

DMS[®]
DMS SEALS



DMS SEAL TECHNOLOGY CO.,LIMITED

Design Manufacture Service

DMS SEALS was established in 2008. DMS Seals Technology Co., Limited is a Sci-tech enterprise which specialized in the research, manufacture, and sales of high polymer seals. DMS Seals covers an area of more than 10000 square meters. By now, we have more than 20 senior technicians and more than 100 sets of production equipments and advanced testing equipment. Meanwhile we have got many patents and own the leading production process. We passed the evaluation of ISO9001:2008 and TS16949:2009.

Our main products are polymer seals of PTFE, modified material, FKM, PCTFE, UPE, Special polyurethane and so on. They are the key parts of some mechanical equipment which required high temperature resistance, low temperature resistance, high pressure resistance, corrosion resistance and other special working conditions. They are widely used in the engineering machinery, car, automation equipment, petroleum, chemical engineering, aerospace, LNG and other field.

We insist on “First class design, First class manufacture, and First class service” as our mission. Strive to be a leading sealing solution supplier, and continue creating much more value for our customers.

ISO 9001:2008

DMS SEALS -- Provide you high quality products, quick service and leading technical support.

ISO/TS 16949:2009



Introduction of High polymer material

PTFE and filled PTFE

PCTFE

UHMWPE

PEEK

Introduction of Rubber material

NBR

FKM/FPM

EPDM

1. PTFE and its filling modification

The melting point of PTFE is 327 °C, density is 2.18 ~ 2.3g/cm³, and shore hardness is D50 to D65, it has excellent chemical stability and self lubrication, it is the most widely used and the most variety of fluorine plastics. It has excellent overall performance. For example, resistant to high and low temperature, corrosion resistance, aging resistance, non adhesion, high insulation, high lubrication, no poison. However, PTFE has poor creep resistance, poor wear resistance, and large expansion coefficient. Therefore, it is usually necessary to overcome these defects by filling and modifying. Commonly used fillers are bronze, carbon fiber, glass fiber, graphite, MoS₂, polybenzoate, PEEK and so on. According to different conditions and uses, it can be filled with one or more of the material.

Pure PTFE products

Pure PTFE can be machined into support rings, back up rings, and other seals, with high temperature resistance, corrosion resistance, self-lubricating characteristics. But prone to creep and cause leakage under load, it's usually used in food, pharmaceutical and chemical industries.

Bronze filled PTFE products

Bronze is the most commonly used filler for PTFE, and the PTFE sealing modified by filling bronze has improved greatly in pressure resistance, wear resistance, thermal conductivity and creep resistance. For different performance requirements, different bronze composition, particle size and filling ratio can be chosen to meet the actual demand. The product is usually used to make wear rings, wear strips, oil cylinder seals and so on. The bronze may be corroded under strong acid conditions, so it is not recommended for use in strong acid conditions.

Carbon fiber filled PTFE products

The PTFE seal modified by carbon fiber has greatly improved the pressure resistance, wear resistance, creep resistance and tensile strength, meanwhile improved the hardness of the products, and suitable for rotary sealing, usually used for the production of spring energized seals, automobile transmission oil rings and so on. Carbon fibers may be oxidized and decomposed in a strong acid environment, so they are not recommended for use in strong acid conditions.

Glass fiber filled PTFE products

It has greatly improved in pressure resistance, wear resistance, creep resistance and tensile strength after filled the glass fiber for modified PTFE seal, meanwhile improved the hardness of the product, and suitable for rotary seal. Usually used for the production of back up rings, spring energized seals, automobile transmission oil rings and so on. Glass fiber may decompose in alkaline conditions, so it is not recommended for use in alkaline or water containing conditions.

Graphite or MoS2 modified filled PTFE products

The main purpose of filling graphite or MoS2 modification is to improve the pressure resistance, wear resistance, creep resistance and maintain the maximum low friction coefficient of PTFE and self lubrication characteristics. Usually filled with other fillers and can be individually filled, mainly used in the manufacture of spring energized seals, air cylinder seal, self-lubricating shaft sleeve and so on. Applicable to the condition of low friction coefficient or inconvenient to add lubricant.

Polybenzoate or PEEK filled PTFE products

It has greatly improved in pressure resistance, wear resistance, creep resistance and high temperature resistance after filled the Polybenzoate or PEEK, and especially has greatly improved the toughness and hardness in the high temperature environment. Suitable for the static seal, the dynamic seal and the self lubrication piston rings of the compressor for long time working in the high temperature environment.

2. PCTFE

The melting point of PCTFE is 210 ~ 230 °C, density is 2.1 ~ 2.18g/cm³, and shore hardness is D75 ~ D90, PCTFE has excellent rigidity and corrosion resistance, and its mechanical properties are superior to PTFE at room temperature, and it has high compression strength and small cold flow. It has a higher rebound rate at low temperature and has a good elastic restoring force, and maintain a certain degree of elasticity at -265 °C, it is one of the best material for ultra-low temperature combination property of polymers.

PCTFE is a crystalline polymer, so its mechanical properties are greatly affected by temperature, and it will be a certain difference base on different crystallinity and molecular weight, the tensile strength and hardness will increases with the advance of crystallization, but the elongation will decreases. Because of the poor fluidity of the melt, the grade with large molecular weight usually use compression molding and can't use extrusion molding.

PCTFE is an ideal sealing material under low temperature and high pressure conditions, it can be used for a long time in the range of -200 ~ 125 °C. PCTFE seals are of special use in the field of high and new technology, recommended for use in liquid oxygen, liquid nitrogen, liquefied natural gas and other low temperature conditions in the pipe, pumps, valves, joints and other fields.

3. UHMWPE

The melting point of UHMWPE is 130 ~ 136 °C, density is 0.94g/cm³, and shore hardness is D40 ~ D60. It combines almost all of the advantages of plastic materials, impact resistance, wear resistance, chemical corrosion resistance, low friction coefficient, good self-lubricating performance. And it has excellent mechanical properties in ultra-low temperature environment, still has high impact property at -70 °C, still maintain toughness and strength at -196 °C, it hardly absorbent and non-swelling. It has better wear resistance and creep resistance than PTFE material, the mortar wear test proved that abrasion resistance of UHMWPE can reach 6.6 times of ordinary carbon steel.

The molecular weight of UHMWPE is less than 5 million and can be extruded molding after technical processing, the molecular weight of UHMWPE which is more than 5 million only can do compression molding.

The long term working temperature range of UHMWPE seals is -180 °C ~ 70 °C. Recommended for the working condition of high sliding performance requirements or poor lubrication, high wear resistance or prone to dry friction of water in mediums, also usually used in ultra-low temperature sealing environment. Its disadvantage is lack of tensile strength, poor high temperature resistance, low hardness and low thermal conductivity.

4. PEEK

The melting point of PEEK is 334 °C, density is 1.265 ~ 1.32g/cm³, and shore hardness is D82 ~ D90, tensile Strength is higher than 92MPa. PEEK is a kind of special polymer material. It has high mechanical strength, high temperature resistance, impact resistance, flame retardant, acid and alkali resistance, hydrolysis resistance, wear resistance, fatigue resistance, radiation resistance and good electrical insulation performance. PEEK resin has high temperature performance and high melting point. The continuous use temperature can reach 260 °C, and the load thermal deformation temperature up to 316 °C after adding glass fiber or carbon fiber. PEEK resin has good toughness and rigidity, and it has excellent fatigue tolerance to the strain force, which is comparable to the alloy material.

Because of its excellent resistance to high temperature, self lubrication, wear resistance and fatigue resistance, it has become one of the most popular high performance engineering plastics. It is mainly used in aerospace, automotive industry, electronic and electrical, medical equipment and other fields.

PEEK has good mechanical properties, high temperature resistance, wear resistance and high pressure resistance, so it is commonly used to make compressor valve plate, piston rings, high temperature seals, sliding bearings and so on.

1. NBR

NBR is a kind of synthetic rubber produced by low temperature emulsion polymerization of butadiene and acrylonitrile, it has excellent oil resistance, high wear resistance, water resistance, air tightness and good bonding properties. NBR used in the range of $-30^{\circ}\text{C} \sim 100^{\circ}\text{C}$, and the service life will decrease when it is used at 120°C . It is widely used in the production of a variety of oil-resistant rubber products, O-Ring, washers, casing, cable plastic materials, etc. It is also an essential elastic material in the automotive, aviation, oil and other industries.

The disadvantages of NBR are low temperature resistance, poor ozone resistance, low insulation performance and low elasticity.

2. VITON (FKM/FPM)

Viton rubber is a synthetic rubber containing with fluorine atom. It has the characteristics of high temperature resistance, oil resistance, media resistance, and variety of chemical erosion resistance. And it has high chemical stability, which has the best performance for media resistant in one of the elastomer at present. The application for temperature ranges is from -20°C to 200°C . The low temperature ranges are from -15°C to -20°C for dynamic sealing. It's mainly used for producing oil seals, O-Rings, back up rings, O-Ring cords, rubber sheets, sealing rings and so on. The disadvantages of viton is poor performance for low temperature resistance and density is large.

3. EPDM

EPDM is a ternary polymer of Ethylene, Propylene, and Non-conjugated Diolefins. The main polymer chains are fully saturated, so that it can resist heat, light, oxygen, especially for ozone. It has high performances for oxidation resistance, weather resistance, electricity insulated, chemical corrosion resistance, attacked elasticity. It's mainly applied for the industry of oxygen resistant, water resistant, corrosion resistant and electrical insulation, for producing heat resistant conveyor belts, cables, antiseptic lining, sealing gaskets, door and window seals, and plastic modification and so on.

Rod Seals Series

Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
GSJ		-45/+200	15	60	Hydraulic equipment Standard cylinders General Machinery Machine tools	NBR/PTFE FKM/PTFE	Single	12
RSJ		-45/+200	15	60	Hydraulic equipment Standard cylinders General Machinery	NBR/PTFE FKM/PTFE	Single	Refer to GSJ
GSI		-45/+200	15	60	Hydraulic equipment Standard cylinders General Machinery Machine tools	NBR/PTFE FKM/PTFE	Double	18
GZT		-30/+200	15	60	Injection machine Valve Machine tools	NBR/PTFE FKM/PTFE	Double	Refer to GSI
GSW		-30/+200	15	60	Hydraulic equipment Standard cylinders Machine tools	NBR/PTFE FKM/PTFE	Single	24
GSJ-W		-30/+100	5	60	Heavy duty cylinders General Machinery Machine tools	NBR/PTFE FKM/PTFE	Single	27
TDI		-30/+100	1	45	Standard hydraulic cylinders	NBR/PTFE Polymer	Single	31
RDI		-30/+100	1	45	Standard hydraulic cylinders	NBR/PTFE Polymer	Double	34
MDI		-30/+100	1	25	Standard hydraulic cylinders	NBR/PTFE Polymer	Double	38
SPN		-30/+200	1.5	35	Standard hydraulic cylinders Construction machinery	NBR/PTFE FKM/PTFE	Double	41
SPNC		-30/+200	1.5	35	Standard hydraulic cylinders Construction machinery	NBR/PTFE FKM/PTFE	Double	43
SPNO		-30/+200	1.5	35	Standard hydraulic cylinders Construction machinery	NBR/PTFE FKM/PTFE	Double	47

Piston Seals Series

Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
GSF		-45/+200	15	60	Hydraulic equipment Standard cylinders General Machinery Machine tools	NBR/PTFE FKM/PTFE	Double	50
GSD		-45/+200	15	60	Hydraulic equipment Standard cylinders General Machinery Machine tools	NBR/PTFE FKM/PTFE	Single	56
DPT		-45/+200	15	60	Hydraulic equipment Injection machine Machine tools	NBR/PTFE FKM/PTFE	Double	Refer to GSF
SPG		-30/+200	1.5	35	Standard hydraulic cylinders Construction machinery	NBR/PTFE FKM/PTFE	Double	61
SPGC		-30/+200	1.5	35	Standard hydraulic cylinder Construction machinery	NBR/PTFE FKM/PTFE	Double	64
SPGO		-30/+200	1.5	35	Standard hydraulic cylinders Construction machinery	NBR/PTFE FKM/PTFE	Double	68
DPO		-30/+200	1.5	35	Standard hydraulic cylinders Construction machinery	NBR/PTFE FKM/PTFE	Double	71
DAQ		-30/+200	2	40	Standard hydraulic cylinders Accumulator Hydraulic press	NBR/PTFE FKM/PTFE	Double	74
DAQ2		-30/+200	3	60	Standard hydraulic cylinders Accumulator Hydraulic press	NBR/PTFE FKM/PTFE	Double	78
GSF-W		-30/+100	5	60	Standard hydraulic cylinders Heavy duty cylinder	NBR/PTFE FKM/PTFE	Double	81
GSD-W		-30/+100	5	60	Standard hydraulic cylinder Heavy duty cylinder	NBR/PTFE FKM/PTFE	Single	Refer to GSF-W
DDKK		-30/+200	1	45	Standard hydraulic cylinders Heavy duty cylinder	NBR/PTFE Polymer	Double	85

Piston Seals Series

Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
DKDF		-30/+200	1	45	Standard hydraulic cylinders Heavy duty cylinders	NBR/PTFE Polymer	Double	88
DGDA		-30/+100	1	45	Standard hydraulic cylinders	NBR/PTFE Polymer	Double	91
SPGW		-30/+100	1.5	40	Standard hydraulic cylinders Construction machinery Heavy duty cylinders	NBR/PTFE Polymer	Double	94
TPM/DBM		-30/+120	0.5	35	Standard hydraulic cylinders	NBR/PTFE Polymer	Double	97
OK		-30/+110	1	80	Heavy duty cylinders	NBR/therm - oplast	Double	101
DDA		-30/+100	1	45	Standard hydraulic cylinders	NBR/PTFE Polymer	Single	104
DDMA		-30/+100	1	25	Standard hydraulic cylinders	NBR/PTFE Polymer	Double	107

Rotary Seals Series

Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
GNS		-30/+200	1	30	Rotary distributor Standard hydraulic cylinder Machine tool	NBR/PTFE FKM/PTFE	Rotary	110
GRS		-30/+200	1	30	Rotary distributor Standard hydraulic cylinder Machine tool	NBR/PTFE FKM/PTFE	Rotary	114
OI		-35/+100	0.5	35	Rotary distributor Standard hydraulic cylinder Machine tool	NBR/PTFE FKM/PTFE	Rotary	118
OA		-35/+100	0.5	35	Rotary distributor Standard hydraulic cylinder Machine tool	NBR/PTFE FKM/PTFE	Rotary	121

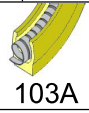
Scraper Seals Series

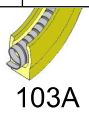
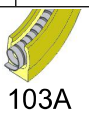
Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
GSZ		-30/+200	5	-	Hydraulic equipment Ceramic machinery machine tool	NBR/PTFE FKM/PTFE	Single	124
GSZ2		-30/+200	5	-	Hydraulic equipment Ceramic machinery machine tool	NBR/PTFE FKM/PTFE	Single	128
DPT1		-30/+200	5	-	Hydraulic equipment Injection machine	NBR/PTFE FKM/PTFE	Single	132
DPT2		-30/+200	5	-	Hydraulic equipment Injection machine	NBR/PTFE FKM/PTFE	Single	136
KZT		-50/+200	1.5	-	Construction machinery	PTFE	Double	139

Bearing Elements Series

Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
GST		-60/+230	15	-	Standard hydraulic cylinder Ceramic machinery Heavy duty cylinder	PTFE	Guiding	142
DFI		-55/+255	3	-	Hydraulic equipment Ceramic machinery	PTFE	Guiding	144
DFA		-55/+255	3	-	Hydraulic equipment Ceramic machinery	PTFE	Guiding	147
DFAI		-55/+255	3	-	Hydraulic equipment Ceramic machinery	PTFE	Guiding	150

Variseals Series

Standard Groove					Widen groove				
Technical Data					Technical Data				
Temp. Range °C		Speed ≤m/s		Pressure≤MPa	Temp. Range °C		Speed ≤m/s		Pressure≤MPa
-40/+260		15		45	-40/+260		15		45
Type	Code				Type	Code			
Rod and Piston	DEPA				Rod and Piston	DEPB			
Rod	DRPA				Rod	DRPB			
Piston	DEGA				Piston	DEGB			
Material		PTFE and Spring			Material		PTFE and Spring		
Application		Food machinery/General machinery			Application		Food machinery/General machinery		
Action		Single			Action		Single		
Page		153							

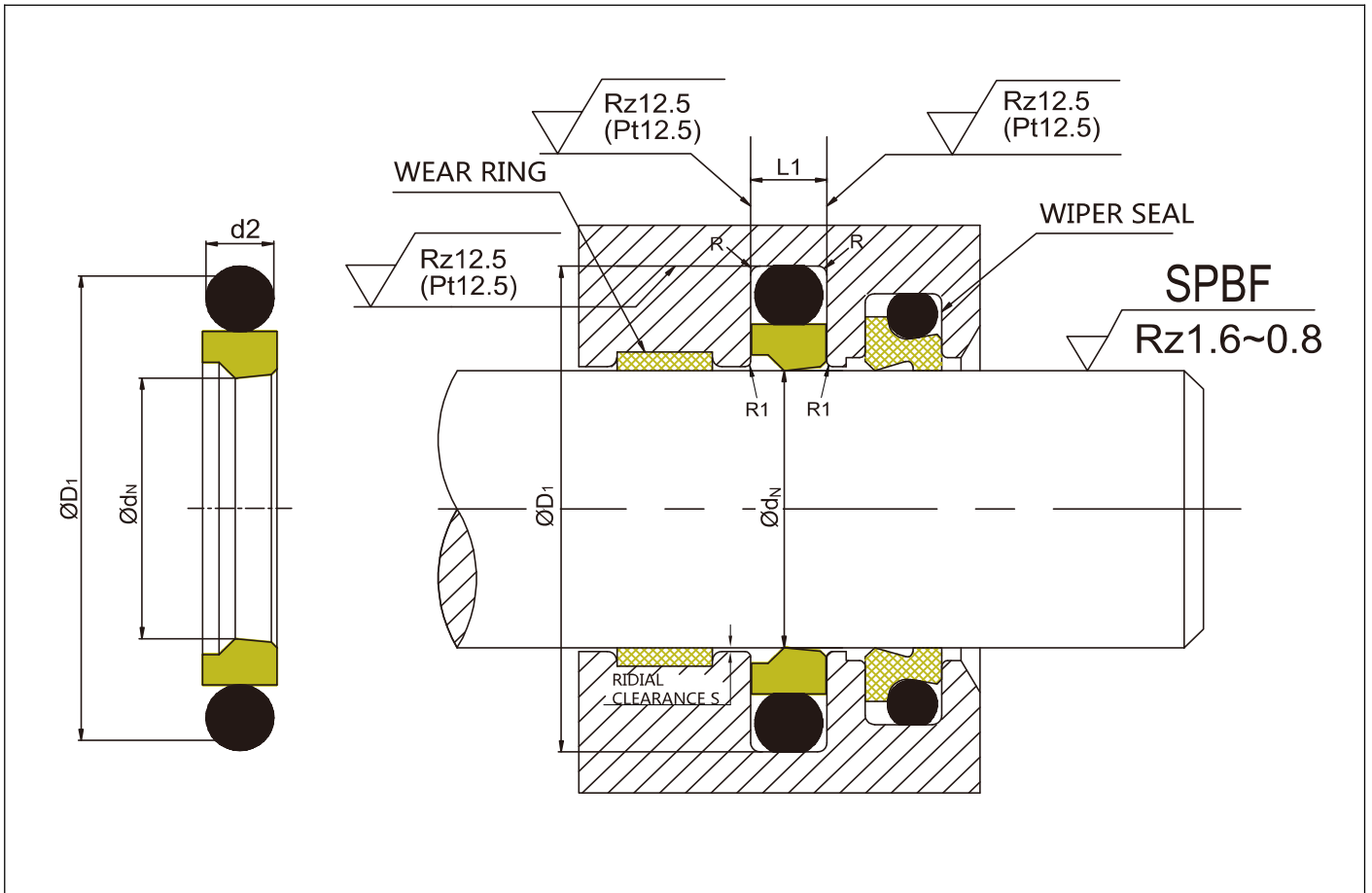
Rotary Variseal					Face variseal				
Technical Data					Technical Data				
Temp. Range °C		Speed ≤m/s		Pressure≤MPa	Temp. Range °C		Speed ≤m/s		Pressure≤MPa
-40/+260		15		45	-40/+260		-		45
Type	Code				Type	Code			
Equal Altitude Lips/Rod	DTVA				Inner Seal	DDVI			
High and Low Lips/Rod	DTVB				Lateral Seal	DDVO			
Material		PTFE and Spring			Material		PTFE and Spring		
Application		Standard hydraulic cylinder/General machinery			Application		Seal joint/General machinery		
Action		Rotary			Action		Static		
Page		159							

O-Ring Series

Type	Figure	Technical Data			Application	Material	Action	Page
		Temp. Range °C	Speed ≤m/s	Pressure ≤MPa				
OR		-55/+250	-	40	Mechanical equipment	NBR/FKM EPDM/ SILICONE	Double	165



1. Installation Recommendation



2. Installation Sizes

Rod Diameter d_N h9			Groove Diameter	Groove Width	Radius	Radial Clearance S max.			O-Ring Cross- Section
Standard Application	Light Application	Heavy Duty Application	D_1 H9	$L_1+0.2$	R_1	10MPa	20MPa	40MPa	d_2
3-7.9	8-18.9	-	$d_N+4.9$	2.2	0.4	0.3	0.20	0.15	1.78
8-18.9	19-37.9	-	$d_N+7.3$	3.2	0.6	0.4	0.25	0.15	2.62
19-37.9	38-199.9	8-18.9	$d_N+10.7$	4.2	1.0	0.4	0.25	0.20	3.53
38-199.9	200-255.9	19-37.9	$d_N+15.1$	6.3	1.3	0.5	0.30	0.20	5.33
200-255.9	256-649.9	38-199.9	$d_N+20.5$	8.1	1.8	0.6	0.35	0.25	7.00
256-649.9	650-999.9	200-255.9	$d_N+24.0$	8.1	1.8	0.6	0.35	0.25	7.00
650-999.9	≥ 1000.0	256-649.9	$d_N+27.3$	9.5	2.5	0.7	0.50	0.30	8.40
≥ 1000.0	-	650-999.9	$d_N+38.0$	13.8	3.0	1.0	0.70	0.60	12.00



3. Application and properties

Applicable to high and low speed reciprocating motion and high pressure system cylinder rod sealing. Good dimensional stability, not affected by temperature, low friction, strong corrosion resistance, could work in the situation with or without lubrication, easy installation.

Meet the standards of GB/T 15242.1-94 and GB/T 15242.3-94.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 60MPa	-45℃ +200℃	15 m/s	hydraulic oil, flame retardant liquid, water, gas

6. Installation Dimensions

Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
d _N h9	D ₁ H9	L ₁ +0.2		
4	8.9	2.2	GSJ4*8.9*2.2	5.28*1.78
5	9.9	2.2	GSJ5*9.9*2.2	6.75*1.78
6	10.9	2.2	GSJ6*10.9*2.2	7.65*1.78
8	12.9	2.2	GSJ8*12.9*2.2	9.25*1.78
8	15.3	3.2	GSJ8*15.3*3.2	10.77*2.62
10	14.9	2.2	GSJ10*14.9*2.2	11.8*1.78
10	17.3	3.2	GSJ10*17.3*3.2	12.37*2.62
12	16.9	2.2	GSJ12*16.9*2.2	13.3*1.78
12	19.3	3.2	GSJ12*19.3*3.2	13.94*2.62
14	18.9	2.2	GSJ14*18.9*2.2	15.6*1.78
14	21.3	3.2	GSJ14*21.3*3.2	15.54*2.62
15	19.9	2.2	GSJ15*19.9*2.2	16.67*1.78
15	22.3	3.2	GSJ15*22.3*3.2	17.12*2.62
16	20.9	2.2	GSJ16*20.9*2.2	17.17*1.78
16	23.3	3.2	GSJ16*23.3*3.2	18.72*2.62
18	22.9	2.2	GSJ18*22.9*2.2	18.77*1.78
18	25.3	3.2	GSJ18*25.3*3.2	20.29*2.62
19	29.7	4.2	GSJ19*29.7*4.2	23.39*3.53
20	27.3	3.2	GSJ20*27.3*3.2	21.89*2.62
20	30.7	4.2	GSJ20*30.7*4.2	23.39*3.53
22	29.3	3.2	GSJ22*29.3*3.2	23.47*2.62



GSJ

Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
d _N h9	D ₁ H9	L ₁ +0.2		
22	32.7	4.2	GSJ22*32.7*4.2	26.57*3.53
25	32.3	3.2	GSJ25*32.3*3.2	26.64*2.62
25	35.7	4.2	GSJ25*35.7*4.2	29.74*3.53
28	38.7	4.2	GSJ28*38.7*4.2	31.34*3.53
30	40.7	4.2	GSJ30*40.7*4.2	34.52*3.53
32	42.7	4.2	GSJ32*42.7*4.2	36.09*3.53
35	45.7	4.2	GSJ35*45.7*4.2	37.69*3.53
36	46.7	4.2	GSJ36*46.7*4.2	40.87*3.53
38	53.1	6.3	GSJ38*53.1*6.3	43.82*5.33
40	50.7	4.2	GSJ40*50.7*4.2	44.04*3.53
40	55.1	6.3	GSJ40*55.1*6.3	43.82*5.33
42	57.1	6.3	GSJ42*57.1*6.3	46.99*5.33
45	55.7	4.2	GSJ45*55.7*4.2	47.22*3.53
45	60.1	6.3	GSJ45*60.1*6.3	50.17*5.33
50	60.7	4.2	GSJ50*60.7*4.2	53.57*3.53
50	65.1	6.3	GSJ50*65.1*6.3	56.52*5.33
55	70.1	6.3	GSJ55*70.1*6.3	59.69*5.33
56	66.7	4.2	GSJ56*66.7*4.2	59.92*3.53
56	71.1	6.3	GSJ56*71.1*6.3	59.69*5.33
56	76.5	8.1	GSJ56*76.5*8.1	62.87*6.99
60	75.1	6.3	GSJ60*75.1*6.3	66.04*5.33
63	73.7	4.2	GSJ63*73.7*4.2	66.27*3.53
63	78.1	6.3	GSJ63*78.1*6.3	69.22*5.33
65	75.7	4.2	GSJ65*75.7*4.2	69.44*3.53
65	80.1	6.3	GSJ65*80.1*6.3	69.22*5.33
70	80.7	4.2	GSJ70*80.7*4.2	72.62*3.53
70	85.1	6.3	GSJ70*85.1*6.3	75.57*5.33
70	90.5	8.1	GSJ70*90.5*8.1	78.74*6.99
75	85.7	4.2	GSJ75*85.7*4.2	78.97*3.53
75	90.1	6.3	GSJ75*90.1*6.3	78.74*5.33
80	90.7	4.2	GSJ80*90.7*4.2	82.14*3.53
80	95.1	6.3	GSJ80*95.1*6.3	85.09*5.33
80	100.5	8.1	GSJ80*100.5*8.1	88.27*6.99
85	95.7	4.2	GSJ85*95.7*4.2	88.49*3.53
85	100.1	6.3	GSJ85*100.1*6.3	91.44*5.33
85	105.5	8.1	GSJ85*105.5*8.1	91.44*6.99
90	100.7	4.2	GSJ90*100.7*4.2	94.84*3.53
90	105.1	6.3	GSJ90*105.1*6.3	95.5*5.33
90	110.5	8.1	GSJ90*110.5*8.1	97.79*6.99



Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
d _N h9	D ₁ H9	L ₁ +0.2		
95	105.7	4.2	GSJ95*105.7*4.2	98.02*3.53
95	110.1	6.3	GSJ95*110.1*6.3	100.97*5.33
100	110.7	4.2	GSJ100*110.7*4.2	104.37*3.53
100	115.1	6.3	GSJ100*115.1*6.3	104.14*5.33
100	120.5	8.1	GSJ100*120.5*8.1	107.32*6.99
105	120.1	6.3	GSJ105*120.1*6.3	110.49*5.33
105	125.5	8.1	GSJ105*125.5*8.1	113.67*6.99
110	120.7	4.2	GSJ110*120.7*4.2	113.89*3.53
110	125.1	6.3	GSJ110*125.1*6.3	113.67*5.33
110	130.5	8.1	GSJ110*130.5*8.1	116.84*6.99
115	130.1	6.3	GSJ115*130.1*6.3	120.02*5.33
120	135.1	6.3	GSJ120*135.1*6.3	126.37*5.33
120	140.5	8.1	GSJ120*140.5*8.1	126.37*6.99
125	140.1	6.3	GSJ125*140.1*6.3	129.54*5.33
125	145.5	8.1	GSJ125*145.5*8.1	132.72*6.99
130	145.1	6.3	GSJ130*145.1*6.3	135.89*5.33
130	150.5	8.1	GSJ130*150.5*8.1	135.89*6.99
140	150.7	4.2	GSJ140*150.7*4.2	142.47*3.53
140	155.1	6.3	GSJ140*155.1*6.3	145.42*5.33
140	160.5	8.1	GSJ140*160.5*8.1	148.59*6.99
145	160.1	6.3	GSJ145*160.1*6.3	148.59*5.33
145	165.5	8.1	GSJ145*165.5*8.1	151.77*6.99
150	165.1	6.3	GSJ150*165.1*6.3	155*5.33
150	170.5	8.1	GSJ150*170.5*8.1	158.12*6.99
160	175.1	6.3	GSJ160*175.1*6.3	164.47*5.33
160	180.5	8.1	GSJ160*180.5*8.1	164.47*6.99
165	180.1	6.3	GSJ165*180.1*6.3	170.82*5.33
170	185.1	6.3	GSJ170*185.1*6.3	175*5.33
170	190.5	8.1	GSJ170*190.5*8.1	177.17*6.99
180	195.1	6.3	GSJ180*195.1*6.3	183.32*5.33
180	200.5	8.1	GSJ180*200.5*8.1	186.02*6.99
190	205.1	6.3	GSJ190*205.1*6.3	196.22*5.33
200	215.1	6.3	GSJ200*215.1*6.3	205*5.33
200	220.5	8.1	GSJ200*220.5*8.1	206*6.99
210	230.5	8.1	GSJ210*230.5*8.1	215.27*6.99
220	240.5	8.1	GSJ220*240.5*8.1	227.97*6.99
230	245.1	6.3	GSJ230*245.1*6.3	234.32*5.66
230	250.5	8.1	GSJ230*250.5*8.1	236*6.99
240	260.5	8.1	GSJ240*260.5*8.1	243*6.99



GSJ

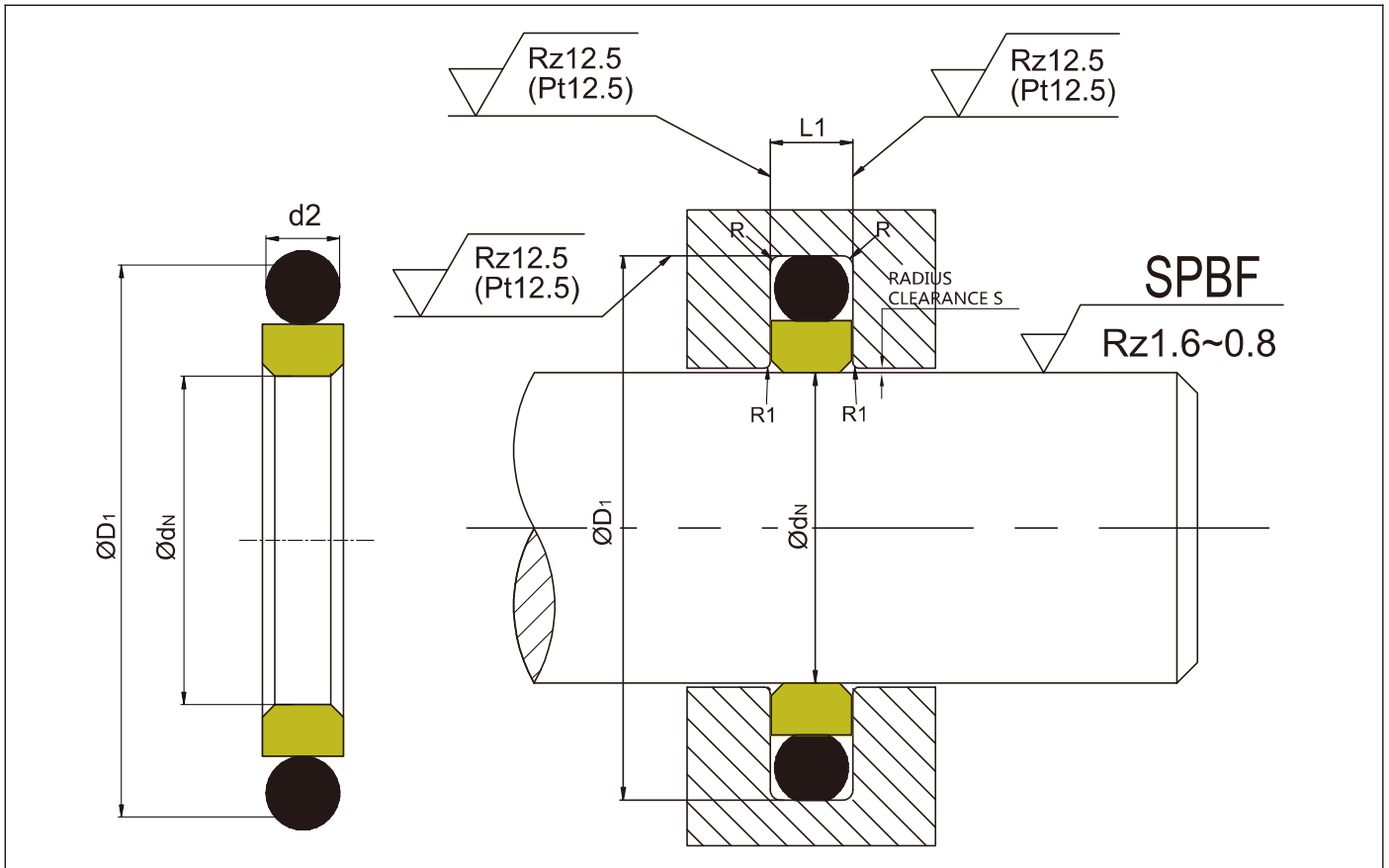
Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
d _N h9	D ₁ H9	L ₁ +0.2		
250	270.5	8.1	GSJ250*270.5*8.1	253.37*6.99
256	280	8.1	GSJ256*280*8.1	266.07*6.99
260	284	8.1	GSJ260*284*8.1	266.07*6.99
270	294	8.1	GSJ270*294*8.1	278.77*6.99
280	304	8.1	GSJ280*304*8.1	291.47*6.99
290	314	8.1	GSJ290*314*8.1	300*6.99
300	324	8.1	GSJ300*324*8.1	307*6.99
320	344	8.1	GSJ320*344*8.1	329.57*6.99
330	354	8.1	GSJ330*354*8.1	355*6.99
340	364	8.1	GSJ340*364*8.1	345*6.99
350	374	8.1	GSJ350*374*8.1	354.97*6.99
360	384	8.1	GSJ360*384*8.1	367.67*6.99
370	394	8.1	GSJ370*394*8.1	380.37*6.99
380	404	8.1	GSJ380*404*8.1	387*6.99
390	414	8.1	GSJ390*414*8.1	400*6.99
400	424	8.1	GSJ400*424*8.1	405.26*6.99
410	434	8.1	GSJ410*434*8.1	417.96*6.99
420	444	8.1	GSJ420*444*8.1	430.66*6.99
430	454	8.1	GSJ430*454*8.1	437*6.99
440	464	8.1	GSJ440*464*8.1	450*6.99
450	474	8.1	GSJ450*474*8.1	456.06*6.99
460	484	8.1	GSJ460*484*8.1	468.76*6.99
480	504	8.1	GSJ480*504*8.1	487*6.99
490	514	8.1	GSJ490*514*8.1	500*6.99
500	524	8.1	GSJ500*524*8.1	506.87*6.99
520	544	8.1	GSJ520*544*8.1	532.26*6.99
540	564	8.1	GSJ540*564*8.1	552.66*6.99
550	574	8.1	GSJ550*574*8.1	560*6.99
580	604	8.1	GSJ580*604*8.1	582.68*6.99
600	624	8.1	GSJ600*624*8.1	608.08*6.99
620	644	8.1	GSJ620*644*8.1	633.48*6.99
630	654	8.1	GSJ630*654*8.1	640*6.99
640	664	8.1	GSJ640*664*8.1	658.88*6.99
650	677.3	9.5	GSJ650*677.3*9.5	660*8.4
660	687.3	9.5	GSJ660*687.3*9.5	670*8.4
680	707.3	9.5	GSJ680*707.3*9.5	690*8.4
685	712.3	9.5	GSJ685*712.3*9.5	695*8.4
700	727.3	9.5	GSJ700*727.3*9.5	710*8.4
710	737.3	9.5	GSJ710*737.3*9.5	720*8.4



Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
$d_N h9$	$D_1 H9$	$L_1+0.2$		
730	757.3	9.5	GSJ730*757.3*9.5	740*8.4
750	777.3	9.5	GSJ750*777.3*9.5	760*8.4
760	787.3	9.5	GSJ760*787.3*9.5	770*8.4
780	807.3	9.5	GSJ780*807.3*9.5	790*8.4
790	817.3	9.5	GSJ790*817.3*9.5	800*8.4
800	827.3	9.5	GSJ800*827.3*9.5	810*8.4
810	837.3	9.5	GSJ810*837.3*9.5	823*8.4
820	847.3	9.5	GSJ820*847.3*9.5	830*8.4
830	857.3	9.5	GSJ830*857.3*9.5	843*8.4
850	877.3	9.5	GSJ850*877.3*9.5	860*8.4
870	897.3	9.5	GSJ870*897.3*9.5	883*8.4
880	907.3	9.5	GSJ880*907.3*9.5	890*8.4
890	917.3	9.5	GSJ890*917.3*9.5	903*8.4
900	927.3	9.5	GSJ900*927.3*9.5	910*8.4
930	957.3	9.5	GSJ930*957.3*9.5	943*8.4
950	977.3	9.5	GSJ950*977.3*9.5	960*8.4
1000	1027.3	9.5	GSJ1000*1027.3*9.5	1000*8.4
1000	1038	13.8	GSJ1000*1038*13.8	1016*12



1. Installation Recommendation



2. Installation Sizes

Rod Diameter d_N h9			Groove Diameter	Groove Width	Radius	Radial Clearance S max.			O-Ring Cross- Section
Standard Application	Light Application	Heavy Duty Application	D_1 H9	$L_1+0.2$	R_1	10MPa	20MPa	40MPa	d_2
3-7.9	8-18.9	-	$d_N+4.9$	2.2	0.4	0.3	0.20	0.15	1.78
8-18.9	19-37.9	-	$d_N+7.3$	3.2	0.6	0.4	0.25	0.15	2.62
19-37.9	38-199.9	8-18.9	$d_N+10.7$	4.2	1.0	0.4	0.25	0.20	3.53
38-199.9	200-255.9	19-37.9	$d_N+15.1$	6.3	1.3	0.5	0.30	0.20	5.33
200-225.9	256-649.9	38-199.9	$d_N+20.5$	8.1	1.8	0.6	0.35	0.25	7.00
256-649.9	650-999.9	200-255.9	$d_N+24.0$	8.1	1.8	0.6	0.35	0.25	7.00
650-999.9	≥ 1000.0	256-649.9	$d_N+27.3$	9.5	2.5	0.7	0.50	0.30	8.40
≥ 1000.0	-	650-999.9	$d_N+38.0$	13.8	3.0	1.0	0.70	0.60	12.00



3. Application and properties

Applicable to high and low speed reciprocating motion environment, a wide range of fluids and high temperature condition. Suitable for larger gap of piston rod. Low friction, simple groove, be able to work in the medium with oil spots.

Meet the standard of GB/T 15242.3.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 60MPa	-45℃ +200℃	15 m/s	hydraulic oil, flame retardant liquid, water, gas

6. Installation Dimensions

Rod Dia. D _N h9	Groove Dia. D ₁ H9	Groove Width L ₁ +0.2	Order No.	O-Ring Dimensions
4	8.9	2.2	GSI4*8.9*2.2	5.6*1.8
5	9.9	2.2	GSI5*9.9*2.2	6.7*1.8
6	10.9	2.2	GSI6*10.9*2.2	7.65*1.78
8	12.9	2.2	GSI8*12.9*2.2	9.5*1.8
8	15.3	3.2	GSI8*15.3*3.2	10.77*2.62
10	14.9	2.2	GSI10*14.9*2.2	11.8*1.8
10	17.3	3.2	GSI10*17.3*3.2	12.37*2.62
12	16.9	2.2	GSI12*16.9*2.2	14.0*1.78
12	19.3	3.2	GSI12*19.3*3.2	13.94*2.62
14	18.9	2.2	GSI14*18.9*2.2	15.6*1.78
14	21.3	3.2	GSI14*21.3*3.2	17.12*2.62
15	19.9	2.2	GSI15*19.9*2.2	17.17*1.78
15	22.3	3.2	GSI15*22.3*3.2	17.12*2.62
16	20.9	2.2	GSI16*20.9*2.2	17.17*1.78
16	23.3	3.2	GSI16*23.3*3.2	18.72*2.62
18	22.9	2.2	GSI18*22.9*2.2	20.35*1.78
18	25.3	3.2	GSI18*25.3*3.2	20.29*2.62
19	29.7	4.2	GSI19*29.7*4.2	23.39*3.53
20	27.3	3.2	GSI20*27.3*3.2	21.89*2.62
20	30.7	4.2	GSI20*30.7*4.2	25.0*3.53
22	29.3	3.2	GSI22*29.3*3.2	25.07*2.62



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Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N h9	D ₁ H9	L ₁ +0.2		
22	32.7	4.2	GSI22*32.7*4.2	26.57*3.53
24	31.3	3.2	GSI24*31.3*3.2	26.64*2.62
25	32.3	3.2	GSI25*32.3*3.2	28.24*2.62
25	35.7	4.2	GSI25*35.7*4.2	29.74*3.53
26	36.7	4.2	GSI26*36.7*4.2	29.74*3.53
28	35.3	3.2	GSI28*35.3*3.2	29.82*2.62
28	38.7	4.2	GSI28*38.7*4.2	32.92*3.53
30	37.3	3.2	GSI30*37.3*3.2	32.99*2.62
30	40.7	4.2	GSI30*40.7*4.2	34.52*3.53
32	39.3	3.2	GSI32*39.3*3.2	34.59*2.62
32	42.7	4.2	GSI32*42.7*4.2	36.09*3.53
35	42.3	3.2	GSI35*42.3*3.2	37.77*2.62
35	45.7	4.2	GSI35*45.7*4.2	37.69*3.53
36	43.3	3.2	GSI36*43.3*3.2	39.34*2.62
36	46.7	4.2	GSI36*46.7*4.2	40.87*3.53
38	48.7	4.2	GSI38*48.7*4.2	40.87*3.53
38	53.1	6.3	GSI38*53.1*6.3	43.82*5.33
40	50.7	4.2	GSI40*50.7*4.2	44.04*3.53
40	55.1	6.3	GSI40*55.1*6.3	43.82*5.33
42	52.7	4.2	GSI42*52.7*4.2	47.22*3.53
42	57.1	6.3	GSI42*57.1*6.3	46.99*5.33
45	55.7	4.2	GSI45*55.7*4.2	50.39*3.53
45	60.1	6.3	GSI45*60.1*6.3	50.17*5.33
48	58.7	4.2	GSI48*58.7*4.2	51.5*3.55
48	63.1	6.3	GSI48*63.1*6.3	53.34*5.33
50	60.7	4.2	GSI50*60.7*4.2	53.57*3.53
50	65.1	6.3	GSI50*65.1*6.3	56.52*5.33
52	62.7	4.2	GSI52*62.7*4.2	56.74*3.53
52	67.1	6.3	GSI52*67.1*6.3	56.52*5.33
54	69.1	6.3	GSI54*69.1*6.3	59.69*5.33
55	65.7	4.2	GSI55*65.7*4.2	59.92*3.53
55	70.1	6.3	GSI55*70.1*6.3	59.69*5.33
56	66.7	4.2	GSI56*66.7*4.2	59.92*3.53
56	71.1	6.3	GSI56*71.1*6.3	62.87*5.33
58	73.1	6.3	GSI58*73.1*6.3	62.87*5.33
60	70.7	4.2	GSI60*70.7*4.2	63.09*3.53
60	75.1	6.3	GSI60*75.1*6.3	66.04*5.33
63	73.7	4.2	GSI63*73.7*4.2	66.27*3.53
63	78.1	6.3	GSI63*78.1*6.3	69.22*5.33



Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N h9	D ₁ H9	L ₁ +0.2		
65	80.1	6.3	GSI65*80.1*6.3	69.22*5.33
67	77.7	4.2	GSI67*77.7*4.2	72.62*3.53
70	80.7	4.2	GSI70*80.7*4.2	75.79*3.53
70	85.1	6.3	GSI70*85.1*6.3	75.57*5.33
72	82.7	4.2	GSI72*82.7*4.2	75.79*3.53
75	85.7	4.2	GSI75*85.7*4.2	78.97*3.53
75	90.1	6.3	GSI75*90.1*6.3	81.92*5.33
80	90.7	4.2	GSI80*90.7*4.2	85.32*3.53
80	95.1	6.3	GSI80*95.1*6.3	85.09*5.33
83	93.7	4.2	GSI83*93.7*4.2	88.49*3.53
85	100.1	6.3	GSI85*100.1*6.3	91.44*5.33
86	96.7	4.2	GSI86*96.7*4.2	91.67*3.53
90	100.7	4.2	GSI90*100.7*4.2	94.84*3.53
90	105.1	6.3	GSI90*105.1*6.3	94.62*5.33
92	102.7	4.2	GSI92*102.7*4.2	98.02*3.53
95	105.7	4.2	GSI95*105.7*4.2	101.19*3.53
95	110.1	6.3	GSI95*110.1*6.3	100.97*5.33
100	110.7	4.2	GSI100*110.7*4.2	104.37*3.53
100	115.1	6.3	GSI100*115.1*6.3	107.32*5.33
105	115.7	4.2	GSI105*115.7*4.2	110.72*3.53
105	120.1	6.3	GSI105*120.1*6.3	110.49*5.33
110	120.7	4.2	GSI110*120.7*4.2	113.89*3.53
110	125.1	6.3	GSI110*125.1*6.3	116.84*5.33
110	130.5	8.1	GSI110*130.5*8.1	120.02*7.00
112	127.1	6.3	GSI112*127.1*6.3	116.84*5.33
115	125.7	4.2	GSI115*125.7*4.2	120.24*3.53
115	130.1	6.3	GSI115*130.1*6.3	120.02*5.33
118	133.1	6.3	GSI118*133.1*6.3	123.19*5.33
120	130.7	4.2	GSI120*130.7*4.2	123.42*3.53
120	135.1	6.3	GSI120*135.1*6.3	126.37*5.33
125	135.7	4.2	GSI125*135.7*4.2	129.77*3.53
125	140.1	6.3	GSI125*140.1*6.3	129.54*5.33
129	139.7	4.2	GSI129*139.7*4.2	132*97*3.53
130	140.7	4.2	GSI130*140.7*4.2	136.12*3.53
130	145.1	6.3	GSI130*145.1*6.3	135.89*5.33
135	145.7	4.2	GSI135*145.7*4.2	139.29*3.53
135	150.1	6.3	GSI135*150.1*6.3	142.24*5.33
140	150.7	4.2	GSI140*150.7*4.2	145.64*3.53
140	155.1	6.3	GSI140*155.1*6.3	148.82*3.53



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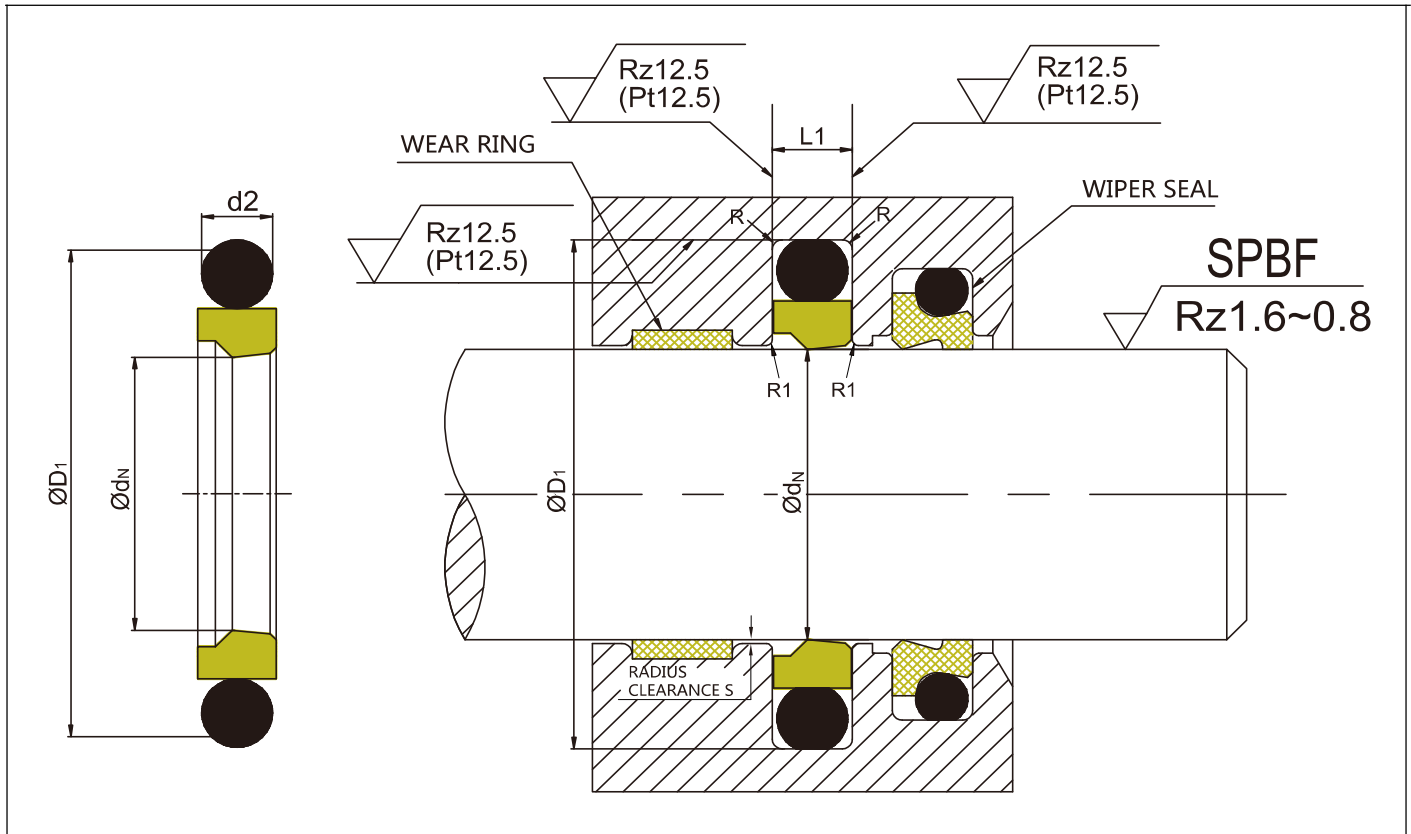
Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N h9	D ₁ H9	L ₁ +0.2		
145	155.7	4.2	GSI145*155.7*4.2	145.42*5.33
145	160.1	6.3	GSI145*160.1*6.3	151.77*5.33
150	165.1	6.3	GSI150*165.1*6.3	158.12*5.33
160	175.1	6.3	GSI160*175.1*6.3	164.47*5.33
160	180.5	8.1	GSI160*180.5*8.1	170.82*6.99
165	180.1	6.3	GSI165*180.1*6.3	170.82*5.33
170	180.7	4.2	GSI170*180.7*4.2	177.39*3.53
170	185.1	6.3	GSI170*185.1*6.3	177.17*5.33
175	190.1	6.3	GSI175*190.1*6.3	183.52*5.33
180	190.7	4.2	GSI180*190.7*4.2	183.74*3.53
180	195.1	6.3	GSI180*195.1*6.3	183.52*5.33
180	200.5	8.1	GSI180*200.5*8.1	189.87*6.99
190	200.7	4.2	GSI190*200.7*4.2	196.44*3.53
190	205.1	6.3	GSI190*205.1*6.3	196.22*5.33
200	215.1	6.3	GSI200*215.1*6.3	208.92*5.33
200	220.5	8.1	GSI200*220.5*8.1	208.92*6.99
205	220.1	6.3	GSI205*220.1*6.3	208.92*5.33
210	225.1	6.3	GSI210*225.1*6.3	215.27*5.33
220	235.1	6.3	GSI220*235.1*6.3	227.97*5.33
220	240.5	8.1	GSI220*240.5*8.1	227.97*6.99
230	245.1	6.3	GSI230*245.1*6.3	234.32*5.33
230	250.5	8.1	GSI230*250.5*8.1	240.67*6.99
240	255.1	6.3	GSI240*255.1*6.3	247.02*5.33
240	260.5	8.1	GSI240*260.5*8.1	253*37*6.99
250	270.5	8.1	GSI250*270.5*8.1	266.07*6.99
260	284	8.1	GSI260*284*8.1	266.07*6.99
270	290.5	8.1	GSI270*290.5*8.1	278.77*6.99
270	294	8.1	GSI270*294*8.1	278.77*6.99
275	299	8.1	GSI275*299*8.1	291.47*6.99
280	300.5	8.1	GSI280*300.5*8.1	291*47*6.99
280	304	8.1	GSI280*304*8.1	291.47*6.99
290	310.5	8.1	GSI290*310.5*8.1	304.17*6.99
290	314	8.1	GSI290*314*8.1	304.17*6.99
300	324	8.1	GSI300*324*8.1	316.87*6.99
310	334	8.1	GSI310*334*8.1	316.87*6.99
320	344	8.1	GSI320*344*8.1	329.57*6.99
330	354	8.1	GSI330*354*8.1	342.27*6.99
340	364	8.1	GSI340*364*8.1	354.97*6.99
350	374	8.1	GSI350*374*8.1	367.67*6.99



