

SLOVENSKI STANDARD
SIST EN 2926:2001**01-januar-2001**

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

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

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

Ta slovenski standard je istoveten z: EN 2926:1996

ICS:

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

SIST EN 2926:2001**en**

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EUROPEAN STANDARD

EN 2926

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 1996

ICS 49.040.20

Descriptors: aircraft industry, double hexagonal head screw, heat resistant steel, silver coating, classification, dimension, surface treatment, designation

English version

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

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

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

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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 members 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 September 1996, and conflicting national standards shall be withdrawn at the latest by September 1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of 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 and United Kingdom

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INTERNATIONAL ORGANIZATION OF STANDARDIZATION



1 Scope

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

Classification : 900 MPa ¹⁾ / 650 °C ²⁾

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 4095	Fasteners for aerospace construction - Bi-hexagonal wrenching configuration
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 ³⁾
EN 2424	Aerospace series - Marking of aerospace products
EN 2576	Aerospace series - Bolts in heat resisting steel FE-PA92HT (A286) - Classification : 900 MPa / 650 °C - Technical specification ⁴⁾
EN 2786	Aerospace series - Electrolytic silver plating of fasteners ⁴⁾
EN 3639	Aerospace series - Heat resisting alloy FE-PA2601 - Softened and cold worked - Wire for forged fasteners - $D \leq 15$ mm - 900 MPa $\leq R_m \leq 1,100$ MPa ⁴⁾

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 after silver plating.

3.2 Materials

EN 2399 or EN 3639

3.3 Surface treatment

EN 2786

Thickness :

- thread : 3 μ m to 6 μ m, shall be measured at the pitch diameter ;
- other areas may show complete coverage, without thickness requirement.

1) Minimum tensile strength of the material at ambient temperature

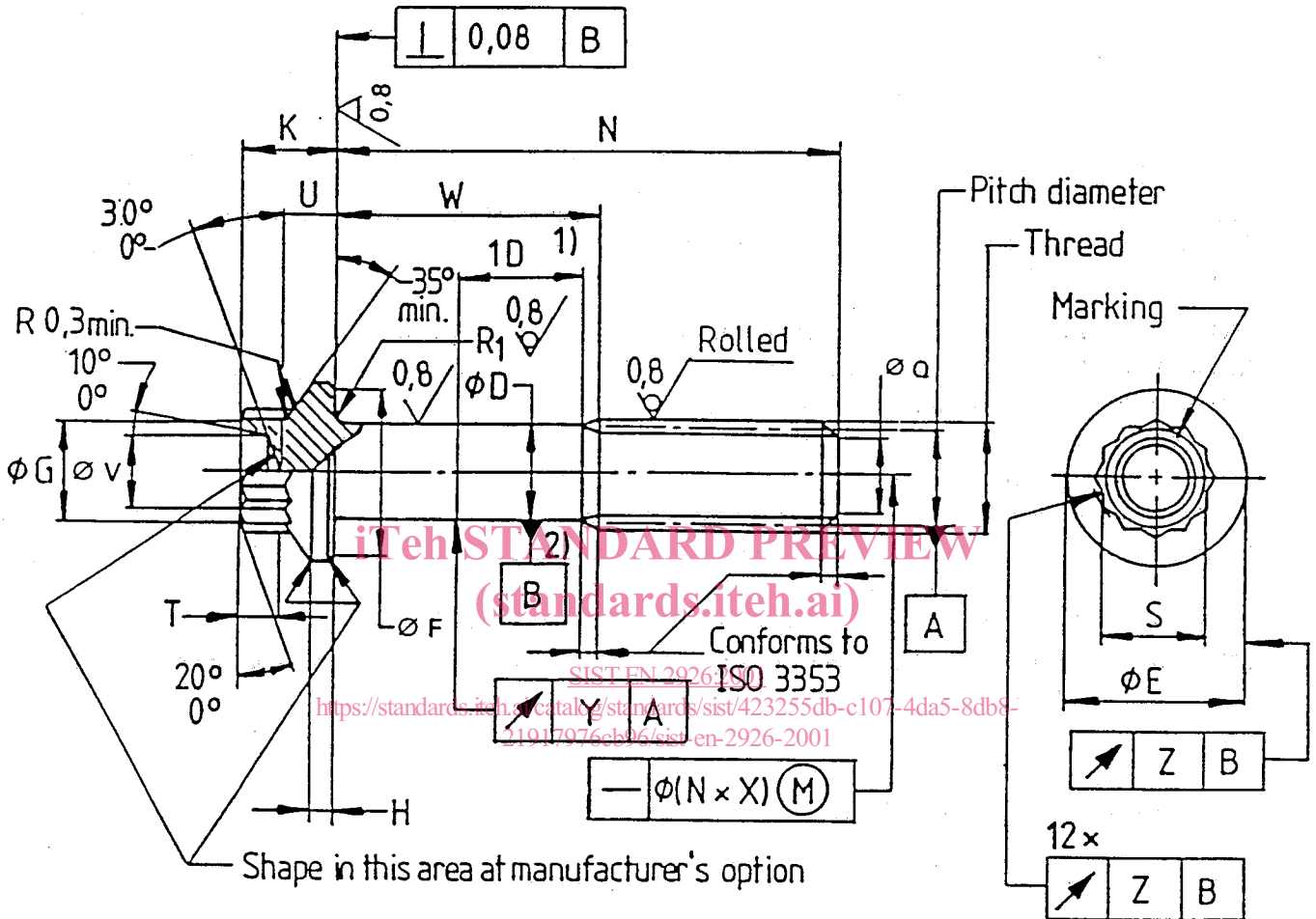
2) Maximum test temperature of the parts

