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# MasterFlow® 402

## Epoxy Based Ultra High Strength Grout

### DESCRIPTION OF PRODUCT

**MasterFlow® 402**, is epoxy based grout and repair mortar with three parts including well graded quartz aggregate.

**Complies with EN 1504-3/R4**

### FIELDS OF APPLICATION

- Repair of runways and track in airports
- Repair of concrete pavements
- Fixing of prefabricated beams in bridge joints
- Mounting heavy machines to the foundations
- Machine foundations under heavy dynamic loads

- Repair of crane runways and high strength required mountings
- Column-beam connections in the reinforced concrete bridge structures
- Mounting the steel columns to the reinforced concrete foundations
- Repair and maintenance of reinforced concrete marine structures
- Repair of underground reinforced concrete structures
- Repair and insulating of wide cracks on vertical structural elements, beams and ceilings

### FEATURES AND BENEFITS

- Can be applied without primer

### TECHNICAL DATA

Product Chemistry <b>MasterFlow® 402</b> Part A <b>MasterFlow® 402</b> Part B <b>MasterFlow® 402</b> Part C	Epoxy Resin Epoxy Hardener Quartz Aggregate	
Mixed Density	2.00 ± 0.05 kg/litre	WK
Compressive Strength TS EN 196 (1 day) (7 days)	35 N/mm <sup>2</sup> 80 N/mm <sup>2</sup>	
Flexural Strength TS EN 196 (1 day) (7 days)	20 N/mm <sup>2</sup> 30 N/mm <sup>2</sup>	
Bonding Strength (7 days) to concrete to steel	> 2.0 N/mm <sup>2</sup> > 3.0 N/mm <sup>2</sup>	
Application Thickness	Min 4 mm Max 50 mm	
Application Temperature	+5°C - +35°C	
Service Temperature	-15°C - +80°C	
Pot Life	30 minutes	
Recoat after	18 – 24 hours	
Fully Cured at 20°C	7 days	

Typical values are obtained from the test results of 4x4x16 mortar prism in 23°C and 50% relative humidity conditions. High temperatures shortens the curing and working time, lower temperatures extends the durations





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### Epoxy Based Ultra High Strength Grout

- Pourable
- Resists to chemicals
- High mechanical strengths
- High abrasion and impact resistance
- High bonding strength to the concrete and steel
- Long pot life
- Non-shrink
- Solvent free

### APPLICATION PROCEDURE

#### Preparation of Substrate

The concrete surfaces must be sound, clean and dry. It shouldn't be weakened by over-troweling and lack of curing. The concrete should be free of frost, curing membranes, waterproofing treatments, oil stains, laitance, friable material and dust. If there is a water leakage it must be drained or properly plugged. Steel surfaces should be cleaned from rust by sand blasting and if needed new reinforcement should be installed. The edges of the broken surfaces should be saw cut.

#### Preparation of Machine Foundation

Before the mounting of the machine the loose particles should be removed from the surface and concrete surfaces should be roughened before grouting. Steel base plates of the machine should be dry and cleaned from oil, grease, rust and dust, which cause de-bonding of the grout. Proper holes should be drilled on to the steel base plates for draining the air under the machine during grouting. After these steps machine should be mounted and fixed to the foundation.

Apply proper release agent to the shims before application.

#### Formwork

Forms should be made of tough materials and well mounted for resisting to fresh grout pressures. There should be min. 5 cm between the formwork and machine base plate in the grouting direction for casting the material into the form. For ensuring the filling of the spaces under machine base plate, forms should be elevated in the casting side and enough hydrostatic pressure obtained. In some cases, forms should be elevated up to 1.5m in the casting side, using custom shaped pipes etc. should be required for grouting under huge plates. For preventing the leakage and loose of hydrostatic pressure the formwork should be done properly.

