

INTERNATIONAL STANDARD 2344

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Automobiles — Spark plugs M 14 x 1,25 with conical seating

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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 2344 was drawn up by Technical Committee ISO/TC 22, *Automobiles*.

It was approved in October 1971 by the Member Bodies of the following countries :

Australia	Ireland	South Africa, Rep. of
Austria	Israel	Sweden
Belgium	Italy	Switzerland
Czechoslovakia	Japan	Thailand
Egypt, Arab Rep. of	Korea, Dem.P.Rep.of	Turkey
France	Netherlands	United Kingdom
Germany	Portugal	U.S.S.R.

The Member Body of the following country expressed disapproval of the document on technical grounds :

U.S.A.

Automobiles — Spark plugs M 14 x 1,25 with conical seating

1 SCOPE

This International Standard specifies the main dimensional characteristics of a spark plug type used with spark ignition engines.

2 FIELD OF APPLICATION

The provisions of this International Standard apply to spark plugs M 14 × 1,25 with conical seating with a normal or long reach.

3 REQUIRED CHARACTERISTICS

3.1 Terminals (see Figure 3 and Annex)

The preferred type is the solid post terminal.

The threaded terminal with nut is permitted (see Annex).

Engine manufacturers are encouraged to introduce solid post terminals in practice¹⁾.

3.2 Dimensions and thread (see Figures 1 and 2)

3.2.1 Plug reach and cylinder head thread length dimensions

Dimensions in millimetres

Type of reach	A	B max.	Y	Z min.
Normal reach	11,2 ± 0,3	19	10,2 ± 0,3	10,8
Long reach	17,5 ± 0,3	25	16,5 ± 0,3	17,1

3.2.2 Length dimensions

The length dimensions are measured from a gauging plane defined by diameter $\boxed{14,8}$ on the seating.

Dimension 8,2 min. may be reduced subsequently (see Note to 3.2.3).

3.2.3 Dimensions of plug housing in the cylinder head

The length dimensions Z and 7,2 max. in the cylinder head are measured from a gauging plane defined by diameter $\boxed{14,8}$ on the seating.

Dimension Z shall ensure that no threaded portion of the plug reach may enter the combustion chamber when the spark plug is tightened with the torque specified by the manufacturer.

NOTE — The reduction of dimension 7,2 max. should be contemplated as soon as possible by the manufacturers. This dimension will be reviewed in 1973 at the latest. The revision of this dimension may lead to altering that of 8,2 min. for the spark plug as well (see 3.2.2).

3.2.4 Thread

3.2.4.1 Dimension limits

Dimensions in millimetres

		Plug thread (on finished plug) 6e	Tapped hole in cylinder head 6H
Major diameter	max.	13,937	not specified
	min.	13,725	14,000
Pitch diameter	max.	13,125	13,368
	min.	12,993	13,188
Minor diameter	max.	12,404	12,912
	min.	12,181*	12,647

* With a root radius of $\geq 0,125$ mm (0,1 P)

3.2.4.2 Tolerance classes

The tolerance classes of thread M 14 × 1,25 of finished spark plugs and of the corresponding tapped holes in the cylinder head are as follows :

- 6e for spark plugs (see Note 2);
- 6H for tapped holes in the cylinder head.

NOTES

1 The threads M 14 × 1,25 of the spark plugs and the corresponding tapped holes in the cylinder head should conform to

- ISO/R 68, ISO general purpose screw threads — Basic profile.
- ISO/R 261, ISO general purpose metric screw threads — General plan.
- ISO/R 965/I and ISO/R 965/III, ISO general purpose metric screw threads — Tolerances.

1) This recommendation will be re-examined in 3 years.

2 In order that the spark plugs corresponding with this International Standard can be fitted in all existing cylinder heads also in limiting cases, the value for the *upper limiting profile* of the minor diameter of the spark plug base has been slightly reduced with respect to the ISO value. This maximum value of the minor diameter was calculated from a distance of $H/6$ for the *upper limiting profile* instead of $3H/16$ given in Figure 6 of ISO/R 965/I, section 10, according to the formula given below :

$$\begin{aligned} \text{minor diameter max.} &= d_1 - e - 2 (H/4 - H/6) \\ &= 12,647 - 0,063 - 0,180 \\ &= 12,647 - 0,243^* = 12,404 \end{aligned}$$

The value for the basic profile remains the same as for the ISO thread ($12,647 - 0,063 = 12,584$).

