CARCO®

LARGE DIAMETER SEALS

prp **PTFE COMPOSITE SEALS**

prp **GUIDE TECHNOLOGY**

Manufacturing sealing solutions since 1900

PRP®

THE SEALING EXPERTS

CARCO®

LARGE DIAMETER SEALS

CARCO manufactures large diameter sealing solutions for heavy duty applications and its know-how dates back to year 1900.

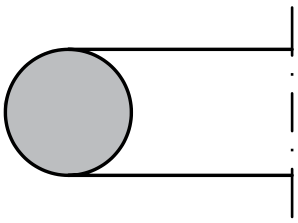
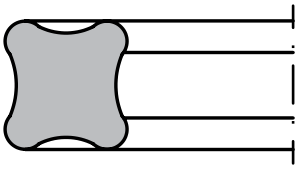
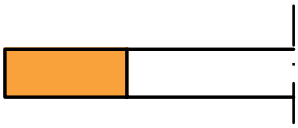
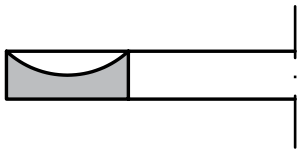
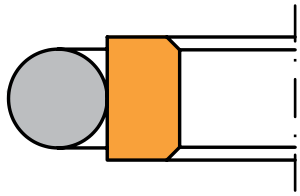
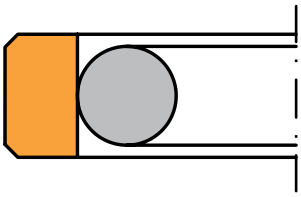
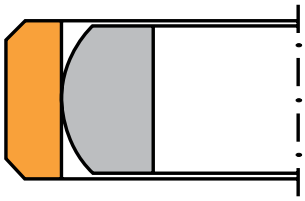
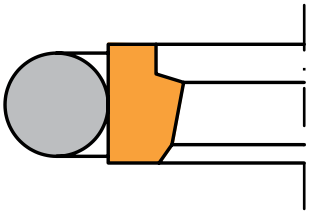
With the acquisition of PRP in 2007, CARCO added to its portfolio the great experience of PRP staff in PTFE composite seals and guide technology.

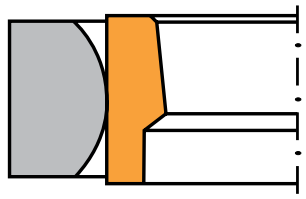
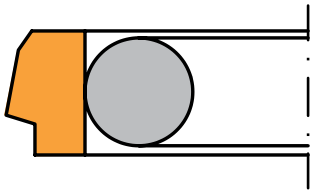
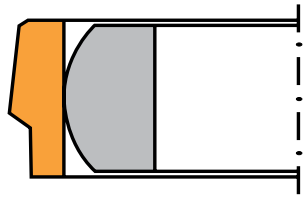
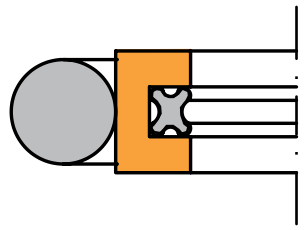
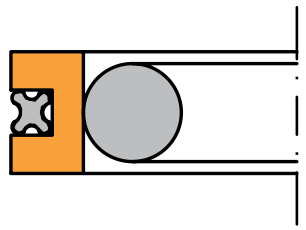
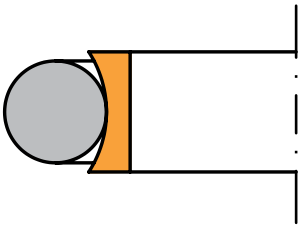
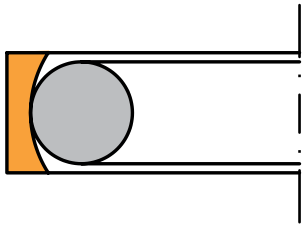
PRP sealing solutions cover a large variety of applications:
- Hydraulic
- Oil & Gas
- Energy
- Food & Beverage
- Chemical
- Marine
- Automotive
- Tool Machines
- Construction & Agricultural Equipment
- Nuclear

Our technical department offers support to recommend and design the suitable seal even for the most challenging working conditions.

The quality of PRP products leads to the longest seal working life and the largest saving in terms of machine downtime and productivity.

We are well-know for the service to the customer and for the quick reaction time.

Identification	Designation	Working conditions			Page
		Press. Mpa (bar)	Temp. °C	Speed m/s	
	**PRP O-RING** Double effect seal for static and dynamic applications. It can be supplied in different materials such as: Nitrile (NBR) Hydrogenated Nitrile (HNBR) Fluorocarbon (FKM) Ethylene Propylene (EPDM) Chloroprene (CR) Silicone (VMQ) etc. Dimensions according to international and metric standards AS568A / BS1806.		-60 +365		10 11 12 13
	**PRP Q-RING** Double effect seal for static, dynamic and rotating applications. Available in different materials.		-60 +260		14
	**BACK-UP RING PRP-71/72** Anti-extrusion Back-Up ring for O-RING and Q-RING. Available in PTFE - PA - POM and other materials.	250 (2500)	-60 +200		15
	**BACK-UP RING PRP-Concave** Anti-extrusion Back-Up ring for O-RING. The best arrangement of the O-RING to prevent extrusion phenomena also in case of pulsating pressure.	250 (2500)	-60 +200		16 17
	**ROD SEAL PRP-01** Double effect rod seal, energised by an O-RING. In dynamic applications it generates low friction without stick-slip phenomena; it allows a very long operating life of the system due to its strong wear resistance.	80 (800)	-60 +200	15	18
	**PISTON SEAL PRP-02** Double effect piston seal, energised by an O-RING. In dynamic applications it generates low friction without stick-slip phenomena; it allows a very long operating life of the system due to its strong wear resistance.	80 (800)	-60 +200	15	19
	**PISTON SEAL PRP-02S** Double effect piston seal energized by an elastomeric component. The special shape of the energizer makes this seal very stable even under high loads. Recommended for heavy duty applications and dirty environments, for example in steel mills.	80 (800)	-35 +200	5	19.1
	**ROAD SEAL PRP-11** Single effect rod seal, energised by an O-RING. In dynamic applications it generates low friction without stick-slip phenomena; it allows a very long operating life of the system due to its strong wear resistance. Exceptional efficiency of seal is obtained with a combination in tandem together with a scraper of series PRP-21B.	80 (800)	-60 +200	15	20

Identification	Designation	Working conditions			Page
		Press. Mpa (bar)	Temp. °C	Speed m/s	
	**ROD SEAL PRP-11S** Simple effect rod seal energized by an elastomeric component. The special shape of the energizer makes this seal very stable even under high loads. Recommended for heavy duty applications and dirty environments, for example in steel mills.	60 (600)	-35 +200	5	20.1
	**PISTON SEAL PRP-12** Single effect piston seal, energised by an O-RING. In dynamic applications it generates low friction without stick-slip phenomena; it allows a very long operating life of the system due to its strong wear resistance. Exceptional efficiency of seal is obtained with a combination of 2 seals in tandem.	80 (800)	-60 +200	15	21
	**PISTON SEAL PRP-12S** Simple effect piston seal energized by an elastomeric component. The special shape of the energizer makes this seal very stable even under high loads. Recommended for heavy duty applications and dirty environments, for example in steel mills.	60 (600)	-35 +200	5	21.1
	**ROD SEAL PRP-31** Double effect rod seal. The combination of Q-RING ring inserted into the PRP 01 enhances the efficiency of seal in order to obtain an absolutely leak-free system. Extrusion of Q-RING is prevented by the energizing O-RING, providing contact with the guide surface.	40 (400)	-60 +200	3	22
	**PISTON SEAL PRP-32** Double effect piston seal. The combination of Q-RING ring inserted into the PRP 02 enhances the efficiency of seal in order to obtain an absolutely leak-free system. Extrusion of Q-RING is prevented by the energizing O-RING, providing contact with the guide surface.	40 (400)	-60 +200	3	23
	**ROD SEAL PRP-41** Double effect rod seal. Its dimensions allow fitting in housings suitable for O-RING according to AS568A / BS1806 / MIL-P-5514. Ideal solution for large friction reduction, absence of stick-slip and significant wear resistance, keeping a housing of reduced size.	35 (350)	-60 +200	15	24
	**PISTON SEAL PRP-42** Double effect piston seal. Its dimensions allow fitting in housings suitable for O-RING according to AS568A / BS1806 / MIL-P-5514. Ideal solution for large friction reduction, absence of stick-slip and significant wear resistance, keeping a housing of reduced size.	35 (350)	-60 +200	15	25

Identification	Designation	Working conditions			Page
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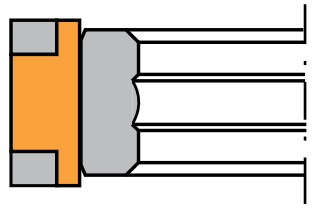
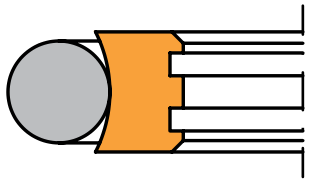
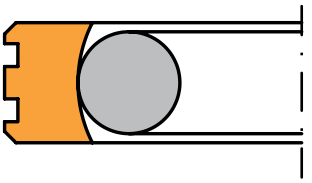
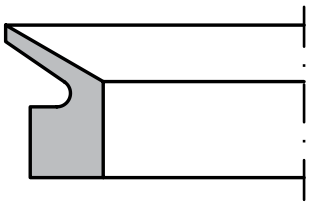
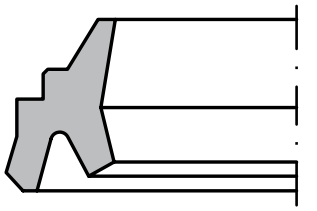
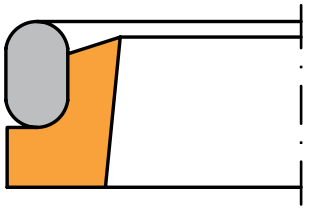
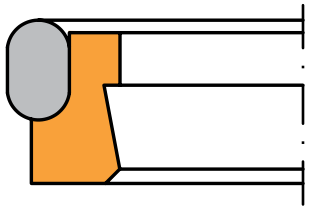
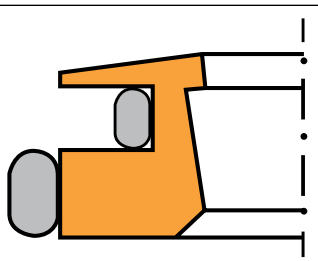
	**PISTON SEAL PRP-02F** Double effect piston seal energised by an elastomeric ring. 2 back-up rings provide long seal life even with large clearance and severe working conditions.	60 (600)	-35 +110	1,5	25.1
	**ROTARY SHAFT SEAL PRP-51** Seal enegised by an O-RING typically used for rotating joints. Produced in rod version (preferable to the PRP-52 version), it requires careful examination of the application design.	20 (200)	-60 +200	1	26
	**ROTARY SEAL FOR CYLINDER PRP-52** Seal enegised by an O-RING typically used for rotating joints. Produced in cylinder version, it requires careful examination of the application design.	20 (200)	-60 +200	1	27
	**PRP-V-RING** Elastomer seal available in NBR or FKM. It is stretched-fitted onto the rotating shaft. The effect of centrifugal force reduces the friction of the lip on the metal surface to seal.		-40 +180	12	28 29
	**SCRAPER PRP-21D** Double effect scraper ring in NBR, Used only in combination with seals preventing over-pressure between seal and scraper during the return stroke of the rod.		-30 +100	1	30
	**SCRAPER PRP-21A** Scraper ring of great efficiency thanks to the energizing O-RING. It enhances the service life of the seal system even in presence of ice and mud.		-60 +200	15	31
	**SCRAPER PRP-21B** Double effect scraper ring energised by means of an O-RING. Its double action enhances the effect of the seal system. Its high efficiency prevents pollution from entering in the seal area.		-60 +200	15	31
	**SCRAPER PRP-21E** Double effect scraper energised by double O-RING. Its double action enhances the performance of the seal. Being very efficient, it is recommended for dirty and contaminating enviroments.		-60 +200	15	31.1

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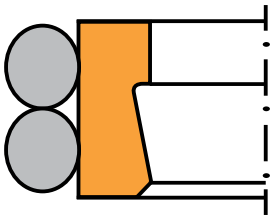
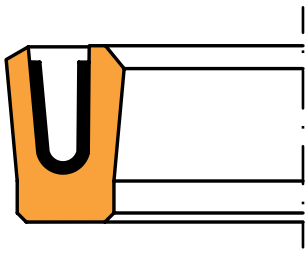
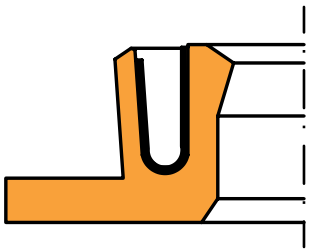
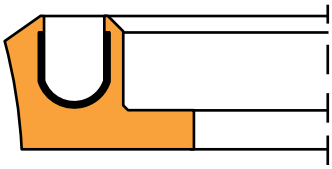
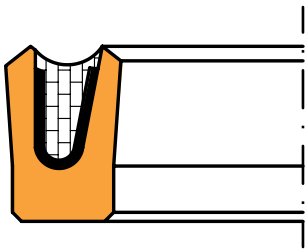
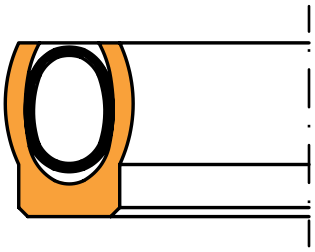
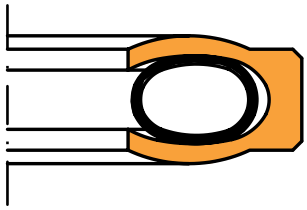
	**SCRAPER PRP-21F** Double effect scraper energised by double O-RING. Its double action enhances the performance of the seal. Being very efficient, it is recommended for dirty and contaminating environments. We also recommend to have a drain between seal and scraper.		-60 +200	15	31.2
	**LIP RING PRP-61/62** Single effect dynamic seal energised by a lamellar metallic spring; the characteristics of low friction, absence of stick-slip and wear resistance are enhanced. Recommended in case of chemical attack of the fluid.	40 (400)	-75 +260	15	32 33
	**LIP RING PRP-65** Single effect dynamic rod seal energised by a lamellar metallic spring. Seal rotation is prevented by an axial clamping. Compatible with most fluids and chemical products.	40 (400)	-75 +200	15	34
	**LIP RING PRP-65B** Single effect dynamic piston seal energised by a lamellar metallic spring. Seal rotation is prevented by an axial clamping. Compatible with most fluids and chemical products.	40 (400)	-75 +200	15	34.1
	**LIP RING PRP-61/62/65 SEALED** Special version. Used mainly in components meant for food and pharmaceutical industries. The housing of the spring is sealed.	10 (100)	-75 +200	3	35
	**LIP RING PRP-66/67** Single effect static or semi-dynamic seal energised by a metallic spiral spring. Excellent seal performance also with low density and/or low temperature gases.	40 (400)	-100 +260	0,5	32 33
	**LIP RING PRP-68** Radial static or semi-dynamic internal seal with single effect, energised by a metallic spiral spring. Excellent seal performance with low density and/or low temperature gases.	40 (400)	-200 +260	0,5	36

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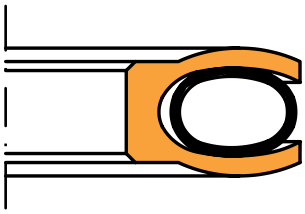
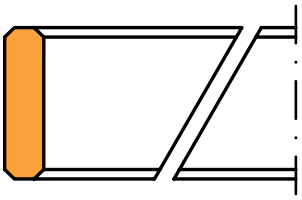
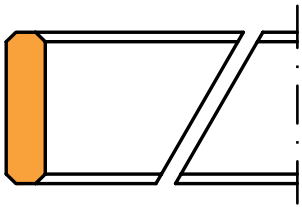
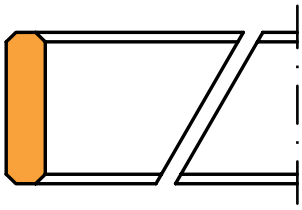
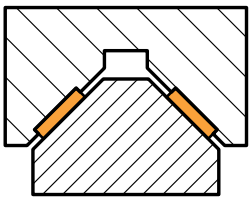
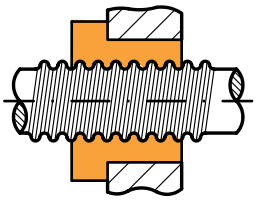
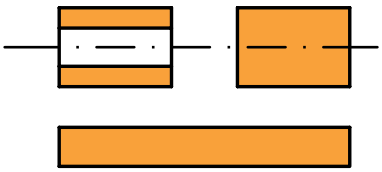
	**LIP RING PRP-69** Radial static or semi-dynamic external seal with single effect, energised by a metallic spiral spring. Excellent seal performance with low density and/or low temperature gases.	40 (400)	-200 +260	0,5	37
	**GUIDE RING PRP-81/82 PTFE** Guide rings for rod and piston. They are meant to avoid metal-to-metal contact, absorbing any radial stress. Guide rings prevent risk of seizure and stick-slip phenomena, enhancing service life of the system.	14 N/mm²	-60 +200	15	40 41 46
	**GUIDE RING PRP-81/82 D** Guide rings suitable for high radial loads. PRP-81/82 D guide rings are made of cotton fabric impregnated with phenolic resin and lubricating additives.	80 N/mm²	-40 +120	1	42 43
	**GUIDE RING PRP-81/82 T100/T200** Guide rings suitable for high radial loads. PRP-81/82 T100/T200 guide rings are made of polyester fabric and polyester resin with lubricating additives. Please check page 6 for material selection.	100 N/mm²	-40 +200	1	44 45 46
	**TAPE PRP BROWN-P 83** PTFE-based material used as linear glide guides, for example: CNC, tool machines. Fitted by gluing, used to reduce significantly stick-slip phenomena.	7 N/mm²	-40 +80	1	48
	**PRP-XT** Thermoplastic material supplied in round bars in order to machine mechanical parts and bearings for medium and heavy duty applications with poor lubrication.		-40 +70	0,5	49
	**PRP-T ALL GRADES** Semi-finished products made of thermosetting composite material, supplied as tube/bar or plate to machine mechanical parts for heavy-duty applications with poor or no lubrication.	100 N/mm²	-40 +200	1	49

TECHNICAL DETAILS OF MATERIALS

PRP	COLOUR	BASIC COMPOSITION	DESCRIPTION
10	White	PTFE Pure	Good resistance to wear and extrusion. Suitable for the following sectors: food, chemicals, pharmaceuticals. Compliance with FDA 21 CFR Part 177.
11	White	TFM	PTFE with better physical and mechanical characteristics, lower deformation and greater abrasion resistance. Compliance with FDA 21 CFR Part 177.
12	Beige	PTFE Aromatic polyester	PTFE modified with aromatic polymers. Excellent wear and extrusion resistance. Non-contaminating, may also be used in the food sector.
19	Turquoise	PTFE Oxides	PTFE modified in order to obtain better wear and extrusion resistance when compared to PRP-10.
24/29	Dark brown Bronze	PTFE Bronze	PTFE modified with bronze. Excellent wear and extrusion resistance. General hydraulic use for seals and/or guiding rings.
25	Dark brown Grey	PTFE Treated bronze	PTFE modified, identical to PRP-24. A surface treatment makes it particularly suitable for uses with high frequency of movement.
26	Dark brown Bronze	PTFE Bronze	PTFE modified, similar to PRP-24/29 with higher percentage of bronze. High physical/mechanical characteristics.
31	Black	PTFE Carbon	PTFE modified with carbon. Good glide characteristic and wear resistance, also in case of poor lubrication.
32	Black	PTFE Carbon Graphite	PTFE modified with carbon and graphite. Excellent glide characteristic and wear resistance in water, steam, hydraulic fluids and in high operating temperatures.
33	Black	PTFE Carbon	PTFE modified similar to PRP-31 with higher percentage of carbon. Better wear- and extrusion resistance.
41	Black	PTFE Carbon Fibres	PTFE modified with carbon fibres. Excellent glide characteristic in case of high frequency of movement and/or for rotating applications with ceramic or very hard surfaces.
55	Grey	PTFE Glass/MOS2-H	PTFE modified with glass and molybdenum bisulphates. General use for axial movements and rotations. Excellent dielectric and mechanical characteristics.
81	Yellow	PU-H/PUR	Polyurethane with characteristics of high molecular density. Excellent abrasion resistance, suitable for primary and secondary seals and and/or scrapers.
900	Black	Cotton / Phenolic Resin	Composite material consisting of stratified cotton fabric, impregnated with phenolic resin with molybdenum bisulphates.
91	White	UHMW-PE	Polyethylene ultra high molecular weight. Excellent abrasion resistance. Pneumatic use in the absence of lubrication and/or for units of food, chemical, pharmaceutical dosage. Compliance with FDA 21 CFR Part 177.
T100 PTFE	Turquoise	Fabric/Resin Polyester	Composite material consisting of polyester fabric and resins with lubricating additives.
T100A	White	Fabric/Resin Polyester	Composite material consisting of polyester fabric and resins. Non-organic and non-contaminating, suitable for food, chemical and pharmaceutical industry.
T100G	Grey	Fabric/Resin Polyester	As for PRP-T100A with the addition of graphite.
T200	White	Fabric/Resin Polyester	As for PRP-T100A with the addition of PTFE. Suitable for high temperature.
T200G	Grey	Fabric/Resin Polyester	As for PRP-T100G. Suitable for high temperature.

MATERIAL SELECTION FOR SEALING SOLUTIONS AND GUIDE RINGS

FLUID	CONTACT SURFACE	MATERIALS		
		SEAL	O-RING	GUIDE
Hydraulic oil	Steel, Chromed steel, Cast iron	19, 55, 24, 81	Nitrile NBR Code A	19, 29, 900, T100
	Bronze, Aluminium, Stainless steel, soft metals	32		32
Water / Glycol	Steel, Chromed steel, Cast iron, Bronze, Aluminium, Stainless steel, soft metals	32	Nitrile NBR Code A	32, T100
Hot water Steam	Steel, Cast iron	32, 55	Ethylene propylene EPDM Code H	32, T200
	Bronze, Aluminium, Stainless steel, soft metals	32		
Dry / lubricated air	Steel, Chromed steel, Cast iron	19, 32, 24	Nitrile NBR Code A	19, 29, 32, T100
	Bronze, Aluminium, Stainless steel, soft metals	32		32
Synthetic fluids with high flash point	Steel, Cast iron	19, 55, 24	Fluorocarbon FKM Code E	19, 29, T200
Synthetic fluids e.g. Skydrol 500, 7000, Cellulube A60 Pydraul 60	Steel, Cast iron	19, 55, 24		19, 29, T100
	Bronze, Aluminium, Stainless steel, soft metals	32		32

NOTE: O-rings in special compounds available for synthetic fluids.
EPDM is not compatible with mineral oils.
For applications with temperature higher than 120°C and lower than -35°C please refer to our Technical Department.

