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Gas cylinders — Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning

Bouteilles à gaz — Raccords de sortie de robinets de bouteilles à gaz et mélanges de gaz — Choix et dimensionnement

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Foreword

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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 58 *Gas cylinders*, Subcommittee SC 2 *Cylinder fittings*.

This fourth edition cancels and replaces the third edition (ISO 5145:2014), which has been technically revised.

This edition includes the following significant changes with respect to the previous edition:

— reference to ISO 14456 has been added;

— former Annex A on gas groups and FTSC codes has been removed.

Introduction

At the beginning of the 1960s, the members of ISO/TC 58/SC 2 were charged with the task of drafting an International Standard on gas cylinder valve outlets.

It soon became obvious that millions of different types of valve outlets are in use and the various countries concerned were not ready to give up their own systems. It was, therefore, only possible to draw up a list of the existing provisions, either standardized or in use, which was published as ISO/TR 7470. The number and variety of such provisions give an idea of the complexity and scope of the task.

Towards the end of the 1970s, ISO/TC 58/SC 2 realized that the task at hand could only be achieved by adopting a long-term solution; this was to create an ideal system of valve outlets which would not be interchangeable with the existing systems. This system would be based on the four fundamental criteria of safety, simplicity, compactness, and tightness.

Two key actions were then undertaken in parallel:

— a classification and grouping of gases and gas mixtures;

— a practical definition of an original and non-interchangeable connection system.

This document represents a synthesis of these two actions. It is a practical guide for the selection of cylinder valve outlets for gases and gas mixtures. In view of the fact that no country seemed ready to give up their national standards and to adopt an International Standard specifying the dimensions of gas cylinder valve outlets, it was agreed that this document need not be complied with where a national standard predates it.

This document presents a logical system for determining valve outlets for gas cylinders for all gases or gas mixtures. It is of special interest for those countries that have no national standards or regulations. Its provisions can be called for in the future in cases where a new gas or gas mixture is developed industrially.

The main purpose in standardizing valve outlets is to prevent the interconnection of non-compatible gases. The user is cautioned to ensure that a particular outlet connection when used is compatible with any other connections or gases that might be connected to that outlet. Because of the multiplicity of connections in use and the existence of many national standards, this concern cannot be overstated.

This document thus represents a basis for international agreement in the more or less remote future.

Gas cylinders — Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning

1 Scope

This document establishes practical criteria for determining valve outlet connections for gas cylinders.

It applies to the selection of gas cylinder valve outlet connections and specifies the dimensions for a number of them.

This document is not applicable to connections used for cryogenic gas withdrawal or gases for breathing equipment, which are the subjects of other International Standards.

NOTE Other safeguard provisions like labelling or colour coding are not affected by this document.

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 10156, *Gas cylinders — Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*

ISO 10298, *Gas cylinders — Gases and gas mixtures — Determination of toxicity for the selection of cylinder valve outlets*

ISO 13338, *Gas cylinders — Gases and gas mixtures — Determination of tissue corrosiveness for the selection of cylinder valve outlets*

ISO 14456, *Gas cylinders — Gas properties and associated classification (FTSC) codes*

3 Terms and definitions

No terms and definitions are listed in this document.

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 Principle of the determination of valve outlets

4.1 Basic principle

ISO 14456 establishes a method of allocating to any gas or gas mixtures contained in cylinders a four-digit code (FTSC). This numerical code categorizes the gas or gas mixture in terms of its physical-chemical properties and/or flammability, toxicity, state of the gas (compressed gas and pressure rating, liquefied, etc.), and corrosiveness, as specified in ISO 14456. FTSC is the abbreviation of these properties.