



VL

V-Rings are axial seals with an elastomer sealing element vulcanised in the mould. The typical design of a V-Ring is comprised of the body, the flexibe joint and the sealing lip.

DESCRIPTION

V-Product group: Axial seal

Design:

A = standard

S = body reinforced

L = profile thin

E = for larger diameters

Seal material: NBR 60

Colour: black

Seal material: FKM 60, FKM 70

Colour: brown

The time-consuming removal of shafts and other components often results in the necessity of using divided V-Rings. These V-Rings are then vulcanised or glued on site. For special applications, V-Rings can also be produced with incorporated grooves including tightening straps.

STANDARD MATERIALS

Elastomer seal: NBR 60 black, FKM 60 brown, (FKM 70) other Elastomer materials are available on request.

APPLICATION AREAS

V-Rings are used mainly in combination with other types of seals such as rotary shaft seals and as pre-sealing elements for bearings and shafts. V-Rings are often applied in drive technology, in general mechanical engineering and plant engineering. V-Rings are also found in electric engines, transmissions, agricultural machines, bearing pedestals and rolling mills. They are used to seal against dust, dirt, lubricant, oil or water spray from the outside. For rougher locational conditions, extensive exposure to masses of earth or gravel, we recommend the sealing elements VRM01 and VRM02 metal case protected axial seals.

FUNCTION

The V-Ring serves as a lip seal but also as a centrifugal disc. The V-Ring is stretched onto the shaft and must be installed at an accurately defined distance from the counter-rotating metal surface to guarantee axial preload of the seal lip. The end of a bearing, the bearing case or a shaft collar serve as counter-rotating surface. The V-Ring rotates with the shaft and seals axially on the counter surface. With increasing peripheral speed, the seal lip is pulled outwards by the centrifugal force and the contact pressure is reduced. At a certain peripheral speed, the seal lip lifts off the counter metal surface completely. The V-Ring then functions only as a gap seal and centrifugal disc.

ADVANTAGES OF THE V-RING

- single function sealing element
- seals against dust, dirt, lubricant, oil or water spray
- works well in combination with rotary shaft seals
- low demands on the counter surface with regard to the surface quality
- simple installation
- is stretched onto the shaft
- the dynamic friction reduces with increasing peripheral speed due to the centrifugal force
- good dynamic sealing effect
- balances light axial movements as well as angle and rotary settings
- protects rotary shaft seals from abrasive environmental conditions

MEDIA

NBR

Good chemical resistance to many lubricants and mineral oils.

FKM

Mineral oils and lubricants, engine, gear and ATF oils, fuels, aromatic and chlorinated hydro-carbon, resistance to a wide range of chemicals.

OPERATIONAL APPLICATION LIMITS

Pressure: designed for unpressurized operation
 Temperature: NBR -40°C to +100°C, FKM -20°C to +200°C
 Peripheral speed (m/s):
 NBR ≤ 8; axial secure from ≥ 8m; radial secure from ≥ 12
 FKM ≤ 6.5; axial secure from ≥ 6.5; radial secure from ≥ 10

DESIGN NOTE COUNTER SURFACE

The V-Ring runs against a counter-rotating surface situated at right angles to the shaft e.g. the flange cap or the end wall of a bearing casing. The counter surface should have a finely processed surface with a surface quality of max. Ra=2.0 (sufficient for many applications). The counter-rotating surface need not be hardened. Under difficult locational conditions such as excessive dirt, masses of earth, fine-grained sand, a minimum hardness should be chosen. In this case, the hardness should be chosen in accordance with the medium to be sealed and the material used for the counter-rotating partner. Parts made of injection-moulded or cast light metal alloys and formed steel sheets can be used as counter-rotating surface without additional processing. However, they must not contain any surface variations or faults such as sharp edges, burrs, bubbles, waviness, buckles or other damage.

MATERIAL USED FOR THE COUNTER-ROTATING PARTNER

Material	Advised hardness	Media
Carbon steel	125 - 150 HV	Sludge, dust
Cast iron	190 - 270 HV	Sludge, dust
Cast bronze	100 - 160 HV	Water, dust
Injection-moulded aluminium	90 - 160 HV	Water spray
Stainless steel	150 - 200 HV	Water

