

# D

## APPLICATION EXAMPLES OF NOK PACKING

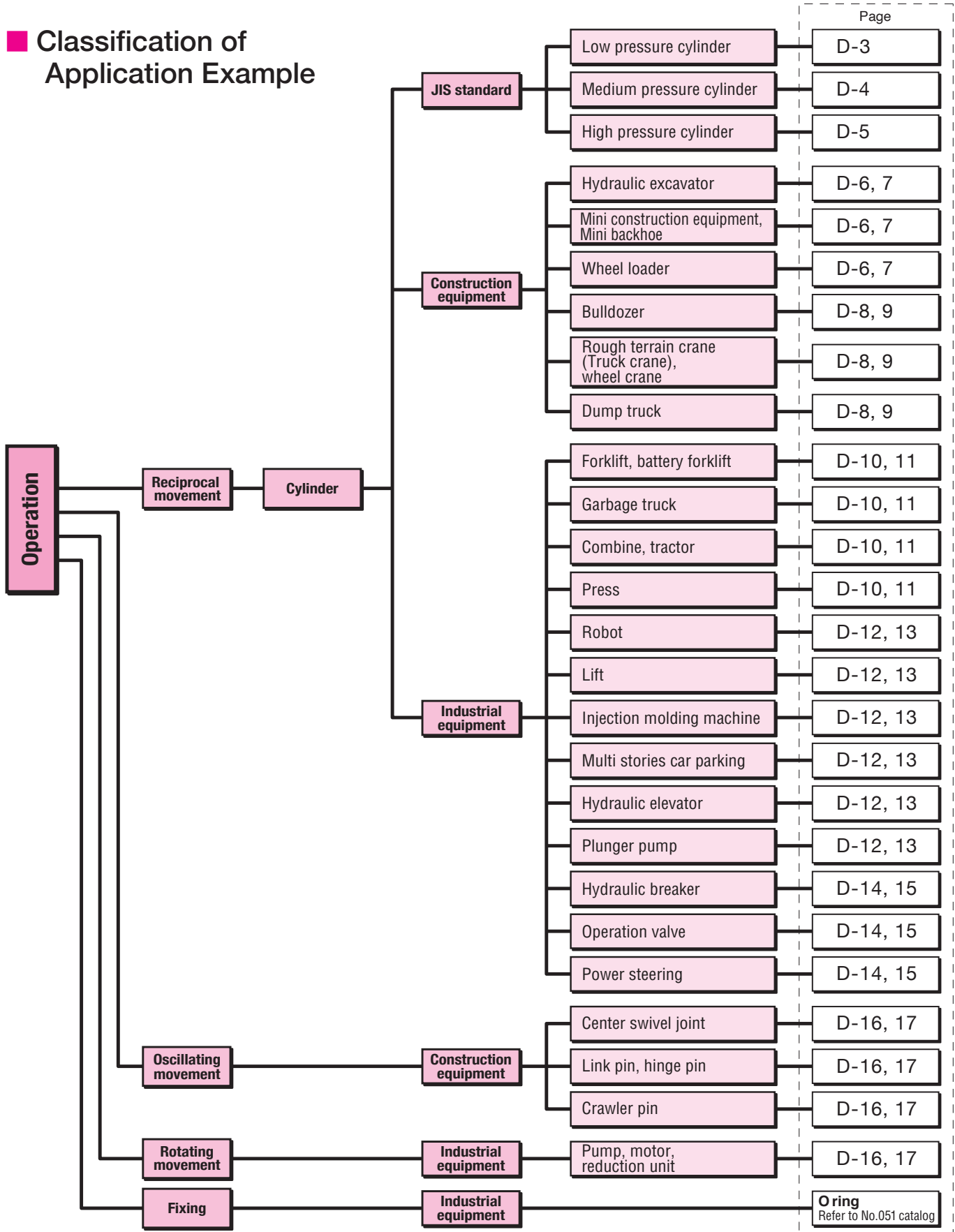
JIS Standard Cylinder  
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# D. APPLICATION EXAMPLES OF NOK PACKING

The following classification shows typical application examples of various hydraulic equipment seals, including packings for reciprocal movement, dust seals for oscillating and rotating movement, and oil seals. These examples are NOK's recommended applications based on its significant experience in the market. Some special types without dimension tables are introduced here. If any types and materials with unique specifications are required, please consult NOK.

## Classification of Application Example



## JIS Standard Cylinder (Old JIS B 8354 : 1992)

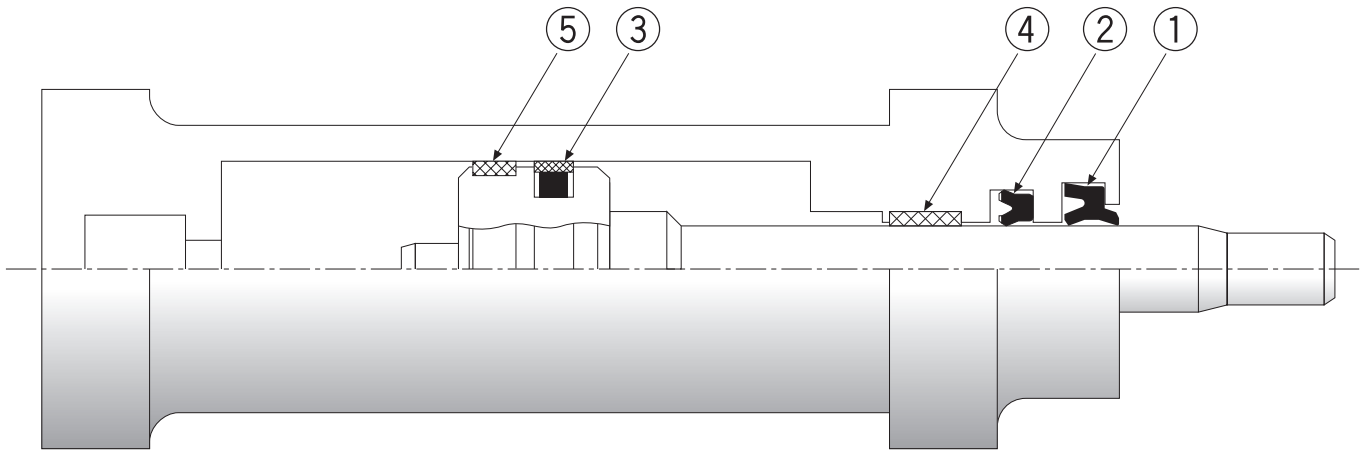
Hydraulic cylinder for low pressure : 7 MPa or below

◆Applicable temperature range: Standard specifications -20 ~ 80°C  
Heat resistant specifications -10 ~ 120°C  
Low temperature specifications -55 ~ 60°C

※ Old JIS B 8354 : 1992, the ambient temperature range is prescribed from -5 to 80°C. NOK, however, provides packings applicable for a wider range of temperature.

