

MasterFlow[®] 920 ANS

Epoxy acrylate (styrene-free) resin based high performance anchoring grout

DESCRIPTION

MasterFlow 920 ANS is a two component epoxy acrylate resin based high performance anchoring grout. It is a styrene-free system with very low voc content offering very high performance in both cracked and uncracked concrete, **MasterFlow 920 ANS** is having extended gel and cure time for tropical temperatures.

USES & APPLICATIONS

- Structural applications in cracked and non cracked concrete
- Reinforcing & starter bars
- Suspended ventilation systems
- Safety barriers
- Machinery & heavy machinery
- Racking
- Rolling cranes

APPROVALS & TESTS

- ETA according ETAG 001 Part 5 Option 1 for anchoring of threaded bars into cracked and uncracked concrete
- ETA according to TR023 for post-installed rebar connections
- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168 (2005)



European Technical Assessment ETA 15/0600. BASF Construction Solutions GmbH. 1020. MasterFlow 920 ANS. DoP MF920ANSTRO29. ETAG 001-Part 1 and Part 5 Option 1 used as an EAD. For fixing and/or supporting to concrete, structural elements (which contributes to the stability of the works) or heavy units.



European Technical Assessment ETA 15/0601. BASF Construction Solutions GmbH. 15. 1020. MasterFlow 920 ANS. DoP MF920ANSTRO23. ETAG 001-Part 1 and Part 5 used as an EAD. For fixing and/or supporting concrete structural elements or heavy units such as cladding and suspended ceilings.

FEATURES

- Anchors may be placed close to free edges
- Suitable for dry, wet & flooded holes
- Reduced drilling diameters i.e. M20 only requires a 22mm hole and M24 requires only a 26mm hole making it an economical injection system
- Variable embedment depths
- Ratio of 10:1

PACKAGING

MasterFlow 920 ANS is available in co-axial cartridge of 380ml (12 cartridges in a box) and single piston foil pack cartridge of 300ml.

INSTALLATION PROCEDURE

Please refer to the method statement or contact MASTER BUILDERS SOLUTIONS Technical Services department.

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WORKING & LOADING TIMES

Resin cartridge Temperature	T Work	Base Material Temperature	T Load
+15 to +20°C	15 mins	+15 to +20°C	5 hours
+20 to +25°C	10 mins	+20 to +25°C	145 minutes
+25 to +30°C	7.5 mins	+25 to +30°C	85 minutes
+30 to +35°C	5 mins	+30 to +35°C	50 minutes
+35 to +40°C	3.5 mins	+35 to +40°C	40 minutes

T Work is typical gel time at highest base material temperature in the range. T Load is set at the lowest base material temperature in the range

PHYSICAL PROPERTIES

Property		Unit	Value	Test Standard
Compressive Strength	24 hours	psi (N/mm ²)	72.3	ASTM D 695 @ +20°C / +72°F
	7 days	psi (N/mm ²)	77.8	
Compressive Modulus Strength	24 hours	psi (N/mm ²)	5	ASTM D 695 @ +20°C / +72°F
	7 days	psi (N/mm ²)	7	
Tensile Strength	24 hours	psi (N/mm ²)	13.5	ASTM D 638 @ +20°C / +72°F
	7 days	psi (N/mm ²)	15.2	
Tensile Strength Elongation at Break	24 hours	%	6	ASTM D 638 @ +20°C / +72°F
	7 days		6.7	
Tensile Modulus	24 hours	psi (GN/m ²)	3.75	ASTM D 638 @ +20°C / +72°F
	7 days	psi (GN/m ²)	3.8	
Flexural Strength	24 hours	psi (GN/m ²)	29.3	ASTM D 790 @ +20°C / +72°F
	7 days	psi (GN/m ²)	38.7	

THEORETICAL NUMBER OF FIXINGS PER CARTRIDGE

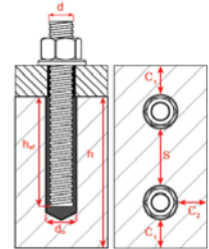
Applies to installations in solid substrates only

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
300ml	10d	49	32	22	13	6	3	1
	12d	41	27	19	10	5	2	1
	20d	24	16	11	6	3	1	0
380ml	10d	63	42	29	16	8	3	2
	12d	53	35	24	14	7	3	1
	20d	31	21	14	8	4	1	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 920 ANS 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	23.04	34.91	53.41	98.17	92.15
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 $N_{Rd,p}$ [kN]	13.46	16.46	24.93	38.15	70.12	65.82
shear C20/25 $N_{Rd,s}$ [kN]	6.67	10.48	14.76	40.95	64.29	105.24

$f_{yk} = 500 \text{ N/mm}^2$

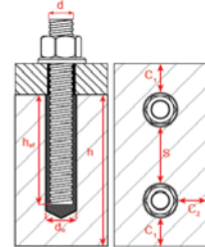
Partial safety factor 1.4

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.

MasterFlow[®] 920 ANS

MASTERFLOW 920 ANS WITH REINFORCING BARS (REBAR THEORY)



INSTALLATION PARAMETERS

Diameter of rebar	8	10	12	16	20	25
Drilled hole diameter	12	14	16	20	25	32

DESIGN RESISTANCE

Rebar size	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25
Effective embedment depth h_{ef} [mm]	110	140	170	230	280	350
cracked concrete (static cracks) temperature range (-40°C / +40°C)						
tension C20/25 $N_{Rec,p}$ [kN]	9.4	14.7	21.2	37.5	58.6	91.6

RECOMMENDED RESISTANCE

Rebar size	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25
Effective embedment depth h_{ef} [mm]	110	140	170	230	280	350
cracked concrete (static cracks) temperature range (-40°C / +40°C)						
tension C20/25 $N_{Rd,p}$ [kN]	6.7	10.5	22.6	26.8	41.8	65.4

$f_{yk} = 500 \text{ N/mm}^2$

Partial safety factor 1.4

For resistance values in higher temperatures, please contact MASTER BUILDERS SOLUTIONS Technical Services.

All the above values are for good bond conditions

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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STORAGE & SHELF LIFE

Cartridges should be stored in their original packaging, the correct way up, in cool conditions (+5°C to +25°C) out of direct sunlight.

When stored correctly, the product shelf life will be 12 months from the date of manufacture.

NOTE

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

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

QUALITY AND CARE

All products originating from MASTER BULIDERS SOLUTIONS's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 standards.

* Properties listed are based on laboratory controlled tests.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this MASTER BULIDERS 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.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by MASTER BULIDERS SOLUTIONS either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not MASTER BULIDERS SOLUTIONS, are responsible for carrying out procedures appropriate to a specific application.

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