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## Automatic steam traps — Production and performance characteristic tests

*Purgeurs automatiques de vapeur d'eau — Essais de production et  
essais des caractéristiques de fonctionnement*





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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 153, *Valves*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 69, *Industrial valves*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition cancels and replaces ISO 6948:1981, ISO 7841:1988 and ISO 7842:1988, which have been technically revised.

The main changes are as follows:

- merging of ISO 6948:1981, ISO 7841:1988 and ISO 7842:1988;
- update of the technical content according to state-of-the-art;
- addition of the terminological entry on subcooling (3.2);
- addition of a data sheet for test methods A and B on steam trap discharge capacity in A.3.3 and in A.4.3;
- addition of a computation formula [Formula (B.4)];
- addition of a data sheet for test methods A and B on steam loss test in B.3.4 and B.4.4.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Testing of steam traps provides conformance of product performance to the intended function. This document addresses the requirements for production testing and performance testing of steam traps. Production test ensures the shell integrity to the maximum working pressure while the performance test ensures the functional requirement of steam traps. Performance test should be considered as type test.

Testing is the most reliable method to validate a product including design, material selection and manufacturing processes. It may also serve as a guide for steam traps selection. It can allow the users to compare different types of steam traps, designs and brands.

Currently the test requirements are mostly driven by the manufacturer or the users and each may have their own specification. This document will create common understanding on the qualifications, and end-user total cost-of-ownership by eliminating unintentional design flaws and planned obsolescence.

Ultimately, this document will improve performance and safety in the plants by enabling any customer to specify durable type-tested industrial valves.

# Automatic steam traps — Production and performance characteristic tests

## 1 Scope

This document specifies the production and performance relevant test requirements for automatic steam traps used for condensate removal/recovery services for optimized utilization of energy, in refinery, power generation or other general applications where steam is used as a medium of heat transfer.

The tests can be classified as production tests and performance characteristic tests and can be conducted to ensure the correct functioning of a steam trap or to evaluate the performance of a particular design. This document specifies the tests performed relative to each one of these two categories and briefly describes the corresponding test methods.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6553, *Automatic steam traps — Marking*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1

#### **production test**

tests carried out by the manufacturer to confirm that each automatic steam trap functions correctly

Note 1 to entry: These tests may be witnessed by the purchaser or his representative. In this case, these tests are referred to as acceptance tests.

### 3.2

#### **subcooling**

temperature-related phenomenon which is the difference between the steam saturation temperature to the actual temperature of steam/condensate either at steam trap inlet or exit

Note 1 to entry: This may be the accountable parameter in some of the steam trap type like thermostatic steam traps.

Note 2 to entry: The water with a temperature value below the saturation temperature is called the subcooled condensate. But also, the saturation temperature always corresponds to the pressure at which the system is operating.