



MATERIAL

System Seals' custom blended PTFE-filled compounds provide ultra-low friction and high-speed performance with minimal wear. The standard compounds are PTFE-filled with Bronze filler, or PTFE-filled with Glass-Moly. The temperature range of the seal can be increased by selecting an FPM energizer in place of the standard NBR energizer.

Material	Code
PTFE-Bronze compound + NBR o-ring (shown in photo)	MT02 + MN61
PTFE-Bronze compound + FPM o-ring	MT02 + MF63
PTFE-Glass/MoS2 compound + NBR o-ring	MT08 + MN61
PTFE-Glass/MoS2 compound + FPM o-ring	MT08 + MF63

OPERATING PARAMETERS

	MT02 + MN61		MT08 + MN61	
	°C	°F	°C	°F
hydraulic oil	-30... +100	-22... +212	-30... +100	-22... +212
water oil emulsions (HFA)	-	-	+5... +60	+40... +140
water-glycol fluids (HFC)	-	-	-30... +60	-22... +140
polyol esters (HFD)	-	-	-	-
water	-	-	-5... +100	+40... +212
speed	5 m/s (16.5 ft/sec)			
pressure	400 bar (6,000 psi)			

Note: for other materials or fluids please contact our engineering department.

DESCRIPTION

The 208 Series standard-duty piston seal is a low-friction design, consisting of a PTFE-filled seal and an O-ring energizer. It is designed for double-acting cylinders in challenging applications, where low friction and high wear resistance are needed.

PRODUCT BENEFITS

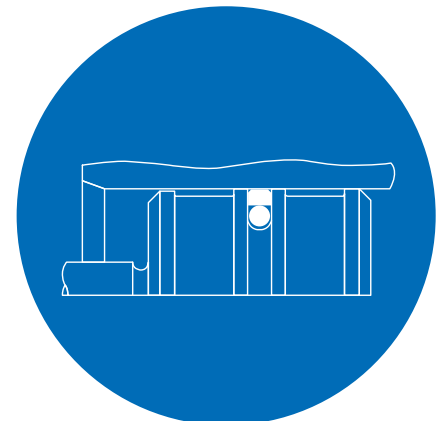
- Low friction
- Double-acting applications
- High-temperature resistance
- Low wear
- Extrusion resistant
- Compatible with a wide range of media
- Available in diameters up to 2100 mm

APPLICATIONS

The 208 Series standard-duty piston seal is ideal for high-pressure sealing applications, offering low-friction performance and double-acting operation.

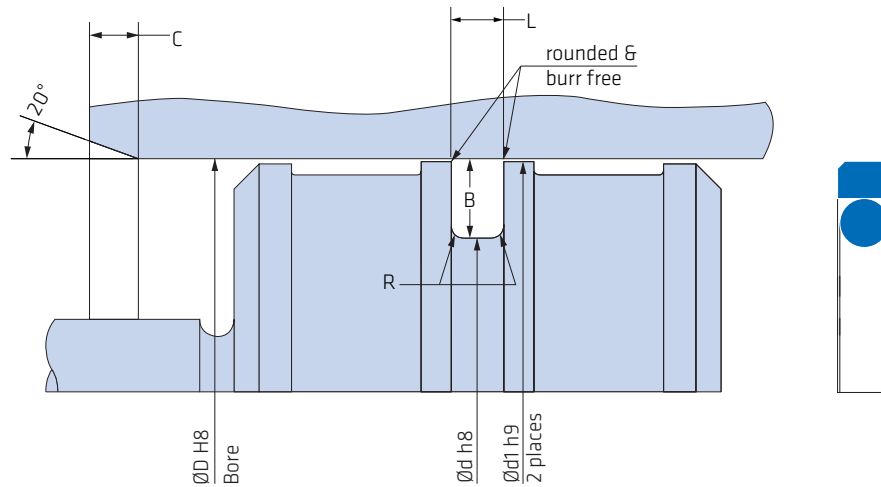
Typical applications include:

- Rolling Mills
- Injection Molding Machines
- Hydraulic Presses
- Agricultural Hydraulics
- Mobile Hydraulics