MATERIAL SELECTION FOR LIPRING SEALS

FLUID	SEMI-DYNAMIC / STATIC	DYNAMIC	ROTATION
Air / Gas	19	12	12
Steam Oil Water / Oil Crude oil Petro-chemicals Chemicals		31, 41	41
Food	10 - 91	91	91
Vacuum		10	10

O-RING / Q-RING COMPATIBILITY AND USE

ELASTOMERIC BASE	TECHNICAL CHARACTERISTICS		USE AND COMPATIBILITY
	Shore Hardness A (± 5) *	Temperature range °C **	
Acrylonitrile-Butadiene NBR	70 80 90 70	-30 +110 -30 +110 -30 +110 -55 +100	Standard material for hydraulic and pneumatic use. For hydraulic mineral fluids, animal and vegetable oils and fats. Flame-retardant fluids (HFA, HFB, HFC), aliphatic hydrocarbons (propane, butane), oils and greases of silicone, water with temperature in excess of 80°C, biodegradable oils based on synthetic esters and vegetable oils. For hydraulic mineral oils at low temperatures.
Chloroprene CR	70	-40 +120	Suitable for refrigerating fluids, ammonia, CO2, Freon, silicone oils, water, oxygen (at low pressure), bleaching solutions, caustic soda, alcohols, chlorine, ozone, castor oil and other vegetable oils. **LOW RESISTANCE TO MINERAL OILS**
Ethylene-Propylene-Diene EPDM	70 80 70 80	-60 +150 -60 +150 -50 +130 -50 +130	Hot water, steam, brake fluid, detergents. Alcohols, ketones, anti-freeze liquids, flame retardant fluids based on phosphates, organic and non-organic acids and bases. **NOT SUITABLE FOR MINERAL OILS**
Siliconic VMQ	70	-70 +230	Hot air, oxygen, insert gases at high temperatures, ozone, UV radiation, aliphatic oils for transmissions, animal and vegetable oils and fats, brake fluid. **LOW RESISTANCE TO MINERAL OILS** For static applications only.
Fluoroelastomer FKM	70 75 80 90	-20 +260 -20 +260 -20 +260 -20 +260	Mineral oils and greases, aliphatic, aromatic hydrocarbons, and chlorines, crude oil, diesel oil, flame retardant fluids based on phosphates. Oils and greases based on silicone, acids alkaline solutions. Suitable for applications under high vacuum.
Acrylonitrile-Hydrogenated butadiene HNBR	70	-35 +150	Mineral-based hydraulic fluids, animal and vegetable fats, aliphatic hydrocarbons, diesel oils, ozone, slightly acid gases, diluted acids and bases.
Perfluorurate (Type A) FFKM	75 90	-15 +365 -15 +360	Chemical processes, crude refining, analysis apparatus, aeronautical and aerospace sector, semi-conductors industry. It has the greatest chemical resistance among all elastomers also with regard to organic acids such as acetic, benzoic and formic acids. Very suitable for hot water, steam and hot amines.

(*) Shore A hardness according to ASTM D 2240. The values, however, were determined according to DIN 53505.
(**) The a.m. temperatures are influenced by type of fluid and pressure. Working temperature is always lower/higher than the max/min temperature.

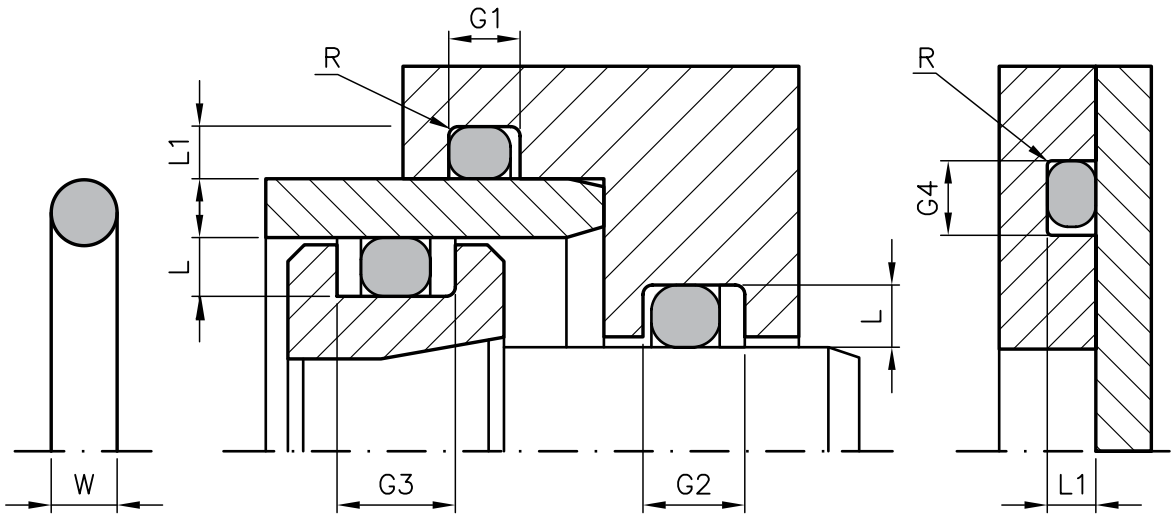
SPRING MATERIAL SELECTION

FLUID	MATERIAL	CODE
Air / Gas Water / Steam / Food Oil / Grease	Stainless steel DIN mat. N. 1.4310 (x12 Cr Ni 177) AISI 301	S
Caustic Soda Acids Sea water	Hastelloy Ni-Cr-Mo alloy DIN mat. N. 2.4819 UNS N10276	H
Petroleum products Chemicals Solvents	Elgiloy Co-Ni-alloy UNS R30003	E

SURFACE FINISHING REQUIREMENTS

FLUID	STATIC	DYNAMIC	ROTATION
Gas / Low temperature Hydrogen Helium Freon Oxygen Liquid nitrogen	Ra = 0,3 µm	Ra = 0,2 µm	Ra = 0,1 µm
Low viscosity gases/liquids Air Alcohol Gaseous Nitrogen Natural gas	Ra = 0,6 µm	Ra = 0,3 µm	Ra = 0,2 µm
Medium and high viscosity fluids Water Oil Grease Skydrol Liquid adhesives	Ra = 0,8 µm	Ra = 0,4 µm	Ra = 0,2 µm

GROOVE GEOMETRY & DIMENSION



W Cross section	Radial fitting					Axial fitting		R max.
	L Dynamic + 0,05 - 0	L1 Static + 0,05 - 0	G1 + 0,2 - 0	G2 + 0,2 - 0	G3 + 0,2 - 0	L1 + 0,05 - 0	G4 + 0,2 - 0	
1,78	1,45	1,3	2,4	3,8	5,2	1,3	2,6	0,2
2,62	2,25	2,0	3,6	4,7	6,2	2,0	3,8	0,3
3,53	3,1	2,7	4,8	6,0	7,7	2,7	5,0	0,4
5,33	4,7	4,3	7,1	8,7	10,8	4,3	7,3	0,4
7,0	6,1	5,8	9,5	12,0	14,7	5,8	9,7	0,6

Cord Diameter w = 1,78 mm											
Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm
001	0,74x1,02	010	6,07	019	20,35	028	34,65	037	63,22	046	107,67
002	1,07x1,27	011	7,65	020	21,95	029	37,82	038	66,40	047	114,02
003	1,42x1,52	012	9,25	021	23,52	030	41,00	039	69,57	048	120,37
004	1,78	013	10,82	022	25,12	031	44,17	040	72,75	049	126,72
005	2,57	014	12,42	023	26,70	032	47,35	041	75,92	050	133,07
006	2,90	015	14,00	024	28,30	033	50,52	042	82,27		
007	3,68	016	15,60	025	29,87	034	53,70	043	88,62		
008	4,47	017	17,17	026	31,47	035	56,87	044	94,97		
009	5,28	018	18,77	027	33,05	036	60,05	045	101,32		

Cord Diameter w = 2,62 mm											
Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm
102	1,24	115	17,12	128	37,77	141	58,42	154	94,92	167	177,47
103	2,06	116	18,72	129	39,34	142	59,99	155	101,27	168	183,82
104	2,84	117	20,29	130	40,94	143	61,60	156	107,62	169	190,17
105	3,63	118	21,89	131	42,52	144	63,17	157	113,97	170	196,52
106	4,42	119	23,47	132	44,12	145	64,77	158	120,32	171	202,87
107	5,23	120	25,07	133	45,69	146	66,34	159	126,67	172	209,22
108	6,02	121	26,64	134	47,29	147	67,95	160	133,02	173	215,57
109	7,59	122	28,24	135	48,90	148	69,52	161	139,37	174	221,92
110	9,19	123	29,82	136	50,47	149	71,12	162	145,72	175	228,27
111	10,77	124	31,42	137	52,07	150	72,69	163	152,07	176	234,62
112	12,37	125	32,99	138	53,64	151	75,87	164	158,42	177	240,97
113	13,94	126	34,59	139	55,25	152	82,22	165	164,77	178	247,32
114	15,54	127	36,17	140	56,82	153	88,57	166	171,12		

Cord Diameter w = 3,53 mm											
Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm
201	4,34	215	26,57	229	59,92	243	104,37	257	148,82	271	234,54
202	5,94	216	28,17	230	63,09	244	107,54	258	151,99	272	240,89
203	7,52	217	29,74	231	66,27	245	110,72	259	158,34	273	247,24
204	9,12	218	31,34	232	69,44	246	113,89	260	164,69	274	253,59
205	10,69	219	32,92	233	72,62	247	117,07	261	171,04	275	266,29
206	12,29	220	34,52	234	75,79	248	120,24	262	177,39	276	278,99
207	13,87	221	36,09	235	78,97	249	123,42	263	183,74	277	291,69
208	15,47	222	37,69	236	82,14	250	126,59	264	190,09	278	304,39
209	17,04	223	40,87	237	85,32	251	129,77	265	196,44	279	329,79
210	18,64	224	44,04	238	88,49	252	132,94	266	202,79	280	355,19
211	20,22	225	47,22	239	91,67	253	136,12	267	209,14	281	380,59
212	21,82	226	50,39	240	94,84	254	139,29	268	215,49	282	405,26
213	23,39	227	53,57	241	98,02	255	142,47	269	221,84	283	430,66
214	24,99	228	56,74	242	101,19	256	145,64	270	228,19	284	456,06

Cord Diameter w = 5,33 mm											
Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm
309	10,46	324	34,29	339	81,92	354	129,54	369	202,57	384	380,37
310	12,07	325	37,47	340	85,09	355	132,72	370	208,92	385	405,26
311	13,64	326	40,64	341	88,27	356	135,89	371	215,27	386	430,66
312	15,24	327	43,82	342	91,44	357	139,07	372	221,62	387	456,06
313	16,81	328	46,99	343	94,62	358	142,24	373	227,97	388	481,41
314	18,42	329	50,17	344	97,79	359	145,42	374	234,32	389	506,81
315	19,99	330	53,34	345	100,97	360	148,59	375	240,67	390	532,21
316	21,59	331	56,52	346	104,14	361	151,77	376	247,02	391	557,61
317	23,16	332	59,69	347	107,32	362	158,12	377	253,37	392	582,68
318	24,77	333	62,87	348	110,49	363	164,47	378	266,07	393	608,08
319	26,34	334	66,04	349	113,67	364	170,82	379	278,77	394	633,48
320	27,94	335	69,22	350	116,84	365	177,17	380	291,47	395	658,88
321	29,51	336	72,39	351	120,02	366	183,52	381	304,17		
322	31,12	337	75,57	352	123,19	367	189,87	382	329,57		
323	32,69	338	78,74	353	126,37	368	196,22	383	354,97		

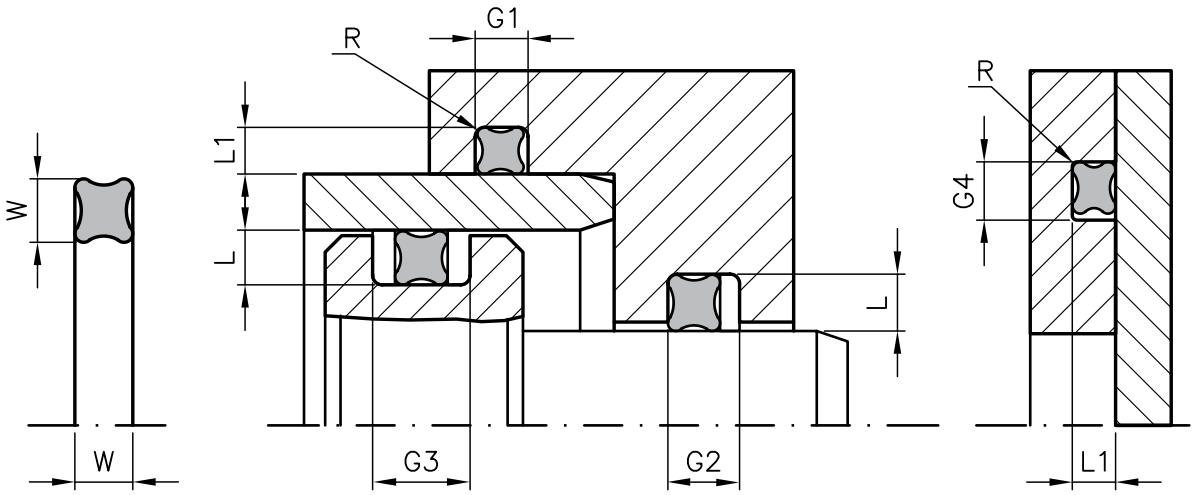
Cord Diameter w = 7,0 mm											
Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm	Serie	Internal diameter mm
425	113,67	434	142,24	443	189,87	452	291,47	461	405,26	470	532,26
426	116,84	435	145,42	444	196,22	453	304,17	462	417,96	471	557,66
427	120,02	436	148,59	445	202,57	454	316,87	463	430,66	472	582,68
428	123,19	437	151,77	446	215,27	455	329,57	464	443,36	473	608,08
429	126,37	438	158,12	447	227,97	456	342,27	465	456,06	474	633,48
430	129,54	439	164,47	448	240,67	457	354,97	466	468,76	475	658,88
431	132,72	440	170,82	449	253,37	458	367,67	467	481,46		
432	135,89	441	177,17	450	266,07	459	380,37	468	494,16		
433	139,07	442	183,52	451	278,77	460	393,07	469	506,86		

See page 8 for material selection

MAX. EXTRUSION GAP (DIAMETRAL)
WITHOUT BACK-UP RING

O-Ring Section	O-Ring Hardness	E Diametral Gap						
		4 MPa	7 MPa	10 MPa	14 MPa	18 MPa	21 MPa	35 MPa
1,78	70 Shore A	0,15	0,1	0,05				
2,62		0,18	0,13	0,08				
3,53		0,2	0,15	0,1				
5,33		0,25	0,18	0,13				
7,0		0,3	0,2	0,15				
1,78	80 Shore A	0,2	0,15	0,1	0,05	0,03		
2,62		0,25	0,18	0,13	0,08	0,04		
3,53		0,3	0,2	0,15	0,1	0,05		
5,33		0,35	0,25	0,18	0,13	0,06		
7,0		0,4	0,3	0,2	0,15	0,07		
1,78	90 Shore A	0,25	0,2	0,13	0,1	0,08	0,05	0,03
2,62		0,3	0,25	0,18	0,13	0,1	0,08	0,04
3,53		0,4	0,3	0,2	0,15	0,13	0,1	0,05
5,33		0,45	0,35	0,25	0,18	0,15	0,13	0,06
7,0		0,5	0,4	0,3	0,2	0,18	0,15	0,07

GROOVE GEOMETRY & DIMENSION



PRP Serie	W Cross Section	Radial fitting					Assial fitting		R max.
		L Dynamic + 0,05 - 0	L1 Static + 0,05 - 0	G1 + 0,2 - 0	G2 + 0,2 - 0	G3 + 0,2 - 0	L1 + 0,05 - 0	G4 + 0,2 - 0	
Q4004 **Q4050**	1,78	1,5	1,4	2,0	3,4	4,8	1,4	2,0	0,2
Q4102 **Q4178**	2,62	2,3	2,25	3,0	4,4	5,8	2,25	3,0	0,3
Q4201 **Q4284**	3,53	3,2	3,1	4,0	5,4	6,8	3,1	4,0	0,4
Q4309 **Q4395**	5,33	4,9	4,75	6,0	7,7	9,4	4,75	6,0	0,4
Q4425 **Q4475**	7,0	6,4	6,2	8,0	10,5	13,0	6,2	8,8	0,6

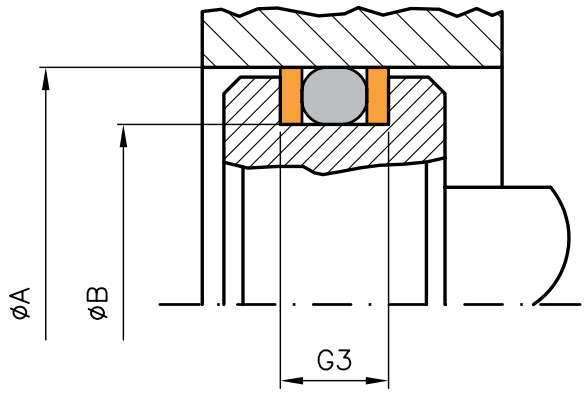
See page 8 for material selection

DENOMINATION EXAMPLE

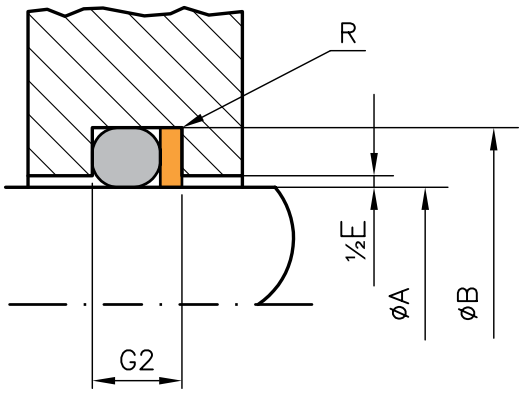
O-ring 324
Q-ring 4324

GROOVE GEOMETRY & DIMENSION

Piston



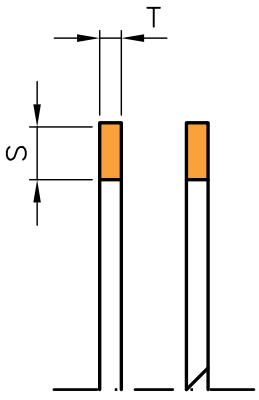
Rod



Back up rings can be supplied for any diameter.

PRP Serie Piston	PRP Serie Rod	Section			Groove width		Groove length		E* max.	R max.
		O-Ring	Back-up Ring		Piston	Rod				
		W	S	T	ØB h9	ØB H9	G2 + 0,2	G3 + 0,2		
72 * 00	71 * 00	1,78	1,45	1,4	A - 2,9	A + 2,9	3,8	5,2	0,13	0,2
72 * 01	71 * 01	2,62	2,25	1,4	A - 4,5	A + 4,5	4,7	6,2	0,13	0,3
72 * 02	71 * 02	3,53	3,1	1,4	A - 6,2	A + 6,2	6,0	7,7	0,15	0,4
72 * 03	71 * 03	5,33	4,7	1,7	A - 9,4	A + 9,4	8,7	10,8	0,17	0,4
72 * 04	71 * 04	7,0	6,1	2,5	A - 12,2	A + 12,2	12,0	14,7	0,25	0,6

*** Max . diametral gap for pressure up to 45 MPa**
For higher pressure pls. contact our Technical Department



type A endless type B split

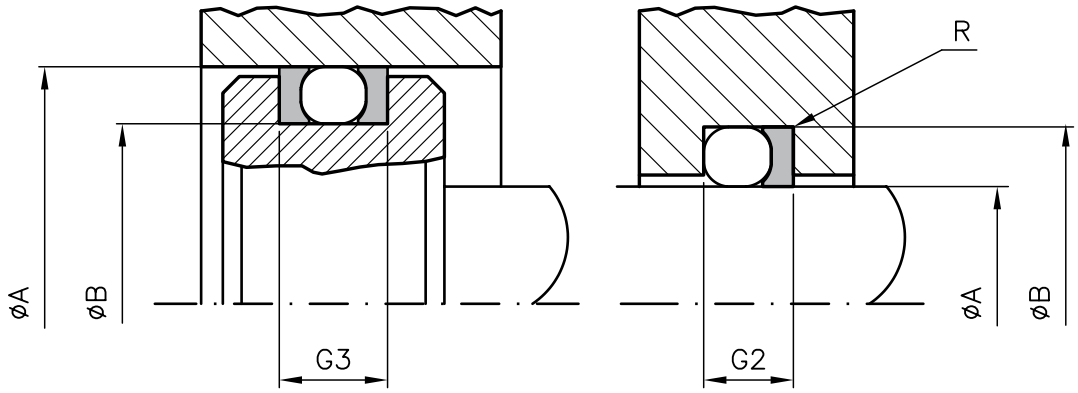
DENOMINATION EXAMPLE

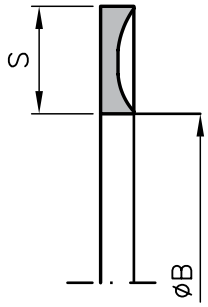
rod: ø 90.0 mm
serie: 02
type: A (endless)

71A02-0900-55

type
serie
rif (ø rod x 10)
material code

BACK-UP RING PRP - Concave





W O-Ring	**S** Back-up Ring	Groove width		Groove length		**R** max
		ØB Piston h9	**ØB** Rod H9	**G2** + 0,2 - 0	**G3** + 0,2 - 0	
1,78	1,35	A - 2,9	A + 2,9	3,8	5,2	0,2
2,62	2,18	A - 4,5	A + 4,5	4,7	6,2	0,3
3,53	3,0	A - 6,2	A + 6,2	6,0	7,7	0,4
5,33	4,65	A - 9,4	A + 9,4	8,7	10,8	0,4
7,0	5,99	A - 12,2	A + 12,2	12,0	14,7	0,6

