

Permissible deviations

for the internal diameter of O-Rings in accordance with ISO 3601:2008

The following table gives an overview of dimensions and permissible tolerances. For determining the tolerance levels based on ISO 3601:2008 Class B for O-Rings with reference to general industrial applications, **the exact tolerance can be calculated by means of the following formula:**

$$\Delta d_1 = \pm [(d_1^{0.95} \times 0.009) + 0.11]$$

The upper and lower tolerance shown relates in each case to the minimum and maximum values shown under d₁ in the left-hand column.

An example using the first two values d₁ = 0.70 and 2.50:

$$\Delta d_1 = \pm [(0.70^{0.95} \times 0.009) + 0.11] = 0.116 \rightarrow \text{Result} \approx 0.12$$

$$\Delta d_1 = \pm [(2.50^{0.95} \times 0.009) + 0.11] = 0.126 \rightarrow \text{Result} \approx 0.13$$

Internal diameter d ₁ (mm)	Lower tolerance +/-	Upper tolerance +/-
0.70 - 2.50	0.12	0.13
2.51 - 4.50	0.13	0.15
4.51 - 6.30	0.15	0.16
6.31 - 8.50	0.16	0.18
8.51 - 10.00	0.18	0.19
10.01 - 11.20	0.19	0.20
11.21 - 14.00	0.20	0.22
14.01 - 16.00	0.22	0.24
16.01 - 18.00	0.24	0.25
18.01 - 20.00	0.25	0.26
20.01 - 21.20	0.27	0.27
21.21 - 23.60	0.27	0.29
23.61 - 25.00	0.29	0.30
25.01 - 26.50	0.30	0.31
26.51 - 28.00	0.31	0.32
28.01 - 30.00	0.32	0.34
30.01 - 31.50	0.34	0.35
31.51 - 33.50	0.35	0.36
33.51 - 34.50	0.36	0.37
34.51 - 35.50	0.37	0.38
35.51 - 36.50	0.38	0.38
36.51 - 37.50	0.38	0.39
37.51 - 38.70	0.39	0.40
38.71 - 40.00	0.40	0.41
40.01 - 41.20	0.41	0.42
41.21 - 42.50	0.42	0.43
42.51 - 43.70	0.43	0.44
43.71 - 45.00	0.44	0.44
45.01 - 46.20	0.44	0.45
46.21 - 47.50	0.45	0.46
47.51 - 48.70	0.46	0.47
48.71 - 50.00	0.47	0.48
50.01 - 51.50	0.48	0.49
51.51 - 53.00	0.49	0.50
53.01 - 54.50	0.50	0.51
54.51 - 56.00	0.51	0.52
56.01 - 58.00	0.52	0.54
58.01 - 60.00	0.54	0.55
60.01 - 61.50	0.55	0.56
61.51 - 63.00	0.56	0.57
63.01 - 65.00	0.57	0.58
65.01 - 67.00	0.58	0.60
67.01 - 69.00	0.60	0.61
69.01 - 71.00	0.61	0.63
71.01 - 73.00	0.63	0.64
73.01 - 75.00	0.64	0.65
75.01 - 77.50	0.65	0.67
77.51 - 80.00	0.67	0.69

Internal diameter d ₁ (mm)	Lower tolerance +/-	Upper tolerance +/-
80.01 - 82.50	0.69	0.71
82.51 - 85.00	0.71	0.72
85.01 - 87.50	0.72	0.74
87.51 - 90.00	0.74	0.76
90.01 - 92.50	0.76	0.77
92.51 - 95.00	0.77	0.79
95.01 - 97.50	0.79	0.81
97.51 - 100.00	0.81	0.82
100.01 - 103.00	0.82	0.85
103.01 - 106.00	0.85	0.87
106.01 - 109.00	0.87	0.89
109.01 - 112.00	0.89	0.91
112.01 - 115.00	0.91	0.93
115.01 - 118.00	0.93	0.95
118.01 - 122.00	0.95	0.97
122.01 - 125.00	0.97	0.99
125.01 - 128.00	0.99	1.01
128.01 - 132.00	1.01	1.04
132.01 - 136.00	1.04	1.07
136.01 - 140.00	1.07	1.09
140.01 - 145.00	1.09	1.13
145.01 - 150.00	1.13	1.16
150.01 - 155.00	1.16	1.19
155.01 - 160.00	1.19	1.23
160.01 - 165.00	1.23	1.26
165.01 - 170.00	1.26	1.29
170.01 - 175.00	1.29	1.33
175.01 - 180.00	1.33	1.36
180.01 - 185.00	1.36	1.39
185.01 - 190.00	1.39	1.43
190.01 - 195.00	1.43	1.46
195.01 - 200.00	1.46	1.49
200.01 - 206.00	1.49	1.53
206.01 - 212.00	1.53	1.57
212.01 - 218.00	1.57	1.61
218.01 - 224.00	1.61	1.65
224.01 - 230.00	1.65	1.69
230.01 - 236.00	1.69	1.73
236.01 - 243.00	1.73	1.77
243.01 - 250.00	1.77	1.82
250.01 - 258.00	1.82	1.87
258.01 - 265.00	1.87	1.91
265.01 - 272.00	1.91	1.96
272.01 - 280.00	1.96	2.01
280.01 - 290.00	2.01	2.08
290.01 - 300.00	2.08	2.14
300.01 - 307.00	2.14	2.19
307.01 - 315.00	2.19	2.24

Internal diameter d ₁ (mm)	Lower tolerance +/-	Upper tolerance +/-
315.01 - 325.00	2.24	2.30
325.01 - 335.00	2.30	2.36
335.01 - 345.00	2.36	2.43
345.01 - 355.00	2.43	2.49
355.01 - 365.00	2.49	2.56
365.01 - 375.00	2.56	2.62
375.01 - 387.00	2.62	2.70
387.01 - 400.00	2.70	2.78
400.01 - 412.00	2.78	2.85
412.01 - 425.00	2.85	2.94
425.01 - 437.00	2.94	3.01
437.01 - 450.00	3.01	3.09
450.01 - 462.00	3.09	3.17
462.01 - 475.00	3.17	3.25
475.01 - 487.00	3.25	3.33
487.01 - 500.00	3.33	3.41
500.01 - 515.00	3.41	3.50
515.01 - 530.00	3.50	3.60
530.01 - 545.00	3.60	3.69
545.01 - 560.00	3.69	3.78
560.01 - 580.00	3.78	3.91
580.01 - 600.00	3.91	4.03
600.01 - 615.00	4.03	4.12
615.01 - 630.00	4.12	4.22
630.01 - 650.00	4.22	4.34
650.01 - 670.00	4.34	4.47
671.00	4.47	
700.00	4.65	
750.00	4.96	
800.00	5.26	
850.00	5.57	
900.00	5.87	
1000.00	6.48	
1100.00	7.09	
1200.00	7.69	
1300.00	8.29	
1400.00	8.88	
1500.00	9.48	
1600.00	10.07	
1700.00	10.66	
1800.00	11.25	
1900.00	11.83	
2000.00	12.42	
2500.00	15.33	
3000.00	18.20	

All figures in mm