



ZBR Seal

Heavy-duty rod seal for most hydraulic cylinders. Ideally suited for mobile fluid power cylinders for compact size, durability and performance. U-1023 HP Lubrithane® is a 93 shore A category Polyurethane that is formulated for service up to 250°F in most hydraulic fluids. It has improved set resistance at all temperatures for long life and performance.

- High temp. / low compression set Polyurethane material for extended temp. service capability
- Rectangular shaped seal for long service life and improved seal stability
- Secondary sealing lip on I.D. heel for a redundant safeguard against leakage and improved stability

ZBR profile data

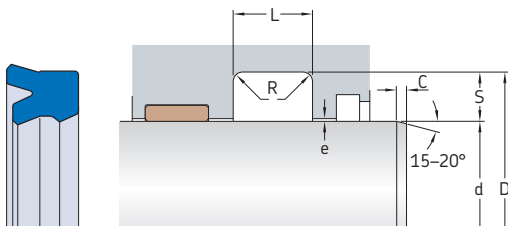


Materials	TPU 93A, U-1029
Pressure	Up to 400 bar (5 800 psi)
Speed	Up to 1 m/s (3.2 ft/s)
Temperature range	<p> ■ Extreme low temperature range: may be intermittently exposed (e.g. cold start-up) without seal damage, but seal performance may be compromised while in this range ■ Temperatures below the recommended operating range: seal performance depends on system design (precision guiding arrangement recommended) ■ Recommended operating temperature range for this profile and material ■ Temperatures above the recommended operating range: acceptable only with reduced pressure, speed, e-gap and/or with the use of a full-face anti-extrusion ring ■ Extreme high temperature range: only occasional short term exposure (e.g. cylinder in curing oven of a powder coating process) </p>
Dimension standards	Some metric sizes fit seal housings in accordance with ISO 5597.

Maximum values of application parameters (e.g. pressure, speed, temperature, e-gap) should not be applied continuously nor simultaneously.

ZBR profile rod seals, metric sizes

d 14 – 45 mm



Maximum extrusion gap e

Radial depth	e _{max} at 80 °C (175 °F) for pressures		
	160 bar	250 bar	400 bar
5			
mm	mm		
3,5 to 4	0,35	0,2	–
5 to 6,5	0,45	0,25	0,1
7 to 7,5	0,5	0,3	0,15
10	0,55	0,3	0,15
12,5	0,6	0,3	0,2

Cylinder dimensions

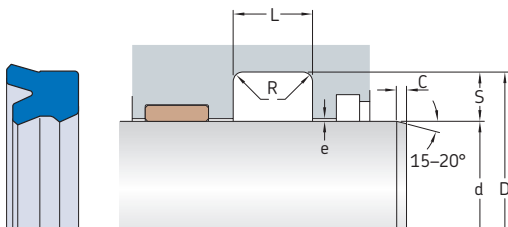
Designation

d h9	D H9	L +0,2	S	R max.	C min.	
mm						–
14	22	5,7	4	0,2	6	ZBR-14x22x5.7-E6W
16	24	5,7	4	0,2	6	ZBR-16x24x5.7-E6W
18	26	5,7	4	0,2	6	ZBR-18x26x5.7-E6W
20	28	5,7	4	0,2	6	ZBR-20x28x5.7-E6W
22	30	5,7	4	0,2	6	ZBR-22x30x5.7-E6W
22,4	30	5,7	3,8	0,2	6	ZBR-22.4x30x5.7-E6W
25	33	5,7	4	0,2	6	ZBR-25x33x5.7-E6W
	33	8	4	0,2	6	ZBR-25x33x8-E6W
28	35	5,7	3,5	0,2	6	ZBR-28x35.5x5.7-E6W
	36	6,4	4	0,2	6	ZBR-28x36x6.4-E6W
30	38	7,8	4	0,2	6	ZBR-30x38x7.8-E6W
	40	7	5	0,2	6	ZBR-30x40x7-E6W
32	42	8,3	5	0,2	6	ZBR-32x42x8.3-E6W
	40	6,4	4	0,2	6	ZBR-32x40x6.4-E6W
35	43	7,8	4	0,2	6	ZBR-35x43x7.8-E6W
	45	7	5	0,2	6	ZBR-35x45x7-E6W
	45	11	5	0,2	6	ZBR-35x45x11-E6W
40	50	7	5	0,2	6	ZBR-40x50x7-E6W
	55	11	7,5	0,5	8,5	ZBR-40x55x11-E6W
	50	7	5	0,2	6	ZBR-40x50x7-E6W
	50	11	5	0,2	6	ZBR-40x50x11-E6W
	55	12	7,5	0,5	8,5	ZBR-40x55x12-E6W
45	60	11	7,5	0,5	8,5	ZBR-45x60x11-E6W
	55	7	5	0,2	6	ZBR-45x55x7-E6W
	55	8,3	5	0,2	6	ZBR-45x55x8.3-E6W
	55	11	5	0,2	6	ZBR-45x55x11-E6W
	60	12	7,5	0,5	8,5	ZBR-45x60x12-E6W
	60	12,5	7,5	0,2	8,5	• ZBR-45x60x12.5-E6W

