

### Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Abbreviated terms
5	General requirements
5.1	General
5.2	Design requirements
5.2.1	Loads, pressures and environments
5.2.2	Strength
5.2.3	Stiffness
5.2.4	Thermal effects
5.2.5	Stress analysis
5.2.6	Fatigue analysis/damage tolerance (safe-life) analysis
5.2.7	Analysis of survivability against space debris and meteoroid impacts
5.2.8	Avoidance of accidental break-up caused by an on-board source of energy
5.3	Material requirements
5.3.1	Metallic materials
5.3.1.1	General
5.3.1.2	Metallic material selection
5.3.1.3	Metallic material evaluation
5.3.1.4	Metallic material characterization
5.3.2	Non-metallic material requirements
5.4	Fabrication and process requirements
5.5	Contamination control and cleanliness requirements
5.5.1	General contamination control requirements
5.5.2	Design considerations
5.6	Quality assurance programme requirements
5.6.1	General
5.6.2	QA programme inspection plan requirements
5.6.3	QA inspection technique requirements
5.6.4	QA inspection data requirements
5.6.5	Acceptance test requirements
5.6.5.1	General
5.6.5.2	Proof pressure test requirements
5.6.5.3	Leak test requirements
5.7	Qualification test requirements
5.8	Operation and maintenance requirements
5.8.1	Operating procedure
5.8.2	Safe operating limits
5.8.3	Inspection and maintenance
5.8.4	Repair and refurbishment
5.8.5	Storage
5.8.6	Documentation
5.8.7	Reactivation
5.8.8	Recertification
5.8.8.1	Requirements
5.8.8.2	Test after limited modification and repair

<b>6</b>	<b>General pressurized-system requirements</b>
6.1	System analysis requirements
6.1.1	System pressure analysis
6.1.2	System functional analysis
6.1.3	System hazard analysis
6.2	Design features
6.2.1	Assembly
6.2.2	Routing
6.2.3	Separation
6.2.4	Shielding
6.2.5	Grounding
6.2.6	Handling
6.2.7	Special tools
6.2.8	Test points
6.2.9	Common-plug test connectors
6.2.10	Individual test connectors
6.2.11	Threaded parts
6.2.12	Friction-type locking devices
6.2.13	Internally threaded bosses
6.2.14	Retainer or snap rings
6.2.15	Snubbers
6.3	Component selection
6.3.1	Connections
6.3.2	Fluid temperature
6.3.3	Actuator pressure rating
6.3.4	Pressure rating
6.3.5	Pump selection
6.3.6	Fracture and leakage
6.3.7	Oxygen system components
6.3.8	Pressure regulators
6.3.9	Manual valves and regulators
6.4	Design pressures
6.4.1	Overpressure or underpressure
6.4.2	Back-pressure
6.4.3	Pressure isolation
6.4.4	Gas/fluid separation
6.4.5	Compressed-gas bleeding
6.5	Mechanical-environment design
6.5.1	Acceleration and shock loads
6.5.2	Torque loads
6.5.3	Vibration loads
6.6	Controls
6.6.1	Interlocks
6.6.2	Multiple safety-critical functions
6.6.3	Critical flows and pressures
6.7	Protection
6.8	Electrical
6.8.1	Hazardous atmospheres
6.8.2	Radio frequency energy
6.8.3	Grounding
6.8.4	Solenoids
6.8.5	Electric motor-driven pumps
6.9	Pressure relief
6.9.1	General requirements
6.9.2	Flow capacity
6.9.3	Sizing
6.9.4	Unmanned flight vehicle servicing
6.9.5	Automatic relief
6.9.5.1	Low safety factor
6.9.5.2	Confinement
6.9.6	Venting
6.9.7	Relief valve isolation
6.9.8	Negative-pressure protection

- 6.9.8.1 Testing
- 6.9.8.2 Storage and transportation
- 6.9.9 Reservoir pressure relief
- 6.9.10 Air pressure control
- 6.10 Control devices
- 6.10.1 Directional control valves
- 6.10.2 Overtravel
- 6.10.3 Pressure and volume control stops
- 6.10.4 Manually operated levers
- 6.11 Accumulators
- 6.11.1 Accumulator design
- 6.11.2 Accumulator gas pressure gauges
- 6.11.3 Accumulator identification
- 6.12 Flexible hose
- 6.12.1 Installation
- 6.12.2 Restraining devices
- 6.12.3 Flexible hose stress
- 6.12.4 Temporary installations

**7 Specific pressure system requirements**

- 7.1 General
- 7.2 Hydraulic systems
- 7.2.1 Hydraulic system components
- 7.2.1.1 Component selection and safety test
- 7.2.1.2 Cycling
- 7.2.1.3 Actuators
- 7.2.1.4 Shutoff valves
- 7.2.1.5 Variable response
- 7.2.1.6 Fire-resistant fluids
- 7.2.1.7 Accumulators
- 7.2.1.8 Adjustable orifices
- 7.2.1.9 Lock valves
- 7.2.1.10 Hydraulic reservoir
- 7.2.2 Pressure limit
- 7.2.3 Cavitations
- 7.2.3.1 Inlet pressure
- 7.2.3.2 Fluid column
- 7.2.4 Hydraulic lockup
- 7.2.4.1 Emergency disengagement
- 7.2.4.2 Emergency bypass
- 7.2.5 Pressure relief
- 7.2.5.1 Pump pressure relief
- 7.2.5.2 Thermal pressure relief
- 7.2.5.3 Location
- 7.3 Pneumatic-system requirements
- 7.3.1 Pneumatic-system components
- 7.3.1.1 Component integrity
- 7.3.1.2 Configuration
- 7.3.1.3 Compressors
- 7.3.1.4 Actuators
- 7.3.1.5 Adjustable orifice restrictors
- 7.3.2 Controls

**Annex A (informative) Recommended minimum safety factors**

**Annex B (informative) Open line force calculation factors**

**Page count: 27**