INTERNATIONAL STANDARD

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Aerospace series — O-ring grooves — Dimensions

Série aérospatiale — Gorges pour joints toriques — Dimensions

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

ISO 23748 was prepared by ACE/12/1 as EN 3748:2001 and was adopted (without modification other than those stipulated below) by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

The following are the modifications made in this International Standard:

— reference to ISO 3601-1 size codes in tables;

— correction in Table 13 of value 90,27 to 91,27;

— addition of "static applications" in the title and scope;

— "according to European Standards" was removed in the scope;

— any reference to European Standards were removed.

Aerospace series — O-ring grooves — Dimensions

1 Scope

This International Standard specifies the dimensions of grooves for use with O-rings for aerospace in static sealing applications:

— radial sealing: rod or bore mounted O-rings;

— axial sealing: internal or external pressure source.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.

3 Symbols

b	O-ring groove width
d_1	O-ring inside diameter
d_2	O-ring section diameter
d_3	O-ring groove diameter, rod mounted
d_4	bore diameter, rod mounted
d_5	rod outside diameter bore mounted
d_6	O-ring groove diameter bore mounted
d_7	O-ring groove outside diameter, internal pressure
d_8	O-ring groove inside diameter, external pressure
d_9	rod outside diameter, rod mounted
d_{10}	bore diameter, bore mounted
h	groove height
R	edge radius on groove
r_1	corner radius on groove
t	housing depth
Z	lead-in chamfer length

4 Required characteristics

4.1 Configuration — Dimensions — Tolerances

4.1.1 General

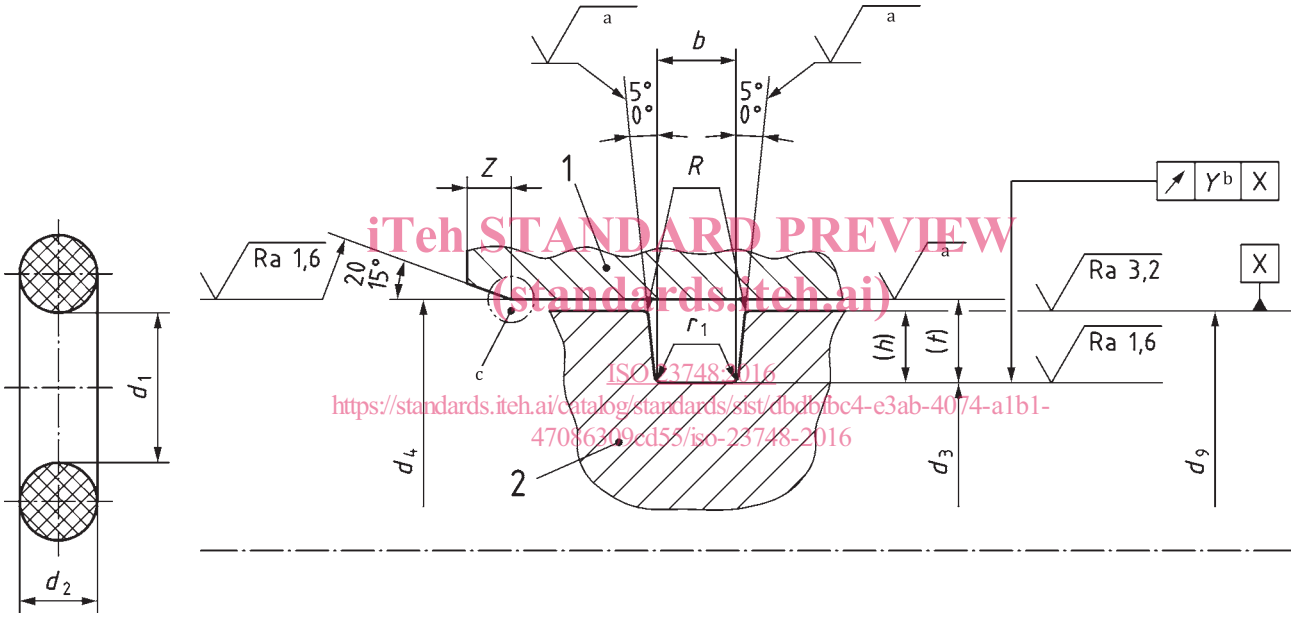
Only recommended sizes are given in the tables.