Rod Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N h9	D ₁ H9	L ₁ +0.2		
360	384	8.1	GSI360*384*8.1	367.67*6.99
370	394	8.1	GSI370*394*8.1	380.37*6.99
380	404	8.1	GSI380*404*8.1	393.07*6.99
390	414	8.1	GSI390*414*8.1	405.26*6.99
400	424	8.1	GSI400*424*8.1	417.96*6.99
410	434	8.1	GSI410*434*8.1	417.96.6.99
420	444	8.1	GSI420*444*8.1	430.66*6.99
430	454	8.1	GSI430*454*8.1	443.36*6.99
440	464	8.1	GSI440*464*8.1	456.06*6.99
450	474	8.1	GSI450*474*8.1	468.76*6.99
460	484	8.1	GSI460*484*8.1	481.46*6.99
470	494	8.1	GSI470*494*8.1	484.46*6.99
480	504	8.1	GSI480*504*8.1	494*16*6.99
490	514	8.1	GSI490*514*8.1	506.86*6.99
500	524	8.1	GSI500*524*8.1	506.86*6.99
550	574	8.1	GSI550*574*8.1	557.66*6.99
600	624	8.1	GSI600*624*8.1	608.08*6.99
650	677.3	9.5	GSI650*677.3*9.5	663*8.4
700	724	8.1	GSI700*724*8.1	712*6.99
740	767.3	9.5	GSI740*767.3*9.5	753*8.4
800	827.3	9.5	GSI800*827.3*9.5	813*8.4
850	877.3	9.5	GSI850*877.3*9.5	863*8.4
900	927.3	9.5	GSI900*927.3*9.5	913*8.4
950	977.3	9.5	GSI950*977.3*9.5	963*8.4



1. Installation Recommendation



2. Application and properties

Applicable to high and low speed reciprocating motion environment, a wide range of fluids and high temperature condition. Suitable for larger gap of piston rod. Low friction, simple groove, be able to work in the medium with oil spots.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 60MPa	-30°C +200°C	15 m/s	hydraulic oil, flame retardant liquid, water, gas



5. Installation Dimensions

Rod Dia.	Outer Dia.	Width	Order No.
d h9	D ₁ H9	L ₁ +0.2	
40	50	4.2	GSW40*50*4.2
45	55	4.2	GSW45*55*4.2
50	60	4.2	GSW50*60*4.2
50	65	6.8	GSW50*65*6.8
53	63	4.2	GSW53*63*4.2
55	65	4.2	GSW55*65*4.2
55	70	6.8	GSW55*70*6.8
60	70	4.2	GSW60*70*4.2
60	75	6.8	GSW60*75*6.8
63	73	4.2	GSW63*73*4.2
65	75	4.2	GSW65*75*4.2
65	80	6.8	GSW65*80*6.8
67	77	4.2	GSW67*77*4.2
70	80	4.2	GSW70*80*4.2
70	82	6.8	GSW70*85*6.8
75	85	4.2	GSW75*85*4.2
75	90	6.8	GSW75*90*6.8
80	90	4.2	GSW80*90*4.2
80	75	6.8	GSW80*95*6.8
85	100	6.8	GSW85*100*6.8
90	105	6.8	GSW90*105*6.8
95	110	6.8	GSW95*110*6.8
100	115	6.8	GSW100*115*6.8
106	121	6.8	GSW106*121*6.8
110	125	6.8	GSW110*125*6.8
115	130	6.8	GSW115*130*6.8
120	135	6.8	GSW120*135*6.8
125	140	6.8	GSW125*140*6.8
130	145	6.8	GSW130*145*6.8
135	150	6.8	GSW135*150*6.8
140	155	6.8	GSW140*155*6.8
145	160	6.8	GSW145*160*6.8
150	165	6.8	GSW150*165*6.8
155	170	6.8	GSW155*170*6.8
160	175	6.8	GSW160*175*6.8
165	180	6.8	GSW165*180*6.8
170	185	6.8	GSW170*185*6.8
175	190	6.8	GSW175*190*6.8
180	200	8.1	GSW180*200*8.1

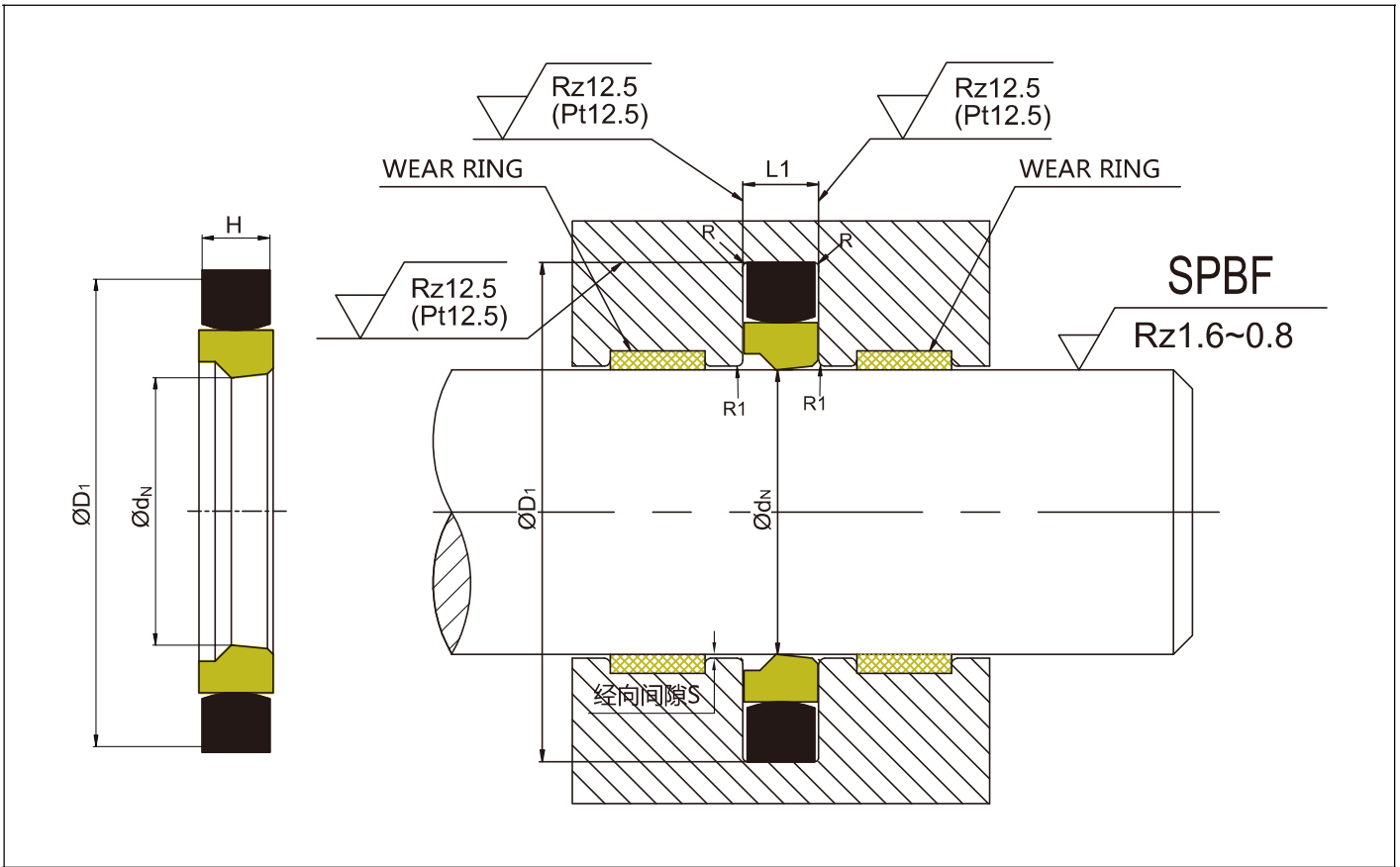


GSW

Rod Dia.	Outer Dia.	Width	Order No.
d h9	D ₁ H9	L ₁ +0.2	
185	205	6.8	GSW185*205*8.1
190	210	6.8	GSW190*210*8.1
195	215	8.1	GSW195*215*8.1
200	220	8.1	GSW200*220*8.1
210	230	8.1	GSW210*230*8.1
215	235	8.1	GSW215*235*8.1
220	240	8.1	GSW220*240*8.1
230	250	8.1	GSW230*250*8.1
235	255	8.1	GSW235*255*8.1
255	275	8.1	GSW255*275*8.1
260	280	8.1	GSW260*280*8.1
265	285	8.1	GSW265*285*8.1
270	290	8.1	GSW270*290*8.1
275	295	8.1	GSW275*295*8.1
280	300	8.1	GSW280*300*8.1
285	310	9.5	GSW285*310*9.5
290	315	9.5	GSW290*315*9.5
295	320	9.5	GSW295*320*9.5
300	325	9.5	GSW300*325*9.5
310	335	9.5	GSW310*335*9.5
320	345	9.5	GSW320*345*9.5
330	355	9.5	GSW330*355*9.5
340	365	9.5	GSW340*365*9.5
350	375	9.5	GSW350*375*9.5
360	385	9.5	GSW360*385*9.5
370	395	9.5	GSW370*395*9.5
380	405	9.5	GSW380*405*9.5
390	415	9.5	GSW390*415*9.5
400	425	9.5	GSW400*425*9.5



1. Installation Recommendation



2. Installation Sizes

Rod Diameter	Outer Diameter	Groove Width	Install Chamfer	Radius	Radial Clearance S max.		
					10MPa	20MPa	40MPa
d f8	D H8	L+0.2	L ₁	R ₁	10MPa	20MPa	40MPa
50-69.9	d+15.0	7.5	5.0	0.4	0.5	0.4	0.3
70-149.9	d+20.0	10.1	6.0	0.4	0.7	0.5	0.4
200-244.9	d+25.0	12.5	8.5	0.4	0.8	0.6	0.5
245-519.9	d+30.0	15.0	10.0	0.8	0.9	0.7	0.6
520-769.9	d+35.0	17.5	13.0	1.2	1.0	0.8	0.7
770-1500	d+40.0	20.0	15.0	1.2	1.0	0.8	0.7

3. Application and properties

Applied for larger diameter piston rods and heavy-duty hydraulic rod sealing system in hard working conditions. High pressure resistance, excellent resistance to gap extrusion, wear-resisting.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM



GSJ - W

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
50 - 1600mm	0 - 60MPa	-30°C +100°C	5 m/s	hydraulic oil, flame retardant liquid, water, gas

6. Installation Dimensions

Rod Dia.	Outer Dia.	Groove Width	Order No.
d f8	D H8	L+0.2	
50	65	7.5	GSJ-W50*65*7.5
60	75	7.5	GSJ-W60*75*7.5
70	85	7.5	GSJ-W70*85*7.5
75	95	10	GSJ-W75*95*10
80	100	10	GSJ-W80*100*10
100	120	10	GSJ-W100*120*10
110	130	10	GSJ-W110*130*10
115	135	10	GSJ-W115*135*10
120	140	10	GSJ-W120*140*10
130	150	10	GSJ-W130*150*10
140	160	10	GSJ-W140*160*10
145	165	10	GSJ-W145*165*10
150	170	10	GSJ-W150*170*10
160	180	10	GSJ-W160*180*10
170	190	10	GSJ-W170*190*10
175	195	10	GSJ-W175*195*10
180	200	10	GSJ-W180*200*10
200	220	10	GSJ-W200*220*10
230	255	12.5	GSJ-W230*255*12.5
240	265	12.5	GSJ-W240*265*12.5
250	275	12.5	GSJ-W250*275*12.5
260	285	12.5	GSJ-W260*285*12.5
265	290	12.5	GSJ-W265*290*12.5
270	295	12.5	GSJ-W270*295*12.5
280	305	12.5	GSJ-W280*305*12.5
290	315	12.5	GSJ-W290*315*12.5
300	325	12.5	GSJ-W300*325*12.5
310	340	15.0	GSJ-W310*340*15
315	345	15.0	GSJ-W315*345*15
320	350	15.0	GSJ-W320*350*15



Rod Dia.	Outer Dia.	Groove Width	Order No.
d f8	D H8	L+0.2	
330	360	15.0	GSJ-W330*360*15
340	370	15.0	GSJ-W340*370*15
350	380	15.0	GSJ-W350*380*15
360	390	15.0	GSJ-W360*390*15
370	400	15.0	GSJ-W370*400*15
380	410	15.0	GSJ-W380*410*15
390	420	15.0	GSJ-W390*420*15
400	430	15.0	GSJ-W400*430*15
410	440	15.0	GSJ-W410*440*15
420	450	15.0	GSJ-W420*450*15
430	460	15.0	GSJ-W430*460*15
440	470	15.0	GSJ-W440*470*15
450	480	15.0	GSJ-W450*480*15
460	490	15.0	GSJ-W460*490*15
470	500	15.0	GSJ-W470*500*15
480	510	15.0	GSJ-W480*510*15
490	520	15.0	GSJ-W490*520*15
500	530	15.0	GSJ-W500*530*15
510	540	15.0	GSJ-W510*540*15
520	550	15.0	GSJ-W520*550*15
530	560	15.0	GSJ-W530*560*15
540	575	17.5	GSJ-W540*575*17.5
545	580	17.5	GSJ-W545*580*17.5
550	585	17.5	GSJ-W550*585*17.5
560	595	17.5	GSJ-W560*595*17.5
570	605	17.5	GSJ-W570*605*17.5
580	615	17.5	GSJ-W580*615*17.5
590	625	17.5	GSJ-W590*625*17.5
600	635	17.5	GSJ-W600*635*17.5
620	655	17.5	GSJ-W620*655*17.5
630	665	17.5	GSJ-W630*665*17.5
640	675	17.5	GSJ-W640*675*17.5
645	680	17.5	GSJ-W645*680*17.5
650	685	17.5	GSJ-W650*685*17.5
660	695	17.5	GSJ-W660*695*17.5
670	705	17.5	GSJ-W670*705*17.5
680	715	17.5	GSJ-W680*715*17.5
690	725	17.5	GSJ-W690*725*17.5
700	740	20.0	GSJ-W700*740*20

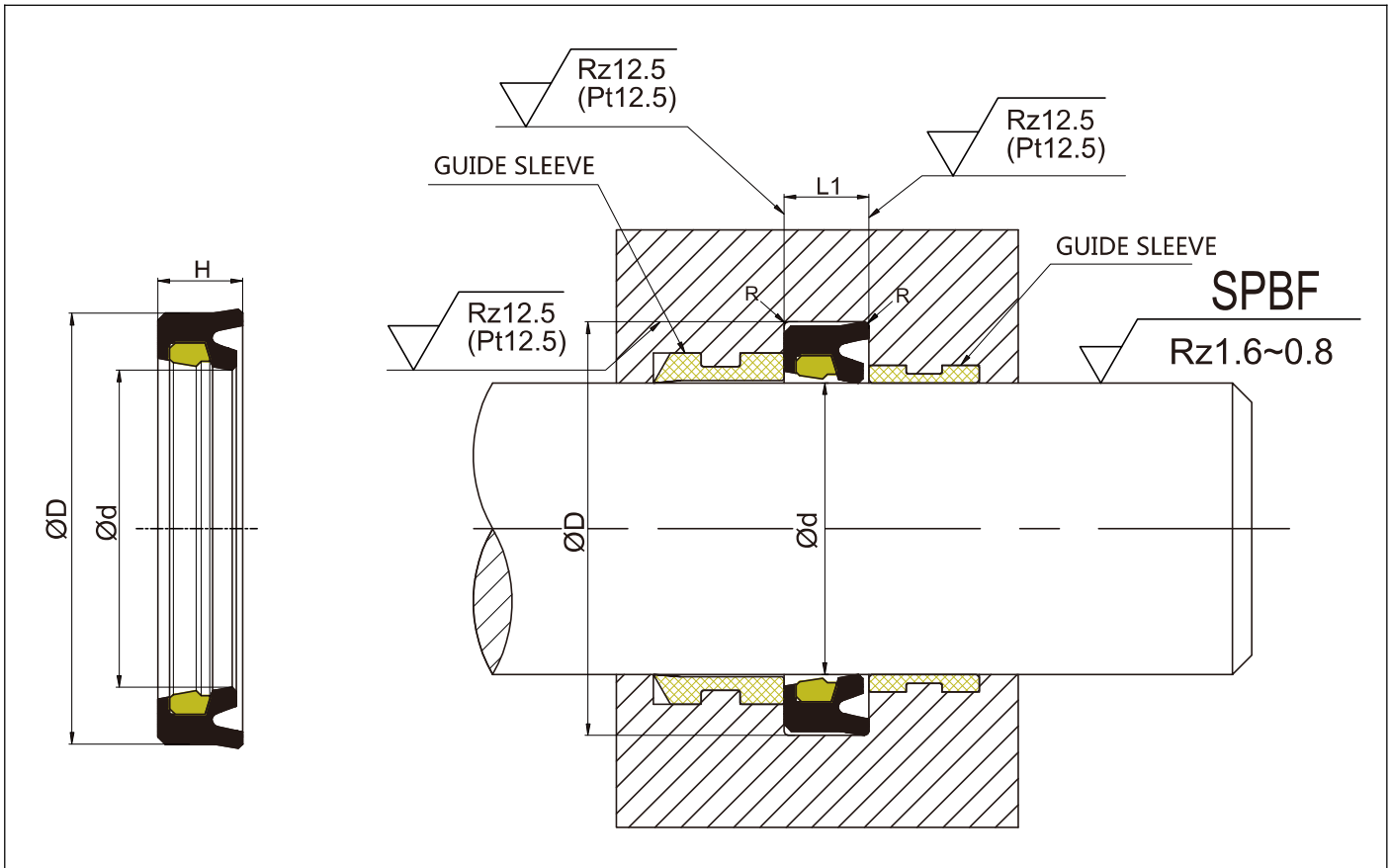


GSJ - W

Rod Dia.	Outer Dia.	Groove Width	Order No.
d f8	D H8	L+0.2	
720	760	20.0	GSJ-W720*760*20
730	770	20.0	GSJ-W730*770*20
740	780	20.0	GSJ-W740*780*20
750	790	20.0	GSJ-W750*790*20
760	800	20.0	GSJ-W760*800*20
770	810	20.0	GSJ-W770*810*20
790	830	20.0	GSJ-W790*830*20
800	840	20.0	GSJ-W800*840*20
810	850	20.0	GSJ-W810*850*20
820	860	20.0	GSJ-W820*860*20
830	870	20.0	GSJ-W830*870*20
850	890	20.0	GSJ-W850*890*20
900	940	20.0	GSJ-W900*940*20
950	990	20.0	GSJ-W950*990*20
1000	1040	20.0	GSJ-W1000*1040*20



1. Installation Recommendation



2. Installation Sizes

Rod Diameter d e8	Groove Diameter D H9	Groove Width L D10	H
20-30	d+8	7.5	7
31-35	d+8	7.5	7
36-44	d+8	8.5	8
45-55	d+10	11.0	10
56-119	d+15	13.0	12
120-319	d+20	17.0	16
320-499	d+30	21.0	20
>499	d+40	26.5	25

3. Application and properties

Applicable to hydraulic cylinder piston rod, generally used in conjunction with the guide sleeve. The special-shaped Y-Ring has the sealing function, provides the elasticity to the seal ring, and compensates for the abrasion. Wear-resisting, non stick slip phenomenon. It has a high stability under pressure and harsh conditions.



TDI

4. Standard materials

Sealing ring: filled PTFE

Y-Ring: NBR / PU

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
20 - 1600mm	0 - 60MPa	-30°C +100°C	1 m/s	Petroleum base hydraulic oil, nonflammable hydraulic fluid, water, and others.

6. Installation Dimensions

Rod Dia.	Outer Dia.	Groove Width	Order No.
d e8	D H9	L D10	
20	28	7.5	TDI20*28*7.5
22	30	7.5	TDI22*30*7.5
23	31	7.5	TDI23*31*7.5
25	33	7.5	TDI25*33*7.5
28	36	7.5	TDI28*36*7.5
30	38	7.5	TDI30*38*7.5
32	40	7.5	TDI32*40*7.5
35	43	7.5	TDI35*43*7.5
36	44	8.5	TDI36*44*8.5
40	48	8.5	TDI40*48*8.5
42	50	8.5	TDI42*50*8.5
45	55	11	TDI45*55*11
47	57	11	TDI47*57*11
48	58	11	TDI48*58*11
50	60	11	TDI50*60*11
52	62	11	TDI52*62*11
55	65	11	TDI55*65*11
56	71	13	TDI56*71*13
60	75	13	TDI60*75*13
63	78	13	TDI63*78*13
65	80	13	TDI65*80*13
68	78	13	TDI68*78*13
70	85	13	TDI70*85*13
72	87	13	TDI72*87*13
75	90	13	TDI75*90*13
80	95	13	TDI80*95*13
83	98	13	TDI83*98*13

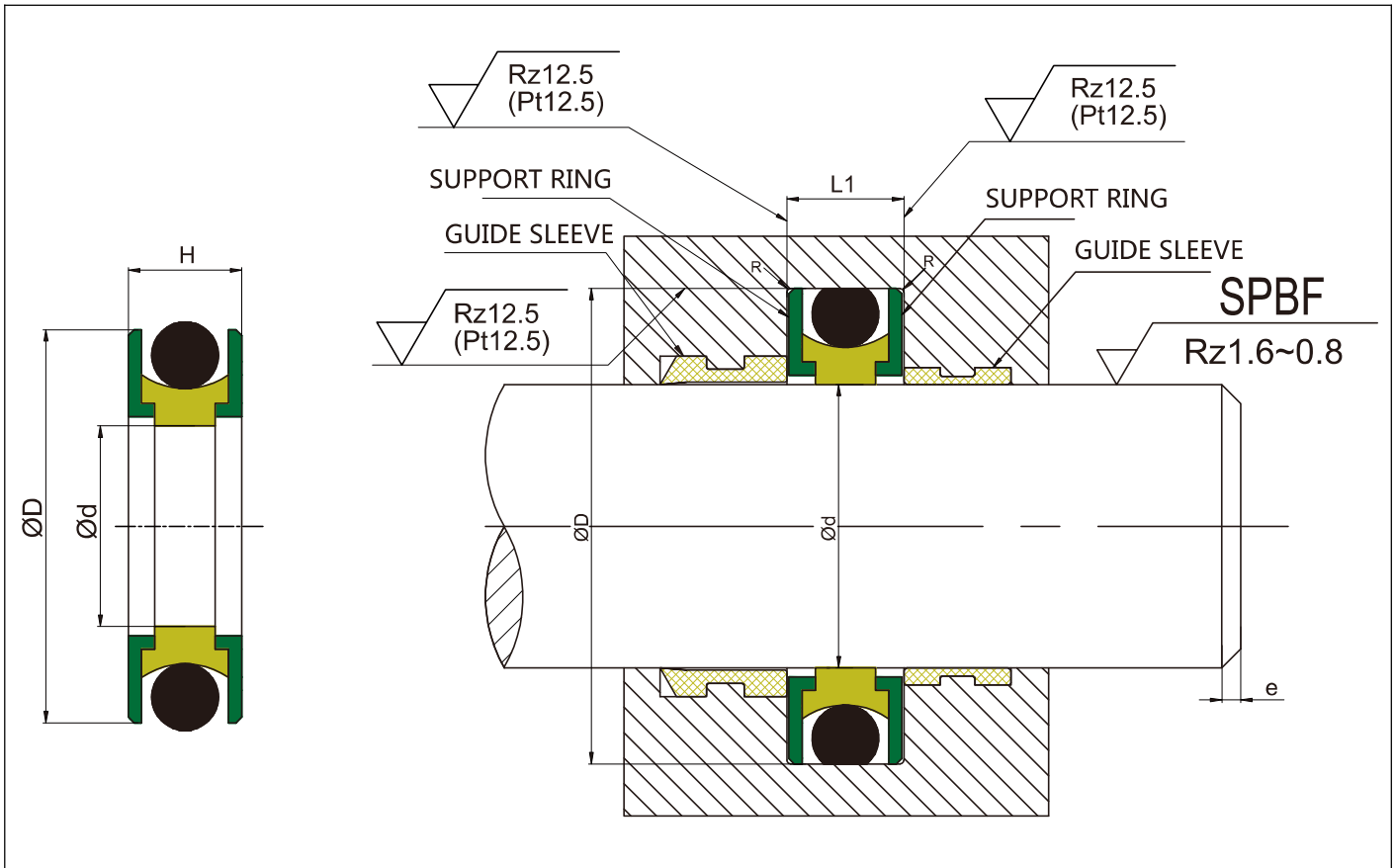


Rod Dia. d e8	Outer Dia. D H9	Groove Width L D10	Order No.
85	100	13	TDI85*100*13
87	102	13	TDI87*102*13
90	105	13	TDI90*105*13
95	110	13	TDI95*110*13
96	111	13	TDI96*111*13
100	115	13	TDI100*115*13
100	120	15	TDI100*120*15
105	120	13	TDI105*120*13
110	125	13	TDI110*125*13
115	126	16	TDI115*126*16
115	130	13	TDI115*130*13
120	140	17	TDI120*140*17
125	145	17	TDI125*145*17
130	150	17	TDI130*150*17
135	155	17	TDI135*155*17
140	155	18	TDI140*155*18
140	160	17	TDI140*160*17
150	170	17	TDI150*170*17
155	175	17	TDI155*175*17
160	180	17	TDI160*180*17
165	185	17	TDI165*185*17
170	190	17	TDI170*190*17
175	195	17	TDI175*195*17
180	200	17	TDI180*200*17
185	205	17	TDI185*205*17
190	210	17	TDI190*210*17
200	220	17	TDI200*220*17
220	240	17	TDI220*240*17
225	245	17	TDI225*245*17
230	250	17	TDI230*250*17
240	260	17	TDI240*260*17
250	270	17	TDI250*270*17
260	280	17	TDI260*280*17
280	300	17	TDI280*300*17
300	320	17	TDI300*320*17
350	380	21	TDI350*380*21
500	540	26.5	TDI500*540*26.5
630	670	26.5	TDI630*670*26.5
1000	1040	26.5	TDI1000*1040*26.5



R D I

1. Installation Recommendation



2. Installation Sizes

Ø - range	e
20-56	6
60-100	7
105-290	10
300-630	15

d e8	D H9	L D10	H
22-39	d+7.2	4.0	3.5
40-79	d+10.0	5.0	4.5
80-100	d+13.8	7.5	7.0
>100-250	d+20.0	10.0	9.5
>250-600	d+30.0	15.0	14.5
>600	d+40.0	20.0	19.5

3. Application and properties

L-Ring support and guide to ensure a tight sealing environment. Easy installation, wear resistance, anti extrusion, low friction, non stick slip phenomenon.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

L-Ring: POM / PA



5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
20 - 1600mm	0 - 45MPa	-30°C +100°C	1 m/s	hydraulic oil, flame retardant liquid, water, gas

6. Installation Dimensions

d e8	D ₁ H9	H	L D10	e	Order No.
22	29.2	3.5	4	6	RDI22*29.2*3.5
25	32.2	3.5	4	6	RDI25*32.2*3.5
28	35.2	3.5	4	6	RDI28*35.2*3.5
30	37.2	3.5	4	6	RDI30*37.2*3.5
32	39.2	3.5	4	6	RDI32*39.2*3.5
35	42.2	3.5	4	6	RDI35*42.2*3.5
36	43.2	3.5	4	6	RDI36*43.2*3.5
40	50	4.5	5	6	RDI40*50*4.5
42	52	4.5	5	6	RDI42*52*4.5
45	55	4.5	5	6	RDI45*55*4.5
50	60	4.5	5	6	RDI50*60*4.5
55	65	4.5	5	6	RDI55*65*4.5
56	66	4.5	5	6	RDI56*66*4.5
60	70	4.5	5	7	RDI60*70*4.5
63	73	4.5	7.5	7	RDI63*73*4.5
65	75	4.5	7.5	7	RDI65*75*4.5
70	80	4.5	7.5	7	RDI70*80*4.5
72	82	4.5	7.5	7	RDI72*82*4.5
75	85	4.5	7.5	7	RDI75*85*4.5
80	93.8	7.0	7.5	7	RDI80*93.8*7.0
85	98.8	7.0	7.5	7	RDI85*98.8*7.0
90	103.8	7.0	7.5	7	RDI90*103.8*7.0
95	108.8	7.0	7.5	7	RDI95*108.8*7.0
100	113.8	7.0	7.5	7	RDI100*113.8*7.0
105	125	9.5	10	10	RDI105*125*9.5
110	130	9.5	10	10	RDI110*130*9.5
115	135	9.5	10	10	RDI115*135*9.5
120	140	9.5	10	10	RDI120*140*9.5
125	145	9.5	10	10	RDI125*145*9.5
130	150	9.5	10	10	RDI130*150*9.5



RDI

d e8	D ₁ H9	H	L D10	e	Order No.
140	160	9.5	10	10	RDI140*160*9.5
150	170	9.5	10	10	RDI150*170*9.5
160	180	9.5	10	10	RDI160*180*9.5
165	185	9.5	10	10	RDI165*185*9.5
170	190	9.5	10	10	RDI170*190*9.5
180	200	9.5	10	10	RDI180*200*9.5
190	210	9.5	10	10	RDI190*210*9.5
200	220	9.5	10	10	RDI200*220*9.5
220	240	9.5	10	10	RDI220*240*9.5
225	245	9.5	10	10	RDI225*245*9.5
230	250	9.5	10	10	RDI230*250*9.5
240	260	9.5	10	10	RDI240*260*9.5
250	270	9.5	10	10	RDI250*270*9.5
260	290	14.5	15	10	RDI260*290*14.5
280	310	14.5	15	15	RDI280*310*14.5
290	320	14.5	15	15	RDI290*320*14.5
300	330	14.5	15	15	RDI300*330*14.5
320	350	14.5	15	15	RDI320*350*14.5
350	380	14.5	15	15	RDI350*380*14.5
360	390	14.5	15	15	RDI360*390*14.5
380	410	14.5	15	15	RDI380*410*14.5
400	430	14.5	15	15	RDI400*430*14.5
415	445	14.5	15	15	RDI415*445*14.5
420	450	14.5	15	15	RDI420*450*14.5
425	455	14.5	15	15	RDI425*455*14.5
450	480	14.5	15	15	RDI450*480*14.5
480	510	14.5	15	15	RDI480*510*14.5
500	530	14.5	15	15	RDI500*530*14.5
550	580	14.5	15	15	RDI550*580*14.5
560	590	14.5	15	15	RDI560*590*14.5
600	630	14.5	15	15	RDI600*630*14.5
630	670	19.5	20	15	RDI630*670*19.5
650	690	19.5	20	15	RDI650*690*19.5
680	720	19.5	20	15	RDI680*720*19.5
700	740	19.5	20	15	RDI700*740*19.5
720	760	19.5	20	15	RDI720*760*19.5
750	790	19.5	20	15	RDI750*790*19.5
800	840	19.5	20	15	RDI800*840*19.5
850	890	19.5	20	15	RDI850*890*19.5

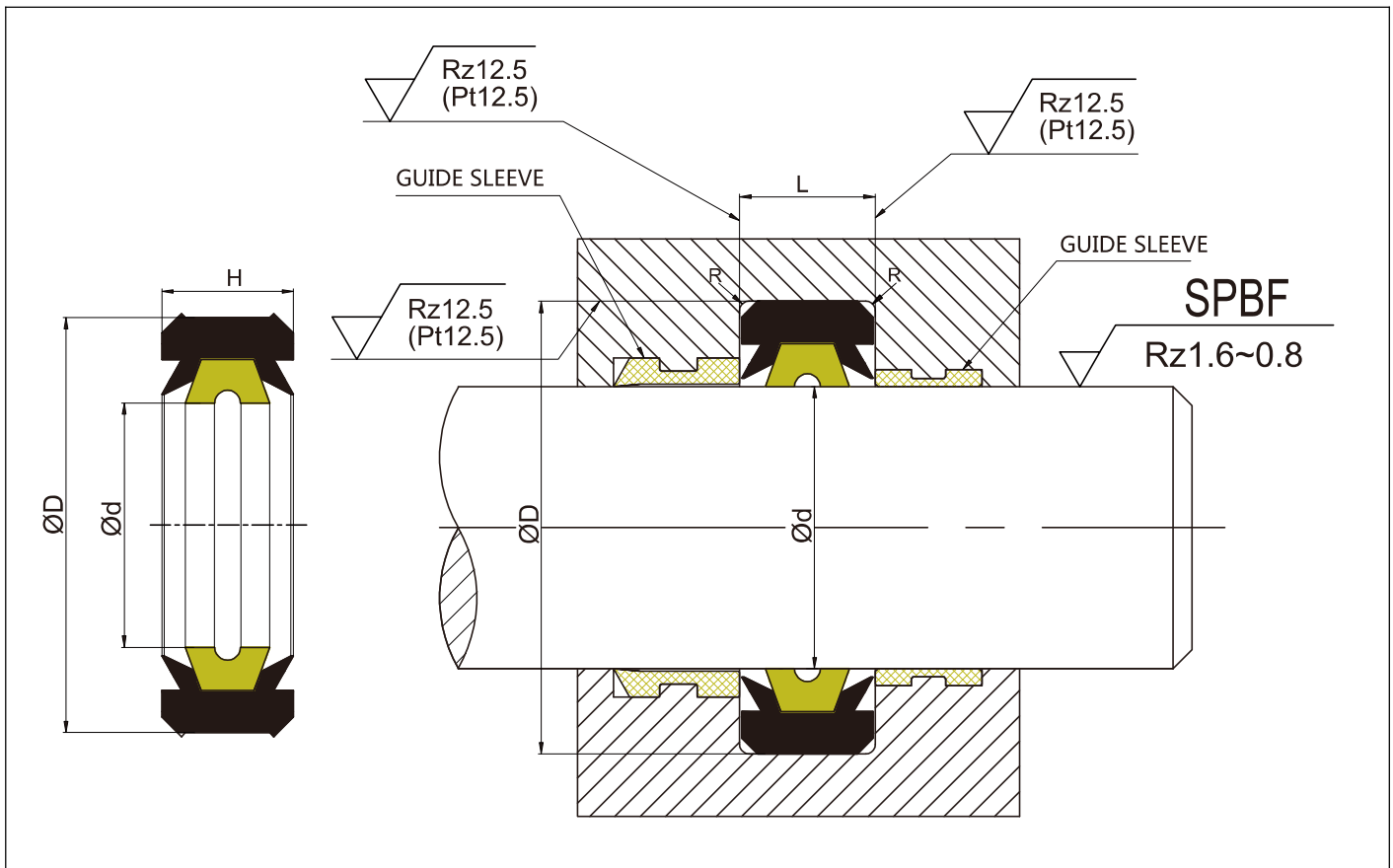


R D I

d e8	D ₁ H9	H	L D10	e	Order No.
900	940	19.5	20	15	RDI900*940*19.5
950	990	19.5	20	15	RDI950*990*19.5
1000	1040	19.5	20	15	RDI1000*1040*19.5



1. Installation Recommendation



2. Installation Sizes

Rod Diameter d e8	Groove Diameter D H9	Groove Width L D10	H
20-56	d+10	16	15
57-140	d+13	16	15
> 140	d+15	16	15

3. Application and properties

Suitable for tandem type internal sealing, and can be used as fluid sealing and dust sealing simultaneously. Excellent sealing effect can be achieved in case of no pressure. Easy installation, wear-resisting, anti extrusion, low friction, non stick slip phenomenon.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / PU



5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
50 - 1600mm	0 - 25MPa	-30°C + 100°C	1 m/s	hydraulic oil, flame retardant liquid, water, gas

6. Installation Dimensions

d e8	D ₁ H9	H	L D10	e	Order No.
50	60	15	16	6	MDI50*60*15
55	65	15	16	6	MDI55*65*15
56	66	15	16	6	MDI56*66*15
60	73	15	16	7	MDI60*73*15
63	76	15	16	7	MDI63*76*15
65	78	15	16	7	MDI65*78*15
70	83	15	16	7	MDI70*83*15
72	85	15	16	7	MDI72*85*15
75	88	15	16	7	MDI75*88*15
80	93	15	16	7	MDI80*93*15
85	98	15	16	7	MDI85*98*15
90	103	15	16	7	MDI90*103*15
95	108	15	16	7	MDI95*108*15
100	113	15	16	7	MDI100*113*15
105	118	15	16	10	MDI105*118*15
110	120	15	16	10	MDI110*120*15
110	123	15	16	10	MDI110*123*15
115	128	15	16	10	MDI115*128*15
120	133	15	16	10	MDI120*133*15
125	138	15	16	10	MDI125*138*15
130	143	15	16	10	MDI130*143*15
140	153	15	16	10	MDI140*153*15
150	162	15	16	10	MDI150*162*15
150	165	15	16	10	MDI150*165*15
160	175	15	16	10	MDI160*175*15
165	180	15	16	10	MDI165*180*15
170	185	15	16	10	MDI170*185*15
180	195	15	16	10	MDI180*195*15
185	200	15	16	10	MDI185*200*15
190	205	15	16	10	MDI190*205*15

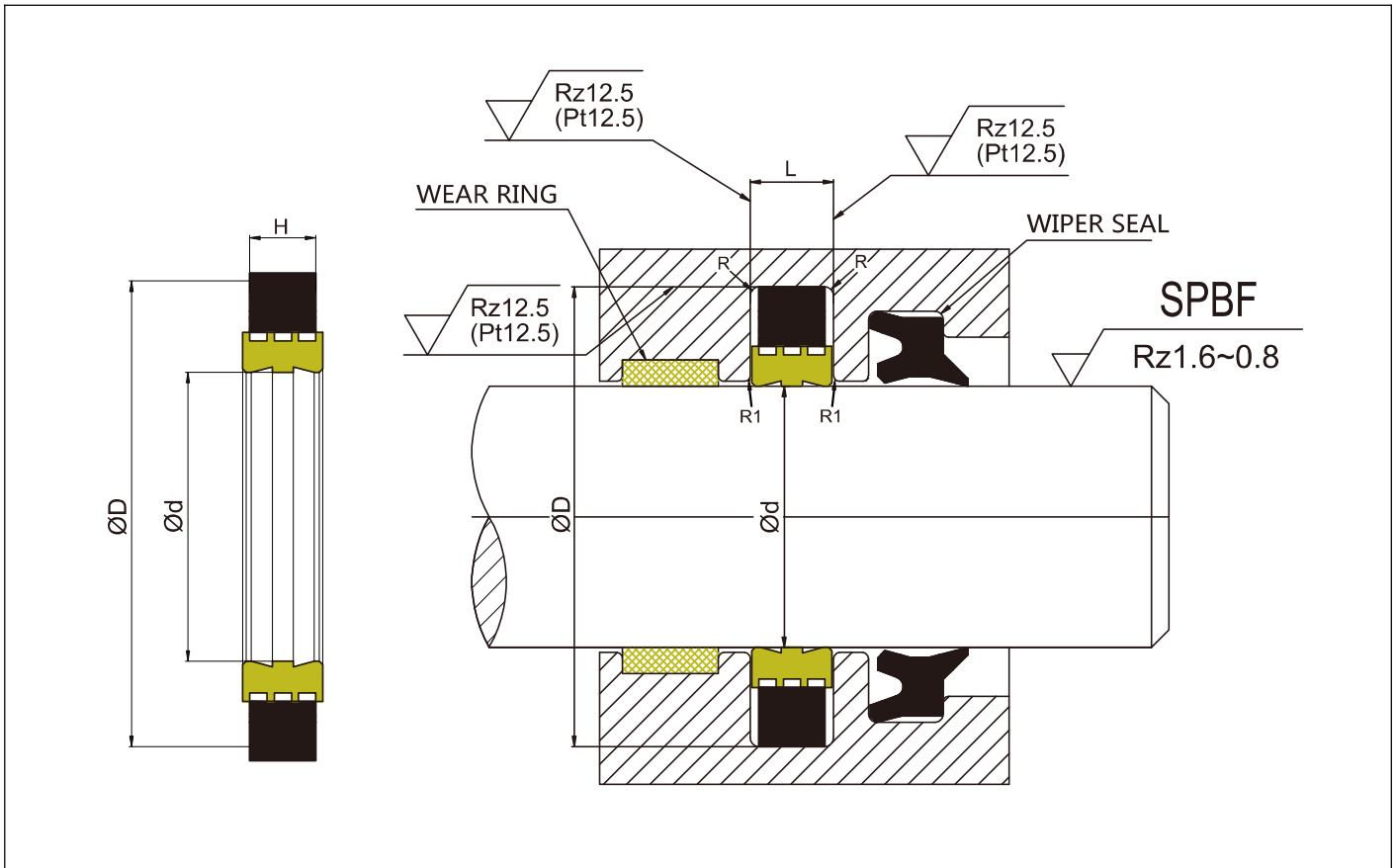


MDI

d e8	D ₁ H9	H	L D10	e	Order No.
200	215	15	16	10	MDI200*215*15
220	235	15	16	10	MDI220*235*15
225	240	15	16	10	MDI225*240*15
230	245	15	16	10	MDI230*245*15
240	255	15	16	10	MDI240*255*15
250	265	15	16	10	MDI250*265*15
260	275	15	16	10	MDI260*275*15
280	295	15	16	10	MDI280*295*15
290	305	15	16	10	MDI290*305*15
300	312	15	16	15	MDI300*312*15
300	315	15	16	15	MDI300*315*15
320	335	15	16	15	MDI320*335*15
350	365	15	16	15	MDI350*365*15
360	375	15	16	15	MDI360*375*15
380	395	15	16	15	MDI380*395*15
400	415	15	16	15	MDI400*415*15
450	465	15	16	15	MDI450*465*15
480	495	15	16	15	MDI480*495*15
500	515	15	16	15	MDI500*515*15
550	565	15	16	15	MDI550*565*15
560	575	15	16	15	MDI560*575*15
600	615	15	16	15	MDI600*615*15
650	665	15	16	15	MDI650*665*15



1. Installation Recommendation



2. Application and properties

The standard combination seal is suitable for a wide range of pressure work and sliding high speed occasions. Low friction, strong wear resistance.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
18-1600mm	0-35MPa	-30℃ +200℃	1.5 m/s	general hydraulic oil, water glycol Hydraulic oil and water emulsion type hydraulic oil.



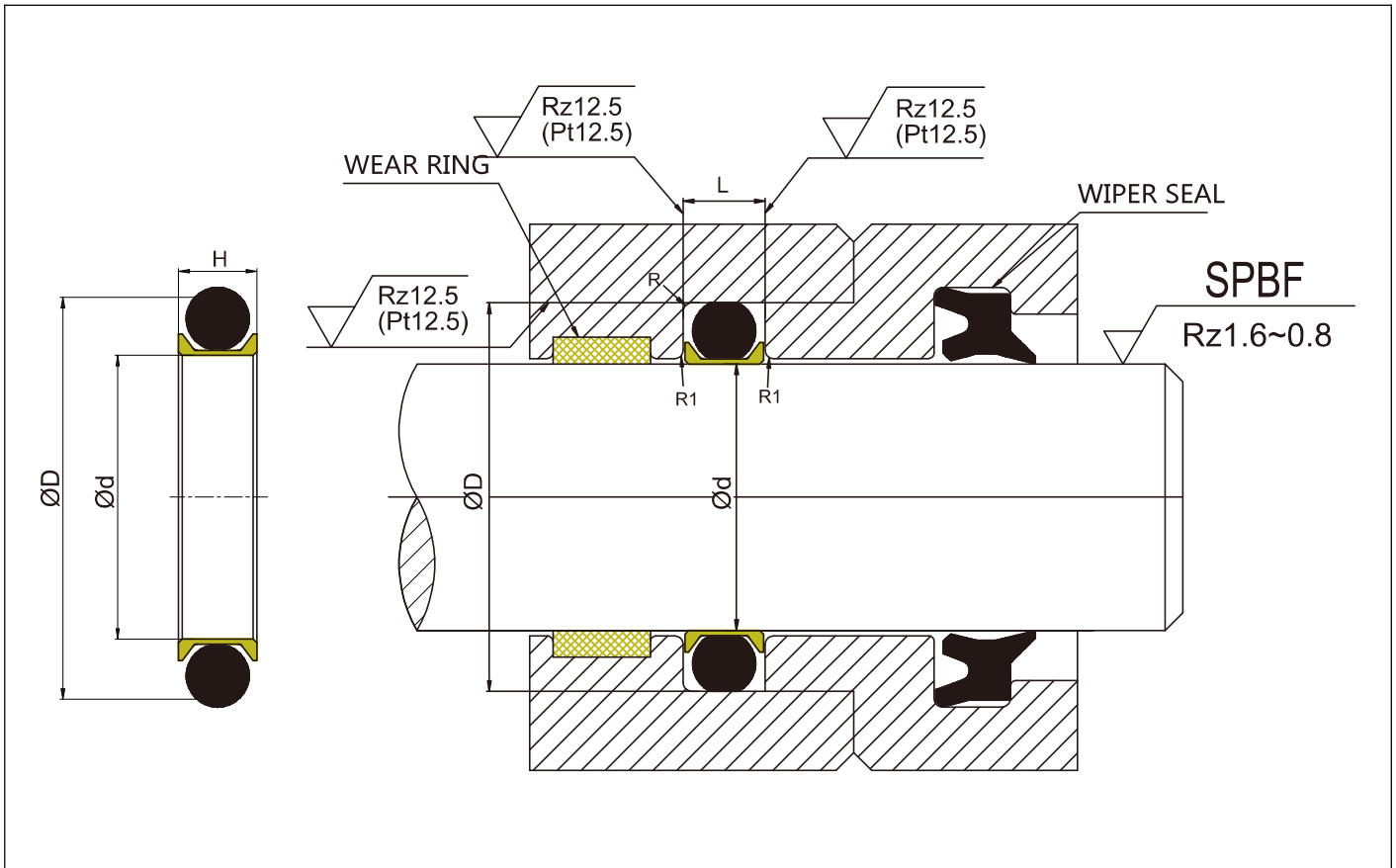
SPN

5. Installation Dimensions

Nominal Size of Packing, and Housing dimensions				Order No.
d	D	H	L +0.2	
18	27	4.3	4.5	SPN18*27*4.3
20	29	4.3	4.5	SPN20*29*4.3
22	31	4.3	4.5	SPN22*31*4.3
27	36	4.3	4.5	SPN27*36*4.3
31.5	40.5	4.3	4.5	SPN31.5*40.5*4.3
47	60	7.3	7.5	SPN47*60*7.3
53	66	7.3	7.5	SPN53*66*7.3
60	73	7.3	7.5	SPN60*73*7.3
65	78	7.3	7.5	SPN65*78*7.3
70	83	7.3	7.5	SPN70*83*7.3
75	88	7.3	7.5	SPN75*88*7.3
80	93	7.3	7.5	SPN80*93*7.3
90	103.4	7.3	7.5	SPN90*103.4*7.3
100	113.4	7.3	7.5	SPN100*113.4*7.3
110	123.4	7.3	7.5	SPN110*123.4*7.3
120	133.4	7.3	7.5	SPN120*133.4*7.3
130	143.4	7.3	7.5	SPN130*143.4*7.3
140	153.4	7.3	7.5	SPN140*153.4*7.3



1. Installation Recommendation



2. Application and properties

The standard combination seal is suitable for a wide range of pressure work and sliding high speed occasions. Low friction, strong wear resistance.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 35MPa	-30℃ +200℃	1.5 m/s	general hydraulic oil, water glycol Hydraulic oil and water emulsion type hydraulic oil.



