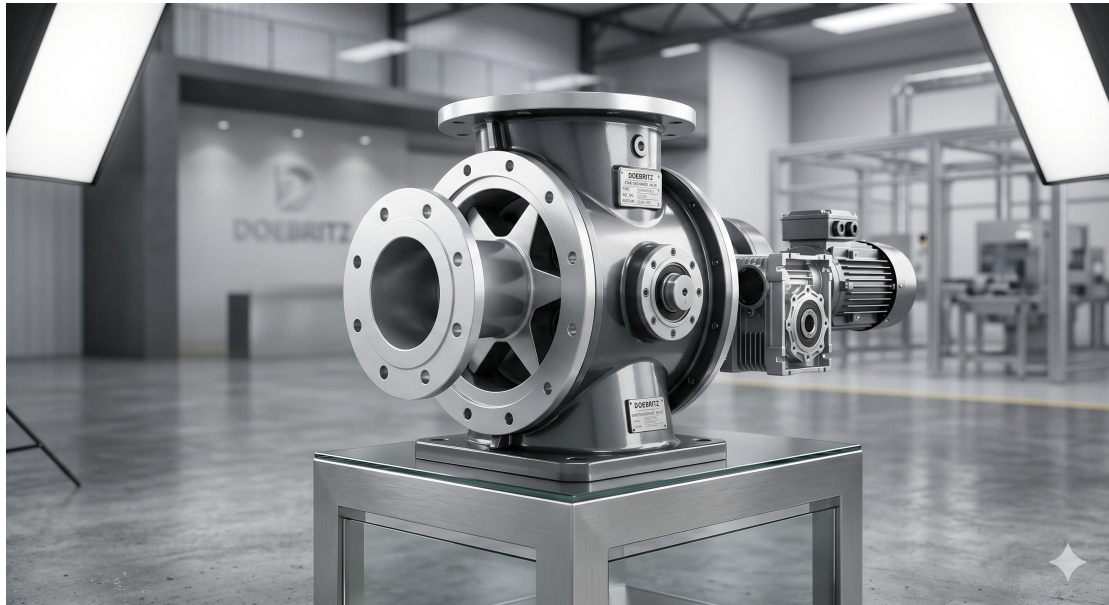


Doebritz Corn flour Star discharge valve - Official Technical Overview & Datasheet

DOEBRITZ CORN FLOUR STAR DISCHARGE VALVE - OFFICIAL TECHNICAL OVERVIEW & DATASHEET

EXECUTIVE SUMMARY

Doebritz presents the Quick-release rotary valve (Star discharge valve / Airlock feeder) specifically engineered for corn flour, corn starch, and associated grain-based powder handling. Designed for gravity discharge, pneumatic conveying, and batch metering applications in food processing facilities, this valve integrates rapid tool-less disassembly, precision rotor-to-housing clearance control (0.1–0.2mm), and full hygienic compliance. The DBR-1237 platform supports SUS304 / SUS316L metallurgy, CIP/WIP cleaning protocols, and ATEX Zone 20/21/22 readiness, ensuring uninterrupted operation under both positive pressure (<0.4 bar to 1 bar) and negative pressure (-1 bar to -0.4 bar) regimes.



HOUSING & ROTOR METALLURGY

- Base materials: SUS304, SUS316L (food-contact surfaces)
- Alternative: Carbon steel painted, carbon steel nickel-plated for non-contact structural components
- Wear-resistant options: Stainless steel with tungsten carbide coating, PE, PTFE, PA, ceramic coating, polymer lining
- Internal surface finish: Mirror finish, $R_a \leq 0.4/0.8/1.6 \mu\text{m}$
- External surface finish: Carbon steel painted, sandblasted, shot blasted, anti-fingerprint treatment, machined surface $< 0.8 \mu\text{m}$
- Flange standard: HG20592 (DN50, DN100, DN150, DN200, DN300, DN350)