• Dimensions in accordance with ISO 5597

ZBR profile rod seals, metric sizes

d 50 – 150 mm



Maximum extrusion gap e

Radial depth	e _{max} at 80 °C (175 °F) for pressures		
	160 bar	250 bar	400 bar
5			
mm	mm		
3,5 to 4	0,35	0,2	–
5 to 6,5	0,45	0,25	0,1
7 to 7,5	0,5	0,3	0,15
10	0,55	0,3	0,15
12,5	0,6	0,3	0,2

Cylinder dimensions

Designation

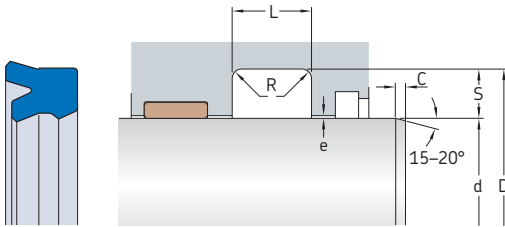
d	D	L	S	R	C	Designation
h9	H9	+0,2		max.	min.	
mm						–
50	65	11	7,5	0,5	8,5	ZBR-50x65x11-E6W
	65	12,4	7,5	0,5	8,5	ZBR-50x65x12.4-E6W
	61	7	5	0,2	6	ZBR-50x60x7-E6W
	62	8,3	5	0,2	6	ZBR-50x60x8.3-E6W
	63	8,5	5	0,2	6	ZBR-50x60x8.5-E6W
53	63	7	5	0,2	6	ZBR-53x63x7-E6W
55	65	7	5	0,2	6	ZBR-55x65x7-E6W
	65	9	5	0,2	6	ZBR-55x65x9-E6W
	65	11	5	0,2	6	ZBR-55x65x11-E6W
	68	11	6,5	0,2	7,5	ZBR-55x68x11-E6W
	70	10	7,5	0,5	8,5	ZBR-55x70x10-E6W
	70	11	7,5	0,5	8,5	ZBR-55x70x11-E6W
	70	12,4	7,5	0,2	8,5	ZBR-55x70x12.4-E6W
	75	13	10	0,8	6	ZBR-55x75x13-E6W
56	71	12,4	7,5	0,5	8,5	• ZBR-56x71x12.4-E6W
60	68	9	4	0,2	6	ZBR-60x68x9-E6W
	70	7	5	0,2	6	ZBR-60x70x7-E6W
	70	11	5	0,2	6	ZBR-60x70x11-E6W
	73	11	6,5	0,2	7,5	ZBR-60x73x11-E6W
	75	10	7,5	0,5	8,5	ZBR-60x75x10-E6W
	80	13	10	0,8	11	ZBR-60x80x13-E6W
63	73	7	5	0,2	6	ZBR-63x73x7-E6W
	78	12,4	7,5	0,5	8,5	ZBR-63x78x12.4-E6W
	78	13,5	7,5	0,5	6	ZBR-63x78x13.5-E6W
65	75	7	5	0,2	6	ZBR-65x75x7-E6W
	78	11	6,5	0,2	7,5	ZBR-65x78x11-E6W
	80	10	7,5	0,5	8,5	ZBR-65x80x10-E6W
	80	13	7,5	0,5	8,5	ZBR-65x80x13-E6W
	85	13	10	0,8	11	ZBR-65x85x13-E6W