SPNC

5. Installation Dimensions

Nominal Size of Packing, and Housing dimensions				Order No.
d	D	H	L +0.2	
3	6	2.3	2.5	SPNC3*6*2.5
4	7	2.3	2.5	SPNC4*7*2.5
5	8	2.3	2.5	SPNC5*8*2.5
6	9	2.3	2.5	SPNC6*9*2.5
7	10	2.3	2.5	SPNC7*10*2.5
8	11	2.3	2.5	SPNC8*11*2.5
9	12	2.3	2.5	SPNC9*12*2.5
10	13	2.3	2.5	SPNC10*13*2.5
10	14	3.0	3.2	SPNC10*14*3.2
11	15	3.0	3.2	SPNC11*15*3.2
11.2	15.2	3.0	3.2	SPNC11.2*15.2*3.2
12	16	3.0	3.2	SPNC12*16*3.2
12.5	16.5	3.0	3.2	SPNC12.5*16.5*3.2
14	18	3.0	3.2	SPNC14*18*3.2
15	19	3.0	3.2	SPNC15*19*3.2
16	20	3.0	3.2	SPNC16*20*3.2
18	22	3.0	3.2	SPNC18*22*3.2
20	24	3.0	3.2	SPNC20*24*3.2
20	24	3.0	3.2	SPNC20*24*3.2
21	25	3.0	3.2	SPNC21*25*3.2
22	26	3.0	3.2	SPNC22*26*3.2
22	28	4.4	4.7	SPNC22*28*4.7
22.4	28.4	4.4	4.7	SPNC22.4*28.4*4.7
24	30	4.4	4.7	SPNC24*30*4.7
25	31	4.4	4.7	SPNC25*31*4.7
25.5	31.5	4.4	4.7	SPNC25.5*31.5*4.7
26	32	4.4	4.7	SPNC26*32*4.7
28	34	4.4	4.7	SPNC28*34*4.7
29	35	4.4	4.7	SPNC29*35*4.7
29.5	35.5	4.4	4.7	SPNC29.5*35.5*4.7
30	36	4.4	4.7	SPNC30*36*4.7
31	37	4.4	4.7	SPNC31*37*4.7
31.5	37.5	4.4	4.7	SPNC31.5*37.5*4.7
32	38	4.4	4.7	SPNC32*38*4.7
34	40	4.4	4.7	SPNC34*40*4.7
35	41	4.4	4.7	SPNC35*41*4.7
35.5	41.5	4.4	4.7	SPNC35.5*41.5*4.7
36	42	4.4	4.7	SPNC36*42*4.7
38	44	4.4	4.7	SPNC38*44*4.7



Nominal Size of Packing, and Housing dimensions				Order No.
d	D	H	L +0.2	
39	45	4.4	4.7	SPNC39*45*4.7
40	46	4.4	4.7	SPNC40*46*4.7
41	47	4.4	4.7	SPNC41*47*4.7
42	48	4.4	4.7	SPNC42*48*4.7
44	50	4.4	4.7	SPNC44*50*4.7
45	51	4.4	4.7	SPNC45*51*4.7
46	52	4.4	4.7	SPNC46*52*4.7
48	54	4.4	4.7	SPNC48*54*4.7
48	58	7.0	7.5	SPNC48*58*7.5
49	55	4.4	4.7	SPNC49*55*4.7
50	56	4.4	4.7	SPNC50*56*4.7
50	60	7.0	7.5	SPNC50*60*7.5
52	62	7.0	7.5	SPNC52*62*7.5
53	63	7.0	7.5	SPNC53*63*7.5
55	65	7.0	7.5	SPNC55*65*7.5
56	66	7.0	7.5	SPNC56*66*7.5
58	68	7.0	7.5	SPNC58*68*7.5
60	70	7.0	7.5	SPNC60*70*7.5
62	72	7.0	7.5	SPNC62*72*7.5
63	73	7.0	7.5	SPNC63*73*7.5
65	75	7.0	7.5	SPNC65*75*7.5
67	77	7.0	7.5	SPNC67*77*7.5
70	80	7.0	7.5	SPNC70*80*7.5
71	81	7.0	7.5	SPNC71*81*7.5
75	85	7.0	7.5	SPNC75*85*7.5
80	90	7.0	7.5	SPNC80*90*7.5
85	95	7.0	7.5	SPNC85*95*7.5
90	100	7.0	7.5	SPNC90*100*7.5
95	105	7.0	7.5	SPNC95*105*7.5
100	110	7.0	7.5	SPNC100*110*7.5
105	115	7.0	7.5	SPNC105*115*7.5
110	120	7.0	7.5	SPNC110*120*7.5
115	125	7.0	7.5	SPNC115*125*7.5
120	130	7.0	7.5	SPNC120*130*7.5
125	135	7.0	7.5	SPNC125*135*7.5
130	140	7.0	7.5	SPNC130*140*7.5
132	142	7.0	7.5	SPNC132*142*7.5
135	145	7.0	7.5	SPNC135*145*7.5
140	150	7.0	7.5	SPNC140*150*7.5

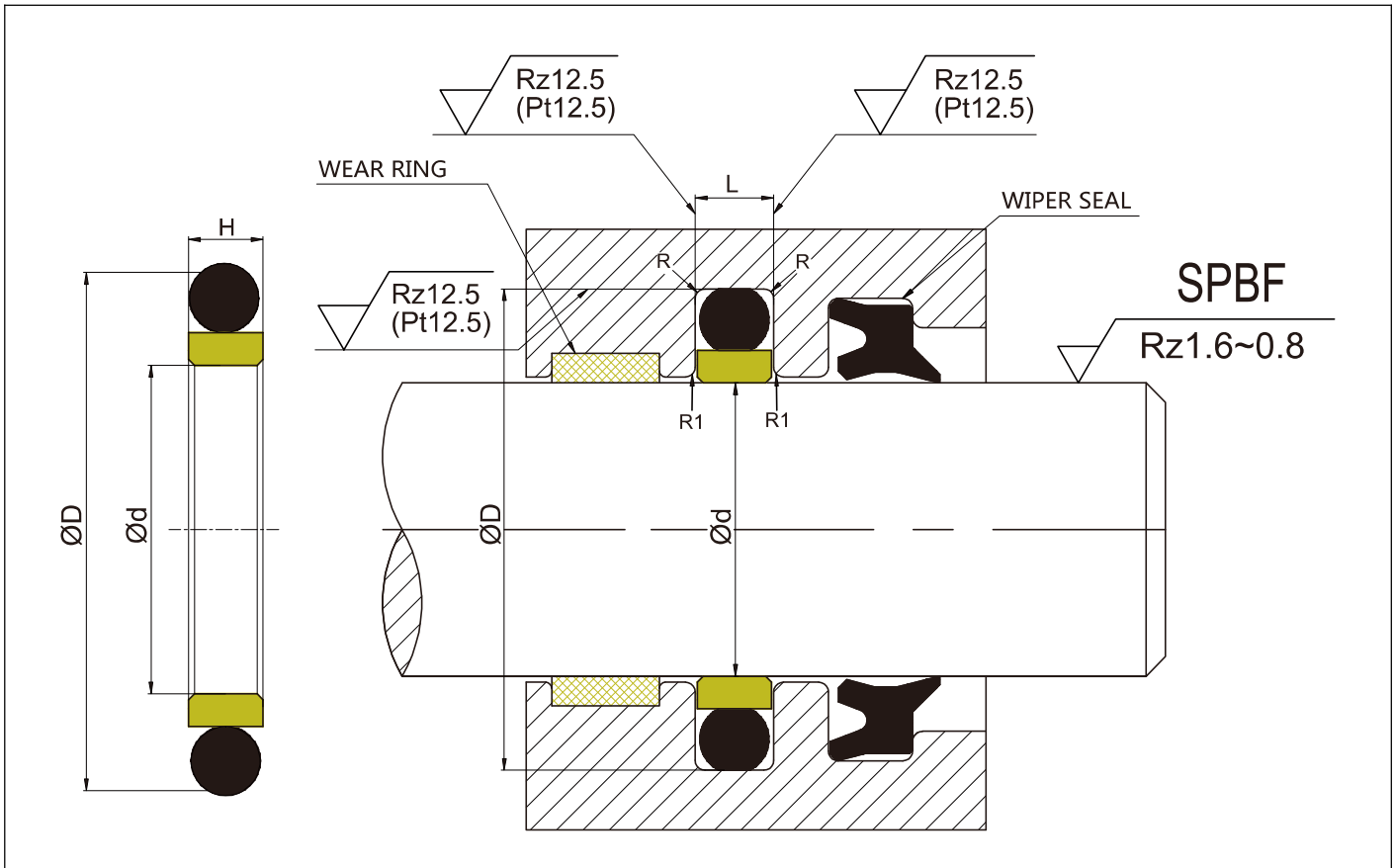


SPNC

Nominal Size of Packing, and Housing dimensions				Order No.
d	D	H	L +0.2	
145	155	7.0	7.5	SPNC145*155*7.5
150	160	7.0	7.5	SPNC150*160*7.5
150	165	10.5	11	SPNC150*165*11
155	170	10.5	11	SPNC155*170*11
160	175	10.5	11	SPNC160*175*11
165	180	10.5	11	SPNC165*180*11
170	185	10.5	11	SPNC170*185*11
175	190	10.5	11	SPNC175*190*11
180	195	10.5	11	SPNC180*195*11
185	200	10.5	11	SPNC185*200*11
190	205	10.5	11	SPNC190*205*11
195	210	10.5	11	SPNC195*210*11
200	215	10.5	11	SPNC200*215*11
210	225	10.5	11	SPNC210*225*11
220	235	10.5	11	SPNC220*235*11
230	245	10.5	11	SPNC230*245*11
240	255	10.5	11	SPNC240*255*11
260	275	10.5	11	SPNC260*275*11
280	295	10.5	11	SPNC280*295*11
300	315	10.5	11	SPNC300*315*11
320	335	10.5	11	SPNC320*335*11
340	355	10.5	11	SPNC340*355*11
375	390	10.5	11	SPNC375*390*11



1. Installation Recommendation



2. Application and properties

Applicable to a wide range of pressure work and sliding high speed occasions. Standard combined seal. Low friction, strong wear resistance.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 35MPa	-30°C + 200°C	1.5m/s	general hydraulic oil, water glycol hydraulic oil, oil / water emulsion type hydraulic oil.



SPNO

5. Installation Dimensions

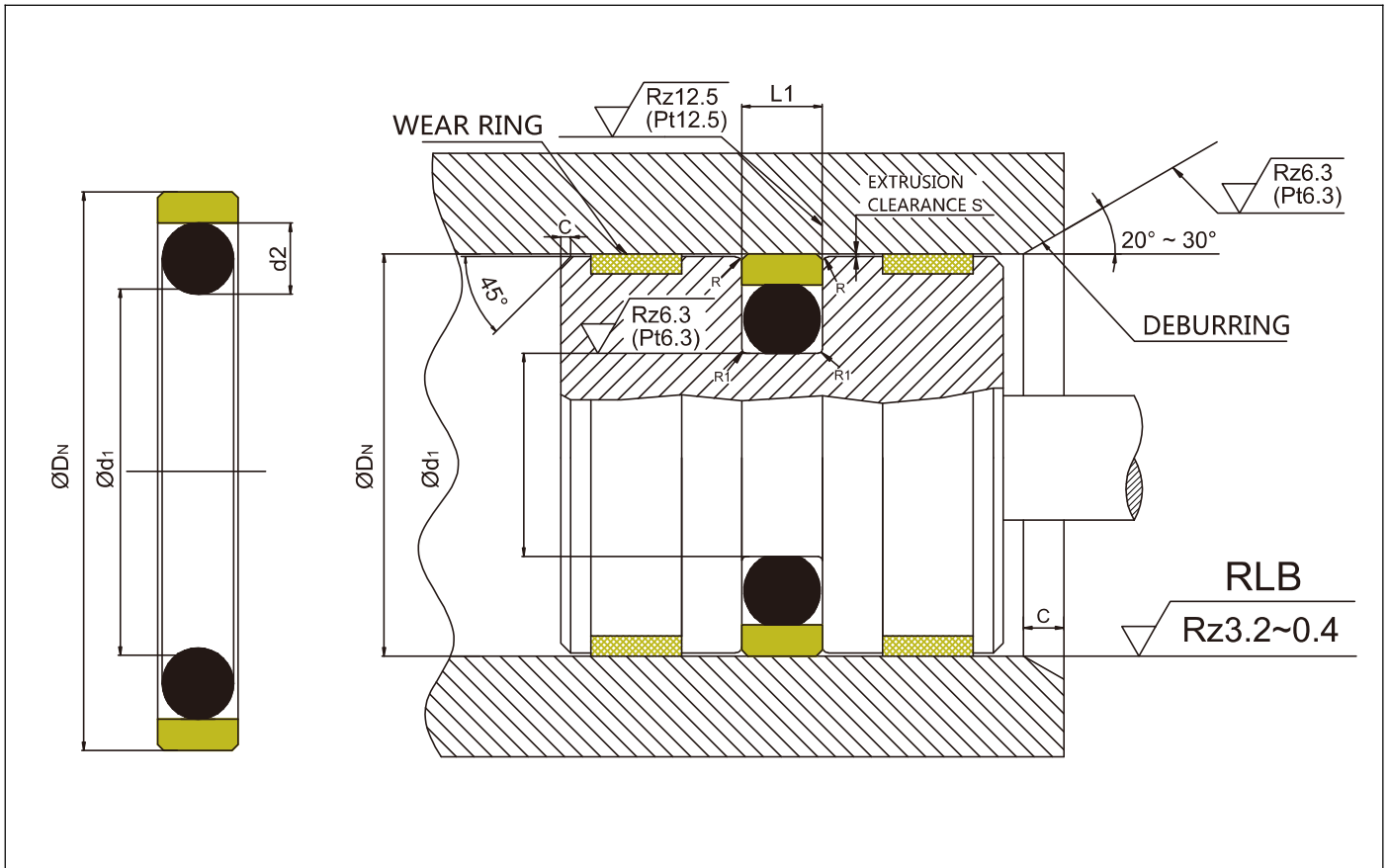
Nominal Size of Packing, and Housing dimensions				Order No.
d	D	H	L +0.2	
12	18	3.0	3.2	SPNO12*18*3.2
14	20	3.0	3.2	SPNO14*20*3.2
16	22	3.0	3.2	SPNO16*22*3.2
18	24	3.0	3.2	SPNO18*24*3.2
20	26	3.0	3.2	SPNO20*26*3.2
22	31	3.8	4	SPNO22*31*4
25	34	3.8	4	SPNO25*34*4
28	37	3.8	4	SPNO28*37*4
30	39	3.8	4	SPNO30*39*4
32	41	3.8	4	SPNO32*41*4
36	45	3.8	4	SPNO36*45*4
40	49	3.8	4	SPNO40*49*4
45	54	3.8	4	SPNO45*54*4
50	65	6.3	6.5	SPNO50*65*6.5
56	71	6.3	6.5	SPNO56*71*6.5
60	75	6.3	6.5	SPNO60*75*6.5
63	78	6.3	6.5	SPNO63*78*6.5
70	85	6.3	6.5	SPNO70*85*6.5
75	90	6.3	6.5	SPNO75*90*6.5
80	95	6.3	6.5	SPNO80*95*6.5
85	100	6.3	6.5	SPNO85*100*6.5
90	105	6.3	6.5	SPNO90*105*6.5
95	110	6.3	6.5	SPNO95*110*6.5
100	115	6.3	6.5	SPNO100*115*6.5
105	120	6.3	6.5	SPNO105*120*6.5
110	125	6.3	6.5	SPNO110*125*6.5
115	130	6.3	6.5	SPNO115*130*6.5
120	135	6.3	6.5	SPNO120*135*6.5
125	140	6.3	6.5	SPNO125*140*6.5
130	145	6.3	6.5	SPNO130*145*6.5
135	150	6.3	6.5	SPNO135*150*6.5
140	155	6.3	6.5	SPNO140*155*6.5
145	160	6.3	6.5	SPNO145*160*6.5
150	170	9.8	10	SPNO150*170*10
160	180	9.8	10	SPNO160*180*10
170	190	9.8	10	SPNO170*190*10



Nominal Size of Packing, and Housing dimensions				Order No.
d	D	H	L +0.2	
180	200	9.8	10	SPNO180*200*10
190	210	9.8	10	SPNO190*210*10
200	220	9.8	10	SPNO200*220*10
210	230	9.8	10	SPNO210*230*10
220	240	9.8	10	SPNO220*240*10
224	244	9.8	10	SPNO224*244*10
230	250	9.8	10	SPNO230*250*10
240	260	9.8	10	SPNO240*260*10
250	270	9.8	10	SPNO250*270*10
260	280	9.8	10	SPNO260*280*10
270	290	9.8	10	SPNO270*290*10
280	300	9.8	10	SPNO280*300*10
290	310	9.8	10	SPNO290*310*10
300	320	9.8	10	SPNO300*320*10
310	330	9.8	10	SPNO310*330*10
320	340	9.8	10	SPNO320*340*10
330	350	9.8	10	SPNO330*350*10
340	360	9.8	10	SPNO340*360*10
350	370	9.8	10	SPNO350*370*10
360	380	9.8	10	SPNO360*380*10
370	390	9.8	10	SPNO370*390*10
380	400	9.8	10	SPNO380*400*10



1. Installation Recommendation



2. Installation Sizes

Bore Diameter D _N H9			Groove Diameter	Groove Width	Radius	Radial Clearance S max.			O-Ring Cross- Section
Standard Application	Light Application	Heavy Duty Application	d ₁ h9	L ₁ +0.2	R ₁	10MPa	20MPa	40MPa	d ₂
8-14.9	15-39.9	-	D _N -4.9	2.2	0.4	0.3	0.20	0.15	1.78
15-39.9	40-79.9	-	D _N -7.5	3.2	0.6	0.4	0.25	0.15	2.62
40-79.9	80-132.9	15-39.9	D _N -11.0	4.2	1.0	0.4	0.25	0.20	3.53
80-132.9	133-329.9	40-79.9	D _N -15.5	6.3	1.3	0.5	0.30	0.20	5.33
133-329.9	330-699.9	80-132.9	D _N -21.0	8.1	1.8	0.6	0.35	0.25	7.00
330-669.9	670-99.9	133-329.9	D _N -24.5	8.1	1.8	0.6	0.35	0.25	7.00
670-999.9	≥1000	330-669.9	D _N -28.0	9.5	2.5	0.7	0.50	0.30	8.40
≥1000	≥1000	≥1000	D _N -38.0	13.8	3.0	1.0	0.70	0.60	12.00



3. Application and properties

Standard double acting seal. Suitable for reciprocating motion, allowing larger extrusion clearances, has wide application. Dynamic and static sealing property are excellent, be able to work in dusty condition. Low friction, simple groove, strong adaptability to work conditions.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
8 - 1600mm	0 - 60MPa	-45°C +200°C	15 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N H9	d ₁ h9	L ₁ +0.2		
8	3.1	2.2	GSF8*3.1*2.2	2.90*1.78
10	5.1	2.2	GSF10*5.1*2.2	4.80*1.8
12	7.1	2.2	GSF12*7.1*2.2	6.70*1.8
14	9.1	2.2	GSF14*9.1*2.2	8.75*1.8
15	10.1	2.2	GSF15*10.1*2.2	7.59*2.62
15	7.5	3.2	GSF15*7.5*3.2	8.75*1.8
16	11.1	2.2	GSF16*11.1*2.2	10.82*1.78
16	8.5	3.2	GSF16*8.5*3.2	7.59*2.62
18	13.1	2.2	GSF18*13.1*2.2	12.42*1.78
18	10.5	3.2	GSF18*10.5*3.2	9.19*2.62
20	15.1	2.2	GSF20*15.1*2.2	14.00*1.78
20	12.5	3.2	GSF20*12.5*3.2	12.37*2.62
24	19.1	2.2	GSF24*19.1*2.2	18.77*1.78
24	16.5	3.2	GSF24*16.5*3.2	15.54*2.62
25	17.5	3.2	GSF25*17.5*3.2	17.12*2.62
25	14	4.2	GSF25*14*4.2	13.87*3.53
28	20.5	3.2	GSF28*20.5*3.2	20.29*2.62
28	17	4.2	GSF28*17*4.2	15.47*3.53
30	22.5	3.2	GSF30*22.5*3.2	21.89*2.62
30	19	4.2	GSF30*19*4.2	26.70*1.78
32	24.5	3.2	GSF32*24.5*3.2	23.47*2.62



GSF

Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N H9	d ₁ h9	L ₁ +0.2		
32	21	4.2	GSF32*21*4.2	20.22*3.53
35	27.5	3.2	GSF35*27.5*3.2	26.64*2.62
35	24	4.2	GSF35*24*4.2	23.40*3.53
36	28.5	3.2	GSF36*28.5*3.2	28.24*2.62
36	25	4.2	GSF36*25*4.2	23.39*3.53
38	30.5	3.2	GSF38*30.5*3.2	29.82*2.62
38	27	4.2	GSF38*27*4.2	25.86*3.53
40	32.5	3.2	GSF40*32.5*3.2	31.42*2.62
40	29	4.2	GSF40*29*4.2	28.17*3.53
45	37.5	3.2	GSF45*37.5*3.2	36.5*2.62
45	34	4.2	GSF45*34*4.2	32.92*3.53
48	40.5	3.2	GSF48*40.5*3.2	36.09*3.53
48	37	4.2	GSF48*37*4.2	36.09*3.53
50	39	4.2	GSF50*39*4.2	37.70*3.53
50	34.5	6.3	GSF50*34.5*6.3	32.69*5.33
52	41	4.2	GSF52*41*4.2	40.87*3.53
52	36.5	6.3	GSF52*36.5*6.3	35*5.33
55	44	4.2	GSF55*44*4.2	44.04*3.53
55	39.5	6.3	GSF55*39.5*6.3	38*5.33
56	45	4.2	GSF56*45*4.2	44.04*3.53
56	40.5	6.3	GSF56*40.5*6.3	39*5.33
60	49	4.2	GSF60*49*4.2	47.22*3.53
60	44.5	6.3	GSF60*44.5*6.3	42.5*5.33
63	52	4.2	GSF63*52*4.2	50.39*3.53
63	47.5	6.3	GSF63*47.5*6.3	46*5.33
64	53	4.2	GSF64*53*4.2	51.5*3.53
64	48.5	6.3	GSF64*48.5*6.3	46.99*5.33
65	54	4.2	GSF65*54*4.2	53.57*3.53
65	49.5	6.3	GSF65*49.5*6.3	48*5.33
70	59	4.2	GSF70*59*4.2	56.74*3.53
70	54.5	6.3	GSF70*54.5*6.3	53.34*5.33
75	64	4.2	GSF75*64*4.2	63.09*3.53
75	59.5	6.3	GSF75*59.5*6.3	56.52*5.33
80	69	4.2	GSF80*69*4.2	66.27*3.53
80	64.5	6.3	GSF80*64.5*6.3	62.87*5.33
85	74	4.2	GSF85*74*4.2	72.62*3.53
85	69.5	6.3	GSF85*69.5*6.3	69.22*5.33
90	79	4.2	GSF90*79*4.2	78.97*3.53
90	74.5	6.3	GSF90*74.5*6.3	72.39*5.33



Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N H9	d ₁ h9	L ₁ +0.2		
95	84	4.2	GSF95*84*4.2	82.14*3.53
95	79.5	6.3	GSF95*79.5*6.3	78.74*5.33
100	89	4.2	GSF100*89*4.2	88.49*3.53
100	84.5	6.3	GSF100*84.5*6.3	81.92*5.33
105	94	4.2	GSF105*94*4.2	91.67*3.53
105	89.5	6.3	GSF105*89.5*6.3	88.27*5.33
110	99	4.2	GSF110*99*4.2	98.02*3.53
110	94.5	6.3	GSF110*94.5*6.3	91.44*5.33
115	99.5	6.3	GSF115*99.5*6.3	97.79*5.33
120	104.5	6.3	GSF120*104.5*6.3	100.97*5.33
125	109.5	6.3	GSF125*109.5*6.3	107.32*5.33
125	104	8.1	GSF125*104*8.1	103*7.0
130	114.5	6.3	GSF130*114.5*6.3	113.67*5.33
130	109	8.1	GSF130*109*8.1	108*7.0
135	119.5	6.3	GSF135*119.5*6.3	118*5.33
135	114	8.1	GSF135*114*8.1	113.67*7.0
140	124.5	6.3	GSF140*124.5*6.3	123.19*5.33
140	119	8.1	GSF140*119*8.1	116.84*7.0
145	124	8.1	GSF145*124*8.1	123.19*7.0
150	129	8.1	GSF150*129*8.1	126.37*7.0
155	134	8.1	GSF155*134*8.1	132.72*7.0
160	139	8.1	GSF160*139*8.1	135.89*7.0
165	144	8.1	GSF165*144*8.1	142.24*7.0
170	149	8.1	GSF170*149*8.1	145.42*7.0
175	154	8.1	GSF175*154*8.1	151.77*7.0
180	159	8.1	GSF180*159*8.1	158.12*7.0
190	169	8.1	GSF190*169*8.1	164.47*7.0
200	179	8.1	GSF200*179*8.1	177.17*7.0
210	189	8.1	GSF210*189*8.1	183.52*7.0
220	199	8.1	GSF220*199*8.1	196.22*7.0
230	209	8.1	GSF230*209*8.1	208.9*7.0
240	219	8.1	GSF240*219*8.1	215.27*7.0
250	229	8.1	GSF250*229*8.1	227.97*7.0
260	239	8.1	GSF260*239*8.1	240.67*7.0
270	249	8.1	GSF270*249*8.1	240.67*7.0
275	254	8.1	GSF275*254*8.1	253.37*7.0
280	259	8.1	GSF280*259*8.1	253.37*7.0
290	269	8.1	GSF290*269*8.1	266.07*7.0
300	279	8.1	GSF300*279*8.1	278.77*7.0



GSF

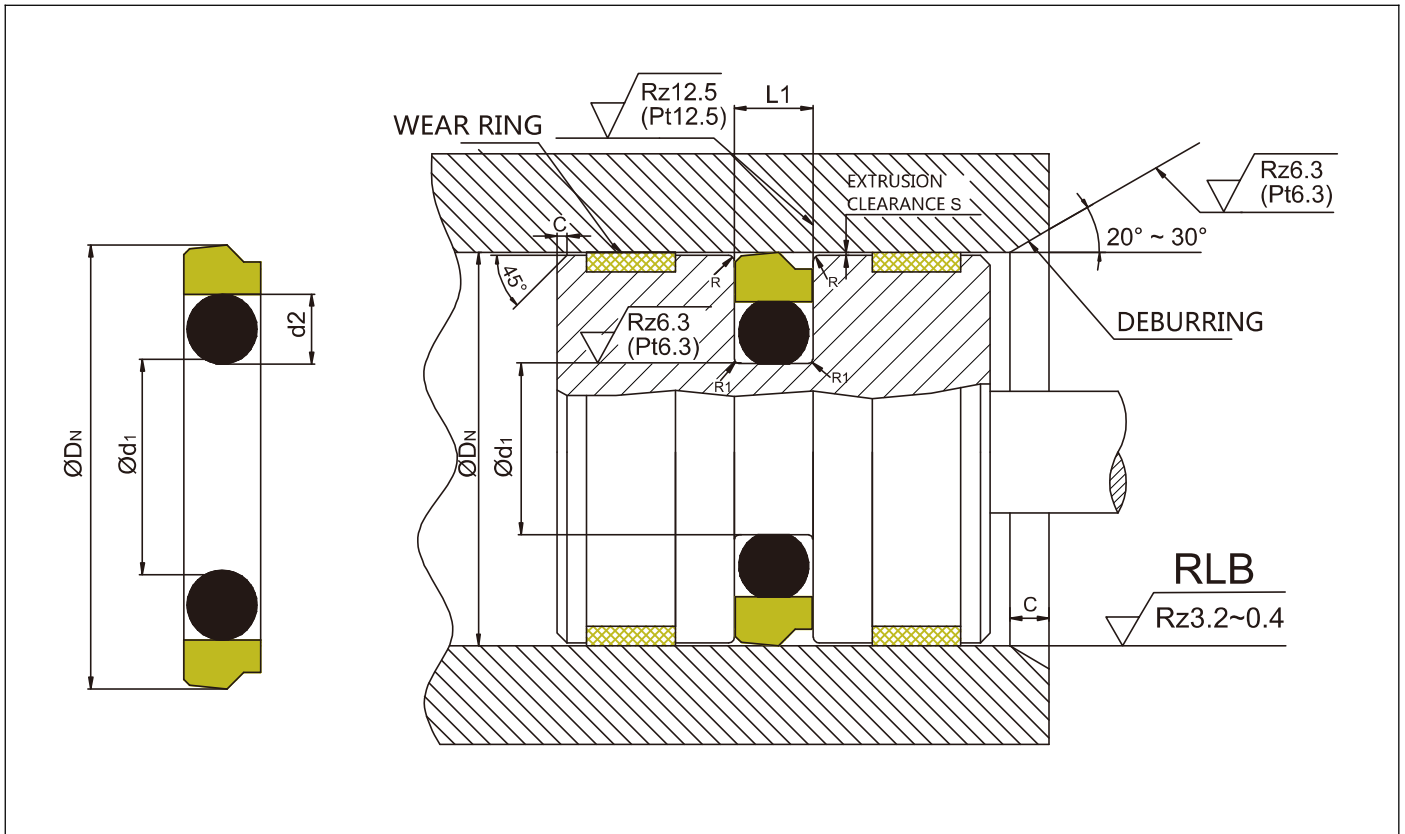
Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N H9	d ₁ h9	L ₁ +0.2		
310	289	8.1	GSF310*289*8.1	278.77*7.0
320	299	8.1	GSF320*299*8.1	291.47*7.0
330	305.5	8.1	GSF330*305.5*8.1	304.17*7.0
340	315.5	8.1	GSF340*315.5*8.1	316.87*7.0
350	325.5	8.1	GSF350*325.5*8.1	316.87*7.0
360	335.5	8.1	GSF360*335.5*8.1	329.57*7.0
370	345.5	8.1	GSF370*345.5*8.1	342.27*7.0
380	355.5	8.1	GSF380*355.5*8.1	354.97*7.0
390	365.5	8.1	GSF390*365.5*8.1	365*7.0
400	375.5	8.1	GSF400*375.5*8.1	367.67*7.0
410	385.5	8.1	GSF410*385.5*8.1	387*7.0
420	395.5	8.1	GSF420*395.5*8.1	393.07*7.0
430	405.5	8.1	GSF430*405.5*8.1	405.26*7.0
440	415.5	8.1	GSF440*415.5*8.1	405.26*7.0
450	425.5	8.1	GSF450*425.5*8.1	417.96*7.0
460	435.5	8.1	GSF460*435.5*8.1	430.66*7.0
470	445.5	8.1	GSF470*445.5*8.1	443.36*7.0
480	455.5	8.1	GSF480*455.5*8.1	456.06*7.0
490	465.5	8.1	GSF490*465.5*8.1	462*7.0
500	475.5	8.1	GSF500*475.5*8.1	468.76*7.0
510	485.5	8.1	GSF510*485.5*8.1	480*7.0
520	495.5	8.1	GSF520*495.5*8.1	490*7.0
530	505.5	8.1	GSF530*505.5*8.1	498*7.0
540	515.5	8.1	GSF540*515.5*8.1	505*7.0
550	525.5	8.1	GSF550*525.5*8.1	515*7.0
560	535.5	8.1	GSF560*535.5*8.1	523*7.0
570	545.5	8.1	GSF570*545.5*8.1	533*7.0
580	555.5	8.1	GSF580*555.5*8.1	542*7.0
600	575.5	8.1	GSF600*575.5*8.1	557.66*7.0
610	585.5	8.1	GSF610*585.5*8.1	567*7.0
620	595.5	8.1	GSF620*595.5*8.1	576*7.0
630	605.5	8.1	GSF630*605.5*8.1	586*7.0
640	615.5	8.1	GSF640*615.5*8.1	608.08*7.0
650	625.5	8.1	GSF650*625.5*8.1	618*7.0
660	635.5	8.1	GSF660*635.5*8.1	633.48*7.0
670	642	9.5	GSF670*642*9.5	630*8.4
680	652	9.5	GSF680*652*9.5	650*8.4
700	672	9.5	GSF700*672*9.5	670*8.4
750	722	9.5	GSF750*722*9.5	720*8.4



Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimensions
D _N H9	d ₁ h9	L ₁ +0.2		
780	752	9.5	GSF780*752*9.5	750*8.4
800	772	9.5	GSF800*772*9.5	770*8.4
850	822	9.5	GSF850*822*9.5	820*8.4
900	872	9.5	GSF900*872*9.5	870*8.4
950	922	9.5	GSF950*922*9.5	920*8.4
1000	962	13.8	GSF1000*962*13.8	960*12.0



1. Installation Recommendation



2. Installation Sizes

Bore Diameter D _N H9			Groove Diameter r	Groove Width	Radius	Radial Clearance S max.			O-Ring Cross- Section
Standard Application	Light Application	Heavy Duty Application	d ₁ h9	L ₁ +0.2	R ₁	10MPa	20MPa	40MPa	d ₂
8-16.9	17-26.9	—	D _N -4.9	2.2	0.4	0.30	0.20	0.15	1.78
17-26.9	27-59.9	—	D _N -7.3	3.2	0.6	0.40	0.25	0.15	2.62
27-59.9	60-199.9	17-26.9	D _N -10.7	4.2	1.0	0.50	0.30	0.20	3.53
60-199.9	200-255.9	27-59.9	D _N -15.1	6.3	1.3	0.70	0.40	0.25	5.33
200-255.9	256-669.9	60-199.9	D _N -20.5	8.1	1.8	0.80	0.60	0.35	7.00
256-669.9	670-999.9	200-669.9	D _N -24.0	8.1	1.8	0.90	0.70	0.40	7.00
670-999.9	—	256-669.9	D _N -28.0	9.5	2.5	1.00	0.80	0.60	8.40
—	1000-2000	—	D _N -28.0	9.5	2.5	1.00	0.80	0.60	8.40
—	—	670-999.9	D _N -38.0	13.8	3.0	1.20	0.90	0.60	12.00
1000-2700	—	—	D _N -38.0	13.8	3.0	1.20	0.90	0.60	12.00



3. Application and properties

Standard single acting sealing. Suitable for reciprocating environment, allowing larger extrusion clearances, has wide application. Dynamic and static sealing property are good, be able to work in dusty condition. Low friction, simple groove, strong adaptability to work conditions.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
8 - 1600mm	0 - 60MPa	-45℃ +200℃	15 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Bore Dia.	Groove Dia.	Width	Order No.	O-Ring Dimension
D H9	d ₁ h9	L ₁ +0.2		
9	4.1	2.2	GSD9*4.1*2.2	3.68*1.78
10	5.1	2.2	GSD10*5.1*2.2	4.80*1.8
12	7.1	2.2	GSD12*7.1*2.2	6.70*1.8
15	10.1	2.2	GSD15*10.1*2.2	9.25*1.78
18	10.7	3.2	GSD18*10.7*3.2	9.19*2.62
20	15.1	2.2	GSD20*15.1*2.2	14.0*1.78
20	12.7	3.2	GSD20*12.7*3.2	12.37*2.62
22	14.7	3.2	GSD22*14.7*3.2	13.94*2.62
25	17.7	3.2	GSD25*17.7*3.2	17.12*2.62
27	16.3	4.2	GSD27*16.3*4.2	15.47*3.53
28	17.3	4.2	GSD28*17.3*4.2	16.4*3.53
30	19.3	4.2	GSD30*19.3*4.2	18.66*3.53
32	24.7	3.2	GSD32*24.7*3.2	23.47*2.62
32	21.3	4.2	GSD32*21.3*4.2	20.22*3.53
35	24.3	4.2	GSD35*24.3*4.2	23.40*3.53
36	25.3	4.2	GSD36*25.3*4.2	24*3.53
38	27.3	4.2	GSD38*27.3*4.2	26*3.53
40	32.7	3.2	GSD40*32.7*3.2	31.42*2.62
40	29.9	4.2	GSD40*29.9*4.2	28.17*3.53
45	34.3	4.2	GSD45*34.3*4.2	32.92*3.53
48	37.3	4.2	GSD48*37.3*4.2	36.09*3.53



GSD

Bore Dia.	Groove Dia.	Width	Order No.	O-Ring Dimension
D H9	d ₁ h9	L ₁ +0.2		
50	39.3	4.2	GSD50*39.3*4.2	37.70*3.53
50	34.9	6.3	GSD50*34.9*6.3	32.69*5.33
52	41.3	4.2	GSD52*41.3*4.2	40.87*3.53
55	44.3	4.2	GSD55*44.3*4.2	44.04*3.53
60	44.9	6.3	GSD60*44.9*6.3	43.82*5.33
63	52.3	4.2	GSD63*52.3*4.2	50.39*3.53
63	47.9	6.3	GSD63*47.9*6.3	46.99*5.33
64	48.9	6.3	GSD64*48.9*6.3	46.99*5.33
65	49.9	6.3	GSD65*49.9*6.3	46.99*5.33
70	59.3	4.2	GSD70*59.3*4.2	56.74*3.53
70	54.9	6.3	GSD70*54.9*6.3	53.34*5.33
75	59.9	6.3	GSD75*59.9*6.3	56.52*5.33
80	64.9	6.3	GSD80*64.9*6.3	62.87*5.33
80	59.5	8.1	GSD80*59.5*8.1	58*7.0
85	69.9	6.3	GSD85*69.9*6.3	69.22*5.33
90	74.9	6.3	GSD90*74.9*6.3	72.39*5.33
90	69.5	8.1	GSD90*69.5*8.1	68*7.0
95	79.9	6.3	GSD95*79.9*6.3	78.74*5.33
95	74.5	8.1	GSD95*74.5*8.1	73*7.0
100	84.9	6.3	GSD100*84.9*6.3	81.92*5.33
100	79.5	8.1	GSD100*79.5*8.1	78*7.0
110	94.9	6.3	GSD110*94.9*6.3	91.44*5.33
120	104.9	6.3	GSD120*104.9*6.3	104.14*5.33
125	104.5	6.3	GSD125*109.9*6.3	107.32*5.33
125	104.9	8.1	GSD125*104.5*8.1	103*7.0
130	114.9	6.3	GSD130*114.9*6.3	113.67*5.33
135	119.9	6.3	GSD135*119.9*6.3	113.67*7.0
140	124.9	6.3	GSD140*124.9*6.3	116.84*7.0
145	129.9	6.3	GSD145*129.9*6.3	123.19*7.0
150	134.9	6.3	GSD150*134.9*6.3	126.37*7.0
155	139.9	6.3	GSD155*139.9*6.3	135.89*5.33
160	144.9	6.3	GSD160*144.9*6.3	142.24*5.33
160	139.5	8.1	GSD160*139.5*8.1	135.89*7.0
165	149.9	6.3	GSD165*149.9*6.3	148.49*5.33
170	154.9	6.3	GSD170*154.9*6.3	145.42*7.0
175	159.9	6.3	GSD175*159.9*6.3	158.12*5.33
180	164.9	6.3	GSD180*164.9*6.3	164.47*5.33
180	159.9	8.1	GSD180*159.5*8.1	158.12*7.0
190	174.9	6.3	GSD190*174.9*6.3	170.82*5.33



Bore Dia.	Groove Dia.	Width	Order No.	O-Ring Dimension
D H9	d ₁ h9	L ₁ +0.2		
190	169.5	8.1	GSD190*169.5*8.1	164.47*7.0
200	184.9	6.3	GSD200*184.9*6.3	183.52*5.33
200	179.5	8.1	GSD200*179.5*8.1	177.17*7.0
210	189.5	8.1	GSD210*189.5*8.1	183.52*7.0
220	204.9	6.3	GSD220*204.9*6.3	202.57*5.33
220	199.5	8.1	GSD220*199.5*8.1	196.22*7.0
230	209.5	8.1	GSD230*209.5*8.1	208.92*7.0
240	219.5	8.1	GSD240*219.5*8.1	215.27*7.0
250	229.5	8.1	GSD250*229.5*8.1	227.97*7.0
250	226.0	8.1	GSD250*226*8.1	227.97*7.0
256	232.0	8.1	GSD256*232*8.1	227.97*7.0
260	236.0	8.1	GSD260*236*8.1	227.97*7.0
270	246.0	8.1	GSD270*246*8.1	240.67*7.0
280	256.0	8.1	GSD280*256*8.1	253.37*7.0
290	266.0	8.1	GSD290*266*8.1	263*7.0
300	276.0	8.1	GSD300*276*8.1	266.07*7.0
310	286.0	8.1	GSD310*286*8.1	278.77*7.0
320	299.0	8.1	GSD320*299.5*8.1	291.47*7.0
320	296.0	8.1	GSD320*296*8.1	291.47*7.0
330	306.0	8.1	GSD330*306*8.1	304.17*7.0
340	316.0	8.1	GSD340*316*8.1	316.87*7.0
350	326.0	8.1	GSD350*326*8.1	316.87*7.0
360	336.0	8.1	GSD360*336*8.1	329.57*7.0
370	346.0	8.1	GSD370*346*8.1	342.27*7.0
380	356.0	8.1	GSD380*356*8.1	354.97*7.0
390	366.0	8.1	GSD390*366*8.1	365*7.0
400	376.0	8.1	GSD400*376*8.1	367.67*7.0
410	386.0	8.1	GSD410*386*8.1	385*7.0
420	396.0	8.1	GSD420*396*8.1	393.07*7.0
430	406.0	8.1	GSD430*406*8.1	405.25*7.0
440	416.0	8.1	GSD440*416*8.1	405.25*7.0
450	426.0	8.1	GSD450*426*8.1	417.95*7.0
460	436.0	8.1	GSD460*436*8.1	430*7.0
470	446.0	8.1	GSD470*446*8.1	445*7.0
480	456.0	8.1	GSD480*456*8.1	456.06*7.0
490	466.0	8.1	GSD490*466*8.1	465*7.0
500	476.0	8.1	GSD500*476*8.1	468.76*7.0
510	486.0	8.1	GSD510*486*8.1	478*7.0
520	496.0	8.1	GSD520*496*8.1	494.15*7.0

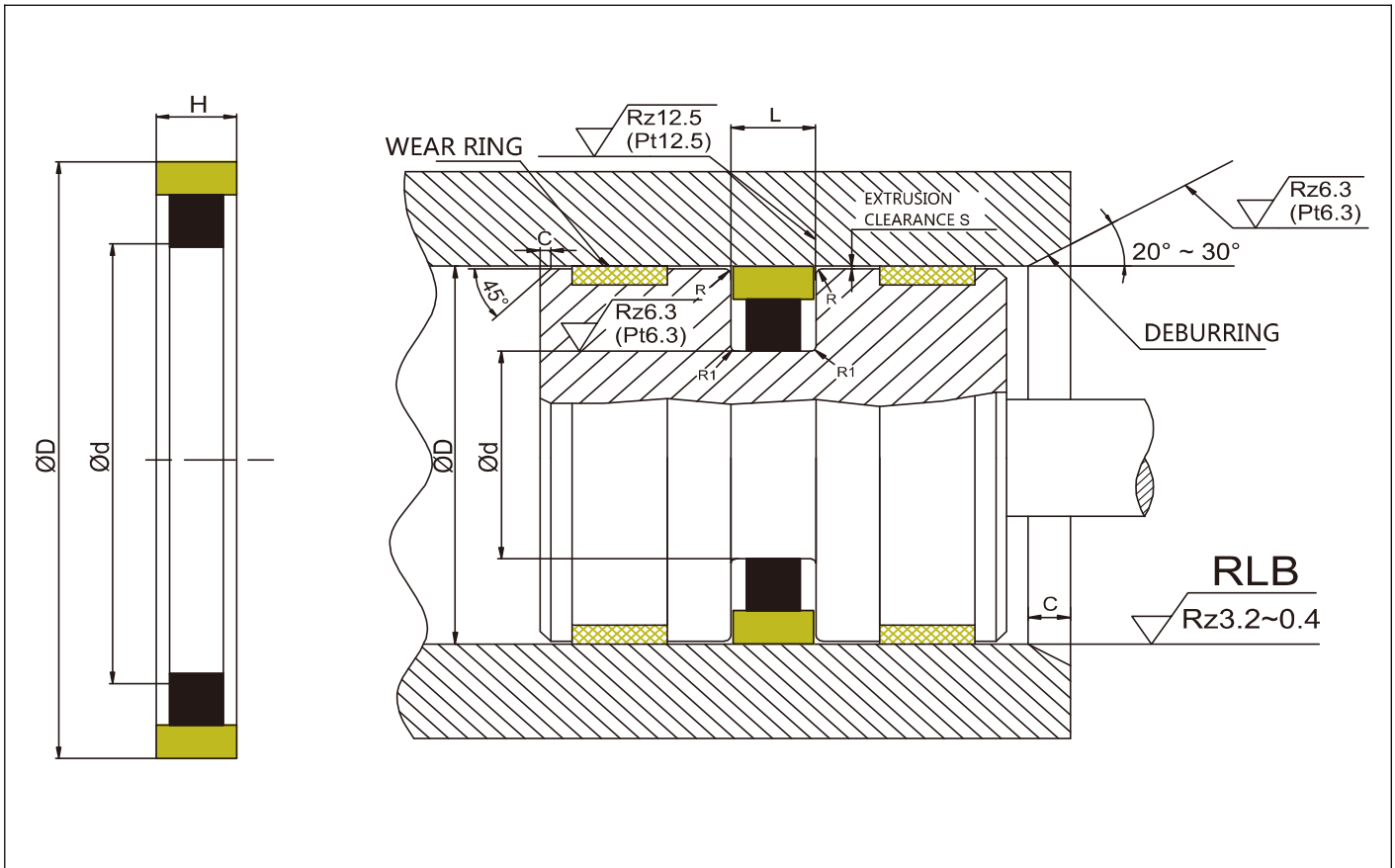


GSD

Bore Dia. D H9	Groove Dia. d ₁ h9	Width L ₁ +0.2	Order No.	O-Ring Dimension
530	506.0	8.1	GSD530*506*8.1	500*7.0
540	516.0	8.1	GSD540*516*8.1	506.85*7.0
550	526.0	8.1	GSD550*526*8.1	516*7.0
560	536.0	8.1	GSD560*536*8.1	526*7.0
570	546.0	8.1	GSD570*546*8.1	535*7.0
580	556.0	8.1	GSD580*556*8.1	545*7.0
590	566.0	8.1	GSD590*566*8.1	554*7.0
600	576.0	8.1	GSD600*576*8.1	557.65*7.0
610	586.0	8.1	GSD610*586*8.1	568*7.0
620	596.0	8.1	GSD620*596*8.1	578*7.0
630	606.0	8.1	GSD630*606*8.1	590*7.0
640	616.0	8.1	GSD640*616*8.1	600*7.0
650	626.0	8.1	GSD650*626*8.1	608.08*7.0
660	636.0	8.1	GSD660*636*8.1	618*7.0
670	642.7	9.5	GSD670*642.7*9.5	640*8.4
680	652.7	9.5	GSD680*652.7*9.5	650*8.4
690	662.7	9.5	GSD690*662.7*9.5	660*8.4
700	672.7	9.5	GSD700*672.7*9.5	670*8.4
710	682.7	9.5	GSD710*682.7*9.5	680*8.4
720	692.7	9.5	GSD720*692.7*9.5	690*8.4
730	702.7	9.5	GSD730*702.7*9.5	700*8.4
740	712.7	9.5	GSD740*712.7*9.5	710*8.4
750	722.7	9.5	GSD750*722.7*9.5	720*8.4
760	732.7	9.5	GSD760*732.7*9.5	730*8.4
770	742.7	9.5	GSD770*742.7*9.5	740*8.4
780	752.7	9.5	GSD780*752.7*9.5	750*8.4
790	762.7	9.5	GSD790*762.7*9.5	760*8.4
800	772.7	9.5	GSD800*772.7*9.5	770*8.4
900	872.7	9.5	GSD900*872.7*9.5	870*8.4
920	892.7	9.5	GSD920*892.7*9.5	890*8.4
1000	972.7	9.5	GSD1000*972.7*9.5	970*8.4



1. Installation Recommendation



2. Application and properties

Standard double acting sealing, a wide range of applications. Friction resistance is very low, no crawling phenomenon, strong wear resistance, and saving installation space.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
30 - 1600mm	0 - 35MPa	-30℃ +200℃	1.5 m/s	hydraulic oil, flame retardant liquid, water and others.



5. Installation Dimensions

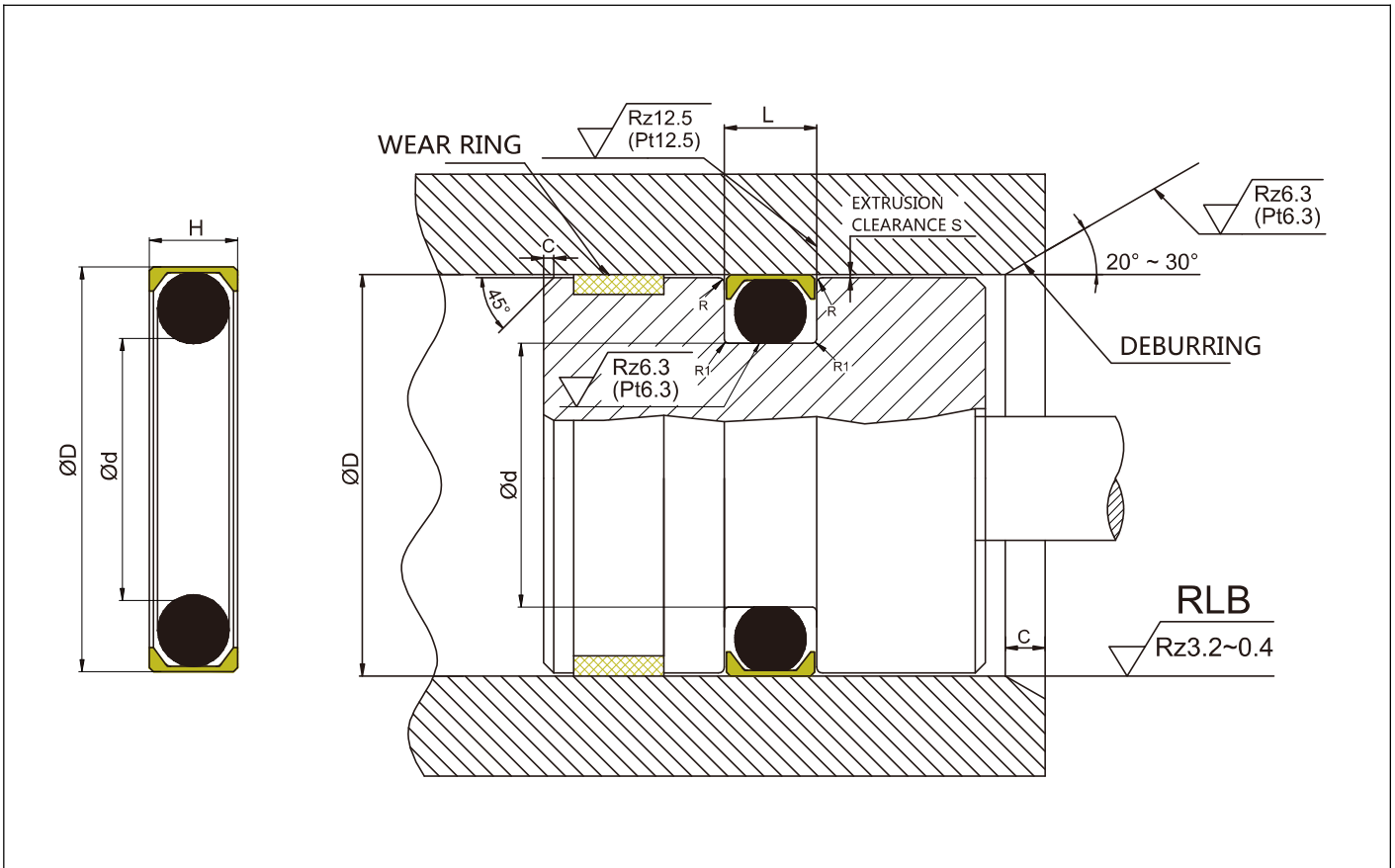
Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
30	20.5	4.3	4.5	SPG30*20.5*4.5
31.5	22	4.3	4.5	SPG31.5*22*4.5
32	22.5	4.3	4.5	SPG32*22.5*4.5
35	25.5	4.3	4.5	SPG35*25.5*4.5
35.5	26	4.3	4.5	SPG35.5*26*4.5
40	30	4.3	4.5	SPG40*30*4.5
45	35	4.3	4.5	SPG45*35*4.5
50	40	4.3	4.5	SPG50*40*4.5
55	45	4.3	4.5	SPG55*45*4.5
56	46	4.3	4.5	SPG56*46*4.5
60	50	4.3	4.5	SPG60*50*4.5
63	48	7.3	7.5	SPG63*48*7.5
65	50	7.3	7.5	SPG65*50*7.5
69	54	7.3	7.5	SPG69*54*7.5
70	55	7.3	7.5	SPG70*55*7.5
71	56	7.3	7.5	SPG71*56*7.5
75	60	7.3	7.5	SPG75*60*7.5
80	65	7.3	7.5	SPG80*65*7.5
85	70	7.3	7.5	SPG85*70*7.5
90	75	7.3	7.5	SPG90*75*7.5
95	80	7.3	7.5	SPG95*80*7.5
100	85	7.3	7.5	SPG100*85*7.5
105	90	7.3	7.5	SPG105*90*7.5
108	92	7.3	7.5	SPG108*92*7.5
110	94	7.3	7.5	SPG110*94*7.5
112	96	7.3	7.5	SPG112*96*7.5
120	104	7.3	7.5	SPG120*104*7.5
125	109	7.3	7.5	SPG125*109*7.5
130	114	7.3	7.5	SPG130*114*7.5
135	119	7.3	7.5	SPG135*119*7.5
140	124	7.3	7.5	SPG140*124*7.5
145	129	7.3	7.5	SPG145*129*7.5
150	134	7.3	7.5	SPG150*134*7.5
155	139	7.3	7.5	SPG155*139*7.5
160	144	7.3	7.5	SPG160*144*7.5
170	148	10.8	11	SPG170*148*11



Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
180	158	10.8	11	SPG180*158*11
190	168	10.8	11	SPG190*168*11
200	178	10.8	11	SPG200*178*11
210	188	10.8	11	SPG210*188*11
215	193	10.8	11	SPG215*193*11
220	198	10.8	11	SPG220*198*11
230	208	10.8	11	SPG230*208*11
240	218	10.8	11	SPG240*218*11
250	228	10.8	11	SPG250*228*11
260	236	11.7	12	SPG260*236*12
270	246	11.7	12	SPG270*246*12
280	256	11.7	12	SPG280*256*12
290	266	11.7	12	SPG290*266*12
300	276	11.7	12	SPG300*276*12
310	286	11.7	12	SPG310*286*12
320	296	11.7	12	SPG320*296*12
330	308	9.75	10	SPG330*308*10
360	336	11.7	12	SPG360*336*12
400	376	11.7	12	SPG400*376*12
485	455	14.8	15	SPG485*455*15
500	470	14.8	15	SPG500*470*15
550	515	17.2	17.5	SPG550*515*17.5
600	570	14.8	15	SPG600*570*15
650	620	14.8	15	SPG650*620*15
720	690	14.8	15	SPG720*690*15
800	785	12.7	13	SPG800*785*13
900	870	24.5	25	SPG900*870*25
930	890	19	20	SPG930*890*20
950	925	17.7	18	SPG950*925*18
1000	960	19.7	20	SPG1000*960*20



1. Installation Recommendation



2. Application and properties

Suitable for light and medium hydraulic systems, also be used for pneumatic equipment. Low friction, no crawling phenomenon.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
6 - 1600mm	0 - 35MPa	-30℃ +200℃	1.5 m/s	hydraulic oil, flame retardant liquid, water and others.



