BS EN
3748:2001

O-ring Grooves — Dimensions

The European Standard EN 3748:2001 has the status of a British Standard

ICS 49.030.99

National foreword

This British Standard is the official English language version of EN 3748:2001.

The UK participation in its preparation was entrusted to Technical Committee ACE/12/1, Aerospace Fasteners, Fastening Systems, Details and Parts (International), which has the responsibility to:

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— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

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A list of organizations represented on this committee can be obtained on request to its secretary.

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This British Standard, having been prepared under the direction of the Engineering Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 14 December 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 29 and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 38773 9

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3748

November 2001

ICS 49.080

English version

Aerospace series - O-ring grooves - Dimensions

Série aérospatiale - Gorges pour joints toriques - Dimensions

Luft- und Raumfahrt - Nuten für O-Ringe - Maße

This European Standard was approved by CEN on 11 August 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 3748:2001 E

Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Contents

1 Scope

This standard specifies the dimensions of grooves for use with o-rings according to EN-standards for aerospace applications:

- radial sealing: rod or bore mounted o-rings;
- axial sealing: internal or external pressure source.

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

ISO 286-2	ISO system of limits and fits – Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts
EN 3049	Aerospace series – O-rings, in fluorocarbon rubber (FKM), low compression set – Hardness 80 IRHD
EN 3746	Aerospace series – O-rings, in fluorosilicone rubber (FVMQ) – Hardness 80 IRHD [1)]
TR 4271	Aerospace series – O-rings grooves – Design criteria for o-ring grooves – Basic calculations [2)]

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

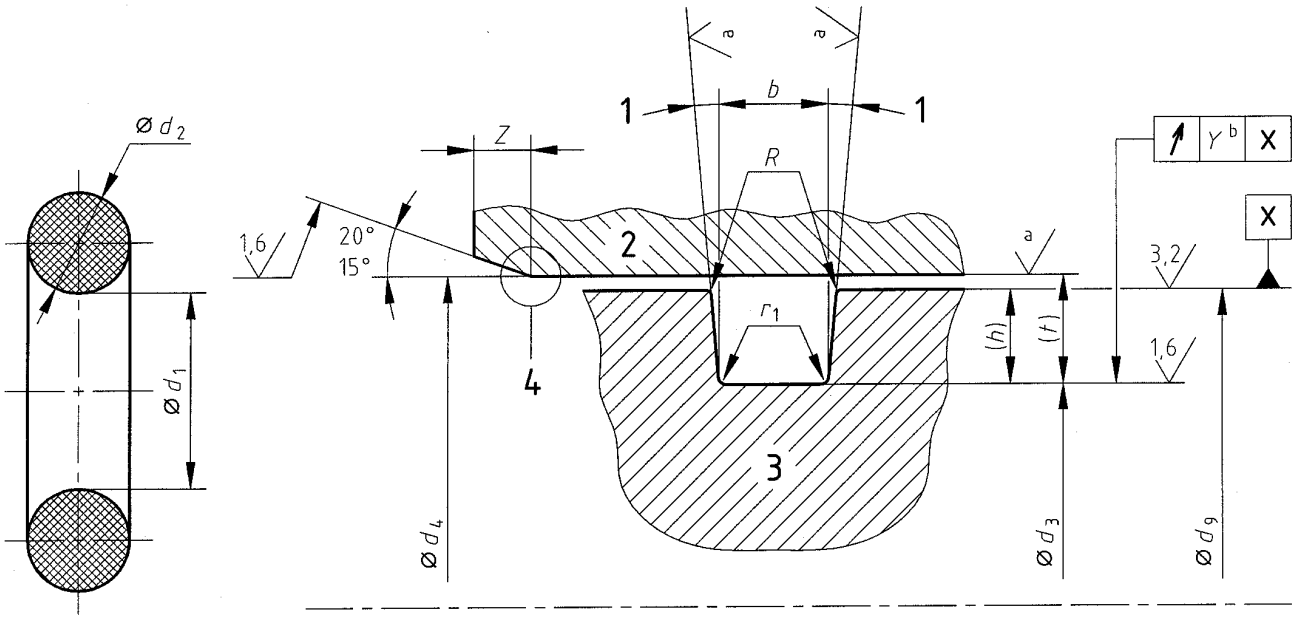
Only recommended sizes are given in the tables. They are applicable to EN 3049 and EN 3746. For other groove or o-ring, refer to TR 4271.

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

1) Published as AECMA Prestandard at the date of publication of this standard
2) Published as AECMA Technical Report at the date of publication of this standard

4.1.1 Radial sealing – Rod housing: Configuration code A

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



Key

1 0° to 5°
2 Bore
3 Rod
4 No burrs permitted in this area

[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 $Y = 0{,}05$

Figure 1

Table 1

Surface		Roughness							
		R_a				R max.			
		continuous pressure		with pressure variation		continuous pressure		with pressure variation	
		≤ 5 MPa	> 5 MPa	≤ 5 MPa	> 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		

4.1.1.1 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 aerospace series EN standards.
[b] See ISO 286-2.

