



Standard back-up rings are used for static and dynamic applications in connection with O-Rings, to prevent extrusion of the O-Ring into the diametral clearance. The single cut and spiral design rings are easily installed into closed grooves while the single solid design, recommended for highest pressures, is for installation in open groove.

Polon® back-up rings are available in three versions:

- XA: single solid
- XB: single cut
- XC: spiral cut

- Insensitive to pressure peaks.
- High extrusion resistance.
- Excellent media resistance in case of suitable compound selection.
- Suitable compounds available for special requirements of the chemical process industry.
- Suitable compounds available for special requirements of the food processing industry.
- Any desired nominal diameter available due to use of machining technique.
- Installation in closed and undercut housings.

Range of application

We recommend to specify back-up rings when at least one of the following working conditions is present in cases where the intention is to seal with O-Rings only:

- Pressure above 70 bar (7MPa)
- Diametral clearance exceeding 0.25 mm at $p > 10$ bar (1MPa)
- High stroke frequency
- High temperatures
- Contaminated medium
- Strong pressure pulsing or pressure changes

Compounds

Polon® PS001, virgin PTFE.

Installation

In case of single-acting O-Rings, it is sufficient to install only one back-up ring on the leeside of the O-Rings. In case of double-acting sealing, two back-up rings are required.

Installation grooves should basically be produced with a rectangular cross-section (parallel side walls). If this for machining reasons is impossible, max. deviation of 5° is allowed.

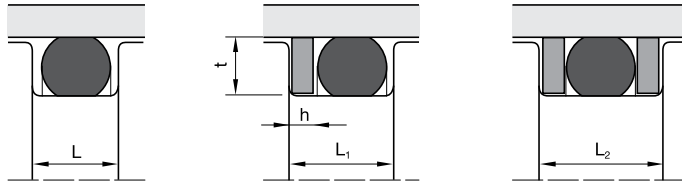
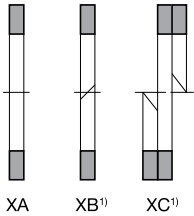
A spiral anti-extrusion ring consists of two spiral windings which are cut at the ends and allows for compensating for large temperature variations and tolerances by means of a screw-like elongation or contraction. Only to be used in reciprocating applications.

In case of single-acting O-rings, it is sufficient to install only one anti-extrusion ring on the downstream side of the O-ring. In case of a double-acting sealing function, two anti-extrusion rings are required at each side of the O-ring.

Installation grooves should preferably be made with parallel side walls. If for machining reasons this is not possible, a maximum deviation of 5° is allowed.

Anti-extrusion rings with concave face on the O-ring side are recommended in case of wide or out-of-tolerance bores and shafts. Additionally, this type of anti-extrusion ring extends the operating pressure of the O-ring and its specific shape tends to keep the O-ring round, even under high-pressure, resulting in better seal performance.

In case of special operating conditions (specific pressure loads, temperature, speed, use in water, HFA, HFB fluids etc.), please contact our consultancy service for a selection of the material and design best suited to your particular application requirements.



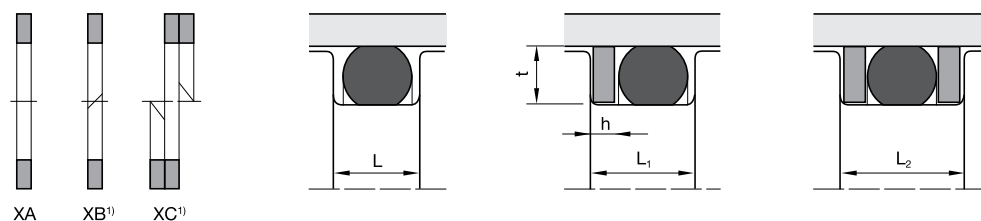
¹⁾ Scarf-cut rings are required for installation in partially or fully closed-grooves.

²⁾ XA: single solid, XB: single cut, XC: spiral cut

For surface finish, lead in chamfer and other installation dimensions see „General installation guidelines“.

