



BSI Standards Publication

## Respiratory protective devices - Gas cylinder valves

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Part 2: Outlet connections

## National foreword

This British Standard is the UK implementation of EN 144-2:2018. It supersedes BS EN 144-2:1999, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PH/4, Respiratory protection.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Published by BSI Standards Limited 2018

ISBN 978 0 580 93549 7

ICS 13.340.30

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2018.

### Amendments/corrigenda issued since publication

Date	Text affected
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English Version

## Respiratory protective devices - Gas cylinder valves - Part 2: Outlet connections

Appareils de protection respiratoire - Robinets de  
bouteille à gaz - Partie 2: Raccordements de sortie

Atemschutzgeräte - Gasflaschenventile  
- Teil 2: Ausgangsanschlüsse

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## European foreword

This document (EN 144-2:2018) has been prepared by Technical Committee CEN/TC 79 “Respiratory protective devices”, 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of an identical text or by endorsement, at the latest by October 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.

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

This document supersedes EN 144-2:1998.

The following main technical changes have been made compared to EN 144-2:1998:

- a) Terms and definition added;
- b) new classification scheme added in [4.2](#);
- c) outlet connections for breathable air changed to be in accordance with EN ISO 12209, including a new type for working pressure of breathable air above 300 bar up to 400 bar;
- d) [Clause 4](#) “Marking” completely changed and adapted to Part 1;
- e) A-deviation deleted.

This document is one part of a three-part standard concerning connections for gas cylinder valves for respiratory protective devices:

- Part 1: Inlet connections
- Part 2: Outlet connections
- Part 3: Outlet connections for diving gases Nitrox and oxygen.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies the dimensions, tolerances and marking requirements of outlet connections for connecting regulators and cylinder valves for respiratory protective devices except those for diving applications.

## 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.

EN 144-1, *Respiratory protective devices - Gas cylinder valves - Part 1: Inlet connections*

EN ISO 12209, *Gas cylinders - Outlet connections for gas cylinder valves for compressed breathable air (ISO 12209)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 144-1 apply.

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

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

## 4 Dimensional and tolerance requirements

### 4.1 General

The outlet connections specified in this European Standard refer to the cylinder valve outlet and a mating connection. Use of the specified filling connector is essential to ensure the safe use of each connection at its intended working pressure.

### 4.2 Classification

For the purpose of this European Standard the outlet connections are classified as following:

- a) Type A1: working pressure of breathable air up to 232 bar;
- b) Type A2: working pressure of breathable air above 232 bar up to 300 bar;
- c) Type A3: working pressure of breathable air above 300 bar up to 400 bar;
- d) Type O1: working pressure of oxygen up to 232 bar;
- e) Type O2: working pressure of oxygen above 232 bar up to 300 bar;
- f) Type M1: working pressure of oxygen/nitrogen mixtures up to 232 bar;
- g) Type M2: working pressure of oxygen/nitrogen mixtures above 232 bar up to 300 bar.

The cylinder valve and gas cylinder shall be tested against the maximum working pressure of the pressure range of the connection (i.e. 232 bar, 300 bar or 400 bar).

### 4.3 Outlet connections for breathable air of type A1, A2 and A3

The outlet connections of types A1, A2 and A3 shall meet EN ISO 12209, except for the marking requirements.

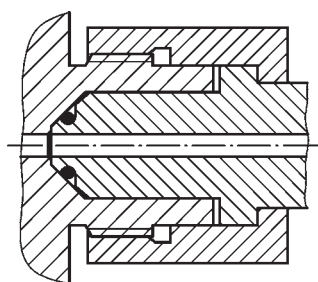
### 4.4 Outlet connections for oxygen of type O1 and O2

#### 4.4.1 General

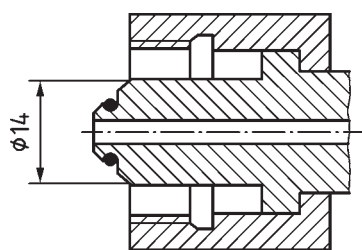
All dimensions are given in millimetres and the tolerances shall be in accordance with ISO 2768-mk.

#### 4.4.2 Outlet connection of type O1

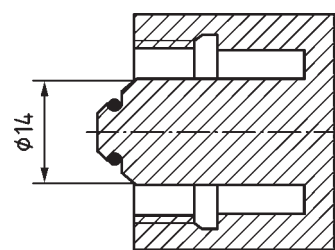
The [Figures 1a](#)) to 1h) show the outlet connection and connectors and their dimensions of type O1.



