



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Parker Fluid Power Seals



ENGINEERING YOUR SUCCESS.



**WARNING:**

**Failure, improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury or property damage.**

For safe and trouble-free use of these products, it is important that you read and follow the Parker Seal Group Product Safety Guide. This Safety Guide can be referenced and downloaded free of charge at [www.parkerseals.com](http://www.parkerseals.com) and can be ordered, without charge, as Parker Publication No. PSG 5004 by calling 1-800-C-PARKER.




























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# Introduction

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## Introduction

Parker Hannifin is the industry leader for sealing system for the fluid power industry.

As the requirements of transmission and control technology increase and multiply from year to year, sealing technology must stay in step with these requirements. Our seals for hydraulic applications range from earth moving machine cylinders, which are often required to work at  $-40^{\circ}\text{C}$ , to industrial water hydraulic applications, where extreme conditions related to lubrication, wear and corrosion exist.

Parker Hannifin offers the manufacturers of hydraulic equipment a comprehensive program based on decades of experience in sealing technology. Our ability to develop optimal seals is based upon several compound laboratories and test rigs. Our cooperation with all global manufacturers in the area of application technology ensures designs that meet the demands of field application. A wide range of seal profiles, compounds and sizes enable the designer to find the proper seal for any application. Our experienced seal experts provide reliable advice to our customers.

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# Compounds for Fluid Technology

## Polyurethane compounds

Elastomer base	Code	Shore hardn A <sup>1)</sup>	Color	Temperature range (°C) <sup>2)</sup> - + short	Remarks	Compatibility / Application
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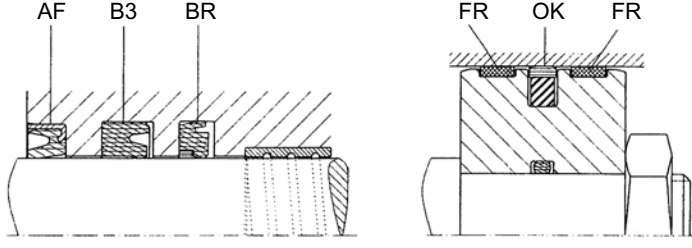

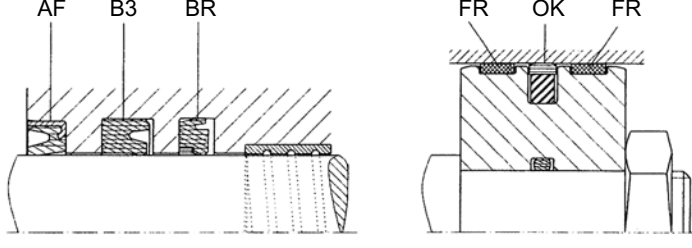

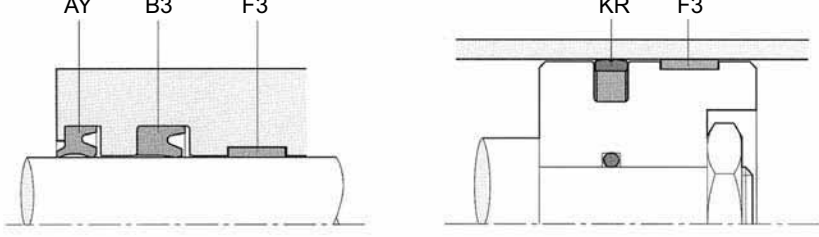

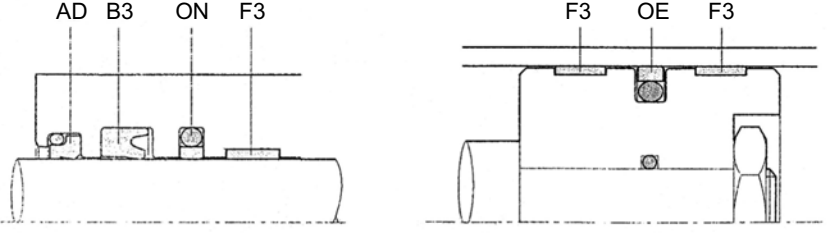
Polyurethane (PUR)	P5007	82A ± 5	green, transparent	35 80 100	Standard material for pneumatic lip seals.	Compatible with most pneumatic greases.
	P5010	90A ± 5	red	30 100 120	Pneumatics, low pressure hydraulics.	Mineral oil based media.
	P4300	92A ± 5	yellow	30 120 145	High temperature applications.	Excellent high temperature and dynamic behavior, extreme wear resistance.
	P5000	94A ± 5	dark green	20 100 120	Mining, mobile hydraulics.	HFA, HFB and HETG fluids. Very good resistance to hydrolysis.
	P5001	94A ± 5	brown	35 100 120	Developed for mobile, automotive and industrial hydraulics.	HEES (synthetic esters) and HETG (rape seed oil) fluids. Very good resistance to hydrolysis, excellent low temperature behavior.
	<b>P5008</b>	<b>94A ± 5</b>	<b>green</b>	<b>35 100 120</b>	<b>Standard comp. for hydraulics+ pneum.</b>	<b>Mineral oil based hydraulic media.</b>
	P5004	93A ± 5	black	30 80 100	Standard compound f. hydraulics (reduced requirements).	Mineral oil based hydraulic media.
	P5009	94A ± 5	grey	45 95 115	Excellent cold behavior. Mobile hydraulic.	Mineral oil based hydraulic media.
	P5070	83A ± 5	green	35 90 110	Pneumatic compound with improved hydrolysis behavior.	Compatible also with critical additives. Water up to 80 °C.
	P5500	92A ± 5	brown	20 80 100	Chemical, food, potable water applications.	Excellent resistance to acids, lyes and polar solvents. Hydraulics with HFC fluids. Meet KTW&BGA guidelines.
	<b>P6000</b>	<b>94A ± 5</b>	<b>Dark grey</b>	<b>35 110 130</b>	<b>Tough mobile hydraulic applications.</b>	<b>Excellent resistance to wear, extrusion. Improved compression resistance, higher temp than P5008.</b>
	P5062	55D ± 5	black	30 110 130	Mobile hydraulics. Glide rings (low friction).	Excellent extrusion resistance.
	P4622	94A ± 5	yellow	-40 100 110	Mobile hydraulic ,piston seal( slide ring).	Internal lubricants for lower friction to help reduce the heat build up.

- 1) Hardness values are nominal values with a tolerance of ± 5. Hardness is measured on a standard specimen of 6 mm thickness acc. to DIN 53 505. With finished parts, only micro hardness (IRHD) can be measured acc. to DIN 53 519, part 2, which leads to different results.
- 2) The minus temperatures have to be considered as a guideline due to the fact that the function at cold temperatures depends on the seal design, the operating conditions and the condition of adjoining metal parts. The plus temperatures may be exceeded, but the operating life is shortened correspondingly. If aggressive media are used, the stated temperature resistance can be considerably reduced.
- 3) Dependent on application.

# Polon<sup>®</sup> compounds

a) PTFE							
Reference	Compound	Color	Temp. [ °C]		Application	Characteristics	Products
			min.	max.			
Polon <sup>®</sup> 001	Virgin PTFE	white	-190	+230	- Chemical industry - Food industry	- High chemical resistance	- Back-up rings - Flexiseals <sup>®</sup>
Polon <sup>®</sup> 003	Virgin TFM	white	-190	+230	- Chemical Industry - Food Industry - Pharmaceutical Industry	- High chemical resistance - High mechanical strength	- Flexiseals <sup>®</sup> - Ball valve seats
Polon <sup>®</sup> 012	Modified PTFE	dark green	-190	+230	- Low-duty hydraulic applications	- Improved wear resistance	- Flexiseals <sup>®</sup> - Glide rings
Polon <sup>®</sup> 025	PTFE + 15% glass fibre	dark green	-190	+290	Medium-duty hydraulic applications	- High chemical resistance - High creep resistance - Electrical properties like virgin PTFE	- Glide rings - Back-up rings - Guide rings - Gaskets
Polon <sup>®</sup> 031	PTFE + 15% carbon	black	-190	+290	- Medium mechanical stress - Hard sealing surfaces - Water / oil emulsions	Chemical resistance limited by carbon	- Flexiseals <sup>®</sup>
Polon <sup>®</sup> 030	PTFE + 23% carbon + 2% graphite	black	-190	+315	- Heavy mechanical stress - Water / oil hydraulics	High wear and creep resistance	- Glide rings - Back-up rings
Polon <sup>®</sup> 033	PTFE + 25% carbon	black	-190	+315	Pneumatics	High wear and creep resistance	- Guiding tapes
Polon <sup>®</sup> 044	PTFE + 15% graphite	black	-190	+230	- Low mechanical stress - Soft sealing surfaces	Chemical resistance limited graphite	- Flexiseals <sup>®</sup>
Polon <sup>®</sup> 052	PTFE + 40% bronze	bronze	-156	+260	- Heavy mechanical stress - Hydraulic applications	Outstanding wear and creep resistance	- Glide rings
Polon <sup>®</sup> 067	PTFE + 10% ekonol	beige	-260	+320	- Medium mechanical stress - Soft sealing surfaces - Rotary sealing	- Limited chemical resistance - Limited use in hot water	- Flexiseals <sup>®</sup> - Rotary glide rings - Lip seals
Polon <sup>®</sup> 068	PTFE + 50% stainless steel	greyish	-190	+260	- Heavy mechanical stress - Applications in chemical industry	Chemical resistance from stainless steel filler (AISI 316)	- Ball valve seats
Polon <sup>®</sup> 074	PTFE + 10% carbon fibre	greyish	-260	+310	- Water hydraulics - Seawater - Short strokes with high frequency	Very good wear properties in water	- Glide rings - Flexiseals <sup>®</sup>
b) Plastic materials							
Polon <sup>®</sup> 083	72 Shore D PUR	trans- parent yellow	-20	+100	- High mechanical stress - Hydraulic applications	High wear resistance	- Wipers - Glide rings
Polon <sup>®</sup> 314	UHMW – PE	white	-200	+80	- Food industry - Pneumatics	Outstanding wear properties in water and air	- Glide rings - Flexiseals <sup>®</sup> - Guide rings
Polon <sup>®</sup> 331	PVDF	white/ yellow	-30	+140	- Food industry	- Wear properties like nylon - Resists steam sterilization	- Flexiseals <sup>®</sup> - Back-up rings

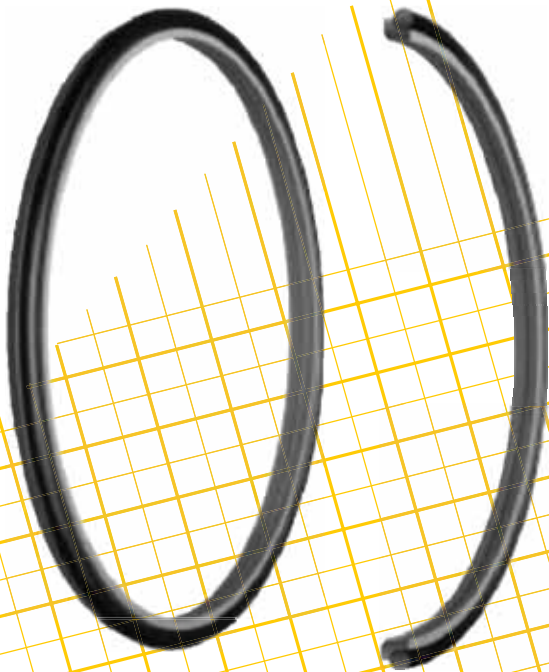
# Sealing Systems in typical applications

	Applications	Sealing System (example)
Sealing Systems in typical applications	<p>Excavator</p> 	
	<p>Wheel Loader</p> 	
	<p>Forklift</p> 	
	<p>Injection Molding Machine</p> 	

# PTFE Wiper Ring Profile AD

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AD



The function of wiper rings is to prevent dust, dirt, grains of sand and metal swarf from penetrating into axially moving rods and plungers. Thus the development of scratches is largely prevented, guiding elements are protected and the working life of seals is extended.

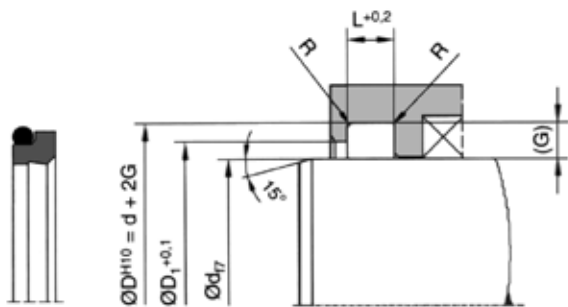
Profile AD consists of a PTFE wiper ring and an O-Ring as pre-tensioning element.

**Advantages:**

- Small installation grooves.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Excellent sliding properties.
- High wear resistance, therefore long service life.
- Available in diameters up to 2000 mm.



# PTFE Wiper Ring Profile AD



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended rod Ø range		Groove width L [mm]	Groove depth G [mm]	Ø Retainer Ring D <sub>r</sub> [mm]	Radius max. R [mm]
			≥ d [mm]	< d [mm]				
00590	A	1,78	6	12	3,7	2,40	Ø d + 1,5	0,4
00590	B	2,62	12	65	5,0	3,40	Ø d + 1,5	0,4
00590	C	3,53	65	250	6,0	4,40	Ø d + 2,0	0,4
00590	D	5,33	250	420	8,4	6,10	Ø d + 2,0	0,4
00590	E	6,99	420	650	11,0	8,00	Ø d + 2,5	0,4
00590	G	8,40	650	1000	14,0	10,00	Ø d + 2,5	0,4

## Ordering example:

Rod diameter: 40 mm

Profile AD 0400 052 00591 B  
 Rod Ø x 10 \_\_\_\_\_  
 Compound \_\_\_\_\_  
 Series no. \_\_\_\_\_  
 last digit: O-ring code \_\_\_\_\_  
 Cross-section \_\_\_\_\_

## Range of Application

Working temperature: -30 to +100 °C\*  
 Surface speed: ≤ 4 m/s

\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

## Standard Compounds

Wiper ring: Polon® 052, modified PTFE with 40 % bronze  
 O-ring: N0674, NBR elastomer with approx. 70 Shore A

**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**

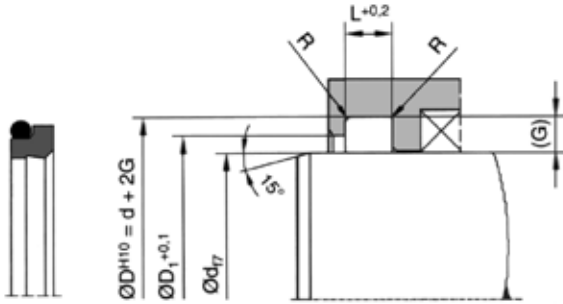
## Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier.

In these cases, please replace the standard cross-section code (in above example: "B") by the one you require (for example "A" or "C").

O-ring Code	Material	Compound Code	Hardness (shore A)	temperature ( C)	
				-	+
0	No O-ring				
1	NBR	N0674	70 ± 5	30	110
2	FPM	V0747	75 ± 5	25	200
3	NBR	N0304	75 ± 5	50	110
4	EPDM	E0540	80 ± 5	40	150
5	NBR	N3578	75 ± 5	30	110
6	NBR	N3588	90 ± 5	20	110

# PTFE Wiper Ring Profile AD



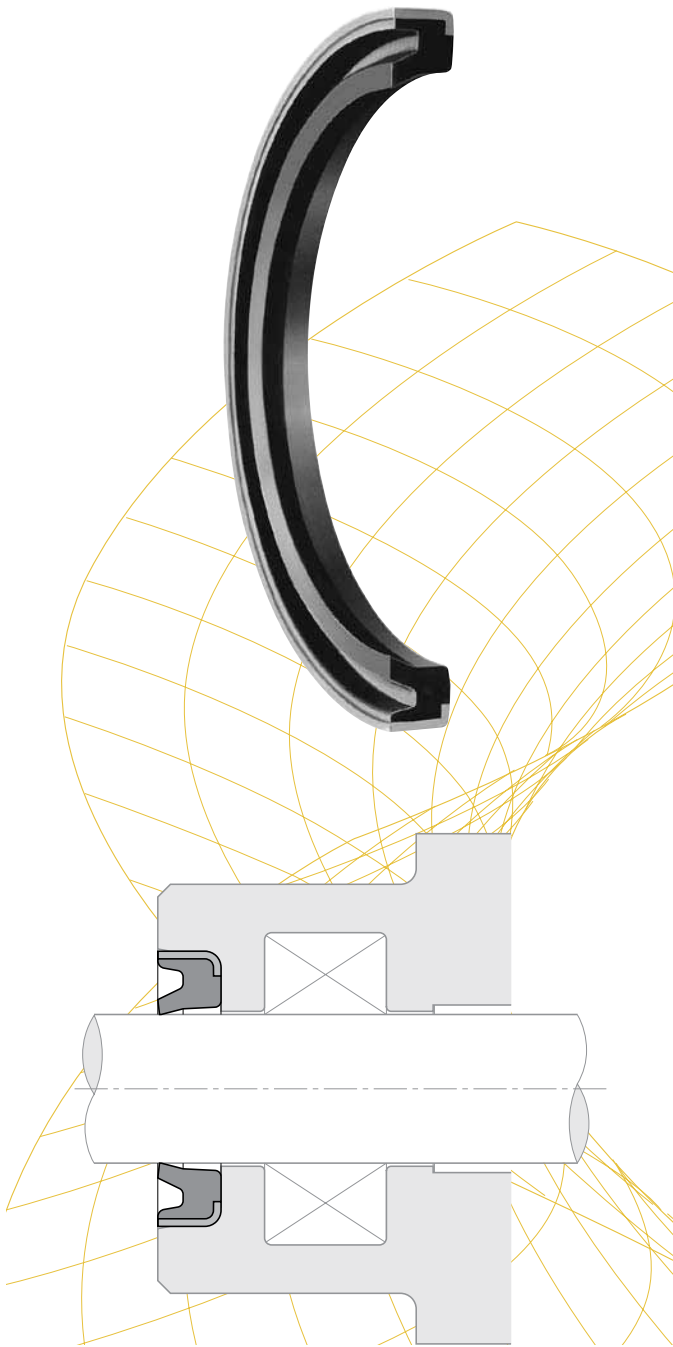
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Standard range:

Size	Groove			No.	O-Ring		Size	Groove			No.	O-Ring	
	Ø d (mm)	Ø D (mm)	Ø D <sub>1</sub> (mm)		CS (mm)	ID (mm)		Ø d (mm)	Ø D (mm)	Ø D <sub>1</sub> (mm)		CS (mm)	ID (mm)
0040	4	8,8	5,5	2-009	1,78	5,28	1500	150	158,8	152,0	2-258	3,53	151,99
0050	5	9,8	6,5	2-010	1,78	6,07	1550	155	163,8	157,0	2-259	3,53	158,34
0070	7	11,8	8,5	2-011	1,78	7,65	1600	160	168,8	162,0	2-260	3,53	164,69
0080	8	12,8	9,5	2-012	1,78	9,25	1700	170	178,8	172,0	2-261	3,53	171,04
0100	10	14,8	11,5	2-013	1,78	10,82	1750	175	183,8	177,0	2-262	3,53	177,39
0120	12	18,8	13,5	2-113	2,62	13,94	1800	180	188,8	182,0	2-263	3,53	183,74
0140	14	20,8	15,5	2-114	2,62	15,54	1850	185	193,8	187,0	2-263	3,53	183,74
0150	15	21,8	16,5	2-115	2,62	17,12	1900	190	198,8	192,0	2-264	3,53	190,09
0160	16	22,8	17,5	2-116	2,62	18,72	1950	195	203,8	197,0	2-265	3,53	196,44
0180	18	24,8	19,5	2-117	2,62	20,29	2000	200	208,8	202,0	2-266	3,53	202,79
0200	20	26,8	21,5	2-118	2,62	21,89	2100	210	218,8	212,0	2-267	3,53	209,14
0240	24	30,8	25,5	2-120	2,62	25,07	2200	220	228,8	222,0	2-269	3,53	221,84
0250	25	31,8	26,5	2-121	2,62	26,64	2250	225	233,8	227,0	2-270	3,53	228,19
0260	26	32,8	27,5	2-122	2,62	28,24	2300	230	238,8	232,0	2-271	3,53	234,54
0280	28	34,8	29,5	2-123	2,62	29,82	2400	240	248,8	242,0	2-272	3,53	240,89
0300	30	36,8	31,5	2-124	2,62	31,42	2500	250	258,8	252,0	2-274	3,53	253,59
0320	32	38,8	33,5	2-126	2,62	34,59	2600	260	272,2	262,0	2-378	5,33	266,07
0350	35	41,8	36,5	2-127	2,62	36,17	2700	270	282,2	272,0	2-379	5,33	278,77
0370	37	43,8	38,5	2-129	2,62	39,34	2800	280	292,2	282,0	2-379	5,33	278,77
0380	38	44,8	39,5	2-130	2,62	40,94	2900	290	302,2	292,0	2-380	5,33	291,47
0400	40	46,8	41,5	2-131	2,62	42,52	3000	300	312,2	302,0	2-381	5,33	304,17
0420	42	48,8	43,5	2-132	2,62	44,12	3100	310	322,2	312,0	2-381	5,33	304,17
0450	45	51,8	46,5	2-134	2,62	47,29	3200	320	332,2	322,0	2-382	5,33	329,57
0480	48	54,8	49,5	2-136	2,62	50,47	3300	330	342,2	332,0	2-382	5,33	329,57
0500	50	56,8	51,5	2-137	2,62	52,07	3400	340	352,2	342,0	2-382	5,33	329,57
0520	52	58,8	53,5	2-138	2,62	53,64	3500	350	362,2	352,0	2-383	5,33	354,97
0550	55	61,8	56,5	2-140	2,62	56,82	3600	360	372,2	362,0	2-383	5,33	354,97
0580	58	64,8	59,5	2-142	2,62	59,99	3700	370	382,2	372,0	2-383	5,33	354,97
0600	60	66,8	61,5	2-143	2,62	61,60	3800	380	392,2	382,0	2-384	5,33	380,37
0650	65	73,8	67,0	2-231	3,53	66,27	3900	390	402,2	392,0	2-384	5,33	380,37
0700	70	78,8	72,0	2-233	3,53	72,62	4000	400	412,2	402,0	2-385	5,33	405,26
0750	75	83,8	77,0	2-234	3,53	75,79	4100	410	422,2	412,0	2-385	5,33	405,26
0800	80	88,8	82,0	2-236	3,53	82,14	4200	420	432,2	422,5	2-386	5,33	430,66
0850	85	93,8	87,0	2-237	3,53	85,32	4300	430	446,0	432,5	2-463	6,99	430,66
0900	90	98,8	92,0	2-239	3,53	91,67	4400	440	456,0	442,5	2-464	6,99	443,38
0950	95	103,8	97,0	2-241	3,53	98,02	4500	450	466,0	452,5	2-465	6,99	456,03
1000	100	108,8	102,0	2-242	3,53	101,19	4600	460	476,0	462,5	2-466	6,99	468,76
1100	110	118,8	112,0	2-245	3,53	110,72	4700	470	486,0	472,5	2-466	6,99	468,76
1200	120	128,8	122,0	2-249	3,53	123,42	4800	480	496,0	482,5	2-467	6,99	481,46
1250	125	133,8	127,0	2-250	3,53	126,59	4900	490	506,0	492,5	2-468	6,99	494,16
1300	130	138,8	132,0	2-252	3,53	132,94	5000	500	516,0	502,5	2-469	6,99	506,86
1400	140	148,8	142,0	2-255	3,53	142,47							

# AF ULTRATHAN® Wiper with Metal Case

AF



The profile AF Ultrathan® wiper ring serves the purpose of preventing the penetration of dust, dirt, sand, and metal swarf into hydraulic cylinders. This reduces the risk of scoring caused by contaminants from external sources imbedded in the sliding parts. The excellent wiping effect is achieved by the special design of the wiper lip. The proven PU-compound P5008 stands for high abrasion resistance, minor permanent deformation, and robustness vis-a-vis external mechanical impact. By means of a press fit of the metal scan vis-a-vis the external diameter of the seal housing, the wiper is securely held in place in the axially open installation housing. Thanks to the flush end fit of the wiper lip with the cylinder head the lip enjoys a high degree of protection against damage from external causes. Profile AF provides a proper sealing end device from an engineering point of view and, in conjunction with our rod seals profiles B3 and BR constitutes a sealing system that has been tried and proven under the toughest field conditions.

#### **Range of Application:**

Hydraulic cylinders and valves  
Working temperature: – 35 to + 100 °C  
Surface speed: ≤ 2 m/s

#### **Compound:**

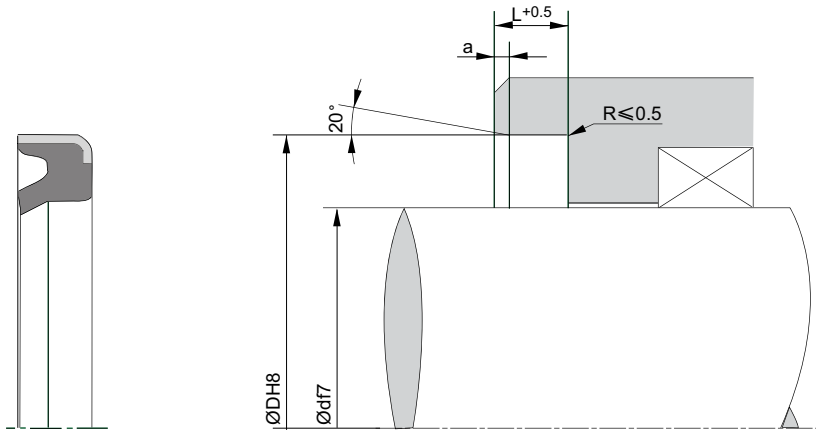
Standard material of the elastomer part is P5008, a polyurethane based Parker compound with a hardness of approx. 93 Shore A. In comparison with other polyurethane materials currently available on the market, it excels because of its increased heat resistance, and improved performance against hydrolysis.

#### **Installation:**

The profile AF Ultrathan® wiper rings are manufactured with a slightly oversized outer diameter  $D$ , thus ensuring a secure press fit in the groove DH8 after installation. Any contact of the wiper lip with piston rod eyes or other connecting parts should be avoided.

For special requirements (temperature, speed, use in water, HFA or HFB fluids, etc.), please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.

# AF ULTRATHAN® Wiper with Metal Case

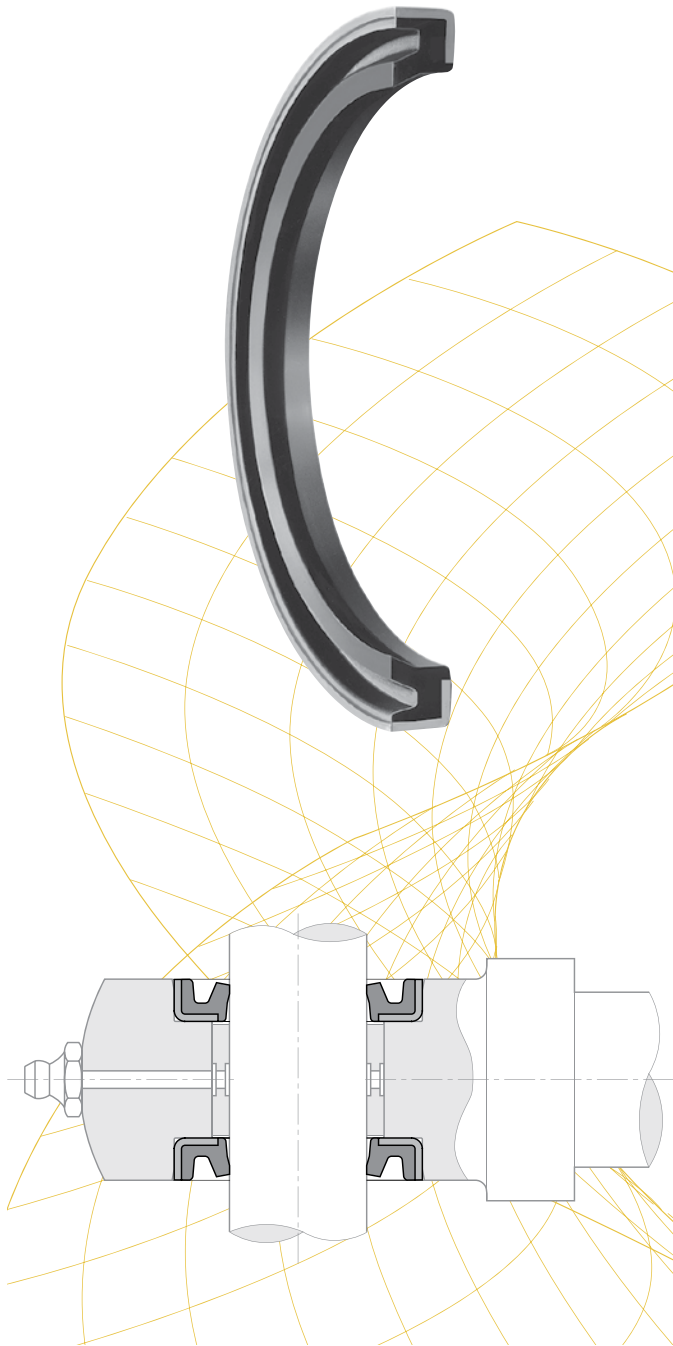


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

$\varnothing d$	$\varnothing D$	L	a	Part Number
35	47	7	1	AF035AZ5071
40	52	7	1	AF040AZ5071
45	57	7	1	AF045AZ5071
50	62	7	1	AF050AZ5071
50.8	63.5	8	1	AF050BZ5071
55	69	8	1	AF055AZ5071
60	74	8	1	AF060AZ5071
63	77	8	1	AF063AZ5071
63.5	76.2	8	1	AF063BZ5071
65	79	8	1	AF065AZ5071
70	84	8	1	AF070AZ5071
75	89	8	1	AF075AZ5071
76.2	88.9	8	1	AF076AZ5071
80	94	8	1	AF080AZ5071
85	99	8	1	AF085AZ5071
90	104	8	1	AF090AZ5071
95	109	8	1	AF095AZ5071
100	114	8	1	AF100AZ5071
105	121	9	1	AF105AZ5071
110	126	9	1	AF110AZ5071
115	131	9	1	AF115AZ5071
120	136	9	1	AF120AZ5071
130	146	9	1	AF130AZ5071
140	160	10	1	AF140AZ5071
160	180	10	1	AF160AZ5071

# AG ULTRATHAN® Wiper with Metal Case

AG



The profile AG Ultrathan® wiper ring serves the purpose of preventing the penetration of dust, dirt, and metal swarf at the spherical bearings of a hydraulic cylinder rod end. This reduces the danger of „scuffing“ on the swivel bolt as a result of contamination from external sources. The excellent wiping effect is achieved by the special design of the wiper lip. Furthermore, the wiper lip opens up during lubrication allowing excess lubricant to escape. The proven PU-compound P5008 stands for high abrasion resistance, minor permanent deformation, and robustness vis-a-vis external mechanical impact. By means of a press fit of the metal scan vis-a-vis the external diameter of the seal housing, the wiper is securely held in place in the axially open installation housing. Thanks to the flush end fit of the wiper lip with the swivel riveting jig the lip enjoys a high degree of protection against damage from external causes.

#### Range of Application:

Hydraulic cylinders and valves  
Working temperature: – 35 to + 100 °C  
Surface speed: ≤ 2 m/s

#### Compound:

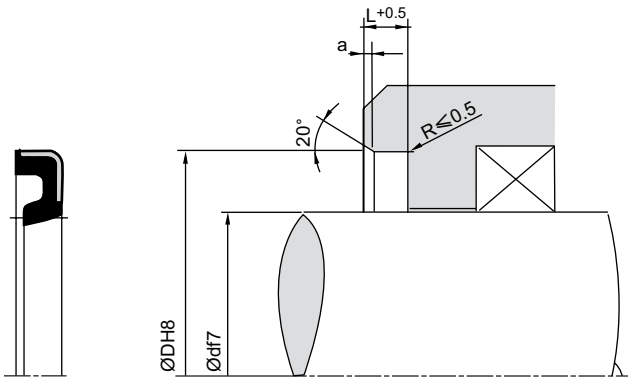
P5008

#### Installation:

The profile AG Ultrathan® wiper rings are manufactured with a slightly oversized outer diameter D, thus ensuring a secure press fit in the groove DH8 after installation. Any contact of the wiper lip with piston rod eyes or other connecting parts should be avoided.

For special requirements (temperature, speed, use in water, HFA or HFB fluids, etc.), please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.

# AG ULTRATHAN® Wiper with Metal Case

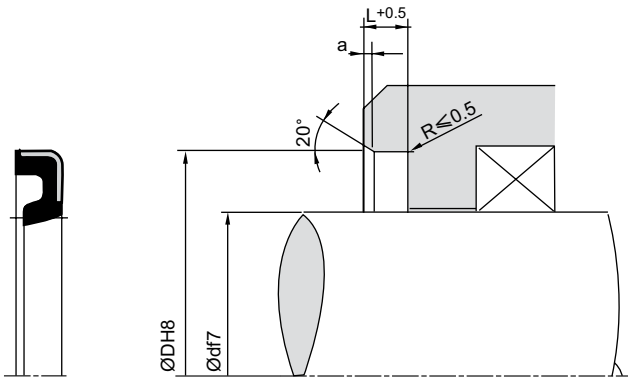


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

$\varnothing d$	$\varnothing D$	L	a	Part Number
16	24	2.8	1	AG 016A Z5071
20	28	2.8	1	AG 020A Z5071
22	42	5	1	AG 2242 Z5071
25	35	4	1	AG 025A Z5071
25	37	4	1	AG 025B Z5071
30	40	4	1	AG 030A Z5071
35	45	4	1	AG 035A Z5071
35	45	5	1	AG 035B Z5071
38	57	9.5	1	AG 038A Z5071
38	48	4	1	AG 3848 Z5071
40	48	3.8	1	AG 040A Z5071
40	50	3.18	1	AG 040B Z5071
40	50	4	1	AG 040C Z5071
40	50	5	1	AG 040D Z5071
40	55	5	1	AG 040E Z5071
40	60	5	1	AG 040F Z5071
45	55	3.2	1	AG 045A Z5071
45	55	4	1	AG 045B Z5071
45	55	4.5	1	AG 045C Z5071
45	55	6	1	AG 045D Z5071
45	60	5	1	AG 045E Z5071
45	62	5	1	AG 045F Z5071
50	60	4.2	1	AG 050A Z5071
50	60	4.5	1	AG 050B Z5071
50	60	5	1	AG 050C Z5071
50	60	6	1	AG 050D Z5071

$\varnothing d$	$\varnothing D$	L	a	Part Number
50	63	8	1	AG 050E Z5071
50	65	5	1	AG 050F Z5071
50	65	6	1	AG 050G Z5071
50	65	7.5	1	AG 050H Z5071
50.8	63.5	8	1	AG 050I Z5071
55	65	3.2	1	AG 055A Z5071
55	68	4.2	1	AG 055C Z5071
55	65	4.2	1	AG 055B Z5071
55	70	5	1	AG 055D Z5071
55	70	6	1	AG 055E Z5071
55	68	6	1	AG 055F Z5071
56	70	7.5	1	AG 056A Z5071
60	75	7.5	1	AG 060E Z5071
60	73	8	1	AG 060A Z5071
60	75	4	1	AG 060B Z5071
60	75	5	1	AG 060C Z5071
60	75	6	1	AG 060D Z5071
60	75	8	1	AG 060F Z5071
63	78	7.5	1	AG 063B Z5071
63	77	8	1	AG 063A Z5071
63	80	5	1	AG 063C Z5071
63.45	88.9	6.4	1	AG 063D Z5071
63.5	76.2	8	1	AG 063E Z5071
65	80	5	1	AG 065A Z5071
65	80	8	1	AG 065B Z5071
66	85	5	1	AG 066A Z5071

# AG ULTRATHAN® Wiper with Metal Case



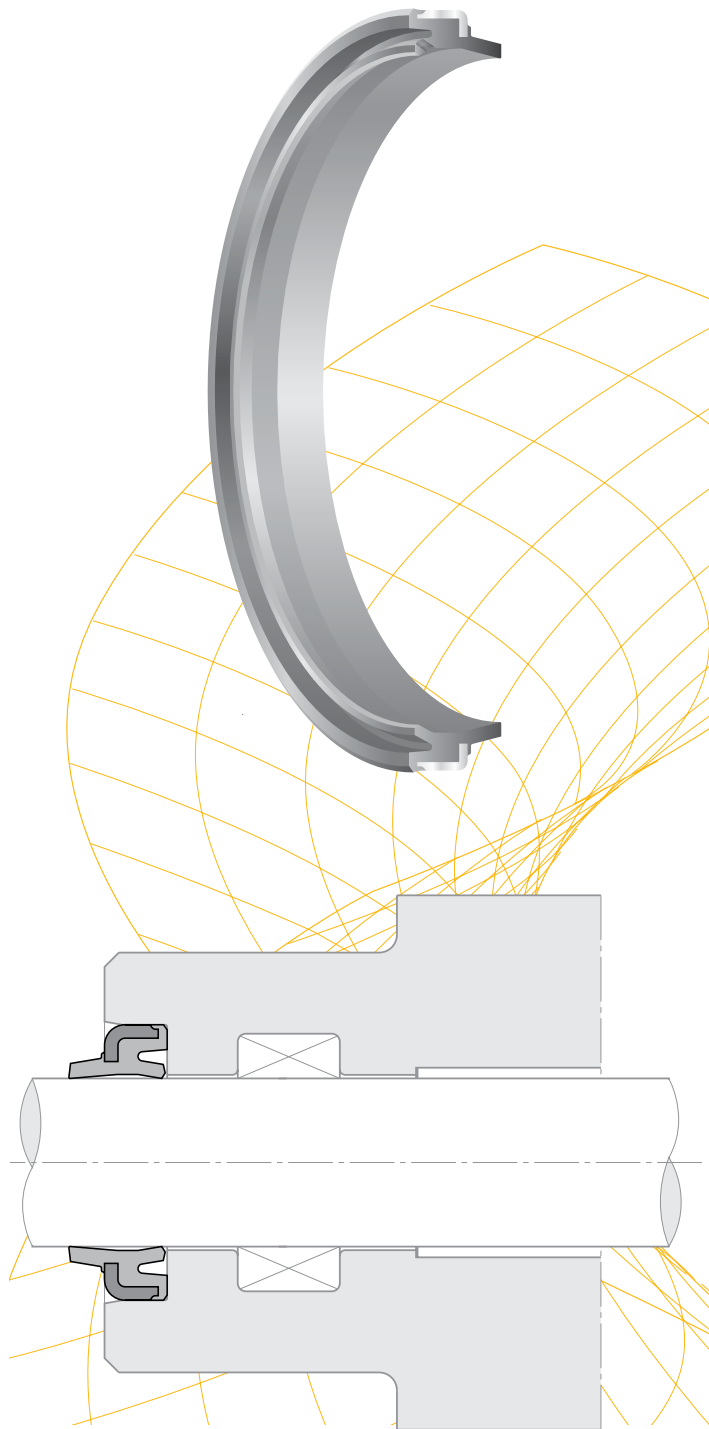
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

$\varnothing d$	$\varnothing D$	L	a	Part Number
70	85	7.5	1	AG 070D Z5071
70	80	9	1	AG 070A Z5071
70	83	8	1	AG 070B Z5071
70	85	5	1	AG 070C Z5071
70	85	8	1	AG 070E Z5071
71	85	6	1	AG 071A Z5071
71	86	5	1	AG 071B Z5071
75	90	6	1	AG 075A Z5071
75	90	8	1	AG 075B Z5071
75	90	5	1	AG 075C Z5071
76.2	88.9	8	1	AG 076A Z5071
80	100	10	1	AG 080D Z5071
80	93	8	1	AG 080A Z5071
80	95	5	1	AG 080B Z5071
80	95	6	1	AG 080C Z5071
85	100	6	1	AG 085A Z5071
85	100	10	1	AG 085C Z5071
85	100	6	1	AG 085A Z5071
85	100	8	1	AG 085B Z5071
90	105	6	1	AG 090A Z5071
90	105	8	1	AG 090B Z5071
90	110	10	1	AG 090C Z5071
95	110	8	1	AG 095A Z5071
100	120	4	1	AG 100C Z5071

$\varnothing d$	$\varnothing D$	L	a	Part Number
100	115	6	1	AG 100A Z5071
100	115	7	1	AG 100B Z5071
100	120	10	1	AG 100D Z5071
100	125	4	1	AG 100E Z5071
105	120	8	1	AG 105B Z5071
105	120	7	1	AG 105A Z5071
110	125	7	1	AG 110B Z5071
110	125	9.5	1	AG 110E Z5071
110	130	10	1	AG 110F Z5071
110	125	4	1	AG 110A Z5071
110	125	8	1	AG 110C Z5071
110	125	9	1	AG 110D Z5071
110	130	10	1	AG 110F Z5071
110	125	6.5	1	AG B023 Z5071
120	135	8	1	AG 120A Z5071
120	135	6.5	1	AG C006 Z5071
140	160	10	1	AG 140A Z5071
140	155	8	1	AG 140B Z5071
145	160	8	1	AG 145A Z5071
150	180	10	1	AG 150A Z5071
160	180	8	1	AG 160A Z5071
180	200	8	1	AG 180A Z5071
190	210	10	1	AG 190A Z5071

# AH ULTRATHAN® Double Wiper with Metal Case

AH



AH ULTRATHAN® Double wiper is used for the protection of cylinders against dirt and for the improvement of the total sealing effect. Press-fit installation prevents O.D. contamination while the additional sealing lip works in conjunction with Parker rod seals to provide redundant sealing for leakage reduction. An aggressive wiping lip, facing the environment, ensure the utmost performance in contamination exclusion along with the rod.