5. Installation Dimensions

Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
28	22	4.4	4.7	SPGC28*22*4.7
28.4	22.4	4.4	4.7	SPGC28.4*22.4*4.7
30	24	4.4	4.7	SPGC30*24*4.7
31	25	4.4	4.7	SPGC31*25*4.7
31.5	25.5	4.4	4.7	SPGC31.5*25.5*4.7
34	28	4.4	4.7	SPGC34*28*4.7
35	29	4.4	4.7	SPGC35*29*4.7
35.5	29.5	4.4	4.7	SPGC35.5*29.5*4.7
36	30	4.4	4.7	SPGC36*30*4.7
37	31	4.4	4.7	SPGC37*31*4.7
37.5	31.5	4.4	4.7	SPGC37.5*31.5*4.7
38	32	4.4	4.7	SPGC38*32*4.7
40	34	4.4	4.7	SPGC40*34*4.7
41	35	4.4	4.7	SPGC41*35*4.7
41.5	35.5	4.4	4.7	SPGC41.5*35.5*4.7
42	36	4.4	4.7	SPGC42*36*4.7
44	38	4.4	4.7	SPGC44*38*4.7
45	39	4.4	4.7	SPGC45*39*4.7
46	40	4.4	4.7	SPGC46*40*4.7
47	41	4.4	4.7	SPGC47*41*4.7
48	42	4.4	4.7	SPGC48*42*4.7
50	44	4.4	4.7	SPGC50*44*4.7
51	45	4.4	4.7	SPGC51*45*4.7
52	46	4.4	4.7	SPGC52*46*4.7
54	48	4.4	4.7	SPGC54*48*4.7
55	49	4.4	4.7	SPGC55*49*4.7
56	50	4.4	4.7	SPGC56*50*4.7
58	48	4.4	4.7	SPGC58*48*4.7
60	50	4.4	4.7	SPGC60*50*4.7
62	52	4.4	4.7	SPGC62*52*4.7
63	53	4.4	4.7	SPGC63*53*4.7
65	55	4.4	4.7	SPGC65*55*4.7
66	56	4.4	4.7	SPGC66*56*4.7
68	58	7.0	7.5	SPGC68*58*7.5
70	60	7.0	7.5	SPGC70*60*7.5
72	62	7.0	7.5	SPGC72*62*7.5



SPGC

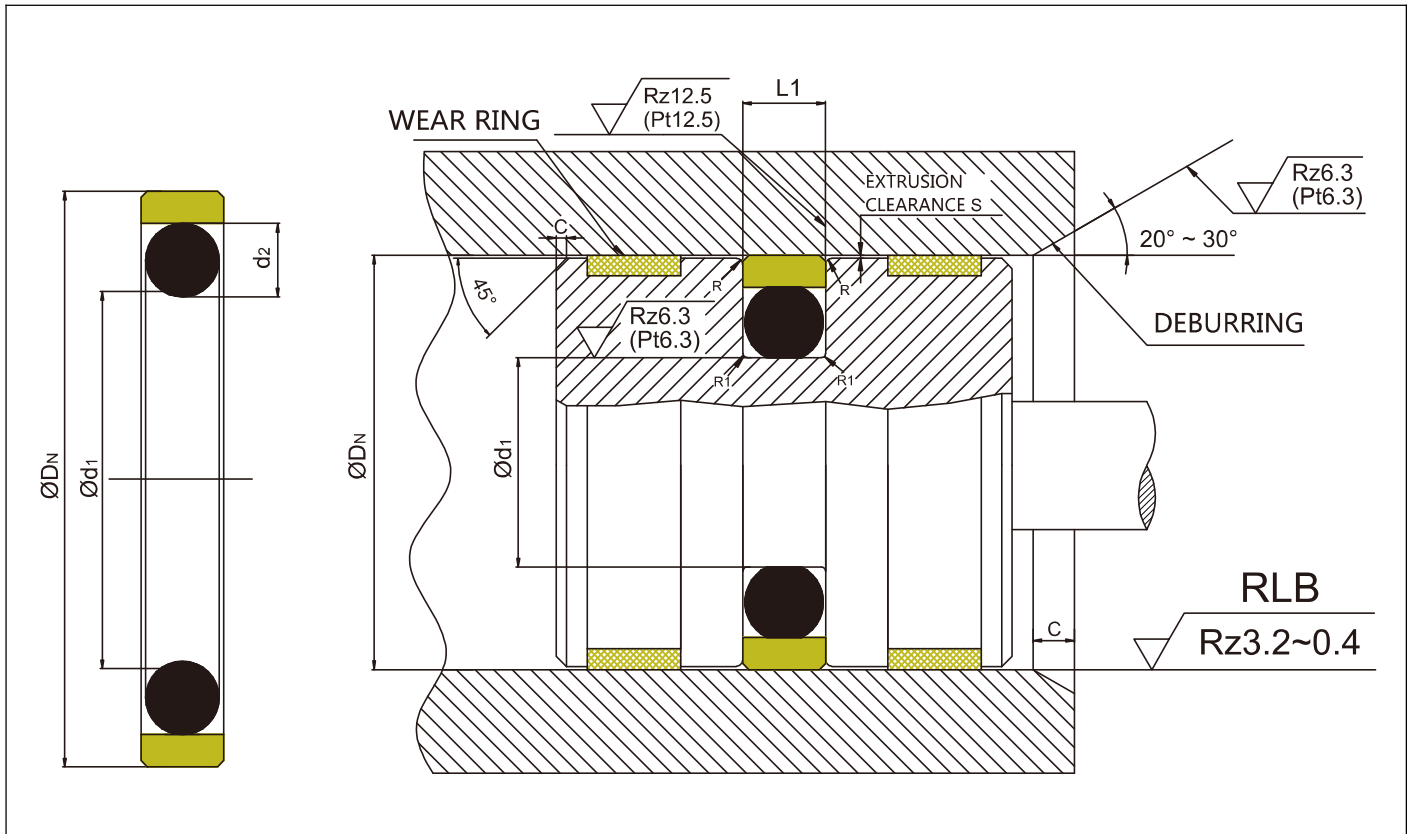
Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
73	63	7.0	7.5	SPGC73*63*7.5
75	65	7.0	7.5	SPGC75*65*7.5
77	67	7.0	7.5	SPGC77*67*7.5
80	70	7.0	7.5	SPGC80*70*7.5
81	71	7.0	7.5	SPGC81*71*7.5
85	75	7.0	7.5	SPGC85*75*7.5
90	80	7.0	7.5	SPGC90*80*7.5
95	85	7.0	7.5	SPGC95*85*7.5
100	90	7.0	7.5	SPGC100*90*7.5
105	95	7.0	7.5	SPGC105*95*7.5
110	100	7.0	7.5	SPGC110*100*7.5
112	102	7.0	7.5	SPGC112*102*7.5
115	105	7.0	7.5	SPGC115*105*7.5
120	110	7.0	7.5	SPGC120*110*7.5
122	112	7.0	7.5	SPGC122*112*7.5
125	115	7.0	7.5	SPGC125*115*7.5
130	120	7.0	7.5	SPGC130*120*7.5
135	125	7.0	7.5	SPGC135*125*7.5
140	130	7.0	7.5	SPGC140*130*7.5
142	132	7.0	7.5	SPGC142*132*7.5
145	135	7.0	7.5	SPGC145*135*7.5
150	140	7.0	7.5	SPGC150*140*7.5
155	145	7.0	7.5	SPGC155*145*7.5
160	150	7.0	7.5	SPGC160*150*7.5
165	150	10.5	11	SPGC165*150*11
170	155	10.5	11	SPGC170*155*11
175	160	10.5	11	SPGC175*160*11
180	165	10.5	11	SPGC180*165*11
185	170	10.5	11	SPGC185*170*11
190	175	10.5	11	SPGC190*175*11
195	180	10.5	11	SPGC195*180*11
200	185	10.5	11	SPGC200*185*11
205	190	10.5	11	SPGC205*190*11
210	195	10.5	11	SPGC210*195*11
215	200	10.5	11	SPGC215*200*11
220	205	10.5	11	SPGC220*205*11
224	209	10.5	11	SPGC224*209*11
225	210	10.5	11	SPGC225*210*11
230	215	10.5	11	SPGC230*215*11



Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
235	220	10.5	11	SPGC235*220*11
240	225	10.5	11	SPGC240*225*11
245	230	10.5	11	SPGC245*230*11
250	235	10.5	11	SPGC250*235*11
255	240	10.5	11	SPGC255*240*11
260	245	10.5	11	SPGC260*245*11
265	250	10.5	11	SPGC265*250*11
270	255	10.5	11	SPGC270*255*11
275	260	10.5	11	SPGC275*260*11



1. Installation Recommendation



2. Application and properties

Standard double acting sealing, a wide range of applications. Friction resistance is very low, no crawling phenomenon, strong wear resistance, and saving installation space.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
20 - 1600mm	0—35MPa	-30℃ +200℃	1.5 m/s	hydraulic oil, flame retardant liquid, water and others



5. Installation Dimensions

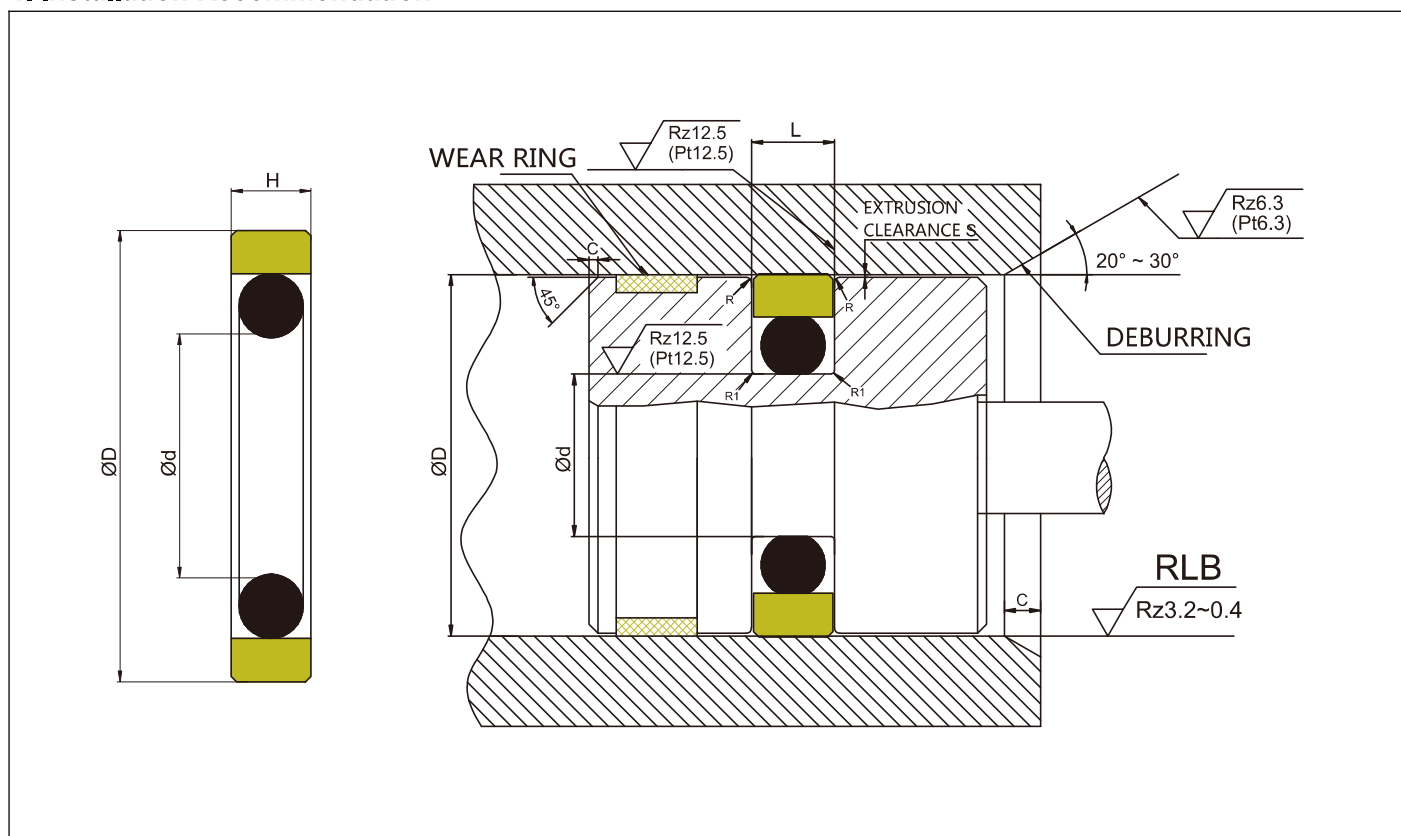
Bore Dia.	Groove Width	Order No.	O-Ring Dimension
D H9	L1+0.2		
60	6	SPGO60*6	43.5*5.3
65	6	SPGO65*6	48*5.3
70	6	SPGO70*6	53*5.3
75	6	SPGO75*6	58*5.3
80	6	SPGO80*6	63*5.3
85	6	SPGO85*6	67*5.3
90	6	SPGO90*6	73*5.3
95	6	SPGO95*6	77.5*5.3
100	6	SPGO100*6	83*5.3
105	6	SPGO105*6	87.5*5.3
110	6	SPGO110*6	92.5*5.3
115	6	SPGO115*6	97.5*5.3
120	6	SPGO120*6	103*5.3
125	6	SPGO125*6	108*5.3
130	6	SPGO130*6	112*5.3
135	6	SPGO135*6	118*5.3
140	6	SPGO140*6	123.19*5.3
145	6	SPGO145*6	128*5.3
150	6	SPGO150*6	132.72*5.3
155	6	SPGO155*6	138*5.3
160	6	SPGO160*6	142.24*5.3
165	6	SPGO165*6	148.5*5.3
170	6	SPGO170*6	151.77*5.3
175	6	SPGO175*6	158*5.3
180	6	SPGO180*6	164.47*5.3
185	6	SPGO185*6	167*5.3
190	6	SPGO190*6	173*5.3
195	6	SPGO195*6	177.17*5.3
80	7.9	SPGO80*7.9	56*7
85	7.9	SPGO85*7.9	61*7
90	7.9	SPGO90*7.9	66*7
95	7.9	SPGO95*7.9	71*7
100	7.9	SPGO100*7.9	77.5*7
105	7.9	SPGO105*7.9	82*7
110	7.9	SPGO110*7.9	86*7
115	7.9	SPGO115*7.9	92*7



SPGO

Bore Dia.	Groove Width	Order No.	O-Ring Dimension
D H9	L1+0.2		
120	7.9	SPGO120*7.9	97*7
125	7.9	SPGO125*7.9	103*7
130	7.9	SPGO130*7.9	107*7
135	7.9	SPGO135*7.9	112*7
140	7.9	SPGO140*7.9	117*7
145	7.9	SPGO145*7.9	122*7
150	7.9	SPGO150*7.9	126.37*7
155	7.9	SPGO155*7.9	132*7
160	7.9	SPGO160*7.9	136*7
165	7.9	SPGO165*7.9	142.24*7
170	7.9	SPGO170*7.9	145.42*7
175	7.9	SPGO175*7.9	152*7
180	7.9	SPGO180*7.9	157.5*7
185	7.9	SPGO185*7.9	160*7
190	7.9	SPGO190*7.9	165*7
195	7.9	SPGO195*7.9	170*7
200	7.9	SPGO200*7.9	177.17*7
210	7.9	SPGO210*7.9	185*7
220	7.9	SPGO220*7.9	197*7
230	7.9	SPGO230*7.9	207.5*7
240	7.9	SPGO240*7.9	218*7
250	7.9	SPGO250*7.9	227*7
260	7.9	SPGO260*7.9	237*7
270	7.9	SPGO270*7.9	250*7
280	7.9	SPGO280*7.9	258*7
290	7.9	SPGO290*7.9	265*7
300	7.9	SPGO300*7.9	280*7
120	9.5	SPGO120*9.5	107*8.6
125	9.5	SPGO125*9.5	112*8.6
130	9.5	SPGO130*9.5	117*8.6
135	9.5	SPGO135*9.5	122*8.6
140	9.5	SPGO140*9.5	127*8.6
145	9.5	SPGO145*9.5	132*8.6
150	9.5	SPGO150*9.5	137*8.6
160	9.5	SPGO160*9.5	147*8.6

1. Installation Recommendation



2. Application and properties

Standard double acting sealing, a wide range of applications. Friction resistance is very low, no crawling phenomenon, strong wear resistance, and saving installation space.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
20 - 1600mm	0 - 35MPa	-30℃ +200℃	1.5 m/s	hydraulic oil, flame retardant liquid, water and others.



DPO

5. Installation Dimensions

Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
20	14	3	3.2	DPO20*14*3.2
25	19	3	3.2	DPO25*19*3.2
30	21.5	3.8	4	DPO30*21.5*4
31.5	23	3.8	4	DPO31.5*23*4
32	23.5	3.8	4	DPO32*23.5*4
35	26.5	3.8	4	DPO35*26.5*4
35.5	27	3.8	4	DPO35.5*27*4
40	31.5	3.8	4	DPO40*31.5*4
45	36.5	3.8	4	DPO45*36.5*4
50	41.5	3.8	4	DPO50*41.5*4
53	44.5	3.8	4	DPO53*44.5*4
55	46.5	3.8	4	DPO55*46.5*4
56	47.5	3.8	4	DPO56*47.5*4
60	51.5	3.8	4	DPO60*51.5*4
63	49	6.3	6.5	DPO63*49*6.5
65	51	6.3	6.5	DPO65*51*6.5
70	56	6.3	6.5	DPO70*56*6.5
71	57	6.3	6.5	DPO71*57*6.5
75	61	6.3	6.5	DPO75*61*6.5
80	66	6.3	6.5	DPO80*66*6.5
85	71	6.3	6.5	DPO85*71*6.5
90	76	6.3	6.5	DPO90*76*6.5
95	81	6.3	6.5	DPO95*81*6.5
100	86	6.3	6.5	DPO100*86*6.5
105	91	6.3	6.5	DPO105*91*6.5
110	96	6.3	6.5	DPO110*96*6.5
112	98	6.3	6.5	DPO112*98*6.5
115	101	6.3	6.5	DPO115*101*6.5
120	106	6.3	6.5	DPO120*106*6.5
125	111	6.3	6.5	DPO125*111*6.5
130	116	6.3	6.5	DPO130*116*6.5
135	121	6.3	6.5	DPO135*121*6.5
140	126	6.3	6.5	DPO140*126*6.5
150	136	6.3	6.5	DPO150*136*6.5
160	146	6.3	6.5	DPO160*146*6.5
170	150	9.8	10.0	DPO170*150*10
180	160	9.8	10.0	DPO180*160*10
190	170	9.8	10.0	DPO190*170*10
200	180	9.8	10.0	DPO200*180*10

D P O

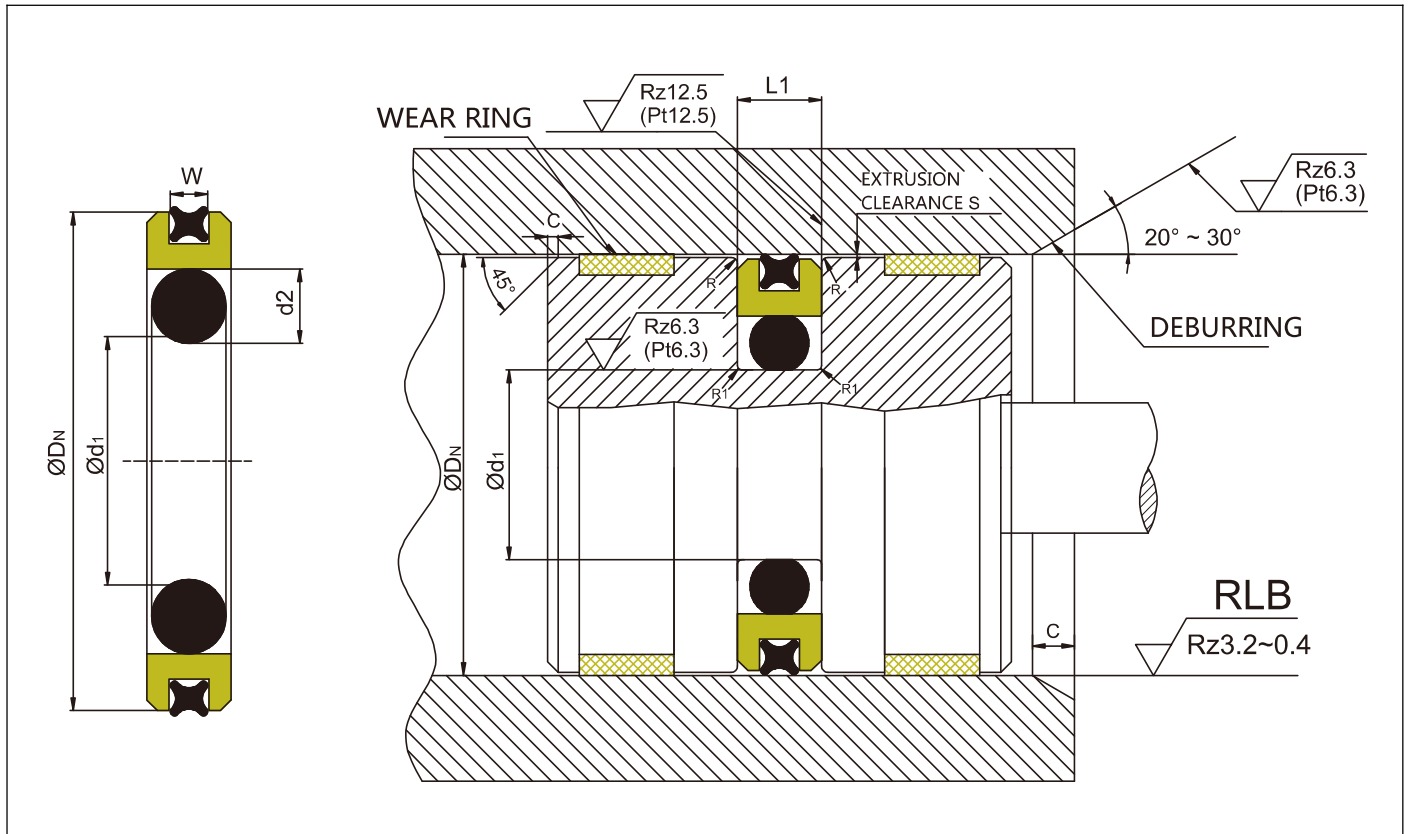


Nominal Size of Packing, and Housing dimensions			L +0.2	Order No.
D	d	H		
210	190	9.8	10.0	DPO210*190*10
220	200	9.8	10.0	DPO220*200*10
224	204	9.8	10.0	DPO224*204*10
230	210	9.8	10.0	DPO230*210*10
240	220	9.8	10.0	DPO240*220*10
250	230	9.8	10.0	DPO250*230*10
260	240	9.8	10.0	DPO260*240*10
270	250	9.8	10.0	DPO270*250*10
280	260	9.8	10.0	DPO280*260*10
290	270	9.8	10.0	DPO290*270*10
300	280	9.8	10.0	DPO300*280*10
310	290	9.8	10.0	DPO310*290*10
320	300	9.8	10.0	DPO320*300*10
340	320	9.8	10.0	DPO340*320*10
350	330	9.8	10.0	DPO350*330*10
360	340	9.8	10.0	DPO360*340*10
375	355	9.8	10.0	DPO375*355*10
380	360	9.8	10.0	DPO380*360*10
400	380	9.8	10.0	DPO400*380*10



DAQ

1. Installation Recommendation



2. Installation Sizes

Bore Diameter D _N H9		Groove Diameter	Groove Width	Radius	Radial Clearance S max.			O-Ring Cross Section	X-Ring Seal Cross Section
Standard Application	Light Application	d ₁ h9	L ₁ +0.2	R ₁	10MPa	20MPa	30MPa	d ₂	W
15 - 39.9	40 - 79.9	D _N - 11.0	4.2	1.0	0.25	0.15	0.10	3.53	1.78
40 - 79.9	80 - 132.9	D _N - 15.5	6.3	1.3	0.3	0.20	0.15	5.33	1.78
80 - 132.9	133 - 252.9	D _N - 21.0	8.1	1.8	0.3	0.20	0.15	7.00	2.62
133 - 252.9	—	D _N - 24.5	8.1	1.8	0.3	0.20	0.15	7.00	2.62
253 - 462.9	—	D _N - 28.0	9.5	2.5	0.45	0.30	0.25	8.40	3.53
463 - 700	—	D _N - 35.0	11.5	3.0	0.55	0.40	0.35	10.00	5.33



3. Application and properties

Apply to the working condition of fast speed, high pressure, and the necessary pressure keeping. Recommended for double-acting pistons as piston-type energy storage, supporting cylinder and positional cylinder. Double safety with low friction and high elasticity, good dynamic and static sealing performance, larger extrusion clearances can be allowed, at the same time with the function of holding pressure, less leakage in the hydraulic cylinder. Simple groove, small installation space, excellent sliding performance, no crawling phenomenon.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

X-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
16 - 1600mm	0—40MPa	-30℃ +200℃	2 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimension
d h9	D ₁ H9	L ₁ +0.2		
16	5	4.2	DAQ16*5*4.2	4.34*3.53
18	7	4.2	DAQ18*7*4.2	6.42*3.53
20	9	4.2	DAQ20*9*4.2	8.42*3.53
22	11	4.2	DAQ22*11*4.2	10.69*3.53
25	14	4.2	DAQ25*14*4.2	13.87*3.53
28	17	4.2	DAQ28*17*4.2	15.47*3.53
30	19	4.2	DAQ30*19*4.2	18.66*3.53
32	21	4.2	DAQ32*21*4.2	20.22*3.53
35	24	4.2	DAQ35*24*4.2	23.40*3.53
40	29	4.2	DAQ40*29*4.2	28.17*3.53
42	31	4.2	DAQ42*31*4.2	29.75*3.53
45	34	4.2	DAQ45*34*4.2	32.92*3.53
48	37	4.2	DAQ48*37*4.2	36.09*3.53
50	39	4.2	DAQ50*39*4.2	37.70*3.53
50	34.5	6.3	DAQ50*34.5*6.3	32.69*3.53
52	41	4.2	DAQ52*41*4.2	40.87*3.53
55	44	4.2	DAQ55*44*4.2	44.04*3.53
60	49	4.2	DAQ60*49*4.2	47.22*3.53
63	52	4.2	DAQ63*52*4.2	50.39*3.53
63	47.5	6.3	DAQ63*47.5*6.3	46.99*3.53
65	54	4.2	DAQ65*54*4.2	53.57*3.53



DAQ

Bore Dia. d h9	Groove Dia. D ₁ H9	Groove Width L ₁ +0.2	Order No.	O-Ring Dimension
70	59	4.2	DAQ70*59*4.2	56.74*3.53
70	54.5	6.3	DAQ70*54.5*6.3	53.34*3.53
75	64	4.2	DAQ75*64*4.2	63.09*3.53
80	64.5	6.3	DAQ80*64.5*6.3	62.87*5.33
80	59	8.1	DAQ80*59*8.1	58*7.0
85	69.5	6.3	DAQ85*69.5*6.3	69.22*5.33
85	64	8.1	DAQ85*64*8.1	63*7.0
90	74.5	6.3	DAQ90*74.5*6.3	72.39*5.33
90	69	8.1	DAQ90*69*8.1	68*7.0
95	79.5	6.3	DAQ95*79.5*6.3	78.74*5.33
95	74	8.1	DAQ95*74*8.1	73*7.0
100	84.5	6.3	DAQ100*84.5*6.3	81.92*5.33
100	79	8.1	DAQ100*79*8.1	78*7.0
105	89.5	6.3	DAQ105*89.5*6.3	88.27*5.33
105	84	8.1	DAQ105*84*8.1	83*7.0
110	94.5	6.3	DAQ110*94.5*6.3	91.44*5.33
110	89	8.1	DAQ110*89*8.1	88*7.0
115	99.5	6.3	DAQ115*99.5*6.3	97.79*5.33
115	94	8.1	DAQ115*94*8.1	93*7.0
120	104.5	6.3	DAQ120*104.5*6.3	100.97*5.33
120	99	8.1	DAQ120*99*8.1	98*7.0
125	109.5	6.3	DAQ125*109.5*6.3	107.32*5.33
125	104	8.1	DAQ125*104*8.1	103*7.0
130	114.5	6.3	DAQ130*114.5*6.3	113.67*5.33
130	109	8.1	DAQ130*109*8.1	108*7.0
135	114	8.1	DAQ135*114*8.1	113.67*5.33
140	119	8.1	DAQ140*119*8.1	116.84*7.0
150	129	8.1	DAQ150*129*8.1	126.37*7.0
160	139	8.1	DAQ160*139*8.1	135.89*7.0
170	149	8.1	DAQ170*149*8.1	145.42*7.0
180	159	8.1	DAQ180*159*8.1	158.12*7.0
190	169	8.1	DAQ190*169*8.1	164.47*7.0
200	179	8.1	DAQ200*179*8.1	177.17*7.0
210	189	8.1	DAQ210*189*8.1	183.52*7.0
220	199	8.1	DAQ220*199*8.1	196.22*7.0
230	209	8.1	DAQ230*209*8.1	208.92*7.0
240	219	8.1	DAQ240*219*8.1	215.27*7.0
250	229	8.1	DAQ250*229*8.1	227.97*7.0
250	225.5	8.1	DAQ250*225.5*8.1	227.97*7.0



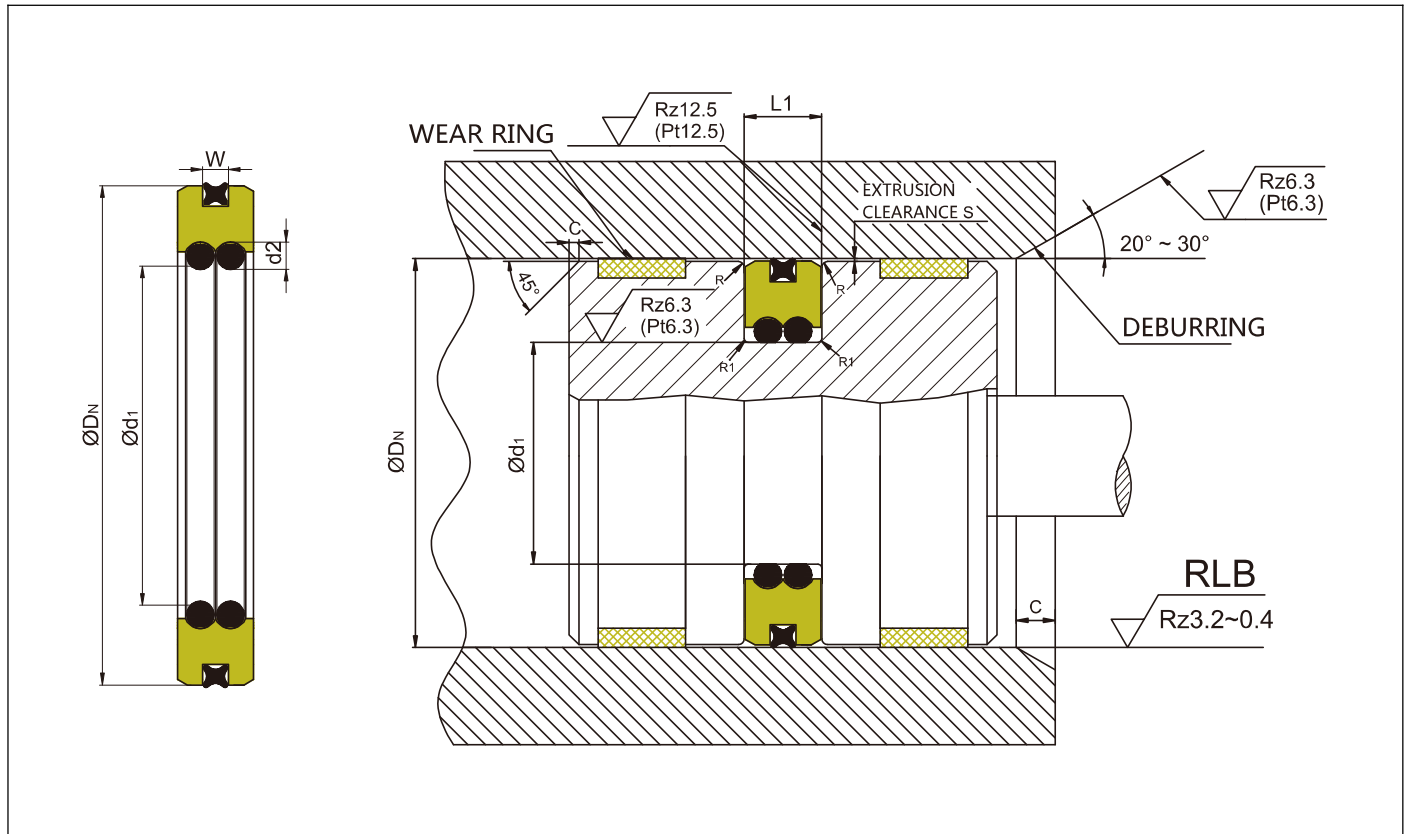
DAQ

Bore Dia. d h9	Groove Dia. D ₁ H9	Groove Width L ₁ +0.2	Order No.	O-Ring Dimension
280	252	9.5	DAQ280*252*9.5	250*8.4
300	272	9.5	DAQ300*272*9.5	270*8.4
310	282	9.5	DAQ310*282*9.5	280*8.4
320	292	9.5	DAQ320*292*9.5	290*8.4
350	322	9.5	DAQ350*322*9.5	320*8.4
400	372	9.5	DAQ400*372*9.5	370*8.4
420	392	9.5	DAQ420*392*9.5	390*8.4
450	422	9.5	DAQ450*422*9.5	420*8.4
480	445	11.5	DAQ480*445*11.5	444*10.0
500	465	11.5	DAQ500*465*11.5	464*10.0
600	565	11.5	DAQ600*565*11.5	465*10.0
700	665	11.5	DAQ700*665*11.5	664*10.0



DAQ2

1. Installation Recommendation



2. Installation Sizes

Bore Diameter D _N H9		Groove Diameter	Groove Width	Radius	Radial Clearance S max.			O-Ring Cross Section	X-Ring Seal Cross Section
Standard Application	Heavy Duty Application	d ₁ h9	L ₁ +0.2	R ₁	10MPa	20MPa	30MPa	d ₂	W
40 - 79.9	25 - 140	D _N - 10.0	6.3	0.6	0.3	0.2	0.15	2.62	1.78
80 - 132.9	50 - 250	D _N - 13.0	8.3	1.0	0.4	0.3	0.15	3.53	2.62
133 - 252.9	100 - 480	D _N - 18.0	12.3	1.3	0.4	0.3	0.20	5.33	3.53
463 - 700	425 - 700	D _N - 31.0	16.3	1.8	0.5	0.4	0.30	7.00	5.33

3. Application and properties

Apply to the working condition of fast speed, high pressure, and the necessary pressure keeping. Available for piston accumulator, clamping cylinder and positioning cylinder, especially recommended for heavy duty and large diameter applications. Double safety with low friction and high elasticity, Low gas permeability, excellent sliding performance in high pressure applications, no crawling phenomenon, simple groove structure, easy installation.



DAQ2

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

X-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0—60MPa	-30℃ +200℃	3 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Bore Dia.	Groove Dia.	Groove Width	Order No.	O-Ring Dimension
d h9	D ₁ H9	L ₁ +0.2		
40	30	6.3	DAQ2-40*30*6.3	29.82*2.62
42	32	6.3	DAQ2-42*32*6.3	31.42*2.62
45	35	6.3	DAQ2-45*35*6.3	34.59*2.62
48	38	6.3	DAQ2-48*38*6.3	37.77*2.62
50	40	6.3	DAQ2-50*40*6.3	39.34*2.62
52	42	6.3	DAQ2-52*42*6.3	40.94*2.62
55	45	6.3	DAQ2-55*45*6.3	44.12*2.62
60	50	6.3	DAQ2-60*50*6.3	48.90*2.62
63	53	6.3	DAQ2-63*53*6.3	52.07*2.62
65	55	6.3	DAQ2-65*55*6.3	53.64*2.62
70	60	6.3	DAQ2-70*60*6.3	58.42*2.62
75	65	6.3	DAQ2-75*65*6.3	63.17*2.62
80	67	8.3	DAQ2-80*67*8.3	66.27*3.53
85	72	8.3	DAQ2-85*72*8.3	69.44*3.53
90	77	8.3	DAQ2-90*77*8.3	75.79*3.53
95	82	8.3	DAQ2-95*82*8.3	78.97*3.53
100	87	8.3	DAQ2-100*87*8.3	85.32*3.53
105	92	8.3	DAQ2-105*92*8.3	91.67*3.53
110	97	8.3	DAQ2-110*97*8.3	94.84*3.53
115	102	8.3	DAQ2-115*102*8.3	101.19*3.53
120	107	8.3	DAQ2-120*107*8.3	104.37*3.53
125	112	8.3	DAQ2-125*112*8.3	110.72*3.53
130	117	8.3	DAQ2-130*117*8.3	113.89*3.53
135	117	12.3	DAQ2-135*117*12.3	113.67*5.33
140	122	12.3	DAQ2-140*122*12.3	120.02*5.33
150	132	12.3	DAQ2-150*132*12.3	129.54*5.33
160	142	12.3	DAQ2-160*142*12.3	139.07*5.33

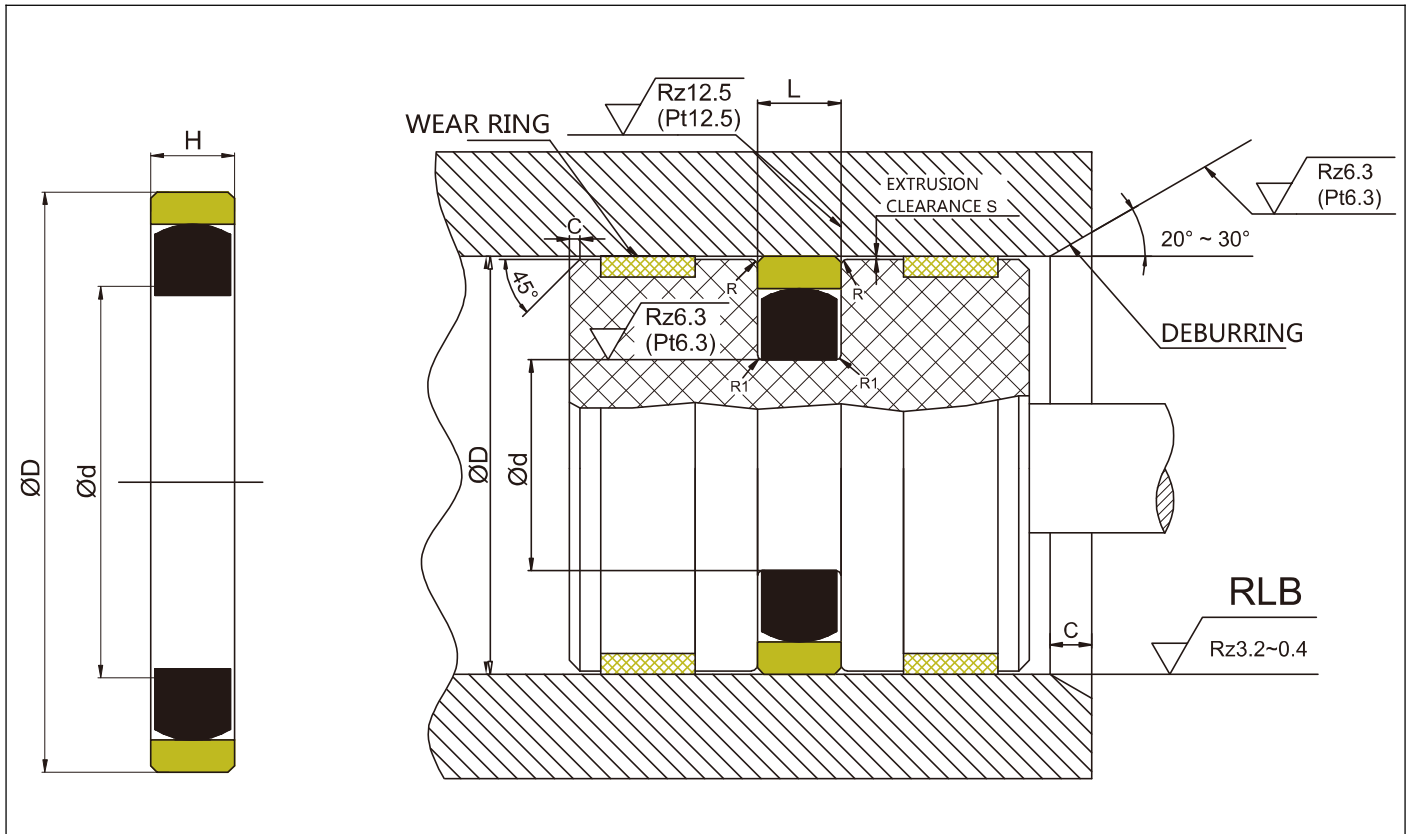


DAQ 2

Bore Dia. d h9	Groove Dia. D ₁ H9	Groove Width L ₁ +0.2	Order No.	O-Ring Dimension
170	152	12.3	DAQ2-170*152*12.3	148.49*5.33
180	162	12.3	DAQ2-180*162*12.3	158.12*5.33
190	172	12.3	DAQ2-190*172*12.3	170.82*5.33
200	182	12.3	DAQ2-200*182*12.3	177.17*5.33
210	192	12.3	DAQ2-210*192*12.3	189.87*5.33
220	202	12.3	DAQ2-220*202*12.3	196.22*5.33
230	212	12.3	DAQ2-230*212*12.3	208.92*5.33
240	222	12.3	DAQ2-240*222*12.3	221.62*5.33
250	232	12.3	DAQ2-250*232*12.3	227.97*5.33
280	262	12.3	DAQ2-280*262*12.3	253.37*5.33
300	282	12.3	DAQ2-300*282*12.3	278.77*5.33
320	302	12.3	DAQ2-320*302*12.3	291.47*5.33
350	332	12.3	DAQ2-350*332*12.3	329.57*5.33
400	382	12.3	DAQ2-400*382*12.3	380.37*5.33
420	402	12.3	DAQ2-420*402*12.3	405.26*5.33
450	432	12.3	DAQ2-450*432*12.3	430.66*5.33
480	449	16.3	DAQ2-480*449*16.3	443.36*7.0
500	469	16.3	DAQ2-500*469*16.3	468.76*7.0
600	569	16.3	DAQ2-600*569*16.3	557.66*7.0
700	669	16.3	DAQ2-700*669*16.3	658.88*7.0



1. Installation Recommendation



2. Installation Sizes

Bore Diameter	Groove Diameter	Groove Width	Radius	Radial Clearance S max.			
D H8	d h8	$L_1+0.2$	R_1	16MPa	26MPa	32MPa	40MPa
55.0-149.9	D-10.0	10.0	0.4	0.60	0.50	0.40	0.40
150.0-244.9	D-12.5	12.5	0.4	0.75	0.65	0.55	0.50
245.0-500.0	D-15.0	15.0	0.8	0.75	0.65	0.55	0.50
500.1-760.0	D-17.5	17.5	1.2	0.75	0.65	0.55	0.50
760.1-999.9	D-20.0	20.0	1.2	0.80	0.70	0.60	0.55
≥ 1000	D-20.0	20.5	1.2	0.80	0.70	0.60	0.55

3. Application and properties

Applied to the hydraulic cylinder of heavy machinery and metallurgical equipment. Pressure resistance and corrosion resistance are strong, good thermal conductivity, structure anti-distortion, low friction, no crawling phenomenon.



