RAMCO HARD WORKER

ANCHORING GROUT HW402

Free-flow, non-shrink, high-strength cementitious precision grout

TECHNICAL DATA SHEET

Product Description

Hard Worker Anchoring Grout HW402 is a precision-engineered, non-shrink, free-flowing cementitious grout for anchoring and structural grouting under static and dynamic loads. Supplied as a pre-blended powder requiring only the controlled addition of clean water, it develops high early and final strength while maintaining full flowability and dimensional stability. The shrinkage-compensated, non-corrosive and non-staining formulation ensures a high level of contact with the load-bearing area and long-term durability under heavy-duty service conditions.

HW402 is available in 40 MPa, 60 MPa and 80 MPa grades to suit the specified anchoring or grouting performance.

Uses

Used for structural anchoring and precision grouting applications, such as:

- Foundations of heavy machinery and turbines
- Bridge bearing pads and coupler zones
- Structural columns and crane-rail installations
- Anchor bolts, sockets and concrete-to-metal joints
- Windmill anchors and boiler base plate
- Void filling and gap grouting in precast and cast-in-place structures

Advantages

- Shrinkage-compensated for full contact with the load-bearing area
- High early and final compressive strength
- Excellent free-flow characteristics
- Non-corrosive and non-staining
- Placeable by pour or grout pump
- Available in 40, 60 and 80 MPa grades

Surface Preparation

Clean the substrate thoroughly to remove dust, oil, grease and loosely held particles, and cut back weak or defective concrete to a sound base. Clear all bolt holes and fixing pockets of algae, moss, organic matter and debris. Saturate the prepared area with clean water and remove all standing water immediately before grouting. Base plates must be clean and free from oil, grease or scale; where levelling shims are to be removed after the grout has hardened, coat them with a thin layer of grease.

Mixing Instructions

Measure 3–3.5 litres of clean water per 25 kg bag. Add 80–90% of this water into a clean mixing drum and gradually add one 25 kg bag of HW402 while mixing continuously. Add the balance of the water and, where required for deeper pours, 6–12 mm clean graded aggregate to adjust the flow. Mix for at least 3 minutes with a mechanical blender until a smooth, uniform consistency is achieved, and use the grout immediately.

Placing

Apply the grout immediately after mixing. Pour continuously in one direction using hoppers or grout pumps, maintaining a uniform, continuous grout head so that the grout flows to the far side and completely fills the void without entrapping air. Do not exceed 50

mm in a single pour without the addition of aggregate, and ensure uninterrupted placement to avoid cold joints and air pockets. Any bolt pockets should be grouted before grouting between the substrate and the base plate.

Working Conditions

In cold conditions, warm mixing water may be used to accelerate strength development, and normal winter precautions for cementitious materials should be adopted. In hot conditions, store the material in the shade and use cool mixing water to preserve working time.

Curing

On completion of grouting, cure all exposed surfaces thoroughly by continuous water curing, wet hessian or an approved curing compound to ensure full strength development and durability.

Technical Properties

Property	Typical Result
Colour	Grey
Dry Density	1250 – 1350 kg/m³
Water Addition	12 – 14%
Flow	Slump cone method (600 mm+)
Shrinkage (IS 1727)	Nil
Initial Setting Time (IS 4031 Part 5)	145 minutes
Final Setting Time (IS 4031 Part 5)	450 minutes
Coefficient of Thermal Expansion (ASTM C 531)	9 × 10^{-6} /°C
Surface Hardness (Mohs scale)	7

Performance Parameters (by Grade, 28 days)

Property	M40	M60	M80
Compressive Strength (ASTM C 109)	45 – 50 MPa	65 – 70 MPa	85-90 MPa
Flexural Strength (ASTM C 580)	11 – 12 MPa	14 – 15 MPa	18 – 19 MPa
Rebar Pull-out Bond, 20 mm dia (IS 2770)	120 – 130 kN	130 – 140 kN	180 – 190 kN
Chloride Permeability, RCPT (ASTM C 1202) — coulombs	1986	1642	1124

All values tested under standard laboratory conditions.

Estimating and Yield

Property	Typical Result
Yield (without aggregate)	13 litres per 25 kg bag
Yield (with 30% aggregate)	15 litres per 25 kg bag

Actual yield per bag depends on the consistency of the mix and the quantity of coarse aggregate added.

Package

Available in 25 kg bags.

Shelf Life

Shelf life of 6 months from the date of manufacture when stored in dry, shaded conditions between +10°C and +50°C.

Important Note

Do not pour in layers exceeding 50 mm without the addition of aggregate. For large areas, use hoppers and grout pumps for continuous placement, and maintain a uniform grout head to prevent air gaps.

Precautions and Safety

Contains cementitious materials and polymers. Avoid inhalation of dust and direct contact with skin and eyes; use gloves, a mask and protective gear. In case of eye contact, rinse thoroughly with clean water and seek medical advice.

Additional Information

The Hard Worker range includes a comprehensive selection of concrete repair and construction chemical products — precision and anchoring grouts, repair mortars and micro-concretes, epoxy and SBR bonding agents, integral and surface waterproofing systems, tile adhesives and grouts, block-fixing mortars and admixtures. Separate technical data sheets are available for each product.

Technical Support

All values provided are tested under controlled laboratory conditions; performance may vary depending on site conditions and workmanship. For site-specific recommendations, technical data, or detailed guidance, contact the Hard Worker Technical Services Team at:

Toll-free number 1800 202 5700

Email customercare@ramcocements.co.in

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