

International Standard



6773

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Aerospace fluid systems — Thermal shock testing of piping and fittings

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Foreword

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It has been approved by the member bodies of the following countries :

Austria	France	South Africa, Rep. of
Belgium	Germany, F.R.	Spain
Canada	Ireland	Sweden
Chile	Italy	United Kingdom
China	Japan	USA
Czechoslovakia	Netherlands	USSR
Egypt, Arab Rep. of	Romania	

No member body expressed disapproval of the document.

Aerospace fluid systems — Thermal shock testing of piping and fittings

1 Scope and field of application

This International Standard provides an environmental test method for thermal shock testing of fluid system piping and fittings, excluding hose and hose assemblies.

2 Reference

ISO 6771, *Aerospace fluid systems and components — Pressure and temperature classifications*.

3 Required characteristics

The test assemblies shall not leak or burst during temperature and pressure cycling procedures described in clause 3.

4 Method of test

4.1 Test apparatus

The test assemblies shall be mounted in a test fixture similar to that in the figure capable of providing the required fluid and ambient temperatures and system pressures for the specified system classification.

4.2 Test fluid

The test fluid shall be system fluid or a hydraulic fluid which is compatible with the item being tested and the specified system pressure and temperature.

4.3 Hot test chamber testing

The test assemblies shall be mounted in a temperature chamber, connected to a pressure source and filled with the specified test fluid. The assemblies shall then be pressurized to the nominal system operating pressure and the temperature in the test chamber raised to the maximum required for the system. The temperature shall be held for a minimum of 2 h. At the end of this period, while still at temperature, the hot test fluid shall be released and replaced within 20 s with test fluid at the minimum specified temperature. Within an additional 20 s, the fluid pressure shall be raised to proof pressure and this pressure maintained for 1 min and then released for an additional 1 min. The assemblies shall be under continuous observation during the two one-minute pressurization periods to determine any leakage.

4.4 Cold test chamber testing

Following a cooling period to room temperature, the nominal system pressure is to be re-applied and the chamber temperature lowered to the minimum specified. This temperature is to be held for a minimum of 2 h. At the end of this period while still at low temperature, the cold fluid shall be released and replaced with test fluid at the maximum system temperature within 20 s. Within an additional 20 s, the pressure shall be raised to the proof pressure specified for the system, and this pressure maintained for 1 min. The specimens shall be closely observed to determine any leakage.

4.5 Test schedule

The procedures described in 4.3 and 4.4 above shall be repeated in sequence three times to complete the requirements of the thermal shock test.