4.1.1.2 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 aerospace series EN standards.
[b] See ISO 286-2.

4.1.1.3 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 aerospace series EN standards.

[b] See ISO 286-2.

4.1.1.4 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 aerospace series EN standards.
[b] See ISO 286-2.

4.1.1.5 Section diameter $d_2 = 7{,}00$

Table 7

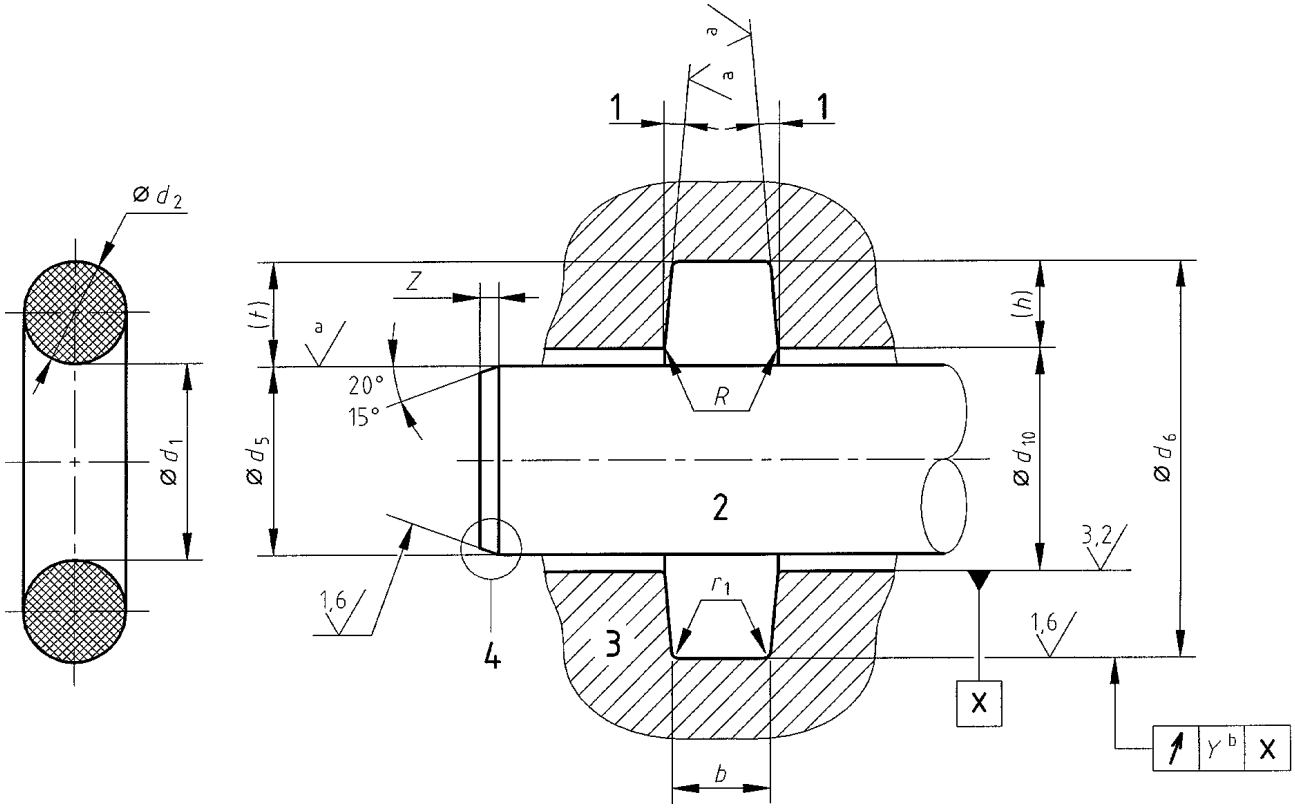
d_1		d_3	d_4	d_9
Code [a]	nom.	$^{0}_{-0{,}09}$	$^{+0{,}11}_{0}$	f7 [b]
E1090	109,00	112,06	123,40	123,40
E1150	115,00	118,26	129,60	129,60
E1250	125,00	128,46	139,80	139,80
E1360	136,00	139,76	151,10	151,10
E1450	145,00	148,96	160,30	160,30
E1550	155,00	159,26	170,60	170,60
E1650	165,00	169,46	180,80	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 aerospace series EN standards.

[b] See ISO 286-2.

4.1.2 Radial sealing – Bore housing: Configuration code B

This configuration (not recommanded) corresponds to radial grooves in static applications, bore mounted. See figure 2 and tables 8 to 14.



