MasterFlux HST 4600 (formerly MasterFlow 4600)

Cementitious ultra high strength, non-shrink, iron reinforced precision grout

Material Description

MasterFlux HST 4600 is a non-shrink, PCE plasticised iron reinforced precision grout with ultra-high early and ultimate strengths. It is formulated to provide extended working time even at high ambient temperatures when mixed and placed at any recommended consistency. MasterFlux HST 4600 is normally placed at a flowable consistency to completely fill voids between 20mm and 150mm.

Areas of Application

MasterFlux HST 4600 is used for all ultra-high precision, non-shrink grouting applications with clearances of 15mm or more, particularly those requiring maximum dynamic load bearing and impact resistance such as:

- Critical equipment baseplates, soleplates & columns.
- Crane rails, ball mills, crushers.
- On-shore wind turbines requiring high torsional and dynamic loads.
- Rolling, stamping, drawing and finishing mills for the steel and aluminium industries.
- Turbines, generators, pumps and centrifugal compressors.
- "H" shaped steel columns, steel tube columns.
- Applications requiring ultra-high early compressive strengths and ultimate compressive strengths.
- High flow for full compaction even in areas with congested steelwork.

Characteristics and Benefits

- High early strength – ensures rapid commissioning of new equipment and structures.
- High ultimate strength – ensures permanence of the installation under static and moderate repetitive loads.
- Flowable non thixotropic grout – easy to grout intricate spaces as grout easily melds with previous pours and requires no additional strapping or agitation.
- Extended working time – facilitates grouting of large or difficult placements in a single pour, often without the use of a pump.
- Dense, non-shrink grout – hardens free of bleeding, settlement and drying shrinkage, ensuring tight contact with all grouted surfaces.
- Easy to use – requires no special mixing equipment, it can be mixed in a pail using a grout stirrer.
- Compliance with codes – Meets the non-shrink requirements of ASTM C1090 and CRD-C 621, Corps of Engineers Specification for Non Shrink Grout; tested to the requirements of AS1478.2 "Methods of sampling and testing admixtures for concrete, mortar and grout".

Properties

Strength Development

Typical rates of strength development under variable conditions are as follows:

Compressive Strength (MPa)
(Test Method: AS1478.2 Appendix A)

Age	20°C
1 day	50
3 days	70
7 days	90
28 days	110

Flexural Strength (MPa) - strength development at a flowable consistency. (Test Method: EN 196-1)

Age	20°C
1 day	8
7 days	14
28 days	15

Volume Change - volume change when placed at flowable consistency

Age	20°C
1 day	Positive
3 days	Positive
7 days	Positive
28 days	Positive

Test Method: ASTM C1090 (CRD-C621)

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Flow Retention - effect of temperature on flow retention when placed at flowable consistency

Age	20°C
Initial	100%
After 1 hour	90%

Bleeding, Plastic Density and Setting Time - effect of temperature on plastic properties when placed at flowable consistency

Temp.	Bleeding (%)	Plastic Density (kg/m^3)	Setting Time	
			Initial (hr:min)	Final (hr:min)
20°C	0	2550	4:00	6:00

Test Method: Bleeding AS1012.6; Plastic density AS1012.5; Setting time ASTM C191

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. Field and laboratory tests should be conducted on the basis of the desired placing consistency rather than strictly on indicated water demand. If the project requires strength tests be made on site do not use cylinder moulds.

Water Demand

Actual water demand will depend on consistency required and temperature (both ambient and grout). Do not use too much water, as it will cause grout to bleed or segregate. As a guide, the following indicates the approximate quantity of water required to mix a 20kg bag of **MasterFlux HST 4600**.

Flowable[1] 2.3 - 2.4 litres

[1]AS1478.2 Appendix D, 45-55cm lateral flow in the flow trough.

Do not add sand, cement or other materials to the grout.

Do not use water at a temperature or volume that causes the grout to bleed or segregate.

Application

For application directions on preparation, forming, mixing, placing and curing **MasterFlux HST 4600**, as well as the precautions to take in hot and cold weather, refer to the "Application Guide for MasterFlux Cementitious Precision Grouts" available from your local Technical Sales Representative or our website.

Estimating Data

One 20 kg bag of **MasterFlux HST 4600** mixed according to directions will yield the following consistency grouts at 20°C:
Flowable – 8.7 litres, approx.

MasterFlux HST 4600				
L	Thickness in mm /m^2	m^3	bags /m^3	m^2/mm thickness
8.7	8.7mm	(0.0087)	115	8.7 m^2

Packaging

MasterFlux HST 4600 is packaged in 20kg bags.

Storage & Shelf Life

MasterFlux HST 4600 has a shelf life of 12 months when stored in a cool dry environment.

Precautions

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

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Disclaimer

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MB Solutions Australia Pty Ltd	MB Solutions New Zealand Ltd	Emergency Advice:
ABN 69 634 934 419 Suite 102, 2 Burbank Place Norwest NSW 2153 **Freecall: 1300 227 300** www.master-builders-solutions.com/en-au	45C William Pickering Drive Albany, Auckland New Zealand **Phone: +64 9 414 7233**	1300 954 583 within Australia (24hr) 0800 001 607 within New Zealand