

ZNR™ GROUT EP 420 W

HIGH-PERFORMANCE EPOXY MACHINE GROUT

Moisture-tolerant • Flowable • Non-shrink • High early strength • Precision bearing and anchorage

ENGINEERED APPLICATION: Precision grouting beneath machinery, baseplates, rails and structural steel where sustained loads, vibration, impact and alignment stability are critical.

PRODUCT DESCRIPTION

ZNR GROUT EP 420 W is a high-strength, solvent-free, moisture-tolerant epoxy grout formulated with resin, hardener and specially graded mineral aggregates. Its flowable consistency enables complete bearing beneath baseplates and equipment while its non-shrink behavior and high mechanical strength support accurate load transfer in demanding industrial installations.

TYPICAL APPLICATIONS

- Precision grouting beneath machine baseplates, turbines, compressors, pumps, generators, presses and other dynamically loaded equipment.
- Foundations and bedding zones exposed to vibration, shock and impact.
- Anchoring and fixing of bolts, rails, steel profiles, bearing plates and structural components to concrete.
- Bridge mechanical joints, roadside barrier fixings and heavy-duty bedding applications.
- Filling of voids, cavities and wide cracks (>10 mm) in concrete repair works.
- High-strength repair and leveling where rapid return to service and chemical/mechanical resistance are required.

KEY PERFORMANCE ADVANTAGES

- Non-shrink, high-load-transfer epoxy grout for precision alignment.
- High early and ultimate compressive and flexural strength.
- Excellent adhesion to properly prepared concrete and steel.
- Moisture-tolerant; suitable for dry or mildly damp mineral substrates.
- High resistance to mechanical wear and a wide range of industrial chemicals.
- Flowable placement helps minimize voids beneath bearing plates and equipment bases.
- Solvent-free formulation.

TECHNICAL DATA

Property	Declared Value	Relevant Test / Reference
Color	Grey / fume	Visual
Packaging	20 kg set	Manufacturer declaration
Mixed density	~1.50 g/cm ³ at 23 °C	ASTM C905 (density, resin systems) ¹
Pot life	~30 min at 23 °C	ASTM C881 principles / internal method ¹
Compressive strength	≥35 MPa @ 1 day; ≥80 MPa @ 7 days	ASTM C579 ¹
Flexural strength	≥20 MPa @ 1 day; ≥30 MPa @ 7 days	ASTM C580 ¹
Bond to concrete	≥2 MPa	ASTM C882 / ASTM C1583, as specified ¹
Bond to steel	≥3 MPa	Project-specific adhesion method ¹
Tensile / pull strength	≥20 MPa @ 7 days; ≥30 MPa @ 28 days	ASTM C307 ¹
Volume change	Non-shrink / no visible change	ASTM C531 ¹
Recommended placement thickness	12–50 mm typical	Application guideline
Repair build-up	Up to 100 mm per layer	Application guideline

Consumption

~1.50 kg/m² per 1 mm thickness

Calculated from declared density

¹ ASTM methods are listed as appropriate qualification/reference methods for this product category. Values shown are the manufacturer's existing declared values and must not be interpreted as ASTM-certified results unless supported by a corresponding accredited test report.

RECOMMENDED ASTM QUALIFICATION FOR DYNAMIC MACHINE FOUNDATIONS

For critical machinery, vibration and impact service, the project engineer may require additional qualification testing. The following methods are especially relevant; project acceptance limits should be established by the equipment/foundation designer and verified by test reports.

Performance characteristic	ASTM reference	Engineering relevance
Compressive strength	ASTM C579	Load-bearing capacity under baseplates and equipment.
Compressive creep	ASTM C1181	Long-term dimensional stability under sustained machine loads.
Flexural strength	ASTM C580	Resistance to bending stresses and localized foundation movement.
Tensile strength	ASTM C307	Cohesive strength of chemical-resistant resin mortar/grout.
Bond to concrete	ASTM C882	Bond performance of epoxy-resin systems to hardened concrete.
Linear shrinkage / volume behavior	ASTM C531	Dimensional stability important for continuous bearing contact.
Chemical resistance	ASTM C267	Suitability for exposure to oils, chemicals and industrial service environments.

