

# ArmaGrout

*Epoxy and vinyl ester polymer grouts*

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**ARMATEC**

## PRODUCT DESCRIPTION

ArmaGrout epoxy and vinyl ester polymer grouts are three component silica filled polymer composites used frequently for machinery foundations. The many benefits of these polymer grouts mean they are the foundation material of choice for critical equipment where maintaining alignment is essential.

## PRODUCT RANGE

- **ArmaGrout MG:** Good flowing, fast curing epoxy grout. Tolerates moisture. Our standard epoxy grout.
- **ArmaGrout HIFLO:** Fastest flowing, fast curing epoxy grout. Tolerates moisture. Ideal for smallest cavities or where placement access is difficult.
- **ArmaGrout UWS:** Fast flowing, fast curing epoxy under water grout that can be poured into spaces filled with water. It displaces the water, bonds to the substrate and cures underwater. Proven performance in securing hold down bolts even when holes are filled with water before grout is applied.
- **ArmaGrout UWT:** Very similar to ArmaGrout UWS but specially formulated for trowelling underwater.
- **ArmaGrout VE:** Good flowing, fast curing vinyl ester machinery grout. Ideal for use under pumps and other equipment subject to spills of acids and other corrosive chemicals.
- **ArmaGrout AR:** Good flowing, fast curing epoxy machinery grout for 98% Sulphuric Acid conditions.

## USES

- Reciprocating compressor foundations.
- Fan, blower, pump, etc. foundations.
- Turbine and jet engine foundations..
- Setting foundation bolts in place.
- Filling cavities in equipment bases.
- Repairing concrete surfaces.
- .... FOR CRITICAL FOUNDATIONS.

## PHYSICAL PROPERTIES

- **Compressive Strength:** The compressive strength of ArmaGrout MG is in excess of 90 Mpa at ambient temperature.
- **Other Properties:** Please consult Armatec.

## SUPPLY DETAILS

ArmaGrout epoxy and vinyl ester polymer grouts are manufactured by Armatec using technology from internationally recognised leaders in materials supply. Standard price lists for materials only supply are available on request.

## FEATURES & BENEFITS

- **High Strength:** ArmaGrout epoxy and vinyl ester polymer grouts have compressive strengths more than twice the strength of standard cement based grouts.
- **Moisture Tolerant:** The bond strength to damp concrete is in excess of 2 MPa with surface preparation by high pressure water blasting and grout placement soon after. ArmaGrout epoxy grouts will cure in the presence of moisture and will even cure underwater.
- **Fast Installation:** Fast cure allows installation to proceed quickly and the machine to be placed into service faster. Over night cure is often sufficient so pumps, fans, supports etc can be put under load sooner than if cement based grouts had been used.
- **Oil and Chemical Resistant:** Outstanding resistance to oil and chemicals ensures the foundation does not deteriorate as cement based grouts can.
- **Outstanding Adhesion:** The bond strength of ArmaGrout epoxy grouts to steel is in excess of 6 MPa. The bond strength to concrete exceeds the surface strength of concrete.
- **Economical:** The ArmaGrout aggregates are formulated to reduce costs but retain flow properties.

## APPLICATION

Remove oil and chemical contamination, and scabble or roughen concrete to ensure aggregate is exposed. Dry concrete as best possible to achieve best bond, but if this is not possible ensure a moisture tolerant ArmaGrout epoxy grout is used. Set formwork in place ensuring there are no holes through which the grout can flow out. Ensure formwork has release agent applied, but that release agent is not applied to other surfaces. Mix ArmaGrout resin and hardener together thoroughly, then blend in ArmaGrout graded aggregate to consistency required. Pour grout into formwork to level required. Allow to set and then remove formwork.



One unit of ArmaGrout comprises a pail of resin (part full with room for mixing), a can of hardener, and 3 bags of graded aggregate. The 10.4 kg of resin-hardener mix are combined with 60 kg of graded aggregate to give 35 litres of grout. Less graded aggregate can be used for higher flow.

