BRITISH STANDARD

BS EN 4020:2009

Aerospace series — Pipe coupling 8°30' in titanium alloy — Elbows 90°, welded end with thrust wire nut

ICS 49.080

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 4020:2009. It supersedes BS EN 4020:2001 which is withdrawn.

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.

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Date	Comments

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4020

July 2009

ICS 49.080

Supersedes EN 4020:2001

English Version

Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, welded end with thrust wire nut

Série aérospatiale - Système de raccordement 8°30' en alliage de titane - Raccords coudés à 90° à souder, avec écrou à jonc

Luft- und Raumfahrt - Rohrverschraubung 8°30' aus Titanlegierung - Winkelverschraubungen 90° mit Anschweißende, mit Mutter mit Schubdraht

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 4020:2009) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries 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 ASD, 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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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1 Scope

This standard specifies the characteristics of elbows 90°, welded end, with thrust wire nut, 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

The following referenced documents are indispensable for the application 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.

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

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

EN 2656, *Aerospace series — Pipe coupling — Coupling end, welded — Geometric configuration.*

EN 3264, *Aerospace series — Pipe coupling 8°30' in titanium alloy — Thrust wire nuts.*

EN 3273, *Aerospace series — Pipe coupling 8°30' — Dynamic beam seal end for elbows, tees and crosses — 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.* [1)]

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

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

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

EN 4032, *Aerospace series — Pipe coupling 8°30' in titanium alloy — Thrust wire.*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts.*

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

1) Published as ASD Prestandard at the date of publication of this standard.

3 Required characteristics

3.1 Configuration — Dimensions — Mass

According to Figure 1 and Table 1. The values apply before lubricating.

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

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

Welded end without surface treatment min. 10 mm (outside and bore diameters).

Lubrication: according to EN 2491, on contact area between thrust wire and coupling.

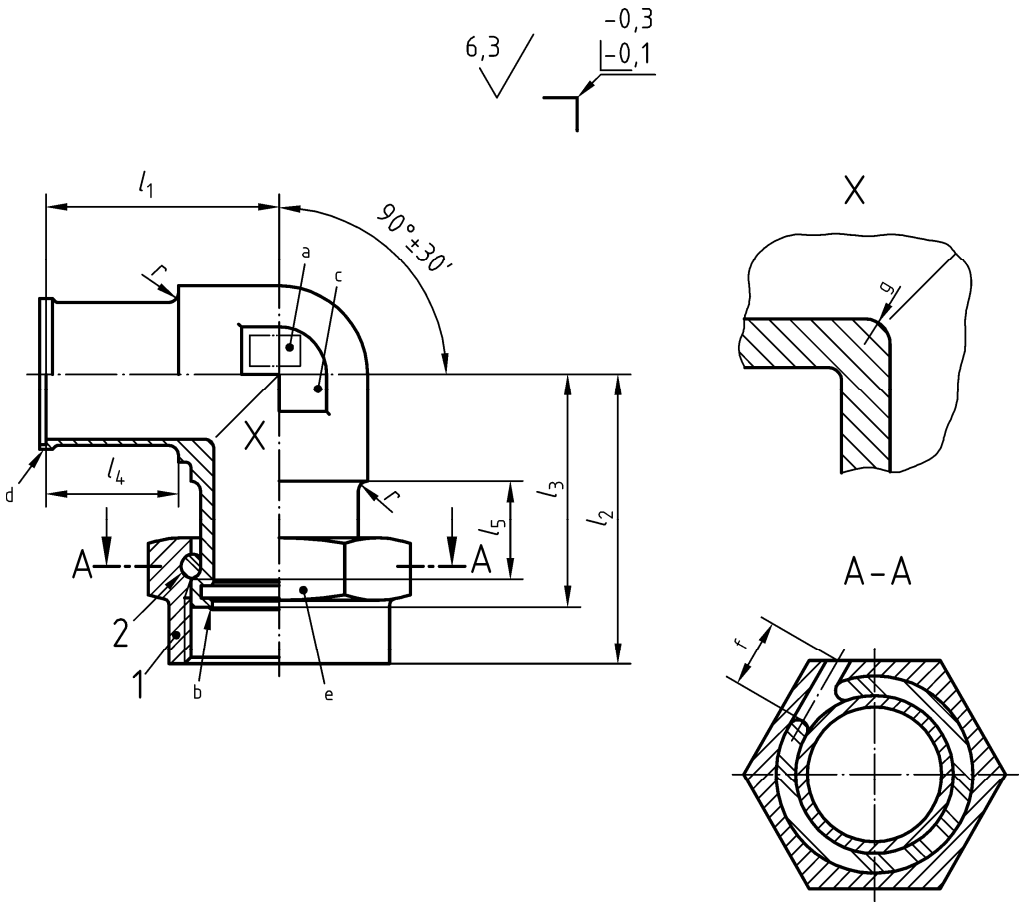
Prior to application of the lubricant, the surface shall be abrasive blasted using non-metallic grit.