3 The initial clearance $e = 0,063$ mm between the pitch diameters of the thread and of the tapped hole is intended to prevent the possibility of seizure, as a result of combustion deposits on the bare threads, when removing the spark plugs.

This clearance is also intended to enable spark plugs with threads in accordance with this International Standard to be fitted in existing tapped holes.

3.3 Other dimensions of the spark plug and the housing in the cylinder head

The other dimensions are indicated on Figures 1, 2 and 3.

NOTE — The diameter $10,5 \pm 0,5$ mm should be complied with between dimensions 29 and 33 mm.

Details not specified are left to the manufacturer's choice.

* This value is given in ISO/R 965/III for the minor diameter.

Dimensions in millimetres

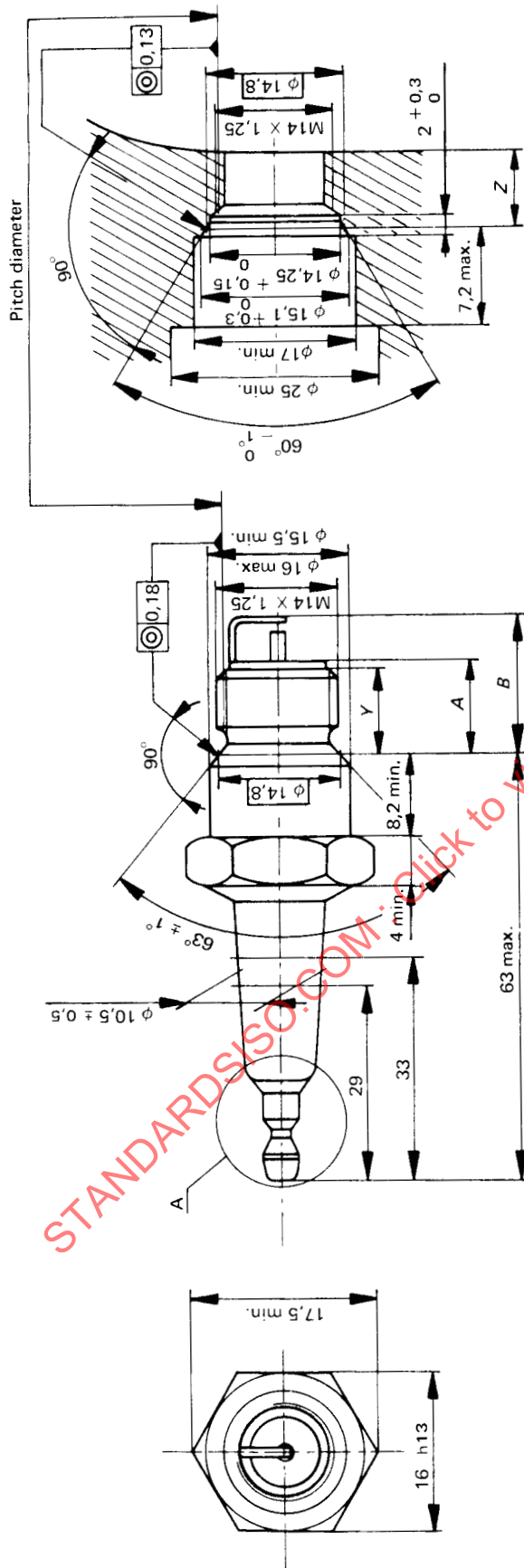


FIGURE 1 — Spark plug M 14 X 1,25 with conical seating

FIGURE 2 — Housing of the spark plug in the cylinder head

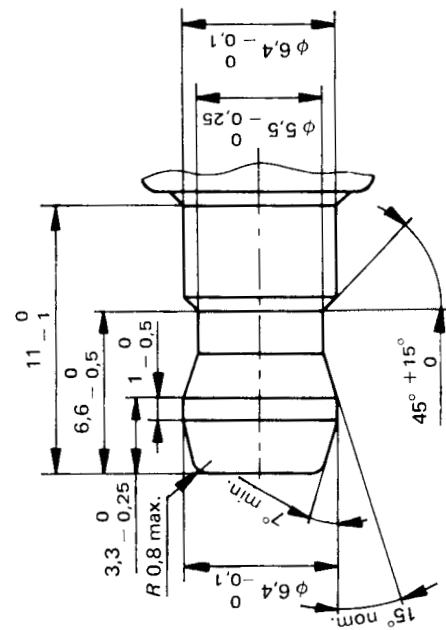


FIGURE 3 — Solid post terminal (Detail A of Figure 1)

ANNEX

THREADED TERMINAL

The external dimensions of the nuts shall be the same as those for the solid post terminal. The internal dimensions of the nuts are left to the manufacturer's choice.

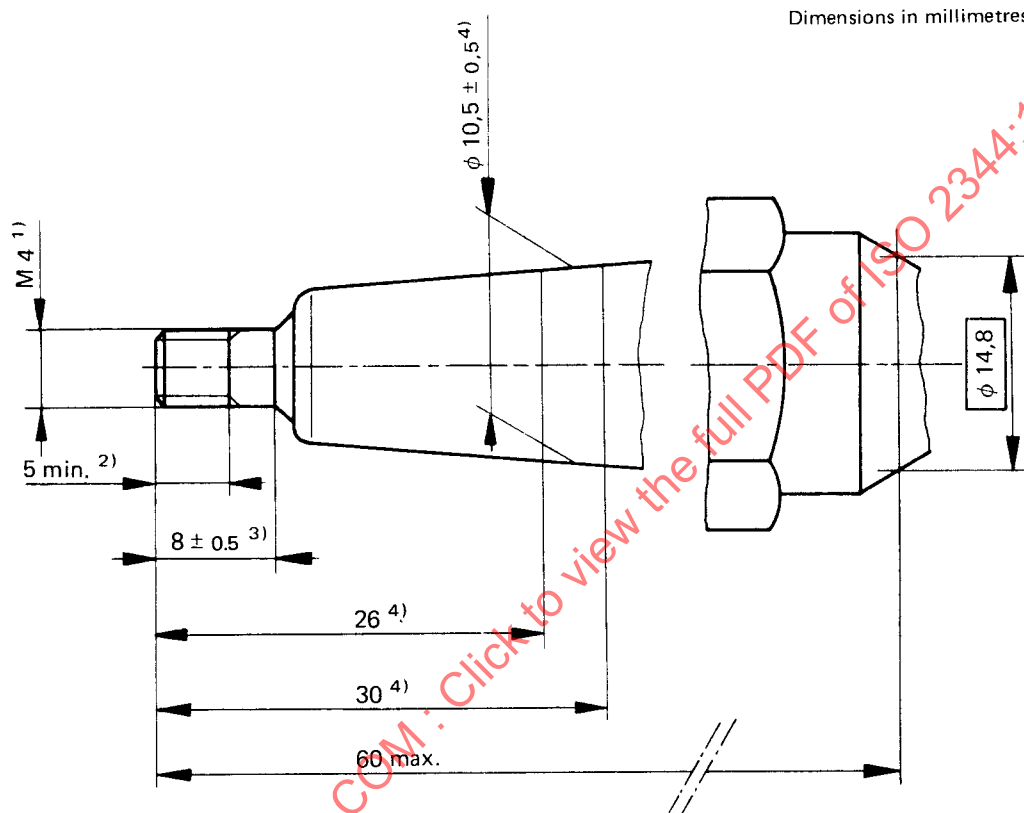


FIGURE 4 – Threaded terminal

The dimension 60 max. is measured from a gauging plane defined by diameter $\boxed{14,8}$ on the seating.

- 1) 0,7 mm pitch complying with ISO/R 68 and ISO/R 261.
- 2) Useful thread.
- 3) Cylindrical part.
- 4) The diameter $10,5 \pm 0,5$ mm shall be complied with between dimensions 26 and 30 mm.