# 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)

LEED TESTED

ETA CE

European Technical Assessment ETA 15/0600. BASF Construction Solutions GmbH. 1020. MasterFlow 920 ANS. DoP MF920ANSTR029. 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.

ETA CE

European Technical Assessment ETA 15/0601. BASF Construction Solutions GmbH. 15. 1020. MasterFlow 920 ANS. DoP MF920ANSTR023. 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 BASF Technical Services department.

# MasterFlow® 920 ANS

## 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/mm²) | 72.3 | ASTM D 695 @ +20°C / +72°F |
| | 7 days | psi (N/mm²) | 77.8 | |
| Compressive Modulus Strength | 24 hours | psi (N/mm²) | 5 | ASTM D 695 @ +20°C / +72°F |
| | 7 days | psi (N/mm²) | 7 | |
| Tensile Strength | 24 hours | psi (N/mm²) | 13.5 | ASTM D 638 @ +20°C / +72°F |
| | 7 days | psi (N/mm²) | 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/m²) | 3.75 | ASTM D 638 @ +20°C / +72°F |
| | 7 days | psi (GN/m²) | 3.8 | |
| Flexural Strength | 24 hours | psi (GN/m²) | 29.3 | ASTM D 790 @ +20°C / +72°F |
| | 7 days | psi (GN/m²) | 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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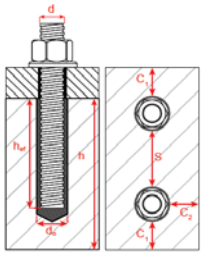
## MasterFlow 920 ANS with REINFORCING BARS (ANCHOR THEORY)



## 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<br>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<br>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 N/mm²
Partial safety factor $\gamma$1.4
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.

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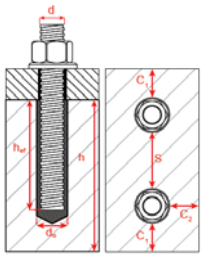
# MasterFlow® 920 ANS

## 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 N/mm²
Partial safety factor $\gamma$1.4
For resistance values in higher temperatures, please contact BASF 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 BASF representative.

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

## QUALITY AND CARE

All products originating from BASF'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, ISO 14001 and OHSAS 18001.

* Properties listed are based on laboratory controlled tests.

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**BASF_CC-UAE/FI_920ANS_10_15/v1/**




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