Above: Installation Drawing

DESIGN GUIDELINES



METRIC SERIES

	B	Ød	L ^{+0.20}	Ød1 <200 bar	Ød1 <400 bar	R
Series 1	2.45 mm	D - 4.90	2.20	D - 0.40	D - 0.30	0.30
Series 2	3.75 mm	D - 7.50	3.20	D - 0.50	D - 0.30	0.50
Series 3	5.50 mm	D - 11.00	4.20	D - 0.50	D - 0.40	0.80
Series 4	7.75 mm	D - 15.50	6.30	D - 0.50	D - 0.40	1.20
Series 5	10.50 mm	D - 21.00	8.10	D - 0.60	D - 0.50	2.00
Series 6	12.25 mm	D - 24.50	8.10	D - 0.60	D - 0.50	2.00
Series 7	14.00 mm	D - 28.00	9.50	D - 0.60	D - 0.50	2.00
Series 8	19.00 mm	D - 38.00	13.80	D - 0.70	D - 0.60	0.079

INCH SERIES

	B	Ød	L ^{+0.008}	Ød1 <3,000 psi	Ød1 <6,000 psi	R
Series 1	0.096 in	D - 0.192	0.086	D - 0.016	D - 0.012	0.012
Series 2	0.148 in	D - 0.296	0.126	D - 0.020	D - 0.012	0.020
Series 3	0.216 in	D - 0.432	0.165	D - 0.020	D - 0.016	0.032
Series 4	0.305 in	D - 0.610	0.248	D - 0.020	D - 0.016	0.050
Series 5	0.413 in	D - 0.826	0.319	D - 0.024	D - 0.020	0.080
Series 6	0.482 in	D - 0.964	0.319	D - 0.024	D - 0.020	0.080
Series 7	0.551 in	D - 1.102	0.374	D - 0.024	D - 0.020	0.080
Series 8	0.748 in	D - 1.496	0.543	D - 0.028	D - 0.024	0.079

Note: the extrusion gap "E" is suitable for pressure up to 400 bar (6,000 psi) and temperatures up to 80° C (176° F). For higher pressures or temperatures, please consult our engineering department for guidance. For a complete list of available sizes please refer to the System Seals online product catalogue at www.systemseals.com.

SURFACE FINISH

Surface roughness	Ra	Rt	RMS
Sliding surface	≤0.3 µm	≤3 µm	8 RMS
Surface of groove I.D.	≤1.8 µm	≤10 µm	64 RMS
Sides of groove	≤3 µm	≤16 µm	125 RMS

LEAD-IN CHAMFERS

Ød	C
≤40.00 mm	4.00
40 mm < 80 mm	6.00
80 mm < 133 mm	8.00
133 mm < 330 mm	10.00
330 mm < 670 mm	12.00
670 mm < 950 mm	14.00

Ød	C
<1.5 in	0.160
1.5 in < 3.0 in	0.240
3.0 in < 5.25 in	0.320
5.25 in < 13.0 in	0.400
13.0 in < 26.0 in	0.500
26.0 in < 37.5 in	0.550

METRIC SERIES

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
10.00	5.10	2.20	208.90468	208.90406
12.00	7.10	2.20	208.39531	208.47755
14.30	9.40	2.20	208.90018	208.90367
14.50	9.60	2.20	208.90069	208.90212
15.00	7.50	3.20	208.39532	208.47756
16.00	8.50	3.20	208.39533	208.47754
17.00	9.50	3.20	208.90192	208.90117
18.00	10.50	3.20	208.90087	208.90347
19.10	11.60	3.20	208.90227	208.90369
20.00	12.50	3.20	208.90379	208.90264
20.60	13.10	3.20	208.90343	208.90197
22.00	14.50	3.20	208.47749	208.47749
23.00	15.50	3.20	208.90491	208.90301
24.00	16.50	3.20	208.47759	208.47751
25.00	17.50	3.20	208.90439	208.47741
26.00	18.50	3.20	208.90403	208.90183
28.00	20.50	3.20	208.47750	208.47742
28.60	21.10	3.20	208.90172	208.90115
30.00	22.50	3.20	208.42948	208.47939
32.00	24.50	3.20	208.42980	208.39508
33.00	25.50	3.20	208.90395	208.90267
34.00	26.50	3.20	208.90135	208.90006
35.00	27.50	3.20	208.39517	208.90086
36.00	28.50	3.20	208.47941	208.47743
36.50	29.00	3.20	208.90397	208.90024
38.00	30.50	3.20	208.90062	208.90096
40.00	29.00	4.20	208.42989	208.90150
42.00	31.00	4.20	208.39518	208.47744
43.00	32.00	4.20	208.39576	208.90075
44.00	33.00	4.20	208.90189	208.90151
44.50	33.50	4.20	208.90031	208.90052
45.00	34.00	4.20	208.43005	208.90361
48.00	37.00	4.20	208.90413	208.90073
50.00	39.00	4.20	208.39519	208.90253
51.60	40.60	4.20	208.90259	208.90378
52.00	41.00	4.20	208.39574	208.90426
53.00	42.00	4.20	208.90050	208.90122
54.00	38.50	6.30	208.90311	208.90375
55.00	44.00	4.20	208.39520	208.40913
56.00	45.00	4.20	208.90266	208.47745

