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**NATIONAL STANDARD OF THE
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Design requirements for space explosive systems and devices

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" Drafting.

This document uses the redrafting law to modify and adopt ISO 26871.2012 "Space System Blasting Systems and Devices".

Compared with ISO 26871.2012, this document has many structural adjustments. Appendix A lists the differences between this document and ISO 26871.2012.

A list of chapter number comparisons.

Compared with ISO 26871.2012, there are technical differences between this document, and the clauses involved in these differences have been

The vertical single line (|) is marked, and a list of the corresponding technical differences and their reasons is given in Appendix B.

This document has also made the following editorial changes.

---Modify the standard name to "Design Requirements for Aerospace Pyrotechnic System and Device";

--- Deleted Appendix A~Appendix E of ISO 26871.2012;

---The reference to ISO 26871.2012 is deleted.

Introduction

The aerospace pyrotechnic system is an important part of the launch vehicle and spacecraft. The pyrotechnic system can complete a predetermined function or a

The group reservation function is generally composed of three parts. the ignition system, the explosion sequence and the terminal device. When the ignition system receives the work order, it generates a

After the beam ignition pulse is applied to the first pyrotechnic device of the explosion sequence, it will excite the explosive pyrotechnic device, cause a series of effects of the explosion sequence, and finally generate an explosion

The energy output drives the work of the terminal device and completes the function of the predetermined task. Among them, work instructions are presented in the form of electrical

energy, light energy or mechanical energy.

Common aerospace pyrotechnic devices include launcher ignition, engine ignition, interstage separation, payload separation, mechanism release, valve opening

Open, battery activation, cable cutting, engine safety self-destruction, solar flap opening, propulsion system opening and closing, etc. The pyrotechnic device is an important one

Sexually acting products have undetectable and untestable functions. Whether they can work normally and reliably is directly related to the success or failure of the flight mission. Internationally, more

This time there was a failure case of flight mission failure due to the failure of the pyrotechnic device. Therefore, standardize the design and production system of pyrotechnic systems and devices.

Relevant requirements for the entire life cycle of manufacturing, test verification, storage, and use are very important to ensure product quality and ensure mission success.

ISO formulated ISO 26871 "Spacesystems-Explosivesystems and devices" in.2012 to regulate space transportation

The requirements for pyrotechnic devices used on rockets, satellites, and aircraft involve design, analysis, verification, manufacturing, operation, and safety.

One mentions the importance of pyrotechnics in ensuring the success of space launch missions in order to provide reliable quality pyrotechnics for scientific research and production departments.

Since pyrotechnic systems and devices are key products that affect the success or failure of space launch missions, ISO 26871 "Spacesystems-Explo-

sivesystems and devices" is transformed into my country's national standards in order to facilitate my country's participation in aerospace activities related enterprises or physical machines

In order to ensure the reliability and safety of the pyrotechnic system and equipment, the

The successful space launch has laid a solid foundation.

Aerospace pyrotechnic system and device design requirements

1 Scope

This document specifies the pyrotechnic system requirements, pyrotechnic device requirements, and product guarantees for pyrotechnic systems and devices used in space launch vehicles and spacecraft

Require.

This document is applicable to the design, manufacturing, test verification, storage and use of pyrotechnic systems and devices for space launch vehicles and spacecraft.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

GB 190 Dangerous Goods Packaging Mark

GB 2702 Explosives safe

GB/T 19000 Quality Management System Foundation and Terminology

GB/T 32455 Terminology for launch vehicles

3 Terms and definitions

The following terms and definitions defined in GB/T 32455 and GB/T 19000 apply to this document.

3.1

Explosivesystem

When the ignition system receives the work order, it generates a bunch of ignition pulses, which are applied to the first pyrotechnic device of the explosion sequence to trigger the explosion fire

The work product causes a series of effects in the explosion sequence, and finally generates the explosion energy output, drives the terminal device to work, and completes the function of the predetermined task.

Note. The aerospace pyrotechnics system consists of three parts. ignition system, explosion sequence and terminal device. Among them, work instructions are presented in the form of electrical energy, light energy or mechanical energy.

The connection relationship of the pyrotechnic system is shown in Figure 1.

Figure 1 Connection diagram of pyrotechnic system

3.2

Firingsystem

The control system inputs power supply, instructions and control, and these input