

# O-Rings

## S Series

These details are from the 2018 catalog. The part surrounded by a box (□) will be discontinued in July 2022. NSSK is an alternative product.

Type	Material	Hardness (JIS Hs)	Color	Operable Temperature Range	Applications	Features
NSA	Nitrile Rubber	70±5	Black	-30~100°C	Mineral Oil Resistant	Most representative material with superior oil / abrasion resistance and heat stability.
NSB	Nitrile Rubber	90±5	Black	-25~100°C	Heat Resistant	Heat Resistant
NSSW	Silicon Rubber	50±5	Milky White	-50~200°C	Heat Resistant	Having excellent high and low temperature resistances, this material covers the wide range of operating temperature among synthetic rubbers. It is suitable for food-related applications.
NSS	Silicon Rubber	70±5	Dark Blue	-50~200°C	Heat Resistant	Heat Resistant
NSF	Fluoro Rubber	70±5	Black	-15~200°C	Heat Resistant	Best in oil / chemical resistance and heat stability as synthetic rubber. Suitable for a wide range of applications.
NSFH	Fluoro Rubber	90±5	Black	-15~200°C	Heat Resistant	Heat Resistant

◆ NSS is colored with dark blue next to black.

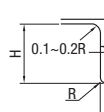
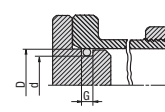
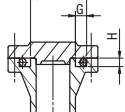
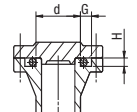
### Detailed Fitting Size

Type	No.	G Dimension (Tolerance $\pm 0.25$ )			H Dimension Hs:0.05	R Dimension Max. Value
		No Back-Up Ring	Back-Up Ring on One Side	Back-Up Rings on Both Sides		
NSA, NSB, NSSW, NSS, NSF, NSFH	3-22	2.5	-	-	1.0	0.2
	22.4-50	2.7	-	-	1.5	0.4

For Surface Mounting

For Fixing Cylinder Surface

No Back-Up Ring



For External Pressure

For Internal Pressure

### S Series

Part Number	Type	No.	Nominal Number	W	I.D.				Matching Material		NSA	NSB	NSSW	NSS	NSF	NSFH
					NSA, NSB Tolerance	NSSW, NSS Tolerance	NSF, NSFH Tolerance	d	Tolerance	D	Tolerance	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate	Unit Price
3		3	2.5		3	5				1-49	50-100	1-49 pc (%)	50-100	1-49 pc (%)	50-100	
4		4	3.5		4	6										
5		5	4.5		5	7										
6		6	5.5		6	8										
7		7	6.5		7	9										
8		8	7.5		8	10										
9		9	8.5		9	11										
10		10	9.5		10	12										
11.2	NSA	11.2	10.7	1.5±0.1	11.2	13.2										
12		12	11.5		12	14										
12.5		12.5	12.0		12.5	14.5										
14		14	13.5		14	16										
15		15	14.5		15	17										
16		16	15.5		16	18										
18		18	17.5		18	20										
20		20	19.5		20	22										
22		22	21.5		22	24										
22.4		22.4	22.4		22.4	25.4										
24		24	23.5		24	27										
25		25	24.5		25	27										
26		26	25.5		26	29										
28		28	27.5		28	31										
29		29	28.5		29	32										
30		30	29.5		30	33										
31.5	NSF	31.5	31.0		31.5	34.5										
32		32	31.5		32	35										
34		34	33.5		34	37										
35		35	34.5		35	38										
35.5		35.5	35.0		35.5	38.5										
36		36	35.5		36	39										
38		38	37.5		38	41										
39		39	38.5		39	42										
40		40	39.5		40	43										
42		42	41.5		42	45										
44		44	43.5		44	47										
45		45	44.5		45	48										
46		46	45.5	±0.25	46	49										
48		48	47.5		48	51										
50		50	49.5		50	53										

Ordering Example Part Number NSA25

# O-Rings

## G Series

These details are from the 2018 catalog. The part surrounded by a box (□) will be discontinued in July 2022. NGSK is an alternative product.

