

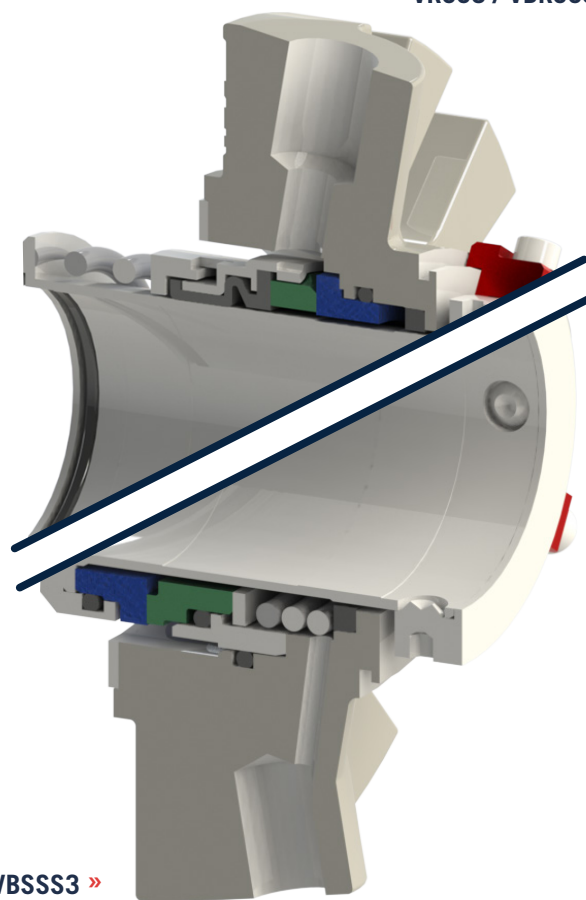
VANTAGE SINGLE-SPRING CARTRIDGE SEAL FEATURES

ANSI Rotating and Stationary Single-Spring Mechanical Seal

PRODUCT LINE FEATURES

- Simple cartridge seal installation.
- Single-spring design accommodates slight misalignments and shaft deflections while maintaining consistent seal-face tracking.
- With a large single spring, there are fewer moving parts and less chance of spring hangup or clogging.
- 3/8" NPT flush connection allows for cooling and venting of seal.
- 1/4" NPT vent and drain connections provide differential sizing to minimize the potential of improper piping.
- Non-sparking throttle bushing is positively retained to avoid pressure blow out, minimizing leakage in the event of seal failure.
- Angled gland connections allow for easier pipe fitting.
- Setting clips provide positive axial and radial setting of the Vantage cartridge seal to ensure proper seal installation. The Vantage setting clips are easy to access for simple removal.
- Convertible gland design to accept over four (4) design configurations.

« VRSS3 / VBRSS3



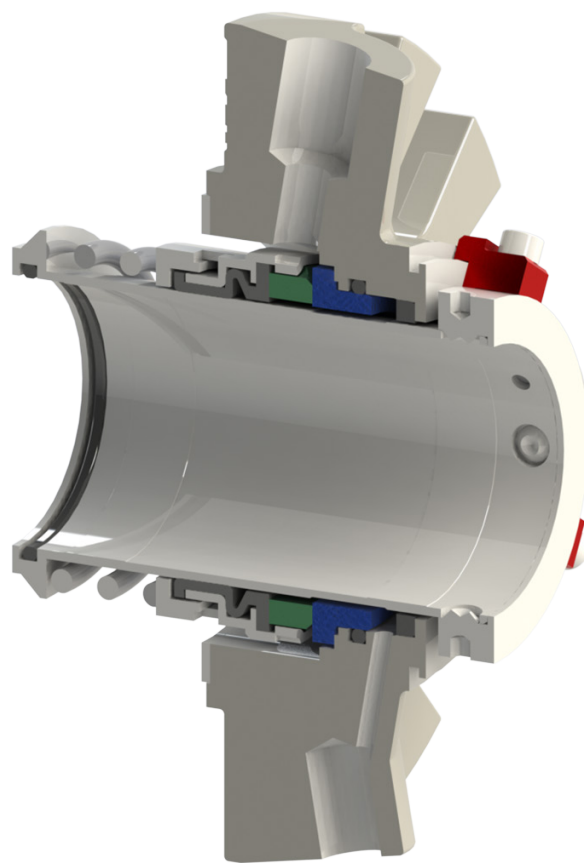
VSSS3 / VBSSS3 »