S 1,35 mm

Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm
		010	6,73	019	21,08	028	35,38	037	63,96	046	108,41
		011	8,31	020	22,68	029	38,56	038	67,13	047	114,76
		012	9,91	021	24,26	030	41,73	039	70,31	048	121,11
004	2,44	013	11,56	022	25,86	031	44,91	040	73,48	049	127,46
005	3,23	014	13,16	023	27,43	032	48,08	041	76,66	050	133,81
006	3,56	015	14,73	024	29,03	033	51,26	042	83,01		
007	4,34	016	16,33	025	30,61	034	54,43	043	89,36		
008	5,13	017	17,91	026	32,21	035	57,61	044	95,71		
009	5,94	018	19,51	027	33,78	036	60,78	045	102,06		

S 2,18 mm

Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm
102	1,96	115	17,83	128	38,56	141	59,21	154	95,71	167	178,26
103	2,77	116	19,43	129	40,16	142	60,78	155	102,06	168	184,61
104	3,56	117	21,11	130	41,73	143	62,38	156	108,41	169	190,96
105	4,34	118	22,68	131	43,33	144	63,96	157	114,76	170	197,31
106	5,13	119	24,28	132	44,91	145	65,56	158	121,11	171	203,66
107	5,94	120	25,86	133	46,51	146	67,13	159	127,46	172	210,01
108	6,73	121	27,46	134	48,08	147	68,73	160	133,81	173	216,36
109	8,31	122	29,03	135	49,68	148	70,31	161	140,16	174	222,71
110	9,91	123	30,63	136	51,26	149	71,91	162	146,51	175	229,06
111	11,48	124	32,21	137	52,86	150	73,48	163	152,86	176	235,41
112	13,08	125	33,81	138	54,43	151	76,66	164	159,21	177	241,76
113	14,66	126	35,38	139	56,03	152	83,01	165	165,56	178	248,11
114	16,26	127	36,98	140	57,61	153	89,36	166	171,91		

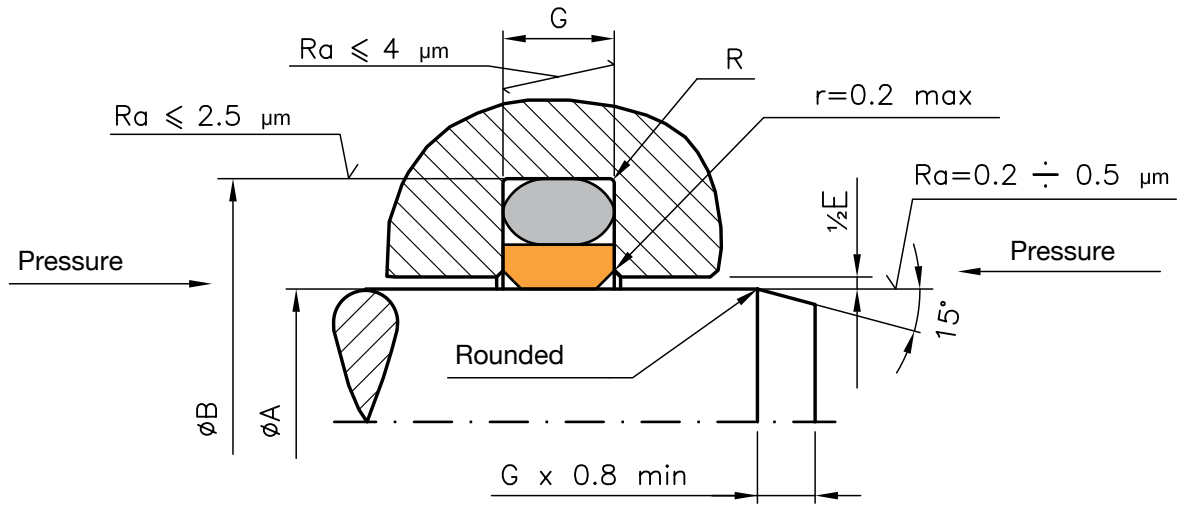
S 3,00 mm											
Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm
201	5,13	215	27,38	229	60,88	243	104,93	257	149,68	271	235,41
202	6,73	216	28,98	230	64,06	244	108,10	258	152,86	272	241,76
203	8,30	217	30,56	231	66,83	245	111,28	259	159,21	273	248,11
204	9,90	218	32,16	232	70,00	246	114,45	260	165,56	274	254,46
205	11,56	219	33,88	233	73,18	247	117,63	261	171,91	275	267,16
206	13,16	220	35,48	234	76,35	248	121,11	262	178,26	276	279,86
207	14,73	221	37,06	235	79,53	249	124,28	263	184,61	277	292,56
208	16,33	222	38,66	236	82,70	250	127,46	264	190,96	278	305,26
209	17,90	223	41,83	237	85,88	251	130,63	265	197,31	279	330,66
210	19,46	224	45,01	238	89,05	252	133,81	266	203,66	280	356,05
211	21,03	225	48,18	239	92,23	253	136,98	267	210,01	281	381,46
212	22,63	226	51,36	240	95,40	254	140,16	268	216,36	282	406,12
213	24,21	227	54,53	241	98,58	255	143,33	269	222,71	283	431,52
214	25,81	228	57,71	242	101,75	256	146,51	270	229,06	284	456,92

S 4,65 mm											
Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm
309	11,43	324	35,26	339	83,13	354	130,89	369	203,91	384	381,71
310	13,03	325	38,43	340	86,31	355	134,09	370	210,26	385	406,60
311	14,60	326	41,61	341	89,48	356	137,24	371	216,61	386	432,00
312	16,20	327	44,78	342	92,66	357	140,41	372	222,96	387	457,40
313	17,78	328	47,96	343	95,83	358	143,59	373	229,31	388	482,75
314	19,38	329	51,13	344	99,01	359	146,76	374	235,66	389	508,15
315	20,96	330	54,31	345	102,31	360	149,94	375	242,01	390	533,55
316	22,56	331	57,61	346	105,49	361	153,11	376	248,36	391	558,95
317	24,13	332	60,78	347	108,66	362	159,46	377	254,71	392	584,02
318	25,73	333	63,96	348	111,84	363	165,81	378	267,41	393	609,42
319	27,31	334	67,13	349	115,01	364	172,16	379	280,11	394	634,82
320	28,91	335	70,31	350	118,19	365	178,51	380	292,81	395	660,22
321	30,42	336	73,48	351	121,36	366	184,86	381	305,51		
322	32,08	337	76,66	352	124,54	367	191,21	382	330,91		
323	33,43	338	79,83	353	127,71	368	197,56	383	356,31		

S 5,99 mm											
Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm	Serie	Internal Diameter mm
425	115,60	434	144,17	443	191,11	452	292,71	461	406,50	470	533,50
426	118,77	435	147,35	444	197,46	453	305,41	462	419,20	471	558,90
427	121,95	436	150,52	445	203,81	454	318,11	463	431,90	472	584,30
428	125,20	437	153,70	446	216,51	455	330,81	464	444,60	473	609,70
429	128,30	438	159,36	447	229,21	456	343,51	465	457,30	474	635,10
430	131,47	439	165,71	448	241,91	457	356,21	466	470,00	475	660,50
431	134,65	440	172,06	449	254,61	458	368,91	467	482,70		
432	137,82	441	178,41	450	267,31	459	381,61	468	495,40		
433	141,00	442	184,76	451	280,01	460	394,31	469	508,10		

The standard compound for the o-ring used in combination with the BUR concave is a 90 ShA NBR

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie		ØA Rod			ØB Groove	G	R	E * Max. Diametral gap		O-Ring
		Standard	Light duty	Heavy duty		+ 0,15 - 0		1÷20 MPa	20÷40 MPa	
			h8		H10					
01A00	**01B00**	3 ÷ 7,9	8 ÷ 18,9		A + 4,9	2,2	0,3 ÷ 0,5	0,6 ÷ 0,4	0,4 ÷ 0,3	1,78
01A01	**01B01**	8 ÷ 18,9	19 ÷ 37,9		A + 7,3	3,2	0,5 ÷ 0,8	0,8 ÷ 0,5	0,5 ÷ 0,3	2,62
01A02	**01B02**	19 ÷ 37,9	38 ÷ 199,9	8 ÷ 18,9	A + 10,7	4,2	0,8 ÷ 1,2	0,8 ÷ 0,5	0,5 ÷ 0,4	3,53
01A03	**01B03**	38 ÷ 199,9	200 ÷ 255,9	19 ÷ 37,9	A + 15,1	6,3	1,2 ÷ 1,5	1,0 ÷ 0,6	0,6 ÷ 0,4	5,33
01A04	**01B04**	200 ÷ 255,9	256 ÷ 649,9	38 ÷ 199,9	A + 20,5	8,1	1,5 ÷ 2,0	1,0 ÷ 0,6	0,6 ÷ 0,5	7,0
01A05	**01B05**	256 ÷ 649,9	650 ÷ 999,9	200 ÷ 255,9	A + 24,0	8,1	1,5 ÷ 2,0	1,2 ÷ 1,0	0,8 ÷ 0,6	7,0
01A06	**01B06**	650 ÷ 999,9	≥ 1000	256 ÷ 649,9	A + 27,3	9,5	2,0 ÷ 3,0	1,4 ÷ 1,0	1,0 ÷ 0,7	8,4
01A07	**01B07**	≥ 1000			A + 38,0	13,8	2,0 ÷ 3,0	2,0 ÷ 1,0	1,0 ÷ 0,8	12,0

*** Tolerances for higher pressures (up to 80 MPa): H7 / f7.**
For pneumatic applications pls. contact our Technical Department

DENOMINATION EXAMPLE

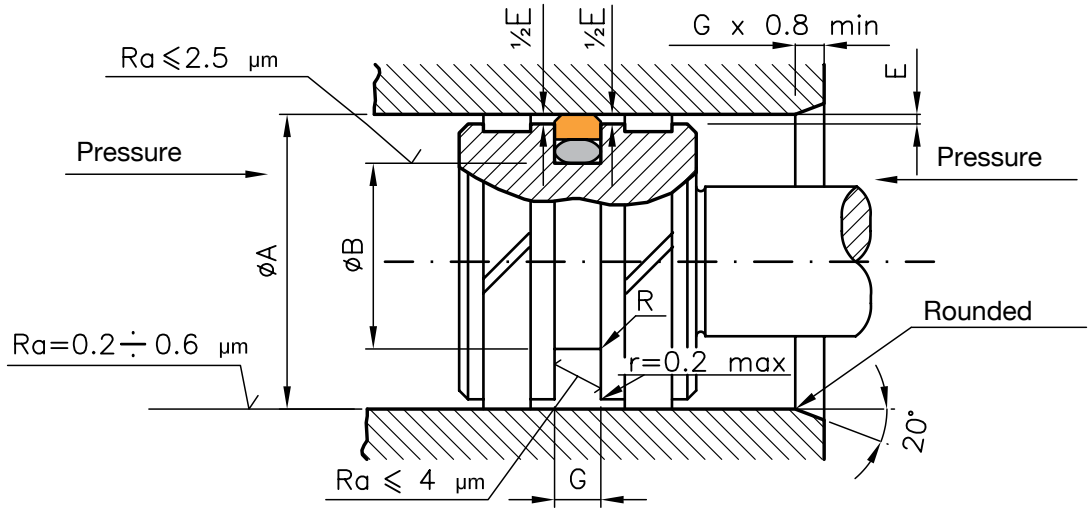
rod: ø 90,0 mm
fluid: hydraulic oil
contact material: steel

01A03 0900 A 24

serie
rif (ø stelo x 10)
O-Ring material code
material code

Minimum diameter for fitting in closed groove	
Serie	Diameter
01A00	12 mm
01A01	16 mm
01A02	19 mm
01A03	38 mm
01A04	70 mm
01A05	200 mm
01A06	256 mm
01A07	400 mm

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie		ØA Cylinder			ØB Groove	G	R	E * Max. Diametral gap		O-Ring
		Standard	Light duty	Heavy duty		+ 0,2 - 0		1÷20 MPa	20÷40 MPa	
			H10		h10					
02A00	**02B00**	8 ÷ 14,9	15 ÷ 39,9		A - 4,9	2,2	0,3 ÷ 0,5	0,6 ÷ 0,4	0,4 ÷ 0,3	1,78
02A01	**02B01**	15 ÷ 39,9	40 ÷ 79,9		A - 7,5	3,2	0,5 ÷ 0,8	0,8 ÷ 0,5	0,5 ÷ 0,3	2,62
02A02	**02B02**	40 ÷ 79,9	80 ÷ 132,9	15 ÷ 39,9	A - 11,0	4,2	0,8 ÷ 1,2	0,8 ÷ 0,5	0,5 ÷ 0,3	3,53
02A03	**02B03**	80 ÷ 132,9	133 ÷ 329,9	40 ÷ 79,9	A - 15,5	6,3	1,2 ÷ 1,5	1,0 ÷ 0,6	0,6 ÷ 0,4	5,33
02A04	**02B04**	133 ÷ 329,9	330 ÷ 669,9	80 ÷ 132,9	A - 21,0	8,1	1,5 ÷ 2,0	1,0 ÷ 0,6	0,6 ÷ 0,4	7,0
02A05	**02B05**	330 ÷ 669,9	670 ÷ 999,9	133 ÷ 329,9	A - 24,5	8,1	1,5 ÷ 2,0	1,2 ÷ 0,7	0,7 ÷ 0,5	7,0
02A06	**02B06**	670 ÷ 999,9	≥ 1000	330 ÷ 669,9	A - 28,0	9,5	2,0 ÷ 3,0	1,4 ÷ 0,8	0,8 ÷ 0,6	8,4
02A07	**02B07**	≥ 1000			A - 38,0	13,8	2,0 ÷ 3,0	2,0 ÷ 1,0	1,0 ÷ 0,8	12,0

*** Tolerances for higher pressures (up to 80 MPa): H7 / f7.**
For pneumatic applications pls. contact our Technical Department

DENOMINATION EXAMPLE

cylinder: ø 18,5 mm
fluid: hydraulic oil
contact material: steel

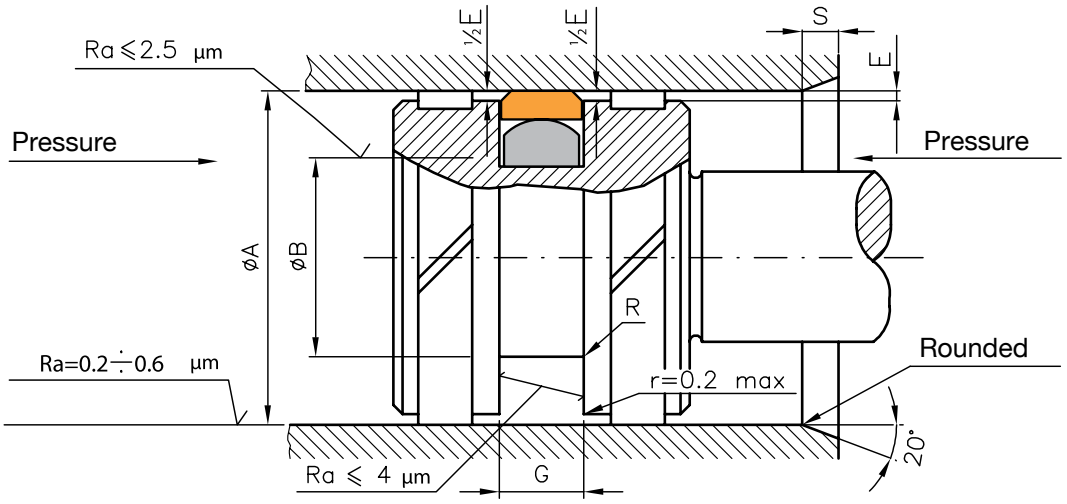
02A01 0185 A 24 N

- serie
- rif (ø cylinder x 10)
- O-Ring material code
- material code
- notches

Minimum diameter for fitting in closed groove			
Serie	Material 19-55-24	Material 32	Material 91-81
02A00	8	15	20
02A01	15	20	35
02A02	20	30	50
02A03	40	50	70
02A04	80	80	95
02A05	133	133	133
02A06	330	330	330
02A07	500	500	500

Lateral notches assure fast seal reaction in case of pressure direction changes
Notches are standardized for seal with a diameter larger than 20 mm

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder	ØB Groove	G	R	E * Max. Diametral Gap		S
	H8	h8	+ 0,2 - 0,0		15÷25 MPa	30÷40 MPa	
02S00	55,0 ÷ 79,9	A - 15,0	7,5	0,4	0,6 ÷ 0,5	0,5 ÷ 0,4	7,5
02S01	80,0 ÷ 149,9	A - 20,0	10,00	0,4	0,6 ÷ 0,5	0,5 ÷ 0,4	7,5
02S02	150,0 ÷ 244,9	A - 25,0	12,5	0,4	0,8 ÷ 0,7	0,6 ÷ 0,5	10,00
02S03	245,0 ÷ 519,9	A - 30,0	15,00	0,8	1,0 ÷ 0,9	0,7 ÷ 0,6	12,0
02S04	410,0 ÷ 769,9	A - 35,0	17,5	1,2	1,2 ÷ 1,0	0,8 ÷ 0,7	12,0
02S05	770,0 ÷ 1450,0	A - 40,0	20,00	1,2	1,2 ÷ 1,0	0,9 ÷ 0,8	15,0

*** Tolerances for higher pressures (up to 80 MPa): H7 / f7.**
Please ask our Technical Department for minimum fitting diameter of seal into closed housing.

DENOMINATION EXAMPLE

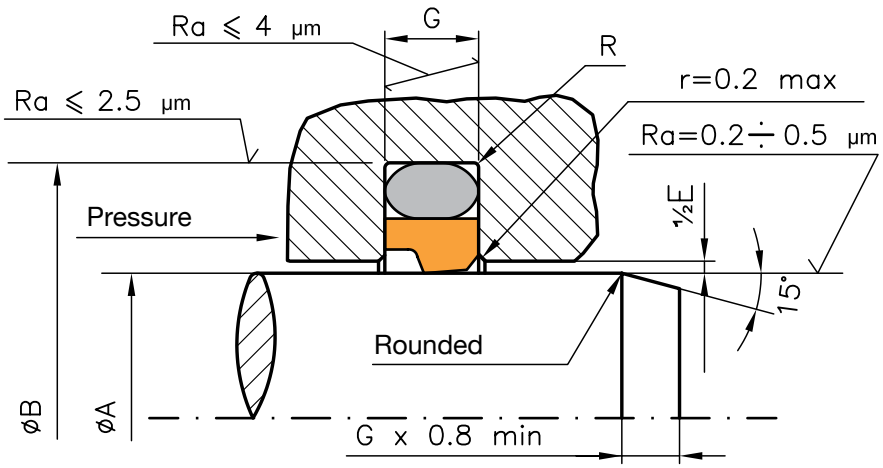
cylinder: ø 300,0 mm
fluid: hydraulic oil
contact material: steel

02S03 3000 A 24 N

- serie
- rif (ø cylinder x 10)
- elastomeric material code
- material code
- notches

Lateral notches assure fast seal reaction in case of pressure direction changes.

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Rod			ØB Groove	G	R	E * Max. Diametral Gap		O-Ring
	Standard	Light duty	Heavy duty		+0,15 -0		1÷20 MPa	20÷40 MPa	
		h8		H10					
11A00	3 ÷ 7,9	8 ÷ 18,9		A + 4,9	2,2	0,3 ÷ 0,5	0,6 ÷ 0,4	0,4 ÷ 0,3	1,78
11A01	8 ÷ 18,9	19 ÷ 37,9		A + 7,3	3,2	0,5 ÷ 0,8	0,8 ÷ 0,5	0,5 ÷ 0,3	2,62
11A02	19 ÷ 37,9	38 ÷ 199,9	8 ÷ 18,9	A + 10,7	4,2	0,8 ÷ 1,2	0,8 ÷ 0,5	0,5 ÷ 0,4	3,53
11A03	38 ÷ 199,9	200 ÷ 255,9	19 ÷ 37,9	A + 15,1	6,3	1,2 ÷ 1,5	1,0 ÷ 0,6	0,6 ÷ 0,4	5,33
11A04	200 ÷ 255,9	256 ÷ 649,9	38 ÷ 199,9	A + 20,5	8,1	1,5 ÷ 2,0	1,0 ÷ 0,6	0,6 ÷ 0,5	7,0
11A05	256 ÷ 649,9	650 ÷ 999,9	200 ÷ 255,9	A + 24,0	8,1	1,5 ÷ 2,0	1,2 ÷ 1,0	0,8 ÷ 0,6	7,0
11A06	650 ÷ 999,9	≥ 1000	256 ÷ 649,9	A + 27,3	9,5	2,0 ÷ 3,0	1,4 ÷ 1,0	1,0 ÷ 0,7	8,4
11A07	≥ 1000			A + 38,0	13,8	2,0 ÷ 3,0	2,0 ÷ 1,0	1,0 ÷ 0,8	12,0

*** Tolerances for higher pressures (up to 60 MPa): H7 / f7.**
For pneumatic applications pls. contact our Technical Department

DENOMINATION EXAMPLE

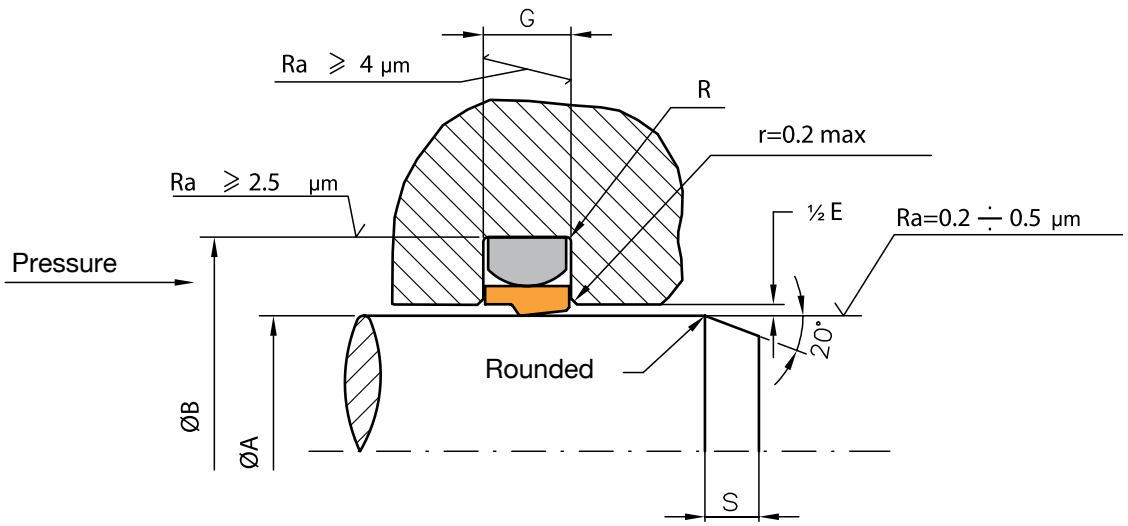
rod: ø 60,3 mm
fluid: hydraulic oil
contact material: steel

11A03 0603 A 24

- 11A03 — serie
- 0603 — rif (ø rod x 10)
- A — O-Ring material code
- 24 — material code

Minimum diameter for fitting in closed groove	
Serie	Diameter
11A00	12 mm
11A01	19 mm
11A02	30 mm
11A03	38 mm
11A04	70 mm
11A05	200 mm
11A06	256 mm
11A07	400 mm

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Rod f8	ØB Groove H8	G + 0,2 - 0,0	R	E * Max. Diametral Gap 15÷25 MPa	E * Max. Diametral Gap 30÷40 MPa	S
11S00	20,0 ÷ 39,9	A + 10,0	5,0	0,4	0,5 ÷ 0,4	0,4 ÷ 0,3	4,0
11S01	40,0 ÷ 74,9	A + 15,0	7,5	0,4	0,6 ÷ 0,5	0,5 ÷ 0,4	5,5
11S02	75,0 ÷ 209,9	A + 20,0	10,0	0,4	0,75 ÷ 0,5	0,5 ÷ 0,4	7,5
11S03	210,0 ÷ 309,9	A + 25,0	12,5	0,4	0,8 ÷ 0,6	0,55 ÷ 0,5	10,0
11S04	310,0 ÷ 539,9	A + 30,0	15,0	1,8	1,0 ÷ 0,9	0,7 ÷ 0,6	12,0
11S05	510,0 ÷ 699,9	A + 35,0	17,5	1,2	1,2 ÷ 1,0	0,8 ÷ 0,7	12,0
11S06	700,0 ÷ 1150,0	A + 40,0	20,00	1,2	1,2 ÷ 1,0	0,9 ÷ 0,8	12,0

*** Tolerances for higher pressures (up to 60 MPa): H7 / f7.**
Please ask our Technical Department for minimum fitting diameter of seal into closed housing.

