

MASTERFLOW® 648 CP PLUS

High strength, high temperature, high flow grout

DESCRIPTION

Masterflow 648 CP Plus is a solvent-free, high flow epoxy resin based grout. 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 CP Plus is based on a highly sophisticated epoxy resin system and provides high early and 7 day strengths as well as excellent resistance to high operating temperatures and crack inducing vibration.

RECOMMENDED FOR

- 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 early and seven day strengths**
- **Superior physical properties at high temperatures**
- **Excellent bearing area and flow**
- **Variable fill ratio for the optimum mix of flowability, bearing area and economics on a project by project basis**
- **Good chemical resistance**
- **Low temperature exotherm**
- **Fast turn around**

SPECIFICATION (TYPICAL)

Compressive Strength (ASTM C579-82 B @ 23°C)	16 hrs 66MPa 24 hrs 80MPa 48 hrs 95MPa 7 days 105MPa 28 days 120MPa
Flexural Modulus of Elasticity (ASTM C580-85 @ 23°C)	20GPa
Flexural Strength (ASTM C580-85 @ 23°C)	35MPa
Creep (ASTM C1181-91 @ 60°C, 4MPa)	4.0x10 ⁻³ cm/cm
Coefficient of Thermal Expansion (ASTM C531-85 @ 23-99°C)	10x10 ⁻⁶ cm/cm/°C
Shrinkage, unrestrained linear (ASTM C531-85)	0.017 cm/cm
Tensile Bond strength to steel	21MPa
Shear Bond strength to steel	28MPa
Density (ASTM C905-85)	2.0kg/L
Impact Strength	Better than concrete
Abrasion Resistance	Better than concrete
Colour	Dark Grey

(The above data is typical, and based upon a standard complete mix. Individual kit results may vary depending on temperature, test method and actual quantity of aggregate used.)

CHEMICAL RESISTANCE

Masterflow 648 CP Plus resists non oxidising mineral acids and salts, caustics, dilute oxidising acids and salts, plus some organic acids and solvents. Please refer to Degussa Construction Chemicals for more information.

FILL RATIO

The fill ratio is the weight of aggregate to that of the combined resin and hardener components. **Masterflow 648 CP Plus** is designed to be utilised at a variable fill ratio from the 6.75:1 ratio (**standard version 100%**) to as low as 5.06:1 (**hiflow version 75%**).

Unlike most epoxy grouts, **Masterflow 648 CP Plus** maintains a high bearing area when fill ratios are decreased. In addition, physical properties, including high temperature performance, are maintained at high levels.

By determining the proper fill ratio for a particular project and purchasing accordingly, the cost per cubic metre, flow and physical properties are optimised. A guideline for suggested fill ratios is shown below. In using this guide the temperature of the foundation and plate is the critical concern, however, grout and ambient temperature are also important.

FILL RATIO GUIDELINE

Reduction in Aggregate only

Temperature	Very Thin Pours or Very Long Distances	Standard Pours
>32°C	-	-
>21 – 32°C	up to 12%	-
>10 – 21°C	12-25%	12%

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

APPLICATION DIRECTIONS

Substrate Condition

The concrete surface must be chipped so minimum 20mm aggregate is exposed to ensure removal of all laitance and weak surface material. New concrete should have a compressive strength of at least 25MPa. **THE CONCRETE SURFACE MUST BE CLEAN AND DRY WHEN THE GROUT IS POURED.** The concrete areas to be grouted **should not** be primed or sealed.

Metal Substrates

Base plates or rails and other metal surfaces to be grouted should be cleaned to obtain proper adhesion. This is preferably done just prior to grouting. Primer should be used **ONLY** when a long delay between cleaning and grouting will allow rusting or contamination.

Surfaces where a bond is not desired should be protected with heavy coats of wax.

MASTERFLOW® 648 CP PLUS

Forming

Masterflow 648 CP Plus grout is fluid and requires the use of formwork which should be of sufficient strength, anchored or braced to withstand pressure from the grout and must be "liquid tight". Ensure formwork allows for a head of material and for the escape of any trapped air.

