

Material

The 190 Series rod seal features PTFE compounds which provide low friction performance, eliminate stick-slip effects, and have high wear resistance. Standard compounds are PTFE/Bz and PTFE/Glass-Moly.

The temperature range of the 190 Series can be increased by selecting a FPM profile ring in place of the standard NBR profile ring.

Material	Code
PTFE-Bronze compound + NBR o-ring	T23
PTFE-Bronze compound + FPM o-ring	T26
PTFE-Glass/MoS2 compound + NBR o-ring	T83
PTFE-Glass/MoS2 compound + FPM o-ring	T86

Operating Parameters

Temperature	T23		T83	
	°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 (6000psi)

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

Description

The 190 Series rod seal is composed of a PTFE compound seal ring energised by an elastomeric profile ring. It is designed for large-diameter and demanding applications where high pressures and large extrusion gaps are common.

Product Benefits

- Low friction
- Robust design
- Short assembly length
- Maximum extrusion resistance
- Ease of installation

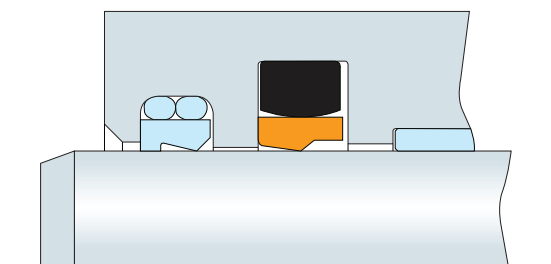
Applications

The 190 Series rod seal is designed for heavy duty applications requiring low friction.

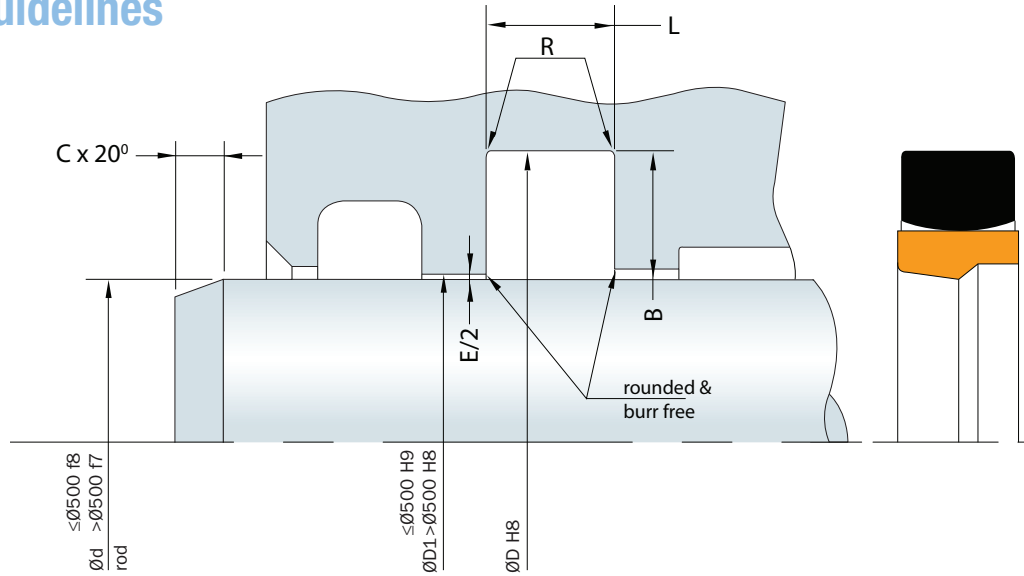
Typical applications include:

- Presses
- Rolling mills
- Injection moulding machines
- Marine hydraulics

Installation Drawing



Design Guidelines



Metric Series

	Rod Diameter D	B	D	D1	L ^{+0.2}	E	C	R
Series 1	Up to 200 mm	10.0	d + 20.0	d + 0.5	10.0	0.5	7.5	0.4
Series 2	Up to 300 mm	12.5	d + 25.0	d + 0.6	12.5	0.6	10.0	0.4
Series 3	Up to 450 mm	15.0	d + 30.0	d + 0.6	15.0	0.6	12.0	0.8
Series 4	Up to 685 mm	17.5	d + 35.0	d + 0.6	17.5	0.6	12.0	1.2
Series 5	Up to 1270 mm	20.0	d + 40.0	d + 0.6	20.0	0.6	12.0	1.2