Key

1 0° to 5°
2 Rod
3 Bore
4 No burrs permitted in this area

[a] See table 8.
[b] Groove diameter $d_6 \leq 50$: maximum run-out tolerance $Y = 0{,}025$
Groove diameter $d_6 > 50$: maximum run-out tolerance $Y = 0{,}05$

Figure 2

Table 8

Surface		Roughness							
		R_a				R max.			
		continuous pressure		with pressure variation		continuous pressure		with pressure variation	
		≤ 5 MPa	> 5 MPa	≤ 5 MPa	> 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 9

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		

4.1.2.1 Section diameter d_2 = 1,80

Table 10

d_1		d_5	d_6	d_{10}
Code [a]	nom.	$^{0}_{-0,04}$	$^{+0,06}_{0}$	H8 [b]
A0040	4,00	4,29	7,13	4,37
A0048	4,87	5,15	7,99	5,23
A0056	5,60	5,84	8,68	5,92
A0067	6,70	6,86	9,70	6,94
A0080	8,00	8,16	11,00	8,24
A0087	8,75	8,86	11,70	8,94
A0100	10,00	10,06	12,90	10,14
A0118	11,80	11,86	14,70	11,94
A0140	14,00	13,96	16,80	14,04
A0160	16,00	15,96	18,80	16,04
A0180	18,00	17,86	20,70	17,94
A0200	20,00	19,86	22,70	19,94
A0224	22,40	22,16	25,00	22,24
A0250	25,00	24,66	27,50	24,74
A0280	28,00	27,66	30,50	27,74
A0325	32,50	32,06	34,90	32,14
A0365	36,50	36,06	38,90	36,14
A0400	40,00	39,36	42,20	39,44

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.

[b] See ISO 286-2.

4.1.2.2 Section diameter d_2 = 2,65

Table 11

d_1		d_5	d_6	d_{10}
Code [a]	nom.	$^{0}_{-0,05}$	$^{+0,07}_{0}$	H8 [b]
B0045	4,50	5,07	9,37	5,23
B0060	6,00	6,48	10,78	6,64
B0069	6,90	7,33	11,63	7,49
B0080	8,00	8,42	12,72	8,58
B0090	9,00	9,42	13,72	9,58
B0100	10,00	10,32	14,62	10,48
B0118	11,80	12,12	16,42	12,28
B0140	14,00	14,22	18,52	14,38
B0150	15,00	15,22	19,52	15,38
B0180	18,00	18,12	22,42	18,28
B0200	20,00	20,12	24,42	20,28
B0224	22,40	22,42	26,72	22,58
B0250	25,00	24,92	29,22	25,08
B0280	28,00	27,92	32,22	28,08
B0325	32,50	32,12	36,42	32,28
B0365	36,50	36,12	40,42	36,28
B0400	40,00	39,52	43,82	39,68
B0450	45,00	44,42	48,72	44,58
B0500	50,00	49,32	53,62	49,48
B0560	56,00	55,12	59,42	55,28

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.2.3 Section diameter d_2 = 3,55

Table 12

d_1		d_5	d_6	d_{10}
Code [a]	nom.	$^{0}_{-0,06}$	$^{+0,08}_{0}$	H8 [b]
C0250	25,00	25,29	30,99	25,51
C0300	30,00	30,19	35,89	30,41
C0355	35,50	35,49	41,19	35,71
C0400	40,00	39,89	45,59	40,11
C0450	45,00	44,79	50,49	45,01
C0500	50,00	49,69	55,39	49,91
C0560	56,00	55,49	61,19	55,71
C0630	63,00	62,29	67,99	62,51
C0710	71,00	70,19	75,89	70,41
C0800	80,00	78,89	84,59	79,11
C0900	90,00	88,69	94,39	88,91
C1000	100,00	98,29	103,99	98,51
C1120	112,00	109,99	115,69	110,21
C1250	125,00	122,69	128,39	122,91

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.2.4 Section diameter d_2 = 5,30

Table 13

d_1		d_5	d_6	d_{10}
Code [a]	nom.	$^{0}_{-0,07}$	$^{+0,09}_{0}$	H8 [b]
D0600	60,00	61,33	70,05	61,67
D0710	71,00	72,13	80,85	72,47
D0800	80,00	81,03	89,75	81,37
D0900	90,00	90,93	99,65	90,27
D1000	100,00	100,73	109,45	101,07
D1090	109,00	109,63	118,35	109,97
D1120	112,00	112,53	121,25	112,87
D1150	115,00	115,53	124,25	115,87
D1180	118,00	118,53	127,25	118,87
D1220	122,00	122,43	131,15	122,77
D1250	125,00	125,43	134,15	125,77
D1280	128,00	128,33	137,05	128,67
D1320	132,00	132,33	141,05	132,67
D1400	140,00	140,23	148,95	140,57
D1600	160,00	159,93	168,65	160,27
D1800	180,00	179,63	188,35	179,97
D2000	200,00	199,33	208,05	199,67

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.2.5 Section diameter d_2 = 7,00