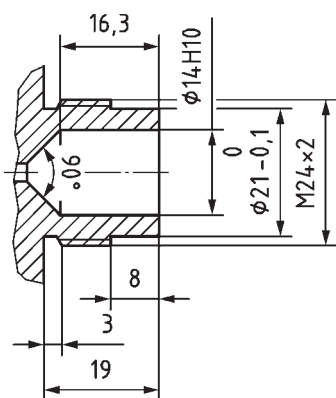
a) Valve outlet connection fitted with connector



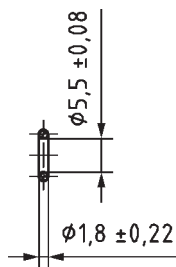
b) Filling connector (assembly)



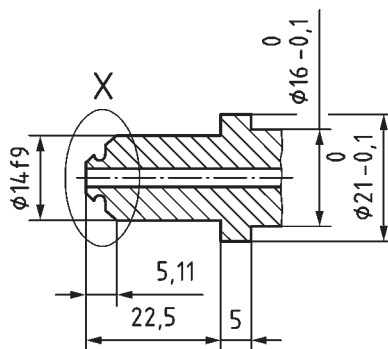
c) Sealing plug



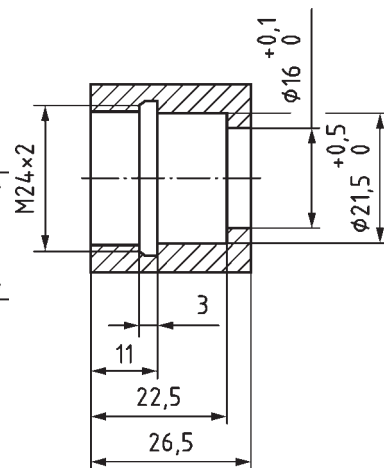
d) Valve outlet connection



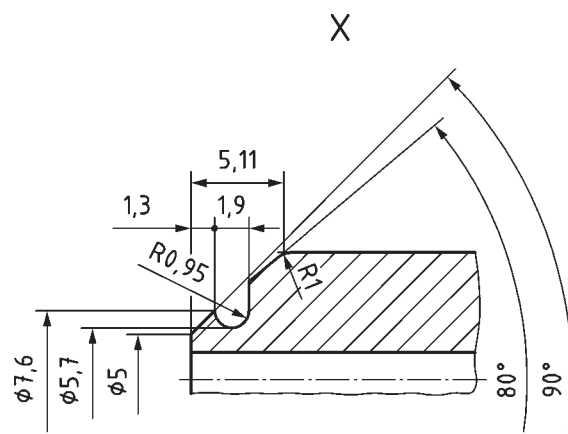
e) O-Ring



f) Connector



g) Hand wheel

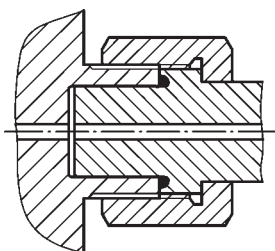


h) Detail X enlarged

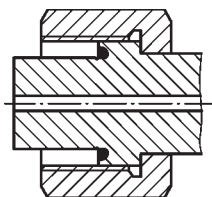
Figure 1 — Outlet connection and connectors of type O1

#### 4.4.3 Outlet connection of type O2

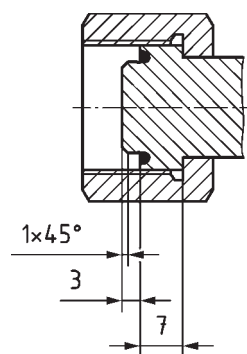
The [Figures 2a](#)) to 2h) show the outlet connection and connectors and their dimensions of type O2.



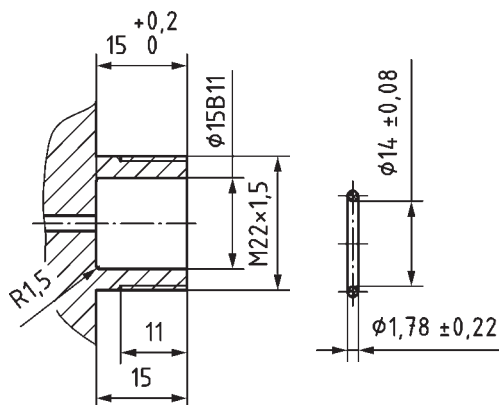
a) Valve outlet connection fitted with connector



b) Filling connector (assembly)