VRSS3 / VBRSS3

ANSI Rotary Single-Spring Single Cartridge Mechanical Seal

FEATURES

- Robust yet simple rotary single-spring design integrated on the versatile Vantage Seal platform.
- Automatic adjustment to accommodate shaft end play, wear, and equipment tolerances, enhancing service life.
- Offers quench options with carbon ring throttle bushing or lip seal for diverse operational needs.
- Designed with a non-clogging single-coil spring and positive mechanical drive for reliable performance.
- Full convolution elastomeric bellows.
- Available in ANSI Big/Taper and Standard Bore.



MATERIALS OF CONSTRUCTION

Rotating Seal Face	Carbon, Silicon Carbide
Stationary Seal Face	Silicon Carbide, Tungsten Carbide
Springs	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluoroelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™

OPERATING PARAMETERS

Temperature	400° F (200°C)
Pressure	150 psi (10.3 bar)
Speed	4500 FPM

VSSS3 / VBSSS3

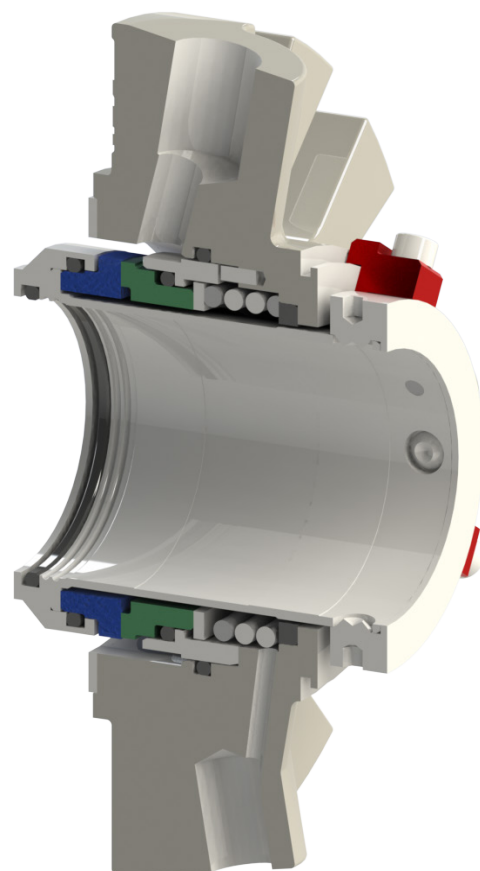
ANSI Stationary Single-Spring Single Cartridge Mechanical Seal

FEATURES

- Heavy-duty drive design with stationary single-spring isolated from process media.
- Stationary external spring significantly improves performance in applications prone to clogging or sticking.
- Offers quench options with carbon ring throttle bushing for diverse operational needs.
- Designed with a non-clogging single-coil spring and positive mechanical drive for reliable performance.
- Available in ANSI Big/Taper and Standard Bore.

MATERIALS OF CONSTRUCTION

Rotating Seal Face	Silicon Carbide, Tungsten Carbide
Stationary Seal Face	Carbon, Silicon Carbide
Springs	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluoroelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™



OPERATING PARAMETERS

Temperature	400° F (200°C)
Pressure	150 psi (10.3 bar)
Speed	4500 FPM

VANTAGE SINGLE CARTRIDGE FEATURES

DESIGN FEATURES & BENEFITS

Setting Clips provide positive axial and radial setting of the Vantage cartridge seal to ensure proper seal installation. Easy access to the setting clips allows for simple removal.

VRSS3 / VBRSS3

Seal Faces are driven by large surface area drive flats in retainers to reduce stress and face fracture common with drive pins.

Angled Gland Connections allow for easy pipe fitting.

3/8" NPT Flush Connection allows for cooling and venting of seal.

Seal Face is protected from process debris by metal carrier.

Flexibility of Elastomeric Bellows prevents seal face hang-up while improving radial and axial movement and promoting consistent face contact.

