BS ISO 19632:2015



BSI Standards Publication

Aerospace series — Fitting end, 24° internal cone, external thread, flareless type extra fine thread pitch inch series — Design standard



BS ISO 19632:2015 BRITISH STANDARD

National foreword

This British Standard is the UK implementation of ISO 19632:2015.

The UK participation in its preparation was entrusted to Technical Committee ACE/69, Aerospace hydraulic systems, fluids and components.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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ISBN 978 0 580 73624 7

ICS 49.080

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2015.

Amendments issued since publication

Date Text affected

BS ISO 19632:2015

INTERNATIONAL STANDARD

ISO 19632

First edition 2015-07-15

Aerospace series — Fitting end, 24° internal cone, external thread, flareless type extra fine thread pitch inch series — Design standard

Série aérospatiale — Raccord, cône interne à 24°, filetage externe, de type sans épanoui, filetage à pas extra fin, série inch — Norme de conception



BS ISO 19632:2015 **ISO 19632:2015(E)**



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

Introduction

International Standards use the International system of units (SI); however, large segments of the aerospace industry make use of other measurement systems as a matter of common working practice.

All dimensions and units used in this International Standard are given in SI units, with other units also indicated for the convenience of the user.

The decimal sign used in International Standards is the comma (","); however, the comma is not used in common working practice with non-SI dimensions. Therefore, in common with many other aerospace standards, the decimal point (".") is used in this International Standard when providing dimensions in inch-pound units.

NOTE The use of non-SI units and the decimal point in this International Standard does not constitute general acceptance of measurement systems other than SI within International Standards.

Aerospace series — Fitting end, 24° internal cone, external thread, flareless type extra fine thread pitch inch series — Design standard

1 Scope

This International Standard specifies the dimensions, tolerances and the required characteristics of a fitting end, 24° cone, external thread, flareless type, size -04 up to -20 for use in hydraulic and fluid systems at 35 000 kPa (5 080 psi), diameter 6,35 mm \leq D \leq 31,75 mm (1/4 inch \leq D \leq 1 1/4 inch) for aerospace applications.

This is a design standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3161, Aerospace — UNJ threads — General requirements and limit dimensions

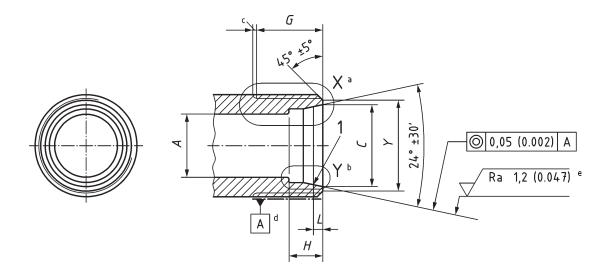
3 Required characteristics — Configuration, dimensions and tolerances

The configuration, dimensions and tolerances shall conform with Figure 1 to Figure 5, Table 1 and Table 2.

Dimensions and tolerances are expressed in millimetres (inch).

Unless otherwise specified, the following tolerances are applicable:

- Linear dimensions: ± 0,25 mm (± 0.010 inch)
- Angular dimensions: ± 0°30'



Key

- 1 gauge point
- a This style may have an optional undercut as shown in Figure 2.
- b See <u>Figure 4</u> or <u>Figure 5</u>.
- c Two incomplete threads max., root radius not required.
- d Thread T as per ISO 3161.
- e Sealing surface.

Figure 1 — Configuration, dimensions and tolerances of fitting end design, style G

Style G is not an appropriate configuration for port fitting.

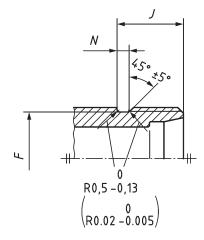


Figure 2 — Configuration, dimensions and tolerances of fitting end design, style B (same as style G except as shown)

Style B is not an appropriate configuration for port fitting.

