ArmGrout M-65

(Formerly known as MYK Grout M-65)

Free Flow Non-Shrink High Strength Expansive Grout

MYK arment®

TECHNICAL DATA SHEET

Product Description

ArmGrout M-65 is recommended for precision grouting where it is essential to with stand Static & Dynamic load in typical applications like base plate of Generators, compressors, boilers etc. It is basically a free flow no shrink, high strength expansive grout. It is based on port land cement with graded aggregates and additives which impart controlled expansion in the plastic state. The non-shrink grout function is three folds, to fill the voids between the base plate and the concrete foundations completely and permanently without shrinkage or separating from either to transfer all loads from the base plate to the concrete foundation and to maintain precise alignment. It effectively transfers all operational loads to the foundation.

Uses

- Precision grouting
- Grouting of base plates of turbines, compressors, boiler feed pumps
- Anchoring for a wide range of fixings.
- Masts, anchor bolts and fence posts.

Features and Benefits

- Develops very high early and final strengths
- Non-shrink: basically, a non-shrink
- Excellent flow characteristics
- Ensures high level contact with bond area
- Chloride free
- Does not affect the steel or foundation bolts.
- Gaseous expansion system compensates for shrinkage and settlement in the plastic state
- No metallic iron content to cause staining
- Pre-packed material overcomes onsite batching variations
- Free flow ensures high level of contact with load bearing area

Application Methodology

Step no 1: Surface Preparation:
The substrate must sound clean and free from contaminations, all loose particles must be removed. The steel and concrete surfaces must be etched mechanically to enhance the bonding properties. Bolt holes and fixing pockets must be blown clean of any dirt or debris.

Pre-soaking
Pre soak the concrete surface with lots of clean water before the application is carried out. All the surplus water is removed before the grouting application.

Step no 2: Product Mixing:
Use chilled water for mixing in case of high ambient temperature. Use hot water for mixing in case of very low ambient temperature. Depending on requirements and site conditions the addition of dry, single size and clean aggregates is possible. Trials are recommended to confirm suitability of aggregates to be used.

Step no 3: Product Application:
Water Powder Ratio: W/P: 0.18
Consistency: Flowable Grout
Water required for 25 Kgs bag: 4.5 Lts

Flow Characteristics:
The flow is basically depends on the gap width and the head of the grout and governed by the gap width.

Yield: 13.0 Lts at flow able consistency for 25 Kgs of HDPE Bags

Pouring:
The addition of a controlled amount of clean water produces a free flowing, non-shrink grout for gap thicknesses up to 100mm.

Placing:
For thicker sections replace grout with 10mm graded silt free aggregates (washed air dried) by weight of max 100%.

Working Condition:
Do not place the grout when the ambient temperature is 5 deg Celsius. Use hot water to gain the strength when the temperature is low and cold water when the temperature is high.

Removable Chute:
For large pours the grout may be hand placed or pumped into a removable chute (trough) Pouring should be from one side of the void to eliminate any air or presoaked water becoming trapped under the base plate. It is advisable to pour the grout across the shortest distance of travel. The grout head must be maintained at all times so that a continuous grout front is achieved. Where large volumes have to be placed ArmGrout M 65 may be pumped. A heavy duty diaphragm pump is recommended for this purpose. Screw feed and piston pumps may also be suitable

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Working time:
Following mixing the material should be placed within 15 minutes depending upon the temperature and other conditions for best results.

Curing:
On completion of the grouting operation, exposed to sun light areas of the grout should be thoroughly cured. This should be done by the use of Armix Cure WB White curing membrane, or continuous application of water/or wet hessian.

Shuttering:
The form work should be constructed to be leak proof. This can be achieved by using suitable material or by using foam rubber strip or mastic sealant beneath the constructed form work and between joints.

Form Work:
Ensure formwork is secure and watertight to prevent movement and leaking during placing and curing.

