
**Gas cylinders — 17E taper thread for
connection of valves to gas cylinders —**

**Part 2:
Inspection gauges**

*Bouteilles à gaz — Filetages coniques 17E pour le raccordement des
robinets sur les bouteilles à gaz —*

Partie 2: Calibres de vérification



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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.

International Standard ISO 11116-2 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC2, *Cylinder fittings*.

ISO 11116 consists of the following parts, under the general title *Gas cylinders — 17E taper thread for connection of valves to gas cylinders*:

- *Part 1: Specification*
- *Part 2: Inspection gauges*

Annexes A and B of this part of ISO 11116 are for information only.

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Introduction

This part of ISO 11116 belongs to a series of standards specifying thread dimensions and gauge requirements.

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Gas cylinders — 17E taper thread for connection of valves to gas cylinders —

Part 2: Inspection gauges

1 Scope

This part of ISO 11116 specifies types, dimensions and principles of the use of gauges, to be used in conjunction with the taper thread specified in ISO 11116-2.

Annex A provides examples of calculations for thread gauge dimensions on the large end diameter.

Annex B draws attention to the limitations of the gauging system specified.

2 Terms and definitions

For the purposes of this part of ISO 11116 the following terms and definitions apply.

2.1

inspection gauge

gauge used for the routine gauging of cylinder neck and valve stem threads, but not used for checking other gauges

2.2

check gauge

gauge for checking dimensional conformity of inspection ring gauges, but not for gauging cylinder neck threads

2.3

single part gauge

gauge, plug or ring, plain or threaded of sufficient length to contact the full length of taper thread

2.4

two-part gauges

two separate inspection gauges, plug or ring, plain or threaded used in combination, where one is used to contact the large end of the taper cone and the other the small end

