

## Materials

We offer V-rings from stock made of 2 different materials:

### NBR 60

- standard material for a wide range of applications
- thermally resistant between -40 and +100°C
- good wear and abrasion resistance
- resistant to many media, such as mineral oil based oils and fats, water

### FKM 60

- applicable under higher temperatures and in the presence of more aggressive media
- thermally resistant between -20 and +200°C
- very good resistance against many chemicals
- very good aging, ozone and weather resistance

Material	NBR	FKM
hardness [Shore A]	60	60
color	schwarz	braun
application temperature range [°C]	-40 bis +100	-20 bis +200

We can offer other elastomers, such as CR, EPDM and HNBR, on request.

## Design of the shaft

There are comparatively few requirements concerning the design of the shaft, since the V-ring rotates together with the shaft and is only statically sealed towards the shaft.

## Diameter tolerance

A V-ring can be used for a wide range of nominal diameters of the shaft. The observance of specific tolerance for the chosen nominal diameter therefore does not matter.

It should be noted, though, when selecting the shaft diameters, or the size of the V-ring for an existing shaft diameter, that the sealing lip's contact pressure against the counter face also rises with increasing expansion. Hence, an expansion as small as possible should be selected (within the dimensional ranges stated in the measurement charts), in order to reduce the wear and tear and to prolong the service life.

## Surface roughness

A shaft surface of  $Ra \leq 6.3 \mu\text{m}$  is sufficient for most of the applications. A roughness value of  $Ra \leq 3.2 \mu\text{m}$  should be observed for sealing liquids of low viscosity.

## Design of the counter face

The sealing between the sealing lip and the counter face is dynamic. The V-ring's sealing function therefore depends largely on the design of the counter face.

## Flatness tolerance

The deviation from the ideal plain counter face should not exceed 0.4 mm on 100 mm.

## Surface roughness

The roughness is to be selected depending on the circumferential speed and the media to be sealed.

Liquid media in combination with high circumferential speeds (from 10 m/s) require a high surface quality of  $Ra = 0.4 \dots 0,8 \mu\text{m}$ .

In the case of a sealing against fat and dust at a low circumferential speed (up to 1 m/s) a value of  $Ra \leq 2.5 \mu\text{m}$  will be sufficient.

## Materials of the counter face

Possible are the types of steel commonly used in machine construction, stain-less steel and cast materials, such as gray cast iron or die cast aluminum. The selection of the material depends primarily on the medium to be sealed and on the circumferential speed.

When sealing water or other corrosive media, either the surface must be protected accordingly (e.g. by chrome-plating) or a type of stainless steel must be selected.

A hardness of  $>120 \text{ HB}$  will be sufficient for standard applications. Harder materials should be used in the case of higher circumferential speeds and/or where abrasive particles are in the medium.