**Important:** When using the AH wiper in conjunction with other rod seals, It is important to select a rod seal profile that enables pressure relief of fluid in to the system, otherwise a pressure trap may form between the wiper and rod seal. Suggest rod seal profiles are BS,B3.

**Range of Application:**

Hydraulic cylinders, valves.

Working temperature: -35 °C to + 100°C

Surface speed:  $\leq 2$  m/s

**Material:**

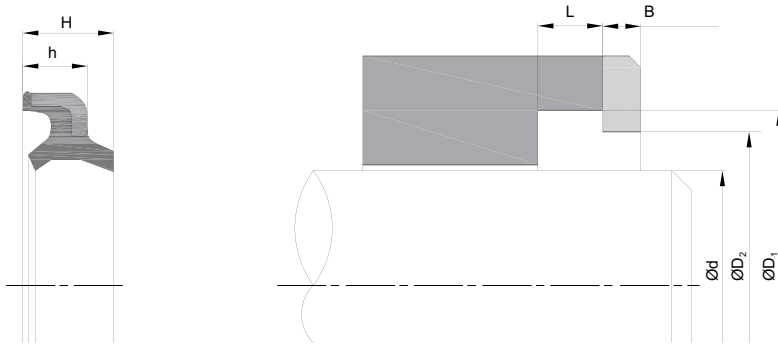
Standard material of the elastomer part is P5008, a polyurethane based Parker compound with a hardness of approx. 93 Shore A.

**Installation:**

The profile AF Ultrathan® wiper rings are manufactured with a slightly oversized outer diameter D, thus ensuring a secure press fit in the groove DH8 after installation. Any contact of the wiper lip with piston rod eyes or other connecting parts should be avoided. For special requirements (temperature, speed, use in water, HFA or HFB fluids, etc.), please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.



# AH ULTRATHAN® Double Wiper with Metal Case



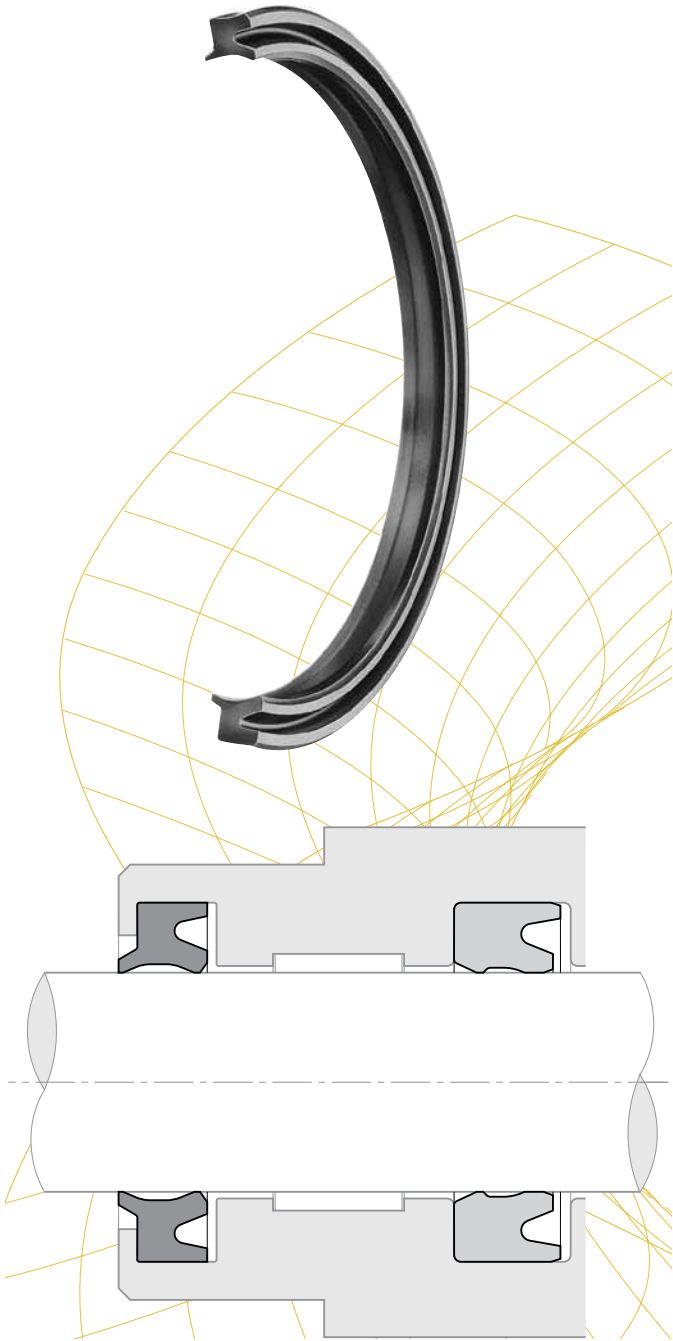
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

$\varnothing d_1$	$\varnothing D_1$	H	h	L	$\varnothing D_2$	B	Part Number
20	32	9	6	$6^{+0.5}_{+0.3}$	27	4	AH 020A Z5071
22	34	9	6	$6^{+0.5}_{+0.3}$	27	4	AH 022A Z5071
25	37	9	6	$6^{+0.5}_{+0.3}$	32	4	AH 025A Z5071
30	42	9	6	$6^{+0.5}_{+0.3}$	37	4	AH 030A Z5071
30	45	10	7	$7^{+0.5}_{+0.3}$	38	4	AH 030B Z5071
32	44	10	7	$7^{+0.5}_{+0.3}$	39	4	AH 032A Z5071
35	47	10	7	$7^{+0.5}_{+0.3}$	42	4	AH 035A Z5071
40	52	10	7	$7^{+0.5}_{+0.3}$	47	4	AH 040A Z5071
45	57	10	7	$7^{+0.5}_{+0.3}$	52	4	AH 045A Z5071
50	62	10	7	$7^{+0.5}_{+0.3}$	57	4	AH 050A Z5071
55	69	10	7	$7^{+0.5}_{+0.3}$	62	4	AH 055A Z5071
55	69	11	8	$8^{+0.6}_{+0.4}$	62	4	AH 055B Z5071
56	66	8	5	$5^{+0.5}_{+0.3}$	59	4	AH 056A Z5071
60	74	11	8	$8^{+0.6}_{+0.4}$	67	4	AH 060A Z5071
65	79	11	8	$8^{+0.6}_{+0.4}$	72	4	AH 065A Z5071
70	84	11	8	$8^{+0.6}_{+0.4}$	77	4	AH 070A Z5071
75	89	11	8	$8^{+0.6}_{+0.4}$	82	4	AH 075A Z5071
80	94	11	8	$8^{+0.6}_{+0.4}$	87	4	AH 080A Z5071
85	99	11	8	$8^{+0.6}_{+0.4}$	92	4	AH 085A Z5071
90	104	11	8	$8^{+0.6}_{+0.4}$	97	4	AH 090A Z5071
95	109	11	8	$8^{+0.6}_{+0.4}$	102	4	AH 095A Z5071
100	114	11	8	$8^{+0.6}_{+0.4}$	107	4	AH 100A Z5071
105	121	12	9	$9^{+0.6}_{+0.4}$	113	5	AH 105A Z5071
110	126	12	9	$9^{+0.6}_{+0.4}$	118	5	AH 110A Z5071
115	131	12	9	$9^{+0.6}_{+0.4}$	123	5	AH 115A Z5071
120	136	12	9	$9^{+0.6}_{+0.4}$	128	5	AH 120A Z5071
125	141	12	9	$9^{+0.6}_{+0.4}$	133	5	AH 125A Z5071
130	146	12	9	$9^{+0.6}_{+0.4}$	138	5	AH 130A Z5071
135	155	14	10	$10^{+0.6}_{+0.4}$	145	5	AH 135A Z5071
140	160	14	10	$10^{+0.6}_{+0.4}$	150	5	AH 140A Z5071
150	170	14	10	$10^{+0.6}_{+0.4}$	160	5	AH 150A Z5071
160	180	14	10	$10^{+0.6}_{+0.4}$	170	5	AH 160A Z5071

Note: If venting hole need, please mark "-H" at the end of Part number.

# AY ULTRATHAN® Double Wiper (JIS)

AY



The purpose of the profile AY Ultrathan® double lip wiper is to prevent dust, dirt, grains of sand, and metal swarfs. This is achieved by a special design which largely prevents scoring, protects the guiding parts and extends the service life of the seals. The profile AY double wiper ring closes the rod in the direction of the cylinder. No special screwings or brackets are required for installation. No close tolerances and no metal inserts are required. The wiper is supplied as a continuous ring and can easily be pressed into the groove. In addition, the sealing lip facing the media reduces the residual oil film. The polyurethane compound ensures excellent properties with regard to dry run, increased wear resistance, and extended service life due to good resistance to ozone and radiation caused by weather conditions. We recommend profile AY Ultrathan® double-lip wiper when using PTFE rod seals OD.

#### Range of Application:

double wiper rings profile AY are designed for axially operated rods in hydraulic and pneumatic cylinders, lifters, and rod guidances.

Working temperatures: – 35 to + 100 °C

for pneumatics + 80 °C

Surface speed: ≤ 2 m/s

#### Compound:

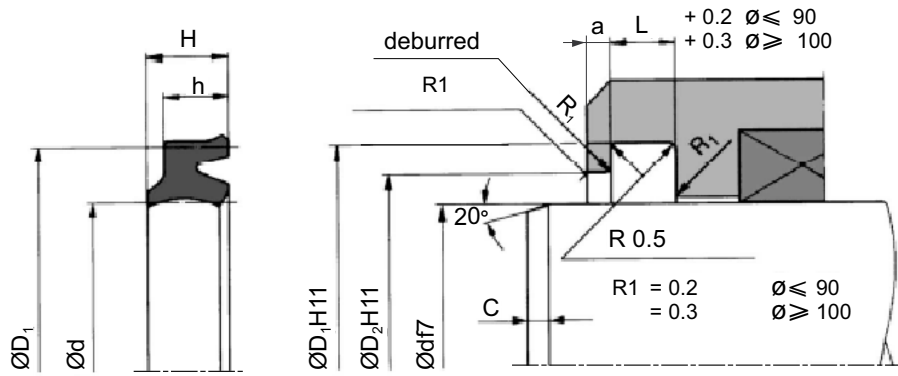
P5008 is a polyurethane-based Parker compound with a hardness of approx. 93 Shore A. In comparison with other polyurethane materials currently available on the market it excels because of its increased heat resistance, improved against hydrolysis, and lower compression set values.

#### Installation:

The profile AY double lip wiper ring can easily be snapped into grooves of simple design. Any contact of the wiper lip with piston rod eyes or other connecting parts should be avoided. However, we recommend the wiper lip to be out-side the housing, so that the wiped-off dirt falls off.

For special requirements (pressure, temperature, speed, use in water, HFA or HFB fluids, etc.), please contact our ConsultancyService, so that suitable materials and/or designs can be recommended.

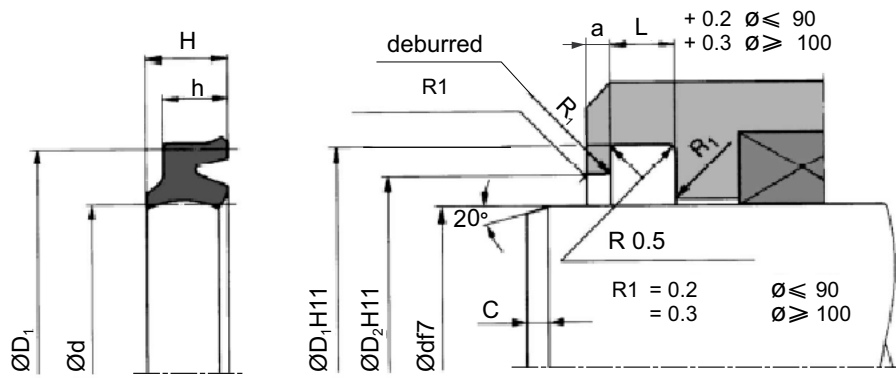
# AY ULTRATHAN® Double Wiper (JIS)



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

$\varnothing d$	$\varnothing D_1$	H	h	$\varnothing D_2$	L	a	Part Number
16	24	6	4.5	20.3	5	2	AY 016A P5008
18	26	6	4.5	22.3	5	2	AY 018A P5008
20	25	6	4.5	22.5	5	2	AY 020A P5008
20	28	6	4.5	24.3	5	2	AY 020B P5008
22	30	6	4.5	26.3	5	2	AY 022A P5008
22.4	30.4	6	4.5	26.7	5	2	AY 022B P5008
25	33	6	4.5	29.3	5	2	AY 025A P5008
28	36	6	4.5	32.3	5	2	AY 028A P5008
30	38	6.5	5	34	6	2	AY 030A P5008
31.5	39.5	6.5	5	35.5	6	2	AY 031A P5008
32	40	6.5	5	36	6	2	AY 032A P5008
35	43	6.5	5	39	6	2	AY 035A P5008
35.5	43.5	6.5	5	39.5	6	2	AY 035B P5008
36	44	6.5	5	40	6	2	AY 036A P5008
40	48	6.5	5	44	6	2	AY 040A P5008
40	50	6.5	5	46	6	2	AY 040B P5008
45	53	6.5	5	49	6	2	AY 045A P5008
45	55	6.5	5	51	6	2	AY 045B P5008
50	58	6.5	5	54	6	2	AY 050A P5008
50	60	6.5	5	56	6	2	AY 050B P5008
53	61	6.5	5	57	6	2	AY 053A P5008
55	63	6.5	5	59	6	2	AY 055A P5008
56	64	6.5	5	60	6	2	AY 056A P5008
60	68	6.5	5	64	6	2	AY 060A P5008
63	71	6.5	5	67	6	2	AY 063A P5008
65	78	6.5	5	74	6	2	AY 065A P5008
65	73	6.5	5	69	6	2	AY 065E P5008
67	75	6.5	5	71	6	2	AY 067A P5008
70	80	8	6	75	7	3	AY 070A P5008
71	81	8	6	76	7	3	AY 071A P5008
75	85	8	6	80	7	3	AY 075A P5008
80	90	8	6	85	7	3	AY 080A P5008
85	95	8	6	90	7	3	AY 085A P5008
90	100	8	6	95	7	3	AY 090A P5008
95	105	8	6	100	7	3	AY 095A P5008
100	110	8	6	105	7	3	AY 100A P5008

# AY ULTRATHAN® Double Wiper (JIS)

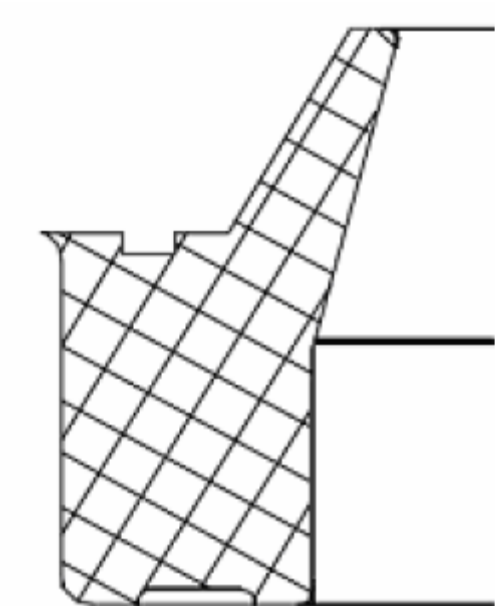


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

$\varnothing d$	$\varnothing D_1$	H	h	$\varnothing D_2$	L	a	Part Number
105	115	8	6	110	7	3	AY 105A P5008
110	120	8	6	115	7	3	AY 110A P5008
112	122	8	6	117	7	3	AY 112A P5008
115	125	8	6	120	7	3	AY 115A P5008
118	128	8	6	123	7	3	AY 118A P5008
120	130	8	6	125	7	3	AY 120A P5008
125	138	9.5	7	132	8	3	AY 125A P5008
130	143	9.5	7	137	8	3	AY 130A P5008
135	148	9.5	7	142	8	3	AY 135A P5008
136	149	9.5	7	143	8	3	AY 136A P5008
140	153	9.5	7	147	8	3	AY 140A P5008
145	158	9.5	7	152	8	3	AY 145A P5008
150	163	9.5	7	157	8	3	AY 150A P5008
155	168	9.5	7	162	8	3	AY 155A P5008
160	173	9.5	7	167	8	3	AY 160A P5008
165	178	9.5	7	172	8	3	AY 165A P5008
170	183	9.5	7	176	8	3	AY 170A P5008
175	188	9.5	7	182	8	3	AY 175A P5008
180	193	9.5	7	187	8	3	AY 180A P5008
190	203	9.5	7	197	8	3	AY 190A P5008
200	213	9.5	7	207	8	3	AY 200A P5008
210	223	9.5	7	217	8	3	AY 210A P5008
220	233	9.5	7	227	8	3	AY 220A P5008
230	243	9.5	7	237	8	3	AY 230A P5008
250	265	11.5	9	258	10	3	AY 250A P5008

# A8 Wiper

A8



A8 profile wiper feature with a Sealing lip on the OD rim which prevent the dirt penetrating into the sealing system even under extreme tough working condition like mobile hydraulic and mining industrial.

### **Range of application:**

Profile A8 wiper is designed for axially operated rod in hydraulic cylinders and plungers.

Temperature :               -35°C to +100°C ( P5008)

                                     -35°C to +110°C ( P6000)

Surface speed:   2 m/s

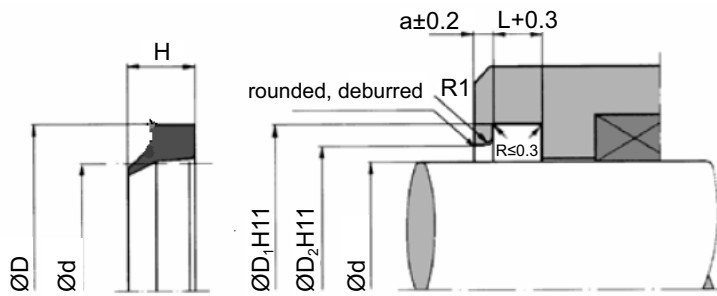
### **Material:**

- P5008 standard for mineral oil based hydraulic fluid
- P6000 high temp hydraulic system
- P5000 for mining ( HFA,HFB,HETG fluid)

### **Installation:**

The A8 wiper can be snapped into simple housings. The wiper lip should not come into contact with piston rod eye or their connecting pieces.

# A8 Wiper (ISO)



d f7	D1 H11	H	h/L +0.3	D2 H11	A8 PN
18	24	7	5	21	A81824P5008
20	28	8	5	25,5	A82011P5008
22	30	8	5	27,5	A82230P5008
25	33	8	5	30,5	A82533P5008
28	36	8	5	33,5	A82836P5008
30	38	8	5	35,5	A83038P5008
30	41.2	10	7.5	37	A83041P5008
32	40	8	5	37,5	A83240P5008
35	43	8	5	40,5	A83543P5008
36	44	8	5	41,5	A83644P5008
40	48	8	5	45,5	A84009P5008
42	50.6	7	5,3	45	A84015P5008
45	53	8	5	50,5	A84197P5008
45	55.6	7	5,3	48	A84033P5008
50	58	8	5	55,5	A85058P5008
50	58.6	7	5,3	53	A85013P5008
50	60.6	7	5,3	53	A85002P5008
55	65.6	7	5,3	58	A85017P5008
56	66	10	6,3	63	A85229P5008
56	66.6	7	5,3	59	A85022P5008
60	70	7	5,3	66	A86004P5008
60	70	10	6,3	67	A86070P5008
60	70.6	7	5,3	63	A86005P5008
63	73	10	6,3	70	A86373P5008
63	73.6	7	5,3	66	A86010P5008
65	75	10	6,3	72	A86575P5008
65	75.6	7	5,3	68	A86020P5008
70	80	10	6,3	77	A87080P5008
70	82.2	12	7,2	76	A87082P5008
70	80.6	7	5,3	73	A87020P5008
75	85	10	6,3	82	A87585P5008
75	83.6	7	5,3	78	A87088P5008
75	87.2	12	7,2	81	A87092P5008
80	90	10	6,3	87	A88007P5008
80	91	11	7,5	85	A88091P5008
80	92.2	12	7,2	86	A88008P5008
85	98	11.5	7,5	92	A89598P5008

## A8 Wiper (ISO)

d f7	D1 H11	H	h/L +0.3	D2 H11	A8 PN
85	93,6	7	5,3	88	A88060P5008
85	97,2	12	7,2	91	A88070P5008
90	100	10	6,3	97	A89001P5008
90	102,2	12	7,2	96	A89004P5008
95	107,2	12	7,2	101	A89503P5008
100	110,6	7	5,3	104	A8A002P5008
100	115	14	9,5	110	A8A022P5008
100	112,2	12	7,2	106	A8A018P5008
105	113	8	5	110,5	A8A023P5008
105	120	12	7,2	112	A8A020P5008
110	125	14	9,5	120	A8B012P5008
110	122,2	12	7,2	116	A8B022P5008
115	127,2	12	7,2	121	A8B055P5008
120	135	14	9,5	130	A8C035P5008
120	132,2	12	7,2	126	A8C032P5008
125	137,2	12	7,7	131	A8C070P5008
125	140	16	10,2	132,6	A8C080P5008
125	140	14	9,5	135	A8C134P5008
125	133	7	5,3	130,8	A8C061P5008
130	142,2	12	7,2	136	A8D010P5008
132	144,2	12	7,2	138	A8D012P5008
135	150	14	9,5	145	A8D150P5008
140	155	14	9,5	150	A8E010P5008
140	148,6	7	5,3	143	A8E025P5008
140	152,2	12	7,1	146	A8E027P5008
140	152,2	12	7,7	146	A8E028P5008
145	153,6	7	5,3	148	A8E051P5008
145	160	14	9,5	155	A8E058P5008
150	162,2	12	7,7	156	A8F028P5008
150	165	16	10,2	157,6	A8F030P5008
150	165	12	7,2	158,6	A8F031P5008
150	166	12	8	161	A8F032P5008
155	163	8	5	160,5	A8F049P5008
155	167,2	12	7,7	161	A8F050P5008
155	175	18	10,2	165	A8F051P5008
160	175	14	9,5	170	A8G018P5008
160	175	16	10,2	167	A8G030P5008
160	172,2	12	7,7	166	A8G024P5008
165	180	14	9,5	175	A8G063P5008
170	180,6	7	5,3	174	A8H006P5008
170	182,2	12	7,7	176	A8H008P5008
170	185	14	9,5	180	A8H011P5008
175	183,6	7	5,3	178	A8H050P5008
180	195	14	9,5	190	A8J095P5008
180	200	18	10,2	190	A8J008P5008
185	205	18	10,2	195	A8J035P5008
185	200	16	10,2	192,5	A8J034P5008
190	198,6	7	5,3	193	A8K008P5008
195	210	16	10,2	202,5	A8K050P5008
200	208,6	7	5,3	203	A8L001P5008
200	215	14	9,5	210	A8L100P5008
200	220	18	10,2	210	A8L025P5008

## A8 Wiper (ISO)

d f7	D1 H11	H	h/L +0.3	D2 H11	A8 PN
210	225	14	9.5	220	A8L070P5008
210	226	12	8	221	A8L071P5008
210	230	18	10.2	220	A8L072P5008
220	235	16	10.2	227.6	A8M030P5008
220	240	18	12.5	233.5	A8M040P5008
225	240	14	9.5	235	A8M045P5008
225	245	18	10.2	235	A8M046P5008
230	238.6	7	5.3	233	A8M047P5008
230	245	14	9.5	240	A8M055P5008
230	246	12	7.5	240.7	A8M048P5008
230	250	18	10.2	240	A8M050P5008
235	255	18	10.2	245	A8M090P5008
240	255	14	9.5	250	A8N004P5008
240	260	18	10.2	250	A8N005P5008
245	265	18	12.5	258.5	A8N006P5008
250	270	18	10.2	260	A8N013P5008
250	270	18	12.5	263.5	A8N014P5008
255	270	14	9.5	265	A8N255P5008
260	270	14	9.5	270	A8O010P5008
260	280	18	10.2	270.5	A8O012P5008
265	280	16	10.2	272.6	A8O014P5008
265	285	15	10.2	275	A8O015P5008
270	278.6	7	5.3	273	A8O020P5008
280	295	14	9.5	290	A8P005P5008
280	300	15	10.2	290	A8P006P5008
285	305	18	12.5	298.5	A8P025P5008
290	310	18	12.5	303.5	A8P040P5008
295	315	18	12.5	308.5	A8P050P5008
300	316	12	7.5	310.7	A8Q003P5008
300	320	18	12.5	313.5	A8Q004P5008
300	320	18	10.2	310	A8Q002P5008
305	325	18	12.5	318.5	A8Q005P5008
310	330	18	10.2	320	A8Q015P5008
320	340	18	10.2	330	A8Q030P5008
330	346	12	7.5	340.7	A8Q130P5008
335	355	18	10.2	345	A8Q135P5008
340	360	18	10.2	350	A8Q140P5008
350	370	18	10.2	360	A8Q150P5008
355	375	18	10.2	365	A8Q155P5008
360	380	18	10.2	370	A8Q160P5008
370	390	18	10.2	380	A8Q170P5008
370	390	18	12.5	383.5	A8Q171P5008
380	400	18	10.2	390	A8Q180P5008
380	410	25	15.2	395	A8Q181P5008
390	415	23	11.7	402.6	A8Q190P5008
400	420	18	10.2	410	A8R010P5008
410	440	25	15.2	425	A8R020P5008

Further size please ask Parker Hannifin Seals.



## A8 Wiper (JIS)

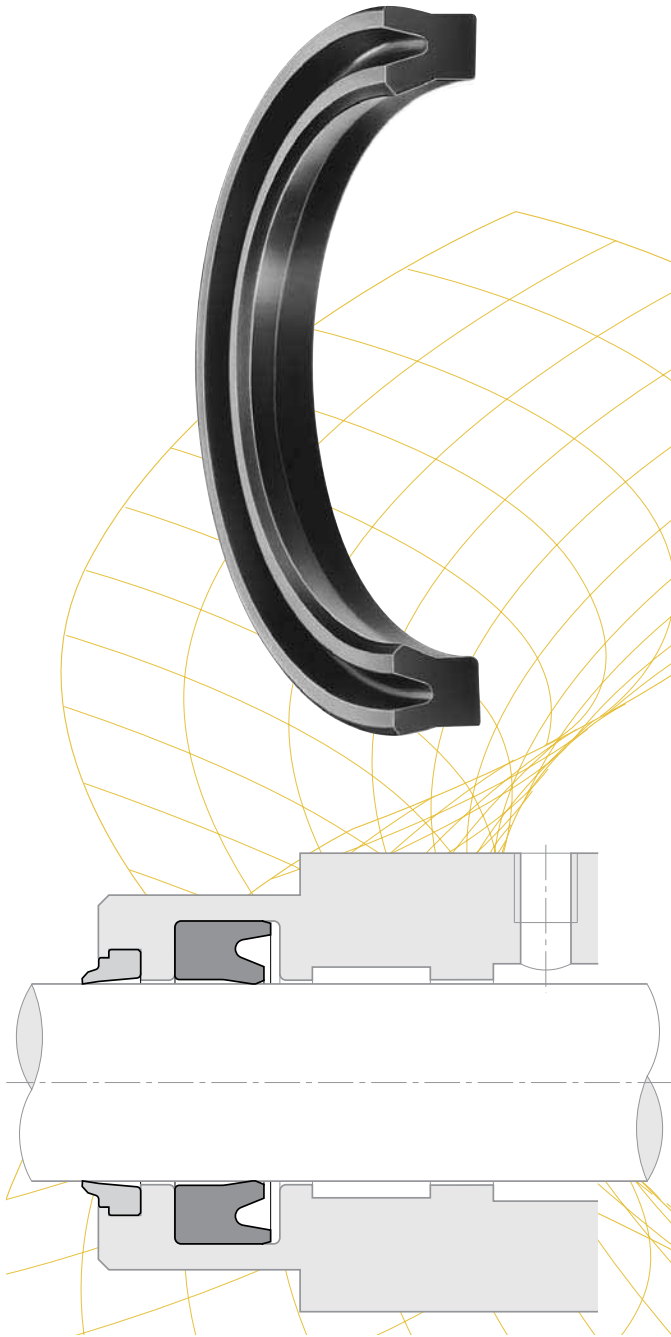
d f8	D1 H10	H	ΦD2 +/-0.1	L +0.3	a	PART NUMBER
8	16	6	12	5	2	A8008AP5008
9	17	6	13	5	2	A8009AP5008
10	18	6	14	5	2	A8010AP5008
11.2	19.2	6	15.2	5	2	A8011AP5008
12.5	20.5	6	16.5	5	2	A8012AP5008
14	22	6	18	5	2	A8014AP5008
15	23	6	19	5	2	A8015AP5008
16	24	6	20.3	5	2	A8016AP5008
18	26	6	22.3	5	2	A8018AP5008
20	28	6	24	5	2	A8020AP5008
22.4	30.4	6	26.4	5	2	A8022AP5008
25	33	6	29	5	2	A8025AP5008
28	36	6	32	5	2	A8028AP5008
30	38	6.5	34	6	2	A8030AP5008
31.5	39.5	6.5	35.5	6	2	A8031AP5008
35	43	6.5	39	6	2	A8035AP5008
35.5	43.5	6.5	39.5	6	2	A8035CP5008
40	48	6.5	44	6	2	A8040AP5008
45	53	6.5	49	6	2	A8045AP5008
45	55	8	50	7	2	A8045BP5008
45.5	53.5	6.5	49.5	6	2	A8045CP5008
50	58	6.5	54	6	2	A8050AP5008
50	60	8	55	7	2	A8050BP5008
50	63	9.5	56.5	8	2	A8050DP5008
53	61	6.5	57	6	2	A8053AP5008
54.5	62.5	6.5	58.5	6	2	A8054CP5008
55	63	6.5	59	6	2	A8055AP5008
55	65	8.5	60	7	2	A8055BP5008
55	68	9.5	61.5	8	2	A8055DP5008
56	64	6.5	60	6	2	A8056AP5008
60	68	6.5	64	6	2	A8060AP5008
60	73	9.5	66.5	8	2	A8060BP5008
62	70	6.5	66	6	2	A8062AP5008
63	71	6.5	67	6	2	A8063AP5008
65	73	6.5	69	6	2	A8065AP5008
65	78	9.5	71.5	8	2	A8065BP5008
67	75	6.5	71	6	2	A8067AP5008
70	80	8	75	7	3	A8070AP5008
70	83	9.5	76.5	8	3	A8070BP5008
71	81	8	76	7	3	A8071AP5008
75	85	8	80	7	3	A8075AP5008
75	88	9.5	81.5	8	3	A8075BP5008
76	86	8	81	7	3	A8076AP5008
80	90	8	85	7	3	A8080AP5008
80	93	9.5	86.5	8	3	A8080BP5008
85	95	8	90	7	3	A8085AP5008
85	98	9.5	91.5	8	3	A8085BP5008
90	100	8	95	7	3	A8090AP5008
90	103	9.5	96.5	8	3	A8090BP5008
95	105	8	100	7	3	A8095AP5008
95	108	9.5	101.5	8	3	A8095BP5008
97	107	8	102	7	3	A8097AP5008

## A8 Wiper (JIS)

d f8	D1 H10	H	ΦD2 +/-0.1	L +0.3	a	PART NUMBER
100	110	8	105	7	3	A8100AP5008
100	113	9.5	106.5	8	3	A8100BP5008
105	115	8	110	7	3	A8105AP5008
105	118	9.5	111.5	8	3	A8105BP5008
106	116	8	111	7	3	A8106AP5008
110	120	8	115	7	3	A8110AP5008
110	123	9.5	116.5	8	3	A8110BP5008
112	122	8	117	7	4	A8112AP5008
112	125	9.5	118.5	8	4	A8112BP5008
118	128	8	123	7	4	A8118AP5008
120	130	8	125	7	4	A8120AP5008
120	133	9.5	126.5	8	4	A8120BP5008
124	139	9.5	131.5	7.5	4	A8124BP5008
125	138	9.5	132	8	4	A8125AP5008
130	143	9.5	137	8	4	A8130AP5008
132	145	9.5	139	8	4	A8132AP5008
135	148	9.5	141.5	8	4	A8135BP5008
140	153	9.5	147	8	4	A8140AP5008
140	155	10.3	147.5	7.5	4	A8140BP5008
145	158	9.5	152	8	4	A8145AP5008
150	163	9.5	157	8	4	A8150AP5008
155	168	9.5	162	8	4	A8155AP5008
155	170	10.3	162.5	7.5	4	A8155BP5008
160	173	9.5	167	8	4	A8160AP5008
170	183	9.5	177	8	4	A8170AP5008
170	185	10.3	177.5	7.5	4	A8170BP5008
175	188	9.5	182	8	4	A8175AP5008
180	193	9.5	187	8	4	A8180AP5008
185	198	9.5	192	8	5	A8185AP5008
190	203	9.5	197	8	5	A8190AP5008
199	212	9.5	206	8	5	A8199AP5008
200	213	9.5	207	8	5	A8200AP5008
204	217	9.5	211	8	5	A8204AP5008
210	223	9.5	217	8	5	A8210AP5008
215	228	9.5	222	8	5	A8215AP5008
220	233	9.5	227	8	5	A8220AP5008
224	237	9.5	231	8	5	A8224AP5008
225	238	9.5	232	8	5	A8225AP5008
230	243	9.5	237	8	5	A8230AP5008
240	253	9.5	247	8	5	A8240AP5008
250	263	9.5	257	8	5	A8250AP5008
260	275	12	268	10	5	A8260AP5008
270	285	12	278	10	5	A8270AP5008
280	295	12	288	10	5	A8280AP5008
290	305	12	298	10	5	A8290AP5008
300	315	12	308	10	5	A8300AP5008

# B3 ULTRATHAN® Rod Seal(JIS)

B3



The profile B3 Ultrathan® rod seal is a lip seal which fits in the groove. These seals may be used for all applications where the physical properties of normal or fabric reinforced elastomers are insufficient.

#### The main advantages are:

- Unusually high wear resistance.
- Insensibility against shock loads and pressure peaks.
- High resistance against extrusion.
- Low compression set.
- Suitable for hardest working conditions.
- Easy installation.

#### Range of Application:

Working pressure:  $\leq 400$  bar

Working temperature:  $-35$  to  $+110$  °C

Surface speed:  $\leq 0,5$  m/s

Medium: Hydraulic oils (mineral oil-based)

Mainly for the sealing of piston rods and plungers in heavy duty applications in mobile and stationary hydraulics. The dimensions mainly conform to the requirements of ISO 5597/1 and ISO 3320 for housing and diameters respectively.

#### Compound:

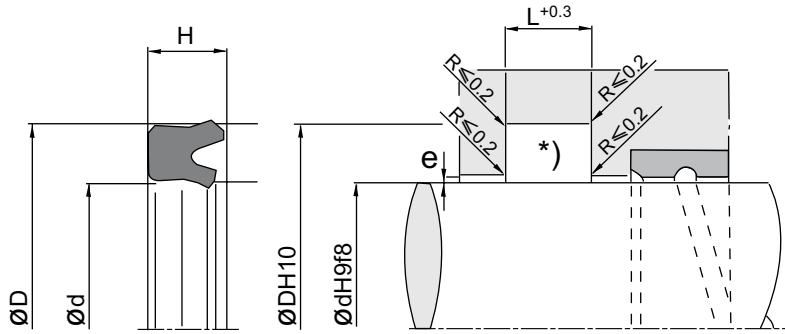
The P5008 compound is a Parker material based on polyurethane with a hardness of approx. 93 Shore A. Its main advantages in comparison with other polyurethane materials currently available on the market are the increased heat resistance, the improved performance against hydrolysis and the lower compression set.

#### Installation:

The seals should have an axial clearance (see columns H and L). To avoid damage at the sealing lips, the seals should not be pulled over sharp edges during installation. Normally these seals may be snapped into closed grooves. Where access is restricted special assembly tools may be required. Proposals for the design of such tools will be provided on request. Tolerance guidelines H8/f7. At the back of the seal a larger gap »e« is permissible.

For special requirements (pressure, temperature, speed, application in water, HFA-, HFB-fluids etc.) please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.