Robust Single Spring Design promotes extended service life and prevents clogging. Also allows for greater axial movement.

Centrifugal Force from rotating assembly promotes self-cleaning and removal of debris.

VSSS3 / VBSSS3

Non-Sparking Throttle Bushing minimizes leakage in the event of seal failure and is positively retained to avoid blow out.

Rugged Single Spring allows for extended seal life and greater axial movement.

Angled Gland Connections allow for easy pipe fitting.

1/4" NPT Vent and Drain Connections provide differential sizing to minimize the potential of improper piping.

Stationary Design isolates flexible elements from process, reducing the chance for clogging, corrosion, or damage as well as optimizing face loading and alignment.

Monolithic Faces provide robust, proven performance

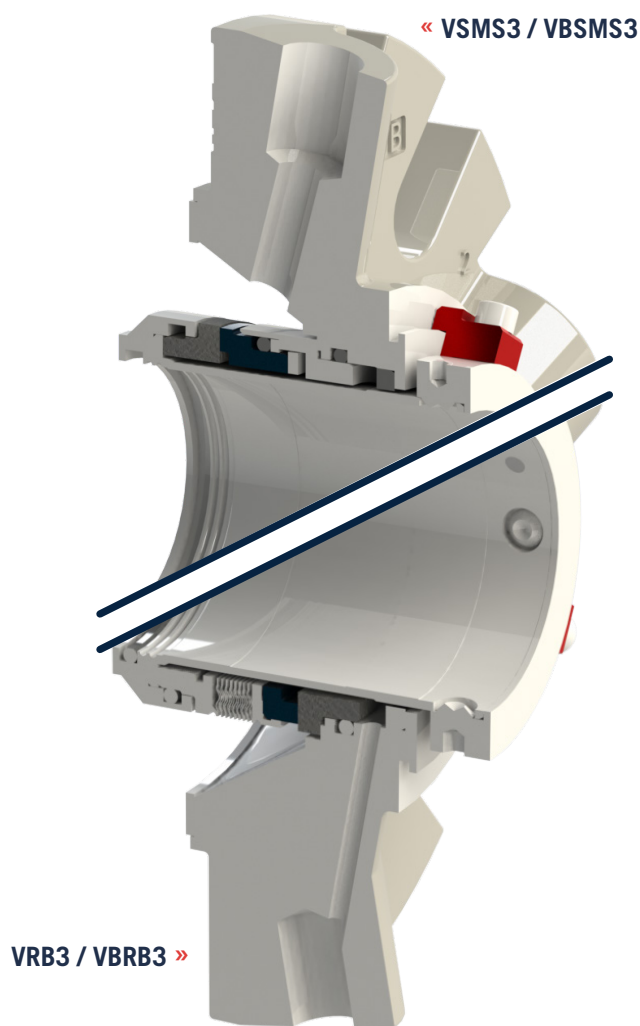
Unique Flat Drive System Seal faces are driven by large surface area drive flats in retainers to reduce stress and face fracture common with drive pins.

VANTAGE SINGLE CARTRIDGE SEAL FEATURES

ANSI Multi-Spring and Welded Metal Bellows Mechanical Seal

PRODUCT LINE FEATURES

- Simple cartridge seal installation.
- Sleeve is isolated from process fluid.
- $\frac{3}{8}$ " NPT flush connection allows for cooling and venting of seal.
- $\frac{1}{4}$ " NPT vent and drain connections provide differential sizing to minimize the potential of improper piping.
- Non-sparking throttle bushing is positively retained to avoid pressure blow out, minimizing leakage in the event of seal failure.
- Vantage seal glands include flush, vent, and drain connections and a close-clearance, non-sparking throttle bushing to direct any leakage to the drain connection.
- Flush, vent, and drain connections available to be piped at multiple locations.
- Angled gland connections allow for easier pipe fitting.
- Setting clips provide positive axial and radial setting of the Vantage cartridge seal to ensure proper seal installation. The Vantage setting clips are easy to access for simple removal.
- Convertible gland design to accept over four (4) design configurations.

