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**Aerospace series - Bolts, hexagon head, relieved shank, long thread, in heat resisting steel FE-PA92HT (A286) - Classification: 900 MPa (at ambient temperature) / 650°C**

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Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwarmfestem Stahl FE-PA92HT (A286) - Klasse: 900 MPa (bei Raumtemperatur) / 650 °C

Série aérospatiale - Vis à tête hexagonale, fut dégagé, filetage long, en acier résistant à chaud FE-PA92HT (A286) - Classification: 900 MPa (à température ambiante) / 650 °C

**Ta slovenski standard je istoveten z: EN 3006:1994**

**ICS:**

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

**SIST EN 3006:2001**

**en**

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EUROPEAN STANDARD

EN 3006

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1994

UDC 621.882.211-034.018.44:629.7

Descriptors: Aircraft industry, fastener, screw, hexagonal head screw, heat resistant steel, classification, characteristic, dimension, screw thread, code, designation, marking

English version

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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.

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# CEN

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

**Foreword**

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This standard was submitted for Formal Vote, and the result was positive.

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of an identical text or by endorsement, at the latest by February 1995, and conflicting national standards shall be withdrawn at the latest by February 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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1995 -10-  
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## 1 Scope

This standard specifies the characteristics of hexagon headed bolts with relieved shank and long thread, in FE-PA92HT, for aerospace applications.

Classification : 900 MPa <sup>1)</sup> / 650 °C <sup>2)</sup>

## 2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 3353 Aerospace - Rolled threads for bolts - Lead and runout requirements

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

EN 2399 Heat resisting steel FE-PA92-HT -  $R_m \geq 900$  MPa - Bars for forged bolts -  $D \leq 25$  mm - Aerospace series <sup>3)</sup>

EN 2424 Aerospace series - Marking of aerospace products <sup>3)</sup>

EN 2576 Aerospace series - Bolts in heat resisting steel FE-PA92HT (A286) - Classification : 900 MPa / 650 °C - Technical specification <sup>4)</sup>

EN 3639 Aerospace series - Heat resisting alloy FE-PA2601 - Softened and cold worked - Wire for forged fasteners -  $D \leq 15$  mm -  $900 \text{ MPa} \leq R_m \leq 1\,100 \text{ MPa}$  <sup>4)</sup>

## 3 Required characteristics

### 3.1 Configuration - Dimensions - Tolerances - Masses

See figure 1 and tables 1 and 2. Dimensions and tolerances are in millimetres.