Dimensions and tolerances are in millimetres. Surface roughness values are in micrometres.

4.1.2 Radial sealing — Rod housing: Configuration code A

4.1.2.1 General

This configuration corresponds to radial grooves in static applications, rod mounted. See Figure 1 and Tables 1 to 7.



Key

1 bore

2 rod

a See Table 1.

b Groove diameter $d_3 \leq 50$: maximum run-out tolerance $Y = 0{,}025$.
Groove diameter $d_3 > 50$: maximum run-out tolerance $Y = 0{,}05$.

c No burrs permitted in this area.

Figure 1

Table 1

Surface		Roughness							
		R_a				R max.			
		continuous pressure		with pressure variation		continuous pressure		with pressure variation	
		≤5 MPa	>5 MPa	≤5MPa	>5 MPa	≤5 MPa	>5 MPa	≤5 MPa	>5 MPa
Groove	Side surfaces	3,2	1,6	1,6	1,6	12,5	6,3	6,3	6,3
	Inside diameter	1,6				6,3			
Homologous surface					0,8				3,2

Table 2

d_2	b		Z	r_1		R	
nom.	max.	min.	min.	max.	min.	max.	min.
1,80	2,65	2,40	1,1	0,4	0,2	0,3	0,1
2,65	3,85	3,60	1,5				
3,55	5,05	4,80	1,8	0,8	0,4		
5,30	7,35	7,10	2,7				
7,00	9,45	9,20	3,6	1,2	0,8		

4.1.2.2 Section diameter d_2 = 1,80

Table 3

d_1		d_3	d_4	d_9
Code[a]	nom.	0 −0,04	+0,06 0	f7[b]
A0040	4,00	4,24	7,00	7,00
A0050	5,00	5,27	8,03	8,03
A0060	6,00	6,30	9,06	9,06
A0069	6,90	7,24	10,00	10,00
A0087	8,75	9,12	11,88	11,88
A0106	10,60	11,02	13,78	13,78
A0125	12,50	12,97	15,73	15,73
A0140	14,00	14,54	17,30	17,30
A0160	16,00	16,64	19,40	19,40
A0180	18,00	18,64	21,40	21,40
A0212	21,20	21,94	24,70	24,70
A0236	23,60	24,44	27,20	27,20
A0280	28,00	28,94	31,70	31,70
A0315	31,50	32,54	35,30	35,30
A0355	35,50	36,64	39,40	39,40
A0365	36,50	37,64	40,40	40,40
A0375	37,50	38,64	41,40	41,40
A0387	38,70	39,84	42,60	42,60
A0400	40,00	41,24	44,00	44,00

[a] Size code corresponding to the codification of O-rings according to ISO 3601-1.

[b] See ISO 286-2.

4.1.2.3 Section diameter d_2 = 2,65

Table 4

d_1		d_3	d_4	d_9
Code[a]	nom.	0 −0,05	+0,07 0	f7[b]
B0053	5,30	5,58	9,72	9,72
B0069	6,90	7,25	11,39	11,39
B0095	9,50	9,90	14,04	14,04
B0112	11,20	11,66	15,80	15,80
B0132	13,20	13,76	17,90	17,90
B0150	15,00	15,56	19,70	19,70
B0170	17,00	17,66	21,80	21,80
B0200	20,00	20,66	24,80	24,80
B0224	22,40	23,16	27,30	27,30
B0265	26,50	27,36	31,50	31,50
B0300	30,00	30,96	35,10	35,10
B0345	34,50	35,56	39,70	39,70
B0387	38,70	39,86	44,00	44,00
B0437	43,70	45,06	49,20	49,20
B0500	50,00	51,46	55,60	55,60
B0560	56,00	57,66	61,80	61,80
B0600	60,00	61,76	65,90	65,90
B0650	65,00	66,86	71,00	71,00
B0710	71,00	73,06	77,20	77,20
B0750	75,00	77,16	81,30	81,30
B0800	80,00	82,26	86,40	86,40

[a] Size code corresponding to the codification of O-rings according to ISO 3601-1.

[b] See ISO 286-2.