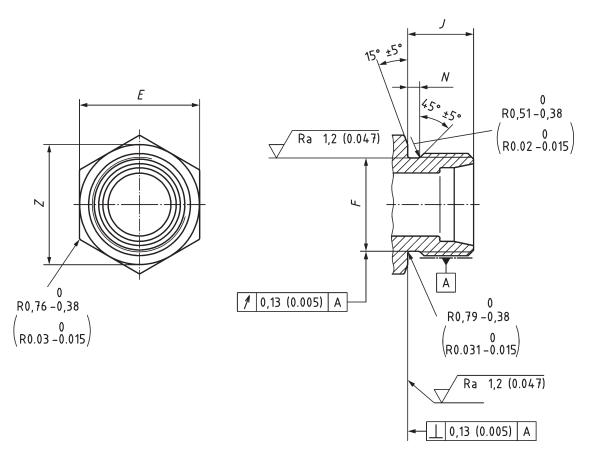
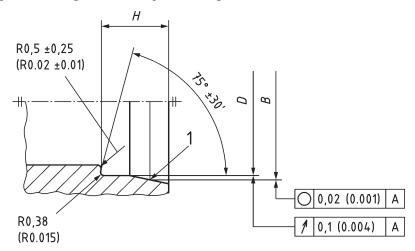


Figure 3 — Configuration, dimensions and tolerances of fitting end design, style E (same as style G except as shown)

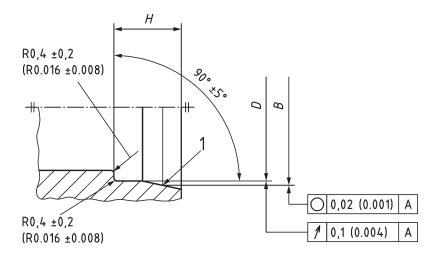
Style E is an appropriate configuration for port fitting.



Key

1 gauge point

Figure 4 — Configuration, dimensions and tolerances of fitting end design



Key

1 gauge point

Figure 5 — Configuration, dimensions and tolerances of fitting end design, optional style F

Style F is not an appropriate configuration for port fitting.