Housing dimensions

Series no.	Series no.	Series no.	Cross-section	O-Ring cross-section	Back-up ring	Groove depth			Groove width		
						static	dynamic hydraulic	dynamic pneumatic	without back-up ring	one back-up ring	two back-up rings
						(X)	(Y)	(Z)			
XA	XB	XC		(mm)	h (mm)	t (mm)			L (mm)		
0901	0902	0903	A	1.78	1.0 ^{±0.1}	1.30 ^{±0.05}	1.45 ^{±0.02}	1.55 ^{±0.02}	2.4 ^{+0.2/-0.0}	3.4 ^{+0.2/-0.0}	4.4 ^{+0.2/-0.0}
0901	0902	0903	B	2.00	1.0 ^{±0.1}	1.50 ^{±0.05}	1.65 ^{±0.02}	1.75 ^{±0.02}	2.7 ^{+0.2/-0.0}	3.7 ^{+0.2/-0.0}	4.7 ^{+0.2/-0.0}
0901	0902	0903	C	2.40	1.5 ^{±0.1}	1.85 ^{±0.05}	2.00 ^{±0.02}	2.10 ^{±0.02}	3.3 ^{+0.2/-0.0}	4.7 ^{+0.2/-0.0}	6.1 ^{+0.2/-0.0}
0901	0902	0903	D	2.50	1.5 ^{±0.1}	1.95 ^{±0.05}	2.10 ^{±0.02}	2.20 ^{±0.02}	3.4 ^{+0.2/-0.0}	4.9 ^{+0.2/-0.0}	6.4 ^{+0.2/-0.0}
0901	0902	0903	E	2.62	1.5 ^{±0.1}	2.05 ^{±0.05}	2.25 ^{±0.02}	2.35 ^{±0.02}	3.6 ^{+0.2/-0.0}	5.1 ^{+0.2/-0.0}	6.6 ^{+0.2/-0.0}
0901	0902	0903	F	3.00	1.5 ^{±0.1}	2.40 ^{±0.05}	2.55 ^{±0.02}	2.70 ^{±0.02}	4.2 ^{+0.2/-0.0}	5.7 ^{+0.2/-0.0}	7.2 ^{+0.2/-0.0}
0901	0902	0903	G	3.53	1.5 ^{±0.1}	2.85 ^{±0.07}	3.10 ^{±0.05}	3.25 ^{±0.05}	4.8 ^{+0.2/-0.0}	6.3 ^{+0.2/-0.0}	7.8 ^{+0.2/-0.0}
0901	0902	0903	H	4.00	1.5 ^{±0.1}	3.25 ^{±0.07}	3.50 ^{±0.05}	3.65 ^{±0.05}	5.4 ^{+0.2/-0.0}	6.9 ^{+0.2/-0.0}	8.4 ^{+0.2/-0.0}
0901	0902	0903	I	5.00	2.0 ^{±0.1}	4.15 ^{±0.10}	4.45 ^{±0.05}	4.65 ^{±0.05}	6.8 ^{+0.2/-0.0}	8.8 ^{+0.2/-0.0}	10.8 ^{+0.2/-0.0}
0901	0902	0903	J	5.33	2.0 ^{±0.1}	4.40 ^{±0.10}	4.70 ^{±0.05}	4.90 ^{±0.05}	7.2 ^{+0.2/-0.0}	9.2 ^{+0.2/-0.0}	11.2 ^{+0.2/-0.0}
0901	0902	0903	K	5.70	2.0 ^{±0.1}	4.40 ^{±0.10}	5.10 ^{±0.05}	5.30 ^{±0.05}	7.7 ^{+0.2/-0.0}	9.9 ^{+0.2/-0.0}	12.0 ^{+0.2/-0.0}
0901	0902	0903	L	6.99	2.5 ^{±0.1}	5.85 ^{±0.10}	6.25 ^{±0.05}	6.55 ^{±0.05}	9.6 ^{+0.2/-0.0}	12.1 ^{+0.2/-0.0}	14.6 ^{+0.2/-0.0}
0901	0902	0903	M	8.40	2.5 ^{±0.1}	7.00 ^{±0.10}	7.55 ^{±0.05}	7.90 ^{±0.05}	11.5 ^{+0.2/-0.0}	14.6 ^{+0.2/-0.0}	17.6 ^{+0.2/-0.0}
0901	0902	0903	N	1.78	1.4 ^{±0.1}	1.30 ^{±0.05}	1.45 ^{±0.02}	1.55 ^{±0.02}	2.4 ^{+0.2/-0.0}	3.8 ^{+0.2/-0.0}	5.2 ^{+0.2/-0.0}
