

# SVENSK STANDARD

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**Svetsutrustning – Gassvetsning – Slangar av gummi och plast med anslutningar för industriella gaser vid tryck upp till 450 bar (ISO 14113:2007)**

**Gas welding equipment – Rubber and plastics hose and hose assemblies for use with industrial gases up to 450 bar (45 MPa) (ISO 14113:2007)**

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Denna standard ersätter SS-EN ISO 14113, utgåva 1.

Exempel på ändringar jämfört med föregående utgåva är ett nytt avsnitt om anslutningar i änden på slangen, nya krav på innerbeläggningen motstånd mot spontan antändning, ändrade krav på ozonbeständighet, nya krav på beständighet mot UV-ljus och två nya normativa bilagor om tryckprovning med syre och överväganden vid installationer i anläggningar med syre.

The European Standard EN ISO 14113:2008 has the status of a Swedish Standard. This document contains the official English version of EN ISO 14113:2008.

This standard supersedes the Swedish Standard SS-EN ISO 14113, edition 1.

Examples of changes compared to the superseded edition are a new clause about end fittings, new requirement on the hose lining material, new requirements on the linings resistance to ignition, UV resistance and ozone resistance as well as two normative annexes about pressure test with oxygen and considerations for installation of oxygen systems.

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 14113**

October 2008

ICS 83.140.40; 25.160.30

Supersedes EN ISO 14113:1997

English Version

**Gas welding equipment - Rubber and plastics hose and hose assemblies for use with industrial gases up to 450 bar (45 MPa) (ISO 14113:2007)**

Matériel de soudage aux gaz - Tuyaux souples et flexibles en caoutchouc et en plastique pour des gaz industriels jusqu'à 450 bar (45 MPa) (ISO 14113:2007)

Gasschweißgeräte - Gummi- und Kunststoffschläuche und Schlauchleitungen für Industriegase bis zu einem Druck von 450 bar (45 MPa) (ISO 14113:2007)

This European Standard was approved by CEN on 9 August 2008.

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 CEN 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 CEN Management Centre has the same status as the official versions.

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**SS-EN ISO 14113:2008 (E)**

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## **Foreword**

The text of ISO 14113:2007 has been prepared by Technical Committee ISO/TC 44 “Welding and allied processes” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 14113:2008 by Technical Committee CEN/TC 121 “Welding” the secretariat of which is held by DIN.

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 2009, and conflicting national standards shall be withdrawn at the latest by April 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 14113:1997.

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

### **Endorsement notice**

The text of ISO 14113:2007 has been approved by CEN as a EN ISO 14113:2008 without any modification.





# Gas welding equipment — Rubber and plastics hose and hose assemblies for use with industrial gases up to 450 bar (45 MPa)

## 1 Scope

This International Standard specifies requirements for rubber and plastics hose and hose assemblies for use with compressed, liquefied and dissolved gases up to a maximum working pressure of 45 MPa (450 bar), within the ambient temperature range of  $-20\text{ °C}$  to  $+60\text{ °C}$ .

This International Standard applies to hose assemblies used to connect industrial gas cylinders to manifolds or bundles prior to any pressure reduction stage.

This International Standard does not cover rubber or thermoplastic hoses for welding, cutting and allied processes (see ISO 3821 and ISO 12170).

This International Standard does not apply to refrigerated liquefied gases or to liquefied petroleum gases (LPG).

## 2 Normative references

The following referenced documents are indispensable for the application 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 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 1307:2006, *Rubber and plastics hoses — Hose sizes, minimum and maximum inside diameters, and tolerances on cut-to-length hoses*

ISO 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1746:1998, *Rubber or plastics hoses and tubing — Bending tests*

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 4080:1991, *Rubber and plastic hoses and hose assemblies — Determination of permeability to gas*

ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

ISO 4672:1997, *Rubber and plastics hoses — Sub-ambient temperature flexibility tests*

ISO 7326:2006, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8031, *Rubber and plastics hoses and hose assemblies — Determination of electrical properties*

ISO 8033:2006, *Rubber and plastics hoses — Determination of adhesion between components*

## SS-EN ISO 14113:2008 (E)

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

ISO 11114-3, *Transportable gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 3: Autogenous ignition test in oxygen atmosphere*

ISO 11758:1995, *Rubber and plastics hoses — Exposure to a xenon arc lamp — Determination of changes in colour and appearance*

ISO 15296, *Gas welding equipment — Vocabulary — Terms used for gas welding equipment*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

### 3 Terms and definitions

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

**3.1 autogenous ignition temperature**  
temperature at which ignition of a sample occurs when subjected to oxygen pressure and heating, and in the absence of a source of ignition other than the applied temperature

NOTE The autogenous ignition temperature depends on the sample preparation, test apparatus and test procedure employed.

**3.2 burst pressure**  
pressure at which rupture of the hose occurs when tested to the relevant standard

[ISO 8330:2007, 2.1.21]

**3.3 distant piece**  
length of metallic tubing at the end of a hose or hose assembly that serves to contain and cool the highest temperature gas that is formed by the effect of adiabatic compression, e.g. by the rapid opening of a cylinder valve

**3.4 end fitting**  
subassembly of components enabling the hose to be safely connected to other pressurised equipment

**3.5 hose assembly**  
length of hose with suitably attached end fittings

**3.6 maximum working pressure**  
pressure to which a hose is designed to be subjected during service, including expected momentary surges

NOTE 1 This definition is consistent with that for a gas cylinder in ISO 10286:2007, A.2.4 maximum permissible operating pressure (the highest pressure permitted to be developed during service). ISO 10286:2007 defines "working pressure" as the "settled pressure ... at a uniform ... temperature of 15 °C in a full gas cylinder".

NOTE 2 Due to the peculiar characteristics of the acetylene cylinder, there is no clearly defined maximum working pressure for acetylene service. Applicable requirements for acetylene service are given in relevant clauses.

### **3.7**

#### **proof pressure**

pressure applied during a non-destructive test and held for a specified period of time to prove the integrity of the construction

NOTE It is expressed in bars.

[ISO 8330:2007, 2.1.104]

## **4 Construction**

### **4.1 Hose**

The hose should consist of

either:

- a rubber or plastics lining,
- reinforcement consisting of one or more layers, and
- an outer protective cover of permeable material or perforated rubber or plastics,

for flammable gas service, the hose shall also incorporate bonding wires to provide the electrical conductivity, see 7.8;

or:

- a rubber or plastics lining, and
- reinforcement consisting of one or more layers of stainless steel wire braid and/or other corrosion and abrasion resistant material which is also designed to act as an outer protective cover and provide electrical conductivity, see 7.8.

### **4.2 End fittings**

Fittings shall be of permanent, swage or crimp design.

The fitting design shall enable the hose assembly to attain its burst pressure without fitting pullout or separation from the hose.

End fittings shall be manufactured from materials that are compatible with the gases and the environment to which they will be subjected, e.g. according to ISO 9539.

### **4.3 Hose assemblies**

Assemblies shall consist of a length of hose and permanently attached end fittings. Field-attachable or reusable-type fittings shall not be used. Distant pieces, when used as heat sinks as part of hose assemblies for oxygen service (see 7.1.3) shall not be readily detachable by the user.

For maximum working pressures in excess of 40 bar (4 MPa), hoses assembled should be provided with a suitable restraining cable or device, properly fitted to an anchor point to restrain the hose in the event of a hose assembly failure.