MasterFlux™ ANC 936 ER

Pure Epoxy (3:1) Resin Based High Performance Anchoring Grout

Material Description

MasterFlux™ ANC 936 ER is a two component (3:1) pure epoxy resin based high performance anchoring grout for use in cracked and uncracked concrete under normal as well as seismic conditions (seismic category C1 – C2).
Designed for post-installed rebar connection applications, **MasterFlux™ ANC 936 ER** offers a very high load-bearing capacity.
The system can be installed in percussive and diamond drilled dry or wet holes.

Areas of Application

- Structural applications in cracked and uncracked concrete applications in seismic zones (C2)
- Post installed rebar connections
- Facedes
- Crash barriers
- Structural steel

Characteristics and Benefits

- Fixings close to free edges
- Fire tested
- Versatile
- High load capacities
- Extended get/open time
- Suitable for dry and wet holes

Tests and Approvals

- ETA according to ETAG 001 part 1 & 5 option 1 for anchoring of threaded bars into cracked & uncracked concrete
- ETA according to TR023 for post-installed rebar connections
- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168(2005)
- Fire resistance F240 for reinforcing bars
- A+ as per French VOC Regulation

Technical Properties	
Density (ASTM D 1875) (+20°C / +72°F)	1,5 kg/cm^3
Compressive Strength (ASTM D 695) (+20°C / +72°F)	
24 hours	75 N/mm^2
7 days	95 N/mm^2
Flexural Strength (ASTM D 790) (+20°C / +72°F)	
24 hours	45 N/mm^2
Tensile Strength (ASTM D 638) (+20°C / +72°F)	
24 hours	18 N/mm^2
7 days	23 N/mm^2
Elongation at Break (ASTM D 638) (+20°C / +72°F)	
24 hours	%6.6
7 days	%5.9
Tensile Modulus (ASTM D 638) (+20°C / +72°F)	
24 hours	5.7 GN/m^2
7 days	5.5 GN/m^2
HDT (ASTM D 648) (+20°C / +72°F)	49°C
VOV (ASTM D 2369)	4.5 g/L

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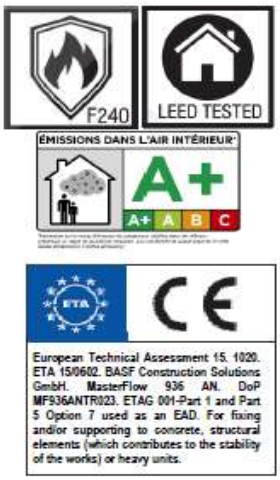

Processing Method

Please refer to the method statement or contact **MBT Tech** Technical Services Department.

Packaging

MasterFlux™ ANC 936 ER is available in boxes of 12 side-by-side cartridges of 385ml & boxes of 12 side-by-side cartridges of 585ml.)

Storage

Cartridges should be stored in their original packaging the correct way up and in cool dry conditions (+10°C to +25°C) out of direct sunlight.

Shelf Life

24 months after the production date under appropriate storing conditions.

Health and Safety

It is dangerous to approach the application sites. During the application, a protective apparel, protective gloves, goggles and masks which comply with the Occupational Health and Safety Rules should be used. Due to the irritation effect of the uncured materials, the mixture should not come into contact with skin and eyes; in case of a contact, the affected area should be washed with plenty of water and soap; in case of swallowing, a physician should be consulted immediately. No food or beverages should be brought to the application area. The product should be stored and kept out of reach of children. For detailed information please consult the Material Safety Data Sheet.

Disclaimer

The technical information given in this publication is based on the present state of our best scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is only responsible for the quality of the product **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is not responsible for results that may occur because the product is used other than advised and/or out of instructions regarding the place and the method of use. This technical form is valid only till a new version is implemented and nullifies the old ones.

Contact

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Working & Loading Times

Resin Cartridge Temperature	T Work	Base Material Temperature	T Load
+10 to +15°C	40 mins.	+10 to +15°C	18 hrs.
+15 to +20°C	25 mins.	+15 to +20°C	12 hrs.
+20 to +25°C	18 mins.	+20 to +25°C	8 hrs.
+25 to +30°C	12 mins.	+25 to +30°C	6 hrs.
+30 to +35°C	8 mins.	+30 to +35°C	4 hrs.
+35 to +40°C	6 mins.	+35 to +40°C	2 hrs.
Ensure cartridge is >10°C			

Note: *T Work is at the highest temperature in the range. T load is at the lowest temperature in the range*

Theoretical Number of Fixings Per Cartridge

Applies to installations in solid substrates only

Cartridge Volume	h_{ef}	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
		Drilling Ø 12mm	Drilling Ø 14mm	Drilling Ø 16mm	Drilling Ø 20mm	Drilling Ø 25mm	Drilling Ø 32mm	Drilling Ø 40mm
585ml side by side	10d	116	77	55	32	16	7	3
	12d	97	64	46	26	13	6	2
	20d	58	38	27	16	8	3	1

Note: Installations at jobsite usually result in more resin being injected than the theoretical requirement resulting in lower number of fixing per cartridge.

