

Boxed oil seals CS

DESCRIPTION

C / CS Rotary Shaft Seals

The rotary shaft seals of the C series and the CS variant, commonly known as metal-cased seals with an exposed outer metallic armor (Type B / BS or Type C / CS), are advanced dynamic seals engineered to ensure optimal containment of high-viscosity lubricants, oils, and greases. Unlike the rubber-covered series, they feature a ground or machined outer metal shell that is mechanically pressed for a steel-on-steel interference fit into the housing bore. This structural design ensures robust retention and perfect orthogonal alignment, preventing displacement or skewing even under heavy vibrations or significant structural thermal expansion. The primary sealing lip is energized by a garter spring, creating a constant hydrodynamic barrier on the shaft counterface.

PROFILES

Type C (Standard Metal-Cased) Single dynamic sealing lip profile equipped with an internal garter spring and an entirely exposed, ground outer metallic shell, ideal for rigid and stable interference fit housings.	Type CS (Dust Lip Variant) Geometric evolution featuring an additional front protective lip (springless dust lip). Specific for isolating the dynamic sealing zone from coarse external contaminants, dust, and environmental debris.
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MATERIALS

Materials and operating conditions

MATERIAL / COMPOUND	PERIPHERAL SPEED	TEMPERATURE	MAX PRESSURE
NBR Nitrile Rubber 70/80 ShA + Steel Case	Up to 12.0 m/s Up to 0.5 m/s in low-speed applications	-30 / +100 °C	0.05 MPa Standard atmospheric pressure
FKM Fluoroelastomer / Viton + Steel Case	Up to 35.0 m/s	-20 / +200 °C	0.05 MPa Standard atmospheric pressure

ENERGIZING COMPONENT Garter spring <table><tr><td>Component</td><td>Cylindrical garter spring</td></tr><tr><td>Material</td><td>Carbon steel for springs (Standard C/CS)</td></tr><tr><td>Option</td><td>AISI 302/316 Stainless Steel for chemical applications or marine environments</td></tr></table>	Component	Cylindrical garter spring	Material	Carbon steel for springs (Standard C/CS)	Option	AISI 302/316 Stainless Steel for chemical applications or marine environments	COMPATIBLE FLUIDS Mineral oils, synthetic lubricants, industrial greases, and water (subject to verification of stainless steel spring).
Component	Cylindrical garter spring						
Material	Carbon steel for springs (Standard C/CS)						
Option	AISI 302/316 Stainless Steel for chemical applications or marine environments						

FEATURES

Main features

Constant radial load

The spring embedded in the back of the lip exerts a calibrated and continuous radial pressure on the rotating shaft diameter. This compensates for elastomer aging, micro-misalignments (run-out), and physiological wear, keeping the dynamic sealing area tightly sealed.

External metal case

The rigid exposed outer metal shell guarantees a stable, permanent and definitive fit within the housing bore. It eliminates any risk of accidental pop-out or blowout caused by pressure peaks or severe thermal differentials.

Sealing edge

The primary sealing lip is finished with a precision sharp geometric trim. The angle creates a hydrodynamic wedge that leverages the surface tension of the oil film to limit leakage and self-lubricate the shaft contact track.

ADVANTAGES

Why choose Types C/CS

Superior Mechanical Anchor

The bare metallic outer finish provides an iron-clad grip within housings made of materials with similar thermal expansion coefficients, ensuring millimetric stability.

Perfect Orthogonal Mounting

The structural rigidity of the metal case facilitates perfectly perpendicular insertion relative to the rotating shaft axis, completely eliminating misalignment errors.

Variable Protection (C vs CS)

The modularity of the design allows selecting version C for minimum frictional resistance, or version CS when the operating environment demands full shielding from external dust.

COMPLIANCE AND REGULATIONS

International Standards: Manufactured in strict compliance with the structural design specifications of DIN 3760 and ISO 6194/1 standards.

VARIANTS

Available configurations

Standard Type C/CS (NBR 70)

The classic configuration featuring an exposed metal case coupled with a nitrile rubber compound. It represents the primary choice for retaining standard mineral oils and greases on gearboxes and standard industrial components.

BENEFITS

Excellent quality/price ratio, outstanding dimensional housing stability, and robust mechanical interference coupling.

Premium Type C/CS (FKM / VITON)

Elite configuration developed for high peripheral speed shafts (up to 35 m/s) or operating under severe thermal conditions in direct contact with synthetic lubricants and chemically aggressive fluids.

BENEFITS

Optimal thermal resistance up to +200°C, dynamic lip completely immune to hardening and premature wear induced by frictional heat.

COMMERCIAL INTERCHANGEABILITY

Market Cross-References

MANUFACTURER	BASIC METAL-CASED TYPE (TYPE C / NBR)	METAL-CASED WITH DUST LIP (TYPE CS / FKM)
Net Seals	B/SB/CR Oil Seal Series	Viton BS/SBB/CR FKM Oil Seal Series
Freudenberg (Simrit)	Simmerring B Profile	Simmerring BS FKM Profile

MANUFACTURER	BASIC METAL-CASED TYPE (TYPE C / NBR)	METAL-CASED WITH DUST LIP (TYPE CS / FKM)
Parker Prädifa	SB/CR Profile	SBS (FKM) Profile
Dichtomatik	WB Profile	WBS FKM Profile
Kastas Sealing Tech.	K22 Profile	K28 (FKM) Profile
Corteco	Metal-cased Type B Oil Seal Series	Metal-cased Type BS Viton Oil Seal Series
SKF	External Metal Armor Seals (CRW1)	Viton Dust Lip Seals (CRWA1)