Heavy-Duty Bulk Handling Solution Brief: Deploying Doebritz Coarse Material Screen

HEAVY-DUTY BULK HANDLING SOLUTION BRIEF: DEPLOYING DOEBRITZ COARSE MATERIAL SCREEN

EXECUTIVE SUMMARY

The Doebritz Coarse Material Screen (CMS) series represents a paradigm shift in primary bulk solids classification for heavy industrial environments. Engineered specifically to handle high-temperature, highly abrasive, and large-particle materials such as petcoke, mineral ores, recycled aggregates, and biomass, the CMS integrates robust scalp screening with a controlled airlock function. Unlike standard vibrating separators, the Doebritz CMS utilizes a positively-driven, self-cleaning rotor mechanism combined with a heavy-duty perforated screen basket, ensuring continuous removal of undersize while preventing binding or blinding. This document serves as the official technical overview and engineering specification for plant operators and system integrators.

HOUSING & ROTOR METALLURGY

The primary structure of the Doebritz CMS is manufactured from abrasion-resistant cast steel (1.7035 / 4140 equivalent) or optional AR400 plate. The one-piece, stress-relieved housing features a split-plane design for rapid internal access. The rotor assembly consists of individually replaceable, hard-faced paddles or helical breaker bars mounted on a massive hexagonal shaft. This design prevents material wrapping and generates positive displacement of oversize debris toward the discharge chute. All product contact surfaces are available with tungsten carbide hardfacing or ceramic tile liners for extreme silica or iron ore applications.

KEY FEATURES

- Feature 1: Positively-Driven Rotor: Fixed-tip paddles with adjustable clearance

to screen basket (2mm to 15mm) prevent jamming from tramp metal or stringy material.

- Feature 2: Heavy-Duty Isolated Bearings: Outboard-mounted, grease-lubricated spherical roller bearings with labyrinth seals and purge ports, completely isolated from the product zone.

- Feature 3: Quick-Change Screen Basket: Bolted, segmented screen plates (wedge wire, perforated plate, or polyurethane) can be swapped without removing the rotor or drive.

- Feature 4: Dual-Action Cleaning System: Static scraper bars plus rotor-mounted impact blades continuously clean screen apertures, maintaining peak volumetric efficiency.

- Feature 5: Integrated Bypass Logic: Manual or pneumatic diverter allows oversize rejection or recirculation without process stoppage.

COMPLIANCE & SAFETY STANDARDS

The Doebritz CMS platform is fully compliant with global heavy machinery directives. All units bear CE marking, ATEX Dust (Zone 22) certification for combustible dusts, and NRTL listing for US/Canada. The design conforms to ISO 12100 for risk assessment and EN 1127-1 for explosion prevention. Optional NFPA 69 compliant isolation barriers are available for pneumatic conveying integration. The housing includes multiple explosion venting ports

(15 psig burst rating) and shaft speed monitoring provisions.

TECHNICAL SPECIFICATIONS

General: Model Doebritz CMS 2500 to CMS 7500. Capacity range (bulk solids): 15 to 450 m³/h depending on material bulk density (0.3 to 2.5 t/m³) and screen aperture. Maximum particle feed size: Up to 300mm (12 inches). Maximum operating temperature: -20 ° C to +450 ° C (standard), +850 ° C with high-temperature alloy construction. Differential pressure rating (when used as airlock): 35 kPa (5 psi) across rotor.

Parameter	**Specification**
Capacity / Volume	15 to 450 m³/h (bulk solids)
Flange Standard	DIN EN 1092-1 PN16 / ANSI B16.5 150# RF
Drive Configuration	Direct coupled gearmotor (7.5 to 75 kW) or hydraulic motor
Screen Area	0.8 m² to 4.5 m² (model dependent)
Typical Aperture Range	4mm to 80mm (wedge wire or punched plate)
Rotor Speed	15 to 60 RPM (variable via VFD)
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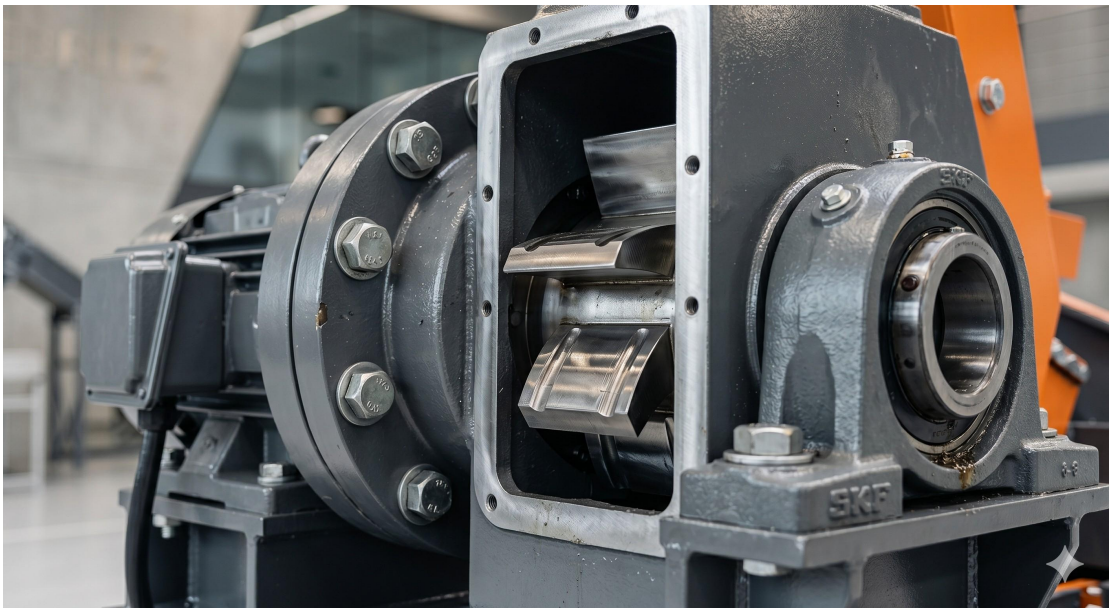
Material Temperature Range	-20°C to +450°C (standard)
Max Feed Particle Size	Up to 300mm (12 inches)
Housing Material	Cast steel 1.7035 / AR400 optional
Bearing Type	Outboard spherical roller, ISO L5 precision
ATEX Certification	II 2D Ex h IIIC T4/T5 Db (Zone 22)
Net Weight (approx.)	1200 kg (CMS 2500) to 7200 kg (CMS 7500)

INDUSTRIAL DEPLOYMENT

Primary applications: Feeding and screening before crushers, rotary dryers, and pneumatic conveyors. Typical installations include cement raw mills (limestone/gipsum scalping), biomass power stations (bark and chip classification), and mining ROM stations (ore pre-screening). The CMS is frequently deployed directly under silo discharge or belt conveyor transfer points. Doebritz provides full piping and transition piece engineering, including abrasion-resistant elbows and drop-out boxes for fines recovery.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