
International Standard



7578

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Road vehicles — Glow plugs, sheath type — General requirements and test methods

Véhicules routiers — Bougies de préchauffage du type à fourreau — Caractéristiques générales et méthodes d'essai

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[ISO 7578:1982](https://standards.iteh.ai/catalog/standards/sist/35b6abf4-a4ba-4e5b-a26c-bd04ad7f0a08/iso-7578-1982)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 7578 was developed by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in November 1981.

It has been approved by the member bodies of the following countries :

Australia	Italy	Romania
Austria	Japan	South Africa, Rep. of
Belgium	Korea, Dem. P. Rep. of	Spain
China	Korea, Rep. of	Sweden
Egypt, Arab Rep. of	Netherlands	Switzerland
Germany, F. R.	New Zealand	United Kingdom
Hungary	Poland	USSR

The member bodies of the following countries expressed disapproval of the document on technical grounds :

France
USA

Road vehicles — Glow plugs, sheath type — General requirements and test methods

1 Scope

This International Standard specifies general requirements and test methods for sheath type glow plugs with one insulated terminal.

2 Field of application

This International Standard applies to glow plugs, as specified in ISO 6550, designed for an installation of a nominal voltage of 12 V and used as a starting aid in diesel engines.

3 Reference

ISO 6550, *Road vehicles — Glow plugs M 12 × 1,25 and M 14 × 1,25 sheath type and cylinder head housing dimensions*.

4 General requirements and test methods

4.1 Air leakage test

The sample shall be subjected to an air pressure of 40 bar above normal atmospheric pressure on the sheath end for a duration of 15 s at an ambient temperature of 23 ± 5 °C.

No continuous leakage is allowable in the body of the glow plug.

4.2 Thermal and electrical function tests

The tests shall be carried out at an ambient temperature of 23 ± 5 °C with a test installation equipped with a cooling device as shown in the figure with the aid of which the temperature can be maintained below 30 °C at the sealing seat of the glow plug housing.

The tests shall be carried out at the nominal voltage of the glow plug concerned (as marked on it) with a tolerance of $\pm 0,1$ V.

4.2.1 Glow plug temperature

At the nominal voltage of the glow plug, the sheath shall have reached a temperature of 850 °C at the hottest point (to be specified by the manufacturer) within the measuring distance

of 8 mm, as shown in the figure, after not more than 50 s (designated normal sheath type glow plugs) or not more than 20 s (designated fast warm up sheath type glow plugs).

Under the same conditions the sheath shall have reached 1 000 °C within 60 s for fast warm up types. For normal types no values are specified.

Before the test, the sample shall be made to glow for 2 to 3 min at the nominal voltage to permit oxidation and then allowed to cool to ambient temperature.

4.2.2 Electrical performance

4.2.2.1 Cold resistance

The cold resistance shall be measured at a temperature of 23 ± 5 °C.

The method used shall be such that the current drawn by the glow plug does not change after 1 min by more than 2 %.

Under these conditions the minimum resistance of the glow plug shall be 0,2 Ω.

NOTE — Care shall be taken to ensure that contact resistances are controlled so that they do not induce significant errors.

4.2.2.2 Operational current drawn

The operational current drawn shall be read 60 s after switching on for normal sheath type glow plugs and 30 s after switching on for fast warm up sheath type glow plugs.

The operational current shall not exceed 12 A for normal sheath type glow plugs and 10 A for fast warm up sheath type glow plugs.

4.3 Overvoltage test

The test installation shall be as shown in the figure.

At an ambient temperature of 23 ± 5 °C a test voltage of 125 % of the nominal voltage of the glow plug shall be applied for 15 s.

After this test, the glow plug shall still meet the conditions of the thermal and electrical function tests as specified in 4.2.

