

Doebritz PA Star discharge valve - Official Technical Overview & Datasheet

PRODUCT IDENTIFICATION

Doebritz PA Star discharge valve (Model Series DBR-1237) is a precision-engineered rotary airlock and metering device for gravity-fed powder and bulk solids handling. Designed for hygienic, chemical, and industrial process lines, the PA Star discharge valve combines quick-release maintenance access, close rotor-to-housing clearance for air sealing, and full material traceability.



INTERNAL AIRLOCK TOPOLOGY

The PA Star discharge valve operates on a multi-vane rotor principle. Material enters the top flange, fills the rotor pockets, and discharges at the bottom

flange while the rotor vanes maintain a dynamic seal against the valve housing. The precision gap (0.1–0.2 mm) between rotor tips and housing bore minimizes air leakage across the pressure differential, preserving pneumatic conveying efficiency and preventing system pressure loss.

WEAR DEFENSE MECHANISMS

- Housing and rotor base material: SUS304, SUS316L, or carbon steel (painted or nickel-plated).
- Abrasion-resistant coatings: Tungsten carbide coating, ceramic coating, or polymer lining (PE, PTFE, PA).
- Surface finish options: Inner surface $R_a \leq 0.4/0.8/1.6 \mu\text{m}$ or mirror polish for non-stick, low-friction material flow.
- Bearing isolation: Outboard bearing configuration with lip-type air-tight shaft seals, protecting bearings from dust ingress.

OPERATIONAL ADVANTAGES

- Quick-release clamp or bolt system: No special tools required for disassembly, enabling rapid manual cleaning, CIP, or WIP.
- Low air leakage: Precision rotor-to-housing clearance (0.1–0.2 mm) reduces cross-contamination and energy waste.

- ATEX ready: Configurable for Zone 20, 21, 22 with explosion-proof motor and pressure rating up to 16 bar.
- Hygienic compliance: Suitable for Class 10W, 30W, C/D cleanrooms and GMP environments when specified with 316L mirror finish.
- Variable frequency drive (VFD) ready: Speed adjustable for flow control, batch metering, recipe dosing, and PLC automation.

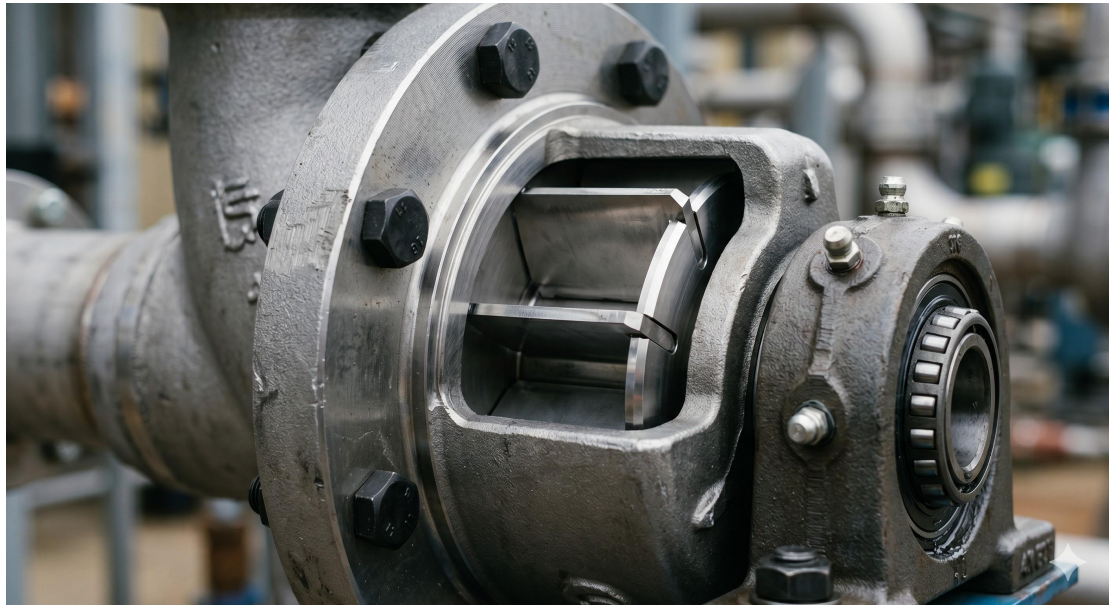
REGULATORY COMPLIANCE

Doebritz PA Star discharge valve is certified to CE, TÜV, and Statement standards, meeting EU and international machinery, safety, and ATEX directives.

TECHNICAL SPECIFICATIONS

Parameter	Specification
Capacity (per revolution)	Determined by size: DN50 to DN350 (volumetric output varies with rotor pocket geometry)
Rotor-to-housing clearance	0.1 – 0.2 mm
Pressure rating (explosion-proof)	16 bar (隔爆/防爆 type)
Material temperature range	0°C to 120°C (optional water cooling jacket available)

Ambient temperature range	-15°C to 60°C
Housing / rotor materials	SUS304, SUS316L, carbon steel painted, carbon steel nickel-plated
Wear protection coatings	Tungsten carbide, ceramic, PE, PTFE, PA, polymer lining
Flange standard	HG20592 (DN50, DN100, DN150, DN200, DN300, DN350)
Shaft sealing	Lip-type air-tight seal (气密封)
ATEX zones	Zone 20, 21, 22 (configurable)
Cleanroom classes	Class W, 10W, 30W, C, D
Certifications	CE, TÜV, Statement
Drive & control	VFD ready, PLC integration, batch/recipe metering, automated batching



INDUSTRIAL DEPLOYMENT

PA Star discharge valves are deployed in gravity discharge, dust collection, pneumatic conveying, and metering applications across:

- Food & beverage: Coffee, flour, milk powder, spices, salt, protein powders, starch, chocolate, grains.
- Pharmaceutical: Antibiotic powders, vitamin powders, vaccine lyophilized powders, probiotic powders, lactose, microcrystalline cellulose.
- Chemical & petrochemical: Carbon black, PE/PP pellets, PTA, titanium dioxide, pigments, fertilizers.
- New energy & advanced materials: Lithium battery cathode/anode materials, silicon powder, graphite, petroleum coke powder.

CLEANING COMPATIBILITY

- Manual cleaning after quick-release disassembly.
- Online CIP (Clean-in-Place).
- Online WIP (Wash-in-Place) followed by manual inspection.