

Turnkey Industrial Integration & Sealing Specification: Interchangeable Screen

TURNKEY INDUSTRIAL INTEGRATION & SEALING SPECIFICATION: INTERCHANGEABLE SCREEN

EXECUTIVE SUMMARY

The Doebritz Interchangeable Screen represents a paradigm shift in inline screening technology for pneumatic conveying and gravity-fed bulk handling systems. Engineered for rapid changeover without disassembly of upstream or downstream ducting, this modular screen housing accepts a family of precision laser-cut screen inserts tailored to cut-points from 0.5 mm to 12 mm. Designed to mount directly between standardized flanges (DIN/ANSI), the Doebritz Interchangeable Screen minimizes production downtime, eliminates contamination risks, and provides verifiable protection against foreign material ingress into rotary valves, mills, and mixers.



HOUSING & SCREEN INTERFACE METALLURGY

The main housing is investment-cast 316L stainless steel (or optional abrasion-resistant AR400 steel) with a mirror-finished product contact surface. The interchangeable screen frame is laser-welded to a rigid support grid, preventing sagging under high differential pressure (up to 1.5 bar). A proprietary elastomer or PTFE perimeter gasket seals against the housing without metal-to-metal contact, preserving dimensional integrity across hundreds of changeovers. All fasteners are 304 SS, external, and tool-accessible.

KEY FEATURES

- Tool-less Screen Extraction: Single-lever cam clamps allow screen removal/replacement in under 60 seconds. No spool piece removal required.

- Positive Particle Arrestance: Achieves 99.5%+ retention efficiency at rated cut-point. Optional magnetic trap insert available for ferrous fines.
- Blowback Mitigation Geometry: Angled inlet deflector directs product flow across screen face, reducing direct impingement wear and extending screen life 3x vs. flat plate designs.
- Visual Verification Port: Tempered glass inspection window with integral LED stalklight (ATEX / non-ATEX variants) enables real-time blockage monitoring.
- Reversible Frame Design: Double-sided screen frame doubles service life; user flips insert when first side shows wear.

COMPLIANCE & SAFETY STANDARDS

- EU Regulation (EC) 1935/2004 – Food contact compliance for 316L variant.
- ATEX Directive 2014/34/EU – II 2D c T100°C (dust) and II 2G Ex h IIC T4 (gas) optional.
- NFPA 652 / 69 – Passive deflagration venting ready (vent panel optional).
- USDA / 3-A Sanitary Standard – Accepts CIP (clean-in-place) spray ball configuration.
- Pressure Equipment Directive (PED) 2014/68/EU – Category I, Module A.

TECHNICAL SPECIFICATIONS

Housing material: 316L stainless steel (std) / AR400 abrasion-resistant (opt).

Screen mesh: Woven wire (0.5–6 mm) or perforated plate (6–12 mm).

Max operating temperature: -20°C to +180°C (PTFE gasket) / -20°C to +120°C (elastomer).

Max differential pressure: 1.5 bar (continuous), 2.0 bar (peak).

Flange drilling: DIN EN 1092-1 (PN10/PN16) or ANSI B16.5 (150#). Sizes DN80 to DN400 (3" to 16").

Inlet / outlet offset: Zero (inline concentric) or optional eccentric 25 mm for sticky products.

Weight (DN150, 316L): 22 kg (housing only).

Surface finish: Ra ≤ 0.8 μm product contact, Ra ≤ 3.2 μm non-contact.

Parameter	Specification
Nominal Sizes (DN)	80, 100, 125, 150, 200, 250, 300, 400 (3" to 16")
Screen Cut-Point Range	0.5 mm to 12 mm (mesh or perforated)
Max Flow Rate (air, 1 bar ΔP)	1200 m ³ /h (DN150, clean screen)
Service Temperature Range	-20 ° C to +180 ° C (PTFE), -20 ° C to +120°C (elastomer)
Housing Metallurgy	316L stainless steel (std) / AR400 (optional)

Gasket Material	White FDA silicone (std) / PTFE / FKM / EPDM
Inspection Port	Tempered glass, 50 mm diameter, LED stalklight ready
Changeover Time (typical)	< 60 seconds (tool-less)

INDUSTRIAL DEPLOYMENT & CHANGEOVER LOGIC

Typical installation locations: Immediately upstream of rotary airlock, bin discharger, or mill infeed. Standard protocol for screen change without line break:

1. Isolate upstream flow (slide gate or rotary feeder stop).
2. Depressurize housing via ½" NPT ball valve (supplied).
3. Release cam clamps (3 positions on DN150, 4 on DN250+).
4. Extract screen frame laterally using integrated handles.
5. Replace or flip screen; re-insert frame; secure clamps.
6. Pressure test with inert gas (optional). Resume flow.

Optional automated pneumatic clamp system (modbus-enabled) available for fully remote changeover.