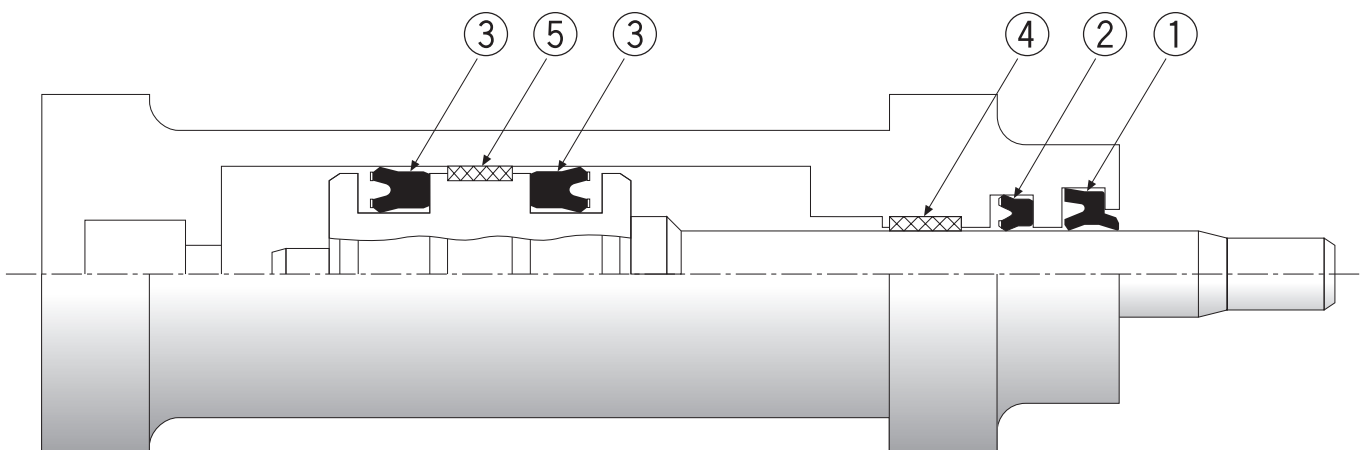
Remark) Items having — sign in the column of dimension table indicate special specifications. If the data of such items are required, please consult NOK.

### Recommended example 1



	Item	Standard specifications			Heat resistant specifications			Low temperature specifications			To reduce the sliding friction, The SPG is employed for the piston packing and small section U packing for rod packing. For the dust seal of low temperature application, instead of LBH, we recommend DKB with a metal case that has low shrinkage percentage of diameter at low temperature.
		Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	
①	Dust seal	LBH	A505	195	LBH	F357	195	DKB	A980 SPCC	—	
②	Rod packing	IUH	A505	117	USH	F357	155	IUH	A567	117	
③	Piston packing	SPG	19YF A980	81	SPG	19YF F201	—	SPG	19YF A980	81	
④	Wear ring	RYT	05ZF	214	RYT	05ZF	214	RYT	05ZF	214	
⑤	Wear ring	RYT	05ZF	214	RYT	05ZF	214	RYT	05ZF	214	

### Recommended example 2



	Item	Standard specifications			Heat resistant specifications			Low temperature specifications			To reduce the sliding friction, The SPG is employed for the piston packing and small section U packing for rod packing. For the dust seal of low temperature application, instead of LBH, we recommend DKB with a metal case that has low shrinkage percentage of diameter at low temperature.
		Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	
①	Dust seal	LBH	A505	195	LBH	F357	195	DKB	A980 SPCC	—	
②	Rod packing	IUH	A505	117	USH	F357	155	IUH	A567	117	
③	Piston packing	OUHR	A505	72	USH	F357	155	OUHR	A567	72	
④	Wear ring	RYT	05ZF	214	RYT	05ZF	214	RYT	05ZF	214	
⑤	Wear ring	RYT	05ZF	214	RYT	05ZF	214	RYT	05ZF	214	

D APPLICATION EXAMPLES OF NOK PACKING

## JIS Standard Cylinder (Old JIS B 8354:1992)

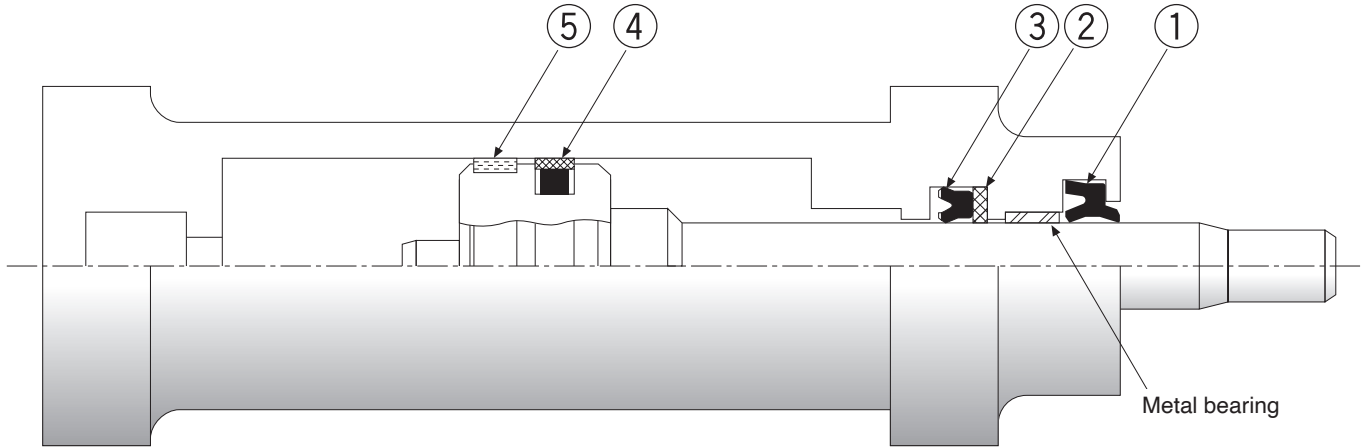
Hydraulic cylinder for medium pressure : 14 MPa or below

◆Applicable temperature range: Standard specifications -20 ~ 80°C  
Heat resistant specifications -10 ~ 120°C  
Low temperature specifications -55 ~ 60°C

※ Old JIS B 8354:1992, the ambient temperature range is prescribed from -5 to 80°C. NOK, however, provides packings applicable for a wider range of temperature.

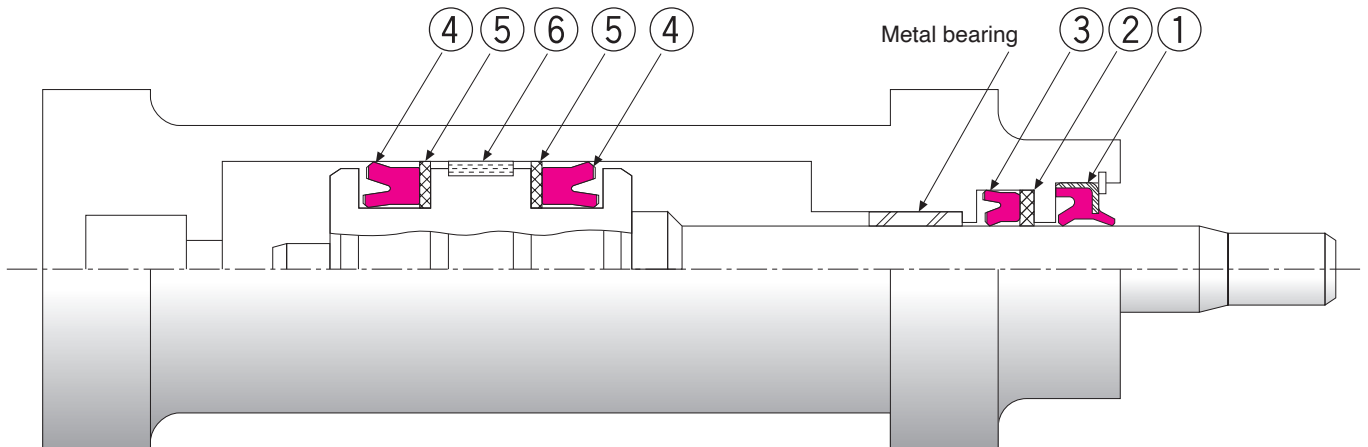
Remark) Items having — sign in the column of dimension table indicate special specifications. If the data of such items are required, please consult NOK.