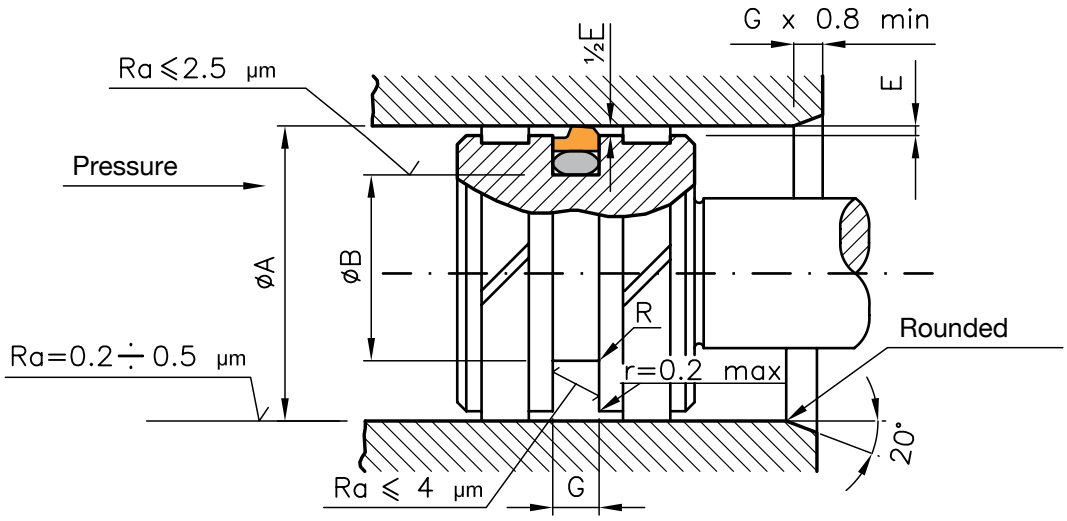
DENOMINATION EXAMPLE

rod:	ø 200,0 mm
fluid:	hydraulic oil
contact material:	steel

11S02 2000 A 24

- 11S02 — serie
- 2000 — rif (ø rod x 10)
- A — elastomeric material code
- 24 — material code

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder			ØB Groove	G	R	E * Max. Diametral Gap		O-Ring
	Standard	Light duty	Heavy duty		+0,2 -0		1÷20 MPa	20÷40 MPa	
		H10		h10					
12A00	8 ÷ 16,9	17 ÷ 26,9		A - 4,9	2,2	0,3 ÷ 0,5	0,5 ÷ 0,4	0,4 ÷ 0,3	1,78
12A01	17 ÷ 26,9	27 ÷ 59,9		A - 7,3	3,2	0,5 ÷ 0,8	0,6 ÷ 0,5	0,5 ÷ 0,3	2,62
12A02	27 ÷ 59,9	60 ÷ 199,9	20 ÷ 26,9	A - 10,7	4,2	0,8 ÷ 1,2	0,7 ÷ 0,5	0,5 ÷ 0,4	3,53
12A03	60 ÷ 199,9	200 ÷ 255,9	27 ÷ 59,9	A - 15,1	6,3	1,2 ÷ 1,5	0,8 ÷ 0,6	0,6 ÷ 0,4	5,33
12A04	200 ÷ 255,9	256 ÷ 669,9	60 ÷ 199,9	A - 20,5	8,1	1,5 ÷ 2,0	1,1 ÷ 0,8	0,8 ÷ 0,5	7,0
12A05	256 ÷ 669,9	670 ÷ 999,9	200 ÷ 255,9	A - 24,0	8,1	1,5 ÷ 2,0	1,1 ÷ 0,8	0,8 ÷ 0,5	7,0
12A06	670 ÷ 999,9	≥ 1000	256 ÷ 669,9	A - 27,3	9,5	2,0 ÷ 3,0	1,2 ÷ 1,0	1,0 ÷ 0,6	8,4
12A07	≥ 1000			A - 38,0	13,8	2,0 ÷ 3,0	2,0 ÷ 1,0	1,0 ÷ 0,8	12,0

*** Tolerances for higher pressures (up to 60 MPa): H7 / f7.**
For pneumatic applications pls. contact our Technical Department

DENOMINATION EXAMPLE

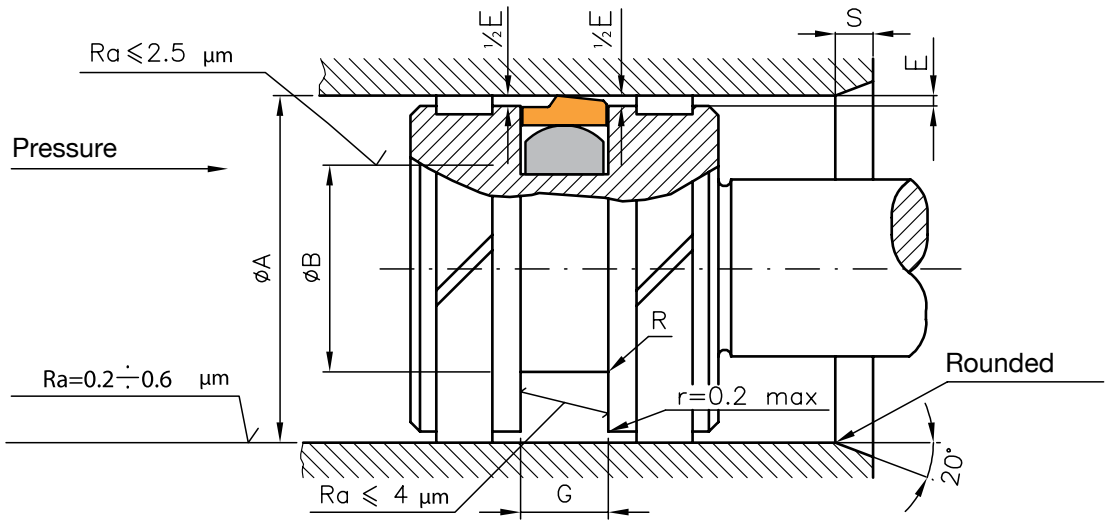
cylinder: ø 18,5 mm
fluid: hydraulic oil
contact material: steel

12A01 0185 A 24

serie
rif (ø cylinder x 10)
elastomeric material code
material code

Minimum diameter for fitting in closed groove			
Serie	Material 19-55-24	Material 32	Material 91-81
12A00	8	15	20
12A01	15	20	35
12A02	20	30	50
12A03	40	50	70
12A04	80	80	95
12A05	133	133	133
12A06	330	330	330
12A07	500	500	500

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder	ØB Groove	G	R	E * Max. Diametral Gap		S
	H8	h8	+ 0,2 - 0,0		15÷25 MPa	30÷40 MPa	
12S00	55,0 ÷ 79,9	A - 15,0	7,5	0,4	0,6 ÷ 0,5	0,5 ÷ 0,4	7,5
12S01	80,0 ÷ 149,9	A - 20,0	10,0	0,4	0,6 ÷ 0,5	0,5 ÷ 0,4	7,5
12S02	150,0 ÷ 244,9	A - 25,0	12,5	0,4	0,8 ÷ 0,7	0,6 ÷ 0,5	10,00
12S03	245,0 ÷ 519,9	A - 30,0	15,0	0,8	1,0 ÷ 0,9	0,7 ÷ 0,6	12,0
12S04	410,0 ÷ 769,9	A - 35,0	17,5	1,2	1,2 ÷ 1,0	0,8 ÷ 0,7	12,0
12S05	770,0 ÷ 1450,0	A - 40,0	20,0	1,2	1,2 ÷ 1,0	0,9 ÷ 0,8	15,0

*** Tolerances for higher pressures (up to 60 MPa): H7 / f7.**
Please ask our Technical Department for minimum fitting diameter of seal into closed housing.

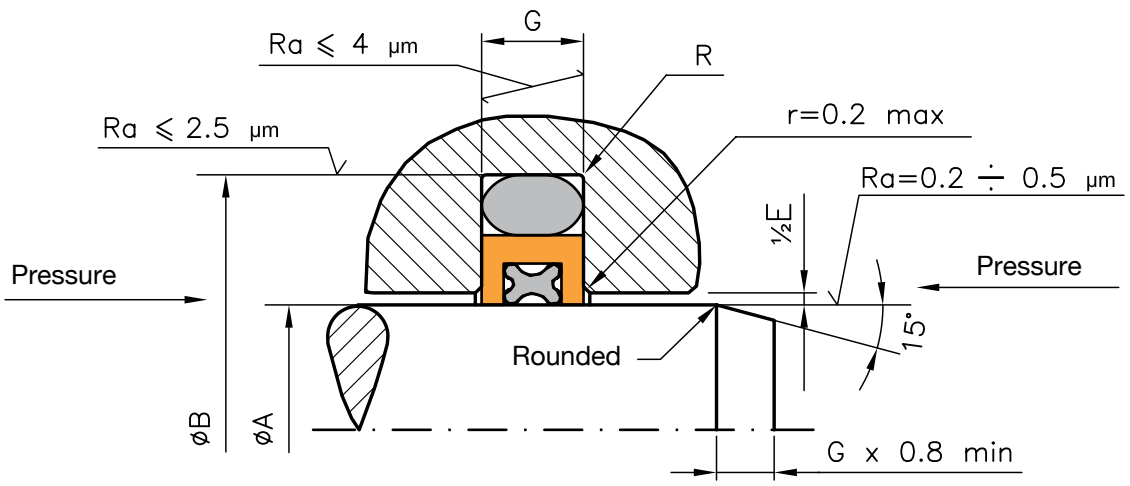
DENOMINATION EXAMPLE

cylinder: ø 250,0 mm
fluid: hydraulic oil
contact material: steel

12S03 2500 A 24

serie
rif (ø cylinder x 10)
elastomeric material code
material code

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Rod h8	ØB Groove H10	G + 0,2 - 0	R	E * Max. Diametral Gap 1÷20 MPa	E * Max. Diametral Gap 20÷40 MPa	O-Ring	Q-Ring
31A02	19,0 ÷ 37,9	A + 11,0	4,2	0,2 ÷ 0,4	0,6 ÷ 0,3	0,3 ÷ 0,1	3,53	1,78
31A03	38,0 ÷ 132,9	A + 15,5	6,3	0,3 ÷ 0,6	0,8 ÷ 0,4	0,4 ÷ 0,2	5,33	1,78
31A04	133,0 ÷ 249,9	A + 21,0	8,1	0,4 ÷ 0,8	0,8 ÷ 0,4	0,4 ÷ 0,2	7,0	2,62
31A05	250,0 ÷ 447,9	A + 28,0	9,5	0,5 ÷ 1,0	1,2 ÷ 0,6	0,6 ÷ 0,4	8,4	3,53
31A06	448,0 ÷ 655,0	A + 35,0	11,5	0,5 ÷ 1,0	1,4 ÷ 0,8	0,8 ÷ 0,6	10,0	5,33

*** Tolerances for higher pressures (up to 60 MPa): H7 / f7.**

DENOMINATION EXAMPLE

rod: ø 90.0 mm
fluid: hydraulic oil
contact material: steel

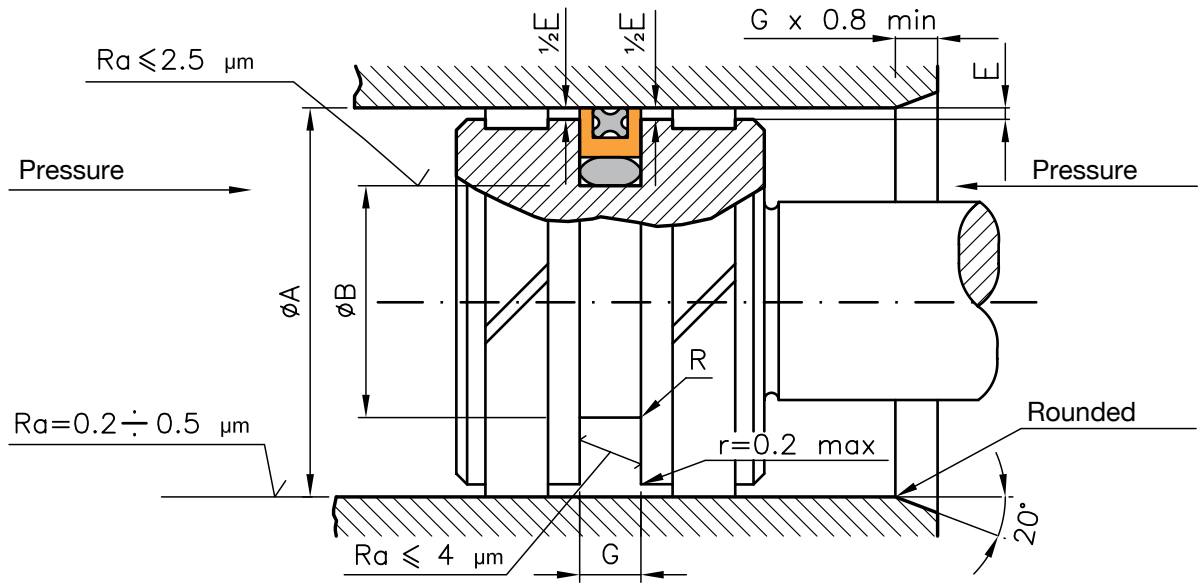
31A03 0900 A 24 N

serie
rif (ø rod x 10)
O-Ring material code
material code
notches

Minimum diameter for fitting in closed groove	
Serie	Diameter
31A02	30 mm
31A03	38 mm
31A04	133 mm
31A05	250 mm
31A06	448 mm

Lateral notches assure fast seal reaction in case of pressure direction changes
Notches are standardized for seal with a diameter larger than 20 mm

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder H10	ØB Groove h10	G + 0,2 - 0	R	E * Max. Diametral Gap 1÷20 MPa	E * Max. Diametral Gap 20÷40 MPa	O-Ring	Q-Ring
32A02	15,0 ÷ 79,9	A - 11,0	4,2	0,2 ÷ 0,4	0,6 ÷ 0,3	0,3 ÷ 0,1	3,53	1,78
32A03	40,0 ÷ 132,9	A - 15,5	6,3	0,3 ÷ 0,6	0,8 ÷ 0,4	0,4 ÷ 0,2	5,33	1,78
32A04	80,0 ÷ 259,9	A - 21,0	8,1	0,4 ÷ 0,8	0,8 ÷ 0,4	0,4 ÷ 0,2	7,0	2,62
32A05	133,0 ÷ 259,9	A - 24,5	8,1	0,4 ÷ 0,8	1,0 ÷ 0,5	0,5 ÷ 0,3	7,0	2,62
32A06	260,0 ÷ 469,9	A - 28,0	9,5	0,5 ÷ 1,0	1,2 ÷ 0,6	0,6 ÷ 0,4	8,4	3,53
32A07	470,0 ÷ 700,0	A - 35,0	11,5	0,5 ÷ 1,0	1,4 ÷ 0,8	0,8 ÷ 0,6	10,0	5,33

*** Tolerances for higher pressures (up to 60 MPa): H7 / f7.**

DENOMINATION EXAMPLE

cylinder: ø 40 mm
fluid: hydraulic oil
contact material: steel

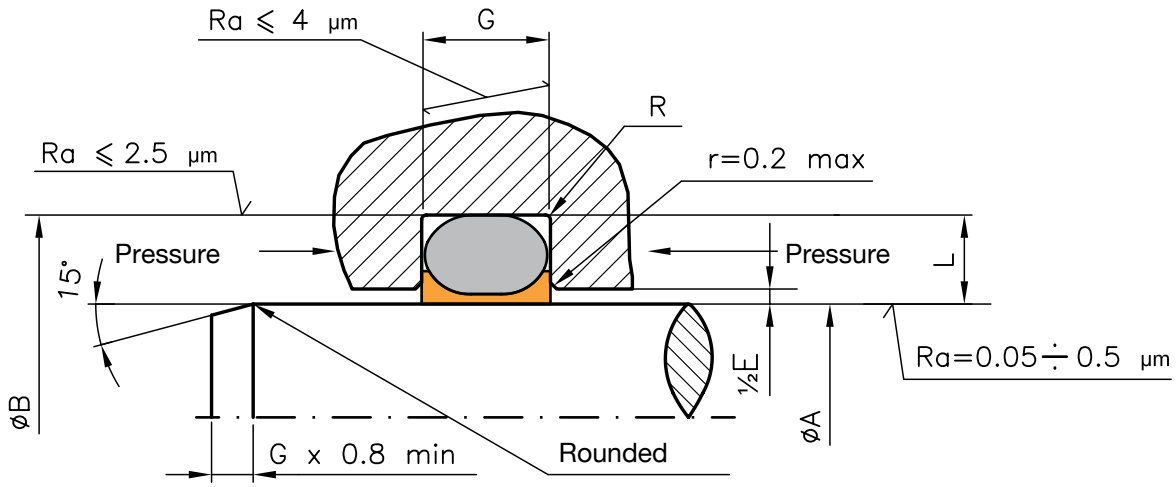
32A02 0400 A 24 N

- serie
- rif (ø cylinder x 10)
- O-Ring material code
- material code
- notches

Minimum diameter for fitting in closed groove	
Serie	Diameter
32A02	30 mm
32A03	50 mm
32A04	80 mm
32A05	133 mm
32A06	330 mm
32A07	470 mm

Lateral notches assure fast seal reaction in case of pressure direction changes
Notches are standardized for seal with a diameter larger than 20 mm

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Rod		ØB Groove	L	G	R	E	O-Ring
	Available h8	Suggested h8	H11		+ 0,2 - 0	max	35 MPa	
41A00	2 ÷ 125	4 ÷ 9,9	A + 2,9	1,45	2,4	0,2	0,13	1,78
41A10	2 ÷ 125	4 ÷ 9,9	A + 2,9	1,45	3,8	0,2	0,13	1,78
41A20	2 ÷ 125	4 ÷ 9,9	A + 2,9	1,45	5,2	0,2	0,13	1,78
41A01	2 ÷ 240	10 ÷ 19,9	A + 4,5	2,25	3,6	0,3	0,13	2,62
41A11	2 ÷ 240	10 ÷ 19,9	A + 4,5	2,25	4,7	0,3	0,13	2,62
41A21	2 ÷ 240	10 ÷ 19,9	A + 4,5	2,25	6,2	0,3	0,13	2,62
41A02	4 ÷ 450	20 ÷ 39,9	A + 6,2	3,1	4,8	0,4	0,15	3,53
41A12	4 ÷ 450	20 ÷ 39,9	A + 6,2	3,1	6,0	0,4	0,15	3,53
41A22	4 ÷ 450	20 ÷ 39,9	A + 6,2	3,1	7,7	0,4	0,15	3,53
41A03	10 ÷ 650	40 ÷ 119,9	A + 9,4	4,7	7,1	0,4	0,17	5,33
41A13	10 ÷ 650	40 ÷ 119,9	A + 9,4	4,7	8,7	0,4	0,17	5,33
41A23	10 ÷ 650	40 ÷ 119,9	A + 9,4	4,7	10,8	0,4	0,17	5,33
41A04	115 ÷ 650	120 ÷ 400,9	A + 12,2	6,1	9,5	0,6	0,25	7,0
41A14	115 ÷ 650	120 ÷ 400,9	A + 12,2	6,1	12,0	0,6	0,25	7,0
41A24	115 ÷ 650	120 ÷ 400,9	A + 12,2	6,1	14,7	0,6	0,25	7,0

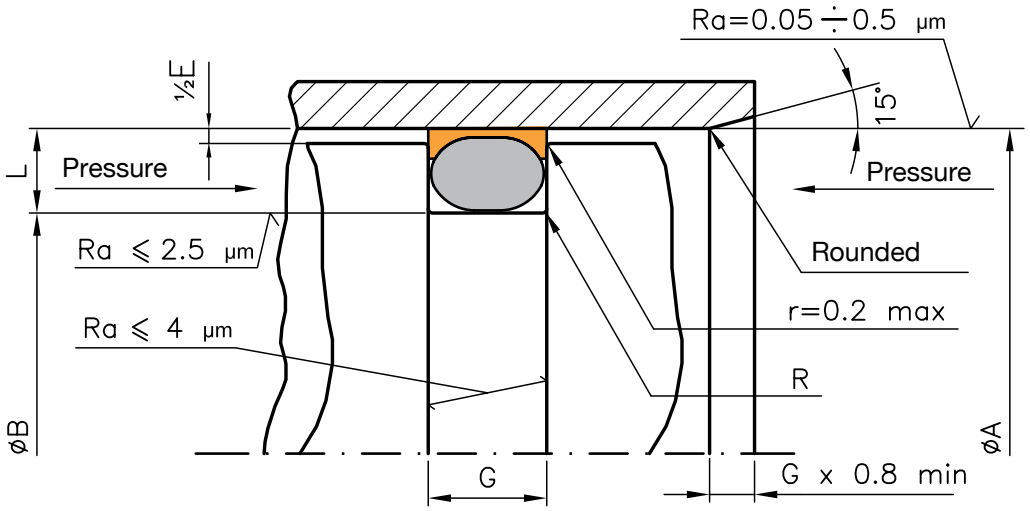
DENOMINATION EXAMPLE

rod:	ø 30 mm
fluid:	hydraulic oil
contact material:	steel
temperature:	70° C
O-Ring size:	3,53