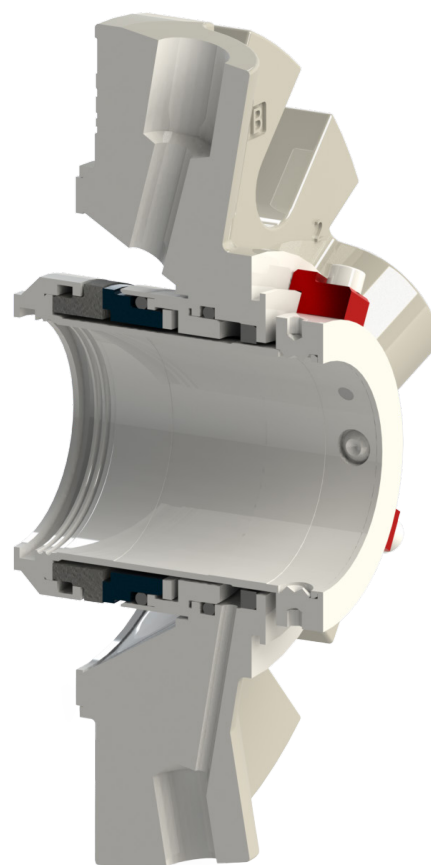


VSMS3 / VBSMS3

ANSI Stationary Multi-Spring Single Cartridge Mechanical Seal

FEATURES

- Stationary springs isolated from process fluids to minimize corrosion, clogging.
- Flat Drive System eliminates face drive pins enhancing face stability and reducing face fractures.
- Dynamic Drive Ring eliminates primary face hang up and reduces face to pin fretting.
- Dynamic elastomer moves on non-metallic, smooth surface eliminating fretting.
- Stationary design for optimal face alignment.
- Available in ANSI Big/Taper and Standard Bore.



MATERIALS OF CONSTRUCTION

Rotating Seal Face	Sintered Silicon Carbide
Stationary Seal Face	Carbon, Sintered Silicon Carbide
Springs	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluorelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™

OPERATING PARAMETERS

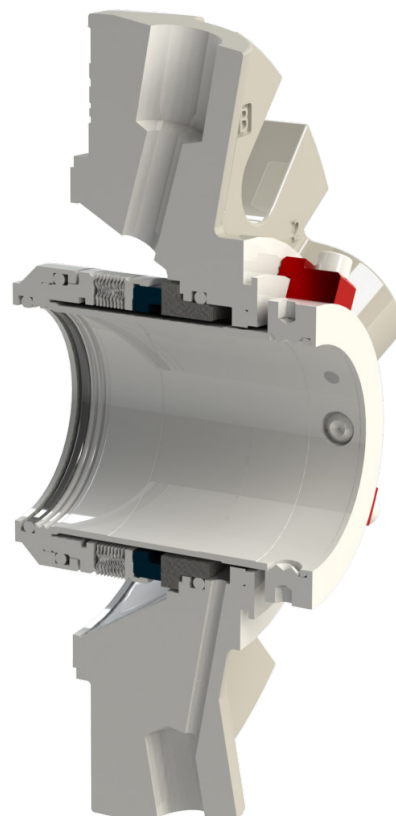
Temperature	400° F (200°C)
Pressure	300 PSI (20 Bar)
Speed	4500 FPM

VRB3 / VBRB3

ANSI Rotating Welded Metal Bellows Single Cartridge Mechanical Seal

FEATURES

- Rotating design uses centrifugal force for self-cleaning.
- Uniform 360° transfer of torque to the rotating face.
- Welded metal bellows replace the dynamic elastomer which can hang up the seal faces.
- No springs to clog or break.
- No fretting.
- Only three (3) static elastomers – eliminate seal failures caused by dynamic O-ring “hang up” and offers cost savings when upgrading to Perfluorelastomers.



MATERIALS OF CONSTRUCTION

Rotating Seal Face	Carbon, Tungsten Carbide, Sintered Silicon Carbide
Stationary Seal Face	Sintered Silicon Carbide
Bellows	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluorelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™

OPERATING PARAMETERS

Temperature	400° F (200°C)
Pressure	300 PSI (20 Bar)
Speed	6000 FPM

*Maximum temperature/speed/pressure/runout indicates operating extremes independently and does not imply the seal will function at these extremes at the same time.

