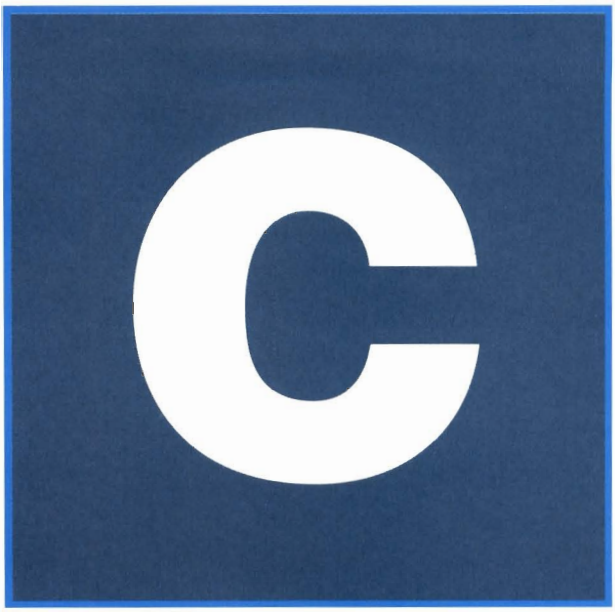


NOK Oil Seal Types

C

C. NOK OIL SEAL TYPES

At NOK, we classify oil seals as "standard" oil seals and "general" oil seals.

Standard Oil Seals

Standard oil seals are selected on the basis of NOK's extensive track record and understanding of customer needs, and have the following characteristics.

1. Versatility

These oil seals can be used under normal defined operating conditions. (Standard models and standard materials).

See pages E-6 and E-7 for normal operating conditions.

2. Readily Available

These are easily obtained in Japan and throughout the world.

3. Conforms to International and Domestic Codes and Standards

NOK oil seals comply with ISO, JIS, and JASO standards. (Standard types and standard dimensions, shaft outer diameter of 300 mm or less)

For standard oil seals, refer to **Table 1** "Types and Features of NOK's Standard Oil Seals."

General Oil Seals

NOK's general oil seals are designed for specific machines or special conditions and requirements.

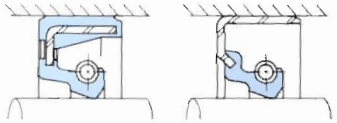
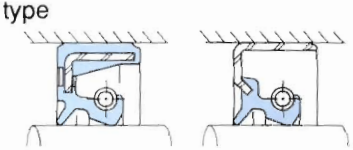
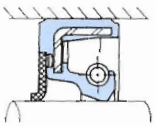
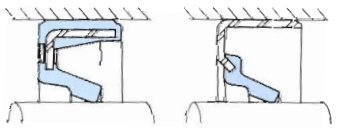
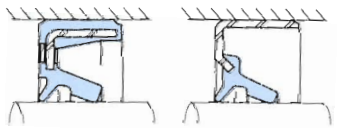
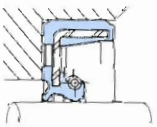
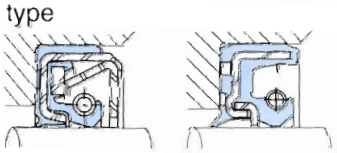
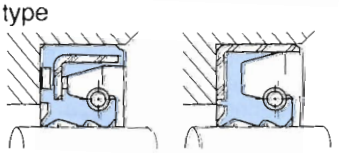
For the types of general oil seals for general-purpose use, or with a complete dimensional series, See **Tables 2-1 and 2-2**, "Types and Features of NOK's General Oil Seals." Certain other types of oil seals are listed in **Table 3**, "An Introduction to Other Types of Seals."

Please contact us regarding oil seals not listed in this book (i.e., oil seals of standard designs or dimensions but of non-standard materials, or oil seals of standard designs or materials but of non-standard dimensions).

The oil seals listed in this book are not designed to be used in medical equipment. Do not use these oil seals in medical equipment or devices that are used for transplant surgeries or otherwise have contact with bodily fluids or human tissue.

