BRITISH STANDARD AEROSPACE SERIES

BS 2M 63:1993
ISO 7320:1992

Specification for

Dimensions of aerospace fluid system port connection, seal and fitting end

Confirmed
November 2010

UDC 621.643.414:629.7

Committees responsible for this British Standard

The preparation of this British Standard was undertaken by the Aerospace Standards Policy Committee (ACE/-) upon which the following bodies were represented:

British Airways
Department of Trade and Industry (Air Division)
Institution of Electrical Engineers
Ministry of Defence
Society of British Aerospace Companies

This British Standard, having been prepared under the direction of the Aerospace Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 August 1993

First published February 1987
Second edition August 1993

The following BSI references relate to the work on this standard:
Committee reference ACE/-
Draft for comment 92/70579 DC

ISBN 0 580 22502 X

Amendments issued since publication

Amd. No.	Date	Comments

Contents

National foreword

This British Standard has been prepared under the direction of the Aerospace Standards Policy Committee. It is identical with ISO 7320:1992 *Aerospace — Couplings, threaded and sealed, for fluid systems — Dimensions,* published by the International Organization for Standardization (ISO). This British Standard supersedes BS M 63:1987, which is withdrawn.

Cross-reference

The Technical Committee has reviewed the provisions of ISO 5855-3:1988, to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard establishes a system for sealing the port connection of couplings used in the aerospace industry.

It specifies dimensions to achieve interchangeability of the port connection, the fitting end and a seal. The seal may be a standard O-ring or a special ring.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5855-3:1988, *Aerospace — MJ threads — Part 3: Limit dimensions for fittings for fluid systems.*

3 Sealing principle and assembly of the coupling

The coupling comprises three elements:

a) the port element, including the internal thread (see **4.1**);

b) the fitting element, including an external thread and a groove intended to receive the O-ring (see **4.2**) or a special seal; this element is screwed into the internal threaded element;

c) the seal element, which maintains system pressure without leakage [a standard O-ring (see **4.3**) or special seal].

4 Dimensions

4.1 Port connection

See Figure 1 and Table 1.

