spacing s_{min} [mm]	40	50	60	75	90	115	120	140
Minimum thickness of member h_{min} [mm]	h_{ef} + 30 (≥ 100)			h_{ef} + 2·d_0				

Rebar installation						
Size	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Nominal drill hole diameter $Ød_0$ [mm]	14	16	20	25	30	40
Cleaning brush diameter [mm]	16	18	22	30	40	45
Maximum installation torque $T_{inst, max}$ [N·m]	20	40	80	150	270	300
Minimum embedment depth $h_{ef, min}$ [mm]	60	70	80	90	100	128
Maximum embedment depth $h_{ef, max}$ [mm]	200	240	320	400	500	640
Minimum edge distance c_{min} [mm]	45	45	50	65	70	80
Minimum spacing s_{min} [mm]	50	60	80	100	125	160
Minimum thickness of member h_{min} [mm]	h_{ef} + 30 (≥ 100)		h_{ef} + 2·d_0			

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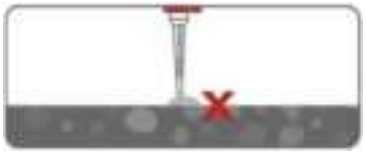
STEP2. BORE HOLE CLEANING

- Brush the hole with an appropriate sized wire brush a minimum of two times. If the bore hole ground is not reached with the brush, a brush extension shall be used. The diameter of wire brush is equal to the hole diameter

- Start from the bottom or back of the bore hole, blow the hole clean with compressed air (min. 30 seconds) or a Air machine a minimum of two times. If the bore hole ground is not reached an extension shall be used.
- For bore holes deeper than 200 mm, or bore hole diameter bigger (≧) than 35 mm, compressed air (min. 30 seconds) must be used. Finally blow the hole clean again with compressed air (min. 30 seconds) or a Air machine a minimum of two times. If the bore hole ground is not reached an extension shall be used.



- Prior to dispensing into the anchor hole, squeeze out separately the mortar until it shows a consistent red color, and discard non-uniformly mixed adhesive components.

STEP3. BORE HOLE FILLING

- Start from the bottom or back of the cleaned anchor hole fill the hole up to approximately two-thirds with adhesive. Slowly withdraw the static mixing nozzle as the hole fills to avoid creating air pockets.

STEP4. REBAR / ANCHOR INSERTING

- Insert the anchor with a rotary motion into the filled drill hole. Some adhesive must come out of the hole.
  **Important: the anchor must be placed within the open time.

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STEP5. REBAR / ANCHOR APPLICATION

- During the resin hardening time the anchor must not be moved or loaded.

** Important: FX-EP5 is an injectable two-component epoxy adhesive after installation just wait 7 days cure to meet the required strength in tension and shear from factored load combinations.

HEALTH AND SAFETY INFORMATION

- For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

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