
Aeronavtika - Sorniki, valjasta glava, šestzoba vdolbina, tanko steblo, dolg navoj, iz toplotnoodpornega jekla FE-PA2601 (FE-PA92HT, A286), posrebreni - Klasifikacija: 1100 MPa (pri temperaturi okolice)/650 °C

Aerospace series - Bolts, pan head, six lobe recess, relieved shank, long thread, in heat resisting steel FE-PA2601 (FE-PA92HT, A286), silver plated - Classification: 1 100 MPa (at ambient temperature) / 650 °C

Luft- und Raumfahrt - Flachkopfschrauben, Sechsbogenzahn, Innenantrieb, langes Gewinde, aus hochwarmfestem Stahl FE-PA2601 (FE-PA92HT, A286), versilbert - Klasse: 1 100 MPa (bei Raumtemperatur) / 650 °C

Série aérospatiale - Vis à tête cylindrique, à empreinte six lobes, fût dégagé, filetage long, en acier résistant à chaud FE-PA2601 (FE-PA92HT, A286), argentées - Classification : 1 100 MPa (à température ambiante) / 650 °C

Ta slovenski standard je istoveten z: EN 3912:2007

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

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 3912

April 2007

ICS 49.030.20

English Version

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Foreword

This document (EN 3912:2007) 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of an identical text or by endorsement, at the latest by October 2007, and conflicting national standards shall be withdrawn at the latest by October 2007.

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EN 3912:2007 (E)

1 Scope

This standard specifies the characteristics of pan head bolts with six lobe recess, relieved shank and long thread, in FE-PA2601 (FE-PA92HT), silver plated, for aerospace applications.

Classification: 1 100 MPa ¹⁾ / 650 °C ²⁾

NOTE Taking account of the recess geometry, the strength class to be used for the seating torque calculation shall not be greater than 900 MPa.

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 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 2786, *Aerospace series — Electrolytic silver plating of fasteners.* ⁴⁾

EN 3685, *Aerospace series — Bolts in heat resisting steel, FE-PA92HT (A286) — Classification: 1 100 MPa/650 °C — Technical specification.* ⁴⁾

EN 3761, *Aerospace series — Heat resisting alloy FE-PA2601 — Softened and cold worked — Bar for forged fasteners — $D \leq 50$ mm — $1\ 100\text{ MPa} \leq R_m \leq 1\ 300\text{ MPa}$.* ⁴⁾

EN 3905, *Aerospace series — Six lobe recesses for bolts — Technical specification.* ⁴⁾

EN 3911, *Aerospace series — Six lobe recess — Geometrical definition.* ⁴⁾

3 Required characteristics

3.1 Configuration - Dimensions - Tolerances

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

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

2) Maximum test temperature of the parts.

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

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

3.2 Materials

EN 3761 or EN 2399 with exception of final heat treatment which shall meet EN 3761 (reference heat treatment and relating mechanical properties).

3.3 Surface treatment

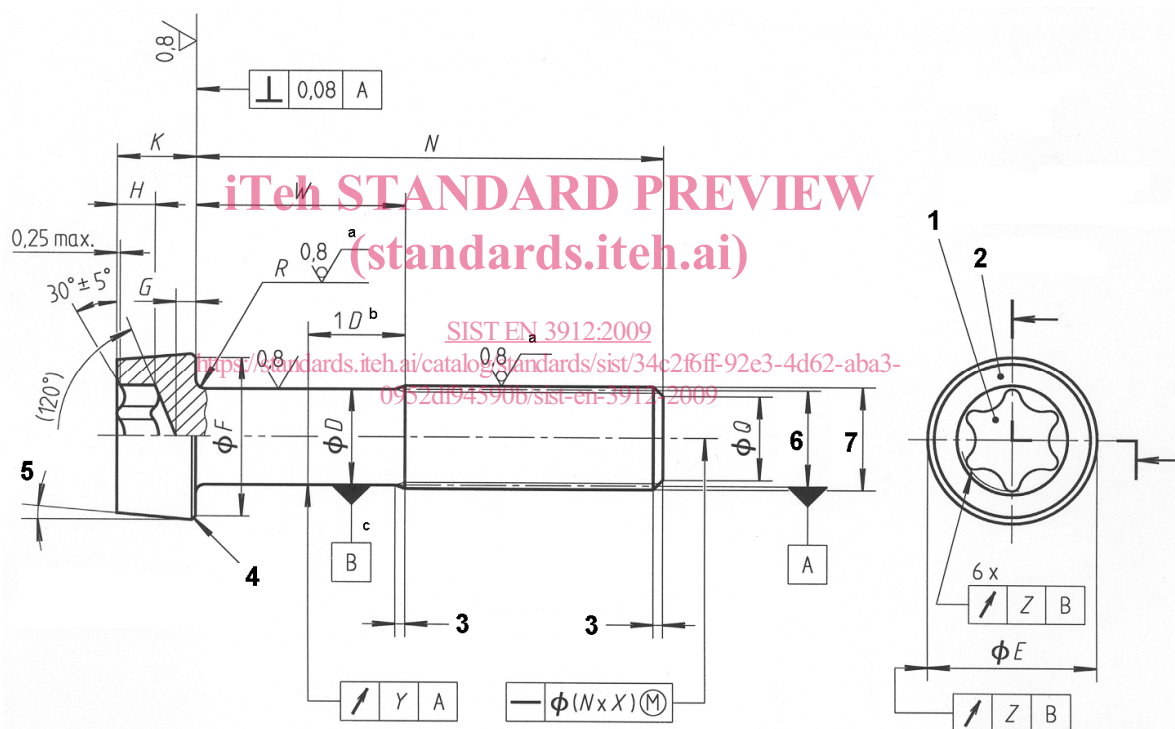
EN 2786

Thickness :

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

3,2, $\left[\begin{array}{ccc} 0,8 & 0,8 & 0,8 \end{array} \right]$ Values apply before silver plating.