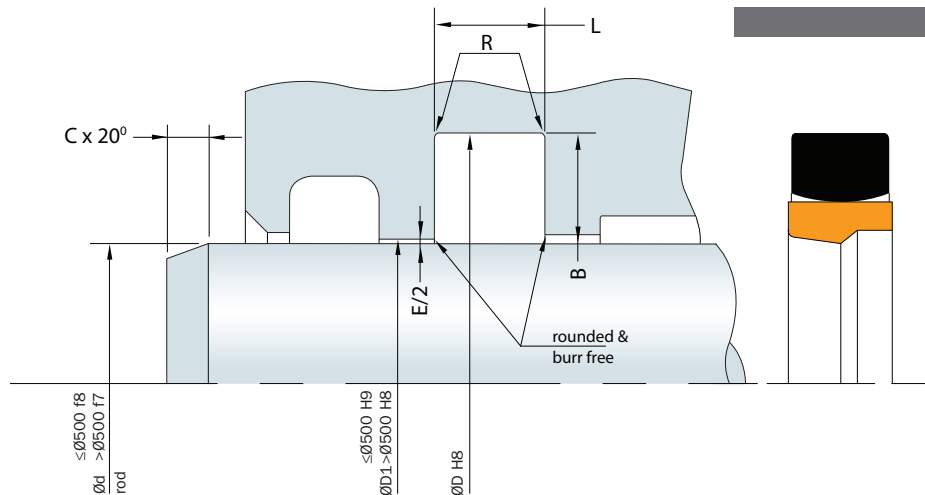
Inch Series

	Rod Diameter D	B	D	D1	L ^{+0.008}	E	C	R
Series 1	Up to 8 inches	0.394	d + 0.787	d + 0.20	0.394	0.020	0.30	0.016
Series 2	Up to 12 inches	0.492	d + 0.984	d + 0.024	0.492	0.024	0.39	0.016
Series 3	Up to 18 inches	0.591	d + 1.181	d + 0.024	0.591	0.024	0.47	0.032
Series 4	Up to 27 inches	0.689	d + 1.378	d + 0.024	0.689	0.024	0.47	0.050
Series 5	Up to 50 inches	0.787	d + 1.575	d + 0.024	0.787	0.024	0.47	0.050

The extrusion gap “E” is suitable for pressure up to 400 bar (6000 psi) and temperatures up to 80° C (176° F). For higher pressures or temperatures, please consult our engineering department for guidance.