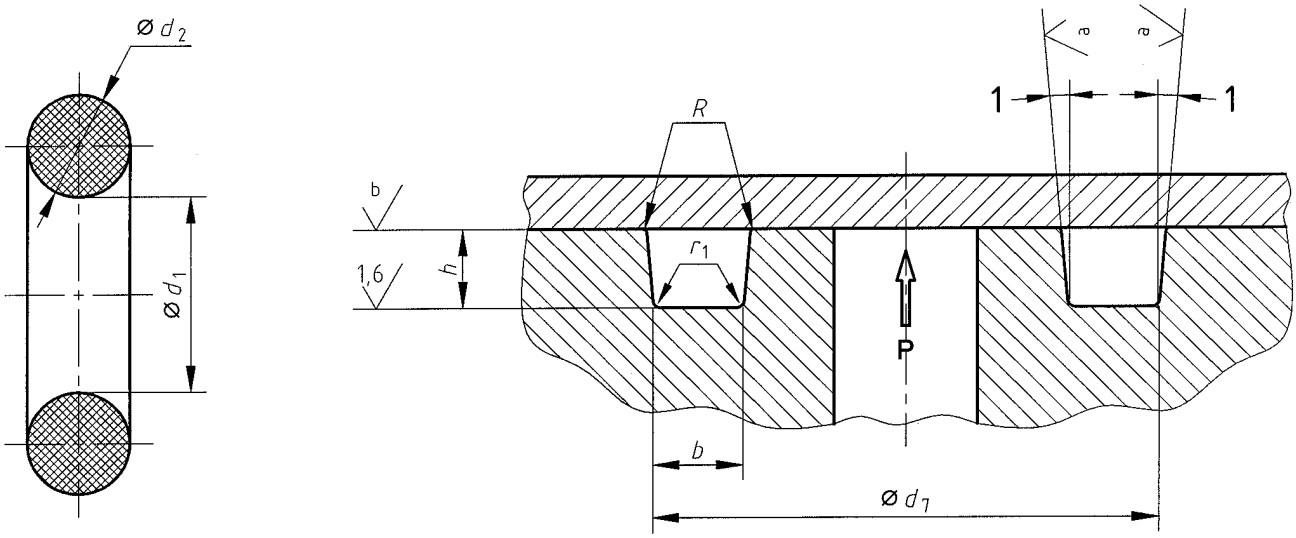
Table 14

d_1		d_5	d_6	d_{10}
Code [a]	nom.	$^{0}_{-0,09}$	$^{+0,11}_{0}$	H8 [b]
E1090	109,00	109,98	121,76	110,42
E1250	125,00	125,78	137,56	126,22
E1400	140,00	140,58	152,36	141,02
E1600	160,00	160,28	172,06	160,72
E1800	180,00	179,98	191,76	180,42
E2000	200,00	199,68	211,46	200,12
E2240	224,00	223,48	235,26	223,92
E2500	250,00	248,98	260,76	249,42
E2800	280,00	278,48	290,26	278,92
E3250	325,00	322,98	334,76	323,42
E3650	365,00	362,48	374,26	362,92
E4000	400,00	396,78	408,56	397,22

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.3 Axial sealing for internal pressure: Configuration code C

This configuration corresponds to axial grooves in static applications, with internal pressure source. See figure 3 and tables 15 to 21.



Key

1 0° to 5°

[a] See table 15.

[b] See table 15 for the homologous pressed on the seal.

Figure 3

Table 15

Surface		Roughness							
		R_a				R max.			
		continuous pressure		with pressure variation		continuous pressure		with pressure variation	
		≤ 5 MPa	> 5 MPa	≤ 5 MPa	> 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 16

d_2 nom.	b max.	b min.	h max.	h min.	r_1 max.	r_1 min.	R max.	R min.
1,80	2,85	2,60	1,38	1,28	0,4	0,2	0,3	0,1
2,65	4,05	3,80	2,07	1,97				
3,55	5,25	5,00	2,85	2,75	0,8	0,4		
5,30	7,55	7,30	4,34	4,24				
7,00	9,65	9,40	5,82	5,72	1,2	0,8		

4.1.3.1 Section diameter d_2 = 1,80

Table 17

d_1		d_7	d_1		d_7
Code [a]	nom.	H11 [b]	Code [a]	nom.	H11 [b]
A0056	5,60	9,2	A0200	20,00	23,60
A0060	6,00	9,6	A0212	21,20	24,80
A0063	6,30	9,9	A0224	22,40	26,00
A0067	6,70	10,3	A0236	23,60	27,20
A0069	6,90	10,5	A0250	25,00	28,60
A0071	7,10	10,7	A0258	25,80	29,40
A0075	7,50	11,10	A0265	26,50	30,10
A0080	8,00	11,60	A0280	28,00	31,60
A0085	8,50	12,10	A0300	30,00	33,60
A0087	8,75	12,35	A0315	31,50	35,10
A0090	9,00	12,60	A0325	32,50	36,10
A0095	9,50	13,10	A0335	33,50	37,10
A0100	10,00	13,60	A0345	34,50	38,10
A0106	10,60	14,20	A0355	35,50	39,10
A0112	11,20	14,80	A0365	36,50	40,10
A0118	11,80	15,40	A0375	37,50	41,10
A0125	12,50	16,10	A0387	38,70	42,30
A0132	13,20	16,80	A0400	40,00	43,60
A0140	14,00	17,60	A0412	41,20	44,80
A0150	15,00	18,60	A0425	42,50	46,10
A0160	16,00	19,60	A0437	43,70	47,30
A0170	17,00	20,60	A0450	45,00	48,60
A0180	18,00	21,60	A0475	47,50	51,10
A0190	19,00	22,60	A0500	50,00	53,60

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.

