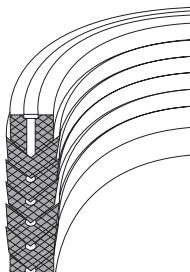


## Piston &amp; Rod Seals

F

(Metric Size)

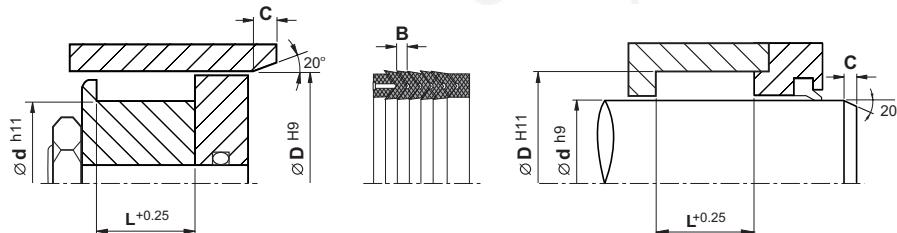


F

Material	Pressure (Bar)	Temp. (°C)	Speed (m/s)
NBR+Fabric	400	-30 +120	0.5

- Exceptional wear resistance.
- Pre-load adjustment capability.
- Excellent behaviour in harsh conditions.
- Long service life.

## Installation Recommendation



Surface roughness	R <sub>a</sub>	R <sub>t</sub>	Chamfers
Sliding surface	≤ 0.3 µm	≤ 4 µm	D C < 60 4.0
Surface of housing	≤ 1.8 µm	≤ 10 µm	60-120 5.0
Sides of housing	≤ 3.0 µm	≤ 16 µm	120-180 6.5 180-250 7.5 250-500 10.0

## V-Packing

(Metric Size)

Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)	Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)
Bore	Rod					Bore	Rod				
D	d	L	B			D	d	L	B		
12.0	5.0	18.0	2.5		F-012-005	44.0	32.0	22.5	3.0		F-044-032
16.3	6.3	23.0	3.0	JIS	F-016.3-006.3	44.5	31.5	24.5	3.0	JIS	F-044.5-031.5
17.1	7.1	23.0	3.0	JIS	F-017.1-007.1	45.0	25.0	36.6	5.0		F-045-025
18.0	8.0	18.5	2.5		F-018-008	45.0	30.0	22.5	3.0		F-045-030
18.0	8.0	23.0	3.0	JIS	F-018-008 JIS	45.0	32.0	24.5	3.0	JIS	F-045-032
19.0	9.0	23.0	3.0	JIS	F-019-009	45.0	35.0	27.0	3.5		F-045-035
20.0	10.0	18.5	2.5		F-020-010	47.0	32.0	22.5	3.0		F-047-032
20.0	10.0	23.0	3.0	JIS	F-020-010 JIS	47.0	35.0	22.5	3.0		F-047-035
21.2	11.2	23.0	3.0	JIS	F-021.2-011.2	50.0	30.0	38.0	5.0		F-050-030
22.0	10.0	31.2	4.0		F-022-010	50.0	34.0	31.0	4.0	JIS	F-050-034
22.0	12.0	18.5	2.5		F-022-012	50.0	35.0	22.5	3.0		F-050-035
22.5	12.5	23.0	3.0	JIS	F-022.5-012.5	50.0	40.0	21.5	2.5		F-050-040
24.0	14.0	18.5	2.5		F-024-014	51.0	36.0	22.5	3.0		F-051-036
24.0	14.0	23.0	3.0	JIS	F-024-014 JIS	51.5	35.5	31.0	4.0	JIS	F-051.5-035.5
