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**Aeronavtika – Vijaki z veliko šestrobo glavo, polno steblo, ozka toleranca, srednja navojna dolžina, iz zlitine, odporne proti toploti, na nikljevi osnovi, pasivirani, z aluminijem pigmentiranim premazom – Klasifikacija: 1 550 MPa (pri temperaturi okolice) / 315 °C**

Aerospace series - Bolts, large bihexagonal head, close tolerance normal shank, medium length thread, in heat resisting nickel base alloy, passivated, with aluminium pigmented coating - Classification: 1 550 MPa (at ambient temperature) / 315 °C

Luft- und Raumfahrt - Sechskant-Passschrauben, mittlere Gewindelänge, aus hochwarmfester Nickelbasislegierung, passiviert, mit aluminiumpigmentierter Beschichtung - Klasse: 1 550 MPa (bei Raumtemperatur) / 315 °C

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Série aérospatiale - Vis a tete bihexagonale large, fut normal a tolérance serrée, filetage moyen, en alliage résistant a chaud a base de nickel, passivées, avec revêtement alumino-organique - Classification : 1 550 MPa (a température ambiante) / 315 °C

**Ta slovenski standard je istoveten z: EN 4498:2005**

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**ICS:**

49.025.20	Aluminij	Aluminium
49.030.20	Sorniki, vijaki, stebelni vijaki	Bolts, screws, studs

**SIST EN 4498:2006**

**en**

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EUROPEAN STANDARD

EN 4498

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2005

ICS 49.030.20

English Version

Aerospace series - Bolts, large bihexagonal head, close tolerance normal shank, medium length thread, in heat resisting nickel base alloy, passivated, with aluminium pigmented coating  
- Classification: 1 550 MPa (at ambient temperature) / 315 °C

Série aérospatiale - Vis à tête bihexagonale large, fût normal à tolérance serrée, filetage moyen, en alliage résistant à chaud à base de nickel, passivées, avec revêtement aluminé-organique - Classification : 1 550 MPa (à température ambiante) / 315 °C

Luft- und Raumfahrt - Sechskant-Paßschrauben, mittlere Gewindelänge, aus hochwärmfester Nickelbasislegierung, passiviert, mit Aluminium pigmentierte Beschichtung - Klasse: 1 550 MPa (bei Raumtemperatur) / 315 °C

This European Standard was approved by CEN on 26 October 2005.

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.

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

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## Foreword

This European Standard (EN 4498:2005) 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 June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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.

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**EN 4498:2005 (E)****1 Scope**

This standard specifies the characteristics of bolts, large bihexagonal head, close tolerance normal shank, medium length thread, in heat resisting nickel base alloy, passivated, with aluminium pigmented coating.

Classification: 1 550 MPa <sup>1)</sup> / 315 °C <sup>2)</sup>

**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 3186, *Aerospace — Bolts, large bihexagonal head, normal shank, short or medium length MJ threads, metallic material, coated or uncoated, strength classes 1 250 MPa to 1 800 MPa — Dimensions.*

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.*

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position.*

ISO 9154, *Aerospace — Bolts, with MJ threads, made of heat-resistant nickel-based alloy, strength class 1 550 MPa — Procurement specification.*

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

EN 2516, *Aerospace series — Passivation of corrosion resisting steels and decontamination of nickel base alloys.*

EN 3769, *Aerospace series — Electrolytic polishing of corrosion resistant steels and heat resisting alloys.*

EN 4016, *Aerospace series — Oversized bolts.*<sup>3)</sup>

EN 4474, *Aerospace series — Aluminium pigmented coatings — Coating methods.*<sup>3)</sup>

EN 9100, *Aerospace series — Quality management systems — Requirements (based on ISO 9001:2000) and Quality systems — Model for quality assurance in design, development, production, installation and servicing (based on ISO 9001:1994).*

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

MIL-L-87132B, *Lubricant, Cetyl Alcohol, 1-Hexadecanol, Application to Fasteners.*<sup>4)</sup>

TR 3775, *Aerospace series — Bolts and pins — Materials.*<sup>5)</sup>

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1) Minimum tensile strength of the material at ambient temperature.

2) Maximum temperature that the bolt can withstand without continuous change in its original characteristics, after return to ambient temperature. The maximum temperature is determined by the coating.

3) Published as AECMA Prestandard at the date of publication of this standard.