# B3 ULTRATHAN® Rod Seal(JIS)

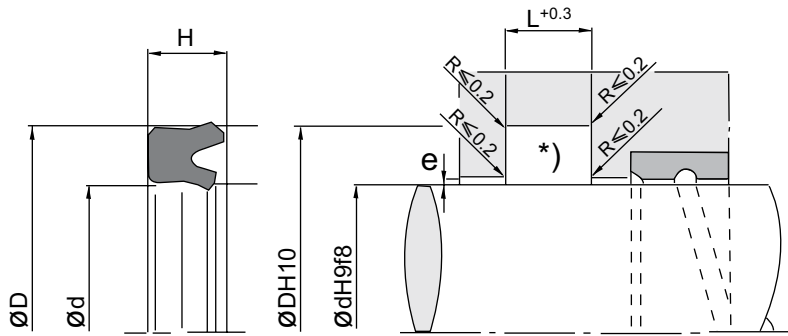


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

ød	øD	H	L	Part Number
12.5	20.5	5	5.7	B3 012A P5008
14	22	5	5.7	B3 014A P5008
15	23	5	5.7	B3 015A P5008
16	24	5	5.7	B3 016A P5008
18	26	5	5.7	B3 018A P5008
19	26	6	7	B3 019A P5008
20	25	5	6	B3 020A P5008
20	28	5	6.7	B3 020B P5008
20	30	6	7	B3 020C P5008
22	30	5	6	B3 022A P5008
22.4	30	5	5.7	B3 022B P5008
25	33	5	5.7	B3 025A P5008
25	35	5	5.7	B3 025B P5008
25	40	9	10	B3 025C P5008
28	35.5	5	5.7	B3 028A P5008
28	40	10	11	B3 028B P5008
29	35	5	6	B3 029A P5008
30	37	6	7	B3 030A P5008
30	40	6	7	B3 030B P5008
30	40	7	8	B3 030C P5008
30	45	9	10	B3 030D P5008
30	45	10	11	B3 030E P5008
31.5	41.5	6	7	B3 031A P5008
32	40	6	7	B3 032A P5008
32	42	6	7	B3 032B P5008
32	42	7	8	B3 032C P5008
32	48	10	11	B3 032D P5008
33	43	10	11	B3 033A P5008

ød	øD	H	L	Part Number
34	50	12	13	B3 034A P5008
35	42	7	8	B3 035A P5008
35	45	6	7	B3 035B P5008
35	45	7	8	B3 035C P5008
35	50	9	10	B3 035E P5008
35	50	10	11	B3 035F P5008
35.5	45	6	7	B3 035D P5008
36	44	6	7	B3 036A P5008
36	46	6	7	B3 036B P5008
36	46	7.3	8	B3 036C P5008
36	48	8	9	B3 036D P5008
38	48	6	7	B3 038A P5008
40	46	7	8	B3 040A P5008
40	48	6	7	B3 040B P5008
40	50	6	7	B3 040C P5008
40	50	7.3	8	B3 040D P5008
40	50	8	9	B3 040E P5008
40	55	9	10	B3 040F P5008
40	60	12	13	B3 040G P5008
45	53	8	9	B3 045A P5008
45	55	6	7	B3 045B P5008
45	55	8	9	B3 045C P5008
45	56	7	8	B3 045D P5008
45	55	10	11	B3 045E P5008
45	60	9	10	B3 045F P5008
45	60	10	11	B3 045G P5008
45	65	12	13	B3 045H P5008
50	58	8	9	B3 050A P5008

# B3 ULTRATHAN® Rod Seal(JIS)

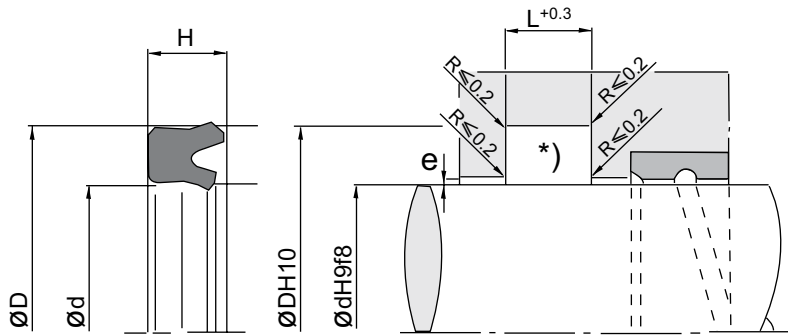


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

ød	øD	H	L	Part Number
50	60	6	7	B3 050B P5008
50	60	7	8	B3 050C P5008
50	60	8	9	B3 050D P5008
50	63	8	9	B3 050E P5008
50	63	10	11	B3 050L P5008
50	65	9	10	B3 050M P5008
50	65	10	11	B3 050H P5008
50	66	12	13	B3 050J P5008
50	70	9	10	B3 050K P5008
50	70	12	13	B3 050N P5008
50.8	63.5	9.52	10.5	B3 051A P5008
53	63	6	7	B3 053A P5008
55	65	6	7	B3 055A P5008
55	65	8	9	B3 055B P5008
55	68	10	11	B3 055C P5008
55	70	9	10	B3 055D P5008
55	70	10	11	B3 055E P5008
55	71	10	11	B3 055F P5008
55	71	12	13	B3 055G P5008
55	75	12	13	B3 055H P5008
56	66	6	7	B3 056A P5008
56	66	6.5	7.5	B3 056B P5008
57.15	73.03	9	10	B3 057A P5008
60	70	6	7	B3 060A P5008
60	70	10	11	B3 060B P5008
60	73	10	11	B3 060C P5008
60	75	9	10	B3 060D P5008
60	76	10	11	B3 060E P5008

ød	øD	H	L	Part Number
60	76	12	13	B3 060F P5008
60	80	12	13	B3 060G P5008
63	73	6	7	B3 063A P5008
63	78	11.5	12.5	B3 063B P5008
63	83	12	13	B3 063D P5008
63.45	76.25	9.7	11	B3 063C P5008
65	73	8	9	B3 065A P5008
65	75	6	7	B3 065B P5008
65	78	10	11	B3 065C P5008
65	80	9	10	B3 065D P5008
65	80	10	11	B3 065E P5008
65	80	12	13	B3 065F P5008
65	85	10	11	B3 065G P5008
65	85	12	13	B3 065H P5008
67	77	6	7	B3 067A P5008
70	80	6	7	B3 070A P5008
70	83	10	11	B3 070B P5008
70	85	9	10	B3 070C P5008
70	85	10	11	B3 070D P5008
70	90	12	13	B3 070E P5008
71	81	6	7	B3 071A P5008
72	87	9	10	B3 072A P5008
75	85	6	7	B3 075A P5008
75	88	10	11	B3 075B P5008
75	90	9	10	B3 075C P5008
75	90	10	11	B3 075D P5008
75	95	12	13	B3 075E P5008
76	88	6	7	B3 076A P5008

# B3 ULTRATHAN® Rod Seal(JIS)

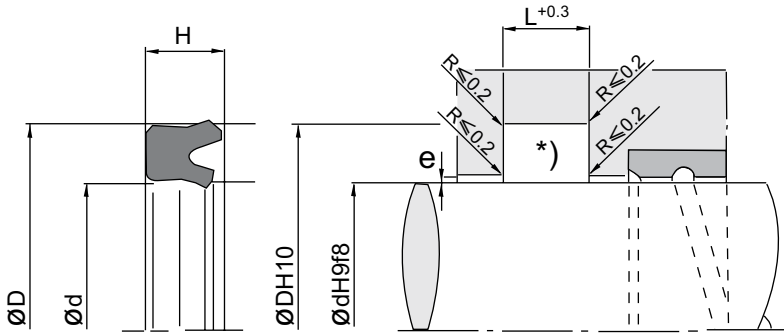


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

ød	øD	H	L	Part Number
77	92	9	10	B3 077A P5008
80	90	6	7	B3 080A P5008
80	90	8	9	B3 080B P5008
80	93	9	10	B3 080C P5008
80	93	10	11	B3 080D P5008
80	95	9	10	B3 080E P5008
80	95	10	11	B3 080F P5008
80	100	12	13	B3 080G P5008
85	100	9	10	B3 085A P5008
85	100	10	11	B3 085B P5008
85	105	12	13	B3 085C P5008
89	105	12.7	13.7	B3 089A P5008
90	100	6	7	B3 090A P5008
90	105	9	10	B3 090B P5008
90	105	10	11	B3 090C P5008
90	110	10	11	B3 090D P5008
90	110	12	13	B3 090E P5008
90	110	13	14	B3 090F P5008
95	110	9	10	B3 095A P5008
95	110	10	11	B3 095B P5008
95	115	12	13	B3 095C P5008
97	112	9	10	B3 097A P5008
98	113	9	10	B3 098A P5008
100	110	6	7	B3 100A P5008
100	112	14	15	B3 100B P5008
100	115	9	10	B3 100C P5008
100	115	10	11	B3 100D P5008
100	120	12	13	B3 100E P5008

ød	øD	H	L	Part Number
100	120	15	16	B3 100F P5008
105	120	9	10	B3 105A P5008
105	120	10	11	B3 105B P5008
105	125	12	13	B3 105C P5008
105	125	15	16	B3 105D P5008
110	125	9	10	B3 110A P5008
110	125	10	11	B3 110B P5008
110	130	10	11	B3 110C P5008
110	130	12	13	B3 110D P5008
110	130	16	17	B3 110E P5008
112	125	9	10	B3 112A P5008
112	132	15	16	B3 112B P5008
115	130	9	10	B3 115A P5008
115	130	10	11	B3 115B P5008
115	135	12	13	B3 115C P5008
115	135	16	17	B3 115D P5008
118	133	9	10	B3 118A P5008
120	135	9	10	B3 120A P5008
120	135	10	11	B3 120B P5008
120	140	10	11	B3 120C P5008
120	140	12	13	B3 120D P5008
120	140	16	17	B3 120E P5008
125	140	9	10	B3 125A P5008
125	145	12	13	B3 125B P5008
127	147	16	17	B3 127A P5008
130	145	9	10	B3 130A P5008
130	145	10	11	B3 130B P5008
130	150	12	13	B3 130C P5008

# B3 ULTRATHAN® Rod Seal(JIS)



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

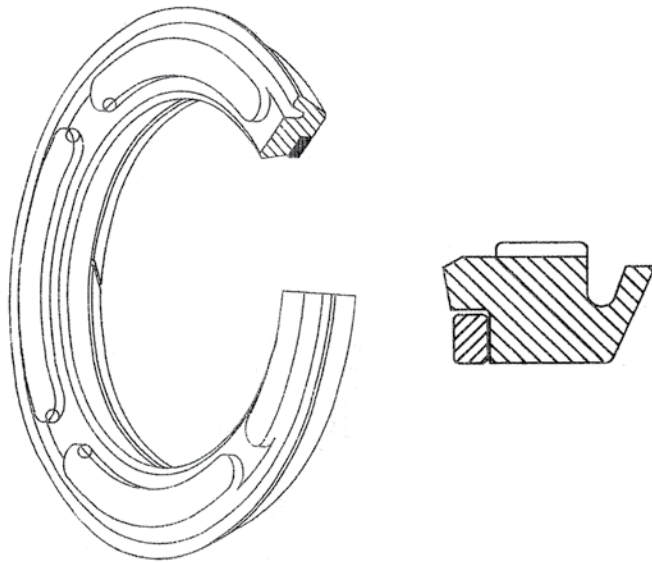
ød	øD	H	L	Part Number
130	150	16	17	B3 130D P5008
135	150	9	10	B3 135A P5008
136	150	8.5	9.5	B3 136A P5008
140	150	7	8	B3 140A P5008
140	155	9	10	B3 140B P5008
140	160	12	13	B3 140C P5008
140	165	12	13	B3 140D P5008
145	160	9	10	B3 145A P5008
150	165	9	10	B3 150A P5008
150	170	12	13	B3 150B P5008
155	170	9	10	B3 155A P5008
156	171	10	11	B3 156A P5008
160	175	9	10	B3 160A P5008
160	180	12	13	B3 160B P5008
165	180	9	10	B3 165A P5008
170	185	9	10	B3 170A P5008
170	190	12	13	B3 170B P5008

ød	øD	H	L	Part Number
175	190	9	10	B3 175A P5008
175	200	12	13	B3 175B P5008
180	200	12	13	B3 180A P5008
180	200	16	17	B3 180B P5008
190	210	12	13	B3 190A P5008
200	220	12	13	B3 200A P5008
200	225	16	17	B3 200B P5008
210	230	12	13	B3 210A P5008
220	240	12	13	B3 220A P5008
225	250	16	17	B3 225A P5008
230	250	12	13	B3 230A P5008
230	255	16	17	B3 230B P5008
230	255	19	20	B3 230C P5008
240	260	12	13	B3 240A P5008
250	270	16	17	B3 250A P5008
260	285	19	20	B3 260A P5008
300	330	19	20	B3 300A P5008

Further sizes on request.

# BR ULTRATHAN® Rod buffer Seals

BR



## BR Profile, Premium Buffer Seal

The BR profile is a compact rod seal designed to act as a buffer seal for the primary rod seal. As a buffer seal, the BR profile provides the majority of the sealing performance while allowing fluid to by pass onto and energize the primary rod seal. Fluid located between the BR profile and the rod seal will relieve back into the cylinder by flowing past the BR profile's flexible static side lip and slotted pedestals. This relieving or check valve function allows the BR profile and primary rod seal to work as a sealing system without the danger of developing a pressure trap. As a sealing system, the BR profile and primary rod seal provide optimal performance in the most difficult applications.

## Range of Application

Primarily for mobile hydraulic cylinders.

Temperature: -35°C to 110°C

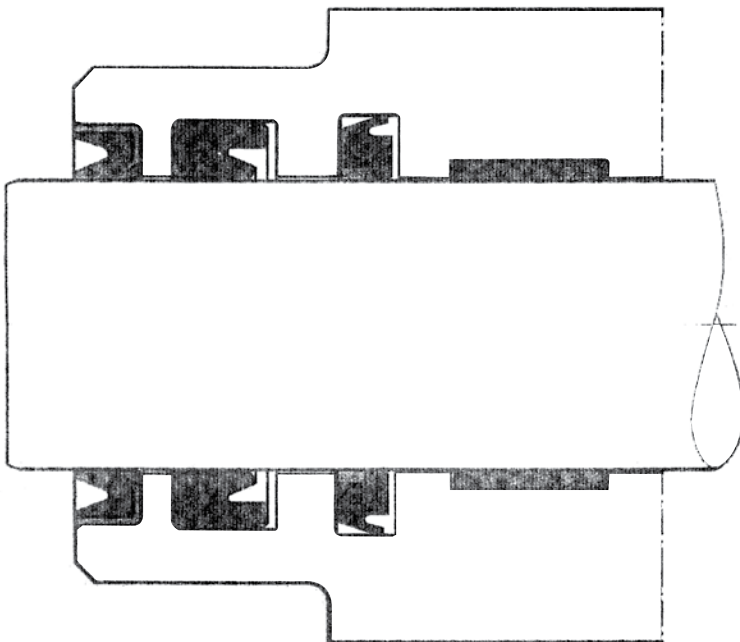
Pressure: ≤500bar ( peak 1000 bar)

Surface Speed: ≤ 0.5m/s

## Compounds:

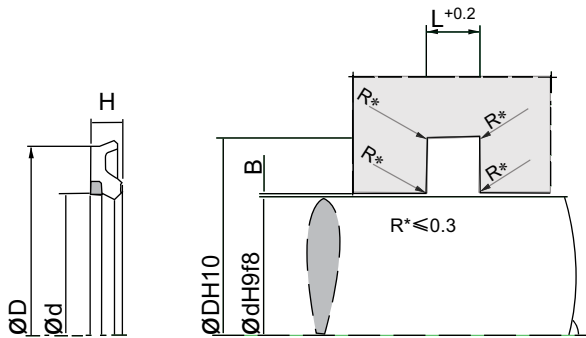
P5008 is a Parker material based on polyurethane with a Shore A hardness of approx. 93. Backup ring compound: Polyamide

\*Alternate Materials: For applications that may require an alternate material, please contact your local Parker Seal representative. .





# BR ULTRATHAN® Rod buffer Seals



Max pressure	350 bar	400 bar	500 bar
B	≤ 0.4	≤ 0.2	≤ 0.12

For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

ød	øD	H	L	Part number
40	55.5	6	6.3	BR 040A 00601
45	60.5	6	6.3	BR 045A 00601
50	65.5	6	6.3	BR 050A 00601
55	70.5	6	6.3	BR 055A 00601
60	75.5	6	6.3	BR 060A 00601
63	78.5	6	6.3	BR 063A 00601
65	80.5	6	6.3	BR 065A 00601
70	85.5	6	6.3	BR 070A 00601
75	90.5	6	6.3	BR 075A 00601
80	95.5	6	6.3	BR 080A 00601
85	100.5	6	6.3	BR 085A 00601
90	105.5	6	6.3	BR 090A 00601
95	110.5	6	6.3	BR 095A 00601
100	115.5	6	6.3	BR 100A 00601
105	120.5	6	6.3	BR 105A 00601
110	125.5	6	6.3	BR 110A 00601
115	130.5	6	6.3	BR 115A 00601
120	135.5	6	6.3	BR 120A 00601
125	140.5	6	6.3	BR 125A 00601
130	145.5	6	6.3	BR 130A 00601
135	150.5	6	6.3	BR 135A 00601
140	155.5	6	6.3	BR 140A 00601
145	160.5	6	6.3	BR 145A 00601
150	165.5	6	6.3	BR 150A 00601
156	171.5	6	6.3	BR 156A 00601
170	185.5	6	6.3	BR 170A 00601
175	190.5	6	6.3	BR 175A 00601

# Caveseal® Rod Sealing Set

## CR



The Caveseal® rod sealing set, profile CR, consisting of a PTFE rod sealing ring and an O-Ring, is a system for sealing rods and plungers in hydraulic cylinders.

The sealing set CR is appropriate for dynamic applications as an alternative to an O-ring, for situations where sealing performance and friction have to be optimized.

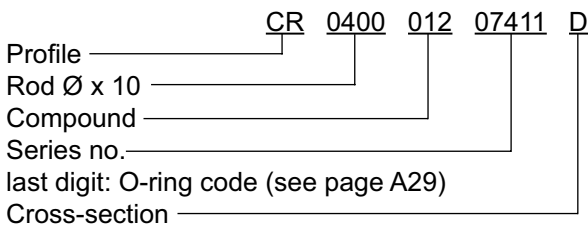
### Advantages:

- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Can be used in existing O-ring grooves.
- Available in diameters up to 2000 mm.

### Ordering example:

Rod diameter: 40mm

Installation groove with 1 back-up ring



### Please note:

For certain applications, it might be convenient to use a non-standard cross-section—reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

### Range of Application

Working pressure: ≤ 350 bar

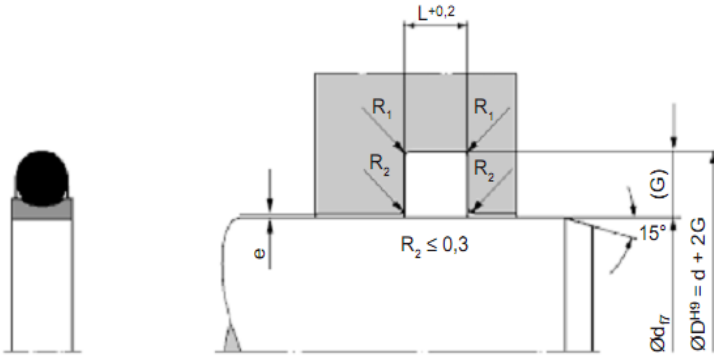
Working temperature: -30 to +100°C\*

Surface speed: ≤4m/s

\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

Please apply this seal only in combination with guiding elements (e.g. F3).

# Caveseal® Rod Sealing Set Profile CR (double acting)



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Housing dimensions:

Series no.	Cross-section	O-ring cross-section	Recommended rod Ø range		Groovewidth	Groovedepth	Gap max.	Radius max
		[mm]	d [mm]		L [mm]	G [mm]	e [mm]	R <sub>1</sub> [mm]
			≥	<				
Housing dimensions for O-Ring grooves without back-up ring:								
07400	A	1,78	4	10	2,4	1,45	0,15	0,5
07400	B	2,62	10	20	3,6	2,25	0,20	0,5
07400	C	3,53	20	40	4,8	3,10	0,20	0,5
07400	D	5,33	40	120	7,1	4,70	0,25	0,9
07400	E	6,99	120	400	9,5	6,10	0,30	0,9
Housing dimensions for O-Ring grooves with 1 back-up ring:								
07410	A	1,78	4	10	3,8	1,45	0,15	0,5
07410	B	2,62	10	20	5,0	2,25	0,20	0,5
07410	C	3,53	20	40	6,2	3,10	0,20	0,5
07410	D	5,33	40	120	8,8	4,70	0,25	0,9
07410	E	6,99	120	400	12,0	6,10	0,30	0,9
Housing dimensions for O-Ring grooves with 2 back-up rings:								
07420	A	1,78	4	10	5,2	1,45	0,15	0,5
07420	B	2,62	10	20	6,4	2,25	0,20	0,5
07420	C	3,53	20	40	7,6	3,10	0,20	0,5
07420	D	5,33	40	120	10,5	4,70	0,25	0,9
07420	E	6,99	120	400	14,5	6,10	0,30	0,9

## Installation

For diameters < 10 mm open grooves are required.

## Standard Compounds

Sealing rings: Polon® 012, modified PTFE

O-rings: N0674, NBR elastomer with approx. 70 Shore A

**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**

# Caveseal® Rod Sealing Set Profile CR (double acting)

Standard range:

Groove			O-Ring			
Size	Ød (mm)	ØD (mm)	L (mm)	No.	CS (mm)	ID (mm)
0040	4	6,9	2,4	2-008	1,78	4,47
			3,8			
			5,2			
0050	5	7,9	2,4	2-009	1,78	5,28
			3,8			
			5,2			
0060	6	8,9	2,4	2-010	1,78	6,07
			3,8			
			5,2			
0080	8	10,9	2,4	2-011	1,78	7,65
			3,8			
			5,2			
0100	10	14,5	3,6	2-111	2,62	10,77
			5,0			
			6,4			
0120	12	16,5	3,6	2-112	2,62	12,37
			5,0			
			6,4			
0140	14	18,5	3,6	2-113	2,62	13,94
			5,0			
			6,4			
0150	15	19,5	3,6	2-114	2,62	15,54
			5,0			
			6,4			
0160	16	20,5	3,6	2-115	2,62	17,12
			5,0			
			6,4			
0180	18	22,5	3,6	2-116	2,62	18,72
			5,0			
			6,4			
0200	20	26,2	4,8	2-211	3,53	20,22
			6,2			
			7,6			
0220	22	28,2	4,8	2-212	3,53	21,82
			6,2			
			7,6			
0250	25	31,2	4,8	2-214	3,53	24,99
			6,2			
			7,6			
0300	30	36,2	4,8	2-217	3,53	29,32
			6,2			
			7,6			
0320	32	38,2	4,8	2-219	3,53	32,92
			6,2			
			7,6			
0350	35	41,2	4,8	2-220	3,53	34,52
			6,2			
			7,6			
0360	36	42,2	4,8	2-221	3,53	36,09
			6,2			
			7,6			
0400	40	49,4	7,1	2-326	5,33	40,64
			8,8			
			10,5			

Groove			O-Ring			
Size	Ød (mm)	ØD (mm)	L (mm)	No.	CS (mm)	ID (mm)
0450	45	54,4	7,1	2-327	5,33	43,82
			8,8			
			10,5			
0480	48	57,4	7,1	2-328	5,33	46,99
			8,8			
			10,5			
0500	50	59,4	7,1	2-329	5,33	50,17
			8,8			
			10,5			
0520	52	61,4	7,1	2-330	5,33	53,34
			8,8			
			10,5			
0560	56	65,4	7,1	2-331	5,33	56,52
			8,8			
			10,5			
0600	60	69,4	7,1	2-332	5,33	59,69
			8,8			
			10,5			
0630	63	72,4	7,1	2-333	5,33	62,87
			8,8			
			10,5			
0650	65	74,4	7,1	2-334	5,33	66,04
			8,8			
			10,5			
0700	70	79,4	7,1	2-335	5,33	69,22
			8,8			
			10,5			
0750	75	84,4	7,1	2-337	5,33	75,57
			8,8			
			10,5			
0800	80	89,4	7,1	2-339	5,33	81,92
			8,8			
			10,5			
0850	85	94,4	7,1	2-340	5,33	85,09
			8,8			
			10,5			
0900	90	99,4	7,1	2-342	5,33	91,44
			8,8			
			10,5			
0950	95	104,4	7,1	2-343	5,33	94,62
			8,8			
			10,5			
1000	100	109,4	7,1	2-345	5,33	100,97
			8,8			
			10,5			
1050	105	114,4	7,1	2-347	5,33	107,32
			8,8			
			10,5			
1100	110	119,4	7,1	2-348	5,33	110,49
			8,8			
			10,5			
1150	115	124,4	7,1	2-350	5,33	116,84
			8,8			
			10,5			

# Caveseal® Rod Sealing Set Profile CR (double acting)

Standard range:

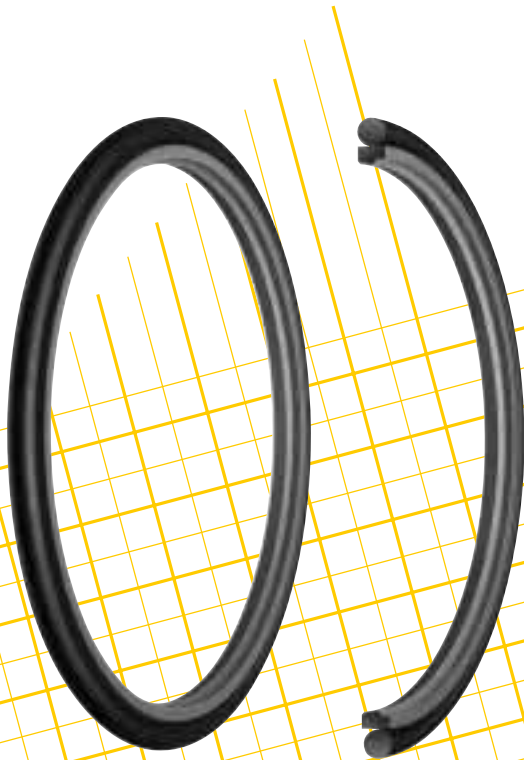
Groove			O-Ring			
	Ød	ØD	L		CS	ID
Size	(mm)	(mm)	(mm)	No.	(mm)	(mm)
1200	120	132,2	9,5	2-427	6.99	120,02
			12,0			
			14,5			
1250	125	137,2	9,5	2-429	6.99	126,37
			12,0			
			14,5			
1300	130	142,2	9,5	2-430	6.99	129,54
			12,0			
			14,5			
1350	135	127,2	9,5	2-432	6.99	135,89
			12,0			
			14,5			
1400	140	152,2	9,5	2-433	6.99	139,07
			12,0			
			14,5			
1500	150	162,2	9,5	2-437	6.99	151,77
			12,0			
			14,5			
1600	160	172,2	9,5	2-438	6.99	158,12
			12,0			
			14,5			
1700	170	182,2	9,5	2-440	6.99	170,82
			12,0			
			14,5			
1800	180	192,2	9,5	2-442	6.99	183,52
			12,0			
			14,5			
1900	190	202,2	9,5	2-443	6.99	189,87
			12,0			
			14,5			
2000	200	212,2	9,5	2-445	6.99	202,57
			12,0			
			14,5			
2100	210	222,2	9,5	2-446	6.99	215,27
			12,0			
			14,5			
2200	220	232,2	9,5	2-446	6.99	215,27
			12,0			
			14,5			
2300	230	242,2	9,5	2-447	6.99	227,97
			12,0			
			14,5			
2400	240	252,2	9,5	2-448	6.99	240,67
			12,0			
			14,5			
2500	250	262,2	9,5	2-449	6.99	253,37
			12,0			
			14,5			
2600	260	272,2	9,5	2-450	6.99	266,07
			12,0			
			14,5			
2700	270	282,2	9,5	2-450	6.99	266,07
			12,0			
			14,5			

Groove			O-Ring			
	Ød	ØD	L		CS	ID
Size	(mm)	(mm)	(mm)	No.	(mm)	(mm)
2800	280	292,2	9,5	2-451	6.99	278,77
			12,0			
			14,5			
2900	290	302,2	9,5	2-452	6.99	291,47
			12,0			
			14,5			
3000	300	312,2	9,5	2-453	6.99	304,17
			12,0			
			14,5			
3100	310	322,2	9,5	2-454	6.99	316,87
			12,0			
			14,5			
3200	320	332,2	9,5	2-454	6.99	316,87
			12,0			
			14,5			
3300	330	342,2	9,5	2-455	6.99	329,57
			12,0			
			14,5			
3400	340	352,2	9,5	2-456	6.99	342,27
			12,0			
			14,5			
3500	350	362,2	9,5	2-457	6.99	354,97
			12,0			
			14,5			
3600	360	372,2	9,5	2-457	6.99	354,97
			12,0			
			14,5			
3700	370	382,2	9,5	2-458	6.99	367,67
			12,0			
			14,5			
3800	380	392,2	9,5	2-459	6.99	380,37
			12,0			
			14,5			
3900	390	402,2	9,5	2-460	6.99	393,07
			12,0			
			14,5			
4000	400	412,2	9,5	2-461	6.99	405,26
			12,0			

Further sizes on request.

# PTFE Rod Sealing Set Profile OD (single acting)

OD



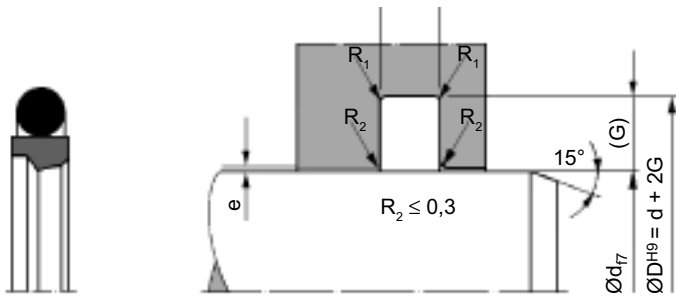
The rod sealing set profile OD consists of a PTFE rod sealing ring and an O-Ring. They are combined as a single unit and are appropriate for rods and plungers in hydraulic cylinders.

Profile OD is particularly suitable for rods in control cylinders, servo-assisted equipment, machine tools, quick acting cylinders and in construction machinery. An optimal sealing performance will be obtained if the rod sealing set is used in tandem with a doublewiper.

### Advantages:

- Short assembled length.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Good back-transport of oil film due to special shape of sealing edge.
- Available in diameters up to 2000 mm.

# PTFE Rod Sealing Set Profile OD (single acting)

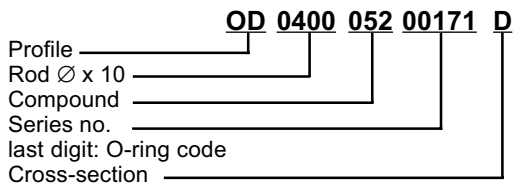


Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended rod $\varnothing$ range		Groove width L [mm]	Groove depth G [mm]	Gap max. 0–200 bar e [mm]	Gap max. 200–400 bar e [mm]	Radius max. $R_1$ [mm]
			$\geq$	$<$					
00170	A	1,78	4	8	2,2	2,45	0,6–0,4	0,4–0,2	0,5
00170	B	2,62	8	19	3,2	3,65	0,8–0,5	0,5–0,3	0,5
00170	C	3,53	19	38	4,2	5,35	0,8–0,5	0,5–0,3	0,5
00170	D	5,33	38	200	6,3	7,55	1,0–0,6	0,6–0,4	0,9
00170	E	6,99	200	256	8,1	10,25	1,0–0,6	0,6–0,4	0,9
00170	F	6,99	256	650	8,1	12,00	1,2–0,7	0,7–0,5	0,9
00170	G	8,40	650	1000	9,5	13,65	1,4–0,8	0,8–0,6	0,9

## Ordering example:

Rod diameter: 40 mm



## Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

## Field of Application

Working pressure:  $\leq 400$  bar\*  
 Working temperature:  $-30$  to  $+100$  °C\*\*  
 Surface speed:  $\leq 4$  m/s

\* In case of reduced extrusion gap (H7/f7) up to 600 bar.

\*\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

Please apply this seal only in combination with guiding elements (e.g. F3).

# PTFE Rod Sealing Set Profile OD (single acting)

Groove				O-Ring			Groove				O-Ring		
Size	Ø d (mm)	Ø D (mm)	L (mm)	No.	Ø/CS (mm)	ID (mm)	Size	Ø d (mm)	Ø D (mm)	L (mm)	No.	CS (mm)	ID (mm)
0040	4	8,9	2,2	2-010	1,78	6,07	1400	140	155,1	6,3	2-359	5,33	145,42
0050	5	9,9	2,2	2-010	1,78	6,07	1500	150	165,1	6,3	2-361	5,33	151,77
0070	7	11,9	2,2	2-012	1,78	9,25	1550	155	170,1	6,3	2-362	5,33	158,12
0080	8	15,3	3,2	2-111	2,62	10,77	1600	160	175,1	6,3	2-363	5,33	164,47
0100	10	17,3	3,2	2-112	2,62	12,37	1700	170	185,1	6,3	2-365	5,33	177,17
0120	12	19,3	3,2	2-114	2,62	15,54	1750	175	190,1	6,3	2-365	5,33	177,17
0140	14	21,3	3,2	2-115	2,62	17,12	1800	180	195,1	6,3	2-366	5,33	183,52
0150	15	22,3	3,2	2-116	2,62	18,72	1850	185	200,1	6,3	2-367	5,33	189,87
0160	16	23,3	3,2	2-116	2,62	18,72	1900	190	205,1	6,3	2-368	5,33	196,22
0180	18	25,3	3,2	2-117	2,62	20,29	1950	195	210,1	6,3	2-368	5,33	196,22
0200	20	30,7	4,2	2-214	3,53	24,99	2000	200	220,5	8,1	2-445	6,99	202,57
0220	22	32,7	4,2	2-215	3,53	26,57	2100	210	230,5	8,1	2-446	6,99	215,27
0240	24	34,7	4,2	2-216	3,53	28,17	2200	220	240,5	8,1	2-447	6,99	227,97
0250	25	35,7	4,2	2-217	3,53	29,32	2250	225	245,5	8,1	2-447	6,99	227,97
0260	26	36,7	4,2	2-218	3,53	31,34	2300	230	250,5	8,1	2-448	6,99	240,67
0280	28	38,7	4,2	2-219	3,53	32,92	2400	240	260,5	8,1	2-448	6,99	240,67
0300	30	40,7	4,2	2-220	3,53	34,52	2500	250	270,5	8,1	2-449	6,99	253,37
0320	32	42,7	4,2	2-221	3,53	36,09	2600	260	284,0	8,1	2-450	6,99	266,07
0350	35	45,7	4,2	2-222	3,53	37,69	2700	270	294,0	8,1	2-451	6,99	278,77
0370	37	47,7	4,2	2-223	3,53	40,87	2800	280	304,0	8,1	2-452	6,99	291,47
0380	38	53,1	6,3	2-327	5,33	43,82	2900	290	314,0	8,1	2-453	6,99	304,17
0400	40	55,1	6,3	2-328	5,33	46,99	3000	300	324,0	8,1	2-453	6,99	304,17
0420	42	57,1	6,3	2-328	5,33	46,99	3100	310	334,0	8,1	2-454	6,99	316,87
0450	45	60,1	6,3	2-329	5,33	50,17	3200	320	344,0	8,1	2-455	6,99	329,57
0480	48	63,1	6,3	2-330	5,33	53,34	3300	330	354,0	8,1	2-456	6,99	342,27
0500	50	65,1	6,3	2-331	5,33	56,52	3400	340	364,0	8,1	2-457	6,99	354,97
0520	52	67,1	6,3	2-331	5,33	56,52	3500	350	374,0	8,1	2-457	6,99	354,97
0550	55	70,1	6,3	2-332	5,33	59,69	3600	360	384,0	8,1	2-458	6,99	367,67
0580	58	73,1	6,3	2-333	5,33	62,87	3700	370	394,0	8,1	2-459	6,99	380,37
0600	60	75,1	6,3	2-334	5,33	66,04	3800	380	404,0	8,1	2-460	6,99	393,07
0650	65	80,1	6,3	2-335	5,33	69,22	3900	390	414,0	8,1	2-461	6,99	405,26
0700	70	85,1	6,3	2-337	5,33	75,57	4000	400	424,0	8,1	2-461	6,99	405,26
0750	75	90,1	6,3	2-339	5,33	81,92	4100	410	434,0	8,1	2-462	6,99	417,96
0800	80	95,1	6,3	2-340	5,33	85,09	4200	420	444,0	8,1	2-463	6,99	430,66
0850	85	100,1	6,3	2-342	5,33	91,44	4300	430	454,0	8,1	2-464	6,99	443,36
0900	90	105,1	6,3	2-343	5,33	94,62	4400	440	464,0	8,1	2-464	6,99	443,36
0950	95	110,1	6,3	2-345	5,33	100,97	4500	450	474,0	8,1	2-465	6,99	456,06
1000	100	115,1	6,3	2-346	5,33	104,14	4600	460	484,0	8,1	2-466	6,99	468,76
1100	110	125,1	6,3	2-350	5,33	116,84	4700	470	494,0	8,1	2-467	6,99	481,46
1200	120	135,1	6,3	2-353	5,33	126,37	4800	480	504,0	8,1	2-468	6,99	494,16
1250	125	140,1	6,3	2-354	5,33	129,54	4900	490	514,0	8,1	2-469	6,99	506,86
1300	130	145,1	6,3	2-356	5,33	135,89	5000	500	524,0	8,1	2-469	6,99	506,86

Further sizes on request.

## Installation

For diameters < 30 mm open grooves are required.

## Standard Compounds

Sealing rings: Polon® 052, modified PTFE + 40 % bronze  
O-rings: N0674, NBR elastomer with approx. 70 Shore A

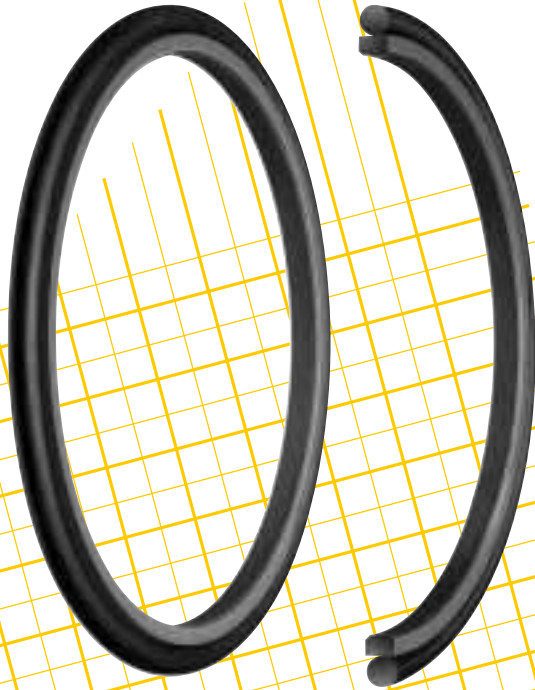
**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**



# PTFE Rod Sealing Set Profile ON (double acting)

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ON



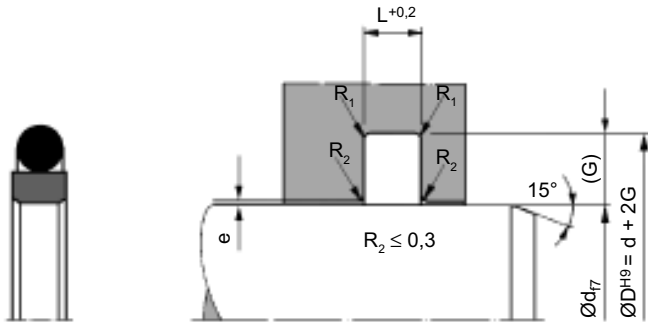
The rod sealing set profile ON consists of a PTFE rod sealing ring and an O-Ring. They are combined as a single unit and are appropriate for rods and plungers in hydraulic cylinders.

Profile ON is particularly suitable for rods in control cylinders, servo-assisted equipment, machine tools, quick acting cylinders and in construction machinery. An optimal sealing performance will be obtained if the rod sealing set is used in tandem with a double wiper.

### Advantages:

- Short assembled length.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Available in diameters up to 2000 mm.

# PTFE Rod Sealing Set Profile ON (double acting)

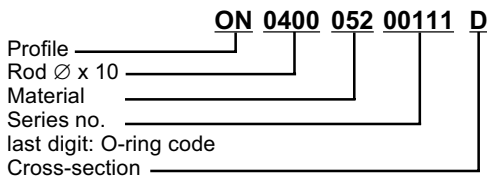


Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended rod $\varnothing$ range		Groove width L [mm]	Groove depth G [mm]	Gap max. 0–200 bar e [mm]	Gap max. 200–400 bar e [mm]	Radius max. $R_1$ [mm]
			$\geq$	$<$					
00110	A	1,78	4	8	2,2	2,45	0,6–0,4	0,4–0,2	0,5
00110	B	2,62	8	19	3,2	3,65	0,8–0,5	0,5–0,3	0,5
00110	C	3,53	19	38	4,2	5,35	0,8–0,5	0,5–0,3	0,5
00110	D	5,33	38	200	6,3	7,55	1,0–0,6	0,6–0,4	0,9
00110	E	6,99	200	256	8,1	10,25	1,0–0,6	0,6–0,4	0,9
00110	F	6,99	256	650	8,1	12,00	1,2–0,7	0,7–0,5	0,9
00110	G	8,40	650	1000	9,5	13,65	1,4–0,8	0,8–0,6	0,9

## Ordering example:

Rod diameter: 40 mm



## Please note:

For certain applications, it might be convenient to use a non-standard cross-section - reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

## Range of Application

Working pressure:  $\leq 400$  bar\*  
 Working temperature:  $-30$  to  $+100$  °C\*\*  
 Surface speed:  $\leq 4$  m/s

\* In case of reduced extrusion gap (H7/f7) up to 600 bar.

\*\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

Please apply this seal only in combination with guiding elements (e.g. F3).