### Recommended example 3



	Item	Standard specifications			Heat resistant specifications			Low temperature specifications			The low friction SPG packing and high load durability wear ring are employed for the piston. For the dust seal of low temperature application, instead of LBH, we recommend DKB with a metal case that has low shrinkage percentage of diameter at low temperature.
		Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	
①	Dust seal	LBH	A505	195	LBH	F357	195	DKB	A980 SPCC	—	
②	Backup ring	BRT2	19YF	117	BRT2	19YF	155	BRT2	19YF	117	
③	Rod packing	IUH	A505	117	USH	F357	155	IUH	A567	117	
④	Piston packing	SPG	19YF A980	81	SPG	19YF F201	—	SPG	19YF A980	81	
⑤	Wear ring	WR	12RS	217	WR	12RS	217	WR	12RS	217	

### Recommended example 4



	Item	Standard specifications			Heat resistant specifications			Low temperature specifications			The U packings are employed to improve the sealing ability of piston.
		Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	
①	Dust seal	DKBI	U801 SPCC	178	LBH	F357	195	DKB	A980 SPCC	—	
②	Backup ring	—	—	—	BRT2	19YF	155	BRT2	19YF	117	
③	Rod packing	IUIS	U801	114	USH	F357	155	IUH	A567	117	
④	Piston packing	OUIS	U801	70	USH	F357	155	OUHR	A567	72	
⑤	Backup ring	—	—	—	BRT2	19YF	155	BRT2	19YF	72	
⑥	Wear ring	WR	12RS	217	WR	12RS	217	WR	12RS	217	

## JIS Standard Cylinder (Old JIS B 8354 : 1992)

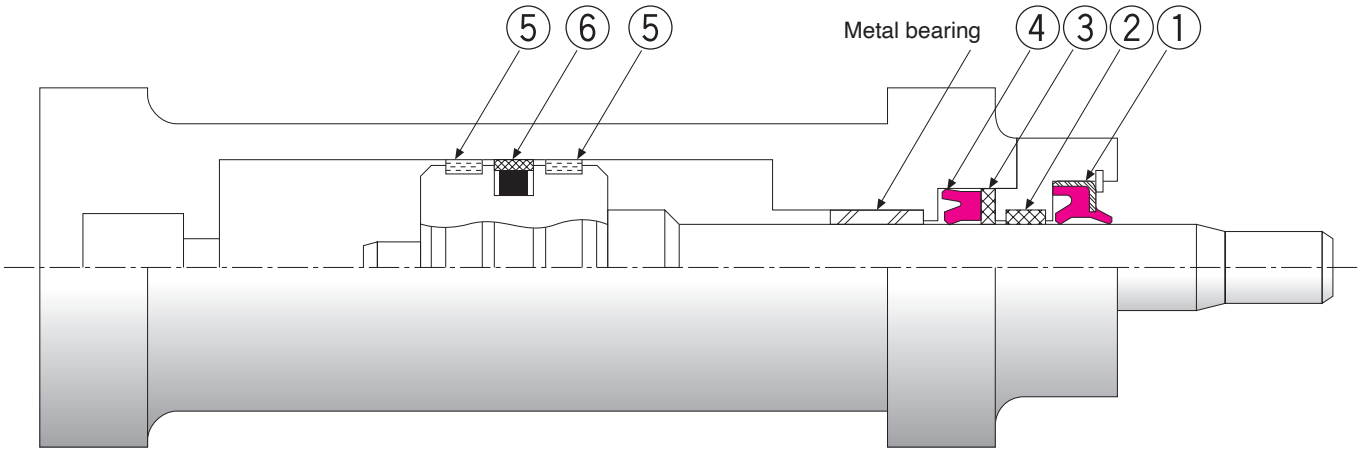
Hydraulic cylinder for high pressure : 21 MPa or below

◆Applicable temperature range: Standard specifications -20 ~ 80°C  
Heat resistant specifications -10 ~ 120°C  
Low temperature specifications -55 ~ 60°C

※ Old JIS B 8354 : 1992, the ambient temperature range is prescribed from -5 to 80°C. NOK, however, provides packings applicable for a wider range of temperature.

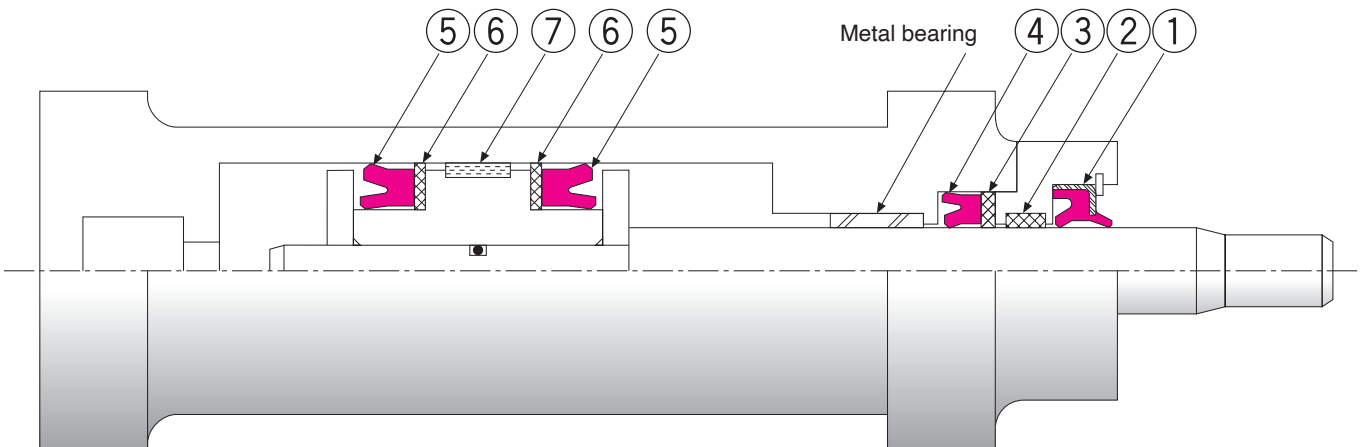
Remark) Items having — sign in the column of dimension table indicate special specifications. If the data of such items are required, please consult NOK.

### Recommended example 5



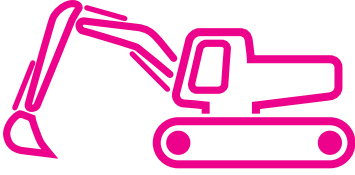


	Item	Standard specifications			Heat resistant specifications			Low temperature specifications			The low friction SPG packing and the high load durability wear ring are employed for the piston. The large section U packing are employed for the rod packing considering its high durability.
		Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	
①	Dust seal	DKBI	U801 SPCC	178	LBH	F357	195	DKBI	U801 SPCC	178	
②	Wear ring	RYT	05ZF	214	RYT	05ZF	214	RYT	05ZF	214	
③	Backup ring	—	—	—	BRT2	19YF	147	BRT2	19YF	—	
④	Rod packing	IDI	U801	103	UPH	F357	147	UPH	A567	—	
⑤	Wear ring	WR	12RS	217	WR	12RS	217	WR	12RS	217	
⑥	Piston packing	SPG	19YF A980	81	SPG	19YF F201	—	SPG	19YF A980	81	

