Doebritz Stainless Steel with Tungsten Carbide Coating Star discharge valve - Official Technical Overview & Datasheet

PRODUCT OVERVIEW: DOEBRITZ TUNGSTEN CARBIDE COATED STAR DISCHARGE VALVE

The Doebritz DBR-1237 gravity-type quick-release rotary valve (Star discharge valve / Airlock feeder) with stainless steel base material and full tungsten carbide coating is engineered for extreme abrasive, corrosive, and high-purity bulk solids handling. Designed for positive/negative pressure pneumatic conveying, gravity discharge, and automated metering lines, this valve combines precision rotor-to-housing clearance (0.1 – 0.2 mm), ATEX-certified flameproof isolation (16 bar pressure rating), and rapid maintenance via tool-free quick-release.

HOUSING & ROTOR METALLURGY

Base material: SUS304 or SUS316L stainless steel. Contact surfaces: Tungsten carbide (WC) coating applied via HVOF or equivalent process. Coating extends rotor vanes, housing inner bore, and end plates. Alternative coatings: Ceramic (Al_2O_3/TiO_2), PTFE, PE, PA, or polymer liners. Surface finish: Internal mirror or machined $\leq$ Ra 0.4 – 1.6 μ m; external anti-fingerprint, sandblasted or shot-blasted, machined finish <0.8 μm.

KEY FEATURES

- Quick-release disassembly: No special tools, supports manual cleaning, online CIP, or WIP + manual inspection. Reduces downtime dramatically.
- Precision airlock sealing: Rotor-to-housing clearance 0.1–0.2 mm; reduced air leakage for stable pneumatic conveying and accurate batch/recipe metering.
- Tungsten carbide wear defense: Extends service life in high-abrasion materials (carbon black, lithium battery powders, silicon, petroleum coke, pigments).
- Pressure range compatibility: Positive low-pressure <0.4 bar; positive high-pressure 0.4 – 1 bar (VFD). Negative low-pressure >-0.4 bar; negative high-pressure -1 to -0.4 bar (VFD). Gravity: adjustable flow, no leakage.
- ATEX & NFPA compliance: Zone 20/21/22, flameproof housing rated 16 bar, explosion-proof motor, precision spark gap control.
- Hygienic design: Suitable for Class W, 10W, 30W, C, D cleanrooms, GMP

compliance.

- Automation-ready: VFD speed control, PLC integration, batch/recipe metering, automated batching.

- Optional water cooling jacket for hot materials up to 120°C.

COMPLIANCE & SAFETY STANDARDS

CE certified, TÜV certified, Statement certification. Conforms to ATEX Directive 2014/34/EU for Zone 20, 21, 22 dust explosion atmospheres. NFPA 69 compliant for flame propagation isolation. Pressure equipment directive (PED) 2014/68/EU for 16 bar rating. Flange standard HG20592 (alternative DIN/ANSI available). All Doebritz valves meet ISO 9001 manufacturing quality.

TECHNICAL SPECIFICATIONS

- Materials: Base SUS304 / SUS316L / Carbon steel; coating tungsten carbide, ceramic, PTFE, PE, PA, polymer

- Clearance (rotor to housing): 0.1–0.2 mm

- Shaft seal: Lip seal air-tight (gas purging option)

- Flange size: DN50, DN100, DN150, DN200, DN300, DN350 (HG20592 standard)

- Ambient temp: -15°C to +60°C

- Material temp: 0°C to +120°C (water cooling jacket optional)

- Pressure positive: <0.4 bar low; 0.4–1 bar high (VFD)

- Pressure negative: >-0.4 bar low; -1 to -0.4 bar high (VFD)

- ATEX zones: 20, 21, 22

- Flameproof rating: 16 bar

- Cleanability: Quick-release manual, CIP, WIP

- Drives: VFD, explosion-proof motor, chain or direct drive

- Control: PLC, batch/recipe metering, automated batching

Parameter	**Specification (Doebritz DBR-1237 Tungsten Carbide Coated)**
Capacity / Volumetric range	Application-specific; typical 2.5 – 100 Liters/rev (DN50–DN350)
Flange Standard	HG20592 (custom DIN/ANSI available)
Drive Configuration	VFD direct drive or chain drive with explosion-proof motor option
Max Pressure Differential	1 bar positive, -1 bar negative
ATEX Certification	Zone 20, 21, 22; Flameproof 16 bar

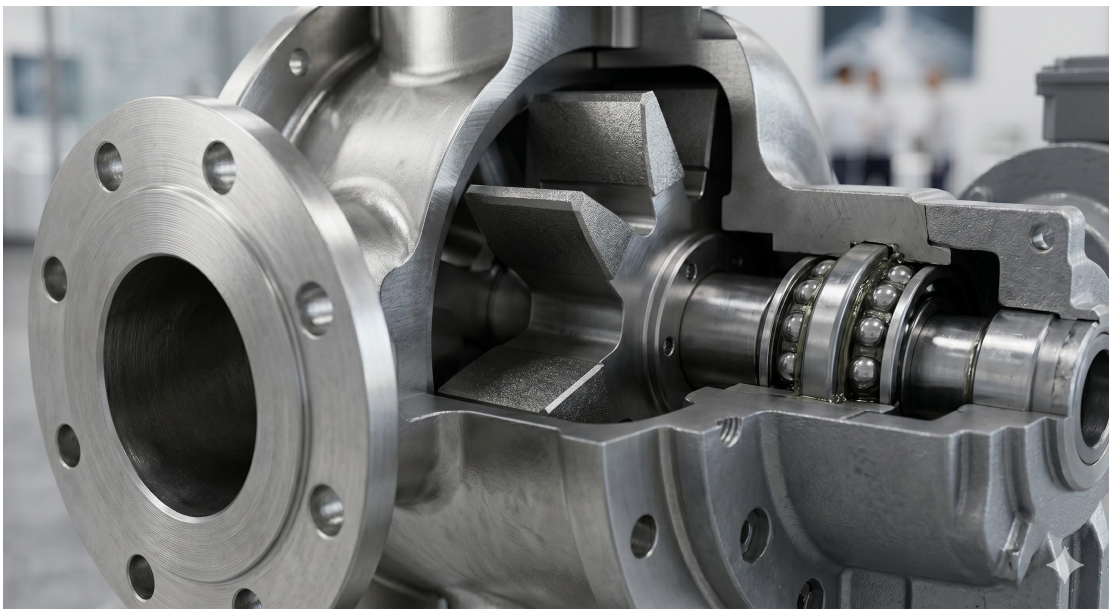
INDUSTRIAL DEPLOYMENT

Typical materials handled (from Doebritz documented applications):

- Food: Coffee, chocolate, flour, milk powder, protein powder, whey powder, spices, salt, bakery premixes.

- Pharmaceutical: Antibiotic powder, vitamin powder, lyophilized vaccine powder, probiotic powder, microcrystalline cellulose, lactose.

- Chemical, New Energy, Materials: Carbon black, PE/PP pellets, PTA, lithium battery ternary cathode and graphite anode materials, silicon powder, petroleum coke, titanium dioxide, pigments, fertilizer, fine chemicals.



Doebritz provides full engineering support: application assessment, custom sizing, material selection, flange adapters, and after-sales service. The DBR-1237 series is a proven, reliable asset for modern food, pharma, chemical, and new-energy production lines.