BS EN 3687:2010
Incorporating corrigendum December 2011

BSI Standards Publication

Aerospace series — Bolts, normal hexagon head, relieved shank, long thread, in heat resisting steel FE-PA2601 (A286), silver plated — Classification: 1 100 MPa/650 °C

National foreword

This British Standard is the UK implementation of EN 3687:2010 incorporating corrigendum October 2011.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by CEN corrigendum October 2011 is indicated in the text by ⟦AC1⟩ ⟨AC1⟩. Untagged corrections have been implemented in this document: all references to "heat resisting steel FE-PA92HT" have been changed to "heat resisting steel FE-PA2601". Further untagged corrections appear in Table 2: duplicated values in row 044, column 050 (W min. and Mass) have been removed. Values in the 050 column (W min. and Mass) have been moved up by one row as a result.

The UK participation in its preparation was entrusted to Technical Committee ACE/12, Aerospace fasteners and fastening systems.

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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Date	Text affected
31 December 2011	Implementation of CEN corrigendum October 2011

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3687

December 2010

ICS 49.030.20

Incorporating corrigendum October 2011

English Version

Aerospace series - Bolts, normal hexagon head, relieved shank, long thread, in heat resisting steel FE-PA2601 (A286), silver plated - Classification: 1 100 MPa/650 °C

Série aérospatiale - Vis à tête hexagonale normale, fût dégagé filetage long, en acier résistant à chaud FE-PA92HT (A286), argentées - Classification: 1 100 MPa/650 °C

Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwarmfesten Stahl FE-PA92HT (A286) versilbert - Klasse: 1 100 MPa/650 °C

This European Standard was approved by CEN on 15 August 2010.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 3687:2010) 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 June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.

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1 Scope

This standard specifies the characteristics of silver-plated Bolts normal Hexagon Head with relieved shank and long thread, in heat resisting steel FE-PA2601 (A286), tensile strength class 1 100 MPa at room temperature. The maximum test temperature of the material is 650 °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 2786, *Aerospace series — Electrolytic silver plating of fasteners*

EN 3685, *Aerospace series — Bolts in heat resisting steel FE-PA2601 (A286) — Classification: 1 100 MPa/650 °C — Technical specification*

EN 3761, *Aerospace series — Heat resisting alloy FE-PA2601, softened and cold worked; bar for forged fasteners D ≤ 50 mm, 1 100 MPa ≤ R_m ≤ 1 300 MPa*

ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads*

ISO 5855-1, *Aerospace — MJ threads — Part 1: General requirements*

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts*

3 Required characteristics

3.1 Configuration – Dimensions – Tolerances

The configuration shall be in accordance with the figure. Dimensions and tolerances shall conform with the values shown in the figure and in Tables 1 and 2 after silver plating.

3.2 Surface roughness

See figure. The specified values are applicable before silver plating.

