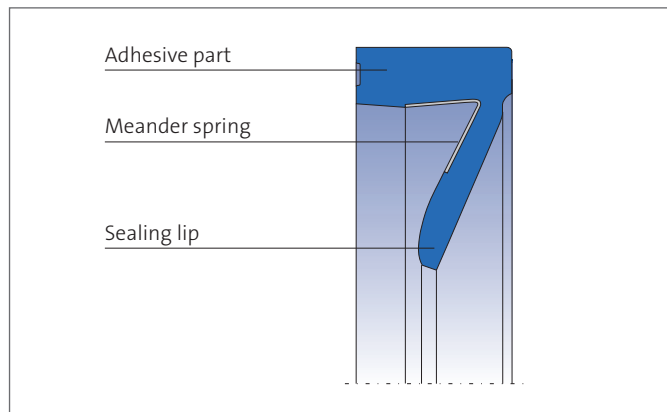


SEVENTOMATIC S71



Seventomatic S71 is an elastomeric shaft seal with an integrated meander spring, offering a flat spring characteristic to ensure a permanent, even preload of the sealing lip.



VALUE TO THE CUSTOMER

- Excellent sealing function even under difficult operating conditions
- Flexible sealing lip allows for great eccentricity
- Durable and highly wear-resistant
- Very good media and aging resistance
- Especially for bearing diameters from 1500 to 4000 mm – smaller diameters on request
- Manufacturing of any diameters possible with no tooling cost due to a precision joining process
- Single-piece seal for high safety during installation
- Can be joined on site if required

Application

Special seal designed for use in grease-lubricated main bearings in multi-megawatt wind turbines.

Material

Sealing lip and adhesive part	V-spring
75 HNBR U467	ST 1.4310

Further materials on request.



TECHNICAL PROPERTIES

Operating conditions

Material	75 HNBR U467
Mineral oils	-30 ... +120 °C
Lubricating greases	-30* ... +120 °C**
Pressure	0,05 MPa
Sliding speed	3 m/s

Use of other media on request. The figures shown in the table are maximum values and must not be applied simultaneously.

* Low temperature duty in wind turbines

The performance of the seal is maintained also at low temperatures. Even after a freeze during standstill, the functionality of the seal is completely reversible as soon as the temperature rises again.

During slow spinning or during a start-up phase of the rotor, a very rapid rise in temperature at the sealing lip can be observed.

A static application down to -50 °C (-58 °F) is therefore unobjectionable.

** Limitation of the medium temperature for maximum service life

The specified maximum values are a benchmark for the industry standard with the usual operating times and regular maintenance intervals. High temperatures favor the aging effect of the seal. In order to meet the demand for a long service life in wind turbines, we therefore recommend limiting the temperature of the medium to 90 °C.

Compatible, tested media for wind energy applications:

Klüberplex BEM 41-141, Mobil SHC 460 WT, Mobil SHC 007, SKF LGWM 1, FAG Arcanol Load 460, Fuchs Stabyl EOS E2

Surface finish

Peak-to-valley heights	R_a	R_{max}
Sliding surface	$\leq 0,6 \mu\text{m}$	$\leq 2,5 \mu\text{m}$
Housing	$\leq 4 \mu\text{m}$	$\leq 15 \mu\text{m}$

Machining is carried out most effectively by plunge grinding, i. e. without forward feed. Surface hardness: approx. 55 HRC (min. depth of hardness 0,5 mm).

In order to ensure a sufficient lubricating film, the surface should not be too smooth. Standard value: $R_a \text{ min.} = 0,1 \mu\text{m}$.

Profile bearing length ratio $t_p > 50\%$ up to max. 90% at average depth $c = R_z/2$ and reference line $C_{ref} = 0\%$.

Abrasive surfaces, ridges, scratches and blow-holes are to be avoided.

Overall eccentricity

The permissible overall eccentricity (static and dynamic eccentricity) between shaft and housing depends on the selected profile size of the seal, e. g.:

Profile [mm]	Overall eccentricity [mm]
30 x 30	+/- 3
32 x 25	+/- 4
37 x 30	+/- 4

Installation & assembly

The shaft seal Seventomatic S71 is delivered with an over-size in height (axial length). To ensure reliable operation, the seal must be axially pressed to the dimension "L" of the housing. An axially accessible, open housing with a cover plate and tightening screws is therefore required. For the pressing, certain deformation forces are necessary. Please ask for guide values. The cover plate and tightening screws have to be designed accordingly.

Seal maintenance (MRO)

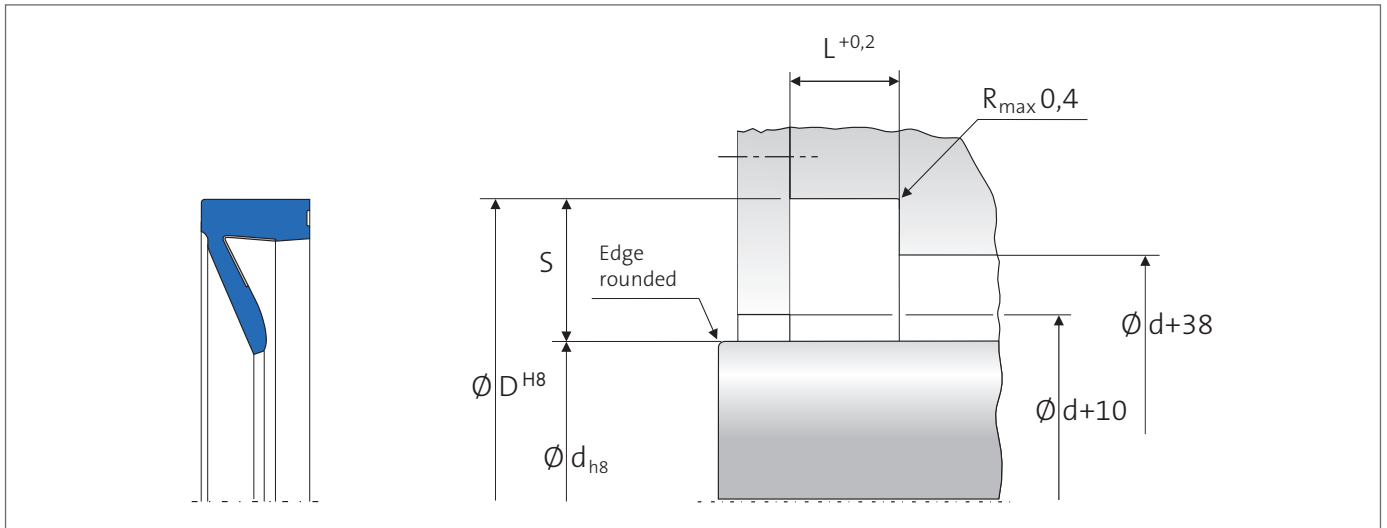
With the aid of the Merkel Bonding Set RK15, the seal can be exchanged on site in the event of a replacement, without the extensive dismantling of adjacent components. The bonding set is customized to the respective diameter. The replacement is made by cutting and gluing of the seal.

Design notes

Please see the general remarks in our Technical Manual



INSTALLATION DIAGRAM



The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

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