

# Rotary seals

## Precision Seals for Rotary Applications

The construction machinery and general mobile equipment industries require efficient rotary transmissions for hydraulic fluids. This applies in all cases where the use of hoses is not practicable for reasons of safety, function or lack of space.

Parker took into consideration the compact design of these rotary transmissions and designed equally compact sealing elements which can be snapped into simple grooves.

There are two different types of rotary seals: For the stator with dynamic sealing on the inside, and for the rotor with dynamic sealing on the outside diameter of the seal.

Care must be taken to ensure that the high pressure channels are placed towards the center, while the return, the low pressure, the control, and the leakage channels are placed towards the end (atmospheric side) of the rotor. This will ensure that the highly stressed high pressure seals are lubricated and cooled from both sides, and that no contamination may penetrate from outside. Due to the reciprocal pressure load, the back-up rings will also be sufficiently lubricated.

As the end seals are subjected to low pressure only, the problem of contamination and abrasion is here of minor importance.

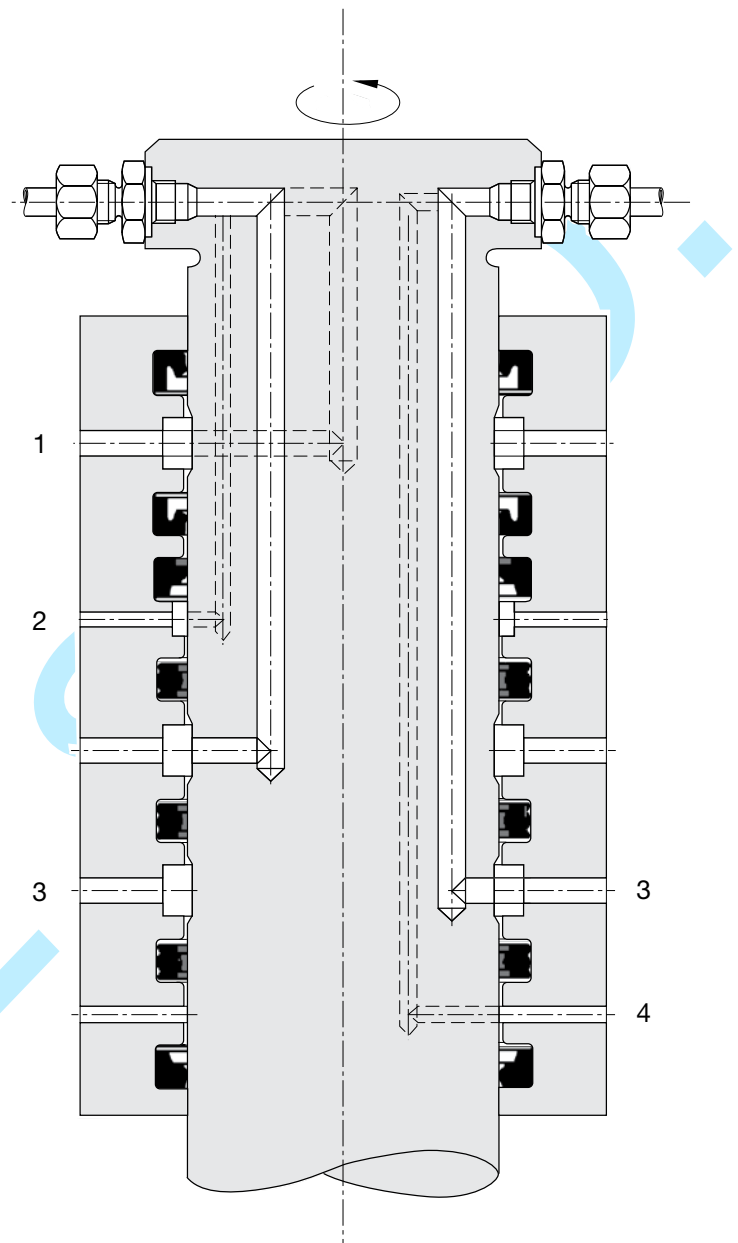
Please contact our application engineering department before installing a continuously rotating transmission.

### The $P \cdot v$ -Value

It is a basic principle that the higher the operating pressure, the lower the allowable peripheral speed, and vice versa. In this context, the characteristic value  $P \cdot v$  should be mentioned. As a product of pressure [bar] and speed [m/s], it marks the upper limit of allowable loading.

The  $P \cdot v$ -value varies for different types of seals and is stated for every profile on the respective catalogue page (working conditions).

These values represent an estimation on the basis of many years of experience, and are based on normal operating conditions. Expressed in another way, in isolated cases these values can be considerably lower, e.g. when the temperature is very high or when a very poor lubricant is used. Additionally, the prescribed limits regarding pressure and speed must be observed.