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
58.00	47.00	4.20	208.90008	208.90158
60.00	49.00	4.20	208.39521	208.90452
62.00	51.00	4.20	208.90460	208.90100
63.00	52.00	4.20	208.45740	208.39511
65.00	54.00	4.20	208.39528	208.47938
68.00	57.00	4.20	208.90229	208.90184
70.00	59.00	4.20	208.43124	208.47940
70.00	54.50	6.30	208.43111	208.47746
72.00	61.00	4.20	208.90250	208.90332
72.00	56.50	6.30	208.90357	208.90142
72.00	56.50	6.30	208.90443	208.112908
73.00	62.00	4.20	208.90105	208.90446
74.00	63.00	4.20	208.90063	208.90205
75.00	64.00	4.20	208.43137	208.47748
75.00	59.50	6.30	208.39534	208.90247
78.00	67.00	4.20	208.90193	208.90025
80.00	64.50	6.30	208.43139	208.90074
80.00	59.00	8.10	208.07755	208.90092
82.60	67.10	6.30	208.90385	208.90168
83.10	67.60	6.30	208.90291	208.90309
85.00	69.50	6.30	208.43232	208.47763
85.00	64.00	8.10	208.39535	208.47757
88.00	72.50	6.30	208.90228	208.90190
90.00	74.50	6.30	208.43356	208.39513
90.00	69.00	8.10	208.47760	208.43218
93.00	77.50	6.30	208.90349	208.90356
95.00	79.50	6.30	208.47761	208.47753
95.00	74.00	8.10	208.47943	208.47738
98.00	82.50	6.30	208.90185	208.90146
100.00	89.00	4.20	208.39602	208.90165
100.00	84.50	6.30	208.43360	208.39509
100.00	79.00	8.10	208.39536	208.90325
101.60	86.10	6.30	208.90007	208.90433
104.00	88.50	6.30	208.90030	208.90316
105.00	89.50	6.30	208.45743	208.90191
107.80	92.30	6.30	208.90288	208.90455
110.00	94.50	6.30	208.43466	208.90430
110.00	89.00	8.10	208.43434	208.47937
112.00	96.50	6.30	208.90271	208.90466
113.10	97.60	6.30	208.90313	208.90129

METRIC SERIES

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
115.00	99.50	6.30	208.39522	208.9049
115.00	94.00	8.10	208.90289	208.47747
120.00	104.50	6.30	208.39537	208.90299
120.00	99.00	8.10	208.39538	208.90462
122.00	106.50	6.30	208.90236	208.90310
125.00	109.50	6.30	208.06600	208.47739
125.00	104.00	8.10	208.43501	208.90328
130.00	114.50	6.30	208.43661	208.39516
130.00	109.00	8.10	208.47762	208.43565
133.00	112.00	8.10	208.90209	208.90456
133.40	117.70	6.30	208.90141	208.90166
135.00	114.00	8.10	208.39544	208.90497
138.60	117.60	8.10	208.90359	208.90233
140.00	119.00	8.10	208.43719	208.90144
142.00	121.00	8.10	208.20506	208.90354
143.00	122.00	8.10	208.90085	208.90101
145.00	124.00	8.10	208.47945	208.90268
149.00	128.00	8.10	208.90239	208.90286
150.00	134.50	6.30	208.90282	208.90148
150.00	129.00	8.10	208.20013	208.39506
152.40	131.30	8.10	208.90396	208.90078
152.70	131.70	8.10	208.90298	208.90315
155.00	134.00	8.10	208.90320	208.90428
157.00	136.00	8.10	208.90114	208.90077
160.00	139.00	8.10	208.12807	208.39507
165.00	144.00	8.10	208.90438	208.90410
170.00	149.00	8.10	208.43938	208.90402
175.00	159.50	6.30	208.90055	208.90156
175.00	154.00	8.10	208.43939	208.90252
176.80	155.80	8.10	208.90327	208.90495
178.00	157.00	8.10	208.90211	208.90376
180.00	159.00	8.10	208.24814	208.39514
184.10	163.10	8.10	208.47765	208.90058
185.00	164.00	8.10	208.90057	208.90454
187.00	166.00	8.10	208.90242	208.90028
190.00	169.00	8.10	208.34418	208.90384
195.00	174.00	8.10	208.90453	208.90186
200.00	179.00	8.10	208.43980	208.90281
203.20	182.20	8.10	208.90360	208.90483
205.00	184.00	8.10	208.90322	208.90034

