Hydraulic Seals

TRIDENT PRECISION INTERNATIONAL

151, SECTOR-06,IMT MANESAR, GURGAON,HARYANA

122050

0124-4101151 WWW.TRIDENTPRECISION.IN sales@tridentprecision.in

Slipper Seal® Piston sealing set

OE

The double-acting OE piston sealing set featuring a Slipper Seal® design consists of a PTFE piston sealing ring and an elastomer O-ring as a preloading element. The seal design is intended for hydraulic applications. The symmetrical cross section of the sealing ring is designed for uniform return of drag oil during the stroke in both directions. The OE sealing set is particularly well suited for double-acting pistons in control cylinders, servo-controlled systems, machine tools and quick-acting cylinders.
Due to the material combination of the slide ring (PTFE) and O-ring (elastomer), this product is suitable for a wide range of applications, especially for aggressive media and/or high temperatures. For hydraulic applications, the piston sealing ring is preferably made from a bronze-filled PTFE compound in order to avoid reliable extrusion resistance. Alternatively, several compounds can be selected, depending on the specific applications profile.

- Good sealing performance in extremely small assembly conditions.
- Can also be used for single-acting applications.
- Excellent wear resistance.
- Minimal break-away and dynamic friction and no stick-slip tendency ensures uniform motion even at low speeds.
- Good energy efficiency due to low friction.
- Assembly on one-part piston is possible.
- Insensitive to pressure peaks.
- High temperature resistance assured by suitable O-ring compound selection.
- High extrusion resistance.
- Adaptable to nearly all media thanks to high chemical resistance of the sealing ring and large O-ring compound selection.
- Dimensions according to ISO 7425-1.
- Short axial assembly length.
- Installation in closed and undercut housings.
- Available in diameters from 4 to 4500 mm.
- Additional sizes of machined products available on short notice.

Range of application

Bei hohen Drücken.

Operating pressure	≤ 400 bar
in case of reduced extrusion gap (H7/f7) and large cross sections	≤ 600 bar
Operating temperature	-30 °C to +100 °C [1)]
Sliding speed	≤ 4 m/s

[1)] With deviation from standard temperature range, please contact our consultancy service for adequate O-ring compound.

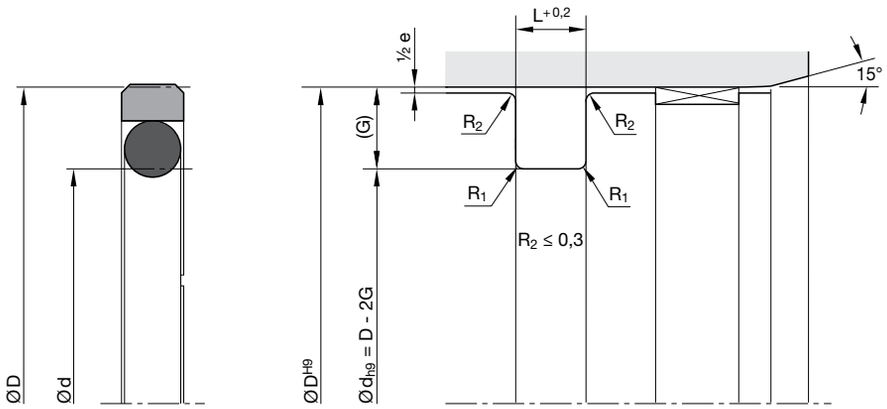
Compounds

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

Installation

This seal should only be used in combination with guiding elements (e.g. F3).

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.

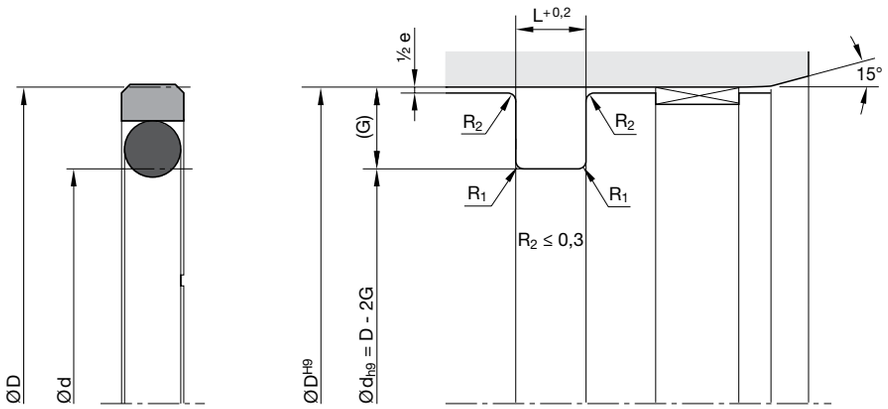


For surface finish, lead in chamfer and other installation dimensions see „General installation guidelines“.