Table 1 — Dimensions and tolerances

$ \frac{1 \cdot 1 \cdot 1 \cdot 1 \cdot 1}{\text{code no.}} = \frac{1 \cdot 0.08}{\text{class } 3.4} = \frac{4 \cdot 0.08}{\text{code no.}} = \frac{4 \cdot 0.08}{\text{class } 3.4} = \frac{4 \cdot 0.08}{\text{class } 3.4} = \frac{4 \cdot 0.10}{\text{cloudy}} = \frac{4 \cdot 0.10}{clou$,	ØΑ	ØΒ	ЭØ	ØΦ	ØF	G	Н	ı	T	Z	γø
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Diameter	Tthread	₹ 0,08	GAGE		+ 0,10		min.	± 0,08	± 0,25	₹ 0,08	+ 0,38	± 0,25
0.4375-28UNJEF 4,75 7,442 8,10 6,633 9,63 11,25 5,94 11,51 1,52 0.5625-24UNJEF (0.187) (0.2930) (0.319) (0.261) (0.379) (0.443) (0.234) (0.453) (0.060) 0.5625-24UNJEF 7,54 10,566 11,20 9,80 12,62 11,66 6,35 11,91 1,45 0.7500-20UNJEF (0.297) (0.4160) (0.441) (0.386) (0.497) (0.459) (0.250) (0.469) (0.057) 0.7500-20UNJEF (0.422) (0.4160) (0.611) (0.514) (0.674) (0.552) (0.365) (0.660) (0.611) (0.514) (0.674) (0.552) (0.562) 2.41 0.8750-20UNJEF (0.560) (0.6860) (0.641) (0.679) (0.652) (0.641) (0.799) (0.615) 8.89 (0.625) 2.41 1.0625-18UNJEF (0.560) (0.8100) (0.727) (0.641) (0.799) (0.615) 8.89 (0.625) 2.46	code no.	ISO 3161 class 3A	(± 0.003)			0 (+ 0.004) (0)			(± 0.003)	(± 0.010)	(± 0.003)	0 (+ 0.015) (0)	(± 0.010)
0.5625-24UNJEF (0.187) (0.2930) (0.319) (0.261) (0.279) (0.443) (0.279) (0.441) (0.262) (0.443) (0.443) (0.443) (0.443) (0.275) (0.453) (0.191) (0.457) (0.453) (0.279) (0.441) (0.386) (0.497) (0.459) (0.250) (0.469) (0.057) (0.469) (0.057) (0.469) (0.057) (0.469) (0.057) (0.469) (0.057) (0.674) (0.674) (0.674) (0.674) (0.674) (0.674) (0.675) (0.469) (0.067) (0.674) (0.674) (0.674) (0.674) (0.674) (0.674) (0.674) (0.674) (0.675) (0.665) (0.6860) (0.671) (0.674) (0.675) (0.675) (0.665) (0.6860) (0.764) (0.799) (0.615) (0.675) (0.675) (0.675) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678) (0.678)	2	7 TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	4,75	7,442		6,63		11,25	5,94	11,51	1,52	1,91	9,27
0.5625-24UNJEF 7,54 10,566 11,20 9,80 12,62 11,66 6,35 11,91 1,45 0.550-24UNJEF (0.297) (0.4160) (0.441) (0.386) (0.497) (0.459) (0.250) (0.469) (0.057) 0.7500-20UNJEF 10,72 14,224 15,27 13,06 17,12 14,02 7,75 14,27 2,41 0.8750-20UNJEF (0.620) (0.500) (0.601) (0.514) (0.674) (0.522) (0.365) (0.562) 2,41 1.0625-18UNJEF 15,66 20,574 21,64 19,46 24,66 17,22 8,89 (0.625) 2,46 1.0625-18UNJEF (0.656) (0.8100) (0.852) (0.766) (0.971) (0.678) 8,89 (0.625) 2,46 1.3125-16UNJ 22,22 26,975 27,99 25,81 31,01 17,22 0.678) 0.678) 0.678) 0.678) 0.678) 0.678) 0.678) 0.678) 0.678) 0.678) 0.678) <td< td=""><td>40</td><td>U.43/5-28UNJEF</td><td>(0.187)</td><td>(0.2930)</td><td>(0.319)</td><td>(0.261)</td><td>(0.379)</td><td>(0.443)</td><td>(0.234)</td><td>(0.453)</td><td>(090.0)</td><td>(0.075)</td><td>(0.365)</td></td<>	40	U.43/5-28UNJEF	(0.187)	(0.2930)	(0.319)	(0.261)	(0.379)	(0.443)	(0.234)	(0.453)	(090.0)	(0.075)	(0.365)
0.3523-240NJEF (0.297) (0.4160) (0.441) (0.386) (0.497) (0.459) (0.250) (0.469) (0.057) 0.7500-20UNJEF 10,72 14,224 15,27 13,06 17,12 14,02 7,75 14,27 14,27 0.7500-20UNJEF (0.422) (0.5600) (0.601) (0.514) (0.674) (0.552) (0.305) (0.562) 2,41 0.8750-20UNJEF (0.500) (0.6860) (0.611) (0.674) (0.672) (0.652) 2,74 2,46 1.0625-18UNJEF (0.500) (0.6860) (0.727) (0.641) (0.799) (0.615) 8,89 (0.625) 2,46 1.0625-18UNJEF (0.656) (0.8100) (0.852) (0.766) (0.971) (0.678) 17,47 2,46 1.3125-16UNJ 22,22 26,975 27,99 25,81 31,01 17,22 (0.415) (0.678) 17,47 2,36 1.6250-16UNJ 27,76 33,426 34,42 32,26 38,94 17,22 <t< td=""><td></td><td>TC TC T</td><td>7,54</td><td>10,566</td><td>11,20</td><td>08'6</td><td>12,62</td><td>11,66</td><td>6,35</td><td>11,91</td><td>1,45</td><td>2,11</td><td>12,19</td></t<>		TC T	7,54	10,566	11,20	08'6	12,62	11,66	6,35	11,91	1,45	2,11	12,19