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
206.50	185.50	8.10	208.90204	208.90348
207.50	186.50	8.10	208.90238	208.90163
210.00	189.00	8.10	208.10709	208.90154
214.00	193.00	8.10	208.90445	208.90487
215.00	194.00	8.10	208.39541	208.90044
215.00	194.00	8.10	208.90365	208.90489
216.50	195.50	8.10	208.90059	208.90256
220.00	199.00	8.10	208.44287	208.39515
220.00	195.50	8.10	208.90404	208.90021
225.00	204.00	8.10	208.90330	208.90200
230.00	209.00	8.10	208.39559	208.90051
235.00	214.00	8.10	208.90157	208.90312
237.00	216.00	8.10	208.90116	208.90435
240.00	219.00	8.10	208.39527	208.90068
245.00	224.00	8.10	208.39572	208.90107
248.50	227.50	8.10	208.90436	208.90334
250.00	229.00	8.10	208.46837	208.90045
254.00	233.00	8.10	208.90219	208.90371
255.00	234.00	8.10	208.90276	208.90160
260.00	239.00	8.10	208.44288	208.52245
268.00	247.00	8.10	208.90335	208.90019
270.00	249.00	8.10	208.48973	208.47305
275.00	254.00	8.10	208.90417	208.90188
280.00	259.00	8.10	208.47942	208.39510
285.00	264.00	8.10	208.90269	208.90499
290.00	269.00	8.10	208.39555	208.39568
295.00	274.00	8.10	208.90020	208.90234
300.00	279.00	8.10	208.44059	208.39525
305.00	284.00	8.10	208.90484	208.90171
310.00	289.00	8.10	208.39548	208.90277
315.00	294.00	8.10	208.39604	208.90011
320.00	299.00	8.10	208.45784	208.44955
325.00	304.00	8.10	208.90040	208.90387
330.00	305.50	8.10	208.39567	208.90337
330.20	305.70	8.10	208.15824	208.90088
335.00	310.50	8.10	208.90448	208.90482
340.00	315.50	8.10	208.44152	208.90174
345.00	320.50	8.10	208.90324	208.90429
350.00	325.50	8.10	208.39566	208.90202
360.00	335.50	8.10	208.39524	208.51923

METRIC SERIES

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
365.00	340.50	8.10	208.90340	208.90110
370.00	345.50	8.10	208.39547	208.90207
375.00	350.50	8.10	208.90294	208.90303
380.00	355.50	8.10	208.90392	208.09790
385.00	360.50	8.10	208.90126	208.90240
390.00	365.50	8.10	208.52706	208.90043
395.00	370.50	8.10	208.90053	208.90423
400.00	375.50	8.10	208.45290	208.39512
405.00	380.50	8.10	208.90039	208.90471
410.00	385.50	8.10	208.90457	208.90161
415.00	390.50	8.10	208.90345	208.90257
420.00	395.50	8.10	208.39543	208.90127
430.00	405.50	8.10	208.39558	208.90467
435.00	410.50	8.10	208.90422	208.90123
440.00	415.50	8.10	208.90131	208.90099
450.00	425.50	8.10	208.40161	208.39570
452.00	427.50	8.10	208.90093	208.90038
457.20	432.70	8.10	208.08773	208.90029
460.00	435.50	8.10	208.39553	208.90262
465.00	440.50	8.10	208.90388	208.90224
470.00	445.50	8.10	208.39560	208.51800
475.00	450.50	8.10	208.90147	208.90139
480.00	455.50	8.10	208.52160	208.90459
482.00	457.50	8.10	208.90218	208.90118
490.00	465.50	8.10	208.47764	208.90199
500.00	475.50	8.10	208.47946	208.51218
508.00	483.50	8.10	208.08897	208.90377
510.00	485.50	8.10	208.90002	208.90353
515.00	490.50	8.10	208.90383	208.90431
520.00	495.50	8.10	208.42622	208.90225
520.70	496.20	8.10	208.90014	208.90056
530.00	505.50	8.10	208.50546	208.90175
540.00	515.50	8.10	208.39562	208.90217
550.00	525.50	8.10	208.39563	208.90091
560.00	535.50	8.10	208.51192	208.39569
570.00	545.50	8.10	208.90072	208.90407
580.00	555.50	8.10	208.0202	208.90169
584.20	559.70	8.10	208.90237	208.90393
590.00	565.50	8.10	208.90083	208.90143
600.00	575.50	8.10	208.39526	208.90006

