

# ClearSeal™

PRODUCT DATA SHEET



## HOW DOES IT WORK

- ClearSeal™PRW prevents impurities in the hydraulic oil /pressure media from reaching seals, bearings and other components. Such impurities are the most frequent cause of breakdowns in hydraulic applications.
- ClearSeal™PRW is an invisible, but critical component that extends the lifetime of the system dramatically and gives predictable maintenance intervals.
- ClearSeal™PRW has a compact design and simple geometry, allowing easy installation and low risk of malfunction.
- ClearSeal™PRW gives low friction and has no impact on other functions in the system.
- ClearSeal™PRW can be installed on the pressure side of conventional sealing systems. It functions as «reactive» maintenance in existing applications.

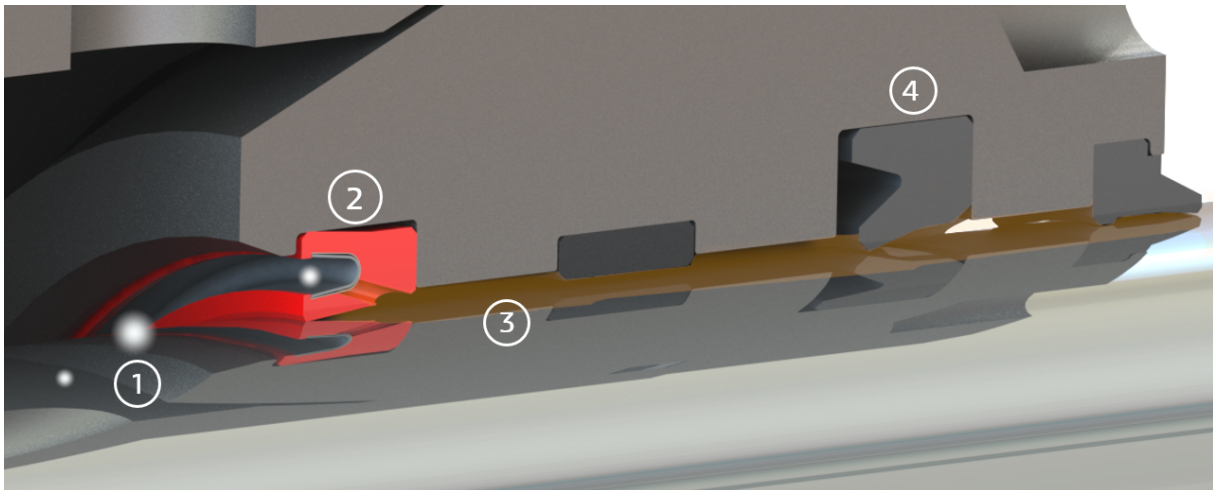


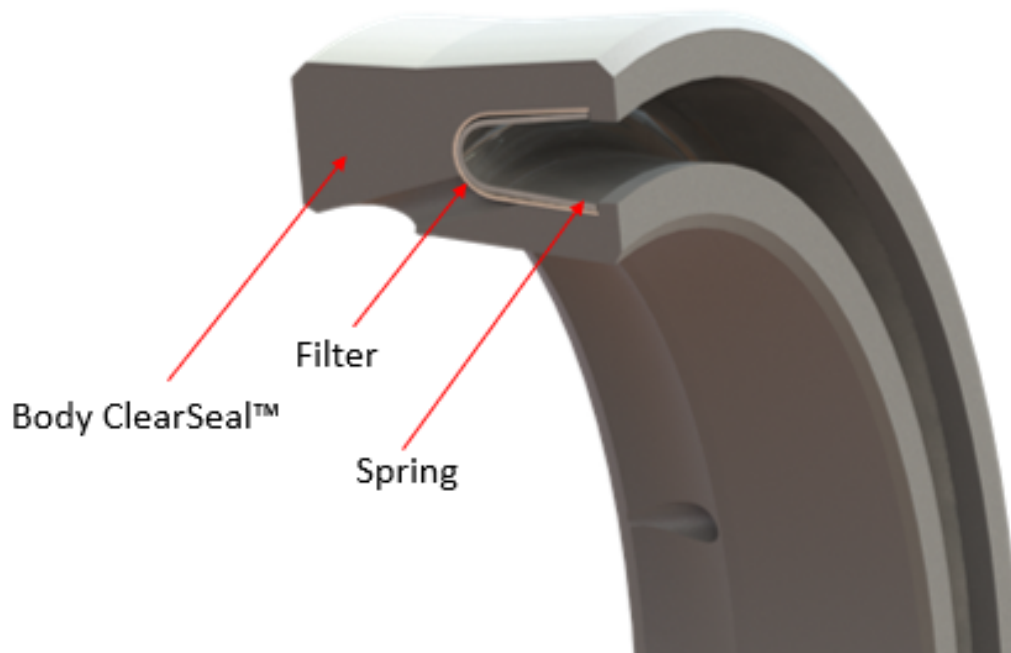
Figure: 1.Debris 2. ClearSeal™PRW 3.Clean medium 4. Sealing element