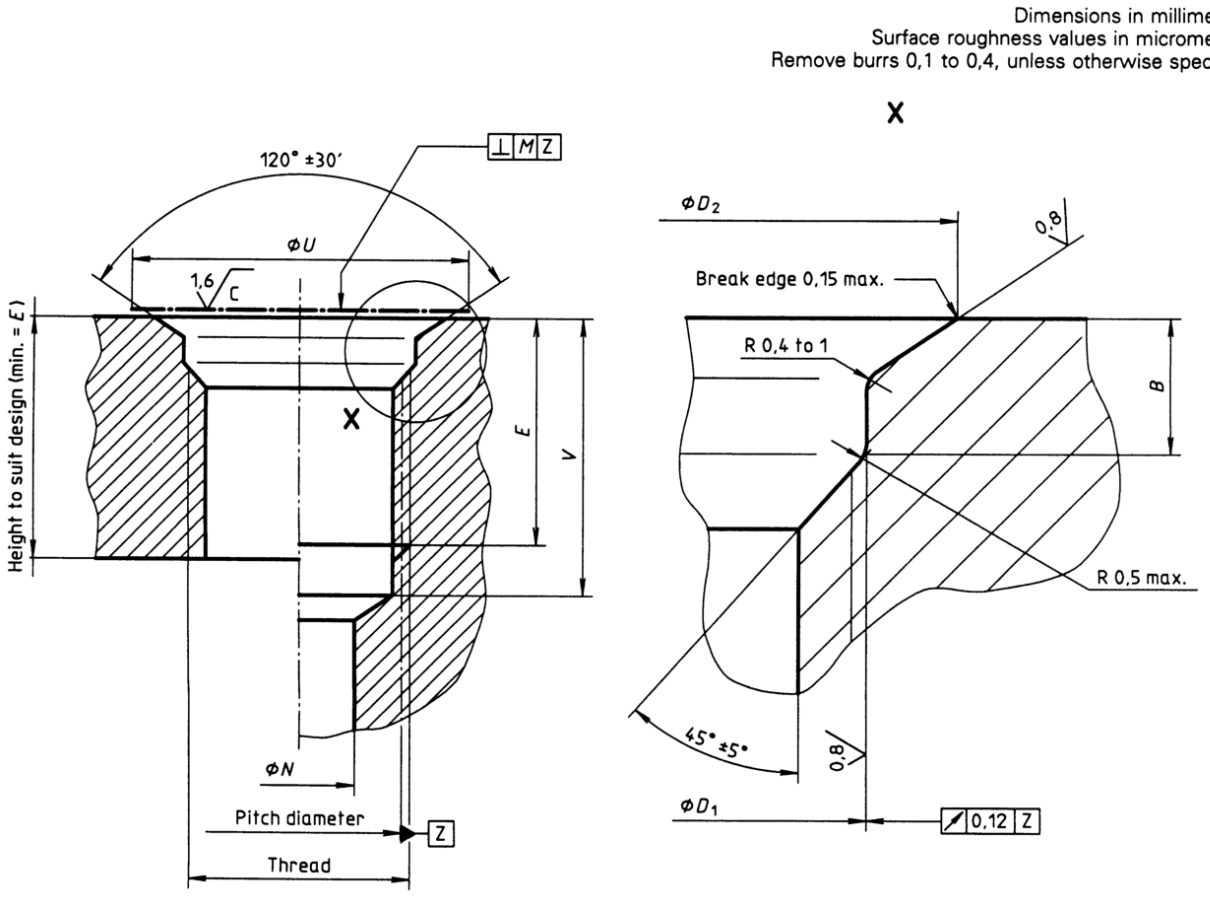

Figure 1 — Port connection configuration

Table 1 — Port connection dimensions

Dimensions in millimetres

DN[a]	Thread[b] 4H5H	B $^{+0,4}_{0}$	D_1 nom.	D_1 tol.	D_2 $^{+0,4}_{0}$	E min.	M	N min.	U min.	V max.
03	MJ8 × 1	1,9	8,6	$^{+0,1}_{0}$	11,3		0,08	Internal diameter of tube	15	15
04										
05	MJ10 × 1		10,6		13,3				18	
06	MJ12 × 1,25		12,4		15,1	12,5			20	17
08	MJ14 × 1,5	3,4	14,6	$^{+0,15}_{0}$	18,3	16	0,1		23	21
10	MJ16 × 1,5		16,6		20,3				25	
12	MJ18 × 1,5		18,6		22,3				28	
14	MJ20 × 1,5		20,6		24,3				31	
16	MJ22 × 1,5		22,6		26,3					
18	MJ24 × 1,5		24,6		28,3				33	
20	MJ27 × 1,5		27,6		31,3				37	
22	MJ30 × 1,5		30,6		34,3				42	
25	MJ33 × 1,5		33,6		37,3		0,2			
28	MJ36 × 1,5		36,6		40,3				47	
32	MJ42 × 2	4,3	43		47,1	20			56	26
40	MJ50 × 2		51		55,1				61	

[a] DN = Nominal size (outside diameter of the corresponding tube).
[b] Threads are in accordance with ISO 5855-3.

4.2 Fitting end

See Figure 2 and Table 2.

