SLOVENSKI STANDARD
SIST EN 4056-006:2014

01-oktober-2014

Aeronavtika - Kabelske spojke za vezalno pasovje - 006. del: Kabelske spojke iz PEEK-a - Obratovalne temperature med –55 °C do 240 °C - Standard za proizvod

Aerospace series - Cable ties for harnesses - Part 006: Peek cable ties - For operating temperatures -55 °C to 240 °C - Product standard

Luft- und Raumfahrt - Befestigungsbänder für Leitungsbündel - Teil 006: Kabelbinder aus Peek - Betriebstemperatur von -55 °C bis 240 °C - Produktnorm

Série aérospatiale - Frettes de câblage pour harnais - Partie 006: Frettes en peek - Températures d'utilisation -55 °C à 240 °C - Norme de produit

Ta slovenski standard je istoveten z: **EN 4056-006:2014**

ICS:

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

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Aerospace series - Cable ties for harnesses - Part 006: Peek cable ties - For operating temperatures -55 °C to 240 °C - Product standard

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

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Foreword

This document (EN 4056-006:2014) 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of an identical text or by endorsement, at the latest by January 2015, and conflicting national standards shall be withdrawn at the latest by January 2015.

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1 Scope

This European Standard defines the characteristics of cable ties with either internal or external serrations manufactured entirely from PEEK material, for installation under controlled tension on aircraft cable harnesses. It shall be used together with EN 4056-001.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2825, *Aerospace series - Burning behaviour of non metallic materials under the influence of radiating heat and flames - Determination of smoke density*

EN 2826, *Aerospace series - Burning behaviour of non metallic materials under the influence of radiating heat and flames - Determination of gas components in the smoke*

EN 4056-001, *Aerospace series - Cable ties for harnesses - Part 001: Technical specification*

EN 4056-002, *Aerospace series — Cable ties for harnesses — Part 002: Index of product standards*

EN 4057 (all parts), *Aerospace series — Cable ties for harnesses — Test methods*

MS 90387, *Tool, hand, adjustable for plastic and metal tie down straps* [1)]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 4056-001 apply.

1) Published by: DoD National (US) Mil. Department of Defense. http://www.defenselink.mil/

4 Required characteristics

4.1 Dimensions

See Figure 1 and Table 1.

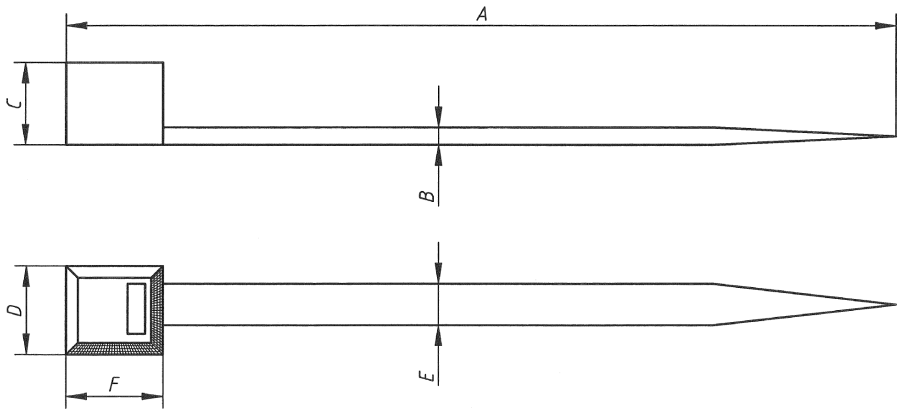

Figure 1 — Cable tie

Table 1 — Dimensions and mass

Size code	Recommended bundle diameter		Length of tie	Thickness of strap	Width of strap		Head dimensions			Loop tensile strength	Mass of 10 ties related to minimum length
			A	*B*	*E*		*F*	*D*	*C*		
	mm		mm	mm	mm		mm	mm	mm	N	g
	min.	max.	min.	max.	min.	max.	max.	max.	max.	min.	max.
A	4	35	140	1,4	3,2	3,6	5,9	6,3	4,7	230	8
B	8	56	215	1,5	4,5	4,9	7,4	8,4	6,2	380	20

4.2 Material

4.2.1 Temperature rating type

The ties shall be capable of use within the following temperature ranges:

Code H – 55 °C to 240 °C Non UV resistant

4.2.2 Flammability class

See Table 4 for requirements.