SUBSTRATE REQUIREMENTS & SURFACE PREPARATION

- Concrete must be sound, load-bearing and free of laitance, dust, oil, grease, curing compounds, coatings and other bond-inhibiting contamination.
- Mechanically prepare concrete to expose a clean, roughened surface suitable for structural bonding. Remove all loose or damaged concrete.
- Steel surfaces should be clean, sound and free of oil, grease, rust scale and loose coatings; abrasive blasting is recommended for critical structural or machine-grouting applications.
- The substrate may be dry or mildly damp, but standing water must be removed. Verify moisture tolerance under actual site conditions before critical placement.
- Baseplates, anchor pockets and formwork must be rigid, leak-tight and configured to permit continuous grout flow and air displacement.

MIXING

Condition all components to the recommended application temperature before mixing. Premix the resin component if required. Combine the resin and hardener and mix with a low-speed mechanical mixer (approximately 300–400 rpm) until uniform. Add the graded aggregate progressively, where supplied separately, and continue mixing until a homogeneous, lump-free grout is obtained. Avoid excessive mixing speed and air entrainment. Mix complete pre-proportioned units; do not alter component ratios or add water, solvent or unapproved aggregate.

APPLICATION FOR MACHINE BASEPLATES

- Confirm foundation geometry, anchor-bolt positioning, baseplate alignment and formwork before mixing.
- Provide sufficient head pressure and pour continuously from one side only so the grout advances beneath the plate and displaces trapped air toward the opposite side.
- Do not vibrate the grout unless specifically approved. Where necessary, assist flow using suitable rodding/strapping methods without entraining air.
- Maintain the specified grout depth. Typical placement thickness is 12–50 mm; deeper sections require project-specific thermal and placement review because epoxy cure is exothermic.
- Do not disturb or load the equipment until the grout has achieved the strength required by the equipment/foundation engineer.

APPLICATION CONDITIONS / LIMITATIONS

- Pot life and cure rate are temperature dependent: higher temperatures shorten working time; lower temperatures extend cure.
- Large-volume placements can generate significant exothermic heat. For thick or massive pours, consult ZNR Technical Service for lift thickness, aggregate extension and placement sequencing.



Yapı Kimyasalları - Construction Chemicals

- Dynamic machinery foundations should be designed for actual static and dynamic loads, anchor forces, vibration frequencies and operating temperatures. The grout is a load-transfer material and does not replace structural engineering design.
- Do not apply onto frozen substrates, standing water, weak concrete or contaminated surfaces.
- Conduct a site trial where substrate condition, geometry, temperature or service exposure is uncertain.

STORAGE / SHELF LIFE

Approximately 12 months from date of manufacture when stored unopened in original packaging in a cool, dry place and protected from direct sunlight, frost and excessive heat. Follow the storage temperature stated on the product label and Safety Data Sheet.

SAFETY & DISPOSAL

Epoxy resin and hardener components may cause skin and eye irritation and may cause sensitization. Wear suitable protective gloves, eye protection and work clothing. Avoid skin contact and inhalation of vapors or dust from aggregates. In case of eye contact, rinse immediately with plenty of clean water and obtain medical advice. Refer to the current Safety Data Sheet before use. Dispose of empty packaging and cured product residues in accordance with applicable local regulations. Do not burn product residues.

TECHNICAL NOTE / DISCLAIMER

The information in this Technical Data Sheet is based on ZNR experience and currently available product data and is intended as guidance for professional users. Site conditions, substrate quality, equipment design and application workmanship are outside ZNR control. Suitability for a particular machine foundation or dynamic-load application must be confirmed by the responsible engineer. Project specifications and verified test reports take precedence over indicative values in this document. ZNR warrants the quality of the supplied product in accordance with its sales terms; no warranty is made for workmanship or design outside ZNR control.