GSF - W

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0 - 60MPa	-30°C +100°C	5 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Bore Dia.	Groove Dia.	Groove Width	Order No.
D H8	d h8	L+0.2	
55	40	10	GSF-W55*40*10
60	45	10	GSF-W60*45*10
70	55	10	GSF-W70*55*10
80	60	10	GSF-W80*60*10
90	70	10	GSF-W90*70*10
100	80	10	GSF-W100*80*10
110	90	10	GSF-W110*90*10
115	95	10	GSF-W115*95*10
120	100	10	GSF-W120*100*10
130	110	10	GSF-W130*110*10
140	120	10	GSF-W140*120*10
150	125	12.5	GSF-W150*125*12.5
160	135	12.5	GSF-W160*135*12.5
165	140	12.5	GSF-W165*140*12.5
170	145	12.5	GSF-W170*145*12.5
180	155	12.5	GSF-W180*155*12.5
185	160	12.5	GSF-W185*160*12.5
190	165	12.5	GSF-W190*165*12.5
200	175	12.5	GSF-W200*175*12.5
205	180	12.5	GSF-W205*180*12.5
210	185	12.5	GSF-W210*185*12.5
215	190	12.5	GSF-W215*190*12.5
220	195	12.5	GSF-W220*195*12.5
225	200	12.5	GSF-W225*200*12.5
230	205	12.5	GSF-W230*205*12.5
240	215	12.5	GSF-W240*215*12.5
245	215	15	GSF-W245*215*15



GSF - W



Bore Dia.	Groove Dia.	Groove Width	Order No.
D H8	d h8	L+0.2	
250	220	15	GSF-W250*220*15
260	230	15	GSF-W260*230*15
270	240	15	GSF-W270*240*15
275	245	15	GSF-W275*245*15
280	250	15	GSF-W280*250*15
285	255	15	GSF-W285*255*15
290	260	15	GSF-W290*260*15
300	270	15	GSF-W300*270*15
305	275	15	GSF-W305*275*15
310	280	15	GSF-W310*280*15
320	290	15	GSF-W320*290*15
325	295	15	GSF-W325*295*15
330	300	15	GSF-W330*300*15
335	305	15	GSF-W335*305*15
340	310	15	GSF-W340*310*15
350	320	15	GSF-W350*320*15
355	325	15	GSF-W355*325*15
360	330	15	GSF-W360*330*15
370	340	15	GSF-W370*340*15
380	350	15	GSF-W380*350*15
390	360	15	GSF-W390*360*15
400	370	15	GSF-W400*370*15
455	420	17.5	GSF-W455*420*17.5
460	425	17.5	GSF-W460*425*17.5
470	435	17.5	GSF-W470*435*17.5
475	440	17.5	GSF-W475*440*17.5
510	475	17.5	GSF-W510*475*17.5
530	495	17.5	GSF-W530*495*17.5
540	505	17.5	GSF-W540*505*17.5
550	515	17.5	GSF-W550*515*17.5
560	525	17.5	GSF-W560*525*17.5
570	535	17.5	GSF-W570*535*17.5
580	545	17.5	GSF-W580*545*17.5
590	555	17.5	GSF-W590*555*17.5
600	565	17.5	GSF-W600*565*17.5
610	575	17.5	GSF-W610*575*17.5
620	585	17.5	GSF-W620*585*17.5
630	595	17.5	GSF-W630*595*17.5
640	605	17.5	GSF-W640*605*17.5

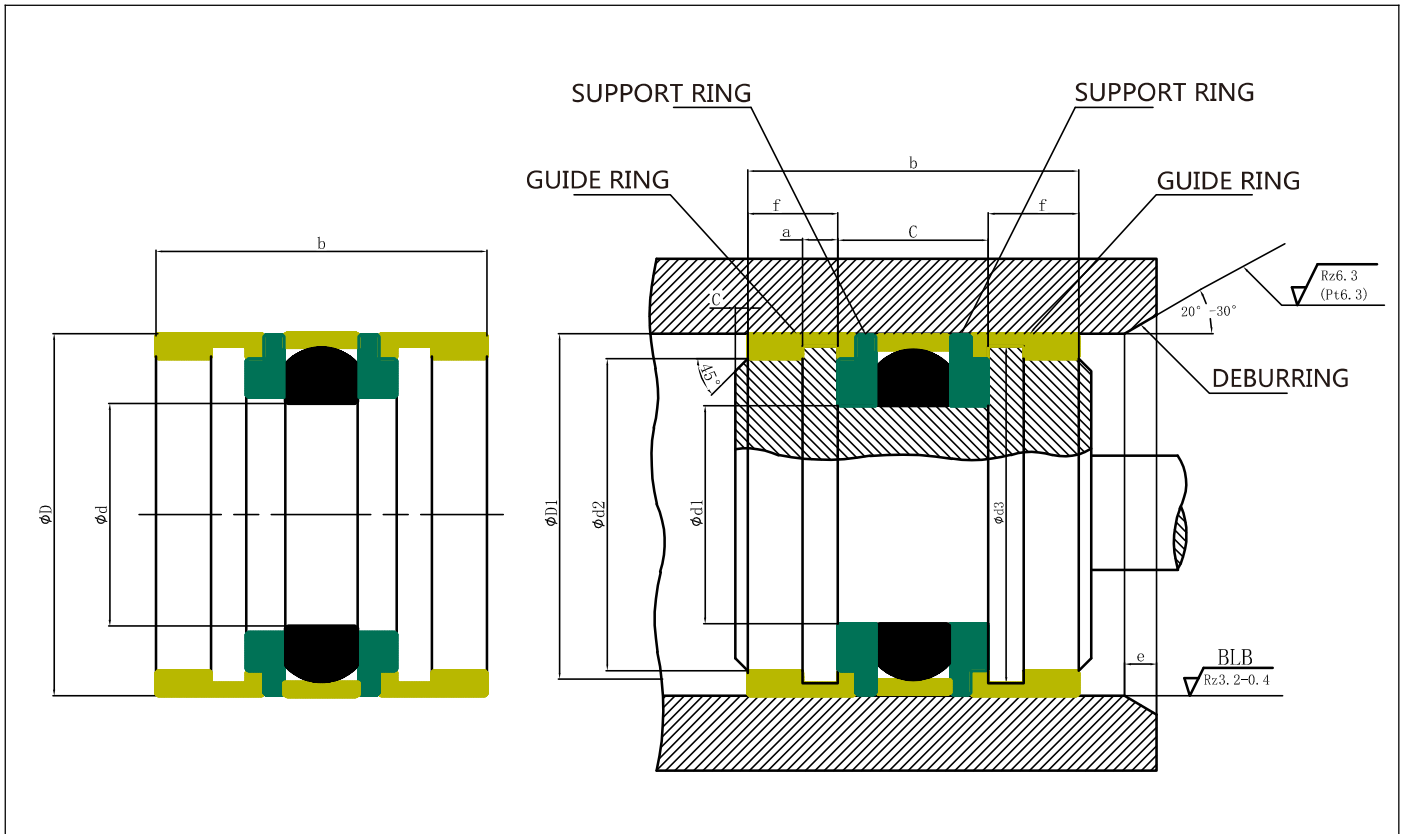


GSF - W

Bore Dia.	Groove Dia.	Groove Width	Order No.
D H8	d h8	L+0.2	
650	615	17.5	GSF-W650*615*17.5
655	620	17.5	GSF-W655*620*17.5
660	625	17.5	GSF-W660*625*17.5
670	635	17.5	GSF-W670*635*17.5
680	645	17.5	GSF-W680*645*17.5
690	655	17.5	GSF-W690*655*17.5
700	665	17.5	GSF-W700*665*17.5
720	685	17.5	GSF-W720*685*17.5
750	715	17.5	GSF-W750*715*17.5
780	740	20	GSF-W780*740*20
800	760	20	GSF-W800*760*20
820	780	20	GSF-W820*780*20
850	810	20	GSF-W850*810*20
880	840	20	GSF-W880*840*20
900	860	20	GSF-W900*860*20
950	910	20	GSF-W950*910*20
980	940	20	GSF-W980*940*20
1000	960	20	GSF-W1000*960*20



1. Installation Recommendation



2. Application and properties

Apply to cylinder piston, consisting of a seal ring, an O-Ring, a pair of retaining rings and a pair of guide sleeves. The seal ring and cylinder bore conforming to be a symmetric section to achieve the sealing performance, with double acting sealing performance.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

Back-up ring: filled PTFE / PA

Guide ring: filled PTFE / PA

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0 - 45MPa	-30°C +200°C	1 m/s	hydraulic oil, water and emulsion



5. Installation Dimensions

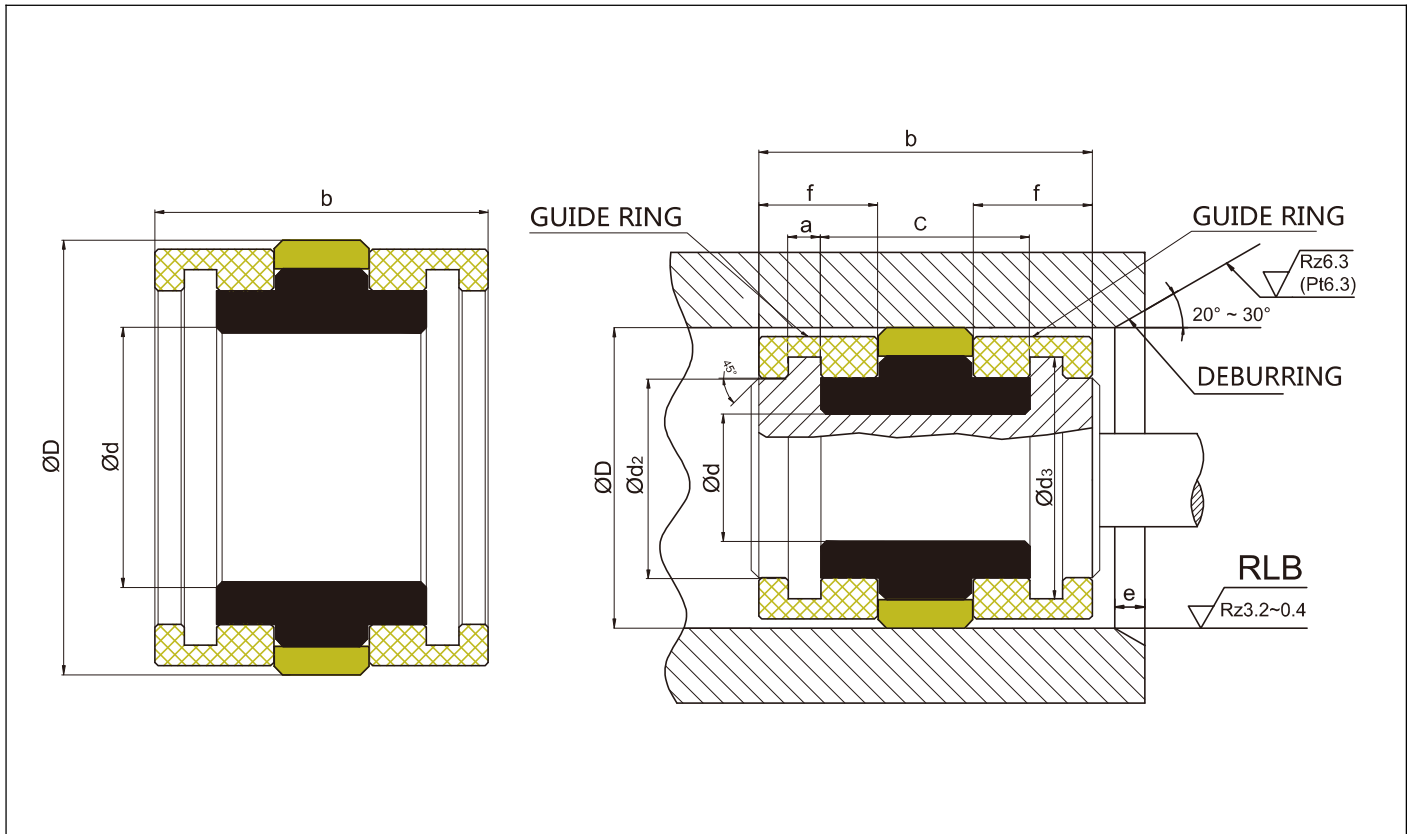
D	d	b	d ₂	d ₃	a	c	f	e	Order No.
40	26	32	32	36	3.5	15.5	8.25	7	DDKK40*26*32
45	31	32	37	41	3	15.5	8.25	7	DDKK45*31*32
50	34	39	42	46	3	20.5	9.25	7	DDKK50*34*39
56	40	39	48	52	3	20.5	9.25	7	DDKK56*40*39
60	44	39	52	56	3	20.5	9.25	7	DDKK60*44*39
63	47	39	55	59	3	20.5	9.25	7	DDKK63*47*39
65	49	39	57	61	3	20.5	9.25	7	DDKK65*49*39
70	54	39	62	66	3	20.5	9.25	7	DDKK70*54*39
75	59	39	67	71	3	20.5	9.25	7	DDKK75*59*39
80	62	43	72	76	3	22.5	10.25	7	DDKK80*62*43
85	67	43	77	81	3	22.5	10.25	7	DDKK85*67*43
90	72	43	82	86	3	22.5	10.25	7	DDKK90*72*43
95	77	43	87	91	3	22.5	10.25	7	DDKK95*77*43
100	82	43	92	96	3	22.5	10.25	7	DDKK100*82*43
105	87	43	97	101	3	22.5	10.25	10	DDKK105*87*43
110	92	43	102	106	3	22.5	10.25	10	DDKK110*92*43
115	97	43	107	111	3	22.5	10.25	10	DDKK115*97*43
120	102	43	112	116	3	22.5	10.25	10	DDKK120*102*43
125	103	53	115	121	4	26.5	13.25	10	DDKK125*103*53
130	108	53	120	126	4	26.5	13.25	10	DDKK130*108*53
140	118	53	130	136	4	26.5	13.25	10	DDKK140*118*53
150	128	53	140	146	4	26.5	13.25	10	DDKK150*128*53
160	138	53	150	156	4	26.5	13.25	10	DDKK160*138*53
165	143	57	155	161	6	26.5	15.25	10	DDKK165*143*57
170	148	57	160	166	6	26.5	15.25	10	DDKK170*148*57
180	158	57	170	176	6	26.5	15.25	10	DDKK180*158*57
190	165	64	180	186	4.5	31.5	16.25	10	DDKK190*165*64
195	170	64	185	191	4.5	31.5	16.25	10	DDKK195*170*64
200	175	64	190	196	4.5	31.5	16.25	10	DDKK200*175*64
210	185	71	200	206	8	31.5	19.75	12	DDKK210*185*71
220	195	71	210	216	8	31.5	19.75	12	DDKK220*195*71
225	200	71	215	221	8	31.5	19.75	12	DDKK225*200*71
230	205	85	220	226	15	31.5	26.75	12	DDKK230*205*85
240	215	85	230	236	15	31.5	26.75	12	DDKK240*215*85
250	225	85	240	246	15	31.5	26.75	12	DDKK250*225*85
255	230	85	245	251	15	31.5	26.75	12	DDKK255*230*85
270	245	85	260	266	15	31.5	26.75	12	DDKK270*245*85
275	250	85	265	271	15	31.5	26.75	12	DDKK275*250*85
280	255	85	270	276	15	31.5	26.75	12	DDKK280*255*85



D	d	b	d ₂	d ₃	a	c	f	e	Order No.
290	265	85	280	286	15	31.5	26.75	12	DDKK290*265*85
300	275	85	290	296	15	31.5	26.75	12	DDKK300*275*85
310	280	80	298	304	8.5	36.5	21.75	15	DDKK310*280*80
320	290	80	308	314	8.5	36.5	21.75	15	DDKK320*290*80
330	300	80	318	324	8.5	36.5	21.75	15	DDKK330*300*80
340	310	80	328	334	8.5	36.5	21.75	15	DDKK340*310*80
350	320	80	338	344	8.5	36.5	21.75	15	DDKK350*320*80
360	330	80	348	354	8.5	36.5	21.75	15	DDKK360*330*80
380	350	80	368	374	8.5	36.5	21.75	15	DDKK380*350*80
400	370	80	388	394	8.5	36.5	21.75	15	DDKK400*370*80
420	390	80	408	414	8.5	36.5	21.75	15	DDKK420*390*80
450	420	80	438	444	8.5	36.5	21.75	15	DDKK450*420*80



1. Installation Recommendation



2. Application and properties

Apply to cylinder piston, Consisting of a seal ring, an O-Ring, a pair of retaining rings and a pair of guide sleeves. The seal ring and cylinder bore conforming to be a symmetric section to achieve the sealing performance, with double acting sealing performance.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

Guide ring: filled PTFE / PA

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0 - 45MPa	-30°C +200°C	1 m/s	hydraulic oil, water and emulsion



5. Installation Dimensions

D	d	b	d ₂	d ₃	a	c	f	e	Order No.
40	26	30	32	36	3.5	15.5	7.25	7	DKDF40*26*30
45	31	30	37	41	3	15.5	7.25	7	DKDF45*31*30
50	34	32	42	46	3	20.5	5.8	7	DKDF50*34*32
56	40	32	48	52	3	20.5	5.8	7	DKDF56*40*32
60	44	32	52	56	3	20.5	5.8	7	DKDF60*44*32
63	47	32	55	59	3	20.5	5.8	7	DKDF63*47*32
65	49	32	57	61	3	20.5	5.8	7	DKDF65*49*32
70	54	32	62	66	3	20.5	5.8	7	DKDF70*54*32
75	59	32	67	71	3	20.5	5.8	7	DKDF75*59*32
80	62	36	72	76	3	22.5	6.8	7	DKDF80*62*36
85	67	36	77	81	3	22.5	6.8	7	DKDF85*67*36
90	72	36	82	86	3	22.5	6.8	7	DKDF90*72*36
95	77	36	87	91	3	22.5	6.8	7	DKDF95*77*36
100	82	36	92	96	3	22.5	6.8	7	DKDF100*82*36
105	87	36	97	101	3	22.5	6.8	10	DKDF105*87*36
110	92	36	102	106	3	22.5	6.8	10	DKDF110*92*36
115	97	36	107	111	3	22.5	6.8	10	DKDF115*97*36
120	102	36	112	116	3	22.5	6.8	10	DKDF120*102*36
125	103	43	115	121	4	26.5	8.3	10	DKDF125*103*43
130	108	43	120	126	4	26.5	8.3	10	DKDF130*108*43
135	113	43	125	131	4	26.5	8.3	10	DKDF135*113*43
140	118	43	130	136	4	26.5	8.3	10	DKDF140*118*43
145	123	43	135	141	4	26.5	8.3	10	DKDF145*123*43
150	128	43	140	146	4	26.5	8.3	10	DKDF150*128*43
155	133	43	145	151	4	26.5	8.3	10	DKDF155*133*43
160	138	43	150	156	4	26.5	8.3	10	DKDF160*138*43
170	148	48	160	166	6	26.5	10.8	10	DKDF170*148*48
180	158	48	170	176	6	26.5	10.8	10	DKDF180*158*48
190	165	48	180	186	4.5	31.5	8.3	10	DKDF190*165*48
195	170	48	185	191	4.5	31.5	8.3	10	DKDF195*170*48
200	175	48	190	196	4.5	31.5	8.3	10	DKDF200*175*48
210	185	58	200	206	8	31.5	13.3	12	DKDF210*185*58
220	195	58	210	216	8	31.5	13.3	12	DKDF220*195*58
235	210	74	225	231	15	31.5	21.3	12	DKDF235*210*74
240	215	74	230	236	15	31.5	21.3	12	DKDF240*215*74
250	225	74	240	246	15	31.5	21.3	12	DKDF250*225*74
265	240	74	255	261	15	31.5	21.3	12	DKDF265*240*74
270	245	74	260	266	15	31.5	21.3	12	DKDF270*245*74
275	250	74	265	271	15	31.5	21.3	12	DKDF275*250*74

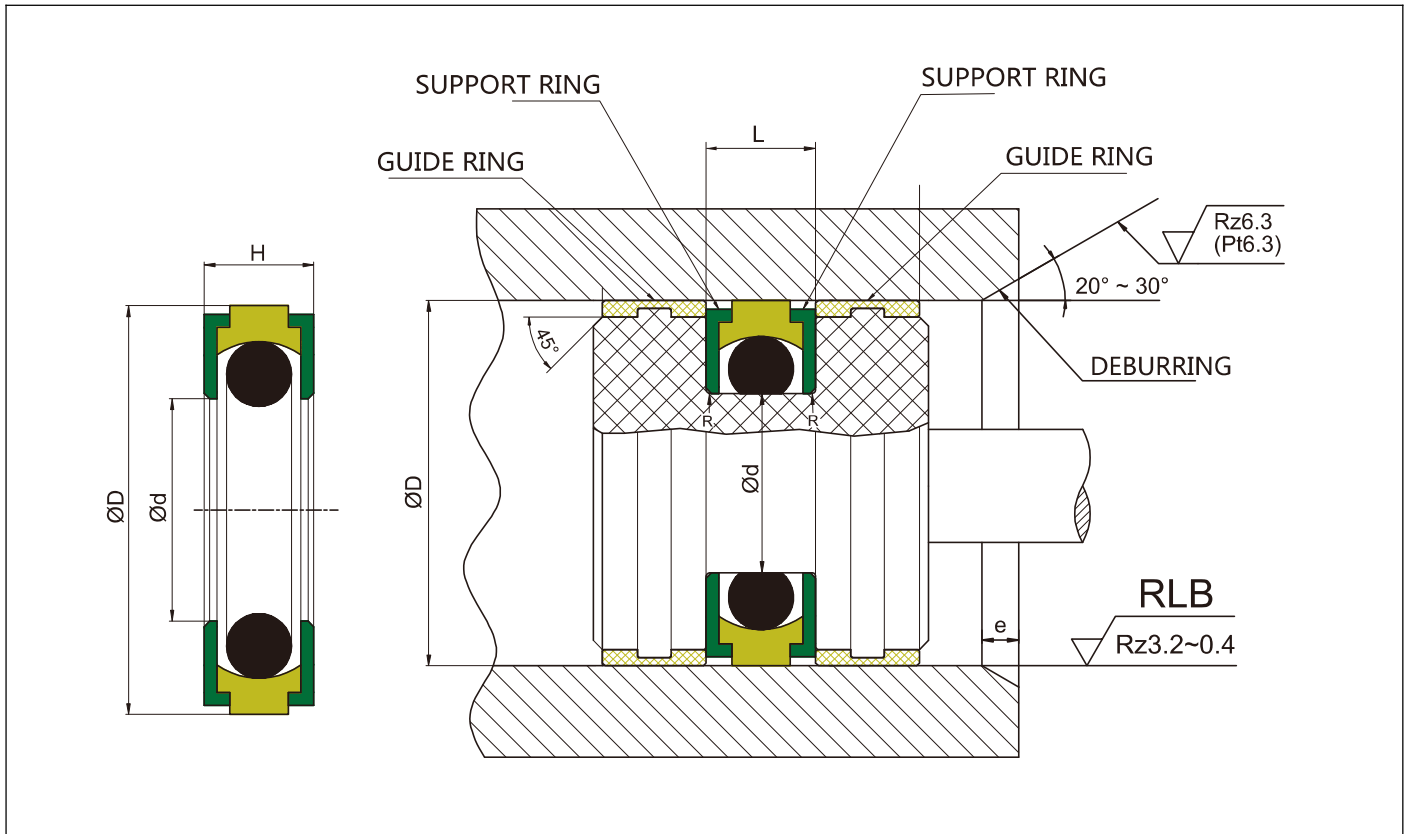


DKDF

D	d	b	d ₂	d ₃	a	c	f	e	Order No.
280	255	74	270	276	15	31.5	21.3	12	DKDF280*255*74
290	265	74	280	286	15	31.5	21.3	12	DKDF290*265*74
300	275	74	290	296	15	31.5	21.3	12	DKDF300*275*74



1. Installation Recommendation



2. Installation Sizes

D H8	d h9	L+0.2	H
<96	D-16.8	8	7.5
96-190	D-20	10	9.5
191-380	D-28	13	12.5
381-1000	D-36	20	19.5

3. Application and properties

Apply to hydraulic piston sealing, Consisting of a seal ring, two L-shaped POM back-up rings and an acting force O-Ring. The back-up ring acts as a support and guide to ensure a tight sealing environment. High wear resistance, low friction, no crawling phenomenon, easy installation.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

L-Ring: POM / PA



5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0 - 45MPa	-30℃ +100℃	1 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

D H8	d h9	H	L	e	Order No.
40	23.2	7.5	8	7	DGDA40*23.2*7.5
45	28.2	7.5	8	7	DGDA45*28.2*7.5
50	33.2	7.5	8	7	DGDA50*33.2*7.5
56	39.2	7.5	8	7	DGDA56*39.2*7.5
63	46.2	7.5	8	7	DGDA63*46.2*7.5
65	48.2	7.5	8	7	DGDA65*48.2*7.5
70	53.2	7.5	8	7	DGDA70*53.2*7.5
75	58.2	7.5	8	7	DGDA75*58.2*7.5
80	63.2	7.5	8	7	DGDA80*63.2*7.5
85	68.2	7.5	8	7	DGDA85*68.2*7.5
90	73.2	7.5	8	7	DGDA90*73.2*7.5
95	78.2	7.5	8	7	DGDA95*78.2*7.5
100	80	9.5	10	10	DGDA100*80*9.5
105	85	9.5	10	10	DGDA105*85*9.5
110	90	9.5	10	10	DGDA110*90*9.5
115	95	9.5	10	10	DGDA115*95*9.5
120	100	9.5	10	10	DGDA120*100*9.5
125	105	9.5	10	10	DGDA125*105*9.5
130	110	9.5	10	10	DGDA130*110*9.5
135	115	9.5	10	10	DGDA135*115*9.5
140	120	9.5	10	10	DGDA140*120*9.5
145	125	9.5	10	10	DGDA145*125*9.5
150	130	9.5	10	10	DGDA150*130*9.5
155	135	9.5	10	10	DGDA155*135*9.5
160	140	9.5	10	10	DGDA160*140*9.5
170	150	9.5	10	10	DGDA170*150*9.5
180	160	9.5	10	10	DGDA180*160*9.5
190	170	9.5	10	10	DGDA190*170*9.5
200	172	12.5	13	12	DGDA200*172*12.5
210	182	12.5	13	12	DGDA210*182*12.5
220	192	12.5	13	12	DGDA220*192*12.5
225	197	12.5	13	12	DGDA225*197*12.5
235	207	12.5	13	12	DGDA235*207*12.5

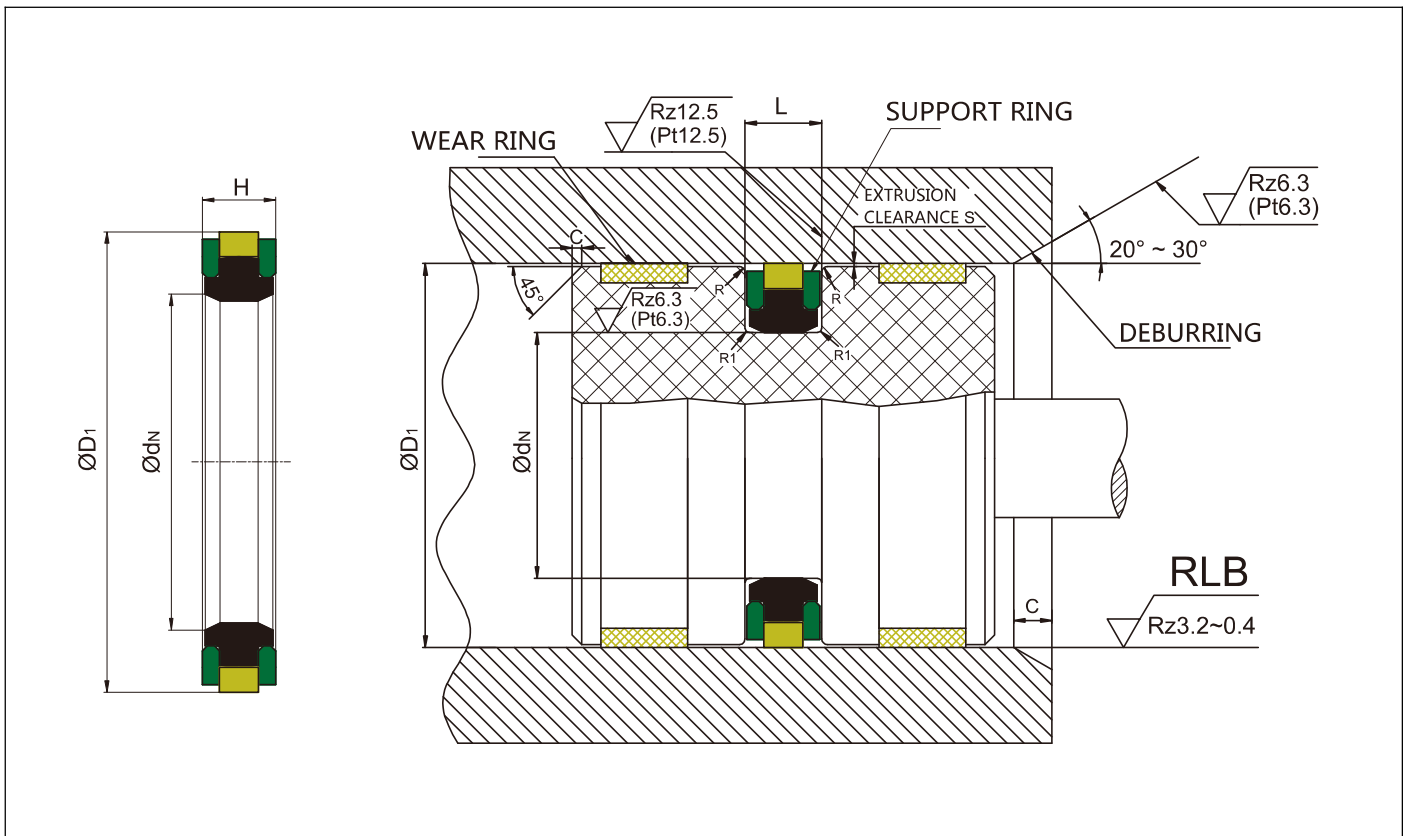


D G D A

D H8	d h9	H	L	e	Order No.
240	212	12.5	13	12	DGDA240*212*12.5
250	222	12.5	13	12	DGDA250*222*12.5
265	237	12.5	13	12	DGDA265*237*12.5
275	247	12.5	13	12	DGDA275*247*12.5
280	252	12.5	13	12	DGDA280*252*12.5
290	262	12.5	13	12	DGDA290*262*12.5
300	272	12.5	13	12	DGDA300*272*12.5
310	282	12.5	13	15	DGDA310*282*12.5
320	292	12.5	13	15	DGDA320*292*12.5
340	312	12.5	13	15	DGDA340*312*12.5
350	322	12.5	13	15	DGDA350*322*12.5
360	332	12.5	13	15	DGDA360*332*12.5
380	352	12.5	13	15	DGDA380*352*12.5
400	364	19.5	20	15	DGDA400*364*19.5
420	384	19.5	20	15	DGDA420*384*19.5
425	389	19.5	20	15	DGDA425*389*19.5
450	414	19.5	20	15	DGDA450*414*19.5
480	444	19.5	20	15	DGDA480*444*19.5
500	464	19.5	20	15	DGDA500*464*19.5
560	524	19.5	20	18	DGDA560*524*19.5
600	564	19.5	20	18	DGDA600*564*19.5
630	594	19.5	20	18	DGDA630*594*19.5
650	614	19.5	20	18	DGDA650*614*19.5
700	664	19.5	20	18	DGDA700*664*19.5
720	684	19.5	20	18	DGDA720*684*19.5
750	714	19.5	20	18	DGDA750*714*19.5
780	744	19.5	20	18	DGDA780*744*19.5
800	764	19.5	20	18	DGDA800*764*19.5
850	814	19.5	20	18	DGDA850*814*19.5
900	864	19.5	20	18	DGDA900*864*19.5
950	914	19.5	20	18	DGDA950*914*19.5
1000	964	19.5	20	18	DGDA1000*964*19.5



1. Installation Recommendation



2. Application and properties

Suitable for long stroke, a wide range of fluids and high temperature occasions. The application of heavy duty double acting piston sealing under high pressure conditions is excellent. Applicable to larger piston clearance, it has good leakage control, extrusion resistance and wear resistance in heavy duty and construction machinery cylinder piston sealing system. Good static sealing property, simple groove structure, larger extrusion clearances can be allowed, be able to work in dusty condition.

3. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

Back-up ring: POM / PA

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
50 - 350mm	0 - 50MPa	-30°C +100°C	1.5 m/s	hydraulic oil, flame retardant liquid, water and others



5. Installation Dimensions

Nominal Size of Packing, and Housing dimensions			L+0.2	Order No.
D ₁	d _N	H		
50	36	8.5	9	SPGW50*36*8.5
55	41	8.5	9	SPGW55*41*8.5
60	46	8.5	9	SPGW60*46*8.5
63	48	10.5	11	SPGW63*48*10.5
65	50	10.5	11	SPGW65*50*10.5
70	55	10.5	11	SPGW70*55*10.5
75	60	10.5	11	SPGW75*60*10.5
80	65	10.5	11	SPGW80*65*10.5
85	70	10.5	11	SPGW85*70*10.5
90	75	10.5	11	SPGW90*75*10.5
95	80	10.5	11	SPGW95*80*10.5
100	85	12	12.5	SPGW100*85*12
105	90	12	12.5	SPGW105*90*12
110	95	12	12.5	SPGW110*95*12
115	100	12	12.5	SPGW115*100*12
120	105	12	12.5	SPGW120*105*12
125	102	15.5	16	SPGW125*102*15.5
130	107	15.5	16	SPGW130*107*15.5
135	112	15.5	16	SPGW135*112*15.5
140	117	15.5	16	SPGW140*117*15.5
145	122	15.5	16	SPGW145*122*15.5
150	127	15.5	16	SPGW150*127*15.5
155	132	15.5	16	SPGW155*132*15.5
160	137	15.5	16	SPGW160*137*15.5
165	142	15.5	16	SPGW165*142*15.5
170	147	15.5	16	SPGW170*147*15.5
180	157	15.5	16	SPGW180*157*15.5
185	162	15.5	16	SPGW185*162*15.5
190	167	15.5	16	SPGW190*167*15.5
200	177	15.5	16	SPGW200*177*15.5
210	187	15.5	16	SPGW210*187*15.5
220	197	15.5	16	SPGW220*197*15.5
225	202	17	17.5	SPGW225*202*15.5
230	207	17	17.5	SPGW230*207*15.5
240	217	17	17.5	SPGW240*217*15.5
250	222	17	17.5	SPGW250*222*17
260	232	17	17.5	SPGW260*232*17
270	242	17	17.5	SPGW270*242*17
280	252	17	17.5	SPGW280*252*17

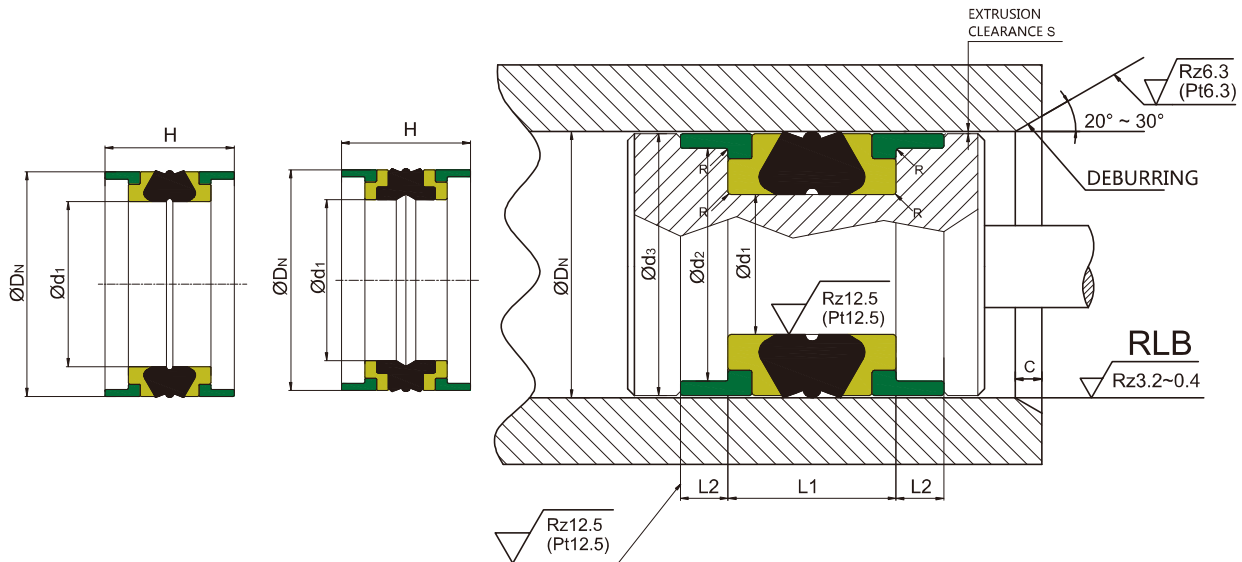


SPGW

Nominal Size of Packing, and Housing dimensions			L+0.2	Order No.
D ₁	d _N	H		
300	272	17	17.5	SPGW300*272*17
320	292	17	17.5	SPGW320*292*17
350	322	17	17.5	SPGW350*322*17



1. Installation Recommendation



2. Application and properties

TPM/DBM is a double acting sealing and guiding element, Consisting of an elastomer, two back-up rings and two guide rings. Dynamic and static properties of the elastomer play a good sealing role, The back-up ring prevents the elastomer from being squeezed into the sealing gap, the function of the guide ring is to guide the piston in the cylinder and absorb the radial force. The sealing is mainly used for piston and hydraulic cylinder, such as bulldozers, excavators, loaders, hydraulic gates and agricultural machinery.

3. Standard materials

Guide ring: POM

Back-up ring: TPU polymer

Elastomer: NBR

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
20-250mm	0-35MPa	-30°C +120°C	0.5 m/s	petroleum base hydraulic oil, nonflammable hydraulic oil, environmental protection hydraulic oil



TPM / DBM

5. Installation Dimensions

Cylinder Dia.	Groove Size					Order No.
D _N H9	d1	L1 +0.2	d ₂ h9	d ₃ h11	L2 +0.1	
20	11	13.5	17	19	2.1	TPM20*11*13.5*2.1
22	13	13.5	19	21	2.1	TPM22*13*13.5*2.1
25	15	12	21	23	4	TPM25*15*12*4
25	15	12.5	22	24	4	TPM25*15*12.5*4
25	15	16.4	21.45	23.5	6.35	TPM25*15*16.4*6.35
25	16	13.5	22	24	2.1	TPM25*16*13.5*2.1
28	19	13.5	25	27	2.1	TPM28*19*13.5*2.1
30	17	15.4	26.5	28.5	6.35	TPM30*17*15.4*6.35
30	21	13.5	27	29	2.1	TPM30*21*13.5*2.1
32	22	15.5	28	31	2.6	TPM32*22*15.5*2.6
32	22	16.4	28.5	30.5	6.35	TPM32*22*16.4*6.35
35	25	15.5	31	34	2.6	TPM35*25*15.5*2.6
35	25	16.4	31.4	33.5	6.35	TPM35*25*16.4*6.35
40	24	18.4	35.4	38.5	6.35	TPM40*24*18.4*6.35
40	26	15.5	36	39	2.6	TPM40*26*15.5*2.6
40	30	12.5	36	38	4	TPM40*30*12.5*4
40	30	12.5	37	39	4	TPM40*30*12.5*4
40	30	16.4	35.4	38.5	6.35	TPM40*30*16.4*6.35
42	28	15.5	38	41	2.6	TPM42*28*15.5*2.6
45	29	18.4	40.4	43.5	6.35	TPM45*29*18.4*6.35
45	31	15.5	41	44	2.6	TPM45*31*15.5*2.6
45	35	16.4	40.4	43.5	6.35	TPM45*35*16.4*6.35
50	34	18.4	45.4	48.5	6.35	TPM50*34*18.4*6.35
50	34	20.5	46	49	3.1	TPM50*34*20.5*3.1
55	39	18.4	50.36	53.5	6.35	TPM55*39*18.4*6.35
55	39	20.5	51	54	3.1	TPM55*39*20.5*3.1
56	40	20.5	52	55	3.1	TPM56*40*20.5*3.1
60	44	18.4	55.4	58.5	6.35	TPM60*44*18.4*6.35
60	44	20.5	56	59	3.1	TPM60*44*20.5*3.1
63	47	18.4	58.4	61.5	6.35	TPM63*47*18.4*6.35
63	47	19.4	58.4	61.5	6.35	TPM63*47*19.4*6.35
63	47	20.5	59	62	3.1	TPM63*47*20.5*3.1
65	49	20.5	61	64	3.1	TPM65*49*20.5*3.1
65	50	18.4	60.4	63.5	6.35	TPM65*50*18.4*6.35
70	50	22.4	64.2	68.3	6.35	TPM70*50*22.4*6.35
70	54	20.5	66	69	3.1	TPM70*54*20.5*3.1



Cylinder Dia.	Groove Size					Order No.
	D _N H9	d1	L1 +0.2	d ₂ h9	d ₃ h11	
75	55	22.4	69.2	73.3	6.35	TPM75*55*22.4*6.35
75	59	20.5	71	74	3.1	TPM75*59*20.5*3.1
80	60	22.4	74.15	78.3	6.35	TPM80*60*22.4*6.35
80	62	22.5	76	79	3.6	TPM80*62*22.5*3.6
85	65	22.4	79.15	83.3	6.35	TPM85*65*22.4*6.35
90	70	22.4	84.15	88.3	6.35	TPM90*70*22.4*6.35
90	72	22.5	86	89	3.6	TPM90*72*22.5*3.6
95	75	22.4	89.15	93.3	6.35	TPM95*75*22.4*6.35
100	75	22.4	93.15	98	6.35	TPM100*75*22.4*6.35
100	82	22.5	96	99	3.6	TPM100*82*22.5*3.6
105	80	22.4	98.1	103	6.35	TPM105*80*22.4*6.35
110	85	22.4	103.1	108	6.35	TPM110*85*22.4*6.35
110	92	22.5	106	109	3.6	TPM110*92*22.5*3.6
115	90	22.4	108.1	113	6.35	TPM115*90*22.4*6.35
115	97	22.5	111	114	3.6	TPM115*97*22.5*3.6
120	95	22.4	113.1	118.1	6.35	TPM120*95*22.4*6.35
125	100	22.4	118.1	123	6.35	TPM125*100*22.4*6.35
125	103	25.4	121	124	5.1	TPM125*103*25.4*5.1
130	105	22.4	123.1	128	6.35	TPM130*105*22.4*6.35
130	105	22.4	122.6	127.5	9.5	TPM130*105*22.4*9.5
133	115	22.4	125.6	130.5	9.52	TPM133*115*22.4*9.52
135	110	25.4	128.1	133	6.35	TPM135*110*25.4*6.35
135	110	25.4	127.6	132.5	9.5	TPM135*110*25.4*9.5
140	115	25.4	133	138	6.35	TPM140*115*25.4*6.35
140	115	25.4	132.6	137.5	9.5	TPM140*115*25.4*9.5
140	118	26.5	136	139	5.1	TPM140*118*26.5*5.1
145	120	25.4	138.3	142.95	6.35	TPM145*120*25.4*6.35
145	120	25.4	137.6	142.5	9.5	TPM145*120*25.4*9.5
150	125	25.4	142.6	147.5	9.5	TPM150*125*25.4*9.5
150	125	25.4	143	148	6.35	TPM150*125*25.4*6.35
150	128	26.5	146	149	5.1	TPM150*128*26.5*5.1
152.4	127	31.75	145	149.91	9.5	TPM152.4*127*31.75*9.5
155	130	25.4	147.6	152.5	9.5	TPM155*130*25.4*9.5
155	130	25.4	148	153	6.35	TPM155*130*25.4*6.35
160	130	25.4	153	157.5	6.35	TPM160*130*25.4*6.35
160	130	25.4	152.6	157.5	9.5	TPM160*130*25.4*9.5

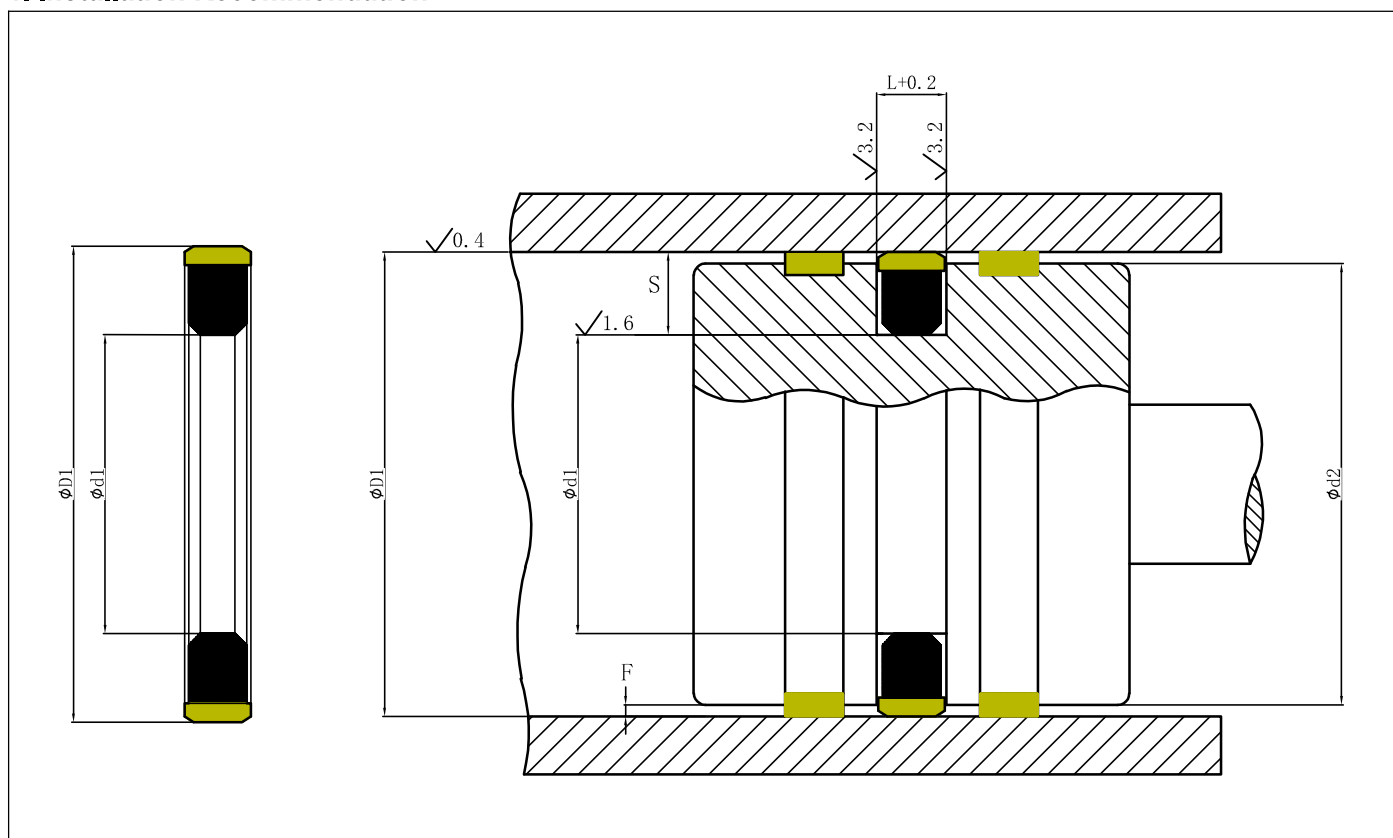


TPM / DBM

Cylinder Dia.	Groove Size					Order No.
	D _N H9	d1	L1 +0.2	d ₂ h9	d ₃ h11	L2 +0.1
160	135	25.4	152.6	157.5	9.5	TPM160*135*25.4*9.5
160	138	26.5	156	159	9.1	TPM160*138*26.5*9.1
165	140	25.4	157.6	162.5	9.5	TPM165*140*25.4*9.5
170	145	25.4	161.7	167.1	12.7	TPM170*145*25.4*12.7
170	148	26.5	166	169	5.1	TPM170*148*26.5*5.1
175	150	25.4	166.7	172.1	12.7	TPM175*150*25.4*12.7
180	150	35.4	172.95	177.87	6.35	TPM180*150*35.4*6.35
180	155	25.4	171.7	177.1	12.7	TPM180*155*25.4*12.7
185	160	25.4	176.7	182.1	12.7	TPM185*160*25.4*12.7
190	165	25.4	181.7	187	12.7	TPM190*165*25.4*12.7
195	170	25.4	186.7	192	12.7	TPM195*170*25.4*12.7
200	175	25.4	191.6	197	12.7	TPM200*175*25.4*12.7
200	175	31.5	196	199	6.6	TPM200*175*31.5*6.6
210	185	25.4	201.6	207	12.7	TPM210*185*25.4*12.7
220	190	25.4	212.7	217.9	6.35	TPM220*190*25.4*6.35
220	195	25.4	211.6	217	12.7	TPM220*195*25.4*12.7
230	205	25.4	221.6	227	12.7	TPM230*205*25.4*12.7
240	215	25.4	231.6	237	12.7	TPM240*215*25.4*12.7
250	220	35.4	242.9	247.85	6.35	TPM250*220*35.4*6.35
250	225	25.4	241.6	247	12.7	TPM250*225*25.4*12.7



1. Installation Recommendation



2. Installation Sizes

The installation groove must be carefully deburred and cleaned. The cylinder bore must have a leading edge chamfer. Profile OK can be snapped into closed grooves.

3. Application and properties

Extreme wear resistance, easy installation on single-part piston without assembly aids due to the split design of the sealing ring. Assembly on one-part piston is possible. Insensitive to extreme pressure peaks. Extreme high pressure resistance. High pressure and large gaps due to the special compound properties of the seal ring. Dimensions according to ISO 7425-1. Short axial assembly length. Installation in closed and undercut housings. Additional sizes of machined products available on short notice.

4. Standard materials

Sealing ring: filled modified thermoplast

O-ring: NBR



OK

5. Working Conditions

Working Conditions			
Diameter Range	Pressure Range	Temperature Range	Speed
25 - 480mm	0 - 80MPa	-30°C +110°C	1 m/s

6. Installation Dimensions

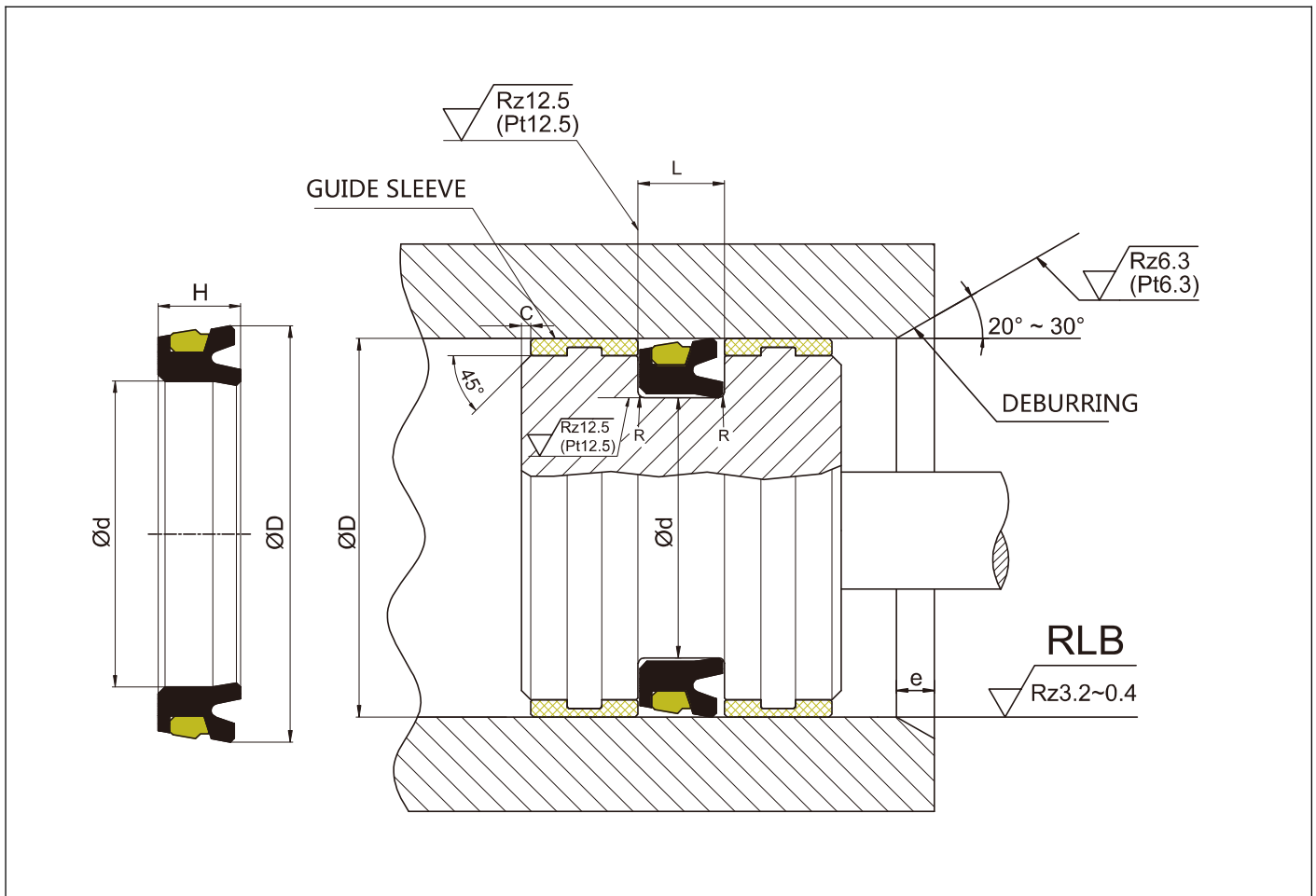
D ₁	d ₁	L	Order No.
25	16	4.2	OK25*16*4.2
32	21	4.2	OK32*21*4.2
40	26.3	5.8	OK40*26.3*5.8
40	29	4.2	OK40*29*4.2
50	34.5	6.3	OK50*34.5*6.3
50	36.3	5.8	OK50*36.3*5.8
50	37	8	OK50*37*8
50	39	4.2	OK50*39*4.2
55	44	4.2	OK55*44*4.2
60	41.7	7	OK60*41.7*7
60	49	4.2	OK60*49*4.2
63	44.7	7	OK63*44.7*7
63	47.5	6.3	OK63*47.5*6.3
63	52	4.2	OK63*52*4.2
70	51.7	7	OK70*51.7*7
70	54.5	6.3	OK70*54.5*6.3
70	59	4.2	OK70*59*4.2
75	54	8	OK75*54*8
75	59.5	6.3	OK75*59.5*6.3
80	59	8	OK80*59*8
80	64.5	6.3	OK80*64.5*6.3
85	64	8	OK85*64*8
90	69	8	OK90*69*8
90	74.5	6.3	OK90*74.5*6.3
95	74	8	OK95*74*8
100	79	8	OK100*79*8
100	84.5	6.3	OK100*84.5*6.3
105	84	8	OK105*84*8
110	89	8	OK110*89*8
110	94.5	6.3	OK110*94.5*6.3
115	94	8	OK115*94*8
115	100	8	OK115*100*8
120	99	8	OK120*99*8



D ₁	d ₁	L	Order No.
125	104	8	OK125*104*8
125	109.5	6.3	OK125*109.5*6.3
130	109	8	OK130*109*8
130	114.5	6.3	OK130*114.5*6.3
130	115	8	OK130*115*8
135	114	8	OK135*114*8
135	119.5	6.3	OK135*119.5*6.3
140	119	8	OK140*119*8
140	125	8	OK140*125*8
145	124	8	OK145*124*8
150	129	8	OK150*129*8
150	135	8	OK150*135*8
152.4	131.5	8	OK152.4*131.5*8
160	139	8	OK160*139*8
160	148	8	OK160*148*8
165	144	8	OK165*144*8
170	149	8	OK170*149*8
175	154	8	OK175*154*8
180	159	8	OK180*159*8
190	169	8	OK190*169*8
200	179	8	OK200*179*8
210	189	8	OK210*189*8
220	199	8	OK220*199*8
220	205	8	OK220*205*8
230	209	8	OK230*209*8
240	225	8	OK240*225*8
250	229	8	OK250*229*8
260	239	8	OK260*239*8
270	249	8	OK270*249*8
280	255.5	8	OK280*255.5*8
290	271	9.5	OK290*271*9.5
300	272	9.5	OK300*272*9.5
320	292	9.5	OK320*292*9.5
330	302	9.5	OK330*302*9.5
350	322	9.5	OK350*322*9.5
370	342	9.5	OK370*342*9.5
420	392	9.5	OK420*392*9.5
450	422	9.5	OK450*422*9.5
480	452	9.5	OK480*452*9.5



1. Installation Recommendation



2. Application and properties

Apply to the hydraulic cylinder of piston sealing, generally used in conjunction with the guide sleeve. The seal ring and piston conforming to be a symmetric section to achieve the sealing performance. The Non-standard Y-ring has the function of sealing and provides the elastic force to the sealing ring and compensates for the abrasion. Very high pressure stability under pressure and harsh conditions, high wear resistance, low friction, no crawling phenomenon.