41A02 0300 A 19

- 41A02 — serie
- 0300 — rif (ø rod x 10)
- A — O-Ring material code
- 19 — material code

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder		ØB Groove	L	G	R	E	O-Ring
	Available H9	Suggested H9	h11		+ 0,2 - 0	max	35 MPa	
42A00	4,8 ÷ 137	8 ÷ 13,9	A - 2,9	1,45	2,4	0,2	0,13	1,78
42A10	4,8 ÷ 137	8 ÷ 13,9	A - 2,9	1,45	3,8	0,2	0,13	1,78
42A20	4,8 ÷ 137	8 ÷ 13,9	A - 2,9	1,45	5,2	0,2	0,13	1,78
42A01	6 ÷ 260	14 ÷ 24,9	A - 4,5	2,25	3,6	0,3	0,13	2,62
42A11	6 ÷ 260	14 ÷ 24,9	A - 4,5	2,25	4,7	0,3	0,13	2,62
42A21	6 ÷ 260	14 ÷ 24,9	A - 4,5	2,25	6,2	0,3	0,13	2,62
42A02	11 ÷ 480	25 ÷ 45,9	A - 6,2	3,1	4,8	0,4	0,15	3,53
42A12	11 ÷ 480	25 ÷ 45,9	A - 6,2	3,1	6,0	0,4	0,15	3,53
42A22	11 ÷ 480	25 ÷ 45,9	A - 6,2	3,1	7,7	0,4	0,15	3,53
42A03	20 ÷ 690	46 ÷ 124,9	A - 9,4	4,7	7,1	0,4	0,17	5,33
42A13	20 ÷ 690	46 ÷ 124,9	A - 9,4	4,7	8,7	0,4	0,17	5,33
42A23	20 ÷ 690	46 ÷ 124,9	A - 9,4	4,7	10,8	0,4	0,17	5,33
42A04	128 ÷ 700	128 ÷ 400,9	A - 12,2	6,1	9,5	0,6	0,25	7,0
42A14	128 ÷ 700	128 ÷ 400,9	A - 12,2	6,1	12,0	0,6	0,25	7,0
42A24	128 ÷ 700	128 ÷ 400,9	A - 12,2	6,1	14,7	0,6	0,25	7,0

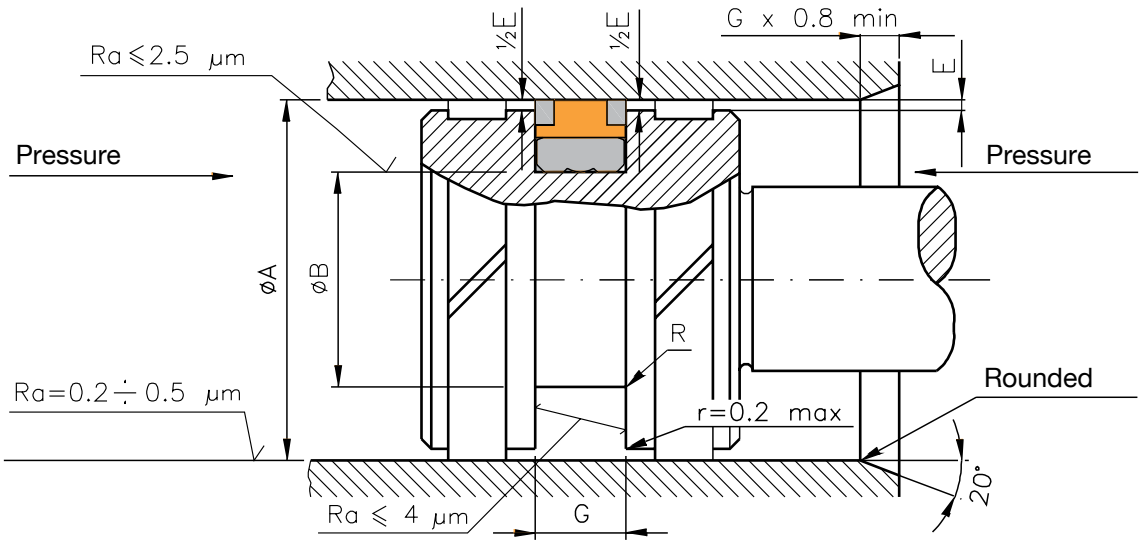
DENOMINATION EXAMPLE

cylinder:	ø 40 mm
fluid:	hydraulic oil
contact material:	steel
temperature:	70° C
O-Ring size:	3,53

42A02 0400 A 19

- serie
- rif (ø cylinder x 10)
- O-Ring material code
- material code

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder H10	ØB Groove h10	G + 0,2 - 0,0	R	E * Max. Diametral Gap 1÷30 MPa	E * Max. Diametral Gap 30÷60 MPa
02F00	50,0 ÷ 62,9	A - 14,0	9,0	0,2 ÷ 0,4	1,0 ÷ 0,8	0,8 ÷ 0,5
02F01	63,0 ÷ 94,9	A - 15,0	11,0	0,4 ÷ 0,6	1,0 ÷ 0,8	0,8 ÷ 0,5
02F02	95,0 ÷ 124,9	A - 15,0	12,5	0,4 ÷ 0,6	1,0 ÷ 0,8	0,8 ÷ 0,5
02F03	125,0 ÷ 249,9	A - 23,0	16,0	0,6 ÷ 0,8	1,0 ÷ 0,8	0,8 ÷ 0,5
02F04	≥ 250,0	A - 28,0	17,5	0,8 ÷ 1,0	1,0 ÷ 0,8	0,8 ÷ 0,5

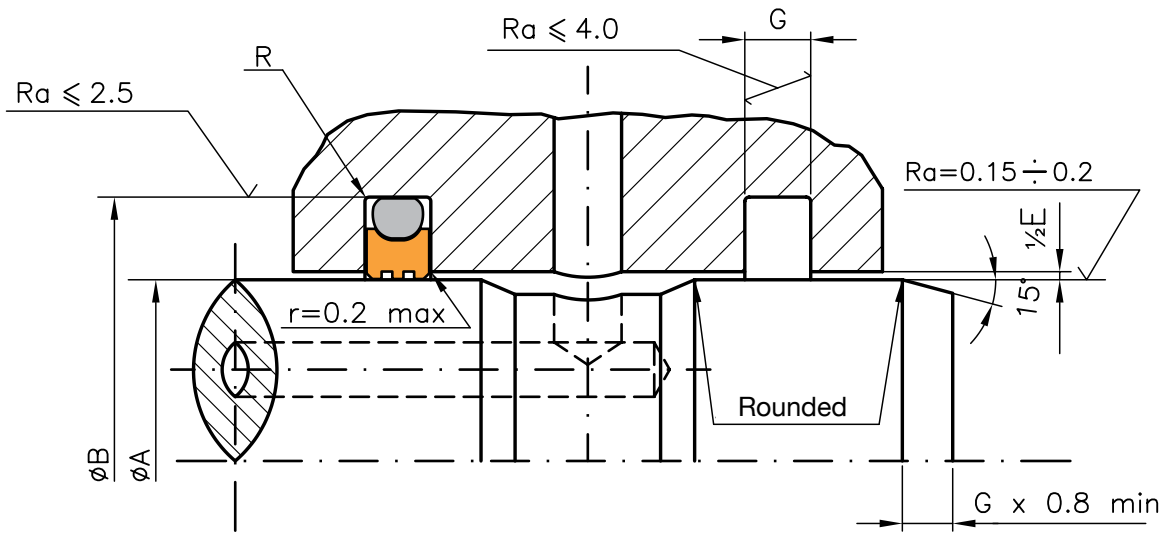
DENOMINATION EXAMPLE

cylinder: ø 120,0 mm
fluid: hydraulic oil
contact material: steel

02F02 1200 A 24 03

serie
rif (ø cylinder x 10)
elastomeric material code
Ring material code
Back up material code

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Shaft		ØB Groove	G	R	E Max. Diametral Gap			
	Available h8	Suggested h8	H10	+0,2 -0	max	1MPa	10MPa	20MPa	30MPa
51C00	6,0 ÷ 130,0	6,0 ÷ 24,9	A + 4,9	2,2	0,3	A + 0,4	A + 0,3	A + 0,2	A + 0,15
51B01	10,0 ÷ 245,0	25,0 ÷ 59,9	A + 7,5	3,2	0,5	A + 0,6	A + 0,45	A + 0,3	A + 0,2
51B02	19,0 ÷ 455,0	60,0 ÷ 132,9	A + 11,0	4,2	0,7	A + 0,6	A + 0,45	A + 0,3	A + 0,2
51A03	38,0 ÷ 655,0	133,0 ÷ 329,9	A + 15,5	6,3	1,2	A + 0,8	A + 0,6	A + 0,4	A + 0,3
51A04	120,0 ÷ 655,0	330,0 ÷ 654,9	A + 21,0	8,1	1,5	A + 0,8	A + 0,6	A + 0,4	A + 0,3
51A05	650,0 ÷ 999,9	655,0 ÷ 999,9	A + 28,0	9,5	2,0	A + 1,2	A + 0,9	A + 0,6	A + 0,5

This seal is recommended for rotary application depending on the design constraints

DENOMINATION EXAMPLE

shaft: ø 100 mm
fluid: hydraulic fluid
contact material: steel

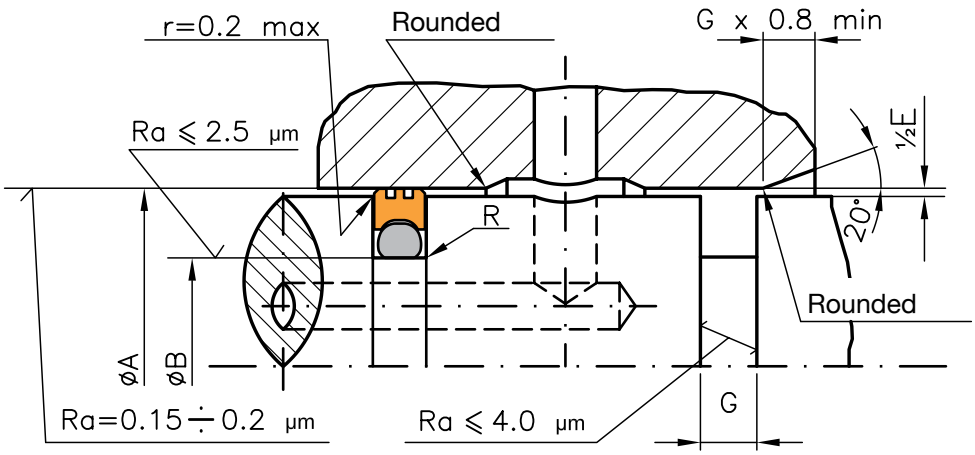
51B02 1000 A 55 N

serie
rif (ø shaft x 10)
O-Ring material code
material code
notches

Minimum diameter for fitting in closed groove	
51C00	12,0
51B01	18,0
51B02	33,0
51A03	60,0

Lateral notches assure fast seal reaction in case of pressure direction changes
Notches are standardized for seal with a diameter larger than 20 mm

GROOVE GEOMETRY & DIMENSION



Seals can be supplied for any diameter as per the following table

PRP Serie	ØA Cylinder		ØB Cava	G	R	E Max. Diametral Gap			
	Available H10	Suggested H10	h10	+0,2 -0	max	1MPa	10MPa	20MPa	30MPa
52C00	8,0 ÷ 135,0	8,0 ÷ 29,9	A - 4,9	2,2	0,3	A - 0,4	A - 0,3	A - 0,2	A - 0,15
52B01	14,0 ÷ 250,0	30,0 ÷ 69,9	A - 7,5	3,2	0,5	A - 0,6	A - 0,45	A - 0,3	A - 0,2
52B02	22,0 ÷ 460,0	70,0 ÷ 132,9	A - 11,0	4,2	0,7	A - 0,6	A - 0,45	A - 0,3	A - 0,2
52A03	40,0 ÷ 675,0	133,0 ÷ 329,9	A - 15,5	6,3	1,2	A - 0,8	A - 0,6	A - 0,4	A - 0,3
52A04	133,0 ÷ 690,0	330,0 ÷ 689,9	A - 21,0	8,1	1,5	A - 0,8	A - 0,6	A - 0,4	A - 0,3
52A05	690,0 ÷ 999,9	690,0 ÷ 999,9	A - 28,0	9,5	2,0	A - 1,2	A - 0,9	A - 0,6	A - 0,5

DENOMINATION EXAMPLE

cylinder: ø 50 mm
fluid: hydraulic fluid
contact material: steel

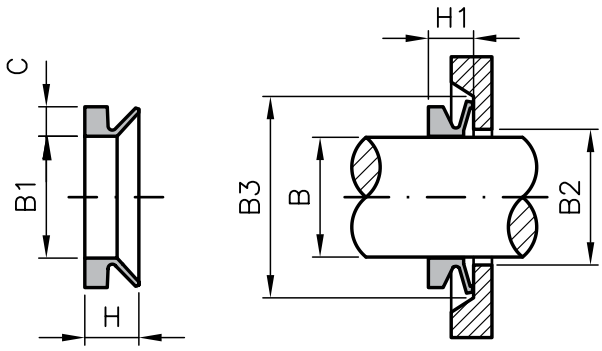
52B01 0500 A 55 N

- serie
- rif (ø cylinder x 10)
- O-Ring material code
- material code
- notches

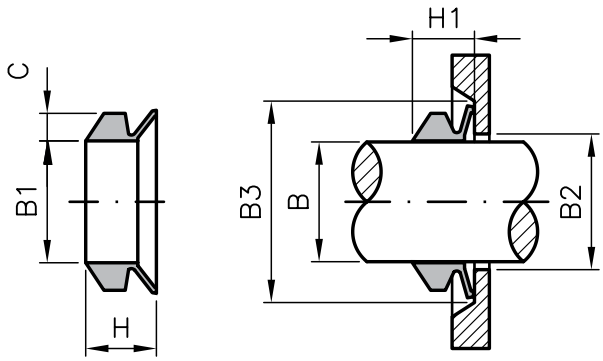
Minimum diameter for fitting in closed groove	
52C00	12,0
52B01	18,0
52B02	33,0
52A03	60,0

Lateral notches assure fast seal reaction in case of pressure direction changes
Notches are standardized for seal with a diameter larger than 20 mm

Serie V-RING A



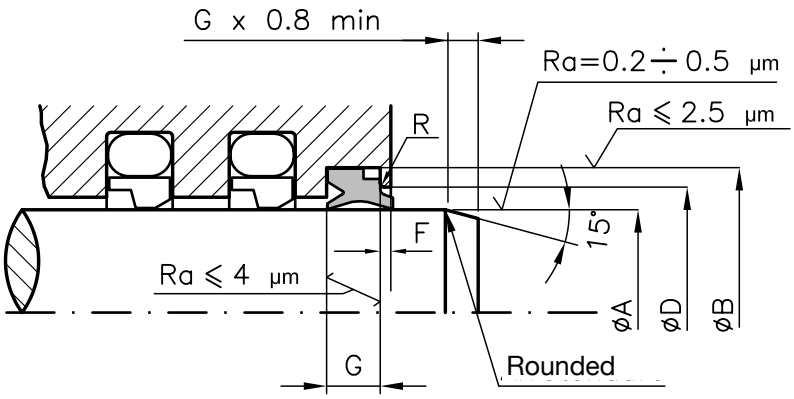
Serie V-RING S



PRP Serie S	shaft B	B1	C	Before fitting H	B2	B3	Fitted H1
V-5S	4,5 ÷ 5,5	4	2	5,2	B + 1	B + 6	4,5
V-6S	5,5 ÷ 6,5	5	2	5,2	B + 1	B + 6	4,5
V-7S	6,5 ÷ 8,0	6	2	5,2	B + 1	B + 6	4,5
V-8S	8,0 ÷ 9,5	7	2	5,2	B + 1	B + 6	4,5
V-10S	9,5 ÷ 11,5	9	3	7,7	B + 2	B + 9	6,7
V-12S	11,5 ÷ 13,5	10,5	3	7,7	B + 2	B + 9	6,7
V-14S	13,5 ÷ 15,5	12,5	3	7,7	B + 2	B + 9	6,7
V-16S	15,5 ÷ 17,5	14	3	7,7	B + 2	B + 9	6,7
V-18S	17,5 ÷ 19,0	16	3	7,7	B + 2	B + 9	6,7
V-20S	19 ÷ 21	18	4	10,5	B + 2	B + 12	9,0
V-22S	21 ÷ 24	20	4	10,5	B + 2	B + 12	9,0
V-25S	24 ÷ 27	22	4	10,5	B + 2	B + 12	9,0
V-28S	27 ÷ 29	25	4	10,5	B + 3	B + 12	9,0
V-30S	29 ÷ 31	27	4	10,5	B + 3	B + 12	9,0
V-32S	31 ÷ 33	29	4	10,5	B + 3	B + 12	9,0
V-35S	33 ÷ 36	31	4	10,5	B + 3	B + 12	9,0
V-38S	36 ÷ 38	34	4	10,5	B + 3	B + 12	9,0
V-40S	38 ÷ 43	36	5	13,0	B + 3	B + 15	11,0
V-45S	43 ÷ 48	40	5	13,0	B + 3	B + 15	11,0
V-50S	48 ÷ 53	45	5	13,0	B + 3	B + 15	11,0
V-55S	53 ÷ 58	49	5	13,0	B + 3	B + 15	11,0
V-60S	58 ÷ 63	54	5	13,0	B + 3	B + 15	11,0
V-65S	63 ÷ 68	58	5	13,0	B + 3	B + 15	11,0
V-70S	68 ÷ 73	63	6	15,5	B + 4	B + 18	13,5
V-75S	73 ÷ 78	67	6	15,5	B + 4	B + 18	13,5
V-80S	78 ÷ 83	72	6	15,5	B + 4	B + 18	13,5
V-85S	83 ÷ 88	76	6	15,5	B + 4	B + 18	13,5
V-90S	88 ÷ 93	81	6	15,5	B + 4	B + 18	13,5
V-95S	93 ÷ 98	85	6	15,5	B + 4	B + 18	13,5
V-100S	98 ÷ 105	90	6	15,5	B + 4	B + 18	13,5
V-110S	105 ÷ 115	99	7	18,0	B + 4	B + 21	15,5
V-120S	115 ÷ 125	108	7	18,0	B + 4	B + 21	15,5
V-130S	125 ÷ 135	117	7	18,0	B + 4	B + 21	15,5
V-140S	135 ÷ 145	126	7	18,0	B + 4	B + 21	15,5
V-150S	145 ÷ 155	135	7	18,0	B + 4	B + 21	15,5
V-160S	155 ÷ 165	144	8	20,5	B + 5	B + 24	18,0
V-170S	165 ÷ 175	153	8	20,5	B + 5	B + 24	18,0
V-180S	175 ÷ 185	162	8	20,5	B + 5	B + 24	18,0
V-190S	185 ÷ 195	171	8	20,5	B + 5	B + 24	18,0
V-199S	195 ÷ 210	180	8	20,5	B + 5	B + 24	18,0

PRP Serie A	Stelo B	B1	C	Before fitting H	B2	B3	Fitted H1
V-3A	2,7 ÷ 3,5	2,5	1,5	3,0	B + 1	B + 4	2,5
V-4A	3,5 ÷ 4,5	3,2	2	3,7	B + 1	B + 6	3,0
V-5A	4,5 ÷ 5,5	4	2	3,7	B + 1	B + 6	3,0
V-6A	5,5 ÷ 6,5	5	2	3,7	B + 1	B + 6	3,0
V-7A	6,5 ÷ 8,0	6	2	3,7	B + 1	B + 6	3,0
V-8A	8,0 ÷ 9,5	7	2	3,7	B + 1	B + 6	3,0
V-10A	9,5 ÷ 11,5	9	3	5,5	B + 2	B + 9	4,5
V-12A	11,5 ÷ 13,5	10,5	3	5,5	B + 2	B + 9	4,5
V-14A	13,5 ÷ 15,5	12,5	3	5,5	B + 2	B + 9	4,5
V-16A	15,5 ÷ 17,5	14	3	5,5	B + 2	B + 9	4,5
V-18A	17,5 ÷ 19	16	3	5,5	B + 2	B + 9	4,5
V-20A	19 ÷ 21	18	4	7,5	B + 2	B + 12	6,0
V-22A	21 ÷ 24	20	4	7,5	B + 2	B + 12	6,0
V-25A	24 ÷ 27	22	4	7,5	B + 2	B + 12	6,0
V-28A	27 ÷ 29	25	4	7,5	B + 3	B + 12	6,0
V-30A	29 ÷ 31	27	4	7,5	B + 3	B + 12	6,0
V-32A	31 ÷ 33	29	4	7,5	B + 3	B + 12	6,0
V-35A	33 ÷ 36	31	4	7,5	B + 3	B + 12	6,0
V-38A	36 ÷ 38	34	4	7,5	B + 3	B + 12	6,0
V-40A	38 ÷ 43	36	5	9,0	B + 3	B + 15	7,0
V-45A	43 ÷ 48	40	5	9,0	B + 3	B + 15	7,0
V-50A	48 ÷ 53	45	5	9,0	B + 3	B + 15	7,0
V-55A	53 ÷ 58	49	5	9,0	B + 3	B + 15	7,0
V-60A	58 ÷ 63	54	5	9,0	B + 3	B + 15	7,0
V-65A	63 ÷ 68	58	5	9,0	B + 3	B + 15	7,0
V-70A	68 ÷ 73	63	6	11,0	B + 4	B + 18	9,0
V-75A	73 ÷ 78	67	6	11,0	B + 4	B + 18	9,0
V-80A	78 ÷ 83	72	6	11,0	B + 4	B + 18	9,0
V-85A	83 ÷ 88	76	6	11,0	B + 4	B + 18	9,0
V-90A	88 ÷ 93	81	6	11,0	B + 4	B + 18	9,0
V-95A	93 ÷ 98	85	6	11,0	B + 4	B + 18	9,0
V-100A	98 ÷ 105	90	6	11,0	B + 4	B + 18	9,0
V-110A	105 ÷ 115	99	7	12,8	B + 4	B + 21	10,5
V-120A	115 ÷ 125	108	7	12,8	B + 4	B + 21	10,5
V-130A	125 ÷ 135	117	7	12,8	B + 4	B + 21	10,5
V-140A	135 ÷ 145	126	7	12,8	B + 4	B + 21	10,5
V-150A	145 ÷ 155	135	7	12,8	B + 4	B + 21	10,5
V-160A	155 ÷ 165	144	8	14,5	B + 5	B + 24	12,0
V-170A	165 ÷ 175	153	8	14,5	B + 5	B + 24	12,0
V-180A	175 ÷ 185	162	8	14,5	B + 5	B + 24	12,0
V-190A	185 ÷ 195	171	8	14,5	B + 5	B + 24	12,0
V-199A	195 ÷ 210	180	8	14,5	B + 5	B + 24	12,0
V-200A	190 ÷ 210	180	15	25	B + 10	B + 45	20,0
V-220A	210 ÷ 235	198	15	25	B + 10	B + 45	20,0
V-250A	235 ÷ 265	225	15	25	B + 10	B + 45	20,0
V-275A	265 ÷ 290	247	15	25	B + 10	B + 45	20,0
V-300A	290 ÷ 310	270	15	25	B + 10	B + 45	20,0
V-325A	310 ÷ 335	292	15	25	B + 10	B + 45	20,0
V-350A	335 ÷ 365	315	15	25	B + 10	B + 45	20,0
V-375A	365 ÷ 390	337	15	25	B + 10	B + 45	20,0
V-400A	390 ÷ 430	360	15	25	B + 10	B + 45	20,0
V-450A	430 ÷ 480	405	15	25	B + 10	B + 45	20,0
V-500A	480 ÷ 530	450	15	25	B + 10	B + 45	20,0
V-550A	530 ÷ 580	495	15	25	B + 10	B + 45	20,0
V-600A	580 ÷ 630	540	15	25	B + 10	B + 45	20,0