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

3,2 / (0,8 / 0,8 / 0,8 / 0,8 / Rolled) Values apply before silver plating.

Remove sharp edges 0,1 to 0,4



- 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 ¹⁾ Designation	D	E	F	G	H	K	Q	R_1	S ²⁾	T	U	V	X	Y	Z				
		$\pm 0,13$	max.	min.	min.	min.	max.	min.	$\pm 0,5$	max.	min.	min.	max.				min.			
050	MJ5x0,8-4h6h	4,48	9,1	8,3	6,8	1	5,65	5,02	3,4	0,5	0,3	7	2	2,9	2,5	3,7	3,2	0,003	0,12	0,13
060	MJ6x1-4h6h	5,35	10,6	9,8	7,8	1,2	6,15	5,52	4,2	0,7	0,5	8	2,3	3,2	2,8	4,6	4,1			0,15
070	MJ7x1-4h6h	6,35	12,1	11,3	8,8	1,4	6,68	5,92	5,2			9	2,6	3,7	3,3	5,4	4,9		0,18	
080	MJ8x1-4h6h	7,35	13,6	12,8	9,8	1,6	7,18	6,42	6,2	10	2,8	4,1	3,7	5,7	5,2	0,15	0,2			
100	MJ10x1,25-4h6h	9,19	16,7	15,7	11,8	2	8,18	7,42	7,9	0,8	0,6	12	3,1	5,1	4,7	7,2	6,7	0,0025	0,18	0,25
120	MJ12x1,25-4h6h	11,19	19,9	18,8	13,7	2,4	9,38	8,62	9,8	0,9		14	3,5	6	5,6	8,5	8			0,3

1) In accordance with ISO 5855-2

2) Bihexagonal wrenching configuration in conformity with ISO 4095 over length T min.

Table 2

Length code	N ± 0,3	Thread code																		
		050			060			070			080			100			120			
		W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	
008	8			3,14																
010	10			3,39																
012	12			3,64																
014	14	2,1	1,7	3,89																
016	16			4,14																
018	18			4,39																
020	20	4	2,5	4,64																
022	22	6	4,5	4,89	4	2,5	7,00													
024	24	8	6,5	5,14	6	4,5	7,36	4	2,5	10,36										
026	26	10	8,5	5,39	8	6,5	7,71	6	4,5	10,86	4	2,5	14,54							
028	28	12	10,5	5,64	10	8,5	8,07	8	6,5	11,36	6	4,5	15,22							
030	30	14	12,5	5,89	12	10,5	8,42	10	8,5	11,87	8	6,5	15,89	4	2,7	25,41				
032	32	16	14,5	6,14	14	12,5	8,78	12	10,5	12,37	10	8,5	16,56	6	4,5	26,46				
034	34	18	16,5	6,39	16	14,5	9,14	14	12,5	12,87	12	10,5	17,23	8	6,5	27,51	4	2,8	42,34	
036	36	20	18,5	6,63	18	16,5	9,49	16	14,5	13,37	14	12,5	17,91	10	8,5	28,56	6	4,5	43,89	
038	38	22	20,5	6,88	20	18,5	9,85	18	16,5	13,87	16	14,5	18,58	12	10,5	29,60	8	6,5	45,45	
040	40	24	22,5	7,13	22	20,5	10,20	20	18,5	14,37	18	16,5	19,25	14	12,5	30,65	10	8,5	47,00	
042	42	26	24,5	7,38	24	22,5	10,56	22	20,5	14,88	20	18,5	19,92	16	14,5	31,70	12	10,5	48,56	
044	44	28	26,5	7,63	26	24,5	10,92	24	22,5	15,38	22	20,5	20,59	18	16,5	32,75	14	12,5	50,11	
046	46	30	28,5	7,88	28	26,5	11,27	26	24,5	15,88	24	22,5	21,27	20	18,5	33,80	16	14,5	51,67	
048	48	32	30,5	8,13	30	28,5	11,63	28	26,5	16,38	26	24,5	21,94	22	20,5	34,85	18	16,5	53,22	
050	50	34	32,5	8,38	32	30,5	11,99	30	28,5	16,88	28	26,5	22,61	24	22,5	35,90	20	18,5	54,78	
052	52	36	34,5	8,63	34	32,5	12,34	32	30,5	17,38	30	28,5	23,28	26	24,5	36,94	22	20,5	56,33	
054	54	38	36,5	8,88	36	34,5	12,70	34	32,5	17,89	32	30,5	23,95	28	26,5	37,99	24	22,5	57,89	
056	56	40	38,5	9,13	38	36,5	13,05	36	34,5	18,39	34	32,5	24,63	30	28,5	39,04	26	24,5	59,04	
058	58	42	40,5	9,38	40	38,5	13,41	38	36,5	18,89	36	34,5	25,30	32	30,5	40,09	28	26,5	61,00	
060	60	44	42,5	9,63	42	40,5	13,77	40	38,5	19,39	38	36,5	25,97	34	32,5	41,14	30	28,5	62,55	
062	62	46	44,5	9,88	44	42,5	14,12	42	40,5	19,89	40	38,5	26,64	36	34,5	42,19	32	30,5	64,11	
064	64	48	46,5	10,13	46	44,5	14,48	44	42,5	20,39	42	40,5	27,32	38	36,5	43,24	34	32,5	65,66	
066	66	50	48,5	10,38	48	46,5	14,83	46	44,5	20,90	44	42,5	27,99	40	38,5	44,28	36	34,5	67,22	
068	68	52	50,5	10,63	50	48,5	15,19	48	46,5	21,40	46	44,5	28,66	42	40,5	45,33	38	36,5	68,77	

