

Doebritz Baking Products Star Discharge Valve - Official Technical Overview & Datasheet

DOEBRITZ BAKING PRODUCTS STAR DISCHARGE VALVE

OFFICIAL TECHNICAL OVERVIEW & DATASHEET

EXECUTIVE SUMMARY

Doebritz presents the Quick-release rotary valve (Star discharge valve / Airlock feeder) specifically configured for baking products handling. Engineered for flour, cocoa, sugar, starch, powdered eggs, milk powder, and other hygroscopic or fine-grained baking ingredients, this valve combines rapid disassembly for batch changeover, precision air sealing to preserve product consistency, and full compliance with food-grade hygiene standards. The DBR-1237 platform supports both gravity discharge and pneumatic conveying modes, serving industrial bakeries, premix plants, and ingredient processing lines.



HOUSING & ROTOR METALLURGY

The body and rotor are manufactured from SUS304 or SUS316L stainless steel as standard, with carbon steel options for non-corrosive dry ingredients. Internal surfaces are finished to $Ra \leq 0.8 \mu m$ (mirror finish available at $Ra \leq 0.4 \mu m$) to prevent dough or fat adhesion and enable rapid cleaning. For abrasive baking ingredients such as crystalline sugar or salt, the rotor and housing interior can be coated with tungsten carbide or ceramic layers. The rotor-to-housing clearance is precisely controlled between 0.1 mm and 0.2 mm, minimizing air leakage while preventing rotor jamming from sticky or moist powders.

KEY FEATURES

- Quick-release disassembly: No special tools required for rotor extraction, enabling manual cleaning, CIP (Clean-in-Place), or WIP (Wash-in-Place) between production batches.
- Precision airlock sealing: Reduced air leakage ensures stable pneumatic conveying and preserves volatile baking aromas or moisture-sensitive powders.
- Hygienic finish: Internal mirror polishing ($R_a \leq 0.4 \mu\text{m}$) and crevice-free design eliminate contamination risks, supporting GMP and HACCP protocols.
- ATEX-ready configuration: Zone 20/21/22 dust explosion protection available, with pressure shock resistance up to 16 bar for flameproof/explosion-proof variants.
- Variable frequency drive (VFD) ready: PLC-integrated speed control for batch metering, recipe formulation, and automated 配料 (batching).
- Water-cooled jacket option: Maintains material temperature below 60°C for heat-sensitive baking powders, chocolate, or enzyme-enriched flour.

COMPLIANCE & SAFETY STANDARDS

All Doebritz baking product rotary valves comply with CE and TÜV certifications. Hygienic designs meet Class 10W, Class 30W, Class C, and Class D cleanroom requirements. Explosion-proof variants conform to ATEX Directive 2014/34/EU for Zone 20 (dust), Zone 21, and Zone 22. The valve design adheres to EHEDG guidelines for easy cleaning and FDA-compliant material contact surfaces.

External surfaces feature anti-fingerprint treatment or carbon steel painted finish as specified.

TECHNICAL SPECIFICATIONS

Material of construction: SUS304, SUS316L, carbon steel painted, carbon steel nickel-plated. Wear-resistant coatings: tungsten carbide, ceramic, PTFE, PE, PA, or polymer coatings. Flange standards: HG20592 (DN50, DN100, DN150, DN200, DN300, DN350). Operating temperature range: Ambient -15°C to +60°C; material 0°C to 120°C. Pressure range – Positive conveying: low pressure <0.4 bar; high pressure 0.4 to 1 bar. Negative conveying: low pressure > -0.4 bar; high pressure -1 bar to -0.4 bar. Gravity discharge: adjustable flow, no leakage. Shaft seals: lip seal air-tight seal (gas purged). Cleaning methods: manual cleaning after quick-release disassembly, online CIP, or online WIP with manual inspection.

Parameter	Specification
Rotor-to-Housing Clearance	0.1 mm – 0.2 mm
Flange Standards	HG20592 (DN50, DN100, DN150, DN200, DN300, DN350) / Custom ANSI/DIN on request
Surface Finish (Internal)	Ra ≤ 0.8 μm (standard), Ra ≤ 0.4 μm

	m (mirror / hygienic)
Pressure Rating	Up to 1 bar (positive), down to -1 bar (vacuum); explosion-proof: 16 bar shock resistance
Temperature Range	Ambient -15°C to +60°C; Material 0°C to 120 ° C (water cooling jacket optional)
Shaft Seal Type	Lip seal with air purge (gas-tight)
Materials (Contact Parts)	SUS304 / SUS316L / Carbon steel nickel-plated / Tungsten carbide coating / PTFE / PE / PA / Ceramic
Cleaning Options	Quick-release manual cleaning, online CIP, online WIP + manual inspection
ATEX Certification	Zone 20 / 21 / 22 (dust), flameproof housing up to 16 bar
Hygienic Compliance	Class 10W / 30W / C / D cleanroom, EHEDG design, FDA-compatible

INDUSTRIAL DEPLOYMENT

The Doebritz baking products star discharge valve is deployed in flour milling

feeding lines, premix ingredient dosing stations, sugar pulverizing conveying systems, cocoa powder pneumatic transfer, milk powder bagging lines, and starch discharge under silos. Its quick-release design reduces product changeover downtime from hours to minutes, directly improving OEE (Overall Equipment Effectiveness) in high-mix, low-to-medium-volume baking ingredient facilities.

