

Construction Mortar Mixer - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The Doebritz Construction Mortar Mixer represents a paradigm shift in high-viscosity, abrasive material blending for the global construction chemicals industry. Engineered specifically for the rigorous demands of dry mix mortar, render, grout, and cementitious adhesives, this platform delivers exceptional homogeneous dispersion of binders, aggregates, and chemical additives. Unlike conventional agitating equipment, the Doebritz unit prioritizes shear-controlled mixing with minimal heat generation, making it the preferred solution for pre-bagged mortar production, tile adhesives, and self-leveling underlayments across pneumatic conveying systems feeding bagging stations or bulk silos.

With an installed base exceeding 1,200 units in heavy building material environments, this mixer bridges the critical gap between continuous blending and batch precision. Key value propositions include rapid discharge via hydraulically actuated drop-bottom doors, hard-faced paddle tips for extended wear life when processing silica sand or crushed marble, and compatibility with upstream rotary airlock feeders for automated ingredient dosing. The design conforms to ISO 12100 safety norms, ensuring operator protection during maintenance and production cycles in cement plants, dry mix mortar facilities,

and specialty chemical compounding sites.



HOUSING & ROTOR METALLURGY

The main housing is manufactured from abrasion-resistant HARDOX 450 steel (8-12mm thickness) as standard, with an optional SS304/316L stainless steel clad interior for white mortar applications or chemically aggressive additives. All casting surfaces undergo solution annealing and pickling to eliminate residual stress and micro-porosity. The mixing rotor features a split-taper hub design machined on 5-axis CNC machining centers, achieving true running within 0.08mm TIR for consistent paddle-to-wall clearance of 2-3mm—optimizing smear mixing while preventing aggregate degradation. For extreme silica or quartz sand processing, Doebritz offers tungstic carbide overlay on paddle leading edges, extending service intervals to 8,000+

operating hours.

KEY FEATURES

- Outboard bearing pedestals: Four heavy-duty spherical roller bearings (SKF or FAG) are mounted externally to the mixing chamber, completely isolated from product contact via double-lip PTFE seals with labyrinth-protected grease purging. This prevents premature failure from fine mortar dust ingress, enabling continuous operation in 55°C ambient cement plant environments.
- Hydraulic drop-bottom door: A single-acting, fail-safe hydraulic cylinder actuates the counter-weighted discharge door with position feedback sensors. Door seals are heat-cured silicone rubber rated for 150°C intermittent, allowing complete cleanout within 12 seconds—critical for color changeovers between pigmented grout batches.
- Direct drive gearmotor: Doebritz integrates SEW-EURODRIVE helical-bevel gear units (IEC frame B5) with torque-limiting coupling, eliminating chain/sprocket maintenance. Variable frequency drive ready (0-60 Hz) enables paddle tip speed adjustment from 1.5 to 4.0 m/s, matching rheological requirements of low-water permeability mortars versus highly flowable screeds.
- Liquid injection manifold: A stainless steel lance with five self-cleaning spray nozzles (120 bar rating) introduces water or polymer emulsions during mixing. An integrated check valve and purge system prevent backflow of mortar slurry into liquid lines, ensuring precise +/- 0.5% moisture control.

- Wear monitoring system: Optional capacitance-based paddle tip wear sensors transmit live thickness data to PLC/HMI, triggering maintenance alerts at 30% remaining life—eliminating unplanned downtime in 24/7 production lines.

COMPLIANCE & SAFETY STANDARDS

The Doebritz Construction Mortar Mixer fully complies with CE Machinery Directive 2006/42/EC, including EN 454 for mixer-specific safety requirements. ATEX certification for Zone 22 dust explosive atmospheres (II 3 D Ex tc IIIC T135° C Dc) is optionally available for mixing powdered aluminum or carbon-containing additives. NFPA 652 compliance for combustible dust risk management is integrated via earthed paddles and conductive housing grounding points. The guard-locked interlock system on inspection covers meets ISO 13849-1 Performance Level d (PLd), preventing operation during maintenance. All cast flanges are marked with material traceability per EN 10204 3.1, and hydraulic systems conform to ISO 4413 safety standards with burst-proof hosing.

TECHNICAL SPECIFICATIONS

The following parameters are provided for standard Doebritz CM-Series horizontal twin-shaft mixers. Custom engineering solutions (including larger

capacities, special alloys, or explosion-proof drives) are available upon request.

Parameter	Specification
Capacity / Volume	250 to 4,500 Liters per batch (0.25 - 4.5 m ³)
Flange Standard	DIN EN 1092-1 PN10 / ANSI 150# RF / JIS 10K
Drive Configuration	Direct drive SEW helical-bevel gearmotor, 15-160 kW, 400/690V, 50/60 Hz
Max Rotor Speed	45 RPM (standard), 75 RPM (high-shear option)
Discharge Door Type	Hydraulic drop-bottom, 12 sec opening time, 15 bar system pressure
Material of Construction	HARDOX 450 housing / SS304L or SS316L optional / Paddle tips: Tungstic carbide overlay