Types and Features of NOK's Standard Oil Seals

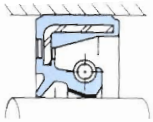
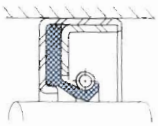
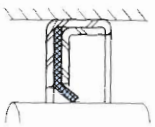
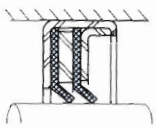
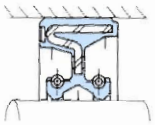
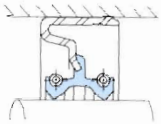
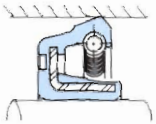
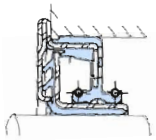
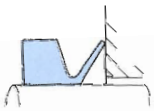
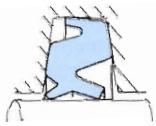
Table 1: Types and Features of NOK's Standard Oil Seals

NOK Type Designation and Cross-Section	Shaft Motion	Primary Uses	Features	Page Numbers Showing Dimension Listings			
				Nitrile	Acrylic	Silicone	Fluorocarbon
S type  **SC type** **SB type**	Rotating	Oil seal for dust-free applications (Maximum pressure: 0.03MPa{0.3kgf/cm²})	Oil seal for dust-free use with fluid sealed on one side	H-2	H-15	H-18	H-21
T type  **TC type** **TB type**	Rotating	Oil seal for dusty environments (Maximum pressure: 0.03MPa{0.3kgf/cm²})	Oil seal for very fine dust duty on one side, and fluid sealed on the other side	H-25	H-36	H-39	H-42
New Fabric Seal  **TCK type**	Rotating	Oil seal for coarse dirt/sand environments (Maximum pressure: 0.03MPa{0.3kgf/cm²})	The TCK type can be used for the same purposes as the TC and TB types, but it features better dust resistance and air permeability. It produces less friction because the dust lip is made of a NOK-developed special fabric.	H-45	—		
V type  **VC type** **VB type**	Rotating	Grease or dust seal (Cannot be used for high-pressure applications)	Used to seal in grease or seal out dust. Can be used in combination with the S-type oil seal.	H-47	—		
K type  **KC type** **KB type**	Rotating	Grease seal for dusty envionment duty (Cannot be used for high-pressure applications)	Used to seal in grease when there is a small amount of dust on the other side. Two V-type oil seals can also be used.	H-53	—		
TCV type 	Rotating	Oil seal for pressurized duty (For allowable pressures, see pages E-4 and E-5.)	Pressure-resistant oil seal with increased lip rigidity. Used for relatively small-diameter and medium-pressure rotating shafts.	H-55	—		H-58
TC type  **TCN type** **TCZ type**	Rotating		Pressure-resistant oil seal with an auxiliary cage to minimize lip deformation under pressure. Used for high-pressure rotating shafts.	H-55	—		H-58
T4 type  **TC4 type** **TB4 type**	Reciprocating	Oil seal for reciprocating-shaft applications (For allowable pressures, see page E-7.)	Oil seal designed to minimize lip deformation under reciprocating motion and pressure.	H-60	—		