# MATERIALS

Body ClearSeal™: PU or PTFE

Filter: PEEK

Spring: 316L or Elgiloy



Service temperature	PU	PTFE	PEEK
Min. [°C]	-20	-200	-100
Max. [°C]	+121	+260	+250

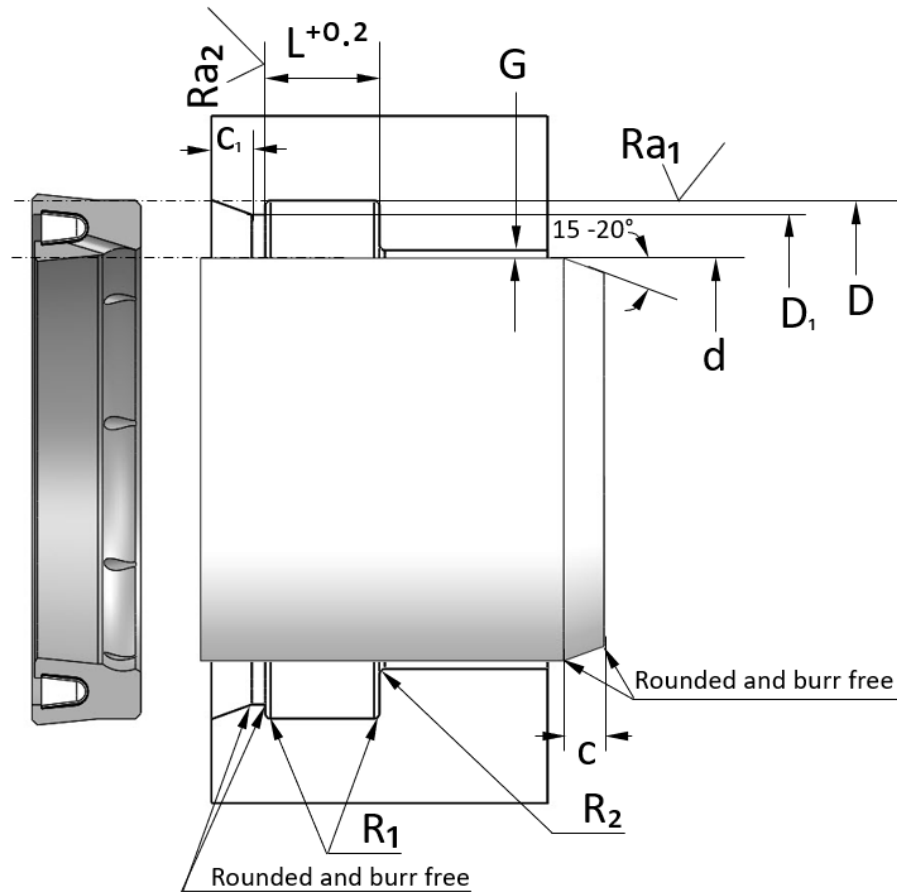
## HOUSING RECOMENDATIONS

ClearSeal™ can be adapted to most sealing systems. Please get in touch with Seal Engineering for other dimensions than recommended below.

Standard dimensions - INT (Rod) Clear Seal™ PRW											
serie	d f8	D H8	D <sub>1</sub> H9	L <sup>0/+0.2</sup>	G <sub>max</sub>	R <sub>1</sub>	R <sub>2</sub>	c	c <sub>1</sub>	Ra <sub>1</sub>	Ra <sub>2</sub>
200	30 - 500	d + 8.6	d + 5.8	8.5	0.6	0.4	0.2	3.0	3.0	≤ 1.6	≤ 3.0
300	100 - 1000	d + 12.0	d + 8.0	11.9	0.9	0.4	0.2	4.0	4.0	≤ 1.6	≤ 3.0
400	> 300	d + 19.0	d + 12.6	18.9	1.4	0.4	0.2	6.0	6.0	≤ 1.6	≤ 3.0