[b] See ISO 286-2.

4.1.3.2 Section diameter d_2 = 2,65

Table 18

d_1		d_7	d_1		d_7
Code [a]	nom.	H11 [b]	Code [a]	nom.	H11 [b]
B0250	25,00	30,30	B0500	50,00	55,30
B0258	25,80	31,10	B0515	51,50	56,80
B0265	26,50	31,80	B0530	53,00	58,30
B0280	28,00	33,30	B0545	54,50	59,80
B0300	30,00	35,30	B0560	56,00	61,30
B0315	31,50	36,80	B0580	58,00	63,30
B0325	32,50	37,80	B0600	60,00	65,30
B0335	33,50	38,80	B0615	61,50	66,80
B0345	34,50	39,80	B0630	63,00	68,30
B0355	35,50	40,80	B0650	65,00	70,30
B0365	36,50	41,80	B0670	67,00	72,30
B0375	37,50	42,80	B0690	69,00	74,30
B0387	38,70	44,00	B0710	71,00	76,30
B0400	40,00	45,30	B0730	73,00	78,30
B0412	41,20	46,50	B0750	75,00	80,30
B0425	42,50	47,80	B0800	80,00	85,30
B0437	43,70	49,00	B0850	85,00	90,30
B0450	45,00	50,30	B0900	90,00	95,30
B0462	46,20	51,50	B0950	95,00	100,30
B0475	47,50	52,80	B1000	100,00	105,30
B0487	48,70	54,00			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.3.3 Section diameter d_2 = 3,55

Table 19

d_1		d_7	d_1		d_7
Code [a]	nom.	H11 [b]	Code [a]	nom.	H11 [b]
C0800	80,00	87,10	C1360	136,00	143,10
C0850	85,00	92,10	C1400	140,00	147,10
C0900	90,00	97,10	C1450	145,00	152,10
C0950	95,00	102,10	C1500	150,00	157,10
C1000	100,00	107,10	C1550	155,00	162,10
C1030	103,00	110,10	C1600	160,00	167,10
C1060	106,00	113,10	C1650	165,00	172,10
C1090	109,00	116,10	C1700	170,00	177,10
C1120	112,00	119,10	C1750	175,00	182,10
C1150	115,00	122,10	C1800	180,00	187,10
C1180	118,00	125,10	C1850	185,00	192,10
C1220	122,00	129,10	C1900	190,00	197,10
C1250	125,00	132,10	C1950	195,00	202,10
C1280	128,00	135,10	C2000	200,00	207,10
C1320	132,00	139,10			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.3.4 Section diameter d_2 = 5,30

Table 20

d_1		d_7	d_1		d_7
Code [a]	nom.	H11 [b]	Code [a]	nom.	H11 [b]
D0900	90,00	100,60	D1360	136,00	146,60
D0925	92,50	103,10	D1400	140,00	150,60
D0950	95,00	105,60	D1450	145,00	155,60
D0975	97,50	108,10	D1500	150,00	160,60
D1000	100,00	110,60	D1550	155,00	165,60
D1030	103,00	113,60	D1600	160,00	170,60
D1060	106,00	116,60	D1650	165,00	175,60
D1090	109,00	119,60	D1700	170,00	180,60
D1120	112,00	122,60	D1750	175,00	185,60
D1150	115,00	125,60	D1800	180,00	190,60
D1180	118,00	128,60	D1850	185,00	195,60
D1220	122,00	132,60	D1900	190,00	200,60
D1250	125,00	135,60	D1950	195,00	205,60
D1280	128,00	138,60	D2000	200,00	210,60
D1320	132,00	142,60			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.

[b] See ISO 286-2.