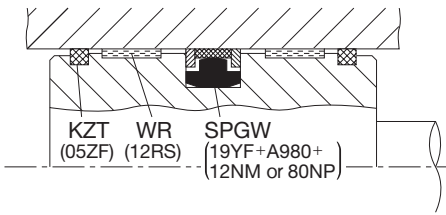
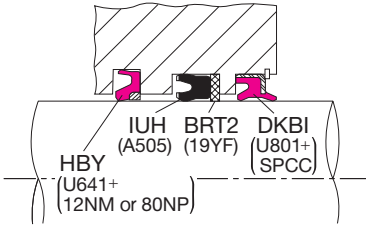
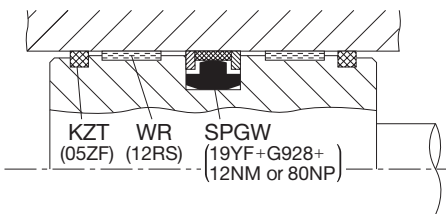
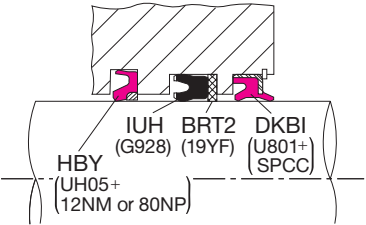
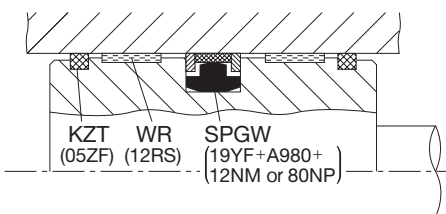
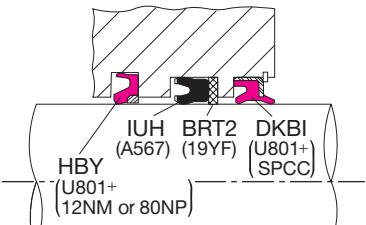
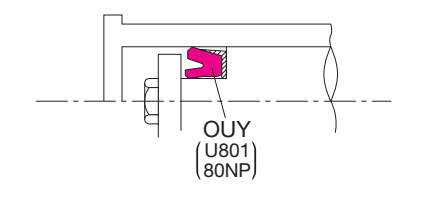
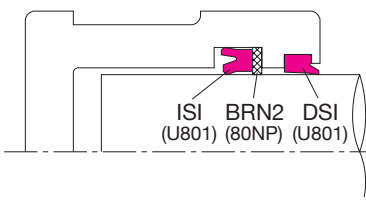
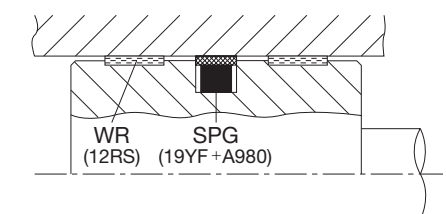
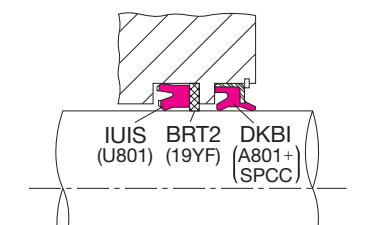
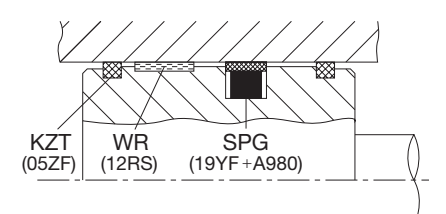
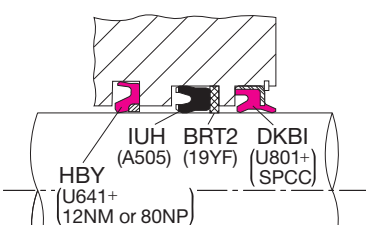
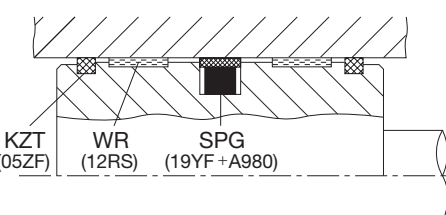
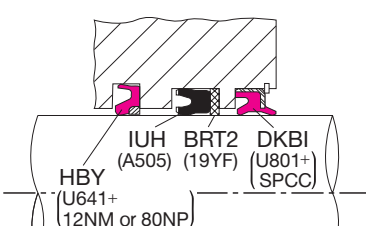
### Recommended example 6



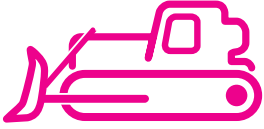
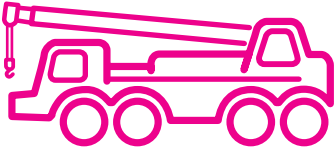


	Item	Standard specifications			Heat resistant specifications			Low temperature specifications			The U packings are employed to improve the sealing ability of piston.
		Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	Type	Material code	Dimension table (page)	
①	Dust seal	DKBI	U801 SPCC	178	LBH	F357	195	DKBI	U801 SPCC	178	
②	Wear ring	RYT	05ZF	214	RYT	05ZF	214	RYT	05ZF	214	
③	Backup ring	—	—	—	BRT2	19YF	147	BRT2	19YF	—	
④	Rod packing	IDI	U801	103	UPH	F357	147	UPH	A567	—	
⑤	Piston packing	ODI	U801	59	UPH	F357	147	UPH	A567	—	
⑥	Backup ring	—	—	—	BRT2	19YF	147	BRT2	19YF	—	
⑦	Wear ring	WR	12RS	217	WR	12RS	217	WR	12RS	217	

