MasterFlow® 936 AN

Pure epoxy (3:1) resin based high performance anchoring grout

DESCRIPTION

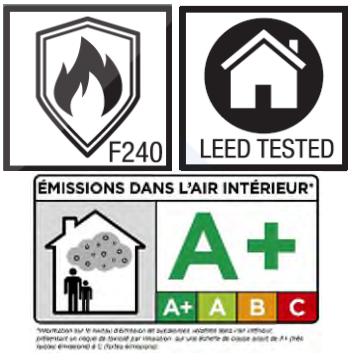
MasterFlow 936 AN is a two component (3:1) pure epoxy resin based high performance anchoring grout for use in cracked and uncracked concrete under normal as well as seismic conditions (seismic category C1 and C2).
Designed for post-installed rebar connection applications, **MasterFlow 936 AN** offers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

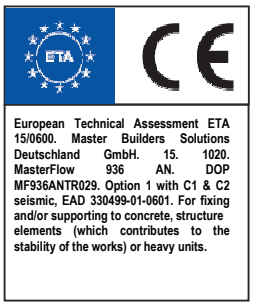
USES / APPLICATION

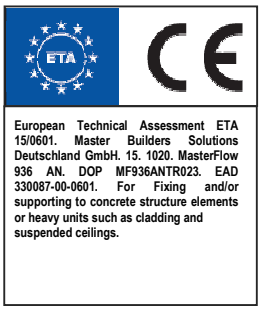
- Structural applications in cracked and uncracked concrete applications in seismic zones (C1 and C2)
- Post installed rebar connections
- Crash barriers
- Structural steel

APPROVALS & TESTS

- ETA according ETAG 001 Part 1 & 5 Option 1 for anchoring of threaded bars into cracked & uncracked concrete application in seismic zones (C1 and C2)
- 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
- WRAS – Suitable for use with potable water







FEATURES AND BENEFITS

- Fixings close to free edges
- Fire tested
- Versatile
- Anchoring without expansion pressure
- Ultra High load capacities
- Available in side-by-side cartridges (385ml)
- Component volume ratio of 3:1
- Extended gel/open time
- Suitable for diamond-drilled holes
- Suitable for dry, wet and flooded holes

PACKAGING

MasterFlow 936 AN is available in boxes of 12 side-by-side cartridges of 385ml.

ACCESSORIES

- Application guns
- Mixing nozzles
- Cleaning blow pump
- Cleaning brushes
- Extension tubes
- Plastic sleeves

INSTALLATION PROCEDURE

Please refer to the method statement or contact BASF Technical Services department.

MasterFlow® 936 AN

TECHNICAL DATA

WORKING & LOADING TIMES

Resin cartridge Temperature	T Work	Base Material	T Load
min +10°C	300 mins	+5°C	24 hrs
min +10°C	150 mins	+5 to +10°C	24 hrs
+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

PHYSICAL PROPERTIES

Property		Unit	Value	Test Standard
Density		g/cm³	1.5	ASTM D 1875 @ +20°C / +72°F
Compressive Strength	24 hours	N/mm²	75	ASTM D 695 @ +20°C / +72°F
	7 days	N/mm²	95	
Tensile Strength	24 hours	N/mm²	18	ASTM D 638 @ +20°C / +72°F
	7 days	N/mm²	23	
Elongation at Break	24 hours	%	6.6	ASTM D 638 @ +20°C / +72°F
	7 days		5.9	
Tensile Modulus	24 hours	GN/m²	5.7	ASTM D 638 @ +20°C / +72°F
	7 days	GN/m²	5.5	
Flexural Strength	24 hours	N/mm²	45	ASTM D 790 @ +20°C / +72°F
HDT	7 days	°C	49	ASTM D 648 @ +20°C / +72°F
VOC		g/L	4.5	ASTM D 2369

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
385ml side by side	10d	70	46	33	19	10	4	2
	12d	58	38	27	16	8	3	2
	20d	34	23	16	9	5	2	1

Note: Jobsite/contractor installations usually result in more resin being injected than the theoretical requirement resulting in lower number of fixings per cartridge. The reduction to the number of fixings per cartridge in practice is greater for smaller diameter holes and shallower embedment depths.