3. Standard materials

Sealing ring: filled PTFE

Y-Ring: NBR / PU

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0 - 45MPa	-30℃ +100℃	1 m/s	hydraulic oil, flame retardant liquid, water and others



5. Installation Dimensions

D H8	d h9	H	L+0.2	e	Order No.
40	32	7	7.5	6	DDA40*32*7.5
43	35	7	7.5	6	DDA43*35*7.5
44	36	7	7.5	6	DDA44*36*7.5
45	37	7	7.5	6	DDA45*37*7.5
48	40	7	7.5	6	DDA48*40*7.5
50	42	7	7.5	6	DDA50*42*7.5
55	45	7	7.5	6	DDA55*45*7.5
60	45	12	13	6	DDA60*45*13
63	53	8	8.5	6	DDA63*53*8.5
63	48	12	13	6	DDA63*48*13
65	50	12	8.5	6	DDA65*50*8.5
65	50	12	13	6	DDA65*50*13
70	55	12	13	6	DDA70*55*13
75	60	12	13	6	DDA75*60*13
78	63	12	13	6	DDA78*63*13
80	65	12	13	6	DDA80*65*13
85	70	12	13	6	DDA85*70*13
87	72	12	13	6	DDA87*72*13
90	75	12	13	7	DDA90*75*13
95	80	12	13	7	DDA95*80*13
100	85	12	13	7	DDA100*85*13
105	90	12	13	7	DDA105*90*13
110	95	12	13	7	DDA110*95*13
115	100	12	13	7	DDA115*100*13
120	105	12	13	7	DDA120*105*13
125	110	12	13	7	DDA125*110*13
130	115	12	13	7	DDA130*115*13
140	120	12	13	7	DDA140*120*13
145	125	12	13	10	DDA145*125*13
150	130	12	13	10	DDA150*130*13
160	140	12	13	10	DDA160*140*13
160	140	16	17	10	DDA160*140*17
170	150	16	17	10	DDA170*150*17
180	160	16	17	10	DDA180*160*17
185	165	16	17	10	DDA185*165*17
190	170	16	17	10	DDA190*170*17
200	180	16	17	10	DDA200*180*17
210	190	16	17	10	DDA210*190*17
220	200	16	17	10	DDA220*200*17

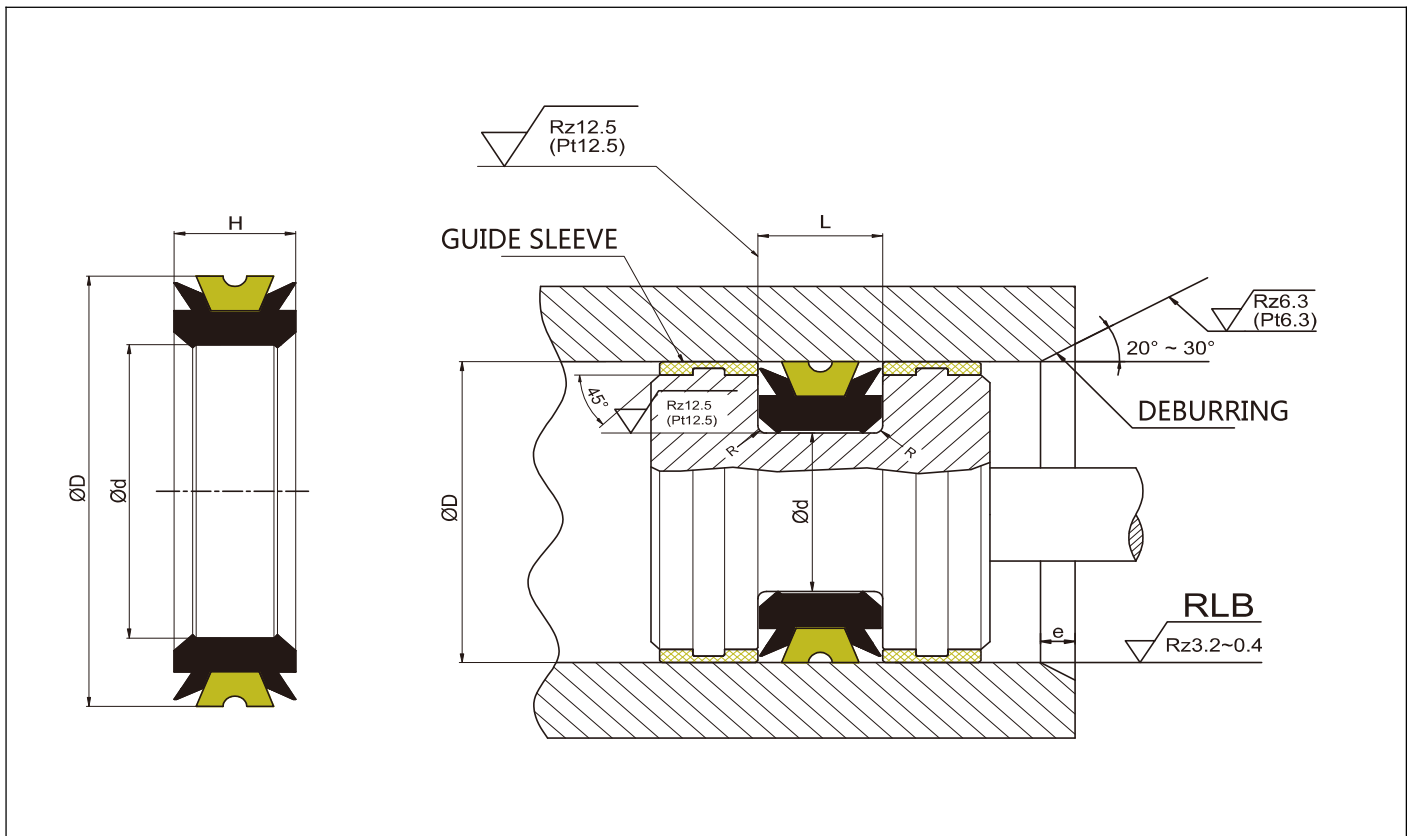


DDA

D H8	d h9	H	L+0.2	e	Order No.
240	220	16	17	10	DDA240*220*17
245	225	16	17	10	DDA245*225*17
250	230	16	17	10	DDA250*230*17
260	240	16	17	10	DDA260*240*17
270	250	16	17	10	DDA270*250*17
280	260	16	17	10	DDA280*260*17
300	280	16	17	10	DDA300*280*17
310	290	16	17	10	DDA310*290*17
320	300	16	17	10	DDA320*300*17
350	320	20	21	15	DDA350*320*21
370	345	16	17	15	DDA370*345*17
380	350	20	21	15	DDA380*350*21
390	360	20	21	15	DDA390*360*21
410	380	20	21	15	DDA410*380*21
430	400	20	21	15	DDA430*400*21
450	420	20	21	15	DDA450*420*21
455	425	20	21	15	DDA455*425*21
480	450	20	21	15	DDA480*450*21
500	475	16	17	15	DDA500*475*17
510	480	20	21	15	DDA510*480*21
540	510	20	21	15	DDA540*510*21
590	560	20	21	15	DDA590*560*21
600	570	20	21	15	DDA600*570*21
640	610	20	21	15	DDA640*610*21
670	640	20	21	15	DDA670*640*21



1. Installation Recommendation



2. Application and properties

Suitable for seals of pistons and plungers, tandem seals for a variety of liquid applications are internal seals. Before installation, the sealing lip is protruded outwards, and the cylinder liner is pressed tightly after installation to provide elasticity for the wear ring, excellent sealing results can be achieved even in the absence of pressure. It can separate the liquid on both sides of the sealing ring, so it is also suitable for the sealing of the oil chamber, and the invasion of other liquids can be prevented. High wear resistance, low friction, no crawling phenomenon.

3. Standard materials

Sealing ring: filled PTFE

Elastomer: NBR / PU

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1600mm	0 - 25MPa	-30°C +100°C	1 m/s	hydraulic oil, flame retardant liquid, water and others



DDMA

5. Installation Dimensions

D H8	d h9	H	L+0.2	e	Order No.
40	30	15	16	7	DDMA40*30*16
45	35	15	16	7	DDMA45*35*16
50	40	15	16	7	DDMA50*40*16
56	46	15	16	7	DDMA56*46*16
63	53	15	16	7	DDMA63*53*16
65	55	15	16	7	DDMA65*55*16
70	60	15	16	7	DDMA70*60*16
75	65	15	16	7	DDMA75*65*16
80	70	15	16	7	DDMA80*70*16
85	75	15	16	7	DDMA85*75*16
90	80	15	16	7	DDMA90*80*16
95	85	15	16	7	DDMA95*85*16
100	90	15	16	7	DDMA100*90*16
105	95	15	16	7	DDMA105*95*16
115	105	15	16	7	DDMA115*105*16
120	110	15	16	7	DDMA120*110*16
125	113	15	16	10	DDMA125*113*16
130	118	15	16	10	DDMA130*118*16
135	123	15	16	10	DDMA135*123*16
140	128	15	16	10	DDMA140*128*16
145	133	15	16	10	DDMA145*133*16
150	138	15	16	10	DDMA150*138*16
155	143	15	16	10	DDMA155*143*16
160	148	15	16	10	DDMA160*148*16
170	158	15	16	10	DDMA170*158*16
180	168	15	16	10	DDMA180*168*16
190	178	15	16	10	DDMA190*178*16
200	188	15	16	10	DDMA200*188*16
210	198	15	16	10	DDMA210*198*16
220	208	15	16	10	DDMA220*208*16
225	213	15	16	10	DDMA225*213*16
235	223	15	16	10	DDMA235*223*16
240	228	15	16	10	DDMA240*228*16
250	238	15	16	10	DDMA250*238*16
265	253	15	16	10	DDMA265*253*16
275	263	15	16	10	DDMA275*263*16
280	268	15	16	10	DDMA280*268*16
290	278	15	16	10	DDMA290*278*16
300	288	15	16	15	DDMA300*288*16

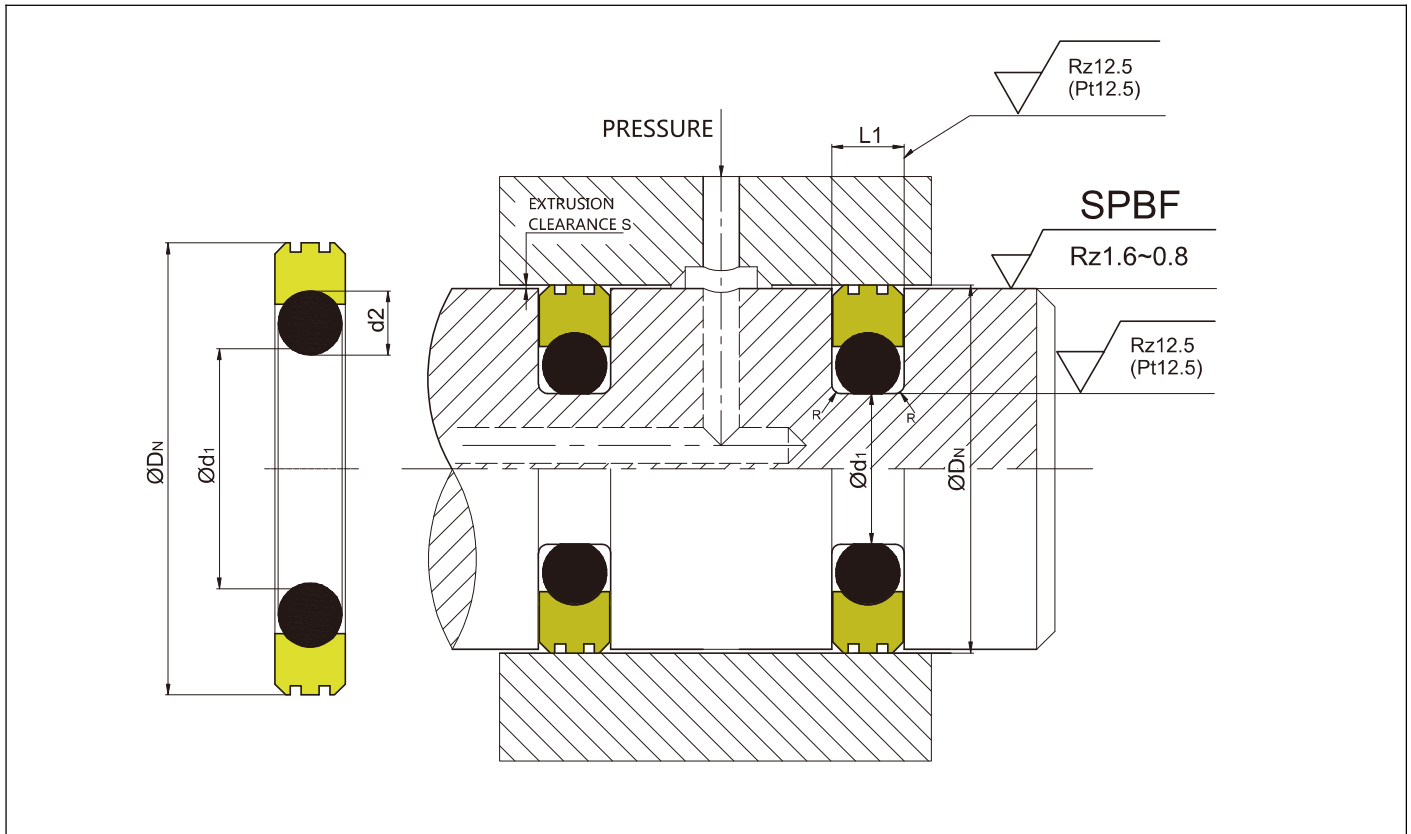


DDMA

D H8	d h9	H	L+0.2	e	Order No.
310	296	15	16	15	DDMA310*296*16
320	306	15	16	15	DDMA320*306*16
340	326	15	16	15	DDMA340*326*16
350	336	15	16	15	DDMA350*336*16
360	346	15	16	15	DDMA360*346*16
380	366	15	16	15	DDMA380*366*16
400	384	15	16	15	DDMA400*384*16
420	404	15	16	15	DDMA420*404*16
425	409	15	16	15	DDMA425*409*16
450	434	15	16	15	DDMA450*434*16
480	464	15	16	15	DDMA480*464*16
500	484	15	16	15	DDMA500*484*16
560	544	15	16	15	DDMA560*544*16
600	584	15	16	15	DDMA600*584*16
630	614	15	16	15	DDMA630*614*16



1. Installation Recommendation



2. Installation Sizes

Bore Diameter D _N H9		Groove Diameter	Groove Width	Radial Clearance S max.		Radius	O-Ring Cross-Section
Standard Range	Available range	d ₁ h9	L ₁ +0.2	32MPa	50MPa	R ₁	d ₂
8-39.9	8-135.0	D _N -4.9	2.2	0.15	0.10	0.40	1.78
40-79.9	14-250.0	D _N -7.5	3.2	0.20	0.15	0.60	2.62
80-132.9	22-460.0	D _N -11.0	4.2	0.25	0.20	1.00	3.53
133-329.9	40-675.0	D _N -15.5	6.3	0.30	0.25	1.30	5.33
330-669.9	133-690.0	D _N -21.0	8.1	0.30	0.25	1.80	7.00
670-999.9	670-999.9	D _N -28.0	9.5	0.45	0.30	2.50	8.40

3. Application and properties

Suitable for sealing with rotating or swinging rods, shafts, pins, rotary joints, etc. It is a rotary sealing ring that can withstand both sides pressure or alternating pressure role of the double acting effect, used in construction machinery, building machinery and automotive equipment. It can be applied on occasions where piston rod and piston seal are required, low friction, non viscous phenomenon, simple groove, good abrasion resistance and dimensional stability.



4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 30MPa	-30°C +200°C	1 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Bore Dia.	Groove Dia.	Groove Width	Order No.
D H9	d ₁ h9	L ₁ +0.2	
8	3.1	2.2	GNS8*3.1*2.2
10	5.1	2.2	GNS10*5.1*2.2
12	7.1	2.2	GNS12*7.1*2.2
14	9.1	2.2	GNS14*9.1*2.2
15	10.1	2.2	GNS15*10.1*2.2
16	11.1	2.2	GNS16*11.1*2.2
17	12.1	2.2	GNS17*12.1*2.2
18	13.1	2.2	GNS18*13.1*2.2
20	15.1	2.2	GNS20*15.1*2.2
22	17.1	2.2	GNS22*17.1*2.2
25	20.1	2.2	GNS25*20.1*2.2
28	23.1	2.2	GNS28*23.1*2.2
30	25.1	2.2	GNS30*25.1*2.2
32	27.1	2.2	GNS32*27.1*2.2
35	30.1	2.2	GNS35*30.1*2.2
36	31.1	2.2	GNS36*31.1*2.2
38	33.1	2.2	GNS38*33.1*2.2
40	32.5	3.2	GNS40*32.5*3.2
42	34.5	3.2	GNS42*34.5*3.2
45	37.5	3.2	GNS45*37.5*3.2
48	40.5	3.2	GNS48*40.5*3.2
50	42.5	3.2	GNS50*42.5*3.2
52	44.5	3.2	GNS52*44.5*3.2
53	45.5	3.2	GNS53*45.5*3.2
55	47.5	3.2	GNS55*47.5*3.2
60	52.5	3.2	GNS60*52.5*3.2
63	55.5	3.2	GNS63*55.5*3.2



G N S

Bore Dia.	Groove Dia.	Groove Width	Order No.
D H9	d ₁ h9	L ₁ +0.2	
65	57.5	3.2	GNS65*57.5*3.2
70	62.5	3.2	GNS70*62.5*3.2
75	67.5	3.2	GNS75*67.5*3.2
80	69	4.2	GNS80*69*4.2
85	74	4.2	GNS85*74*4.2
90	79	4.2	GNS90*79*4.2
95	84	4.2	GNS95*84*4.2
100	89	4.2	GNS100*89*4.2
102	91	4.2	GNS102*91*4.2
105	94	4.2	GNS105*94*4.2
110	99	4.2	GNS110*99*4.2
115	104	4.2	GNS115*104*4.2
120	109	4.2	GNS120*109*4.2
125	114	4.2	GNS125*114*4.2
130	119	4.2	GNS130*119*4.2
135	119.5	6.3	GNS135*119.5*6.3
140	124.5	6.3	GNS140*124.5*6.3
150	134.5	6.3	GNS150*134.5*6.3
160	144.5	6.3	GNS160*144.5*6.3
170	154.5	6.3	GNS170*154.5*6.3
175	159.5	6.3	GNS175*159.5*6.3
180	164.5	6.3	GNS180*164.5*6.3
190	174.5	6.3	GNS190*174.5*6.3
200	184.5	6.3	GNS200*184.5*6.3
210	194.5	6.3	GNS210*194.5*6.3
220	204.5	6.3	GNS220*204.5*6.3
230	214.5	6.3	GNS230*214.5*6.3
240	224.5	6.3	GNS240*224.5*6.3
250	234.5	6.3	GNS250*234.5*6.3
280	264.5	6.3	GNS280*264.5*6.3
300	284.5	6.3	GNS300*284.5*6.3
310	294.5	6.3	GNS310*294.5*6.3
320	304.5	6.3	GNS320*304.5*6.3
350	329	8.1	GNS350*329*8.1
360	339	8.1	GNS360*339*8.1
400	379	8.1	GNS400*379*8.1
420	399	8.1	GNS420*399*8.1
450	429	8.1	GNS450*429*8.1
480	459	8.1	GNS480*459*8.1

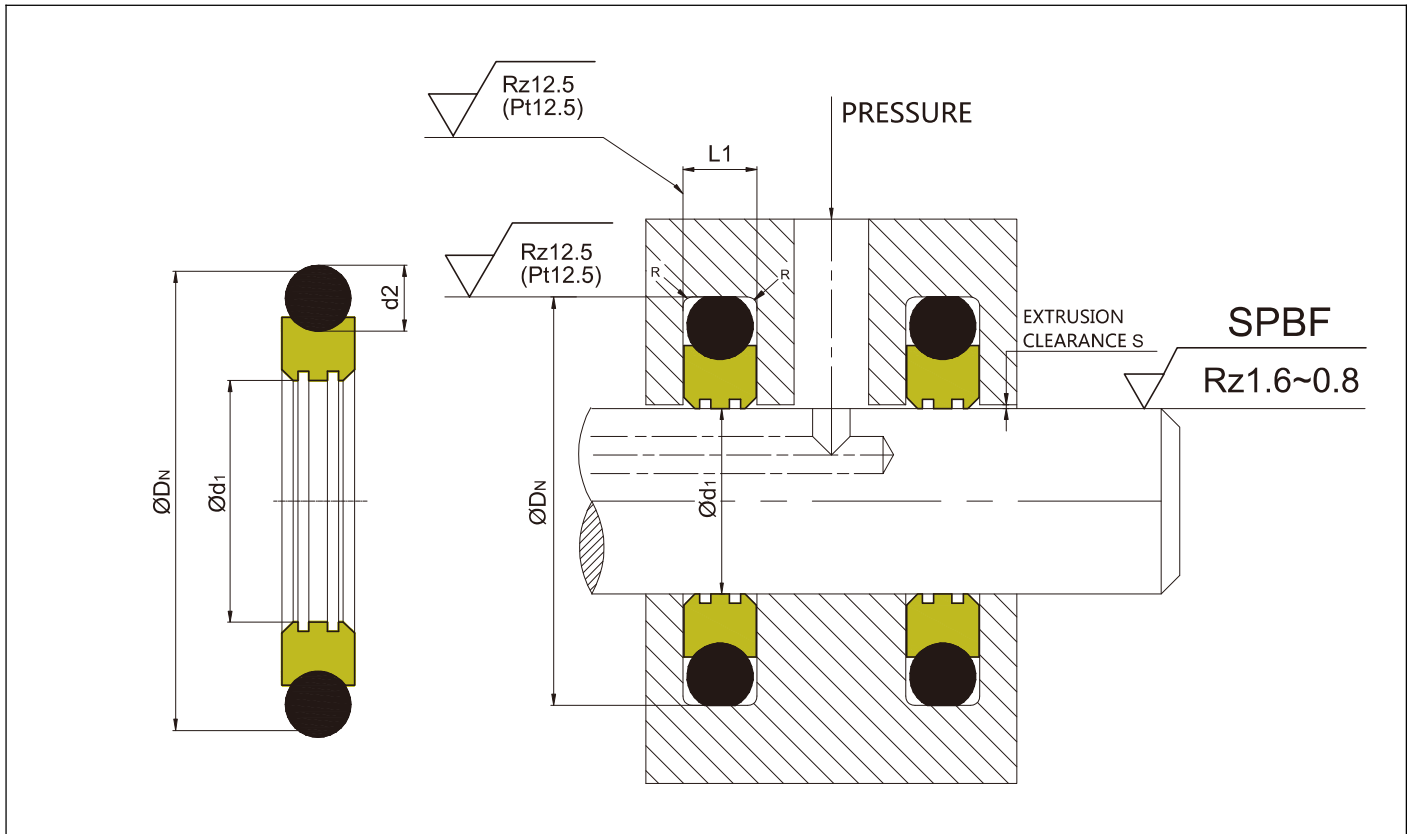


G N S

Bore Dia.	Groove Dia.	Groove Width	Order No.
D H9	d ₁ h9	L ₁ +0.2	
500	479	8.1	GNS500*479*8.1
510	489	8.1	GNS510*489*8.1
520	499	8.1	GNS520*499*8.1
550	529	8.1	GNS550*529*8.1
600	579	8.1	GNS600*579*8.1
650	629	8.1	GNS650*629*8.1



1. Installation Recommendation



2. Installation Sizes

Rod Diameter D _N H9		Groove Diameter	Groove Width	Radial Clearance S max.		Radius	O-Ring Cross-Section
Standard Application	Extended Application	D _N H9	L ₁ +0.2	32MPa	50MPa	R ₁	d ₂
6-18.9	6-130.0	d ₁ +4.9	2.20	0.15	0.10	0.40	1.78
19-37.9	10-245.0	d ₁ +7.5	3.20	0.20	0.15	0.60	2.62
38-199.9	19-455.0	d ₁ +11.0	4.20	0.25	0.20	1.00	3.53
200-255.9	38-655.0	d ₁ +15.5	6.30	0.30	0.25	1.30	5.33
256-649.9	120-655.0	d ₁ +21.0	8.10	0.30	0.25	1.80	7.00
650-999.9	650-999.9	d ₁ +28.0	9.50	0.45	0.30	2.50	8.40

3. Application and properties

Suitable for sealing with rotating or swinging rods, shafts, pins, rotary joints, etc. It is a rotary sealing ring that can withstand both sides pressure or alternating pressure role of the bidirectional effect, used in construction machinery, building machinery and automotive equipment. It can be applied on occasions where piston rod and piston seal are required, low friction, non viscous phenomenon, simple groove, good abrasion resistance and dimensional stability.



4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 30MPa	-30°C +200°C	1 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Rod Dia.	Groove Dia.	Groove Width	Order No.
d h9	D _N H9	L ₁ +0.2	
6	10.9	2.2	GRS6*10.9*2.2
8	12.9	2.2	GRS8*12.9*2.2
10	14.9	2.2	GRS10*14.9*2.2
12	16.9	2.2	GRS12*16.9*2.2
14	18.9	2.2	GRS14*18.9*2.2
15	19.9	2.2	GRS15*19.9*2.2
16	20.9	2.2	GRS16*20.9*2.2
18	22.9	2.2	GRS18*22.9*2.2
20	27.5	3.2	GRS20*27.5*3.2
22	29.5	3.2	GRS22*29.5*3.2
25	32.5	3.2	GRS25*32.5*3.2
26	33.5	3.2	GRS26*33.5*3.2
28	35.5	3.2	GRS28*35.5*3.2
30	37.5	3.2	GRS30*37.5*3.2
32	39.5	3.2	GRS32*39.5*3.2
35	42.5	3.2	GRS35*42.5*3.2
36	43.5	3.2	GRS36*43.5*3.2
40	51	4.2	GRS40*51*4.2
42	53	4.2	GRS42*53*4.2
44	55	4.2	GRS44*55*4.2
45	56	4.2	GRS45*56*4.2
48	59	4.2	GRS48*59*4.2
50	61	4.2	GRS50*61*4.2
52	63	4.2	GRS52*63*4.2
55	66	4.2	GRS55*66*4.2
56	67	4.2	GRS56*67*4.2
60	71	4.2	GRS60*71*4.2



GRS

Rod Dia.	Groove Dia.	Groove Width	Order No.
d h9	D _N H9	L ₁ +0.2	
63	74	4.2	GRS63*74*4.2
65	76	4.2	GRS65*76*4.2
70	81	4.2	GRS70*81*4.2
75	86	4.2	GRS75*86*4.2
80	91	4.2	GRS80*91*4.2
85	96	4.2	GRS85*96*4.2
90	101	4.2	GRS90*101*4.2
95	106	4.2	GRS95*106*4.2
100	111	4.2	GRS100*111*4.2
105	116	4.2	GRS105*116*4.2
110	121	4.2	GRS110*121*4.2
115	126	4.2	GRS115*126*4.2
120	131	4.2	GRS120*131*4.2
125	136	4.2	GRS125*136*4.2
130	141	4.2	GRS130*141*4.2
135	146	4.2	GRS135*146*4.2
140	151	4.2	GRS140*151*4.2
145	156	4.2	GRS145*156*4.2
150	161	4.2	GRS150*161*4.2
155	166	4.2	GRS155*166*4.2
160	171	4.2	GRS160*171*4.2
170	181	4.2	GRS170*181*4.2
180	191	4.2	GRS180*191*4.2
190	201	4.2	GRS190*201*4.2
200	215.5	6.3	GRS200*215.5*6.3
210	225.5	6.3	GRS210*225.5*6.3
220	235.5	6.3	GRS220*235.5*6.3
240	255.5	6.3	GRS240*255.5*6.3
250	265.5	6.3	GRS250*265.5*6.3
280	301	8.1	GRS280*301*8.1
300	321	8.1	GRS300*321*8.1
320	341	8.1	GRS320*341*8.1
350	371	8.1	GRS350*371*8.1
360	381	8.1	GRS360*381*8.1
400	421	8.1	GRS400*421*8.1
420	441	8.1	GRS420*441*8.1
450	471	8.1	GRS450*471*8.1
480	501	8.1	GRS480*501*8.1
500	521	8.1	GRS500*521*8.1

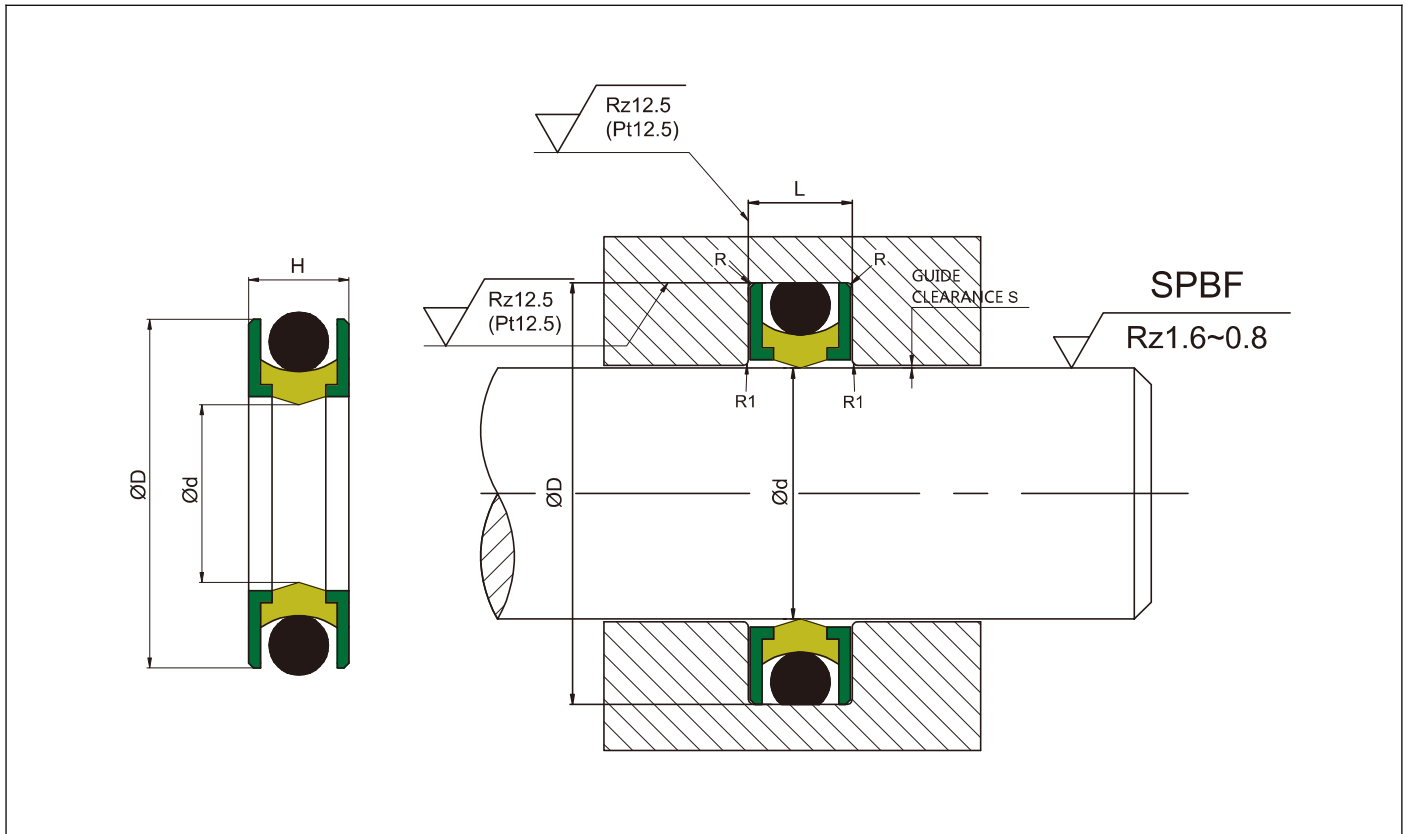


GRS

Rod Dia.	Groove Dia.	Groove Width	Order No.
d h9	D _N H9	L ₁ +0.2	
520	541	8.1	GRS520*541*8.1
530	551	8.1	GRS530*551*8.1
550	571	8.1	GRS550*571*8.1
600	621	8.1	GRS600*621*8.1
650	678	9.5	GRS650*678*9.5
700	728	9.5	GRS700*728*9.5



1. Installation Recommendation



2. Installation Sizes

Rod Diameter	Groove Diameter	Seal Width	Groove Width	Guide Clearance S max	
d e8	D H9	H	L	0-10MPa	15-36MPa
50-79	d+10.0	4.5	5.0	0.40-0.30	0.30-0.25
80-109	d+13.8	7.0	7.5	0.45-0.35	0.35-0.30
110-299	d+20.0	9.5	10.0	0.55-0.45	0.45-0.35
300-600	d+24.0	12.5	13.0	0.60-0.55	0.55-0.45

3. Application and properties

Applicable to construction machinery, building machinery and automotive equipment and other industrial fields. Consisting of a sealing ring, a O-Ring and two retaining rings, the sealing surface profile is specially designed to accommodate high pressure and low speed, the design of the back of the seal ring increases the contact surface and prevents rotation with the rod or shaft. Low friction, non viscous phenomenon, simple groove, good abrasion resistance and dimensional stability.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR

Back-up ring: POM / PA



5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 36MPa	-36°C +100°C	0.5 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

d e8	D H9	H	L	e	Order No.
50	60	4.5	5	7	OI50*60*4.5
56	66	4.5	5	7	OI56*66*4.5
63	73	4.5	5	7	OI63*73*4.5
65	75	4.5	5	7	OI65*75*4.5
70	80	4.5	5	7	OI70*80*4.5
75	85	4.5	5	7	OI75*85*4.5
80	93.8	7.0	7.5	7	OI80*93.8*7
85	98.8	7.0	7.5	7	OI85*98.8*7
90	103.8	7.0	7.5	7	OI90*103.8*7
95	108.8	7.0	7.5	7	OI95*108.8*7
100	113.8	7.0	7.5	7	OI100*113.8*7
110	130	9.5	10	10	OI110*130*9.5
115	135	9.5	10	10	OI115*135*9.5
120	140	9.5	10	10	OI120*140*9.5
125	140	9.5	10	10	OI125*140*9.5
130	150	9.5	10	10	OI130*150*9.5
140	160	9.5	10	10	OI140*160*9.5
150	170	9.5	10	10	OI150*170*9.5
160	180	9.5	10	10	OI160*180*9.5
170	190	9.5	10	10	OI170*190*9.5
180	200	9.5	10	10	OI180*200*9.5
190	210	9.5	10	10	OI190*210*9.5
200	220	9.5	10	10	OI200*220*9.5
220	240	9.5	10	10	OI220*240*9.5
225	245	9.5	10	10	OI225*245*9.5
230	250	9.5	10	10	OI230*250*9.5
250	270	9.5	10	10	OI250*270*9.5
280	300	9.5	10	10	OI280*300*9.5
290	310	9.5	10	10	OI290*310*9.5
300	324	12.5	13	15	OI300*324*12.5
320	344	12.5	13	15	OI320*344*12.5
350	374	12.5	13	15	OI350*374*12.5
360	384	12.5	13	15	OI360*384*12.5



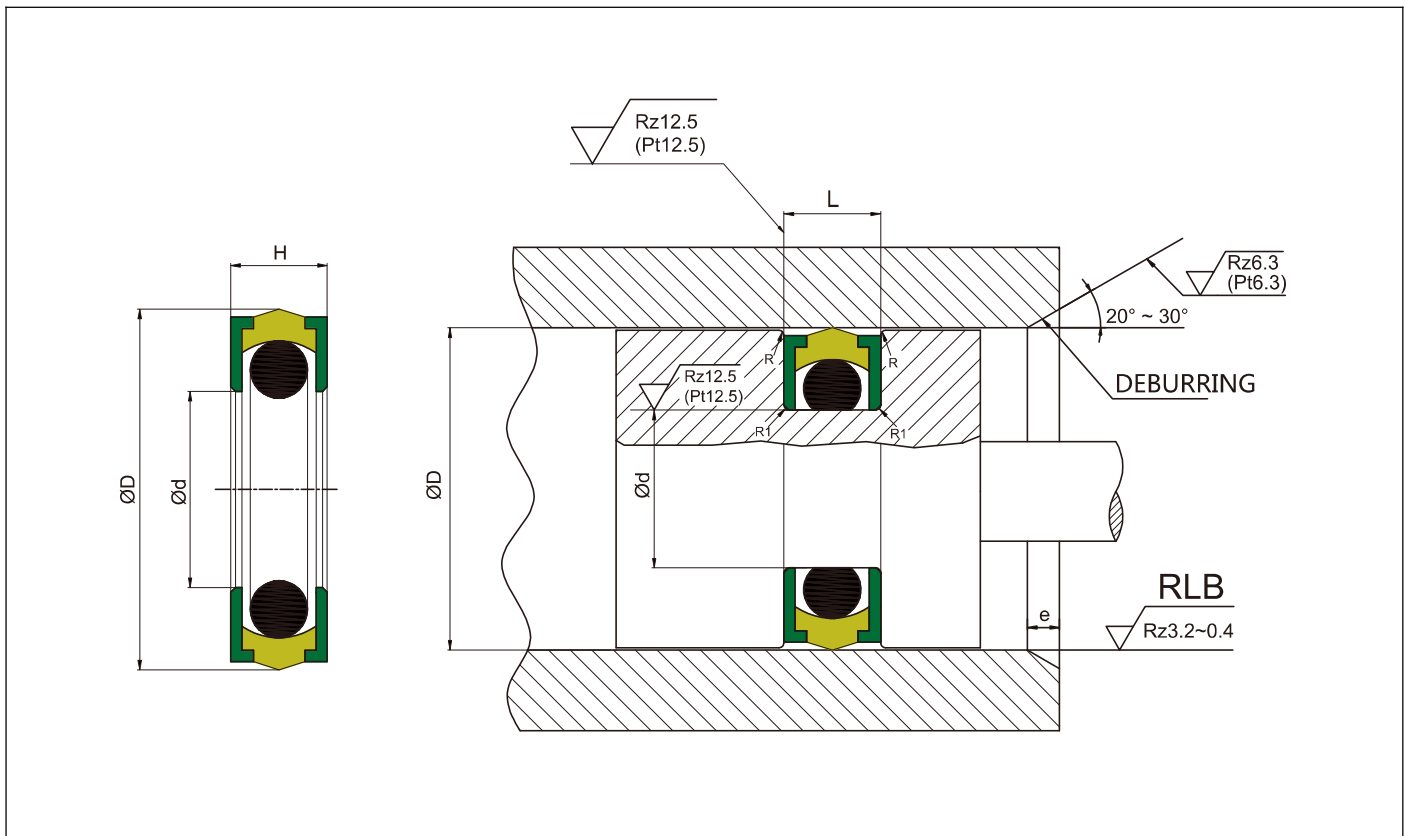
O I

d e8	D H9	H	L	e	Order No.
380	404	12.5	13	15	OI380*404*12.5
400	424	12.5	13	15	OI400*424*12.5
420	444	12.5	13	15	OI420*444*12.5
450	474	12.5	13	15	OI450*474*12.5
480	504	12.5	13	15	OI480*504*12.5
500	524	12.5	13	15	OI500*524*12.5
550	574	12.5	13	15	OI550*574*12.5
560	584	12.5	13	15	OI560*584*12.5
600	624	12.5	13	15	OI600*624*12.5



OA

1. Installation Recommendation



2. Installation Sizes

Bore Diameter	Groove Diameter	Seal Width	Groove Width	Guide Clearance S max	
D H9	d e8	H	L+0.2	0-10MPa	15-36MPa
50-124	D-16	7.5	8	0.45-0.35	0.35-0.30
125-199	D-20	9.5	10	0.55-0.45	0.45-0.35
200-600	D-26	12.5	13	0.60-0.55	0.55-0.45

3. Application and properties

Applicable to construction machinery, building machinery and automotive equipment and other industrial fields. Consisting of a sealing ring, a O-ring and two retaining rings, the sealing surface profile is specially designed to accommodate high pressure and low speed, the design of the back of the seal ring increases the contact surface and prevents rotation with the rod or shaft. Low friction, non viscous phenomenon, simple groove, good abrasion resistance and dimensional stability.

4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

Back-up ring: POM / PA



OA

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	0 - 36MPa	-36°C +100°C	0.5 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

d e8	D H9	H	L	e	Order No.
50	34	7.5	8	7	OA50*34*7.5
56	40	7.5	8	7	OA56*40*7.5
63	47	7.5	8	7	OA63*47*7.5
70	54	7.5	8	7	OA70*54*7.5
80	64	7.5	8	7	OA80*64*7.5
90	74	7.5	8	7	OA90*74*7.5
95	79	7.5	8	7	OA95*79*7.5
100	84	7.5	8	10	OA100*84*7.5
110	94	7.5	8	10	OA110*94*7.5
115	99	7.5	8	10	OA115*99*7.5
120	104	7.5	8	10	OA120*104*7.5
125	105	9.5	10	10	OA125*105*9.5
130	110	9.5	10	10	OA130*110*9.5
140	120	9.5	10	10	OA140*120*9.5
150	130	9.5	10	10	OA150*130*9.5
160	140	9.5	10	10	OA160*140*9.5
180	160	9.5	10	10	OA180*160*9.5
190	170	9.5	10	10	OA190*170*9.5
200	174	12.5	10	12	OA200*174*12.5
220	194	12.5	10	12	OA220*194*12.5
225	199	12.5	10	12	OA225*199*12.5
250	224	12.5	10	12	OA250*224*12.5
280	254	12.5	10	12	OA280*254*12.5
290	264	12.5	10	12	OA290*264*12.5
300	274	12.5	10	12	OA250*224*12.5
320	294	12.5	10	15	OA280*254*12.5
350	324	12.5	13	15	OA290*264*12.5
380	354	12.5	13	15	OA380*354*12.5
400	374	12.5	13	15	OA400*374*12.5
420	394	12.5	13	15	OA420*394*12.5
450	424	12.5	13	15	OA450*424*12.5
480	454	12.5	13	15	OA480*454*12.5
500	474	12.5	13	15	OA500*474*12.5

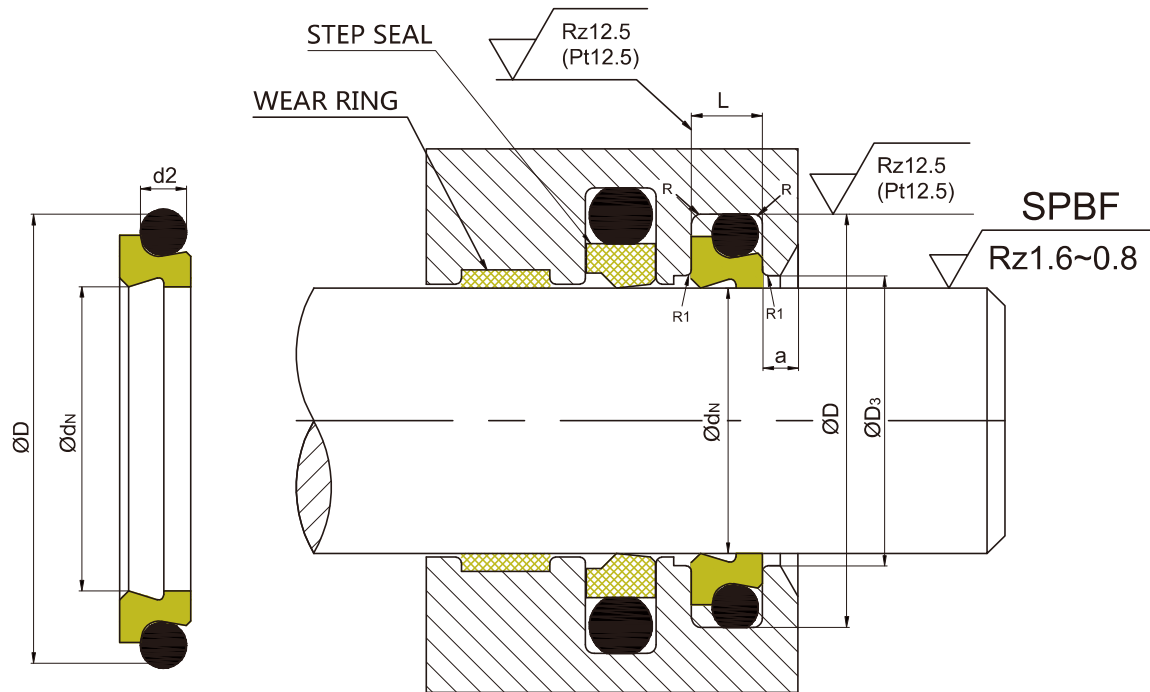


OA

d e8	D H9	H	L	e	Order No.
560	534	12.5	13	15	OA560*534*12.5
580	554	12.5	13	15	OA580*554*12.5
600	574	12.5	13	15	OA600*574*12.5



1. Installation Recommendation



2. Installation Sizes

Rod Diameter	Groove Diameter	Groove Width	Diameter	Step Width	O-Ring Cross-Section
$d_N \text{ f8/h9}$	$D \text{ H9}$	$L+0.2$	$D_3 \text{ H11}$	$a \text{ min}$	d_2
19.0-39.9	$d_N+7.6$	4.2	$d+1.5$	3.0	2.62
40.0-69.9	$d_N+8.8$	6.3	$d+1.5$	3.0	2.62
70.0-139.9	$d_N+12.2$	8.1	$d+2.0$	4.0	3.53
140.0-399.9	$d_N+16.0$	9.5	$d+2.5$	5.0	5.33
400.0-649.9	$d_N+24.0$	14.0	$d+2.5$	8.0	7.00
650.0-999.9	$d_N+27.3$	16.0	$d+2.5$	10.0	8.40
≥ 1000.0	$d_N+27.3$	16.0	$d+2.5$	10.0	8.40

3. Application and properties

Suitable for cold and dusty environments and high frequency reciprocating motion. Mainly used in hydraulic and pneumatic devices, servo systems, chemical and food equipment. Excellent sliding performance, no stick-slip behavior, no viscosity, compensate for the distortion of the piston rod and plunger, compatibility with hydraulic media is very good, the remaining oil film adhered to the surface of the piston rod can be effectively blocked from the inside.



4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	-	-30°C +200°C	15 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Rod Dia.	Groove Dia.	Groove Width	a	Order No.
d f8	D H9	L		
20	27.6	4.2	3	GSZ20*27.6*4.2
25	32.6	4.2	3	GSZ25*32.6*4.2
28	35.6	4.2	3	GSZ28*35.6*4.2
30	37.6	4.2	3	GSZ30*37.6*4.2
32	39.6	4.2	3	GSZ32*39.6*4.2
36	43.6	4.2	3	GSZ36*43.6*4.2
40	48.8	6.3	3	GSZ40*48.8*6.3
42	50.8	6.3	3	GSZ42*50.8*6.3
45	53.8	6.3	3	GSZ45*53.8*6.3
50	58.8	6.3	3	GSZ50*58.8*6.3
55	63.8	6.3	3	GSZ55*63.8*6.3
56	64.8	6.3	3	GSZ56*64.8*6.3
60	68.8	6.3	3	GSZ60*68.8*6.3
63	71.8	6.3	3	GSZ63*71.8*6.3
65	73.8	6.3	3	GSZ65*73.8*6.3
70	82.2	8.1	4	GSZ70*82.2*8.1
75	87.2	8.1	4	GSZ75*87.2*8.1
80	92.2	8.1	4	GSZ80*92.2*8.1
85	97.2	8.1	4	GSZ85*97.2*8.1
90	102.2	8.1	4	GSZ90*102.2*8.1
95	107.2	8.1	4	GSZ95*107.2*8.1
100	112.2	8.1	4	GSZ100*112.2*8.1
105	117.2	8.1	4	GSZ105*117.2*8.1
110	122.2	8.1	4	GSZ110*122.2*8.1
115	127.2	8.1	4	GSZ115*127.2*8.1
120	132.2	8.1	4	GSZ120*132.2*8.1
125	137.2	8.1	4	GSZ125*137.2*8.1



GSZ

Rod Dia.	Groove Dia.	Groove Width	a	Order No.
d f8	D H9	L		
130	142.2	8.1	4	GSZ130*142.2*8.1
135	147.2	8.1	4	GSZ135*147.2*8.1
140	156	9.5	5	GSZ140*156*9.5
145	161	9.5	5	GSZ145*161*9.5
150	166	9.5	5	GSZ150*166*9.5
155	171	9.5	5	GSZ155*171*9.5
160	176	9.5	5	GSZ160*176*9.5
165	181	9.5	5	GSZ165*181*9.5
170	186	9.5	5	GSZ170*186*9.5
175	191	9.5	5	GSZ175*191*9.5
180	196	9.5	5	GSZ180*196*9.5
190	206	9.5	5	GSZ190*206*9.5
200	216	9.5	5	GSZ200*216*9.5
210	226	9.5	5	GSZ210*226*9.5
220	236	9.5	5	GSZ220*236*9.5
240	256	9.5	5	GSZ240*256*9.5
250	266	9.5	5	GSZ250*266*9.5
260	276	9.5	5	GSZ260*276*9.5
270	286	9.5	5	GSZ270*286*9.5
280	296	9.5	5	GSZ280*296*9.5
300	316	9.5	5	GSZ300*316*9.5
320	336	9.5	5	GSZ320*336*9.5
330	346	9.5	5	GSZ330*346*9.5
350	366	9.5	5	GSZ350*366*9.5
360	376	9.5	5	GSZ360*376*9.5
380	396	9.5	5	GSZ380*396*9.5
400	424	14	8	GSZ400*424*14
440	464	14	8	GSZ440*464*14
450	474	14	8	GSZ450*474*14
480	504	14	8	GSZ480*504*14
500	524	14	8	GSZ500*524*14
560	584	14	8	GSZ560*584*14
600	624	14	8	GSZ600*624*14
650	677.3	16	10	GSZ650*677.3*16
680	707.3	16	10	GSZ680*707.3*16
700	727.3	16	10	GSZ700*727.3*16
770	797.3	16	10	GSZ770*797.3*16
785	812.3	16	10	GSZ785*812.3*16
800	827.3	16	10	GSZ800*827.3*16



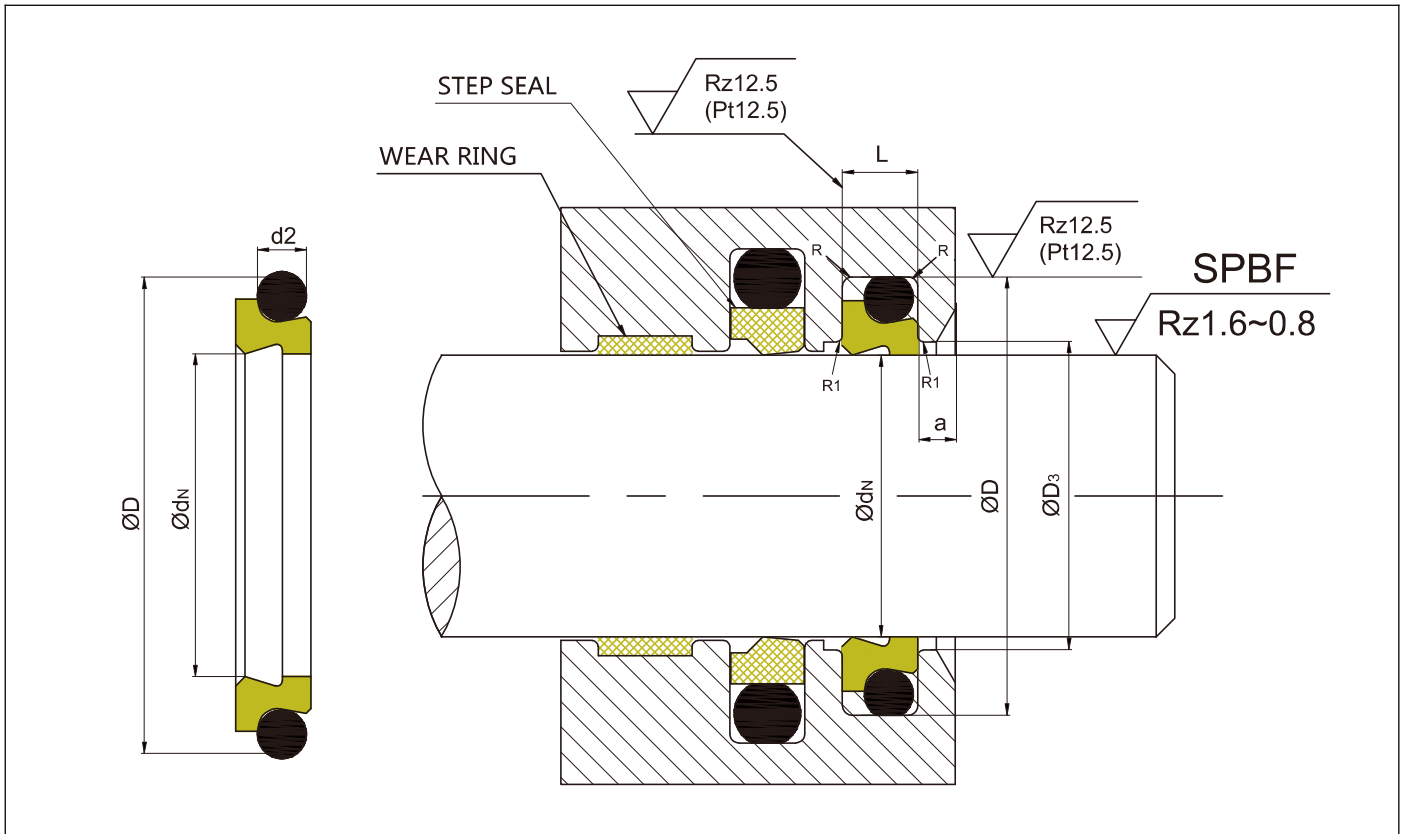
GSZ

Rod Dia.	Groove Dia.	Groove Width	a	Order No.
d f8	D H9	L		
810	837.3	16	10	GSZ810*837.3*16
900	927.3	16	10	GSZ900*927.3*16
950	977.3	16	10	GSZ950*977.3*16
1000	1027.3	16	10	GSZ1000*1027.3*16



GSZ 2

1. Installation Recommendation



2. Installation Sizes

Rod Diameter	Groove Diameter	Groove Width	Diameter	Step Width	O-Ring Cross-Section
$d_N \text{ f8/h9}$	$D \text{ H9}$	$L +0.2$	$D_3 \text{ H11}$	$a \text{ min}$	d_2
4.0-11.9	$d_N+4.8$	3.7	$d+1.5$	2.0	1.78
12.0-64.9	$d_N+6.8$	5	$d+1.5$	2.0	2.62
65.0-250.9	$d_N+8.8$	6	$d+1.5$	3.0	3.53
251.0-420.9	$d_N+12.2$	8.4	$d+2.0$	4.0	5.33
421.0-650.9	$d_N+16.0$	11	$d+2.0$	4.0	7.00
651.0-999.9	$d_N+20.0$	14	$d+2.5$	5.0	8.40
≥ 1000.0	$d_N+20.0$	14	$d+2.5$	5.0	8.40

3. Application and properties

Suitable for cold and dusty environments and high frequency reciprocating motion. Mainly used in hydraulic and pneumatic devices, servo systems, chemical and food equipment. Excellent sliding performance, no stick-slip behavior, no viscosity, compensate for the distortion of the piston rod and plunger, compatibility with hydraulic media is very good, the remaining oil film adhered to the surface of the piston rod can be effectively blocked from the inside.