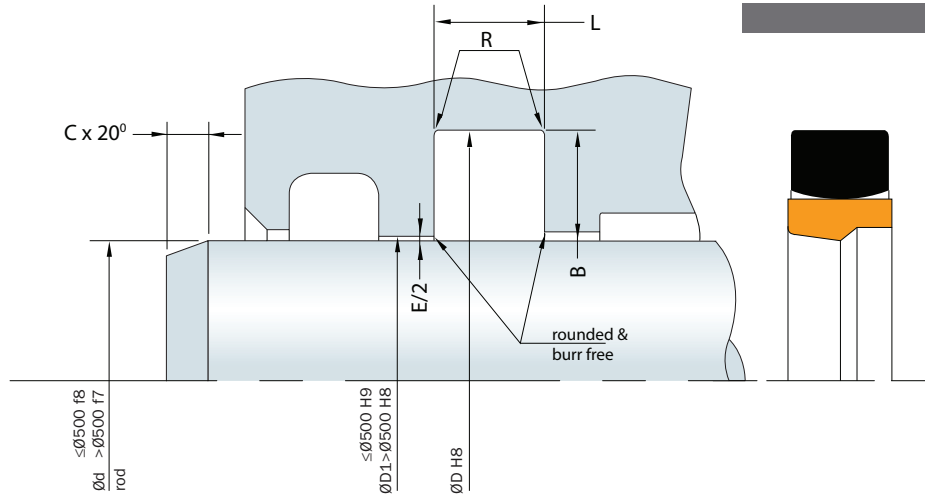
Surface Finish

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



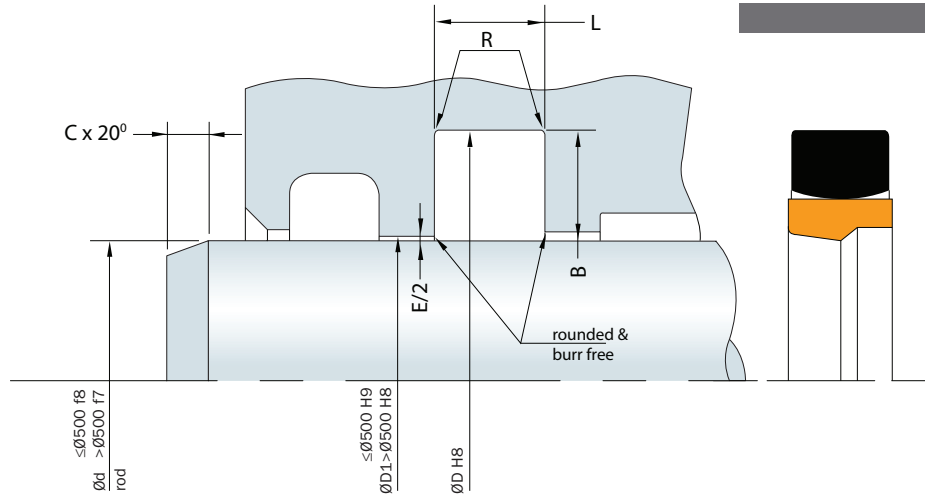
Parts List

Ød	ØD	B	L	C	R	T23 PTFE-Bronze	T83 PTFE-Glass/MoS2
20.00	30.00	5.00	5.00	5.00	0.40	190.91075	190.91036
25.00	35.00	5.00	5.00	5.00	0.40	190.91033	190.91101
30.00	40.00	5.00	5.00	5.00	0.40	190.91236	190.91062
32.00	42.00	5.00	5.00	5.00	0.40	190.91113	190.91059
35.00	45.00	5.00	5.00	5.00	0.40	190.91194	190.91069
36.00	46.00	5.00	5.00	5.00	0.40	190.91207	190.91149
40.00	55.00	7.50	7.50	7.50	0.40	190.91063	190.91052
45.00	60.00	7.50	7.50	7.50	0.40	190.91024	190.91147
50.00	65.00	7.50	7.50	7.50	0.40	190.51971	190.91213
56.00	71.00	7.50	7.50	7.50	0.40	190.91210	190.91046
60.00	75.00	7.50	7.50	7.50	0.40	190.91187	190.39477
63.00	78.00	7.50	7.50	7.50	0.40	190.91208	190.91142
65.00	80.00	7.50	7.50	7.50	0.40	190.91081	190.91086
70.00	85.00	7.50	7.50	7.50	0.40	190.91100	190.91243
75.00	95.00	10.00	10.00	7.50	0.40	190.91246	190.91139
80.00	100.00	10.00	10.00	7.50	0.40	190.91065	190.91145
85.00	105.00	10.00	10.00	7.50	0.40	190.91118	190.91229
90.00	110.00	10.00	10.00	7.50	0.40	190.91004	190.54106
100.00	120.00	10.00	10.00	7.50	0.40	190.91176	190.39478
105.00	125.00	10.00	10.00	7.50	0.40	190.91148	190.91007
110.00	130.00	10.00	10.00	7.50	0.40	190.43191	190.91242
111.70	131.70	10.00	10.00	7.50	0.40	190.91163	190.91127
113.30	133.30	10.00	10.00	7.50	0.40	190.91108	190.91078
115.00	135.00	10.00	10.00	7.50	0.40	190.91167	190.91133
120.00	140.00	10.00	10.00	7.50	0.40	190.24436	190.91080
125.00	145.00	10.00	10.00	7.50	0.40	190.91185	190.91136
130.00	150.00	10.00	10.00	7.50	0.40	190.34427	190.91054
140.00	160.00	10.00	10.00	7.50	0.40	190.91057	190.91169
145.00	165.00	10.00	10.00	7.50	0.40	190.50296	190.91115
150.00	170.00	10.00	10.00	7.50	0.40	190.09438	190.45990
158.00	178.00	10.00	10.00	7.50	0.40	190.91188	190.91102
160.00	180.00	10.00	10.00	7.50	0.40	190.91015	190.39479



