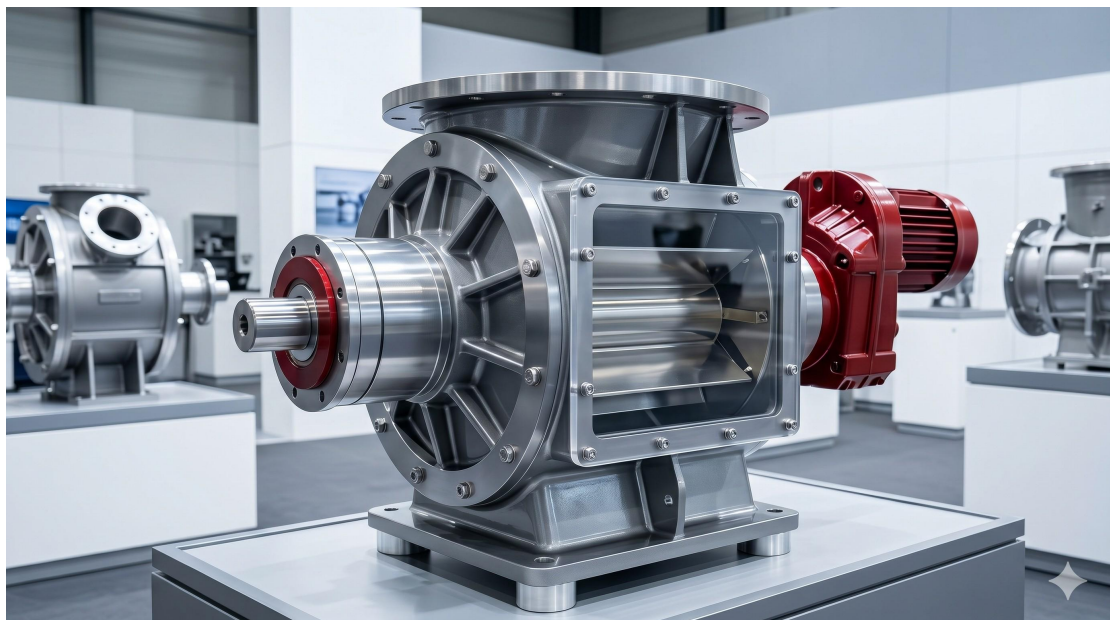


Doebritz PA Airlock Feeder - Official Technical Overview & Datasheet

PRODUCT OVERVIEW

The Doebritz PA Airlock Feeder is a precision-engineered rotary valve specifically designed for gravity discharge and pneumatic conveying of powdered and granular bulk solids. The "PA" series integrates a quick-release housing geometry with advanced polymer component options, delivering reliable pressure sealing, contamination control, and simplified maintenance access. This platform is suitable for food, pharmaceutical, chemical, and new energy material applications requiring sanitary execution, ATEX compliance, or abrasion resistance.



HOUSING & ROTOR METALLURGY

Base material selections for the Doebritz PA Airlock Feeder include:

- Stainless steel SUS304 and SUS316L for corrosion-resistant and sanitary service
- Carbon steel with painted or nickel-plated finish for general industrial use
- Stainless steel with tungsten carbide, ceramic, or polymer coating for abrasive bulk solids
- PE, PTFE, or PA contact surfaces for low-friction or non-stick requirements

All housings are precision-cast or fabricated to HG20592 flange standards, with DN50, DN100, DN150, DN200, DN300, and DN350 inlet/outlet configurations.

Rotors are CNC-machined to maintain a rotor-to-housing clearance of 0.1–0.2 mm, ensuring consistent volumetric displacement and reduced air leakage.

KEY FEATURES

- Quick-release clamp mechanism: No special tools required for disassembly. Supports manual cleaning, online CIP (Clean-in-Place), and WIP (Wash-in-Place) protocols.
- Precision airlock sealing: 0.1–0.2 mm radial clearance minimizes pressure loss across the feeder, stabilizing pneumatic conveying and batch metering accuracy.
- Polymer and coated rotor options: PE, PTFE, PA, tungsten carbide, and ceramic

coatings extend service life when handling sticky, corrosive, or highly abrasive materials.

