DIN 477

ICS 23.060.40

Supersedes
DIN 477:2020-11

Gas cylinder valves for cylinder test pressures up to 300 bar – Valve inlet and outlet connections, English translation of DIN 477:2021-04

Gasflaschenventile für Flaschenprüfdrücke bis einschließlich 300 bar – Ventileingangs- und Ventilausgangsanschlüsse, Englische Übersetzung von DIN 477:2021-04

Robinets de bouteille à gaz pour pressions d'épreuves des bouteilles inférieures ou égales à 300 bar – Raccords d'entrée et de sortie de robinets, Traduction anglaise de DIN 477:2021-04

Document comprises 61 pages

DIN-Normenausschuss Druckgasanlagen (NDG)
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A comma is used as the decimal marker.

Contents

Foreword

This document has been prepared by Working Committee NA 016-00-03 AA "Transportable gas cylinders and equipment (national mirror committee to CEN/TC 23 and ISO/TC 58)" of *DIN-Normenausschuss Druckgasanlagen* (DIN Standards Committee Pressurized Gas Installations).

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

This standard covers valve inlet and outlet connections which meet the requirements of DIN EN ISO 10297 on the use of standardized valve connections.

Data for cylinder valves for high purity gases which are not covered by other valid European Standards but still used in the industry are also included in this document.

In addition to the legal units of measurement, this standard also uses the unit inch ["], which is not authorized in Germany. It should, however, be noted that the *Gesetz über Einheiten im Messwesen* (German Law on units in metrology) prohibits the use of this unit for official and commercial purposes in Germany. The indication of this unit solely serves to facilitate the communication with those countries where this unit is used (import-export business).

Conversion:

Non-SI unit	**SI unit**	**Conversion**
in (inch)	mm	1 inch = 25,4 mm

For current information on this document, please go to DIN's website (www.din.de) and search for the document number in question.

Amendments

This standard differs from DIN 477-1:2012-06, DIN 477-5:2002-04, DIN 477-7:2014-05 as follows:

a) the DIN 477 standards series comprising DIN 477-1, DIN 477-5 and DIN 477-7 has been combined into one standard, DIN 477 (the content of DIN 477-7 is included in the new Annex B "Gauges for taper threads W 31,3 × 1/14 [acetylene]");

b) the scope has been changed: ISO 5145 is now referred to for outlet connections of gas test cylinder valves for cylinder test pressures above 300 bar;

c) for connection 13 the dated reference to DIN EN 144-2:1999-02 has been deleted and replaced by a reference to DIN EN ISO 12209;

d) in Table 2 a footnote g has been added and the text to footnote d has been changed.

The following corrections have been made to DIN 477:2020-11:

a) a key has been added to Figure 36;

b) in Figure 52, a missing indication regarding the surface quality has been added to the key;

c) in Table 7 the maximum pitch diameter for W 24,32 × 1/14 has been changed to 23,296;

d) in Table B.2 the values for the nominal taper thread size have been corrected, and for the thread limit ring gauge the core diameter of the minor cone diameter “max.” has been deleted;

e) the standard has been editorially revised.

Previous editions

DIN 477: 1922-04, 1933-01, 1944-01, 2020-11
DIN 1909: 1925-04
DIN 4813: 1938-06, 1954-08
DIN 4672: 1944-01
DIN 4673: 1944-01
DIN 8547: 1953-06
DIN 477-1: 1963-11, 1979-09, 1990-02, 1990-05, 2011-03, 2012-06
DIN 477-3: 1963-11
DIN 477-5: 1972-11, 1979-09, 1990-02, 2002-04
DIN 477-7: 1984-01, 2014-05

Introduction

The main aim of this standard is to allocate valve outlet connections to certain gas types to prevent connections of non-compatible gases (e.g. oxygen/hydrogen) being exchanged.

WARNING — In order to preclude the occurrence of hazardous situations (e.g. leakage, incompatibility), the user shall ensure that the valve outlet connection selected will not be connected to connections given in other standards. In view of the variety of connections used and the large number of national standards, this precaution shall always be taken.

1 Scope

This standard specifies the requirements for inlet and outlet connections of gas cylinder valves rated for cylinder test pressures up to 300 bar, if not otherwise specified. It also specifies gauges for taper threads W 31,3 × 1/14 (acetylene).

Inlet and outlet connections of cylinder valves for breathing apparatus are specified in DIN EN 144-1 to DIN EN 144-3. ISO 5145 can be used for outlet connections of cylinder valves for cylinder test pressures of over 300 bar.

For cylinders whose content is used for medical purposes, gas cylinder valves with outlet connections of the pin-index system according to DIN EN ISO 407 can be provided.

Outlet connections for LPG valves are specified in DIN EN 15202.

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.

