

Red Hill IOM: CES/39 / dt 2001-12-20 2001-12-22

FOR REFERENCE ONLY

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KES	SI	O-RING	D (PARTS)
			07000 (1994)
Parts classification code		7 0 A 1	

Division code	0	1	4	5	7
Materials	NBR-1A	NBR-1B	NBR-1D	NBR-1E	VMQ-1C
Hardness	JIS HS70±5	JIS HS88±5	JIS HS70±5	JIS HS82±5	JIS HS68±5
Material dis-criminating color	Black (*)	Two points in blue	One point in red	Two points in red	Brown (*)
Operating temp. range (°C)	-30 to +100		-55 to +100	-55 to +80	-55 to +180
Filling solution (*)	Mineral oil · water		Mineral oil · water	Mineral oil	Mineral oil
Applicable pressure MPa (kg/cm ²)	10.3 (105) and below	13.7 (140) and above	10.3 (105) and below	13.7 (140) and above	2.94 (30) and below
Other working conditions	For fixed use · motive use		O-ring of division code 0 for severe cold district	O-ring of division code 1 for severe cold district	For fixed use. However, O-ring shall not be used to gear oil containing the extreme pressure additive, the oil low in viscosity (light oil, gasoline, etc.), or in cooling system. Also, as the mechanical property is poor, this O-ring should not be applied to motive use.

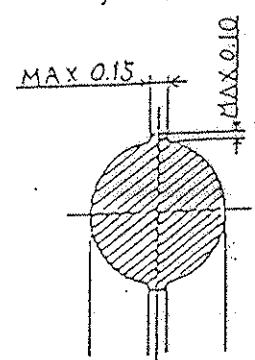
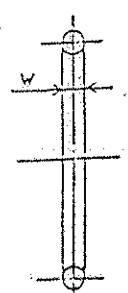
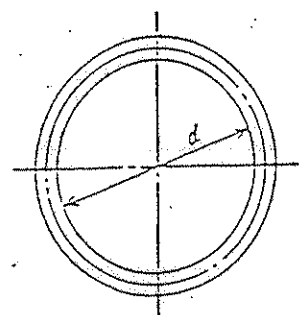
Division code	A	B	C	D	E	F	G
Materials	HNBR-1A	HNBR-1B	ACM-1A	ACM-1B	FKM-1D	FKM-1E	EPDM-1A
Hardness	JIS HS70±5	JIS HS90±5	JIS HS70±5	JIS HS87±5	JIS HS72±5	JIS HS90±5	JIS HS70±5
Material dis-criminating color	One point in pink	Two points in pink	One point in brown	Two points in brown	One point in green	Two points in green	One point in yellow
Operating temp. range (°C)	-30 to +140	-30 to +110	-20 to +120		-25 to +200	-20 to +160	-50 to +140
Filling solution (*)	Mineral oil and water		Mineral oil		Mineral oil		Water
Applicable pressure MPa (kg/cm ²)	10.3 (105) and below	13.7 (140) and above	10.3 (105) and below	13.7 (140) and above	10.3 (105) and below	13.7 (140) and above	10.3 (105) and below
Other working conditions	For fixed use · motive use	For fixed use	For fixed use · motive use	For fixed use	For fixed use · motive use	For fixed use and in the case where physical strength is required. This shall not be applied to motive use.	This shall not be applied to mineral oil for fixed type and cooling system.

Notes (*) Temperature of heat-proof life equivalent to 1000 hours of dry heating is indicated for upper limit of operating temperature range, as standard of selection. Further, as to heat-proof life, refer to KES 07. 620. 1 (Nitrile rubber hydride), 07. 621. 1 (Nitrile rubber), 07. 626. 6 (Acrylic rubber), 07. 627. 1 (Silicon rubber), 07. 628. 1 (Fluoro rubber).

(*) For the details of filling solution, refer to KES 07. 601 (Selection of rubber material).

(*) Color of rubber material is expressed. Paint mark for discrimination is no need.

Remarks—Division code-1, 5, B, D or F shall be applied to fixed use with intermediate set pressure between 10.3 MPa (105 kg/cm²) and 13.7 MPa (140 kg/cm²).