Housing dimensions

Series no.	Cross-section	O-ring cross-section (mm)	Recommended piston Ø range D (mm) ≥	D (mm) <	Groove width L (mm)	Groove depth G (mm)	Gap max. 0200 bar e (mm)	Gap max. 200400 bar e (mm)	Radius max. R_1 (mm)	ISO[1)]
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 - 0.6	0.6 - 0.4	0.9	
00210	E	6.99	133	330	8.1	10.50	1 - 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	8.4	670	1000	9.5	13.65	1.4 - 0.8	0.8 - 0.6	0.9	
00210	H	12	1000	-	13.8	19.0	1.4 - 0.8	0.8 - 0.6	0.9	
00210	K	1.78	8	15	2.2	2.5	0.6 - 0.4	0.4 - 0.2	0.5	●
00210	L	2.62	15	40	3.2	3.75	0.8 - 0.5	0.5 - 0.3	0.5	●
00210	M	3.53	40	80	4.2	5.5	0.8 - 0.5	0.5 - 0.3	0.5	●
00210	N	3.53	40	80	5.0	5.0	0.8 - 0.5	0.5 - 0.3	0.5	●
00210	O	5.33	80	133	6.3	7.75	1 - 0.6	0.6 - 0.4	0.9	●
00210	P	5.33	80	133	7.5	7.5	1 - 0.6	0.6 - 0.4	0.9	●
00210	Q	6.99	133	330	8.1	10.5	1 - 0.6	0.6 - 0.4	0.9	●
00210	R	6.99	330	670	8.1	12.25	1.2 - 0.7	0.7 - 0.5	0.9	●
00210	S	6.99	133	330	10.0	10.0	1.2 - 0.7	0.7 - 0.5	0.9	●
00210	T	6.99	330	670	12.5	12.5	1.2 - 0.7	0.7 - 0.5	0.9	●
00210	U	10.0	670	1000	12.5	15.0	1.4 - 0.8	0.8 - 0.6	0.9	●
00210	V	10.0	670	1000	15.0	15.0	1.4 - 0.8	0.8 - 0.6	0.9	●
00210	W	14.0	1000	-	20.0	20.0	1.4 - 0.8	0.8 - 0.6	0.9	●

1) Housing dimensions according to ISO 7425-1



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

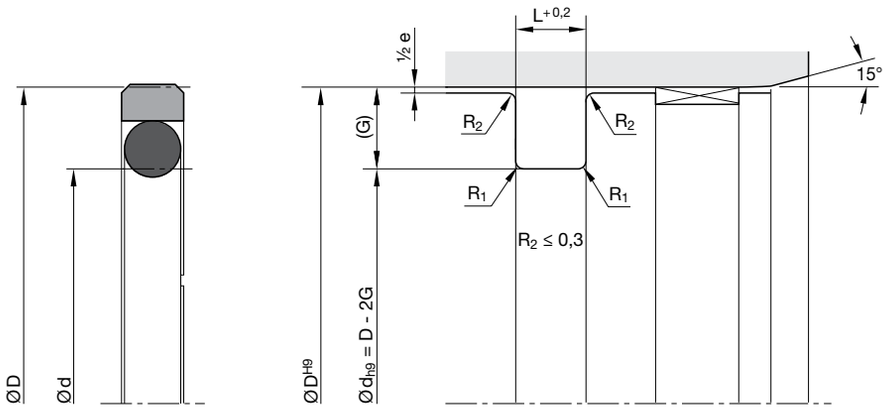
Ordering example

Piston diameter 80 mm

OE 0800 052 00211 D (80.0 x 64.5 x 6.3)

OE	Profile			
0800	Piston diameter × 10			
052	Compound			
00211	Series no. / compound code O-ring			
	00210	without O-ring		
	00211	N0674 (NBR)	70±5 Shore A	-30 / +110 °C
	00212	V0747 (FKM)	75±5 Shore A	-25 / +200 °C
	00213	N0756 (NBR)	75±5 Shore A	-50 / +110 °C
	00214	E0540 (EPDM)	80±5 Shore A	-40 / +150 °C
	00215	N3578 (NBR)	75±5 Shore A	-30 / +110 °C
	00216	N0552 (NBR)	90±5 Shore A	-30 / +100 °C
	00217	N1173 (HNBR)	70±5 Shore A	-30 / +150 °C
D	Cross-section			

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“).