KEY FEATURES

- Feature 1: Quick-release structure – No special tools required for disassembly, enabling rapid manual cleaning, CIP, or WIP protocols. Minimizes downtime and prevents cross-contamination between corn flour batches.
- Feature 2: Precision airlock sealing – Rotor-to-housing clearance 0.1–0.2mm drastically reduces air leakage, stabilizing pneumatic conveying and ensuring accurate volumetric metering.
- Feature 3: Food-grade hygienic compliance – SUS316L mirror-polished internals, compatible with Class W, 10W, 30W, Class C, and Class D cleanrooms. Supports GMP validation.
- Feature 4: Explosion protection – ATEX Zone 20/21/22 certified configurations available, with pressure rating up to 16 bar for flameproof / explosion-proof variants. Explosion-proof motor and precision gap as standard.
- Feature 5: Variable frequency drive ready – PLC integration enables batch metering, recipe metering, automated batching, and flow rate adjustment for corn flour from fine powder to granular consistencies.

COMPLIANCE & SAFETY STANDARDS

- CE certified, TÜV certified, Statement certification
- ATEX Zone 20/21/22 (compliant with Zone 20/21/22 explosion-proof requirements)
- Flameproof type: Pressure rating 16 bar, rotor-to-housing clearance 0.1 –

0.2mm, explosion-proof motor, HG20592 flange

- Hygienic design meets EU food contact material regulations
- Temperature range: Ambient -15°C to 60°C, Material 0°C to 120°C
- Optional water cooling jacket for elevated material temperatures

TECHNICAL SPECIFICATIONS

- Positive pressure conveying: Low pressure <0.4 bar; High pressure 0.4–1 bar (VFD control)
- Negative pressure conveying: Low pressure > -0.4 bar; High pressure -1 to -0.4 bar (VFD control)
- Gravity discharge: Adjustable speed, no leakage, no powder leakage, flow rate adjustable
- Metering control: VFD speed control, PLC control, automated control, batch metering, recipe metering, automated batching
- Shaft seal: Lip seal air-tight seal / Packing seal
- Cleanability: Manual cleaning after quick-release disassembly, Online CIP cleaning, Online WIP cleaning followed by manual inspection

Parameter	Specification
Capacity / Volume	Based on DN50 to DN350 interface; volumetric efficiency per rotor

	configuration (contact Doebritz for exact L/rev values)
Flange Standard	HG20592 DN50 / DN100 / DN150 / DN200 / DN300 / DN350 (ANSI / DIN compatible adapters available on request)
Drive Configuration	Chain drive / Direct drive; VFD-ready; explosion-proof motor optional
Rotor-to-Housing Clearance	0.1–0.2 mm (standard precision gap)
Pressure Rating	Positive: <0.4 bar (low) / 0.4 – 1 bar (high, VFD); Negative: >-0.4 bar (low) / -1 to -0.4 bar (high, VFD); Flameproof type: 16 bar
Temperature Range	Ambient: -15°C to 60°C; Material: 0°C to 120 ° C (water cooling jacket optional)
Shaft Seal Type	Lip seal air-tight seal / packing seal
Cleaning Methods	Quick-release manual cleaning / Online CIP / Online WIP + manual inspection
Surface Finish (Internal)	Mirror finish, Ra ≤ 0.4/0.8/1.6 μ m, optional wear coatings

Certifications	CE, TÜV, Statement, ATEX Zone 20/21/22 (compliant), NFPA (on request)
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INDUSTRIAL DEPLOYMENT – CORN FLOUR APPLICATIONS

- Corn flour pneumatic conveying (positive pressure dilute / dense phase)
- Gravity discharge from storage silos or hoppers to packaging lines
- Automated batch mixing systems for tortilla, snack, or bakery production
- Corn starch metering for modified starch or sweetener processes
- Gluten-free flour blending lines requiring rapid changeover and wash-down

TYPICAL MATERIALS HANDLED (from Doebritz documented matrix):

- Corn flour, wheat flour, rice flour, starch, whole/skim milk powder, protein powder, whey powder, soy protein powder, spices (chili powder, pepper powder, five-spice powder), salt, compound seasonings, baking ingredients, grains, oat flakes, biscuits.



Doebritz recommends full plant integration assessment including rotary valve sizing, drive selection (direct or chain drive), purge air interface logic (if required for sticky corn flour), and explosion isolation strategy. All specifications align with Doebritz internal DBR-1237 technical ledger and verified manufacturing tolerances.