

INTERNATIONAL STANDARD

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Road vehicles — Filler pipes and openings of motor vehicle fuel tanks — Vapour recovery system

*Véhicules routiers — Tuyaux et orifices de remplissage des réservoirs à
carburant des automobiles — Système de récupération des vapeurs*



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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.

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 13331 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 16, *Reduction of fire risks*.

Annex A of this International Standard is for information only.

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Road vehicles — Filler pipes and openings of motor vehicle fuel tanks — Vapour recovery system

1 Scope

This International Standard ensures compatibility between new petrol-powered vehicle designs and refuelling vapour recovery nozzles — both active and passive systems — by their dimensions and specifications.

NOTE 1 The dimensions and specifications of this International Standard are based on SAE J1140.

This International Standard was developed primarily for passenger car and commercial vehicle applications but may be used in marine, industrial and similar applications where refuelling vapour recovery is required.

For national standards, see annex A.

2 Definitions

For the purposes of this International Standard, the following definitions apply.

2.1 active vapour recovery system: System whereby the vapour is extracted during fuel filling by a powered form of extraction, e.g. a vacuum pump. This system may require sealing of the filler pipe or may be the open type (not sealed).

2.2 passive vapour recovery system: System whereby the vapour leaving a fuel tank is emitted due to the volumetric displacement of the liquid fuel being added which relies on filler pipe sealing to prevent loss of vapour.

2.3 filler pipe sealing surface: That part of the filler pipe against which a certain type of recovery nozzle can effect a vapour-tight seal (see figure 1).

2.4 nozzle test gauge: Gauge with dimensions as shown in figure 6, used to establish the reference lines around which the filler pipe access zone is defined.

2.5 reference plane: Plane which contains the axial centreline of the filler pipe sealing surface, and is rotated into the direction which the manufacturer of the automobile has determined to be the orientation in which the nozzle is to be inserted.

2.6 normal resting position of nozzle test gauge: Gauge position when the following conditions are met.

2.6.1 The gauge is inserted into the filler pipe, such that the axial centreline of the gauge lies in the reference plane.

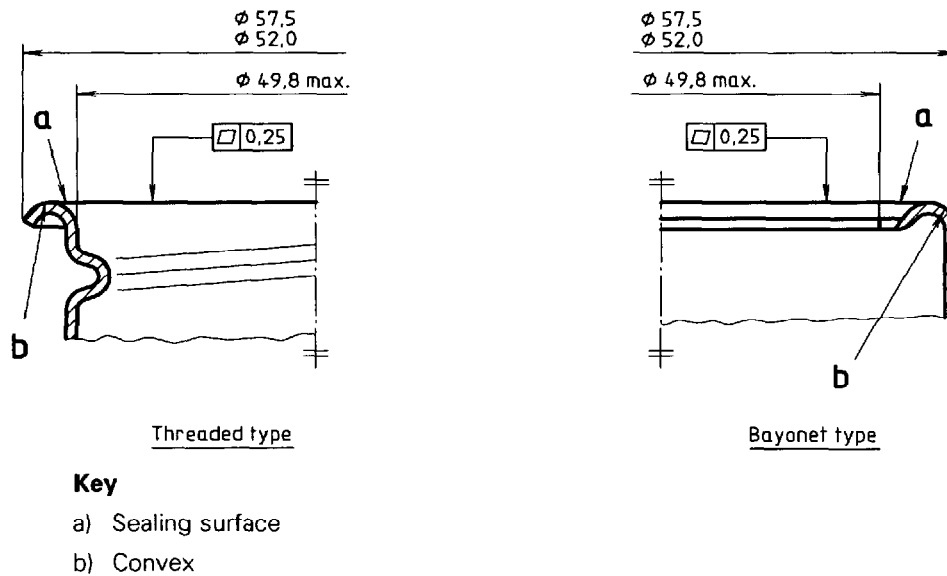
2.6.2 The locking ring of the gauge is located immediately to the inside (i.e. the vehicle tank side) of the locking lip.

2.6.3 Either the gauge locking ring rests upon the filler pipe wall, or the gauge shaft rests upon the locking lip as shown in figures 2 a) and 3 a), respectively.

2.6.4 The fuel-dispensing end of the gauge, as indicated in figures 2 a) and 3 a), is in contact with a restraining point.

2.7 insertion position of nozzle gauge: Gauge position when the following conditions are met.

Dimensions in millimetres

**Figure 1 — Filler pipe sealing surface**

2.7.1 The gauge is inserted into the filler pipe with the axial centreline of the gauge contained in the reference plane.

2.7.2 The gauge locking ring rests on the upper surface of the locking lip so as to raise the gauge axis through the minimum angle (from the normal resting position) required to effect gauge insertion into the filler pipe as shown in figure 4.

2.7.3 The fuel-dispensing end of the gauge, as indicated in figures 2 b) and 3 b), is in contact with a restraining point.

2.8 α angle: Angle between the axial centreline of the nozzle test gauge [designated a in figures 2 a) and 3 a)] when in its normal resting position and the axial centreline of the filler pipe sealing surface [designated b in figures 2 a) and 3 a)], expressed in degrees.

α is considered a positive angle when the fuel-dispensing end of the gauge is pointing down relative to the axial centreline of the filler pipe sealing surface, as illustrated in figures 2 a) and 3 a).

2.9 β angle: Angle between the axial centreline of the nozzle test gauge [designated a in figures 2 b) and 3 b)] when in its insertion position, and the axial centreline of the filler pipe sealing surface

[designated b in figures 2 b) and 3 b)], expressed in degrees.

β is considered a positive angle when the fuel-dispensing end of the gauge is pointing down relative to the axial centreline of the filler pipe sealing surface, as illustrated in figures 2 b) and 3 b).

3 Specifications

3.1 The filler pipe sealing surface shall meet the requirements of figure 1.

3.2 An internal locking lip (see number 4 in figures 2 and 3) shall be provided around at least 100° of the inside circumference of the filler pipe. The locking lip shall be orientated such that it extends at least 35° to either side of the reference plane. The height of the lip shall not be less than 2,5 mm measured from the inside wall of the filler pipe nor less than 8,5 mm as measured from the outside wall of the filler pipe if the outside diameter of the filler pipe is between 52 mm and 57,5 mm (see figure 1). The depth of the lip shall be not less than 4 mm nor more than 13 mm into the filler pipe as measured in the reference plane, from the filler pipe sealing surface (designated n in figure 5, detail X).

3.3 The filler pipe and all surrounding bumpers, body parts, and factory-installed accessories shall be designed and fabricated so that the filler pipe access