# Application Examples by Equipment

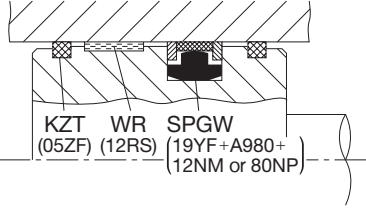
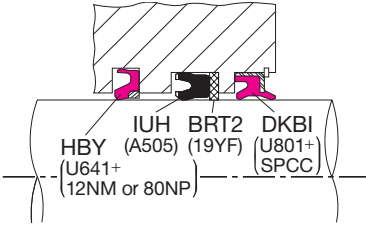
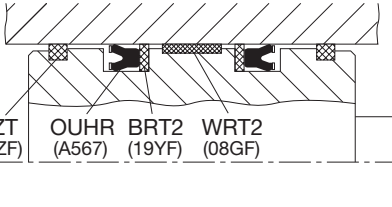
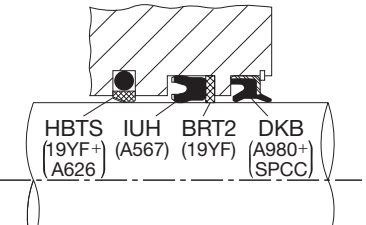
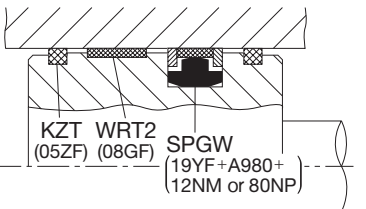
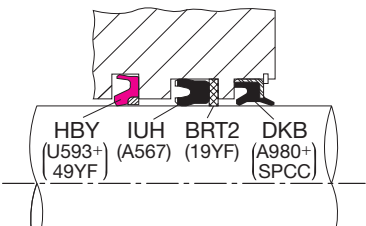
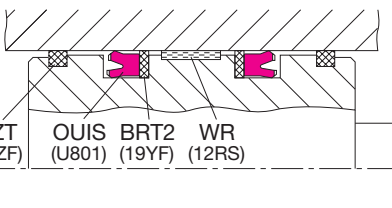
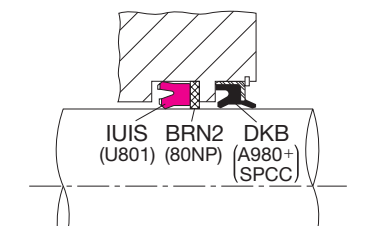
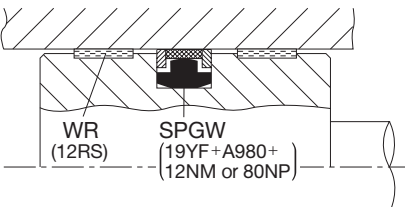
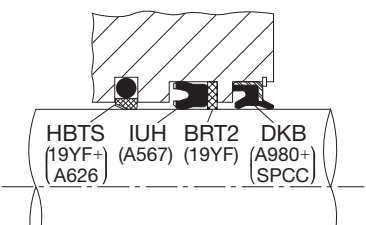
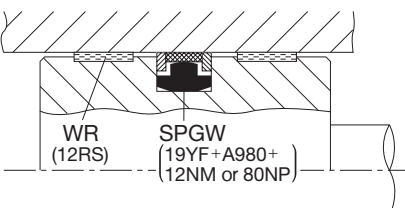
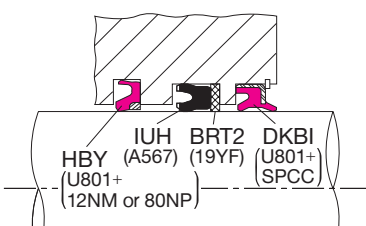
Equipment	Application	Operating condition
 <p>Hydraulic excavator</p>		Standard specifications 0 ~ 34MPa -30 ~ 100°C
	<b>Boom cylinder</b> <b>Arm cylinder</b> <b>Bucket cylinder</b>	Heat resistance specifications 0 ~ 34MPa -30 ~ 120°C
		Cold resistance specifications 0 ~ 34MPa -50 ~ 80°C
	<b>Adjust cylinder (grease cylinder)</b>	0 ~ 79MPa -30 ~ 100°C
 <p>Mini construction equipment    Mini back hoe</p>	<b>Boom cylinder</b> <b>Arm cylinder</b> <b>Bucket cylinder</b> <b>Blade cylinder</b>	0 ~ 21MPa -30 ~ 100°C
 <p>Wheel loader</p>	<b>Hoist cylinder</b> <b>Bucket cylinder</b>	0 ~ 21MPa -30 ~ 100°C
	<b>Steering cylinder</b>	0 ~ 21MPa -30 ~ 100°C

Piston sealing system	Feature	Rod sealing system	Feature
 <p>KZT (05ZF) WR (12RS) SPGW (19YF+A980+ (12NM or 80NP))</p>	<p>High durability for severe operating condition with the selected materials; SPGW that is applicable for high pressure and KZT that removes foreign objects in hydraulic fluid oil and prevents seal damages caused by adiabatic compression</p>	 <p>IUH (A505) BRT2 (19YF) DKBI (U801+) (SPCC) HBY (U641+ (12NM or 80NP))</p>	<p>HBY is used to prolong life of the rod seal, and nitrile rubber. (A505) having good oil resistance and backup ring (19YF) are used for rod seals.</p>
 <p>KZT (05ZF) WR (12RS) SPGW (19YF+G928+ (12NM or 80NP))</p>	<p>Hydrogenated nitrile rubber (G928) is applied to the back ring of SPGW to enable high temperature operation.</p>	 <p>IUH (G928) BRT2 (19YF) DKBI (U801+) (SPCC) HBY (UH05+ (12NM or 80NP))</p>	<p>Cold to heat resistant Iron rubber (UH05) is used for HBY and hydrogenated nitrile rubber (G928) for rod seals. Oil scraping can be prevented by using DKBI.</p>
 <p>KZT (05ZF) WR (12RS) SPGW (19YF+A980+ (12NM or 80NP))</p>	<p>Standard material for back ring of SPGW is low temperature resistant nitrile rubber.</p>	 <p>IUH (A567) BRT2 (19YF) DKBI (U801+) (SPCC) HBY (U801+ (12NM or 80NP))</p>	<p>Low temperature resistant nitrile rubber (A567) is used for IUH.</p>
 <p>OUY (U801) (80NP)</p>	<p>Special seal for piston OUY is used to enable the operation of extremely short strokes under high pressure (under such operation, oil film can be broken with ordinary seals).</p>	 <p>ISI (U801) BRN2 (80NP) DSI (U801)</p>	<p>Because of small operation range of pressure, ISI is used in combination with backup ring of polyamide resin(80NP) of high extrusion proof characteristics.</p>
 <p>WR (12RS) SPG (19YF+A980)</p>	<p>Compact SPG for medium pressure is used. Two WR are used to prevent scoring between the piston head and the cylinder tube that can be caused by high lateral load typical for such operating condition.</p>	 <p>IUIS (U801) BRT2 (19YF) DKBI (A801+) (SPCC)</p>	<p>To prevent extrusion, the backup ring is used for IUIS. To prevent oil scrape-out, DKBI is used for dust seals.</p>
 <p>KZT (05ZF) WR (12RS) SPG (19YF+A980)</p>	<p>Compact SPG for medium pressure is used.</p>	 <p>IUH (A505) BRT2 (19YF) DKBI (U801+) (SPCC) HBY (U641+ (12NM or 80NP))</p>	<p>HBY (U641 + 80NP) is used to prevent sliding heat increase at the packings. Nitrile rubber (A505) is used for IUH.</p>
 <p>KZT (05ZF) WR (12RS) SPG (19YF+A980)</p>		 <p>IUH (A505) BRT2 (19YF) DKBI (U801+) (SPCC) HBY (U641+ (12NM or 80NP))</p>	<p>Because of wide operation range of pressure, HBY (U641 + 80NP) is used. Nitrile rubber (A505) is used for IUH.</p>