C

Types and Features of NOK's General Oil Seals

Table 2-1: Types and Features of NOK's General Oil Seals

NOK Type Designation and Cross-Section	Shaft Motion	Primary Uses	Features	Page Numbers Showing Dimension Listings (Nitrile / Acrylic)
J type (PTFE)  **TCJ type**	Rotating	Seal for two-cycle engines, torque converters, or washers	Oil seal with a sealing edge of NOK's unique PTFE (ethylene tetrafluoride resin) featuring excellent self-lubricity. Best for use in poor-lubrication areas or low-friction torque use	H-63
 **SA1J type**	Rotating	Chemical-resistant seal for high-pressure duty	Oil seal with a sealing edge of NOK's unique PTFE (ethylene tetrafluoride resin) for excellent chemical resistance SA1J type : Garter spring and case are made from SUS (stainless steel) material. Good for sealing chemicals. VAJ type, KA3J type : Case is made from SUS (stainless steel) material. Good for sealing fine particulates or highly viscous fluids.	H-65
  **VAJ type** **KA3J type**	Rotating	Seal for agitator, blower, or food processing applications		H-65
D type   **DC type** **DB type**	Rotating	Seal to segregate two types of oils	Oil seal in which two sealing lips are placed in opposing directions. Refer to Note (4) on page E-5.	H-67
OC type 	Rotating(Housing)	Oil or grease seal with a rotating housing structure	Oil seal in which sealing lip is placed on the outer periphery; best for rotating housing structures.	H-69
QLFY type (Unitized Seal and Shaft Assembly) 	Rotating	Seal for an axle or claw axle of a tractor or power tiller	Oil seal to separate muddy water and oil; used with a cured rubber sleeve as a set. Since the oil seal is integrated with the sleeve, handling is easy.	H-71
VR type (V-shaped End Face Seal) 	Rotating	Grease or dust seal for various machines (Use W type seals to seal water or scale at the roll neck of rolling mills)	Unitized rubber seal: used by press-fitting the inner surface and sliding seal axially to contact the end face of the housing.	H-73
Z type   **ZF type** **ZT type**	Rotating	Grease seal for the plummer block of an anti-friction bearing	Used by mounting the oil seal into the trapezoidal groove of the plummer block of an anti-friction bearing. Use ZT type for a low dust quantities.	H-77

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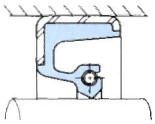
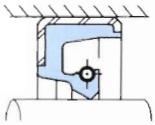
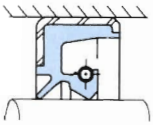
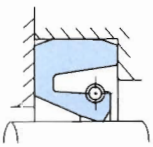
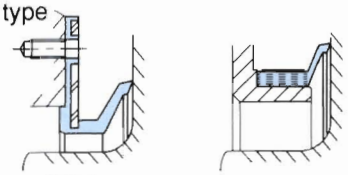
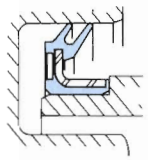
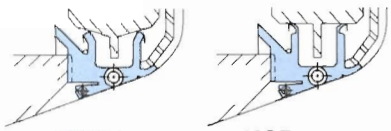
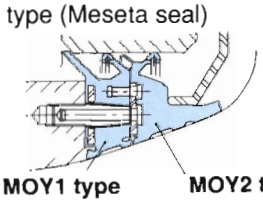
Types and Features of NOK's General Oil Seals

Table 2-2: Types and Features of NOK's General Oil Seals

NOK Type Designation and Cross-Section	Shaft Motion	Primary Uses	Features	Page Numbers Showing Dimension Listings
SBB type 	Rotating	Oil or water seal for dust-free and large-diameter shaft use (Shaft diameter: >300mm)	Oil seal for dust-free use with fluid sealed on one side. Better under high-speed rotation than the large-diameter SB type. A spacer-attached model is also available.	H-81
Large-Diameter SB type 	Rotating	Oil or water seal for dust-free and large-diameter shaft use (Shaft diameter: >300mm)	Oil seal for dust-free use with fluid sealed on one side. A spacer-attached model is also available.	H-81
Large-Diameter TB type 	Rotating	Oil or water seal for dusty-area and large-diameter shaft use (Shaft diameter: > 300mm)	Oil seal for light duty dust (dirt or sand) on one side and fluid sealed on the other side	H-86
MG type 	Rotating	Oil or water seal. Used for areas where seal cannot be inserted from the shaft end	Used when a machine cannot be assembled without cutting the oil seal. A hook joint spring is used to mount the sealing lip, and the outer surface is sealed by pressing down against the contact surface of the shaft. Since one part of the seal is cut, the sealing performance is inferior to that of S-type seals.	H-88
W type  WT type WTT type	Rotating	Water or scale seal for the roll neck of rolling mills	Oil seal to prevent the entry of water or scale by sliding the sealing lip against the shaft (flange) end face. The WT type is mounted by bolting, and the WTT type is mounted by tightening the collar band.	H-92
OKC3 type 	Rotating		Water or scale seal. Used by pressing the inner diameter surface of the seal onto the housing and sliding the outer sealing lip against the inner surface of the shaft (flange)	H-95
MO type (Morgoil seal)  MOX type MOD type	Rotating	Two-liquid oil and water seal for the roll neck of rolling mills	Roll neck seal for film bearing (Morgoil). Seals oil inside and water outside by fixing the inner surface to the shaft (roll) and sliding two sealing lips on the housing side against the housing.	H-98
MOY type (Meseta seal)  MOY1 type MOY2 type	Rotating		Roll neck seal for film bearing (Mitsubishi Bearing). The inner surface of the seal is fixed to the shaft (roll) and outside lip on the housing side slides. Use MOY1 type (oil side) and MOY2 (water side) as a set. Can be changed individually	H-99

