

Doebritz Quick-Release Rotary Valve - Official Technical Overview & Datasheet

PRODUCT OVERVIEW: MACHINERY DIRECTIVE COMPLIANCE DECLARATION

Doebritz presents this comprehensive Technical Overview and Datasheet for the DBR-1237 Quick-Release Rotary Valve series. This document serves as the official reference for engineering specification, performance validation, and regulatory adherence, specifically addressing the Machinery Directive compliance declaration framework. Engineered for high-integrity bulk solids handling, the DBR-1237 platform integrates precision mechanical design with certified safety systems to meet the stringent requirements of global industrial standards.



HOUSING & ROTOR METALLURGY

The DBR-1237 rotary valve is constructed from a robust selection of materials to ensure longevity and process compatibility. The housing and rotor are precision machined from high-grade materials including SUS304 and SUS316L austenitic stainless steels, as well as painted or nickel-plated carbon steel. For applications involving highly abrasive or corrosive media, the contact surfaces can be specified with advanced wear-resistant coatings such as Tungsten Carbide (HVOF), Ceramic, or engineered polymers (PE, PTFE, PA). The internal surface finish is meticulously controlled, with standard Ra values of 0.8 μm and options for mirror-polished ($\text{Ra} \leq 0.4 \mu\text{m}$) finishes to facilitate superior cleanability and product release.

KEY FEATURES

- Quick-Release Clamp System: Enables rapid tool-less disassembly and reassembly, significantly reducing downtime for manual cleaning, inspection, and maintenance. This design supports CIP and WIP cleaning protocols, eliminating dead zones to prevent cross-contamination.
- Precision Rotor-to-Housing Clearance: The critical operational gap is maintained within a tolerance of 0.1 to 0.2 mm. This precision ensures optimal air sealing (lock-up) and volumetric efficiency, minimizing pressure bleed and power consumption in pneumatic conveying systems.
- Robust Shaft Sealing: Features a lip seal with air purge connection to create a positive pressure barrier. This prevents process material ingress into the bearing

housing and gearbox, protecting critical components from wear and contamination.

- Wide Pressure Range Capability: The DBR-1237 is engineered for versatile service, capable of handling low-pressure (< 0.4 bar) and high-pressure (up to 1 bar) pneumatic conveying, as well as vacuum applications down to -1 bar. This adaptability makes it suitable for dilute and dense phase conveying, as well as simple gravity discharge.

- Explosion-Proof Configuration: Certified for use in potentially explosive atmospheres, covering Zone 20, 21, and 22 for dust, and including ATEX-compliant configurations. The housing is pressure shock resistant up to 16 bar, with a flameproof design (Ex d) and anti-static rotor assemblies.

COMPLIANCE & SAFETY STANDARDS

The Doebritz DBR-1237 series is designed, manufactured, and tested in full compliance with the essential health and safety requirements of the European Machinery Directive 2006/42/EC. Declaration of Conformity is available for all standard and custom configurations.

- Certified by TÜV and bearing the CE mark, confirming conformity with all applicable European standards.

- Full compliance with ATEX Directive 2014/34/EU for equipment intended for

use in potentially explosive atmospheres. Available with certification for gas and dust groups, ensuring safe operation in hazardous zones.

- Conforms to NFPA 69 and NFPA 654 standards for explosion prevention systems, providing critical safety for installations in the North American market.
- Hygienic design compliant with EHEDG guidelines and FDA regulations, suitable for food, pharmaceutical, and other sanitary process industries, ensuring product purity and traceability.

TECHNICAL SPECIFICATIONS

The following performance parameters are verified during factory acceptance testing (FAT) to ensure compliance with the Machinery Directive's requirements for reliability and safety.

Parameter	Specification (DBR-1237)
Nominal Sizes (DN)	DN50, DN100, DN150, DN200, DN300, DN350
Body & Rotor Materials	SUS304, SUS316L, Carbon Steel (painted/nickel-plated)
Wear Protection (Coating)	Tungsten Carbide, Ceramic, Polymer (PE, PTFE, PA)
Surface Finish (Internal)	Ra ≤ 0.8 μm (Standard), Ra ≤ 0.4 μ

	m (Mirror Polish)
Rotor-to-Housing Clearance	0.1 - 0.2 mm
Max. Operating Pressure	16 bar (Pressure Shock Resistant)
Temperature Range (Process)	0°C to +120°C (Material)
Shaft Seal Type	Lip Seal with Air Purge / Gas Barrier
Drive Options	Direct Drive, Chain Drive, Variable Frequency Drive (VFD)
Explosion Protection	ATEX Zone 20, 21, 22 (Ex h, Ex d) / NFPA Compliant

INDUSTRIAL DEPLOYMENT

The DBR-1237 is a universal solution for powder and bulk solids handling, deployed across a diverse range of critical industries. Its robust design and certified safety features make it an indispensable asset for:

- ****Food & Beverage:**** Safe handling of ingredients like flour, sugar, milk powder, spices, and coffee, with quick-release and CIP-ready designs to meet strict hygiene standards.
- ****Pharmaceutical:**** Process-critical applications involving APIs, excipients, and biologics, where contamination control and validated cleaning are

paramount. Suitable for Class C/D and 10W/30W cleanroom environments.

- **Chemical & Petrochemical:** Reliable service with abrasive, corrosive, and explosive materials such as carbon black, pigments, PTA, and various polymer pellets. The anti-wear coatings and ATEX-rated configurations provide durability and safety.

- **Energy & New Materials:** Essential for conveying battery materials (lithium-ion cathode/anode), silicon powder, and other advanced materials, ensuring process stability and purity.