25.0	15.0	18.5	2.5		F-025-015	52.0	40.0	22.5	3.0		F-052-040
26.0	16.0	18.5	2.5		F-026-016	54.0	42.0	22.5	3.0		F-054-042
26.0	16.0	23.0	3.0	JIS	F-026-016 JIS	55.0	38.0	37.0	5.0		F-055-038
27.0	15.0	23.0	3.0		F-027-015	55.0	40.0	22.5	3.0		F-055-040
28.0	15.0	24.5	3.0	JIS	F-028-015	55.0	45.0	22.6	2.8		F-055-045
28.0	18.0	18.5	2.5		F-028-018	56.0	40.0	31.0	4.0	JIS	F-056-040
30.0	20.0	18.5	2.5		F-030-020	60.0	40.0	38.0	5.0		F-060-040
31.0	18.0	24.5	3.0	JIS	F-031-018	60.0	45.0	22.5	3.0		F-060-045
31.5	18.5	24.5	3.0	JIS	F-031.5-018.5	61.0	45.0	31.0	4.0	JIS	F-061-045
32.0	18.0	29.0	4.0		F-032-018	63.0	47.0	31.0	4.0	JIS	F-063-047
32.0	20.0	22.5	3.0		F-032-020	65.0	40.0	46.0	6.0		F-065-040
32.0	22.0	18.5	2.5		F-032-022	65.0	45.0	27.5	3.5		F-065-045
33.0	20.0	24.5	3.0	JIS	F-033-020	65.0	50.0	22.5	3.0		F-065-050
35.0	20.0	38.0	5.0		F-035-020	66.0	50.0	31.0	4.0		F-066-050
35.0	25.0	23.5	3.0		F-035-025	69.0	53.0	31.0	4.0		F-069-053
35.4	22.4	24.5	3.0	JIS	F-035.4-022.4	70.0	40.0	57.5	7.5		F-070-040
36.0	20.0	30.5	3.5		F-036-020	70.0	50.0	30.0	4.0		F-070-050
37.0	25.0	22.5	3.0		F-037-025	70.0	55.0	22.5	3.0		F-070-055
38.0	25.0	24.5	3.0	JIS	F-038-025	71.0	55.0	31.0	4.0	JIS	F-071-055
40.0	20.0	40.0	5.0		F-040-020	71.0	56.0	22.5	3.0		F-071-056
40.0	25.0	22.5	3.0		F-040-025	72.0	56.0	31.0	4.0	JIS	F-072-056
40.0	27.0	24.5	3.0	JIS	F-040-027	75.0	55.0	30.0	4.0		F-075-055
40.0	28.0	22.5	3.0		F-040-028	75.0	60.0	22.5	3.0		F-075-060
41.0	28.0	24.5	3.0	JIS	F-041-028	76.0	56.0	38.0	5.0		F-075-056
42.0	30.0	22.5	3.0		F-042-030	76.0	60.0	31.0	4.0	JIS	F-076-060
43.0	28.0	22.5	3.0		F-043-028	79.0	63.0	31.0	4.0	JIS	F-079-063