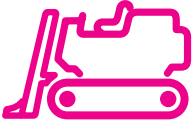


# Application Examples by Equipment

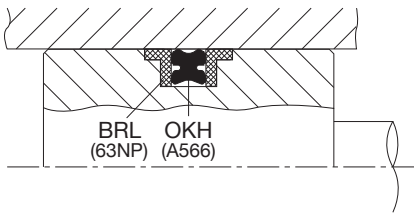
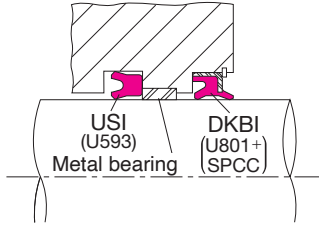
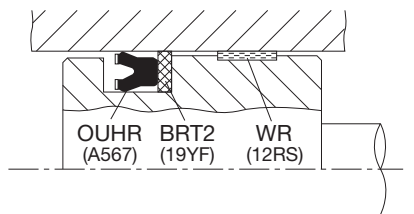
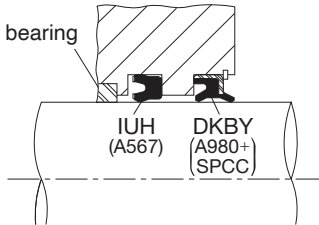
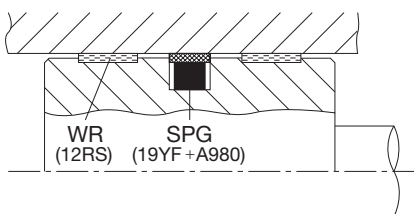
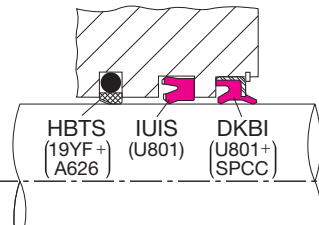
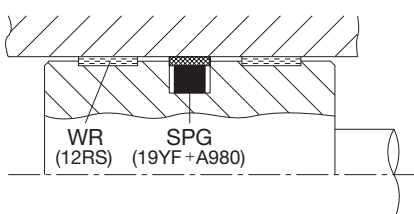
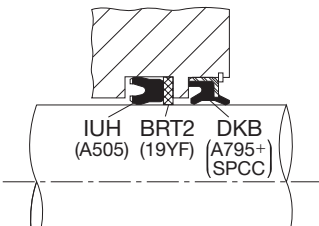
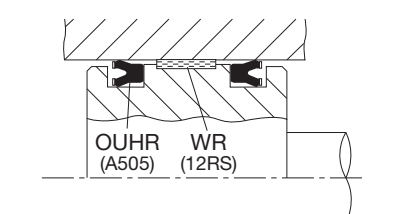
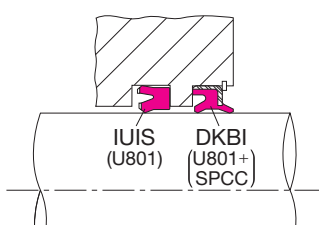
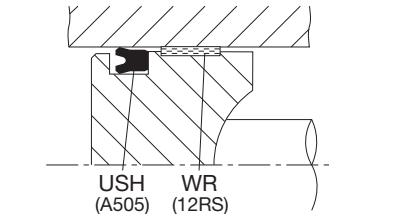
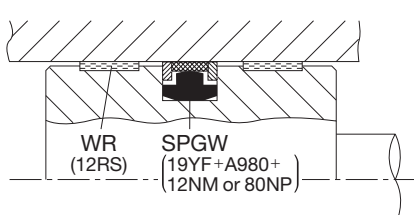
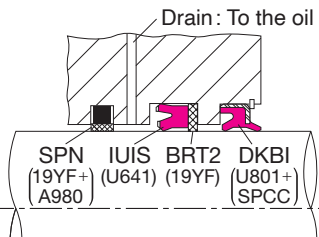
Equipment	Application	Operating condition
 <p><b>Bulldozer</b></p>	<p><b>Hoist cylinder</b></p> <p><b>Blade cylinder</b></p>	<p>0 ~ 34MPa</p> <p>-30 ~ 100°C</p>
 <p><b>Rough terrain crane (Truck crane)</b></p>  <p><b>Wheel crane</b></p>	<p><b>Derricking cylinder</b></p> <p><b>Telescopic cylinder</b></p> <p><b>Slide cylinder</b></p>	<p>0 ~ 21MPa</p> <p>-40 ~ 80°C</p>
	<p><b>Jack cylinder</b></p>	<p>0 ~ 31MPa</p> <p>-30 ~ 100°C</p>
	<p><b>Hydraulic suspension cylinder</b></p>	<p>0 ~ 21MPa</p> <p>-30 ~ 100°C</p>
	<p><b>Dump cylinder</b></p>	<p>0 ~ 41MPa</p> <p>-50 ~ 100°C</p>
 <p><b>Dump truck</b></p>	<p><b>Dump cylinder</b></p>	<p>0 ~ 41MPa</p> <p>-50 ~ 100°C</p>



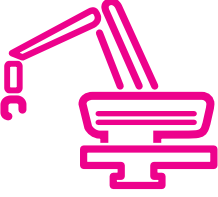
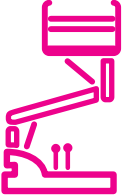
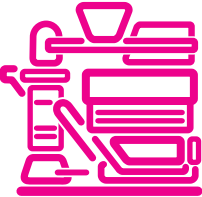
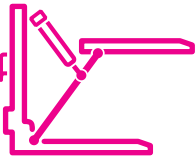
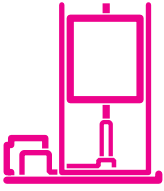

Piston sealing system	Feature	Rod sealing system	Feature
 <p>KZT (05ZF) WR (12RS) SPGW (19YF+A980+ (12NM or 80NP))</p>	<p>SPGW is used in high impact pressure. KZT is used for both ends to prevent heat damage of packings by adiabatic compression.</p>	 <p>HB (A505) IUH (19YF) BRT2 (19YF) DKBI (U801+ (SPCC)) (U641+ (12NM or 80NP))</p>	<p>HB is used to improve durability of the rod seal. Nitrile rubber (A505, high oil resistance material) and backup ring (19YF) are used for rod seals.</p>
 <p>KZT (05ZF) OUHR (A567) BRT2 (19YF) WRT2 (08GF)</p>	<p>OUHR with stick slip proof characteristics is used considering operating conditions that require keeping extended work pressure. 08GF having small friction resistance is used for wear ring material.</p>	 <p>HBTS (19YF+) IUH (A567) BRT2 (19YF) DKB (A980+) (A626) (SPCC)</p>	<p>HBTS is also used to prevent stick slip.</p>
 <p>KZT (05ZF) WRT2 (08GF) SPGW (19YF+A980+ (12NM or 80NP))</p>	<p>SPGW is used in high pressure operating conditions. 08GF having small friction resistance is used for wear ring material to prevent stick slip. KZT is used to prevent heat damage of the seals. By the combination of all above features, this system is excellent for severe operating condition.</p>	 <p>HB (U593+ (49YF)) IUH (A567) BRT2 (19YF) DKB (A980+) (SPCC)</p>	<p>HB, specially designed, absorbs surge pressure for improving durability of the rod seal.</p>
 <p>KZT (05ZF) OUIS (U801) BRT2 (19YF) WR (12RS)</p>	<p>OUIS is used in combination with backup rings to improve sealing ability.</p>	 <p>IUIS (U801) BRN2 (80NP) DKB (A980+) (SPCC)</p>	<p>To prevent extrusion, backup rings are used for IUIS. DKB (A980) excellent in low temperature sealing characteristics and in scrape-out resistance is used for dust seals.</p>
 <p>WR (12RS) SPGW (19YF+A980+ (12NM or 80NP))</p>	<p>SPGW is used to meet the operating condition that requires durability against impact pressure and extremely short strokes.</p>	 <p>HBTS (19YF+) IUH (A567) BRT2 (19YF) DKB (A980+) (A626) (SPCC)</p>	<p>To reduce the damage to rod seals, HBTS is used. IUH (A567) with high sealing ability in low temperature is also used.</p>
 <p>WR (12RS) SPGW (19YF+A980+ (12NM or 80NP))</p>	<p>For the operating condition that requires extremely high pressure, SPGW is used. Two WR are used considering lateral load that is typical for such operating condition.</p>	 <p>IUH (A567) BRT2 (19YF) DKBI (U801+ (SPCC)) (U801+ (12NM or 80NP))</p>	<p>Considering the extremely high operating pressure, HB is used to reduce damage to rod seals. IUH (A567) with high sealing ability in low temperature is used.</p>