Technical Data

Fresh wet density	Approximately 2220 Kg/m^3 depending on actual consistency used
Time for expansion (after mixing)	Start : 20 minutes Finish : 120 minutes

Compressive strength: (BS 1881- Part 116:1983)

Age Days	Compressive Strength
Flowable W/P 0.18	
1 Day	24N/mm²
3 Days	45N/mm²
7 days	55N/mm²
28 Days	66N/mm²

Note: Size of the cubes used 70.6mm*70.6mm*70.6mm tested at 30°C.

Age Days 7 Day 28 Days	Flexural Strength: (ASTM C 348) 4N/mm² 10N/mm²
Pullout bond strength	17 N/mm^2 @ 7 days 20 N/mm^2 @ 28 days
Young's modulus (ASTM 469 - 94)	28 kN/mm^2

Tensile Strength: (ASTM C 307)	3.5N/mm² @ 28 days 30°C.
Coefficient of thermal expansion	11 x 10 $^{-6/0}$ C
Unrestrained expansion	2 - 4% in the plastic state enables to overcome shrinkage.
Pressure to restrain : plastic expansion	0.004 N/mm^2 approx.
Dynamic load resistance:	Specimens of Arm Grout M 65 showed no signs of distress after subjecting them to alternate loads of 5 N/ mm^2 & 25 N/mm^2 at the rate of 500 cycles/ minute for 20,00,000 cycles of Fatigue loading.

Compressive strength with addition of aggregates			
Age (days)	Compressive strength (N/mm²) W/P 0.18 % of aggregates (IS 516 - 1959)		
	50%	75%	100%
1	29	30	33
3	49	51	56
7	61	62	66
28	68	74	77

Specification Clauses
Performance specification
All grouting shown on the drawing must be carried out with a pre packed cement based product which is chloride free.
It shall be mixed with clean water to the required consistency. The grout must not bleed or segregate.
A positive volumetric expansion shall occur while the grout is plastic by means of gaseous system.

Grout consistency	Max. flow distance in mm			
	Gap width (mm)	50mm head	100mm head	250mm head
Flowable	30	350	1000	1500
	40	500	1500	2000
	50	900	2000	3000+

Note : This table is based on the following factors temperature - 30^{0}C ; Water saturated substrate; unrestricted flow width is 300mm.

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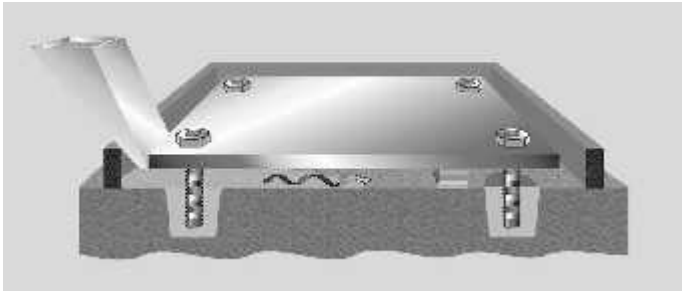
Typical detail of stanchion base plate

The compressive strength of the grout must exceed 50 N/mm^2 at 7 days and 60 N/mm^2 at 28 days.
The flexural strength of grout must exceed 9N/mm^2 @ 28 days. The fresh wet density of the mixed grout must exceed 2150 kg/m3.
The storage, handling and placement of the grout must be in strict accordance with the manufacturer's instructions.

Typical hopper system
Removable hopper: For large pours the grout may be hand placed or pumped into a removable hopper (trough)



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Packaging

25 Kgs HDPE bags

Storage and Shelf Life

Store under covered, in unopened bags clear of the ground in cool dry condition, protected from frost and excessive draught when stored in the above conditions to be used with 6 months from the date of manufacture.

Product Categories Available

Legal Note

The information, and, in particular, the recommendations relating to the application and end-use of MYK Arment products, are given in good faith based on MYK Arment current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with MYK Arment's recommendations. In practice, the difference in materials, substrates and actual site conditions are such that no warranty in respect of merchant ability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application & purpose. MYK Arment reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local product data sheet for the product concerned, copies of which will be supplied on request.

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