4.1.3.5 Section diameter d_2 = 7,00

Table 21

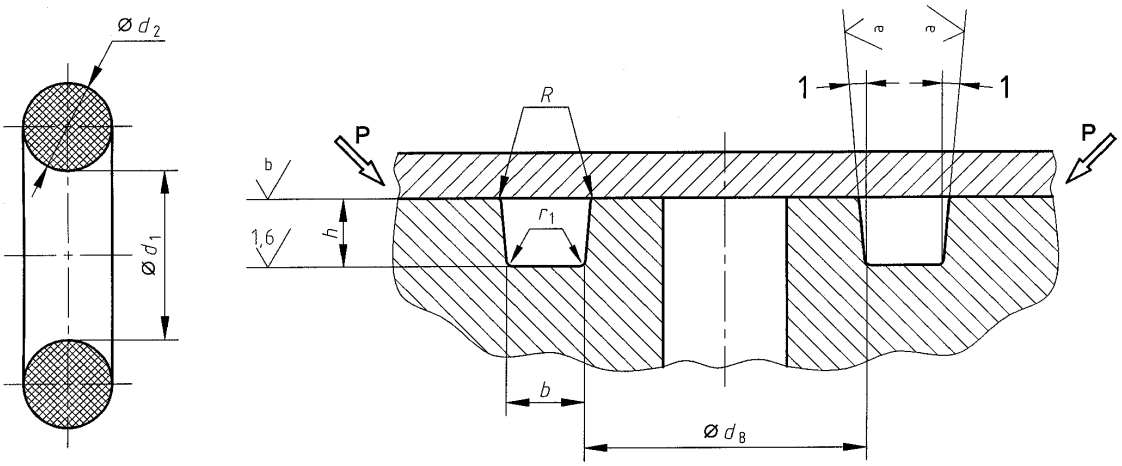
d_1		d_7	d_1		d_7
Code [a]	nom.	H11 [b]	Code [a]	nom.	H11 [b]
E2000	200,00	214,00	E2900	290,00	304,00
E2060	206,00	220,00	E3000	300,00	314,00
E2120	212,00	226,00	E3070	307,00	321,00
E2180	218,00	232,00	E3150	315,00	329,00
E2240	224,00	238,00	E3250	325,00	339,00
E2300	230,00	244,00	E3350	335,00	349,00
E2360	236,00	250,00	E3450	345,00	359,00
E2430	243,00	257,00	E3550	355,00	369,00
E2500	250,00	264,00	E3650	365,00	379,00
E2580	258,00	272,00	E3750	375,00	389,00
E2650	265,00	279,00	E3870	387,00	401,00
E2720	272,00	286,00	E4000	400,00	414,00
E2800	280,00	294,00			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.

[b] See ISO 286-2.

4.1.4 Axial sealing for external pressure: Configuration code D

This configuration corresponds to axial grooves in static applications, with external pressure source. See figure 4 and tables 22 to 28.



Key

1 0° to 5°

[a] See table 22.

[b] See table 22 for the homologous pressed on the seal.

Figure 4

Table 22

Surface		Roughness							
		R_a				R max.			
		continuous pressure		with pressure variation		continuous pressure		with pressure variation	
		≤ 5 MPa	> 5 MPa	≤ 5 MPa	> 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 23

d_2 nom.	b max.	b min.	h max.	h min.	r_1 max.	r_1 min.	R max.	R min.
1,80	2,85	2,60	1,38	1,28	0,4	0,2	0,3	0,1
2,65	4,05	3,80	2,07	1,97				
3,55	5,25	5,00	2,85	2,75	0,8	0,4		
5,30	7,55	7,30	4,34	4,24				
7,00	9,65	9,40	5,82	5,72	1,2	0,8		

4.1.4.1 Section diameter d_2 = 1,80

Table 24

d_1		d_8	d_1		d_8
Code [a]	nom.	H11 [b]	Code [a]	nom.	h11 [b]
A0056	5,60	5,675	A0200	20,00	20,13
A0060	6,00	6,09	A0212	21,20	21,33
A0063	6,30	6,39	A0224	22,40	22,53
A0067	6,70	6,79	A0236	23,60	23,73
A0069	6,90	6,99	A0250	25,00	25,13
A0071	7,10	7,19	A0258	25,80	25,93
A0075	7,50	7,59	A0265	26,50	26,63
A0080	8,00	8,09	A0280	28,00	28,13
A0085	8,50	8,59	A0300	30,00	30,16
A0087	8,75	8,84	A0315	31,50	31,66
A0090	9,00	9,09	A0325	32,50	32,66
A0095	9,50	9,59	A0335	33,50	33,66
A0100	10,00	10,11	A0345	34,50	34,66
A0106	10,60	10,71	A0355	35,50	35,66
A0112	11,20	11,31	A0365	36,50	36,66
A0118	11,80	11,91	A0375	37,50	37,66
A0125	12,50	12,61	A0387	38,70	38,86
A0132	13,20	13,31	A0400	40,00	40,16
A0140	14,00	14,11	A0412	41,20	41,36
A0150	15,00	15,11	A0425	42,50	42,66
A0160	16,00	16,11	A0437	43,70	43,86
A0170	17,00	17,11	A0450	45,00	45,16
A0180	18,00	18,13	A0475	47,50	47,66
A0190	19,00	19,13	A0500	50,00	50,19

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.4.2 Section diameter d_2 = 2,65

