BRITISH STANDARD

BS EN 3613:2009

Aerospace series — Bolts, normal hexagonal head, relieved shank, long thread, in heat resisting nickel base alloy NIPH2601 (Inconel 718), silver plated — Classification:1 275 MPa/650 °C

ICS 49.030.20

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 3613:2009.

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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EUROPEAN STANDARD

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EN 3613

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English Version

Aerospace series - Bolts, normal hexagonal head, relieved shank, long thread, in heat resisting nickel base alloy NI-PH2601 (Inconel 718), silver plated - Classification: 1 275 MPa/650 °C

Série aérospatiale - Vis à tête hexagonale normale, fût dégagé, filetage long, en alliage base nickel, résistant à chaud NI-PH2601 (Inconel 718), argentées - Classification : 1 275 MPa/650 °C

Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwarmfester Nickelbasislegierung NI-PH2601 (Inconel 718), versilbert - Klasse: 1 275 MPa/650 °C

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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 3613:2009) 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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.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 bolts normal hexagonal head with relieved shank and long thread in heat resisting nickel base alloy NI-PH2601 (Inconel 718), for aerospace applications.

Classification: 1 275 MPa [1] / 650 °C [2]

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 2583, *Aerospace series — Bolts, MJ threads, in heat resisting nickel base alloy NI-PH2601 (Inconel 718) — Classification: 1 275 MPa (at ambient temperature) / 650 °C — Technical specification.*

EN 2786, *Aerospace series — Electrolytic silver plating of fasteners.*

EN 2952, *Aerospace series — Heat resisting alloy NI-PH2601 — Solution treated and cold worked — Bar for forged fasteners — D ≤ 50 mm — 1 270 MPa ≤ R_m ≤ 1 550 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 Requirements characteristics

3.1 Configuration — Dimensions — Tolerances — Masses

See Figure 1 and Tables 1 and 2. Dimensions and tolerances are in millimetres. They apply after silver plating.

3.2 Surface roughness

See Figure 1. Values apply before silver plating.

3.3 Material

Heat resisting nickel base alloy NI-PH2601: See EN 2952.

3.4 Surface coating

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

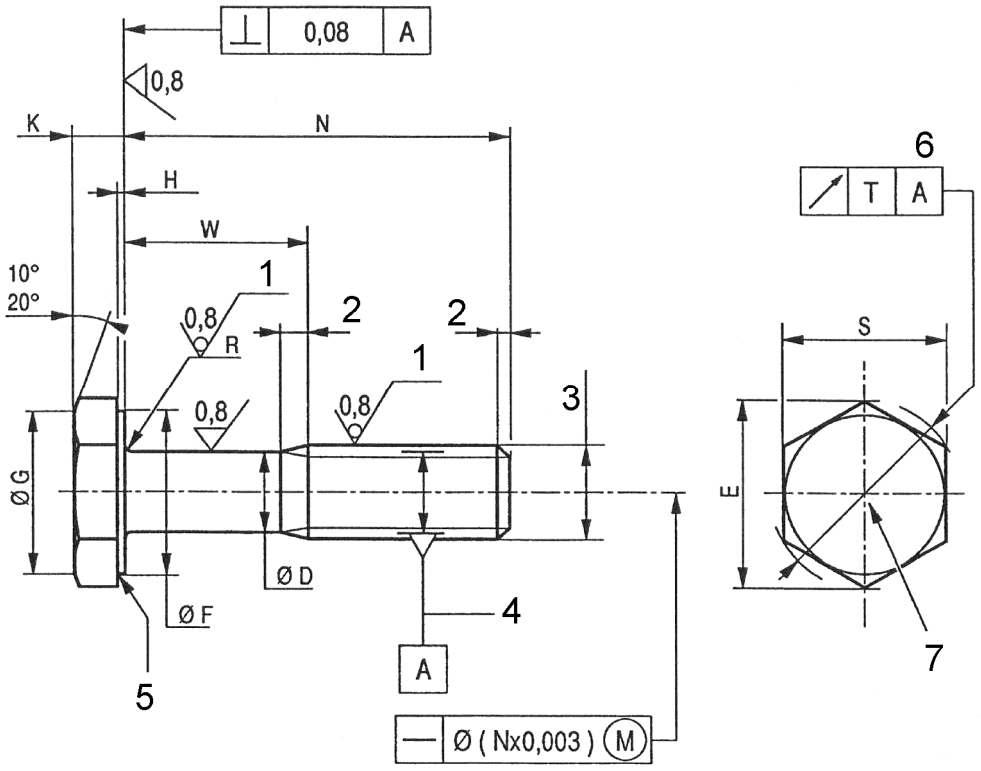
---

1) Minimum tensile strength class at ambient temperature.