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

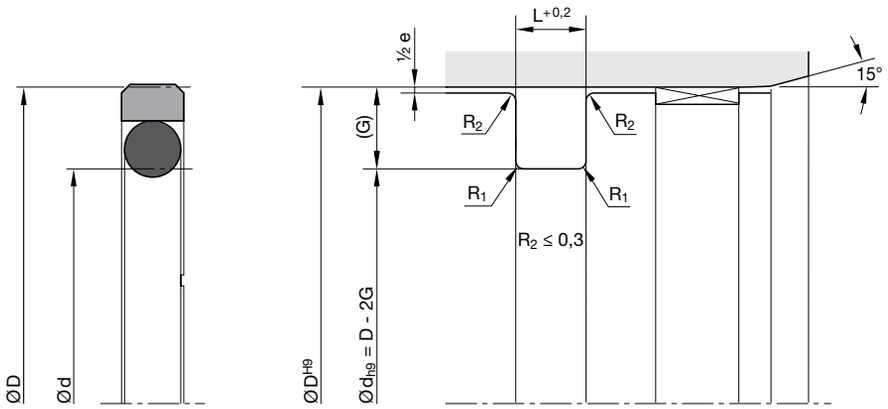
Standard range

Size	Groove				O-ring		ISO[1]
	Ø D (mm)	Ø d (mm)	L (mm)	No.	CS (mm)	ID (mm)	
0080	8	3.10	2.20	2-006	1.78	2.90	
0100	10	5.10	2.20	2-008	1.78	4.47	
0120	12	7.10	2.20	2-010	1.78	6.07	
0150	15	7.50	3.20	2-109	2.62	7.59	
0160	16	11	2.20	2-013	1.78	10.82	•
0160	16	8.50	3.20	2-109	2.62	7.59	•
0180	18	10.50	3.20	2-110	2.62	9.19	
0200	20	15	2.20	2-015	1.78	14	•
0200	20	12.50	3.20	2-111	2.62	10.77	•
0220	22	14.50	3.20	2-113	2.62	13.94	
0250	25	17.50	3.20	2-115	2.62	17.12	•
0250	25	14	4.20	2-207	3.53	13.87	•
0250	25	15	5	2-208	3.53	15.47	•
0280	28	20.50	3.20	2-116	2.62	18.72	
0300	30	22.50	3.20	2-118	2.62	21.89	
0320	32	24.50	3.20	2-119	2.62	23.47	•
0320	32	21	4.20	2-211	3.53	20.22	•
0320	32	22	5	2-212	3.53	21.82	•
0350	35	27.50	3.20	2-121	2.62	26.64	
0400	40	32.50	3.20	2-124	2.62	31.42	•
0400	40	29	4.20	2-216	3.53	28.17	•
0400	40	30	5	2-217	3.53	29.74	•
0420	42	31	4.20	2-217	3.53	29.74	
0450	45	34	4.20	2-219	3.53	32.92	
0480	48	37	4.20	2-221	3.53	36.09	
0500	50	39	4.20	2-222	3.53	37.69	•
0500	50	34.50	6.30	2-324	5.33	34.29	•
0500	50	35	7.50	2-324	5.33	34.29	•
0520	52	41	4.20	2-223	3.53	40.87	
0550	55	44	4.20	2-224	3.53	44.04	

Size	Groove				O-ring		ISO[1]
	Ø D (mm)	Ø d (mm)	L (mm)	No.	CS (mm)	ID (mm)	
0600	60	49	4.20	2-225	3.53	47.22	
0630	63	52	4.20	2-226	3.53	50.39	•
0630	63	47.50	6.30	2-328	5.33	46.99	•
0630	63	48	7.50	2-328	5.33	46.99	•
0650	65	54	4.20	2-227	3.53	53.57	
0700	70	59	4.20	2-228	3.53	56.74	
0800	80	69	4.20	2-232	3.53	69.44	•
0800	80	64.50	6.30	2-333	5.33	62.87	•
0850	85	69.50	6.30	2-335	5.33	69.22	
0900	90	74.50	6.30	2-336	5.33	72.39	
0950	95	79.50	6.30	2-338	5.33	78.74	
1000	100	89	4.20	2-238	3.53	88.49	•
1000	100	84.50	6.30	2-339	5.33	81.92	•
1050	105	89.50	6.30	2-341	5.33	88.27	
1100	110	94.50	6.30	2-343	5.33	94.62	
1150	115	99.50	6.30	2-344	5.33	97.79	
1200	120	104.50	6.30	2-346	5.33	104.14	
1250	125	109.50	6.30	2-347	5.33	107.32	•
1250	125	104	8.10	6-392	6.99	99	•
1250	125	105	10	6-392	6.99	99	•
1300	130	114.50	6.30	2-349	5.33	113.67	
1350	135	114	8.10	2-425	6.99	113.67	
1400	140	119	8.10	2-426	6.99	116.84	
1450	145	124	8.10	2-428	6.99	123.19	
1500	150	129	8.10	2-429	6.99	126.37	
1550	155	134	8.10	2-431	6.99	132.72	
1600	160	144.50	6.30	2-358	5.33	142.24	•
1600	160	139	8.10	2-433	6.99	139.07	•
1600	160	135	12.50	2-431	6.99	132.72	•
1650	165	144	8.10	2-434	6.99	142.24	

