

Aerospace — Fluid systems — Metal hose assemblies

ICS 49.080

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National foreword

This British Standard reproduces verbatim ISO 7314:2002 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee ACE/69, Aerospace hydraulic fluid systems and components, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 7314 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

This third edition cancels and replaces the second edition (ISO 7314:1994), which has been technically revised.

Aerospace — Fluid systems — Metal hose assemblies

1 Scope

This International Standard gives specifications for medium pressure, high temperature, flexible metal hose assemblies suitable for continuous operation in liquid and pneumatic systems from $-55\text{ }^{\circ}\text{C}$ to $+400\text{ }^{\circ}\text{C}$, with short duration excursions up to $+650\text{ }^{\circ}\text{C}$.

The hose assemblies covered by this International Standard are intended for use in aerospace applications for conveying air and other gases in pneumatic systems, bleed air systems, heating and ventilating systems and instrument air systems when used at pressures and temperatures within the limits laid down in Tables 2 and 3. This International Standard does not cover flow velocity in such assemblies exceeding 54 m/s; higher velocities require special vibration-dampening devices.

Hose assemblies supplied to the specifications laid down in this International Standard may be of two types:

- Type 1: Convolute inner tube – welded, of moderate mass and moderate flexibility.
- Type 2: Convolute inner tube – seamless or butt-welded and redrawn, of low mass and high flexibility.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8625-1:1993, *Aerospace — Fluid systems — Vocabulary — Part 1: General terms and definitions related to pressure*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 8625-1 apply.

4 Requirements

4.1 Qualification

Any hose assembly supplied to the specifications laid down in this International Standard shall be a product that, concerning hose construction and end-fitting attachment method, is identical to specimens that have been tested and that have passed the qualification tests specified in clause 5.

Qualified hose assemblies of type 2 construction may be automatically substituted for type 1 hoses, but type 1 hoses may not be substituted for type 2 hoses unless customer approval is given.

4.2 Materials

The hose assembly materials shall be uniform in quality, free from defects and suitable for use in continuous ambient and/or fluid temperatures ranging from $-55\text{ }^{\circ}\text{C}$ to $+400\text{ }^{\circ}\text{C}$ with short fluid temperature excursions up to $650\text{ }^{\circ}\text{C}$. The materials shall be consistent with good manufacturing practices and shall conform to the applicable specifications and the requirements specified in this International Standard.

4.3 Design and construction

4.3.1 General

The hose assembly shall consist of a convoluted, stabilized, pressure-carrying tube, in corrosion-resistant steel, suitable for the intended use, and uniform in size and wall thickness. The hose assembly shall be reinforced with stabilized corrosion-resistant steel braided wire and shall have stabilized corrosion-resistant steel end fittings and nuts. End fittings shall be attached to the hose by welding. The end-fitting outlet design shall mate with applicable end fittings.

4.3.2 End fittings

The hose-to-fitting joint shall be welded in a suitable manner in order to meet the requirements specified in this International Standard. It is recommended that fitting joints be kept to a minimum so as to reduce potential leakage paths. The mass of type 2 fittings shall not exceed the values given in Table 1. Type 1 fitting masses shall be as given on the approved drawing.

Table 1 — Masses for type 2 hose assemblies with standard 37° or 24° fittings

Hose nominal size DN	Maximum masses			
	Hose g/cm	Standard end fittings		
		g		
		Straight	45° elbow	90° elbow
05	1,5	20	20	20
06	2	23	23	23
08	2,5	27	29	29
10	3	32	36	36
12	4,2	55	59	64
16	5,3	82	91	100
20	6,5	163	177	186
25	9	218	259	291
32	12	358	413	449
40	19	486	507	552
50	24	768	810	845
63	35	—	—	—

4.3.3 Hose

4.3.3.1 Inner tube construction

In the case of type 1 hoses, the inner tube shall be an annular or helical, convoluted flexible tube made from welded, stabilized austenitic stainless steel.