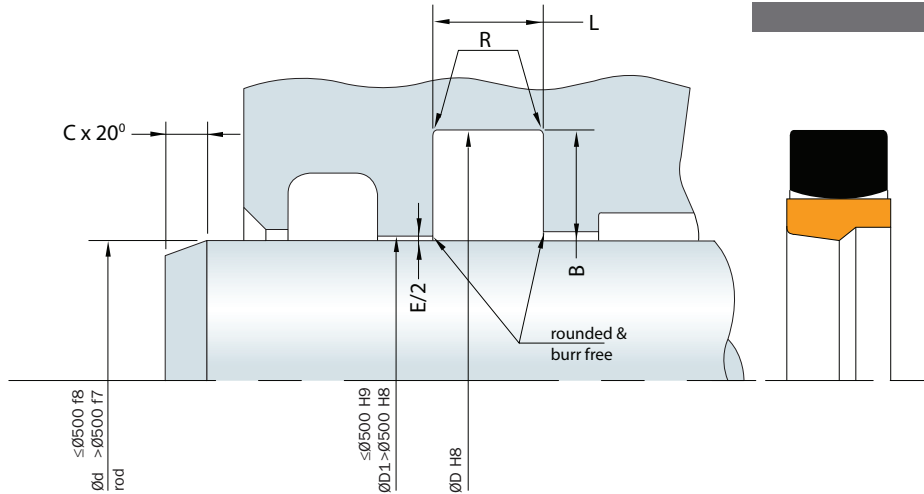
Parts List

Ød	ØD	B	L	C	R	T23 PTFE-Bronze	T83 PTFE-Glass/MoS2
165.00	185.00	10.00	10.00	7.50	0.40	190.91067	190.91158
170.00	190.00	10.00	10.00	7.50	0.40	190.48561	190.91177
175.00	195.00	10.00	10.00	7.50	0.40	190.91073	190.91119
180.00	200.00	10.00	10.00	7.50	0.40	190.91019	190.91154
200.00	220.00	10.00	10.00	7.50	0.40	190.47230	190.39480
200.00	225.00	12.50	12.50	10.00	0.40	190.91066	190.91076
210.00	235.00	12.50	12.50	10.00	0.40	190.91193	190.91159
220.00	245.00	12.50	12.50	10.00	0.40	190.91017	190.39482
221.40	246.40	12.50	12.50	10.00	0.40	190.91064	190.91241
230.00	255.00	12.50	12.50	10.00	0.40	190.91032	190.91060
237.20	262.20	12.50	12.50	10.00	0.40	190.91223	190.39486
240.00	265.00	12.50	12.50	10.00	0.40	190.47543	190.91092
247.70	272.70	12.50	12.50	10.00	0.40	190.91013	190.39495
250.00	275.00	12.50	12.50	10.00	0.40	190.48565	190.91041
260.00	285.00	12.50	12.50	10.00	0.40	190.91123	190.91230
265.00	290.00	12.50	12.50	10.00	0.40	190.39493	190.91025
270.00	295.00	12.50	12.50	10.00	0.40	190.91050	190.91175
270.00	300.00	15.00	15.00	12.00	0.80	190.91227	190.91018
280.00	305.00	12.50	12.50	10.00	0.40	190.91237	190.91126
290.00	315.00	12.50	12.50	10.00	0.40	190.91247	190.91112
300.00	325.00	12.50	12.50	10.00	0.40	190.91091	190.91096
300.00	330.00	15.00	12.50	12.00	0.80	190.24207	190.91162
310.00	340.00	15.00	15.00	12.00	0.80	190.91216	190.91087
315.00	345.00	15.00	15.00	12.00	0.80	190.91045	190.91095
320.00	350.00	15.00	15.00	12.00	0.80	190.91030	190.39488
325.00	355.00	15.00	15.00	12.00	0.80	190.91003	190.91026
330.00	360.00	15.00	15.00	12.00	0.80	190.91027	190.39481
335.00	365.00	15.00	15.00	12.00	0.80	190.91240	190.91106
340.00	370.00	15.00	15.00	12.00	0.80	190.91002	190.41520
350.00	380.00	15.00	15.00	12.00	0.80	190.91103	190.91132
354.00	384.00	15.00	15.00	12.00	0.80	190.91184	190.91152
360.00	390.00	15.00	15.00	12.00	0.80	190.91157	190.39489



