



# SLOVENSKI STANDARD SIST EN 4194:2004

01-maj-2004

**Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead**

Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead

Luft- und Raumfahrt - Rohrverschraubung 8°30' aus Titanlegierung - T-Verschraubungen, reduziert T-Durchgang als Schottanschluss

Série aérospatiale - Systeme de raccordement 8°30' en alliage de titane - Raccords en té, réduits pour traversée de cloison

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Ta slovenski standard je istoveten z: **EN 4194:2001**  
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**ICS:**

49.080 Štepanje [b]ã Aerospace fluid systems and components

**SIST EN 4194:2004 en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4194**

October 2001

ICS 49.080

English version

## Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead

Série aérospatiale - Système de raccordement 8°30' en alliage de titane - Raccords en té, réduits pour traversée de cloison

Luft- und Raumfahrt - Rohrverschraubung 8°30' aus Titanlegierung - T-Verschraubungen, reduziert T-Durchgang als Schottanschluss

This European Standard was approved by CEN on 19 April 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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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

EN 4194:2001 (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 April 2002, and conflicting national standards shall be withdrawn at the latest by April 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.

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## 1 Scope

This standard specifies the characteristics of tees, reduced, bulkhead, for pipe couplings 8°30', in titanium alloy, for aerospace applications.

Nominal pressure: up to 28 000 kPa

Temperature range: – 55 °C to 135 °C

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

EN 2424, *Aerospace series — Marking of aerospace products.*

EN 2491, *Aerospace series — Molybdenum disulphide dry lubricants — Coating methods.*

EN 3267, *Aerospace series — Washers, bulkhead, in titanium alloy.*

EN 3274, *Aerospace series — Pipe coupling 8°30' — Thread ends — Geometric configuration.*

EN 3275, *Aerospace series — Pipe coupling 8°30' up to 28 000 kPa — Dynamic beam seal — Metric series — Technical specification.*

EN 3311, *Aerospace series — Titanium alloy TI-P64001 — Annealed — Bar for machining —  $D \leq 150$  mm.<sup>1)</sup>*

EN 3312, *Aerospace series — Titanium alloy TI-P64001 — Grade 2 — Annealed — Forgings —  $D_e \leq 150$  mm.<sup>1)</sup>*

EN 3314, *Aerospace series — Titanium alloy TI-P64001 — Solution treated and aged — Bar for machining —  $D \leq 75$  mm.<sup>1)</sup>*

EN 3315, *Aerospace series — Titanium alloy TI-P64001 — Solution treated and aged — Forgings —  $D_e \leq 75$  mm.<sup>1)</sup>*

## 3 Required characteristics

### 3.1 Configuration — Dimensions — Mass

According to figures 1 and 2 and tables 1 and 2. The values apply before lubricating.

Dimensions not specified are at manufacturer's option provided that the qualification and acceptance requirements of EN 3275, type II are met.

Connection 2 shall be  $\leq$  connection 1.

<sup>1)</sup> Published as AECMA Prestandard at the date of publication of this standard

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### 3.2 Surface roughness

According to figure 1, unless otherwise specified in the design documentation.

### 3.3 Materials

According to EN 3311 or EN 3314, EN 3312 or EN 3315.

### 3.4 Surface treatment

Lubrication: according to EN 2491, on threads and sealing faces.

Prior to application of the lubricant, the surface shall be abrasive blasted using non-metallic grit.

Film thickness 0,005 mm to 0,013 mm.

### 3.5 Internal surface finishing

Finishing shall give a radius  $R$  of 0,3 mm to 1,0 mm and a surface roughness of 0,8  $\mu\text{m}$ . Hand deburring is not permitted.

