SLOVENSKI STANDARD
SIST EN 4352:2005

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Nadomešča:
SIST EN 4352:2004

Aerospace series - Bolts, double hexagon head with lockwire holes, relieved shank, long thread, in heat resisting nickel base alloy NI-PH2601 (Inconel 718), MoS2 coated - Classification: 1 550 MPa (at ambient temperature) / 425 °C

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Luft- und Raumfahrt - Zwölfkantschrauben mit Löchern für Sicherungsdraht, Dünnschaft, langes Gewinde, aus hochwarmfester Nickelbasislegierung NI-PH2601 (Inconel 718), MoS2-beschichtet - Klasse: 1 550 MPa (bei Raumtemperatur)/425 °C

Série aérospatiale - Vis a tete bihexagonale avec trous de fil frein, fut dégagé, filetage long, en alliage résistant a chaud a base de nickel NI-PH2601 (Inconel 718), revetues MoS2 - Classification : 1 550 MPa (a température ambiante) / 425 °C

Ta slovenski standard je istoveten z: EN 4352:2004

ICS:

49.030.20 Sorniki, vijaki, stebelni vijaki Bolts, screws, studs

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EUROPEAN STANDARD

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ICS 49.030.20

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English version

Aerospace series - Bolts, double hexagon head with lockwire holes, relieved shank, long thread, in heat resisting nickel base alloy NI-PH2601 (Inconel 718), MoS2 coated - Classification: 1 550 MPa (at ambient temperature) / 425° C

Série aérospatiale - Vis à tête bihexagonale avec trous de fil frein, fût dégagé, filetage long, en alliage résistant à chaud à base de nickel NI-PH2601 (Inconel 718), revêtues MoS2 - Classification : 1 550 MPa (à température ambiante) / 425° C

Luft- und Raumfahrt - Zwölfkantschrauben mit Löcher für Sicherungsdraft, Dünnschaft, langes Gewinde, aus hochwarmfester Nickelbasislegierung NI-PH2601 (Inconel 718), MoS2 beschichtet - Klasse: 1 550 MPa (bei Raumtemperatur) / 425° C

This European Standard was approved by CEN on 11 September 2003.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document (EN 4352:2004) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 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 May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 4352:2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the characteristics of double hexagon headed bolts with lockwire holes, relieved shank and long thread, in NI-PH2601, MoS_2 coated, for aerospace applications.

Classification: 1 550 MPa [1] / 425 °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.

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

ISO 4095, Aerospace – Bihexagonal drives – Wrenching configuration – Metric series

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

EN 2424, Aerospace series – Marking of aerospace products

EN 2491, Aerospace series – Molybdenum disulphide dry lubricants – Coating methods

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 [3]

EN 3666, Aerospace series – Heat resisting alloy NI-PH2601 – Solution treated and cold worked – Bar for forged fasteners – D ≤ 50 mm – 1 550 MPa ≤ R_m ≤ 1 830 MPa [3]

EN 3833, Aerospace series – Bolts, MJ threads, in heat resisting nickel base alloy NI-PH2601 (Inconel 718), passivated – Classification: 1 550 MPa (at ambient temperature) / 650 °C – Technical specification

3 Required characteristics

3.1 Configuration – Dimensions – Tolerances – Masses

See Figure 1 and Tables 1 and 2.

Dimensions and tolerances are in millimetres. They apply before MoS_2 coating.

3.2 Materials

EN 3666 or EN 2952 with exception of final heat treatment which shall meet EN 3666 (reference heat treatment and relating mechanical properties).