GROOVE GEOMETRY & DIMENSION



PRP Serie	ØA Rod h8	ØB Groove H9	F min.	G + 0,2 - 0	R max	ØD ±0,1
21D02	10 ÷ 100	A + 8	2	6,0	0,6	B + 3,5
21D03	105 ÷ 200	A + 12	3	8,2	0,6	B + 5,0
21D04	205 ÷ 440	A + 15	3	9,5	0,6	B + 7,0

Available diameters													
10	12	14	15	16	18	20	22	24	25	28	30	32	35
36	37	38	40	42	45	46	48	50	52	55	56	60	63
65	68	70	75	80	85	90	95	100	105	110	115	120	125
130	135	140	145	150	160	165	170	180	185	190	195	200	210
220	225	240	250	260	280	300	320	360	400				

DENOMINATION EXAMPLE

rod: ø 80 mm

contact material: steel

21D02 0800 N90

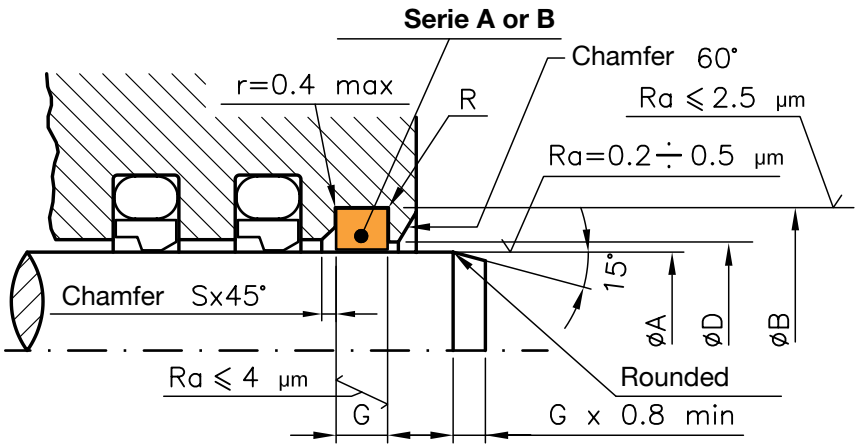
serie

rif (ø rod x 10)

material code

In case of risk of interpressure between seal and scraper, we recommend to have a drain for pressure release to prevent the scraper from being pushed out from its housing. pls. contact our Technical Department

GROOVE GEOMETRY & DIMENSION



Scraper can be supplied for any diameter as per the following table

PRP Serie A	PRP Serie B	ØA Shaft Available h8	ØA Shaft Suggested h8	ØB Groove H9	S	G + 0,15 - 0	R max	ØD + 0,25 - 0	O-Ring
21A00	**21B00**	6 ÷ 130	6 ÷ 11,9	A + 4,8	0,6	3,7	0,4	A + 1,5	1,78
21A01	**21B01**	6 ÷ 245	12 ÷ 64,9	A + 6,8	1,0	5,0	0,7	A + 1,5	2,62
21A02	**21B02**	6 ÷ 455	65 ÷ 250,9	A + 8,8	1,4	6,0	1,0	A + 1,5	3,53
21A03	**21B03**	40 ÷ 655	251 ÷ 420,9	A + 12,2	1,8	8,4	1,2	A + 2,0	5,33
21A04	**21B04**	110 ÷ 655	421 ÷ 650,9	A + 16,0	2,0	11,0	1,5	A + 2,0	7,0
21A05	**21B05**	140 ÷ 999,9	651 ÷ 999,9	A + 20,0	2,5	14,0	2,0	A + 2,5	8,4

Open groove with flange is preferred for scraper with a diameter smaller than 30 mm.
PRP - 21B in case of risk of interpressure between seal and scraper, we recommend to have a drain for pressure release to prevent the scraper from being pushed out from its housing.
pls. contact our Technical Department

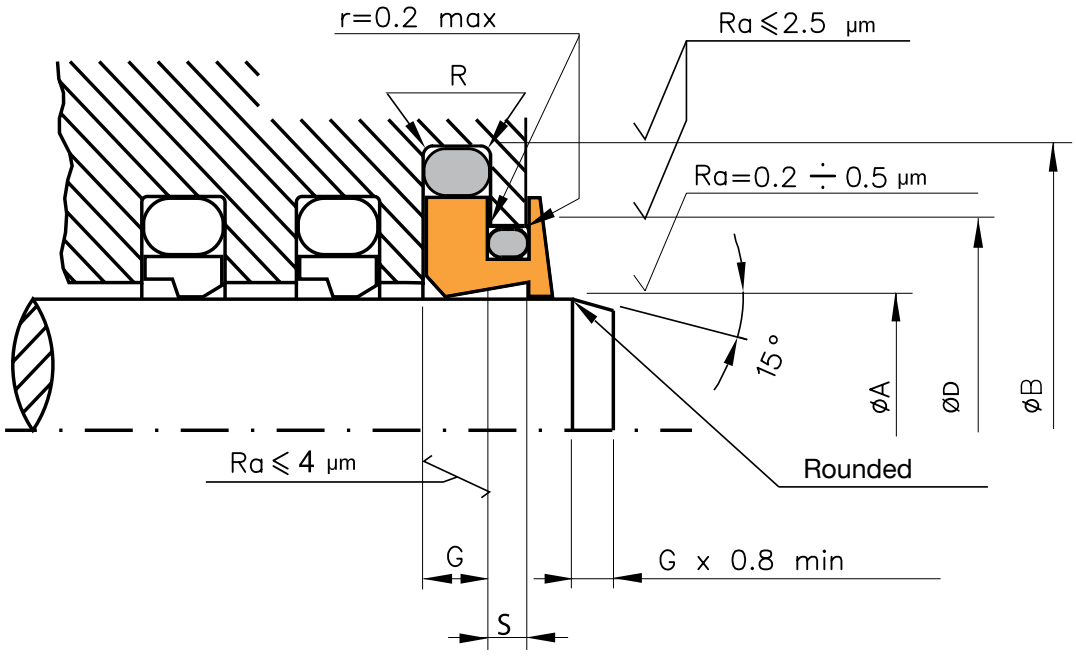
DENOMINATION EXAMPLE

shaft: ø 80.5 mm
contact material: steel

21B02 0805 A 24

serie
rif (ø shaft x 10)
O-Ring material code
material code

GROOVE GEOMETRY & DIMENSION



Scraper can be supplied for any diameter as per the following table

PRP Serie	ØA Rod		ØB Groove	G	ØD	R	S	O-Ring	O-Ring
	Available h8	Suggested h8	H9	+ 0,15 - 0	H9	max	+ 0 - 0,1	d1	d2
21E01	100,0 ÷ 450,0	140,0 ÷ 229,9	A + 22,2	6,3	A + 10,7	1,2	4,2	5,33	3,53
21E02	220,0 ÷ 450,0	230,0 ÷ 299,9	A + 24,2	6,3	A + 10,7	1,2	4,2	5,33	3,53
21E03	250,0 ÷ 650,0	300,0 ÷ 629,9	A + 33,0	8,1	A + 15,1	1,2	6,3	7,00	5,53
21E04	550,0 ÷ 999,9	630,0 ÷ 999,9	A + 36,5	9,5	A + 15,1	2,0	6,3	8,40	5,33

Open groove with flange is preferred for scraper with a diameter smaller than 140 mm.
In case of risk of interpressure between seal and scraper, we recommend to have a drain for pressure release to prevent the scraper from being pushed out from its housing.
pls. contact our Technical Department

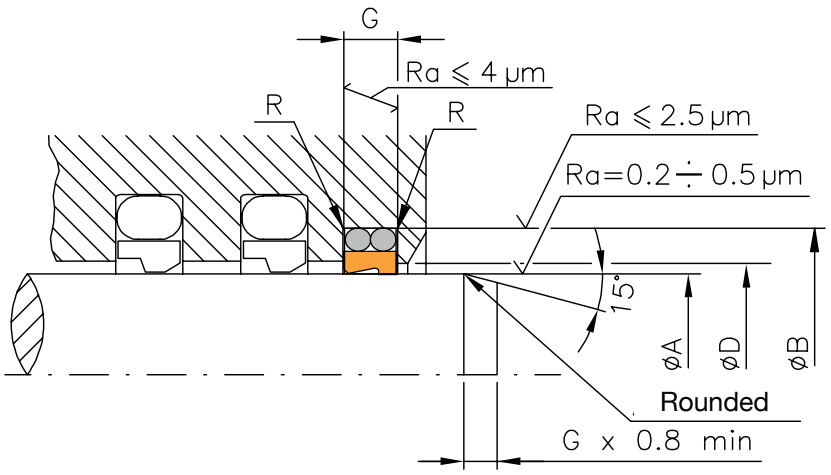
DENOMINATION EXAMPLE

rod: ø 200 mm
contact material: steel

21E01 2000 A 24

serie
rif (ø rod x 10)
O-Ring material code
Scraper material code

GROOVE GEOMETRY & DIMENSION



Scraper can be supplied for any diameter as per the following table

PRP Serie	**ØA** Rod h8	**ØB** Groove H9	**G** + 0,2 - 0	**R** Max	**ØD** + 0,25 - 0	O-Ring
21F00	6,0 ÷ 39,9	A + 7,6	4,2	0,4	A + 1,0	1,78
21F01	40,0 ÷ 69,9	A + 8,8	6,3	1,2	A + 1,5	2,62
21F02	70,0 ÷ 139,9	A + 12,2	8,1	1,5	A + 2,0	3,53
21F03	140,0 ÷ 400,0	A + 16,0	11,5	2,0	A + 2,0	5,33
21F04	400,1 ÷ 649,9	A + 24,0	15,5	2,5	A + 2,5	7,0
21F05	650,0 ÷ 999,9	A + 27,3	18,0	2,5	A + 2,5	8,4

Open groove with flange is preferred for scraper with a diameter smaller than 30 mm.
In case of risk of interpressure between seal and scraper, we recommend to have a drain for pressure release to prevent the scraper from being pushed out from its housing.
pls. contact our Technical Department

DENOMINATION EXAMPLE

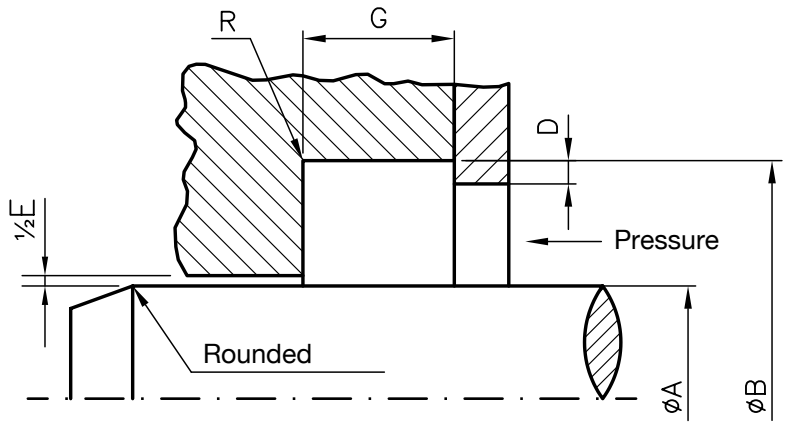
rod: ø 90,0 mm

contact material: steel

21F02 0900 A 24

- serie
- rif (ø rod x 10)
- O-Ring material code
- Scraper material code

GROOVE GEOMETRY & DIMENSION



Static **Dynamic** **Semidynamic**

Seals can be supplied for any diameter as per the following table

PRP Serie	C/S	PRP Serie	C/S	PRP Serie	C/S	ØA Rod Available h9	ØA Rod Suggested h9	ØB Groove H9	G + 0,2 - 0	R max	D min.
61B00 **61B10**	000	**61A00** **61A10**	000	**67A00** **67A10**	000	3,0 ÷ 40,0	3,0 ÷ 9,9	A + 2,9	2,4 3,8	0,4	0,4
61B01 **61B11**	100	**61A01** **61A11**	100	**67A01** **67A11**	100	6,0 ÷ 200,0	10,0 ÷ 19,9	A + 4,5	3,6 4,65	0,4	0,6
61B02 **61B12**	200	**61A02** **61A12**	200	**67A02** **67A12**	200	10,0 ÷ 400,0	20,0 ÷ 39,9	A + 6,2	4,8 5,7	0,6	0,7
61B03 **61B13**	300	**61A03** **61A13**	300	**67A03** **67A13**	300	20,0 ÷ 700,0	40,0 ÷ 119,9	A + 9,4	7,1 8,5	0,8	0,8
61B04 **61B14**	400	**61A04** **61A14**	400	**67A04** **67A14**	400	35,0 ÷ 999,9	120,0 ÷ 999,9	A + 12,2	9,5 11,2	0,8	0,9
61B05 **61B15**	500	**61A05** **61A15**	500	**67A05** **67A15**	500	150,0 ÷ 1400,0	400,0 ÷ 1400,0	A + 18,75	13,4 15,8	0,8	1,5

***"E" values depend on working temperature and seal material.**
for high pressure please contact our Technical Department.
for material selection please check pages 6-7-9-38-39

DENOMINATION EXAMPLE

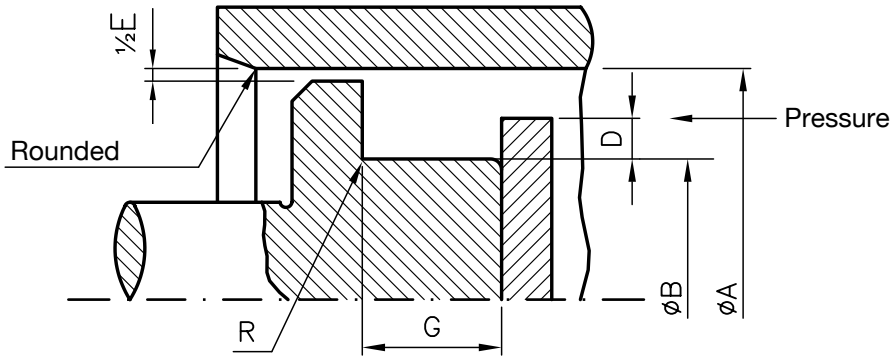
rod: ø 35 mm
fluid: Hydraulic oil
contact material: steel
movement: dynamic

61A02 0350 19 S

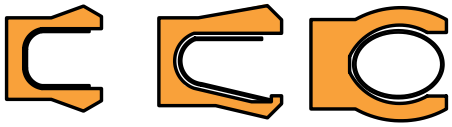
serie
rif (ø rod x 10)
seal material code
spring material code

Serie	* E max up to 2 MPa	up to 10 MPa	up to 20 MPa	up to 40 MPa
000	0,2	0,1	0,08	0,05
100	0,25	0,15	0,1	0,07
200	0,35	0,2	0,15	0,08
300	0,5	0,25	0,2	0,1
400	0,6	0,3	0,25	0,12
500	0,7	0,35	0,3	0,13

GROOVE GEOMETRY & DIMENSION



Static **Dynamic** **Semidynamic**



Seals can be supplied for any diameter as per the following table

PRP Serie	C/S	PRP Serie	C/S	PRP Serie	C/S	ØA Cylinder Available H9	ØA Cylinder Suggested H9	ØB Groove h9	G + 0,2 - 0	R max	D min.
62B00 **62B10**	000	**62A00** **62A10**	000	**66A00** **66A10**	000	6,0 ÷ 40,0	6,0 ÷ 13,9	A - 2,9	2,4 3,8	0,4	0,4
62B01 **62B11**	100	**62A01** **62A11**	100	**66A01** **66A11**	100	10,0 ÷ 200,0	14,0 ÷ 24,9	A - 4,5	3,6 4,65	0,4	0,6
62B02 **62B12**	200	**62A02** **62A12**	200	**66A02** **66A12**	200	16,0 ÷ 400,0	25,0 ÷ 45,9	A - 6,2	4,8 5,7	0,6	0,7
62B03 **62B13**	300	**62A03** **62A13**	300	**66A03** **66A13**	300	28,0 ÷ 700,0	46,0 ÷ 124,9	A - 9,4	7,1 8,5	0,8	0,8
62B04 **62B14**	400	**62A04** **62A14**	400	**66A04** **66A14**	400	45,0 ÷ 999,9	125,0 ÷ 999,9	A - 12,2	9,5 11,2	0,8	0,9
62B05 **62B15**	500	**62A05** **62A15**	500	**66A05** **66A15**	500	150,0 ÷ 1400,0	400,0 ÷ 1400,0	A - 18,75	13,4 15,8	0,8	1,5

***"E" values depend on working temperature and seal material.**
for high pressure please contact our Technical Department.
for material selection please check pages 6-7-9-38-39

DENOMINATION EXAMPLE

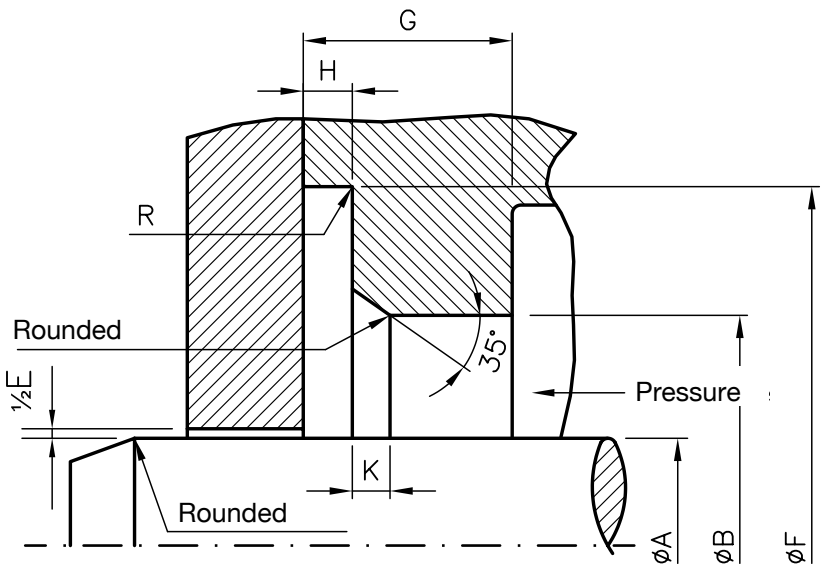
cylinder: ø 80 mm
fluid: Hydraulic oil
contact material: steel
movement: dynamic

62A03 0800 19 S

serie
rif (ø cylinder x 10)
seal material code
spring material code

Serie	* E max up to 2 MPa	up to 10 MPa	up to 20 MPa	up to 40 MPa
000	0,2	0,1	0,08	0,05
100	0,25	0,15	0,1	0,07
200	0,35	0,2	0,15	0,08
300	0,5	0,25	0,2	0,1
400	0,6	0,3	0,25	0,12
500	0,7	0,35	0,3	0,13

GROOVE GEOMETRY & DIMENSION



Rotating

Seals can be supplied for any diameter as per the following table

PRP		ØA Rod		ØB	ØF	G	H	K	R	* E max		
Serie	C/S	Available h9	Suggested h9	Groove H9	H10	min.			max	Up to 2 MPa	Up to 10 MPa	Up to 20 MPa
65A01	100	5,0 ÷ 200,0	5,0 ÷ 19,9	A + 5,0	A + 10,0	3,6	0,85 + 0 -0,10	0,8	0,3	0,25	0,15	0,10
65A02	200	10,0 ÷ 400,0	20,0 ÷ 39,9	A + 7,0	A + 13,5	4,8	1,35 + 0 -0,15	1,1	0,4	0,35	0,20	0,15
65A03	300	20,0 ÷ 700,0	40,0 ÷ 400,9	A + 10,5	A + 18,5	7,1	1,80 + 0 -0,20	1,4	0,5	0,50	0,25	0,20
65A04	400	35,0 ÷ 999,9	401,0 ÷ 999,9	A + 14,0	A + 23,0	9,5	2,80 + 0 -0,20	1,6	0,5	0,60	0,30	0,25

***"E" values depend on working temperature and seal material.**
for high pressure please contact our Technical Department.
for material selection please check pages 6-7-9

