
**Road vehicles — Unscreened
high-voltage ignition cable assemblies —
Test methods and general requirements**

*Véhicules routiers — Assemblages de câbles d'allumage haute tension
non blindés — Méthodes d'essai et exigences générales*

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6856 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 1, *Ignition equipment*.

This third edition cancels and replaces the second edition (ISO 6856:1990), which has been technically revised.

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Road vehicles — Unscreened high-voltage ignition cable assemblies — Test methods and general requirements

1 Scope

This International Standard specifies test methods and general requirements for unscreened high-voltage ignition cable assemblies, and is applicable to all such assemblies used in road vehicle applications.

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 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 3808-2, *Road vehicles — Unscreened high-tension ignition cables — Part 2: Cable classes, types, applicable tests and special requirements*

3 Test methods

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3.1 General

3.1.1 Preconditioning

Precondition all test samples at $(23 \pm 5)^\circ\text{C}$ and at 10 % to 75 % relative humidity for 24 h before starting any test sequence.

3.1.2 General test conditions

All tests shall be carried out at an ambient temperature of $(23 \pm 5)^\circ\text{C}$, unless otherwise specified.

Each test sequence shall be started with unused test samples.

Cables shall be in accordance with ISO 3808-2, and the cable(s) used shall be noted in the test report.

Cable attachment shall be performed in accordance with customer requirements and/or industry specification.

During the whole test sequence, no lubrication or other additional means on the contact surface making possible better test results shall be permitted. Production-related remains of lubricants on the contacts are allowed.

3.1.3 Visual examination

3.1.3.1 Test

Carry out visual examination with the naked eye, corrected, if necessary, to give normal strength of vision and normal colour perception, at the most favourable viewing distance and with suitable illumination.

3.1.3.2 Requirements

Visual examination in accordance with 3.1.3.1 shall allow identification, appearance, workmanship and finish of the item to be checked against the relevant specification.

During visual examination, special care shall be taken to ensure that — as a minimum requirement — no cracking, significant discoloration, deformation or (where applicable) ingress of water is in evidence.

3.2 Insertion and removal forces of high-voltage connectors

3.2.1 General

The insertion and removal forces shall be measured at an ambient temperature of (23 ± 5) °C, using a gauge as shown in Figure 1, 2, 3 or 4 dependant on the high-voltage connector type.

The gauge and the connector to be measured shall be dry and clean.

Insertion and removal forces shall be the forces between the high-voltage terminal of the ignition coils, the distributors or the spark-plugs and the cable connector. Any other force from covers or boots shall not be taken into account.

Perform ten insertions and removals.

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3.2.2 Insertion force

The insertion force shall be measured at the first insertion.

Maximum value: 80 N

3.2.3 Removal force

3.2.3.1 Test

The removal force measurement shall be carried out by using a suitable test apparatus at a constant test speed of 100 mm/min or 200 mm/min or 500 mm/min. The exact speed used shall be agreed between customer and supplier and recorded in the test report.

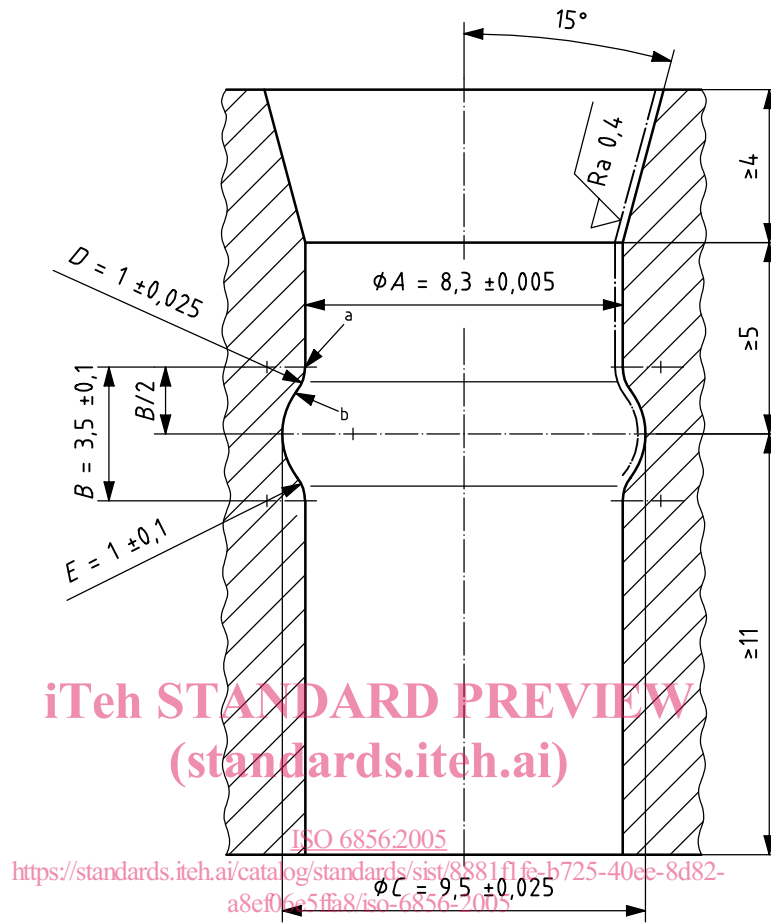
The removal force shall be measured at the tenth removal.