Type	Material	Hardness (JIS Hs)	Color	Operable Temperature Range	JIS Symbol	Applications	Features
NGA	Nitrile Rubber	70±5	Black	-30~100°C	Class 1 A	Mineral Oil Resistant	Most representative material with superior oil / abrasion resistance and heat stability.
NGB	Nitrile Rubber	90±5	Black	-25~100°C	Class 1 B	Heat Resistant	It has the characteristics almost equivalent to the Class 1A besides higher hardness and better pressure resistance.
NGSW	Silicon Rubber	50±5	Milky White	-50~200°C	-	Heat Resistant	Having excellent high and low temperature resistances, this material covers the wide range of operating temperature among synthetic rubbers. It is suitable for food-related applications.
NGS	Silicon Rubber	70±5	Dark Blue	-50~200°C	Class 4 C	Heat Resistant	Heat Resistant
NGF	Fluoro Rubber	70±5	Black	-15~200°C	Class 4 D	Heat Resistant	Best in oil / chemical resistance and heat stability as synthetic rubber. Suitable for a wide range of applications.

◆ NGS is colored with dark blue next to black.

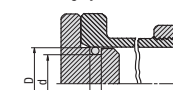
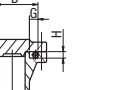
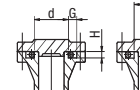
### Detailed Fitting Size

Type	No.	G Dimension (Tolerance $\pm 0.25$ )			H Dimension Hs:0.05	R Dimension Max. Value
		No Back-Up Ring	Back-Up Ring on One Side	Back-Up Rings on Both Sides		
NGA, NGB, NGSW, NGS, NGF	25-145	4.1	5.6	7.3	2.4	0.7
	170	7.5	9	11.5	4.6	0.9

- When an internal pressure is applied to an o-ring for surface mounting, design the structure to bring the outer circumference of the o-ring to a close contact with the outer wall of the groove. When an external pressure is applied to an o-ring for surface mounting, design the structure to bring the inner circumference of the o-ring to a close contact with the inner wall of the groove.
- When using an o-ring for surface mounting for an internal pressure, if the length of D is 30 mm or less, make the length 0.2 to 0.3 mm longer.
- The groove dimensions are for reference.

For Surface Mounting

For Fixing Cylinder Surface



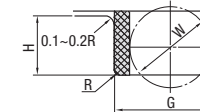
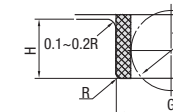
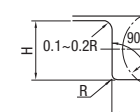
For External Pressure

For Internal Pressure

No Back-Up Ring

Back-Up Ring on One Side

Back-Up Rings on Both Sides



### JIS B 2401 G Series (For Mounting)

Part Number	Type	No.	JIS Nominal Number	W	I.D.			Matching Material		NGA	NGB	NGSW	NGS	NGF
					do	Tolerance	D	Tolerance	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate
25		G25			24.4	±0.25	±0.38	±0.30	25					
30		G30			29.4	±0.29	±0.44	±0.35	30					
35		G35			34.4	±0.33	±0.50	±0.40	35					
40		G40			39.4	±0.37	±0.56	±0.45	40					
45		G45			44.4	±0.41	±0.62	±0.50	45					
50		G50			49.4	±0.45	±0.68	±0.54	50					
55		G55			54.4	±0.49	±0.74	±0.59	55					
60		G60			59.4	±0.53	±0.80	±0.64	60					
65		G65			64.4	±0.57	±0.86	±0.69	65					
70		G70			69.4	±0.61	±0.92	±0.74	70					
75		G75			74.4	±0.65	±0.98	±0.78	75					
80		G80			79.4	±0.69	±1.04	±0.83	80					
105		G105			104.4	±0.87		±0.87	105					
120		G120			119.4	±0.98		±0.98	120					
145		G145			144.4	±1.16		±1.16	145					
170		G170			169.3	±1.33		±1.33	170					

Ordering Example Part Number NGA25