Installation Parameters

Diameter of Rebar (mm)	10	12	16	20	25	32
Drilled Hole Diameter (mm)	14	16	20	25	32	40

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Design Resistance

Rebar size **Effective Embedment Depth h_{ef}[mm]**	**Ø 10** **90**	**Ø 12** **110**	**Ø 16** **125**	**Ø 20** **170**	**Ø 25** **250**	**Ø 32** **300**
Non-cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	24.50	35.94	47.05	74.62	102.45	160.85
C50/60 $N_{Rd,p}$ [kN]	26.71	39.17	54.79	93.14	143.82	175.33
Shear C20/25 $N_{Rd,s}$ [kN]	14.67	20.67	36.67	57.33	90.00	147.33
Cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	20.49	27.65	33.54	53.20	73.04	124.71
C50/60 $N_{Rd,p}$ [kN]	22.60	30.13	45.66	77.62	101.87	142.45
Shear C20/25 $N_{Rd,s}$ [kN]	14.67	20.67	36.67	57.33	90.00	147.33

Recommended Resistance

Rebar Size **Effective Embedment Depth h_{ef}[mm]**	**Ø 10** **90**	**Ø 12** **110**	**Ø 16** **125**	**Ø 20** **170**	**Ø 25** **250**	**Ø 32** **300**
Non-cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	17.50	25.67	33.61	53.30	73.18	114.89
C50/60 $N_{Rd,p}$ [kN]	19.08	27.98	39.14	66.53	102.73	125.23
Shear C20/25 $N_{Rd,s}$ [kN]	10.48	14.76	26.19	40.95	64.29	105.24
Non-cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	14.64	19.75	23.96	38.00	52.17	89.08
C50/60 $N_{Rd,p}$ [kN]	16.14	21.52	32.61	55.44	72.77	101.75
Shear C20/25 $N_{Rd,s}$ [kN]	10.48	14.76	26.19	40.95	64.29	105.24

fyk = 500 N/mm²
Partial safety factor γ=1.5
For resistance values in higher temperatures, please contact ***MBT Tech*** *Technical Services.*
All the above resistance values are considering combined pull out and concrete cone failure in tension and steel failure in shear
The above load values are for long term temperature of -40°C to +50°C and short-term temperature of +70°C

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Installation Parameters

Diameter of Threaded Rod (mm)	M10	M12	M16	M20	M24	M30
Drilled Hole Diameter (mm)	12	14	18	22	26	35

Design Resistance

Threaded Rod Size Effective Embedment Depth h_{ef}[mm]	**M10 90**	**M12 110**	**M16 128**	**M20 170**	**M25 210**	**M32 270**
Non-cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	28.27	38.84	48.75	74.62	102.45	149.36
C50/60 $N_{Rd,p}$ [kN]	30.82	45.20	56.10	93.14	138.07	175.67
Shear C20/25 $N_{Rd,s}$ [kN]	12.00	16.80	31.20	48.80	70.40	112.00
Cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	18.85	27.65	34.76	53.20	73.04	101.79
C50/60 $N_{Rd,p}$ [kN]	20.55	30.13	44.42	69.86	103.55	110.95
Shear C20/25 $N_{Rd,s}$ [kN]	12.00	16.80	31.20	48.80	70.40	112.00

Recommended Resistance

Threaded Rod Size Effective Embedment Depth h_{ef}[mm]	**M10 90**	**M12 110**	**M16 128**	**M20 170**	**M25 210**	**M32 270**
Non-cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	20.20	27.74	34.82	53.30	73.18	106.69
C50/60 $N_{Rd,p}$ [kN]	22.01	32.29	40.07	66.53	98.62	125.48
Shear C20/25 $N_{Rd,s}$ [kN]	8.57	12.00	22.29	34.86	50.29	80.00
Non-cracked Concrete Temperature Range (-40°C / +50°C)						
Tension C20/25 $N_{Rd,p}$ [kN]	13.46	19.75	24.83	38.00	52.17	72.71
C50/60 $N_{Rd,p}$ [kN]	14.68	21.52	31.73	49.90	73.97	79.25
Shear C20/25 $N_{Rd,s}$ [kN]	8.57	12.00	22.29	34.86	50.29	80.00

fyk = 500 N/mm²
Partial safety factor γ=1.5
For resistance values in higher temperatures, please contact ***MBT Tech*** *Technical Services.*
Design resistance and recommended resistance in tension are only valid for single anchors without close edge considerations for combined pullout and concrete cone failure and concrete cone failure. Steel failure is not considered by these calculations.
Design resistance and recommended resistance in shear are only valid for single anchors for steel failure without lever arm.The above load values are for long term temperature of -40°C to +50°C and short-term temperature of +70°C