Cylinder dimensions						Designation
d h9	D H9	L +0,2	S	R max.	C min.	
mm						-
70	80	7	5	0,2	6	ZBR-70x80x7-E6W
	83	11	6,5	0,2	7,5	ZBR-70x83x11-E6W
	85	10	7,5	0,5	8,5	ZBR-70x85x10-E6W
	85	11	7,5	0,5	8,5	ZBR-70x85x11-E6W
	85	12,4	7,5	0,5	8,5	• ZBR-70x85x12.4-E6W
	90	13	10	0,8	11	ZBR-70x90x13-E6W
75	85	7	5	0,2	6	ZBR-75x85x7-E6W
	88	11	6,5	0,2	7,5	ZBR-75x88x11-E6W
	90	10	7,5	0,5	8,5	ZBR-75x90x10-E6W
	90	11	7,5	0,5	8,5	ZBR-75x90x11-E6W
	95	13	10	0,8	11	ZBR-75x95x13-E6W
80	90	7	5	0,2	6	ZBR-80x90x7-E6W
	93	11	6,5	0,2	7,5	ZBR-80x93x11-E6W
	95	10	7,5	0,5	8,5	ZBR-80x95x10-E6W
	95	12,4	7,5	0,5	8,5	• ZBR-80x95x12.4-E6W
	100	13	10	0,8	11	ZBR-80x100x13-E6W
85	100	10	7,5	0,5	8,5	ZBR-85x100x10-E6W
	100	11	7,5	0,5	8,5	ZBR-85x100x11-E6W
	100	13	7,5	0,5	8,5	ZBR-85x100x13-E6W
	105	13	10	0,8	11	ZBR-85x105x13-E6W
90	105	11	7,5	0,5	8,5	ZBR-90x105x11-E6W
	105	12,4	7,5	0,5	8,5	• ZBR-90x105x12.4-E6W
	110	13	10	0,8	11	ZBR-90x110x13-E6W
95	110	10	7,5	0,5	8,5	ZBR-95x110x10-E6W
	110	11	7,5	0,5	8,5	ZBR-95x110x11-E6W
	115	13	10	0,8	11	ZBR-95x115x13-E6W
100	112	15	6	0,2	7	ZBR-100x112x15-E6W
	115	10	7,5	0,5	8,5	ZBR-100x115x10-E6W
	115	11	7,5	0,5	8,5	ZBR-100x115x11-E6W
	115	12,5	7,5	0,5	8,5	ZBR-100x115x12.5-E6W
	120	13	10	0,8	11	ZBR-100x120x13-E6W
	120	15,5	10	0,8	11	ZBR-100x120x15.5-E6W
105	120	10	7,5	0,5	8,5	ZBR-105x120x10-E6W
	125	16,5	10	0,8	11	ZBR-105x125x16.5-E6W
110	125	11	7,5	0,5	8,5	ZBR-110x125x11-E6W
	130	16,5	10	0,8	11	ZBR-110x130x16.5-E6W
112	125	10	6,5	0,2	7,5	ZBR-112x125x10-E6W
118	133	10	7,5	0,5	8,5	ZBR-118x133x10-E6W
120	140	16,5	10	0,8	11	ZBR-120x140x16.5-E6W
125	140	10	7,5	0,5	8,5	ZBR-125x140x10-E6W
	145	16,5	10	0,8	11	ZBR-125x145x16.5-E6W
130	145	12	7,5	0,5	8,5	ZBR-130x145x12-E6W
	150	16,5	10	0,2	11	ZBR-130x150x16.5-E6W
136	150	10	7	0,5	8,5	ZBR-136x150x10-E6W
140	155	10	7,5	0,5	8,5	ZBR-140x155x10-E6W
	160	16,5	10	0,8	11	ZBR-140x160x16.5-E6W
145	160	10	7,5	0,5	8,5	ZBR-145x160x10-E6W
150	170	16,5	10	0,8	11	ZBR-150x170x16.5-E6W

