



ISO-9001/14001
ISO/TS-16949
OHSAS-18001

Product Information

Hydraulic & Pneumatic Seals

NAK HYDRAULIC & PNEUMATIC RANGE OF SEALS includes Piston Seals, Rod Seals, Wiper Seals, Wear Rings, etc. Rubber, Polyurethane, PTFE, Nylon and other materials are used to create a variety of seals to work under different hydraulic and pneumatic conditions. Most of these seals are designed for the reciprocating motion used commonly in hydraulic and pneumatic applications such as cylinders. To meet the critical requirements of the hydraulic and pneumatic equipment industries, NAK offers a wide range of designs.

HYDRAULIC & PNEUMATIC SEALS



Navigator of Sealing Technology

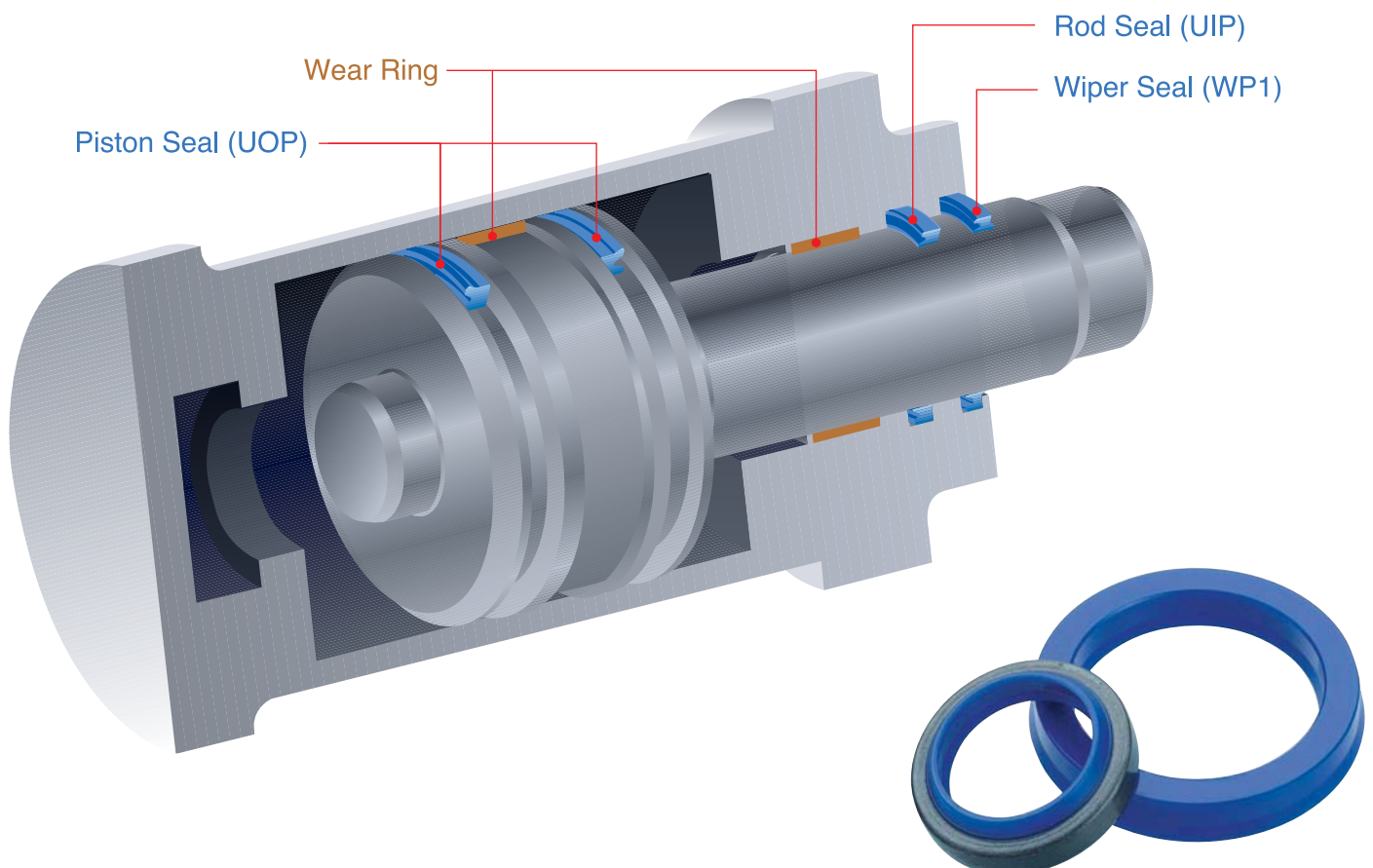
Product Description

Sealing Products for Hydraulic and Pneumatic Cylinder Applications

For the hydraulic and pneumatic equipment, the cylinder design is getting more and more high-tech and complex. As a result, for the cylinder application, a variety of different seals are required, and the seals need to offer long service life and reliability. Sealing elements are critical components for the hydraulic and pneumatic cylinder. Their main function is to prevent the cylinder fluid or gas from escaping, so that to ensure the normal functioning of the cylinder whether in a pressurized or un-pressurized state.

Function of Cylinder Seals

| | |
|--------------------|---|
| Wiper Seal | To prevent external contaminants from entering the system |
| Rod Seal | Installed and fixed on the cylinder bore to seal against the rod |
| Piston Seal | Installed and fixed on the piston groove to seal against the cylinder |
| Wear Ring | To prevent metal-to-metal contact |



Technical Information

Sealing Design for the Hydraulic & Pneumatic Applications

For Hydraulic and Pneumatic Seals, NAK provides various types and designs for customer selection.

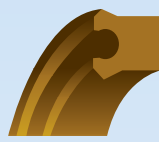
NAK Rod & Piston Seal



UNP



UNR



HB



HBX



UIP



UIP2



LIP



CIP



UOP



COP



LOP

NAK Wiper Seal



WP1



WP2



WP3



WP4