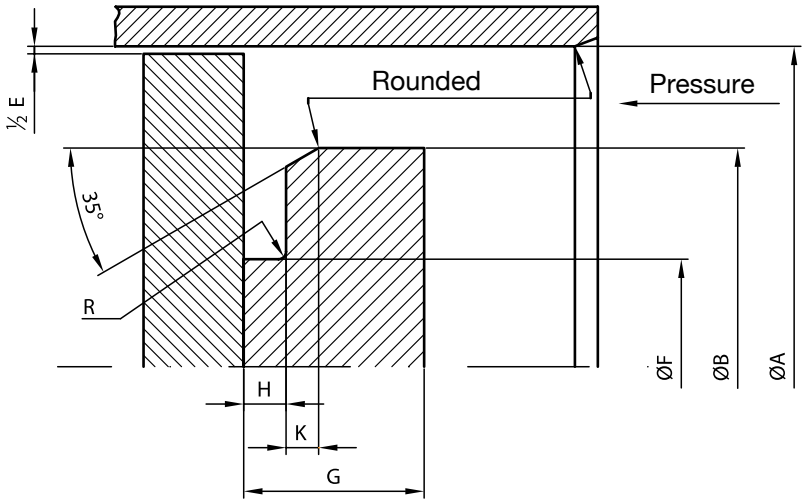
DENOMINATION EXAMPLE

rod:	ø 30 mm
fluid:	Hydraulic oil
contact material:	steel
movement:	rotation

65A02 0300 41 S

- 65A02 — serie
- 0300 — rif (ø rod x 10)
- 41 — seal material code
- S — spring material code

GROOVE GEOMETRY & DIMENSION



Rotating

Seals can be supplied for any diameter as per the following table

PRP		ØA Cylinder		ØB	ØF	G	H	K	R	* E max		
		Available	Suggested	Groove						Up to	Up to	Up to
Serie	C/S	H9	H9	H9	H10	min.			max	2 MPa	10 MPa	20 MPa
65B01	100	14,0 ÷ 200,0	14,0 ÷ 24,9	A - 5,0	A - 10,0	3,6	0,85 + 0 -0,10	0,8	0,3	0,25	0,15	0,10
65B02	200	18,0 ÷ 400,0	25,0 ÷ 45,9	A - 7,0	A - 13,5	4,8	1,35 + 0 -0,15	1,1	0,4	0,35	0,20	0,15
65B03	300	28,0 ÷ 700,0	46,0 ÷ 124,9	A - 10,5	A - 18,5	7,1	1,80 + 0 -0,20	1,4	0,5	0,50	0,25	0,20
65B04	400	45,0 ÷ 999,9	125,0 ÷ 999,9	A - 14,0	A - 23,0	9,5	2,80 + 0 -0,20	1,6	0,5	0,60	0,30	0,25

*** " E" values depend on work ing temperature and seal material. .**
for high pressure please contact our Technical Department.
for material selection please check pages 6-7-9

DENOMINATION EXAMPLE

Cylinder: ø 30 mm
fluid: Hy draulic oil
contact material: steel
movement: rotation

65B02 0300 41 S

serie
rif (ø cylinder x 10)
seal material code
spring material code

SEALED VERSION
Add “D” suffix to the product denomination

STATIC, FOR CYLINDER

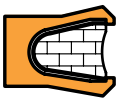
DENOMINATION EXAMPLE

cylinder: ø 80 mm
fluid: olive oil

62B03 0800 91 SD

- 62B03 — serie c/s 300
- 0800 — rif (ø cylinder x 10)
- 91 — seal material code
- SD — spring material code

DYNAMIC, FOR ROD



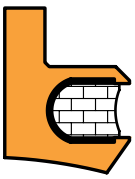
DENOMINATION EXAMPLE

rod: ø 50 mm
fluid: cosmetics
contact material: steel

61A02 0500 19 SD

- 61A02 — serie c/s 200
- 0500 — rif (ø rod x 10)
- 19 — seal material code
- SD — spring material code

ROTATION, FOR ROD



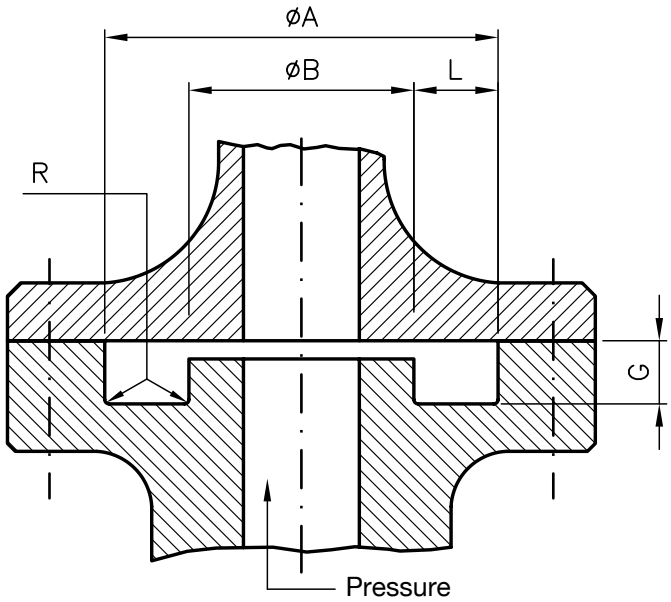
DENOMINATION EXAMPLE

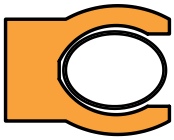
rod: ø 30 mm
fluid: cosmetics
contact material: steel

65A02 0300 41 SD

- 65A02 — serie c/s 200
- 0300 — rif (ø rod x 10)
- 41 — seal material code
- SD — spring material code

GROOVE GEOMETRY & DIMENSION





Seals can be supplied for any diameter as per the following table

PRP Serie	PRP Cross section	ØA Available H11	ØA Suggested H11	ØB	G	L	R max
68A00	000	10,0 ÷ 40,0	10,0 ÷ 13,9	A - 4,8	1,45 + 0,03	2,4	0,4
68A10		10,0 ÷ 40,0	10,0 ÷ 13,9	A - 7,6	1,45 + 0,03	3,8	0,4
68A01	100	13,0 ÷ 200,0	14,0 ÷ 24,9	A - 7,2	2,25 + 0,05	3,6	0,4
68A11		13,0 ÷ 200,0	14,0 ÷ 24,9	A - 9,3	2,25 + 0,05	4,65	0,4
68A02	200	18,0 ÷ 400,0	25,0 ÷ 45,9	A - 9,6	3,1 + 0,08	4,8	0,6
68A12		18,0 ÷ 400,0	25,0 ÷ 45,9	A - 11,4	3,1 + 0,08	5,7	0,6
68A03	300	28,0 ÷ 700,0	46,0 ÷ 124,9	A - 14,2	4,7 + 0,1	7,1	0,8
68A13		28,0 ÷ 700,0	46,0 ÷ 124,9	A - 17,0	4,7 + 0,1	8,5	0,8
68A04	400	45,0 ÷ 1000,0	125,0 ÷ 999,9	A - 19,0	6,1 + 0,15	9,5	0,8
68A14		45,0 ÷ 1000,0	125,0 ÷ 999,9	A - 22,4	6,1 + 0,15	11,2	0,8
68A05	500	120,0 ÷ 2500	1000 ÷ 2500	A - 30,0	9,5 + 0,2	15,0	0,8
68A15		120,0 ÷ 2500	1000 ÷ 2500	A - 31,6	9,5 + 0,2	15,8	0,8

for seal material selection please refer to pages 6-7-9

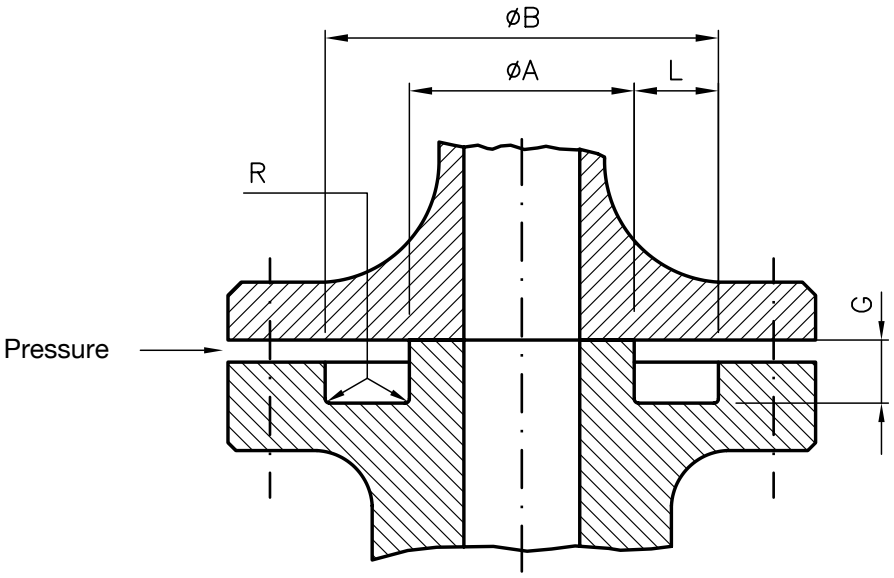
DENOMINATION EXAMPLE

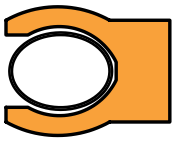
diameter A: ø 45.0 mm
cross section: 200
fluid: Hydraulic oil

68A02 0450 19 S

serie
rif (ø A x 10)
seal material code
spring material code

GROOVE GEOMETRY & DIMENSION





Seals can be supplied for any diameter as per the following table

PRP Serie	PRP Cross Section	øA Available h11	øA Suggested h11	øB	G	L	R max
69A00	000	3,0 ÷ 40,0	3,0 ÷ 9,9	A + 4,8	1,45 + 0,03	2,4	0,4
69A10		3,0 ÷ 40,0	3,0 ÷ 9,9	A + 7,6	1,45 + 0,03	3,8	0,4
69A01	100	8,0 ÷ 200,0	10,0 ÷ 19,9	A + 7,2	2,25 + 0,05	3,6	0,4
69A11		8,0 ÷ 200,0	10,0 ÷ 19,9	A + 9,3	2,25 + 0,05	4,65	0,4
69A02	200	12,0 ÷ 400,0	20,0 ÷ 39,9	A + 9,6	3,1 + 0,08	4,8	0,6
69A12		12,0 ÷ 400,0	20,0 ÷ 39,9	A + 11,4	3,1 + 0,08	5,7	0,6
69A03	300	20,0 ÷ 700,0	40,0 ÷ 119,9	A + 14,2	4,7 + 0,1	7,1	0,8
69A13		20,0 ÷ 700,0	40,0 ÷ 119,9	A + 17,0	4,7 + 0,1	8,5	0,8
69A04	400	35,0 ÷ 1000,0	120,0 ÷ 999,9	A + 19,0	6,1 + 0,15	9,5	0,8
69A14		35,0 ÷ 1000,0	120,0 ÷ 999,9	A + 22,4	6,1 + 0,15	11,2	0,8
69A05	500	100,0 ÷ 2500	1000 ÷ 2500	A + 30,0	9,5 + 0,2	15,0	0,8
69A15		100,0 ÷ 2500	1000 ÷ 2500	A + 31,6	9,5 + 0,2	15,8	0,8

for seal material selection please refer to pages 6-7-9

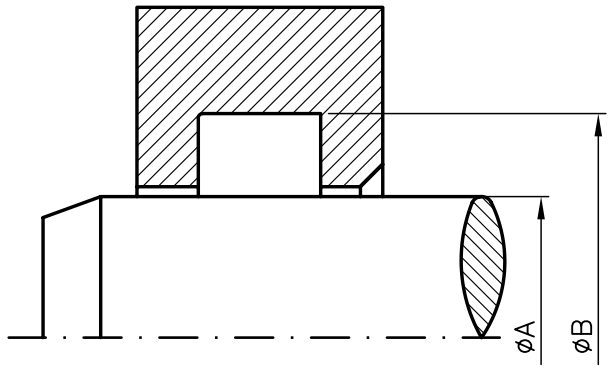
DENOMINATION EXAMPLE

diameter A: ø 50.0 mm
section: 300
fluid: Hydraulic oil

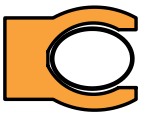
69A03 0500 19 S

serie
rif (ø A x 10)
seal material code
spring material code

MINIMUM ROD DIAMETER FOR SEAL FITTING INTO CLOSED HOUSING

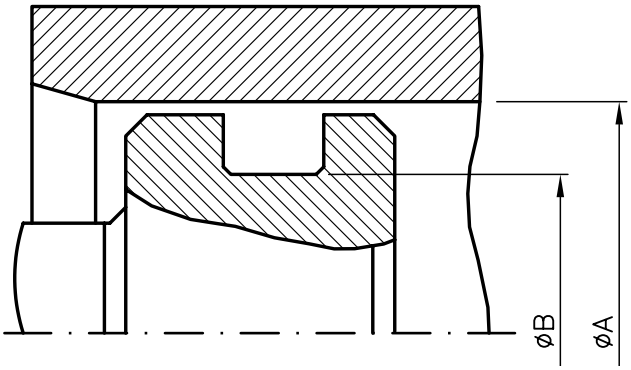


Serie	ØA min.
000	30,0
100	70,0
200	110,0
300	300,0
400	500,0
500	800,0

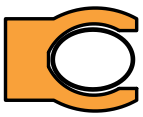


Serie	ØA min.
000	30,0
100	70,0
200	110,0
300	230,0
400	400,0
500	600,0

MINIMUM CYLINDER DIAMETER FOR SEAL FITTING INTO CLOSED HOUSING

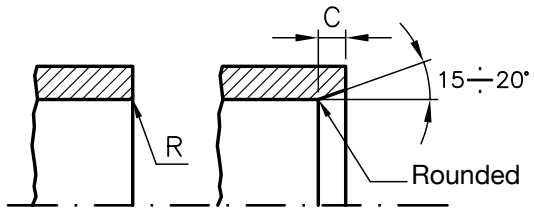


Serie	ØA min.
000	35,0
100	50,0
200	70,0
300	105,0
400	140,0
500	200,0

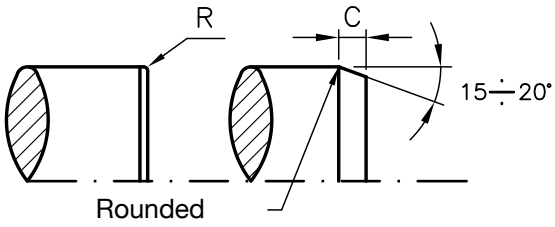


Serie	ØA min.
000	20,0
100	35,0
200	48,0
300	75,0
400	95,0
500	120,0

CHAMFERS

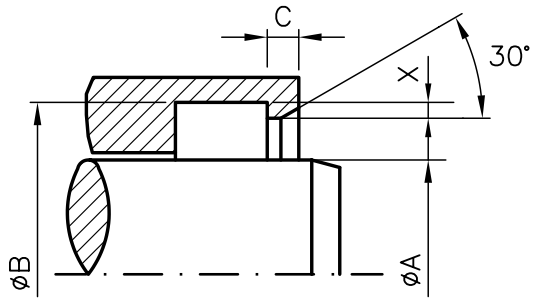


Serie	R min.	C min.
000	1	4,2
100	1	4,7
200	1	5,2
300	1	8,2
400	1	11,9
500	1	12,0

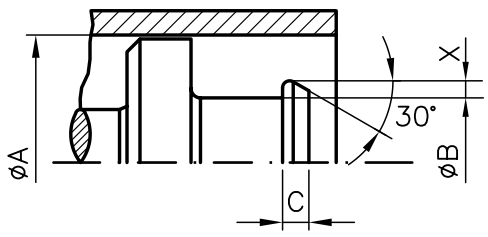


Serie	R min.	C min.
000	1	4,2
100	1	4,7
200	1	5,2
300	1	8,2
400	1	11,9
500	1	12,0

SEAL FITTING FOR ROD AND PISTON WITH RETAINER

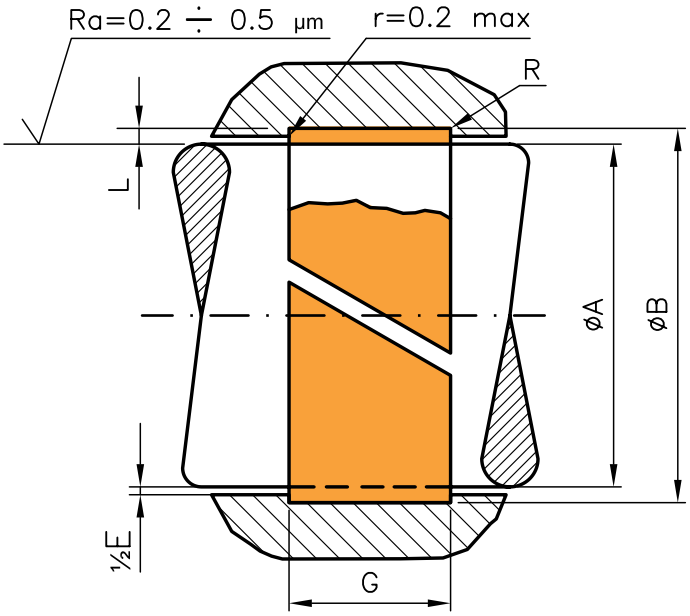


Serie	X	øA min.	C min.
000	0,4	12	2,5
100	0,6	20	3,5
200	0,7	30	3,5
300	0,8	40	4,5
400	0,9	55	7,5
500	1,5	80	7,5



Serie	X	øA min.	C min.
000	0,4	15	2,5
100	0,6	21	3,5
200	0,7	25	3,5
300	0,8	30	4,5
400	0,9	45	7,5
500	1,5	70	7,5

GROOVE GEOMETRY & DIMENSIONS



PRP Serie	ØB Groove H9	L	G + 0,2 - 0	R max.	E
81A15032	ØA + 3	1,5	3,2	0,3	0,4 ÷ 1,0
81A25042	ØA + 5	2,5	4,2	0,3	0,5 ÷ 2,0
81A25056			5,6		
81A25063			6,3		
81A25081			8,1		
81A25097			9,7		
81A25150			15,0		
81A25200			20,0		
81A25250			25,0		
81A25300			30,0		
81A20042	ØA + 4	2,0	4,2	0,3	0,5 ÷ 1,5
81A20063			6,3		
81A20081			8,1		
81A20097			9,7		
81A20150			15,0		
81A20200			20,0		
81A20250			25,0		
81A30300	ØA + 6	3	30,0	0,3	0,5 ÷ 3,0
81A40500	ØA + 8	4	50,0	0,3	0,5 ÷ 4,0

DENOMINATION EXAMPLE

rod:	ø 101,6 mm
guide thickness:	2,5 mm
groove width:	9,7 mm
contact material:	steel

81A25097 1016 29 A

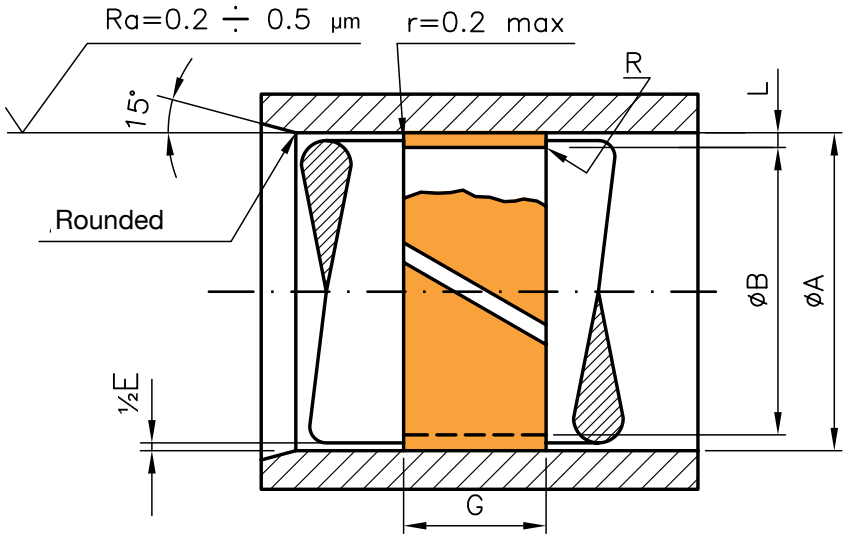
- serie
- rif (ø rod x 10)
- guide material code
- cut type

Guiding tape available in meter length with code PRP 85 instead of PRP 81

Example width: 20 mm
thickness: 2,5 mm
material: PTFE + Bronze

code: 85A25200 - 29

GROOVE GEOMETRY & DIMENSIONS



PRP Serie	ØB Groove h9	L	G + 0,2 - 0	R max.	E
82A15032	ØA - 3	1,5	3,2	0,3	0,4 ÷ 1,0
82A25042	ØA - 5	2,5	4,2	0,3	0,5 ÷ 2,0
82A25056			5,6		
82A25063			6,3		
82A25081			8,1		
82A25097			9,7		
82A25150			15,0		
82A25200			20,0		
82A25250			25,0		
82A25300			30,0		
82A20042	ØA - 4	2,0	4,2	0,3	0,5 ÷ 1,5
82A20063			6,3		
82A20081			8,1		
82A20097			9,7		
82A20150			15,0		
82A20200			20,0		
82A20250			25,0		
82A30300	ØA - 6	3	30,0	0,3	0,5 ÷ 3,0
82A40500	ØA - 8	4	50,0	0,3	0,5 ÷ 4,0

DENOMINATION EXAMPLE

cylinder bore:	ø 60 mm
guide thickness:	2,0 mm
groove width:	6,3 mm
contact material:	steel

82A20063 0600 32 A

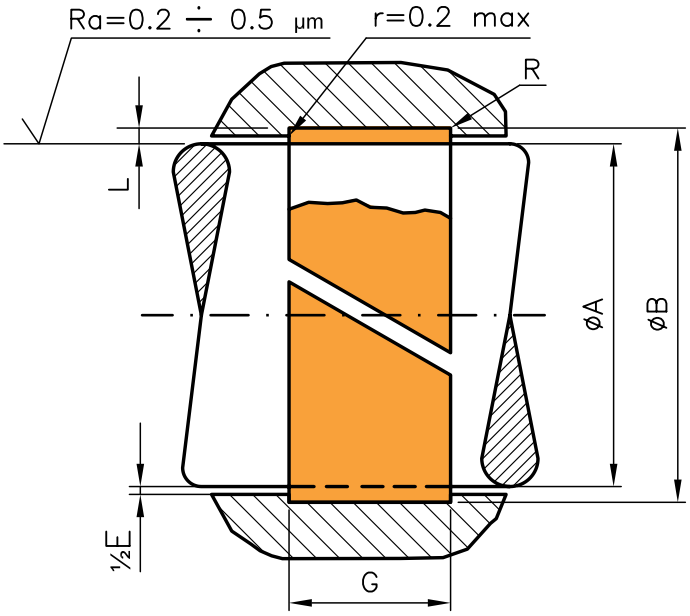
- serie
- rif (ø cylinder x 10)
- guide material code
- cut type