• Dimensions in accordance with ISO 5597

ZBR profile rod seals, metric sizes

d 160 – 255 mm



Maximum extrusion gap e

Radial depth	e_{max} at 80 °C (175 °F) for pressures		
	160 bar	250 bar	350 bar
S			
mm	mm		
3,5 to 4	0,35	0,2	–
5 to 6,5	0,45	0,25	0,1
7 to 7,5	0,5	0,3	0,15
10	0,55	0,3	0,15
12,5	0,6	0,3	0,2

Cylinder dimensions

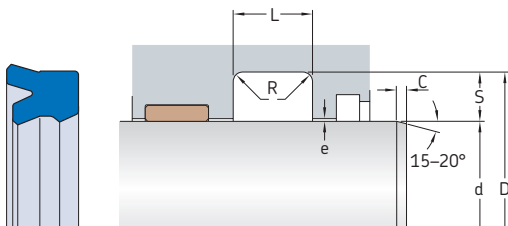
Designation

d h9	D H9	L +0,2	S	R max.	C min.	
mm						–
160	180 185	16,5 19,7	10 12,5	0,8 0,8	11 13	ZBR-160x180x16.5-E6W ZBR-160x185x19.7-E6W
180	200	13,5	10	0,8	11	ZBR-180x200x13.5-E6W
200	220	13,5	10	0,8	11	ZBR-200x220x13.5-E6W
230	250	13,5	10	0,8	11	ZBR-230x250x13.5-E6W
240	260	16,5	10	0,8	11	ZBR-240x260x16.5-E6W
255	280	20,5	12,5	0,8	13	ZBR-255x280x20.5-E6W

Other sizes are available on request

ZBR profile rod seals, inch sizes

d 0.75 – 3 in.



Maximum extrusion gap e

Radial depth	e_{\max} at 80 °C (175 °F) for pressures		
	2 300 psi	3 600 psi	5 800 psi
S	in.		
in.	in.		
0.125	0.008	0.004	–
0.187	0.014	0.008	–
0.250	0.018	0.01	0.004
0.312	0.020	0.012	0.006
0.375	0.020	0.012	0.006
0.5	0.024	0.012	0.008

