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

**Part 1:
Yoke type connections**

*Bouteilles à gaz — Raccords de sortie pour robinets de bouteilles à gaz
pour air comprimé respirable —*

Partie 1: Raccords du type à étrier



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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 12209 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 12209-1 was prepared by Technical Committee ISO/TC 58, Gas cylinders, Subcommittee SC 2, Cylinder fittings.

ISO 12209 consists of the following parts, under the general title *Gas cylinders — Outlet connections for gas cylinder valves for compressed breathable air*:

- *Part 1: Yoke type connections*
- *Part 2: Threaded connections*
- *Part 3: Adaptor for 230 bar valves*

Annex A forms a normative part of this part of ISO 12209.

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

Part 1: Yoke type connections

1 Scope

This part of ISO 12209 specifies the characteristics of the yoke type outlet connections for gas cylinder valves for compressed breathable air cylinders, up to a maximum cylinder working pressure of 230 bar. It states the fundamental requirements for both the connection and its components and includes basic dimensions.

Annex A gives the outlet connection prototype qualification test procedures.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 12209. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 12209 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 10297, *Gas cylinders — Cylinder valves — Specification and type testing*.

ISO 11114-1, *Transportable gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 1: Metallic materials*.

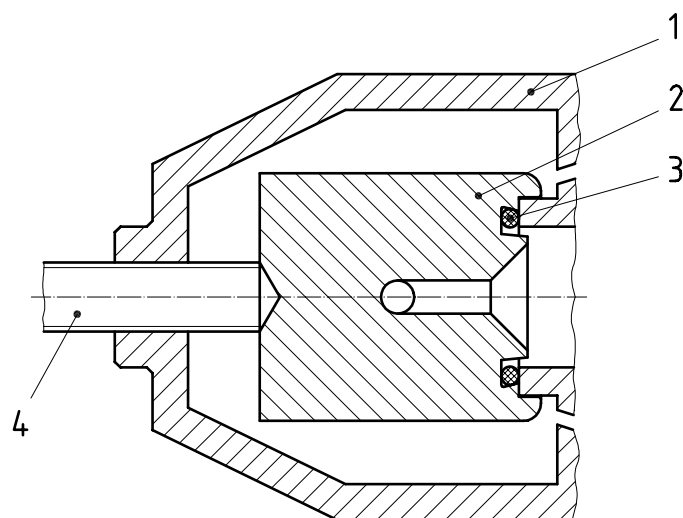
3 General requirements

Figure 1 shows the yoke type connection in the assembled state.

The valve outlet and O-ring dimensions are shown in Figure 2 and given in Table 1, and the yoke dimensions are shown in Figure 3 and given in Table 2.

No outer dimensions are given for the yoke. However, they shall be chosen such that the yoke can resist a torque applied via the screw of 20 N·m without visible permanent deformation of the thread and/or the yoke. In addition, the tests described in annex A shall be carried out. The volume within the dotted lines shown in the yoke drawing on Figure 3 shall not be obstructed by other parts, in such a way that the yoke would not fit over the valve.

The requirements for material specifications, gas/material compatibility, valve prototype testing are covered in the relevant standards, for example ISO 10297 and ISO 11114-1.