0901	0902	0903	O	2.00	1.4 ^{±0.1}	1.50 ^{±0.05}	1.65 ^{±0.02}	1.75 ^{±0.02}	2.7 ^{+0.2/-0.0}	4.1 ^{+0.2/-0.0}	5.5 ^{+0.2/-0.0}
0901	0902	0903	P	2.40	1.4 ^{±0.1}	1.80 ^{±0.05}	2.05 ^{±0.02}	2.10 ^{±0.02}	3.2 ^{+0.2/-0.0}	4.6 ^{+0.2/-0.0}	6.0 ^{+0.2/-0.0}
0901	0902	0903	Q	2.50	1.4 ^{±0.1}	1.90 ^{±0.05}	2.15 ^{±0.02}	2.20 ^{±0.02}	3.3 ^{+0.2/-0.0}	4.7 ^{+0.2/-0.0}	6.1 ^{+0.2/-0.0}
0901	0902	0903	R	2.62	1.4 ^{±0.1}	2.00 ^{±0.05}	2.25 ^{±0.02}	2.35 ^{±0.02}	3.6 ^{+0.2/-0.0}	5.0 ^{+0.2/-0.0}	6.4 ^{+0.2/-0.0}
0901	0902	0903	T	3.00	1.4 ^{±0.1}	2.30 ^{±0.05}	2.60 ^{±0.02}	2.70 ^{±0.02}	4.0 ^{+0.2/-0.0}	5.4 ^{+0.2/-0.0}	6.8 ^{+0.2/-0.0}
0901	0902	0903	U	3.53	1.4 ^{±0.1}	2.70 ^{±0.07}	3.10 ^{±0.05}	3.25 ^{±0.05}	4.8 ^{+0.2/-0.0}	6.2 ^{+0.2/-0.0}	7.6 ^{+0.2/-0.0}
0901	0902	0903	V	4.00	1.4 ^{±0.1}	3.10 ^{±0.07}	3.50 ^{±0.05}	3.65 ^{±0.05}	5.5 ^{+0.2/-0.0}	6.9 ^{+0.2/-0.0}	8.6 ^{+0.2/-0.0}
0901	0902	0903	W	5.00	1.7 ^{±0.1}	4.00 ^{±0.10}	4.40 ^{±0.05}	4.65 ^{±0.05}	6.6 ^{+0.2/-0.0}	8.3 ^{+0.2/-0.0}	10.0 ^{+0.2/-0.0}
0901	0902	0903	X	5.33	1.7 ^{±0.1}	4.30 ^{±0.10}	4.70 ^{±0.05}	4.90 ^{±0.05}	7.1 ^{+0.2/-0.0}	8.8 ^{+0.2/-0.0}	10.5 ^{+0.2/-0.0}
0901	0902	0903	Y	5.70	1.7 ^{±0.1}	4.60 ^{±0.10}	5.00 ^{±0.05}	5.30 ^{±0.05}	7.2 ^{+0.2/-0.0}	8.9 ^{+0.2/-0.0}	10.6 ^{+0.2/-0.0}
0901	0902	0903	Z	6.99	2.5 ^{±0.1}	5.80 ^{±0.10}	6.10 ^{±0.05}	6.55 ^{±0.05}	9.5 ^{+0.2/-0.0}	12.0 ^{+0.2/-0.0}	14.5 ^{+0.2/-0.0}



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Ordering example

Groove outer diameter 100 mm
O-Ring 2.5 mm
Design XA (endless)
Application static

XA 1000 001 0901X D 96.1 × 100 × 1.5

XA	Profile	
1000	Groove outer diameter × 10	
PS001	Compound	
0901X	Series no.	
	0901X	static
	0901Y	dynamic hydraulic
	0901Z	dynamic pneumatic
D	Cross-section	

Ordering example

Groove inner diameter 60 mm
Groove outer diameter OD = ID + 2S
O-Ring 5.33 mm
Design XB (single cut)
Application dynamic hydraulic

XB 0694 001 0902Y J (60 × 69.4 × 2)

XB	Profile	
0694	Groove outer diameter × 10	
PS001	Compound	
0902Y	Series no.	
	0902X	static
	0902Y	dynamic hydraulic
	0902Z	dynamic pneumatic
J	Cross-section	