

DATA SHEET NO. 3733-270
EG-96 HP
General Purpose, Three-Part, High Strength, Flowable Epoxy Grout
DESCRIPTION

EG-96 HP is a three-component, 100% solids, VOC and BGE¹ free, epoxy resin system designed specifically for pours from 25.4 mm (1") to 203.2 mm (8"). EG-96 HP offers rapid strength development and excellent flow characteristics. EG-96 HP flows into spaces under machines and fills completely before hardening. EG-96 HP shows good resistance to impact and vibratory loading equal to reinforced rubber materials and will not delaminate under the most severe shock loads.

1 BUTYL GLYCIDYL ETHER. The EPA (SARA Title III, section 312) lists BGE as "toxic" (per ANSI Z129.1) by skin absorption and an immediate health hazard.

USES

EG-96 HP is designed for deep grouting of large machine bases, setting level wedges, and sole plates requiring precision alignment under dynamic and vibratory load conditions. EG-96 HP is suitable for crane rail and wind turbine base plate grouting. EG-96 HP is suitable for aggressive chemical environments where cement-based, non-shrink grouts may not offer the necessary chemical resistance in case of a spill or leak from grouted equipment/pump system. The product may be used for the installation of anchors and dowels. EG-96 HP may be used for the support of chemical tanks, vessels, and rotating equipment. The product may be used as vibratory dampening filler for rotating equipment.

FEATURES/BENEFITS

- High early strength.
- Excellent creep resistance.
- Thermal stability during application.
- Excellent adhesion to concrete and steel.
- Contains dust suppressant to control dusting while mixing.
- High degree of chemical resistance.
- Economical for large volume applications.
- Adjustable flow to meet various onsite conditions.

PACKAGING

0.0560 m³ (2 cu. ft.) kit
 0.0560 m³ (2 cu. ft.) kit: Part A Epoxy Resin: 12.3 kg (27.1 lb.) packaged 18.9 L (5 gal.) plastic pail
 Part B Hardener: 2.7 kg (5.9 lb.) packaged 3.8 L (1 gal.) metal can
 Part C Aggregate: Five (5) 21.8 kg (48 lb.) bags [109 kg (240 lb.)]

COVERAGE

Yield is 0.0560 m³ (2 ft.³). Yield is based on a mix ratio of five (5) 21.8 kg (48 lb.) bags per kit. Decrease yield by 0.007 m³ (0.40 ft.³) for every bag [21.8 kg (48 lb.)] of aggregate removed from mix design.

SHELF LIFE

Store on pallets in a cool, dry location. Do not store product outdoors. Shelf life of properly stored product is two years from date of manufacture in unopened, original packaging.

TECHNICAL DATA

The following physical properties were determined at 22° C.

Property		
Colour	Grey to Light Grey	
Working Time	45 Minute	
Initial Set/Gel Time, ASTM D2471		
@ 10° C	8 - 10 Hours	
@ 22° C	90 Minutes	
@ 32° C	60 Minutes	
	5 Bags per Mix Standard	4 Bags per Mix High Flow
Peak Exotherm (1 lb. or 454 g), °C ASTM D2471	82	31
Maximum Depth of Pour, cm (in)	20 (8)	
Maximum Service Temperature, °C	180	
Specific Weight, g/cm ³ , ASTM D792	2.19	2.14
Compressive Strength, MPa (psi) ASTM C 579B		
@ 8 Hours	25 (3,600)	26 (3,800)
@ 16 Hours	62 (9,000)	63 (9,150)
@ 1 Day	79 (11,400)	77 (11,200)
@ 3 Days	92 (13,300)	90 (13,000)
@ 7 Days	99 (14,400)	114 (15,000)
@ 28 Days	105 (15,200)	110 (16,000)
Compressive Modulus, MPa (psi) ASTM D695	4074 (590,800)	4066 (589,600)
Tensile Strength, MPa (psi), ASTM D638	20 (2,900)	20 (2,950)
Tensile Strength @ Break, %, ASTM D638	0.66	0.72
Flexural Strength, MPa (psi), ASTM D 90	43 (6,300)	46 (6,600)
Bond Strength to Concrete, MPa (psi)	≥ 3.8 (550) Concrete Failure	
Bond Strength to Steel, MPa (psi)	17.2 (2,500)	
Coefficient of Thermal Expansion, 10 ⁻⁶ /°C ASTM D696	17.4	18.4
Hardness, Shore D, ASTM D2240	92	93
Heat Distortion Temperature, °C ASTM D648	58 (136)	
Water Resistance (28 day immersion), %, ASTM D570	0.15	0.25
Creep (@ 4 MPa or 600 psi and 65.5° C), cm/cm or in./in. ASTM C 1181	5.27 x 10 ⁻³	7.09 x 10 ⁻³
Effective Bearing Area %, ASTM C1339	≥ 95	

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All technical data is typical information and will vary due to testing methods, conditions, procedures, batching, and raw material variances.

