
**Gas welding equipment — Quick-
action couplings with shut-off valves
for welding, cutting and allied
processes**

*Matériel de soudage aux gaz — Raccords rapides à obturation pour
soudage, coupage et techniques connexes*

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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 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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

This fourth edition cancels and replaces the third edition (ISO 7289:2010), which has been technically revised. The main changes compared to the previous edition are as follows:

- a) normative references have been updated;
- b) [Subclause 6.2](#) has been updated;
- c) in [6.5](#), requirements for coated material have been added;
- d) in [8.1](#), accuracy of pressure and flow measurement have been added;
- e) old Subclause 8.3 has been updated and incorporated in [9.1](#);
- f) [Subclause 9.4](#) has been updated;
- g) [Clause 10](#) has been updated.

Any feedback, question or request for official interpretation related to any aspect of this document should be directed to the Secretariat of ISO/TC 44/SC 8 via your national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. Official interpretations, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

This corrected version of ISO 7289:2018 incorporates the following correction:

- representation of the dimension of diameter B in [Figure 1](#) has been corrected to keep the full interchangeability and standard dimensions in line with the previous edition (ISO 7289:2010).

Introduction

Quick-action couplings with shut-off valves are used in equipment for gas welding, cutting and allied processes to connect the hoses used between the regulator and the torch, either to one another or to the regulators and the torches themselves.

These couplings are fitted with shut-off devices that interrupt the gas flow when the two elements are disconnected, so that coupling and uncoupling operations can be performed manually while the equipment is under pressure.

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Gas welding equipment — Quick-action couplings with shut-off valves for welding, cutting and allied processes

1 Scope

This document defines the specifications and the type tests for quick-action couplings with shut-off valves. It applies to quick-action couplings used between the regulator and the torch in equipment for gas welding, cutting and allied processes.

This document applies to cases where these couplings are used with hoses in accordance with ISO 3821 or threaded unions in accordance with ISO/TR 28821.

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 5175-1:2017, *Gas welding equipment — Safety devices — Part 1: Devices incorporating a flame (flashback) arrestor*

ISO 6150, *Pneumatic fluid power — Cylindrical quick-action couplings for maximum working pressures of 10 bar, 16 bar and 25 bar (1 MPa, 1,6 MPa, and 2,5 MPa) — Plug connecting dimensions, specifications, application guidelines and testing*

ISO 9090, *Gas tightness of equipment for gas welding and allied processes*

ISO 9539, *Gas welding equipment — Materials for equipment used in gas welding, cutting and allied processes*

ISO 15296, *Gas welding equipment — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15296 and the following apply.

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

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

3.1

female element

part of the quick-action coupling which is fitted with an automatic shut-off system that prevents internal gas leakage in the uncoupled mode

3.2

male element

part of the quick-action coupling which is intended to couple into the *female element* (3.1) (see [Figure 1](#))

4 Types of coupling

This document deals with three types of quick-action coupling with shut-off valves, according to the gases for which they are intended.

These three types are the following:

- a) type O – oxygen;
- b) type F – fuel gas;
- c) type N – other gases specific for welding processes.

5 Installation

The quick-action couplings with shut-off valves shall be installed so that the element with the shut-off device is located upstream in terms of the gas flow from the source.

6 Design requirement

6.1 Dimensions, non-interchangeability and interchangeability

Quick-action couplings with shut-off valves in accordance with this document shall have the dimensions specified in [Figure 1](#) and [Table 1](#) for couplings of types O, F and N, in order to ensure that the following are not interchangeable:

- a) elements of different types; and
- b) elements of different types and couplings for compressed air, in accordance with ISO 6150.

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Table 1 — Dimensions of male element

Dimensions in millimetres

Gas	Type	A h10	B h10	C ^a JS13
Oxygen	O	6,8	12,8	4,5
Fuel gas	F	7,3	12,3	5
Other gases specific for welding processes	N	6,3	13,3	4

^a Diameter C shall be observed over a length of 20 mm.

The dimensions and fabrication details not specified in [Figure 1](#) and [Table 1](#) are left to the discretion of the manufacturer, with the proviso that quick-action couplings with shut-off valves of the same type shall be interchangeable, regardless of their manufacturer.

6.2 Configuration

The shut-off system shall be located in the female element of the quick-action coupling. The gas tightness portion should be constituted on the cylindrical surface of the shaft of diameter A.

shall not be less than 310HV_{0,2}. (This specification refers to the surface hardness of the standardized external profile over a length of 15,2 mm.)

7 Working requirements

7.1 Pressure resistance

Quick-action couplings with shut-off valves shall be designed for a maximum working pressure of 2 MPa (20 bar). When tested under the conditions given in 9.2, they shall withstand a test pressure of:

- a) 4 MPa (40 bar) without visible permanent deformation;
- b) 6 MPa (60 bar) without rupture.

7.2 Gas tightness

7.2.1 General requirements

The general requirements for gas tightness given in ISO 9090 shall be satisfied.

7.2.2 Specific requirements

During tests performed in accordance with 9.3, the measured leakage rate, in both the coupled and the uncoupled position, shall not exceed 10 cm³/h.

7.3 Pressure drop

At the maximum operating pressure and the flow rate specified by the manufacturer, the pressure loss introduced by the quick-action couplings with shut-off valves shall not exceed 10 % of the specified maximum operating pressure.

7.4 Resistance to flashback

After having been submitted to one flashback in accordance with the conditions specified in 9.4, quick-action couplings with shut-off valves shall continue to conform to the requirements specified in 7.2.2 and shall have no visible permanent deformation.

7.5 Resistance to tensile load

When tested under the conditions indicated in 9.5, the quick-action couplings with shut-off valves shall:

- a) remain suitable for normal service and fulfil the test requirements specified in this document, after having been submitted to an axial load of 600 N;
- b) remain coupled and gas tight according to 7.2 after having been submitted to an axial load of 1 kN.

7.6 Resistance to radial loads

When tested under conditions indicated in 9.6, the quick-action couplings with shut-off valves shall:

- a) remain suitable for normal service and fulfil the test requirements specified in this document, after having been submitted to a radial load of 1 kN;
- b) remain coupled and gas tight according to 7.2 after having been submitted to a radial load of 2 kN.