3 Requirements

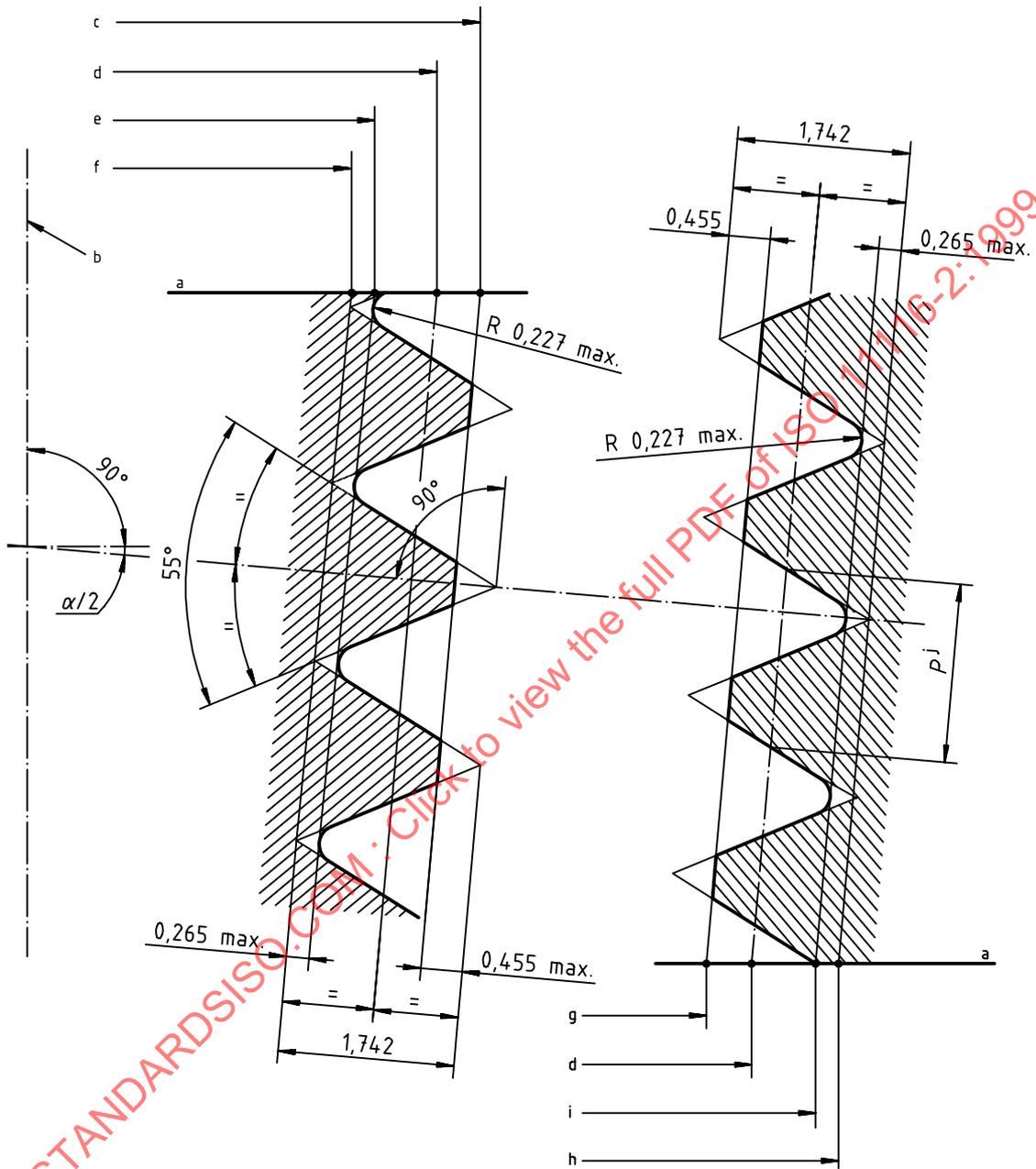
3.1 Materials

All gauges shall be manufactured from material of suitable strength, stability and hardness.

3.2 Thread profile

The thread profile of threaded inspection and check gauges shall be as shown in Figure 1.

Dimensions in millimetres



Plug gauge thread profile

Ring gauge thread profile

- | | |
|--------------------------|--------------------------|
| a Gauge plane | f Minimum minor diameter |
| b Thread axis | g Minor diameter |
| c Major diameter | h Minimum major diameter |
| d Pitch diameter | i Maximum major diameter |
| e Maximum minor diameter | j Pitch |

Figure 1 — Thread profiles

3.3 Thread rotation

The thread shall be a right hand thread, such that it moves away from an observer, when rotated clockwise.

3.4 Taper

- Taper: 3/25;
- Taper angle: 6° 52';
- Taper slope: 12 %.

3.5 Thread profile

The thread profile has a 55° angle. The form and thread height measurements are perpendicular to the cone surface (see Figure 1).

3.6 Pitch, P

The pitch is 1,814 mm (derived from $\frac{25,4}{14}$ mm) (see Figure 1).

4 Gauge dimensions

The following dimensional requirements apply to gauges shown in Figure 2 to Figure 15.

All dimensions are given in millimetres.

4.1 Tolerances for specified dimensions on all gauges are:

- $\pm 0,01$ mm on all lengths;
- $\pm 0,01$ mm on diameters of inspection gauges;
- $\begin{matrix} -0,01 \\ -0,02 \end{matrix}$ mm on diameters of check gauges.

4.2 For threaded gauges, pitch diameters only are specified. For minor and major diameters see Figure 1.

4.3 Unspecified dimensions shall be chosen by the manufacturer of the gauges.

5 Inspection gauges

5.1 Cylinder neck thread

5.1.1 Single part plug gauges

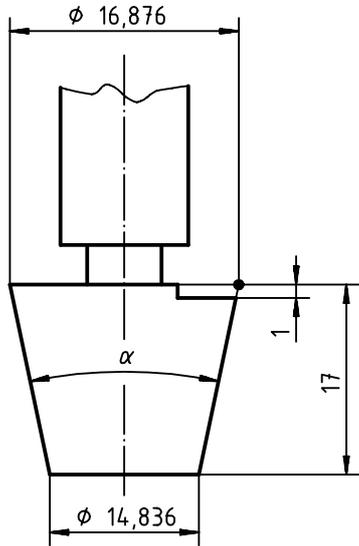
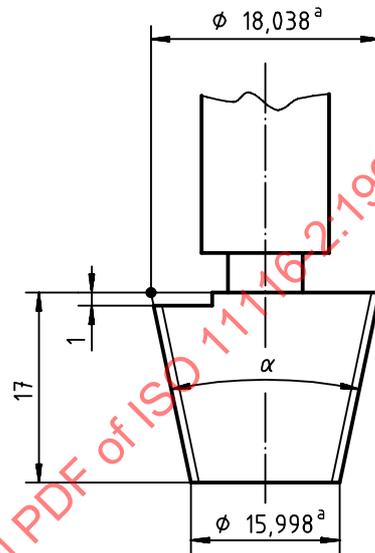