4) Published by: Department of Defense (DoD), the Pentagon, Washington, D.C.20301, USA.

5) Published as AECMA Technical Report at the date of publication of this standard.

### 3 Required characteristics

#### 3.1 Configuration – Dimensions – Masses

See Figure 1 and Table 1.

Dimensions and tolerances are: in conformity with ISO 3186, expressed in millimetres and apply after coating (tolerance on shank diameter before coating is also specified).

Details of form not stated are left to the manufacturer's discretion.

#### 3.2 Tolerances of form and position

See ISO 7913

#### 3.3 Materials

See TR 3775 (heat resisting nickel base alloy, strength class 1 550 MPa)

#### 3.4 Surface treatments

See EN 2516

or

EN 3769 on the head (except bearing face), then EN 2516 on all the bolt. In this case, code P shall be used in the designation,

plus EN 4474.

Lubrication with cetylic alcohol (chlorine free) according to MIL-L-87132

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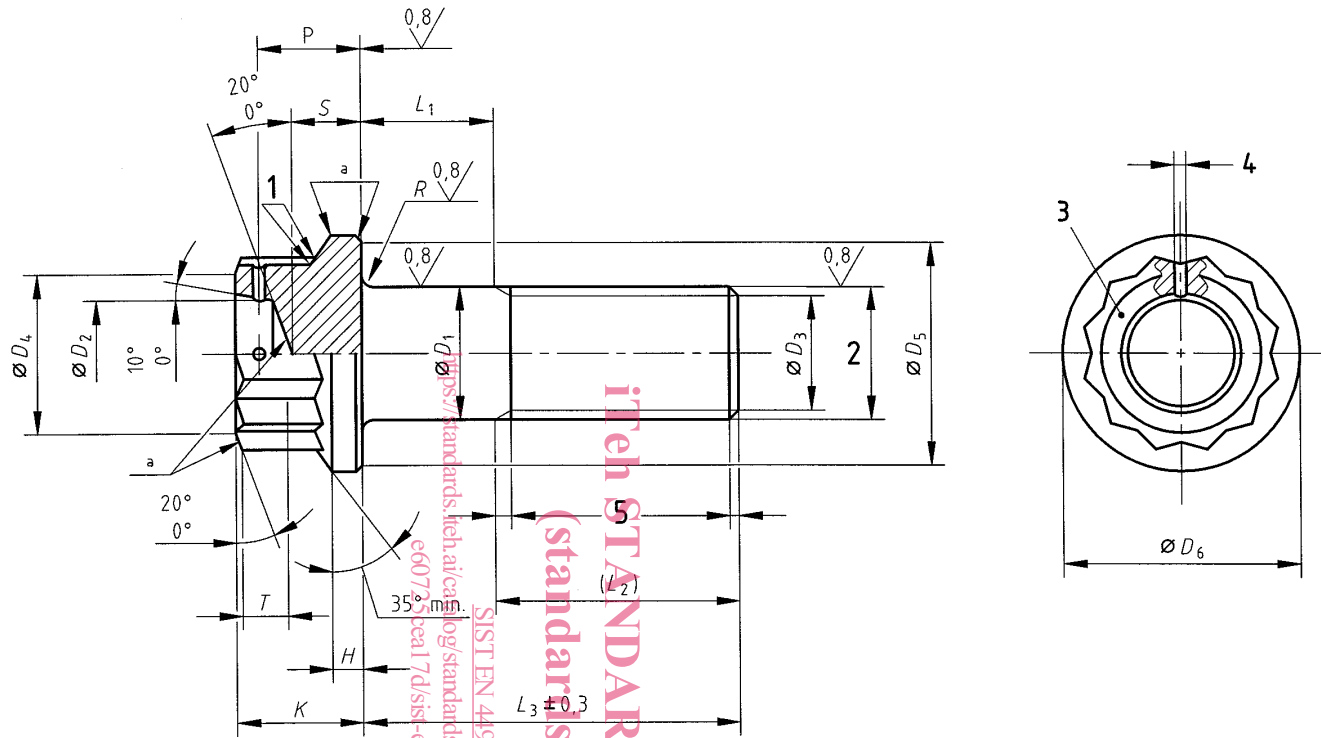
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$\sqrt{3,2}$   $\left[ \sqrt{0,8} \right]$  Values in micrometres apply prior to surface treatment.