Dimensions in millimetres

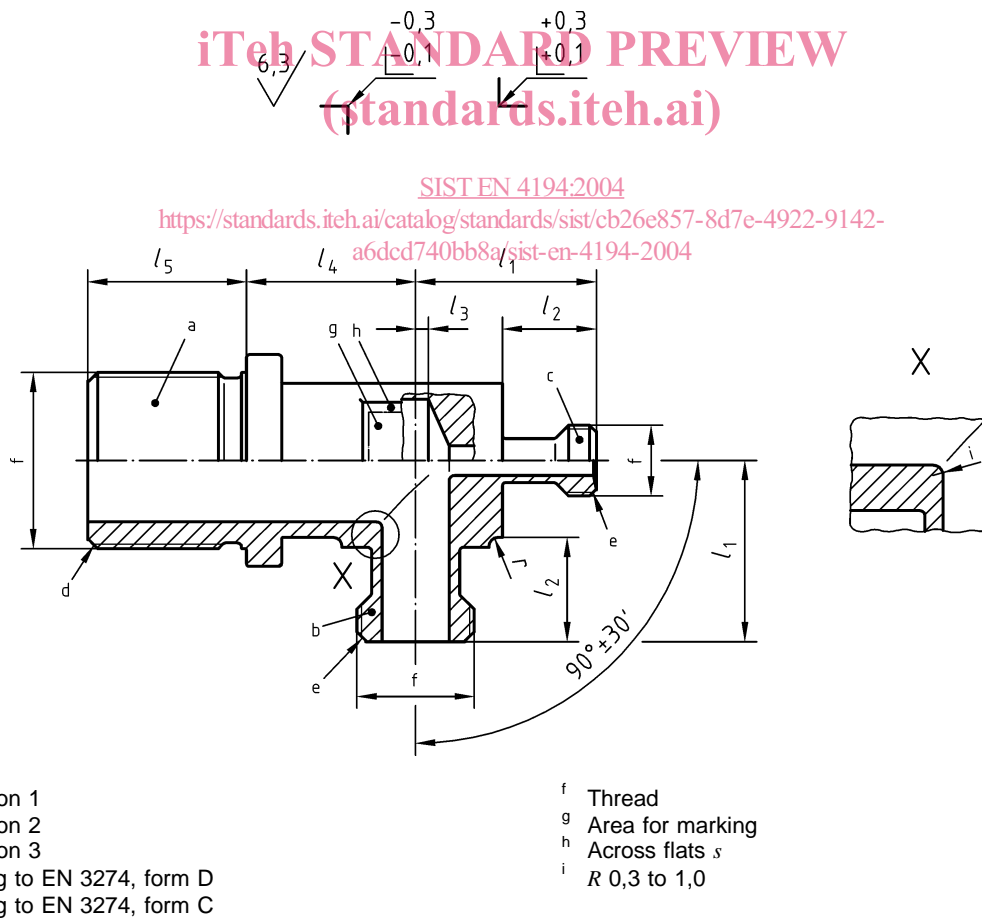


Figure 1

Table 1

Dimensions in millimetres

Code <sup>a</sup>	Thread <sup>b</sup>	$l_1^{c,e}$	$l_2^c$	$l_3^{c,d}$	$l_4^{c,d}$	$r$	$s^f$
	4g6g	± 0,2	± 0,4		± 0,2	$\begin{matrix} 0 \\ - 0,1 \end{matrix}$	h13
<b>05</b>	MJ10 × 1	16,3	11,0	1,2	13,8	1,0	8
<b>06</b>	MJ12 × 1,25	17,8	12,0	1,4	16,0	1,0	9
<b>08</b>	MJ14 × 1,5	20,8	14,0	1,3	17,8	1,0	11
<b>10</b>	MJ16 × 1,5	21,8	14,0	1,7	18,8	1,2	13
<b>12</b>	MJ18 × 1,5	23,8	15,0	2,1	20,8	1,2	15
<b>14</b>	MJ20 × 1,5	23,8	14,5	2,2	21,8	1,2	16
<b>16</b>	MJ22 × 1,5	25,8	15,5	2,6	23,8	1,2	18
<b>18</b>	MJ24 × 1,5	27,8	16,5	3,0	25,8	1,2	21
<b>20</b>	MJ27 × 1,5	27,8	15,0	3,5	27,8	1,5	24
<b>22</b>	MJ30 × 1,5	30,8	16,0	4,1	28,8	1,5	27
<b>25</b>	MJ33 × 1,5	32,8	17,0	4,4	30,8	1,5	30
<b>28</b>	MJ36 × 1,5	34,8	17,5	5,1	33,8	1,5	34
<b>32</b>	MJ39 × 1,5	36,4	18,0	5,6	39,8	1,5	36

