BASF
The Chemical Company

MasterFlow® 648 (formerly known as Masterflow 648 CP Plus)

High strength, high temperature, high flow epoxy resin grout

DESCRIPTION

Masterflow 648 is a solvent-free, high flow epoxy resin based grout system. Supplied as a three-component system, the final viscosity and flow characteristics can be adjusted to suit the particular project and application by varying the quantity of Part C that is used.

Masterflow 648 provides high early and 7 day strengths as well as excellent resistance to high operating temperatures and crack inducing vibration.

RECOMMENDED USES

- Precision alignment of machinery, compressors and prime movers in the gas transmission and other industries.
- Foundations under crusher ball mills, slab tables and other equipment in the steel industry.
- The pulp and paper, chemical processing, mining and power industries for a wide variety of applications.
- Application requiring fast turnaround with high early and seven day compressive strengths.

FEATURES AND BENEFITS

- **High flow** – Effective grouting of even narrow gaps and large baseplates.
- **High tensile and flexural strengths** – Efficient transfer of operational loads to foundation including high dynamic loads.
- **High strengths even at elevated temperatures** – Maintains alignment and level even with elevated baseplate temperatures.
- **High bond strength -** Protects machine from vibrations by effective dampening.
- **High resistance to creep** – Maintains alignment and level over long time**.**
- **Good chemical resistance** – Durable even when exposed to many industrial chemicals.
- **High early strengths** – Allows early load transfer and rapid commissioning of machines.
- **Variable fill ratio** – Flowability can be optimised for ease of application and to maximise the cost of effectiveness.

PROPERTIES

	Test temp	Std flow**	Hi-flow**
Comp. Strength[1], MPa			
8 h	23°C	15	-
10 h	23°C	30	-
16 h	23°C	66	-
Comp. Strength[2], MPa			
1 d	23°C	85	75
7 d	23°C	100	85
7 d	*60°C	59	57
Tensile Strength[3], 7 d, MPa	23°C	15	13
Flexural Strength[4], 7 d, MPa	23°C	31	28
	*60°C	28	24
	*77°C	24	21
Creep[5], 7 d at 4.4 MPa load, cm/cm,	60°C	$4x10^{-3}$	$6x10^{-3}$
Flexural Modulus[4], 7 d, Gpa	23°C	15.0	11.0
	60°C	11.6	8.9
Co efficient of expansion[6], cm/cm/°C	23-99°C	$34x10^{-6}$	$41x10^{-6}$
Density (Mixed) kg/L	23°C	2.17	2.09
Shrinkage[6], unrestrained- linear, %	23°C	0.005	0.0065

1. (ASTM C579 B)
2. (ASTM C579 B, Modified 40mm cubes)
3. (ASTM C307)
4. (ASTM C880-74)
5. (ASTM C1181)
6. (ASTM C531)

* Cured 24 hours at room temp. Post cured 16 hours at 60°C, and conditioned 24 hours at test temp.

****Mix types:** Standard flow mix – 5 bags of filler per set of resin and hardener packs; Hi flow mix – 4 bags of filler per set of resin and hardener packs.

The performance data is typical, and based upon controlled laboratory conditions. Actual performance on the job site may vary from these values based on actual site conditions.

Chemical Resistance

Masterflow 648 resists non oxidising mineral acids and salts, caustics, dilute oxidising acids and salts, plus some organic acids and solvents. Chemical resistance depends on the chemicals involved, their concentration, temperature and degree of exposure.

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Fill ratio

The fill ratio is the weight of aggregate to that of the combined resin and hardener components. **Masterflow 648** is designed to be utilised at a variable fill ratio from 7.0:1 (Standard flow – 100% of aggregate) to as low as 5.6:1 (Hi-flow – 80% of aggregate).

Masterflow 648 maintains a high bearing area when fill ratios are decreased. In addition, physical properties, including high temperature performance, are maintained.

The chart below provides guidelines for the amount of aggregate that can be removed from a unit in order to optimise both flow and cost per cubic metre.

In using this guide the temperature of the foundation and plate is the critical concern; however, grout and ambient temperature are also important.

Possible Reduction in Aggregate

Temperature	Very Thin Pours or Very Long Distances	Standard Pours
>32°C	-	-
21°C – 32°C	up to 10%	-
10°C – 21°C	10-20%	10%

APPLICATION

For information about application, please obtain a copy of the BASF "Application Guide for **Masterflow** Epoxy Grouts" from your local representative.

Pour Thickness

Masterflow 648 can be used for deep pours. When pour thickness exceeds 150mm, use of steel reinforcing bar and **Masterflow 678** is recommended. With the unique variable fill ratio of **Masterflow 648**, the minimum pour thickness can be as low as 12mm in many applications.

ESTIMATING DATA

Mix type	Parts A + B + C	Yield
Standard Flow	23.54kg	11.8 L
Standard Flow	114.16kg	57L
Hi-Flow	18.54kg	9.75L
Hi-Flow	94.16kg	49.6L

PACKAGING

Kit size	23.54kg	114.16kg
Part A	2.54 kg	10.16 kg
Part B	1.00 kg	4.00 kg
Part C	20 kg	5 x 20 kg

SHELF LIFE

Masterflow 648 can be stored in tightly closed original containers for 12 months in controlled environments.

PRECAUTIONS

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the BASF Material Safety Data Sheet (MSDS) from our office or our website.

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