3.3 Surface treatment

EN 2491

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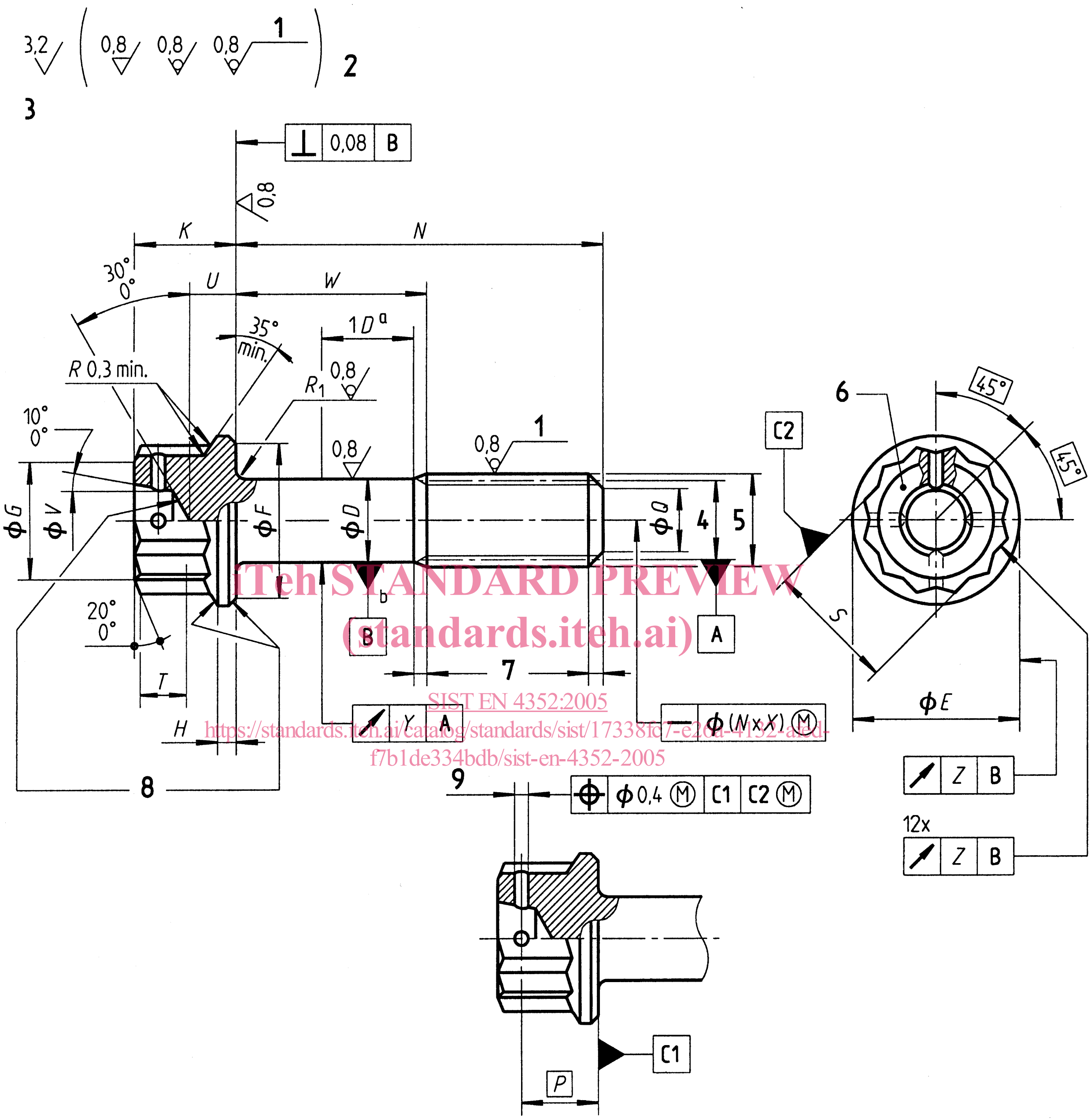
1) Minimum tensile strength of the material at ambient temperature
2) Maximum test temperature of the parts
3) Published as AECMA Prestandard at the date of publication of this standard



Key

1 rolled

2 values apply before MoS_2 coating.

3 remove sharp edges 0,1 to 0,4.

4 pitch diameter

5 thread

6 marking

7 conforms to ISO 3353-1.

8 shape in this area at manufacturer's option

9 four holes *M* deburred

[a] When the length of the shank is less than one times the nominal value of the shank diameter *D*, the run-out is measured at a distance equal to half the actual shank length.

[b] For bolts having a shank length less than one times the nominal value of the shank diameter *D*, and for those threaded to head, the pitch diameter axis shall be used as the datum.

Figure 1

Table 1

Thread [a] Code	Thread [a] Designation	*D* ± 0,13	*E* max.	*F* min.	*G* min.	*H* min.	*K* max.	*K* min.	*M* H13	*P*	*Q* ± 0,5	*R*₁ max.	*R*₁ min.	*S* [b]	*T* min.	*U* max.	*U* min.	*V* max.	*V* min.	*X*	*Y*	*Z*
050	MJ5×0,8-4h6h	4,48	9,1	8,3	6,8	1	5,65	5,35	1,2	4,2	3,4	0,5	0,3	7	2	2,9	2,5	3,7	3,2	0,003	0,12	0,13
060	MJ6×1-4h6h	5,35	10,6	9,8	7,8	1,2	6,15	5,85		4,6	4,2	0,7	0,5	8	2,3	3,2	2,8	4,6	4,1			0,15
070	MJ7×1-4h6h	6,35	12,1	11,3	8,8	1,4	6,65	6,35		5,1	5,2			9	2,6	3,7	3,3	5,4	4,9		0,15	0,18
080	MJ8×1-4h6h	7,35	13,6	12,8	9,8	1,6	7,15	6,85		5,5	6,2			10	2,8	4,1	3,7	5,7	5,2			0,2
100	MJ10×1,25-4h6h	9,19	16,7	15,7	11,8	2	8,15	7,85		6,4	7,9	0,8	0,6	12	3,1	5,1	4,7	7,2	6,7	0,0025		0,25
120	MJ12×1,25-4h6h	11,19	19,9	18,8	13,7	2,4	9,35	9,05		7,4	9,8	0,9		14	3,5	6	5,6	8,5	8		0,18	0,3

[a] In accordance with ISO 5855-2

[b] Bihexagonal wrenching configuration in conformity with ISO 4095 over length *T* min.

Table 2

Length code	*N* ± 0,3	Thread code 050 *W* max.	050 *W* min.	050 Mass [a]	060 *W* max.	060 *W* min.	060 Mass [a]	070 *W* max.	070 *W* min.	070 Mass [a]	080 *W* max.	080 *W* min.	080 Mass [a]	100 *W* max.	100 *W* min.	100 Mass [a]	120 *W* max.	120 *W* min.	120 Mass [a]
008	8	2,1	1,7	3.26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
010	10			3,52	2,7	2,2	5,11	2,7	2,2	7,19	2,7	2,2	9,62	–	–	–	–	–	–
012	12			3,78			5,48			7,71			10,32	–	–	–	–	–	–
014	14			4,04			5,85			8,23			11,02	3,3	2,7	18,01	–	–	–
016	16			4,29			6,22			8,75			11,71			19,10	3,4	2,8	29,41
018	18			4,55			6,59			9,27			12,41			20,19			31,03
020	20	4	2,5	4,81			6,95			9,79			13,11			21,28			32,64
022	22	6	4,5	5,07	4	2,5	7,32			10,31			13,81			22,37			34,25
024	24	8	6,5	5,33	6	4,5	7,69	4	2,5	10,83			14,51			23,45			35,87
026	26	10	8,5	5,59	8	6,5	8,06	6	4,5	11,36	4	2,5	15,20			24,54			37,48
028	28	12	10,5	5,85	10	8,5	8,43	8	6,5	11,88	6	4,5	15,90			25,63			39,10
030	30	14	12,5	6,11	12	10,5	8,80	10	8,5	12,40	8	6,5	16,60	4	2,7	26,72			40,71
032	32	16	14,5	6,37	14	12,5	9,17	12	10,5	12,92	10	8,5	17,30	6	4,5	27,81			42,32
034	34	18	16,5	6,63	16	14,5	9,54	14	12,5	13,44	12	10,5	17,99	8	6,5	28,90	4	2,8	43,94
036	36	20	18,5	6,89	18	16,5	9,91	16	14,5	13,96	14	12,5	18,69	10	8,5	29,98	6	4,5	45,55
038	38	22	20,5	7,15	20	18,5	10,28	18	16,5	14,48	16	14,5	19,39	12	10,5	31,07	8	6,5	47,17
040	40	24	22,5	7,40	22	20,5	10,65	20	18,5	15,00	18	16,5	20,09	14	12,5	32,16	10	8,5	48,78
042	42	26	24,5	7,66	24	22,5	11,02	22	20,5	15,52	20	18,5	20,78	16	14,5	33,25	12	10,5	50,40
044	44	28	26,5	7,92	26	24,5	11,39	24	22,5	16,04	22	20,5	21,48	18	16,5	34,34	14	12,5	52,01
046	46	30	28,5	8,18	28	26,5	11,76	26	24,5	16,56	24	22,5	22,18	20	18,5	35,43	16	14,5	53,62
048	48	32	30,5	8,44	30	28,5	12,13	28	26,5	17,08	26	24,5	22,88	22	20,5	36,51	18	16,5	55,24
050	50	34	32,5	8,70	32	30,5	12,50	30	28,5	17,60	28	26,5	23,57	24	22,5	37,60	20	18,5	56,85
052	52	36	34,5	8,96	34	32,5	12,87	32	30,5	18,12	30	28,5	24,27	26	24,5	38,69	22	20,5	58,47
054	54	38	36,5	9,22	36	34,5	13,24	34	32,5	18,65	32	30,5	24,97	28	26,5	39,78	24	22,5	60,08
056	56	40	38,5	9,48	38	36,5	13,61	36	34,5	19,17	34	32,5	25,67	30	28,5	40,87	26	24,5	61,69
058	58	42	40,5	9,74	40	38,5	13,98	38	36,5	19,69	36	34,5	26,36	32	30,5	41,96	28	26,5	63,31
060	60	44	42,5	10,00	42	40,5	14,35	40	38,5	20,21	38	36,5	27,06	34	32,5	43,04	30	28,5	64,92
062	62	46	44,5	10,26	44	42,5	14,72	42	40,5	20,73	40	38,5	27,76	36	34,5	44,13	32	30,5	66,54
064	64	48	46,5	10,51	46	44,5	15,09	44	42,5	21,25	42	40,5	28,46	38	36,5	45,22	34	32,5	68,15
066	66	50	48,5	10,77	48	46,5	15,46	46	44,5	21,77	44	42,5	29,16	40	38,5	46,31	36	34,5	69,76
068	68	52	50,5	11,03	50	48,5	15,83	48	46,5	22,29	46	44,5	29,85	42	40,5	47,40	38	36,5	71,38

continued