Registered Trademarks:

Viton® - Dupont Performance Elastomers; Aflas® - Asahi Glass Co.; Teflon® - E.I. Dupont de Nemours and Co; Hastelloy® - Haynes International, Inc.

VANTAGE SINGLE CARTRIDGE FEATURES

DESIGN FEATURES & BENEFITS

Setting Clips provide positive axial and radial setting of the Vantage cartridge seal to ensure proper seal installation. The Vantage setting clips are easy to access for simple removal.

Non-Sparking Throttle Bushing is positively retained to avoid pressure blow out, minimizing leakage in the event of seal failure.

Stationary Springs isolated from process fluids to minimize corrosion, clogging, and stress-related failures.

3/8" NPT Flush Connection allows for cooling and venting of seal.

Dynamic Drive Ring eliminates primary face hang up and reduces face to pin fretting.

Stationary Design for optimal face alignment.

Dynamic Elastomer moves on non-metallic, smooth surface eliminating fretting.

Unique Flat Drive System Seal faces are driven by large surface area drive flats in retainers to reduce stress and face fracture common with drive pins.

Sleeve is isolated from process fluid.

VSMS3/VBSMS3

VRB3/VBRB3

• No fretting. • No springs to clog or break.

• Uniform 360° transfer of torque to the rotating face.

• **Angled Gland Connections** allow for easier pipe fitting.

• **1/4" NPT Vent and Drain Connections** provide differential sizing to minimize the potential of improper piping.

• **Welded Metal Bellows** replace the dynamic elastomer which can hang up the seal faces.

• **Rotating Design** uses centrifugal force for self-cleaning.

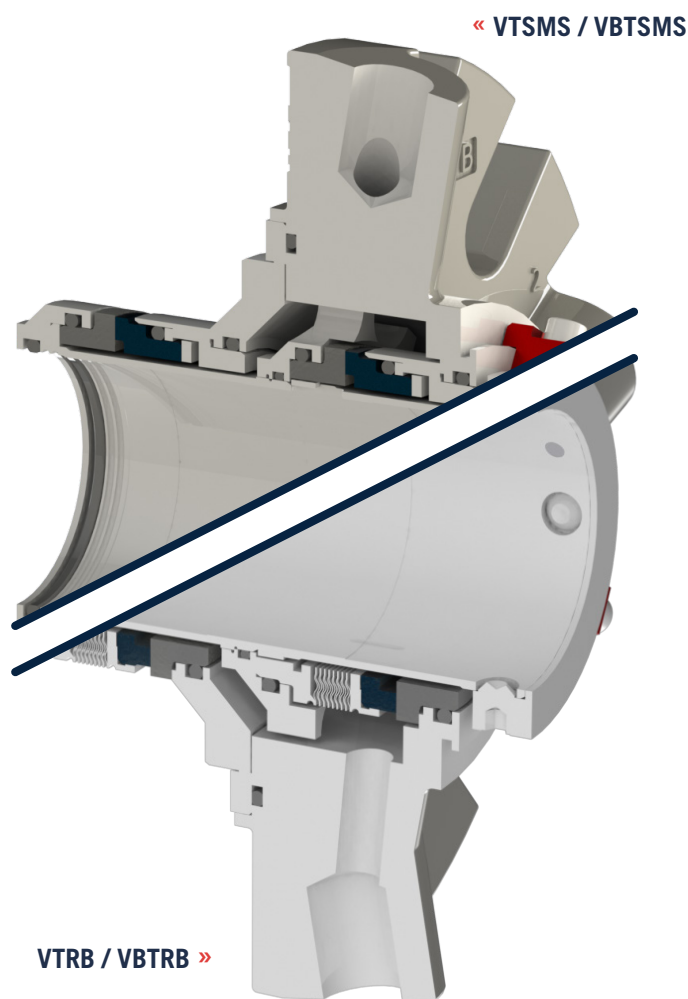
• **Only Three (3) Static Elastomers** eliminate seal failures caused by dynamic O-ring "hang up" and offers cost savings when upgrading to Perfluorelastomers.