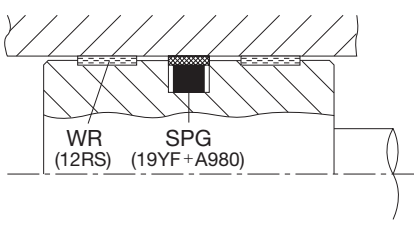
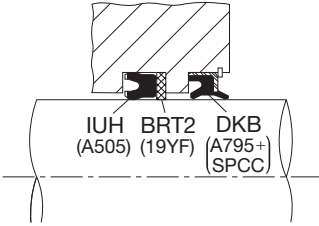
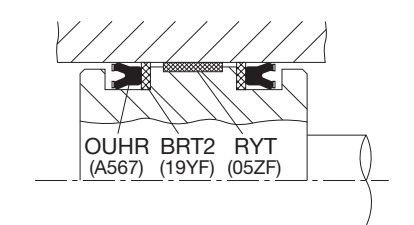
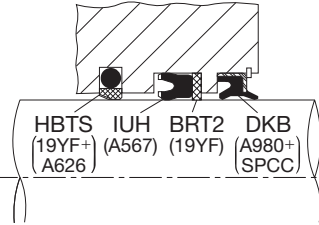
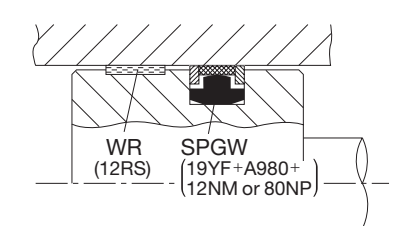
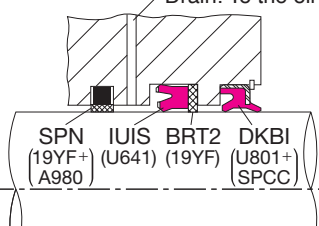
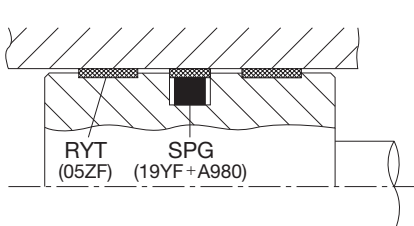
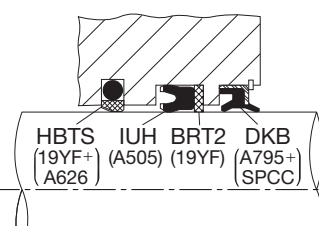
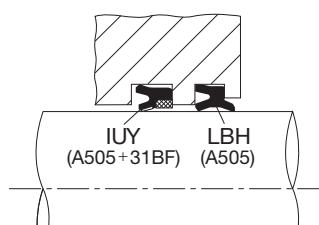
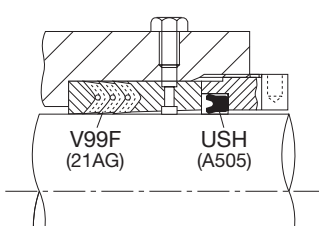
# Application Examples by Equipment

Equipment	Application	Operating condition
 <b>Forklift</b>  <b>Battery forklift</b>	<b>Tilt cylinder</b>	0 ~ 21MPa -30 ~ 100°C
	<b>Lift cylinder (low temperature specifications)</b>	0 ~ 21MPa -55 ~ 80°C
	<b>Steering cylinder</b>	0 ~ 21MPa -30 ~ 100°C
 <b>Garbage truck</b>	—	0 ~ 21MPa -30 ~ 100°C
 <b>Combine</b>  <b>Farm tractor</b>	<b>Double acting cylinder</b>	0 ~ 14MPa -30 ~ 100°C
	<b>Single acting cylinder</b>	0 ~ 14MPa -30 ~ 100°C
 <b>Pressing machine</b>	—	0 ~ 28MPa -10 ~ 80°C

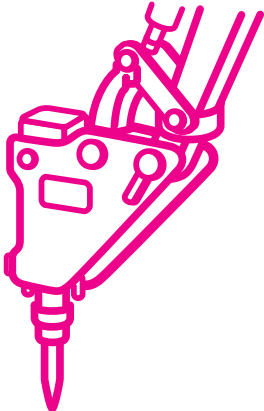

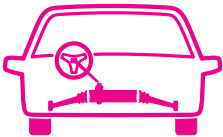
Piston sealing system	Feature	Rod sealing system	Feature
 <p>BRL (63NP) OKH (A566)</p>	Compact OKH assures easy assembly and high sealing ability.	 <p>USI (U593) Metal bearing DKBI (U801+ SPCC)</p>	The combination of USI and DKBI is used to realize compact sealing system.
 <p>OUHR (A567) BRT2 (19YF) WR (12RS)</p>	OUHR is used because maintaining oil film is important for such single acting cylinder.	 <p>Metal bearing IUH (A567) DKBY (A980+ SPCC)</p>	IUH is used in combination with DKBY because of the fluid filling type single acting cylinder. Dust seals are specially designed DKBY.
 <p>WR (12RS) SPG (19YF+A980)</p>	SPG is usable for operating condition requiring extremely short strokes. If there is a high frequency of pressurization, we recommend SPGY with slits on the Rareflon ring side to prevent venting leaks	 <p>HBTS (19YF+ A626) IUIS (U801) DKBI (U801+ SPCC)</p>	HBTS is used for buffer rings because this system is used in sealed conditions.
 <p>WR (12RS) SPG (19YF+A980)</p>	SPG with high durability is used. Two WR are used to prevent scoring between the piston head and the cylinder tube that can be caused by high lateral load typical for such operating condition.	 <p>IUH (A505) BRT2 (19YF) DKB (A795+ SPCC)</p>	Packing and dust seal of nitrile rubber are used.
 <p>OUHR (A505) WR (12RS)</p>	Packings of nitrile rubber are used.	 <p>IUIS (U801) DKBI (U801+ SPCC)</p>	DKBI with high dust proof characteristics is used for dust seals.
 <p>USH (A505) WR (12RS)</p>	Because of less severe operating condition, O rings are mostly used, but USH packings are recommended to improve durability.	—	—
 <p>WR (12RS) SPGW (19YF+A980+ 12NM or 80NP)</p>	SPGW is used in high impact pressure and for durability.	 <p>Drain: To the oil tank SPN (19YF+ A980) IUIS (U641) BRT2 (19YF) DKBI (U801+ SPCC)</p>	SPN is used for buffer rings to reduce high impact pressure. Return leaked oil (oil film) into the oil tank via the drain.

# Application Examples by Equipment

Equipment	Application	Operating condition
 <p>Robot</p>	—	0 ~ 21MPa -10 ~ 80°C
 <p>Lift</p>	—	0 ~ 21MPa -30 ~ 80°C
 <p>Injection molding machine</p>	—	0 ~ 31MPa -10 ~ 100°C
 <p>Multi stories parking</p>	—	0 ~ 14MPa -30 ~ 100°C
 <p>Hydraulic elevator</p>	—	0 ~ 5MPa -20 ~ 80°C
 <p>Plunger pump</p>	—	0 ~ 14MPa -10 ~ 80°C