FOR REFERENCE ONLY

Nominal size		W	d			Dimension code	
I. D.	O. D.	Basic size	Deviation	Basic size	Deviation		
					Division code 0-1-4-5		Division code 7-A to F
6	9	1.78		3.07			1105 (*)
3	6	1.9		2.8			1003 (1103)
4	7			3.3			1004 (1104)
5	8			4.8			1005
6	9			5.8			1006
7	10			6.8			1007
8	11			7.8			1008
9	12		±0.07	8.8	±0.12	±0.24	1009
10	14		2.4		9.8		
11	15			10.8			2011
12	16			11.8			2012
14	18			13.8			2014
15	19			14.8			2015
16	20			15.8			2016
18	22			17.8			2018
20	24			19.8			2020
21	25		20.8				2021
22	26	3.5	±0.1	21.7			3022
25	31			24.7			3025
23	28			27.7			3028
30	35			29.7			3030
32	38			31.7			3032
35	41			34.7			3035
33	40			37.7			3033
40	45				39.7		
42	48		41.7			3042	
45	51		44.7	±0.25	±0.50	3045	
48	54		47.7			3043	
50	56		49.7			3050	
55	60	3.1		54.4			±0.55

Nominal size		W		d		Unit: mm	
I. D.	O. D.	Basic size	Deviation	Basic size	Deviation		Dimension code
					Division code 0-1-4-5	Division code 7-A to F	
60	65	3.1	±0.1	59.4	±0.25	±0.50	☆ 2060
65	70			64.4			☆ 2065
70	75			69.4			☆ 2070
75	80			74.4	±0.4	±0.8	☆ 2075
80	85			79.4			☆ 2080
85	90			84.4			☆ 2085
90	95			89.4			☆ 2090
95	100			94.4			☆ 2095
100	105			99.4			☆ 2100
105	110			104.4			☆ 2105
110	115			109.4			☆ 2110
115	120			114.4			☆ 2115
120	125			119.4			☆ 2120
125	130			124.4	☆ 2125		
130	135			129.4	±0.6	±1.2	☆ 2130
135	140			134.4			☆ 2135
140	145	139.4	☆ 2140				
145	150	144.4	☆ 2145				
55	60	5.7	±0.15	54.6	±0.25	±0.50	≡ 5055
60	65			59.6			≡ 5060
65	70			64.6			≡ 5065
70	75			69.6			≡ 5070
75	80			74.6	±0.4	±0.8	≡ 5075
80	90			79.6			≡ 5080
85	95			84.6			≡ 5085
90	100			89.6			≡ 5090
95	105			94.6			≡ 5095
100	110			99.6			≡ 5100
105	115			104.6			≡ 5105
110	120			109.6			≡ 5110
115	125			114.6			≡ 5115

Notes (*) This code shall be used for only tire valve. Dimension codes with a mark of ☆ and of ※ shall be used only for fixed type and for moving type, respectively.

(Continued)

Established: December 7, 1954

KOMATSU

Revised: March 24, 1994

21-376-KS

(Continuation)

Notes (1) Applied to division code 1 only.
Dimension codes with a mark of ※ shall be used only for moving type.

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D 07000
(1994)

Example: 07000-01003

Division code Dimension code

1. Parts No. 07000-□□

Unit: min

Nominal size		W		D		Dimension
I. D	O. D	Basic size	Deviation	Basic size	Deviation	
25	30			24.4		2025
30	35			29.4	±0.15	2030
35	40			34.4		2035
40	45			39.4		2040
45	50			44.4		2045
50	55			49.4		2050
55	60			54.4	±0.25	2055
60	65			59.4		2060
65	70			64.4		2065
70	75			69.4		2070
75	80			74.4		2075
80	85			79.4		2080
85	90	3.1	±0.1	84.4		2085
90	95			89.4		2090
95	100			94.4		2095
100	105			99.4	±0.4	2100
105	110			104.4		2105
110	115			109.4		2110
115	120			114.4		2115
120	125			119.4		2120
125	130			124.4		2125
130	135			129.4		2130
135	140			134.4		2135
140	145			139.4		2140
145	150			144.4		2145
150	160			149.3		5150
155	165			154.3	±0.6	5155
160	170			159.3		5160
165	175	5.7	±0.15	164.3		5165
170	180			169.3		5170
175	185			174.3		5175
180	190			179.3		5180

Nominal size		W	d	Dimension	
I. D.	O. D.	Basic size	Deviation	Basic size	Deviation
185	195			184.3	±0.15
190	200			189.3	±0.15
195	205			194.3	±0.15
200	210			199.3	±0.15
205	215			204.3	±0.15
210	220			209.3	±0.15
215	225			214.3	±0.15
220	230			219.3	±0.15
225	235			224.3	±0.15
230	240			229.3	±0.15
235	245			234.3	±0.15
240	250	5.7	±0.15	239.3	±0.8
245	255			244.3	±0.8
250	260			249.3	±0.8
255	265			254.3	±0.8
260	270			259.3	±0.8
265	275			264.3	±0.8
270	280			269.3	±0.8
275	285			274.3	±0.8
280	290			279.3	±0.8
285	295			284.3	±0.8
290	300			289.3	±0.8
295	305			294.3	±0.8
300	310			299.3	±0.8

2. As O-rings in Table 1 exceed the limit value of allowable elongation of products, it shall not be used for moving and cylindrical groove for fixing.

