

V-RINGS



V-Rings are axial seals with an elastomer sealing element vulcanized in the mold.

Following application specific types are available of the Dichtomatik brand:

VA = Standard
VS = Reinforced stiffening element
VL = Thin profile
VE = For large diameters

They serve as lip seals as well as centrifugal discs. The V-Ring is stretched onto the shaft and must be installed at a right angle at a precisely defined distance from the metal counter surface to guarantee the axial preload of the seal lip. A bearing face or the front wall of a housing, a shaft collar or a flange cover may serve as the counter surface, for example. The V-Ring rotates with the shaft while sealing axially against the counter surface. It is used to seal against dust, dirt, grease and oil or water spray from the outside. V-Rings are designed for pressureless operation. At an increasing circumferential speed, the seal lip tends to move outward due to centrifugal force, reducing the contact pressure. At a specific circumferential speed, the seal lip rises completely from the metallic counter surface. The V-Ring then functions solely as a gap seal or a centrifugal disc.

The time-consuming removal of shafts and other components often makes it necessary to use cutted V-Rings. It makes sense to use V-Rings that are vulcanized or glued together right at the mounting stage.

In case of relatively harsh environmental conditions or extensive effects from masses of earth or gravel, we recommend the axial seals that are protected by a metal cage: the VRM 01 and the VRM 02.

DIMENSIONS

The currently available dimensions can be found on our website dichtomatik.fst.com or on our online ordering platform **EASY**.

APPLICATIONS

V-Rings are mainly used in combination with other types of seals such as radial shaft seal rings. They also serve as pre-sealing elements for bearings. Some common uses of V-Rings:

- Drive technology
- Facility and machine manufacturing
- Electric motors and gearboxes
- Farm machinery
- Bearing blocks
- Rolling mills

YOUR ADVANTAGES AT A GLANCE

- Simple sealing element with easy mounting
- Sealing against dust, dirt, grease, oil or water spray
- Good functionality in combination with radial shaft seal rings
- Low requirements for the surface quality of the counter surface
- Reduced running friction with rising circumferential speed due to centrifugal force effects
- Good dynamic sealing effect
- Compensation for slight axial movements and angular and radial offset
- Protection for the radial shaft seal ring against abrasive environmental conditions

CHARACTERISTICS

Media resistance

V-Rings made of NBR and FKM display good chemical resistance to many greases and mineral oils. FKM is also very stable in synthetic oils and greases, as well as aromatic and chlorinated hydrocarbons.

Circumferential speed (m/s)

- NBR: ≤ 8; axially secured starting at ≥ 8; radially secured starting at ≥ 12
- FKM: ≤ 6.5; axially secured starting at ≥ 6.5; radially secured starting at ≥ 10

COUNTER SURFACE MATERIALS

Material	Preferred hardness	Media
Construction Steel	125 - 150 HV	mud, dust
Gray iron	190 - 270 HV	mud, dust
Bronze casting	100 - 160 HV	water, dust
Aluminium injection molding	90 - 160 HV	water spray
Stainless steel	150 - 200 HV	water

INSTALLATION SPACE AND MOUNTING

The V-Ring operates against a counter surface arranged at a right angle to the shaft. The counter surface should have a finely processed surface with a surface quality featuring a maximum of Ra=2.0. The counter surface does not have to be hardened. A minimum hardness is preferred in difficult environmental conditions such as coarse dirt, masses of earth or coarse-grained sand. In these circumstances, the hardness should be chosen based on the medium to be repelled and the material being used for the counter element (see Table 1). Components made of injection-molded or light metal alloys and formed steel sheets can function as counter surfaces without additional processing. But there must not be any surface deviations or flaws, such as sharp edges, burrs, cavities, ripples, elevations or damage present.

It is possible to secure V-Rings radially against slippage or tilting with a band clamp with special retaining clips.

Profile	Type	Color	Material	Hardness (Shore A)	Temperature (°C)
	VA	black	NBR	60	-40 to +100
		brown	FKM	60	-20 to +200
				70	
	VE	black	NBR	60	-40 to +100
		brown	FKM	60	-20 to +200
				70	
	VL	black	NBR	60	-40 to +100
		brown	FKM	60	-20 to +200
	VS	black	NBR	60	-40 to +100
		brown	FKM	60	-20 to +200

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