# PTFE Rod Sealing Set Profile ON (double acting)

Standard range:

Size	Groove			O-Ring		
	Ø d (mm)	Ø D (mm)	L (mm)	No.	CS (mm)	ID (mm)
0040	4	8,9	2,2	2-010	1,78	6,07
0050	5	9,9	2,2	2-010	1,78	6,07
0070	7	11,9	2,2	2-012	1,78	9,25
0080	8	15,3	3,2	2-111	2,62	10,77
0100	10	17,3	3,2	2-112	2,62	12,37
0120	12	19,3	3,2	2-114	2,62	15,54
0140	14	21,3	3,2	2-115	2,62	17,12
0150	15	22,3	3,2	2-116	2,62	18,72
0160	16	23,3	3,2	2-116	2,62	18,72
0180	18	25,3	3,2	2-117	2,62	20,29
0200	20	30,7	4,2	2-214	3,53	24,99
0220	22	32,7	4,2	2-215	3,53	26,57
0240	24	34,7	4,2	2-216	3,53	28,17
0250	25	35,7	4,2	2-217	3,53	29,32
0260	26	36,7	4,2	2-218	3,53	31,34
0280	28	38,7	4,2	2-219	3,53	32,92
0300	30	40,7	4,2	2-220	3,53	34,52
0320	32	42,7	4,2	2-221	3,53	36,09
0350	35	45,7	4,2	2-222	3,53	37,69
0370	37	47,7	4,2	2-223	3,53	40,87
0380	38	53,1	6,3	2-327	5,33	43,82
0400	40	55,1	6,3	2-328	5,33	46,99
0420	42	57,1	6,3	2-328	5,33	46,99
0450	45	60,1	6,3	2-329	5,33	50,17
0480	48	63,1	6,3	2-330	5,33	53,34
0500	50	65,1	6,3	2-331	5,33	56,52
0520	52	67,1	6,3	2-331	5,33	56,52
0550	55	70,1	6,3	2-332	5,33	59,69
0580	58	73,1	6,3	2-333	5,33	62,87
0600	60	75,1	6,3	2-334	5,33	66,04
0650	65	80,1	6,3	2-335	5,33	69,22
0700	70	85,1	6,3	2-337	5,33	75,57
0750	75	90,1	6,3	2-339	5,33	81,92
0800	80	95,1	6,3	2-340	5,33	85,09
0850	85	100,1	6,3	2-342	5,33	91,44
0900	90	105,1	6,3	2-343	5,33	94,62
0950	95	110,1	6,3	2-345	5,33	100,97
1000	100	115,1	6,3	2-346	5,33	104,14
1100	110	125,1	6,3	2-350	5,33	116,84
1200	120	135,1	6,3	2-353	5,33	126,37
1250	125	140,1	6,3	2-354	5,33	129,54
1300	130	145,1	6,3	2-356	5,33	135,89

Size	Groove			O-Ring		
	Ø d (mm)	Ø D (mm)	L (mm)	No.	CS (mm)	ID (mm)
1400	140	155,1	6,3	2-359	5,33	145,42
1500	150	165,1	6,3	2-361	5,33	151,77
1550	155	170,1	6,3	2-362	5,33	158,12
1600	160	175,1	6,3	2-363	5,33	164,47
1700	170	185,1	6,3	2-365	5,33	177,17
1750	175	190,1	6,3	2-365	5,33	177,17
1800	180	195,1	6,3	2-366	5,33	183,52
1850	185	200,1	6,3	2-367	5,33	189,87
1900	190	205,1	6,3	2-368	5,33	196,22
1950	195	210,1	6,3	2-368	5,33	196,22
2000	200	220,5	8,1	2-445	6,99	202,57
2100	210	230,5	8,1	2-446	6,99	215,27
2200	220	240,5	8,1	2-447	6,99	227,97
2250	225	245,5	8,1	2-447	6,99	227,97
2300	230	250,5	8,1	2-448	6,99	240,67
2400	240	260,5	8,1	2-448	6,99	240,67
2500	250	270,5	8,1	2-449	6,99	253,37
2600	260	284,0	8,1	2-450	6,99	266,07
2700	270	294,0	8,1	2-451	6,99	278,77
2800	280	304,0	8,1	2-452	6,99	291,47
2900	290	314,0	8,1	2-453	6,99	304,17
3000	300	324,0	8,1	2-453	6,99	304,17
3100	310	334,0	8,1	2-454	6,99	316,87
3200	320	344,0	8,1	2-455	6,99	329,57
3300	330	354,0	8,1	2-456	6,99	342,27
3400	340	364,0	8,1	2-457	6,99	354,97
3500	350	374,0	8,1	2-457	6,99	354,97
3600	360	384,0	8,1	2-458	6,99	367,67
3700	370	394,0	8,1	2-459	6,99	380,37
3800	380	404,0	8,1	2-460	6,99	393,07
3900	390	414,0	8,1	2-461	6,99	405,26
4000	400	424,0	8,1	2-461	6,99	405,26
4100	410	434,0	8,1	2-462	6,99	417,96
4200	420	444,0	8,1	2-463	6,99	430,66
4300	430	454,0	8,1	2-464	6,99	443,36
4400	440	464,0	8,1	2-464	6,99	443,36
4500	450	474,0	8,1	2-465	6,99	456,06
4600	460	484,0	8,1	2-466	6,99	468,76
4700	470	494,0	8,1	2-467	6,99	481,46
4800	480	504,0	8,1	2-468	6,99	494,16
4900	490	514,0	8,1	2-469	6,99	506,86
5000	500	524,0	8,1	2-469	6,99	506,86

Further sizes on request.

## Installation

For diameters < 30 mm open grooves are required.

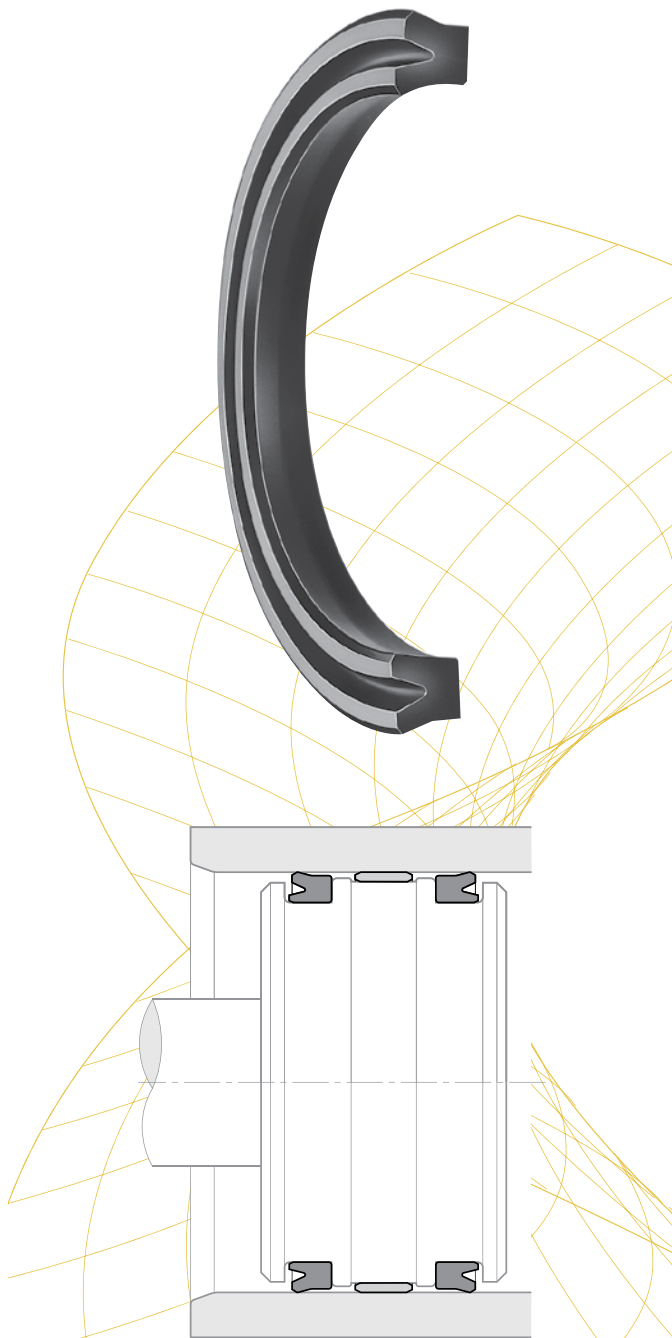
## Standard Compounds

Sealing rings: Polon® 052, modified PTFE + 40 % bronze  
 O-rings: N0674, NBR elastomer with approx. 70 Shore A

**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**

# B7 ULTRATHAN® Piston Lip Seal(JIS)

## B7 (JIS)



The profile B7 Ultrathan® piston seal is a lip seal which fits tightly in the groove. These seals may be used for all applications where the physical properties of normal or fabric reinforced elastomers are insufficient.

### Their main advantages are:

- Unusually high wear resistance.
- Insensibility against shock loads and pressure peaks.
- High resistance against extrusion.
- Low compression set.
- Suitable for the most severe working conditions.
- Easy installation.

### Range of Application:

Working pressure:  $\leq 400$  bar

Working temperature:  $- 35$  to  $+ 110$  °C

Surface speed:  $\leq 0,5$  m/s

Medium: Hydraulic oils (mineral oil-based)

Mainly for the sealing of pistons in heavy duty applications in mobile and stationary hydraulics.

### Compound:

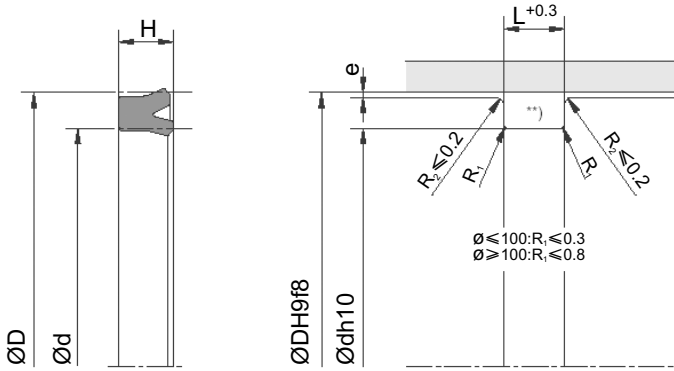
The P5008 compound is a Parker material based on polyurethane with a hardness of approx. 93 Shore A. Its main advantages in comparison with other polyurethane materials currently available on the market are the increased heat resistance, the improved resistance against hydrolysis and the lower compression set.

### Installation:

The seals should have an axial clearance (see columns H and L). To avoid damage at the sealing lips, the seals should not be pulled over sharp edges during installation. Normally these seals may be snapped into closed grooves. Where access is restricted special assembly tools may be required. Proposals for the design of such tools will be provided on request.

For special requirements (pressure, temperature, speed, application in water, HFA-, HFB-fluids etc.), please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.

# B7 ULTRATHAN® Piston Lip Seal(JIS)

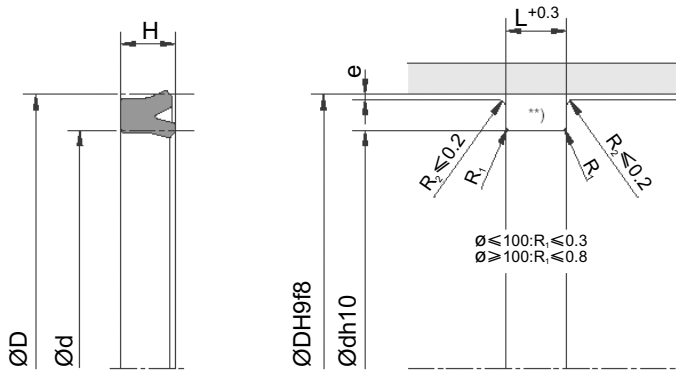


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

øD	ød	H	L	Part Number
20	10	6	7	B7 020A P5008
25	15	6	7	B7 025A P5008
30	20	5	5.7	B7 030A P5008
30	20	6	7	B7 030B P5008
35	25	6	7	B7 035A P5008
40	30	6	7	B7 040A P5008
45	30	9	10	B7 045A P5008
45	30	10	11	B7 045B P5008
45	35	6	7	B7 045C P5008
50	35	9	10	B7 050A P5008
50	35	10	11	B7 050B P5008
50	40	6	7	B7 050C P5008
50	40	7.3	8.3	B7 050D P5008
50	40	9	10	B7 050E P5008
50	40	9.5	10.5	B7 050F P5008
50	40	10	11	B7 050G P5008
55	40	10	11	B7 055A P5008
55	45	6	7	B7 055B P5008
60	45	9	10	B7 060A P5008
60	45	10	11	B7 060B P5008
60	50	6	7	B7 060C P5008
63	48	9	10	B7 063A P5008
63	48	10	11	B7 063B P5008
63	53	6	7	B7 063C P5008
65	50	10	11	B7 065A P5008
65	55	6	7	B7 065B P5008
70	55	9	10	B7 070A P5008
70	55	10	11	B7 070B P5008
70	60	6	7	B7 070C P5008
70	60	10	11	B7 070D P5008

øD	ød	H	L	Part Number
70	50	12	13	B7 070E P5008
71	61	6	7	B7 071A P5008
75	60	10	11	B7 075A P5008
75	65	6	7	B7 075B P5008
75	55	12	13	B7 075C P5008
80	65	9	10	B7 080A P5008
80	65	10	11	B7 080B P5008
80	70	6	7	B7 080C P5008
80	70	8	9	B7 080D P5008
80	47	16	17	B7 080E P5008
80	60	12	13	B7 080F P5008
85	70	9	10	B7 085A P5008
85	70	10	11	B7 085B P5008
85	75	6	7	B7 085C P5008
85	75	8	9	B7 085D P5008
85	65	12	13	B7 085E P5008
90	75	9	10	B7 090A P5008
90	75	10	11	B7 090B P5008
90	80	6	7	B7 090C P5008
90	70	12	13	B7 090D P5008
95	80	10	11	B7 095A P5008
100	85	9	10	B7 100A P5008
100	85	10	11	B7 100B P5008
100	80	12	13	B7 100D P5008
105	90	9	10	B7 105A P5008
105	85	12	13	B7 105B P5008
110	95	9	10	B7 110A P5008
110	85	18	19	B7 110B P5008
110	90	12	13	B7 110C P5008
110	90	13	14	B7 110D P5008

# B7 ULTRATHAN® Piston Lip Seal(JIS)



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

øD	ød	H	L	Part Number
115	100	9	10	B7 115A P5008
115	95	12	13	B7 115B P5008
120	105	9	10	B7 120A P5008
120	106	8.5	9.5	B7 120B P5008
120	100	12	13	B7 120C P5008
125	110	9	10	B7 125A P5008
125	112	9	10	B7 125B P5008
125	105	12	13	B7 125C P5008
125	105	15	16	B7 125D P5008
130	115	9	10	B7 130A P5008
130	110	12	13	B7 130B P5008
130	110	15	16	B7 130C P5008
135	115	12	13	B7 135A P5008
140	125	9	10	B7 140A P5008
140	120	12	13	B7 140B P5008
140	120	15	16	B7 140C P5008
145	125	12	13	B7 145A P5008
150	135	9	10	B7 150A P5008
150	136	8.5	9.5	B7 150B P5008
150	125	19	20	B7 150C P5008
150	130	12	13	B7 150D P5008
150	130	15	16	B7 150E P5008
155	140	9	10	B7 155A P5008
160	145	9	10	B7 160A P5008
160	135	19	20	B7 160B P5008
160	140	12	13	B7 160C P5008
165	150	9	10	B7 165A P5008
165	140	19	20	B7 165B P5008
170	155	9	10	B7 170A P5008

Note: further size on request.

øD	ød	H	L	Part Number
170	145	19	20	B7 170B P5008
170	150	12	13	B7 170C P5008
175	160	9	10	B7 175A P5008
180	165	9	10	B7 180A P5008
180	155	12	13	B7 180B P5008
180	155	19	20	B7 180C P5008
180	160	12	13	B7 180D P5008
180	160	16	17	B7 180E P5008
190	175	9	10	B7 190A P5008
190	165	19	20	B7 190B P5008
190	170	12	13	B7 190C P5008
200	175	19	20	B7 200A P5008
200	180	12	13	B7 200B P5008
205	180	19	20	B7 205A P5008
210	190	12	13	B7 210A P5008
215	190	16	17	B7 215A P5008
220	200	12	13	B7 220A P5008
224	204	12	13	B7 224A P5008
225	205	12	13	B7 225A P5008
230	205	20	21	B7 230A P5008
240	220	12	13	B7 240A P5008
250	230	12	13	B7 250A P5008
255	230	18	19	B7 255A P5008
260	235	16	17	B7 260A P5008
270	250	12	13	B7 270A P5008
280	255	19	20	B7 280A P5008
290	265	16	17	B7 290A P5008
300	270	19	20	B7 300A P5008
320	290	24	25	B7 320A P5008
380	350	24	25	B7 380A P5008

## OU

The piston sealing set profile OU complements the product range of double-acting piston seals (OE, OK) for installation housings according to ISO 7425/1 by a product which is preferably used in the pressure range up to a maximum of 300 bar.

### Range of Application

The OU profile is suitable for use in standard industrial cylinders as well as material handling, agriculture and mobile equipments. It is suited for leakage-critical applications.

Working pressure	≤ 300 bar
Working temperature	-35 °C to +110 °C
Surface speed	≤ 0.5 m/s

\* With NM304-75A o-ring, the low temperature could be -45C.

### Compounds

Slide ring: P4622- 95A

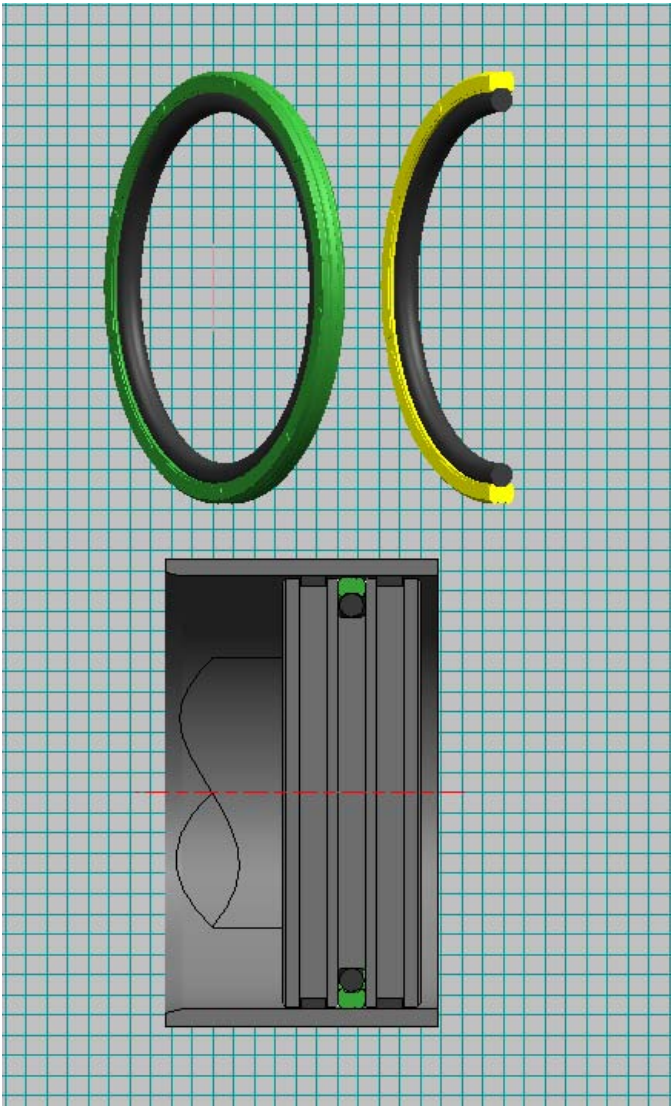
O ring: N1499-70A

\* Other TPU/NBR material combination can be offered upon special applications.

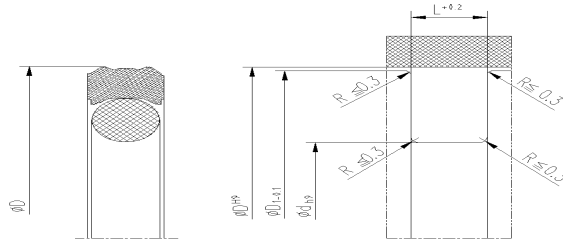
### Installation

The installation groove must be carefully deburred and cleaned.

The cylinder bore must have a leading edge chamfer. Profile OU can be snapped into closed grooves.



In case of special operating conditions (specific pressure loads, temperature, speed, use in water, HFA, HFB fluids etc.), please contact our consultancy service for a selection of the material and design best suited to your particular application requirements.



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

D	d	L	Order code
20	12.5	3.2	OU 0020 00801
25	17.5	3.2	OU 0025 00801
25	14	4.2	OU 1025 00801
30	22.5	3.2	OU 0030 00801
32	24.5	3.2	OU 0032 00801
32	21	4.2	OU 1032 00801
35	27.5	3.2	OU 0035 00801
35	24	4.2	OU 1035 00801
36	28.5	3.2	OU 0036 00801
40	29	4.2	OU 0040 00801
40	24.5	6.3	OU 1040 00801
45	34	4.2	OU 0045 00801
50	34.5	6.3	OU 1050 00801
50	39	4.2	OU 0050 00801
55	39.5	6.3	OU 1055 00801
55	44	4.2	OU 0055 00801
60	44.5	6.3	OU 1060 00801
60	49	4.2	OU 0060 00801
63	47.5	6.3	OU 1063 00801
63	52	4.2	OU 0063 00801
65	54	4.2	OU 0065 00801
65	49.5	6.3	OU 1065 00801
70	54.5	6.3	OU 1070 00801
70	59	4.2	OU 0070 00801
75	59.5	6.3	OU 1075 00801
80	64.5	6.3	OU 1080 00801
80	69	4.2	OU 0080 00801
85	71.5	6.3	OU 0085 00801
90	74.5	6.3	OU 0090 00801
90	69	8.1	OU 1090 00801
90	69	10.5	OU 2090 00801
95	79.5	6.3	OU 0095 00801
100	84.5	6.3	OU 0100 00801
100	79	8.1	OU 1100 00801

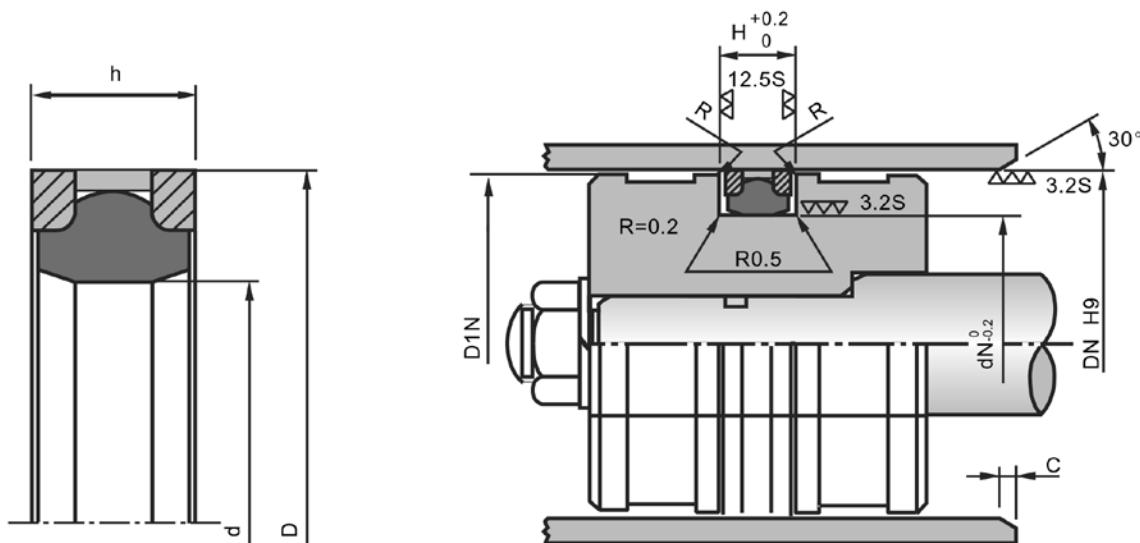
D	d	L	Order code
105	89.5	6.3	OU 0105 00801
110	94.5	6.3	OU 0110 00801
110	89	8.1	OU 1110 00801
115	99.5	6.3	OU 0115 00801
115	94	8.1	OU 1115 00801
120	104.5	6.3	OU 0120 00801
120	99	8.1	OU 1120 00801
125	109.5	6.3	OU 0125 00801
125	104	8.1	OU 1125 00801
130	114.5	6.3	OU 0130 00801
130	109	8.1	OU 1130 00801
135	114	8.1	OU 0135 00801
140	119	8.1	OU 0140 00801
145	124	8.1	OU 0145 00801
150	129	8.1	OU 0150 00801
155	134	8.1	OU 0155 00801
160	139	8.1	OU 0160 00801
165	144	8.1	OU 0165 00801
170	149	8.1	OU 0170 00801
175	154	8.1	OU 0175 00801
180	159	8.1	OU 0180 00801
185	164	8.1	OU 0185 00801
190	169	8.1	OU 0190 00801
195	174	8.1	OU 0195 00801
200	179	8.1	OU 0200 00801
210	189	8.1	OU 0210 00801
220	199	8.1	OU 0220 00801
230	209	8.1	OU 0230 00801
240	219	8.1	OU 0240 00801
250	229	8.1	OU 0250 00801
290	269	8.1	OU 0290 00801
300	279	8.1	OU 0300 00801
320	299	8.1	OU 0320 00801
360	335.5	8.1	OU 0360 00801

Further sizes on request.



# CT PTFE Piston Seal

CT



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

The CT profile is a 4 piece assembly made up of a rubber energizer, PTFE cap and 2 back-up rings.

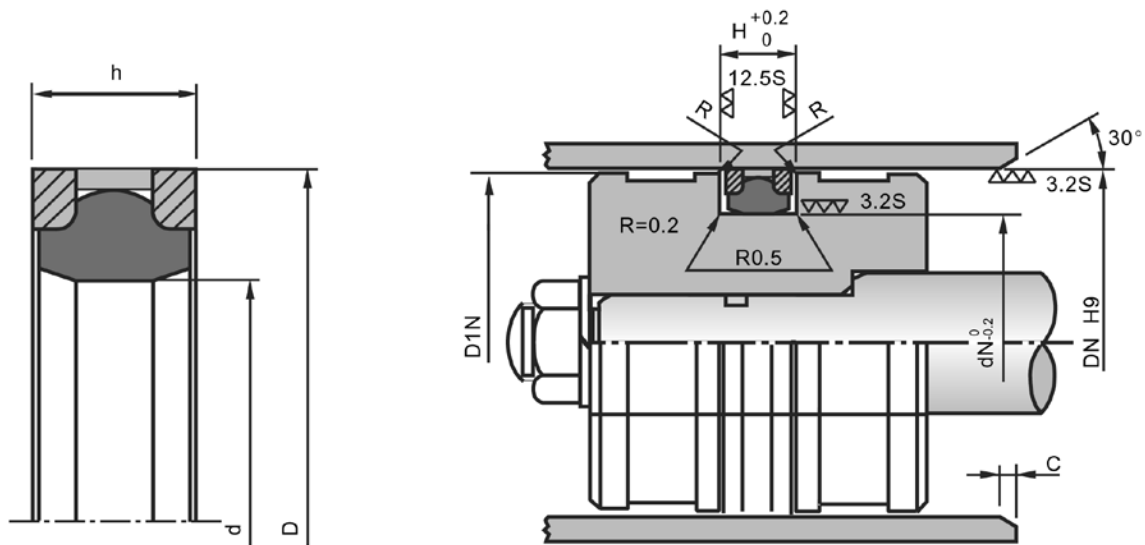
It is an excellent choice for sealing mobile hydraulic applications that experience shock loads.

Range of Applications:  
 Working pressure  $\leq 500$  bar.  
 Temperature:  $-40$  to  $+110^{\circ}\text{C}$   
 Surface speed:  $\leq 1.5\text{m/s}$

Compounds:  
 Slide ring: Polon<sup>®</sup>062, PTFE + 60% bronze  
 Energizer: 70 Shore A Nitrile  
 Backup ring: Nylatron

Seals Size			Groove Size					Part Number
D	d	h	DN	D1N	dN	H	C	
50	36	8.5	50	49.5	36	9	4	CT 0050 00668
60	46	8.5	60	59.5	46	9	4	CT 0060 00668
65	50	10.5	65	64.5	50	11	5	CT 0065 00668
70	55	10.5	70	69.5	55	11	5	CT 0070 00668
75	60	10.5	75	74.5	60	11	5	CT 0075 00668
80	65	10.5	80	79.5	65	11	5	CT 0080 00668
85	70	10.5	85	84.5	70	11	5	CT 0085 00668
90	75	10.5	90	89.5	75	11	5	CT 0090 00668
95	80	10.5	95	94.5	80	11	5	CT 0095A 00668
100	85	12	100	99.5	85	12.5	5	CT 0100 00668
105	90	12	105	104.5	90	12.5	5	CT 0105 00668
110	95	12	110	109.5	95	12.5	5	CT 0110 00668
115	100	12	115	114.5	100	12.5	5	CT 0115 00668
120	105	12	120	119.5	105	12.5	6.5	CT 0120 00668
125	102	15.5	125	124.5	102	16	6.5	CT 0125 00668
130	107	15.5	130	129.5	107	16	6.5	CT 0130 00668
135	112	15.5	135	134.5	112	16	6.5	CT 0135 00668

# CT PTFE Piston Seal



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Seals Size			Groove Size					Part Number
D	d	h	DN	D1N	dN	H	C	
140	117	15.5	140	139.5	117	16	6.5	CT 0140 00668
145	122	15.5	145	144.5	122	16	6.5	CT 0145 00668
150	127	15.5	150	149.5	127	16	6.5	CT 0150 00668
155	132	15.5	155	154.5	132	16	6.5	CT 0155 00668
160	137	15.5	160	159.5	137	16	6.5	CT 0160 00668
165	142	15.5	165	164.5	142	16	6.5	CT 0165 00668
170	147	15.5	170	169.5	147	16	6.5	CT 0170 00668
180	157	15.5	180	179.5	157	16	6.5	CT 0180 00668
185	162	15.5	185	184.5	162	16	6.5	CT 0185 00668
190	167	15.5	190	189.5	167	16	6.5	CT 0190 00668
195	172	15.5	195	194.5	172	16	6.5	CT 0195 00668
200	177	15.5	200	199.5	177	16	6.5	CT 0200 00668
210	187	15.5	210	209.5	187	16	6.5	CT 0210 00668
220	197	15.5	220	219.5	197	16	6.5	CT 0220 00668
225	202	15.5	225	224.5	202	16	6.5	CT 0225 00668
230	207	15.5	230	229.5	207	16	6.5	CT 0230 00668
235	212	15.5	235	234.5	212	16	6.5	CT 0235 00668
240	217	15.5	240	239.5	217	16	6.5	CT 0240 00668
250	222	17	250	249.5	222	17.5	7.5	CT 0250 00668
260	232	17	260	259.5	232	17.5	7.5	CT 0260 00668
270	242	17	270	269.5	242	17.5	7.5	CT 0270 00668
280	252	17	280	279.5	252	17.5	7.5	CT 0280 00668

Note: further size on request.

# Caveseal® - Piston Sealing Set

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CP



The Caveseal® piston sealing set profile CP consists of a PTFE piston sealing ring and an O-Ring. It is a system for sealing double acting pistons.

Profile CP is appropriate for dynamic applications as an alternative to an O-ring in situations where sealing performance and friction have to be optimized.

#### Advantages:

- Assembly on one-piece pistons.
- Short assembled length.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Can be used in existing O-ring grooves.
- Available in diameters up to 2000 mm.

#### Range of Application

Working pressure:  $\leq 350$  bar  
Working temperature:  $-30$  to  $+100^{\circ}\text{C}^*$   
Surface speed:  $\leq 4$  m/s

\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

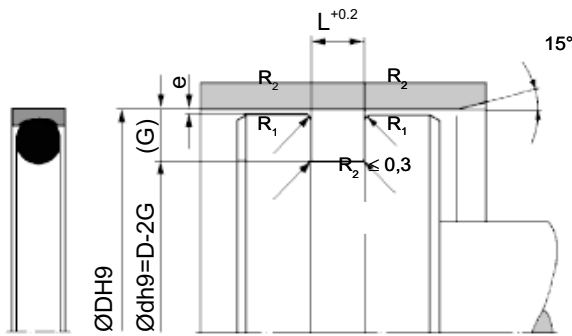
Please apply this seal only in combination with guiding elements (e.g. F3).

#### Standard Compounds

Sealing rings: Polon® 012, modified PTFE  
O-rings: N0674, NBR elastomer with approx. 70 Shore A

**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**

# Caveseal® - Piston Sealing Set



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

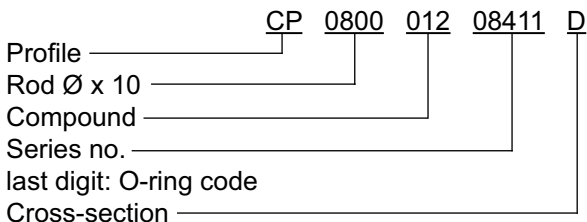
Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended piston $\text{\O}$ range		Groove width L [mm]	Groove depth G [mm]	Gap max. e [mm]	Radius max. $R_1$ [mm]
			$\geq$	$<$				
Housing dimensions for O-Ring grooves without back-up ring:								
08400	A	1,78	8	14	2,4	1,45	0,15	0,5
08400	B	2,62	14	25	3,6	2,25	0,20	0,5
08400	C	3,53	25	45	4,8	3,10	0,20	0,5
08400	D	5,33	45	125	7,1	4,70	0,25	0,9
08400	E	6,99	125	400	9,5	6,10	0,30	0,9
Housing dimensions for O-Ring grooves with 1 back-up ring:								
08410	A	1,78	8	14	3,8	1,45	0,15	0,5
08410	B	2,62	14	25	5,0	2,25	0,20	0,5
08410	C	3,53	25	45	6,2	3,10	0,20	0,5
08410	D	5,33	45	125	8,8	4,70	0,25	0,9
08410	E	6,99	125	400	12,0	6,10	0,30	0,9
Housing dimensions for O-Ring grooves with 2 back-up rings:								
08420	A	1,78	8	14	5,2	1,45	0,15	0,5
08420	B	2,62	14	25	6,4	2,25	0,20	0,5
08420	C	3,53	25	45	7,6	3,10	0,20	0,5
08420	D	5,33	45	125	10,5	4,70	0,25	0,9
08420	E	6,99	125	400	14,5	6,10	0,30	0,9

## Ordering example:

Piston diameter: 80 mm

Installation groove with 1 back-up ring



## Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

# Caveseal® - Piston Sealing Set

Standard range:

Groove			O-Ring			
Size	Ød (mm)	ØD (mm)	L (mm)	No.	CS (mm)	ID (mm)
0080	8	5,1	2,8	2-008	1,78	4,47
			3,4			
			5,2			
0100	10	7,1	2,8	2-010	1,78	6,07
			3,4			
			5,2			
0120	12	9,1	2,8	2-011	1,78	7,65
			3,4			
			5,2			
0150	15	10,5	3,6	2-110	2,62	9,19
			5,0			
			6,4			
0160	16	11,5	3,6	2-111	2,62	10,77
			5,0			
			6,4			
0180	18	13,5	3,6	2-112	2,62	12,37
			5,0			
			6,4			
0200	20	15,5	3,6	2-114	2,62	15,54
			5,0			
			6,4			
0220	22	17,5	3,6	2-115	2,62	17,12
			5,0			
			6,4			
0240	24	19,5	3,6	2-116	2,62	18,72
			5,0			
			6,4			
0250	25	18,8	4,8	2-209	3,53	17,04
			6,2			
			7,6			
0254	25,4	19,2	4,8	2-210	3,53	18,64
			6,2			
			7,6			
0280	28	21,8	4,8	2-212	3,53	21,82
			6,2			
			7,6			
0300	30	23,8	4,8	2-213	3,53	23,39
			6,2			
			7,6			
0320	32	25,8	4,8	2-214	3,53	24,99
			6,2			
			7,6			
0350	35	28,8	4,8	2-216	3,53	28,17
			6,2			
			7,6			
0400	40	33,8	4,8	2-219	3,53	32,92
			6,2			
			7,6			
0420	42	35,8	4,8	2-220	3,53	34,52
			6,2			
			7,6			
0450	45	38,8	4,8	2-222	3,53	37,69
			6,2			
			7,6			

Groove			O-Ring			
Size	Ød (mm)	ØD (mm)	L (mm)	No.	CS (mm)	ID (mm)
0480	48	38,6	7,1	2-325	5,33	37,47
			8,8			
			10,5			
0500	50	40,6	7,1	2-326	5,33	40,64
			8,8			
			10,5			
0508	50,8	41,4	7,1	2-326	5,33	40,64
			8,8			
			10,5			
0520	52	42,6	7,1	2-326	5,33	40,64
			8,8			
			10,5			
0550	55	45,6	7,1	2-327	5,33	43,82
			8,8			
			10,5			
0600	60	50,6	7,1	2-329	5,33	50,17
			8,8			
			10,5			
0630	63	53,6	7,1	2-330	5,33	53,34
			8,8			
			10,5			
0650	65	55,6	7,1	2-330	5,33	53,34
			8,8			
			10,5			
0700	70	60,6	7,1	2-332	5,33	59,69
			8,8			
			10,5			
0750	75	65,6	7,1	2-333	5,33	62,87
			8,8			
			10,5			
0800	80	70,6	7,1	2-335	5,33	69,22
			8,8			
			10,5			
0850	85	75,6	7,1	2-337	5,33	75,57
			8,8			
			10,5			
0900	90	80,6	7,1	2-338	5,33	78,74
			8,8			
			10,5			
0950	95	85,6	7,1	2-340	5,33	85,09
			8,8			
			10,5			
01000	100	90,6	7,1	2-341	5,33	88,27
			8,8			
			10,5			
1050	105	95,6	7,1	2-343	5,33	94,62
			8,8			
			10,5			
1100	110	100,6	7,1	2-344	5,33	97,79
			8,8			
			10,5			
1150	115	105,6	7,1	2-346	5,33	104,14
			8,8			
			10,5			

# Caveseal® - Piston Sealing Set

Standard range:

Groove			O-Ring			
Size	Ød (mm)	ØD (mm)	L (mm)	No.	CS (mm)	ID (mm)
1200	120	110,6	7,1	2-348	5,33	110,49
			8,8			
			10,5			
1250	125	112,8	9,5	2-425	6,99	113,67
			12,0			
			14,5			
1300	130	117,8	9,5	2-426	6,99	116,84
			12,0			
			14,5			
1350	135	122,8	9,5	2-427	6,99	120,02
			12,0			
			14,5			
1400	140	127,8	9,5	2-429	6,99	126,37
			12,0			
			14,5			
1450	145	132,8	9,5	2-430	6,99	129,54
			12,0			
			14,5			
1500	150	137,8	9,5	2-432	6,99	135,89
			12,0			
			14,5			
1550	155	142,8	9,5	2-433	6,99	133,97
			12,0			
			14,5			
1600	160	147,8	9,5	2-435	6,99	145,42
			12,0			
			14,5			
1650	165	152,8	9,5	2-437	6,99	151,77
			12,0			
			14,5			
1700	170	157,8	9,5	2-437	6,99	151,77
			12,0			
			14,5			
1750	175	162,8	9,5	2-438	6,99	158,12
			12,0			
			14,5			
1800	180	167,8	9,5	2-439	6,99	164,47
			12,0			
			14,5			
1900	190	177,8	9,5	2-441	6,99	177,17
			12,0			
			14,5			
2000	200	187,8	9,5	2-442	6,99	183,52
			12,0			
			14,5			
2100	210	197,8	9,5	2-444	6,99	196,22
			12,0			
			14,5			
2200	220	207,8	9,5	2-445	6,99	202,57
			12,0			
			14,5			
2300	230	217,8	9,5	2-446	6,99	215,27
			12,0			
			14,5			

Groove			O-Ring			
Size	Ød (mm)	ØD (mm)	L (mm)	No.	CS (mm)	ID (mm)
2400	240	227,8	9,5	2-447	6,99	227,97
			12,0			
			14,5			
2500	250	237,8	9,5	2-447	6,99	227,97
			12,0			
			14,5			
2600	260	247,8	9,5	2-448	6,99	240,67
			12,0			
			14,5			
2700	270	257,8	9,5	2-449	6,99	253,37
			12,0			
			14,5			
2800	280	267,8	9,5	2-450	6,99	266,07
			12,0			
			14,5			
2900	290	277,8	9,5	2-450	6,99	266,07
			12,0			
			14,5			
3000	300	287,8	9,5	2-451	6,99	278,77
			12,0			
			14,5			
3100	310	297,8	9,5	2-452	6,99	291,47
			12,0			
			14,5			
3200	320	307,8	9,5	2-453	6,99	304,17
			12,0			
			14,5			
3300	330	317,8	9,5	2-454	6,99	316,87
			12,0			
			14,5			
3400	340	327,8	9,5	2-454	6,99	316,87
			12,0			
			14,5			
3500	350	337,8	9,5	2-455	6,99	329,57
			12,0			
			14,5			
3600	360	347,8	9,5	2-456	6,99	342,27
			12,0			
			14,5			
3700	370	357,8	9,5	2-457	6,99	354,97
			12,0			
			14,5			
3800	380	367,8	9,5	2-458	6,99	367,67
			12,0			
			14,5			
3900	390	377,8	9,5	2-458	6,99	367,67
			12,0			
			14,5			
4000	400	387,8	9,5	2-459	6,99	380,37
			12,0			
			14,5			

Further sizes on request.