### INT (ROD) ClearSeal™

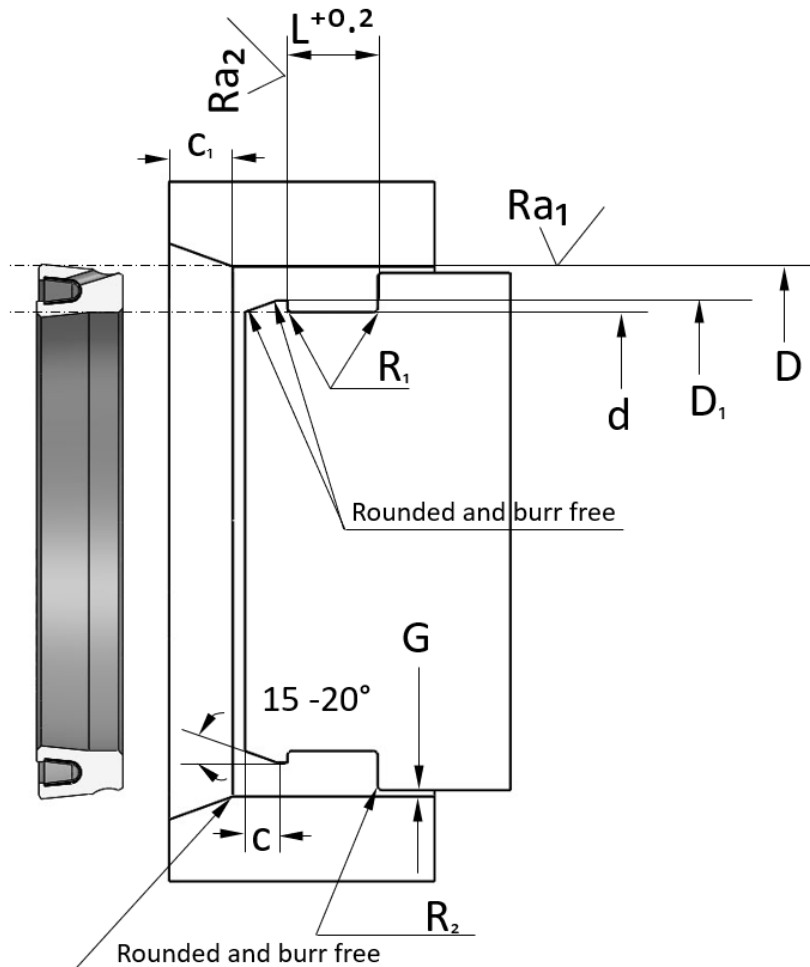
For further information about surface properties of the rod follow the guidelines for dynamic seals.



## EXT (PISTON) ClearSeal™

Standard dimensions - EXT (Piston) Clear Seal™ PRW											
serie	D H8	d h8	D <sub>1</sub> h9	L 0/+0.2	G <sub>max</sub>	R <sub>1</sub>	R <sub>2</sub>	c	c <sub>1</sub>	Ra <sub>1</sub>	Ra <sub>2</sub>
200	50 - 500	D - 8.6	d + 2.8	8.5	0.6	0.4	0.2	3.0	6.0	≤ 1.6	≤ 3.0
300	100 - 1000	D - 12.0	d + 4.0	11.9	0.9	0.4	0.2	4.0	8.0	≤ 1.6	≤ 3.0
400	> 300	D - 19.0	d + 6.4	18.9	1.4	0.4	0.2	5.0	10.0	≤ 1.6	≤ 3.0

For further information about surface properties of the cylinder bore follow the guidelines for dynamic seals.



## INSTALLATION GUIDELINES

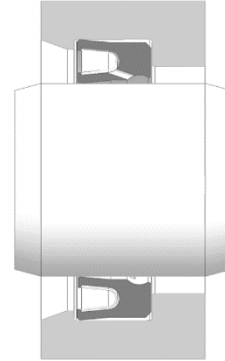
- Shall only be installed in equipment with geometry, dimensions, and tolerances given by Seal Engineering.
- Machining residues should be removed, and all parts and tools should be thoroughly cleaned
- All tools should be rounded
- Installation of seals is made easier if the metal parts or seals are greased or oiled. However – make sure that sealing material(s) is compatible with lubricants applied
- For assembly of ClearSeal™ in PTFE special tool may be required.

**NOTE: ClearSeal™ must not be kidney shaped because this will permanently deform**

**the spring and dislocate the filter.**

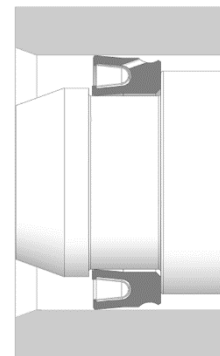
#### **Installing INT (ROD) ClearSeal™**

ClearSeal™ gently bends into an ellipse shape and one of the sections is pressed into the groove, then the sides of ClearSeal™ are pressed into the groove. Finally, the remaining end of the ClearSeal™ is pressed into the groove and the assembly are completed.