Dimensions in millimetres

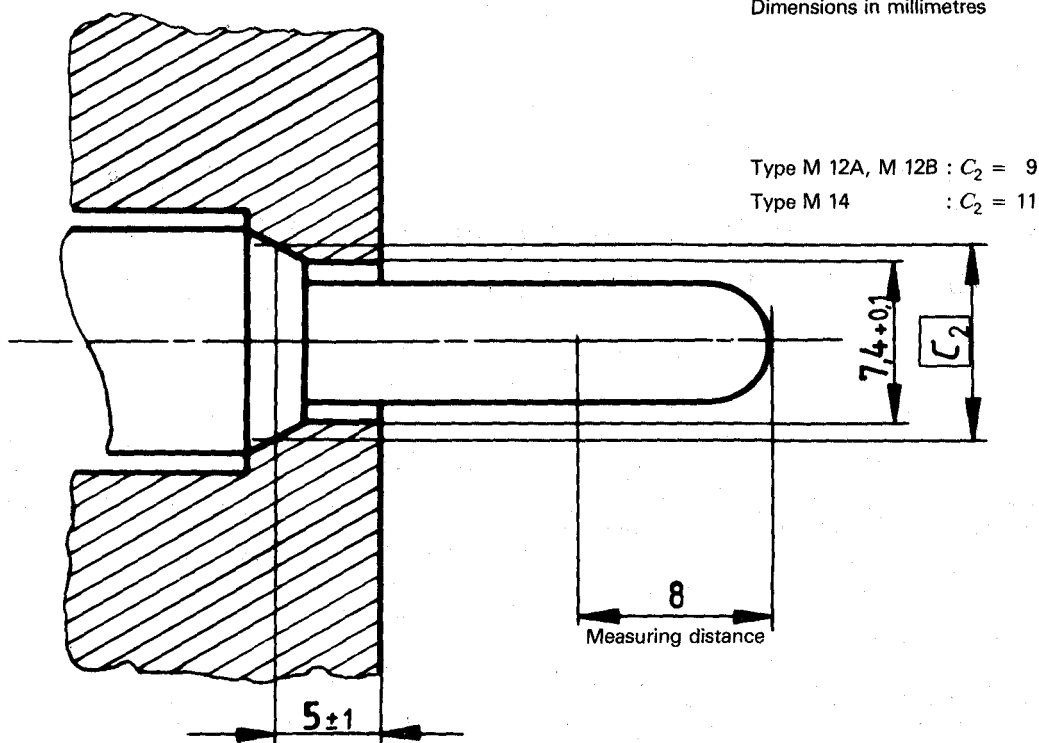


Figure — Test installation
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4.4 Overload test

The test installation shall be as shown in the figure.

Three different test voltages shall be applied to the glow plug, each for a period of 2 min, one immediately after the other.

These test voltages shall be :

- a) the nominal voltage of the glow plug;
- b) the nominal voltage of the glow plug increased by 10 %;
- c) the nominal voltage of the glow plug increased by 15 %.

After this test, the glow plug shall still meet the conditions of the thermal and electrical function tests as specified in 4.2.

4.5 Vibration test

The purpose of this test is to establish the physical integrity of the glow plug under operational conditions.

Since the vibration stress varies according to the engine and vehicle type, the test conditions shall be agreed between the engine manufacturer and the glow plug manufacturer.

4.6 Endurance tests

ISO 7578:1982

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4.6.1 Engine endurance

Since the electrical, thermal and chemical conditions vary according to the engine type, the test conditions shall be agreed between the engine manufacturer and the glow plug manufacturer.

4.6.2 Electrical endurance

The test shall be carried out at an ambient temperature of 23 ± 5 °C, at the nominal voltage of the glow plug $\pm 0,1$ V measured at the glow plug terminal, with a test installation as shown in the figure (see 4.2).

The number of cycles, the time energized, and the cooling time shall be agreed between the engine manufacturer and glow plug manufacturer.

4.7 Marking of the glow plug

The glow plug shall be marked with its nominal voltage and the name and/or trade mark of the manufacturer. (The nominal voltage of the glow plug is in the normal case not the same as the nominal voltage of the installation.)