<sup>a</sup> Corresponds to the pipe nominal outside diameter.  
<sup>b</sup> According to ISO 5855-3.  
<sup>c</sup> These dimensions are defined by the largest connection.  
<sup>d</sup> Horizontal drill depth dimension =  $l_3 + l_4 + l_5$ ;  $l_5$  according to EN 3274, form D.  
<sup>e</sup> Vertical drill depth dimension =  $l_1$ .  
<sup>f</sup> Across flats

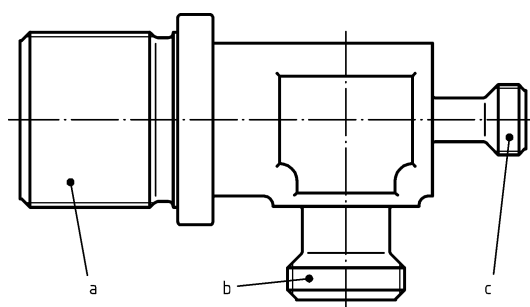
### 3.6 Mass

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According to figure 2 and table 2.

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- <sup>a</sup> Connection 1
- <sup>b</sup> Connection 2
- <sup>c</sup> Connection 3

EXAMPLE 1 EN4194-221405

Figure 2

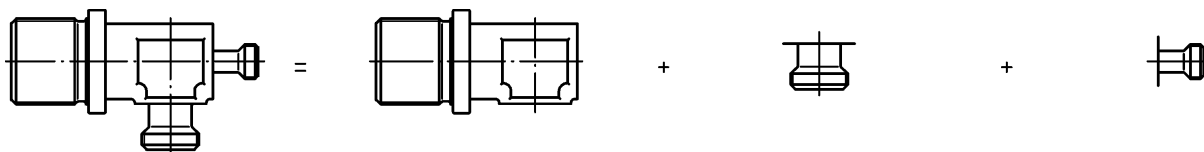
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EXAMPLE 2

Connection 1  
(is in this version  
the largest connection)

Connection 2

Connection 3



EN4194-221405 : Code 22 + Code 14 + Code 05  
123,3 g = 110,4 g + 8,6 g + 4,3 g

- a) Pick the mass for the largest connection out of the left part of table 2.
- b) Pick the mass for connection 2 out of the lower half of table 2, using the line of code 22 (on the left) and the column of code 14 (at the bottom).
- c) Pick the mass for connection 3 out of the top half of table 2, using the line of code 22 (on the right) and the column of code 05 (at the top).
- d) Add all three values to receive the total coupling mass.