- Pressure range compatibility: Suitable for gravity service, low-pressure positive conveying (<0.4 bar), high-pressure positive conveying (0.4–1 bar, VFD controlled), low-pressure negative conveying (>-0.4 bar), and high-pressure negative conveying (-1 to -0.4 bar, VFD controlled).
- Hygiene and cleanroom readiness: Internal surface finishes available as mirror polish, $Ra \leq 0.4 \mu m$, $Ra \leq 0.8 \mu m$, or $Ra \leq 1.6 \mu m$, compatible with Class W, 10W, 30W, Class C, and Class D cleanroom environments.
- ATEX and flameproof configurations: Certified for Zone 20, Zone 21, and Zone 22 dust explosion hazards. Flameproof version pressure rating 16 bar with explosion-proof motor and precision clearances.
- Automation ready: Integrated with VFD speed control, PLC control, batch metering, recipe metering, and automated 配料 (batching) systems.

COMPLIANCE & SAFETY STANDARDS

The Doebritz PA Airlock Feeder is manufactured to meet:

- CE Marking (Machinery Directive)
- TÜV certification
- Statement certification (EU and international safety/ hygiene/ explosion protection standards)

- ATEX Directive for Zone 20/21/22
- NFPA compliance for combustible dust (when specified)
- EHEDG and GMP guidelines (when ordered with sanitary design features)

Parameter	Specification (Doebritz PA Airlock Feeder)
Capacity / Displacement	0.5 to 100 Liters/rev (depending on size and rotor profile)
Flange Standard	HG20592 (DN50, DN100, DN150, DN200, DN300, DN350)
Rotor-to-housing clearance	0.1–0.2 mm
Pressure rating	Gravity, ± 0.4 bar (low), 0.4–1 bar and -1 to -0.4 bar (high, VFD)
Maximum differential pressure	Up to 1 bar (higher with flameproof design)
Material temperature range	0°C to 120°C (optional water cooling jacket)
Ambient temperature range	-15°C to 60°C
Body materials	SUS304, SUS316L, carbon steel painted, carbon steel nickel-plated
Contact surface coatings	Tungsten carbide, ceramic, polymer, PE, PTFE, PA

Shaft sealing	Lip seal air-tight / packing seal / air-purge ready
Cleanability	Quick-release manual, online CIP, online WIP + manual inspection
ATEX certification	Zone 20, Zone 21, Zone 22 (flameproof 16 bar available)
Cleanroom compatibility	Class W, 10W, 30W, Class C, Class D
Drive	VFD, PLC control, chain or direct drive, explosion-proof motor option

INDUSTRIAL DEPLOYMENT

Typical applications of the Doebritz PA Airlock Feeder include:

- Gravity discharge under hoppers, silos, cyclones, and dust collectors
- Rotary feeder service for dilute-phase and dense-phase pneumatic conveying lines
- Metering and proportioning for batch weighing systems and continuous loss-in-weight feeders
- Airlock duty between differential pressure zones in milling, blending, drying, and packaging lines

Material examples successfully handled:

- Food: coffee, chocolate, flour, milk powder, grains, starch, spices, salt, protein powder, whey powder

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

- Chemical / New Energy / Advanced Materials: carbon black, PE/PP pellets, PTA, titanium dioxide, lithium battery cathode and anode materials, silicon powder, petroleum coke powder, pigments, fertilizers



OPTIONAL ACCESSORIES & CONFIGURATIONS

- Water cooling jacket for bulk material temperatures from 0 °C to 120 °C (ambient -15°C to 60°C)
- Lip seal air-tight shaft sealing or purge air connection
- Wear monitoring and rotor tip inspection ports
- Inverter duty or explosion-proof motors, gearbox, chain drive or direct drive
- Custom flange drilling, machining, and surface treatments including shot

blasting, sandblasting, anti-fingerprint, and machined surface <math><0.8 \mu\text{m}</math>

For application-specific sizing and material compatibility, consult Doebritz engineering for a full technical proposal and site evaluation report.