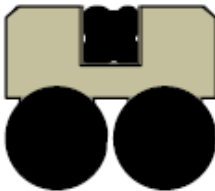
# CQ Piston Sealing Set

CQ

## CQ Profile, Premium PTFE Cap Seal with Anti-Drift Technology

The Parker CQ profile is a bi-directional piston seal for use in medium to heavy duty hydraulic applications. The CQ profile is a unique seal design that includes a rubber quad seal in the PTFE cap to ensure drift free performance. The PTFE cap is a stable rectangular shape and is energized by dual Parker o-rings. The CQ piston seal is commonly used in applications such as mobile hydraulics, lift trucks, standard cylinders and piston accumulators. Parker's CQ profile will retrofit non-Parker seals of similar design.

The CQ profile may be ordered without the energizer and quad seal by omitting the energizer/quad seal code.



**CQ Cross-Section  
dual O-ring**

### Technical Data

	Temperature	Pressure	Surface
Standard Materials*	Range	Range	Speed
052 40% bronze filled PTFE	-130°C to 300°C	400 bar	3 m/sec

### Energizer/Quad Seal

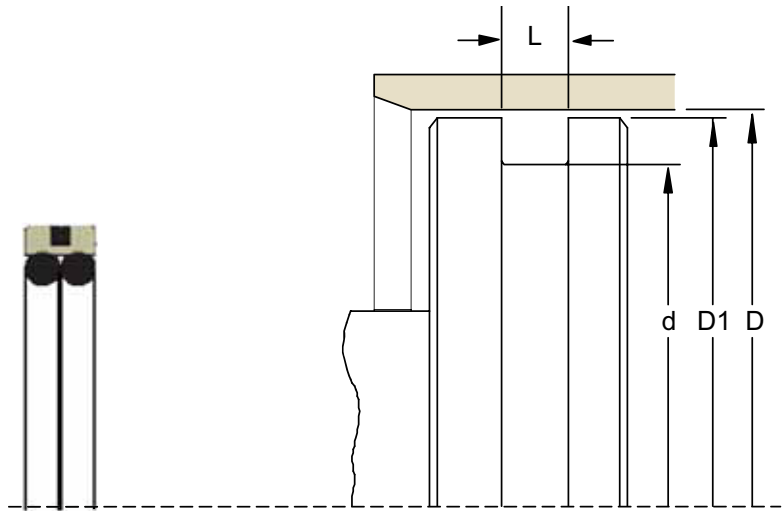
1	70A NBR	-35°C to 110°C
2	75A FKM	-25°C to 200°C
3	70A NBR	-50°C to 100°C

\* **Alternate Materials:** For applications that may require an alternate material, we can offer FKM, EPDM.

† **Pressure Range** without wear rings.

# CQ Piston Sealing Set

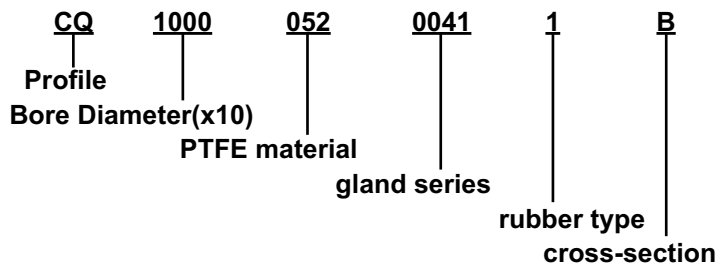
Housing dimension



Series code	Bore Diameter D (H9)		Groove Diameter	Groove Diameter	Radius	Radial Clearance max			O-Ring C/S	X-Ring C/S
	Recommended Range	Extended Range	d h9	L <sub>1</sub> +0,2	r <sub>1</sub>	10 MPa (100 bar)	20 MPa (200 bar)	30 MPa (300 bar)	d2	d1
00410A	40-79,9	25-140	D-10,0	6,3	0,6	0,30	0,20	0,15	2,62	1,78
00410B	80-132,9	50-250	D-13,0	8,3	1,0	0,40	0,30	0,15	3,53	2,62
00410C	133-462,9	100-480	D-18,0	12,3	1,3	0,40	0,30	0,20	5,33	3,53
00410D	463-700,0	425-700	D-31,0	16,3	1,8	0,50	0,40	0,30	7,00	5,33

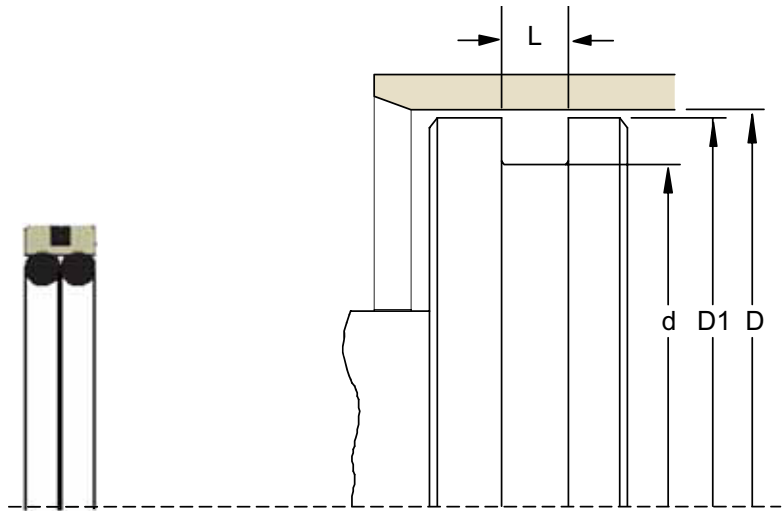
Note: Pressure>400bar, please use H8/f8.

Part number coding;





# CQ Piston Sealing Set



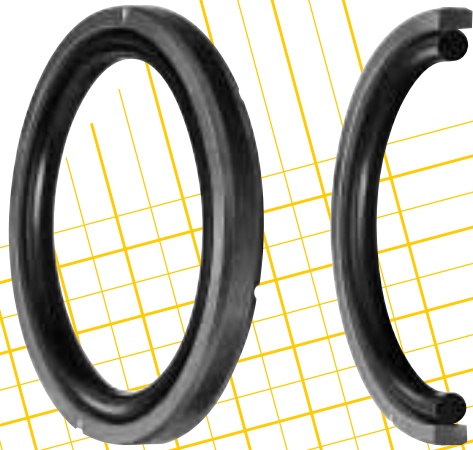
D H9	D1 h9	L +0.5	Part Number
40,0	30,0	6,3	CQ040005200411A
42,0	32,0	6,3	CQ042005200411A
45,0	35,0	6,3	CQ045005200411A
48,0	38,0	6,3	CQ048005200411A
50,0	40,0	6,3	CQ050005200411A
52,0	42,0	6,3	CQ052005200411A
55,0	45,0	6,3	CQ055005200411A
60,0	50,0	6,3	CQ060005200411A
63,0	53,0	6,3	CQ063005200411A
65,0	55,0	6,3	CQ065005200411A
70,0	60,0	6,3	CQ070005200411A
75,0	65,0	6,3	CQ075005200411A
80,0	67,0	8,3	CQ080005200411B
85,0	72,0	8,3	CQ085005200411B
90,0	77,0	8,3	CQ090005200411B
95,0	82,0	8,3	CQ095005200411B
100,0	87,0	8,3	CQ100005200411B
105,0	92,0	8,3	CQ105005200411B
110,0	97,0	8,3	CQ110005200411B
115,0	102,0	8,3	CQ115005200411B
120,0	107,0	8,3	CQ120005200411B
125,0	112,0	8,3	CQ125005200411B
130,0	117,0	8,3	CQ130005200411B

D H9	D1 h9	L +0.5	Part Number
135,0	117,0	12,3	CQ135005200411C
140,0	122,0	12,3	CQ140005200411C
150,0	132,0	12,3	CQ150005200411C
160,0	142,0	12,3	CQ160005200411C
170,0	152,0	12,3	CQ170005200411C
180,0	162,0	12,3	CQ180005200411C
190,0	172,0	12,3	CQ190005200411C
200,0	182,0	12,3	CQ200005200411C
210,0	192,0	12,3	CQ210005200411C
220,0	202,0	12,3	CQ220005200411C
230,0	212,0	12,3	CQ230005200411C
240,0	222,0	12,3	CQ240005200411C
250,0	232,0	12,3	CQ250005200411C
280,0	262,0	12,3	CQ280005200411C
300,0	282,0	12,3	CQ300005200411C
320,0	302,0	12,3	CQ320005200411C
350,0	332,0	12,3	CQ350005200411C
400,0	382,0	12,3	CQ400005200411C
420,0	402,0	12,3	CQ420005200411C
450,0	432,0	12,3	CQ450005200411C
480,0	449,0	16,3	CQ480005200411D
500,0	469,0	16,3	CQ500005200411D
600,0	569,0	16,3	CQ600005200411D
700,0	669,0	16,3	CQ700005200411D

Further size, please consult with Parker Seals customer service.

# PTFE Piston Sealing Set

OE

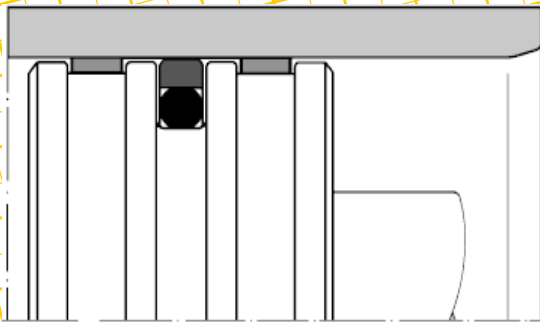


The piston sealing set profile OE consists of a PTFE piston sealing ring and an O-Ring. They are combined as a single unit and are appropriate for double-acting pistons in hydraulic cylinders.

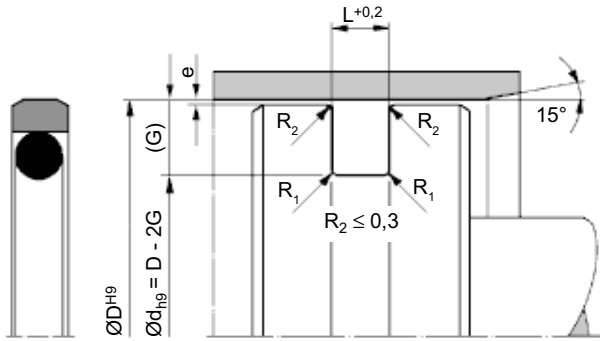
Profile OE is particularly suitable for double-acting pistons in control cylinders, in servocontrolled systems, machine tools, quick acting cylinders and in construction machinery.

#### Advantages:

- Assembly on one-piece pistons.
- Short assembled length.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Available in diameters up to 2000 mm.



# PTFE Piston Sealing Set



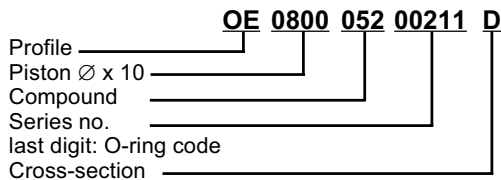
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended piston Ø range		Groove width L [mm]	Groove depth G [mm]	Gap max.		Radius max. R <sub>1</sub> [mm]
			≥	<			0–200 bar e [mm]	200–400 bar e [mm]	
00210	A	1,78	8	15	2,2	2,45	0,6–0,4	0,4–0,2	0,5
00210	B	2,62	15	40	3,2	3,75	0,8–0,5	0,5–0,3	0,5
00210	C	3,53	40	80	4,2	5,50	0,8–0,5	0,5–0,3	0,5
00210	D	5,33	80	133	6,3	7,75	1,0–0,6	0,6–0,4	0,9
00210	E	6,99	133	330	8,1	10,50	1,0–0,6	0,6–0,4	0,9
00210	F	6,99	330	670	8,1	12,25	1,2–0,7	0,7–0,5	0,9
00210	G	8,40	670	1000	9,5	14,00	1,4–0,8	0,8–0,6	0,9

## Ordering example:

Piston diameter: 80 mm



## Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

## Range of Application

Working pressure: ≤ 400 bar\*  
 Working temperature: -30 to +100 °C\*\*  
 Surface speed: ≤ 4 m/s

\* In case of reduced extrusion gap (H7/f7) up to 600 bar.

\*\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

Please apply this seal only in combination with guiding elements (e.g. F3).

# PTFE Piston Sealing Set

Standard range:

Size	Groove			No.	O-Ring		ISO 7425/1
	Ø D (mm)	Ø d (mm)	L (mm)		CS (mm)	ID (mm)	
0080	8	3,1	2,2	2-006	1,78	2,90	
0100	10	5,1	2,2	2-008	1,78	4,47	
0120	12	7,1	2,2	2-010	1,78	6,07	
0150	15	7,5	3,2	2-109	2,62	7,59	
0160	16	8,5	3,2	2-109	2,62	7,59	x
0180	18	10,5	3,2	2-110	2,62	9,19	
0200	20	12,5	3,2	2-111	2,62	10,77	x
0220	22	14,5	3,2	2-113	2,62	13,94	
0240	24	16,5	3,2	2-114	2,62	15,54	
0250	25	17,5	3,2	2-115	2,62	17,12	x
0280	28	20,5	3,2	2-116	2,62	18,72	
0300	30	22,5	3,2	2-118	2,62	21,89	
0320	32	24,5	3,2	2-119	2,62	23,47	x
0350	35	27,5	3,2	2-121	2,62	26,64	
0390	39	31,5	3,2	2-124	2,62	31,42	
0400	40	29,0	4,2	2-216	3,53	28,17	x
0420	42	31,0	4,2	2-217	3,53	29,74	
0450	45	34,0	4,2	2-219	3,53	32,92	
0480	48	37,0	4,2	2-221	3,53	36,09	
0500	50	39,0	4,2	2-222	3,53	37,69	x
0520	52	41,0	4,2	2-223	3,53	40,87	
0550	55	44,0	4,2	2-224	3,53	44,04	
0600	60	49,0	4,2	2-225	3,53	47,22	
0630	63	52,0	4,2	2-226	3,53	50,39	x
0650	65	54,0	4,2	2-227	3,53	53,57	
0700	70	59,0	4,2	2-228	3,53	56,74	
0790	79	68,0	4,2	2-231	3,53	66,27	
0800	80	64,5	6,3	2-333	5,33	62,87	x
0850	85	69,5	6,3	2-335	5,33	69,22	
0900	90	74,5	6,3	2-336	5,33	72,39	
0950	95	79,5	6,3	2-338	5,33	78,74	
1000	100	84,5	6,3	2-339	5,33	81,92	x
1050	105	89,5	6,3	2-341	5,33	88,27	
1100	110	94,5	6,3	2-343	5,33	94,62	
1150	115	99,5	6,3	2-344	5,33	97,79	
1200	120	104,5	6,3	2-346	5,33	104,14	
1250	125	109,5	6,3	2-347	5,33	107,32	x
1300	130	114,5	6,3	2-349	5,33	113,67	
1350	135	114,0	8,1	2-425	6,99	113,67	
1400	140	119,0	8,1	2-426	6,99	116,84	
1450	145	124,0	8,1	2-428	6,99	123,19	
1500	150	129,0	8,1	2-429	6,99	126,37	

Size	Groove			No.	O-Ring		ISO 7425/1
	Ø D (mm)	Ø d (mm)	L (mm)		CS (mm)	ID (mm)	
1550	155	134,0	8,1	2-431	6,99	132,72	
1600	160	139,0	8,1	2-433	6,99	139,07	x
1650	165	144,0	8,1	2-434	6,99	142,24	
1700	170	149,0	8,1	2-436	6,99	148,59	
1750	175	154,0	8,1	2-437	6,99	151,77	
1800	180	159,0	8,1	2-438	6,99	158,12	
1850	185	164,0	8,1	2-439	6,99	164,47	
1900	190	169,0	8,1	2-439	6,99	164,47	
1950	195	174,0	8,1	2-440	6,99	170,82	
2000	200	179,0	8,1	2-441	6,99	177,17	
2050	205	184,0	8,1	2-442	6,99	183,52	
2100	210	189,0	8,1	2-442	6,99	183,52	
2200	220	199,0	8,1	2-444	6,99	196,22	
2250	225	204,0	8,1	2-445	6,99	202,57	
2300	230	209,0	8,1	2-445	6,99	202,57	
2400	240	219,0	8,1	2-446	6,99	215,27	
2500	250	229,0	8,1	2-447	6,99	227,97	
2600	260	239,0	8,1	2-447	6,99	227,97	
2700	270	249,0	8,1	2-448	6,99	240,67	
2800	280	259,0	8,1	2-449	6,99	253,37	
2900	290	269,0	8,1	2-450	6,99	266,07	
3000	300	279,0	8,1	2-451	6,99	278,77	
3100	310	289,0	8,1	2-451	6,99	278,77	
3200	320	299,0	8,1	2-452	6,99	291,47	
3300	330	305,5	8,1	2-453	6,99	304,17	
3400	340	315,5	8,1	2-453	6,99	304,17	
3500	350	325,5	8,1	2-454	6,99	316,87	
3600	360	335,5	8,1	2-455	6,99	329,57	
3700	370	345,5	8,1	2-456	6,99	342,27	
3800	380	355,5	8,1	2-457	6,99	354,97	
3900	390	365,5	8,1	2-457	6,99	354,97	
4000	400	375,5	8,1	2-458	6,99	367,67	
4100	410	385,5	8,1	2-459	6,99	380,37	
4200	420	395,5	8,1	2-460	6,99	393,07	
4300	430	405,5	8,1	2-461	6,99	405,26	
4400	440	415,5	8,1	2-461	6,99	405,26	
4500	450	425,5	8,1	2-462	6,99	417,96	
4600	460	435,5	8,1	2-463	6,99	430,66	
4700	470	445,5	8,1	2-464	6,99	443,36	
4800	480	455,5	8,1	2-465	6,99	456,06	
4900	490	465,5	8,1	2-465	6,99	456,06	
5000	500	475,5	8,1	2-466	6,99	468,76	

Further sizes on request.

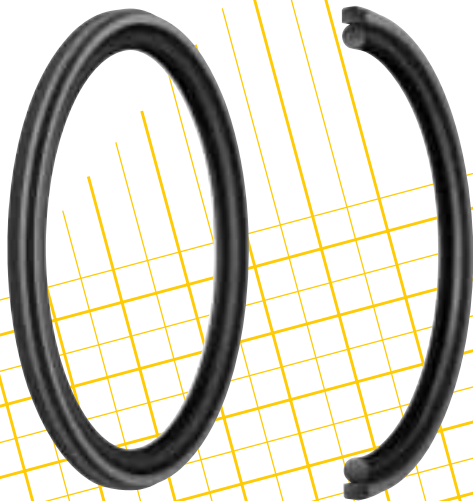
## Standard Compounds

Sealing rings: Polon®052, modified PTFE + 40 % bronze  
 O-rings: N0674, NBR elastomer with approx. 70 Shore A

**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**

# PTFE Piston Sealing Set Profile OG

OG

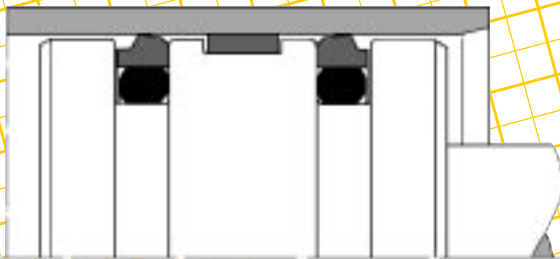


The piston sealing set profile OG consists of a PTFE piston sealing ring and an O-Ring. They are combined as a single unit and are appropriate for double-acting pistons in hydraulic cylinders (2 OG sealing sets for each piston).

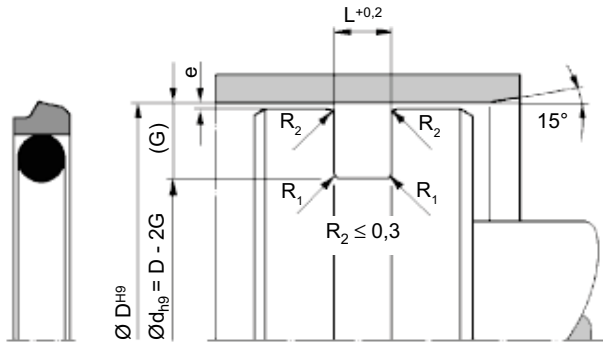
Profile OG is particularly suitable for double-acting pistons in control cylinders, in servocontrolled systems, machine tools, quick acting cylinders and in construction machinery.

#### Advantages:

- Assembly on one-piece pistons.
- Short assembled length.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Available in diameters up to 2000 mm.



# PTFE Piston Sealing Set Profile OG



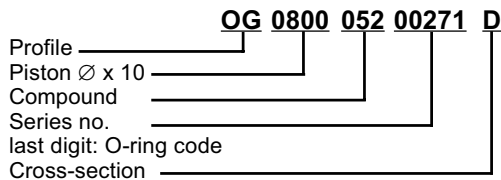
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended piston Ø range		Groove width L [mm]	Groove depth G [mm]	Gap max. 0–200 bar	Gap max. 200–400 bar	Radius max. R <sub>1</sub> [mm]
			≥	<			e [mm]	e [mm]	
00270	A	1,78	8	17	2,2	2,45	0,6–0,4	0,4–0,2	0,5
00270	B	2,62	17	27	3,2	3,65	0,8–0,5	0,5–0,3	0,5
00270	C	3,53	27	60	4,2	5,35	0,8–0,5	0,5–0,3	0,5
00270	D	5,33	60	200	6,3	7,55	1,0–0,6	0,6–0,4	0,9
00270	E	6,99	200	256	8,1	10,25	1,0–0,6	0,6–0,4	0,9
00270	F	6,99	256	670	8,1	12,00	1,2–0,7	0,7–0,5	0,9
00270	G	8,40	670	1000	9,5	13,65	1,4–0,8	0,8–0,6	0,9

## Ordering example:

Piston diameter: 80 mm



## Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

## Range of Application

Working pressure: ≤ 400 bar\*  
 Working temperature: -30 to +100 °C\*\*  
 Surface speed: ≤ 4 m/s

\* In case of reduced extrusion gap (H7/f7) up to 600 bar.

\*\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

Please apply this seal only in combination with guiding elements (e.g. F3).

# PTFE Piston Sealing Set Profile OG

Standard range:

Size	Groove			O-Ring		
	Ø D (mm)	Ø d (mm)	L (mm)	No.	CS (mm)	ID (mm)
0080	8	3,1	2,2	2-006	1,78	2,90
0100	10	5,1	2,2	2-009	1,78	5,28
0120	12	7,1	2,2	2-011	1,78	7,65
0140	14	9,1	2,2	2-012	1,78	9,25
0150	15	10,1	2,2	2-012	1,78	9,25
0160	16	11,1	2,2	2-013	1,78	10,82
0180	18	10,7	3,2	2-111	2,62	10,77
0200	20	12,7	3,2	2-112	2,62	12,37
0220	22	14,7	3,2	2-113	2,62	13,94
0250	25	17,7	3,2	2-115	2,62	17,12
0260	26	18,7	3,2	2-116	2,62	18,72
0280	28	17,3	4,2	2-209	3,53	17,04
0300	30	19,3	4,2	2-210	3,53	18,64
0320	32	21,3	4,2	2-211	3,53	20,22
0350	35	24,3	4,2	2-213	3,53	23,39
0380	38	27,3	4,2	2-215	3,53	26,57
0400	40	29,3	4,2	2-216	3,53	28,17
0420	42	31,3	4,2	2-217	3,53	29,74
0450	45	34,3	4,2	2-219	3,53	32,92
0480	48	37,3	4,2	2-221	3,53	36,09
0500	50	39,3	4,2	2-222	3,53	37,69
0520	52	41,3	4,2	2-223	3,53	40,87
0550	55	44,3	4,2	2-224	3,53	44,04
0600	60	44,9	6,3	2-327	5,33	43,82
0630	63	47,9	6,3	2-328	5,33	46,99
0650	65	49,9	6,3	2-328	5,33	46,99
0700	70	54,9	6,3	2-330	5,33	53,34
0720	72	56,9	6,3	2-331	5,33	56,52
0750	75	59,9	6,3	2-332	5,33	59,69
0800	80	64,9	6,3	2-333	5,33	62,87
0850	85	69,9	6,3	2-335	5,33	69,22
0890	89	73,9	6,3	2-336	5,33	72,39
0900	90	74,9	6,3	2-336	5,33	72,39
1000	100	84,9	6,3	2-340	5,33	85,09
1050	105	89,9	6,3	2-341	5,33	88,27
1100	110	94,9	6,3	2-343	5,33	94,62
1150	115	99,9	6,3	2-344	5,33	97,79
1180	118	102,9	6,3	2-346	5,33	104,14
1200	120	104,9	6,3	2-346	5,33	104,14
1250	125	109,9	6,3	2-347	5,33	107,32
1270	127	111,9	6,3	2-348	5,33	110,49
1300	130	114,9	6,3	2-349	5,33	113,67
1400	140	124,9	6,3	2-352	5,33	123,19
1450	145	129,9	6,3	2-353	5,33	126,37

Size	Groove			O-Ring		
	Ø D (mm)	Ø d (mm)	L (mm)	No.	CS (mm)	ID (mm)
1500	150	134,9	6,3	2-355	5,33	132,72
1550	155	139,9	6,3	2-356	5,33	135,89
1580	158	142,9	6,3	2-358	5,33	142,24
1600	160	144,9	6,3	2-358	5,33	142,24
1650	165	149,9	6,3	2-360	5,33	148,59
1700	170	154,9	6,3	2-361	5,33	151,77
1750	175	159,9	6,3	2-362	5,33	158,12
1800	180	164,9	6,3	2-363	5,33	164,47
1850	185	169,9	6,3	2-364	5,33	170,82
1900	190	174,9	6,3	2-364	5,33	170,82
1950	195	179,9	6,3	2-365	5,33	177,17
2000	200	179,5	8,1	2-441	6,99	177,17
2050	205	184,5	8,1	2-442	6,99	183,52
2100	210	189,5	8,1	2-443	6,99	189,87
2200	220	199,5	8,1	2-444	6,99	196,22
2250	225	204,5	8,1	2-445	6,99	202,57
2300	230	209,5	8,1	2-445	6,99	202,57
2350	235	214,5	8,1	2-446	6,99	215,27
2400	240	219,5	8,1	2-446	6,99	215,27
2500	250	229,5	8,1	2-447	6,99	227,97
2550	255	234,9	8,1	2-447	6,99	227,97
2600	260	236,0	8,1	2-447	6,99	227,97
2700	270	246,0	8,1	2-448	6,99	240,67
2800	280	256,0	8,1	2-449	6,99	253,37
2900	290	266,0	8,1	2-449	6,99	253,37
3000	300	276,0	8,1	2-451	6,99	278,77
3100	310	286,0	8,1	2-451	6,99	278,77
3200	320	296,0	8,1	2-452	6,99	291,47
3300	330	306,0	8,1	2-453	6,99	304,17
3400	340	316,0	8,1	2-453	6,99	304,17
3500	350	326,0	8,1	2-454	6,99	316,87
3600	360	336,0	8,1	2-455	6,99	329,57
3700	370	346,0	8,1	2-456	6,99	342,27
3800	380	356,0	8,1	2-457	6,99	354,97
3900	390	366,0	8,1	2-457	6,99	354,97
4000	400	376,0	8,1	2-458	6,99	367,67
4100	410	386,0	8,1	2-459	6,99	380,37
4200	420	396,0	8,1	2-460	6,99	393,07
4300	430	406,0	8,1	2-461	6,99	405,26
4400	440	416,0	8,1	2-461	6,99	405,26
4500	450	426,0	8,1	2-462	6,99	417,96
4600	460	436,0	8,1	2-463	6,99	430,66
4700	470	446,0	8,1	2-464	6,99	443,36
4800	480	456,0	8,1	2-464	6,99	443,36

Further sizes on request.

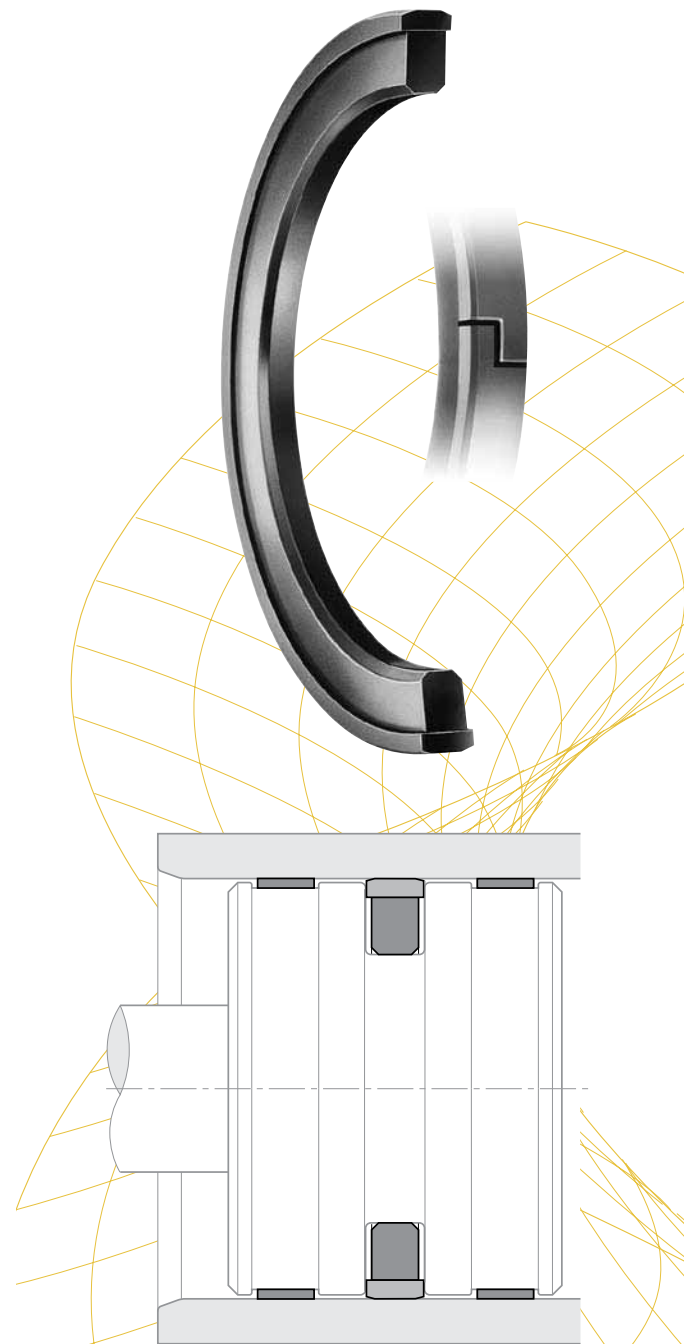
## Standard Compounds

Sealing rings: Polon® 052, modified PTFE + 40 % bronze  
 O-rings: N0674, NBR elastomer with approx. 70 Shore A

**For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.**

# Piston Sealing Set Profile OK

OK



The profile OK piston sealing set is primarily designed for heavy hydraulic applications and is preferably fitted in double-acting pistons. The sealing set is suitable for working pressures up to 500 bar which, under certain conditions, may even be exceeded.

## Advantages:

- Small profile.
- Resistant against shock loads.
- Low break-out and running friction even after extended standstill under high pressures.
- Simple installation on solid piston without the necessity of auxiliary tools due to the split design of the cylinder sealing ring.
- High abrasion resistance.
- High extrusion resistance at high pressures and large gaps due to the special compound properties of the cylinder sealing ring.
- Perfect static and dynamic sealing function.
- Suitable for housings according to ISO 7425-1.

## Range of Application

Working pressure:  $\leq 500$  bar

Working temperature:  $-30$  to  $+110$  °C

Surface speed:  $\leq 1$  m/s

## Compounds

Sealing ring: filled modified thermoplast (W5019)

Expander ring: NBR-based elastomer with approx. 70 Shore A (N3571)

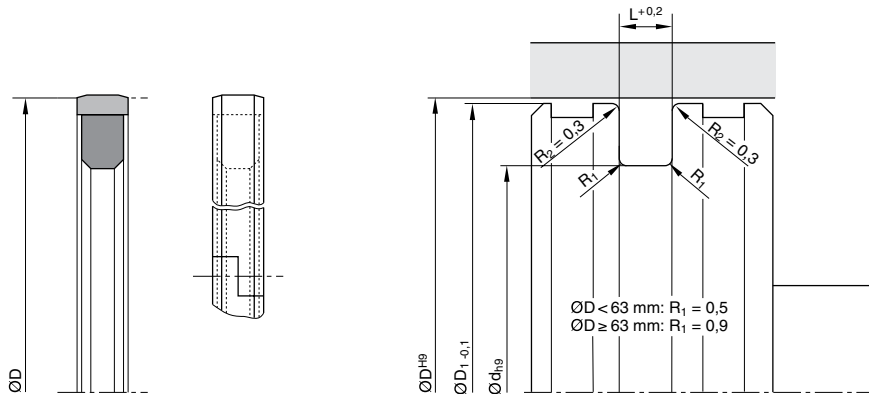
## Installation

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

**For special requirements (pressure, temperature, speed, application in water, HFA-, HFB-fluids etc.), please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.**



# Piston Sealing Set Profile OK



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

D	d	L	D <sub>1</sub>	ISO <sup>1)</sup>	Order code
25	16	4,2	24,3		OK 0025 00704
32	21	4,2	31,3	•	OK 0032 00704
40	26,3	5,8	39,2		OK 0040 00701
40	29	4,2	39,3	•	OK 0040 00704
50	34,5	6,3	49	•	OK 0049 00701
50	36,3	5,8	49,2		OK 0050 00701
50	39	4,2	49,3		OK 0050 00704
60	41,7	7	59,2		OK 0061 00704
60	49	4,2	59,3		OK 0060 00704
63	44,7	7	62,2		OK 0063 00701
63	47,5	6,3	62	•	OK 0062 00701
63	52	4,2	62,2	•	OK 0064 00704
70	51,7	7	69,2		OK 0070 00701
70	59	4,2	69,3		OK 0070 00704
75	54	8	74,2		OK 0075 00701
75	59,5	6,3	74		OK 0076 00701
80	59	8	79		OK 0080 00701
80	64,5	6,3	79	•	OK 0083 00701
85	64	8	84		OK 0085 00701
90	69	8	89		OK 0090 00701
90	74,5	6,3	89		OK 0091 00701
95	74	8	94		OK 0095 00701
100	79	8	99		OK 0100 00701
100	84,5	6,3	99	•	OK 0101 00701
105	84	8	103,8		OK 0105 00701
110	89	8	108,8		OK 0110 00701
110	94,5	6,3	109		OK 0111 00701
115	94	8	113,8		OK 0115 00701
115	100	8	113,8		OK 0116 00701
120	99	8	118,8		OK 0120 00701
125	104	8	123,8	•	OK 0125 00701
125	109,5	6,3	124	•	OK 0124 00701
130	109	8	128,8		OK 0130 00701
130	114,5	6,3	129		OK 0131 00701
130	115	8	128,8		OK 0132 00701
135	114	8	133,8		OK 1135 00701
135	119,5	6,3	134		OK 0135 00704
140	119	8	138,8		OK 0140 00701
140	125	8	138,8		OK 0141 00701
145	124	8	143,8		OK 0145 00701

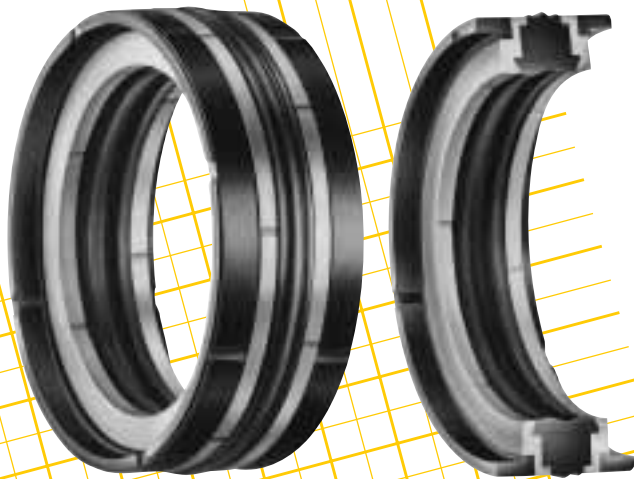
D	d	L	D <sub>1</sub>	ISO <sup>1)</sup>	Order code
150	129	8	148,8		OK 0150 00701
150	135	8	148,8		OK 0151 00701
152,4	131,5	8	151,2		OK 0152 00701
160	139	8	158,8	•	OK 0160 00701
160	148	8	158,8		OK 0163 00701
165	144	8	163,8		OK 0165 00701
170	149	8	168,8		OK 0170 00701
175	154	8	173,8		OK 0175 00704
180	159	8	178,8		OK 0180 00701
190	169	8	188,8		OK 0190 00701
200	179	8	198,8	•	OK 0200 00701
210	189	8	208,4		OK 0210 00701
220	199	8	218,4		OK 0220 00701
220	205	8	218,4		OK 0221 00701
230	209	8	228,4		OK 0230 00704
240	225	8	238,4		OK 0240 00701
250	229	8	248,4	•	OK 0250 00701
260	239	8	258,4		OK 0260 00704
270	249	8	268,4		OK 0270 00701
280	255,5	8	278,4		OK 0280 00701
290	271	9,5	287,8		OK 0290 00701
300	272	9,5	297,8		OK 0300 00701
320	292	9,5	317,8		OK 0320 00701
330	302	9,5	327,8		OK 0330 00701
350	322	9,5	347,8		OK 0350 00701
370	342	9,5	367,8		OK 0370 00701
420	392	9,5	417,8		OK 0420 00701
450	422	9,5	447,8		OK 0451 00701
480	452	9,5	477,8		OK 0480 00701

1) ISO 7425/I

Further sizes on request.

# Piston Sealing Set Profile ZW

ZW



The profile ZW double-acting piston sealing set consists of an elastomer sealing component, two anti-extrusion and two angular guide rings.

## Advantages:

- Guiding and sealing functions are performed by the seal itself within an extremely small space.
- Suitable for application in mineral oils, HFA-, HFB-, and HFC-pressure fluids (up to max. 60 °C).
- Simple snap installation of the seal.
- Simple, short-fitting, one-part piston.
- Special geometry of the NBR-sealing element prevents distortion inside the groove during installation.

## Field of application:

Working pressure:  $\leq 400$  bar

Working temperature:  $-35$  to  $+100$  °C

HFA-, HFB- and HFC-fluids up to max. 60 °C

Surface speed: 0,5 m/s

These values are applicable provided that the cylinders, under mechanical stress (bellying, ovality), do not significantly exceed the tooling dimensions, including tolerances.

Sealing set for double-acting pistons in presses, drive cylinders, backup and operating cylinders for industrial and mobile hydraulics.

