
**Road vehicles — Compressed natural gas
(CNG) fuel system components —**

**Part 1:
General requirements and definitions**

*Véhicules routiers — Composants des systèmes de combustible gaz
naturel comprimé (GNC) —*

Partie 1: Exigences générales et définitions



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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.

Attention is drawn to the possibility that some of the elements of this part of ISO 15500 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15500-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 25, *Road vehicles using natural gas*.

ISO 15500 consists of the following parts, under the general title *Road vehicles — Compressed natural gas (CNG) fuel system components*:

- *Part 1: General requirements and definitions*
- *Part 2: Performance and general test methods*
- *Part 3: Check valve*
- *Part 4: Manual valve*
- *Part 5: Manual cylindrical valve*
- *Part 6: Automatic valve*
- *Part 7: Gas injector*
- *Part 8: Pressure indicator*
- *Part 9: Pressure regulator*
- *Part 10: Gas-flow adjuster*
- *Part 11: Gas/air mixer*
- *Part 12: Pressure relief valve (PRV)*
- *Part 13: Pressure relief device (PRD)*
- *Part 14: Excess flow valve*
- *Part 15: Gas-tight housing and ventilation hose*

- *Part 16: Rigid fuel line*
- *Part 17: Flexible fuel line*
- *Part 18: Filter*
- *Part 19: Fittings*

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Road vehicles — Compressed natural gas (CNG) fuel system components —

Part 1: General requirements and definitions

1 Scope

This part of ISO 15500 specifies general requirements and definitions of compressed natural gas fuel system components, intended for use on the types of motor vehicles as defined in ISO 3833. It also provides general design principles, and specifies requirements for instructions and marking.

This part of ISO 15500 is applicable to vehicles using natural gas in accordance with ISO 15403 (mono-fuel, bi-fuel or dual-fuel applications). It is not applicable to the following:

- a) liquefied natural gas (LNG) fuel system components located upstream of, and including, the vaporizer;
- b) fuel containers;
- c) stationary gas engines;
- d) container mounting hardware;
- e) electronic fuel management;
- f) refuelling receptacles.

NOTE 1 It is recognized that miscellaneous components not specifically covered herein can be examined to meet the criteria of this part of ISO 15500 and tested according to the appropriate functional tests

NOTE 2 All references to pressure in this part of ISO 15500 are to be considered gauge pressures unless otherwise specified.

NOTE 3 This part of ISO 15500 is based upon a service pressure for natural gas as fuel of 20 MPa (200 bar) settled at 15 °C. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio). For example, a 25 MPa (250 bar) service pressure system will require pressures to be multiplied by 1,25.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 3833:1977, *Road vehicles — Types — Terms and definitions*.

ISO 6722-1:1996, *Road vehicles — Unscreened low-tension cables — Part 1: Test methods*.

ISO 6722-2:1996, *Road vehicles — Unscreened low-tension cables — Part 2: Requirements.*

ISO 6722-3:1993, *Road vehicles — Unscreened low-tension cables — Part 3: Conductor sizes and dimensions for thick-wall insulated cables.*

ISO 6722-4:1993, *Road vehicles — Unscreened low-tension cables — Part 4: Conductor sizes and dimensions for thin-wall insulated cables.*

ISO 15403:—¹⁾, *Natural gas — Designation of the quality of natural gas for use as a compressed fuel for vehicles.*

ISO 15500-2:—¹⁾, *Road vehicles — Compressed natural gas (CNG) fuel system components — Part 2: Performance and general test methods.*

ISO 15500-3:—¹⁾, *Road vehicles — Compressed natural gas (CNG) fuel system components — Part 3: Check valves.*

ISO 15501-1:—¹⁾, *Road vehicles — Compressed natural gas fuelling systems — Part 1: Safety requirements.*

DIN 477-1:1990, *Gas cylinder valves rated for test pressures up to 300 bar — Types, sizes, connections, screwthreads.*

ANSI/ASME B1.1:1989, *Unified inch screw threads (UN and UNR thread form).*

3 Terms and definitions

For the purposes of this part of ISO 15500, the following terms and definitions apply.

3.1

valve

device by which the flow of a fluid may be controlled

3.1.1

manual valve

valve which is operated manually

3.1.2

automatic valve

valve which is not operated manually

3.1.3

automatic cylinder valve

automatic valve rigidly fixed to the cylinder which controls the flow of gas to the fuel system

3.1.4

check valve

automatic valve which allows gas to flow in only one direction

3.1.5

excess flow valve

valve which automatically shuts off, or limits, the gas flow when the flow exceeds a set design value

3.1.6

manual cylinder valve

manual valve rigidly fixed to the cylinder

1) To be published.