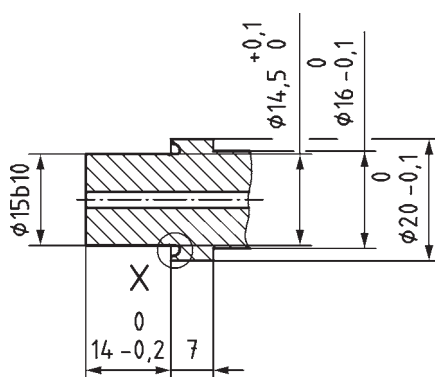


c) Sealing plug

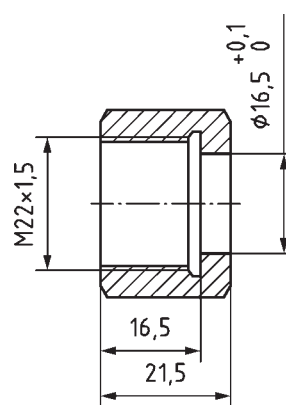


d) Valve outlet connection

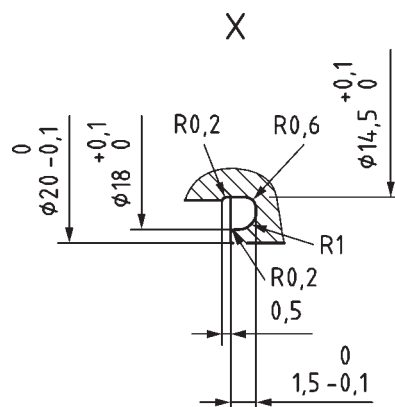
e) O-Ring



f) Connector



g) Hand wheel



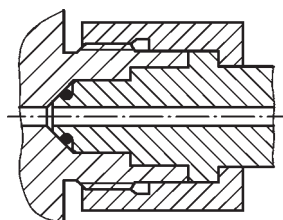
h) Detail X enlarged

Figure 2 — Outlet connection and connectors of type O2

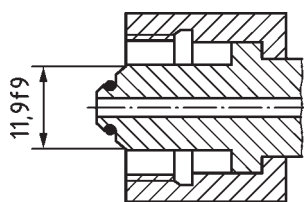
## 4.5 Outlet connections for oxygen/nitrogen mixtures of type M1 and M2

### 4.5.1 Outlet connection of type M1

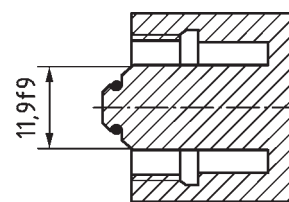
The [Figures 3a\)](#) to 3h) show the outlet connection, connectors and their dimensions of type M1.



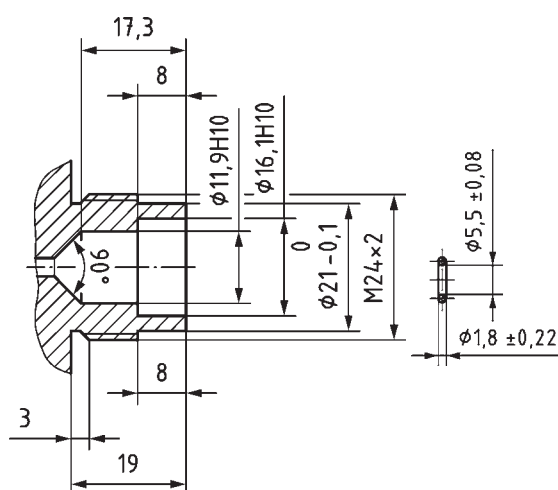
a) Valve outlet connection fitted with connector



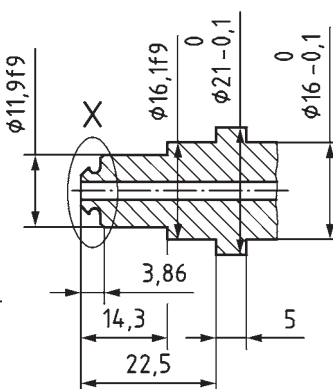
b) Filling connector (assembly)