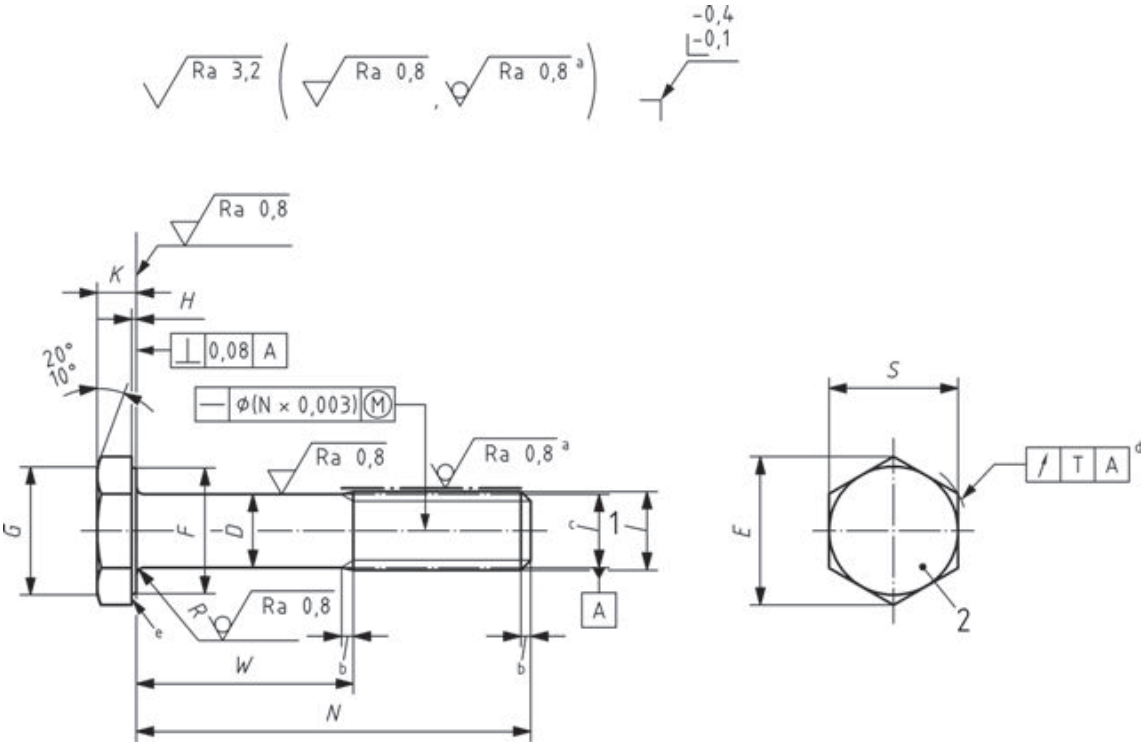
3.3 Material

Heat resisting steel FE-PA2601 to EN 3761.

3.4 Surface treatment

Silver coat all over to EN 2786 Category A, coating thickness 3 µm to 6 µm on the thread flanks measured at the pitch diameter.

Dimensions in millimetres



Key

1 thread
2 marking
[a] rolled
[b] in accordance with ISO 3353
[c] pitch diameter
[d] six times
[e] shape in this area at manufacturer's option

Figure 1

Table 1

Dimensions in millimetres

Diameter code	[AC1] Thread [a] [AC1]	D		E	F	G	H		K		R		S			T
		max.	min.	min.	min.	min.	max.	min.	max.	min.	max.	min.	max.	min.	tol.	
050	MJ5 X 0,8 – 4H6H	4,61	4,35	8,7	7,4	7,4	0,5	0,2	3	2,7	0,5	0,3	9	7,35	h12	0,25
060	MJ6 X 1 – 4H6H	5,48	5,22	10,9	9,3	9,4			3,5	3,2	0,7	0,5	10	9,78	h13	0,3
070	MJ7 X 1 – 4H6H	6,48	6,22	12	10,2	10,3			4	3,7			11	10,73		0,35
080	MJ8 X 1 – 4H6H	7,48	7,22	14,3	12,2	12,3	0,6	0,3	4,5	4,2			13	12,73		0,4
100	MJ10 X 1,25 - 4H6H	9,32	9,06	18,9	16	16,3			5	4,7	0,8	0,6	17	16,73		0,5
120	MJ12 X 1,25 – 4H6H	11,32	11,06	21,1	18	18,3			6	5,7	0,9		19	18,67		0,6

[AC1] [a] In conformity with ISO 5855-1 and ISO 5855-2. [AC1]