## Compounds:

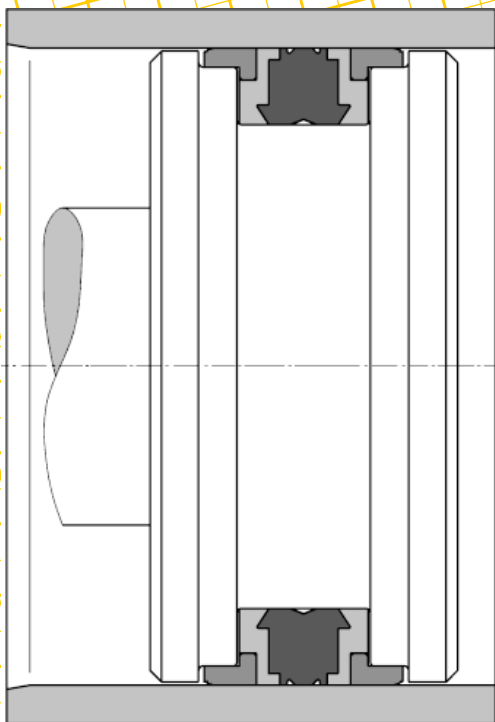
Rubber component: Highly wear-resistant NBR-compound NB078 with a hardness of 80 Shore A.

Anti-extrusion rings: High-strength, wear-optimized polyester elastomer (W5035).

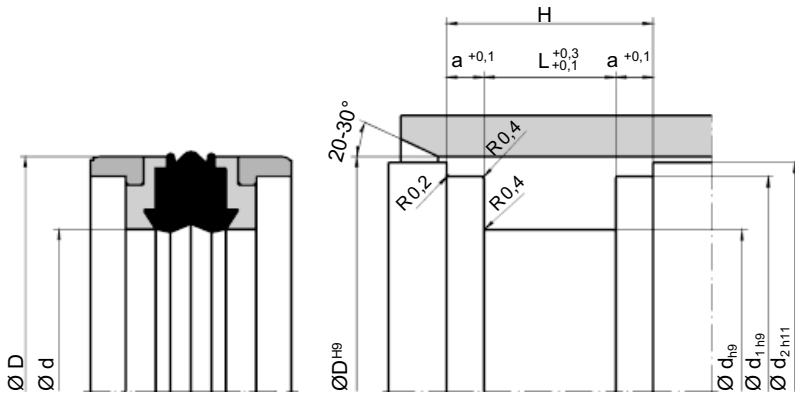
Angular guide rings: Thermoplast for high pressure resistance even with increased temperatures (W5301).

## Installation:

Sharp edges and burrs in the assembly area of the seal must be removed. Assembly is performed in the following sequence: "rubber seal – anti-extrusion rings – angular guide rings". Ensure that the contact points (gaps) of the angular guide and anti-extrusion rings are arranged in staggering positions.



# Piston Sealing Set Profile ZW



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

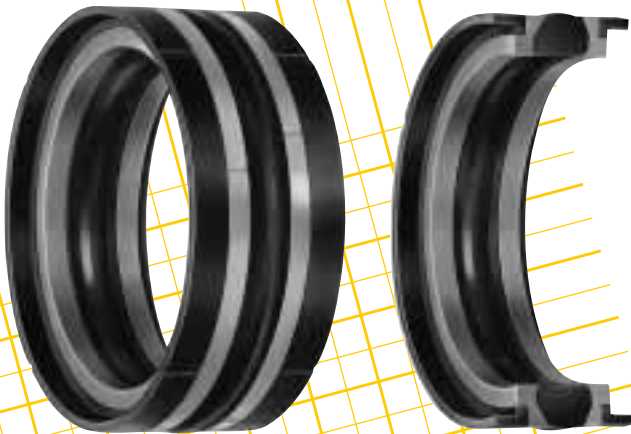
D	d	L	H	d <sub>1</sub>	d <sub>2</sub>	a	Order code
30	21	13,5	17,7	27	29	2,1	ZW 0030 00260
32	22	15,5	20,7	28	31	2,6	ZW 0032 00260
40	24	18,4	31,1	35,4	38,5	6,35	ZW 0040 00260
40	26	15,5	20,7	36	39	2,6	ZW 1040 00260
40	30	16,4	29,1	35,4	38,5	6,35	ZW 2040 00260
45	35	16,4	29,1	40,4	43,5	6,35	ZW 2045 00260
50	34	18,4	31,1	45,4	48,5	6,35	ZW 0050 00260
50	34	20,5	26,7	46	49	3,1	ZW 1050 00260
50	38	20,5	28,9	46	48,5	4,2	ZW 2050 00260
55	39	18,4	31,1	50,36	53,5	6,35	ZW 0055 00260
60	44	18,4	31,1	55,4	58,5	6,35	ZW 0060 00260
60	44	20,5	26,7	56	59	3,1	ZW 1060 00260
60	48	20,5	28,9	56	58,5	4,2	ZW 2060 00260
63	47	18,4	31,1	58,4	61,5	6,35	ZW 0063 00260
63	47	19,4	32,1	58,4	61,5	6,35	ZW 1063 00260
63	47	20,5	26,7	59	62	3,1	ZW 2063 00260
63	51	20,5	28,9	59	61,5	4,2	ZW 3063 00260
65	49	20,5	26,7	61	64	3,1	ZW 0065 00260
65	50	18,4	31,1	60,4	63,5	6,35	ZW 1065 00260
70	50	22,4	35,1	64,2	68,3	6,35	ZW 0070 00260
70	54	20,5	26,7	66	69	3,1	ZW 1070 00260
70	58	20,5	28,9	66	68,5	4,2	ZW 2070 00260
75	55	22,4	35,1	69,2	73,3	6,35	ZW 0075 00260
80	60	22,4	35,1	74,15	78,3	6,35	ZW 0080 00260
80	62	22,5	29,7	76	79	3,6	ZW 1080 00260
80	66	22,5	32,9	76	78,5	5,2	ZW 2080 00260
90	70	22,4	35,1	84,15	88,3	6,35	ZW 0090 00260
90	72	22,5	29,7	86	89	3,6	ZW 1090 00260
100	75	22,4	35,1	93,15	98	6,35	ZW 0100 00260
100	82	22,5	29,7	96	99	3,6	ZW 1100 00260
100	86	22,5	32,9	96	98,5	5,2	ZW 2100 00260
105	80	22,4	35,4	98,1	103	6,5	ZW 0105 00260
110	85	22,4	35,1	103,1	108	6,35	ZW 0110 00260
110	92	22,5	29,7	106	109	3,6	ZW 1110 00260
110	96	22,5	32,9	106	109,4	5,2	ZW 2110 00260
115	90	22,4	35,1	108,1	113	6,35	ZW 0115 00260
115	97	22,5	29,7	111	114	3,6	ZW 1115 00260
120	95	22,4	35,1	113,1	118	6,35	ZW 0120 00260
125	100	25,4	38,1	118,1	123	6,35	ZW 0125 00260
125	108	26,5	40,9	121	124,4	7,2	ZW 2125 00260

D	d	L	H	d <sub>1</sub>	d <sub>2</sub>	a	Order code
140	115	25,4	44,4	132,6	137,5	9,5	ZW 0140 00260
140	115	25,4	38,1	133	138	6,35	ZW 1140 00260
140	118	26,5	36,7	136	139	5,1	ZW 2140 00260
150	125	25,4	44,4	142,6	147,5	9,5	ZW 0150 00260
150	125	25,4	38,1	143	148	6,35	ZW 1150 00260
160	135	25,4	44,4	152,6	157,5	9,5	ZW 0160 00260
170	145	25,4	50,8	161,7	167,1	12,7	ZW 0170 00260
180	150	35,4	48,1	172,95	177,87	6,35	ZW 0180 00260
180	155	25,4	50,8	171,7	177,1	12,7	ZW 1180 00260
200	175	25,4	50,8	191,6	197	12,7	ZW 0200 00260
220	190	35,4	48,1	212,7	217,9	6,35	ZW 0220 00260
250	220	35,4	48,1	242,9	247,85	6,35	ZW 0250 00260
250	225	25,4	50,8	241,6	247	12,7	ZW 1250 00260

Further sizes on request.

# Piston Sealing Set Profile ZX

ZX

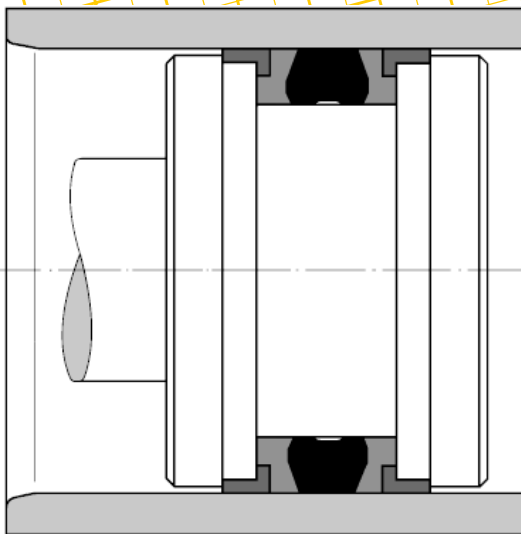


The profile ZX piston sealing set is a double-acting piston seal. It consists of the sealing rubber element, two anti-extrusion rings and two angular guide rings.

## Advantages:

- Guiding and sealing is performed by the seal itself with very little space requirement.
- Suitable for use in mineral oils, HFA-, HFB- and HFC-fluids (max. + 60 °C).
- Easy installation without expensive auxiliaries.
- Simple one-part piston design.
- **Designed for housings in accordance with ISO 6547.**
- Adaptation to the working conditions and full utilization of the cylinder compounds due to the possibility of switching to lighter or heavier profile series.

The application of the cylinder sealing sets is decisively limited by the working conditions. For severe working conditions it is not recommended to make full use of the parameters stated in the table (next page). On the other hand, it may be possible to exceed these values for lower temperature applications.



## Field of application:

Working pressure:

Temperature

60 °C

80 °C

100 °C

Working temperature:

HFA-, HFB- and HFC-fluids

Surface speed:

max. perm. pressure

400 bar

315 bar

250 bar

– 30 to + 100 °C

up to max. 60 °C

0,5 m/s

These parameters are valid provided that the manufacturing dimensions (including tolerances) in these cylinders are observed as closely as possible during mechanical stress (eccentricity and bellying). Sealing set for double-acting pistons in presses, control cylinders, supporting and operating cylinders for industrial and mobile hydraulics.

## Compounds:

Rubber part:

NBR-compound with a Shore hardness of approx. 80 A.

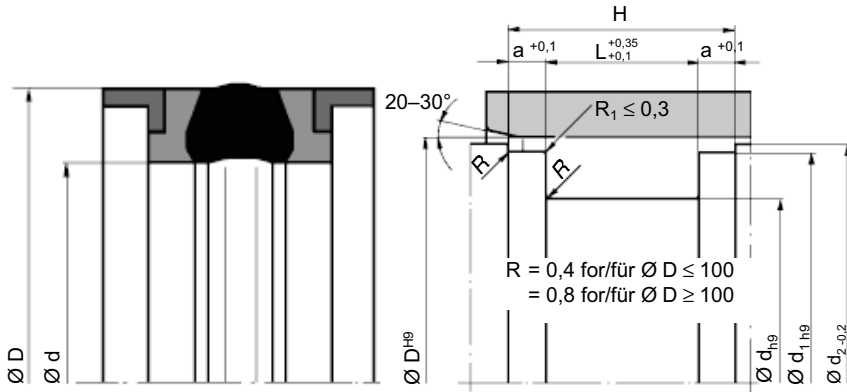
Anti-extrusion rings: Polyester elastomer (W5035).

Angular guide rings: Filled polyamide (W5019/W5020).

## Installation:

Sharp edges and burrs within the installation area of the seal must be removed. When mounting the seals, please adhere to the normal sequence of the individual elements: Start assembly with one of the angular guide rings. Ensure that the contact points (gaps) of the guide rings and the anti-extrusion rings are not directly in line, but that these are mounted in a staggered order.

# Piston Sealing Set Profile ZX



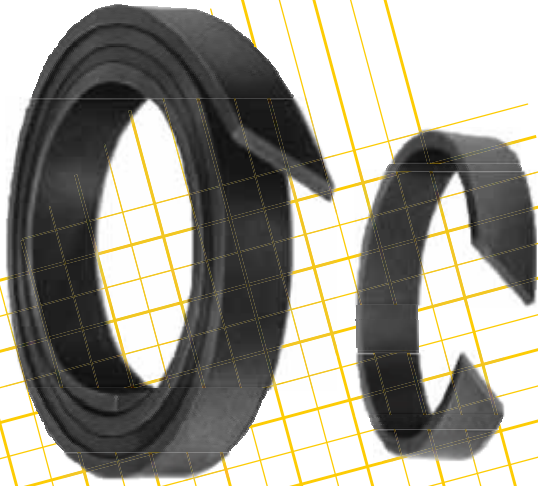
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

D	d	L	H	d <sub>1</sub>	d <sub>2</sub>	a	Order code
25	15	12,5	20,5	22	24	4	ZX 0025 00661
25	17	10	18	22	24	4	ZX 0025 00660
32	22	12,5	20,5	29	31	4	ZX 0032 00661
32	24	10	18	29	31	4	ZX 0032 00660
40	30	12,5	20,5	37	39	4	ZX 0040 00661
40	32	10	18	37	39	4	ZX 0040 00660
50	35	20	30	46	48,5	5	ZX 0050 00661
50	40	12,5	20,5	47	49	4	ZX 0050 00660
63	48	20	30	59	61,5	5	ZX 0063 00661
63	53	12,5	20,5	60	62	4	ZX 0063 00660
80	60	25	37,6	75	78	6,3	ZX 0080 00661
80	65	20	30	76	78,5	5	ZX 0080 00660
100	80	25	37,6	95	98	6,3	ZX 0100 00661
100	85	20	30	96	98,5	5	ZX 0100 00660
125	100	32	52	119	123	10	ZX 0125 00661
125	105	25	37,6	120	123	6,3	ZX 0125 00660
140	115	32	52	134	138	10	ZX 0140 00661
140	120	25	37,6	135	138	6,3	ZX 0140 00660
160	135	32	52	154	158	10	ZX 0160 00661
160	140	25	37,6	155	158	6,3	ZX 0160 00660
180	150	36	61	172	177	12,5	ZX 0180 00661
200	170	36	61	192	197	12,5	ZX 0200 00661
250	220	36	61	242	247	12,5	ZX 0250 00661
320	290	36	61	312	317	12,5	ZX 0320 00661

Further sizes on request.

# Guiding Tape for Hydraulics

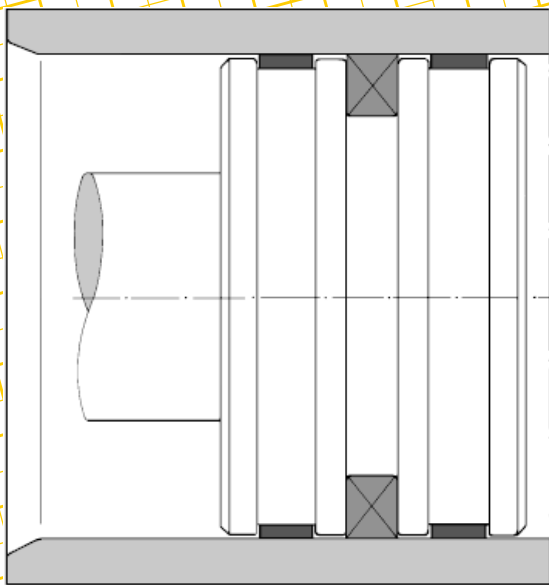
F3



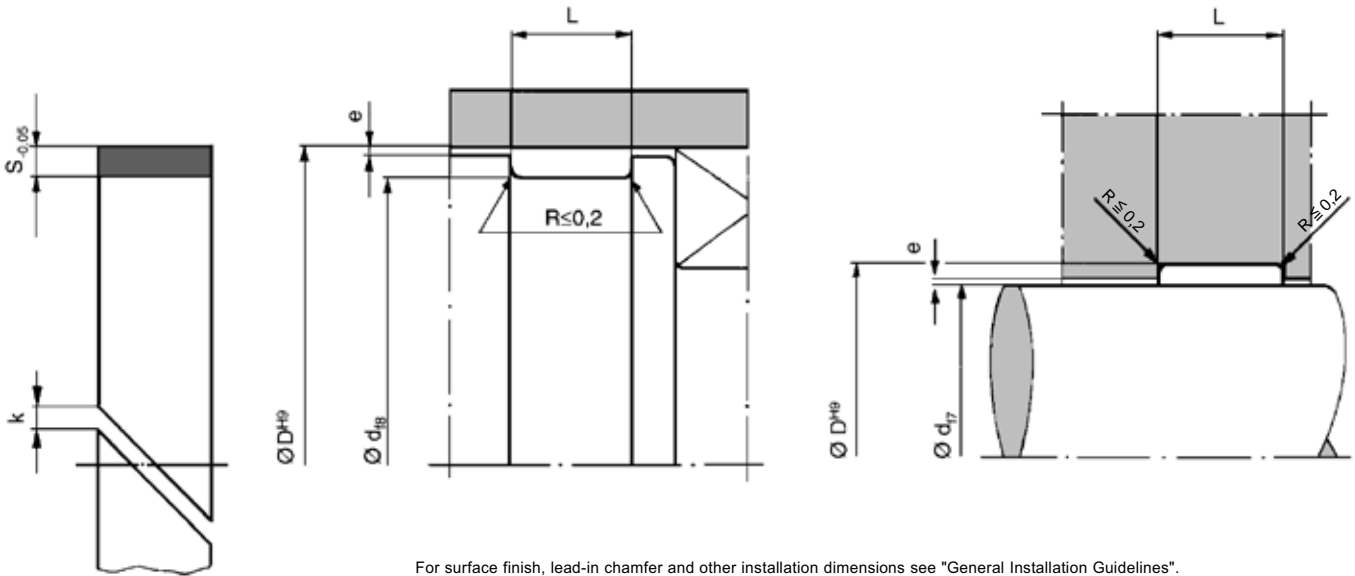
The guiding tape profile F3 is specially designed for use in hydraulic cylinders.

**Advantages:**

- Tape is available either cut to length or by the meter to be cut according to requirement.
- High load capacity (compressive strength), low wear and reduced friction due to a special additive of bronze to the PTFE material.
- No tendency to stick-slip in the case of low sliding speeds and high radial forces.
- Even with simple groove designs no metallic contact of the sliding surfaces.
- Available in practical dimensions.

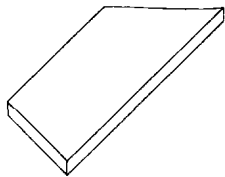


# Guiding Tape (Piston and Rod) Profile F3



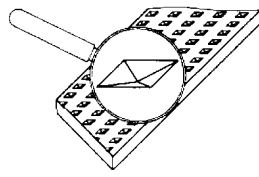
## Surfaces:

smooth (standard):



F3

structured (on request):



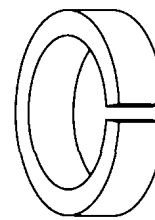
FW

## Types of Cut:

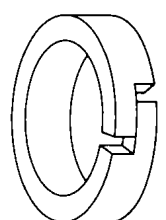
Angle cut  
Typ A:



Straight cut  
Typ S:



Z-cut  
Typ Z:



Types A and S are used for bearings where it is imperative that the system pressure is carried on to the seals. They are designed as "open bearings" with a well defined gap. Type Z is a closed bearing, which in certain applications is used as a combined seal and bearing.

## Housing dimensions:

Series no.	Recommendend Ø range	Guiding tape	Groove			
			d/D [mm]	S [mm]	L [mm]	d [mm]
15063	≤ 50	1,5 <sup>+0,02</sup> <sub>-0,03</sub>	6,3 <sup>+0,1</sup>	D -3,0	d +3,0	0,25
15100		1,5 <sup>+0,02</sup> <sub>-0,03</sub>	10,0 <sup>+0,1</sup>	D -3,0	d +3,0	0,25
16025	≤ 50	1,55 <sup>+0,02</sup> <sub>-0,03</sub>	2,5 <sup>+0,1</sup>	D -3,1	d +3,1	0,25
16040		1,55 <sup>+0,02</sup> <sub>-0,03</sub>	4,0 <sup>+0,1</sup>	D -3,1	d +3,1	0,25
17025	≤ 50	1,6 <sup>-0,05</sup>	2,5 <sup>+0,1</sup>	D -3,2	d +3,2	0,25
17040		1,6 <sup>-0,05</sup>	4,0 <sup>+0,1</sup>	D -3,2	d +3,2	0,25
25042	> 50	2,5 <sup>-0,05</sup>	4,2 <sup>+0,1</sup>	D -5,0	d +5,0	0,40
25056		2,5 <sup>-0,05</sup>	5,6 <sup>+0,1</sup>	D -5,0	d +5,0	0,40
25063		2,5 <sup>-0,05</sup>	6,3 <sup>+0,1</sup>	D -5,0	d +5,0	0,40
25081		2,5 <sup>-0,05</sup>	8,1 <sup>+0,1</sup>	D -5,0	d +5,0	0,40
25097		2,5 <sup>-0,05</sup>	9,7 <sup>+0,1</sup>	D -5,0	d +5,0	0,40
25127		2,5 <sup>-0,05</sup>	12,7 <sup>+0,2</sup>	D -5,0	d +5,0	0,40
25150		2,5 <sup>-0,05</sup>	15,0 <sup>+0,2</sup>	D -5,0	d +5,0	0,40
25160		2,5 <sup>-0,05</sup>	16,0 <sup>+0,2</sup>	D -5,0	d +5,0	0,40
25200		2,5 <sup>-0,05</sup>	20,0 <sup>+0,2</sup>	D -5,0	d +5,0	0,40
25250		2,5 <sup>-0,05</sup>	25,0 <sup>+0,2</sup>	D -5,0	d +5,0	0,40
40097		4,0 <sup>-0,05</sup>	9,7 <sup>+0,1</sup>	D -8,0	d +8,0	0,50
40150		4,0 <sup>-0,05</sup>	15,0 <sup>+0,2</sup>	D -8,0	d +8,0	0,50
40250		4,0 <sup>-0,05</sup>	25,0 <sup>+0,2</sup>	D -8,0	d +8,0	0,50

# Guiding Tape for Hydraulics

The gap dimensions "e" guarantee an optimum service life of the guidance tapes. For the seals, however, the gaps as mentioned on the respective catalogue pages are to be considered when it is essential to observe full working conditions ("Field of Application") for the seals.

## Field of Application

Working temperature: -100 to +200 °C

Surface speed: ≤ 5 m/s

For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.

## Standard Compounds

Standard: Polon® 052, PTFE + 40 % bronze.

On request: Polon® 062, PTFE + 60 % bronze.

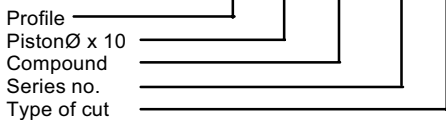
For cylinders made of alloys, light metal and high-grade steel, we recommend the use of compound Polon® 33 (PTFE + 25 % carbon).

## Ordering example piston guidance:

Mating surface: steel  
Guiding tape with smooth surface  
Piston diameter: 80 mm  
Groove: 2,5 x 9,7 mm

a) by the meter: **F3 0000 052 25097 A**

b) cut to length: **F3 0800 052 25097 A**



## Ordering example rod guidance:

Guiding tape with structured surface  
Rod diameter: 50 mm  
(Groove outer diameter: OD = ID + 2S)  
Groove: 2,5 x 6,3 mm

Ordering no.: **FW 0550 052 25063 A**

## Selection of the axial guiding width L:

Choose the appropriate curve for the applicable guide tolerances. Note that the more precise the guidance, the lower the value for the selected eps.

The following formula provides the minimum guidance width:

$$L \geq \frac{F}{Q(d_i - k \cdot \sqrt{2})}$$

d = inner diameter [mm]

k = gap [mm]

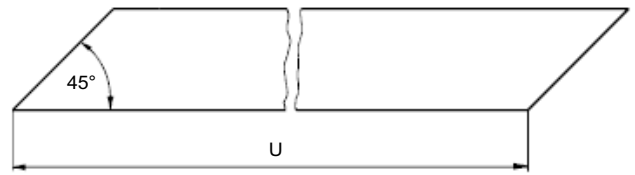
L = guidance width [mm]

Q<sub>perm.</sub> = permissible specific load [N/mm<sup>2</sup>]

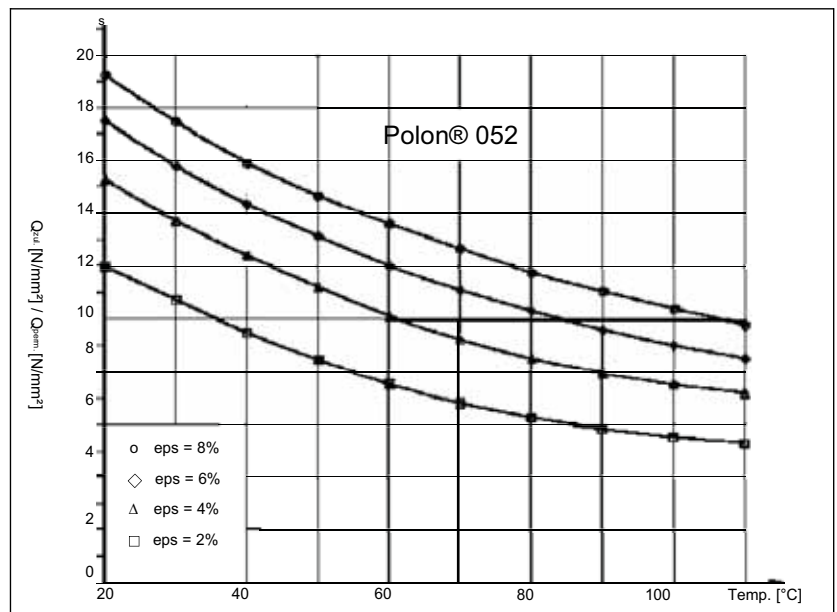
F = lateral force [N]

We recommend that the largest possible guidance length always be used even if the calculation yields a smaller value.

Calculation of the stretched length "U":



Cylinder Ø D <sup>H9</sup>	Stretched length			Gap k
	Piston U	Rod U	Tol. U	
≤ 45	U = π x (D - S) - k	U = π x (d + S) - k	± 0,25	1,8
> 45			± 0,40	3,5
> 80			± 0,60	4,4
> 100			± 0,80	5,6
> 125			± 1,00	6,6
> 150			± 1,20	8,0
> 180			± 1,40	9,5
> 215			± 1,60	12,0
> 270			± 1,80	15,5
> 330			± 2,00	19,0



Permissible specific load Q<sub>perm.</sub> in relation to temperature t and the respective permanent set eps for the compounds Polon® 052 .





FC guiding tapes are extremely wear-resistant and suitable for piston and rod guiding. They can be cut to any desired length (max. 10 m). The tapes are wound on flat coils with a core diameter of approximately 120 mm. FC guiding tape stock is sold in packaging units of 10-metre rolls (desired length to be cut by the customer).

### Range of Application

Guiding element for pistons and piston rods in hydraulic cylinders.

Working temperature -40 °C to +120 °C

Max Side Load - Static	330 N/mm <sup>2</sup>
- Dynamic	80 N/mm <sup>2</sup>

Water absorption acc. to DIN 53495 < 0.1 %

Surface speed ≤ 0.5 m/s

- Minimal play due to extremely small manufacturing tolerances of the guiding elements.
- Vibration absorption effect.
- Extreme wear resistance.
- Improved sliding properties due to surface structure.
- Can be elongated or compressed within limited diameter ranges (preferably ≥ 100 mm).
- Significantly higher permissible loading pressure compared with other guidance tape materials.
- Dimensions according to ISO 10766.
- Any desired nominal diameter available due to use of machining technique.
- Suitable for cylinder repairs.
- Ideally suited for large-diameters.
- Bulk material.
- Installation in closed and undercut housings.

### Compounds

Synthetic resins with fabric reinforcement, PTFE added.

Colour: Blue

### Installation

For piston and rod diameters up to 100 mm, we recommend our FR guide rings.

For surface requirements, see chapter “General installation guidelines”.

The installed rings must have a gap “k” between their diagonally cut ends:

$$k = 0.008 \times d + 2$$

The calculated values for “k” are rounded up to the nearest millimetre.

The calculation of the permissible radial force is based on the projected area  $D \cdot H$  (cylinder) or  $d \cdot H$  (rod).

Example: permissible radial force  $F_R$  for a cylinder diameter of  $D = 80$  mm, length  $L = 15$  mm, compound Q5038T and safety factor 4:

$$F_R = \frac{D \cdot L \cdot q}{v} = \frac{80 \cdot 15 \cdot 320}{4} = 96\,000 \text{ N}$$

Recommendation for determining the safety factor  $v$ :  $v > 3$

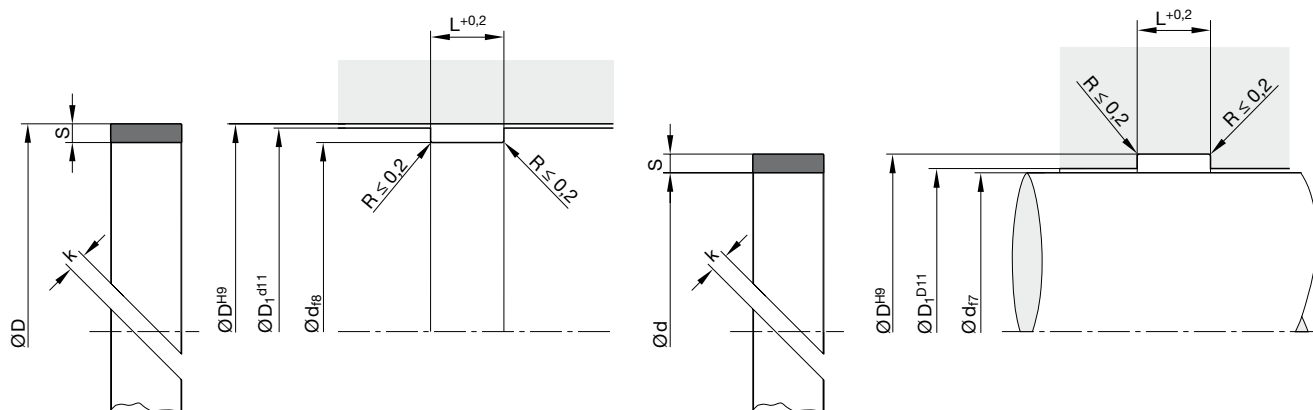
Calculation of elongated length

$$\text{“U” (piston)} = \pi \cdot (D - S) - k$$

Calculation of elongated length

$$\text{“U” (rod)} = \pi \cdot (d + S) - k$$

In case of special operating conditions (specific pressure loads, temperature, speed, use in water, HFA, HFB fluids etc.), please contact our consultancy service for a selection of the material and design best suiting your particular application requirements.



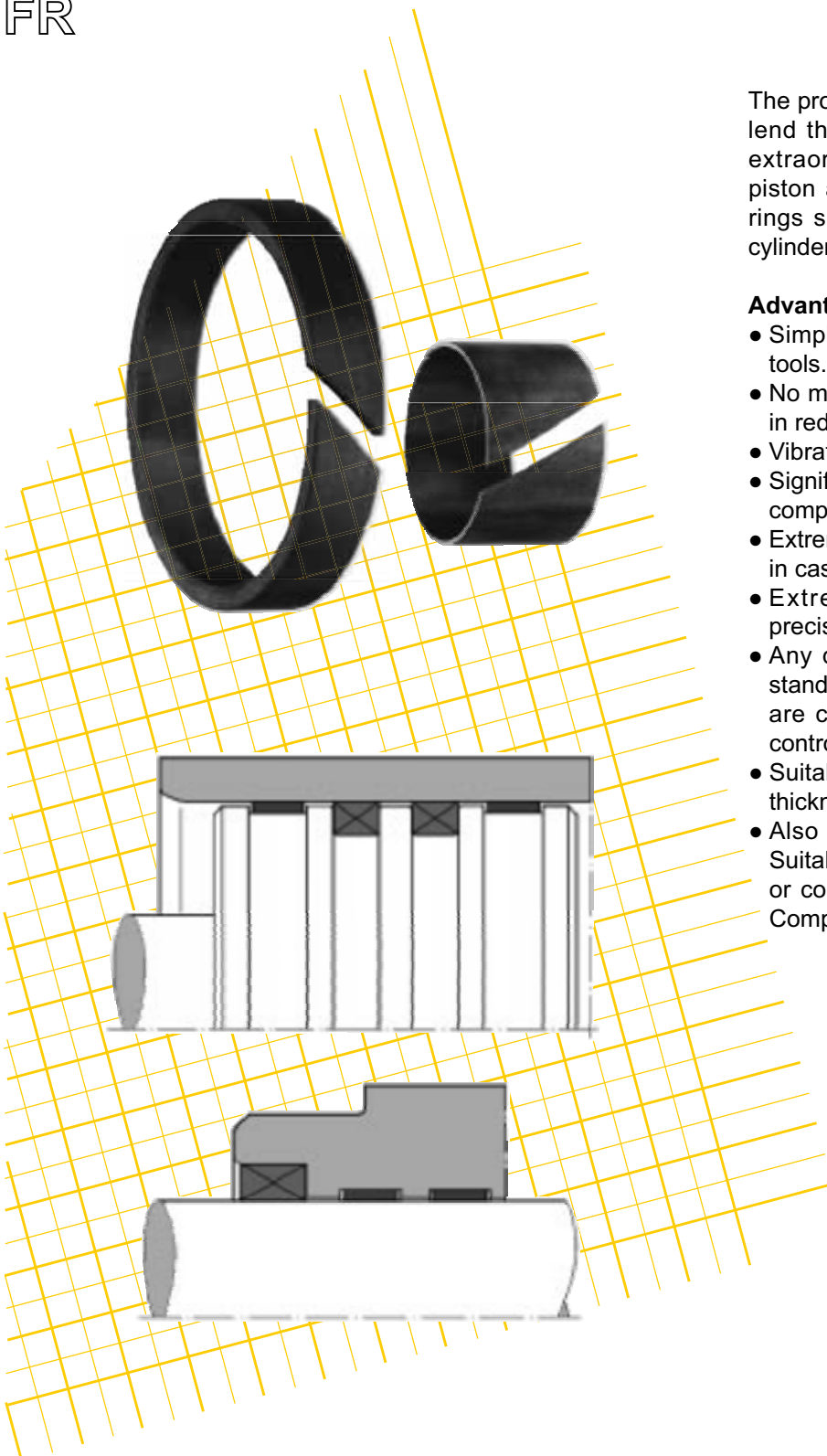
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Part Number	SIZE ( Groove width X depth)
FC000011925056A	5.6x2,5
FC000011925060A	6.0x2.5
FC000011925097A	9.7x2.5
FC000011925100A	10.0x2.5
FC000011925150A	15x2.5
FC000011925200A	20x2.5
FC000011925250A	25x2.5
FC000011940097A	9.7x4
FC000011940150A	15x4
FC000011940200A	20x4
FC000011940250A	25x4

Note: Further sizes on request.

# Guide Ring Profile FR for Piston and Rods

FR

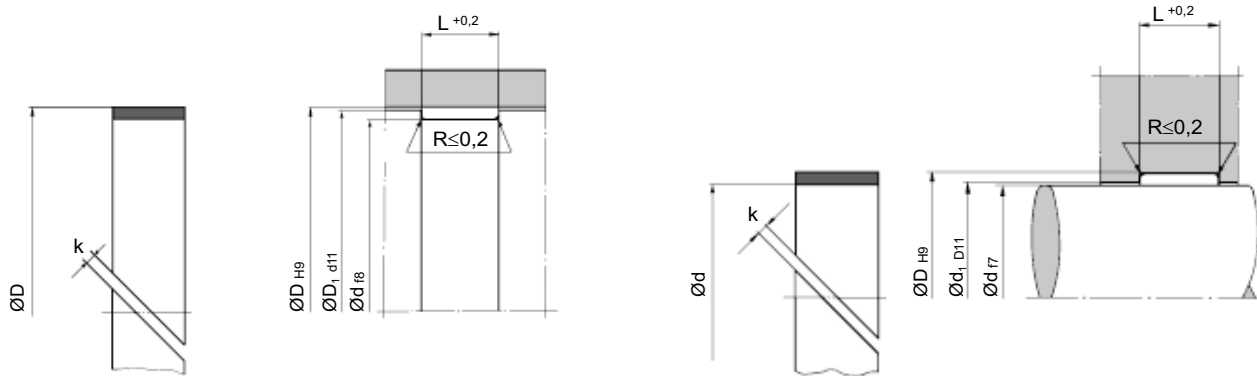


The profile FR guide rings are open and therefore lend themselves to easy assembly. They are extraordinarily wear-resistant and suitable for piston and rod guiding. The use of these guide rings simplifies the design of pistons and the cylinder heads.

## Advantages:

- Simple snap assembly without supplementary tools.
- No metallic contact with glide surfaces resulting in reduced danger of damage to metal parts.
- Vibration absorption effect.
- Significantly higher radial load bearing capacity compared to thermoplastic materials.
- Extremely good emergency operating conditions in case of lack of lubrication.
- Extremely good tolerance and dimension precision.
- Any desired dimension in addition to catalog standards can be manufactured since the rings are cut from semi-finished products on CNC-controlled machines.
- Suitable for use as strip material (e.g. 2.5 mm thickness starting with  $\varnothing$  100 mm)
- Also available as endless spiral (profile FC). Suitable for cylinder repairs. Can be elongated or compressed within limited diameter ranges. Compound Q5038.

# Guide Ring Profile FR for Piston and Rods



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

## Field of application:

Guiding element for pistons and piston rods in hydraulic cylinders.

Pressure resistance according to DIN 53454:	Q5029:	$q = 270 \text{ N/mm}^2$
	Q5038:	$q = 345 \text{ N/mm}^2$
Working temperature:	Q5029:	- 50 to + 120 °C
	Q5038:	- 50 to + 130 °C
		in water max. 100 °C
Water absorption according to DIN 53479:	Q5029:	1–2 %
	Q5038:	< 0,1 %
Surface speed:		≤ 0,5 m/s

## Compounds:

Duroplastic synthetic resins with fabric reinforcement.

Q5029: phenole resin-cotton fabric laminate. Q5038: phenole resin-polyester fabric laminate+PTFE.

**For special requirements (specific load, temperature, speed etc.), please contact our Consultancy Service, so that suitable materials and/or designs can be recommended.**

## Installation:

**In the case of piston and rod diameters up to 50 mm an open housing is recommended.**

For surface see „General Installation Guidelines“.

**For nonferrous and light metal pistons please use our guidance tape profile F2** (see: catalogue „Pneumatic Seals“).

The mounted rings must show a gap »k« between their diagonally cut ends.  
 $k = 0.008 \times d + 2$ .

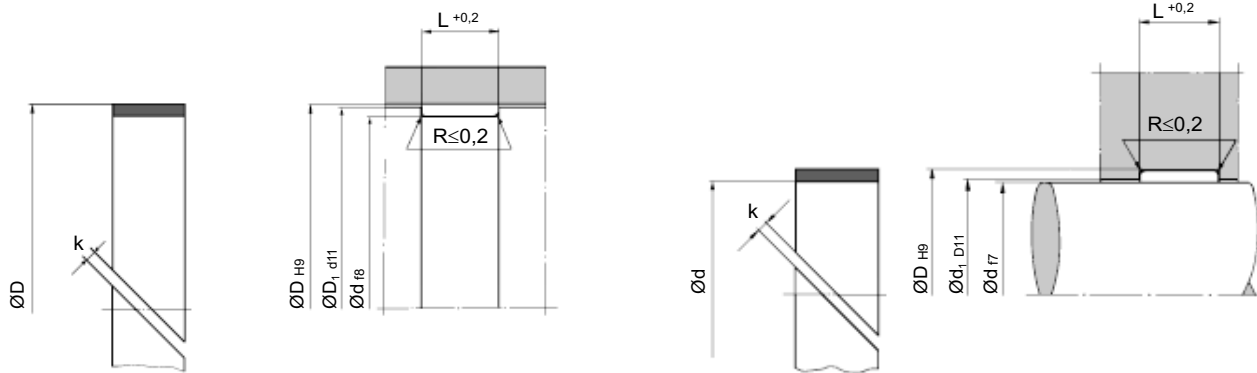
The calculated values for k are rounded up to the nearest one half millimeter. The calculation of the permissible radial force is based on the projected area  $D \cdot H$  (cylinder) or  $d \cdot H$  (rod).

