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AMENDMENT 1
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Gas cylinders — Refillable composite reinforced tubes of water capacity between 450 L and 3000 L — Design, construction and testing

AMENDMENT 1

Bouteilles à gaz — Bouteilles tubulaires en composite renforcé rechargeables d'une capacité de 450 L à 3000 L — Conception, construction et essais

AMENDEMENT 1

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 3, *Cylinder design*.

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Gas cylinders — Refillable composite reinforced tubes of water capacity between 450 L and 3000 L — Design, construction and testing

AMENDMENT 1

8.5.8 Blunt impact test

Replace the text in 8.5.8 with the following:

8.5.8.1 Procedure

For Type 2 tubes, one empty tube, and if necessary, a second empty tube, shall be subjected to two impacts:

a) one at the tube sidewall midway between the ends;

b) one at the termination of the overwrap near the domes.

For Type 3 and 4 tubes, one empty tube and if necessary a second empty tube, shall be subjected to two impacts:

a) one at the tube sidewall midway between the ends;

b) one at an angle of 45° to strike the shoulder of the tube (mid arc length at the dome).

See Figure 2.

The impact can be conducted by dropping a suitable weight or by a pendulum impact.

The tube shall be secured to ensure it does not move during the impact. The impactor shall be made from a steel bar and have a diameter of between 110 and 120 mm.

Test one — an impactor with a potential energy of 1 200 J shall strike the tube at the positions identified above.

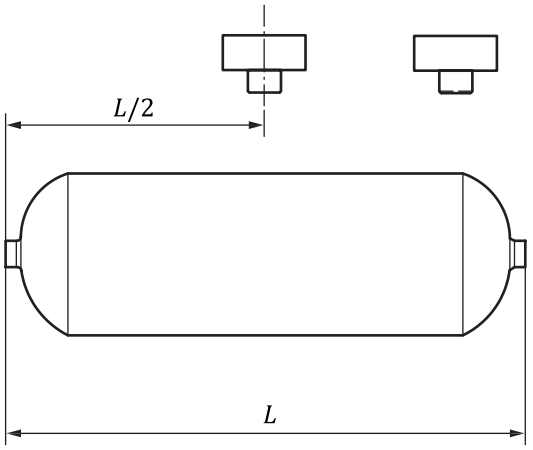
Test two — (if necessary) an impactor with a potential energy of 488 J shall strike the tube at the positions identified above.

The tube shall then be subjected to the appropriate ambient cycle test as described in 8.5.5.

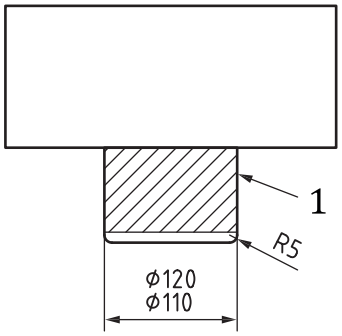
Parameters to monitor and record are:

a) visual appearance after each impact – record position and dimensions of impact damage;

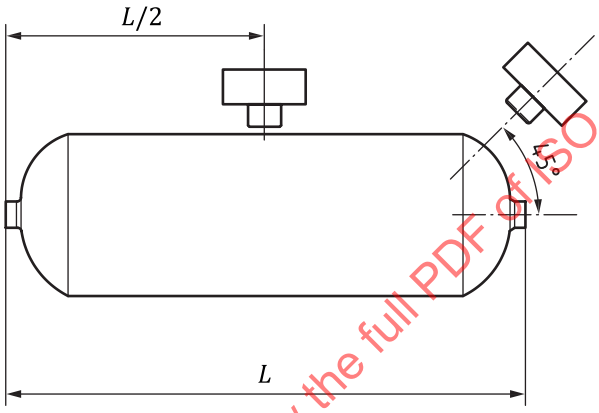
b) parameters specified in 8.5.5.



a) Type 2 tubes



b) Example of impactor



c) Type 3 and Type 4 tubes

Key

1 steel

Figure 2 — Blunt impact test procedure

8.5.8.2 Criteria

The tubes shall withstand 3 000 pressurisation cycles at maximum developed pressure p_{max} without failure by burst or leakage. The test shall continue for additional cycles representing its specified lifetime, or until the tube fails by leakage, whichever is the sooner. In either case the tube shall be deemed to have passed the test. However if failure during this second part of the test is by burst, then the tube shall have failed the test.

A tube passing the test at an energy level of 1 200 J shall be identified as achieving impact resistance level 2, which shall be reported in the qualification report and on the label (see 7.2.1). If the tube does not pass the blunt impact test at this level, a second tube shall be tested at an energy level of 488 J. A tube passing the test at an energy level of 488 J shall be identified as achieving impact resistance level 1, which shall be reported on the qualification report and on the label (see 7.2.1). A tube that does not pass at an energy level of 488 J shall not be approved.