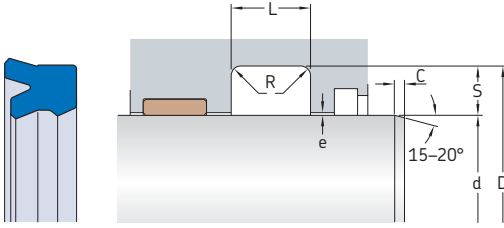
Cylinder dimensions

Designation

d	Tolerance	D	Tolerance	L	S	R	C	Designation
in.				+0.010		max.	min.	–
0.75	–0.001	1	+0.002	0.275	0.125	0.015	0.25	ZBR125-750-250-E6W
1	–0.001	1.25	+0.002	0.275	0.125	0.015	0.25	ZBR125-1000-250-E6W
1.125	–0.001	1.375	+0.002	0.213	0.125	0.015	0.25	ZBR125-1125-187-E6W
	–0.001	1.375	+0.002	0.275	0.125	0.015	0.25	ZBR125-1125-250-E6W
–0.002	1.5	+0.002	0.343	0.187	0.015	0.25	ZBR187-1125-312-E6W	
	–0.001	1.5	+0.002	0.213	0.125	0.015	0.25	ZBR125-1250-187-E6W
–0.001	1.5	+0.002	0.223	0.125	0.015	0.25	ZBR125-1250-197-E6W	
	–0.001	1.5	+0.002	0.275	0.125	0.015	0.25	ZBR125-1250-250-E6W
–0.002	1.625	+0.002	0.275	0.187	0.015	0.25	ZBR187-1250-250-E6W	
	–0.002	1.625	+0.002	0.343	0.187	0.015	0.25	ZBR187-1250-312-E6W
1.375	–0.001	1.625	+0.002	0.275	0.125	0.015	0.25	ZBR125-1375-250-E6W
1.5	–0.001	1.75	+0.002	0.275	0.125	0.015	0.25	ZBR125-1500-250-E6W
	–0.002	1.875	+0.002	0.343	0.187	0.015	0.25	ZBR187-1500-312-E6W
–0.002	1.875	+0.002	0.413	0.187	0.015	0.25	ZBR187-1500-375-E6W	
	–0.002	2	+0.003	0.413	0.250	0.02	0.312	ZBR250-1500-375-E6W
1.75	–0.002	2.125	+0.002	0.343	0.187	0.015	0.25	ZBR187-1750-312-E6W
	–0.002	2.125	+0.002	0.413	0.187	0.015	0.25	ZBR187-1750-375-E6W
–0.002	2.25	+0.003	0.413	0.250	0.02	0.312	ZBR250-1750-375-E6W	
1.875	–0.002	2.375	+0.003	0.413	0.250	0.02	0.312	ZBR250-1875-375-E6W
2	–0.002	2.375	+0.002	0.343	0.187	0.015	0.25	ZBR187-2000-312-E6W
	–0.002	2.375	+0.002	0.413	0.187	0.015	0.25	ZBR187-2000-375-E6W
–0.002	2.5	+0.003	0.413	0.250	0.02	0.312	ZBR250-2000-375-E6W	
2.25	–0.002	2.625	+0.002	0.3685	0.187	0.015	0.25	ZBR187-2250-335-E6W
	–0.002	2.75	+0.003	0.413	0.250	0.02	0.312	ZBR250-2250-375-E6W
2.5	–0.002	3	+0.003	0.413	0.250	0.02	0.312	ZBR250-2500-375-E6W
2.625	–0.002	3.125	+0.003	0.413	0.250	0.02	0.312	ZBR250-2625-375-E6W
2.875	–0.002	3.375	+0.003	0.413	0.250	0.02	0.312	ZBR250-2875-375-E6W
3	–0.002	3.5	+0.003	0.413	0.250	0.02	0.312	ZBR250-3000-375-E6W

ZBR profile rod seals, inch sizes

d 3.25 – 8 in.



Maximum extrusion gap e

Radial depth	e_{\max} at 80 °C (175 °F) for pressures		
	2 300 psi	3 600 psi	5 800 psi
S			
in.	in.		
0.125	0.008	0.004	–
0.187	0.014	0.008	–
0.250	0.018	0.01	0.004
0.312	0.020	0.012	0.006
0.375	0.020	0.012	0.006
0.5	0.024	0.012	0.008

Cylinder dimensions

Designation

d	Tolerance	D	Tolerance	L	S	R	C	
				+0.010		max.	min.	
in.								–
3.25	–0.002	3.75	+0.003	0.413	0.250	0.02	0.312	ZBR250-3250-375-E6W
3.5	–0.002	4	+0.003	0.413	0.250	0.02	0.312	ZBR250-3500-375-E6W
3.75	–0.002	4.375	+0.004	0.55	0.312	0.02	0.375	ZBR312-3750-500-E6W
4	–0.002	4.5	+0.003	0.413	0.250	0.02	0.312	ZBR250-4000-375-E6W
4.75	–0.002	5.25	+0.003	0.688	0.250	0.02	0.312	ZBR250-4750-625-E6W
5	–0.002	5.5	+0.003	0.413	0.250	0.02	0.312	ZBR250-5000-375-E6W
	–0.002	5.5	+0.003	0.618	0.250	0.02	0.312	ZBR250-5000-562-E6W
5.25	–0.002	5.75	+0.003	0.618	0.250	0.02	0.312	ZBR250-5250-562-E6W
5.5	–0.002	6	+0.003	0.618	0.250	0.02	0.312	ZBR250-5500-562-E6W
	–0.002	6.25	+0.005	0.688	0.375	0.035	0.5	ZBR375-5500-625-E6W
6.5	–0.002	7.25	+0.005	0.688	0.375	0.035	0.5	ZBR375-6500-625-E6W
	–0.003	7.5	+0.007	0.825	0.500	0.035	0.625	ZBR500-6500-750E6W
7	–0.003	8	+0.007	0.825	0.500	0.035	0.625	ZBR500-7000-750E6W
7.75	–0.002	8.5	+0.005	0.688	0.375	0.035	0.5	ZBR375-7750-625-E6W
8	–0.002	8.75	+0.005	0.688	0.375	0.035	0.5	ZBR375-8000-625-E6W

Other sizes are available on request

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