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Plinske jeklenke - Montaža ventilov na plinske jeklenke - Dopolnilo A1 (ISO 13341:2010/DAM 1:2013)

Gas cylinders - Fitting of valves to gas cylinders - Amendment 1 (ISO 13341:2010/DAM 1:2013)

Gasflaschen - Eindrehen von Ventilen in Gasflaschen - Änderung 1 (ISO 13341:2010/DAM 1:2013)

Bouteilles à gaz - Montage des robinets sur les bouteilles à gaz - Amendement 1 (ISO 13341:2010/DAM 1:2013)

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Transportable gas cylinders — Fitting of valves to gas cylinders

Bouteilles à gaz transportables — Montage des robinets sur les bouteilles à gaz

[Revision of first edition (ISO 13341:1997)]

ICS 23.020.30

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ISO/DIS 13341**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.

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

ISO 13341 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, and by Technical Committee CEN/TC 23, *Transportable gas cylinders* in collaboration.

This second edition cancels and replaces the first edition (EN ISO 13341:1997), which has been technically revised.

Transportable gas cylinders — Fitting of valves to gas cylinders

1 Scope

This standard specifies the essential procedures to be followed when connecting cylinder valves to gas cylinders. It applies to all valve and cylinder combinations connected with ISO screw threads given in the normative references. It defines routines for inspection and preparation prior to valving for both taper and parallel screw threads.

Torque values are given in Annex A for steel and aluminium gas cylinders including composite cylinders with steel or aluminium connectors.

NOTE ISO/TR 11364 lists the valve to gas cylinder threads in use worldwide. This report gives details of the thread identification codes, whether the threads are interchangeable with ISO threads and if the taping procedure and torque values specified in this standard can be used. The technical report will give clear guidance for the method and torque for all listed inline threads, which are not interchangeable.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 10920, Gas cylinders — 25E taper thread for connection of valves to gas cylinders — Part 1: Specification.

ISO 11114-2, Transportable gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 2: Non-metallic materials.

ISO 11119-2, *Gas cylinders of composite construction — Specification and test methods — Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners*

ISO 11119-3, *Gas cylinders of composite construction — Specification and test methods — Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load sharing metallic or non-metallic liners*

ISO 11363-1, Gas cylinders — 17E and 25E taper threads for connection of valves to gas cylinders — Part 1: Specification.

ISO 14245, Gas cylinders — Specification and testing of LPG cylinder valves — Self-closing.

ISO 15245-1, Gas cylinders — Parallel threads for connection of valves to gas cylinders — Part 1: Specification.

ISO 15995, Gas cylinders — Specification and testing of LPG cylinder valves — Manually operated.

ISO 22434, Transportable gas cylinders — Inspection and maintenance of cylinder valves

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3 General requirements and recommendations

Cylinders and valves shall be connected so that in use the combination is gas tight and the valve cannot be removed inadvertently from the cylinder.

The tools used to screw the valve into the gas cylinder shall fit the valve properly and the gas cylinder shall be secured against rotation during the torquing process. The tools shall not cause damage to either the valve or the cylinder. Minor marks to the valve and the cylinder are acceptable. The cylinder and the valving tool axes shall be aligned.

In addition, some composite cylinders need special treatment for the valving process e.g. fixing the neck/metal boss during torquing.

Special instructions, if any, given by the cylinder manufacturer shall be followed.

Sealing materials used between the valve stem and cylinder neck threads shall be compatible with the gas to be contained in the cylinder, in accordance with ISO 11114-2.

For both taper and parallel threads, the torque ranges given in Annex A shall not be exceeded, except as per indicated in 7.3. The maximum level of torque shall not be exceeded for taper threads because this will give rise to a high stress in the valve stem and in the cylinder neck. Valve manufacturers shall make available instructions where their specific recommendations regarding their product over-rides those in this standard, for example, if their maximum torque recommendation is less than that allowed by Annex A.

Great care shall be taken with aluminium alloy cylinders, for which valving torques are lower than for steel cylinders. Such cylinders shall not be valved at temperatures above ambient because, on cooling, differential contraction between the cylinder and the valve will give rise to a high stress in the cylinder neck.

