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K 35-P

a special sealing solution for  
various applications

ECONOMOS®

quality sealing solutions



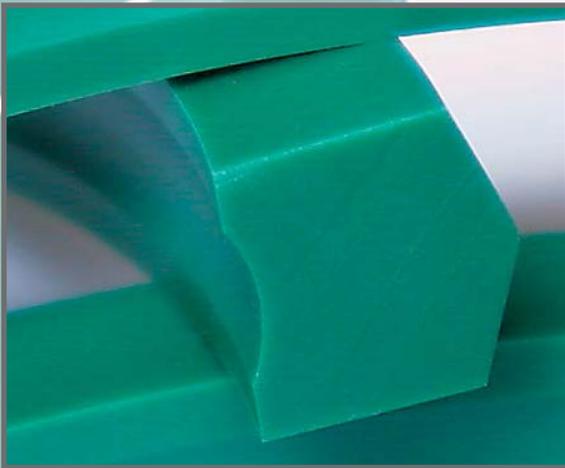
A world leader in the production of custom-made high performance sealing systems presents

## K 35-P Profile

A versatile double acting piston seal for static and dynamic applications

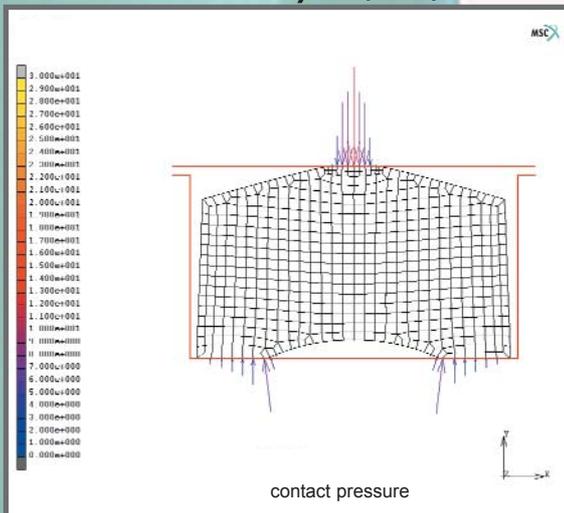
The single-piece piston seal K 35-P is a double acting compact seal for a wide range of static and dynamic applications.

The seal profile is optimized for polyurethane materials, which leads in combination with the compact seal geometry to a high pressure resistance and long service time.



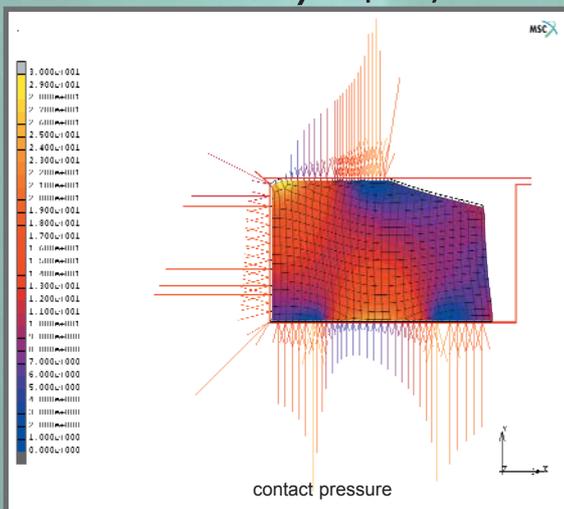
K 35-P profile (ECOPUR<sup>®</sup>)

### Finite Element Analysis (FEA)



contact pressure distribution after installation  
( $p = 0$  bar)

### Finite Element Analysis (FEA)



contact pressure distribution at  $p > 0$  bar

Years of experience in dynamic and static sealing solutions in connection with the use of modern Finite Element Programs (FEA) for non-linear material behaviour resulted in the profile K 35-P with its excellent sealing characteristics for all pressure ranges.

Due to the slightly increased radial preload of the cross section, no activating pressure is needed for low pressure ranges to obtain a compact sealing behaviour as it is the case for standard lipseals. At higher pressure the deformation of the seal cross section generates a contact pressure distribution in the area of the sealing gap which leads to an excellent dynamic sealing performance also at increased speeds.

On the other hand, the risk of gap extrusion is minimised by the geometry and material and therefore additional back-up rings are not needed.

### Advantages:

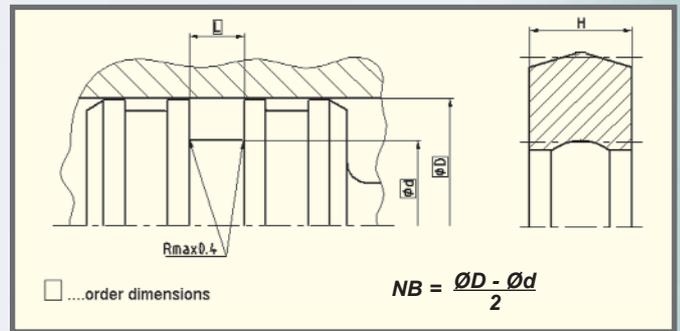
- simple, single-piece geometry
- double acting pressurisation
- high pressure load up to 400 bar
- no twisting and tilting of the profile
- adaptable for almost all existing housings
- high tightness at low pressure
- suitable for vacuum applications
- minimised gap extrusion, no additional back-up rings
- long service life
- smooth surface - suitable for sterilisation in the food industry
- compensation of production tolerances
- diameter range from 4 to 4.000 mm
- easy to install (less parts)

K 35-P n  
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## Recommendations for housing and installation:

The cross-section of the K 35-P is adaptable for almost all existing housing dimensions. For new housing designs, a ratio CS / L of 1:1,35 is recommended.

Normally these seals may be snapped into closed grooves. For extreme ratios of diameter to cross section open grooves, the use of special assembly tools may be required. Proposals for the design of such tools will be provided on request.



Order dimensions for K 35-P

## Operating parameters depending on the material characteristics

The profile geometry is optimized for polyurethanes. For special working conditions such as high temperature and aggressive media which cannot be met with polyurethane, many standard and special elastomeric materials are also available.

material	temperature	max. surface speed	max. pressure <sup>1</sup>
ECOPUR	-30 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)
H-ECOPUR	-20 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)
S-ECOPUR	-20 °C ... +110 °C	0,5 m/s	400 bar (40 MPa)
T-ECOPUR	-50 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)
G-ECOPUR	-20 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)

<sup>1</sup> pressure ratings are dependent on the size of the extrusion gap

Operating parameters: the stated operation conditions represent general indications. It is recommended not to use all maximum values simultaneously. Surface speed limits apply only to the presence of adequate lubrication film.



Profile R 35-P

Detail of R 35-P



Profile S 35-P

## O-Ring-Replacement:

Profile K 35-P is an optimized alternative to conventional O-rings. The stable design minimises the risk of twisting during installation and at dynamic applications. For this purpose the seal is also available with an inside (S 35-P) or a lateral (R 35-P) sealing edge.

## Applications:

The double acting piston seal K 35-P can be used for many applications, as per example:

- oil- and water hydraulics
- pneumatics (modified design)
- static sealing applications
- O-ring replacement (particularly for dynamic use)
- food industry
- valve shaft seal or spools
- discharge piston seal

Double acting hydraulic piston



Single acting hydraulic piston



Discharge piston for food industry

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