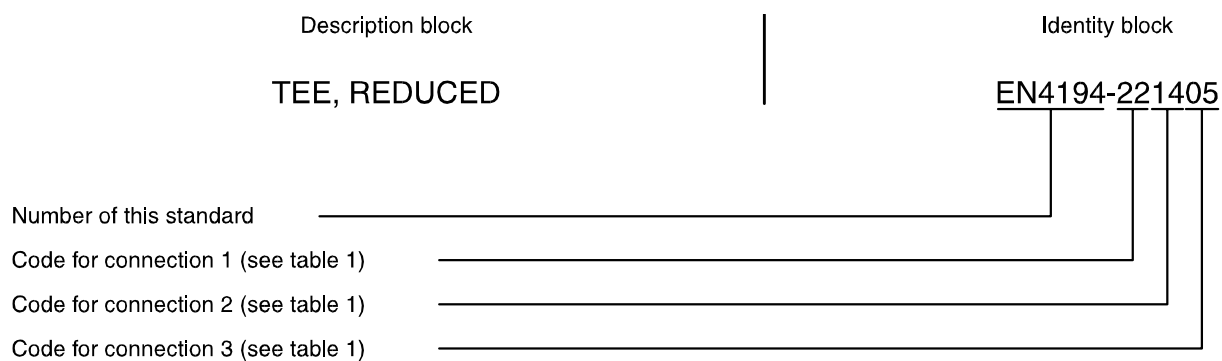
Table 2

		Mass for connection 3 in grams													Code
		32	28	25	22	20	18	16	14	12	10	08	06	05	
		4,2	4,2	5,2	4,8	4,6	4,6	4,7	5,2	4,4	4,7	5,0	4,5	3,8	<b>32</b>
9,6	<b>05</b>	1,6	6,1	6,7	5,2	5,8	5,1	5,8	6,2	5,5	5,6	5,9	5,3	4,8	<b>28</b>
15,3	<b>06</b>	1,8	2,3	7,8	6,1	6,4	5,7	6,2	6,5	5,7	5,9	6,0	5,4	4,8	<b>25</b>
23,5	<b>08</b>	2,0	2,7	3,7	6,0	6,3	5,3	5,8	6,0	5,3	5,4	5,5	4,8	4,3	<b>22</b>
28,1	<b>10</b>	2,1	2,9	3,8	4,4	5,8	4,6	4,9	4,9	4,1	4,0	4,0	3,4	2,8	<b>20</b>
36,4	<b>12</b>	2,4	3,1	4,2	4,8	5,4	5,9	5,8	5,6	4,7	4,4	4,2	3,5	2,8	<b>18</b>
58,7	<b>14</b>	2,5	3,2	4,2	4,8	5,4	6,4	5,7	5,4	4,4	4,2	3,9	3,2	2,5	<b>16</b>
63,9	<b>16</b>	2,8	3,6	4,5	5,2	5,8	7,0	7,6	5,1	4,2	3,9	3,6	2,9	2,2	<b>14</b>
73,0	<b>18</b>	3,2	3,9	5,0	5,6	6,3	7,5	8,2	8,7	4,4	4,0	3,7	2,8	2,2	<b>12</b>
92,5	<b>20</b>	3,2	3,9	4,8	5,4	6,1	7,1	7,7	8,1	10,2	3,8	3,4	2,7	2,0	<b>10</b>
110,4	<b>22</b>	4,7	5,4	6,5	7,0	7,6	8,6	9,2	9,5	11,6	12,5	3,4	2,5	1,9	<b>08</b>
150,1	<b>25</b>	5,3	6,0	7,1	7,6	8,1	9,3	9,9	10,3	12,3	13,4	15,8	2,3	1,7	<b>06</b>
182,4	<b>28</b>	5,3	6,0	7,1	7,6	8,3	9,5	10,1	10,5	12,8	13,9	16,4	17,6	1,5	<b>05</b>
229,3	<b>32</b>	4,4	5,2	6,3	6,9	7,6	8,0	9,5	10,0	12,5	13,8	16,4	17,8	19,6	
Mass for connection 1 in grams	Code	<b>05</b>	<b>06</b>	<b>08</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>16</b>	<b>18</b>	<b>20</b>	<b>22</b>	<b>25</b>	<b>28</b>	<b>32</b>	
		Mass for connection 2 in grams													



## 4 Designation

### EXAMPLE



NOTE If necessary, the code I9005 shall be placed between the description block and the identity block.

## 5 Marking

According to EN 2424, style A and figure 1.

## 6 Technical specification

According to EN 3275, type II.

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