APPLICATION

Surface Preparation ... Mechanically roughen or abrasive blast concrete substrate. Remove all unsound concrete and provide a profiled, porous surface. Substrate must be structurally sound, dust-free, and free of grease, oil, dirt, curing compounds, release agents, or any other surface or penetrated contaminants, coatings, sealers, or similar that will adversely affect bond. Sanding, acid etching, cup-grinding, or wire-abrading are not approved concrete surface preparation methods. Substrate must be dry. Anchors or dowel holes must be dry and contain no water. Do not prime or seal concrete surfaces.

Abrasive blast the steel base-plates, sole-plates or any metal that will come in contact and requires bonding with EG-96 HP to a SPC-SP6, white metal specification finish. Remove all rust, oils, corrosion inhibitors, corrosion deposits, coatings, or similar that will adversely affect bond. If abrasive blasting is not possible, use SSPC-SP2 for Hand Tool Cleaning and SSPC-SP3 for Power Tool Cleaning specification to a white metal finish. Apply EG-96 HP within 24 hours of proper steel surface preparation. If not possible protect from flash rusting, the bond strength between the steel and EG-96 HP may be decreased depending on local environmental conditions. Do not allow the properly prepared steel to get wet.

Base Plates ... Level and align the base plates per the recommendation of a professional engineer and/or equipment manufacturer. Minimum application depth is related to temperature, length of base plate, and amount of aggregate (Part C) added per unit. Typically, 50.8 mm (2") grout depth is required to facilitate placement. Provide additional depth to help facilitate application of longer base plates or pours. Provide an additional 25.4 mm (1") of clearance for each additional 0.91 m (3') of base plate width (longest point of grouting distance). Maximum application depth is 203.2 mm (8"). For grouting deeper than 203.2 mm (8") in depth, place the grout in lifts, 24 hours apart at 23.9° C, maximum 72 hours. Ensure proper air release through air relief holes [minimum 6.35 mm (1/4") in diameter] are installed if form is tight, skirted, if stiffening members are used, and/or if there is any concern with air release.

Forming ... Standard hard wood, exterior grade wood, or metal forming may be used. The forms should be protected with heavy coats of paste wax, grease, or form release agent. Wrapping the forms with heavy plastic is acceptable. The form edges must be caulked and sealed to a liquid-tight condition. Forms must be designed to provide a hydraulic head. The use of a suitable grout head box will facilitate the application of EG-96 HP. Typically, the grout head box height should be 1/3 to 1/2 the distance the grout must flow.

When placing forms for grouting, it is absolutely necessary that the top of the forms be at least half way up the sides of the base plate thickness or machine base. Placing the grout just to the bottom of the base plate will result in an improper grout job. If the forms cannot be placed half way up the side of the machine base, the minimum distance is 19 mm (3/4") above the bottom of the machine base plate.

The forms should be placed between 50.8 - 152.4 mm (2" - 6") away from the perimeter of the machine base to allow for air to escape and to provide for a grout shoulder around the base plate. Exterior applications or placement in an environment which experiences temperature variations, the shoulder should not be greater than 50.8 mm (2") from the perimeter due to thermal coefficient differences. If a shoulder greater than 50.8 mm (2") is required, consult a professional engineer for design recommendations and/or approval.

Mixing ... Condition all components of EG-96 HP to 23.9° C for 24 hours prior to use. Only mix full kits of the resin/hardener. Colder temperatures will decrease flow and require the use of 4 or 4.5 bags of aggregate to help facilitate placement. At elevated temperature and/or at a reduced aggregate loading, the grout flows faster. The depth of pour is another factor which affects the flow rate; the greater the depth of pour, the better EG-96 HP grout will flow. Aggregate loading may vary based on jobsite conditions and therefore adjustments may be required. Please reference Chart Aggregate C Mix Ratio Guideline. Do not exceed reduced aggregate loading per chart. Care should be taken to ensure that the entire kit is poured before the working time elapses.

Aggregate (Part C) Mix Ration Guideline

Appropriate Aggregate Reduction per Unit

Temperature	Thin Pours <50.8 mm (2") or Long Distances	Standard Pours
>32° C	--	--
21 - 32° C	Up to 1/2 Bag	--
10 - 21° C	Up to 1 Bag	Up to 1/2 Bag

This is only an approximate guideline. Actual aggregate reduction will be based on field parameters. The temperature relates to the aggregate, resin, hardener, air, and substrate at time of pour.