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 µm. Hand deburring is not permitted.

Dimensions in millimetres



Key

1 Nut according to EN 3264
2 Thrust wire according to EN 4032

a Area for marking
b According to EN 3273
c Across flats s_2
d According to EN 2656
e Across flats s_1
f Fully inserted
g R 0,3 to 1,0

Figure 1

Table 1

Dimensions in millimetres

Code [a,b]	**Thread** [c]	l_1 [d]	l_2	l_3 [d]	l_4	l_5 [e]	r	s_1	s_2	**Mass**
	4H5H	± 0,2		± 0,2	± 0,3	$^{0}_{-0,2}$	$^{0}_{-0,1}$	h13	h13	g/piece max.
0504 **0505**	MJ10 × 1	19	24,8	19	14	6,6	1,0	14	8	10,01 10,10
0605	MJ12 × 1,25	21	27,7	21	15	7,5	1,0	16	9	13,82
0805 **0806**	MJ14 × 1,5	24	32,6	24	16	9,4	1,0	18	11	16,66 16,82
1005 **1008**	MJ16 × 1,5	25	33,5	25	16	9,3	1,2	21	13	21,10 21,71
1205 **1206** **1209**	MJ18 × 1,5	27	36,2	27	17	10,5	1,2	22	15	28,70 28,96 29,72
1405 **1408** **1410**	MJ20 × 1,5	28	37,1	28	19	10,4	1,2	24	16	33,77 34,81 35,44
1605 **1606** **1610** **1612**	MJ22 × 1,5	30	38,9	30	19	10,2	1,2	27	18	46,22 46,62 48,16 48,89
1805 **1807** **1810** **1813**	MJ24 × 1,5	32	41,1	32	19	10,9	1,2	30	21	61,18 62,09 63,38 64,62
2006 **2007** **2012** **2015**	MJ27 × 1,5	35	44,1	35	20	10,9	1,5	32	24	72,27 72,81 75,30 76,74
2208 **2212** **2216**	MJ30 × 1,5	37	46,1	37	21	10,8	1,5	36	27	92,36 94,68 96,91
2508 **2509** **2514** **2518**	MJ33 × 1,5	40	49,1	40	23	10,8	1,5	41	30	123,95 124,69 128,28 131,06
2808 **2810** **2816** **2820**	MJ36 × 1,5	43	52,1	43	24	10,8	1,5	46	34	148,91 150,61 155,68 158,92
3210 **3212**	MJ39 × 1,5	45	53,9	45	25	10,6	1,5	50	36	177,97 180,05

[a] Corresponds to the pipe nominal outside diameter and wall thickness.

[b] Relationship between code and pressure classification according to EN 2656.

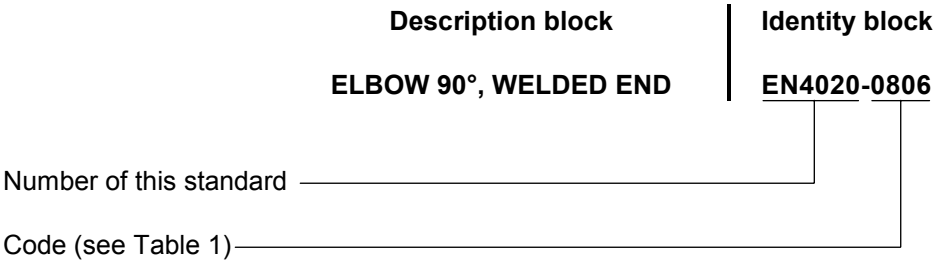
[c] According to ISO 5855-3.

[d] Drill depth dimension.

[e] Only applicable when diameter d_2 to EN 3273 is smaller than the actual forging diameter. Differences between these diameters are acceptable.

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.

7 Quality assurance

See EN 9133.

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