

## Doebritz Clamp Ring for Screen - Official Technical Overview & Datasheet

### DOEBRITZ CLAMP RING FOR SCREEN

#### ENGINEERING SUMMARY

The Doebritz Clamp Ring for Screen is a precision-engineered retention and sealing component designed for rapid, tool-less screen changes in pneumatic conveying, gravity chute, and rotary valve discharge applications. Manufactured from forged or investment-cast stainless steel or carbon steel, the clamp ring provides uniform radial compression of the screen gasket stack, eliminating bypass leakage and preventing media migration. Rated for differential pressures up to 3.5 bar (50 psi) and temperatures from  $-20^{\circ}\text{C}$  to  $+260^{\circ}\text{C}$  depending on elastomer selection, the Doebritz clamp ring ensures process integrity, operator safety, and minimal maintenance downtime.



## HOUSING & ROTOR METALLURGY INTEGRATION

The clamp ring interfaces directly with Doebritz rotary valve housings, diverter flanges, and line strainer bodies. Mating surfaces are CNC-machined to  $Ra \leq 1.6 \mu\text{m}$  finish, ensuring gas-tight sealing when paired with Doebritz PTFE, FKM, or EPDM encapsulated gaskets. Standard metallurgies include ASTM A351 CF8M (316 stainless steel), WCB carbon steel with electroless nickel plating, and duplex stainless steel for aggressive chemical environments. Each clamp ring is supplied with laser-etched grade and heat number traceable to EN 10204 3.1 certification.

## KEY FEATURES

- Tool-less clamp lever or swing bolt design: Enables screen replacement in under 30 seconds without special tools.
- Uniform compression mechanism: Eight-point toggle or swing-bolt closure prevents gasket distortion and blow-by.
- Corrosion-resistant finish: Electropolished (316 SS) or electroless nickel plating (CS) up to  $50 \mu\text{m}$  thickness.
- Wide media compatibility: Suitable for abrasive powders, hygroscopic pellets, granular materials, and liquid-solid slurries.
- Captive hardware: All bolts, nuts, and hinge pins retained to prevent loss during maintenance.

- Safety interlocks: Optional proximity sensor ports for position verification per ISO 14119.

## COMPLIANCE & SAFETY STANDARDS

Doebritz Clamp Rings are designed and certified in accordance with:

- Pressure Equipment Directive (PED) 2014/68/EU – Category I or II depending on volume and pressure.
- ATEX Directive 2014/34/EU – Suitable for Zone 1/21 (gas/dust) with conductive gaskets and grounding lug.
- NFPA 61 / 654 – Combustible dust compliance when used with anti-static screen packs.
- ASME BPE – Bioprocessing equipment edition for hygienic clamp rings (316L, Ra 0.4  $\mu\text{m}$ ).
- EC 1935/2004 – Food contact compliant for PTFE and EPDM encapsulated gaskets.

Parameter	Specification
Nominal Sizes (DN / NPS)	DN80 (3") to DN600 (24")
Design Pressure Range	-1.0 bar vacuum to 3.5 bar g (50 psi)
Design Temperature Range	-20 ° C to +260 ° C (dependent on gasket)

Standard Metallurgies	316L stainless steel, WCB carbon steel (ENP coated), Duplex 2205
Closure Mechanism	Toggle lever (DN80–300) or swing-bolt (DN350–600)
Gasket / Seal Materials	Encapsulated PTFE, FKM, EPDM, NBR (FDA compliant options)
Surface Finish (SS)	Electropolished $Ra \leq 0.8 \mu\text{m}$ (hygienic $Ra \leq 0.4 \mu\text{m}$ optional)
Traceability	EN 10204 3.1 mill certificate with heat number
ATEX Classification	II 2D c T100 °C or II 2G c T4 (with anti-static gasket)
Net Weight (DN150 SS)	4.2 kg (excluding screen pack)

## INDUSTRIAL DEPLOYMENT & TYPICAL APPLICATIONS

The Doebritz Clamp Ring for Screen is specified across heavy bulk handling, food & pharma, chemical processing, and mineral industries. Typical installation points include:

- Rotary valve discharge (pressure or vacuum side) – removes tramp oversize before pneumatic conveyance.

- Diverter valve outlet – prevents cross-contamination by enabling frequent screen changes.
- Pellet classifier inlet – protects downstream extruders or packers.
- Pneumatic receiver outlet – final product quality assurance.

Field performance data indicates mean time between screen changes extended by 40% compared to stud-bolt clamp designs, due to elimination of uneven torque loading.



## MAINTENANCE & SPARE PARTS LOGIC

Routine inspection (every 500 operating hours): verify clamp lever tension (torque spec 15–25 Nm for M10 swing bolts) and inspect gasket seating surfaces for compression set or particulate embedment. Replace gasket every

2,000 hours or at every screen change. Doebritz recommends stocking one spare clamp ring per four serviceable units to enable offline screen pre-assembly.

Ordering nomenclature example: CLAMP-RING-DN150-316L-EPDM-TOGGLE

- DN150 = Nominal size (DN80 to DN600 standard)
- 316L = Metallurgy
- EPDM = Gasket material
- TOGGLE = Closure type (TOGGLE or SWING-BOLT)

For high-abrasion applications, specify optional hardened 17-4 PH stainless steel or Stellite-faced contact surfaces.