When using above O-rings by necessity, consult fully with production control branch personnel.

Table 1

Division code	Dimension code
1	1003 • 1004
4	1003
5	1003 • 1004 • 1005

3. Groove dimensions for these O-rings shall conform to KES 04. 187. 3 (Shapes and dimensions of O-ring mounting portion).

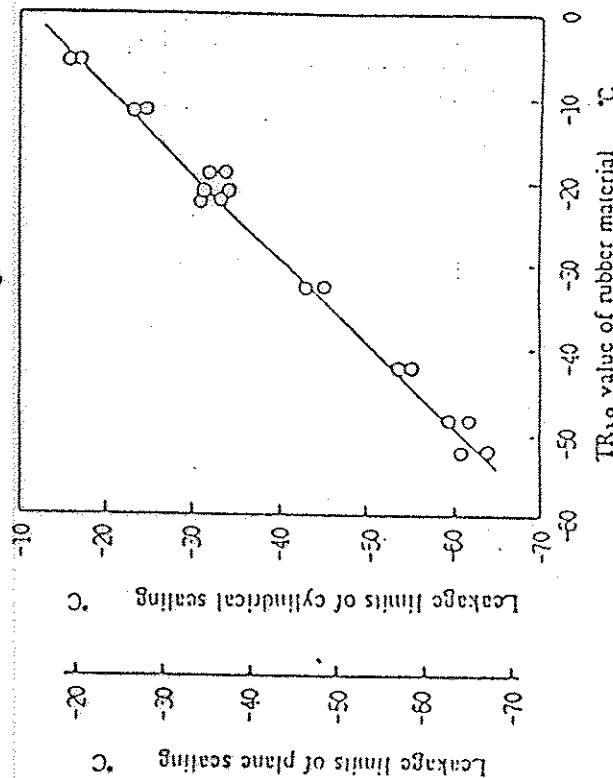
4. These O-rings shall not be used in O-ring bosses. Those for use in O-ring bosses shall be under KES
b 07002 (O-ring).

5. Material identification color shall be shown on O-ring and the inspection date on wrapping bag.

6. JUDGEMENT OF LOW-TEMPERATURE SEALING LIMITS

Low-temperature sealing limits of O-ring shall be leakage limits temperature of cylindrical sealing face. shown in Fig. 1.

Fig. 1



7. ☒ INSPECTION OF O-RING: Conforming to KES 86. 050 (Inspection of O-ring).

8. O-ring which has been stocked over two years after production shall not be used.

9. O-rings under the dimension code 2050 had been used before the present KES was revised on September 30, 1972. However, such O-rings shall not be used in new designs, because applicable groove dimensions have not been specified for them.

Established:
December 7, 1954

КОМАТСУ

Revised:
March 24, 1994

D 07000

(1994)

10. O-rings of division codes in Table 2, which existed prior to revision of July 27, 1992, shall not be applied for new design.

Further, O-rings for new design and for supply shall conform to Table 2.

Table 2

O-rings not applicable to new design	Division code	(2)	(3)	(6)
	Materials	FR-1B	FR-1A	SR-1
	Hardness	JIS HS90 \pm 5	JIS HS70 \pm 5	JIS HS70 \pm 5
	Material discriminating color	Two points in green	One point in green	Color of orange
O-rings for new design and for supply	Division code	F	E	7
	Materials	FKM-1E	FKM-1D	VMQ-1C

Reference standard These standards are extracted from JIS B 2401 (O-ring) except quality of material and performance. Also, O-rings of large dimensions have been specified.

Reference Parts in Reference table before revision of March 16, 1970 shall not be available for new designs.

Reference table

Unit: mm

Nominal size		W		d			Dimension code
I. D.	O. D.	Basic size	Deviation	Basic size	Deviation		
					Division code 0-1-4-5	Division code 2-3-6-7	
8	12	2.4	± 0.07	7.8	± 0.12	± 0.36	2008
20	26	3.5	± 0.1	19.7	± 0.15	± 0.45	3020
52	58			51.6	± 0.25	± 0.75	3052
58	64			57.6			3058
62	68			61.6			3062
65	71			64.6			3065
82	88			81.6	± 0.4	± 1.2	3082
85	91			84.6			3085
92	98			91.6			3092
98	104			97.6			3098
110	116			109.6	± 0.6	± 1.8	3110
120	126	119.6	3120				
125	131	124.6	3125				
130	136	129.6	3130				
145	151	144.6	3145				
42	52	5.7	± 0.15	41.6	± 0.25	± 0.75	5042
48	58			47.6			5048
53	63			57.6			5058
68	78			67.6			5068

Established:
December 7, 1954

KOMATSU

Revised:
March 24, 1994