[1] ISO 7425-1

Further sizes on request.



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Size	Groove			O-ring			ISO[1]
	Ø D (mm)	Ø d (mm)	L (mm)	No.	CS (mm)	ID (mm)	
1700	170	149	8.10	2-436	6.99	148.59	
1750	175	154	8.10	2-437	6.99	151.77	
1800	180	159	8.10	2-438	6.99	158.12	
1850	185	164	8.10	2-439	6.99	164.47	
1900	190	169	8.10	2-439	6.99	164.47	
1950	195	174	8.10	2-440	6.99	170.82	
2000	200	184.50	6.30	2-366	5.33	183.52	•
2000	200	179	8.10	2-441	6.99	177.17	•
2000	200	175	12.50	2-440	6.99	170.82	•
2100	210	189	8.10	2-442	6.99	183.52	
2200	220	199	8.10	2-444	6.99	196.22	
2300	230	209	8.10	2-445	6.99	202.57	
2400	240	219	8.10	2-446	6.99	215.27	
2500	250	229	8.10	2-447	6.99	227.97	•
2500	250	225.50	8.10	2-447	6.99	227.97	•
2600	260	239	8.10	2-447	6.99	227.97	
2700	270	249	8.10	2-448	6.99	240.67	
2800	280	259	8.10	2-449	6.99	253.37	
2900	290	269	8.10	2-450	6.99	266.07	
3000	300	279	8.10	2-451	6.99	278.77	
3100	310	289	8.10	2-451	6.99	278.77	
3200	320	299	8.10	2-452	6.99	291.47	•
3200	320	295.50	8.10	2-452	6.99	291.47	•
3300	330	305.50	8.10	2-453	6.99	304.17	
3400	340	315.50	8.10	2-453	6.99	304.17	
3500	350	325.50	8.10	2-454	6.99	316.87	
3600	360	335.50	8.10	2-455	6.99	329.57	
3700	370	345.50	8.10	2-456	6.99	342.27	
3800	380	355.50	8.10	2-457	6.99	354.97	
3900	390	365.50	8.10	2-457	6.99	354.97	

Size	Groove			O-ring			ISO[1]
	Ø D (mm)	Ø d (mm)	L (mm)	No.	CS (mm)	ID (mm)	
4000	400	375.50	8.10	2-458	6.99	367.67	•
4000	400	370	12.50	6-672	10	364	•
4000	400	360	20	6-895	14	359	•
4100	410	385.50	8.10	2-459	6.99	380.37	
4200	420	395.50	8.10	2-460	6.99	393.07	
4300	430	405.50	8.10	2-461	6.99	405.26	
4400	440	415.50	8.10	2-461	6.99	405.26	
4500	450	425.50	8.10	2-462	6.99	417.96	
4600	460	435.50	8.10	2-463	6.99	430.66	
4700	470	445.50	8.10	2-464	6.99	443.36	
4800	480	455.50	8.10	2-465	6.99	456.06	
4900	490	465.50	8.10	2-465	6.99	456.06	
5000	500	475.50	8.10	2-466	6.99	468.76	•
5000	500	470	12.50	6-827	10	470	•
5200	520	495.50	8.10	2-468	6.99	494.16	
5500	550	525.50	8.10	2-469	6.99	506.86	
5700	570	545.50	8.10	2-470	6.99	532.26	
6000	600	575.50	8.10	2-471	6.99	557.66	
6200	620	595.50	8.10	2-472	6.99	582.68	
6400	640	615.50	8.10	2-473	6.99	608.08	
6500	650	622	9.50	-	8.40	635	
7000	700	672	9.50	-	8.40	660	
8000	800	772	9.50	-	8.40	770	
9000	900	872	9.50	-	8.40	888	

[1] ISO 7425-1

Further sizes on request.