(Metric Size)

Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)	Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)
Bore	Rod					Bore	Rod				
D	d	L	B	JIS	F-080-060	130.0	115.0	30.0	4.0	JIS	F-130-115
80.0	60.0	37.0	5.0		F-080-064	132.0	112.0	38.0	5.0		F-132-112
80.0	64.0	31.0	4.0		F-080-065	135.0	105.0	54.0	7.0		F-135-105
83.0	63.0	37.0	5.0		F-083-063	138.0	118.0	38.0	5.0		F-138-118
85.0	60.0	45.0	6.0		F-085-060	140.0	110.0	54.0	7.0		F-140-110
85.0	65.0	40.0	5.0	JIS	F-085-065	140.0	115.0	46.0	6.0	JIS	F-140-115
85.0	70.0	22.5	3.0		F-085-070	140.0	120.0	38.0	5.0		F-140-120 JIS
87.0	67.0	38.0	5.0		F-087-067	140.0	120.0	40.0	5.0		F-140-120
90.0	65.0	45.0	6.0		F-090-065	145.0	125.0	40.0	5.0		F-145-125
90.0	70.0	38.0	5.0		F-090-070 JIS	150.0	120.0	54.0	7.0		F-150-120
90.0	70.0	40.0	5.0	JIS	F-090-070	150.0	125.0	45.5	6.0	JIS	F-150-125 JIS
90.0	75.0	22.5	3.0		F-090-075	150.0	125.0	46.0	6.0		F-150-125
91.0	71.0	38.0	5.0		F-091-071	150.0	130.0	40.0	5.0		F-150-130
95.0	75.0	38.0	5.0		F-095-075 JIS	155.0	125.0	54.0	7.0		F-155-125
95.0	75.0	40.0	5.0		F-095-075	155.0	140.0	34.0	4.0		F-155-140
95.0	80.0	22.5	3.0	JIS	F-095-080	157.0	132.0	45.5	6.0	JIS	F-157-132
100.0	70.0	61.5	8.5		F-100-070	160.0	130.0	60.0	8.0		F-160-130
100.0	75.0	49.0	6.0		F-100-075	160.0	135.0	45.5	6.0		F-160-135
100.0	80.0	38.0	5.0		F-100-080 JIS	160.0	140.0	38.0	5.0		F-160-140
100.0	80.0	40.0	5.0		F-100-080	165.0	140.0	45.5	6.0		F-165-140 JIS
105.0	80.0	46.0	6.0	JIS	F-105-080	165.0	140.0	46.0	6.0	JIS	F-165-140
105.0	85.0	38.0	5.0		F-105-085 JIS	165.0	145.0	40.0	5.0		F-165-145
105.0	85.0	40.0	5.0		F-105-085	170.0	140.0	54.0	7.0		F-170-140
105.0	90.0	22.5	3.0		F-105-090	170.0	145.0	45.5	6.0		F-170-145 JIS
110.0	90.0	38.0	5.0		F-110-090 JIS	170.0	145.0	48.5	6.5		F-170-145
110.0	90.0	40.0	5.0	JIS	F-110-090	170.0	150.0	40.0	5.0	JIS	F-170-150
110.0	95.0	38.0	5.0		F-110-095	175.0	150.0	45.5	6.0		F-175-150
112.0	92.0	38.0	5.0		F-112-092	175.0	155.0	40.0	5.0		F-175-155
115.0	90.0	47.0	6.0		F-115-090	180.0	150.0	60.0	7.0		F-180-150
115.0	95.0	38.0	5.0		F-115-095	180.0	155.0	45.5	6.0		F-180-155
115.0	100.0	30.0	4.0	JIS	F-115-100	180.0	160.0	40.0	5.0	JIS	F-180-160
120.0	100.0	38.0	5.0		F-120-100 JIS	184.0	150.0	63.0	8.0		F-184-150
120.0	100.0	40.0	5.0		F-120-100	185.0	160.0	45.5	6.0		F-185-160 JIS
120.0	105.0	30.0	4.0		F-120-105	185.0	160.0	55.0	7.0		F-185-160
125.0	100.0	48.0	6.0		F-125-100	190.0	160.0	60.0	7.0		F-190-160
125.0	105.0	38.0	5.0	JIS	F-125-105 JIS	190.0	165.0	45.5	6.0	JIS	F-190-165 JIS
125.0	105.0	42.0	5.0		F-125-105	190.0	165.0	53.5	7.5		F-190-165
125.0	110.0	30.0	3.0		F-125-110	190.0	170.0	46.0	4.7		F-190-170
126.0	106.0	38.0	5.0		F-126-106	195.0	170.0	45.5	6.0		F-195-170 JIS
130.0	110.0	40.0	5.0		F-130-110	195.0	170.0	46.0	6.0		F-195-170

## V-Packing

(Metric Size)

Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)	Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)
Bore	Rod					Bore	Rod				
D	d	L	B			D	d	L	B		
200.0	170.0	54.0	7.0	JIS	F-200-170	312.0	280.0	54.0	7.0	JIS	F-312-280
200.0	175.0	45.5	6.0		F-200-175	315.0	280.0	54.0	7.5		F-315-280
205.0	175.0	56.5	7.0		F-205-175	320.0	290.0	53.0	5.0		F-320-290
205.0	180.0	45.5	6.0		F-205-180	320.0	300.0	42.0	7.5		F-320-300
207.0	175.0	60.0	7.5		F-207-175	330.0	300.0	60.0	9.0		F-330-300
210.0	180.0	60.0	7.0	JIS	F-210-180	332.0	300.0	54.0	7.0	JIS	F-332-300
210.0	185.0	48.5	6.5		F-210-185	340.0	300.0	69.5	9.0		F-340-300
215.0	190.0	45.5	6.0		F-215-190	347.0	315.0	54.0	7.0		F-347-315
215.0	195.0	38.0	5.0		F-215-195	350.0	310.0	69.8	7.0		F-350-310
220.0	190.0	50.0	7.5		F-220-190	350.0	320.0	55.0	7.0		F-350-320
220.0	200.0	40.0	5.0	JIS	F-220-200	360.0	320.0	69.0	9.0	JIS	F-360-320
224.0	199.0	45.5	6.0		F-224-199	360.0	330.0	65.5	7.5		F-360-330
225.0	200.0	45.5	6.0		F-225-200	367.0	335.0	54.0	7.0		F-367-335
225.0	205.0	37.0	5.0		F-225-205	370.0	340.0	61.0	7.5		F-370-340
227.0	195.0	66.0	8.0		F-227-195	380.0	340.0	66.0	8.0		F-380-340
230.0	190.0	74.0	10.0	JIS	F-230-190	380.0	350.0	54.0	7.0	JIS	F-380-350
230.0	200.0	60.0	7.5		F-230-200	387.0	355.0	54.0	7.0		F-387-355
235.0	215.0	45.0	5.0		F-235-215	390.0	350.0	69.0	10.0		F-390-350
237.0	212.0	45.5	6.0		F-237-212	390.0	360.0	58.0	8.0		F-390-360
240.0	210.0	56.0	7.5		F-240-210	390.0	370.0	45.0	6.0		F-390-370
245.0	215.0	65.5	6.5	JIS	F-245-215	400.0	360.0	67.5	8.5	JIS	F-400-360
249.0	224.0	45.5	6.0		F-249-224	400.0	370.0	55.0	7.0		F-400-370
250.0	220.0	59.0	7.0		F-250-220	407.0	375.0	54.0	7.0		F-407-375
250.0	225.0	45.5	6.0		F-250-225	410.0	380.0	58.0	8.0		F-410-380
255.0	225.0	55.0	7.5		F-255-225	420.0	380.0	77.5	10.0		F-420-380
260.0	230.0	61.0	8.5	JIS	F-260-230	420.0	390.0	65.5	7.5	JIS	F-420-390
261.0	236.0	45.5	6.0		F-261-236	432.0	400.0	54.0	7.0		F-432-400
265.0	225.0	64.5	7.0		F-265-225	440.0	400.0	67.5	8.5		F-440-400
270.0	240.0	55.0	5.0		F-270-240	450.0	410.0	79.0	10.0		F-450-410
270.0	250.0	42.0	7.5		F-270-250	450.0	420.0	58.0	7.0		F-450-420
275.0	245.0	54.0	5.0	JIS	F-275-245	457.0	425.0	54.0	7.0	JIS	F-457-425
275.0	250.0	45.5	6.0		F-275-250	460.0	420.0	66.0	8.0		F-460-420
275.0	255.0	40.0	7.5		F-275-255	470.0	440.0	65.5	7.5		F-470-440
280.0	250.0	60.5	5.0		F-280-250	480.0	440.0	70.0	9.0		F-480-440
285.0	265.0	45.0	7.5		F-285-265	482.0	450.0	54.0	7.0		F-482-450
290.0	260.0	60.0	8.0	JIS	F-290-260	490.0	450.0	67.5	8.5	JIS	F-490-450
297.0	265.0	54.0	7.0		F-297-265	500.0	450.0	100.0	13.0		F-500-450
300.0	270.0	60.0	8.0		F-300-270	500.0	460.0	70.0	9.0		F-500-460
305.0	275.0	65.5	7.0		F-305-275	507.0	475.0	54.0	7.0		F-507-475
310.0	280.0	56.0	7.0		F-310-280	510.0	470.0	65.0	8.0		F-510-470



Seals &amp; O-rings Specialist

## V-Packing

(Metric Size)

Groove Dia.		Groove Width	Single Ring Height	Standard	Reference (For order processing)
Bore	Rod	L	B		
D	d				
515.0	485.0	54.0	7.0	JIS	F-515-485
530.0	500.0	57.5	7.5		F-530-500
532.0	500.0	54.0	7.0		F-532-500
545.0	505.0	62.0	9.0		F-545-505
570.0	530.0	63.0	8.0		F-570-530
600.0	560.0	63.0	8.0	JIS	F-600-560 JIS
600.0	560.0	65.0	9.0	JIS	F-600-560
640.0	600.0	63.0	8.0	JIS	F-640-600
670.0	620.0	100.0	13.0	JIS	F-670-620
670.0	630.0	63.0	8.0	JIS	F-670-630
710.0	670.0	63.0	8.0	JIS	F-710-670
750.0	710.0	63.0	8.0	JIS	F-750-710
790.0	750.0	65.5	8.5		F-790-750
850.0	810.0	79.0	10.0		F-850-810
965.0	915.0	89.5	11.5		F-965-915
1065.0	1025.0	71.0	9.0		F-1065-1025
1150.0	1100.0	105.0	12.5		F-1150-1100

Seals &amp; O-rings Specialist