Table 2

Dimensions in millimetres

〈AC1〉 Masses ≈ 〈AC1〉 kg/1 000 pieces

Diameter code		050			060			070			080			100			120		
Length code	N	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass
		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.	
008	8			2,66															
010	10			2,91			4,68			6,45			9,4						
012	12	2,1	1,7	3,16			5,03			6,95			10,07						
014	14			3,41	2,7	2,2	5,39			7,45			10,74			17,88			
016	16			3,66			5,75	2,7	2,2	7,96			11,41			18,97			
018	18			3,91			6,1			8,46	2,7	2,2	12,09			20,06			
020	20	4	2,5	4,16			6,46			8,96			12,76	3,3	2,7	21,15	3,4	2,8	
022	22	6	4,5	4,41	4	2,5	6,82			9,46			13,43			22,23			
024	24	8	6,5	4,66	6	4,5	7,17	4	2,5	9,96			14,1			23,32			
026	26	10	8,5	4,91	8	6,5	7,53	6	4,5	10,46	4	2,5	14,77			24,41			
028	28	12	10,5	5,16	10	8,5	7,88	8	6,5	10,97	6	4,5	15,45			25,5			
030	30	14	12,5	5,41	12	10,5	8,24	10	8,5	11,47	8	6,5	16,12	4	2,7	26,59			
032	32	16	14,5	5,66	14	12,5	8,6	12	10,5	11,97	10	8,5	16,76	6	4,5	27,68			
034	34	18	16,5	5,91	16	14,5	8,95	14	12,5	12,47	12	10,5	17,46	8	6,5	28,76	4	2,8	
036	36	20	18,5	6,16	18	16,5	9,31	16	14,5	12,97	14	12,5	18,13	10	8,5	29,85	6	4,5	
038	38	22	20,5	6,41	20	18,5	9,66	18	16,5	13,47	16	14,5	18,81	12	10,5	30,94	8	6,5	
040	40	24	22,5	6,66	22	20,5	10,02	20	18,5	13,98	18	16,5	19,48	14	12,5	32,03	10	8,5	
042	42	26	24,5	6,91	24	22,5	10,38	22	20,5	14,48	20	18,5	20,15	16	14,5	33,12	12	10,5	

Table 2 (*continued*)

Diameter code		050			060			070			080			100			120		
Length code	N	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass
		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.	
044	44	28	26,5	7,16	26	24,5	10,73	24	22,5	14,98	22	20,5	20,82	18	16,5	34,2	14	12,5	
046	46	30	28,5	7,41	28	26,5	11,09	26	24,5	15,48	24	22,5	21,5	20	18,5	35,29	16	14,5	
048	48	32	30,5	7,66	30	28,5	11,45	28	26,5	15,98	26	24,5	22,17	22	20,5	36,38	18	16,5	
050	50	34	32,5	7,91	32	30,5	11,8	30	28,5	16,48	28	26,5	22,84	24	22,5	37,47	20	18,5	
052	52	36	34,5	8,16	34	32,5	12,16	32	30,5	16,99	30	28,5	23,51	26	24,5	38,56	22	20,5	
054	54	38	36,5	8,41	36	34,5	12,51	34	32,5	17,49	32	30,5	24,18	28	26,5	39,65	24	22,5	
056	56	40	38,5	8,66	38	36,5	12,87	36	34,5	17,99	34	32,5	24,86	30	28,5	40,73	26	24,5	
058	58	42	40,5	8,9	40	38,5	13,23	38	36,5	18,49	36	34,5	25,53	32	30,5	41,82	28	26,5	
060	60	44	42,5	9,15	42	40,5	13,58	40	38,5	18,99	38	36,5	26,2	34	32,5	42,91	30	28,5	
062	62	46	44,5	9,4	44	42,5	13,94	42	40,5	19,49	40	38,5	26,87	36	34,5	44	32	30,5	
064	64	48	46,5	9,65	46	44,5	14,29	44	42,5	20	42	40,5	27,55	38	36,5	45,09	34	32,5	
066	66	50	48,5	9,9	48	46,5	14,65	46	44,5	20,5	44	42,5	28,22	40	38,5	46,18	36	34,5	
068	68	52	50,5	10,15	50	48,5	15,01	48	46,5	21	46	44,5	28,89	42	40,5	47,26	38	36,5	
070	70	54	52,5	10,4	52	50,5	15,36	50	48,5	21,5	48	46,5	29,56	44	42,5	48,35	40	38,5	
072	72				54	52,5	15,72	52	50,5	22	50	48,5	30,23	46	44,5	49,44	42	40,5	
074	74				56	54,5	16,07	54	52,5	22,5	52	50,5	30,91	48	46,54	50,53	44	42,5	
076	76				58	56,5	16,34	56	54,5	23,01	54	52,55	31,58	50	48,5	51,62	46	44,5	
078	78				60	58,5	16,79	58	56,5	23,51	56	54,5	32,25	52	50,5	52,71	48	46,5	
080	80				62	60,5	17,14	60	58,5	24,01	58	56,5	32,92	54	52,5	53,79	50	48,5	
082	82				64	62,5	17,5	62	60,5	24,51	60	58,5	33,59	56	54,4	54,88	52	50,5	
084	84				66	64,5	17,86	64	62,5	25,01	62	60,5	34,27	58	56,5	55,97	54	52,5	