2) Maximum test temperature of the parts.

3,2, [0,8 0,8 Rolled] Surface roughness measured prior to coating

Remove sharp edges 0,1 to 0,4.



Key

1 Rolled
2 Conforms to ISO 3353-1
3 Thread Ø
4 Thread pitch diameter
5 Shape in this area at manufacturers option
6 6 places
7 Marking

Figure 1

Table 1

Diameter code	Thread [a]	*Ø D*		*E*	*Ø F*	*Ø G*	*H*		*K*		*R*		*S*			*T*
		max.	min.	min.	min.	min.	max.	min.	max.	min.	max.	min.	max.	min.	tol	
050	MJ5×0,8-4h6h	4,61	4,35	8,7	7,4	7,4	0,5	0,2	3,0	2,7	0,5	0,3	8	7,85	h12	0,25
060	MJ6×1,0-4h6h	5,48	5,22	10,9	9,3	9,4	0,5	0,2	3,5	3,2	0,7	0,5	10	9,78		0,30
070	MJ7×1,0-4h6h	6,48	6,22	12,0	10,2	10,3	0,5	0,2	4,0	3,7	0,7	0,5	11	10,73	h13	0,35
080	MJ8×1,0-4h6h	7,48	7,22	14,3	12,2	12,3	0,5	0,2	4,5	4,2	0,7	0,5	13	12,73		0,40

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

Table 2

Length code	N ± 0,3	Available lengths — Diameter codes											
		050			060			070			080		
		W		Mass [a]	W		Mass [a]	W		Mass [a]	W		Mass [a]
		max.	min.		max.	min.		max.	min.		max.	min.	
008	8	2,1	1,7	2,76	—	—	—	—	—	—	—	—	—
010	10			3,02	2,7	2,2	4,86	2,7	2,2	6,69	2,7	2,2	9,75
012	12			3,28			5,23			7,22			10,45
014	14			3,54			5,60			7,74			11,15
016	16			3,80			5,96			8,26			11,85
018	18			4,06			6,33			8,78			12,54
020	20	4	2,5	4,32			6,70			9,30			13,24
022	22	6	4,5	4,58	4	2,5	7,07			9,82			13,94
024	24	8	6,5	4,84	6	4,5	7,44	4	2,5	10,34			14,64
026	26	10	8,5	5,10	8	6,5	7,81	6	4,5	10,86	4	2,5	15,33
028	28	12	10,5	5,35	10	8,5	8,18	8	6,5	11,38	6	4,5	16,03
030	30	14	12,5	5,61	12	10,5	8,55	10	8,5	11,90	8	6,5	16,73
032	32	16	14,5	5,87	14	12,5	8,92	12	10,5	12,42	10	8,5	17,43
034	34	18	16,5	6,13	16	14,5	9,29	14	12,5	12,94	12	10,5	18,12
036	36	20	18,5	6,39	18	16,5	9,66	16	14,5	13,46	14	12,5	18,82
038	38	22	20,5	6,65	20	18,5	10,03	18	16,5	13,98	16	14,5	19,52
040	40	24	22,5	6,91	22	20,5	10,40	20	18,5	14,51	18	16,5	20,22
042	42	26	24,5	7,17	24	22,5	10,77	22	20,5	15,03	20	18,5	20,91
044	44	28	26,5	7,43	26	24,5	11,14	24	22,5	15,55	22	20,5	21,61
046	46	30	28,5	7,69	28	26,5	11,51	26	24,5	16,07	24	22,5	22,31
048	48	32	30,5	7,95	30	28,5	11,88	28	26,5	16,59	26	24,5	23,01
050	50	34	32,5	8,21	32	30,5	12,25	30	28,5	17,11	28	26,5	23,71
052	52	36	34,5	8,46	34	32,5	12,62	32	30,5	17,63	30	28,5	24,40
054	54	38	36,5	8,72	36	34,5	12,99	34	32,5	18,15	32	30,5	25,10
056	56	40	38,5	8,98	38	36,5	13,36	36	34,5	18,67	34	32,5	25,80
058	58	42	40,5	9,24	40	38,5	13,73	38	36,5	19,19	36	34,5	26,50
060	60	44	42,5	9,50	42	40,5	14,10	40	38,5	19,71	38	36,5	27,19
062	62	46	44,5	9,76	44	42,5	14,47	42	40,5	20,23	40	38,5	27,89
064	64	48	46,5	10,02	46	44,5	14,84	44	42,5	20,75	42	40,5	28,59
066	66	50	48,5	10,28	48	46,5	15,21	46	44,5	21,27	44	42,5	29,29
068	68	52	50,2	10,54	50	48,5	15,57	48	46,5	21,80	46	44,5	29,98
070	70	54	52,5	10,80	52	50,5	15,94	50	48,5	22,32	48	46,5	30,68

