

Back-up Ring

(Unit : mm)

Nominal size Of back up ring	Spiral				biascut and endless			Applicable O-ring nominal size by JIS B 2401		
	ID.	Width (W)	Thickness (T)	Clearance (Z)	ID.	OD.	Thickness (T)			
P 32	32				32		38		P 32	
P 34	34				34		40		P 34	
P 35	35				35		41		P 35	
P 35.5	35.5				35.5		41.5		P 35.5	
P 36	36				36		42		P 36	
P 38	38				38		44		P 38	
P 39	39				39		45		P 39	
P 40	40	3.0 ± 0.03/0.05	0.7 μ0.05	2.5 μ1.5	40	+0.20/0	46	0/-0.20	1.25 μ0.1	P 40
P 41	41				41		47			P 41
P 42	42				42		48			P 42
P 44	44				44		50			P 44
P 45	45				45		51			P 45
P 46	46				46		52			P 46
P 48	48				48		54			P 48
P 49	49				49		55			P 49
P 50	50				50		56			P 50
P 48A	48				48		58			P 48A
P 50A	50				50		60			P 50A
P 52	52				52		62			P 52
P 53	53				53		63			P 53
P 55	55				55		65			P 55
P 56	56				56		66			P 56
P 58	58				58		68			P 58
P 60	60				60		70			P 60
P 62	62				62		72			P 62
P 63	63				63		73			P 63
P 65	65				65		75			P 65
P 67	67				67		77			P 67
P 70	70				70		80			P 70
P 71	71	5.0 ± 0.03/0.05	0.9 μ0.06	4.5 μ1.5	71	+0.25/0	81	0/-0.25	1.9 μ0.13	P 71
P 75	75				75		85			P 75
P 80	80				80		90			P 80
P 85	85				85		95			P 85
P 90	90				90		100			P 90
P 95	95				95		105			P 95
P 100	100				100		110			P 100
P 102	102				102		112			P 102
P 105	105				105		115			P 105
P 110	110				110		120			P 110
P 112	112				112		122			P 112
P 115	115				115		125			P 115
P 120	120				120		130			P 120
P 125	125				125		135			P 125
P 130	130				130		140			P 130
P 132	132				132		142			P 132

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	ID.	Width (W)	Thickness (T)	Clearance (Z)	ID.	OD.	Thickness (T)			
P 135	135				135		145			P 135
P 140	140	5.0 ^{+0.03} _{0.05}	0.9 μ 0.06	4.5 μ 1.5	140	+0.25	150	0	1.9 μ 0.13	P 140
P 145	145				0	155	-0.25	P 145		
P 150	150				150	160		P 150		
P 150	150				150	165		P 150A		
P 155	155				155		170			P 155
P 160	160				160		175			P 160
P 165	165				165		180			P 165
P 170	170				170		185			P 170
P 175	175				175		190			P 175
P 180	180				180		195			P 180
P 185	185				185		200			P 185
P 190	190				190		205			P 190
P 195	195				195		210			P 195
P 200	200				200		215			P 200
P 205	205				205		220			P 205
P 209	209				209		224			P 209
P 210	210				210		225			P 210
P 215	215				215		230			P 215
P 220	220				220		235			P 220
P 225	225				225		240			P 225
P 230	230				230		245			P 230
P 235	235				235		250			P 235
P 240	240				240		255			P 240
P 245	245				245		260			P 245
P 250	250	7.5 ^{+0.03} _{0.05}	1.4 μ 0.08	6.0 μ 2.0	250	+0.30	265	0	2.75 μ 0.15	P 250
P 255	255				0	270	-0.30	P 255		
P 260	260				260	275		P 260		
P 265	265				265	280		P 265		
P 270	270				270	285		P 270		
P 275	275				275	290		P 275		
P 280	280				280	295		P 280		
P 285	285				285	300		P 285		
P 290	290				290	305		P 290		
P 295	295				295	310		P 295		
P 300	300	300	315		P 300					
P 315	315	315	330		P 315					
P 320	320	320	335		P 320					
P 335	335	335	350		P 335					
P 340	340	340	355		P 340					
P 355	355	355	370		P 355					
P 360	360	360	375		P 360					
P 375	375	375	390		P 375					
P 385	385	385	400		P 385					
P 400	400	400	415		P 400					

Back-up Ring

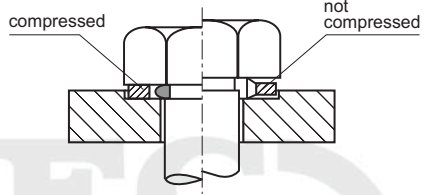
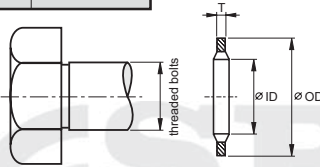
(Unit : mm)

