



SLOVENSKI STANDARD
kSIST FprEN 16602-70-26:2014
01-februar-2014

Zagotavljanje varnih proizvodov v vesoljski tehniki - Stiskalno spajanje kontaktov visoko zanesljivih električnih konektorjev

Space product assurance - Crimping of high-reliability electrical connections

Raumfahrtproduktsicherung - Quetschen von hochzuverlässigen elektrischen Verbindungen

Assurance produit des projets spatiaux - Sertissage des connexions électriques à fiabilité élevée

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ICS:

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems
49.140	Vesoljski sistemi in operacije	Space systems and operations

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Space product assurance - Crimping of high-reliability electrical connections

Assurance produit des projets spatiaux - Sertissage des connexions électriques à fiabilité élevée

Raumfahrtproduktsicherung - Quetschen von hochzuverlässigen elektrischen Verbindungen

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/CLC/TC 5.

If this draft becomes a European Standard, CEN and CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Foreword

This document (FprEN 16602-70-26:2013) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN (Germany).

This document (FprEN 16602-70-26:2013) originates from ECSS-Q-ST-70-26C.

This document is currently submitted to the Unique Acceptance Procedure.

This document has been developed to cover specifically space systems and will therefore have precedence over any EN covering the same scope but with a wider domain of applicability (e.g. : aerospace).

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Scope

This Standard specifies:

- Requirements for the following crimping wire terminations intended for high reliability electrical connections for use on customer spacecraft and associated equipment operating under high vacuum, thermal cycling and launch vibration:
 - removable contacts, single wires
 - removable contacts, multiple wires
 - coaxial connectors, ferrules
 - lugs and splices.

NOTE These are the most common used crimping wire termination and are represented in Figure 1-1.

- The general conditions to be met for the approval of terminations other than the above mentioned ones.

NOTE Additional forms of crimps, not covered in this standard, are listed (not exhaustively) in the informative Annex A.

- Product assurance provisions for both the specific and the generic terminations mentioned above.
- Training and certification requirements for operators and inspectors (clause 5.5.2), additional to those specified in ECSS-Q-ST-20.

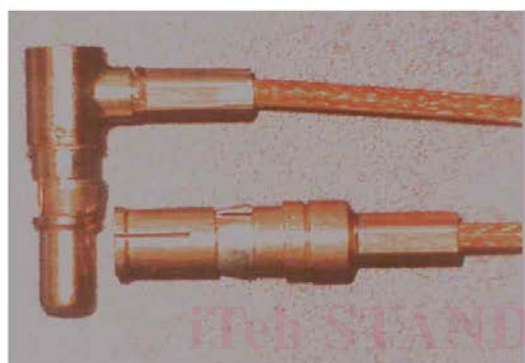
This standard may be tailored for the specific characteristics and constraints of a space project, in conformance with ECSS-S-ST-00.



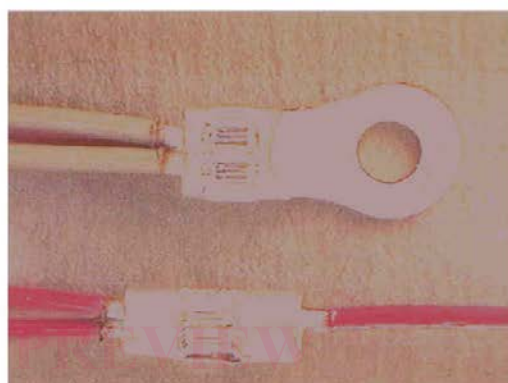
Removable co ntacts, single wires



Removable co ntacts, multiple wires



Coaxial connectors, ferrules



Lugs and splices

Figure 1-1: Specific interconnections in this Standard

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Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this ECSS Standard. For dated references, subsequent amendments to, or revisions of any of these publications do not apply. However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references the latest edition of the publication referred to applies.

EN reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01	ECSS system - Glossary of terms
EN 16602-10-09	ECSS-Q-ST-10-09	Space product assurance - Nonconformance control system
EN 16602-20	ECSS-Q-ST-20	Space product assurance - Quality assurance
EN 16602-60	ECSS-Q-ST-60	Space product assurance - Electrical, electronic and electromechanical (EEE) components
EN 16602-70	ECSS-Q-ST-70	Space product assurance - Materials, mechanical parts and processes
EN 16602-70-08	ECSS-Q-ST-70-08	Space product assurance - Manual soldering of high-reliability electrical connections
EN 16602-70-38	ECSS-Q-ST-70-38	Space product assurance - High-reliability soldering for surface-mount and mixed technology
EN 16602-70-71	ECSS-Q-ST-70-71	Space product assurance - Data for selection of space materials and processes
	MIL-DTL-22520G	Crimping tools, terminal hard, wire termination, general specification for
	NASA-STD-8739.4/CHG3 09/05/2006	Crimping, Interconnection cables, harnesses and wiring
	SAE-AS-7928A 02/01/2008	Terminals, lugs, splices, conductor, crimp style, copper, general specification for
	SAE-AS-81824 08/01/1998	Splices, electric, permanent, crimp style, copper, insulated, environment resistant

Terms, definitions and abbreviated terms

3.1 Terms defined in other standards

For the purpose of this Standard, the terms and definitions from ECSS-S-ST-00-01 and ECSS-Q-ST-70-38 apply, in particular for the following terms:

electrical connections

process identification document (PID)

NOTE The DRD for the PID is given in ECSS-Q-ST-70-38.

3.2 Terms specific to the present standard

<https://standards.iteh.ai/catalog/standards/sist-en-16602-70-26-2015>

3.2.1 adjustable indenter tool
crimping tool which has an adjustable part (setting variable) that indents or compresses the conductor barrel or ferrule

3.2.2 crimping tool

mechanical tool used for permanently attaching a wire termination device to a conductor by pressure deformation or by reshaping the barrel around the conductor to establish good electrical and mechanical contact

3.2.3 ferrule

short metal tube used to make crimp connections to the outer conductor of shielded or coaxial cables

3.2.4 lug

metallic tube with drilled flange projection for fixing to threaded terminal

3.2.5 splice

device for joining two or more conductors to each other

3.2.6 terminal

metallic device that is used for making electrical connections

3.3 Abbreviated terms

For the purpose of this Standard, the abbreviated terms from ECSS-S-ST-00-01 and the following apply:

Abbreviation	Meaning
AWG	American wire gauge
QA	quality assurance
PID	process identification document
RFA	request for approval
RH	relative humidity

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4 Principles

This Standard is structured such that the necessary level of quality is achieved and consistently maintained, and high reliability of the end product assured. The following principles are covered:

- Preparatory conditions determine the availability of facilities, tools and equipment, along with obligatory hazard and health precautions.
- Specific interconnections, as identified in the Scope above, are then covered in detail including
 - Material selection, and
 - Process identification and documentation.
- New crimp configurations beyond those identified above.
- Test methods and acceptance criteria for both specific and generic types of interconnections are specified.
- Quality assurance measures for both the operator and the inspector are prescribed
 - Training and certification of personnel,
 - Workmanship standards and acceptance criteria,
 - Inspection criteria and sequence,
 - Calibration of tools and equipment,
 - Records from material intake through delivery of the end product, including the handling of deviations by RFA or NCR.

It is important to perform the work taking into account health and safety regulations, and in particular the national standards on this subject.