Table 25

d_1		d_8	d_1		d_8
Code [a]	nom.	H11 [b]	Code [a]	nom.	h11 [b]
B0080	8,00	8,09	B0400	40,00	40,16
B0090	9,00	9,09	B0412	41,20	41,36
B0100	10,00	10,11	B0425	42,50	42,66
B0112	11,20	11,31	B0437	43,70	43,86
B0125	12,50	12,61	B0450	45,00	45,16
B0132	13,20	13,31	B0462	46,20	46,36
B0140	14,00	14,11	B0475	47,50	47,66
B0150	15,00	15,11	B0487	48,70	48,86
B0160	16,00	16,11	B0500	50,00	50,19
B0170	17,00	17,11	B0515	51,50	51,69
B0180	18,00	18,13	B0530	53,00	53,19
B0190	19,00	19,13	B0545	54,50	54,69
B0200	20,00	20,13	B0560	56,00	56,19
B0212	21,20	21,33	B0580	58,00	58,19
B0224	22,40	22,53	B0600	60,00	60,19
B0236	23,60	23,73	B0615	61,50	61,69
B0250	25,00	25,13	B0630	63,00	63,19
B0258	25,80	25,93	B0650	65,00	65,19
B0265	26,50	26,63	B0670	67,00	67,19
B0280	28,00	28,13	B0690	69,00	69,19
B0300	30,00	30,16	B0710	71,00	71,19
B0315	31,50	31,66	B0730	73,00	73,19
B0325	32,50	32,66	B0750	75,00	75,19
B0335	33,50	33,66	B0800	80,00	80,22
B0345	34,50	34,66	B0850	85,00	85,22
B0355	35,50	35,66	B0900	90,00	90,22
B0365	36,50	36,66	B0950	95,00	95,22
B0375	37,50	37,66	B1000	100,00	100,22
B0387	38,70	38,86			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.4.3 Section diameter d_2 = 3,55

Table 26

d_1		d_8	d_1		d_8
Code [a]	nom.	H11 [b]	Code [a]	nom.	h11 [b]
C0300	30,00	30,16	C1180	118,00	118,22
C0355	35,50	35,66	C1220	122,00	122,25
C0400	40,00	40,16	C1250	125,00	125,25
C0450	45,00	45,16	C1280	128,00	128,25
C0500	50,00	50,19	C1320	132,00	132,25
C0560	56,00	56,19	C1360	136,00	136,25
C0600	60,00	60,19	C1400	140,00	140,25
C0650	65,00	65,19	C1450	145,00	145,25
C0710	71,00	71,19	C1500	150,00	150,25
C0750	75,00	75,19	C1550	155,00	155,25
C0800	80,00	80,22	C1600	160,00	160,25
C0850	85,00	85,22	C1650	165,00	165,25
C0900	90,00	90,22	C1700	170,00	170,25
C0950	95,00	95,22	C1750	175,00	175,25
C1000	100,00	100,22	C1800	180,00	180,29
C1030	103,00	103,22	C1850	185,00	185,29
C1060	106,00	106,22	C1900	190,00	190,29
C1090	109,00	109,22	C1950	195,00	195,29
C1120	112,00	112,22	C2000	200,00	200,29
C1150	115,00	115,22			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.4.4 Section diameter d_2 = 5,30

Table 27

d_1		d_8	d_1		d_8
Code [a]	nom.	H11 [b]	Code [a]	nom.	h11 [b]
D0900	90,00	90,22	D1360	136,00	136,25
D0925	92,50	92,72	D1400	140,00	140,25
D0950	95,00	95,22	D1450	145,00	145,25
D0975	97,50	97,72	D1500	150,00	150,25
D1000	100,00	100,22	D1550	155,00	155,25
D1030	103,00	103,22	D1600	160,00	160,25
D1060	106,00	106,22	D1650	165,00	165,25
D1090	109,00	109,22	D1700	170,00	170,25
D1120	112,00	112,22	D1750	175,00	175,25
D1150	115,00	115,22	D1800	180,00	180,29
D1180	118,00	118,22	D1850	185,00	185,29
D1220	122,00	122,25	D1900	190,00	190,29
D1250	125,00	125,25	D1950	195,00	195,29
D1280	128,00	128,25	D2000	200,00	200,29
D1320	132,00	132,25			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

