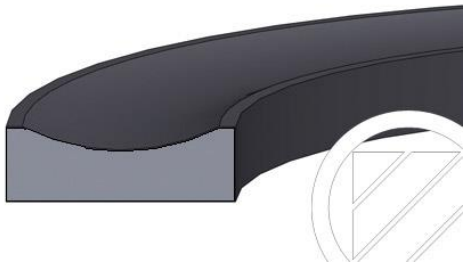
DICHTOMATIK
Any seal. Any time.

STU



DESCRIPTION

Product group: STU back-up ring elastomer
Ausführung: KAV concave
Werkstoff: NB 90

OPERATIONAL APPLICATION LIMITS

Pressure (MPa): max. 12
the max. permissible operating pressure depends on the gap dimensions.
Temperature (°C): -30 bis +100
The operational application limits use are dictated by the O-ring selected. It is only the resistance of the sealing system to pressure which can be increased by the STU back-up ring.

MEDIA

- Hydraulic oils H, HL, HLP as per DIN 51524 Part 1 – 3
- mineral-oil based lubricants and greases
- non-flammable hydraulic pressure fluids HFA, HFB, HFC as per VDMA 24317 to approx. + 50°C
- water to max. + 80°

FUNCTION

The STU back-up ring is a closed ring concave in cross-section. It is produced entirely as a closed ring with no seams, by the injection-moulding process. For our STU back-up rings we use an NBR material of 90° Shore-A hardness, so as to guarantee a high level of resistance to extrusion and abrasion.

The back-up ring's concave cross-section provides the O-ring with a larger contact surface, having the effect of allowing the O-ring almost fully to retain its circular shape under high pressures and to be less liable to deformation. This means that the shape of the O-ring is supported better and it can therefore withstand higher pressure loads. This produces a better sealing effect and increases the seal's service life. Due to its closed design, under high pressures it is not possible for the O-ring to be damaged by a sharp edge at the open-ended joint (as is the case with open back-up rings).

The STU back-up ring is of symmetrical profile. This allows it to be used in both internal and external sealing systems.

APPLICATION

STU back-up rings are used in conjunction with O-rings to avoid gap extrusion. Under high pressures and with large sealing gaps, there is the risk that the material of the O-ring is compressed into the sealing gap at the side not subject to pressure. If this process is repeated and if the pressure rises further, then irreversible damage may be caused to the O-ring and it may eventually be completely destroyed. STU back-up rings are used to reduce the risk of gap extrusion. These reduce the sealing gap at the side of the O-rings not subject to pressure. STU back-up rings do not fulfil any sealing function per se. However, by reducing the sealing gap at the side not subject to pressure, they ensure that the O-ring can fulfil its sealing function in the long term, without suffering any damage. Back-up rings are also used for applications involving pulsed and varying pressures.

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STU back-up rings are often used in hydraulic systems, especially in hydraulic valves and hydraulic pumps, and also for sealing cylinder bottoms and heads (in conjunction with O-rings). However, STU back-up rings are also used in many other fields of industry as a whole, e.g. for sealing ball valves.

INSTALLATION

STU back-up rings are installed behind the O-ring at the side not subject to pressure where the pressure load is applied at one side only. The concave side faces the O-ring and the flat side the gap. Where the pressure direction varies or in order to avoid an installation error from the outset, use should be made of two back-up rings, i.e. one at each side of the O-ring. When use is made of STU back-up rings, the installation housing must be created in accordance with the manufacturer's specifications. It is often the case that installation housings are wider than simple O-ring installation housings.

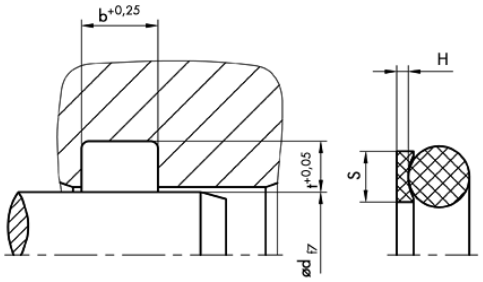
STU back-up rings are made of elastomer and are therefore elastic. This allows them to be expanded and makes them easy to fit into their installation groove. The design and finish of installation housings in terms of surface quality and corner radii are as set out in our O-Ring Catalogue (Page 38, Layout Guidelines).

During installation, be careful to avoid any damage to the STU back-up ring as otherwise this will restrict it in its function. You will find other important information on installation in our O-Ring Catalogue (Page 41, General Installation Instructions).

INSTALLATION HOUSINGS

The groove widths b1 and b2 are presented in the following table:

STU Profile width	S= 1.35 mm	S= 2.18 mm	S=3.0 mm	S=4.65mm	S= 5.99 mm
b1	3.5-3.7	4.7-4.9	5.8-6.0	8.7-8.9	12.0-12.2
b2	4.6-4.8	5.8-6.0	6.8-7.0	10.2-10.4	14.4-14.6



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