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	ID.	Width (W)	Thickness (T)	Clearance (Z)	ID.	OD.	Thickness (T)			
G 25	25				25		30		G 25	
G 30	30				30		35		G 30	
G 35	35				35	+0.20	40	0	G 35	
G 40	40				40	0	45	-0.20	G 40	
G 45	45				45		50		G 45	
G 50	50				50		55		G 50	
G 55	55				55		60		G 55	
G 60	60				60		65		G 60	
G 65	65				65		70		G 65	
G 70	70				70		75		G 70	
G 75	75				75		80		G 75	
G 80	80	2.5 [±] $\frac{0.03}{0.05}$	0.7 μ 0.05	4.5 μ 1.5	80	+0.25 0	85	0 -0.25	1.25 μ 0.10	G 80
G 85	85				85		90			G 85
G 90	90				90		95			G 90
G 95	95				95		100			G 95
G 100	100				100		105			G 100
G 105	105				105		110			G 105
G 110	110				110		115			G 110
G 115	115				115		120			G 115
G 120	120				120		125			G 120
G 125	125				125		130			G 125
G 130	130				130		135			G 130
G 135	135				135		140			G 135
G 140	140				140		145			G 140
G 145	145				145		150			G 145
G 150	150				150		160			G 150
G 155	155				155		165			G 155
G 160	160				160		170			G 160
G 165	165				165		175			G 165
G 170	170				170		180			G 170
G 175	175				175		185			G 175
G 180	180				180		190			G 180
G 185	185				185		195			G 185
G 190	190				190		200			G 190
G 195	195				195		205			G 195
G 200	200	5.0 [±] $\frac{0.03}{0.05}$	0.9 μ 0.06	6.0 μ 2.0	200	+0.30 0	210	0 -0.30	1.9 μ 0.13	G 200
G 210	210				210		220			G 210
G 220	220				220		230			G 220
G 230	230				230		240			G 230
G 240	240				240		250			G 240
G 250	250				250		260			G 250
G 260	260				260		270			G 260
G 270	270				270		280			G 270
G 280	280				280		290			G 280
G 290	290				290		300			G 290
G 300	300				300		310			G 300

Bonded Seals

The Bonded Seal is a static seal which is used as a sealing ring fitted under bolt heads and nuts. Application of the Bonded Seal, which incorporates a metal ring serving to carry the pressure load, eliminates the need for a washer. In order to avoid damage to the sealing lip, the inside diameter of the Bonded Seal should be 0.5-1 mm larger than the external thread diameter. Excessive tightening is not required: tight is locked!

p max	650 bar
T	-40+110°C



Dimensions			Thread size	
ID.	OD.	T	Metric threads	Whitworth threads
M 3.1	6.4	1.3	2.5	
M 4.1	7.2	1.0	3	
M 4.1	7.3	1.3	3	
M 4.5	7.0	1.0	3.5	
M 5.7	9.0	1.0	4	
M 5.7	10.0	1.0	4	
M 6.2	9.2	1.0	5	
M 6.7	10.0	1.0	5	
M 6.7	11.0	1.0	5	
M 6.9	13.2	1.3	6	
M 7.0	13.4	1.3	6	
M 7.1	12.0	1.0	6	
M 7.3	10.2	1.0	6	1/4
M 8.5	13.4	1.0	7	
M 8.7	13.0	1.0	7	
M 8.7	14.0	1.0	7	
M 8.7	14.2	1.3	7	
M 8.7	16.0	1.0	7	
M 9.3	13.3	1.0	8	5/16
M 10.35	16.0	2.0	8	
M 10.7	16.0	1.5	8	
M 10.7	18.0	1.5	8	
M 11.4	16.3	1.5	10	3/8
M 11.8	18.5	1.5	10	
M 11.8	19.1	1.5	10	
M 12.7	18.0	1.5	10	
M 12.7	20.0	1.5	10	
M 13.7	20.0	1.5	12	7/16
M 13.7	20.6	2.1	12	
M 13.7	22.0	1.5	12	
M 14.0	18.7	1.5	12	
M 14.7	22.0	1.5	12	
M 14.9	22.3	2.1	12	

Dimensions			Thread size	
ID.	OD.	T	Metric threads	Whitworth threads
M 16.0	22.7	1.5	14	1/2
M 16.5	25.5	2.1	14	
M 16.7	24.0	1.5	14	1/2
M 17.4	24.0	1.5	14	
M 18.0	24.7	1.5	16	
M 18.2	25.4	2.5	16	
M 18.7	26.0	1.5	16	5/8
M 20.7	28.0	1.5	16	5/8
M 21.5	28.7	2.5	18	
M 22.5	28.0	1.5	20	
M 22.7	30.0	2.0	20	
M 24.7	32.0	2.0	20	3/4
M 26.7	35.0	2.0	22	7/8
M 27.0	35.0	2.5	24	
M 27.2	36.0	2.0	24	7/8
M 28.7	37.0	2.0	24	
M 31.0	39.0	2.0	27	1
M 32.6	41.4	3.4	27	
M 33.7	42.0	2.0	27	1
M 33.9	42.9	3.4	27	
M 34.3	43.0	2.0	27	
M 36.7	46.0	2.0	30	1 1/8
M 40.0	51.0	2.5	33	1 1/4
M 42.7	53.0	3.0	36	1 3/8
M 48.7	59.0	3.0	36	1 1/2
M 51.7	63.5	3.4	39	
M 53.3	64.5	3.0	42	1 5/8
M 60.7	73.0	3.0	48	1 3/4
M 76.08	90.3	3.4	60	2 1/2
M 89.09	101.48	3.25	72	2 3/4
M 127.0	143.67	5.0		4 1/2