SLOVENSKI STANDARD
SIST EN 730-2:2003

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Nadomeġļa:
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Oprema za plamensko varjenje - Varnostne naprave - 2. del: Brez vgrajene varovalke proti povratnemu udaru

Gas welding equipment - Safety devices - Part 2: Not incorporating a flame (flashback) arrestor

Gasschweißgeräte - Sicherheitseinrichtungen - Teil 2: Ohne integrierte Flammensperre

Matériel de soudage aux gaz - Dispositifs de sécurité - Partie 2: Sans arret de flamme

Ta slovenski standard je istoveten z: EN 730-2:2002

ICS:

25.160.30	Varilna oprema	Welding equipment

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EUROPEAN STANDARD

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English version

Gas welding equipment - Safety devices - Part 2: Not incorporating a flame (flashback) arrestor

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This European Standard was approved by CEN on 8 August 2002.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Foreword

This document EN 730-2:2002 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of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

This European Standard "*Gas welding equipment – Safety devices*" consists of the following Parts:

— *Part 1: Incorporating a flame (flashback) arrestor.*

— *Part 2: Not incorporating a flame (flashback) arrestor.*

This Part and EN 730-1 supersedes EN 730:1995.

Annexes A and B are informative.

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.

1 Scope

This Part of this European Standard specifies the general requirements and tests for safety devices for fuel gases and oxygen or compressed air which do not incorporate a flame (flashback) arrestor used downstream of manifold, cylinder and (or) pipeline outlet regulators, and upstream of blowpipes for welding, cutting and allied processes.

This standard does not specify the location of these devices in the gas system.

This standard does not include requirements for safety devices which incorporate a flame arrestor which are covered by EN 730-1.

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).

EN 560, *Gas welding equipment — Hose connections for equipment for welding, cutting and allied processes.*

EN 561, *Gas welding equipment — Quick-action coupling with shut-off valves for welding, cutting and allied processes.*

EN 730-1:2002, *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).*

EN ISO 2503, *Gas welding equipment — Pressure regulators for gas cylinders used in welding, cutting and allied processes up to 300 bar (ISO 2503:1998).*

EN ISO 7291, *Gas welding equipment - Pressure regulators for manifold systems used in welding, cutting and allied processes up to 300 bar (ISO 7291:1999).*

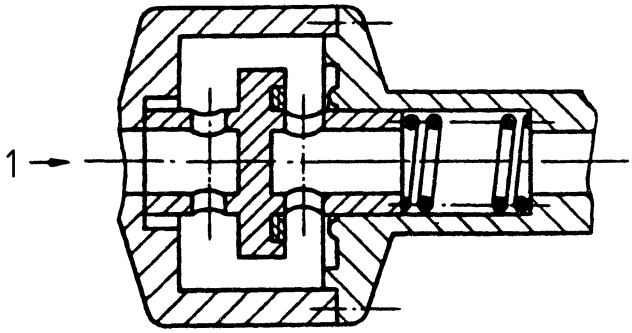
ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications.*

3 Terms and definitions

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

3.1
excess flow cut-off valve
device which stops the gas flow in the event of flow exceeding a predetermined value

EXAMPLE Valve is held open by a spring; it closes when the force caused by the dynamic pressure becomes greater than the force of the spring. A resetting device is necessary.



Key

1 Normal direction of gas flow

Figure 1 — Excess flow cut-off valve (example)

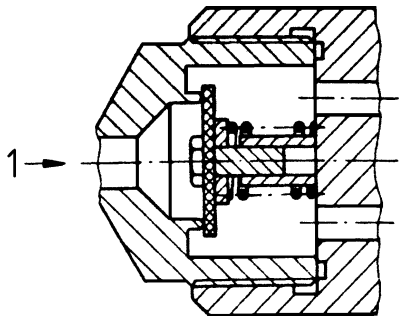
3.2
maximum operating pressure
maximum pressure to which the equipment may be subjected in service

3.3
multifunctional safety device
device which incorporates two or more of the safety functions

EXAMPLE Non-return valve and excess flow cut-off valve.

3.4
non-return valve
device which prevents passage of gas in the direction opposite to flow

EXAMPLE Valve is held open by energy in gas stream and closes when downstream pressure is approximately equal to or greater than that in normal direction of flow.



Key

1 Normal direction of gas flow

Figure 2 — Non-return valve (example)

3.5
pressure relief valve
device which automatically vents gas when the pressure exceeds some predetermined value and seals again when the pressure returns to within specified limits of that value

EXAMPLE Valve is held closed by a spring; it opens when force caused by internal pressure rise exceeds the spring load.

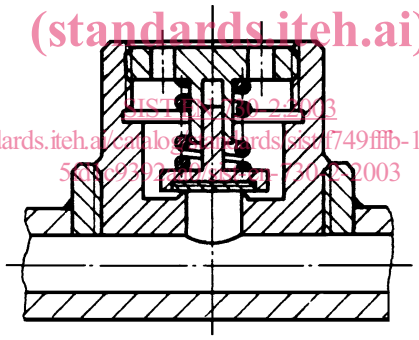


Figure 3 — Pressure relief valve (example)

3.6
safety device
device for welding equipment which averts risk in case of misuse or malfunction of the down-stream gas welding equipment

4 Design and materials

4.1 Connections

Threaded connections up to G1 shall be in accordance with EN 560. Quick release connections shall be in accordance with EN 561.

4.2 Materials

Materials used for safety devices shall conform to the requirements laid down in EN 29539.

5 Requirements

5.1 General

A summary of the requirements and test sequence for each device is given in Table 1.

Table 1 — Summary of requirements and test sequence for safety devices

Safety device function(s)	Require-ments (Clause No)	Tests (in test order) (Clause No)	Number of devices required for each test	Total number of devices required
Non-return valve	5.2.1 5.2.2 5.3 5.4	6.4 External gas tightness 6.5 Pressure resistance 6.6 Reverse flow 6.9 Internal leakage	5 1 [a] 5 5	6
Pressure relief valve	5.2.1 5.3 5.5	6.4 External gas tightness 6.5 Pressure resistance 6.7 Relief pressure and flow	5 1 [a] 5	6
Excess flow cut-off valve	5.2.1 5.2.2 5.3 5.6	6.4 External gas tightness 6.5 Pressure resistance 6.8 Excess flow cut-off 6.9 Internal leakage	5 1 [a] 5 5	6
[a] Use a new device for this test. Do not use for any other test.				

NOTE In the following sub-clauses, the terms “upstream” and “downstream” refer to the normal direction of gas flow in the device.

5.2 Gas tightness

5.2.1 External gas tightness

The general requirements on external gas tightness and the test procedures shall be in accordance with EN 29090.

5.2.2 Internal Gas Tightness

Where internal gas tightness is required in this standard the leakage rate shall not exceed 50 cm^3/h for devices with a connection internal bore (diameter) less than 11 mm or 0,41 d^2 for larger diameters (for tests see 6.6 and/or 6.9).

NOTE The value 0,41 d^2 is the flow in cm^3/h where d is the internal bore (diameter) in mm of the largest connection of the device.

5.3 Pressure resistance

The housings of the safety devices shall resist a pressure equal to ten times the maximum operating pressure, with the test pressure in all cases not less than 60 bar[1]).

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[1]) 1 bar = 0,1 MPa = 10^5 Pa
1 Pa = 1 N/m^2
All pressures are gauge pressure.