



SLOVENSKI STANDARD
SIST EN 3675:2023

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Aeronavtika - Načrt vzorčenja za preskušanje sprejemljivosti aramidnih in ogljikovih vlaken ter tekstilne steklene filamentne preje

Aerospace series - Sampling plan for acceptance testing of aramid, carbon fibre and textile glass filament yarns

Luft- und Raumfahrt - Prüfplan für die Abnahmeprüfung von Aramid-, Kohlenstoff- und Textilglasfilamentgarnen

Série aérospatiale - Plan d'échantillonnage pour le contrôle de réception des fils continus d'aramide, de carbone et de verre textile

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English Version

Aerospace series - Sampling plan for acceptance testing of aramid, carbon fibre and textile glass filament yarns

Série aérospatiale - Plan d'échantillonnage pour le
contrôle de réception des fils continus d'aramide, de
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Abnahmeprüfung von Aramid-, Kohlenstoff- und
Textilglasfilamentgarnen

This European Standard was approved by CEN on 24 July 2022.

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

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European foreword

This document (EN 3675:2022) 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 document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, 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of an identical text or by endorsement, at the latest by June 2023 and conflicting national standards shall be withdrawn at the latest by June 2023.

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

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1 Scope

This document specifies the sampling plan for acceptance testing of aramid, carbon fibre and textile glass filament yarns in terms of sample size and rejection criteria.

This document serves as a basis for the corresponding technical specification. It covers the inspection by attributes. The inspection by measurements (variables) will be added in subsequent edition. It is also planned to extend its scope of application to reinforcing woven fabrics.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3951 (all parts), *Sampling procedures for inspection by variables*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Acceptance sampling plan

4.1 Sampling

Sampling shall be carried out in accordance with the sampling plan shown in Table 1. The testing procedures and the evaluation of results shall be specified in the relevant test standard.

The plan shown represents a sampling plan for reduced inspection by attributes in accordance with ISO 2859-1 (Table II-C) and is applicable to acceptance testing under normal conditions.

Special quality situations or particular quality requirements necessitate the application of sampling plans for normal (Table 2) or tightened inspection by attributes in accordance with ISO 2859-1 or also for inspection by variables in accordance with ISO 3951 (all parts).

Table 1 — Sampling plan for reduced inspection in accordance with ISO 2859-1, Table II-C

Delivery batch size (Spools)	Sample size (Spools)	Visually detectable nonconformities (Spools)		Measurable product characteristics (Spool values)		Laminate inspection Sample size (Spools)
		AQL 2,5		AQL 1,5		
N	n ₁	c ^a	d ^b	c ^a	d ^b	n ₂
2 to 25	2	0	1	0	1	2
26 to 50	3	0	1	0	1	2

Delivery batch size (Spools) N	Sample size (Spools) n ₁	Visually detectable nonconformities (Spools) AQL 2,5		Measurable product characteristics (Spool values) AQL 1,5		Laminate inspection Sample size (Spools) n ₂
		c ^a	d ^b	c ^a	d ^b	
51 to 90	5	0	2	0	1	2
91 to 150	8	0	2	0	2	2
151 to 280	13	1	3	0	2	2
281 to 500	20	1	4	1	3	2
501 to 1 200	32	2	5	1	4	2
1 201 to 3 200	50	3	6	2	5	2
3 201 to 10 000	80	5	8	3	6	4

^a c = acceptance number
^b d = rejection number

When normal inspection (see Table 2) is being carried out, reduced inspection to Table 1 may be only reverted to provided three consecutive batches (at least equal in size to the one previously rejected) submitted to normal inspection have been accepted.

Table 2 — Sampling plan for normal inspection

Delivery batch size (Spools) N	Sample size (Spools) n ₁	Visually detectable nonconformities (Spools) AQL 2,5		Measurable product characteristics (Spool values) AQL 1,5		Laminate inspection Sample size (Spools) n ₂
		c ^a	d ^b	c ^a	d ^b	
2 to 8	2	0	1	0	1	2
9 to 15	3	0	1	0	1	2
16 to 25	5	0	1	0	1	2
26 to 50	8	0	1	0	1	2
51 to 90	13	1	2	0	1	2
91 to 150	20	1	2	1	2	2
151 to 280	32	2	3	1	2	2
281 to 500	50	3	4	2	3	2
501 to 1 200	80	5	6	3	4	2
1 201 to 3 200	125	7	8	5	6	2
3 201 to 10 000	200	10	11	7	8	4

Delivery batch size (Spools)	Sample size (Spools)	Visually detectable nonconformities (Spools)		Measurable product characteristics (Spool values)		Laminate inspection Sample size (Spools)
N	n_1	AQL 2,5		AQL 1,5		n_2
		c^a	d^b	c^a	d^b	
^a c = acceptance number ^b d = rejection number						

4.2 Evaluation

4.2.1 Inspection of visually detectable nonconformities

The number of nonconforming spools in sample n_1 is compared to the acceptance and rejection numbers, c and d respectively, specified for visual nonconformities. The evaluation shall be as specified in Table 3.

4.2.2 Measurable product characteristics

The following applies to each characteristic:

The mean value \bar{x} of spool values in sample n_1 shall conform to the requirements specified for the mean value of the delivery batch in the relevant material standard.

The number of spool values in sample n_1 not conforming to the requirements specified in the relevant material standard is compared to the acceptance and rejection numbers, c and d respectively, specified for measurable product characteristics. The evaluation shall be as specified in Table 3. The individual value represents the arithmetic mean of all individual measurements carried out on one elementary unit. The individual values determined in this way for each elementary unit will then be used for the decision.

Table 3 — Acceptance criteria

Number of nonconforming units in the samples	Decision
Less than or equal to c	Consignment accepted
Larger than or equal to d	Consignment rejected
Larger than c and less than d	Consignment accepted, but switching over to normal inspection in accordance with ISO 2859-1 for the following consignment (Table 3)

4.3 Laminate inspection

For each measured characteristic, the mean value \bar{x} and all individual measurements in sample n_2 shall conform to the requirements specified in the relevant material standard. That means for laminate

inspection the individual measurement also gives the individual value to be used according to Table 1, Table 2 and Table 3.

4.4 Test report

The test report shall include the following information:

- reference to the present document;
- complete identification of the product tested;
- number of delivery or production batch or date;
- a survey of the tests and inspection performed, the test methods applied and the results obtained (Table 4);
- a definite statement of acceptance or rejection of the batch submitted and tested;
- details on change of inspection severity, if any.

Table 4 — Tests and test reports

Material designation							
	Mean value \bar{x}		Spools/Spool value			Inspection batch	
	Conforming to material standard requirements ^a		Total number	Conforming to material standard requirements ^b		Conforming to standard requirements ^c	
	yes	no		yes	no	a ^d	b ^e
Visual examination							
Measurable product characteristics							
— to standard.....							
— to standard.....							
— to standard.....							
— to standard.....							
— to standard.....							
Laminate inspections							
— to standard.....							
— to standard.....							
— to standard.....							

a Actual value to be entered in appropriate column.
b Number of spools or individual measurements to be entered in appropriate column.
c Mark by sign X in the appropriate column.
d a = without reservation
e b = switch to normal inspection

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Bibliography

EN 2962, *Aerospace series — Carbon fibre filament yarn — Technical specification*¹

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