Remove sharp edges 0,1 to 0,4.



Key

- | | |
|--|------------------------|
| 1 Recess in conformity with EN 3911 | 5 0° to 5° |
| 2 Marking | 6 Pitch $\varnothing$ |
| 3 Conform to ISO 3353-1 | 7 Thread $\varnothing$ |
| 4 Shape in this area at manufacturer's option | |
| ^a Rolled | |
| ^b 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. | |
| ^c 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

EN 3912:2007 (E)

Table 1

Thread ^a		<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>K</i>	<i>Q</i>	<i>R</i>		<i>X</i>	<i>Y</i>	<i>Z</i>	Recess code ^b
Code	Designation	± 0,13	max.	min.	min.	0 + 0,2	h15	± 0,5	max.	min.				
050	MJ5×0,8-4h6h	4,48	8,5	8,1	0,7	1,8	4	3,5	0,5	0,3	0,003	0,12	0,18	EN3911-27
060	MJ6×1-4h6h	5,35	10	9,5	1	2,25	4,7	4,2	0,7	0,5			0,21	EN3911-30
070	MJ7×1-4h6h	6,35	12	11,4		2,5	5,4	5,2				0,25	EN3911-40	
080	MJ8×1-4h6h	7,35	13	12,4		1,5	2,7	6				6,2	0,28	EN3911-45

^a In accordance with ISO 5855-2.^b See EN 3911.

Table 2

Length code	<i>N</i> ± 0,3	Thread code											
		050			060			070			080		
		<i>W</i>		Mass ^a	<i>W</i>		Mass ^a	<i>W</i>		Mass ^a	<i>W</i>		Mass ^a
		max.	min.		max.	min.		max.	min.		max.	min.	
008	8	2,1	1,7	2,71	2,7	2,2	2,7	2,2	2,7	2,2	2,7	2,2	10,59
010	10			2,85									
012	12			3,20									
014	14			3,45									
016	16			3,69									
018	18			3,92									
020	20	4	2,5	4,13	4	2,5	7,07	4	2,5	11,40	4	2,5	15,26
022	22	6	4,5	4,27									
024	24	8	6,5	4,41									
026	26	10	8,5	4,55									
028	28	12	10,5	4,68									
030	30	14	12,5	4,82									
032	32	16	14,5	4,96									
034	34	18	16,5	5,12									
036	36	20	18,5	5,26									
038	38	22	20,5	5,38									
040	40	24	22,5	5,52									
042	42	26	24,5	5,66									
044	44	28	26,5	5,80									
046	46	30	28,5	5,95									
048	48	32	30,5	6,07									
050	50	34	32,5	6,21									

continued

Table 2 (concluded)

Length code	N $\pm 0,3$	Thread code											
		050			060			070			080		
		W		Mass ^a	W		Mass ^a	W		Mass ^a	W		Mass ^a
max.	min.	max.	min.		max.	min.		max.	min.				
052	52	36	34,5	6,35	34	32,5	9,94	32	30,5	15,77	30	28,5	21,70
054	54	38	36,5	6,49	36	34,5	10,12	34	32,5	16,08	32	30,5	22,16
056	56	40	38,5	6,63	38	36,5	10,31	36	34,5	16,38	34	32,5	22,61
058	58	42	40,5	6,76	40	38,5	10,50	38	36,5	16,70	36	34,5	23,05
060	60	44	42,5	6,90	42	40,5	10,70	40	38,5	17,02	38	36,5	23,49
062	62	46	44,5	7,04	44	42,5	10,89	42	40,5	17,32	40	38,5	23,93
064	64	48	46,5	7,18	46	44,5	11,07	44	42,5	17,63	42	40,5	24,41
066	66	50	48,5	7,32	48	46,5	11,26	46	44,5	17,95	44	42,5	24,85
068	68	52	50,5	7,44	50	48,5	11,45	48	46,5	18,27	46	44,5	25,29
070	70	54	52,5	7,62	52	50,5	11,65	50	48,5	18,58	48	46,5	25,73
072	72	—			54	52,5	11,86	52	50,5	18,87	50	48,5	26,19
074	74	—			56	54,5	12,04	54	52,5	19,18	52	50,5	26,64
076	76	—			58	56,5	12,23	56	54,5	19,50	54	52,5	27,08
078	78	—			60	58,5	12,42	58	56,5	19,81	56	54,5	27,52
080	80	—			62	60,5	12,62	60	58,5	20,11	58	56,5	27,98
082	82	—			64	62,5	12,81	62	60,5	20,43	60	58,5	28,33
084	84	—			66	64,5	12,99	64	62,5	20,75	62	60,5	28,88
086	86	—						66	64,5	21,05	64	62,5	29,34
088	88	—						68	66,5	21,36	66	64,5	29,76
090	90	—						70	68,5	21,68	68	66,5	30,22
092	92	—						72	70,5	21,98	70	68,5	30,66
094	94	—						74	72,5	22,23	72	70,5	31,11
096	96	—						76	74,5	22,61	74	72,5	31,55
098	98	—						78	76,5	22,93	76	74,5	31,99
100	100	—									78	76,5	32,45
104	104	—									82	80,5	33,35
108	108	—									86	84,5	34,23
112	112	—									90	88,5	35,13

^a Mass ≈ quoted in kg/1 000 parts.