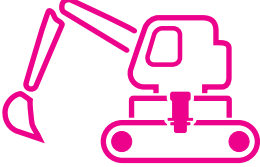
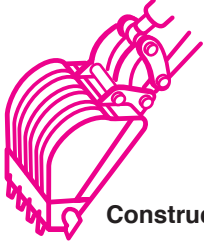
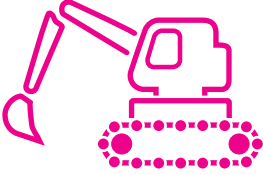
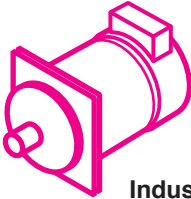
Piston sealing system	Feature	Rod sealing system	Feature
 <p>WR (12RS)    SPG (19YF+A980)</p>	<p>High durability SPG is used. Two WR are used to prevent scoring between the piston head and the cylinder tube that can be caused by high lateral load typical for such operating condition.</p>	 <p>IUH BRT2 DKB (A505) (19YF) (A795+ SPCC)</p>	<p>Packing and dust seal of nitrile rubber are used.</p>
 <p>OUHR BRT2 RYT (A567) (19YF) (05ZF)</p>	<p>OUHR with stick slip proof characteristics is used considering the operating condition that requires to keep working pressure for a long time. 05ZF having small friction resistance is used for wear ring material.</p>	 <p>HBTS IUH BRT2 DKB (19YF+) (A567) (19YF) (A980+ SPCC)</p>	<p>HBTS is used to prevent stick slip.</p>
 <p>WR (12RS)    SPGW (19YF+A980+ 12NM or 80NP)</p>	<p>SPGW is used since such operating conditions mainly performed under high pressure require the durability. This packing has also excellent durability for the operations requiring extremely short strokes.</p>	 <p>SPN IUIS BRT2 DKBI (19YF+) (U641) (19YF) (U801+ SPCC)</p> <p>Drain: To the oil tank</p>	<p>SPN is used for buffer rings to reduce high impact pressure. Return leaked oil (oil film) into the oil tank via the drain.</p>
 <p>RYT (05ZF)    SPG (19YF+A980)</p>	<p>High durability SPG is used. 05ZF having small friction resistance is used for wear ring material.</p>	 <p>HBTS IUH BRT2 DKB (19YF+) (A505) (19YF) (A795+ SPCC)</p>	<p>HBTS is used to prevent stick slip.</p>
<p>—</p>	<p>—</p>	 <p>IUY LBH (A505+31BF) (A505)</p>	<p>IUY (of special shape) is used for packing to prevent stick slip. Rareflon is molded on to the IUY lip.</p>
<p>—</p>	<p>—</p>	 <p>V99F USH (21AG) (A505)</p>	<p>Fabric reinforced rubber V packings are used because in such operating conditions, fluids with poor lubricity, such as water and agricultural chemicals are handled and the frequency of operation is high. When pressure and frequency of operation are low, rubber V packings can be used.</p>

# Application Examples by Equipment

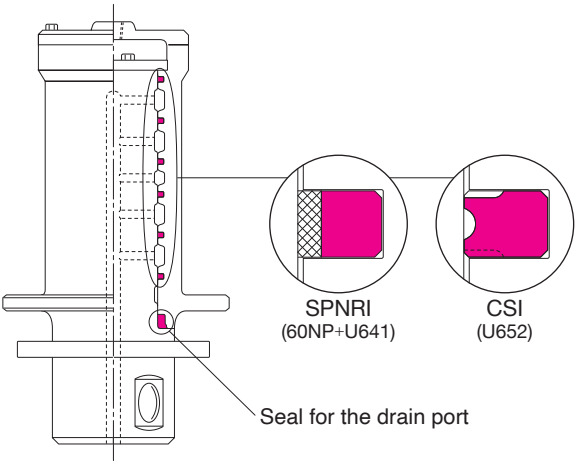
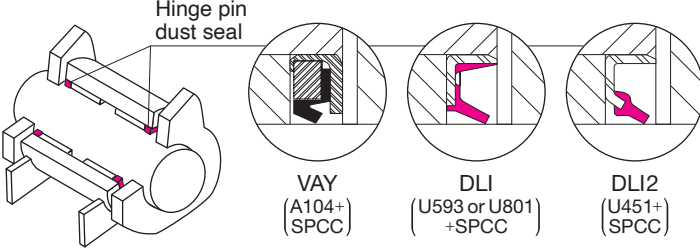
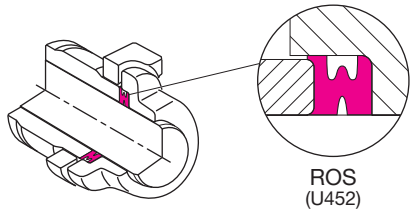
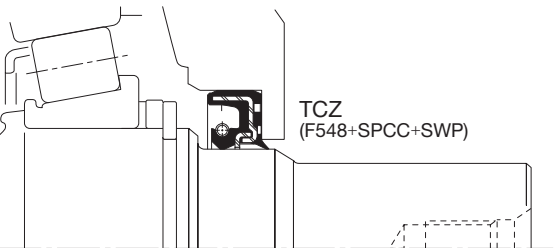
Equipment	Application	Operating condition
 <p>Hydraulic breaker</p>	—	0 ~ 17MPa -30 ~ 100°C
	—	0 ~ 18MPa -30 ~ 100°C
 <p>Operation valve</p>	—	0 ~ 0.3MPa -30 ~ 100°C
 <p>Power steering</p>	—	0 ~ 8MPa -30 ~ 100°C

Magnified view of sealing system		Feature
<p>Gas chamber</p> <p>ISI (U801)</p> <p>ISI (U801)</p> <p>Chisel side</p>	<p>ISI are used in parallel because of high speed and high pressure. Iron rubber is used for rubber material because of severe operating conditions.</p>	
<p>Gas chamber</p> <p>XRI (U563)</p> <p>HBTS (19YF+ A626)</p> <p>HBTS (19YF+ A626)</p> <p>HBY (U641+ 12NM or 80NP)</p> <p>ISI (U801)</p> <p>DSI (U801)</p> <p>Chisel side</p>	<p>HBY is used for upper hydraulic seals to reduce the friction. HBTS is also used to absorb impact pressure and reduce the friction. XRI with high wear resistance characteristics is used for gas seals to prevent oil scraping off from the gas chamber.</p>	
<p>SVY (A216+31BF+SPCC+SWP)</p>	<p>SVY is used for low friction and high lip followability to eccentricity. This packing is flat metal case type with dust lip for easy seal replacement.</p>	
<p>SPGO (19YF+A305)</p> <p>SCJY (A297+60NP+SPCC+SWP)</p>	<p>Low friction SPGO is used for the piston rings to improve system response. O ring is used for back ring to make compact the piston unit. For rod seals, oil seal SCJY with backup ring for high pressure operation is used. This seal has low friction resistance and high sealing ability.</p>	

# Application Examples by Equipment

Equipment	Application	Operating condition
 <p>Construction equipment</p>	<p>Center swivel joint</p>	<p>0 ~ 34MPa -30 ~ 100°C</p>
 <p>Construction equipment</p>	<p>Link pin Hinge pin</p>	<p>— -30 ~ 100°C</p>
 <p>Construction equipment</p>	<p>Crawler belt pin</p>	<p>— -30 ~ 80°C</p>
 <p>Industrial equipment</p>	<p>Pump Motor Reduction unit</p>	<p>Surge pressure: Max 2MPa -16 ~ 120°C</p>



Magnified view of sealing system	Feature
 <p>Seal for the drain port</p> <p>SPNRI (60NP+U641)</p> <p>CSI (U652)</p>	<p>The seal fitting groove is mainly provided on the rotor side. CSI or SPNRI is used for each oil port seal. These packings have high durability and sealing ability. For the sealing of drain ports, oil seal or o-ring for high pressure is mainly used. This seal is used also as a dust seal.</p>
 <p>Hinge pin dust seal</p> <p>VAY (A104+ SPCC)</p> <p>DLI (U593 or U801 +SPCC)</p> <p>DLI2 (U451+ SPCC)</p>	<p>DLI2, DLI or VAY is used to protect the bearings from dust. Grease draining mechanism should be provided for periodical grease replacement.</p>
 <p>ROS (U452)</p>	<p>ROS is used for this oscillating application, in order to retain lubricant oil and prevent entry of dust. The sealing characteristics are good due to excellent abrasion resistance, even under the severe condition that mud, earth and sand, etc. exist.</p>
 <p>TCZ (F548+SPCC+SWP)</p>	<p>TCZ is used for high pressure application.</p>

