

ISO 26871:2020 (E)

Space systems — Explosive systems and devices

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms, definitions, abbreviated terms and symbols
3.1	Terms and definitions
3.2	Abbreviated terms
3.3	Symbols
4	Requirements
4.1	General
4.1.1	Background information
4.1.2	Overview
4.1.3	Applicability
4.1.4	Properties
4.2	Design
4.2.1	General
4.2.2	Debris requirements
4.2.3	Reliability and confidence levels
4.2.4	Performance
4.2.5	Wanted and unwanted response
4.2.6	Dimensioning
4.2.6.1	Strength
4.2.6.2	Integrity
4.2.6.3	Explosive charge sizing
4.2.6.4	Motorization
4.2.6.5	Sealing
4.3	Mission
4.4	Functionality
4.5	Safety
4.5.1	General
4.5.2	Prevention of unintentional function
4.5.2.1	General
4.5.2.2	Safe and arm device pre-arm function
4.5.2.3	Select function
4.5.2.4	Arm function
4.5.2.5	Fire function
4.6	Survival and operational conditions
4.7	Interface requirements
4.7.1	General
4.7.2	Functional
4.7.3	Internal
4.7.4	External
4.8	Mechanical, electrical, and thermal requirements
4.8.1	Mechanical
4.8.1.1	Inertial properties
4.8.1.2	Main fixings
4.8.1.3	Modularity of the system
4.8.1.4	Avoidance of confusion (only applicable for launch segment)
4.8.1.5	Accessibility
4.8.1.6	Mechanical input to ICD

- 4.8.2 Electrical
 - 4.8.2.1 General
 - 4.8.2.2 Circuit independence
 - 4.8.2.3 Power system overload
 - 4.8.2.4 Electromagnetic compatibility (EMC)
 - 4.8.2.5 Electrostatic discharge (ESD)
 - 4.8.2.6 Voltage drop
 - 4.8.2.7 Electrical bonding
 - 4.8.2.8 Isolation
 - 4.8.2.9 Insulation
 - 4.8.2.10 Leakage
 - 4.8.2.11 Sensitivity to RFI
 - 4.8.2.12 Magnetic cleanliness
 - 4.8.2.13 Lightning
- 4.8.3 Thermal
 - 4.8.3.1 Sensitivity
 - 4.8.3.2 Heat generation
 - 4.8.3.3 Thermal input to ICD
- 4.8.4 Status check
 - 4.8.4.1 General
 - 4.8.4.2 Initiator status
- 4.9 Materials
- 4.10 Production lot
- 4.11 Non-explosive components and equipment
 - 4.11.1 Connectors
 - 4.11.2 Wiring
 - 4.11.3 Shielding
 - 4.11.4 Faraday cap
 - 4.11.5 Safety cap
 - 4.11.6 Power
 - 4.11.7 Arm plug receptacle
 - 4.11.8 Safe plug
 - 4.11.9 Arm plug
 - 4.11.10 Test plug
 - 4.11.11 Safe and arm device
 - 4.11.11.1 General
 - 4.11.11.2 Electrically actuated
 - 4.11.11.3 Mechanically actuated
 - 4.11.11.4 Safing
 - 4.11.11.5 Arming
 - 4.11.11.6 Status indicators
 - 4.11.12 Initiator harness connector
 - 4.11.13 Initiator test substitute
 - 4.11.6 Power
 - 4.11.7 Arm plug receptacle
 - 4.11.8 Safe plug
 - 4.11.9 Arm plug
 - 4.11.10 Test plug
 - 4.11.11 Safe and arm device
 - 4.11.11.1 General
 - 4.11.11.2 Electrically actuated
 - 4.11.11.3 Mechanically actuated
 - 4.11.11.4 Safing
 - 4.11.11.5 Arming
 - 4.11.11.6 Status indicators
 - 4.11.12 Initiator harness connector
 - 4.11.13 Initiator test substitute
- 4.12 Explosive components
 - 4.12.1 General
 - 4.12.1.1 Applicability
 - 4.12.1.2 Identification
 - 4.12.1.3 Contamination
 - 4.12.1.4 After functioning
 - 4.12.2 Initiators, cartridges, detonators and packaged charges
 - 4.12.2.1 General
 - 4.12.2.2 1 W/1 A no-fire initiators
 - 4.12.2.3 High-voltage initiators
 - 4.12.2.4 Laser initiators
 - 4.12.2.5 Mechanical initiators
 - 4.12.2.6 Packaged charges
 - 4.12.3 Through-Bulkhead initiators
 - 4.12.4 Integral initiator connectors
 - 4.12.4.1 General
 - 4.12.4.2 Electrical initiator connector
 - 4.12.4.3 Laser initiator connector
 - 4.12.5 Transfer devices
 - 4.12.5.1 General
 - 4.12.5.2 Transfer line assemblies

- 4.12.6 Safe and arm devices containing explosive
- 4.12.7 Gas generators
- 4.12.8 Shaped charges
- 4.12.9 Expanding tube separation system
- 4.12.10 Distribution boxes
- 4.12.11 Explosive delays
- 4.13 Explosively actuated devices
- 4.13.1 General
- 4.13.2 Separation nuts and separation bolts
- 4.13.3 Pullers
- 4.13.4 Pushers (Thrusters)
- 4.13.5 Cutters
- 4.13.6 Pyro-valves
- 4.14 Items external to the flight equipment
- 4.14.1 GSE
- 4.14.2 Test equipment
- 4.14.3 Launch site
- 4.15 Verification
- 4.15.1 General
- 4.15.2 Inspection
- 4.15.3 Tests
- 4.15.3.1 Test specification
- 4.15.3.2 Test procedures
- 4.15.3.3 Test report
- 4.15.3.4 Essential confirmation
- 4.15.3.5 Routing tests
- 4.15.3.6 End-to-end tests
- 4.15.3.7 Safety tests
- 4.15.3.8 Lifetime demonstration
- 4.15.3.9 Reliability tests
- 4.15.4 Qualification and lot acceptance
- 4.15.4.1 General
- 4.15.4.2 Qualification tests
- 4.15.4.2.1 General
- 4.15.4.2.2 Re-qualification
- 4.15.4.2.3 Delta-qualification
- 4.15.4.3 Acceptance tests
- 4.16 Transport, facilities, handling and storage
- 4.16.1 General
- 4.16.2 Transport
- 4.16.3 Facilities
- 4.16.4 Handling and storage
- 4.17 In-service
- 4.17.1 Information feedback
- 4.17.2 Launch site procedures
- 4.17.3 Monitoring
- 4.18 Product assurance
- 4.18.1 General
- 4.18.2 Dependability
- 4.18.3 Assembly integration and tests
- 4.19 Deliverables

Annex A (normative) Loads and factors of safety relationship

Annex B (normative) Factors of safety

Annex C (informative) Explosive component colour code

Annex D (informative) Component qualification test levels to be customized to the space system considered

Annex E (informative) Product user manual (PUM/UM) — DRD

- E.1 DRD identification
- E.1.1 Purpose and objective

- E.2** **Expected response**
- E.2.1** **Scope and content**
- E.2.2** **Special remarks**

Annex F (informative) **Safety data sheet**

Page count: 77