0.7500-20UNJEF 10,72 14,224 15,27 13,06 17,12 14,02 14,224 15,27 13,06 17,12 14,02 14,27 14,27 14,27 14,27 14,27 14,27 14,27 15,27 14,27 14,27 15,27 14,27 15,27 15,62 15,62 15,62 15,62 15,87 15,87 15,97 15,87 15,97 15,87 15,97 15,87 15,87 15,97 15,87 15,87 15,87 15,87 15,87 15,97 15,87	90	U.3023-24UNJEF	(0.297)	(0.4160)	(0.441)	(0.386)	(0.497)	(0.459)	(0.250)	(0.469)	(0.057)	(0.083)	(0.480)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	00	0 7500 20HNIEE	10,72	14,224	15,27	13,06	17,12	14,02	7,75	14,27		2,39	16,76
0.8750-20UNJEF 12,70 17,424 18,47 16,28 20,29 15,62 15,62 15,62 15,62 15,62 15,62 15,62 15,62 15,62 15,62 15,62 15,87 (0.095) (0.065) (0.065) (0.0641) (0.079) (0.015) (0.055) (0.085) (0.064) (0.071) (0.078) (0.078) 2,46 17,22 (0.057) 2,46 17,22 (0.078) 2,46 17,22 (0.079) 2,46 17,22 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,36 17,47 2,39 17,47 2,29 17,47 2,29 17,47 17,47 17,47 </td <td>0.0</td> <td>0.7300-200NJEF</td> <td>(0.422)</td> <td>(0.5600)</td> <td>(0.601)</td> <td>(0.514)</td> <td>(0.674)</td> <td>(0.552)</td> <td>(0.305)</td> <td>(0.562)</td> <td>2,41</td> <td>(0.094)</td> <td>(0.660)</td>	0.0	0.7300-200NJEF	(0.422)	(0.5600)	(0.601)	(0.514)	(0.674)	(0.552)	(0.305)	(0.562)	2,41	(0.094)	(0.660)
1.0625-18UNJEF (0.560) (0.6860) (0.727) (0.641) (0.799) (0.615) 8,89 (0.625) 2,46 1.0625-18UNJEF 16,66 20,574 21,64 19,46 24,66 17,22 (0.350) 2,46 1.3125-16UNJ 22,22 26,975 27,99 25,81 31,01 17,22 10,54 (0.678) 17,47 2,36 1.6250-16UNJ 27,76 33,426 34,42 32,26 38,94 17,22 (0.415) 6.678) 2,29 1.6250-16UNJ (1.093) (1.355) (1.270) (1.533) (0.678) (0.678) (0.698) (0.090)	7	O 07EO 20IINIEE	12,70	17,424	18,47	16,28	20,29	15,62		15,87	(0.095)	2,72	19,68
1.0625-18UNJEF 16,66 20,574 21,64 19,46 24,66 17,22 (0.350) 2,46 17,22 (0.678) 22,46 (0.0971) (0.678) (0.678) 22,46 (0.0971) (0.678) (0.678) (0.0971) (0.678) (0.678) (0.0971) (0.678) (0.678) (0.0971) (0.0971) (0.678) (0.688) (0.0931) 1.6250-16UNJ 27,76 33,426 34,42 32,26 38,94 17,22 (0.415) 2,29 1.6250-16UNJ (1.093) (1.355) (1.270) (1.533) (0.678) (0.678) (0.090)	Π	0.07.30-200MJEF	(0.500)	(0.6860)	(0.727)	(0.641)	(0.799)	(0.615)	68'8	(0.625)		(0.107)	(0.775)
1.3125-16UNJ (0.656) (0.8100) (0.852) (0.766) (0.971) (0.678) (0.678) (0.678) (0.678) (0.697) 1.3125-16UNJ (0.875) (1.0620) (1.102) (1.016) (1.221) (0.678) (0.678) (0.688) (0.093) 1.6250-16UNJ (1.093) (1.3160) (1.270) (1.533) (0.678) (0.415) 2,29	1.0	1 062E 10IINIEE	16,66	20,574	21,64	19,46	24,66	17,22	(0.350)		2,46		24,00
1.3125-16UNJ 22,22 26,975 27,99 25,81 31,01 17,22 10,54 2,36 1.6250-16UNJ (0.875) (1.0620) (1.102) (1.016) (1.221) (0.678) 10,54 (0.688) (0.093) 1.6250-16UNJ (1.093) (1.3160) (1.355) (1.270) (1.533) (0.678) (0.678) (0.090)	71	T:0053-T00M)ET	(0.656)	(0.8100)	(0.852)	(0.766)	(0.971)	(0.678)			(0.097)		(0.945)
1.5123-100 NJ (0.875) (1.0620) (1.102) (1.016) (1.221) (0.678) 10,54 (0.688) (0.093) 1.6250-16UNJ 27,76 33,426 34,42 32,26 38,94 17,22 (0.415) 2,29 1.6250-16UNJ (1.093) (1.3160) (1.553) (1.533) (0.678) (0.678) (0.090)	16	1 212E 16IINI	22,22	26,975	27,99	25,81	31,01	17,22		17,47	2,36	3,18	30,35
1.6250-16UNJ 27,76 33,426 34,42 32,26 38,94 17,22 (0.415) (1.270) (1.533) (0.678)	OT	T.3123-10UNJ	(0.875)	(1.0620)	(1.102)	(1.016)	(1.221)	(0.678)	10,54	(889.0)	(0.093)	(0.125)	(1.195)
1.0230 ^{-1001N} (1.093) (1.3160) (1.355) (1.270) (1.533) (0.678)	00	1 62E0 16IINI	27,76	33,426	34,42	32,26	38,94	17,22	(0.415)		2,29		38,22
	70	1.0230-1001NJ	(1.093)	(1.3160)	(1.355)	(1.270)	(1.533)	(0.678)			(0.090)		(1.505)