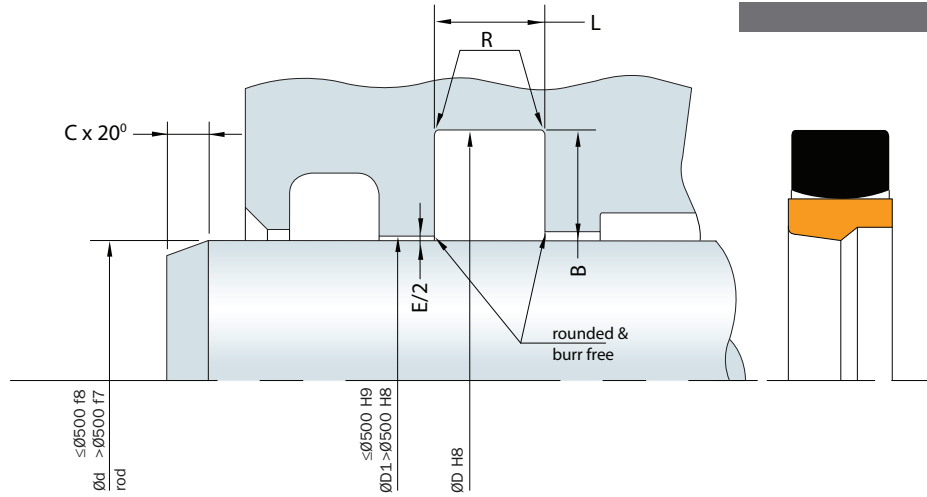
Parts List

Ød	ØD	B	L	C	R	T23 PTFE-Bronze	T83 PTFE-Glass/MoS2
370.00	400.00	15.00	15.00	12.00	0.80	190.91178	190.91174
377.00	407.00	15.00	15.00	12.00	0.80	190.91218	190.91016
380.00	410.00	15.00	15.00	12.00	0.80	190.91248	190.39484
390.00	420.00	15.00	15.00	12.00	0.80	190.91098	190.91122
398.00	428.00	15.00	15.00	12.00	0.80	190.91009	190.91160
400.00	430.00	15.00	15.00	12.00	0.80	190.09442	190.39485
410.00	440.00	15.00	15.00	12.00	0.80	190.91211	190.39487
420.00	450.00	15.00	15.00	12.00	0.80	190.91012	190.91238
430.00	460.00	15.00	15.00	12.00	0.80	190.10058	190.91239
435.00	465.00	15.00	15.00	12.00	0.80	190.91151	190.14806
440.00	470.00	15.00	15.00	12.00	0.80	190.51921	190.91141
445.00	475.00	15.00	15.00	12.00	0.80	190.91198	190.91130
450.00	480.00	15.00	15.00	12.00	0.80	190.91029	190.91204
458.00	488.00	15.00	15.00	12.00	0.80	190.91199	190.91021
460.00	490.00	15.00	15.00	12.00	0.80	190.91068	190.05765
470.00	500.00	15.00	15.00	12.00	0.80	190.91232	190.91058
480.00	510.00	15.00	15.00	12.00	0.80	190.46306	190.91156
490.00	520.00	15.00	15.00	12.00	0.80	190.91104	190.36360
500.00	530.00	15.00	15.00	12.00	0.80	190.91037	190.38480
510.00	545.00	17.50	17.50	12.00	1.20	190.91048	190.91244
520.00	555.00	17.50	17.50	12.00	1.20	190.91117	190.91166
525.00	565.00	20.00	20.00	12.00	1.20	190.91055	190.91153
530.00	560.00	15.00	15.00	12.00	0.80	190.91144	190.39483
540.00	575.00	17.50	17.50	12.00	1.20	190.91134	190.91137
545.00	580.00	17.50	17.50	12.00	1.20	190.91181	190.91038
550.00	585.00	17.50	17.50	12.00	1.20	190.91202	190.91014
560.00	595.00	17.50	17.50	12.00	1.20	190.39498	190.91168
570.00	605.00	17.50	17.50	12.00	1.20	190.91131	190.91173
580.00	615.00	17.50	17.50	12.00	1.20	190.91220	190.91047
590.00	625.00	17.50	17.50	12.00	1.20	190.91192	190.91056
596.90	631.90	17.50	17.50	12.00	1.20	190.91070	190.91203
600.00	635.00	17.50	17.50	12.00	1.20	190.91217	190.48202