#### Mixing

**MasterFlow® 402** has three parts in two pails and in one bag, produced according to right mixing ratio. Material temperature should be between 15-25°C before mixing. Part B should be added into the Part A without any remaining material in the pail. It should be mixed with using a proper mixer (~300 rpm) for polymer mixing. Mix the parts at least 3 minutes to have a homogenous mixture. Then the mixture should be put in to a clean, dry, mixing bucket and the Part C should be added into the bucket. Mix the parts at least 3 minutes to have a homogenous mixture.



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#### Mixing Ratio

MasterFlow® 402	Part A	Part B	Part C
Quantity	2.00 kg	1.125 kg	12.50 kg
Mixed Density	2.00 kg/litre		

#### APPLICATION METHOD

**MasterFlow® 402** should be applied to the prepared surface by using a steel spatula or steel trowel. Application thickness should be between 4-50 mm. Open areas should be protected from the rain, wind, and similar aggressive whether conditions during the first 2 hours after finishing repair.

#### Grouting

The vibration caused by the surrounding machines should be observed and if necessary all the machines shut down until the grout sets (2 hours in +20°C).

Grout should be cast in only one side of the form continuously and the grout thickness should be between 4-50mm in single layer. For preventing air gaps do not cast material in two side of the machine. Do not use vibrator. For compacting the grout a steel or plastic hooked bar should be used. Do not release the formwork before 2 hours (in +20°C). Open areas should be protected from the rain, wind and similar aggressive whether conditions during the first 2 hours after finishing repair.

In the case of unneeded excessive mortar outside of the machine plate, the grout can be broken after removing the formwork. Don't move the shims in two days after grouting. After starting the machine all the bolts should be checked and re-fixed if needed.

#### COVERAGE

2.0 kg/m<sup>2</sup> for obtaining 1 mm thick layer.

#### WATCH POINTS

- During the application the substrate and ambient temperature should be between 5 - 35°C.
- Resinous materials' pot life and curing times vary depending on the relative humidity, substrate and ambient temperature. Reaction gets slow in low temperatures and it causes to extension on pot life and working time. On the other hand high temperatures speed up the reaction, which results to short pot life and working time. For full curing of material, both the substrate and ambient temperature shouldn't be under allowed application temperature.
- **MasterFlow® 402** is provided in ready to mix pails. Do not add any solvent etc. into the mixture during the application.
- Mixing should be made with proper mixers and do not allow mixing by hand.
- Open areas should be protected from the rain, wind, etc. aggressive whether conditions during the first 2 hours after finishing repair.
- Do not use vibrator for compacting the grout.

#### CLEANING OF TOOLS

After the application all tools should be cleaned with a proper detergent or solvent such as thinner. **MasterFlow® 402** can be cleaned with only mechanical abrasion after hardening.



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#### PACKAGING

15.625 kg set  
Part A: 2.000 kg pail  
Part B: 1.125 kg pail  
Part C: 12.500 kg bag

#### STORAGE

Store in original container in cool (+5°C - +25°C) and dry indoor conditions.

#### SHELF LIFE

18 months under proper storage conditions after production date.

#### HEALTH AND SAFETY PRECAUTIONS

It is dangerous to approach the application sites. During the application, a protective apparel, protective gloves, goggles and masks which comply with the Occupational Health and Safety Rules should be used. Due to the irritation effect of the uncured materials, the mixture should not come into contact with skin and eyes; in case of a contact, the affected area should be washed with plenty of water and soap; in case of swallowing, a physician should be consulted immediately. No food or beverages should be brought to the application area. The product should be stored and kept out of reach of children. For detailed information please consult the Material Safety Data Sheet.

#### DISCLAIMER

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11 DOP NO: 02.1504.6.003 1020-CPR-040 039923	
EN 1504-6 MasterFlow 402 Anchoring Product	
Pull-out Strength: Displacement at load of 75 kN	≤ 0,6 mm
Chloride Ion Content	≤ 0,05 %
Glass Transition Temperature	≥ 45°C
Creep under tensile load: Displacement after continuous loading of 50 kN after 3 months	≤ 0,6 mm
Dangerous Substances	Complies with 5,3