VANTAGE DUAL TANDEM CARTRIDGE SEAL FEATURES

ANSI Multi-Spring and Welded Metal Bellows Mechanical Seal

PRODUCT LINE FEATURES

- Simple cartridge seal installation.
- Sleeve is isolated from process fluid.
- $\frac{3}{8}$ " NPT barrier connection allows for cooling.
- Vantage tandem seal glands include four (4) barrier in and out connections for maximum piping flexibility.
- Angled gland connections allow for easier pipe fitting.
- Setting clips provide positive axial and radial setting of the Vantage cartridge seal to ensure proper seal installation. The Vantage setting clips are easy to access for simple removal.
- Only one Allen wrench required to tighten screws and remove the setting clips.
- Convertible gland design to accept over twelve (12) design configurations.

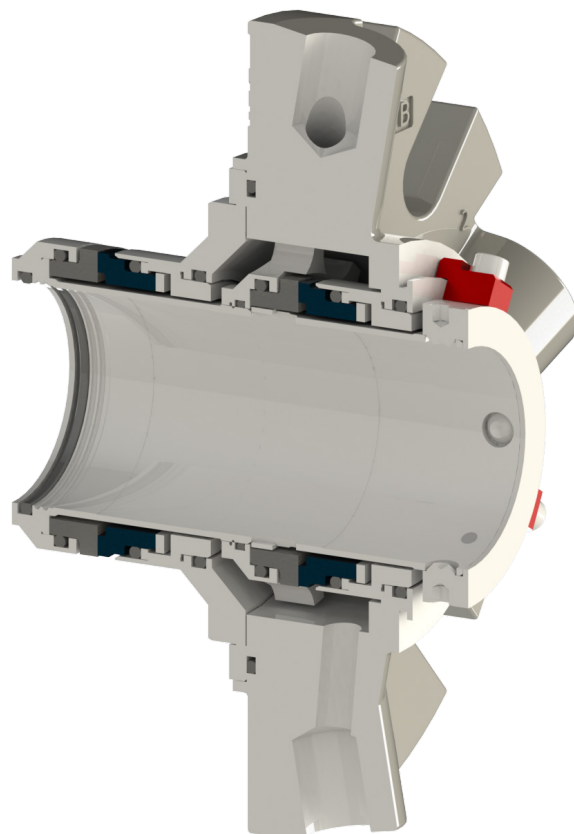


VTSMS / VBTSMS

ANSI Dual TANDEM Stationary Multi-Spring Cartridge Mechanical Seal

FEATURES

- Stationary springs and drive pin mechanism isolated from process fluids to minimize corrosion, clogging, and stress-related failures.
- Dynamic Drive Ring eliminates primary face hang up and reduces face to pin fretting.
- Flat Drive System eliminates face drive pins enhancing face stability and reducing face fractures.
- Dynamic elastomer moves on non-metallic, smooth surface eliminating fretting.
- Stationary design for optimal face alignment.
- Pumping ring included as standard.
- Available in ANSI Big/Taper and Standard Bore.



MATERIALS OF CONSTRUCTION

Rotating Seal Face	Sintered Silicon Carbide
Stationary Seal Face	Carbon, Sintered Silicon Carbide
Springs	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluorelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™

OPERATING PARAMETERS

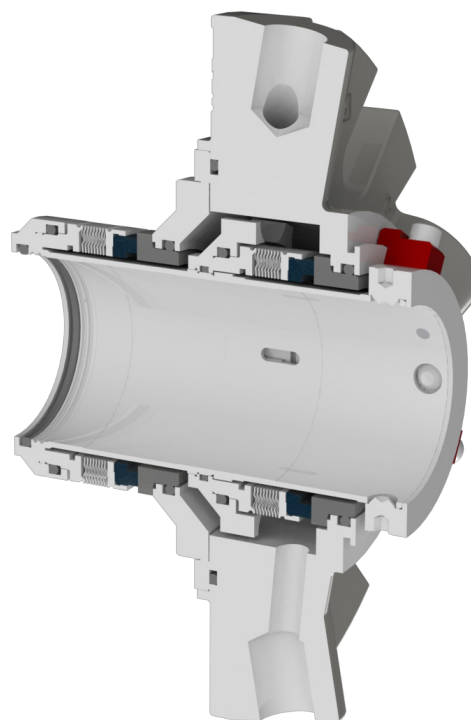
Temperature	400° F (200°C)
Pressure	300 PSI (20 Bar)
Speed	4500 FPM