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
609.60	585.10	8.10	208.39622	208.90215
610.00	585.50	8.10	208.39542	208.90138
620.00	595.50	8.10	208.35116	208.90351
620.00	592.00	9.50	208.90263	208.90415
625.00	600.50	8.10	208.90232	208.90304
630.00	605.50	8.10	208.52142	208.30096
640.00	615.50	8.10	208.44472	208.90476
650.00	625.50	8.10	208.39556	208.90346
660.00	635.50	8.10	208.24577	208.90005
660.40	635.90	8.10	208.39621	208.90067
670.00	642.00	9.50	208.90481	208.90386
680.00	652.00	9.50	208.43989	208.90480
690.00	662.00	9.50	208.90012	208.90432
700.00	672.00	9.50	208.39557	208.90284
710.00	682.00	9.50	208.90181	208.90401
720.00	692.00	9.50	208.24815	208.90295
730.00	702.00	9.50	208.90274	208.90366
740.00	712.00	9.50	208.90109	208.90046
750.00	722.00	9.50	208.44293	208.90084
760.00	732.00	9.50	208.44872	208.90390
762.00	734.00	9.50	208.90279	208.90081
770.00	742.00	9.50	208.90003	208.90235
780.00	752.00	9.50	208.90145	208.90314
783.00	755.00	9.50	208.90112	208.90124
790.00	762.00	9.50	208.90440	208.90326
800.00	772.00	9.50	208.34488	208.90255
805.00	777.00	9.50	208.90370	208.90111
810.00	782.00	9.50	208.90496	208.90486
812.80	784.80	9.50	208.39620	208.90412
820.00	792.00	9.50	208.39564	208.90015
830.00	802.00	9.50	208.90180	208.90421
840.00	812.00	9.50	208.39565	208.90424
850.00	822.00	9.50	208.90329	208.90290
860.00	832.00	9.50	208.90010	208.90119
865.00	837.00	9.50	208.90120	208.90244
870.00	842.00	9.50	208.90463	208.90198
880.00	852.00	9.50	208.51825	208.90461
890.00	862.00	9.50	208.42839	208.90292
900.00	872.00	9.50	208.77155	208.90178
910.00	882.00	9.50	208.90341	208.90419

METRIC SERIES

ØD	Ød	L	T02 PTFE/Bz w/ NBR O-ring	T08 PTFE/Glass-Moly w/ NBR O-Ring
920.00	892.00	9.50	208.90054	208.90323
930.00	902.00	9.50	208.90355	208.90246
940.00	912.00	9.50	208.90478	208.90398
950.00	922.00	9.50	208.90000	208.90047
965.00	937.00	9.50	208.24816	208.90152
1000.00	962.00	13.80	208.207736	208.82654
1020.00	982.00	13.80	208.156786	208.156787
1050.00	1012.00	13.80	208.42359	208.68034
1065.00	1027.00	13.80	208.207737	208.207748
1070.00	1032.00	13.80	208.207738	208.207749
1100.00	1072.00	9.50	208.90049	208.90251
1100.00	1062.00	13.80	208.207739	208.207750
1150.00	1112.00	13.80	208.207827	208.96022
1200.00	1162.00	13.80	208.111473	208.207751
1225.00	1187.00	13.80	208.207740	208.207752
1250.00	1212.00	13.80	208.147542	208.207753
1300.00	1262.00	13.80	208.207744	208.207757
1330.00	1302.00	9.50	208.90241	208.90416
1350.00	1312.00	13.80	208.207745	208.207758
1400.00	1362.00	13.80	208.207746	208.147690
1450.00	1412.00	13.80	208.207747	208.85325
1500.00	1426.00	13.80	208.207741	208.207754
1600.00	1562.00	13.80	208.25791	208.207759
1800.00	1762.00	13.80	208.98530	208.207760
2000.00	1962.00	13.80	208.207742	208.207755
2700.00	2662.00	13.80	208.207743	208.207756