

# O-Rings

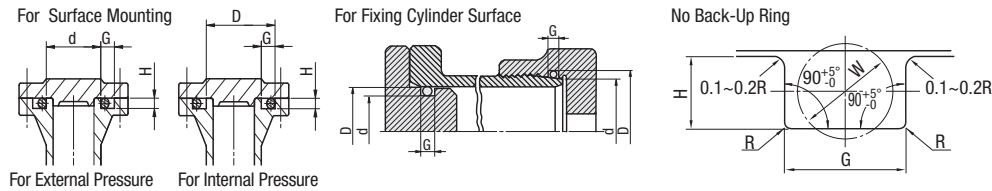
## S Series

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	Having excellent high and low temperature resistances, this material covers the widest range of operating temperatures among synthetic rubbers.
NSSW	Silicon Rubber	50±5	Milky White	-50~200°C	Heat Resistant	It is suitable for food-related applications.
NSS	Silicon Rubber	70±5	Dark Blue	-50~200°C	Heat Resistant	Best in oil / chemical resistance and heat stability as synthetic rubber. Suitable for a wide range of applications.
NSF	Fluoro Rubber	70±5	Black	-15~200°C	Heat Resistant	
NSFH	Fluoro Rubber	90±5	Black	-15~200°C	Heat Resistant	

ⓂNSA is colored with dark blue next to black.

### Detailed Fitting Size

Type	No.	G Dimension (Tolerance $^{+0.25}_0$ )			H Dimension H±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, NSF, NSFH	3~22	2.5	-	-	1.0	0.2
	22.4~50	2.7	-	-	1.5	0.4



### S Series

Part Number	Type	No.	Nominal Number	W	I.D.				Matching Material		NSA		NSB		NSSW		NSS		NSF		NSFH	
					NSA Tolerance	NSB Tolerance	NSSW Tolerance	NSF, NSFH Tolerance	d	Tolerance	D	Tolerance	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate
		3	3	2.5						1~49	50~100	1~49 pc (s)	50~100	1~49 pc (s)	50~100	1~49 pc (s)	50~100	1~49	50~100	1~49 pc (s)	50~100	
NSA	(Nitrile Rubber, Black)	11.2	11.2	1.5±0.1																		
NSB	(Nitrile Rubber, Black)	15	15	1.5																		
NSSW	(Silicon Rubber, Milky White)	22.4	22.4	2.0±0.1	±0.15	±0.45	±0.30															
NSS	(Silicon Rubber, Dark Blue)	26	26	2.0±0.1																		
NSF	(Fluoro Rubber, Black)	31.5	31.5	2.0±0.1																		
NSFH	(Fluoro Rubber, Black)	35.5	35.5	2.0±0.1																		

Ordering Example Part Number NSA25

# O-Rings

## G Series

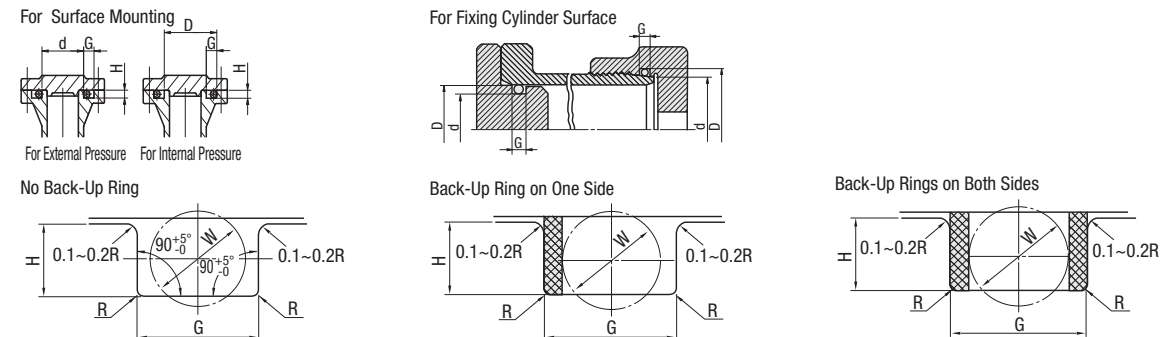
Type	Material	Hardness (JIS Hs)	Color	Operable Temperature Range	JIS Symbol	Applications	Features
NGA	Nitrile Rubber	70±5	Black	-30~100°C	Class 1 A	Mineral Oil Resistant	Most representative material with superior oil / abrasion resistance and heat stability.
NGB	Nitrile Rubber	90±5	Black	-25~100°C	Class 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 widest range of operating temperatures among synthetic rubbers.
NGS	Silicon Rubber	70±5	Dark Blue	-50~200°C	Class 4 C	Heat Resistant	It is suitable for food-related applications.
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 $^{+0.25}_0$ )			H Dimension H±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.



### 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	NGA, NGB Tolerance	NGSW, NGS Tolerance	NGF Tolerance	d	Tolerance	D	Tolerance	Unit Price	Volume Discount Rate	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											
NGA	(Nitrile Rubber, Black)	35	G35		34.4	±0.33	±0.50	±0.40	35											
		40	G40		39.4	±0.37	±0.56	±0.45	40											
NGB	(Nitrile Rubber, Black)	45	G45		44.4	±0.41	±0.62	±0.50	45											
		50	G50		49.4	±0.45	±0.68	±0.54	50											
NGSW	(Silicon Rubber, Milky White)	55	G55		54.4	±0.49	±0.74	±0.59	55											
		60	G60	3.1±0.1	59.4	±0.53	±0.80	±0.64	60											
NGS	(Silicon Rubber, Dark Blue)	65	G65		64.4	±0.57	±0.86	±0.69	65											
		70	G70		69.4	±0.61	±0.92	±0.74	70											
NGF	(Fluoro Rubber, Black)	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	5.7±0.1	169.3	±1.33		±1.33	170											

Ordering Example Part Number NGA25