MasterFlow® 932 AN

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

DESCRIPTION

MasterFlow 932 AN is a two-component (1:1) 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). Designed for most demanding structural applications and rebar connections,
MasterFlow 932 AN offers high load-bearing capacity.

USES / APPLICATION

- Structural applications in cracked and uncracked concrete applications in seismic zones (C1)
- Façades
- 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)
- 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
- ICC-ES Evaluation report for use in cracked and uncracked concrete

F240

LEED TESTED

ÉMISSIONS DANS L'AIR INTÉRIEUR

A+

A+ A B C

ICC ES

European Technical Assessment ETA 15/0600. Master Builders Solutions Deutschland GmbH. 15. 1020. MasterFlow 932 AN. DOP MF932ANTR029. Option 1 with C1 seismic, EAD 330499-01-0601. For fixing and/or supporting to concrete, structure elements (which contributes to the stability of the works) or heavy units.

European Technical Assessment ETA 15/0601. Master Builders Solutions Deutschland GmbH. 15. 1020. MasterFlow 932 AN. DOP MF932ANTR023. EAD 330087-00-0601. For Fixing and/or supporting to concrete structure elements or heavy units such as cladding and suspended ceilings.

FEATURES & BENEFITS

- Fixings close to free edges
- Fire tested
- Versatile
- Anchoring without expansion pressure
- High load capacities
- Extended gel/open time
- Suitable for dry and wet holes

PACKAGING

MasterFlow 932 AN is available in boxes of 12 side-by-side cartridges of 400ml.

ACCESSORIES

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

APPLICATION GUIDELINES

Please refer to the method statement or contact Master Builders Solutions Technical Services department.

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TECHNICAL DATA

WORKING & LOADING TIMES

Resin cartridge Temperature	T Work	Base Material	T Load
+10 to +15°C	20 mins	+5 to +10°C	24 hrs
		+10 to +15°C	12 hrs
+15 to +20°C	15 mins	+15 to +20°C	8 hrs
+20 to +25°C	11 mins	+20 to +25°C	7 hrs
+25 to +30°C	8 mins	+25 to +30°C	6 hrs
+30 to +35°C	6 mins	+30 to +35°C	5 hrs
+35 to +40°C	4 mins	+35 to +40°C	4 hrs
+40°C	3 mins	+40°C	3 hrs

Note: T Work is the typical time to gel at the highest temperature in the range. T load is set at the lowest temperature in the range

PHYSICAL PROPERTIES

Property		Unit	Value	Test Standard
Density		kg/L	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	3	ASTM D 2369

THEORETICAL NUMBER OF FIXINGS PER CARTRIDGE

Applies to installations in solid substrates only

Cartridge Volume	h_{ef}	Ø8 Drilling Ø 10mm	Ø10 Drilling Ø 12mm	Ø12 Drilling Ø 14mm	Ø16 Drilling Ø 18mm	Ø20 Drilling Ø 22mm	Ø24 Drilling Ø 26mm	Ø27 Drilling Ø 30mm	Ø30 Drilling Ø 35mm
400 ml side by side	8d	148	91	60	31	18	11	7	4
	10d	121	74	48	24	14	9	5	3
	12d	100	61	40	20	12	7	4	2
	20d	58	36	24	12	7	4	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.

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MasterFlow 932 AN with REINFORCING BARS (ANCHOR THEORY)

INSTALLATION PARAMETERS

Diameter of rebar (mm)	10	12	16	20	25	32
Drilled hole diameter (mm)	14	16	20	25	32	40

DESIGN RESISTANCE

Rebar size				**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Effective embedment depth h_{ef} [mm]				**90**	**110**	**125**	**170**	**250**	**300**
non-cracked concrete temperature range (-40°C / +40°C)									
tension	C20/25	$N_{Rd,p}$	[kN]	18.85	23.70	38.90	66.12	121.55	186.70
	C50/60	$N_{Rd,p}$	[kN]	21.49	27.01	44.34	75.38	138.57	212.84
shear	C20/25	$N_{Rd,s}$	[kN]	9.33	14.67	20.67	57.33	90.00	147.33
cracked concrete temperature range (-40°C / +40°C)									
tension	C20/25	$N_{Rd,p}$	[kN]	14.14	17.77	20.94	35.60	46.75	71.81
	C50/60	$N_{Rd,p}$	[kN]	15.41	19.37	22.83	38.81	50.96	78.27
shear	C20/25	$N_{Rd,s}$	[kN]	9.33	14.67	20.67	57.33	90.00	147.33

RECOMMENDED RESISTANCE

Rebar size				**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Effective embedment depth h_{ef} [mm]				**90**	**110**	**125**	**170**	**250**	**300**
non-cracked concrete temperature range (-40°C / +40°C)									
tension	C20/25	$N_{Rec,p}$	[kN]	13.46	16.93	27.78	47.23	86.82	133.36
	C50/60	$N_{Rec,p}$	[kN]	15.35	19.30	31.67	53.84	98.98	152.03
shear	C20/25	$N_{Rec,s}$	[kN]	6.67	10.48	14.76	40.95	64.29	105.24
cracked concrete temperature range (-40°C / +40°C)									
tension	C20/25	$N_{Rec,p}$	[kN]	10.10	12.69	14.96	25.43	33.39	51.29
	C50/60	$N_{Rec,p}$	[kN]	11.01	13.84	16.31	27.72	36.40	55.91
shear	C20/25	$N_{Rec,s}$	[kN]	6.67	10.48	14.76	40.95	64.29	105.24

f_{yk} = 500 N/mm²
Partial safety factor γ1.4
For resistance values in higher temperatures, please contact Master Builders Solutions Technical Services.
All the above resistance values are considering combined pull out and concrete cone failure in tension and steel failure in shear

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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 Master Builders Solutions representative.
Master Builders Solutions reserves the right to have the true cause of any difficulty determined by accepted test methods.

* Properties listed are based on laboratory controlled tests.

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