4. Standard materials

Sealing ring: filled PTFE

O-Ring: NBR / FKM

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600	-	-30°C +200°C	5 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

Rod Dia.	Groove Dia.	Groove Width	a	Oder No.
d f8	D H9	L+0.2		
6	10.8	3.7	2	GSZ2-6*10.8*3.7
8	12.8	3.7	2	GSZ2-8*12.8*3.7
10	14.8	3.7	2	GSZ2-10*14.8*3.7
12	18.8	5	2	GSZ2-12*18.8*5
14	20.8	5	2	GSZ2-14*20.8*5
15	21.8	5	2	GSZ2-15*21.8*5
16	22.8	5	2	GSZ2-16*22.8*5
18	24.8	5	2	GSZ2-18*24.8*5
20	26.8	5	2	GSZ2-20*26.8*5
22	28.8	5	2	GSZ2-22*28.8*5
25	31.8	5	2	GSZ2-25*31.8*5
30	36.8	5	2	GSZ2-30*36.8*5
32	38.8	5	2	GSZ2-32*38.8*5
35	41.8	5	2	GSZ2-35*41.8*5
36	42.8	5	2	GSZ2-36*42.8*5
37	43.8	5	2	GSZ2-37*43.8*5
40	46.8	5	2	GSZ2-40*46.8*5
42	48.8	5	2	GSZ2-42*48.8*5
45	51.8	5	2	GSZ2-45*51.8*5
50	56.8	5	2	GSZ2-50*56.8*5
55	61.8	5	2	GSZ2-55*61.8*5
56	62.8	5	2	GSZ2-56*62.8*5
60	66.8	5	2	GSZ2-60*66.8*5
63	69.8	5	2	GSZ2-63*69.8*5
65	73.8	6	3	GSZ2-65*73.8*6
70	78.8	6	3	GSZ2-70*78.8*6
75	83.8	6	3	GSZ2-75*83.8*6



GSZ 2

Rod Dia.	Groove Dia.	Groove Width	a	Order No.
d f8	D H9	L+0.2		
80	88.8	6	3	GSZ2-80*88.8*6
85	93.8	6	3	GSZ2-85*93.8*6
90	98.8	6	3	GSZ2-90*98.8*6
95	103.8	6	3	GSZ2-95*103.8*6
100	108.8	6	3	GSZ2-100*108.8*6
105	113.8	6	3	GSZ2-105*113.8*6
110	118.8	6	3	GSZ2-110*118.8*6
115	123.8	6	3	GSZ2-115*123.8*6
120	128.8	6	3	GSZ2-120*128.8*6
125	133.8	6	3	GSZ2-125*133.8*6
130	138.8	6	3	GSZ2-130*138.8*6
135	143.8	6	3	GSZ2-135*143.8*6
140	148.8	6	3	GSZ2-140*148.8*6
145	153.8	6	3	GSZ2-145*153.8*6
150	158.8	6	3	GSZ2-150*158.8*6
160	168.8	6	3	GSZ2-160*168.8*6
170	178.8	6	3	GSZ2-170*178.8*6
180	188.8	6	3	GSZ2-180*188.8*6
190	198.8	6	3	GSZ2-190*198.8*6
200	208.8	6	3	GSZ2-200*208.8*6
210	218.8	6	3	GSZ2-210*218.8*6
220	228.8	6	3	GSZ2-220*228.8*6
230	238.8	6	3	GSZ2-230*238.8*6
240	248.8	6	3	GSZ2-240*248.8*6
250	258.8	6	3	GSZ2-250*258.8*6
260	272.2	8.4	4	GSZ2-260*272.2*8.4
280	292.2	8.4	4	GSZ2-280*292.2*8.4
300	312.2	8.4	4	GSZ2-300*312.2*8.4
320	332.2	8.4	4	GSZ2-320*332.2*8.4
350	362.2	8.4	4	GSZ2-350*362.2*8.4
360	372.2	8.4	4	GSZ2-360*372.2*8.4
370	382.2	8.4	4	GSZ2-370*382.2*8.4
400	412.2	8.4	4	GSZ2-400*412.2*8.4
440	456	11	4	GSZ2-440*456*11
480	496	11	4	GSZ2-480*496*11
600	616	11	4	GSZ2-600*616*11
630	646	11	4	GSZ2-630*646*11
680	700	14	5	GSZ2-680*700*14
700	720	14	5	GSZ2-700*720*14



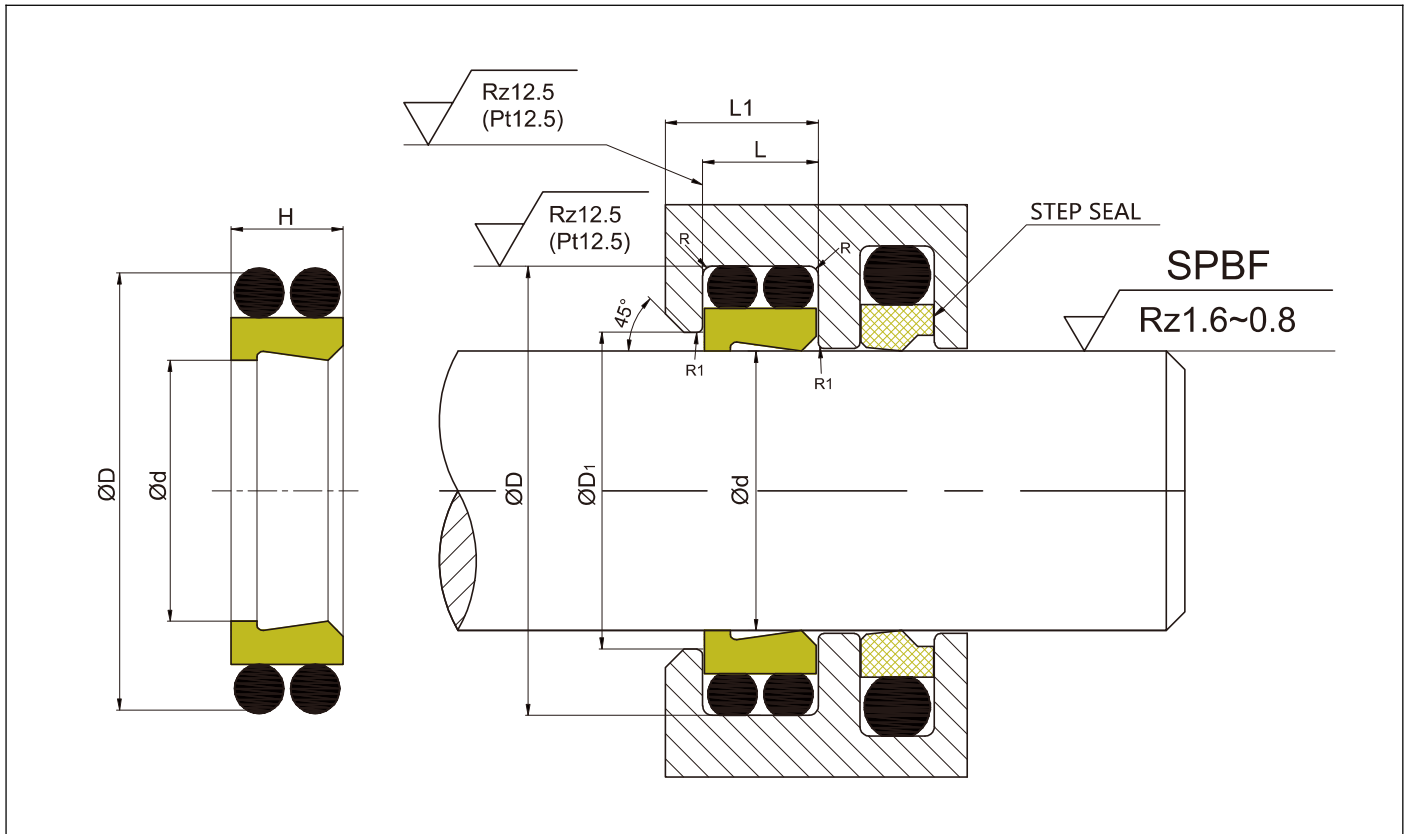
GSZ 2

Rod Dia.	Groove Dia.	Groove Width	a	Order No.
d f8	D H9	L+0.2		
770	790	14	5	GSZ2-770*790*14
820	840	14	5	GSZ2-820*840*14
880	900	14	5	GSZ2-880*900*14
900	920	14	5	GSZ2-900*920*14
1030	1050	14	5	GSZ2-1030*1050*14



DPT 1

1. Installation Recommendation



2. Installation Sizes

Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	Radius	Step Width
d f8/h9	D H9	L+0.2	D ₁ ±0.1	R	a
20-39.9	d+7.6	4.2	d+1.0	0.4	3.0
40-69.9	d+8.8	6.3	d+1.5	1.0	3.0
70-139.9	d+12.2	8.1	d+2.0	1.2	4.0
140-399.9	d+16.0	11.5	d+2.0	2.0	5.0
400-649.9	d+24.0	15.5	d+2.5	2.5	8.0
650-999.9	d+27.3	18.0	d+2.5	2.5	10.0

3. Application and properties

For a wide range of applications, such as agricultural machinery, injection molding machines, forklifts, cranes and so on. Consisting of a sealing ring and two O-Rings for improving overall tightness, low friction, non stick slip phenomenon, good adjustment and positioning ability, high reliability, accepting the full load of work pressure in a short time.

4. Standard materials

Sealing ring: filled PTFE / PU

O-Ring: NBR / FKM



DPT 1

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	-	-30°C +200°C	5 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

d f8	D H9	H	L+0.2	Order No.
20	27.6	4.0	4.2	DPT1-20*27.6*4.2
25	32.6	4.0	4.2	DPT1-25*32.6*4.2
28	35.6	4.0	4.2	DPT1-28*35.6*4.2
30	37.6	4.0	4.2	DPT1-30*37.6*4.2
32	39.6	4.0	4.2	DPT1-32*39.6*4.2
35	42.6	4.0	4.2	DPT1-35*42.6*4.2
36	43.6	4.0	4.2	DPT1-36*43.6*4.2
40	48.8	6.0	6.3	DPT1-40*48.8*6.3
42	50.8	6.0	6.3	DPT1-42*50.8*6.3
45	53.8	6.0	6.3	DPT1-45*53.8*6.3
50	58.8	6.0	6.3	DPT1-50*58.8*6.3
55	63.8	6.0	6.3	DPT1-55*63.8*6.3
56	64.8	6.0	6.3	DPT1-56*64.8*6.3
60	68.8	6.0	6.3	DPT1-60*68.8*6.3
63	71.8	6.0	6.3	DPT1-63*71.8*6.3
65	73.8	6.0	6.3	DPT1-65*73.8*6.3
70	82.2	7.7	8.1	DPT1-70*82.2*8.1
75	87.2	7.7	8.1	DPT1-75*87.2*8.1
80	92.2	7.7	8.1	DPT1-80*92.2*8.1
85	97.2	7.7	8.1	DPT1-85*97.2*8.1
90	102.2	7.7	8.1	DPT1-90*102*8.1
95	107.2	7.7	8.1	DPT1-95*107*8.1
100	112.2	7.7	8.1	DPT1-100*112*8.1
105	117.2	7.7	8.1	DPT1-105*117*8.1
110	122.2	7.7	8.1	DPT1-110*122*8.1
115	127.2	7.7	8.1	DPT1-115*127*8.1
120	132.2	7.7	8.1	DPT1-120*132*8.1
125	137.2	7.7	8.1	DPT1-125*137*8.1
130	142.2	7.7	8.1	DPT1-130*142*8.1
135	147.2	7.7	8.1	DPT1-135*147*8.1
140	156	11	11.5	DPT1-140*156*11.5
145	161	11	11.5	DPT1-145*161*11.5
150	166	11	11.5	DPT1-150*166*11.5



DPT 1

d f8	D H9	H	L+0.2	Order No.
155	171	11	11.5	DPT1-155*171*11.5
160	176	11	11.5	DPT1-160*176*11.5
165	181	11	11.5	DPT1-165*181*11.5
170	186	11	11.5	DPT1-170*186*11.5
175	191	11	11.5	DPT1-175*191*11.5
180	196	11	11.5	DPT1-180*196*11.5
190	206	11	11.5	DPT1-190*206*11.5
200	216	11	11.5	DPT1-200*216*11.5
210	226	11	11.5	DPT1-210*226*11.5
220	236	11	11.5	DPT1-220*236*11.5
230	246	11	11.5	DPT1-230*246*11.5
240	256	11	11.5	DPT1-240*256*11.5
250	266	11	11.5	DPT1-250*266*11.5
260	276	11	11.5	DPT1-260*276*11.5
265	281	11	11.5	DPT1-265*281*11.5
270	286	11	11.5	DPT1-270*286*11.5
280	296	11	11.5	DPT1-280*296*11.5
290	306	11	11.5	DPT1-290*306*11.5
300	316	11	11.5	DPT1-300*316*11.5
330	346	11	11.5	DPT1-330*346*11.5
350	366	11	11.5	DPT1-350*366*11.5
370	386	11	11.5	DPT1-370*386*11.5
380	396	11	11.5	DPT1-380*396*11.5
400	424	14.8	15.5	DPT1-400*416*11.5
420	444	14.8	15.5	DPT1-420*444*15.5
450	474	14.8	15.5	DPT1-450*474*15.5
470	494	14.8	15.5	DPT1-470*494*15.5
480	504	14.8	15.5	DPT1-480*504*15.5
500	524	14.8	15.5	DPT1-500*524*15.5
520	544	14.8	15.5	DPT1-520*544*15.5
550	574	14.8	15.5	DPT1-550*574*15.5
585	609	14.8	15.5	DPT1-585*609*15.5
600	624	14.8	15.5	DPT1-600*624*15.5
620	644	14.8	15.5	DPT1-620*644*15.5
635	659	14.8	15.5	DPT1-635*659*15.5
675	702.3	17.2	18	DPT1-675*702*18
690	717.3	17.2	18	DPT1-690*717*18
700	727.3	17.2	18	DPT1-700*727*18
710	737.3	17.2	18	DPT1-710*737*18



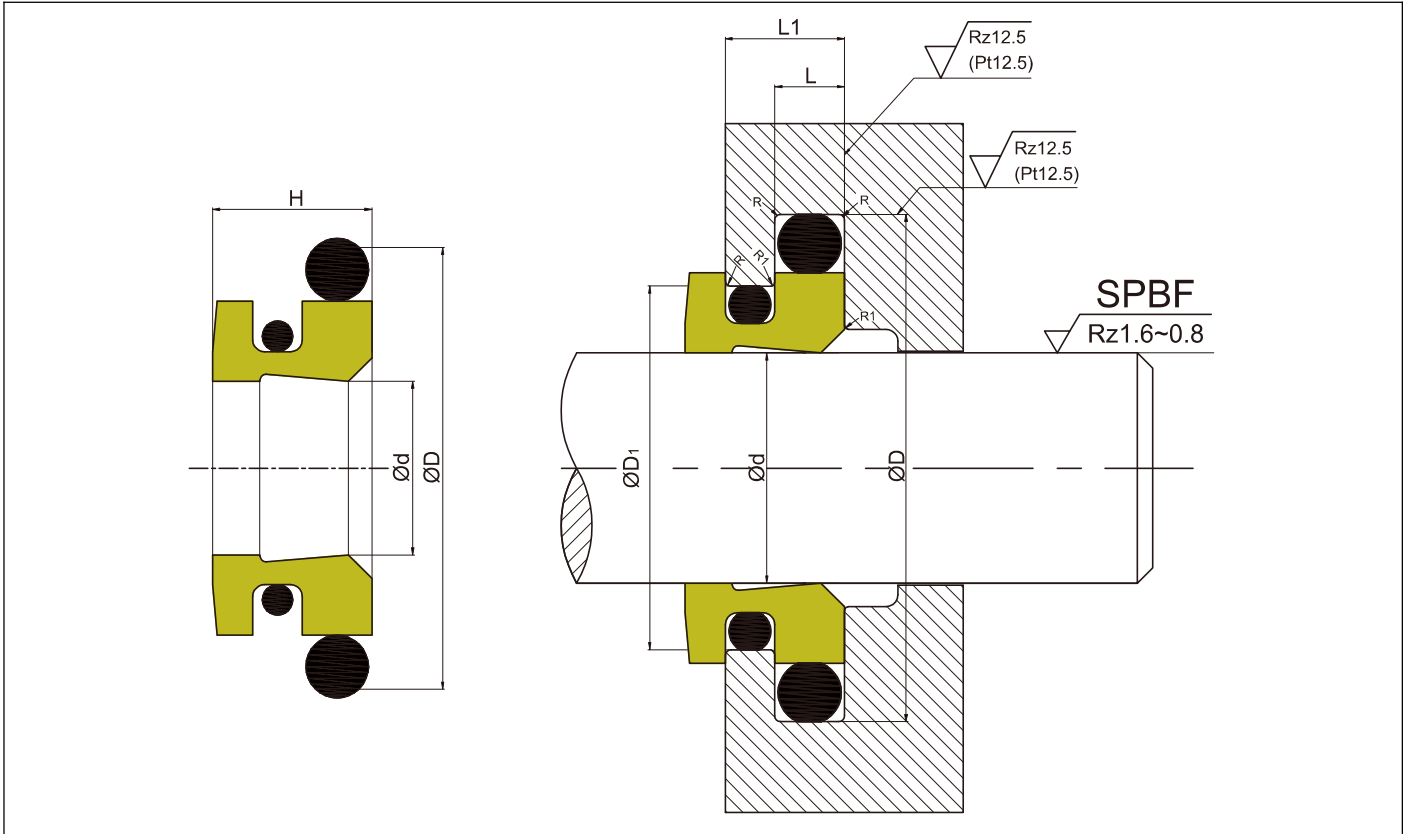
DPT 1

d f8	D H9	H	L+0.2	Order No.
750	777.3	17.2	18	DPT1-750*777*18
780	807.3	17.2	18	DPT1-780*807*18
800	827.3	17.2	18	DPT1-800*827*18
810	837.3	17.2	18	DPT1-810*837*18
820	847.3	17.2	18	DPT1-820*847*18
830	857.3	17.2	18	DPT1-830*857*18
850	877.3	17.2	18	DPT1-850*877*18
870	897.3	17.2	18	DPT1-870*897*18
880	907.3	17.2	18	DPT1-880*907*18
890	917.3	17.2	18	DPT1-890*917*18
900	927.3	17.2	18	DPT1-900*927*18
910	937.3	17.2	18	DPT1-910*937*18



DPT 2

1. Installation Recommendation



2. Installation Sizes

Rod Diameter d f8/h9		Groove Diameter	Groove Width	Step Diameter	Radius	Step Width
Standard Application	Suitable Application	D H9	$L_1+0.2$	$D_1 \pm 0.1$	R	a
140.0-229.9	100.0-450.0	d+22.2	6.3	d+10.7	1.2	4.2
230.0-299.9	220.0-450.0	d+24.2	6.3	d+10.7	1.2	4.2
300.0-629.9	250.0-650.0	d+33.0	8.1	d+15.1	1.2	6.3
630.0-999.9	550.0-999.9	d+36.5	9.5	d+15.1	2.0	6.3

3. Application and properties

Applicable to agricultural hydraulic press, injection molding machine, metallurgical equipment, etc. Consisting of a sealing ring and two O-Rings as preload element, good dust scraping effect, low friction, no stick slip phenomenon, good ability of adjustment and positioning, especially for large diameter piston rods.

4. Standard materials

Sealing ring: filled PTFE / PU

O-Ring: NBR / FKM



5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	-	-30°C +200°C	5 m/s	hydraulic oil, flame retardant liquid, water and others

6. Installation Dimensions

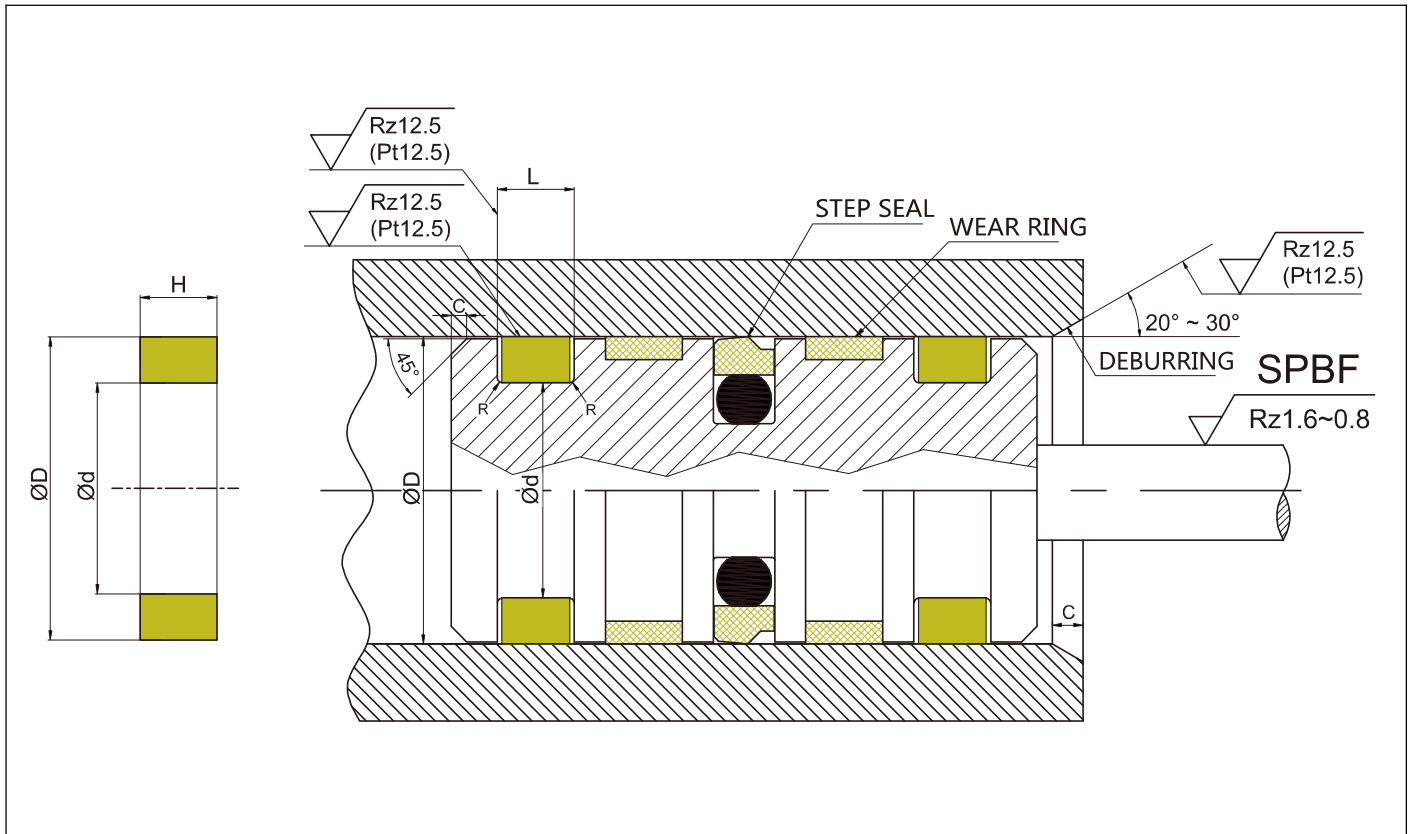
d f8	D H9	H	L ₁ +0.2	L ₁	Order No.
100	122.2	13.5	6.3	4.2	DPT2-100*122.2*6.3
110	132.2	13.5	6.3	4.2	DPT2-110*132.2*6.3
120	142.2	13.5	6.3	4.2	DPT2-120*142.2*6.3
130	152.2	13.5	6.3	4.2	DPT2-130*152.2*6.3
140	162.2	13.5	6.3	4.2	DPT2-140*162.2*6.3
150	172.2	13.5	6.3	4.2	DPT2-150*172.2*6.3
160	182.2	13.5	6.3	4.2	DPT2-160*182.2*6.3
170	192.2	13.5	6.3	4.2	DPT2-170*192.2*6.3
180	202.2	13.5	6.3	4.2	DPT2-180*202.2*6.3
190	212.2	13.5	6.3	4.2	DPT2-190*212.2*6.3
200	222.2	13.5	6.3	4.2	DPT2-200*222.2*6.3
210	232.2	13.5	6.3	4.2	DPT2-210*232.2*6.3
220	242.2	13.5	6.3	4.2	DPT2-220*242.2*6.3
230	252.2	13.5	6.3	4.2	DPT2-230*252.2*6.3
240	262.2	13.5	6.3	4.2	DPT2-240*262.2*6.3
250	272.2	13.5	6.3	4.2	DPT2-250*272.2*6.3
260	282.2	13.5	6.3	4.2	DPT2-260*282.2*6.3
270	292.2	13.5	6.3	4.2	DPT2-270*292.2*6.3
275	297.2	13.5	6.3	4.2	DPT2-275*297.2*6.3
280	302.2	13.5	6.3	4.2	DPT2-280*302.2*6.3
290	312.2	13.5	6.3	4.2	DPT2-290*312.2*6.3
295	317.2	13.5	6.3	4.2	DPT2-295*317.2*6.3
300	333	18.4	8.1	6.3	DPT2-300*333*8.1
320	353	18.4	8.1	6.3	DPT2-320*353*8.1
340	373	18.4	8.1	6.3	DPT2-340*373*8.1
350	383	18.4	8.1	6.3	DPT2-350*383*8.1
360	393	18.4	8.1	6.3	DPT2-360*393*8.1
370	403	18.4	8.1	6.3	DPT2-370*403*8.1
380	413	18.4	8.1	6.3	DPT2-380*413*8.1
385	418	18.4	8.1	6.3	DPT2-385*418*8.1
390	423	18.4	8.1	6.3	DPT2-390*423*8.1
400	433	18.4	8.1	6.3	DPT2-400*433*8.1
410	443	18.4	8.1	6.3	DPT2-410*443*8.1



DPT 2

d f8	D H9	H	L ₁ +0.2	L ₁	Order No.
420	453	18.4	8.1	6.3	DPT2-420*453*8.1
430	463	18.4	8.1	6.3	DPT2-430*463*8.1
440	473	18.4	8.1	6.3	DPT2-440*473*8.1
450	483	18.4	8.1	6.3	DPT2-450*483*8.1
470	503	18.4	8.1	6.3	DPT2-470*503*8.1
480	513	18.4	8.1	6.3	DPT2-480*513*8.1
500	533	18.4	8.1	6.3	DPT2-500*533*8.1
510	543	18.4	8.1	6.3	DPT2-510*543*8.1
550	583	18.4	8.1	6.3	DPT2-550*583*8.1
560	593	18.4	8.1	6.3	DPT2-560*593*8.1
600	633	18.4	8.1	6.3	DPT2-600*633*8.1
630	666.5	19.8	9.5	6.3	DPT2-630*666.5*9.5
640	676.5	19.8	9.5	6.3	DPT2-640*676.5*9.5
660	696.5	19.8	9.5	6.3	DPT2-660*696.5*9.5
670	706.5	19.8	9.5	6.3	DPT2-670*706.5*9.5
700	736.5	19.8	9.5	6.3	DPT2-700*736.5*9.5
740	776.5	19.8	9.5	6.3	DPT2-740*776.5*9.5
750	786.5	19.8	9.5	6.3	DPT2-750*786.5*9.5
795	831.5	19.8	9.5	4.2	DPT2-795*831.5*9.5
800	836.5	19.8	9.5	4.2	DPT2-800*836.5*9.5
820	856.5	19.8	9.5	4.2	DPT2-820*856.5*9.5
830	866.5	19.8	9.5	4.2	DPT2-830*866.5*9.5
850	886.5	19.8	9.5	6.3	DPT2-850*886.5*9.5
890	926.5	19.8	9.5	6.3	DPT2-890*926.5*9.5
950	986.5	19.8	9.5	6.3	DPT2-950*986.5*9.5
970	1006.5	19.8	9.5	6.3	DPT2-970*1006.5*9.5
1130	1166.5	19.8	9.5	6.3	DPT2-1130*1166.5*9.5
1150	1186.5	19.8	9.5	6.3	DPT2-1150*1186.5*9.5
1160	1196.5	19.8	9.5	6.3	DPT2-1160*1196.5*9.5
1320	1356.5	19.8	9.5	6.3	DPT2-1320*1356.5*9.5

1. Installation Recommendation



2. Application and properties

Dust rings are used in conjunction with piston seals and wear rings, it could prevent the impurities to damage the sealing elements in the cylinder, to ensure the longer life of the sealing element. When used in conjunction with piston rod seals and metal bushings, it could protect the damage for the piston rods. There is an incision and an oil pressure bypass slot to prevent the accumulation of oil pressure.

3. Standard materials

Sealing ring: filled PTFE

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3 - 1600mm	-	-55°C +225°C	1.5 m/s	general hydraulic oil, water glycol hydraulic oil, oil / water emulsion type hydraulic oil.



K Z T

5. Installation Dimensions

Bore Dia.	Groove Dia.	Groove Width	Order No.
D	d	H	
70	62	4	KZT70*62*4
75	67	4	KZT75*67*4
80	72	4	KZT80*72*4
85	77	4	KZT85*77*4
90	82	4	KZT90*82*4
80	72	6	KZT80*72*6
85	77	6	KZT85*77*6
90	82	6	KZT90*82*6
95	87	6	KZT95*87*6
100	92	6	KZT100*92*6
105	97	6	KZT105*97*6
110	102	6	KZT110*102*6
115	107	6	KZT115*107*6
120	112	6	KZT120*112*6
125	117	6	KZT125*117*6
130	122	6	KZT130*122*6
135	127	6	KZT135*127*6
140	132	6	KZT140*132*6
145	137	6	KZT145*137*6
150	142	6	KZT150*142*6
160	152	6	KZT160*152*6
170	162	6	KZT170*162*6
180	172	6	KZT180*172*6
190	182	6	KZT190*182*6
100	92	7.9	KZT100*92*7.9
105	97	7.9	KZT105*97*7.9
110	102	7.9	KZT110*102*7.9
115	107	7.9	KZT115*107*7.9
120	112	7.9	KZT120*112*7.9
125	117	7.9	KZT125*117*7.9
130	122	7.9	KZT130*122*7.9
135	127	7.9	KZT135*127*7.9
140	132	7.9	KZT140*132*7.9
145	137	7.9	KZT145*137*7.9
150	142	7.9	KZT150*142*7.9
160	152	7.9	KZT160*152*7.9
170	162	7.9	KZT170*162*7.9
180	172	7.9	KZT180*172*7.9
190	182	7.9	KZT190*182*7.9

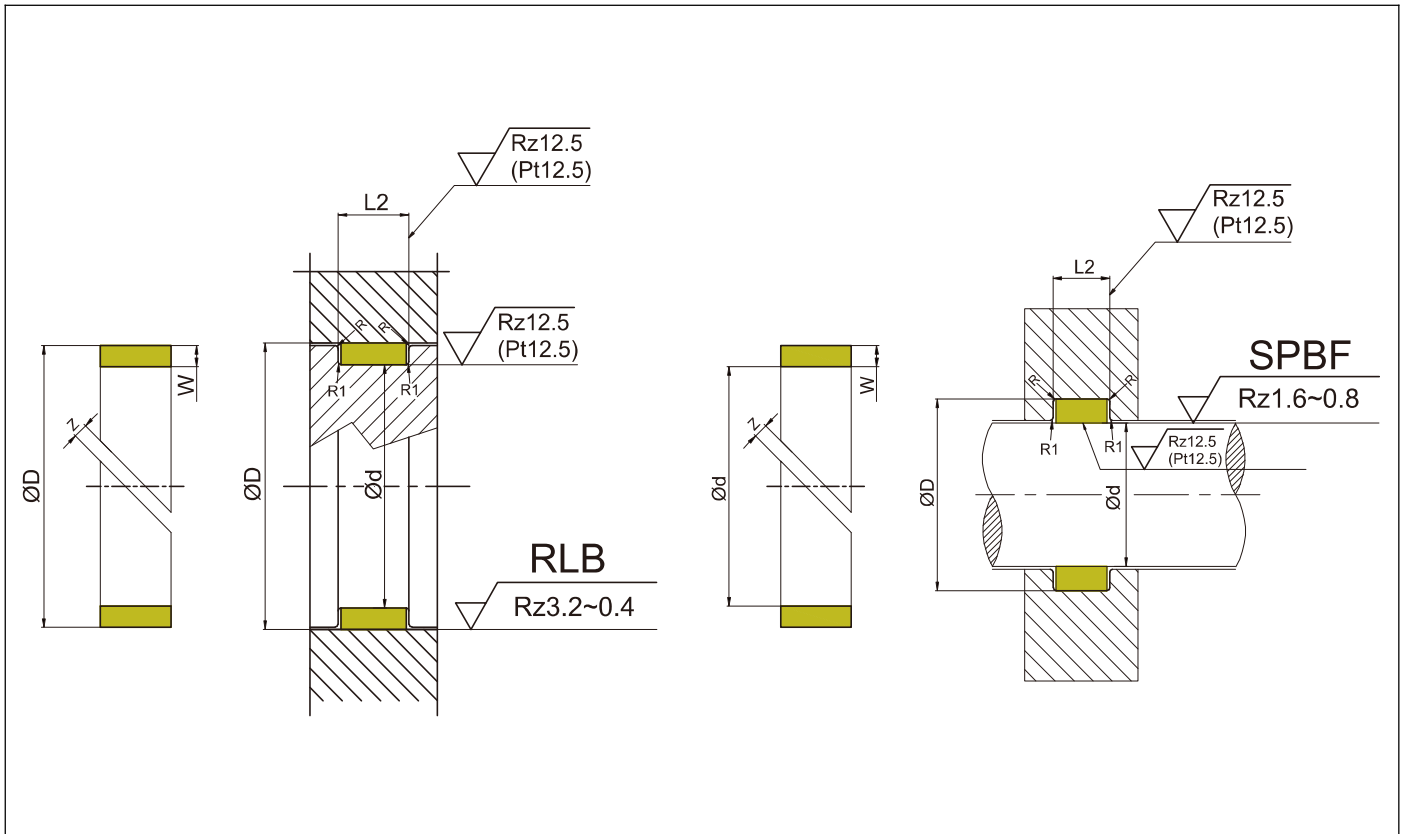


K Z T

Bore Dia.	Groove Dia.	Groove Width	Order No.
D	d	H	
200	192	7.9	KZT200*192*7.9
100	92	9.5	KZT100*92*9.5
105	97	9.5	KZT105*97*9.5
110	102	9.5	KZT110*102*9.5
115	107	9.5	KZT115*107*9.5
120	112	9.5	KZT120*112*9.5
125	117	9.5	KZT125*117*9.5
130	122	9.5	KZT130*122*9.5
135	127	9.5	KZT135*127*9.5
140	132	9.5	KZT140*132*9.5
145	137	9.5	KZT145*137*9.5
150	142	9.5	KZT150*142*9.5
160	152	9.5	KZT160*152*9.5
170	162	9.5	KZT170*162*9.5
180	172	9.5	KZT180*172*9.5
190	182	9.5	KZT190*182*9.5
200	192	9.5	KZT200*192*9.5
90	82	14.8	KZT90*82*14.8
95	87	14.8	KZT95*87*14.8
100	92	14.8	KZT100*92*14.8
105	97	14.8	KZT105*97*14.8
110	102	14.8	KZT110*102*14.8
115	107	14.8	KZT115*107*14.8
120	112	14.8	KZT120*112*14.8
125	117	14.8	KZT125*117*14.8
130	122	14.8	KZT130*122*14.8
135	127	14.8	KZT135*127*14.8
140	132	14.8	KZT140*132*14.8
145	137	14.8	KZT145*137*14.8
150	142	14.8	KZT150*142*14.8



1. Installation Recommendation



2. Application and properties

Applicable to the guiding of piston and piston rod of hydraulic cylinder and air cylinder, has the function of supporting and guiding. The guide strips with the thickness which equal to or greater than 2mm, double sided embossing could be provided, the embossing structure is conducive to the formation of lubrication micro-pit, improve micro lubrication, at the same time, it is helpful to embed tiny foreign objects and protect the sealing system.

3. Standard materials

Filled PTFE

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
Custom as Required	—	-55℃ +225℃	15 m/s	hydraulic oil, emulsion, and water

Piston: $L = C \times (D - W) - k$ [mm] D = Piston Dia. [mm] W = Thickness [mm]

Rod: $L = C \times (d + W) - k$ [mm] d = Rod Dia. [mm] C = 3.14 k=0.8



G S T

5. Length of whole roll

Thickness	1	1.5	2	2.5	3	4	5	6
Length of whole roll (m)	55	35	27	22	18	13	10	8

Above data only for reference, it shall follow the actual products.

Standard groove width

Groove width L2	2.5	3.2	4	4.2	5.6	6	6.3	8.1	9.7	10	12	15	18	20	25	30	40	50
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The products of various width could be provided.

Standard thickness of product

Thickness W	1	1.5	1.55	2	2.5	3	4	5	6
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The products of various thickness could be provided.



Technical drawing of a guide sleeve assembly with a combined seal. The drawing includes a side view on the left and a cross-sectional view on the right.

Side View Dimensions:

- Outer diameter: $\varnothing D$
- Inner diameter: $\varnothing D_1$
- Guide sleeve diameter: $\varnothing d$
- Height: H
- Seal dimensions: c and a

Cross-sectional View Details:

- GUIDE SLEEVE:** The outer component, shown with diagonal hatching.
- COMBINED SEAL:** The black, T-shaped seal component.
- Surface Finish:**
 - Seal: $Rz12.5$ ($Pt12.5$)
 - Sleeve: **SPBF** $Rz1.6 \sim 0.8$
- Dimensions:**
 - L : Length of the seal assembly.
 - R : Radius of the guide sleeve.
 - R : Radius of the seal.

Applicable to the guide sleeve of piston rod, can support and guide the piston rod. Excellent vibration reducing performance, installation is simple and secure. The metal and plastic material pairing can prevent the "stagnation" and "seizure" phenomenon.

Filled PTFE / PA / POM

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
20 - 1000mm	-	-55℃ +225℃	3 m/s	general hydraulic oil, emulsion, water



5. Installation Dimensions

d	D	D ₁	H	c	a	Order No.
20	26	23	19	6	6.5	DFI20*26*19
22	28	25	19	6	6.5	DFI22*28*19
25	31	28	19	6	6.5	DFI25*31*19
28	34	31	19	6	6.5	DFI28*34*19
30	36	33	19	6	6.5	DFI30*36*19
36	42	39	19	6	6.5	DFI36*42*19
40	46	43	19	6	6.5	DFI40*46*19
42	48	45	19	6	6.5	DFI42*48*19
45	51	48	19	6	6.5	DFI45*51*19
50	56	53	19	6	6.5	DFI50*56*19
55	61	58	19	6	6.5	DFI55*61*19
56	62	59	19	6	6.5	DFI56*62*19
60	70	65	24	7	8.5	DFI60*70*24
63	73	68	24	7	8.5	DFI63*73*24
65	75	70	24	7	8.5	DFI65*75*24
70	80	75	24	7	8.5	DFI70*80*24
72	82	77	24	7	8.5	DFI72*82*24
75	85	80	24	7	8.5	DFI75*85*24
80	90	85	24	7	8.5	DFI80*90*24
85	95	90	24	7	8.5	DFI85*95*24
90	100	95	24	7	8.5	DFI90*100*24
95	105	100	24	7	8.5	DFI95*105*24
96	106	101	24	7	8.5	DFI96*106*24
100	110	105	24	7	8.5	DFI100*110*24
105	115	110	24	7	8.5	DFI105*115*24
110	120	115	24	7	8.5	DFI110*120*24
115	125	120	24	7	8.5	DFI115*125*24
120	130	125	24	7	8.5	DFI120*130*24
125	135	130	24	7	8.5	DFI125*135*24
130	140	135	24	7	8.5	DFI130*140*24
140	150	145	24	7	9.5	DFI140*150*24
150	162	156	35	15	10	DFI150*162*35
155	167	161	35	15	10	DFI155*167*35
160	172	166	35	15	10	DFI160*172*35
165	177	171	35	15	10	DFI165*177*35
170	182	176	35	15	10	DFI170*182*35
180	192	186	35	15	10	DFI180*192*35
190	202	196	35	15	10	DFI190*202*35
200	212	206	35	15	10	DFI200*212*35

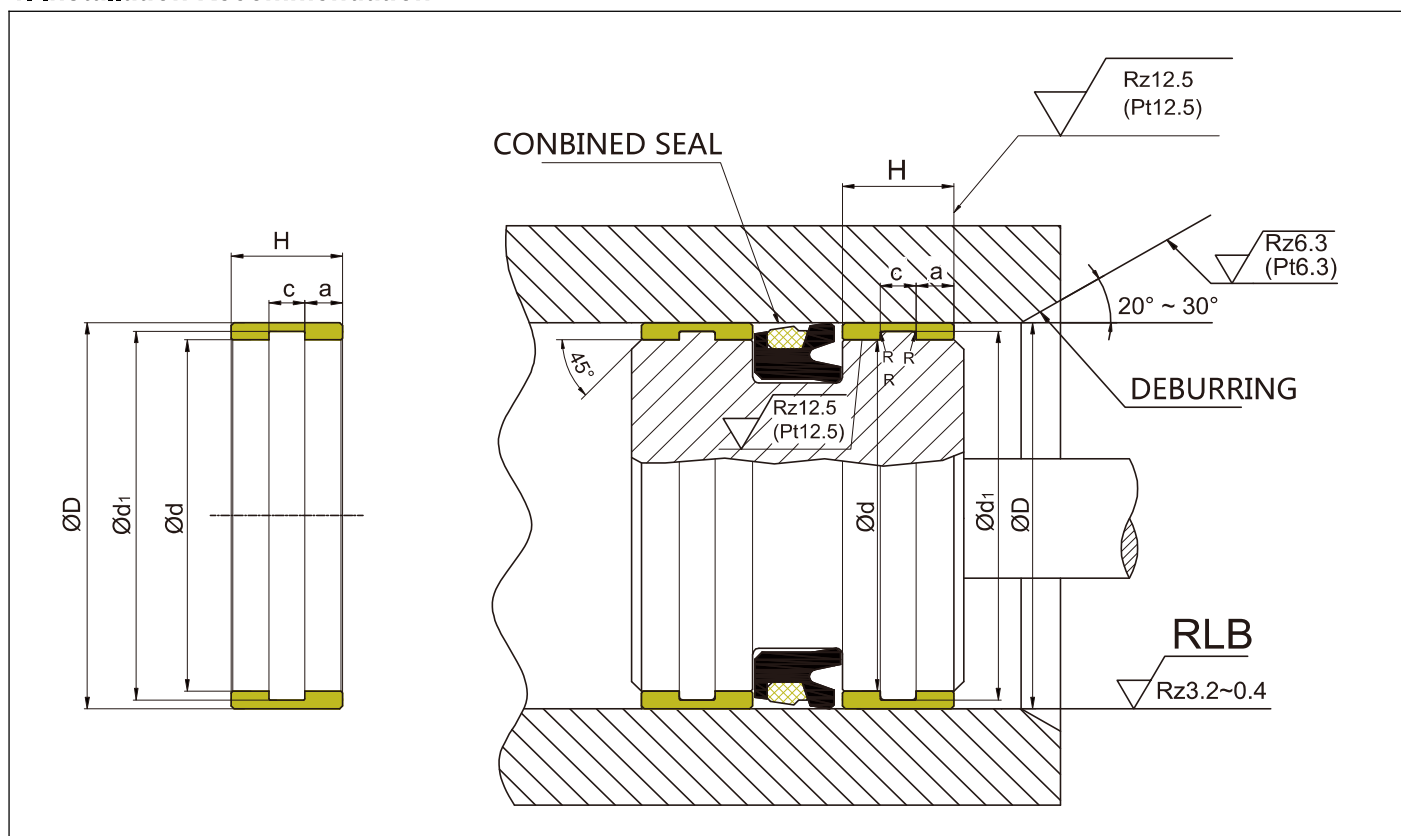


DFI

d	D	D ₁	H	c	a	Order No.
220	232	226	35	15	10	DFI220*232*35
225	237	231	35	15	10	DFI225*237*35
240	252	246	35	15	10	DFI240*252*35
250	262	256	35	15	10	DFI250*262*35
280	292	286	35	15	10	DFI280*292*35
300	312	306	35	15	10	DFI300*312*35
350	362	356	35	15	10	DFI350*362*35
400	412	406	35	15	10	DFI400*412*35
450	462	456	35	15	10	DFI450*462*35
500	512	506	35	15	10	DFI500*512*35
600	612	606	35	15	10	DFI600*612*35
630	642	636	35	15	10	DFI630*642*35



1. Installation Recommendation



2. Application and properties

Applicable to the guide sleeve of piston rod, can support and guide the piston rod. Excellent vibration reducing performance, installation is simple and secure. The metal and plastic material pairing can prevent the "stagnation" and "seizure" phenomenon.

3. Standard materials

Filled PTFE / PA / POM

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
40 - 1000mm	-	-55℃ +225℃	3 m/s	general hydraulic oil, emulsion, water



DFA

5. Installation Dimensions

D	d	D ₁	H	c	a	Order No.
40	32	36	12	3.5	4.7	DFA40*32*12
45	37	41	12	3	4.7	DFA45*37*12
50	42	46	12	3	6.2	DFA50*42*12
55	47	51	12	3	6.2	DFA55*47*12
56	48	52	12	3	6.2	DFA56*48*12
57	49	53	12	3	6.2	DFA57*49*12
58	50	54	12	3	6.2	DFA58*50*12
60	52	56	12	3	6.2	DFA60*52*12
63	55	59	12	3	6.2	DFA63*55*12
65	57	61	12	3	6.2	DFA65*57*12
70	62	66	12	3	6.2	DFA70*62*12
75	67	71	12	3	6.2	DFA75*67*12
80	72	76	14	3	7.2	DFA80*72*14
85	77	81	14	3	7.2	DFA85*77*14
90	82	86	14	3	7.2	DFA90*82*14
95	87	91	14	3	7.2	DFA95*87*14
100	92	96	14	3	7.2	DFA100*92*14
105	97	101	14	3	7.2	DFA105*97*14
110	102	106	14	3	7.2	DFA110*102*14
115	107	111	14	3	7.2	DFA115*107*14
120	112	116	14	3	7.2	DFA120*112*14
125	115	121	17.5	4	9.2	DFA125*115*17.5
130	120	126	17.5	4	4.3	DFA130*120*12.3
135	125	131	17.5	4	9.2	DFA135*125*17.5
140	130	136	17.5	4	9.2	DFA140*130*17.5
145	135	141	17.5	4	9.2	DFA145*135*17.5
150	140	146	17.5	4	9.2	DFA150*140*17.5
155	145	151	17.5	4	9.2	DFA155*145*17.5
160	150	156	17.5	4	9.2	DFA160*150*17.5
170	160	166	20	6	9.2	DFA170*160*20
180	170	176	20	6	9.2	DFA180*170*20
190	180	186	20	4.5	11.7	DFA190*180*20
200	190	196	20	4.5	11.7	DFA200*190*20
210	200	206	25	8	11.7	DFA210*200*25
220	210	216	25	8	11.7	DFA220*210*25
225	215	221	25	8	11.7	DFA225*215*25
230	220	226	25	8	11.7	DFA230*220*25
250	240	246	33	15	11.7	DFA250*240*33
265	255	261	33	15	11.7	DFA265*255*33



DFA

d	D	D ₁	H	c	a	Order No.
280	270	276	33	15	11.7	DFA280*270*33
300	290	296	33	15	11.7	DFA300*290*33
350	338	344	35	8.5	13.25	DFA350*338*35
400	388	394	35	8.5	13.25	DFA400*388*35
450	438	444	35	8.5	13.25	DFA450*438*35
500	488	494	35	8.5	13.25	DFA500*488*35
560	548	554	35	8.5	13.25	DFA560*548*35
600	588	594	35	8.5	13.25	DFA600*588*35
650	638	644	35	8.5	13.25	DFA650*638*35
700	688	694	35	8.5	13.25	DFA700*688*35
800	788	794	35	8.5	13.25	DFA800*788*35
1000	988	994	35	8.5	13.25	DFA1000*988*35



5. Installation Dimensions

d	D	D ₁	H	L	c	a	Order No.
28	34	31	19	17	6	6.5	DFAI28*34*19
30	36	33	19	17	6	6.5	DFAI30*36*19
36	42	39	19	17	6	6.5	DFAI36*42*19
40	46	43	19	17	6	6.5	DFAI40*46*19
42	48	45	19	17	6	6.5	DFAI42*48*19
45	51	48	19	17	6	6.5	DFAI45*51*19
50	56	53	19	17	6	6.5	DFAI50*56*19
55	61	58	19	17	6	6.5	DFAI55*61*19
56	62	59	19	17	6	6.5	DFAI56*62*19
60	70	65	24	21	7	8.5	DFAI60*70*24
63	73	68	24	21	7	8.5	DFAI63*73*24
65	75	70	24	21	7	8.5	DFAI65*75*24
70	80	75	24	21	7	8.5	DFAI70*80*24
72	82	77	24	21	7	8.5	DFAI72*82*24
75	85	80	24	21	7	8.5	DFAI75*85*24
80	90	85	24	21	7	8.5	DFAI80*90*24
85	95	90	24	21	7	8.5	DFAI85*95*24
90	100	95	24	21	7	8.5	DFAI90*100*24
95	105	100	24	21	7	8.5	DFAI95*105*24
100	110	105	24	21	7	8.5	DFAI100*110*24
105	115	110	24	21	7	8.5	DFAI105*115*24
110	120	115	24	21	7	8.5	DFAI110*120*24
115	125	120	24	21	7	8.5	DFAI115*125*24
120	130	125	24	21	7	8.5	DFAI120*130*24
125	135	130	24	21	7	8.5	DFAI125*135*24
130	140	135	24	21	7	8.5	DFAI130*140*24
140	150	145	24	21	7	8.5	DFAI140*150*24
150	162	156	35	31	15	10	DFAI150*162*35
160	172	166	35	31	15	10	DFAI160*172*35
165	177	171	35	31	15	10	DFAI165*177*35
170	182	176	35	31	15	10	DFAI170*182*35
180	192	186	35	31	15	10	DFAI180*192*35
190	202	196	35	31	15	10	DFAI190*202*35
200	212	206	35	31	15	10	DFAI200*212*35
220	232	226	35	31	15	10	DFAI220*232*35
225	237	231	35	31	15	10	DFAI225*237*35
240	252	246	35	31	15	10	DFAI240*252*35
250	262	256	35	31	15	10	DFAI250*262*35
260	272	266	35	31	15	10	DFAI260*272*35



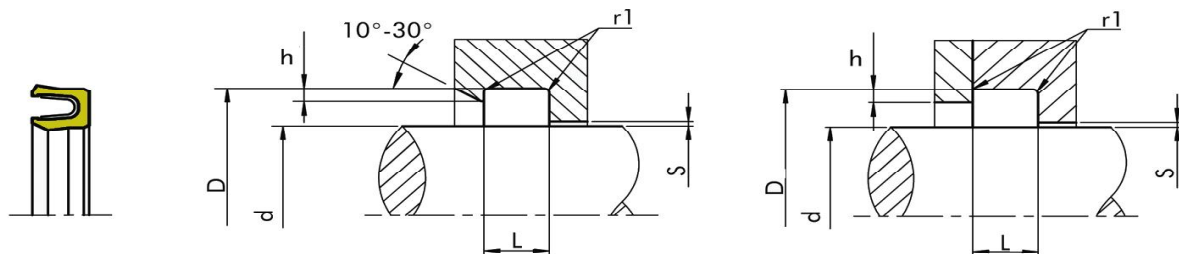
DFAI

d	D	D ₁	H	L	c	a	Order No.
280	292	286	35	31	15	10	DFAI280*292*35
290	302	296	35	31	15	10	DFAI290*302*35
300	312	306	35	31	15	10	DFAI300*312*35
320	332	326	35	31	15	10	DFAI320*332*35
350	362	356	35	31	15	10	DFAI350*362*35
360	372	366	35	31	15	10	DFAI360*372*35
380	392	386	35	31	15	10	DFAI380*392*35
400	412	406	35	31	15	10	DFAI400*412*35
450	462	456	35	31	15	10	DFAI450*462*35
500	512	506	35	31	15	10	DFAI500*512*35
600	612	606	35	31	15	10	DFAI600*612*35
630	642	636	35	31	15	10	DFAI630*642*35



1. Installation Recommendation

Standard Groove					Widen groove				
Type	Code				Type	Code			
Rod and Piston	DEPA				Rod and Piston	DEPB			
Rod	DRPA				Rod	DRPB			



2. Installation Sizes

Rod Diameter	Groove Diameter	Groove Width	Radius	Step Height	Radial Clearance S max.			
d h9	D H9	L+0.2	r ₁	h	2MPa	10MPa	20MPa	40MPa
3.0-9.9	C+2.9	2.4	0.4	0.4	0.20	0.10	0.08	0.05
10.0-19.9	C+4.5	3.6	0.4	0.6	0.25	0.15	0.10	0.07
20.0-39.9	C+6.2	4.8	0.6	0.7	0.35	0.20	0.15	0.08
40.0-119.9	C+9.4	7.1	0.8	0.8	0.50	0.25	0.20	0.10
120.0-630.0	C+12.2	9.5	0.8	0.8	0.60	0.30	0.25	0.12

3. Application and properties

Applicable to harsh conditions and some special media requirements, it is a recommended seal for applications that do not crawl, chemical resistant, and resistant to most media applications. Could be used for reciprocating and rotary motion, with small friction coefficient, wear resistance and dimensional stability.