continued

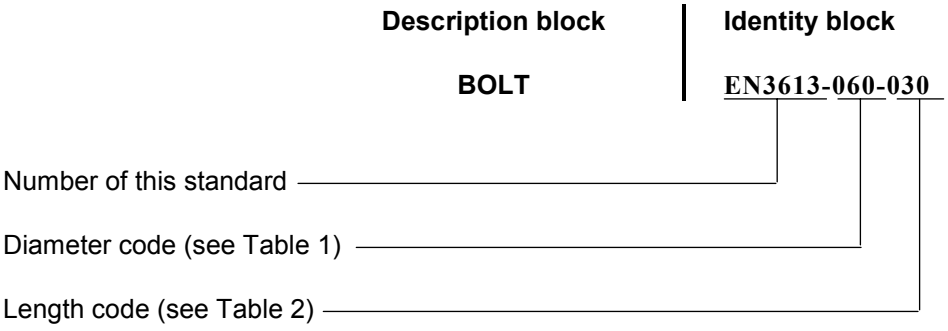
Table 2 *(continued)*

Length code	N ± 0,3	Available lengths — Diameter codes											
		050			060			070			080		
		W		Mass [a]	W		Mass [a]	W		Mass [a]	W		Mass [a]
		max.	min.		max.	min.		max.	min.		max.	min.	
072	72	—	—	—	54	52,5	16,31	52	50,5	22,84	50	48,5	31,38
074	74	—	—	—	56	54,5	16,68	54	52,5	23,26	52	50,5	32,08
076	76	—	—	—	58	56,5	17,05	56	54,5	23,88	54	52,5	32,77
078	78	—	—	—	60	58,5	17,42	58	56,5	24,40	56	54,5	33,47
080	80	—	—	—	62	60,5	17,79	60	58,5	24,92	58	56,5	34,17
082	82	—	—	—	64	62,5	18,16	62	60,5	25,44	60	58,6	34,87
084	84	—	—	—	66	64,5	18,53	64	62,5	25,96	62	60,5	35,56
086	86	—	—	—	—	—	—	66	64,5	26,48	64	62,5	36,26
088	88	—	—	—	—	—	—	68	66,5	27,00	66	64,5	36,96
090	90	—	—	—	—	—	—	70	68,5	27,52	68	66,5	37,66
092	92	—	—	—	—	—	—	72	70,5	28,04	70	68,5	38,36
094	94	—	—	—	—	—	—	74	72,5	28,56	72	70,5	39,05
096	96	—	—	—	—	—	—	76	74,5	29,09	74	72,5	39,75
098	98	—	—	—	—	—	—	78	76,5	29,61	76	74,5	40,45
100	100	—	—	—	—	—	—	—	—	—	78	76,5	41,15
104	104	—	—	—	—	—	—	—	—	—	82	80,5	42,54
108	108	—	—	—	—	—	—	—	—	—	86	84,5	43,94
112	112	—	—	—	—	—	—	—	—	—	90	88,5	45,33
116	116	—	—	—	—	—	—	—	—	—	—	—	—
120	120	—	—	—	—	—	—	—	—	—	—	—	—
124	124	—	—	—	—	—	—	—	—	—	—	—	—
128	128	—	—	—	—	—	—	—	—	—	—	—	—
132	132	—	—	—	—	—	—	—	—	—	—	—	—
136	136	—	—	—	—	—	—	—	—	—	—	—	—
140	140	—	—	—	—	—	—	—	—	—	—	—	—
144	144	—	—	—	—	—	—	—	—	—	—	—	—
148	148	—	—	—	—	—	—	—	—	—	—	—	—
152	152	—	—	—	—	—	—	—	—	—	—	—	—
156	156	—	—	—	—	—	—	—	—	—	—	—	—
160	160	—	—	—	—	—	—	—	—	—	—	—	—
164	164	—	—	—	—	—	—	—	—	—	—	—	—
168	168	—	—	—	—	—	—	—	—	—	—	—	—

[a] Masses: kg/1 000 pieces.

4 Designation

EXAMPLE



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

5 Marking

EN 2424, Category A in the place indicated in Figure 1.

6 Technical specification

See EN 2583.

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BSI Group
Headquarters 389
Chiswick High Road,
London, W4 4AL, UK
Tel +44 (0)20 8996 9001
Fax +44 (0)20 8996 7001
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