Figure 2 — Plain plug gauge for minor diameters "I-1"



^a Pitch diameter

Figure 3 — Threaded plug gauge for pitch diameters "I-2"

5.1.2 Two-part plug gauges – small end diameter

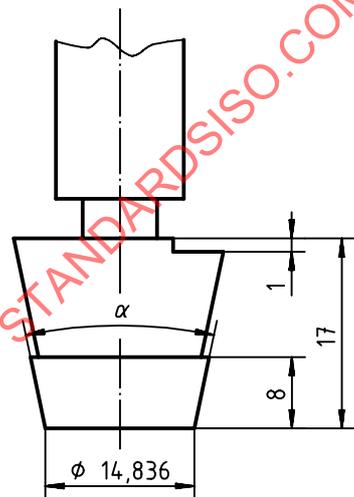
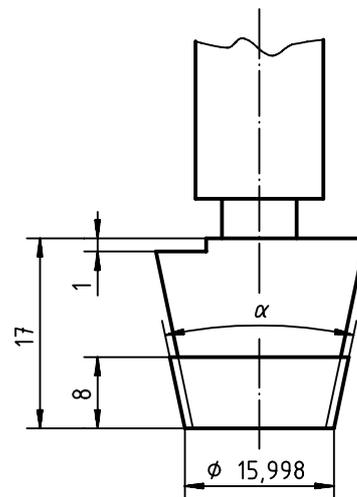


Figure 4 — Plain plug gauge for minor diameters "I-3"



^a Pitch diameter

Figure 5 — Threaded gauge for pitch diameters "I-4"

5.1.3 Two-part plug gauges – large end diameter

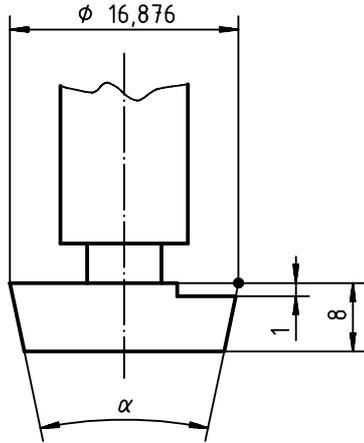
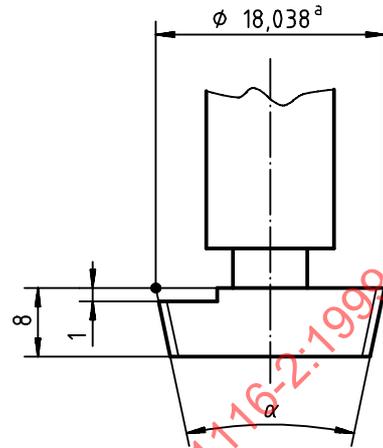


Figure 6 — Plain plug gauge for minor diameters "I-5"



^a Pitch diameter

Figure 7 — Threaded gauge for pitch "I-6"

5.2 Valve stem thread

5.2.1 Single-part ring gauges

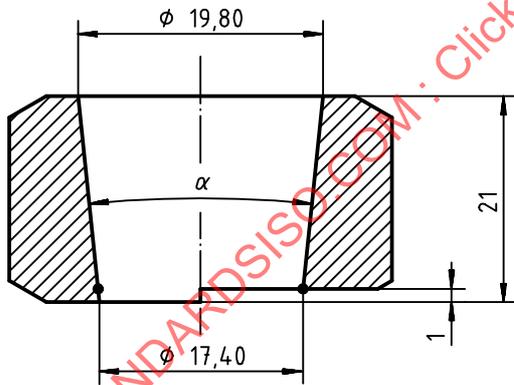
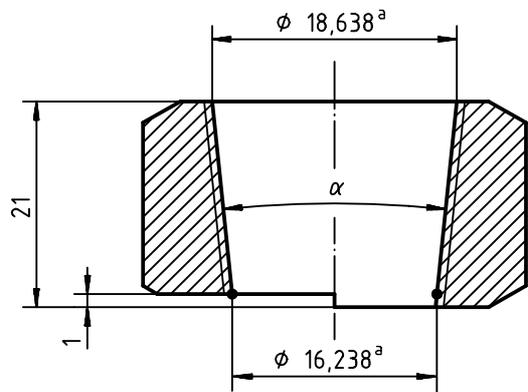


