



HYCHEM
EPOXY SYSTEMS

HY-GROUT E210

3 part, low exotherm, low creep high performance epoxy grout

HY-GROUT E210 is a 100% solids, high performance epoxy grout designed for use in situations where high temperatures or deep pours require the use of a long pot life grout with low creep at high operating temperatures. HY-GROUT E210 is supplied in 3 components, consisting of resin, hardener and aggregate. It is suitable for grouting gaps from 100mm to 400mm.

USE

- Heavy machinery with large base plates in industrial plants
- Equipment subject to constant dynamic load such as motors and turbines
- As a replacement for cement grouts where exposure to chemical spillage is likely
- Rail mountings, plinths and footings

HY-GROUT E210 is ideal for use in a wide variety of industries such as marine, power generation, mining, chemical plants, structural engineering, transportation, printing and general manufacturing.

FEATURES AND BENEFITS

- Very low heat build up
- High mechanical strength – compressive, tensile and flexural
- Excellent impact, vibration and dynamic load tolerance.
- Good flow and high bond strength, ensuring even load distribution
- Resistant to a wide range of chemicals, acids, caustic and hydrocarbons

TYPICAL PERFORMANCE

Epoxy grouts have much higher physical performance capabilities than cement grouts, with 3 times the compressive strength and up to 10 times the tensile strength. They are also more impact resistant and withstand cracking due to mechanical vibrations. Individual epoxy grouts vary depending on whether they are formulated for high or low temperature use, minimal cost or specific flow and creep properties.

The placement depth of an epoxy grout is dependant on the heat released during cure and the resultant shrinkage and cracking forces that occur. HYCHEM E200 is a fast curing grout releasing considerable heat and at ambient temperatures of 23°C the recommended maximum pour depth in a single application is 50mm.

The following tables gives indicative values for HY-GROUT E210 Epoxy Grout.

UNCURED PROPERTIES

Appearance	Resin, Clear honey like liquid Hardener, Clear liquid Aggregate, blended quartz sands
Mix ratio	2:1 by wt resin and hardener 7.7kg resin:3.35kg hardener:80kg aggregate to yield a 45 litre kit
Specific gravity	Resin 1.15 Hardener 1.0 Aggregate 2.7 Blended product 2.0
Pot life	120 min at 23°C

CURED PROPERTIES

Compressive strength	(ASTM D695)	90 MPa
Compressive modulus		8000 MPa
Tensile strength	(ASTM D638)	20 MPa
Tensile adhesion to steel		27 MPa
Service temperature		-10 to 80°C
Linear shrinkage	(ASTM C531-81)	0.01mm/mm
Creep (28 days @ 60°C)	(ASTM C1181)	0.015mm/mm
Strength development with time (23°C)	1 day	45 MPa
	7 days	75 MPa
	28 days	80 MPa

CHEMICAL RESISTANCE

HY-GROUT E210 has excellent resistance to dilute mineral acids, caustic solutions, mineral salt solutions and hydrocarbons. For specific information, contact the HYCHEM Technical Department.

APPLICATION GUIDELINES

Surface Preparation

Sub-Base Preparation - Ensure foundation concrete is properly cured. All surfaces should be clean and free from rust, dust, oil, wax, grease and standing water. Concrete should be scabbled if necessary to remove any weak, crumbly materials. Formwork should be treated with release agent where required.

Plate and Equipment Preparation - The bonding surfaces of the base plate to be grouted must be free of coatings, wax, grease or scale. Shot blasting is suggested for critical alignment.

Forming - Forms must be liquid tight and ideally should have a moveable head sloped at 45°C to enhance grout placement. The top of the form must be a minimum of 18mm above the equipment being grouted; edges should be a minimum of 25mm from each base plate. The forming material must be sufficiently strong to withstand the grout pressure. Mask all external areas likely to be affected by rising grout.

Mixing

Resin and hardener need to be mixed at a ratio of 2:1 by wt prior to adding the filler. When using the 45 litre pack, blend all of the hardener into the resin compound and mix thoroughly. Add this mixture to the mixing vessel and add 4 x 20 Kg bags of aggregate. Blend the components until completely wetted out.

Temperature Conditioning - At high ambient temperatures wherever possible, cool the components before mixing. Work time varies with temperature, in general work time is halved for every 10°C temperature rise. For temperatures below 15°C, warm the components if possible.

Applying resin

Under plates, Pour mixed materials slowly into the prepared void from one side only and fill the cavity continuously to avoid air entrapment.

Anchoring bolts, rebar, dowels and inserts in concrete, rock and brickwork

The following guidelines are suggested.

Hole diameter

Should generally be 1.5 times the insert diameter. This can be reduced for large insert diameters above 100mm.

Depth of embedment

Concrete tensile strength and the depth of bolt embedment determines the pull-out load. The anchor depth should be designed to provide bolt failure when tested in tension.

Hole spacing

Hole spacing is important to avoid stress interaction caused by holes spaced too closely together or near the edge of the structure. A good guide for minimum spacing is 10 times the bolt diameter for bolt spacing and five times the bolt diameter for edge spacing.

Epoxy grout placement

To avoid air entrapment, the liquid grout should be filled bottom up using enough head pressure to achieve the desired flow rate and distance.

PACKAGING

HY-GROUT E210

45 litre pack

7.7kg E210 resin, 3.35kg E210 hardener, 4 x 20kg bags aggregate

SHELF LIFE

This product has a shelf life of 12 months from date of manufacture, stored under shelter at 25°C in original un-opened container.

COMPLIMENTARY PRODUCTS

HYCHEM E 210 is part of a range of 3 part epoxy grouting materials.

Other products in this range are HY-GROUT E200 and HY-GROUT E205 which offer faster cure times for colder climates.

SAFETY PRECAUTIONS

Epoxy polymer products may cause allergic reactions through skin contact. Goggles and protective gloves and clothing should be worn at all times. Ensure that there is adequate ventilation and air flow and avoid breathing the vapour. If skin contact occurs wash skin with soap and water. If eye contact occurs wash immediately with copious amount of clean water.

Field support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by HYCHEM either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not HYCHEM are responsible for carrying out procedures appropriate to a specific application.

Customer responsibility

The technical information and application advice given in this publication is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the product 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 Commonwealth or State Legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use.



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