4. Standard materials

Sealing ring: filled PTFE / PU

Spring: stainless steel



DRP/DEP

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3-1000mm	0—45MPa	-40℃ +260℃	15 m/s	all liquids, chemicals, and gases

6. Installation Dimensions

Rod Dia.	Groove Dia.	Groove Width	Order No.
d h9	D H9	L +0.2	
3	5.9	2.4	DRP3*5.9*2.4
4	6.9	2.4	DRP4*6.9*2.4
5	7.9	2.4	DRP5*7.9*2.4
6	8.9	2.4	DRP6*8.9*2.4
8	10.9	2.4	DRP8*10.9*2.4
10	14.5	3.6	DRP10*14.5*3.6
12	16.5	3.6	DRP12*16.5*3.6
14	18.5	3.6	DRP14*18.5*3.6
15	19.5	3.6	DRP15*19.5*3.6
16	20.5	3.6	DRP16*20.5*3.6
18	22.5	3.6	DRP18*22.5*3.6
20	26.2	4.8	DRP20*26.2*4.8
22	28.2	4.8	DRP22*28.2*4.8
25	31.2	4.8	DRP25*31.2*4.8
28	34.2	4.8	DRP28*34.2*4.8
30	36.2	4.8	DRP30*36.2*4.8
32	38.2	7.1	DRP32*38.2*7.1
35	41.2	7.1	DRP35*41.2*7.1
36	42.2	7.1	DRP36*42.2*7.1
40	49.4	7.1	DRP40*49.4*7.1
42	51.4	7.1	DRP42*51.4*7.1
45	54.4	7.1	DRP45*54.4*7.1
48	57.4	7.1	DRP48*57.4*7.1
50	59.4	7.1	DRP50*59.4*7.1
52	61.4	7.1	DRP52*61.4*7.1
55	64.4	7.1	DRP55*64.4*7.1
56	65.4	7.1	DRP56*65.4*7.1
60	69.4	7.1	DRP60*69.4*7.1
63	72.4	7.1	DRP63*72.4*7.1
65	74.4	7.1	DRP65*74.4*7.1
70	79.4	7.1	DRP70*79.4*7.1
75	84.4	7.1	DRP75*84.4*7.1
80	89.4	7.1	DRP80*89.4*7.1



DRP/DEP

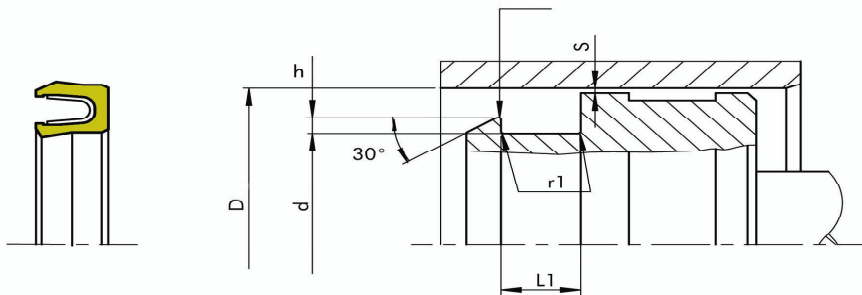
Rod Dia.	Groove Dia.	Groove Width	Order No.
d h9	D H9	L +0.2	
85	94.4	7.1	DRP85*94.4*7.1
90	99.4	7.1	DRP90*99.4*7.1
95	104.4	7.1	DRP95*104.4*7.1
100	109.4	7.1	DRP100*109.4*7.1
105	114.4	7.1	DRP105*114.4*7.1
110	119.4	7.1	DRP110*119.4*7.1
115	124.4	7.1	DRP115*124.4*7.1
120	132.4	7.1	DRP120*132.4*7.1
125	137.2	9.5	DRP125*137.2*9.5
130	142.2	9.5	DRP130*142.2*9.5
135	147.2	9.5	DRP135*147.2*9.5
140	152.2	9.5	DRP140*152.2*9.5
150	162.2	9.5	DRP150*162.2*9.5
160	172.2	9.5	DRP160*172.2*9.5
170	182.2	9.5	DRP170*182.2*9.5
180	192.2	9.5	DRP180*192.2*9.5
190	202.2	9.5	DRP190*202.2*9.5
200	212.2	9.5	DRP200*212.2*9.5
210	222.2	9.5	DRP210*222.2*9.5
220	232.2	9.5	DRP220*232.2*9.5
230	242.2	9.5	DRP230*242.2*9.5
240	252.2	9.5	DRP240*252.2*9.5
250	262.2	9.5	DRP250*262.2*9.5
280	292.2	9.5	DRP280*292.2*9.5
300	312.2	9.5	DRP300*312.2*9.5
350	362.2	9.5	DRP350*362.2*9.5
400	412.2	9.5	DRP400*412.2*9.5



DEG/DEP

1. Installation Recommendation

Standard Groove					Widen groove				
Type	Code				Type	Code			
Rod and Piston	DEPA				Rod and Piston	DEPB			
Piston	DEGA				Rod	DEGB			



2. Installation Sizes

Bore Diameter	Groove Diameter	Groove Width	Radius	Step Height	Radial Clearance S max.			
D H9	d h9	$L_1+0.2$	r_1	h	2MPa	10MPa	20MPa	40MPa
6.0-19.9	B-2.9	2.4	0.4	0.4	0.20	0.10	0.08	0.05
14.0-24.9	B-4.5	3.6	0.4	0.6	0.25	0.15	0.10	0.07
25.0-45.9	B-6.2	4.8	0.6	0.7	0.35	0.20	0.15	0.08
46.0-124.9	B-9.4	7.1	0.8	0.8	0.50	0.25	0.20	0.10
125.0-999.9	B-12.2	9.5	0.8	0.8	0.60	0.30	0.25	0.12

3. Application and properties

Applicable to harsh conditions and some special media requirements, it is a recommended seal for applications that do not crawl, chemical resistant, and resistant to most media applications. Could be used for reciprocating and rotary motion, with small friction coefficient, wear resistance and dimensional stability

4. Standard materials

Sealing ring: filled PTFE

Spring: stainless steel



DEG/DEP

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3-1000mm	0—45MPa	-40℃ +260℃	15 m/s	all liquids, chemicals, and gases

6. Installation Dimensions

Rod Dia.	Groove Dia.	Groove Width	Order No.
D H9	d h9	L +0.2	
6	3.1	2.4	DEG6*3.1*2.4
8	5.1	2.4	DEG8*5.1*2.4
10	7.1	2.4	DEG10*7.1*2.4
12	9.1	2.4	DEG12*9.1*2.4
14	9.5	3.6	DEG14*9.5*3.6
15	10.5	3.6	DEG15*10.5*3.6
16	11.5	3.6	DEG16*11.5*3.6
18	13.5	3.6	DEG18*13.5*3.6
20	15.5	3.6	DEG20*15.5*3.6
22	17.5	3.6	DEG22*17.5*3.6
25	18.8	4.8	DEG25*18.8*4.8
28	21.8	4.8	DEG28*21.8*4.8
30	23.8	4.8	DEG30*23.8*4.8
32	25.8	4.8	DEG32*25.8*4.8
35	28.8	4.8	DEG35*28.8*4.8
40	33.8	4.8	DEG40*33.8*4.8
42	35.8	4.8	DEG42*35.8*4.8
45	38.8	4.8	DEG45*38.8*4.8
48	38.6	7.1	DEG48*38.6*7.1
50	40.6	7.1	DEG50*40.6*7.1
52	42.6	7.1	DEG52*42.6*7.1
55	45.6	7.1	DEG55*45.6*7.1
56	46.6	7.1	DEG56*46.6*7.1
60	50.6	7.1	DEG60*50.6*7.1
63	53.6	7.1	DEG63*53.6*7.1
65	55.6	7.1	DEG65*55.6*7.1
70	60.6	7.1	DEG70*60.6*7.1
75	65.6	7.1	DEG75*65.6*7.1
80	70.6	7.1	DEG80*70.6*7.1
85	75.6	7.1	DEG85*75.6*7.1
90	80.6	7.1	DEG90*80.6*7.1
95	85.6	7.1	DEG95*85.6*7.1
100	90.6	7.1	DEG100*90.6*7.1



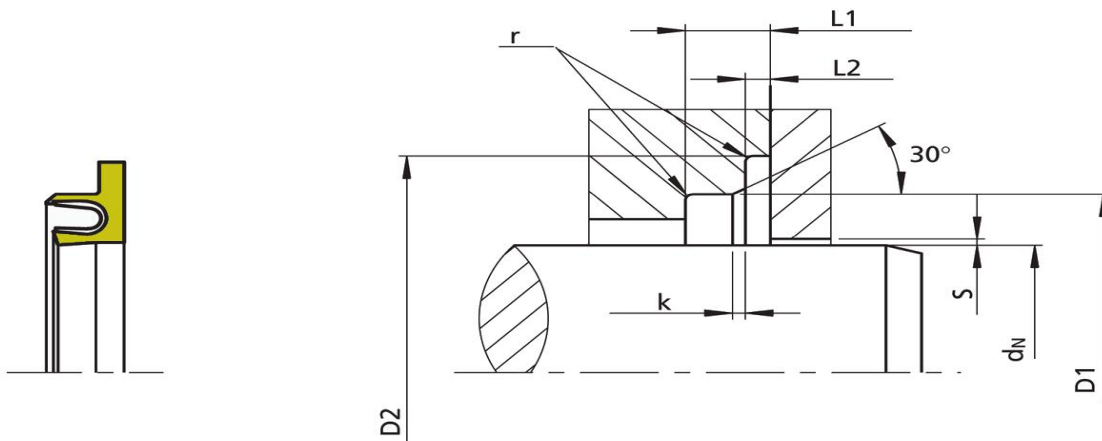
DEG/DEP

Rod Dia.	Groove Dia.	Groove Width	Order No.
d h9	D H9	L +0.2	
110	100.6	7.1	DEG110*100.6*7.1
115	105.6	7.1	DEG115*105.6*7.1
120	110.6	7.1	DEG120*110.6*7.1
125	112.8	9.5	DEG125*112.8*9.5
130	117.8	9.5	DEG130*117.8*9.5
135	122.8	9.5	DEG135*122.8*9.5
140	127.8	9.5	DEG140*127.8*9.5
150	137.8	9.5	DEG150*137.8*9.5
160	147.8	9.5	DEG160*147.8*9.5
170	157.8	9.5	DEG170*157.8*9.5
180	167.8	9.5	DEG180*167.8*9.5
190	177.8	9.5	DEG190*177.8*9.5
200	187.8	9.5	DEG200*187.8*9.5
210	197.8	9.5	DEG210*197.8*9.5
220	207.8	9.5	DEG220*207.8*9.5
230	217.8	9.5	DEG230*217.8*9.5
240	227.8	9.5	DEG240*227.8*9.5
250	237.8	9.5	DEG250*237.8*9.5
280	267.8	9.5	DEG280*267.8*9.5
300	287.8	9.5	DEG300*287.8*9.5
320	307.8	9.5	DEG320*307.8*9.5
350	337.8	9.5	DEG350*337.8*9.5
400	387.8	9.5	DEG400*387.8*9.5
420	407.8	9.5	DEG420*407.8*9.5
450	437.8	9.5	DEG450*437.8*9.5
480	467.8	9.5	DEG480*467.8*9.5
500	487.8	9.5	DEG500*487.8*9.5



1. Installation Recommendation

Standard Groove					Widen groove				
Type	Code				Type	Code			
Equal Altitude Lips/Rod	DTVA				High and Low Lips/Rod	DTVB			



2. Installation Sizes

Rod Diameter	Groove Diameter		Groove Width	Radius	Step Height	Radial Clearance S max.		
	D ₁ H9	D ₂ H9				2MPa	10MPa	20MPa
d _N f8	d _N +5.0	d _N +9.0	L ₁ +0.2	r ₁	h	0.25	0.15	0.10
5.0-19.9	d _N +5.0	d _N +9.0	3.6	0.8	0.3	0.25	0.15	0.10
20.0-39.9	d _N +7.0	d _N +12.5	4.8	1.1	0.4	0.35	0.20	0.15
40.0-399.9	d _N +10.5	d _N +17.5	7.1	1.4	0.5	0.50	0.25	0.20
400.0-999.9	d _N +14.0	d _N +22.0	9.5	1.6	0.6	0.60	0.30	0.25

3. Application and properties

Suitable for rotating, reciprocating, static sealing applications. Single action seals for rotating shafts. It is widely used in various hydraulic systems and chemical, pharmaceutical and food industries. Excellent scraping effect, no creeping phenomenon, good abrasion resistance and dimensional stability.

4. Standard materials

Sealing ring: filled PTFE

Spring: stainless steel



DTV

5. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3-1000mm	0—25MPa	-40℃ +260℃	2 m/s	all liquids, chemicals, and gases

6. Installation Dimensions

Rod Dia.	Groove Dia.		Groove Width	Order No.
d f8	D1 H9	D2 H9	L1 +0.2	
5	10	14	3.6	DTV5*14*3.6
6	11	15	3.6	DTV6*15*3.6
8	13	17	3.6	DTV8*17*3.6
10	15	19	3.6	DTV10*19*3.6
12	17	21	3.6	DTV12*21*3.6
14	19	23	3.6	DTV14*23*3.6
15	20	24	3.6	DTV15*24*3.6
16	21	25	3.6	DTV16*25*3.6
18	23	27	3.6	DTV18*27*3.6
20	27	32.5	4.8	DTV20*32.5*4.8
22	29	34.5	4.8	DTV22*34.5*4.8
25	32	37.5	4.8	DTV25*37.5*4.8
28	35	40.5	4.8	DTV28*40.5*4.8
30	37	42.5	4.8	DTV30*42.5*4.8
32	39	44.5	4.8	DTV32*44.5*4.8
35	42	47.5	4.8	DTV35*47.5*4.8
36	43	48.5	4.8	DTV36*48.5*4.8
40	50.5	57.5	7.1	DTV40*57.5*7.1
42	52.5	59.5	7.1	DTV42*59.5*7.1
45	55.5	62.5	7.1	DTV45*62.5*7.1
48	58.5	65.5	7.1	DTV48*65.5*7.1
50	60.5	67.5	7.1	DTV50*67.5*7.1
52	62.5	69.5	7.1	DTV52*69.5*7.1
55	65.5	72.5	7.1	DTV55*72.5*7.1
56	66.5	73.5	7.1	DTV56*73.5*7.1
60	70.5	77.5	7.1	DTV60*77.5*7.1
63	73.5	80.5	7.1	DTV63*80.5*7.1
65	75.5	82.5	7.1	DTV65*82.5*7.1
70	80.5	87.5	7.1	DTV70*87.5*7.1
75	85.5	92.5	7.1	DTV75*92.5*7.1
80	90.5	97.5	7.1	DTV80*97.5*7.1
85	95.5	102.5	7.1	DTV85*102.5*7.1
90	100.5	107.5	7.1	DTV90*107.5*7.1



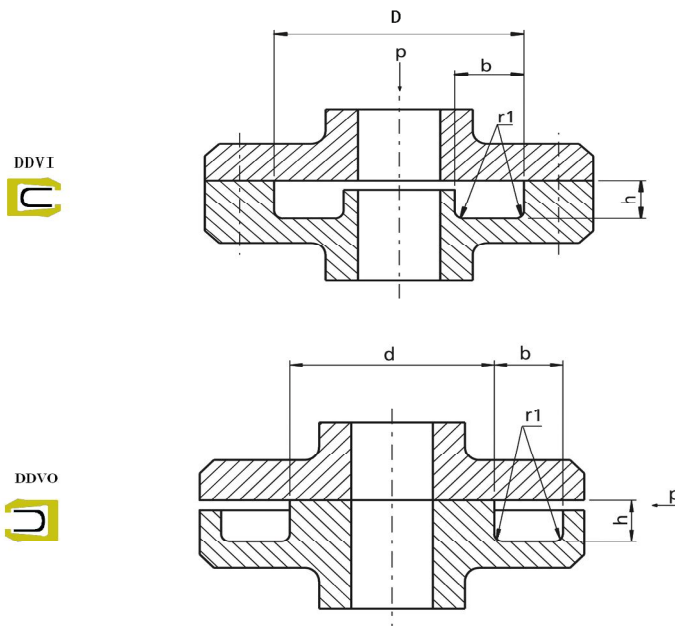
Rod Dia.	Groove Dia.		Groove Width	Order No.
	D1 H9	D2 H9	L1 +0.2	
d f8				
95	105.5	112.5	7.1	DTV95*112.5*7.1
100	110.5	117.5	7.1	DTV100*117.5*7.1
105	115.5	122.5	7.1	DTV105*122.5*7.1
110	120.5	127.5	7.1	DTV110*127.5*7.1
115	125.5	132.5	7.1	DTV115*132.5*7.1
120	130.5	137.5	7.1	DTV120*137.5*7.1
125	135.5	142.5	7.1	DTV125*142.5*7.1
130	140.5	147.5	7.1	DTV130*147.5*7.1
135	145.5	152.5	7.1	DTV135*152.5*7.1
140	150.5	157.5	7.1	DTV140*157.5*7.1
150	160.5	167.5	7.1	DTV150*167.5*7.1
160	170.5	177.5	7.1	DTV160*177.5*7.1
170	180.5	187.5	7.1	DTV170*187.5*7.1
180	190.5	197.5	7.1	DTV180*197.5*7.1
190	200.5	207.5	7.1	DTV190*207.5*7.1
200	210.5	217.5	7.1	DTV200*217.5*7.1
210	220.5	227.5	7.1	DTV210*227.5*7.1
220	230.5	237.5	7.1	DTV220*237.5*7.1
230	240.5	247.5	7.1	DTV230*247.5*7.1
240	250.5	257.5	7.1	DTV240*257.5*7.1
250	260.5	267.5	7.1	DTV250*267.5*7.1
280	290.5	297.5	7.1	DTV280*297.5*7.1
300	310.5	317.5	7.1	DTV300*317.5*7.1
320	330.5	337.5	7.1	DTV320*337.5*7.1
350	360.5	367.5	7.1	DTV350*367.5*7.1
360	370.5	377.5	7.1	DTV360*377.5*7.1
400	410.5	417.5	7.1	DTV400*417.5*7.1
420	434	442	9.5	DTV420*442*9.5
450	464	472	9.5	DTV450*472*9.5
480	494	502	9.5	DTV480*502*9.5
500	514	522	9.5	DTV500*522*9.5
600	614	622	9.5	DTV600*622*9.5
700	714	722	9.5	DTV700*722*9.5



DDV

1. Installation Recommendation

Standard Groove					Widen groove				
Type	Code				Type	Code			
		APS	103A	400A			APS	103A	400A
Inner Seal	DDVI				Lateral Seal	DDVO			
		DDVI					DDVO		



2. Application and properties

Suitable for single operation, high pressure, static seal and pressure outside. For lighter gases, refrigerant and vacuum have a good sealing effect. It is widely used in various static and slow sealing occasions. It has good leakage resistance and excellent sealing ability on undesirable surface.

3. Standard materials

Sealing ring: filled PTFE

Spring: stainless steel

4. Working Conditions

Working Conditions				
Diameter Range	Pressure Range	Temperature Range	Speed	Medium
3-1000mm	0—45MPa	-40℃ +260℃	-	all liquids, chemicals, and gases



DDV

5. Installation Dimensions

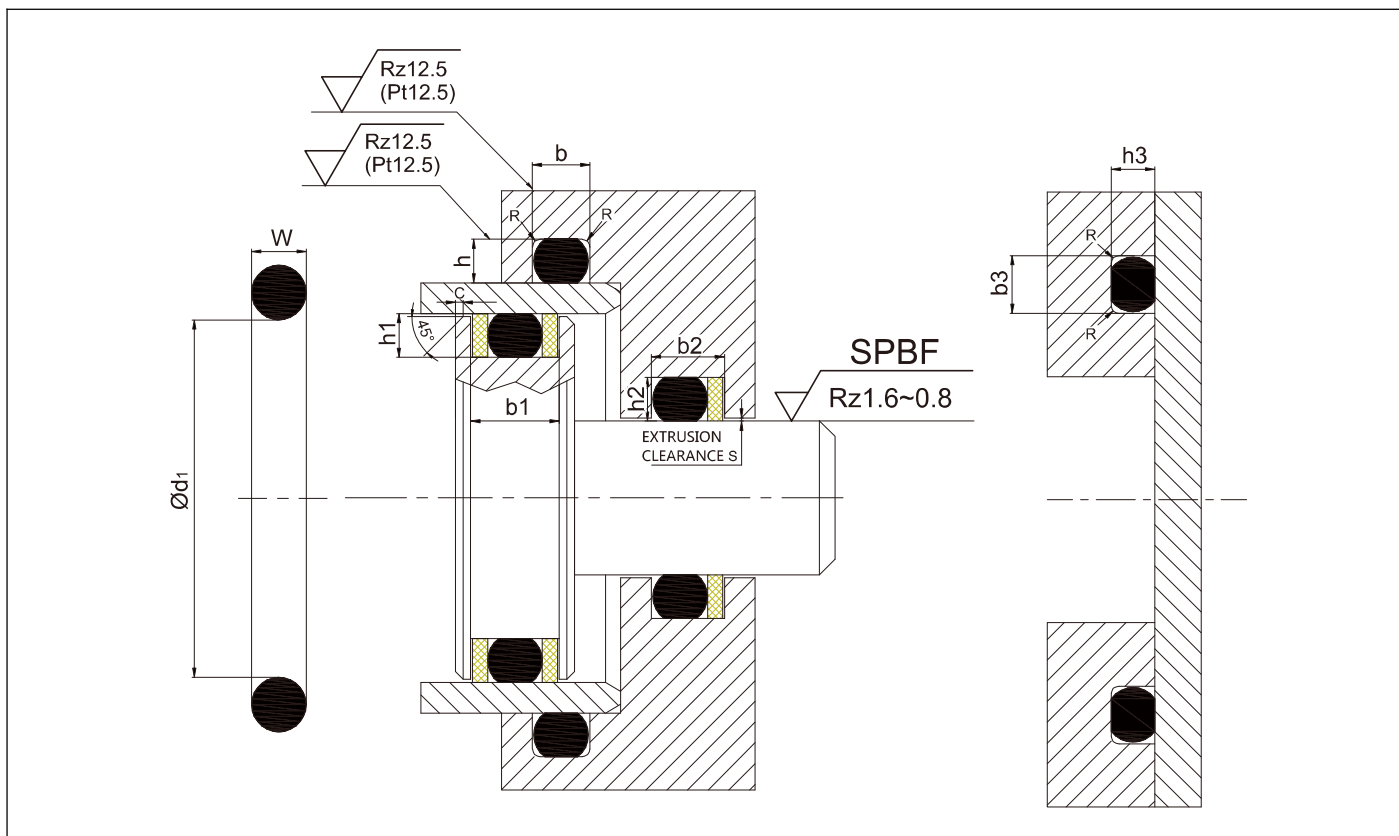
Inner Side of End Face Spring Seal						
Lateral Dia. of grooves D H11		Groove Width	Groove Depth		Radius	Order No.
Standard Range	Range of Application	min.	h	Tol.	Max.	
10-13.9	10-40	2.4	1.45	0.03	0.4	DDVI10
14-24.9	13-200	3.6	2.25	0.05	0.4	DDVI11
25-45.9	18-400	4.8	3.10	0.08	0.6	DDVI12
46-124.9	28-700	7.1	4.70	0.10	0.8	DDVI13
125-999.9	45-1000	9.5	6.10	0.15	0.8	DDVI14

Lateral Side of End Face Spring Seal						
Lateral Dia. of grooves D H11		Groove Width	Groove Depth		Radius	Order No.
Standard Range	Range of Application	min.	h	Tol.	Max.	
3-9.9	3-40	2.4	1.45	0.03	0.4	DDVO0
10-19.9	8-200	3.6	2.25	0.05	0.4	DDVO1
20-39.9	12-400	4.8	3.10	0.08	0.6	DDVO2
40-119.9	20-700	7.1	4.70	0.10	0.8	DDVO3
120-999.9	35-1000	9.5	6.10	0.15	0.8	DDVO4



O - Ring

1. Installation Recommendation



2. Application and properties

Double acting seals, the sealing effect is achieved by the deformation of the section of the O-Rings, and the deformation is determined by the depth of the installation groove. Under pressure, the O-ring has a large surface tension like liquid, used for static sealing more. It is only recommended for better conditions in dynamic applications. System lubrication, pressure, temperature, sealing clearance, speed, medium and surface quality of metal parts determine the service life of O-Rings. It is not recommended if the lubrication is not sufficient during rotary motion.

3. Standard materials

NBR / FKM

4. Performance parameter

	Static Seal	Dynamic Seal
Working Pressure	No support ring, up to 20MPa; With the support ring, up to 40MPa; With special support ring, up to 200MPa.	No support ring, up to 5MPa; With the support ring, higher pressure.
Movement Speed	Maximum reciprocating speed up to 0.5m / s; maximum rotation speed up to 2.0m/s.	
Temperature	NBR: -30℃ - 100℃; FKM: -20℃ - 200℃.	

O - Ring



5. Wire Diameter Tolerance

Wire diameter of O-Ring (mm)	Tolerance ($\pm$ mm)
0-1.8	0.08
1.80-2.65	0.09
2.65-3.55	0.10
3.55-5.30	0.13
5.30-7.00	0.15
7.00-8.00	0.18
8.00-10.00	0.21
10.00-12.00	0.25

6. Inner diameter tolerance

Inner Diameter d_1 mm	Tolerance $\pm$ mm	Inner Diameter d_1 mm	Tolerance $\pm$ mm	Inner Diameter d_1 mm	Tolerance $\pm$ mm
0.70-2.50	0.13	43.70-45.00	0.42	95.00-97.50	0.83
2.50-4.50	0.14	46.00-46.20	0.43	97.50-100.00	0.84
4.50-6.30	0.15	46.20-47.50	0.44	100.00-103.00	0.87
6.30-8.50	0.16	47.50-48.70	0.45	103.00-106.00	0.89
8.50-10.00	0.17	48.70-50.00	0.46	106.00-109.00	0.91
10.00-11.20	0.18	50.00-51.50	0.47	109.00-112.00	0.93
11.20-14.00	0.19	51.50-53.00	0.48	112.00-115.00	0.95
14.00-16.00	0.20	53.00-54.50	0.50	115.00-118.00	0.97
16.00-18.00	0.21	54.50-56.00	0.51	118.00-122.00	1.00
18.00-20.00	0.22	56.00-58.00	0.52	122.00-125.00	1.03
20.00-21.20	0.23	58.00-60.00	0.54	125.00-128.00	1.05
21.20-23.60	0.24	60.00-61.50	0.55	128.00-132.00	1.08
23.60-25.00	0.25	61.50-63.00	0.56	132.00-136.00	1.10
25.00-26.50	0.26	63.00-65.00	0.58	136.00-140.00	1.13
26.50-28.00	0.28	65.00-67.00	0.59	140.00-145.00	1.17
28.00-30.00	0.29	67.00-69.00	0.61	145.00-150.00	1.20
30.00-31.50	0.31	69.00-71.00	0.63	150.00-155.00	1.24
31.50-33.50	0.32	71.00-73.00	0.64	155.00-160.00	1.27
33.50-34.50	0.33	73.00-75.00	0.66	160.00-165.00	1.31
34.50-35.50	0.34	75.00-77.50	0.67	165.00-170.00	1.34
35.50-36.50	0.35	77.50-80.00	0.69	170.00-175.00	1.38
36.50-37.50	0.36	80.00-82.50	0.71	175.00-180.00	1.41
37.50-38.70	0.37	82.50-85.00	0.73	180.00-185.00	1.44
38.70-40.00	0.38	85.00-87.50	0.75	185.00-190.00	1.48
40.00-41.20	0.39	87.50-90.00	0.77	190.00-195.00	1.51
41.20-42.50	0.40	90.00-92.50	0.79	195.00-200.00	1.55
42.50-43.70	0.41	92.50-95.00	0.81	200.00-206.00	1.59

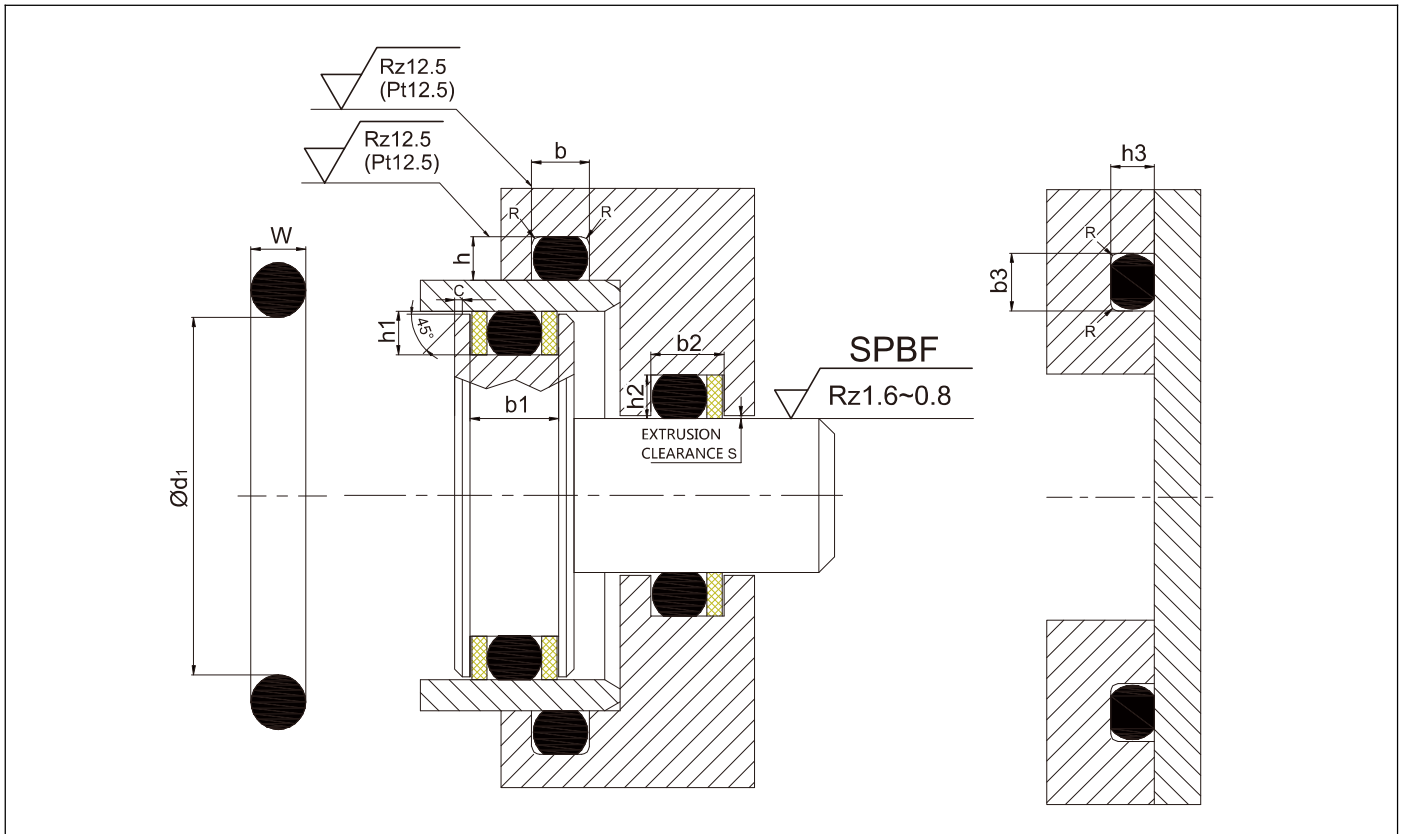


O - Ring

Inner Diameter d ₁ mm	Tolerance ±mm	Inner Diameter d ₁ mm	Tolerance ±mm	Inner Diameter d ₁ mm	Tolerance ±mm
206.00-212.00	1.63	315.00-325.00	2.37	485.00-500.00	3.45
212.00-218.00	1.67	325.00-335.00	2.43	500.00-515.00	3.54
218.00-224.00	1.71	335.00-345.00	2.49	515.00-530.00	3.63
224.00-230.00	1.75	345.00-355.00	2.56	530.00-545.00	3.72
230.00-236.00	1.79	355.00-365.00	2.62	545.00-560.00	3.81
236.00-243.00	1.83	365.00-375.00	2.68	560.00-580.00	3.93
243.00-250.00	1.88	375.00-387.00	2.76	580.00-600.00	4.05
250.00-258.00	1.93	387.00-400.00	2.84	600.00-615.00	4.13
258.00-265.00	1.98	400.00-412.00	2.91	615.00-630.00	4.22
265.00-272.00	2.02	412.00-425.00	2.99	630.00-650.00	4.34
272.00-280.00	2.08	425.00-437.00	3.07	650.00-670.00	4.46
280.00-290.00	2.14	437.00-450.00	3.15		
290.00-300.00	2.21	450.00-462.00	3.22		
300.00-307.00	2.25	462.00-475.00	3.30		
307.00-315.00	2.30	475.00-485.00	3.37		



1. Installation Recommendation



2. O-Ring Dimensions

d ₁	W	Order No.	d ₁	W	Order No.
0.74	1.02	AS-001	18.77	1.78	AS-018
1.07	1.27	AS-002	20.35	1.78	AS-019
1.42	1.52	AS-003	21.95	1.78	AS-020
1.78	1.78	AS-004	23.52	1.78	AS-021
2.57	1.78	AS-005	25.12	1.78	AS-022
2.9	1.78	AS-006	26.7	1.78	AS-023
3.68	1.78	AS-007	28.3	1.78	AS-024
4.47	1.78	AS-008	29.87	1.78	AS-025
5.28	1.78	AS-009	31.47	1.78	AS-026
6.07	1.78	AS-010	33.05	1.78	AS-027
7.65	1.78	AS-011	34.65	1.78	AS-028
9.25	1.78	AS-012	37.82	1.78	AS-029
10.82	1.78	AS-013	41	1.78	AS-030
12.42	1.78	AS-014	44.17	1.78	AS-031
14	1.78	AS-015	47.35	1.78	AS-032
15.6	1.27	AS-016	50.52	1.78	AS-033
17.17	1.52	AS-017	53.7	1.78	AS-034



AS 568

d ₁	W	Order No.	d ₁	W	Order No.
56.87	1.78	AS-035	34.59	2.62	AS-126
60.05	1.78	AS-036	36.17	2.62	AS-127
63.22	1.78	AS-037	37.77	2.62	AS-128
66.4	1.78	AS-038	39.34	2.62	AS-129
69.57	1.78	AS-039	40.94	2.62	AS-130
72.75	1.78	AS-040	42.52	2.62	AS-131
75.92	1.78	AS-041	44.12	2.62	AS-132
82.27	1.78	AS-042	45.69	2.62	AS-133
88.62	1.78	AS-043	47.29	2.62	AS-134
94.97	1.78	AS-044	48.9	2.62	AS-135
101.32	1.78	AS-045	50.47	2.62	AS-136
107.67	1.78	AS-046	52.07	2.62	AS-137
114.02	1.78	AS-047	53.64	2.62	AS-138
120.37	1.78	AS-048	55.25	2.62	AS-139
126.72	1.78	AS-049	56.82	2.62	AS-140
133.07	1.78	AS-050	58.42	2.62	AS-141
1.24	2.62	AS-102	59.99	2.62	AS-142
2.06	2.62	AS-103	61.6	2.62	AS-143
2.84	2.62	AS-104	63.17	2.62	AS-144
3.63	2.62	AS-105	64.77	2.62	AS-145
4.42	2.62	AS-106	66.34	2.62	AS-146
5.23	2.62	AS-107	67.95	2.62	AS-147
6.02	2.62	AS-108	69.52	2.62	AS-148
7.59	2.62	AS-109	71.12	2.62	AS-149
9.19	2.62	AS-110	72.69	2.62	AS-150
10.77	2.62	AS-111	75.87	2.62	AS-151
12.37	2.62	AS-112	82.22	2.62	AS-152
13.94	2.62	AS-113	88.57	2.62	AS-153
15.54	2.62	AS-114	94.92	2.62	AS-154
17.12	2.62	AS-115	101.27	2.62	AS-155
18.72	2.62	AS-116	107.62	2.62	AS-156
20.29	2.62	AS-117	113.97	2.62	AS-157
21.89	2.62	AS-118	120.32	2.62	AS-158
23.47	2.62	AS-119	126.67	2.62	AS-159
25.07	2.62	AS-120	133.02	2.62	AS-160
26.64	2.62	AS-121	139.37	2.62	AS-161
28.24	2.62	AS-122	145.72	2.62	AS-162
29.82	2.62	AS-123	152.07	2.62	AS-163
31.42	2.62	AS-124	158.42	2.62	AS-164
32.99	2.62	AS-125	164.77	2.62	AS-165



d ₁	W	Order No.	d ₁	W	Order No.
171.12	2.62	AS-166	53.57	3.53	AS-227
177.47	2.62	AS-167	56.74	3.53	AS-228
183.82	2.62	AS-168	59.92	3.53	AS-229
190.17	2.62	AS-169	63.09	3.53	AS-230
196.52	2.62	AS-170	66.27	3.53	AS-231
202.87	2.62	AS-171	69.44	3.53	AS-232
209.22	2.62	AS-172	72.62	3.53	AS-233
215.57	2.62	AS-173	75.79	3.53	AS-234
221.92	2.62	AS-174	78.97	3.53	AS-235
228.27	2.62	AS-175	82.14	3.53	AS-236
234.62	2.62	AS-176	85.32	3.53	AS-237
240.97	2.62	AS-177	88.49	3.53	AS-238
247.32	2.62	AS-178	91.67	3.53	AS-239
253.67	2.62	AS-179	94.84	3.53	AS-240
4.34	3.53	AS-201	98.02	3.53	AS-241
5.94	3.53	AS-202	101.19	3.53	AS-242
7.52	3.53	AS-203	104.37	3.53	AS-243
9.12	3.53	AS-204	107.54	3.53	AS-244
10.69	3.53	AS-205	110.72	3.53	AS-245
12.29	3.53	AS-206	113.89	3.53	AS-246
13.87	3.53	AS-207	117.07	3.53	AS-247
15.47	3.53	AS-208	120.24	3.53	AS-248
17.04	3.53	AS-209	123.42	3.53	AS-249
18.64	3.53	AS-210	126.59	3.53	AS-250
20.22	3.53	AS-211	129.77	3.53	AS-251
21.82	3.53	AS-212	132.94	3.53	AS-252
23.39	3.53	AS-213	136.12	3.53	AS-253
24.99	3.53	AS-214	139.29	3.53	AS-254
26.57	3.53	AS-215	142.47	3.53	AS-255
28.17	3.53	AS-216	145.64	3.53	AS-256
29.74	3.53	AS-217	148.82	3.53	AS-257
31.34	3.53	AS-218	151.99	3.53	AS-258
32.92	3.53	AS-219	158.34	3.53	AS-259
34.52	3.53	AS-220	164.69	3.53	AS-260
36.09	3.53	AS-221	171.04	3.53	AS-261
37.69	3.53	AS-222	177.39	3.53	AS-262
40.87	3.53	AS-223	183.74	3.53	AS-263
44.04	3.53	AS-224	190.09	3.53	AS-264
47.22	3.53	AS-225	196.44	3.53	AS-265
50.39	3.53	AS-226	202.79	3.53	AS-266



AS 568

d ₁	W	Order No.	d ₁	W	Order No.
209.14	3.53	AS-267	56.52	5.33	AS-331
215.49	3.53	AS-268	59.69	5.33	AS-332
221.84	3.53	AS-269	62.87	5.33	AS-333
228.19	3.53	AS-270	66.04	5.33	AS-334
234.54	3.53	AS-271	69.22	5.33	AS-335
240.89	3.53	AS-272	72.39	5.33	AS-336
247.24	3.53	AS-273	75.57	5.33	AS-337
253.59	3.53	AS-274	78.74	5.33	AS-338
266.29	3.53	AS-275	81.92	5.33	AS-339
278.99	3.53	AS-276	85.09	5.33	AS-340
291.69	3.53	AS-277	88.27	5.33	AS-341
304.39	3.53	AS-278	91.44	5.33	AS-342
329.79	3.53	AS-279	94.62	5.33	AS-343
355.19	3.53	AS-280	97.79	5.33	AS-344
380.59	3.53	AS-281	100.97	5.33	AS-345
405.26	3.53	AS-282	104.14	5.33	AS-346
430.66	3.53	AS-283	107.32	5.33	AS-347
456.06	3.53	AS-284	110.49	5.33	AS-348
10.46	5.33	AS-309	113.67	5.33	AS-349
12.07	5.33	AS-310	116.84	5.33	AS-350
13.64	5.33	AS-311	120.02	5.33	AS-351
15.24	5.33	AS-312	123.19	5.33	AS-352
16.81	5.33	AS-313	126.37	5.33	AS-353
18.42	5.33	AS-314	129.54	5.33	AS-354
19.99	5.33	AS-315	132.72	5.33	AS-355
21.59	5.33	AS-316	135.89	5.33	AS-356
23.16	5.33	AS-317	139.07	5.33	AS-357
24.77	5.33	AS-318	142.24	5.33	AS-358
26.34	5.33	AS-319	145.42	5.33	AS-359
27.94	5.33	AS-320	148.59	5.33	AS-360
29.51	5.33	AS-321	151.77	5.33	AS-361
31.12	5.33	AS-322	158.12	5.33	AS-362
32.69	5.33	AS-323	164.47	5.33	AS-363
34.29	5.33	AS-324	170.82	5.33	AS-364
37.47	5.33	AS-325	177.71	5.33	AS-365
40.64	5.33	AS-326	183.52	5.33	AS-366
43.82	5.33	AS-327	189.87	5.33	AS-367
46.99	5.33	AS-328	196.22	5.33	AS-368
50.17	5.33	AS-329	202.57	5.33	AS-369
53.34	5.33	AS-330	208.92	5.33	AS-370



d ₁	W	Order No.	d ₁	W	Order No.
215.27	5.33	AS-371	158.12	7	AS-438
221.62	5.33	AS-372	164.47	7	AS-439
227.97	5.33	AS-373	170.82	7	AS-440
234.32	5.33	AS-374	177.17	7	AS-441
240.67	5.33	AS-375	183.52	7	AS-442
247.02	5.33	AS-376	189.87	7	AS-443
253.37	5.33	AS-377	196.22	7	AS-444
266.07	5.33	AS-378	202.57	7	AS-445
278.77	5.33	AS-379	215.27	7	AS-446
291.47	5.33	AS-380	227.97	7	AS-447
304.17	5.33	AS-381	240.67	7	AS-448
329.57	5.33	AS-382	253.37	7	AS-449
354.97	5.33	AS-383	266.07	7	AS-450
380.37	5.33	AS-384	278.77	7	AS-451
405.26	5.33	AS-385	291.47	7	AS-452
430.66	5.33	AS-386	304.17	7	AS-453
456.06	5.33	AS-387	316.87	7	AS-454
481.41	5.33	AS-388	329.57	7	AS-455
506.81	5.33	AS-389	342.27	7	AS-456
532.21	5.33	AS-390	354.87	7	AS-457
557.61	5.33	AS-391	367.67	7	AS-458
582.68	5.33	AS-392	380.37	7	AS-459
608.08	5.33	AS-393	393.07	7	AS-460
633.48	5.33	AS-394	405.26	7	AS-461
658.88	5.33	AS-395	417.96	7	AS-462
113.67	7	AS-425	430.66	7	AS-463
116.84	7	AS-426	443.36	7	AS-464
120.02	7	AS-427	456.06	7	AS-465
123.19	7	AS-428	468.76	7	AS-466
126.37	7	AS-429	481.46	7	AS-467
129.54	7	AS-430	494.16	7	AS-468
132.72	7	AS-431	506.86	7	AS-469
135.89	7	AS-432	532.26	7	AS-470
139.07	7	AS-433	557.66	7	AS-471
142.24	7	AS-434	582.68	7	AS-472
145.42	7	AS-435	608.08	7	AS-473
148.59	7	AS-436	633.48	7	AS-474
151.77	7	AS-437	658.88	7	AS-475



JIS B 2401

d ₁	W	Order No.	d ₁	W	Order No.
2.8	1.9	P3	40.7	3.5	P41
3.8	1.9	P4	41.7	3.5	P42
4.8	1.9	P5	43.7	3.5	P44
5.8	1.9	P6	44.7	3.5	P45
6.8	1.9	P7	45.7	3.5	P46
7.8	1.9	P8	47.7	3.5	P48
8.8	1.9	P9	48.7	3.5	P49
9.8	1.9	P10	49.7	3.5	P50
9.8	2.4	P10A	47.6	5.7	P48A
10.8	2.4	P11	49.6	5.7	P50A
11	2.4	P11.2	51.6	5.7	P52
11.8	2.4	P12	52.6	5.7	P53
12.3	2.4	P12.5	54.6	5.7	P55
13.8	2.4	P14	55.6	5.7	P56
14.8	2.4	P15	57.6	5.7	P58
15.8	2.4	P16	59.6	5.7	P60
17.8	2.4	P18	61.6	5.7	P62
19.8	2.4	P20	62.6	5.7	P63
20.8	2.4	P21	64.6	5.7	P65
21.8	2.4	P22	66.6	5.7	P67
21.7	3.5	P22A	69.6	5.7	P70
22.1	3.5	P22.4	70.6	5.7	P71
23.7	3.5	P24	74.6	5.7	P75
24.7	3.5	P25	79.6	5.7	P80
25.2	3.5	P25.5	84.6	5.7	P85
25.7	3.5	P26	89.6	5.7	P90
27.7	3.5	P28	94.6	5.7	P95
28.7	3.5	P29	99.6	5.7	P100
29.2	3.5	P29.5	101.6	5.7	P102
29.7	3.5	P30	104.6	5.7	P105
30.7	3.5	P31	109.6	5.7	P110
31.2	3.5	P31.5	111.6	5.7	P112
31.7	3.5	P32	114.6	5.7	P115
33.7	3.5	P34	119.6	5.7	P120
34.7	3.5	P35	124.6	5.7	P125
35.2	3.5	P35.5	129.6	5.7	P130
35.7	3.5	P36	131.6	5.7	P132
37.7	3.5	P38	134.6	5.7	P135
38.7	3.5	P39	144.6	5.7	P145
39.7	3.5	P40	149.6	8.4	P150

JIS B 2401



d ₁	W	Order No.	d ₁	W	Order No.
154.5	8.4	P155	24.4	3.1	G25
159.5	8.4	P160	29.4	3.1	G30
164.5	8.4	P165	34.4	3.1	G35
169.5	8.4	P170	39.4	3.1	G40
174.5	8.4	P175	44.4	3.1	G45
179.5	8.4	P180	49.4	3.1	G50
184.5	8.4	P185	54.4	3.1	G55
189.5	8.4	P190	59.4	3.1	G60
194.5	8.4	P195	64.4	3.1	G65
199.5	8.4	P200	69.4	3.1	G70
204.5	8.4	P205	74.4	3.1	G75
208.5	8.4	P209	79.4	3.1	G80
209.5	8.4	P210	84.4	3.1	G85
214.5	8.4	P215	89.4	3.1	G90
219.5	8.4	P220	94.4	3.1	G95
224.5	8.4	P225	99.4	3.1	G100
229.5	8.4	P230	104.4	3.1	G105
234.5	8.4	P235	109.4	3.1	G110
239.5	8.4	P240	114.4	3.1	G115
244.5	8.4	P245	119.4	3.1	G120
249.5	8.4	P250	124.5	3.1	G125
254.5	8.4	P255	129.4	3.1	G130
259.5	8.4	P260	134.4	3.1	G135
264.5	8.4	P265	139.4	3.1	G140
269.5	8.4	P270	144.4	3.1	G145
274.5	8.4	P275	149.3	5.7	G150
279.5	8.4	P280	154.3	5.7	G155
284.5	8.4	P285	159.3	5.7	G160
289.5	8.4	P290	164.3	5.7	G165
294.5	8.4	P295	169.3	5.7	G170
299.5	8.4	P300	174.3	5.7	G175
314.5	8.4	P315	179.3	5.7	G180
319.5	8.4	P320	184.3	5.7	G185
334.5	8.4	P335	189.3	5.7	G190
339.5	8.4	P340	194.3	5.7	G195
354.5	8.4	P355	199.3	5.7	G200
359.5	8.4	P360	209.3	5.7	G210
374.5	8.4	P375	219.3	5.7	G220
384.5	8.4	P385	229.3	5.7	G230
399.5	8.4	P400	239.3	5.7	G240



JIS B 2401

d ₁	W	Order No.	d ₁	W	Order No.
249.3	5.7	G250	279.3	5.7	G280
259.3	5.7	G260	289.3	5.7	G290
269.3	5.7	G270	299.3	5.7	G300

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