Key

- 1 Yoke
- 2 Valve outlet
- 3 O-ring
- 4 Screw

Figure 1 — Yoke type connection — Assembly drawing

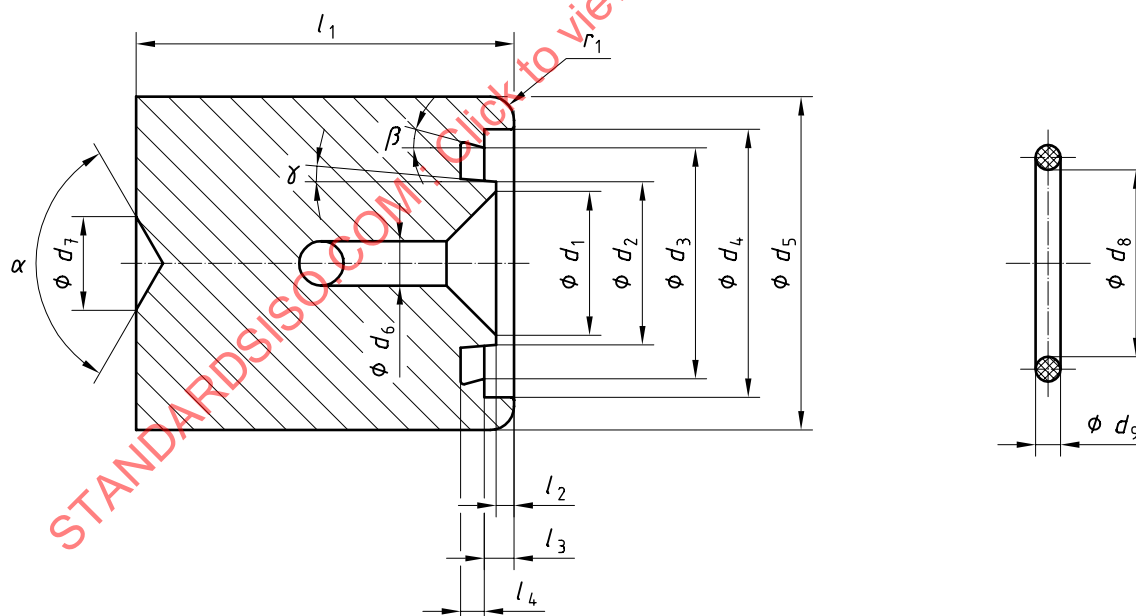


Figure 2 — Valve outlet dimensions

Table 1 — Valve outlet and O-ring dimensions

Dimensions in millimetres

Symbol	Dimension	Tolerance	Symbol	Dimension	Tolerance
l_1	25,5	$-\frac{0}{3}$	d_1	9,7	$\pm 0,15$
l_2	1,2	$+\frac{0,2}{0}$	d_2	11	$-\frac{0}{0,25}$
l_3	2	$-\frac{0}{0,3}$	d_3	15,6	$+\frac{0,1}{0}$
l_4	1,6	$-\frac{0}{0,1}$	d_4	18,1	$+\frac{0,2}{0}$
r_1 max.	1,6	—	d_5	22,5	$-\frac{0}{1,5}$
α	120°	$\pm 5^\circ$	d_6 min.	3	—
β	15°	$\pm 1^\circ$	d_7	6,3	$+\frac{0,8}{0}$
γ	5°	$-\frac{0}{5^\circ}$	d_8 nom.	12,5	—
—	—	—	d_9 nom.	1,8	—

NOTE 1 Concentricity shall be 0,1 for d_1 to d_4 , 0,2 for d_6 and 0,3 for d_5 and d_7 .

NOTE 2 The dimensions of the O-rings are in accordance with ISO 3601-1^[1].

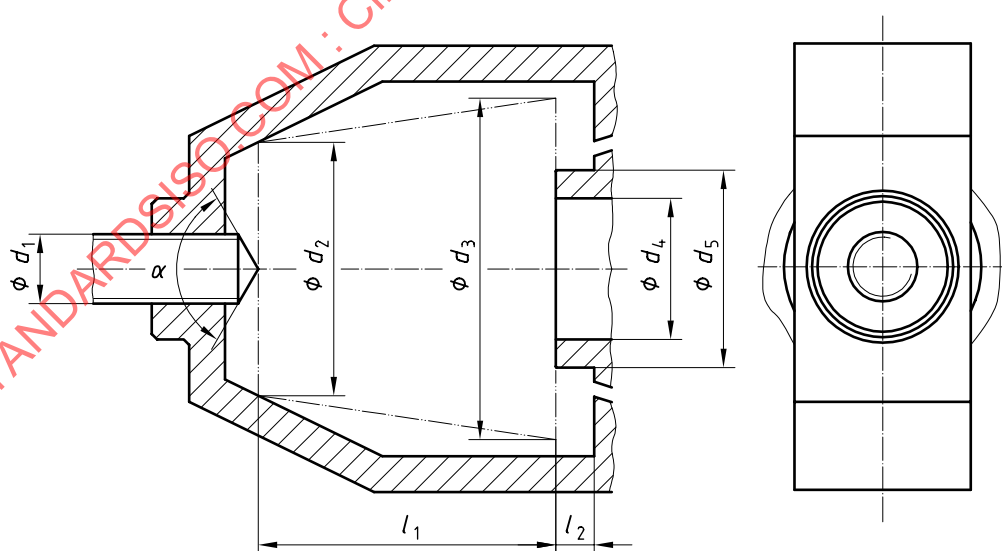


Figure 3 — Yoke

Table 2 — Yoke dimensions

Dimensions in millimetres

Symbol	Dimension	Tolerance	Symbol	Dimension	Tolerance
l_1 min.	26	—	d_1	16 6	—
l_2 min.	2,8	—	d_2 min.	23	—
chamfer	$0,1 \times 45^\circ$	—	d_3 min.	31	—
α	110°	$\pm 5^\circ$	d_4	12,8	$+0,20$ $-0,05$
—	—	—	d_5	17,9	$\pm 0,05$

4 Marking

The valve outlet and nipple or screw shall have the following marking as indicated below:

- number of this part of ISO 12209;
- manufacturer's designation;
- year and month of manufacture;
- working pressure (230 bar).

If the yoke is available as a separate item, it shall be permanently marked with the letters "ISO", the name, the symbol or the logo of the manufacturer.

Annex A

(normative)

Outlet connection prototype qualification test procedures

A.1 Determine the torque just necessary for a gas-tight shutoff between the nipple and the valve body at the gas pressure equal to the maximum rated pressure of the connection. For cycling purposes, twice this shutoff torque shall be used to simulate normally applied field torque.

A.2 Cycling shall be conducted at atmospheric pressure, since that is the pressure at which connections are normally made.

A.3 Before and after cycling, measurements of the connection shall be recorded (such as thread elements, nipple bore diameters and any other dimensions that may be subject to change due to repeated tightenings).

A.4 Each connection shall be cycled 500 times with tightening to the torque determined in A.1. One cycle consists of tightening to the predetermined torque and then loosening to at least finger-tight.

A.5 After each 100 cycles, the torque required to achieve gas-tight shutoff at test pressure shall be recorded to determine if there is any abnormal torque buildup in shutoff requirements. The measurements indicated in A.3 shall also be recorded at this interval to determine if there is any abnormal deformation of parts.

A.6 Each connection shall be subjected to a hydrostatic test and shall withstand a pressure of at least four times the maximum rated pressure of the connection without structural failure.