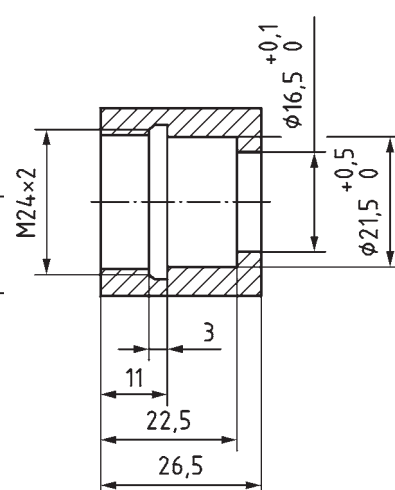
c) Sealing plug



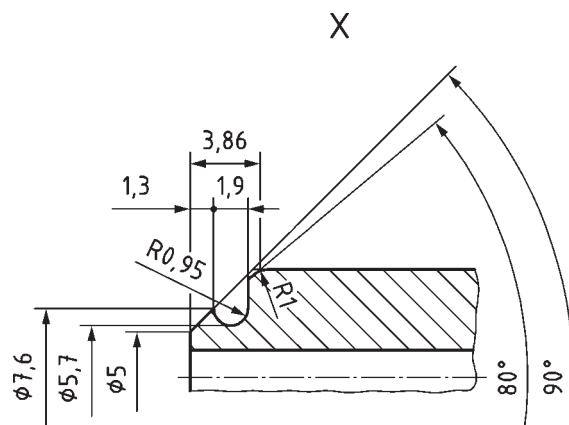
d) Valve outlet connection



f) Connector



g) Hand wheel

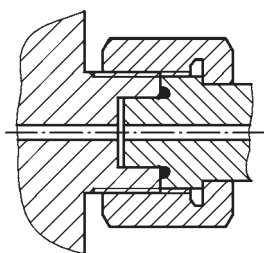


h) Detail X enlarged

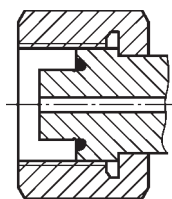
Figure 3 — Outlet connection and connectors of type M1

#### 4.5.2 Outlet connection of type M2

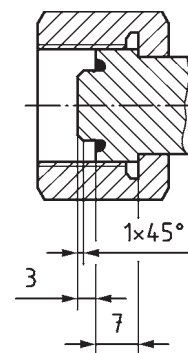
The [Figures 4a\)](#) to 4h) show the outlet connection, connectors and their dimensions of type M2.



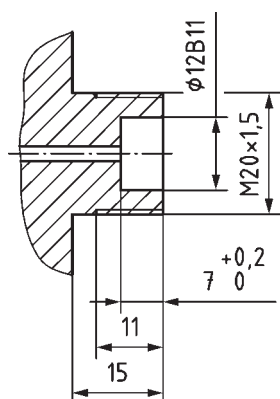
a) Valve outlet connection fitted with connector



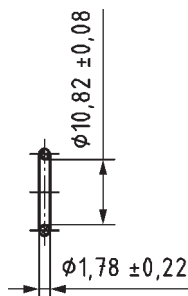
b) Filling connector (assembly)



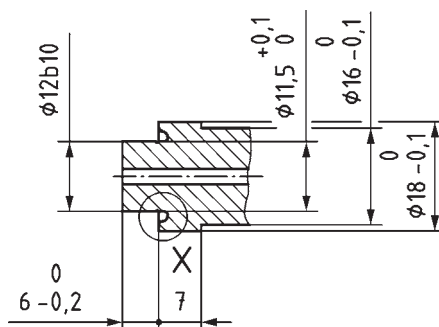
c) Sealing plug



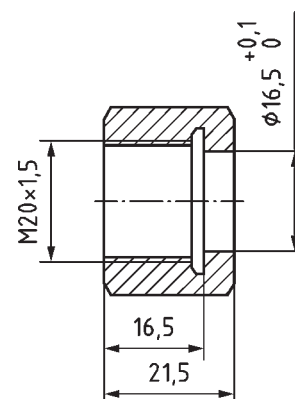
d) Valve outlet connection



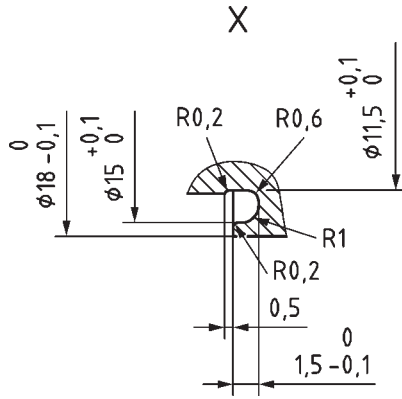
e) O-Ring



f) Connector



g) Hand wheel



### h) Detail X enlarged

**Figure 4 — Outlet connection and connectors of type M2**

## 5 Marking

Cylinder valves meeting the requirements of this document shall be marked with:

- a) the number of this document, i.e. EN 144-2;

NOTE Where the cylinder valve also meets the requirements of EN 144-1 a combined marking, i.e. EN 144-1/-2 can be used.

- b) means of identification of the manufacturer;
- c) identification of date of manufacture (at least the year); and
- d) identification of the thread type followed by the maximum working pressure the valve is intended to be used, e.g. A1/200 bar. This marking shall be given on the outlet connection or on the valve body.

## **Bibliography**

- [1] EN ISO 10286, *Gas cylinders - Terminology (ISO 10286)*



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