4.1.4.5 Section diameter d_2 = 7,00

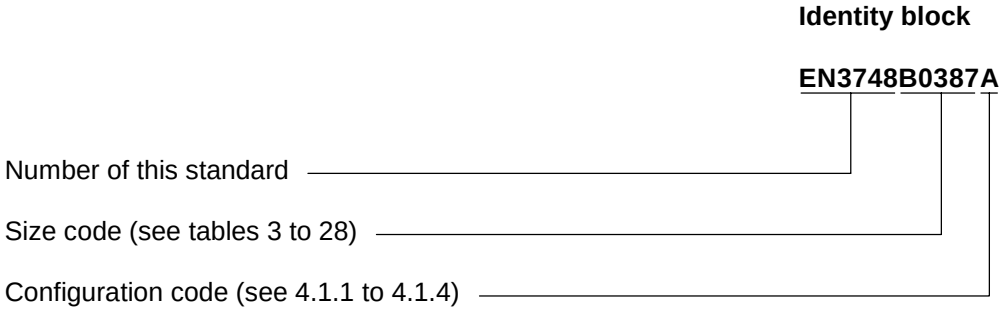
Table 28

d_1		d_8	d_1		d_8
Code [a]	nom.	H11 [b]	Code [a]	nom.	h11 [b]
E2000	200,00	200,29	E2900	290,00	290,32
E2060	206,00	206,29	E3000	300,00	300,32
E2120	212,00	212,29	E3070	307,00	307,32
E2180	218,00	218,29	E3150	315,00	315,36
E2240	224,00	224,29	E3250	325,00	325,36
E2300	230,00	230,29	E3350	335,00	335,36
E2360	236,00	236,29	E3450	345,00	345,36
E2430	243,00	243,29	E3550	355,00	355,36
E2500	250,00	250,32	E3650	365,00	365,36
E2580	258,00	258,32	E3750	375,00	375,36
E2650	265,00	265,32	E3870	387,00	387,36
E2720	272,00	272,32	E4000	400,00	400,40
E2800	280,00	280,32			

[a] Size code corresponding to the codification of o-rings, according to aerospace series EN standards.
[b] See ISO 286-2.

5 Designation

EXAMPLE:

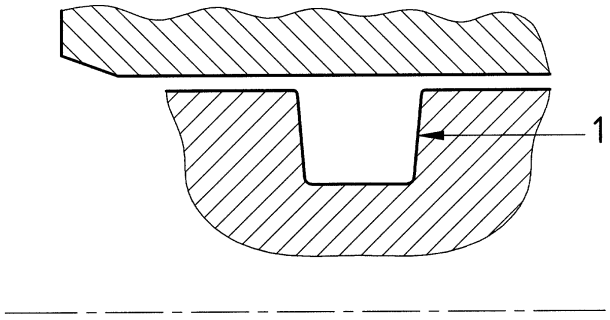


6 Drawing presentation

The recommended configurations are specified in 6.1 to 6.4. However, indicate all dimensions in conformity with this standard is acceptable.

6.1 Configuration code A

EXAMPLE: see figure 5.



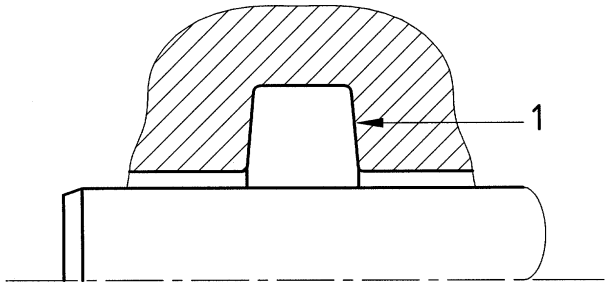
Key

1 EN3748A0040A

Figure 5

6.2 Configuration code B

EXAMPLE: see figure 6.



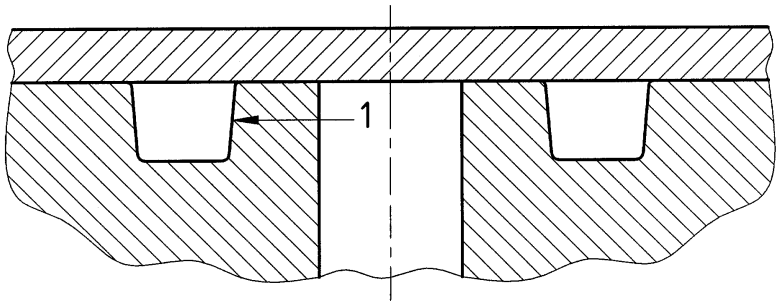
Key

1 EN3748B0100B

Figure 6

6.3 Configuration code C

EXAMPLE: see figure 7.



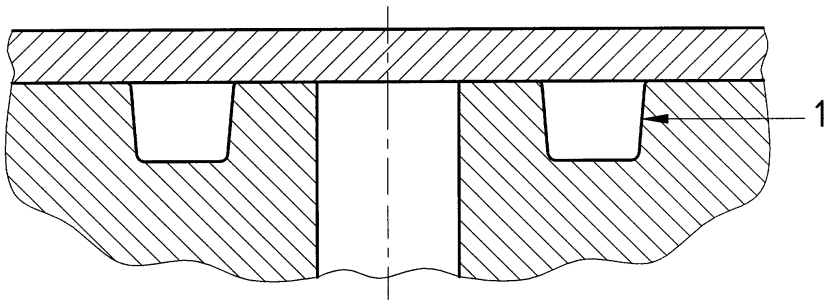
Key

1 EN3748B0400C

Figure 7

6.4 Configuration code D

EXAMPLE: see figure 8.



Key

1 EN3748E3650D

Figure 8

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