



# SLOVENSKI STANDARD

## SIST EN 561:2003

01-maj-2003

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SIST EN 561:1997

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### Oprema za plamensko varjenje - Hitro razstavljljive spojke za varjenje, rezanje in sorodne postopke

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

Gasschweißgeräte - Schlauchkupplungen mit selbsttätiger Gassperre für Schweißen, Schneiden und verwandte Prozesse

Matériel de soudage aux gaz - Raccords rapides a obturation pour le soudage, coupage et les techniques connexes

Ta slovenski standard je istoveten z: EN 561:2002

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#### **ICS:**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 561**

June 2002

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Supersedes EN 561:1994

English version

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

Matériel de soudage aux gaz - Raccords rapides à obturation pour le soudage, coupage et les techniques connexes

Gasschweißgeräte - Schlauchkupplungen mit selbsttätiger Gassperre für Schweißen, Schneiden und verwandte Prozesse

This European Standard was approved by CEN on 25 March 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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## Foreword

This document EN 561:2002 has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

This document supersedes EN 561:1994.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## 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.

## 1 Scope

This European Standard 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 standard applies to cases where these couplings are used with hoses according to EN 559 or threaded unions according to EN 560.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

prEN 730–1, *Gas welding equipment — Safety devices — Part 1: Incorporating a flame (flashback) arrestor.*

EN 29090, *Gas tightness of equipment for gas welding and allied processes (ISO 9090:1989).*

EN 29539, *Materials for equipment used in gas welding, cutting and allied processes (ISO 9539:1988).*

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.*

## 3 Terms and definitions

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

### 3.1

#### **quick-action coupling with shut-off valve**

device enabling a rapid coupling or uncoupling under pressure of equipment and/or hoses, and preventing the mutual connection of two lines containing incompatible gases (e.g. oxygen and fuel gas)

### 3.2

#### **elements**

device comprising two elements, a male and a female element, of which the female element is fitted with an automatic shut-off system which prevents gas leakage when the two elements are uncoupled

## 4 Types of couplings

This standard deals with three types of quick-action couplings 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 requirements

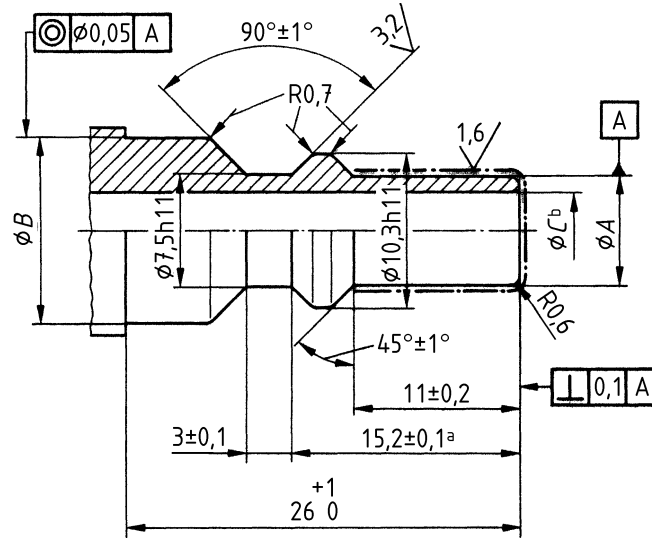
### 6.1 Dimensions, non-interchangeability and interchangeability

In order to ensure that:

- a) elements of different types, and;
- b) elements of different types and couplings for compressed air, according to ISO 6150,

are not interchangeable, quick-action couplings with shut-off valves according to this standard shall have the dimensions specified in Figure 1 and Table 1 for couplings of types O, F and N.

Dimensions and tolerances of coaxiality and perpendicularity in millimeters, surfaces roughness values in micrometers



- a The minimum hardness of the male element surface is 270 HV10 for the minimum length of 15,2 mm.
- b The internal diameter C shall be for a minimum length of 20 mm.

Figure 1 — Male element

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Table 1 — Dimensions of male element

Dimensions in millimeters				
Gas	Type	A h10	B h10	C <sup>a</sup> 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
<sup>a</sup> 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.

## 6.3 Coupling and uncoupling

The choice of the coupling and uncoupling means is left to the discretion of the manufacturer.



Coupling and uncoupling shall be achieved with ease and shall not require the use of tools. It shall not be possible to disengage the two elements by:

- a) either a simple rotation of one element against the other;
- b) or the application of a longitudinal traction force of less than 1 kN.

Under service conditions, as defined by the manufacturer, no undesired uncoupling shall occur.

The opening and closure of the shut-off system shall occur automatically.

## 6.4 Connections

The outside-threaded connections shall conform with the specifications given in EN 560. A right-hand thread shall be used for couplings of types O and N and a left-hand thread shall be used for couplings of type F.

## 6.5 Materials

The materials used for the construction of these couplings shall conform with the requirements given in EN 29539.

## 6.6 Surface protection

Unless otherwise protected from external damage by mechanical means, the male element shall be constructed from material of a surface hardness not less than 270 HV10 (This specification refers to the surface hardness of the standardized external profile over a length of 15,2 mm.).

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## 7 Working requirements

### 7.1 Pressure resistance

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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) a test pressure of 4 MPa (40 bar) without permanent deformation, and;
- b) a test pressure of 6 MPa (60 bar) without rupture.

### 7.2 Gas tightness

#### 7.2.1 General requirements

The general requirements for gas tightness given in EN 29090 shall be satisfied.

#### 7.2.2 Specific requirements

During tests performed according to 9.3, the measured leakage rate, in both the coupled and the uncoupled position, shall not exceed 10 cm<sup>3</sup>/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 maximum operating pressure specified.

### 7.4 Resistance to flame flash-back

After having been submitted to one flash-back in accordance with the conditions specified in 9.4, quick-action couplings with shut-off valves shall continue to conform with the requirements specified in clause 8.