3.2.3.2 Requirements

Maximum value: 70 N

Minimum value: 20 N

Dimensions in millimetres
Surface roughness values in micrometres



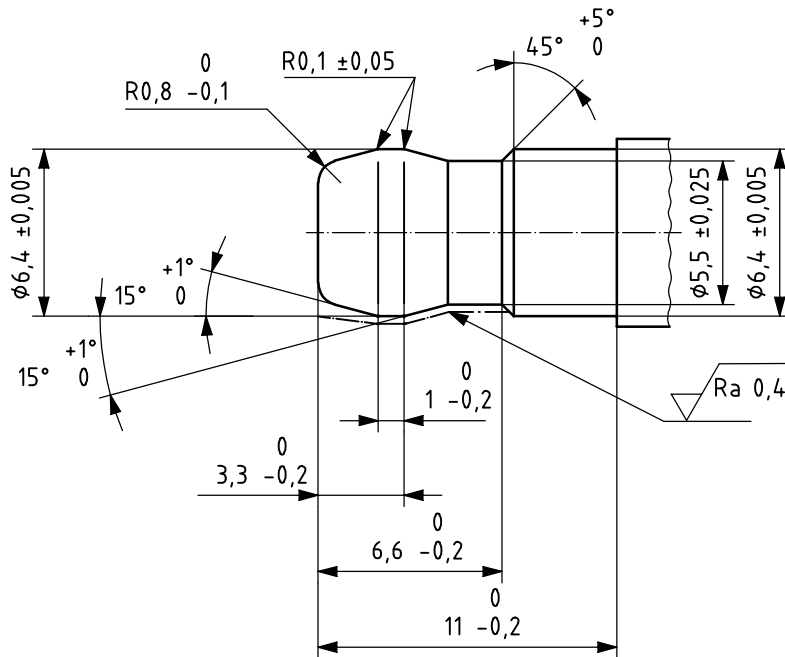
The gauge shall be of hardened steel.

NOTE The tolerances given for the gauge dimensions also include wear tolerances. Dimensions A and D are the most critical.

- a Tangential slope from diameter A to radius D .
- b Tangential slope from radius D to radius F . The value of F is implicitly determined by the values of dimensions A , B , C , D and E .

Figure 1 — Gauge for measurement of insertion and removal forces of high-voltage connectors — Socket type high-voltage connection for ignition coils and distributors

Dimensions in millimetres
Surface roughness values in micrometres



The gauge shall be of hardened steel.

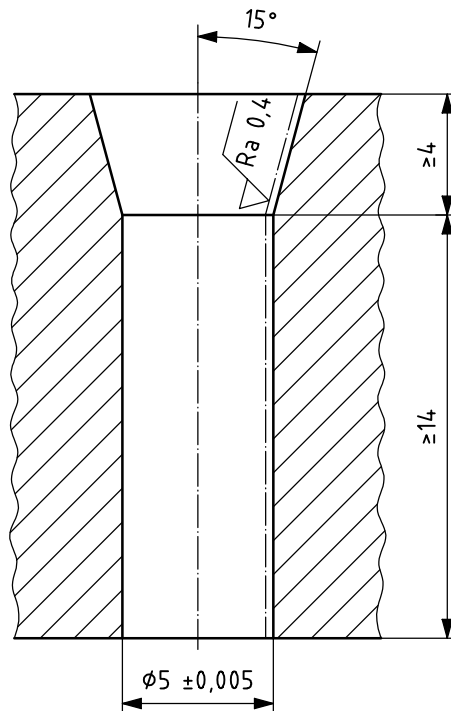
The tolerances given for the gauge dimensions also include wear tolerances.

Dimension $(6,4 \text{ mm} \pm 0,005 \text{ mm})$ and angle 15° are the most critical.

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Figure 2 — Gauge for measurement of insertion and removal forces of high-voltage connectors — Spark-plugs with solid-post terminals, and ignition coils and distributors with plug-type high-voltage connections

Dimensions in millimetres



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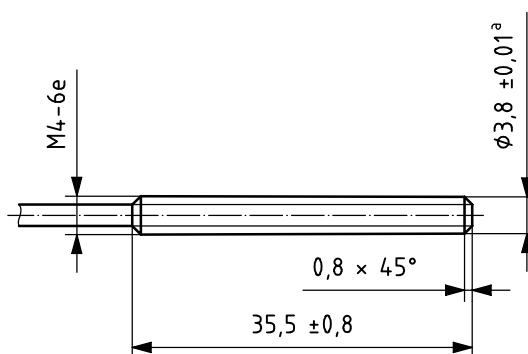
The gauge shall be of hardened steel.

The tolerances given for the gauge dimensions also include wear tolerances.

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Figure 3 — Gauge for measurement of insertion and removal forces of high-voltage connectors — Ignition coils and distributors (5 mm cable type)

Dimensions in millimetres



The gauge shall be of hardened steel.

The tolerance given for the outside diameter of the gauge threaded part also includes wear tolerance.

^a Outside diameter.

Figure 4 — Gauge for measurement of insertion and removal forces of high-voltage connectors — Spark-plugs with threaded terminals