### 3.2 Materials

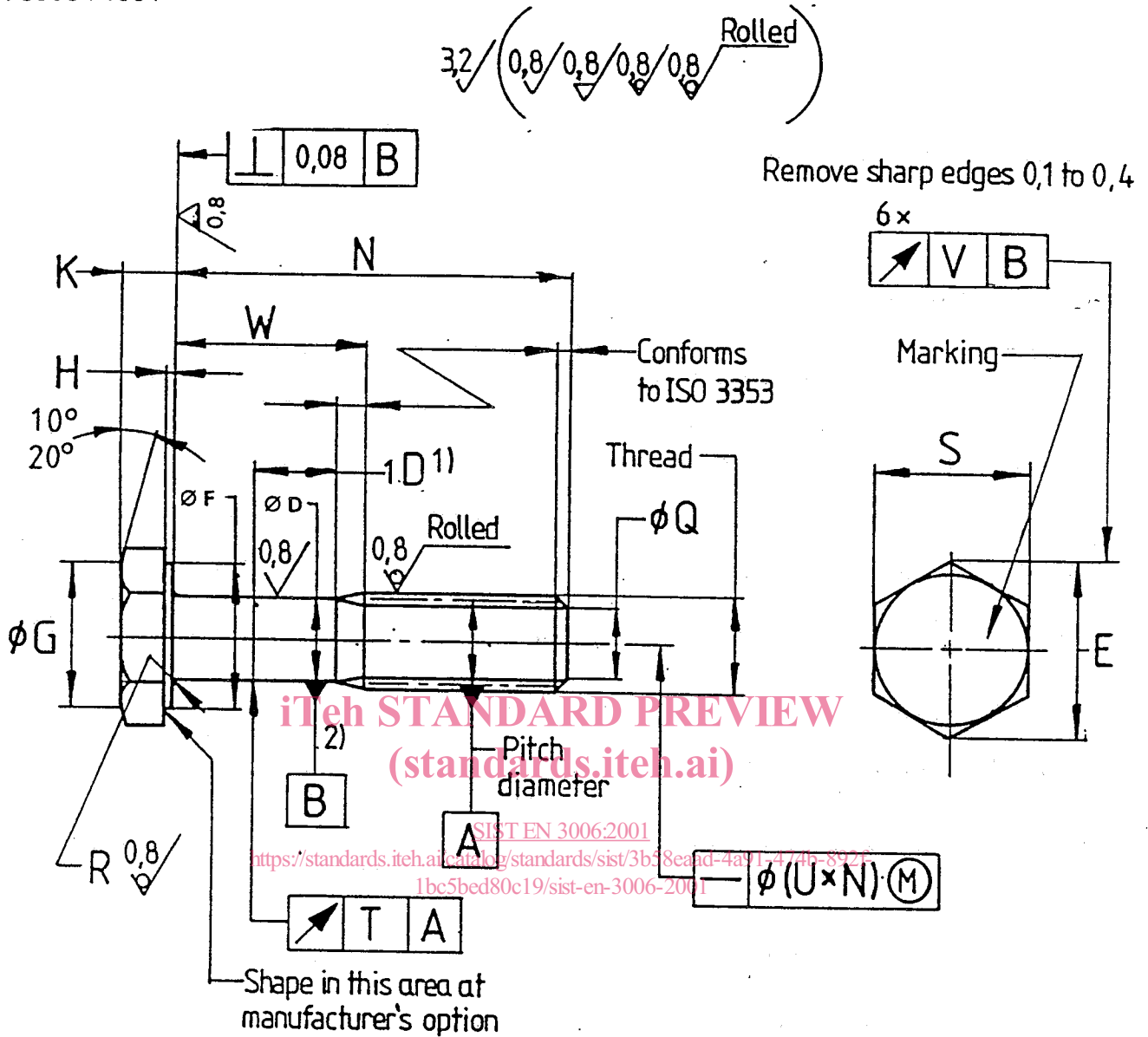
EN 2399 or EN 3639

1) Minimum tensile strength of the material at ambient temperature

2) Maximum test temperature of the parts

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

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



- 1) 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.
- 2) 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

Code	Thread <sup>1)</sup> Designation	$D$	$E$	$F$	$G$	$H$	$K$	$Q$	$R$		$S$	$T$	$U$	$V$	
		$\pm 0,13$	min.	min.	min.	0 -0,3	0 -0,3	$\pm 0,5$	max.	min.	h13				
050	MJ5x0,8-4h6h	4,48	9,8	8,3	8,4	0,5	3	3,4	0,5	0,3	9	0,12	0,003	0,25	
060	MJ6x1-4h6h	5,35	12	10,2	10,3		3,5	4,2	0,7	0,5	11			0,3	
070	MJ7x1-4h6h	6,35	13,2	11,2	11,3		4	5,2			12			0,35	
080	MJ8x1-4h6h	7,35	15,5	13,2	13,3	0,6	4,5	6,2	0,6	0,6	14	0,15	0,0025	0,4	
100	MJ10x1,25-4h6h	9,19	18,9	16	16,3		5	7,9			0,8			17	0,5
120	MJ12x1,25-4h6h	11,19	21,1	18	18,3		6	9,8			0,9			19	0,18

1) In accordance with ISO 5855-2



Table 2 (concluded)

Length code	N ± 0,3	Thread code																	
		050			060			070			080			100			120		
		W max.	W min.	Mass <sup>1)</sup>	W max.	W min.	Mass <sup>1)</sup>	W max.	W min.	Mass <sup>1)</sup>	W max.	W min.	Mass <sup>1)</sup>	W max.	W min.	Mass <sup>1)</sup>	W max.	W min.	Mass <sup>1)</sup>
070	70	54	52,5	10,40	52	50,5	15,36	48,5	21,5	29,56	48	46,5	29,56	44	42,5	46,59	40	38,5	83,86
072	72				54	52,5	15,72	50,5	22,0	30,23	50	48,5	30,23	46	44,5	47,64	42	40,5	85,70
074	74				56	54,5	16,07	52,5	22,5	30,91	52	50,5	30,91	48	46,5	48,68	44	42,5	87,54
076	76				58	56,5	16,43	54,5	23,01	31,58	54	52,5	31,58	50	48,5	49,73	46	44,5	89,38
078	78				60	58,5	16,79	56,5	23,51	32,25	56	54,5	32,25	52	50,5	50,78	48	46,5	91,22
080	80				62	60,5	17,14	60	24,01	32,92	58	56,5	32,92	54	52,5	51,83	50	48,5	93,06
082	82				64	62,5	17,50	62	24,51	33,59	60	58,5	33,59	56	54,5	52,88	52	50,5	94,90
084	84				66	64,5	17,86	64	25,01	34,27	62	60,5	34,27	58	56,5	53,93	54	52,5	96,74
086	86							66	25,52	34,94	64	62,5	34,94	60	58,5	54,98	56	54,5	98,58
088	88							68	26,02	35,61	66	64,5	35,61	62	60,5	56,02	58	56,5	100,42
090	90							70	26,52	36,28	68	66,5	36,28	64	62,5	57,07	60	58,5	102,26
092	92							72	27,02	36,96	70	68,5	36,96	66	64,5	58,12	62	60,5	104,10
094	94							74	27,52	37,63	72	70,5	37,63	68	66,5	59,17	64	62,5	105,94
096	96							76	28,02	38,30	74	72,5	38,30	70	68,5	60,22	66	64,5	107,78
098	98							78	28,52	38,97	76	74,5	38,97	72	70,5	61,27	68	66,5	109,62
100	100								28,52	39,64	78	76,5	39,64	74	72,5	62,32	70	68,5	111,46
104	104								28,52	40,99	82	80,5	40,99	78	76,5	64,41	74	72,5	115,14
108	108								28,52	42,33	86	84,5	42,33	82	80,5	66,51	78	76,5	118,82
112	112								28,52	43,68	90	88,5	43,68	86	84,5	68,61	82	80,5	122,50
116	116								28,52					90	88,5	70,70	86	84,5	126,18
120	120								28,52					94	92,5	72,80	90	88,5	129,86
124	124								28,52					98	96,5	74,90	94	92,5	133,54
128	128								28,52					102	100,5	77,00	98	96,5	137,22
132	132								28,52					106	104,5	79,09	102	100,5	140,90
136	136								28,52					110	108,5	81,19	106	104,5	144,58
140	140								28,52					114	112,5	83,29	110	108,5	148,26
144	144								28,52								114	112,5	151,94
148	148								28,52								118	116,5	155,62
152	152								28,52								122	120,5	159,30
156	156								28,52								126	124,5	162,98
160	160								28,52								130	128,5	166,66
164	164								28,52								134	132,5	170,34
168	168								28,52								138	136,5	174,02

1) Mass ≈ quoted in kg/1 000 parts