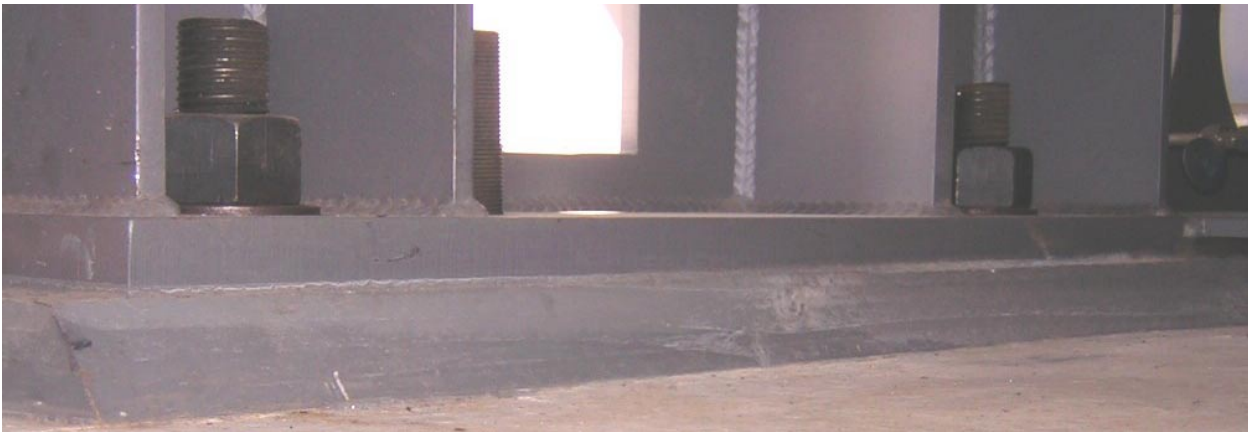
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**ArmaGrout MG**, our standard machinery foundation epoxy grout, is formulated to the following criteria:

- (1) **Ready Availability of Resin and Hardener Raw Materials in New Zealand.** The raw materials used for the resin and hardener component are stocked in New Zealand in order to offer clients the shortest lead times. Typically delivery of the grout is one week of placing the order.
- (2) **Moisture Tolerance.** Customers in New Zealand have typically had difficulty in keeping their foundations totally dry. Most epoxy grouts require the concrete to be completely free of moisture in order to achieve the stated strengths. So in response to customer demand ArmaGrout MG was formulated to have a good degree of moisture tolerance.
- (3) **Use of Local Aggregates.** The third component, the graded aggregate, is the largest and is used to minimise the price and to achieve the required physical properties. For ready availability and low cost, local aggregates are used.
- (4) **Low Toxicity of Raw Materials.** New Zealand law has many restrictions on raw materials and products with toxicity ratings. Wherever possible low toxicity materials have been used. This gives customers the least problems in transporting, handling and using the ArmaGrout MG.
- (5) **Good Physical Strength.** This is an essential criteria and the reason why epoxy grouts are used. The criteria for formulating ArmaGrout MG was to have a compressive strength in excess of 90 MPa at ambient temperature. A number of formulations were tested before the current formulation was selected.

**Overall Balance of Physical Properties.** ArmaGrout MG has an excellent balance of properties. It is not too brittle so does not crack easily, it is able to sustain a sudden impact load, it has a reasonable flow ability, it is able to be mixed and placed, it has a good cure time, and it has excellent cured strength. The formulation has been fine tuned and offers customers a great overall balance of properties combined with good value.

ArmaGrout MG was used for the critical foundations on the 3 Pratt & Whitney turbines that are the heart of the Whirinaki oil fired 155 megawatt power station. This is a reserve power station opened in 2004 and will operate when there is a risk of power shortages, such as at times of low hydro-lake storage. All the pictures on this page are from this project.



ArmaGrout MG under turbine baseplate corner.



Jet engine turbine uses ArmaGrout MG to tie the engine to the concrete foundation.