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.

FEATURES AND 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

USES & APPLICATIONS

- Structural applications in cracked and uncracked concrete applications in seismic zones (C1)
- Facades
- 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.
- 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 Evalutation report for use in cracked and uncracked concrete

PACKAGING

MasterFlow 932 AN is available in:

boxes of 12 side-by-side cartridges of 400ml and

boxes of 12 side-by-side cartridges of 600ml.

INSTALLATION PROCEDURES

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

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 12 months from the date of manufacture.

PRECAUTIONS

For detailed Environmental, Health and Safety information, please consult and follow all instructions on the product Material Safety Data Sheet. Contact your local Master Builders Solutions office for the latest version.

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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

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
400ml side by side	10d	68	44	31	18	9	4	2+
	12d	56	37	26	15	7	3	1
	20d	34	22	15	9	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)	24	16	20	25	32	40

DESIGN RESISTANCE

Rebar size **Effective embedment depth h_{ef} [mm]**				**ø10** **90**	**ø12** **110**	**ø16** **125**	**ø20** **170**	**ø25** **250**	**ø32** **300**
Non-cracked concrete Temperature range (-40°C / +40°C)									
Tension	C20/25	NRd,p	[kN]	18.85	23.70	38.90	66.12	121.55	186.70
	C50/60	NRd,p	[kN]	21.49	27.01	44.34	75.38	138.57	212.84
Shear	C20/25	NRd,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	NRd,p	[kN]	14.14	17.77	20.94	35.60	46.75	71.81
	C50/60	NRd,p	[kN]	15.41	19.37	22.83	38.81	50.96	78.27
Shear	C20/25	NRd,s	[kN]	9.33	14.67	20.67	57.33	90.00	147.33

RECOMMENDED RESISTANCE

Rebar size **Effective embedment depth hef [mm]**				**ø10** **90**	**ø12** **110**	**ø16** **125**	**ø20** **170**	**ø25** **250**	**ø32** **300**
Non-cracked concrete Temperature range (-40°C / +40°C)									
Tension	C20/25	NRec,p	[kN]	13.46	16.93	27.78	47.23	86.82	133.36
	C50/60	NRec,p	[kN]	15.35	19.30	31.67	53.84	98.98	152.03
Shear	C20/25	NRec,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	NRec,p	[kN]	10.10	12.69	14.96	25.43	33.39	51.29
	C50/60	NRec,p	[kN]	11.01	13.84	16.31	27.72	36.40	55.91
Shear	C20/25	NRec,s	[kN]	6.67	10.48	14.76	40.95	64.29	105.24

f^{yk} = 500 N/mm²

Partial safety factor g1.4

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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STATEMENT OF RESPONSIBILITY	The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability, or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.
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Master Builders Solutions Malaysia Sdn Bhd
No. 8, Jalan Keluli 2, Kawasan Perindustrian Bukit Raja,
41050 Klang, Selangor, Malaysia.
Tel : +603 3082 1000

www.master-builders-solutions.com/en-asiapacific