

XR NBR



DESCRIPTION

Product group: XR X-ring
Material: NBR, NB 70, FKM, FP 70
Colour: NBR 70, black, FKM 70, black

OPERATIONAL APPLICATION LIMITS

Temperature NBR: -30 °C to +100 °C
Temperature FKM: -15 °C to +200 °C
Other materials such as VMQ, EPDM and H-NBR are also available, on request.

Pressure (MPa):
dynamic, reciprocal movement to 5 MPa, to 20 MPa with back-up rings
static to 5 MPa, to 40 MPa with back-up rings

Speed (m/s):
reciprocal ≤ 0.5
rotary ≤ 2

FUNCTION

X-rings are twin-action 4-lipped seals with an almost square cross-section profile. The X-rings achieves its sealing effect by being installed and compressed within an axial or radial installation housing. Under operating conditions, the pressure of the medium reinforces the sealing function.

AREAS OF APPLICATION

X-rings are comparable with the O-ring in their handling and use. For example, they are used for the radial and axial sealing of flanges, sleeves and covers (static application) and for sealing pistons and rod seals, rotating shafts and helical movements (dynamic). X-rings are used primarily for dynamic applications, as they require less pretensioning than O-rings and therefore give rise to less abrasion. They are very often used for quasi-static applications, such as adjustment and swivelling movements. They are also used for modern roller chains, such as motor bike chains, for example.

BENEFITS OF THE X-RING (compared with the o-ring)

A high degree of stability for dynamic application, as the X-ring is not susceptible to rolling within the groove (twisting) due to its almost square cross-section.

X-rings require a lower degree of radial pretensioning. This gives rise to less abrasion due to the lower contact pressures in play.

It is possible for a lubricant reservoir to be created between the sealing lips.

Optimised sealing effect due to superior distribution of pressure over the almost square cross-section.

No adverse effect created by the mould-separation ridge as unlike the O-ring, this is not located at the outer diameter but between the actual sealing lips.

INSTALLTION HOUSINGS

Where possible, the installation housings for X-rings should be recessed as right angles and should be carefully processed to avoid any ridges, scratches and notches. To facilitate installation we can offer a variety of surface coatings, on request.

SUITABILITY FOR SPECIFIC MEDIA

NBR

Good chemical resistance to mineral oils and greases, hydraulic oils H, HL, HLP, non-flammable hydraulic pressure fluids HFA, HFB, HFC to approx. +50°C and water to max. +80°C.

FKM

Good chemical resistance to mineral oils and greases, synthetic oils and greases, engine, transmission and ATF oils to approx. +150°C, fuels, non-flammable pressure fluids HFD, aliphatic, aromatic and chlorinated hydrocarbons, water to max. +80°C, excellent resistance to weathering, ozone and ageing, very low gas permeability (and therefore excellent for vacuum application) and resistance to a wide range of chemicals.

INSTALLATION

Avoid damaging the X-ring during installation, as this will cause leakage. Observe the following:

- The X-ring must not be expanded to its elongation limit
- Edges must be burr-free, radii and angles applied smoothly
- Dust, dirt, metal chips and other particles must be removed
- Tips of screws and installation housings for other sealing and guiding elements should be covered by an assembly sleeve
- A suitable grease to be applied to the assembly surfaces and X-rings

- Elastomer materials are made smoother if they are heated in oil or hot water to approx. 80 °C. This makes it easier to stretch the X-ring for assembly
- Any assembly tools used, such as expansion mandrels or sleeves, should be made of a soft material (e.g. POM) and not have any sharp edges
- The X-ring should not be rolled over assembly surfaces. Ensure the X-ring is not twisted as it slots into the groove