Figure 8 — Plain ring gauge for major diameter "I-7"



^a Pitch diameter

Figure 9 — Threaded ring gauge for pitch diameter "I-8"

5.2.2 Two-part ring gauges – small end diameter

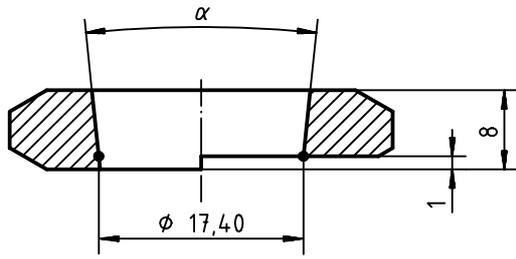
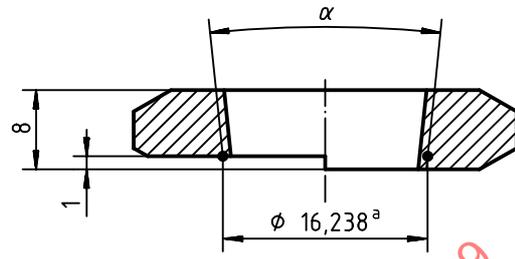


Figure 10 — Plain ring gauge for major diameter "I-9"



^a Pitch diameter

Figure 11 — Threaded ring gauge for pitch diameter "I-10"

5.2.3 Two-part ring gauges – large end diameter

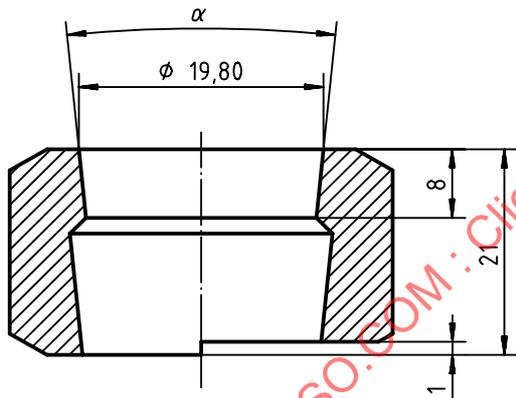
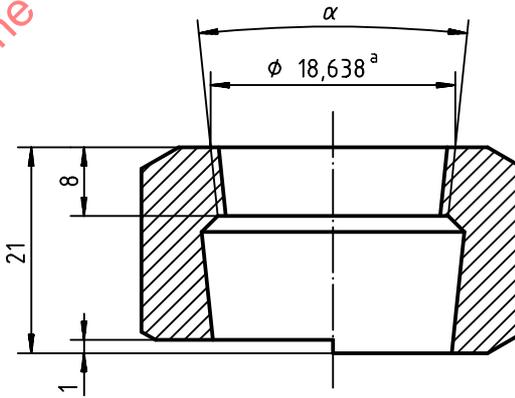


Figure 12 — Plain ring gauge for major diameter "I-11"



^a Pitch diameter

Figure 13 — Threaded ring gauge for pitch diameter "I-12"

5.3 Check gauges

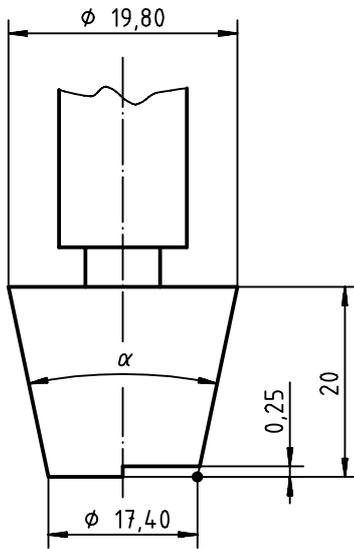
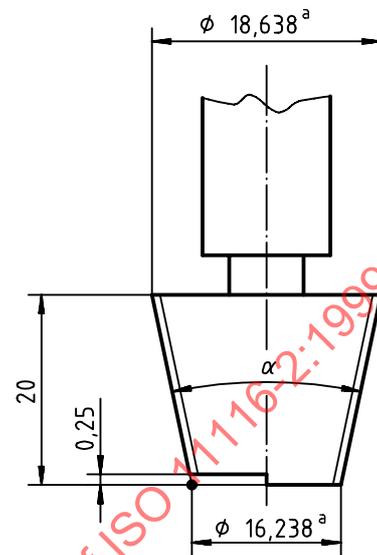


Figure 14 — Plain check gauge "M-1"



^a Pitch diameter

Figure 15 — Threaded check gauge "M-2"

6 Use of inspection gauges

6.1 Plain gauges

Plain gauges shall be installed in position, or over the thread being gauged, without use of force.