The diameter code no. is given in 1/16 inch of tube diameter.

For dimensions E see <u>Table 2</u>.

 $Table\ 2-Wrench\ pad\ dimensions$

			Е		ZM	IIN	Wrench	Fitting diameter code						
Size	mm	Tol. mm	inch	Tol. inch	mm	inch	inch	04	06	08	10	12	16	20
07	11,11		0.438		10,77	0.424	7/16	R						
08	12,70		0.500		12,34	0.486	1/2	p						
09	14,29		0.563		13,94	0.549	9/16	p	R					
10	15,88		0.625		15,52	0.611	5/8	p	p					
11	17,46		0.688		17,12	0.674	11/16	p	p					
12	19,05		0.750		18,69	0.736	3/4	p	p	R				
13	20,64		0.813		20,29	0.799	13/16	p	p	p				
14	22,23	+ 0,08	0.875		21,87	0.861	7/8	p	p	p	R			
15	23,81		0.938	+ 0.003	23,47	0.924	15/16	p	p	p	р			
16	25,40	- 0,10	1.000	- 0.003	25,04	0.986	1"	p	p	p	p			
17	26,99	- 0,10	1.063	- 0.004	26,64	1.049	1" 1/16	p	p	p	p	R		
18	28,58		1.125		28,22	1.111	1" 1/8	р	p	p	р	р		
19	30,16		1.188		29,82	1.174	1" 3/16	p	p	p	p	p		
20	31,75		1.250		31,39	1.236	1" 1/4	p	p	p	p	p		
21	33,34		1.313		32,99	1.299	1" 5/16	р	p	p	р	р	R	
22	34,93		1.375		34,57	1.361	1" 3/8	p	p	p	p	p	p	
23	36,51		1.438		36,17	1.424	1" 7/16	p	p	p	p	р	p	
24	38,10		1.500		37,74	1.486	1" 1/2	p	p	p	р	р	р	
25	39,69		1.563		39,34	1.549	1" 9/16	p	p	p	p	p	p	
26	41,28	± 0,25	1.625	± 0.010	40,77	1.605	1" 5/8	p	p	p	р	р	р	R
27	42,86		1.688		42,37	1.668	1" 11/16	p	p	p	p	p	p	р
28	44,45		1.750		43,94	1.730	1" 3/4	p	p	p	p	p	p	р
29	46,04		1.813		45,54	1.793	1" 13/16	р	р	р	р	р	р	р
30	47,63		1.875		47,12	1.855	1" 7/8	р	p	p	р	р	р	р
31	49,21		1.938		48,72	1.918	1" 15/16	р	p	р	р	р	р	р
32	50,80		2.000		50,29	1.980	2"	р	p	p	р	р	р	р

R = Recommended for weight saving

p = Possible use

4 Designation

EXAMPLE

	Description block	Identity block				
I	FITTING END, FLARELESS	ISO 19632 -	— 08	G	12	F
Number of this						
International Standard						
Separation dash						
Size code No.						
(1/16 inch of tube outside diameter)						
Style designation						
(see Figure 1, Figure 2 and Figure 3)						
Optional (for style E) wrench pad size of	code (1/16 inch)					
(see Figure 3 and Table 2)						
Optional (see Figure 5)						
Inner shoulder style designation						





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