Break sharp edges 0,1 to 0,4.



**Key**

- 1 Radius 0,3 min.
- 2 Thread
- 3 Marking
- 4 Four holes diameter  $D_7$  equidistant (optional)
- 5 Conforms to ISO 3353-1
- <sup>a</sup> Shape in this area at manufacturer's option

Figure 1



Table 1

Diameter code	Thread <sup>a</sup>	nom.	$D_1$		$D_2$ +1 0	$D_3$ ± 0,5	$D_4$ min.	$D_5$ min.	$D_6$ max.	$D_7$ H13	$H$ min.	$K$ h15	$L_1 \pm 0,2$ <sup>b c</sup>		$L_2$	$P$	$R$ 0 -0,2	$S$ +0,4 0	$T$ min.	Wrenching dash number <sup>d</sup>	Mass <sup>e</sup>	
			before coating	after coating									Code	nom.							f	g
050	MJ5×0,8-4h6h	5	-0,030	-0,010	2,5	3,4	6,8	9,5	10,3	1	1,5	7,4	003 to 050	3 to 50	12,5	5,3	0,8	3,3	2,8	07	5,18	0,16
060	MJ6×1-4h6h	6	-0,045	-0,035	3,2	4,2	7,8	11	11,8	1,4	1,7	8,4	003 to 060	3 to 60	15	6,1	1	3,8	3,5	08	7,92	0,23
070	MJ7×1-4h6h	7	-0,033 -0,048	-0,013 -0,038	3,9	5,2	8,8	12,5	13,3		2,1	9,8	004 to 070	4 to 70	16	6,7		4,2	3,8	09	12,40	0,32
080	MJ8×1-4h6h	8			4,5	6,2	9,8	14	14,8	1,6	2,5	11,6	005 to 100	5 to 100	21	8,5	1,2	5,5	4,2	12	29,07	0,64
100	MJ10×1,25-4h6h	10	6,1	7,9	11,8	17,3	18,3	2,9	12,9		006 to 120	6 to 120	23,5	9,6	1,4	6,4	4,5	14	46,85	0,92		
120	MJ12×1,25-4h6h	12	7,7	9,8	13,7	20,9	22	3,3	14,3	007 to 140	7 to 140	27,5	10,8	7,1		5,1	17	70,36	1,16			
140	MJ14×1,5-4h6h	14	-0,036	-0,016	10,3	11,5	16,7	23,9	25	1,8	3,7	15,8	008 to 160	8 to 160	30	12,4	1,8	8,4	5,3	19	103,45	1,65
160	MJ16×1,5-4h6h	16	-0,051	-0,041	11,9	13,5	18,6	27,4	28,5		4,1	17,1	009 to 180	9 to 180	33	13,9		9,4	6,1	22	143,20	2,10
180	MJ18×1,5-4h6h	18	-0,040 -0,055	-0,020 -0,045	14,5	15,5	21,6	30,4	31,5	4,5	18,6	010 to 200	10 to 200	35,5	15,3	10,5	6,6	24	190,60	2,60		
200	MJ20×1,5-4h6h	20			16	17,5	23,6	33,4	34,5	4,9	19,9	011 to 220	11 to 220	38	16,8	11,6	7,4	27	274,00	3,10		
220	MJ22×1,5-4h6h	22	18,6	19,5	26,6	36,4	37,5	5,3	21,9	012 to 240	12 to 240	43,5	18,3	12,7	8,2	30	365,90	3,70				
240	MJ24×2-4h6h	24	21,2	20,9	29,6	39,4	40,5															

<sup>a</sup> In accordance with ISO 5855-2, except the thread major diameter "a max." which shall be equal to  $D_1$  min. - 0,025.

<sup>b</sup> Increments:

- 1 for  $L_1 \leq 30$
- 2 for  $30 < L_1 \leq 100$
- 4 for  $L_1 > 100$

<sup>c</sup> If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to length  $L_1$ , completed by one or two zeros to the left, where necessary, to obtain a three digit code.

<sup>d</sup> In accordance with ISO 4095 over  $T$  min.

<sup>e</sup> Approximate values (kg/1 000 pieces), calculated on the basis of  $8,25 \text{ kg/dm}^3$ , for information purposes only. They apply to bolts without holes.

<sup>f</sup> Value for head and first  $L_3$

<sup>g</sup> Increase for each additional millimetre of  $L_3$ .