VTRB / VBTRB

ANSI Dual TANDEM Rotating Welded Metal Bellows Cartridge Mechanical Seal

FEATURES

- Rotating design uses centrifugal force for self-cleaning.
- Uniform 360° transfer of torque to the rotating face.
- Welded metal bellows replace the dynamic elastomer which can hang up the seal faces.
- No springs to clog or break.
- No fretting.
- Static elastomers – eliminate seal failures caused by dynamic O-ring “hang up” and offers cost savings when upgrading to Perfluorelastomers.
- Available in ANSI Big/Taper and Standard Bore.



MATERIALS OF CONSTRUCTION

Rotating Seal Face	Carbon, Tungsten Carbide, Sintered Silicon Carbide
Stationary Seal Face	Sintered Silicon Carbide
Bellows	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluorelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™

OPERATING PARAMETERS

Temperature	400°F (200°C)
Pressure	300 PSI (20 Bar)
Speed	6000 FPM

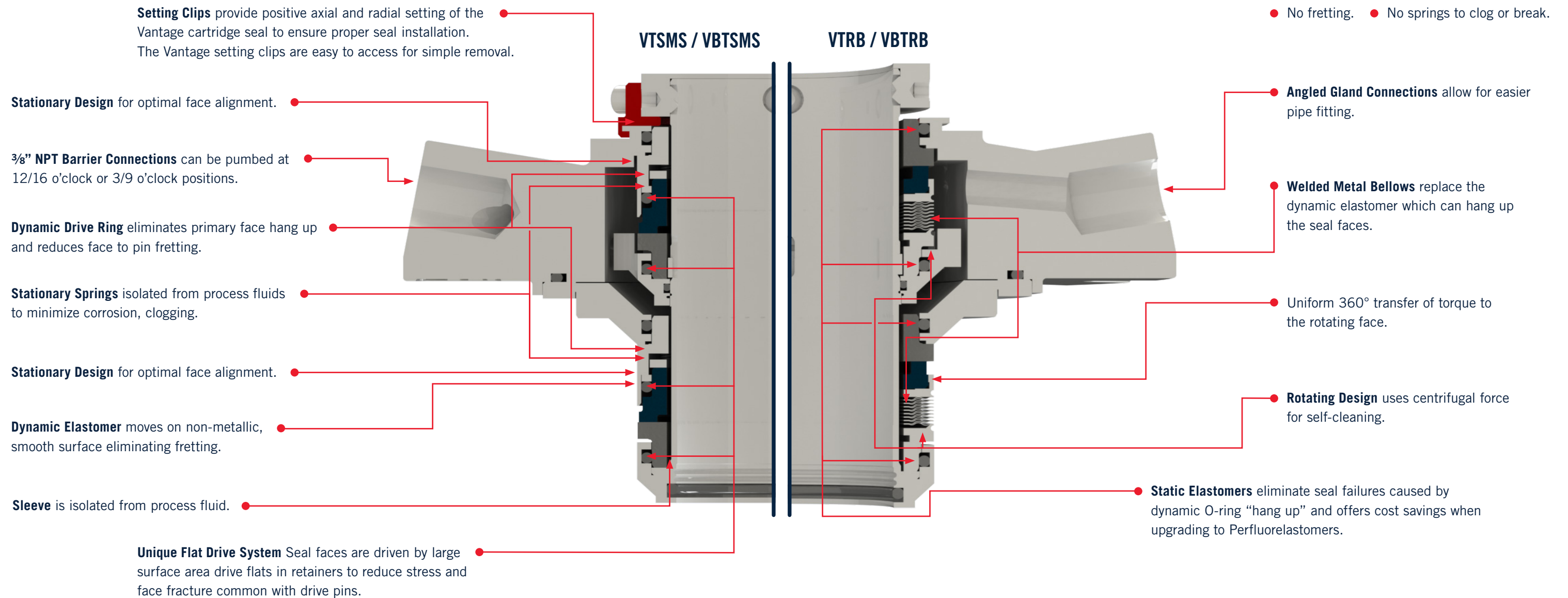
*Maximum temperature/speed/pressure/runout indicates operating extremes independently and does not imply the seal will function at these extremes at the same time.