Mix in a mechanical mixer at a slow speed (15 - 20 RPM). The mixer should be a fixed drum/bucket style mixer with moving paddles. A concrete mixer with stationary paddles and rotating drum is not acceptable and will not mix the product correctly, causing jobsite issues. A paddle-type mortar mixer having moving rubber-tipped paddles is acceptable.

Pre-mix Part A, Epoxy Resin and Part B, Epoxy Hardener, either by hand or slow speed drill and paint-type mixer, such as a Jiffy® mixer. Combine the Part B into the Part A, scraping the sides of the Part B to ensure complete transfer of hardener. Mix either by hand or slow speed drill and paint type mixer such as a Jiffy mixer for 2 - 3 minutes or until homogeneous. Scrape sides of mixing can to ensure complete dispersion of resin and hardener. Over mixing or mixing at greater than 250 RPM will entrap air causing flow and the effective bearing area to be adversely affected.

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Transfer properly mixed resin/hardener solution into an appropriate type mixer. Begin mixer and immediately begin to add Part C slowly. Only mix until all the added Part C aggregate has fully wetted out. Over-mixing or delay in adding the aggregate will entrap air, causing flow and the effective bearing area to be adversely affected. For the first unit mixed, reduced aggregate loading may be required to account for the resin/harder solution being used to wet-out the mixer and paddles.

Placement ... The working and/or pouring time will depend on grout temperature and ambient temperature. The working time will decrease as temperature increases. Pouring the grout through a head box increases the flow rate noticeably. To maintain adequate flow and proper placement at product, air, and/or substrate temperatures below 23.9° C, the aggregate loading has to be reduced to 4 1/2 or even 4 bags for colder temperature per kit.

Using a suitable grout head box, slowly pour the properly mixed EG-96 HP into the grout box while maintaining a fill level of 2/3 the volume of the grout box chute. Epoxy grouts flow slowly. Always pour from one side of the base toward the other to eliminate entrapped air.

During cold weather (below 10° C), it is important that the foundation be enclosed and maintained above 10° C. The cure time of the grout will be longer during cold weather and it is important that the grouted area be kept warm (above 10° C) until the grout has cured completely. Conversely, in hot weather, do not mix and pour in direct sunlight. Cover or "tent" operations to prevent grout from setting up too fast, which usually leads to excessive shrinkage and/or cracking.

PRECAUTIONS

Failure to follow all industry standard practices, such as the American Concrete Institute (ACI), will compromise the performance of the EG-96 HP and/or grouting system. EG-96 HP is not suitable for submerged or similar environments. Never dilute EG-96 HP with solvent, water, oils, or similar to change consistency. Hot ambient, product, and substrate temperatures will increase flow and decrease working time. Cold ambient, product, and substrate temperature will decrease flow and increase cure time. Do not apply when the ambient temperature is expected to be below 10° C or rain is expected for 72 hours. Minor colour variations from different batches and mix ratios are normal. All anchorages and doweling configurations, designs, suitability, and such are the sole responsibility of the end user/applicator and as such, shall contact a professional engineer or design professional prior to installation for approval. This data sheet does not supersede any and/or all engineering, architectural, or equipment manufacturers' recommendations or drawings. A professional engineer must determine suitability of EG-96 HP for grouting, anchoring, or doweling. This is a not a standalone engineer document. The final design configuration is the sole responsibility of the engineer of record for the project, equipment manufacturer, or installing contractor.

HEALTH AND SAFETY

Avoid breathing of vapours. Forced local exhaust is recommended to effectively minimize exposure. NIOSH-approved, organic vapour respirators and forced exhaust are recommended in confined areas, or when conditions (such as heated polymers, sanding) may cause high vapour concentrations. DO NOT WELD ON, BURN, OR TORCH NEAR OR ON ANY EPOXY MATERIAL. HAZARDOUS VAPOUR IS RELEASED WHEN AN EPOXY IS BURNED. Avoid skin or eye contact. Wash skin with soap and water if contact occurs. If eye contact occurs, flush with water for 15 minutes and obtain medical attention. Read and understand all cautions on can labels and safety data sheets before using this material.

MASTERFORMAT NUMBER AND TITLE

03 63 00 - Epoxy Grouting

LEED INFORMATION

May help contribute to LEED credits:

- MRc9: Construction and Demolition Waste Management

For most current data sheet, further LEED information, and SDS, visit www.wrmeadows.com.



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