DIN 2239, *Geometrical product specifications (GPS) — Gauge in dimensional metrology — Requirements and testing*

DIN 2240-1, *Geometrical product specifications (GPS) — Handles — Part 1: For gauging members with taper lock 1:50 up to 40 mm nominal diameter*

DIN EN ISO 10156, *Gas cylinders — Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*

DIN EN ISO 11117, *Gas cylinders — Valve protection caps and guards — Design, construction and tests*

DIN EN ISO 11363-1, *Gas cylinders — 17E and 25E taper threads for connection of valves to gas cylinders — Part 1: Specifications*

DIN EN ISO 12209, *Gas cylinders — Outlet connections for gas cylinder valves for compressed breathable air*

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

DIN ISO 7619-1, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 1: Durometer method (Shore hardness)*

3 Terms and definitions

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

DIN and DKE provide terminology databases for use in standardization at the following addresses:

— DIN-TERMinology Portal: available at https://www.din.de/en/services/din-term

— DKE-IEV: available at http://www.dke.de/DKE-IEV

3.1
test gas
gas/gas mixture used for calibration of metrological devices, mainly for measuring exhaust gas values

3.2
test pressure
highest pressure applied during initial or periodic pressure test of the cylinder

3.3
key connection
connection for which a tool is absolutely necessary to establish a secure connection

Note 1 to entry: Within the meaning of this standard, this is usually associated with the use of a flat gasket.

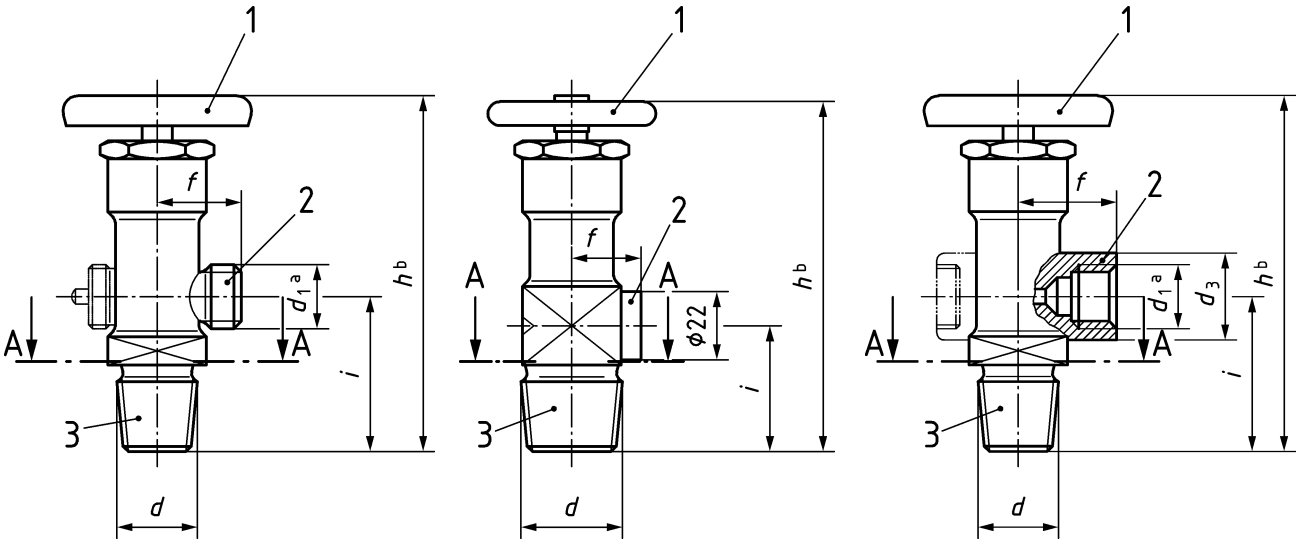
3.4
manual connection
connection for which a tool is not absolutely necessary to establish a secure connection

Note 1 to entry: Within the meaning of this standard, this is usually associated with the use of an O-ring.

4 Designs, dimensions, and designation

The cylinder valves for technical purposes are divided into three basic designs (A, B and C), as illustrated in Figure 1. All three basic designs are given as Section A–A in Figure 2. Table 1 lists the minimum values of diameter d_3 of basic design C. Table 2 specifies the tolerances for all three basic designs.

Dimensions in millimetres



a) Basic design A, with outlet connection with external thread

b) Basic design B, with yoke outlet connection

c) Basic design C, with outlet connection with internal thread

Key

1 handwheel
2 outlet connection
3 inlet connection

The symbols *d, i* and *f* relate to Table 2.

NOTE The basic design designation has been changed compared to the former edition of the standard.

[a] Diameter corresponding to respective gas type according to Table 3 and Table 4.

[b] See Table 2

Figure 1 — Designs

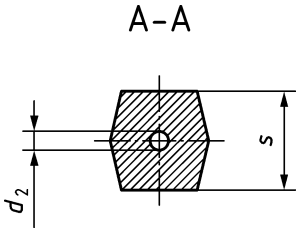


Figure 2 — Cross-section of valve body