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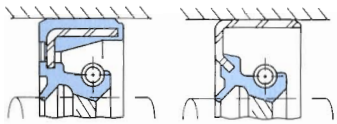
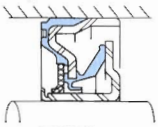
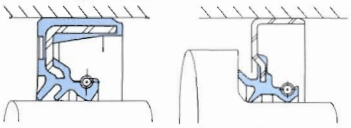
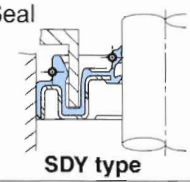
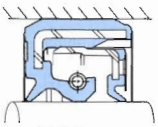
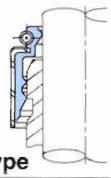
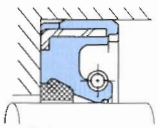
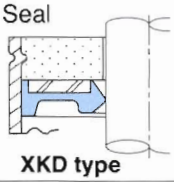
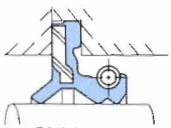
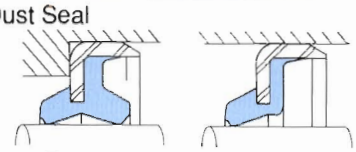
An Introduction to Other Oil Seals

Table 3: An Introduction to Other Oil Seals

NOK Type Designation and Cross-Section	Shaft Motion	Primary Uses	Features
Helical seal  **HTC type** **HTB type**	Rotating	Oil seal for engines or transmissions	Oil seal where the entire sealing lip edge has a molded-in helical feature on the air side. This "screw thread" acts to return the fluid trying to escape outside through the sealing lip back inside using a screw-pump action.
Super Package Seal  **CSK type**	Rotating	Seals splashing oil in engines	Oil seal where the end face seal and the slinger are molded, thereby improving installation reliability. Best under high-speed rotation.
Severe-Dust Seal  **TC6Y type** **TB9 type**	Rotating	Seals areas where muddy water splashes on tractor or power tiller	Oil seal where the two dust-side lips or side lip of a T-type oil seal are used to improve dust and muddy water resistance.
Washer Seal  **SDY type**	Rotating	Seal for dewatering shaft of a washer	Oil seal designed specifically for washers. Seals water in two places (dewatering shaft and inside the washing tub) of fully-automatic washers.
Speed Reducer Seal  **RE type**	Rotating	Seals areas where need to consider a lot of oil contamination such as Speed Reducer.	Oil seal which is placed an additional lip for protecting the oil contamination invasion to the main lip. It helps the reduction of the main lip wear.
Valve Stem Seal  **VSB type**	Reciprocating	Seal for engine intake and exhaust valve stems	Oil seal to maintain a proper film of oil between the valve stem and valve guide of an engine.
High Pressure Seal  **SCJY type**	Reciprocating	Seal for reciprocating rods with relatively large dynamic shaft misalignment	Oil seal for reciprocating motion. Pressure resistance is improved by an assembling nylon backup ring. Compared to U-type packing, this model is more suitable when a rod's dynamic misalignment is relatively large.
Gas Spring Seal  **XKD type**	Reciprocating	Seal for gas-spring rods of business machines, furniture, or medical equipment	Oil seal for reciprocating rods of high-pressure gas cylinders, with good sealing performance and low friction.
Control Valve Seal  **SVY type**	Reciprocating	Oil seal for hydraulic control valves of construction machinery	Sealing performance is better and friction is lower than a rubber-only seal. The seal is fixed by clamping the outer flange.
Dust Seal  **DKB type** **DKH type**	Reciprocating	Dust seal for hydraulic cylinders	Seal to prevent the entry of dust. The DKB seals oil better than the DKH type.

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