Mixing

Thoroughly stir components A and B prior to mixing together. Use a slow running stirrer (max. 600 rpm). Mix for a minimum of two minutes. Transfer to a suitable mixing container and slowly add the Part C. Mechanically mix for a further two minutes and apply immediately.

Application

Masterflow 648 CP Plus is handled like a thin mortar or conventional grout. It may be poured under base plates via a header box ensuring a continuous flow of material, or alternatively, pumped. The use of rods, chains or straps may assist.

Pour Thickness

Masterflow 648 CP Plus can be used for deep pours. When pour thickness exceeds 150mm, use of steel rebar is recommended. See Installation Bulletin on expansion joint and reinforcement bar suggestions. With the unique variable fill ratio of **Masterflow 648 CP Plus**, the minimum pour thickness can be as low as 12mm in many applications. When utilising only 75% aggregate, **Masterflow 648 CP Plus** achieves flow rates better than many hi-flow epoxy grouts while maintaining excellent bearing area.

CURING

The cure time of **Masterflow 648 CP Plus** will be dependent on the ambient and substrate temperatures. **Masterflow 648 CP Plus** will have fully hardened after 7 days at 23°C.

POT LIFE

Pot life will vary depending on the quantity mixed and the temperature. A kit of **Masterflow 648 CP Plus** will have a pot life of approximately 90 minutes at 21°C.

ESTIMATING DATA

1 kit of **standard version** will yield 13.8L (0.0138m³).

1 kit of **hiflow version** will yield 11.5L (0.0115m³).

CLEANING

Clean tools, mixer and other application equipment with MBT Thinner No. 1.

SHELF LIFE

Masterflow 648 CP Plus can be stored in tightly closed original containers for 24 months in controlled environments.

PACKAGING

Masterflow 648 CP Plus comes in pre-proportioned kits of 27.43kg and 109.72kg kit.

Kit size	27.43kg	109.72kg
Part A	2.54kg	10.16kg
Part B	1.00kg	4.00kg
Part C	23.89kg	4 x 23.89kg

PRECAUTIONS

READ ALL SAFETY DIRECTIONS AND WARNINGS ON TINS BEFORE USE. REFER TO MATERIAL SAFETY DATA SHEET (MSDS) FOR HANDLING PROCEDURES.

- 1) As with all epoxy products, wear protective overalls and gloves - prolonged contact with skin should be avoided as it could produce dermatitis, particularly with people whose skin may be sensitive to epoxy resin systems.
- 2) Ensure adequate ventilation.
- 3) Mix entire contents of each unit as supplied. Do not attempt to split units unless accurate measuring can be assured.
- 4) Do not use at temperatures of less than 5°C unless artificial means of heating can be used to assist cure. During cold weather Part A should be pre-warmed to between 20 and 30°C.

MASTERFLOW® 648 CP PLUS

AMf648/5/1004

STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **Degussa Construction Chemicals** 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 **Degussa Construction Chemicals** either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not **Degussa Construction Chemicals**, are responsible for carrying out procedures appropriate to a specific application.

Degussa Construction Chemicals (Australia) Pty Limited

Incorporated in NSW A.C.N. 000 450 288

Head Office:

11 Stanton Road
Seven Hills, NSW 2147

Ph. (02) 9624 4200

Fx. (02) 9624 7681

Newcastle (02) 4961 3819

Canberra (02) 6280 6010

Brisbane (07) 3265 6611

Townsville (07) 4774 7344

Melbourne (03) 9569 4855

Adelaide (08) 8260 6511

Perth (08) 9353 6622

Darwin (08) 8984 3269

Kalgoorlie 0417 772 355

Degussa Construction Chemicals (New Zealand) Limited

Head Office: 45 William Pickering Drive
Albany, Auckland

Ph: (09) 414 7233

Fax: (09) 414 7244

DEGUSSA WEB SITES

www.degussacc.com.au

www.degussacc.co.nz

www.degussa-ugc.com