Example: permissible radial force  $F_R$  for a cylinder diameter of  $D = 80$  mm, length  $L = 15$  mm, compound Q5029 and safety factor 4:

$$FR = \frac{D \cdot L \cdot q}{v} = \frac{80 \cdot 15 \cdot 270}{4} = \underline{81000 \text{ N}}$$

Recommendation for safety factor  $v$ :  $v > 3$ .

# Guide Ring Profile FR for Piston and Rods



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

## Ordering specification (piston):

Guide ring profile FR for a cylinder diameter of 100 mm.

Order code: FR 9510 Q5029 – 95 x 100 x 9,7  
 FR = Profile reference  
 9510 = Dimension code  
 Q5029 or Q5038 = Standard compound  
 d x D x L = Nominal dimensions

## Ordering specification (rod):

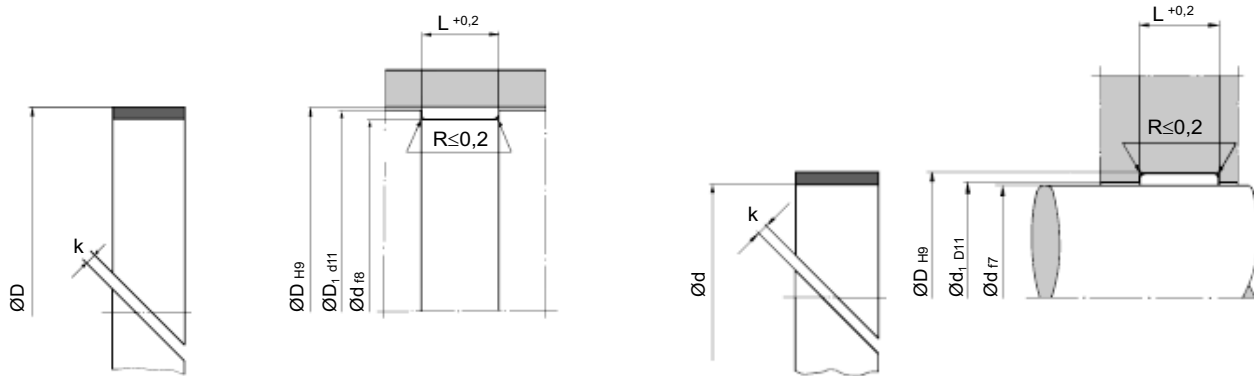
Guide ring profile FR for a rod diameter of 63 mm.

Order code: FR 6370 Q5029 – 63 x 68 x 9,7  
 FR = Profile reference  
 6370 = Dimension code  
 Q5029 or Q5038 = Standard compound  
 d x D x L = Nominal dimensions

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
16	21	5,6	16,2	20,8	FR 1621 Q5029
16	21	5,6	16,2	20,8	FR 1621 Q5038
20	23,2	5	20,2	23	FR 2003 Q5029
20	23,2	5	20,2	23	FR 2003 Q5038
20	25	4	20,2	24,8	FR 2025 Q5029
20	25	4	20,2	24,8	FR 2025 Q5038
20	25	5,6	20,2	24,8	FR 2005 Q5029
20	25	5,6	20,2	24,8	FR 2005 Q5038
20	25	9,7	20,2	24,8	FR 2007 Q5029
20	25	9,7	20,2	24,8	FR 2007 Q5038
25	30	5,6	25,2	29,8	FR 2506 Q5029
25	30	5,6	25,2	29,8	FR 2506 Q5038
25	30	9,7	25,2	29,8	FR 2507 Q5029
25	30	9,7	25,2	29,8	FR 2507 Q5038
25,4	28,5	4	25,6	28,3	FR 2528 Q5029
25,4	28,5	4	25,6	28,3	FR 2528 Q5038
27	32	5,6	27,2	31,8	FR 2702 Q5029
27	32	5,6	27,2	31,8	FR 2702 Q5038
28	33	5,6	28,2	32,8	FR 2823 Q5029
28	33	5,6	28,2	32,8	FR 2823 Q5038
28	33	9,7	28,2	32,8	FR 2833 Q5029
28	33	9,7	28,2	32,8	FR 2833 Q5038
30	35	5,6	30,2	34,8	FR 3001 Q5029
30	35	5,6	30,2	34,8	FR 3001 Q5038
30	35	9,7	30,2	34,8	FR 3003 Q5029
30	35	9,7	30,2	34,8	FR 3003 Q5038

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
32	37	5,6	32,3	36,7	FR 3205 Q5029
32	37	5,6	32,3	36,7	FR 3205 Q5038
32	37	9,7	32,3	36,7	FR 3209 Q5029
32	37	9,7	32,3	36,7	FR 3209 Q5038
33	38	5,6	33,3	37,7	FR 3338 Q5029
33	38	5,6	33,3	37,7	FR 3338 Q5038
34	39	5,6	34,3	38,7	FR 3439 Q5029
34	39	5,6	34,3	38,7	FR 3439 Q5038
34,9	39,9	16	35,2	39,6	FR 3490 Q5029
34,9	39,9	16	35,2	39,6	FR 3490 Q5038
35	40	4	35,3	39,7	FR 3505 Q5029
35	40	4	35,3	39,7	FR 3505 Q5038
35	40	5,6	35,3	39,7	FR 3506 Q5029
35	40	5,6	35,3	39,7	FR 3506 Q5038
35	40	9,7	35,3	39,7	FR 3507 Q5029
35	40	9,7	35,3	39,7	FR 3507 Q5038
35	45	15	35,3	44,7	FR 3528 Q5029
35	45	15	35,3	44,7	FR 3528 Q5038
36	41	5,6	36,3	40,7	FR 3618 Q5029
36	41	5,6	36,3	40,7	FR 3618 Q5038
36	41	9,7	36,3	40,7	FR 3620 Q5029
36	41	9,7	36,3	40,7	FR 3620 Q5038
40	45	4	40,4	44,6	FR 4002 Q5029
40	45	4	40,4	44,6	FR 4002 Q5038
40	45	5,6	40,4	44,6	FR 4004 Q5029
40	45	5,6	40,4	44,6	FR 4004 Q5038

# Guide Ring Profile FR for Piston and Rods

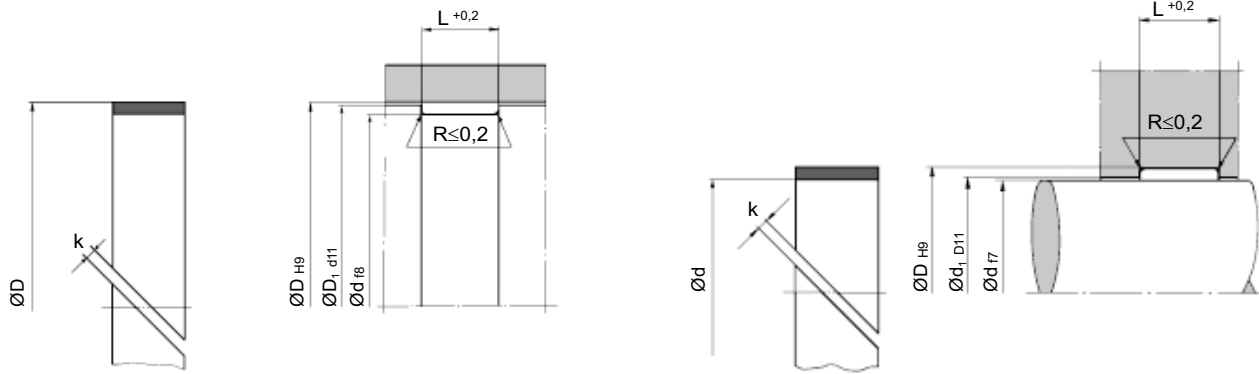


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
40	45	9,7	40,4	44,6	FR 4006 Q5029
40	45	9,7	40,4	44,6	FR 4006 Q5038
40	45	15	40,4	44,6	FR 4010 Q5029
40	45	15	40,4	44,6	FR 4010 Q5038
42	47	5,6	42,4	46,6	FR 4247 Q5029
42	47	5,6	42,4	46,6	FR 4247 Q5038
44,5	47,6	4	44,9	47,2	FR 4447 Q5029
44,5	47,6	4	44,9	47,2	FR 4447 Q5038
44,5	49,5	12	44,9	49,1	FR 4450 Q5029
44,5	49,5	12	44,9	49,1	FR 4450 Q5038
45	50	5,6	45,4	49,6	FR 4504 Q5029
45	50	5,6	45,4	49,6	FR 4504 Q5038
45	50	6,3	45,4	49,6	FR 4506 Q5029
45	50	6,3	45,4	49,6	FR 4506 Q5038
45	50	9,7	45,4	49,6	FR 4505 Q5029
45	50	9,7	45,4	49,6	FR 4505 Q5038
45	50	15	45,4	49,6	FR 4508 Q5029
45	50	15	45,4	49,6	FR 4508 Q5038
46	50	10	46,4	59,6	FR 4610 Q5029
46	50	10	46,4	59,6	FR 4610 Q5038
48	53	9,7	48,4	52,6	FR 4853 Q5029
48	53	9,7	48,4	52,6	FR 4853 Q5038
50	55	5,6	50,4	54,6	FR 5015 Q5029
50	55	5,6	50,4	54,6	FR 5015 Q5038
50	55	9,7	50,4	54,6	FR 5018 Q5029
50	55	9,7	50,4	54,6	FR 5018 Q5038
50	55	20	50,4	54,6	FR 5019 Q5029
50	55	20	50,4	54,6	FR 5019 Q5038
50,8	55,8	16	51,2	55,4	FR 5079 Q5029
50,8	55,8	16	51,2	55,4	FR 5079 Q5038
50,8	55,8	25	51,2	55,4	FR 5080 Q5029
50,8	55,8	25	51,2	55,4	FR 5080 Q5038
53	58	9,7	53,4	57,6	FR 5309 Q5029
53	58	9,7	53,4	57,6	FR 5309 Q5038
55	60	5,6	55,4	59,6	FR 5505 Q5029
55	60	5,6	55,4	59,6	FR 5505 Q5038
55	60	9,7	55,4	59,6	FR 5507 Q5029
55	60	9,7	55,4	59,6	FR 5507 Q5038
55	60	15	55,4	59,6	FR 5510 Q5029
55	60	15	55,4	59,6	FR 5510 Q5038
56	61	9,7	56,4	60,6	FR 5637 Q5029
56	61	9,7	56,4	60,6	FR 5637 Q5038

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
56	61	15	56,4	60,6	FR 5640 Q5029
56	61	15	56,4	60,6	FR 5640 Q5038
58	63	5,6	58,4	62,6	FR 5808 Q5029
58	63	5,6	58,4	62,6	FR 5808 Q5038
58	63	6,3	58,4	62,6	FR 5680 Q5029
58	63	6,3	58,4	62,6	FR 5680 Q5038
58	63	9,7	58,4	62,6	FR 5805 Q5029
58	63	9,7	58,4	62,6	FR 5805 Q5038
58	63	15	58,4	62,6	FR 5815 Q5029
58	63	15	58,4	62,6	FR 5815 Q5038
59	64	9,7	59,4	63,6	FR 5907 Q5029
59	64	9,7	59,4	63,6	FR 5907 Q5038
60	65	5,6	60,5	64,5	FR 6006 Q5029
60	65	5,6	60,5	64,5	FR 6006 Q5038
60	65	9,7	60,5	64,5	FR 6005 Q5029
60	65	9,7	60,5	64,5	FR 6005 Q5038
60	65	15	60,5	64,5	FR 6010 Q5029
60	65	15	60,5	64,5	FR 6010 Q5038
60	65	15	60,5	64,5	FR 6010 Q5038
63	68	5,6	63,5	67,5	FR 6305 Q5029
63	68	5,6	63,5	67,5	FR 6305 Q5038
63	68	6,3	63,5	67,5	FR 6368 Q5029
63	68	6,3	63,5	67,5	FR 6368 Q5038
63	68	9,7	63,5	67,5	FR 6370 Q5029
63	68	9,7	63,5	67,5	FR 6370 Q5038
63	68	15	63,5	67,5	FR 6315 Q5029
63	68	15	63,5	67,5	FR 6315 Q5038
63,5	68,5	9,7	64	68	FR 6341 Q5029
63,5	68,5	9,7	64	68	FR 6341 Q5038
63,5	68,5	16	64	68	FR 6348 Q5029
63,5	68,5	16	64	68	FR 6348 Q5038
63,5	68,5	25	64	68	FR 6350 Q5029
63,5	68,5	25	64	68	FR 6350 Q5038
65	70	5,6	65,5	69,5	FR 6501 Q5029
65	70	5,6	65,5	69,5	FR 6501 Q5038
65	70	9,7	65,5	69,5	FR 6503 Q5029
65	70	9,7	65,5	69,5	FR 6503 Q5038
65	70	15	65,5	69,5	FR 6506 Q5029
65	70	15	65,5	69,5	FR 6506 Q5038
65	70	16	65,5	69,5	FR 6505 Q5029
65	70	16	65,5	69,5	FR 6505 Q5038
67	72	9,7	67,5	71,5	FR 6772 Q5029
67	72	9,7	67,5	71,5	FR 6772 Q5038

# Guide Ring Profile FR for Piston and Rods

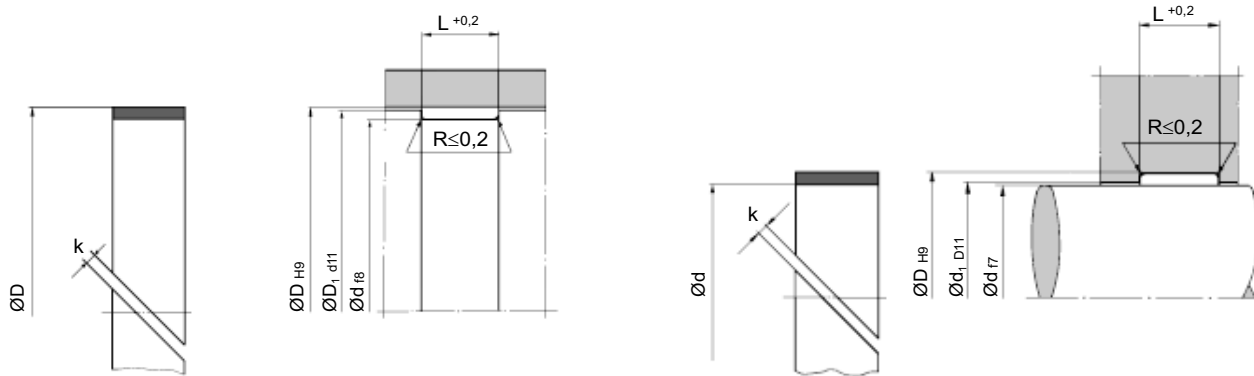


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
70	75	6,3	70,5	74,5	FR 7000 Q5029
70	75	6,3	70,5	74,5	FR 7000 Q5038
70	75	9,7	70,5	74,5	FR 7005 Q5029
70	75	9,7	70,5	74,5	FR 7005 Q5038
70	75	15	70,5	74,5	FR 7004 Q5029
70	75	15	70,5	74,5	FR 7004 Q5038
74	80	12,5	74,5	79,5	FR 7420 Q5029
74	80	12,5	74,5	79,5	FR 7420 Q5038
74	80	12,7	74,5	79,5	FR 7412 Q5029
74	80	12,7	74,5	79,5	FR 7412 Q5038
75	80	5,6	75,5	79,5	FR 7503 Q5029
75	80	5,6	75,5	79,5	FR 7503 Q5038
75	80	6,3	75,5	79,5	FR 7504 Q5029
75	80	6,3	75,5	79,5	FR 7504 Q5038
75	80	9,7	75,5	79,5	FR 7506 Q5029
75	80	9,7	75,5	79,5	FR 7506 Q5038
75	80	15	75,5	79,5	FR 7505 Q5029
75	80	15	75,5	79,5	FR 7505 Q5038
76,2	81,2	25	76,7	80,7	FR 7602 Q5029
76,2	81,2	25	76,7	80,7	FR 7602 Q5038
80	84	15	80,5	83,5	FR 8009 Q5029
80	84	15	80,5	83,5	FR 8009 Q5038
80	85	5,6	80,5	84,5	FR 8085 Q5029
80	85	5,6	80,5	84,5	FR 8085 Q5038
80	85	6,3	80,5	84,5	FR 8006 Q5029
80	85	6,3	80,5	84,5	FR 8006 Q5038
80	85	9,7	80,5	84,5	FR 8010 Q5029
80	85	9,7	80,5	84,5	FR 8010 Q5038
80	85	15	80,5	84,5	FR 8012 Q5029
80	85	15	80,5	84,5	FR 8012 Q5038
80	85	16	80,5	84,5	FR 8013 Q5029
80	85	16	80,5	84,5	FR 8013 Q5038
80	85	25	80,5	84,5	FR 8014 Q5029
80	85	25	80,5	84,5	FR 8014 Q5038
80	85	40	80,5	84,5	FR 8017 Q5029
80	85	40	80,5	84,5	FR 8017 Q5038
85	90	9,7	85,5	89,5	FR 8509 Q5029
85	90	9,7	85,5	89,5	FR 8509 Q5038
85	90	15	85,5	89,5	FR 8515 Q5029
85	90	15	85,5	89,5	FR 8515 Q5038
85	90	40	85,5	89,5	FR 8507 Q5029
85	90	40	85,5	89,5	FR 8507 Q5038

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
85	95	25	85,5	94,5	FR 8510 Q5029
85	95	25	85,5	94,5	FR 8510 Q5038
88,9	93,6	16	89,4	93,4	FR 8890 Q5029
88,9	93,6	16	89,4	93,4	FR 8890 Q5038
88,9	93,9	25	89,4	93,4	FR 8895 Q5029
88,9	93,9	25	89,4	93,4	FR 8895 Q5038
89	95	10	89,5	94,5	FR 8905 Q5029
89	95	10	89,5	94,5	FR 8905 Q5038
90	95	9,7	90,5	94,5	FR 9094 Q5029
90	95	9,7	90,5	94,5	FR 9094 Q5038
90	95	15	90,5	94,5	FR 9095 Q5029
90	95	15	90,5	94,5	FR 9095 Q5038
90	100	15	90,5	99,5	FR 9010 Q5029
90	100	15	90,5	99,5	FR 9010 Q5038
95	100	9,7	95,6	99,4	FR 9510 Q5029
95	100	9,7	95,6	99,4	FR 9510 Q5038
95	100	15	95,6	99,4	FR 9511 Q5029
95	100	15	95,6	99,4	FR 9511 Q5038
95	100	40	95,6	99,4	FR 9515 Q5029
95	100	40	95,6	99,4	FR 9515 Q5038
96	100	10	96,6	99,4	FR 9610 Q5029
96	100	10	96,6	99,4	FR 9610 Q5038
98	103	25	98,6	102,4	FR 9830 Q5029
98	103	25	98,6	102,4	FR 9830 Q5038
99	105	10	99,6	104,4	FR 9905 Q5029
99	105	10	99,6	104,4	FR 9905 Q5038
100	105	9,7	100,6	104,4	FR A004 Q5029
100	105	9,7	100,6	104,4	FR A004 Q5038
100	105	15	100,6	104,4	FR A005 Q5029
100	105	15	100,6	104,4	FR A005 Q5038
100	105	16	100,6	104,4	FR A016 Q5029
100	105	16	100,6	104,4	FR A016 Q5038
100	105	25	100,6	104,4	FR A025 Q5029
100	105	25	100,6	104,4	FR A025 Q5038
100	105	60	100,6	104,4	FR A007 Q5029
100	105	60	100,6	104,4	FR A007 Q5038
100	110	25	100,6	109,4	FR A027 Q5029
100	110	25	100,6	109,4	FR A027 Q5038
105	110	9,7	105,6	109,4	FR A505 Q5029
105	110	9,7	105,6	109,4	FR A505 Q5038
105	110	25	105,6	109,4	FR A510 Q5029
105	110	25	105,6	109,4	FR A510 Q5038

# Guide Ring Profile FR for Piston and Rods



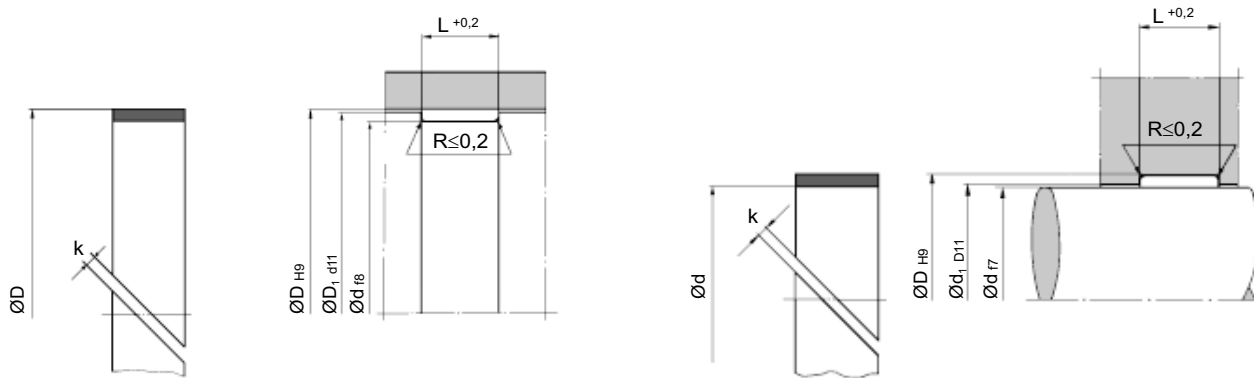
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
109	115	10	109,6	114,4	FR A905 Q5029
109	115	10	109,6	114,4	FR A905 Q5038
110	114	25	110,6	113,4	FR B004 Q5029
110	114	25	110,6	113,4	FR B004 Q5038
110	115	9,7	110,6	114,4	FR B008 Q5029
110	115	9,7	110,6	114,4	FR B008 Q5038
110	115	15	110,6	114,4	FR B009 Q5029
110	115	15	110,6	114,4	FR B009 Q5038
110	115	25	110,6	114,4	FR B011 Q5029
110	115	25	110,6	114,4	FR B011 Q5038
110	120	15	110,6	119,4	FR B007 Q5029
110	120	15	110,6	119,4	FR B007 Q5038
110	125	25	110,6	119,4	FR B025 Q5029
110	125	25	110,6	119,4	FR B025 Q5038
114	120	10	114,6	119,4	FR B040 Q5029
114	120	10	114,6	119,4	FR B040 Q5038
115	120	9,7	115,6	119,4	FR B051 Q5029
115	120	9,7	115,6	119,4	FR B051 Q5038
115	120	15	115,6	119,4	FR B053 Q5029
115	120	15	115,6	119,4	FR B053 Q5038
119	125	10	119,6	124,4	FR B090 Q5029
119	125	10	119,6	124,4	FR B090 Q5038
120	125	9,7	120,6	124,4	FR C051 Q5029
120	125	9,7	120,6	124,4	FR C051 Q5038
120	125	15	120,6	124,4	FR C052 Q5029
120	125	15	120,6	124,4	FR C052 Q5038
120	125	25	120,6	124,4	FR C026 Q5029
120	125	25	120,6	124,4	FR C026 Q5038
122	127	5,6	122,6	126,4	FR C222 Q5029
122	127	5,6	122,6	126,4	FR C222 Q5038
122	127	25	122,6	126,4	FR C028 Q5029
122	127	25	122,6	126,4	FR C028 Q5038
125	130	5,6	125,6	129,4	FR C005 Q5029
125	130	5,6	125,6	129,4	FR C005 Q5038
125	130	9,7	125,6	129,4	FR C053 Q5029
125	130	9,7	125,6	129,4	FR C053 Q5038
125	130	15	125,6	129,4	FR C055 Q5029
125	130	15	125,6	129,4	FR C055 Q5038
125	130	25	125,6	129,4	FR C030 Q5029
125	130	25	125,6	129,4	FR C030 Q5038
128	135	15	128,6	134,4	FR C080 Q5029
128	135	15	128,6	134,4	FR C080 Q5038

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
130	135	15	130,6	134,4	FR D005 Q5029
130	135	15	130,6	134,4	FR D005 Q5038
135	140	9,7	135,6	139,4	FR D050 Q5029
135	140	9,7	135,6	139,4	FR D050 Q5038
135	140	15	135,6	139,4	FR D051 Q5029
135	140	15	135,6	139,4	FR D051 Q5038
135	140	25	135,6	139,4	FR D052 Q5029
135	140	25	135,6	139,4	FR D052 Q5038
138	145	15	138,6	144,4	FR D080 Q5029
138	145	15	138,6	144,4	FR D080 Q5038
140	145	9,7	140,7	144,3	FR E031 Q5029
140	145	9,7	140,7	144,3	FR E031 Q5038
140	145	15	140,7	144,3	FR E038 Q5029
140	145	15	140,7	144,3	FR E038 Q5038
140	145	25	140,7	144,3	FR E032 Q5029
140	145	25	140,7	144,3	FR E032 Q5038
145	150	9,7	145,7	149,3	FR E047 Q5029
145	150	9,7	145,7	149,3	FR E047 Q5038
145	150	15	145,7	149,3	FR E050 Q5029
145	150	15	145,7	149,3	FR E050 Q5038
145	150	20	145,7	149,3	FR E520 Q5029
145	150	20	145,7	149,3	FR E520 Q5038
147,4	152,4	15	148,1	151,7	FR E074 Q5029
147,4	152,4	15	148,1	151,7	FR E074 Q5038
147,5	152,4	5,6	148,1	151,7	FR E705 Q5029
147,5	152,4	5,6	148,1	151,7	FR E705 Q5038
150	155	9,7	150,7	154,3	FR F009 Q5029
150	155	15	150,7	154,3	FR F050 Q5029
150	155	15	150,7	154,3	FR F050 Q5038
150	155	25	150,7	154,3	FR F015 Q5029
150	155	25	150,7	154,3	FR F015 Q5038
152	157	15	152,7	156,3	FR F025 Q5029
152	157	15	152,7	156,3	FR F025 Q5038
153	158	25	153,7	157,3	FR F039 Q5029
153	158	25	153,7	157,3	FR F039 Q5038
155	160	9,7	155,7	159,3	FR F051 Q5029
155	160	9,7	155,7	159,3	FR F051 Q5038
155	160	15	155,7	159,3	FR F052 Q5029
155	160	15	155,7	159,3	FR F052 Q5038
155	160	25	155,7	159,3	FR F055 Q5029
155	160	25	155,7	159,3	FR F055 Q5038



# Guide Ring Profile FR for Piston and Rods

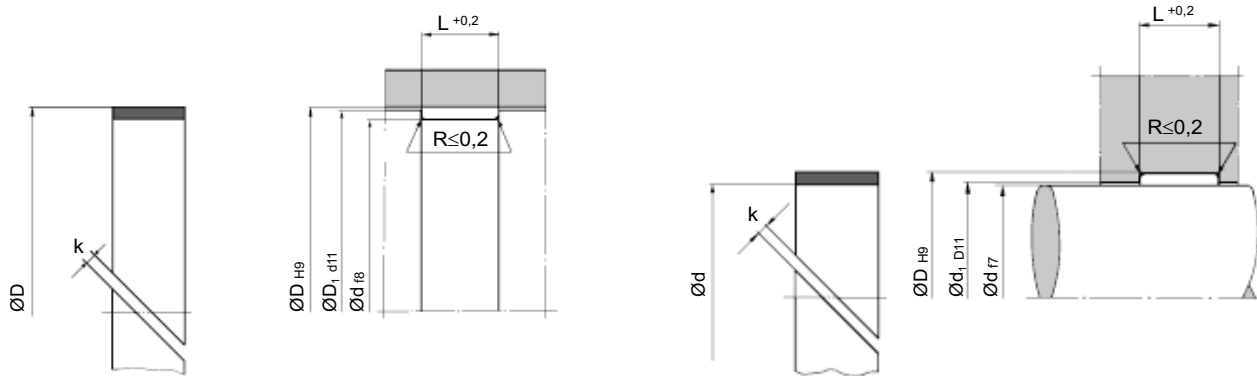


For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
160	165	9,7	160,7	164,3	FR G008 Q5029
160	165	9,7	160,7	164,3	FR G008 Q5038
160	165	15	160,7	164,3	FR G007 Q5029
160	165	15	160,7	164,3	FR G007 Q5038
160	165	25	160,7	164,3	FR G025 Q5029
160	165	25	160,7	164,3	FR G025 Q5038
165	170	9,7	165,7	169,3	FR G565 Q5029
165	170	9,7	165,7	169,3	FR G565 Q5038
165	170	15	165,7	169,3	FR G570 Q5029
165	170	15	165,7	169,3	FR G570 Q5038
168	173	15	168,7	172,3	FR G080 Q5029
168	173	15	168,7	172,3	FR G080 Q5038
170	175	9,7	170,7	174,3	FR H024 Q5029
170	175	9,7	170,7	174,3	FR H024 Q5038
170	175	25	170,7	174,3	FR H025 Q5029
170	175	25	170,7	174,3	FR H025 Q5038
175	180	9,7	175,7	179,3	FR H050 Q5029
175	180	9,7	175,7	179,3	FR H050 Q5038
175	180	15	175,7	179,3	FR H051 Q5029
175	180	15	175,7	179,3	FR H051 Q5038
175	180	25	175,7	179,3	FR H053 Q5029
175	180	25	175,7	179,3	FR H053 Q5038
180	185	15	180,7	184,3	FR J019 Q5029
180	185	15	180,7	184,3	FR J019 Q5038
186	190	15	186,7	189,3	FR J060 Q5029
186	190	15	186,7	189,3	FR J060 Q5038
190	200	15	190,7	199,3	FR K014 Q5029
190	200	15	190,7	199,3	FR K014 Q5038
195	200	9,7	195,7	199,3	FR K049 Q5029
195	200	9,7	195,7	199,3	FR K049 Q5038
195	200	15	195,7	199,3	FR K052 Q5029
195	200	15	195,7	199,3	FR K052 Q5038
195	200	25	195,7	199,3	FR K051 Q5029
195	200	25	195,7	199,3	FR K051 Q5038
198,2	203,2	9,7	198,9	202,5	FR K809 Q5029
198,2	203,2	9,7	198,9	202,5	FR K809 Q5038
200	205	15	200,7	204,3	FR L004 Q5029
200	205	15	200,7	204,3	FR L004 Q5038
200	205	25	200,7	204,3	FR L025 Q5029
200	205	25	200,7	204,3	FR L025 Q5038
202	210	25	202,7	209,3	FR L050 Q5029
202	210	25	202,7	209,3	FR L050 Q5038

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
205	210	15	205,7	209,3	FR L065 Q5029
205	210	15	205,7	209,3	FR L065 Q5038
205	210	25	205,7	209,3	FR L075 Q5029
205	210	25	205,7	209,3	FR L075 Q5038
210	215	25	210,7	214,3	FR L509 Q5029
210	215	25	210,7	214,3	FR L509 Q5038
215	220	15	215,7	219,3	FR L520 Q5029
215	220	15	215,7	219,3	FR L520 Q5038
215	220	20	215,7	219,3	FR L524 Q5029
215	220	20	215,7	219,3	FR L524 Q5038
215	220	25	215,7	219,3	FR L525 Q5029
215	220	25	215,7	219,3	FR L525 Q5038
220	225	15	220,7	224,3	FR M005 Q5029
220	225	15	220,7	224,3	FR M005 Q5038
220	225	25	220,7	224,3	FR M009 Q5029
220	225	25	220,7	224,3	FR M009 Q5038
220	230	25	220,7	229,3	FR M030 Q5029
220	230	25	220,7	229,3	FR M030 Q5038
222	227	15	222,7	226,3	FR M070 Q5029
222	227	15	222,7	226,3	FR M070 Q5038
225	230	15	225,7	229,3	FR M125 Q5029
225	230	15	225,7	229,3	FR M125 Q5038
235	240	9,7	235,7	239,3	FR M554 Q5029
235	240	9,7	235,7	239,3	FR M554 Q5038
235	240	15	235,7	239,3	FR M550 Q5029
235	240	15	235,7	239,3	FR M550 Q5038
235	240	35	235,7	239,3	FR M558 Q5029
235	240	35	235,7	239,3	FR M558 Q5038
245	250	9,7	245,7	249,3	FR N040 Q5029
245	250	9,7	245,7	249,3	FR N040 Q5038
245	250	15	245,7	249,3	FR N042 Q5029
245	250	15	245,7	249,3	FR N042 Q5038
245	250	16	245,7	249,3	FR N041 Q5029
245	250	16	245,7	249,3	FR N041 Q5038
245	250	25	245,7	249,3	FR N045 Q5029
245	250	25	245,7	249,3	FR N045 Q5038
249	254	15	249,7	253,3	FR N074 Q5029
249	254	15	249,7	253,3	FR N074 Q5038
250	255	15	250,7	254,3	FR N520 Q5029
250	255	15	250,7	254,3	FR N520 Q5038
250	255	25	250,7	254,3	FR N525 Q5029
250	255	25	250,7	254,3	FR N525 Q5038

# Guide Ring Profile FR for Piston and Rods



For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
260	265	25	260,7	264,3	FR O010 Q5029
260	265	25	260,7	264,3	FR O010 Q5038
265	270	15	265,7	269,3	FR O515 Q5029
265	270	15	265,7	269,3	FR O515 Q5038
275	280	9,7	275,8	279,2	FR O709 Q5029
275	280	9,7	275,8	279,2	FR O709 Q5038
275	280	15	275,8	279,2	FR O715 Q5029
275	280	15	275,8	279,2	FR O715 Q5038
275	280	20	275,8	279,2	FR O720 Q5029
275	280	20	275,8	279,2	FR O720 Q5038
275	280	25	275,8	279,2	FR O725 Q5029
275	280	25	275,8	279,2	FR O725 Q5038
280	285	15	280,8	284,2	FR P015 Q5029
280	285	15	280,8	284,2	FR P015 Q5038
280	285	25	280,8	284,2	FR P025 Q5029
280	285	25	280,8	284,2	FR P025 Q5038
280	290	25	280,8	279,2	FR P034 Q5029
280	290	25	280,8	279,2	FR P034 Q5038
280	290	35	280,8	289,2	FR P035 Q5029
280	290	35	280,8	289,2	FR P035 Q5038
285	290	15	285,8	289,2	FR P022 Q5029
285	290	15	285,8	289,2	FR P022 Q5038
285	290	20	285,8	289,2	FR P041 Q5029
285	290	20	285,8	289,2	FR P041 Q5038
295	300	15	295,8	299,2	FR P551 Q5029
295	300	15	295,8	299,2	FR P551 Q5038
295	300	24	295,8	299,2	FR P550 Q5029
295	300	24	295,8	299,2	FR P550 Q5038
295	300	25	295,8	299,2	FR P552 Q5029
295	300	25	295,8	299,2	FR P552 Q5038
300	305	25	301	304	FR Q005 Q5029
300	305	25	301	304	FR Q005 Q5038
305	310	15	306	309	FR Q002 Q5029
305	310	15	306	309	FR Q002 Q5038
310	315	25	311	314	FR Q010 Q5029
310	315	25	311	314	FR Q010 Q5038
315	320	15	316	319	FR Q014 Q5029
315	320	15	316	319	FR Q014 Q5038
315	320	25	316	319	FR Q015 Q5029
315	320	25	316	319	FR Q015 Q5038
320	325	15	321	324	FR Q215 Q5029
320	325	15	321	324	FR Q215 Q5038

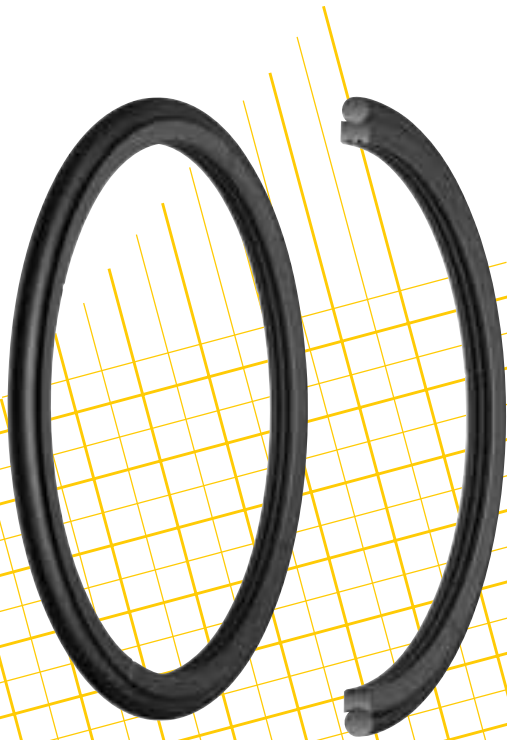
d	D	L	d <sub>1</sub>	D <sub>1</sub>	Order code
320	325	25	321	324	FR Q217 Q5029
320	325	25	321	324	FR Q217 Q5038
325	330	20	326	329	FR Q230 Q5029
325	330	20	326	329	FR Q230 Q5038
325	330	25	326	329	FR Q233 Q5029
325	330	25	326	329	FR Q233 Q5038
345	350	25	346	349	FR Q425 Q5029
345	350	25	346	349	FR Q425 Q5038
350	355	15	351	354	FR Q050 Q5029
350	355	15	351	354	FR Q050 Q5038
350	355	25	351	354	FR Q051 Q5029
350	355	25	351	354	FR Q051 Q5038
350	360	25	351	359	FR Q060 Q5029
350	360	25	351	359	FR Q060 Q5038
355	360	20	356	359	FR Q552 Q5029
355	360	20	356	359	FR Q552 Q5038
355	360	40	356	359	FR Q555 Q5029
355	360	40	356	359	FR Q555 Q5038
375	380	25	376	379	FR Q725 Q5029
375	380	25	376	379	FR Q725 Q5038
445	450	25	446	449	FR R025 Q5029
445	450	25	446	449	FR R025 Q5038
495	500	15	496	499	FR R915 Q5029
495	500	15	496	499	FR R915 Q5038
575	580	25	576	579	FR S075 Q5029
575	580	25	576	579	FR S075 Q5038
600	605	25	601	604	FR S610 Q5029
600	605	25	601	604	FR S610 Q5038

Further sizes on request.

# PTFE Rotary Sealing Set

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OR



Producers of rotary transmissions prefer simplified seal designs. This can be achieved by means of internally sealing rotary sealing sets profile OR. They consist of wear resistant glide rings of low friction and of NBR O-rings as energizer.

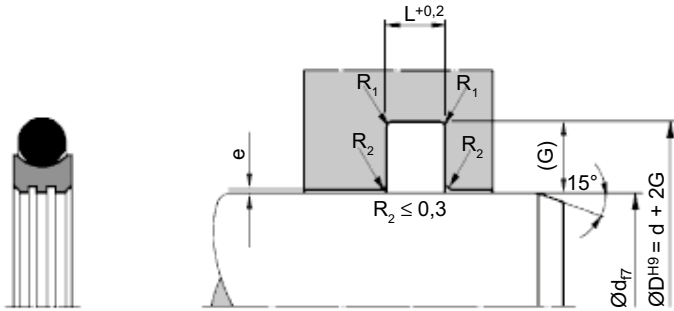
The rotary sealing set profile OR is suitable mainly for applications where the pressure alternates from one side of the seal to the other, such as pivots for rotating track rings, swivel joints, hose reels, and in machine tool hydraulics. If the sealing set is used as an end seal, we recommend closing the construction with a wiper ring.

Considering the special working conditions, the rotary sealing set profile OR is equipped with one or two circumferential lubricating grooves.

#### **Advantages:**

- Short assembled length.
- Minimal break-out and dynamic slide friction. Therefore no stick-slip. Steady movement is guaranteed even at low velocities.
- Low wear.
- High extrusion resistance.
- High temperature resistance.
- Compatibility with nearly all media due to the high chemical resistance of the rod sealing ring, and a wide selection of O-ring compounds.
- Available in diameters up to 2000 mm.

# PTFE Rotary Sealing Set



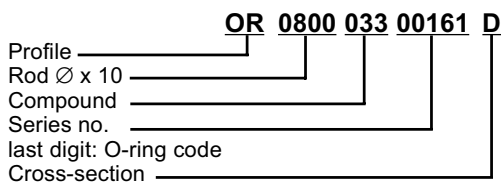
For surface finish, lead in chamfer and other installation dimensions see "General installation guidelines".

