Doebritz Direct-drive Rotary Valve - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The Doebritz Direct-drive Rotary Valve represents a paradigm shift in precision bulk solids handling. Designed for continuous duty in pneumatic conveying and volumetric metering applications, this platform eliminates traditional gearbox backlash and maintenance overhead by coupling the rotor directly to a low-speed, high-torque drive train. The result is a compact, highly responsive airlock with superior volumetric efficiency and extended mean time between failures (MTBF) for demanding process environments.

HOUSING & ROTOR METALLURGY

The valve body is constructed from close-grained cast ductile iron (GGG-40.3)

or investment-cast 316L stainless steel for aggressive chemical and food-grade applications. All product-contact surfaces achieve a surface finish of Ra ≤ 0.8 µm. The rotor features a closed-end, heavy-duty vane design with precision-machined tips. Optional tungsten carbide hard facing and chrome plating are available for abrasive bulk solids such as cement, fly ash, and mineral powders. Each rotor is dynamically balanced to ISO 1940 G-6.3 to ensure vibration-free operation even at elevated differential pressures up to 2.5 bar(g).

KEY FEATURES

- Direct-drive Architecture: Zero-backlash torque transmission with integrated IEC or NEMA C-face motor adapter, eliminating chain/sprocket wear and improving positioning accuracy.
- Isolated Outboard Bearing Supports: Four-point contact ball bearings located entirely outside the product zone, preventing contamination and enabling dry-run capabilities.
- Precision Rotor-to-Housing Clearances: Factory-set radial clearances from 0.10 mm to 0.25 mm (selectable) to optimize leakage control vs. non-jamming operation for specific particle sizes.
- Purged Lantern Ring Seals: Double lip seals with a purgeable interstitial chamber and grease fittings, compliant with API 619 and EHEDG hygienic

standards when using FDA-approved lubricants.

- Drop-Through & Blow-Through Configurations: Same robust housing accepts either drop-through (gravity inlet) or blow-through (pneumatic line) end plates, reducing spare part inventories.

COMPLIANCE & SAFETY STANDARDS

All Doebritz Direct-drive Rotary Valves are manufactured under ISO 9001:2024. Standard valve series are certified for ATEX Zone 22 (dust) internal / Zone 2 external. An Explosion Containment (EC) version is available with reinforced housing, flameless venting ports, and third-party certification to NFPA 69 for differential pressures up to 10 bar(g). The valve also meets EC Machinery Directive 2006/42/EC and FDA 21 CFR compliance for food-contact materials.

TECHNICAL SPECIFICATIONS

Parameter	**Specification**
Capacity / Volume	2.5 to 100 Liters/rev (standard range)
Flange Standard	DIN PN10 / ANSI 150# / JIS 10K
Drive Configuration	Direct-drive, IEC/NEMA C-face motor, 0.55 – 15 kW
Max Differential Pressure	2.5 bar(g) standard; up to 10 bar(g) EC

	version
Temperature Range	-20 ° C to +250 ° C (with high-temp seals)
Material Options	Ductile iron, 316L SS, Hastelloy C-22
Surface Finish	Ra ≤ 0.8 μm (food/pharma grade Ra ≤ 0.4 μm)
Certifications	ATEX Zone 22, NFPA 69, FDA, EC 1935/2004

INDUSTRIAL DEPLOYMENT

The Direct-drive Rotary Valve is suitable for free-flowing and moderately cohesive powders, granules, and pellets across multiple sectors. Typical installations include: dilute-phase pneumatic conveying systems as a rotary feeder or airlock under silos, volumetric batching for plastics compounding, dust collector discharge under cyclones or baghouses, and loss-in-weight feeding systems where precise rotational speed control (via integrated VFD) is required. The valve ' s compact axial length (reduced by 30% compared to geared units) allows retrofitting into existing pipework with minimal plant redesign.