Guiding tape available in meter lenght with code PRP 85 instead of PRP 82

Example width: 20 mm
thickness: 2,5 mm
material: PTFE + Bronze

code: 85A25200 - 29

GROOVE GEOMETRY & DIMENSIONS



PRP Serie	ØA Available h9	ØB Groove + 0,05 - 0	L	G + 0,2 - 0	R max	E
81D25056	15 ÷ 140	ØA + 5	2,5	5,6	0,3	0,5 ÷ 2,0
81D25097	60 ÷ 220			9,7		
81D25150	120 ÷ 400			15,0		
81D25250	320 ÷ 999			25,0		

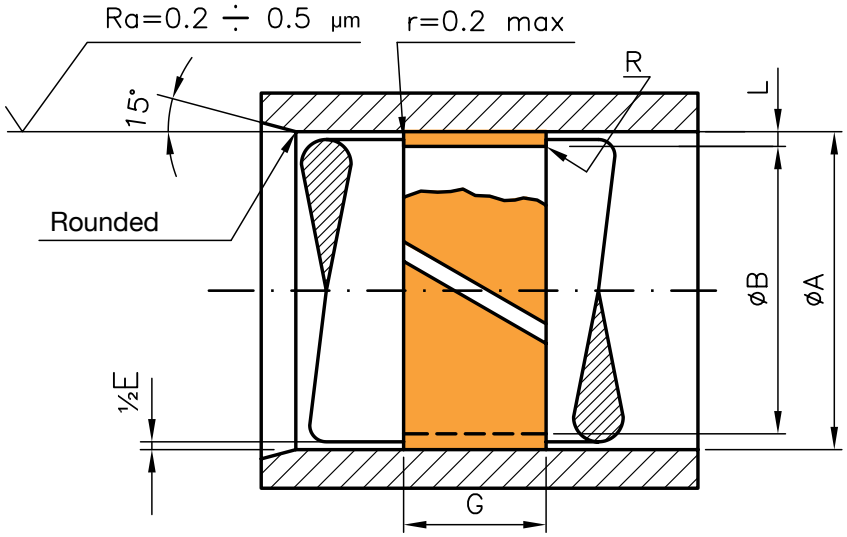
DENOMINATION EXAMPLE

rod: ø 95 mm
guide thickness: 2,5 mm
groove width: 9,7 mm
contact material: steel

81D25097 0950 900

serie
rif (ø rod x 10)
guide material code

GROOVE GEOMETRY & DIMENSIONS



PRP Serie	ØA Available H9	ØB Groove + 0 - 0,05	L	G + 0,2 - 0	R max	E
82D25056	15 ÷ 140	ØA - 5	2,5	5,6	0,3	0,5 ÷ 2,0
82D25097	60 ÷ 220			9,7		
82D25150	120 ÷ 400			15,0		
82D25250	320 ÷ 999			25,0		

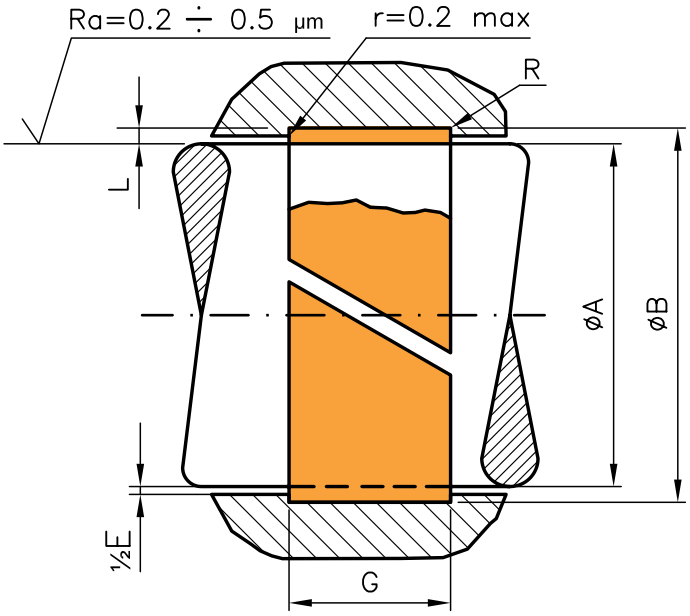
DENOMINATION EXAMPLE

cylinder: ø 100 mm
guide thickness: 2,5 mm
groove width: 9,7 mm
contact material: steel

82D25097 1000 900

serie
rif (ø cylinder x 10)
guide material code

GROOVE GEOMETRY & DIMENSIONS



PRP Serie	ØB Groove h9	L	G + 0,2 - 0	R max.	E
81 * 25042	ØA + 5	2,5	4,2	0,3	0,5 ÷ 2,0
81 * 25056			5,6		
81 * 25063			6,3		
81 * 25081			8,1		
81 * 25097			9,7		
81 * 25150			15,0		
81 * 25200			20,0		
81 * 25250			25,0		
81 * 25300			30,0		
81 * 25400			40,0		
81 * 30300	ØA + 6	3	30,0	0,3	0,5 ÷ 3,0
81 * 40250	ØA + 8	4	25,0	0,3	0,5 ÷ 4,0
81 * 40300			30,0		
81 * 40400			40,0		
81 * 40500			50,0		
81 * 50250	ØA + 10	5	25,0	0,3	0,5 ÷ 5,0

* **T**: guiding tape
D: molded ring

DENOMINATION EXAMPLE

rod:	ø 90 mm
guide thickness:	2,5 mm
groove width:	9,7 mm
contact material:	steel
guiding tape	

81T25097 0900 T100 PTFE A

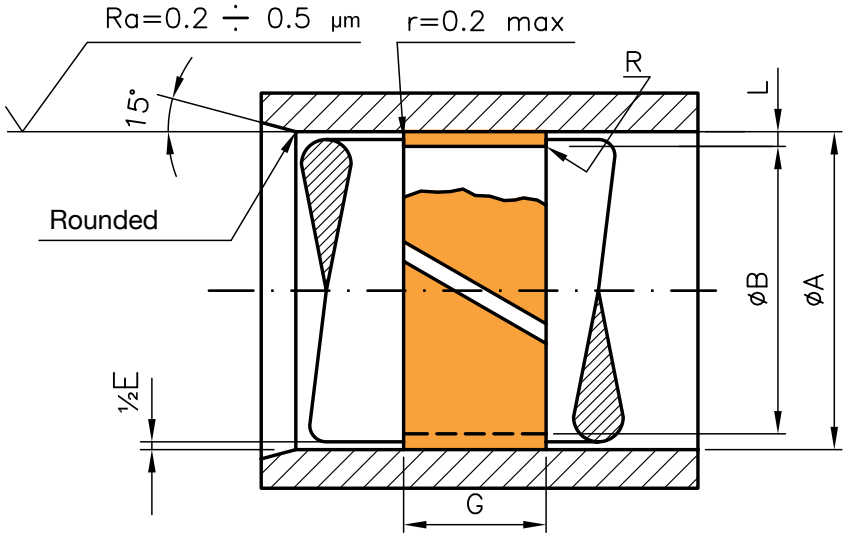
- serie
- rif (ø rod x 10)
- guide material code
- cut type

Guiding tape available in meter lenght with code PRP 85 instead of PRP 81

Example width: 20 mm
thickness: 2,5 mm
material: T100 PTFE

code: 85T25200 - T100 PTFE

GROOVE GEOMETRY & DIMENSIONS



PRP Serie	ØB Groove h9	L	G + 0,2 - 0	R max.	E
82 * 25042	ØA - 5	2,5	4,2	0,3	0,5 ÷ 2,0
82 * 25056			5,6		
82 * 25063			6,3		
82 * 25081			8,1		
82 * 25097			9,7		
82 * 25150			15,0		
82 * 25200			20,0		
82 * 25250			25,0		
82 * 25300			30,0		
82 * 25400			40,0		
82 * 30300	ØA - 6	3	30,0	0,3	0,5 ÷ 3,0
82 * 40250	ØA - 8	4	25,0	0,3	0,5 ÷ 4,0
82 * 40300			30,0		
82 * 40400			40,0		
82 * 40500			50,0		
82 * 50250	ØA - 10	5	25,0	0,3	0,5 ÷ 5,0

* **T**: guiding tape
D: molded ring

DENOMINATION EXAMPLE

cylinder:	ø 120 mm
guide thickness:	2,5 mm
groove width:	6,3 mm
contact material:	steel
guiding tape	

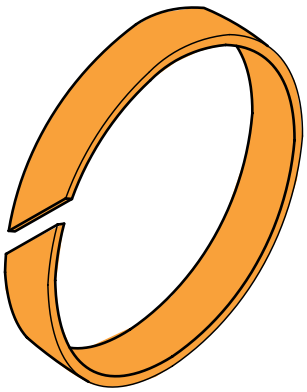
82T25063 1200 T100 PTFE A

- serie
- rif (ø cylinder x 10)
- guide material code
- cut type

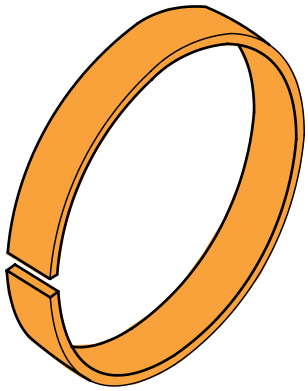
Guiding tape available in meter lenght with code PRP 85 instead of PRP 82

Example width: 20 mm
thickness: 2,5 mm
material: T100 PTFE

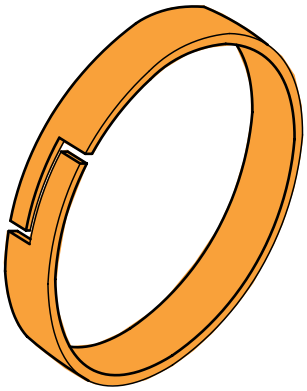
code: 85T25200 - T100 PTFE



TYPE “A”
ANGLE CUT
For reciprocating movement

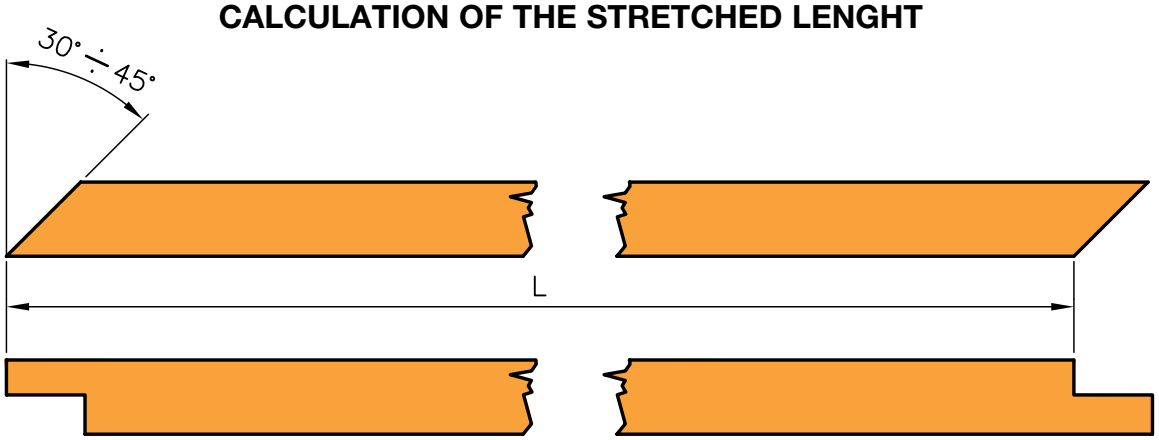


TYPE “B”
STRAIGHT CUT
For rotary movement



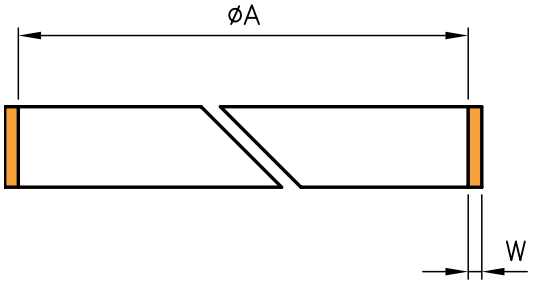
TYPE “C”
STEP CUT
for special application

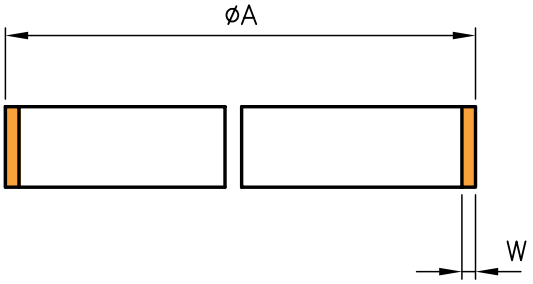
CALCULATION OF THE STRETCHED LENGHT



PRP-81 guide ring for rod
L = 3,11 (ØA + W) - 1,0
L = Stretched length
A = Rod diameter
W = Guide thickness

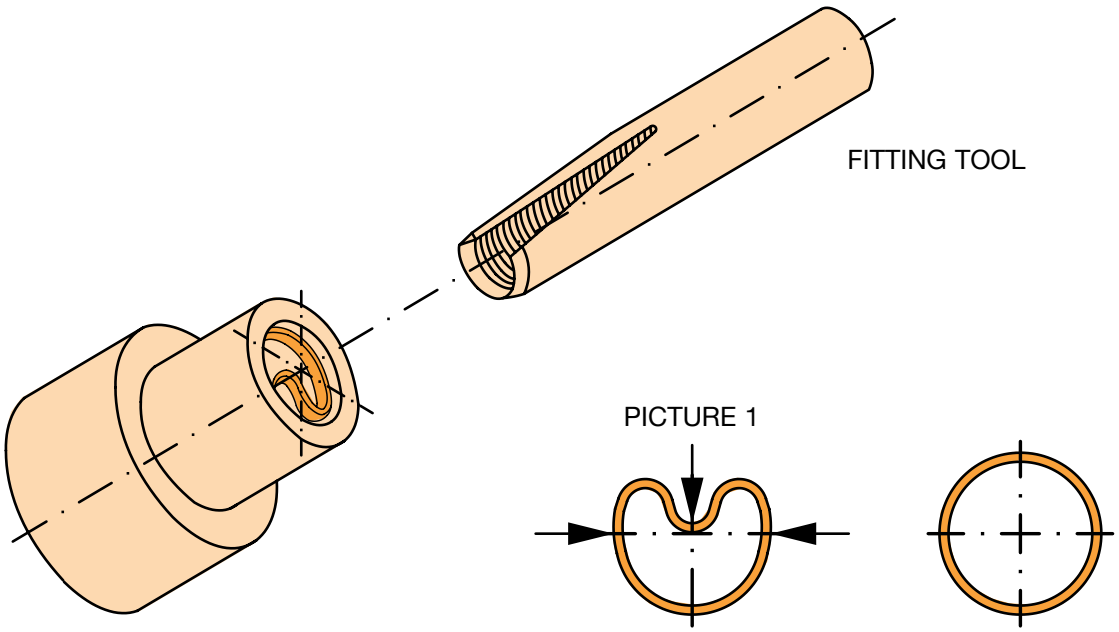
PRP-82 guide ring for piston
L = 3,11 (ØA - W) - 1,0
L = Stretched length
A = Piston diameter
W = Guide thickness





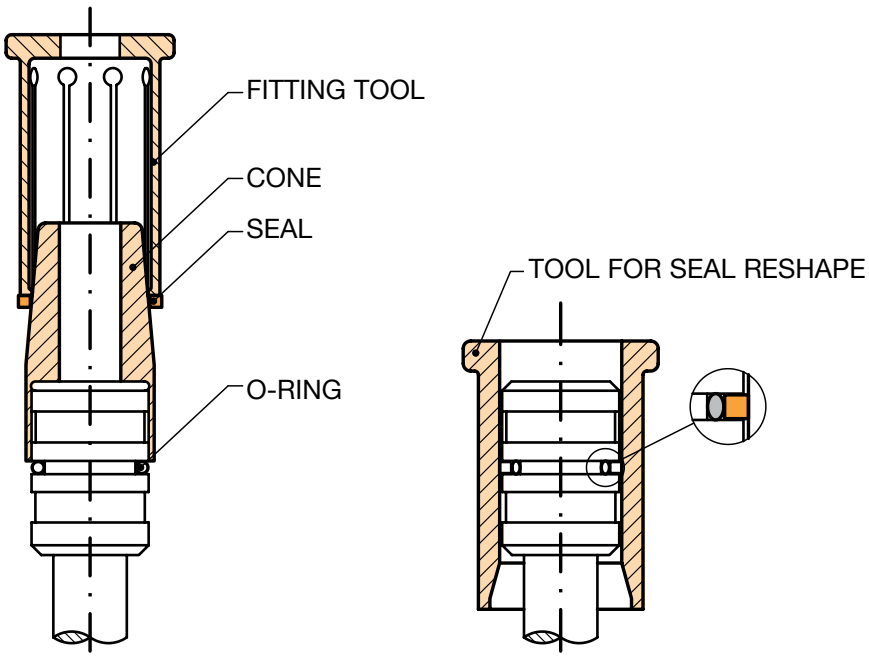
FITTING IN FEMALE GROOVE

1) Fit the O-RING into the groove and check the right positioning.
2) Bend the seal as showed in picture 1 (kidney shape).
3) Fit the seal into the groove and reshape it by using the fitting tool.



FITTING IN MALE GROOVE

1) Fit the O-RING into the groove and check the right positioning.
2) Use the fitting tool, quickly slide the seal on the conical tool.
3) Use the tool to reshape the seal before fitting the piston into the cylinder bore.



In both cases use a lubricant for easy fitting.

Our Technical Department is available for any further information about fitting tools.

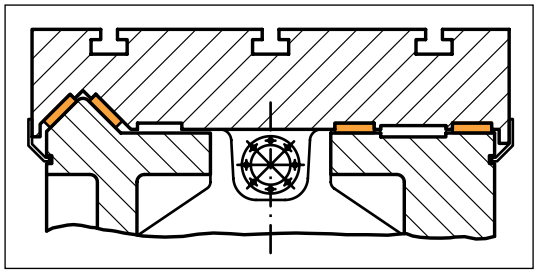
Characteristics and application

Brown-P is a guiding material placed between sliding metal parts, when low friction values are required even with high loads. It is used as the linear guide for tool machine with low speed movement and risk of stick-slip. **Brown-P** is highly recommended for refurbishment of old tool machines which had originally guide rings.

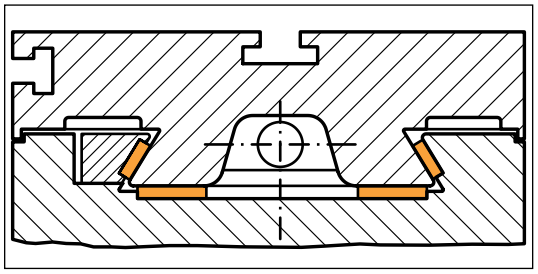
Advantages

- No stick-slip effect
- Low friction coefficient
- Self-lubricating properties
- High wear resistance
- Long working life
- Dust resistant
- Vibration reduction properties
- Low cost

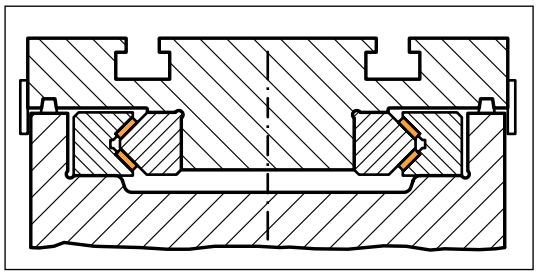
Fitting examples



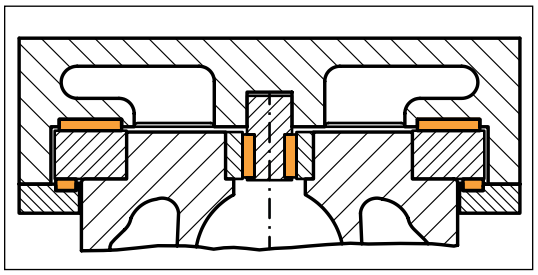
Flat and “V” combined guides



Bird tail guides



“V” guides



Flat guides

Dimensions

PRP Serie	Thickness mm	Tolerance mm	Width mm	Tolerance +0 -1 mm
83A	1,5	+0,3 -0	20 25 30 35 40 45 50 60 70 80 90 100 125 150 175	

Order example

referred to a **Brown-P guide**
thickness 1,5 mm, width 30 mm.

83A15-030-29

serie
width
material

Following adhesives are recommended

Adhesive	Weight ratio	Time of use	Polymerization time
Araldite AW106 Hardening HV953U	100 80	2 hours a 25 °C	15 hours a 20 °C
Araldite AW138M Hardening HV998	100 40	30 min. a 23 °C	12 hours a 20 °C

PRP can supply machined pieces of different technopolymers for a variety of applications.
PRP-T (all grades) can be supplied as tube/bar or plate to machine mechanical parts.
PRP-T material is made of polyesterfabric and polyester resin with lubricating additives.

Typical applications are:

- Marine
- Hydraulic cylinders
- Industrial machines
- Food / Pharmaceutical Industry
- Spherical bearings
- Dielectric applications

Please copy, fill in, scan and send it to: **sales@carco.it**

DATE _____ ***....Let's solve together....***

Company _____

Contact person _____

Address _____

Town _____ Country _____ Postal code _____

Tel. _____ Fax _____ E-mail _____

WORKING CONDITIONS

Machine/Device: _____

Working movement direction horizontal ☐ vertical ☐

Seal type: static ☐ dynamic ☐ rotation ☐ frontal ☐

simple effect ☐ double effect ☐ open groove ☐ close groove ☐

Fluid: _____

Working pressure from MPa (bar): _____ to MPa (bar) _____

Working temperature: °C from _____ °C to _____

Stroke _____ mm Speed _____ m/s

Cycle Frequency / min _____ Rotation speed / min _____

Sliding surface material: _____

Surface coating / treatment _____

Surface roughness _____ Surface hardness: _____

DIMENSIONS

Rod seal:	rod diameter	_____ mm	groove diameter	_____ mm
	groove length	_____ mm	diametral gap	_____ mm
Piston seal:	piston diameter	_____ mm	groove diameter	_____ mm
	groove length	_____ mm	diametral gap	_____ mm

APPLICATION

production	☐	test	☐
project	☐	redesign	☐

Potential production _____

COMPLEMENTARY INFORMATION

Actual seal type: _____

_____

Found problems: _____

_____

_____

_____

Main seal reguirements: _____

_____

_____

_____

Other reguirement: _____

_____

Attached drawing: _____

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

NOTE

The data and tables shown in this catalogue are based upon information from material suppliers and careful examination of available publications and are believed to be accurate and reliable; however, it is the user's responsibility to determine suitability for use.
You should thoroughly test any proposed use of our seals and indipendently conclude satisfactory performance in your application.

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CARCO®

LARGE DIAMETER SEALS

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