#### **Installing EXT (PISTON) ClearSeal™**

ClearSeal™ may be stretched into position by hand, depending on size, cross section and material. Special assembly tools may be required for PTFE.



## **INITIAL INSTALLATION**

For oil filling and venting, it is advisable to follow the instructions from the system manufacturer. Internal tests show that ClearSeal™ is not a weak link in the system.

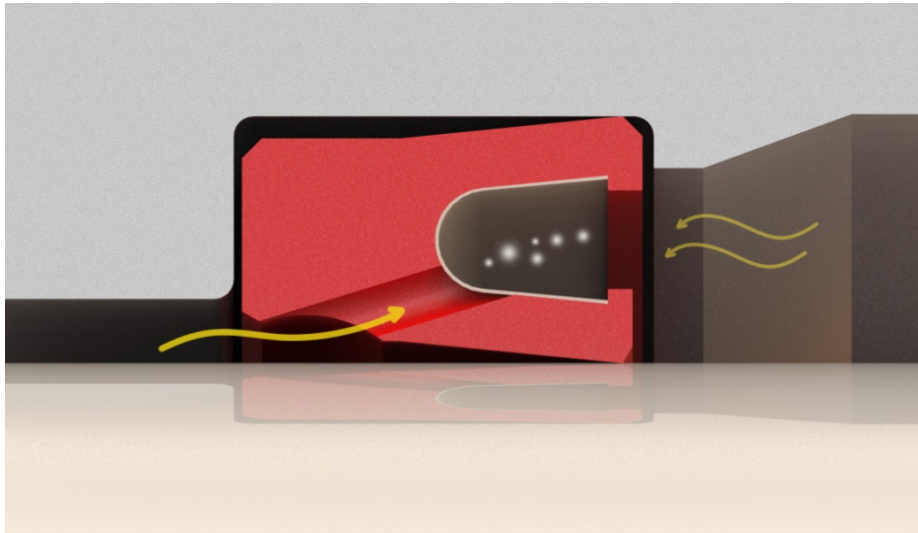
## **FAQ**



**Q:** Is there a risk that holes in ClearSeal™ will clog?

**A:** ClearSeal™ is not a substitute for normal cleanliness of the system. Often a breakdown of hydraulic application is caused by a few metal parts left after manufacture or service. Through many internal tests we have not observed completely clogged holes.

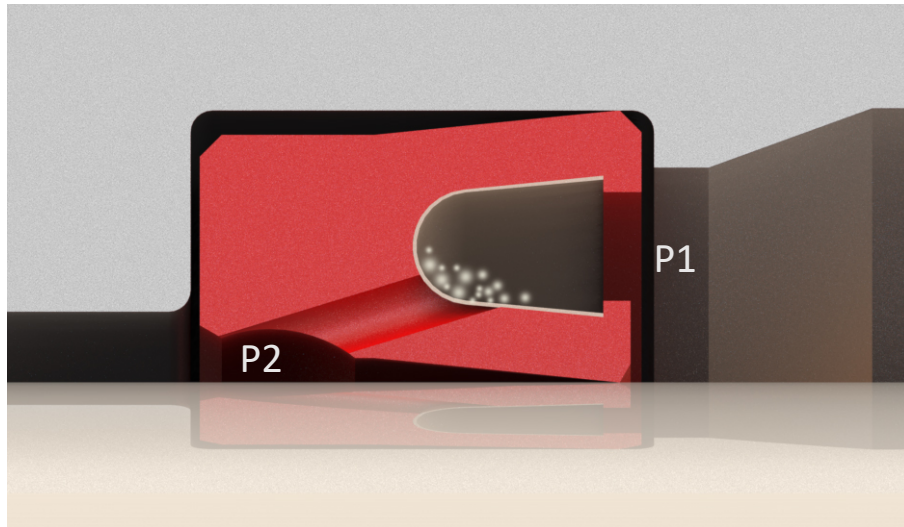
By pressure exchange, the compressibility of the oil will cause the flow through ClearSeal™ holes in the alternating direction to release the particles stuck in the filter.



**Q:** What if the holes in ClearSeal get clogged?

**A:** It is unlikely that the holes will clog. With clogged holes ClearSeal™ will act as a seal.





$\Delta P = P1 - P2$  increases  $\rightarrow$  ClearSeal™ acts like a seal

**Q:** Can large particles damage wiper lip?

**A:** ClearSeal™ has a lip geometry that prevents particles to get stuck between the lip and the hardware.