Registered Trademarks:

Viton® - Dupont Performance Elastomers; Aflas® - Asahi Glass Co.; Teflon® - E.I. Dupont de Nemours and Co; Hastelloy® - Haynes International, Inc.

VANTAGE TANDEM CARTRIDGE FEATURES

DESIGN FEATURES & BENEFITS

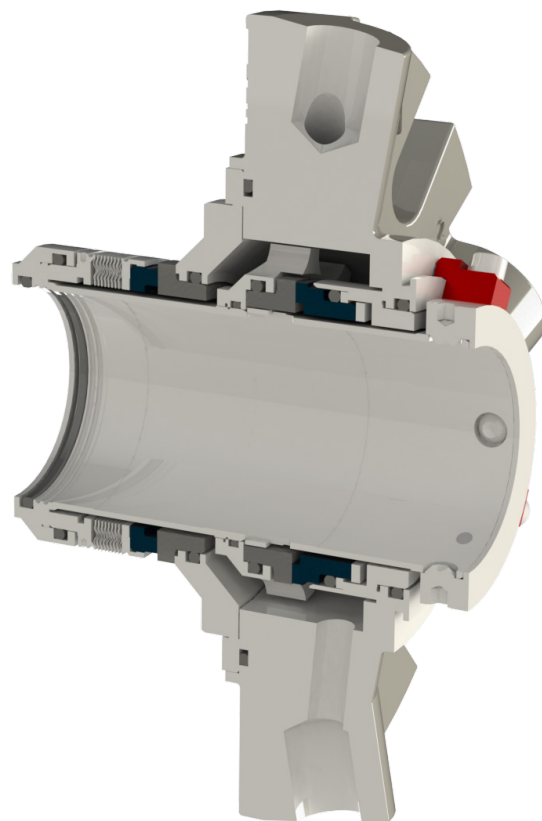


VDRBSMS / VBDRBSMS

ANSI / Industrial Hybrid Welded Metal Bellows and Multi-Spring Dual Mechanical Seal

FEATURES

- Simple cartridge seal installation.
- Innovative Hybrid design with Rotating Welded Metal Bellows Primary Seal and Stationary Multi-Spring Secondary.
- Cost effective solution to challenging applications that requires Welded Metal Bellows.
- Sleeve is isolated from process fluid.
- 3/8" NPT barrier connection allows for cooling.
- Vantage dual seal glands include four (4) barrier in and out connections for maximum piping flexibility.
- Angled gland connections allow for easier pipe fitting.
- Setting clips provide positive axial and radial setting of the Vantage cartridge seal to ensure proper seal installation. The Vantage setting clips are easy to access for simple removal.
- Only one Allen wrench required to tighten screws and remove the setting clips.



MATERIALS OF CONSTRUCTION

Rotating Seal Face	Carbon, Tungsten Carbide, Sintered Silicon Carbide
Stationary Seal Face	Sintered Silicon Carbide
Bellows	Hastelloy® C276
Metallurgy	316 SS
Elastomers	Viton®, Ethylene Propylene, Aflas®, Buna, Neoprene, Perfluorelastomer
Gland Gasket	Glass-Filled Teflon™
Throttle Bushing	Glass-Filled Teflon™

OPERATING PARAMETERS

Temperature	400° F (200°C)
Pressure	300 PSI (20 Bar)
Speed	6000 FPM

*Maximum temperature/speed/pressure/runout indicates operating extremes independently and does not imply the seal will function at these extremes at the same time.

Registered Trademarks:

Viton® - Dupont Performance Elastomers; Aflas® - Asahi Glass Co.; Teflon® - E.I. Dupont de Nemours and Co; Hastelloy® - Haynes International, Inc.

VANTAGE TANDEM CARTRIDGE FEATURES

DESIGN FEATURES & BENEFITS