Parts List

Ød	ØD	B	L	C	R	T23 PTFE-Bronze	T83 PTFE-Glass/MoS2
605.00	640.00	17.50	17.50	12.00	1.20	190.91077	190.91042
620.00	655.00	17.50	17.50	12.00	1.20	190.53487	190.91097
630.00	665.00	17.50	17.50	12.00	1.20	190.91079	190.91023
640.00	675.00	17.50	17.50	12.00	1.20	190.91146	190.39492
650.00	685.00	17.50	17.50	12.00	1.20	190.91083	190.91212
655.00	690.00	17.50	17.50	12.00	1.20	190.91171	190.91107
660.00	695.00	17.50	17.50	12.00	1.20	190.91190	190.49433
670.00	705.00	17.50	17.50	12.00	1.20	190.91028	190.91138
680.00	715.00	17.50	17.50	12.00	1.20	190.91164	190.91235
690.00	725.00	17.50	17.50	12.00	1.20	190.91205	190.91111
699.00	734.00	17.50	17.50	12.00	1.20	190.91197	190.91140
700.00	740.00	20.00	20.00	12.00	1.20	190.91245	190.91189
720.00	760.00	20.00	20.00	12.00	1.20	190.91099	190.91180
730.00	770.00	20.00	20.00	12.00	1.20	190.91011	190.91109
740.00	780.00	20.00	20.00	12.00	1.20	190.91044	190.91039
750.00	790.00	20.00	20.00	12.00	1.20	190.91005	190.24784
755.00	795.00	20.00	20.00	12.00	1.20	190.91121	190.91082
760.00	800.00	20.00	20.00	12.00	1.20	190.91234	190.91170
770.00	810.00	20.00	20.00	12.00	1.20	190.91089	190.91215
790.00	830.00	20.00	20.00	12.00	1.20	190.36627	190.36628
800.00	840.00	20.00	20.00	12.00	1.20	190.91001	190.39491
810.00	850.00	20.00	20.00	12.00	1.20	190.91034	190.91165
820.00	860.00	20.00	20.00	12.00	1.20	190.29852	190.91043
830.00	870.00	20.00	20.00	12.00	1.20	190.91049	190.91201
850.00	890.00	20.00	20.00	12.00	1.20	190.91191	190.91209
860.00	900.00	20.00	20.00	12.00	1.20	190.91222	190.39490
890.00	930.00	20.00	20.00	12.00	1.20	190.36630	190.36631
900.00	940.00	20.00	20.00	12.00	1.20	190.91233	190.91226
914.40	954.40	20.00	20.00	12.00	1.20	190.03378	190.91114
920.00	960.00	20.00	20.00	12.00	1.20	190.91125	190.11057
935.00	975.00	20.00	20.00	12.00	1.20	190.91072	190.91182
950.00	990.00	20.00	20.00	12.00	1.20	190.48050	190.24785



Parts List

Ød	ØD	B	L	C	R	T23 PTFE-Bronze	T83 PTFE-Glass/MoS2
970.00	1010.00	20.00	20.00	12.00	1.20	190.36632	190.24783
1000.00	1040.00	20.00	20.00	12.00	1.20	190.91150	190.41534
1070.00	1110.00	20.00	20.00	12.00	1.20	190.38481	190.91135