4.2.3 Colour

PEEK ties are normally supplied unpigmented which is light brown or beige in colour (colour code 9). When coloured ties are required, the code shall be as specified in EN 4056-001.

4.2.4 Burning behaviour

Materials for cable tie shall satisfy the following requirements when tested to EN 2825 and EN 2826.

4.2.4.1 Smoke density

The maximum specific optical smoke density (as specified in the test method) shall not exceed:

Dm = 200 (flaming mode);

Dm = 150 (non flaming mode).

4.2.4.2 Toxicity

The average concentration in parts per million (ppm) of the following gas components shall not exceed the following limits after a test duration of 4 min.

Gas Component	Limit of concentration ppm	
Hydrogen Fluoride	HF	100
Hydrogen Chloride	HCl	150
Hydrogen Cyanide	HCN	150
Sulfur Dioxide	SO_2	100
Hydrogen Sulphide	H_2S	100
Nitrous Gases	NO/NO_2	100
Carbon Monoxide	CO	1 000

Variant code

See Table 2.

Table 2 — Variant code

Type	Description
A	External serration
B	Internal serration

Straps with internal serration shall have a continues support at both sides of the serrations that shall not be less than the height of the serrations.

4.3 Application tool

Cable ties shall be applied using a tensioning tool as specified in MS 90387, verified in accordance with EN 4057-407 ensuring that the application force does not exceed the maximum values shown in Table 3.

Table 3 — Maximum recommended application force

Size code	Maximum application force / N
A	170
B	280

5 Tests and requirements

See Table 4 and EN 4056-001.

As peek is not a hydroscopic material the ties shall be conditioned at (23 ± 2) °C but at an uncontrolled humidity level.

Table 4

EN 4057-	Designation of the test	Requirement
201	Visual examination	There shall be no sharp or abrasive edges.
202	Examination of mass and dimensions	The mass and dimensions shall be in accordance with Table 1 of this standard.
301	Salt mist test	Not applicable.
302	Flammability	After removal of the burner from the specimen, any flame shall extinguish within 5 s. If there are no flaming droplets (or particles) during the test, and the flame extinguishes within 5 s, the specimen will be classified as Class 1. If there are flaming droplets (or particles) but all the flames extinguish within 5 s, the specimen will be classified as Class 2.
303	Resistance to fluids	All the specimens shall meet the minimum loop tensile strength as stated in Table 1 of this standard.
304	Loop tensile strength at maximum working temperature	All specimens shall meet at least 60 % of the minimum loop tensile strength as stated in Table 1 of this standard.
305	Colour fastness (applicable only to coloured ties)	The colour fastness of the specimen shall not be less than wool standard number 6.
306	Heat ageing test	The tensile strength shall not be lower than that specified in the appropriate product standard. The elongation at break of the aged, flat samples shall be not less than 75 % of the elongation at break of the unaged flat samples as defined in the product standard.
307	Resistance to ultraviolet radiation	Not applicable.
401	Loop tensile strength	All the specimens shall meet the minimum loop tensile strength as stated in Table 1 of this standard.
402	Life cycle	After the vibration test: There shall be no damage to the cable insulation when viewed with a 10 times magnification aid. The specimens shall be examined for cracks, breaking and/or release of the locking device during removal from the vibration test harness. All specimens shall meet the minimum loop tensile strength as stated in Table 1 of this standard.
404	Low temperature installation	All the specimens shall meet the minimum loop tensile strength as stated in Table 1 of this standard.
405	Compass safe distance	Not applicable.
406	Locking device retention (ties containing metal locking barbs only).	Not applicable.
407	Verification of application tool settings	Values as per Table 2.