MasterFlow® 936 AN

MasterFlow 936 AN with REINFORCING BARS (ANCHOR THEORY)

INSTALLATION PARAMETERS

Diameter of rebar (mm)	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Drilled hole diameter (mm)	12	14	16	20	25	32	40

DESIGN RESISTANCE

Rebar size				**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Effective embedment depth h_{ef}			**[mm]**	**80**	**90**	**110**	**125**	**170**	**210**	**300**
	non-cracked concrete									
tension	C20/25	$N_{Rd,p}$	[kN]	17.43	24.50	35.94	47.05	74.62	102.45	160.85
	C50/60	$N_{Rd,p}$	[kN]	18.99	26.71	39.17	54.79	93.14	143.82	175.33
shear	C20/25	$N_{Rd,s}$	[kN]	9.33	14.67	20.67	36.67	57.33	90.00	147.33
	cracked concrete									
tension	C20/25	$N_{Rd,p}$	[kN]	10.72	20.49	27.65	33.54	53.20	73.04	124.71
	C50/60	$N_{Rd,p}$	[kN]	11.69	22.60	30.13	45.66	77.62	101.87	142.45
shear	C20/25	$N_{Rd,s}$	[kN]	9.33	14.67	20.67	36.67	57.33	90.00	147.33

RECOMMENDED RESISTANCE

Rebar size				**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Effective embedment depth h_{ef}			**[mm]**	**80**	**90**	**110**	**125**	**170**	**210**	**300**
	non-cracked concrete									
tension	C20/25	$N_{Rec,p}$	[kN]	12.45	17.50	25.67	33.61	53.30	73.18	114.89
	C50/60	$N_{Rec,p}$	[kN]	13.57	19.08	27.98	39.14	66.53	102.73	125.23
shear	C20/25	$N_{Rec,s}$	[kN]	6.67	10.48	14.76	26.19	40.95	64.29	105.24
	cracked concrete									
tension	C20/25	$N_{Rec,p}$	[kN]	7.66	14.64	19.75	23.96	38.00	52.17	89.08
	C50/60	$N_{Rec,p}$	[kN]	8.35	16.14	21.52	32.61	55.44	72.77	101.75
shear	C20/25	$N_{Rec,s}$	[kN]	6.67	10.48	14.76	26.19	40.95	64.29	105.24

Steel strength must also be considered and the lowest value controls.
Partial safety factor γ1.4
For resistance values in higher temperatures, please contact BASF 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

MasterFlow® 936 AN

MasterFlow 936 AN with THREADED RODS

INSTALLATION PARAMETERS

Diameter of threaded rod (mm)	M8	M10	M12	M16	M20	M24	M30
Drilled hole diameter (mm)	10	12	14	18	22	26	35

DESIGN RESISTANCE

Threaded Rod size				**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M30**
Effective embedment depth h_{ef}			**[mm]**	**80**	**90**	**110**	**128**	**170**	**210**	**270**
	non-cracked concrete									
tension	C20/25	$N_{Rd,p}$	[kN]	22.79	28.27	38.84	48.75	74.62	102.45	149.36
	C50/60	$N_{Rd,p}$	[kN]	24.84	30.82	45.20	56.10	93.14	138.07	175.67
shear	C20/25	$N_{Rd,s}$	[kN]	7.20	12.00	16.80	31.20	48.80	70.40	112.00
	cracked concrete									
tension	C20/25	$N_{Rd,p}$	[kN]	13.40	18.85	27.65	34.76	53.20	73.04	101.79
	C50/60	$N_{Rd,p}$	[kN]	14.61	20.55	30.13	44.42	69.86	103.55	110.95
shear	C20/25	$N_{Rd,s}$	[kN]	7.20	12.00	16.80	31.20	48.80	70.40	112.00

RECOMMENDED RESISTANCE

Threaded Rod size				**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M30**
Effective embedment depth h_{ef}			**[mm]**	**80**	**90**	**110**	**128**	**170**	**210**	**270**
	non-cracked concrete									
tension	C20/25	$N_{Rec,p}$	[kN]	16.28	20.20	27.74	34.82	53.30	73.18	106.69
	C50/60	$N_{Rec,p}$	[kN]	17.74	22.01	32.29	40.07	66.53	98.62	125.48
shear	C20/25	$N_{Rec,s}$	[kN]	5.14	8.57	12.00	22.29	34.86	50.29	80.00
	cracked concrete									
tension	C20/25	$N_{Rec,p}$	[kN]	9.57	13.46	19.75	24.83	38.00	52.17	72.71
	C50/60	$N_{Rec,p}$	[kN]	10.44	14.68	21.52	31.73	49.90	73.97	79.25
shear	C20/25	$N_{Rec,s}$	[kN]	5.14	8.57	12.00	22.29	34.86	50.29	80.00

Steel strength must also be considered and the lowest value controls.
Partial safety factor γ1.4
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

MasterFlow® 936 AN

CLEANING OF TOOLS

Residual material must be mechanically removed after hardening, or by brush and with plenty of soapy water or solvent when still uncured.

STORAGE & SHELF LIFE

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. When stored correctly, the shelf life will be for 24 months from the date of manufacture.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

* Properties listed are based on laboratory controlled tests.

MFlow936AN/01/03/2020

Master Builders Solutions India Private Limited
Registered office: Plot No D-126,
TTC Industrial Area, MIDC,
Shiravane, Navi Mumbai - 400706,
Maharashtra, India
Tel: +91 8657906776
E-mail: Construction-india@mbcc-group.com
www.master-builders-solutions.com/en-in