6.2 Threaded gauges

Threaded gauges shall be installed in position, or over the thread being gauged, without use of force.

6.3 Accept or reject criteria, using plug gauges

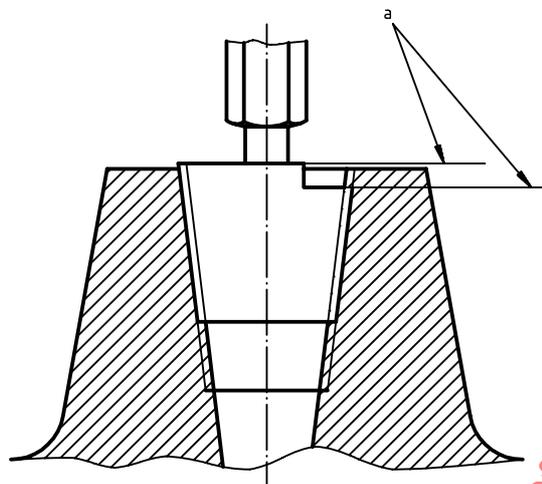
Thread acceptability to gauge is determined by the position of the plane at the mouth of the cylinder neck relative to the test surfaces of the gauge.

The thread shall be considered acceptable to the gauge if this plane is flush with or falls between the test surfaces of the gauge when the gauge is fitted to the thread (see Figures 16 and 17).

6.4 Accept or reject criteria, using ring gauges

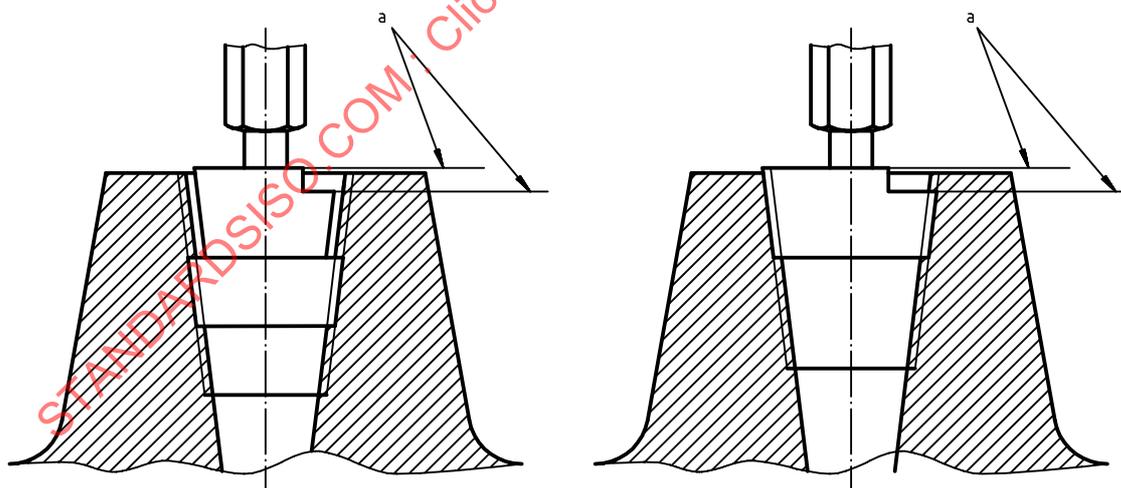
Thread acceptability to gauge is determined by the position of the plane at the flat small end of the stem cone base relative to the test surfaces of the gauge.

The thread shall be considered acceptable to the gauge if this plane is flush with or falls between the test surfaces of the gauge when the gauge is fitted to the thread (see Figures 18 and 19).