WP5



WP10



WP21



WP22

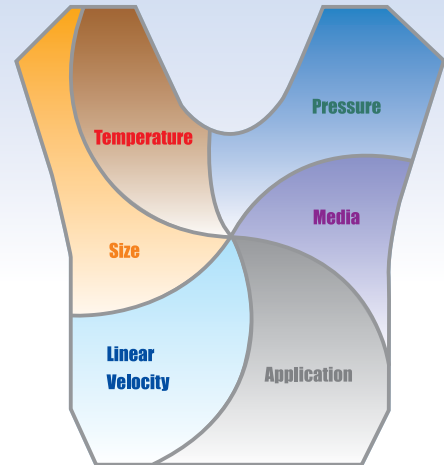
For more information of type selection and details, please contact us.

Application



Selection of Hydraulic and Pneumatic Seals

Sealing elements are vital in the hydraulic and pneumatic equipment. Their use is critical and they provide a way for the fluid power to be changed into liner motion. However, seal failure can be detrimental to the equipment, and so it is important to have the right seals installed. Selection of proper hydraulic and pneumatic seals is depending on the following factors:



- **Application**-Hydraulic or pneumatic; piston or rod; surface conditions of shaft and housing bore; for use under dry running, lubrication, or without lubrication.
- **Size**-Shaft outer diameter (seal inner diameter); bore diameter (seal outer diameter); axial cross section and radial cross section.
- **Temperature**-Fluid temperature and operating temperature. Both average and peak temperatures should be taken into consideration.

- **Pressure**-Static as well as dynamic pressure should be noticed. Maximum operating pressure is also an important parameter.
- **Linear Velocity**-Number of cylinder strokes, maximum speed, etc.
- **Media / Fluid**-Type of media, its volume, etc.

Disclaimer

1. NAK product is prohibited to use, install or apply in or on any aerospace related instrument and equipment.
2. NAK has no liability under any express or implied Warranty if NAK Product:
 - is modified or tampered;
 - is misused, abused or misapplied;
 - is used in a critical environment or specific equipment without NAK prior written acknowledgement;
 - is not used in accordance with the printed user instruction materials
 - is damaged owing to natural deterioration, decomposition or transformation of chemical structure
3. If NAK's product to be applied in critical environment or specific equipment, it is only allowed to launch into mass production when the sample has been passed the testing conducted by the user.



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