(continued)

Table 2 (concluded)

Length code	N ± 0,3	Thread code																	
		050		060		070		080		100		120							
		W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾						
070	70	54	52,5	10,88			50	48,5	21,90	48	46,5	29,33	44	42,5	46,38	40	38,5	70,33	
072	72				52	50,5	15,90	52	50,5	22,40	50	48,5	30,00	46	44,5	47,43	42	40,5	71,88
074	74				56	54,5	16,26	54	52,5	22,90	52	50,5	30,68	48	46,5	48,48	44	42,5	73,44
076	76				58	56,5	16,61	56	54,5	23,40	54	52,5	31,35	50	48,5	49,53	46	44,5	74,99
078	78				60	58,5	16,97	58	56,5	23,91	56	54,5	32,02	52	50,5	50,57	48	46,5	76,55
080	80				62	60,5	17,33	60	58,5	24,41	58	56,5	32,69	54	52,5	51,62	50	48,5	78,10
082	82				64	62,5	17,68	62	60,5	24,91	60	58,5	33,37	56	54,5	52,67	52	50,5	79,66
084	84				66	64,5	18,04	64	62,5	25,41	62	60,5	34,04	58	56,5	53,72	54	52,5	81,21
086	86							66	64,5	25,91	64	62,5	34,71	60	58,5	54,77	56	54,5	82,77
088	88							68	66,5	26,41	66	64,5	35,38	62	60,5	55,82	58	56,5	84,33
090	90							70	68,5	26,92	68	66,5	36,05	64	62,5	56,87	60	58,5	85,88
092	92							72	70,5	27,42	70	68,5	36,73	66	64,5	57,91	62	60,5	87,44
094	94							74	72,5	27,92	72	70,5	37,40	68	66,5	58,96	64	62,5	88,99
096	96							76	74,5	28,42	74	72,5	38,07	70	68,5	60,01	66	64,5	90,55
098	98							78	76,5	28,92	76	74,5	38,74	72	70,5	61,06	68	66,5	92,10
100	100										78	76,5	39,41	74	72,5	62,11	70	68,5	93,66
104	104										82	80,5	40,76	78	76,5	64,21	74	72,5	96,77
108	108										86	84,5	42,10	82	80,5	66,30	78	76,5	99,88
112	112										90	88,5	43,45	86	84,5	68,40	82	80,5	102,99
116	116													90	88,5	70,50	86	84,5	106,10
120	120													94	92,5	72,59	90	88,5	109,21
124	124													98	96,5	74,69	94	92,5	112,32
128	128													102	100,5	76,79	98	96,5	115,43
132	132													106	104,5	78,89	102	100,5	118,54
136	136													110	108,5	80,98	106	104,5	121,65
140	140													114	112,5	83,08	110	108,5	124,76
144	144																114	112,5	127,87
148	148																118	116,5	130,98
152	152																122	120,5	134,09
156	156																126	124,5	137,20
160	160																130	128,5	140,31
164	164																134	132,5	143,42
168	168																138	136,5	146,53

1) Mass ≈ quoted in kg/1 000 parts