All tools used for valving cylinders shall be periodically checked for torque by measuring the applied torque on a valved cylinder as indicated in 5.4.3 for taper threads and in 6.5 for parallel threads.

NOTE Many machine tools rely on the friction between the valve and gas cylinder threads to stop the machine turning once the correct torque has been reached. For fast running machines the inertia to be absorbed before the machine stops may result in valving torques being in practice far higher than the machine set point.

4 Preparation

4.1 Each valve and cylinder thread shall be examined to ensure that they are to the same (or equivalent) dimensional standard, e.g. ISO 11363-1 or ISO 15245-1.

NOTE Some standards require that valve and cylinder threads are identified by marking (see ISO 10297 and ISO 13769).

4.2 The valve and cylinder threads shall be visually inspected for integrity and, where applicable, for damaged 'O' ring sealing surfaces. In particular, when valving aluminium alloy cylinders, the bottom threads on the stem of valves and the lower threads within the cylinder neck, shall be fully formed at the root of the thread and free from ragged edges or burrs. Similar care is required when fitting stainless steel valves to all cylinders. Acceptance criteria for used valves are given in ISO 22434.

4.3 Threads and sealing surface on both valve and cylinder shall be checked for cleanliness. Any remnants of old PTFE sealing tape or other sealants, paints and other contaminants shall be completely removed. Care should be taken to prevent any debris falling into the cylinder.

4.4 In particular, the top face of the cylinder where a parallel thread is used shall be free of paint, debris or other contamination so that the valve flange can rest directly on it when the cylinder has been valved.

5 Valving procedure for taper threaded valves

5.1 General

Thread sealing may be achieved using lubricant tape in accordance with 5.2 or soft metal caps in accordance with 5.3. Alternative sealing methods may be used e.g. paste, PTFE caps, in which case refer to the manufacturer's instructions.

5.2 Wrapping with lubricant tape

5.2.1 Wrapping of the valve stem with tape shall commence at the small end of the taper, the tape shall be wound clockwise when looking from the base of the valve.

5.2.2 Wrapping shall commence beyond the small end of the valve taper, so that it protrudes by a maximum of 3 mm and a minimum of 1 mm. Tape shall be overlapped during wrapping to give an even double thickness all the way up the valve stem. At the small end however, there shall be a minimum of 3 layers of tape (see 5.2.5).

NOTE The number of layers may be adjusted depending on thickness of tape. Excessive tape thickness may increase the stress or push the tape out.

5.2.3 The tape shall not be excessively stretched during wrapping and shall be carefully torn or cut.

5.2.4 Tape shall be carefully worked into the valve thread profile.

NOTE Adherence between the tape and the valve stem thread form should be established.

5.2.5 Prior to torquing, the valve shall be fitted to the cylinder by hand having previously rolled back the tape which protrudes beyond the valve bottom thread to leave the bottom of the valve clear of tape.

5.3 Application of soft metal caps

5.3.1 Lead caps shall not be used with aluminium alloy cylinders.

5.3.2 The soft metal cap used shall be of the correct size.

5.3.3 After the cap is pulled over the valve stem, it shall be carefully worked into the valve thread profile with a suitable tool or a leather glove, to prevent the bottom end of the soft metal cap being cut off when the valve is fitted.

5.3.4 Prior to torquing, the valves shall be fitted to the cylinder by hand.

5.4 Valve torquing

5.4.1 Once the valve has been screwed in by hand as far as possible and after making sure that enough threads are engaged, a properly fitting tool shall be used to tighten the valve into the cylinder (see clause 3).

5.4.2 For threads according to ISO 11363-1, the torques shall be in accordance with those given in Annex A.

5.4.3 To validate the torque that was applied for fitting, the value shall be measured by further tightening the valve. The minimum value obtained to move the valve shall be within the limits of Annex A. A properly calibrated torque wrench shall be used.

NOTE If curing type of sealants are used, the method described above is not applicable. A specific method should be validated and applied.