4.1.2.4 Section diameter d_2 = 3,55

Table 5

d_1		d_3	d_4	d_9
Code[a]	nom.	0 −0,06	+0,08 0	f7[b]
C0250	25,00	25,82	31,30	31,30
C0300	30,00	31,02	36,50	36,50
C0355	35,50	36,62	42,10	42,10
C0425	42,50	43,82	49,30	49,30
C0487	48,70	50,12	55,60	55,60
C0545	54,50	56,12	61,60	61,60
C0615	61,50	63,32	68,80	68,80
C0710	71,00	73,02	78,50	78,50
C0800	80,00	82,32	87,80	87,80
C0900	90,00	92,52	98,00	98,00
C1000	100,00	102,82	108,30	108,30
C1120	112,00	115,12	120,60	120,60
C1150	115,00	118,22	123,70	123,70
C1220	122,00	125,32	130,80	130,80
C1320	132,00	135,62	141,10	141,10
C1400	140,00	143,82	149,30	149,30
C1500	150,00	154,12	159,60	159,60
C1600	160,00	164,32	169,80	169,80
C1700	170,00	174,62	180,10	180,10
C1800	180,00	189,92	195,40	195,40
C1900	190,00	195,12	200,60	200,60
C2000	200,00	205,32	210,80	210,80
C2120	212,00	217,62	223,10	223,10
C2240	224,00	229,92	235,40	235,40
C2360	236,00	242,32	247,80	247,80
C2500	250,00	256,62	262,10	262,10

[a] Size code corresponding to the codification of O-rings according to ISO 3601-1.

[b] See ISO 286-2.

4.1.2.5 Section diameter d_2 = 5,30

Table 6

d_1		d_3	d_4	d_9
Code[a]	nom.	0 −0,07	+0,09 0	f7[b]
D0600	60,00	61,82	70,20	70,20
D0710	71,00	73,02	81,40	81,40
D0800	80,00	82,32	90,70	90,70
D0900	90,00	92,52	100,90	100,90
D1090	109,00	112,02	120,40	120,40
D1120	112,00	115,12	123,50	123,50
D1180	118,00	121,22	129,60	129,60
D1280	128,00	131,52	139,90	139,90
D1360	136,00	139,72	148,10	148,10
D1450	145,00	148,92	157,30	157,30
D1550	155,00	159,22	167,60	167,60
D1650	165,00	169,42	177,80	177,80
D1750	175,00	179,72	188,10	188,10
D1850	185,00	190,02	198,40	198,40
D1950	195,00	200,22	208,60	208,60
D2000	200,00	205,32	213,70	213,70

[a] Size code corresponding to the codification of O-rings according to ISO 3601-1.

[b] See ISO 286-2.

4.1.2.6 Section diameter d_2 = 7,00

Table 7

d_1		d_3	d_4	d_9
Code[a]	nom.	0 −0,09	+0,11 0	f7[b]
E1090	109,00	112,06	123,40	123,40
E1150	115,00	118,26	129,60	129,60
E1250	125,00	128,46	139,80	139,80
E1360	136,00	139,76	151,10	151,10
E1450	145,00	148,96	160,30	160,30
E1550	155,00	159,26	170,60	170,60
E1650	165,00	169,46	180,80	180,80
E1750	175,00	179,76	191,10	191,10
E1850	185,00	189,96	201,30	201,30
E1900	190,00	195,16	206,50	206,50
E2000	200,00	205,36	216,70	216,70
E2120	212,00	217,66	229,00	229,00
E2240	224,00	229,86	241,20	241,20
E2300	230,00	236,16	247,50	247,50
E2430	243,00	249,46	260,80	260,80
E2500	250,00	256,66	268,00	268,00
E2580	258,00	264,86	276,20	276,20
E2720	272,00	279,26	290,60	290,60
E2800	280,00	287,46	298,80	298,80
E2900	290,00	297,66	309,00	309,00
E3000	300,00	307,96	319,30	319,30
E3150	315,00	323,36	334,70	334,70
E3250	325,00	333,56	344,90	344,90
E3350	335,00	343,86	355,20	355,20
E3450	345,00	354,06	365,40	365,40
E3550	355,00	364,36	375,70	375,70
E3650	365,00	374,56	385,90	385,90
E3750	375,00	384,86	396,20	396,20
E3870	387,00	397,16	408,50	408,50
E4000	400,00	410,46	421,80	421,80

[a] Size code corresponding to the codification of O-rings according to ISO 3601-1.

[b] See ISO 286-2.