Table 2 (*continue*')

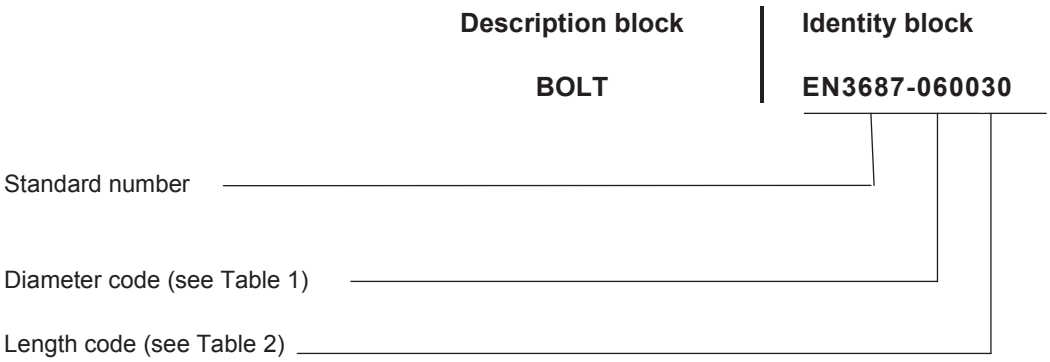
Diameter code		050			060			070			080			100			120		
Length code	N	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass
		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.	
086	86							66	64,5	25,52	64	62,5	34,94	60	58,5	57,06	56	54,4	
088	88							68	66,5	26,02	66	64,5	35,61	62	60,5	58,15	58	56,5	
090	90							70	68,5	26,52	68	66,5	36,28	64	62,5	59,23	60	58,5	
092	92							72	70,5	27,02	70	68,5	36,96	66	64,5	60,32	62	60,5	
094	94							74	72,5	27,52	72	70,5	37,63	68	66,5	61,41	64	62,5	
096	96							76	74,5	28,02	74	72,5	38,3	70	68,5	62,5	66	64,5	
098	98							78	76,5	28,52	76	74,5	38,97	72	70,5	63,59	68	66,5	
100	100										78	76,5	39,64	74	81,5	64,68	70	68,5	
104	104										82	80,5	40,99	78	76,5	66,85	74	72,5	
108	108										86	84,5	42,33	82	80,5	69,03	78	76,5	
112	112										90	88,5	43,68	86	84,5	71,21	82	80,5	
116	116													90	88,5	73,38	86	84,5	
120	120													94	92,5	75,56	90	88,5	
124	124													98	96,5	77,74	94	92,5	
128	128													102	100,5	79,91	98	96,5	
132	132													106	104,5	82,09	102	100,5	
136	136													110	108,5	84,26	106	104,5	
140														114	112,5	86,44	110	108,5	
144																	114	112,5	
148																	118	116,5	
152																	122	120,5	

Table 2 (*concluded*)

Diameter code		050			060			070			080			100			120		
Length code	N	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass	W		Mass
		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.		max.	min.	
156																	126	124,5	
160																	130	128,5	
164																	134	132,5	
168																	138	136,5	

4 Designation

EXAMPLE



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

5 Marking

Each bolt shall be marked as defined by EN 2424 Category A in the place indicated in figure.

6 Technical specification

According to EN 3685.

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