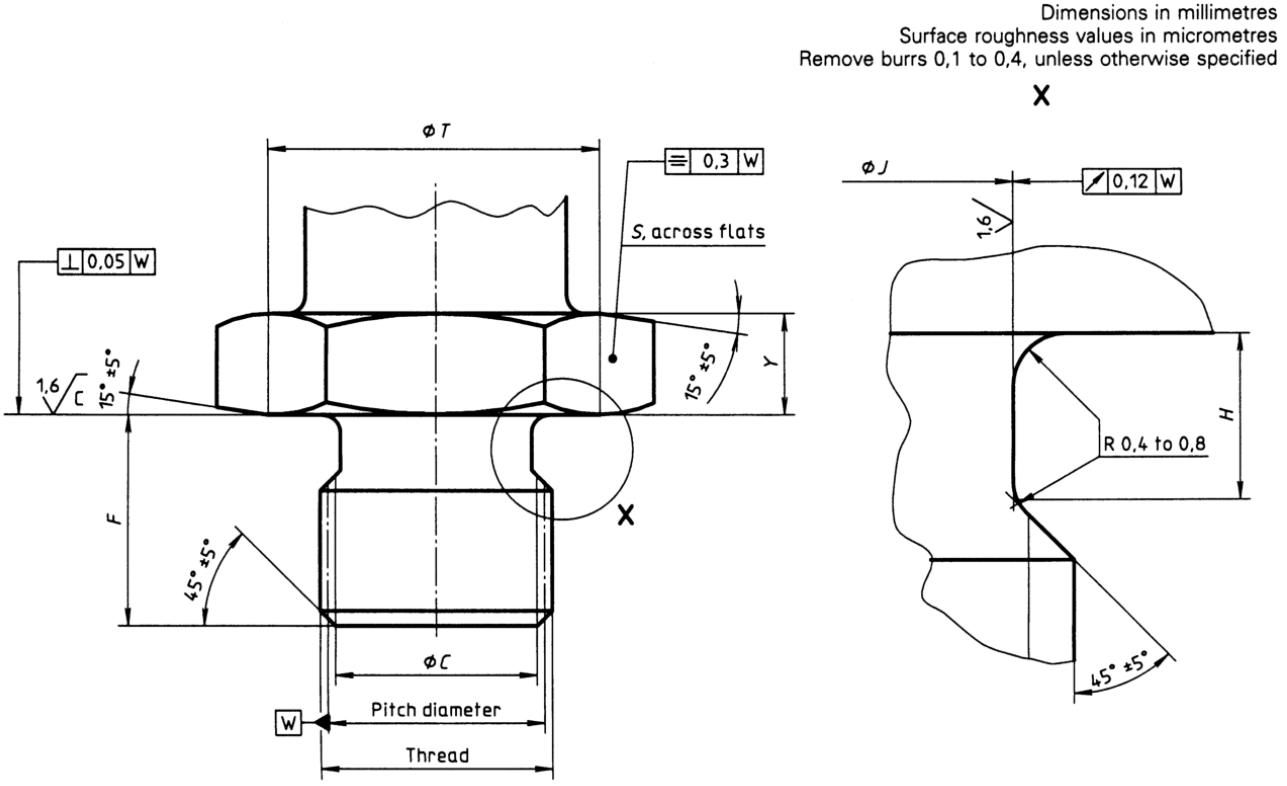

Figure 2 — Fitting end configuration

Table 2 — Fitting end dimensions

Dimensions in millimetres

DN[a]	Thread[b] 4h6h	*C* ± 0,5	*F* $^{0}_{-0,2}$	*H* $^{+0,4}_{0}$	*J* nom.	*J* tol.	*S* nom.	*S* tol.	*T* $^{+0,5}_{0}$	*Y* min.
03	MJ8 × 1	6,2	10	1,9	6,3	$^{0}_{-0,08}$	14	h13	13,8	3
04										
05	MJ10 × 1	8,2			8,3		17		16,8	
06	MJ12 × 1,25	9,8	11,5		10,1		19		18,7	
08	MJ14 × 1,5	11,5	15	3,4	11,7	$^{0}_{-0,1}$	22		21,7	4
10	MJ16 × 1,5	13,5			13,7		24		23,7	5
12	MJ18 × 1,5	15,5			15,7		27		26,7	
14	MJ20 × 1,5	17,5			17,7		30		29,7	
16	MJ22 × 1,5	19,5			19,7					
18	MJ24 × 1,5	21,5			21,7		32		31,6	
20	MJ27 × 1,5	24,5			24,7		36	h14	35,4	
22	MJ30 × 1,5	27,5			27,7		41		40,4	
25	MJ33 × 1,5	30,5			30,7					
28	MJ36 × 1,5	33,5			33,7		46		45,4	6
32	MJ42 × 2	38,9	19	4,3	39	$^{0}_{-0,15}$	50		49,4	
40	MJ50 × 2	46,9			47		60		59,3	

[a] DN = Nominal size (outside diameter of the corresponding tube).
[b] Threads are in accordance with ISO 5855-3.

4.3 O-ring seal

See Figure 3 and Table 3.

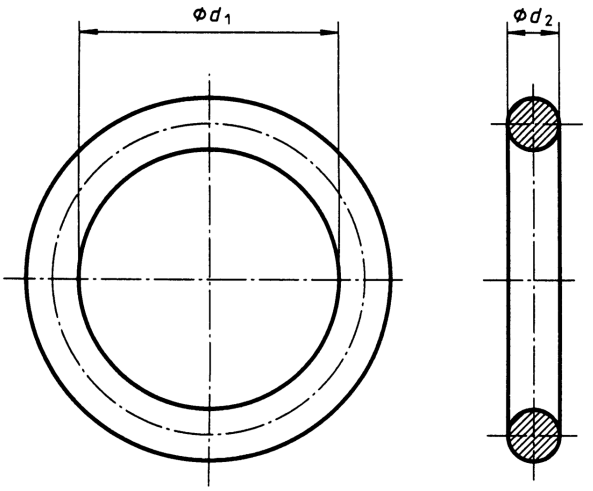

Figure 3 — O-ring seal configuration

Table 3 — Selection of O-ring seal sizes

Dimensions in millimetres

DN[a]	d_1		d_2	
	nom.	tol.	nom.	tol.
03	6	± 0,13	1,8	± 0,08
04				
05	8	± 0,14		
06	9,5	± 0,15		
08	11,2	± 0,16	2,65	± 0,09
10	13,2	± 0,17		
12	15	± 0,18		
14	17	± 0,2		
16	19	± 0,21		
18	21,2	± 0,22		
20	23,6	± 0,24		
22	26,5	± 0,25		
25	30	± 0,27		
28	32,5	± 0,29		
32	37,5	± 0,32	3,55	± 0,1
40	45	± 0,36		

NOTE Selection taken from Series A of ISO 3601-1.

[a] DN = Nominal size (outside diameter of the corresponding tube).

Annex A (informative)
Bibliography

[1] ISO 1101:1983, *Technical drawings — Geometrical tolerancing — Tolerances of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings.*

[2] ISO 2692:1988, *Technical drawings — Geometrical tolerancing — Maximum material principle.*

[3] ISO 3601-1:1988, *Fluid systems — Sealing devices — O-rings — Part 1: Inside diameters, cross-sections, tolerances and size identification code.*

List of references

See national foreword.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL