

# SVENSK STANDARD

## SS-EN ISO 12209:2013



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### **Gasflaskor – Gasflaskventiler, utloppsanslutningar för komprimerad andningsluft (ISO 12209:2013)**

### **Gas cylinders – Outlet connections for gas cylinder valves for compressed breathable air (ISO 12209:2013)**



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Denna standard ersätter SS-EN ISO 12209-1, utgåva 1; SS-EN ISO 12209-2, utgåva 1 och SS-EN ISO 12209-3, utgåva 1.

The European Standard EN ISO 12209:2013 has the status of a Swedish Standard. This document contains the official version of EN ISO 12209:2013.

This standard supersedes the Swedish Standard SS-EN ISO 12209-1, edition 1; SS-EN ISO 12209-2, edition 1 and SS-EN ISO 12209-3, edition 1.

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EUROPEAN STANDARD

**EN ISO 12209**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2013

ICS 23.020.30

Supersedes EN ISO 12209-1:2000, EN ISO 12209-2:2000, EN ISO 12209-3:2000

English Version

## Gas cylinders - Outlet connections for gas cylinder valves for compressed breathable air (ISO 12209:2013)

Bouteilles à gaz - Raccords de sortie pour robinets de bouteilles à gaz pour air comprimé respirable (ISO 12209:2013)

Gasflaschen - Ausgangsanschlüsse für Gasflaschenventile für verdichtete Atemluft (ISO 12209:2013)

This European Standard was approved by CEN on 17 August 2013.

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN ISO 12209:2013) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with Technical Committee CEN/TC 23 "Transportable gas cylinders" the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by March 2014, and conflicting national standards shall be withdrawn at the latest by March 2014.

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 12209-1:2000, EN ISO 12209-2:2000, EN ISO 12209-3:2000.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 12209:2013 has been approved by CEN as EN ISO 12209:2013 without any modification.





# Gas cylinders — Outlet connections for gas cylinder valves for compressed breathable air

## 1 Scope

This International Standard specifies the characteristics of outlet connections for gas cylinder valves for compressed breathable air gas cylinders. It states the fundamental requirements for both; the connection and its components and includes basic dimensions. Included in this International Standard are the following connections:

- yoke type outlet connection for SCUBA use up to a maximum cylinder working pressure of 232 bar;
- threaded type outlet connections up to a maximum cylinder working pressure of 232 bar and 300 bar; and
- threaded type outlet connection for SCUBA use up to a maximum cylinder working pressure of 232 bar including adaptor for users to convert into a yoke type outlet.

[Annex A](#) gives the outlet connection type test procedures.

Requirements for cylinder valves (see ISO 10297) are not covered by this International Standard.

Requirements for material specifications and gas/material compatibility (see ISO 11114-1 and ISO 11114-2) are not covered by this International Standard.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

## 3 Terms and definitions

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

### 3.1

#### **working pressure**

settled pressure of a compressed gas at a uniform reference temperature of 15 °C in a full gas cylinder

[SOURCE: ISO 10286:2007, definition A.2.8]

### 3.2

#### **SCUBA**

self-contained underwater breathing apparatus

### 3.3

#### **compressed breathable air**

gas which has the nominal composition of atmospheric air and is subject to purity level controls

#### 4 Yoke type outlet connection for SCUBA use up to a maximum cylinder working pressure of 232 bar

Figure 1 shows an example of the yoke type outlet connection in the assembled state.

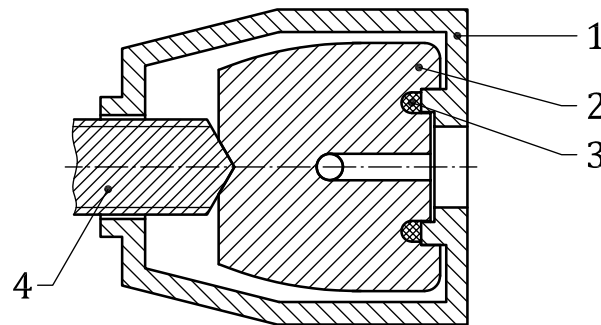
The valve outlet and o-ring dimensions including minimum shore hardness (HS) are shown in Figure 2 and given in Table 1 and Table 2.

The exact form of the o-ring groove is the responsibility of the manufacturer providing the connection passes the outlet connection type test according to Annex A using an o-ring specified in Table 2.

In order to ensure that the yoke does fit over the valve, minimum dimensions are given for the yoke (see Figure 3 and Table 3).

No outer dimensions are given for the yoke. However, the dimensions shall be chosen such that the yoke can resist a torque applied via the screw of 20 Nm without visible permanent deformation of the thread and/or the yoke. In addition, the tests described in Annex A shall be carried out.

Unless otherwise specified, the general tolerances for linear and angular dimensions shall be in accordance with class m of ISO 2768-1.



**Key**

- 1 yoke
- 2 valve outlet
- 3 o-ring
- 4 screw

Figure 1 — Yoke type connection — Assembly drawing

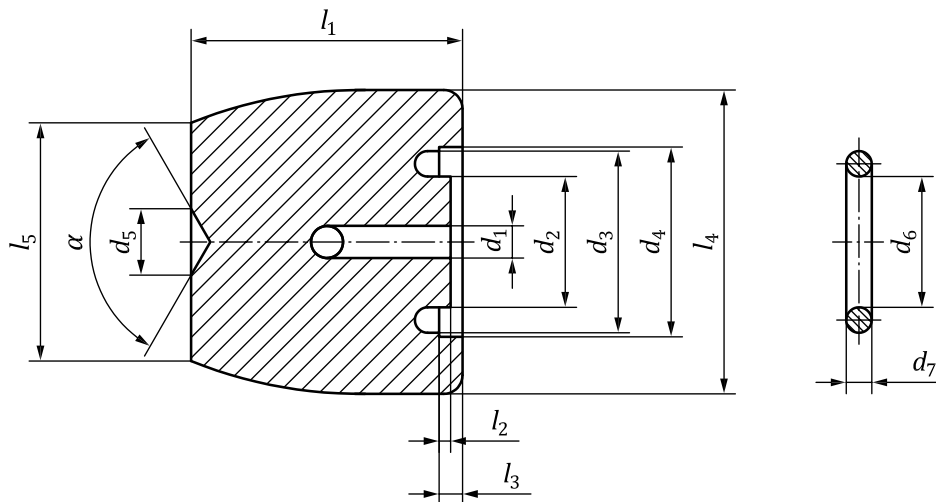


Figure 2 — Valve outlet dimensions

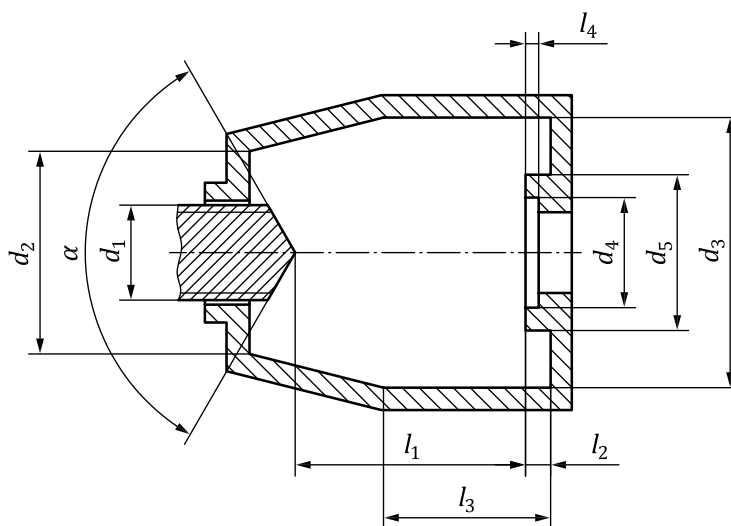
**Table 1 — Valve outlet dimensions**

Symbol	Dimension mm	Tolerance mm	Concentricity mm
$d_1$	to be specified by the manufacturer		
$d_2$	12,67 max.	—	0,1
$d_3$	17,45 max.	—	0,1
$d_4$	18,16	$\pm 0,08$	0,1
$d_5$	6,3	$\pm 0,08$	0,3
$l_1$	25,5 max.	—	not applicable
$l_2$	1,0 max.	—	not applicable
$l_3$	1,98	$\pm 0,35$	not applicable
$l_4$	28,58 max.	—	not applicable
$l_5$	22,5 max.	—	not applicable
$\alpha$	120 °	—	not applicable

**Table 2 — O-ring dimensions and properties**

Symbol/Property	“Small type”		“Large type”	
	Dimension mm	Tolerance mm	Dimension mm	Tolerance mm
$d_6$	12,42	$\pm 0,13$	12,37	$\pm 0,13$
$d_7$	1,78	$\pm 0,08$	2,62	$\pm 0,08$
HS	(90 $\pm$ 5) Shore A			

NOTE 1 The o-ring dimensions are taken from ISO 3601-1 (same as ASTM D2240) and the hardness is defined in ASTM D2240.  
 NOTE 2 The “small type” o-ring is commonly referred to as “-014” by most o-ring manufacturers. The “large type” o-ring is commonly referred to as “-112” by most o-ring manufacturers.



**Figure 3 — Yoke dimensions**