Housing dimensions:

Series no.	Cross-section	O-ring cross-section [mm]	Recommended rod $\varnothing$ range		Groove width L [mm]	Groove depth G [mm]	Gap max.		Radius max. $R_1$ [mm]
			$\geq$	$<$			0–200 bar e [mm]	200–400 bar e [mm]	
00160	A	1,78	4	8	2,2	2,45	0,4–0,2	0,2–0,1	0,5
00160	B	2,62	8	19	3,2	3,75	0,4–0,2	0,2–0,1	0,5
00160	C	3,53	19	38	4,2	5,50	0,6–0,3	0,3–0,2	0,5
00160	D	5,33	38	200	6,3	7,75	0,8–0,4	0,4–0,2	0,9
00160	E	6,99	200	256	8,1	10,50	1,0–0,5	0,5–0,3	0,9
00160	F	6,99	256	650	8,1	12,25	1,0–0,5	0,5–0,3	0,9
00160	G	8,40	650	1000	9,5	14,00	1,0–0,5	0,5–0,3	0,9

## Ordering example:

Rod diameter: 80 mm



## Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

## Range of Application

Working pressure:  $\leq 300$  bar  
 Working temperature:  $-30$  to  $+100$  °C\*  
 Surface speed:  $\leq 1,0$  m/s

Recommendation:  $P \times V \leq 40^{**}$

\* With deviation from standard temperature range, please contact our Consultancy Service for adequate O-ring compound.

Please apply this seal only in combination with closed guiding elements.

# PTFE Rotary Sealing Set Profile OR (double acting)

Standard range:

Size	Groove			O-Ring		
	Ø d (mm)	Ø D (mm)	L (mm)	No.	CS (mm)	ID (mm)
0040	4	8,9	2,2	2-010	1,78	6,07
0050	5	9,9	2,2	2-010	1,78	6,07
0070	7	11,9	2,2	2-012	1,78	9,25
0080	8	15,5	3,2	2-111	2,62	10,77
0100	10	17,5	3,2	2-112	2,62	12,37
0120	12	19,5	3,2	2-114	2,62	15,54
0140	14	21,5	3,2	2-115	2,62	17,12
0150	15	22,5	3,2	2-116	2,62	18,72
0160	16	23,5	3,2	2-116	2,62	18,72
0180	18	25,5	3,2	2-117	2,62	20,29
0200	20	31,0	4,2	2-214	3,53	24,99
0220	22	33,0	4,2	2-215	3,53	26,57
0240	24	35,0	4,2	2-216	3,53	28,17
0250	25	36,0	4,2	2-217	3,53	29,32
0260	26	37,0	4,2	2-218	3,53	31,34
0280	28	39,0	4,2	2-219	3,53	32,92
0300	30	41,0	4,2	2-220	3,53	34,52
0320	32	43,0	4,2	2-221	3,53	36,09
0350	35	46,0	4,2	2-222	3,53	37,69
0370	37	48,0	4,2	2-223	3,53	40,87
0380	38	53,5	6,3	2-327	5,33	43,82
0400	40	55,5	6,3	2-328	5,33	46,99
0420	42	57,5	6,3	2-328	5,33	46,99
0450	45	60,5	6,3	2-329	5,33	50,17
0480	48	63,5	6,3	2-330	5,33	53,34
0500	50	65,5	6,3	2-331	5,33	56,52
0520	52	67,5	6,3	2-331	5,33	56,52
0550	55	70,5	6,3	2-332	5,33	59,69
0580	58	73,5	6,3	2-333	5,33	62,87
0600	60	75,5	6,3	2-334	5,33	66,04
0650	65	80,5	6,3	2-335	5,33	69,22
0700	70	85,5	6,3	2-337	5,33	75,57
0750	75	90,5	6,3	2-339	5,33	81,92
0800	80	95,5	6,3	2-340	5,33	85,09
0850	85	100,5	6,3	2-342	5,33	91,44
0900	90	105,5	6,3	2-343	5,33	94,62
0950	95	110,5	6,3	2-345	5,33	100,97
1000	100	115,5	6,3	2-346	5,33	104,14
1100	110	125,5	6,3	2-350	5,33	116,84
1200	120	135,5	6,3	2-353	5,33	126,37
1250	125	140,5	6,3	2-354	5,33	129,54
1300	130	145,5	6,3	2-356	5,33	135,89

Size	Groove			O-Ring		
	Ø d (mm)	Ø D (mm)	L (mm)	No.	CS (mm)	ID (mm)
1400	140	155,5	6,3	2-359	5,33	145,42
1500	150	165,5	6,3	2-361	5,33	151,77
1550	155	170,5	6,3	2-362	5,33	158,12
1600	160	175,5	6,3	2-363	5,33	164,47
1700	170	185,5	6,3	2-365	5,33	177,17
1750	175	190,5	6,3	2-365	5,33	177,17
1800	180	195,5	6,3	2-366	5,33	183,52
1850	185	200,5	6,3	2-367	5,33	189,87
1900	190	205,5	6,3	2-368	5,33	196,22
1950	195	210,5	6,3	2-368	5,33	196,22
2000	200	221,0	8,1	2-445	6,99	202,57
2100	210	231,0	8,1	2-446	6,99	215,27
2200	220	241,0	8,1	2-447	6,99	227,97
2250	225	246,0	8,1	2-447	6,99	227,97
2300	230	251,0	8,1	2-448	6,99	240,67
2400	240	261,0	8,1	2-448	6,99	240,67
2500	250	271,0	8,1	2-449	6,99	253,37
2600	260	284,5	8,1	2-450	6,99	266,07
2700	270	294,5	8,1	2-451	6,99	278,77
2800	280	304,5	8,1	2-452	6,99	291,47
2900	290	314,5	8,1	2-453	6,99	304,17
3000	300	324,5	8,1	2-453	6,99	304,17
3100	310	334,5	8,1	2-454	6,99	316,87
3200	320	344,5	8,1	2-455	6,99	329,57
3300	330	354,5	8,1	2-456	6,99	342,27
3400	340	364,5	8,1	2-457	6,99	354,97
3500	350	374,5	8,1	2-457	6,99	354,97
3600	360	384,5	8,1	2-458	6,99	367,67
3700	370	394,5	8,1	2-459	6,99	380,37
3800	380	404,5	8,1	2-460	6,99	393,07
3900	390	414,5	8,1	2-461	6,99	405,26
4000	400	424,5	8,1	2-461	6,99	405,26
4100	410	434,5	8,1	2-462	6,99	417,96
4200	420	444,5	8,1	2-463	6,99	430,66
4300	430	454,5	8,1	2-464	6,99	443,36
4400	440	464,5	8,1	2-464	6,99	443,36
4500	450	474,5	8,1	2-465	6,99	456,06
4600	460	484,5	8,1	2-466	6,99	468,76
4700	470	494,5	8,1	2-467	6,99	481,46
4800	480	504,5	8,1	2-468	6,99	494,16
4900	490	514,5	8,1	2-469	6,99	506,86
5000	500	524,5	8,1	2-469	6,99	506,86

## Installation

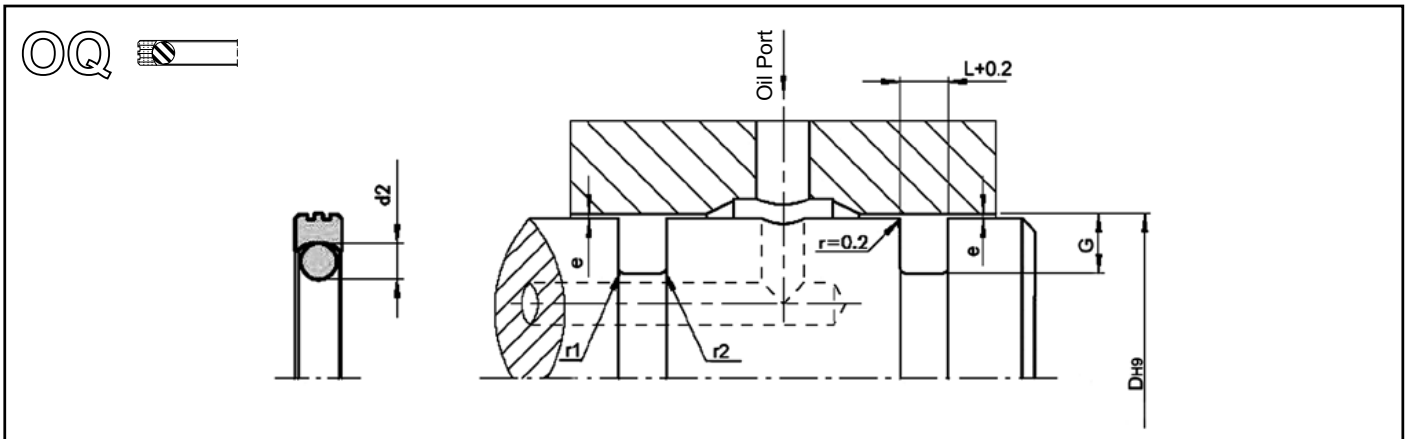
For diameters < 30 mm open grooves are required.

## Standard Compounds

Sealing rings: Polon® 033, modified PTFE + 25 % carbon  
 O-rings: N0674, NBR elastomer with approx. 70 Shore A

For special requirements (pressure, temperature, speed, etc.), please contact our Consultancy Service for recommendation of suitable compounds and/or designs.

# PTFE Rotary Sealing Set Profile OQ (double acting)



## Housing Dimensions

Series No.	Cross section	O-ring c/s [d2]	Recommended piston Ø range		Groove width L	Groove Depth G	Max Gap e		Radius max r1
			≥ D H9	<			0-20MPa	20MPa	
00260	A	1.78	8	30	2.20	2.45	0.4 - 0.2	0.2 - 0.1	0.50
00260	B	2.62	30	70	3.20	3.75	0.4 - 0.2	0.2 - 0.1	0.50
00260	C	3.53	70	133	4.20	5.50	0.6 - 0.3	0.3 - 0.2	0.50
00260	D	5.33	133	330	6.30	7.75	0.8 - 0.4	0.4 - 0.2	0.90
00260	E	6.99	330	690	8.10	10.50	1.0 - 0.5	0.5 - 0.3	0.90
00260	G	8.40	690	1000	9.50	14.00	1.0 - 0.5	0.5 - 0.3	0.90

## Range of Application

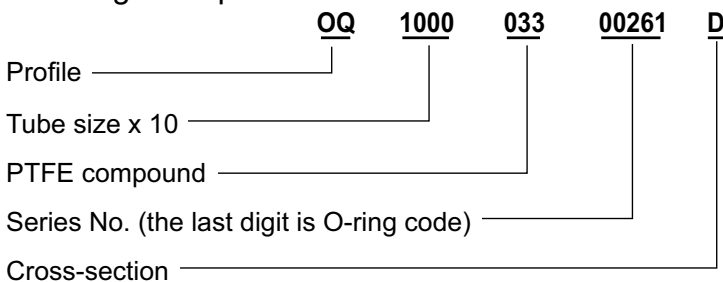
Working pressure: ≤300bar

Working temperature: -50°C~+200°C (depend on O-ring material)

Surface speed: ≤1m/s

Recommendation:  $P \times V \leq 40$

## Ordering example



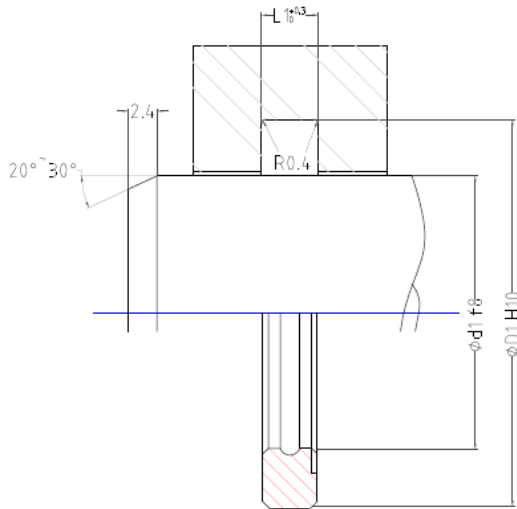
### Please note:

For certain applications, it might be convenient to use a non-standard cross-section – reduced or heavier. In these cases, please replace the standard cross-section code (in above example: "D") by the one you require (for example "C" or "E").

\* Please apply the seal only in combination with closed guiding elements.

## RI Polyurethane Rod rotary seal

RI



The RI rod rotary seal is made by Parker proprietary Polyurethane for swivel joints.

### Range of application:

Primary for rotary sealing of hydraulic swivel joints.

Working Pressure: 350bar

Temperature: -35°C to +110°C

Speed:  $\leq 1\text{m/s}$

### Compound:

The standard material is P6000, a 94A Polyurethane with better wear & heat resistance.

### Installation:

It can be easily snapped into closed grooves manually.

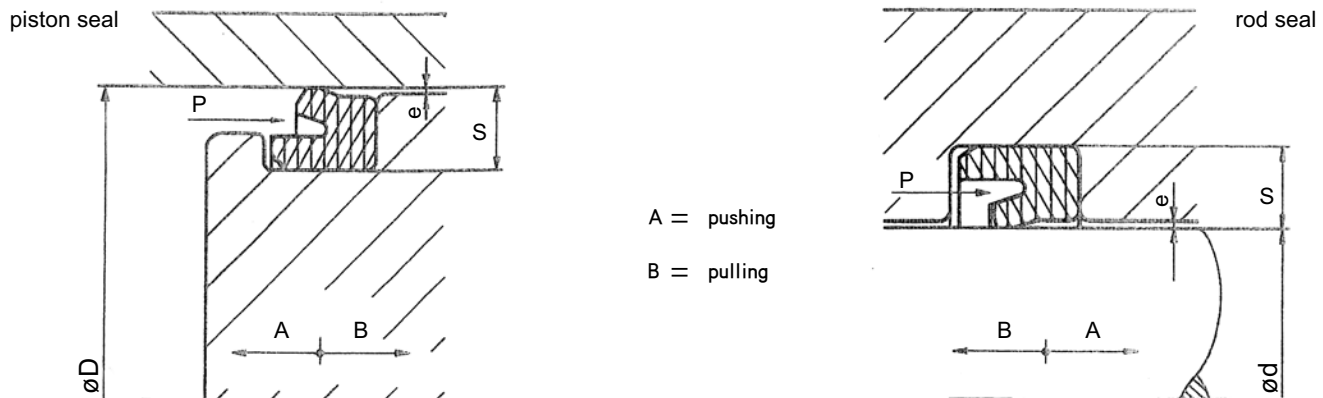
Size List:

$\phi d1$ f8	$\phi D1$ H10	L1 (0,+0,3)	PART No.
70	80	5	RI 070A P6000
80	90	5	RI 080A P6000
90	100	5	RI 090A P6000
100	110	5	RI 100A P6000
125	135.4	5	RI 125A P6000

Note: Further sizes on request.

# Gap Allowance

## Extrusion gap



### Definition

The maximum gap "e", stated with the respective profile, stands for the maximum gap occurring between rod and guidance resp. between piston and cylinder exhausting all tolerances and maximum eccentricity.

Extend the connecting line  $d/D-S$  and  $P-\tau$  to line  $\xi_1$  resp.  $\xi_2$ . Connect the two intersections and read on scale »e« (0,16 mm page 87 resp. 0,18 mm page 88) the allowable gap.

### Conditions:

1. Surface quality according to our recommendations (see "General Installation Guidelines").
2. Lubricating fluids.

For special conditions, e. g. non-lub fluids, water, acids, alcalies, please contact our Consultancy Service.

The nomographs in our catalogues have been developed for the "worst case", that means pushing conditions (for the rod e. g. plunger conditions, explanation see above) and softest material in the corresponding group (e. g. 85 Shore A for polyurethanes and 70 Shore A for NBR).

If the application is not in a pushing mode, the extrusion gap can be increased for 25 %. If instead of a 85 Shore A polyurethane a 93 Shore material or instead of a 70 Shore NBR a 85 Shore material is used, the extrusion gap can be increased another 15 % (intermediate values to be balanced).

### Example 1. (Page 87)

d/D	= Dynam diameter	= 90mm*
S	= Cross-section	= 7,5
P	= Pressure	= 315b
T	= Temperature	= 80°C

### Example 2. (Page 88)

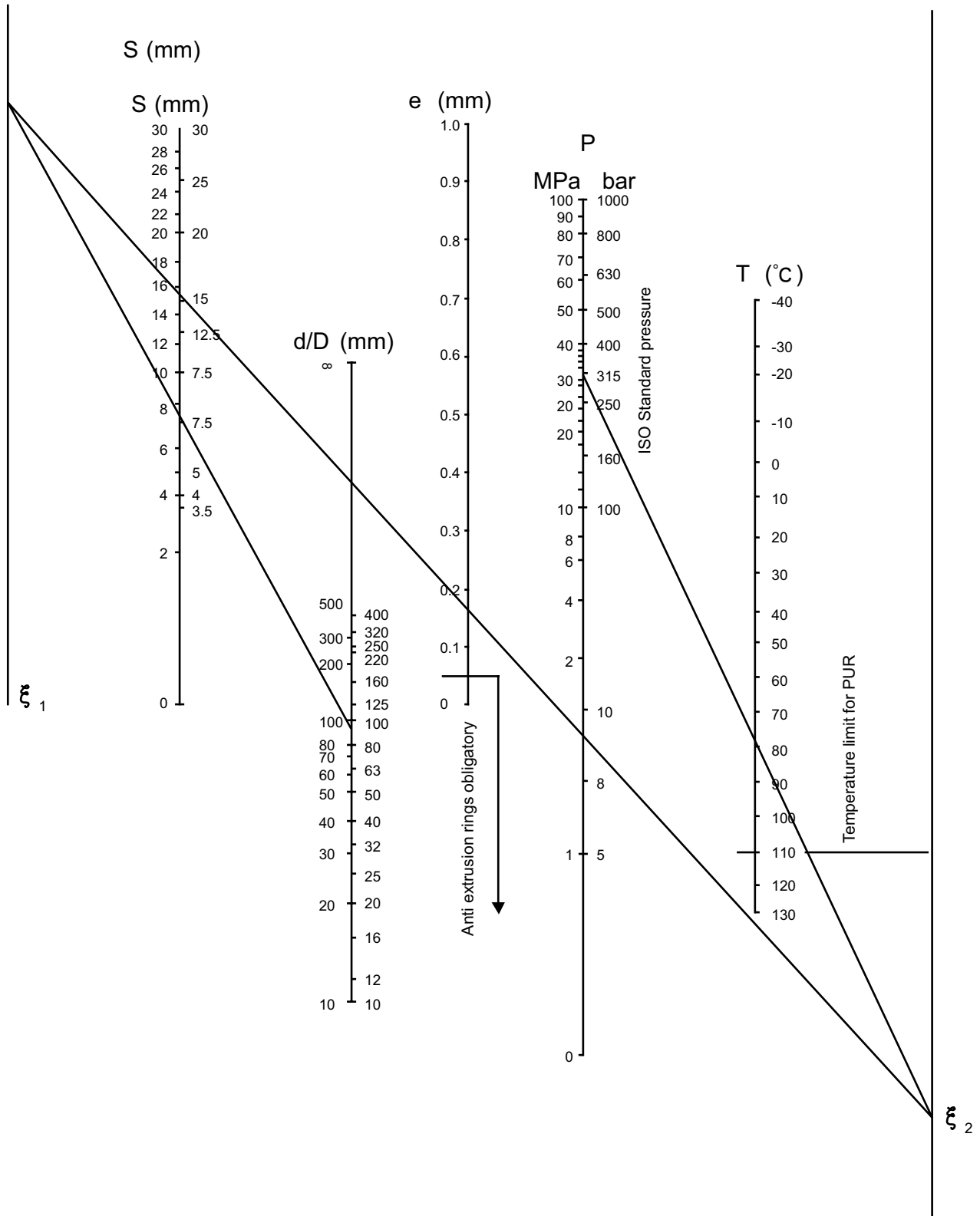
d/D	= Dynam diameter	= 100*
S	= Cross-section	= 6mm
P	= Pressure	= 100b
T	= Temperature	= 80°C

\* Insert the dynamic diameter and not the static one (groove dia. Or tight fit). Means cylinder diameter for the piston



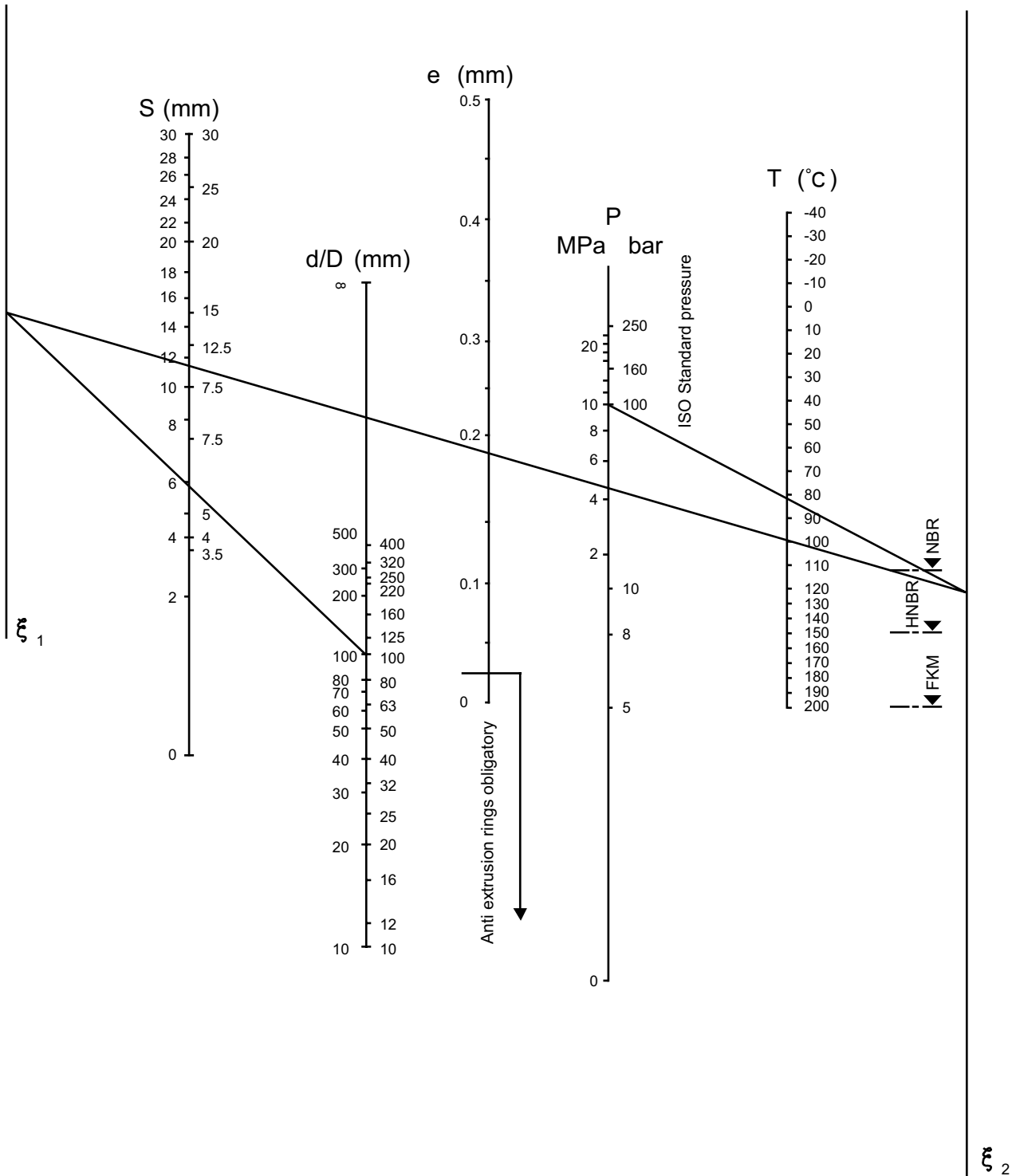
# Max Gap Allowance e

For PUR Seals of Shore A  $\geq 85$  and cotton-reinforced Seals



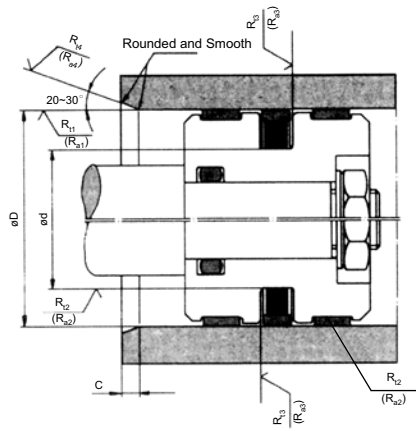
# Max Gap Allowance e

For NBR, HNBR and FKM seals between 70 up to 85 Shore A



# General Installation Guidelines

## Solid Piston



Split Piston

$$\text{Dimension } C = \frac{D - d}{4}$$

Dynamic sealing surfaces:

$$0.8\mu\text{m} < R_{t1} \leq 2.5\mu\text{m} (R_t 2.5\mu\text{m} = R_a \leq 0.28 \sim 0.6\mu\text{m}, \text{RMS} \leq 12.5 \sim 28.3\mu\text{in})$$

$$80\% \leq t_{p1} \leq 95\% (R_t 0.8\mu\text{m} = R_a \leq 0.28 \sim 0.18\mu\text{m}, \text{RMS} \leq 3.3 \sim 8.6\mu\text{in})$$

Static sealing surfaces:

$$R_{t2} \leq 6.3\mu\text{m} (R_a \leq 0.81 \dots 1.59\mu\text{m}, \text{RMS} \leq 35.6 \dots 76.3\mu\text{in})$$

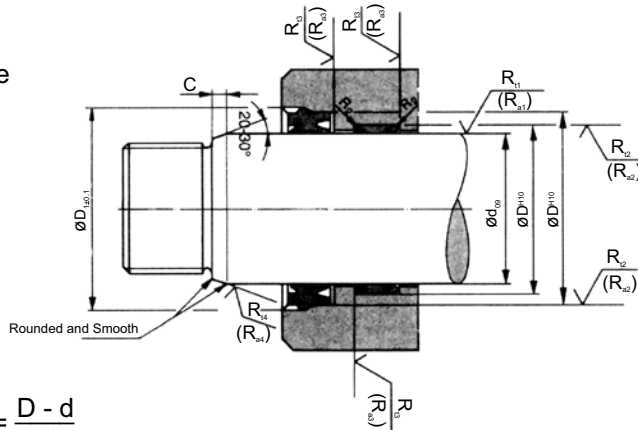
$$t_{p2} \geq 60\%$$

Non-sealing surfaces and lead-in chamfers:

$$R_{t3} \leq 15\mu\text{m} (R_a \leq 2.2 \dots 4.0\mu\text{m}, \text{RMS} \leq 97 \dots 194\mu\text{in})$$

$$R_{t4} \leq 10\mu\text{m} (R_a \leq 1.4 \dots 2.6\mu\text{m}, \text{RMS} \leq 62 \dots 125\mu\text{in})$$

Closed Groove



Open groove

$$\text{Dimension } C = \frac{D - d}{4}$$

Dynamic sealing surfaces:

$$0.8\mu\text{m} < R_{t1} \leq 2.5\mu\text{m} (R_t 2.5\mu\text{m} = R_a \leq 0.28 \sim 0.6\mu\text{m}, \text{RMS} \leq 12.5 \sim 28.3\mu\text{in})$$

$$80\% < t_{p1} \leq 95\% (R_t 0.8\mu\text{m} = R_a \leq 0.28 \sim 0.18\mu\text{m}, \text{RMS} \leq 3.3 \sim 8.6\mu\text{in})$$

Static sealing surfaces:

$$R_{t2} \leq 6.3\mu\text{m} (R_a \leq 0.81 \dots 1.59\mu\text{m}, \text{RMS} \leq 35.6 \dots 76.3\mu\text{in})$$

$$t_{p2} \geq 60\%$$

Non-sealing surfaces and lead-in chamfers:

$$R_{t3} \leq 15\mu\text{m} (R_a \leq 2.2 \dots 4.0\mu\text{m}, \text{RMS} \leq 97 \dots 194\mu\text{in})$$

$$R_{t4} \leq 10\mu\text{m} (R_a \leq 1.4 \dots 2.6\mu\text{m}, \text{RMS} \leq 62 \dots 125\mu\text{in})$$

# General Installation Guidelines

---

International (ISO) and national (DIN) standards for seal housing dimensions are in place and should be considered. For seals requiring a special groove, e. g. special seals, valve seals, rotor seals etc., the groove dimensions are stated separately. In general, the surface finishes, leading edge chamfers and dimensions stated here have already proved themselves and will mostly be found in the standards.

We recommend that customers adhere to the tolerances and surface finishes stated in this catalogue. Only by working to these values will the fitting of seals be made easy and assembly damage avoided.

**Surfaces: Grinding as final machining process for dynamic sealing surfaces is not sufficient. These surfaces have to be polished afterwards.**

Radii: As for the necessary radii please refer to the respective profile data or the applicable standards.

# ISO Gland Tolerances

Basic Size mm		H8	H9	H11	f7	f8	h8	h9	h10
Above	Up To and Including	mm							
-	3	+0.014 0	+0.025 0	+0.060 0	-0.006 -0.016	-0.006 -0.020	0 -0.014	0 -0.025	0 -0.040
3	6	+0.018 0	+0.030 0	+0.075 0	-0.010 -0.022	-0.010 -0.028	0 -0.018	0 -0.030	0 -0.048
6	10	+0.022 0	+0.036 0	+0.090 0	-0.013 -0.028	-0.013 -0.035	0 -0.022	0 -0.036	0 -0.058
10	18	+0.027 0	+0.043 0	+0.110 0	-0.016 -0.034	-0.016 -0.043	0 -0.027	0 -0.043	0 -0.070
18	30	+0.033 0	+0.052 0	+0.130 0	-0.020 -0.041	-0.020 -0.053	0 -0.033	0 -0.052	0 -0.084
30	50	+0.039 0	+0.062 0	+0.160 0	-0.025 -0.050	-0.025 -0.064	0 -0.039	0 -0.062	0 -0.100
50	80	+0.046 0	+0.074 0	+0.190 0	-0.030 -0.060	-0.030 -0.076	0 -0.046	0 -0.074	0 -0.120
80	120	+0.054 0	+0.087 0	+0.220 0	-0.036 -0.071	-0.036 -0.090	0 -0.054	0 -0.087	0 -0.140
120	180	+0.063 0	+0.100 0	+0.250 0	-0.043 -0.083	-0.043 -0.106	0 -0.063	0 -0.100	0 -0.160
180	250	+0.072 0	+0.115 0	+0.290 0	-0.050 -0.096	-0.050 -0.122	0 -0.072	0 -0.115	0 -0.185
250	315	+0.081 0	+0.130 0	+0.320 0	-0.056 -0.108	-0.056 -0.137	0 -0.081	0 -0.130	0 -0.210
315	400	+0.089 0	+0.140 0	+0.360 0	-0.062 -0.119	-0.062 -0.151	0 -0.089	0 -0.140	0 -0.230
400	500	+0.097 0	+0.155 0	+0.400 0	-0.068 -0.131	-0.068 -0.165	0 -0.097	0 -0.155	0 -0.250
500	630	+0.110 0	+0.175 0	+0.440 0	-0.076 -0.146	-0.076 -0.186	0 -0.110	0 -0.175	0 -0.280
630	800	+0.125 0	+0.200 0	+0.500 0	-0.080 -0.160	-0.080 -0.205	0 -0.125	0 -0.200	0 -0.320
800	1000	+0.140 0	+0.230 0	+0.560 0	-0.086 -0.176	-0.086 -0.226	0 -0.140	0 -0.230	0 -0.360
1000	1250	+0.165 0	+0.260 0	+0.660 0	-0.098 -0.203	-0.098 -0.263	0 -0.165	0 -0.260	0 -0.420
1250	1600	+0.195 0	+0.310 0	+0.780 0	-0.110 -0.235	-0.110 -0.305	0 -0.195	0 -0.310	0 -0.500
1600	2000	+0.230 0	+0.370 0	+0.920 0	-0.120 -0.270	-0.120 -0.350	0 -0.230	0 -0.370	0 -0.600
2000	2500	+0.280 0	+0.440 0	+1.100 0	-0.130 -0.305	-0.130 -0.410	0 -0.280	0 -0.440	0 -0.700
2500	3150	+0.330 0	+0.540 0	+1.350 0	-0.145 -0.355	-0.145 -0.475	0 -0.330	0 -0.540	0 -0.860

# Range of Seals

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
<b>Rod Seals</b>								
	B3	•			400	0,5	-35/+110	
	BA	•			350	0,5	-35/+80	
	BD	•			500	0,5	-35/+110	
	BS	•			400	0,5	-35/+110	
	BU	•			500	0,5	-35/+110	
	C1	•	•		H: 160 <sup>1)</sup> P: 16	1,0	-35/+100 P: +80	
	C3	•			160	0,5	-35/+100	•
	CR	•			350	4,0	-30/+100	
	E5	•			16	1,0	-30/+80 PU: -35/+80	
	E8	•			16	1,0	-20/+80	
	E9 <sup>2)</sup>	•			16	1,0	-10/+200	
	EL	•			NBR: 10 PU: 16	1,0	-10/+80 PU: -35/+80	
	EM	•			16	1,0	-35/+80	
	EP	•			16	1,0	-35/+80	
	EU <sup>3)</sup>	•			16	1,0	-35/+80	
	EV	•			16	1,0	-30/+80	
	GC	•			400	0,5	-35/+110	

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
	JA	•			315	1,0	-30/+100	
	M0	•			350	0,5	-40/+100	
	M2	•			350	0,5	-40/+100	
	M3	•			500	0,5	-40/+100	
	M5	•			500	0,5	-40/+100	
	OD	•			400	4,0	-30/+100	
	ON	•			400	4,0	-30/+100	
	Q3	•			250	0,5	-30/+100	
	R3	•			315	0,5	-30/+100	
	Z9	•			16	1,0	-20/+80	
	ZE	•			350	0,5	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZG	•			500	0,5	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZH	•			500	0,5	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZJ	•			500	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZR	•			350	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZU	•			500	0,1	+5/+50 <sup>5)</sup> -20/+100 <sup>6)</sup>	

1) Dependent upon cross-section and compound

2) FPM version for E8 grooves

3) PU version of E8

4) Valve seal

5) Use in HFA/HFB

6) Use in mineral oil

7) With reduced extrusion gap

# Range of Seals

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
<b>Piston Seals</b>								
	B7	I			400	0,5	-35/+110	
	C2	I	I		H: 160 <sup>1)</sup> P: 16	0,5	-25/+100	
	CP	I			350	4,0	-30/+100	
	D1	•			500	0,5	-40/+100	•
	DK	•			16	1,0	-30/+80 PU: -35/+80	
	DL <sup>4)</sup>	•			10	1,0	-35/+80	
	DP	•			12	1,0	-30/+100	
	DE	•			12	1,0	-30/+100	
	E4	•			16	1,0	-30/+80 PU: -35/+80	
	EK	•			16	1,0	-30/+80 PU: -35/+80	
	GD	•			350	1,0	-30/+80	•
	KR	•			250	0,5	-35/+110	
	KU	•			400	0,5	-30/+100	
	M4	•			500	0,5	-40/+100	
	NG	•			250	0,5	-40/+100	
	N0	•			500	1,0	-40/+100	
	OA	•			16	4,0	-30/+80	

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
	OE	•			400 (600) <sup>7)</sup>	4,0	-30/+100	
	OG	•			400 (600) <sup>7)</sup>	4,0	-30/+100	
	OK	•			500	1,0	-30/+110	
	PZ	•			12	1,0	-20/+100	
	Z5	•			16	1,0	-30/+80	
	Z7	•			16	1,0	-30/+80	
	Z8	•			16	1,0	-20/+80 PU: -35/+80	
	ZA	•			400	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZC	•			500	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZD	•			500	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZK	•			500	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZP	•			500	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZQ	•			1500	0,1	+5/+60 <sup>5)</sup> -20/+100 <sup>6)</sup>	
	ZS	•			315 250 160	0,5	-30/+60 -30/+80 -30/+100	
	ZW	•			400	0,5	-35/+100	
	ZX	•			400 315 250	0,5	-30/+60 -30/+80 -30/+100	
	ZY	•			2000	0,1	-35/+110	

1) Dependent upon cross-section and compound

2) FPM version for E8 grooves

3) PU version of E8

















4) Valve seal















5) Use in HFA/HFB

6) Use in mineral oil

7) With reduced extrusion gap















# Range of Seals

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
<b>Wipers</b>								
	A1	•	•	–	2,0	+5/+60 <sup>5)</sup> –35/+100 <sup>6)</sup>		
	A2		•	–	2,0	–35/+100		
	A5	•	•	–	2,0	–35/+100		
	A6	•	•	–	2,0	+5/+60 <sup>5)</sup> –20/+100 <sup>6)</sup>		
	AD	•		–	2,0	–35/+100		
	AF	•		–	2,0	–35/+100		
	AG	•		–	2,0	–35/+100		
	AH	•		–	2,0	–35/+100		
	AM	•	•	–	2,0	+5/+60 <sup>5)</sup> –35/+100 <sup>6)</sup>		
	AT	•		–	2,0	–35/+100		
	AY	•		–	2,0	–35/+100		
<b>Guiding Elements</b>								
	F1	•		–	5,0	–40/+100		
	F2			–	5,0	–100/+200		
	F3	•		–	5,0	–100/+200		
	FP	•		–	5,0	–30/+100		
	FR	•	•	–	5,0	–50/+120		

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
<b>PTFE Back-up-rings</b>								
	XA	•	•	–	–	–150/+225		
	XB	•	•	–	–	–150/+225		
	XC	•	•	–	–	–150/+225		
<b>PU O-Rings</b>								
	V1	•	•	•	600 P: 10	0,5 P: 1,0 –35/+100 P: –35/+80		
<b>Flange Seals</b>								
	V2	•	•		315	–	–30/+100	
	OV	•			600	–	–35/+110	
<b>Cushioning Seals</b>								
	V6		•		16	1,0	–30/+80	
	PP		•		16	1,0	–20/+80	
<b>Rotary Seals</b>								
	C1	•			20	0,2	–35/+80	
	C5	•			20	0,2	–30/+100	
	C9	•			40	0,2	–30/+100	
	KA	•			400 315 250	0,2	–30/+60 –30/+80 –30/+100	
	OR	•			300	1,0	–30/+100	
	RS	•			500	0,5	–35/+100	



# Range of Seals

Profile	Profile reference	Application			Working data (with standard comp.)			Not for new designs
		Hydraulik	Pneumatik	Mining	Working Pressure ≤ (bar)	Surface speed ≤ m/s	Temperatur ° C	
<b>Flexiseals® – Spring loaded PTFE Seals</b>								
	JD	•			350	4,0 (rotating)	-150/+225	
	JR	•			350	–	-150/+225	
	JS	•			350	15,0	-150/+225	
	JK	•			350	15,0	-150/+225	
	JF	•			350	–	-150/+225	
	JG	•			350	–	-150/+225	
	JB	•			800	–	-150/+260	
	JC	•			800	–	-150/+260	
	JE	•			800	–	-150/+260	
	JH	•			800	–	-150/+260	
<b>Sealing systems for dual media</b>								
	KS	•			350	3,0	-30/+80	
<b>Seals for water pumps</b>								
	W1	•			250	2,0	+80	
	W2/ W3	•			80	2,0	+80	
	W7	•			–	2,0	+100	

1) Dependent upon cross-section and compound  
 2) FPM version for E8 grooves  
 3) PU version of E8

4) Valve seal  
 5) Use in HFA/HFB  
 6) Use in mineral oil  
 7) With reduced extrusion gap

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**7. Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and not with standing any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

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**12. Any special requirements for items to be provided by Seller hereunder including without limitation; compliance with military specifications, special documentation, or testing requirements, must be communicated to Seller in writing at the time the items are first requested. Any such requests that are communicated to Seller after preparation to manufacture an item has commenced may result in additional charges for rework or remanufacture of the item.**

**13. Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either more than two (2) years after the cause of action accrues.





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