- 1 = Pneumatic pressure
- 2 = Pilot pressure
- 3 = System pressure
- 4 = Drain or return pressure



- Enhanced sealing performance in non-pressurized conditions.
- Robust seal profile for harshest operating conditions.
- Extreme wear resistance.
- Insensitive to pressure peaks.
- High temperature resistance in case of suitable compound selection.
- Extremely high extrusion resistance.
- Installation in closed and undercut housings.

The profile KA rotary sealing set consists of a fabric-reinforced rubber sealing part and two back-up rings to increase the stability and to prevent extrusion into the gap, especially for applications where eccentricity occurs.

Due to the special design of the dynamic surface a “grease depot” will be built up retaining the lubrication film and avoiding dry operation.

## Range of Application

Mainly for applications where the pressure alternates from one side of the seal to the other, such as pivots for rotating track rings, swivel joints, hose reels, and in machine tool hydraulics.

### Working pressure

≤ 60 °C	≤ 400 bar
≤ 80 °C	≤ 315 bar
≤ 100 °C	≤ 250 bar

### Working temperature

-30 °C to +100 °C

### Surface speed

≤ 0.2 m/s

Recommendation for rotary transmissions:  $P \cdot v \leq 50$

(For definition see catalogue “Hydraulic Seals”, chapter “Rotary Seals”, introduction.)

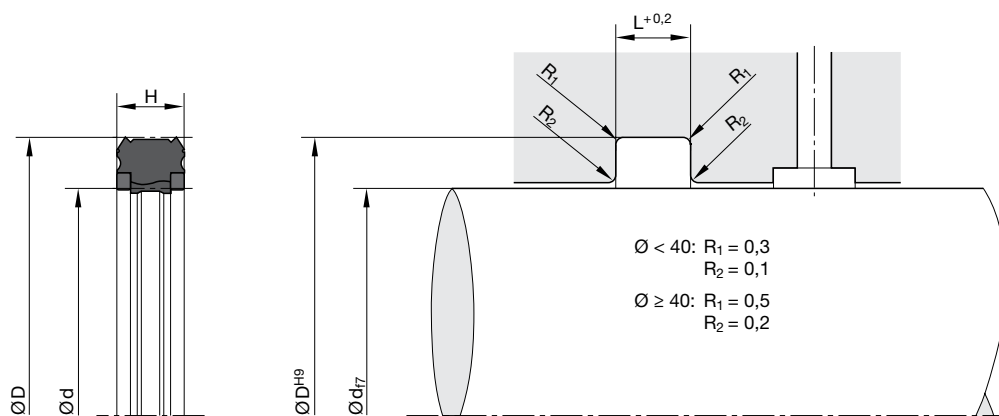
## Compounds

Standard compound for the sealing part is a NBR-based elastomer with fabric-reinforced dynamic surface (Z5011/Z5014). The back-up rings are made of a polyamid-based material.

## Installation

The profile KA rotary sealing sets are designed to be snapped into closed grooves. Special versions for open grooves in endseal applications are available. During installation, first the sealing part must be installed, followed by the back-up ring. To avoid damaging the seal, sharp edges within the installation area should be removed.

In case of special operating conditions (specific pressure loads, temperature, speed, use in water, HFA, HFB fluids etc.), please contact our consultancy service for a selection of the material and design best suiting your particular application requirements.



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

d	D	H	L	Order code
30	42	6	7	KA 0030 00650
50	62	7.5	8.5	KA 0050 00650
65	77	6	7	KA 0065 00650
89	106	8.5	9.5	KA 0089 00650
90	106	10	11	KA 0092 00650
90	110	10	11	KA 0090 00650
90	110	11	12	KA 0091 00650
90	110	12	13	KA 0093 00650
95	112	10	11	KA 0087 00650
95	115	11	12	KA 0088 00650
100	120	11	12	KA 0100 00650
100	120	12	13	KA 0101 00650
105	125	11	12	KA 0104 00650
105	125	11	12	KA 0107 00650
109	129	10	11	KA 0109 00650
110	130	10	11	KA 0110 00650
110	130	12	13	KA 0112 00650
125	145	12	13	KA 0125 00650
130	145	10	11	KA 0128 00650
130	150	10	11	KA 0132 00650
140	160	12	13	KA 0141 00650
160	180	10	11	KA 0161 00650
180	200	10	11	KA 0181 00650
200	220	10	11	KA 0200 00650
200	225	15	16	KA 0201 00650
210	235	12.5	13.5	KA 0211 00650
262	292	15	16	KA 0262 00650

Further sizes on request.