
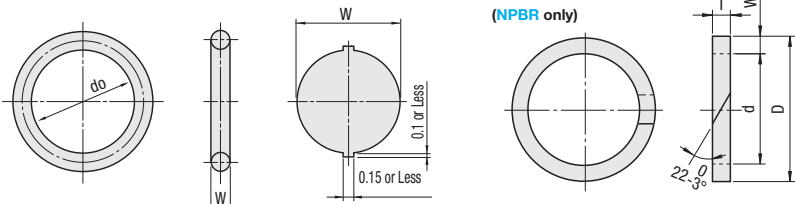


O-Rings

Back-Up Rings / P Series



Type	Material	Hardness (JIS H)	Color	Operable Temperature Range	JIS Symbol	Applications	Features
NPA	Nitrile Rubber	70±5	Black	-30~100°C	Class 1A	Mineral Oil Resistant	Most representative material with superior oil / abrasion resistance and heat stability.
NPB	Nitrile Rubber	90±5	Black	-25~100°C	Class 1B		
NPSW	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. It is suitable for food-related applications.
NPSK	Silicon Rubber	70±5	Scarlet Red	-50~200°C	Class 4C	Heat Resistant	
NPF	Fluoro Rubber	70±5	Black	-15~200°C	Class 4D	Heat Resistant	Best in oil / chemical resistance and heat stability as synthetic rubber. Suitable for a wide range of applications.
NPFH	Fluoro Rubber	90±5	Black	-15~200°C	-	Heat Resistant	
NPEG	Ethylene Propylene Rubber	70±5	Black	-45~130°C	-	For weather resistant items	Excellent material in weather resistance, ozone resistance and electrical characteristics.
NPBR	Fluororesin	-	White	Subject to O-ring	-	For high voltage use	Used when the pressure resistance of O-ring is insufficient.

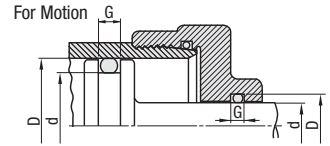
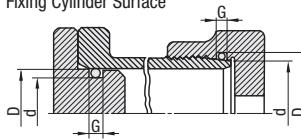
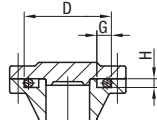
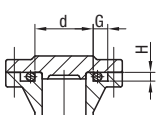


Detailed Fitting Size

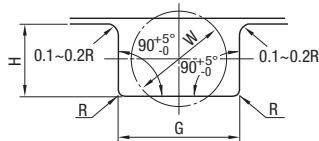
Type	No.	G Dimension (Tolerance $+0.25$ 0)			H Dimension Hz0.05	R Dimension Max. Value
		No Back-Up Ring	Back-Up Ring on One Side	Back-Up Rings on Both Sides		
NPA	3~10	2.5	3.9	5.4	1.4	0.4
NPSW	10A~22	3.2	4.4	6.0	1.8	0.4
NPF	22A~50	4.7	6.0	7.8	2.7	0.8
NPEG	50A~80	7.5	9.0	11.5	4.6	0.9

- 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.

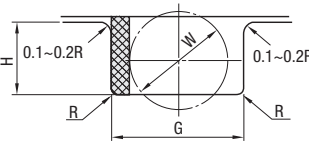
For surface mounting / For external pressure For surface mounting / For internal pressure For Fixing Cylinder Surface



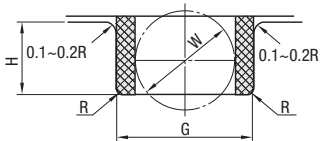
No Back-Up Ring



Back-Up Ring on One Side



Back-Up Rings on Both Sides



JIS B 2407 Back-Up Rings (For the P Series, Bias Cut)

Part Number		Nominal No. of Applicable O-Rings	W	d		D		T	Unit Price	Volume Discount Rate
Type	No.								1 ~ 19 pc(s).	20~50
NPBR (Fluororesin, White)	15	P15	2.0	+0.15 0	15	19	0 -0.15	1.25	±0.1	
	16	P16			16	20				
	18	P18			18	22				
	20	P20			20	24				
	21	P21			21	25				
	22	P22			22	26				
	22A	P22A	3.0	+0.20 0	22	28	0 -0.20			
	24	P24			24	30				
	25	P25			25	31				
	26	P26			26	32				
	28	P28			28	34				
	30	P30			30	36				
	32	P32			32	38				
	34	P34			34	40				
	38	P38			38	44				
	40	P40			40	46				
	42	P42			42	48				
	48	P48			48	54				
	50	P50			50	56				