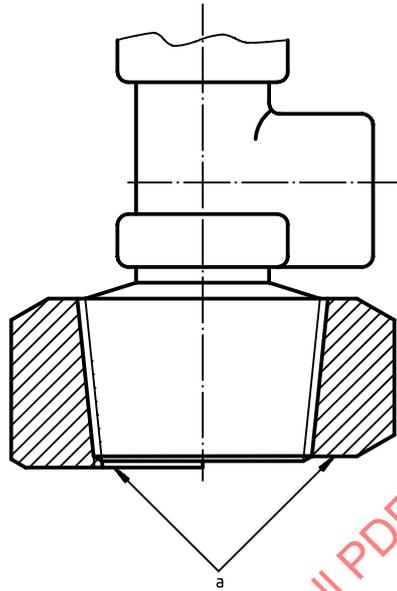
^a Test surface

Figure 16 — Use of single-part plug gauge



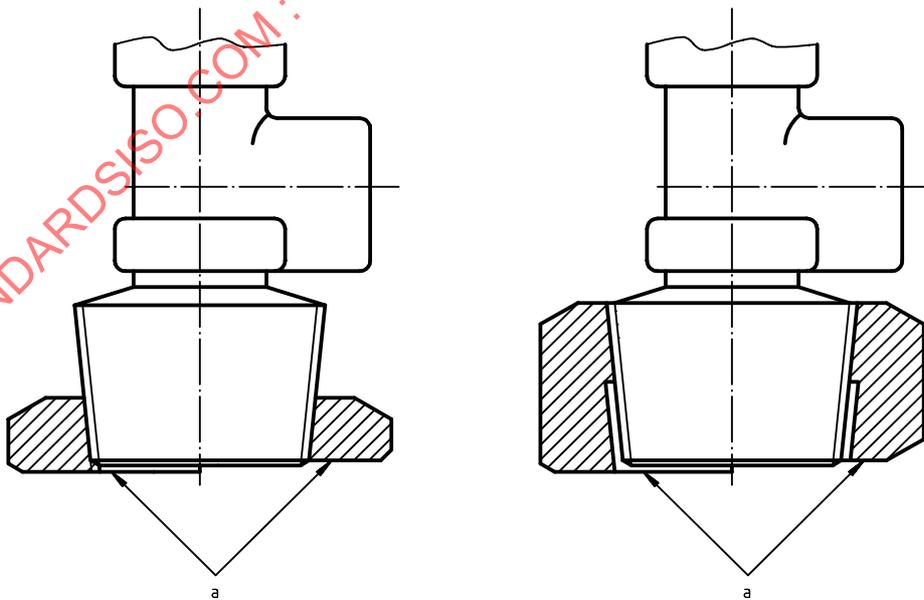
^a Test surface

Figure 17 — Use of two-part plug gauge



^a Test surface

Figure 18 — Use of single-part ring gauge



^a Test surface

Figure 19 — Use of two-part ring gauge

7 Verification of inspection gauges

7.1 General

During use, inspection gauges will wear and can be damaged. The user shall ensure that the gauges are checked regularly to affirm that they remain within the specified dimensions. Frequency of checks required, will depend upon usage and shall be the responsibility of the user.

7.2 Plug gauges

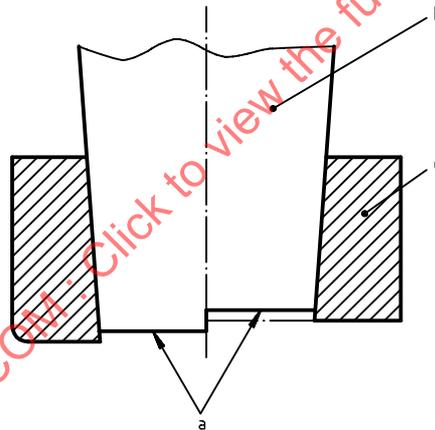
Verification of inspection plug gauges shall be carried out directly, using optical or other suitable equipment.

7.3 Ring gauges

Verification of inspection ring gauges cannot be carried out directly. Two check plug gauges, as shown in Figure 14 and Figure 15, shall be used.

7.4 Use of check gauges

The plain check plug gauge shall be placed into the plain inspection ring gauge and the threaded check plug gauge shall be screwed into the threaded inspection ring gauge. The inner stepped surface of the inspection ring gauge test surface shall be flush with, or within either of the two test surfaces of the check gauge (see Figure 20). Undue force shall not be used.



- a Test surface
- b Check gauge
- c Ring gauge

Figure 20 — Use of check gauges

8 Identification

8.1 Inspection gauges

Inspection gauges shall be identified by the following information.

- ISO 11116;
- 17E;
- "I" (followed by the appropriate number of the gauge, e.g. "I-3").

8.2 Check gauges

Check gauges shall be identified by the following information.

- ISO 11116;
- 17E;
- "M" (followed by the appropriate number of the gauge, e.g. "M-2").

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