
INTERNATIONAL STANDARD **ISO** 2345



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

Automobiles — Spark plugs M 18 × 1,5 with conical seating

First edition — 1972-12-15

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UDC 621.43.045

Ref. No. ISO 2345-1973 (E)

Descriptors : internal combustion engines, spark plugs, dimensions.

Price based on 4 pages

FOREWORD

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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 2345 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	Israel	Spain
Austria	Italy	Sweden
Belgium	Japan	Switzerland
Czechoslovakia	Korea, Dem. P. Rep. of	Turkey
Egypt, Arab Rep. of	Korea, Rep. of	United Kingdom
France	Netherlands	U.S.A.
Germany	Portugal	U.S.S.R.
Hungary	Romania	
Ireland	South Africa, Rep. of	

No Member Body expressed disapproval of the document.

Automobiles — Spark plugs M 18 × 1,5 with conical seating

1 SCOPE

This International Standard specifies the essential 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 18 × 1,50 with conical seating.

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 Length dimensions

The length dimensions are measured from a gauging plane defined by diameter $\phi 19$ on the seating.

Dimension 13,5 min. is allowed for an interim period. For future manufacturing, the dimension 12,0 min. is recommended.

Dimension $10,9 \pm 0,3$ mm may be increased for certain spark plug types.

3.2.2 Dimensions of spark plug housing in the cylinder head

The length dimensions 10,5 min. and 9 max. in the cylinder head are measured from a gauging plane defined by diameter $\phi 19$ on the seating.

Dimension 10,5 min. shall ensure that no threaded portion of the spark plug reach may enter the combustion chamber when the spark plug is tightened with the torque specified by the manufacturer.

3.2.3 Thread

3.2.3.1 Dimension limits

Dimensions in millimetres

Dimension		Plug thread (on finished plug)	Tapped hole in cylinder head
		6e	6H
Major diameter	max.	17,933	not specified
	min.	17,697	18,000
Pitch diameter	max.	16,959	17,216
	min.	16,819	17,026
Minor diameter	max.	16,092	16,676
	min.	15,845*	16,376

* With a root radius $\geq 0,150$ mm (0,1 P).

3.2.3.2 Tolerance classes

The tolerance classes of thread M 18 × 1,50 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 18 × 1,50 of the spark plugs and the corresponding tapped holes in the cylinder head shall conform with:

- 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*

2 In order that the spark plugs corresponding with this International Standard can be fitted in 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*

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

limiting profile instead of $3H/16$ given in Figure 6 of ISO/R 965/I, section 10, according to the formula given below :

$$\begin{aligned}\text{Minor diameter max.} &= d_1 \text{ es } 2 (H/4 - H/6) \\ &= 16,376 - 0,067 - 0,217 \\ &= 16,376 - 0,284^* = 16,092\end{aligned}$$

The value for the *basic profile* remains the same as for the ISO thread ($16,376 - 0,067 = 16,309$).

3 The initial clearance $e = 0,067$ 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 $12,2 \pm 0,5$ mm shall be complied with between dimensions 29 and 33 mm.

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

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

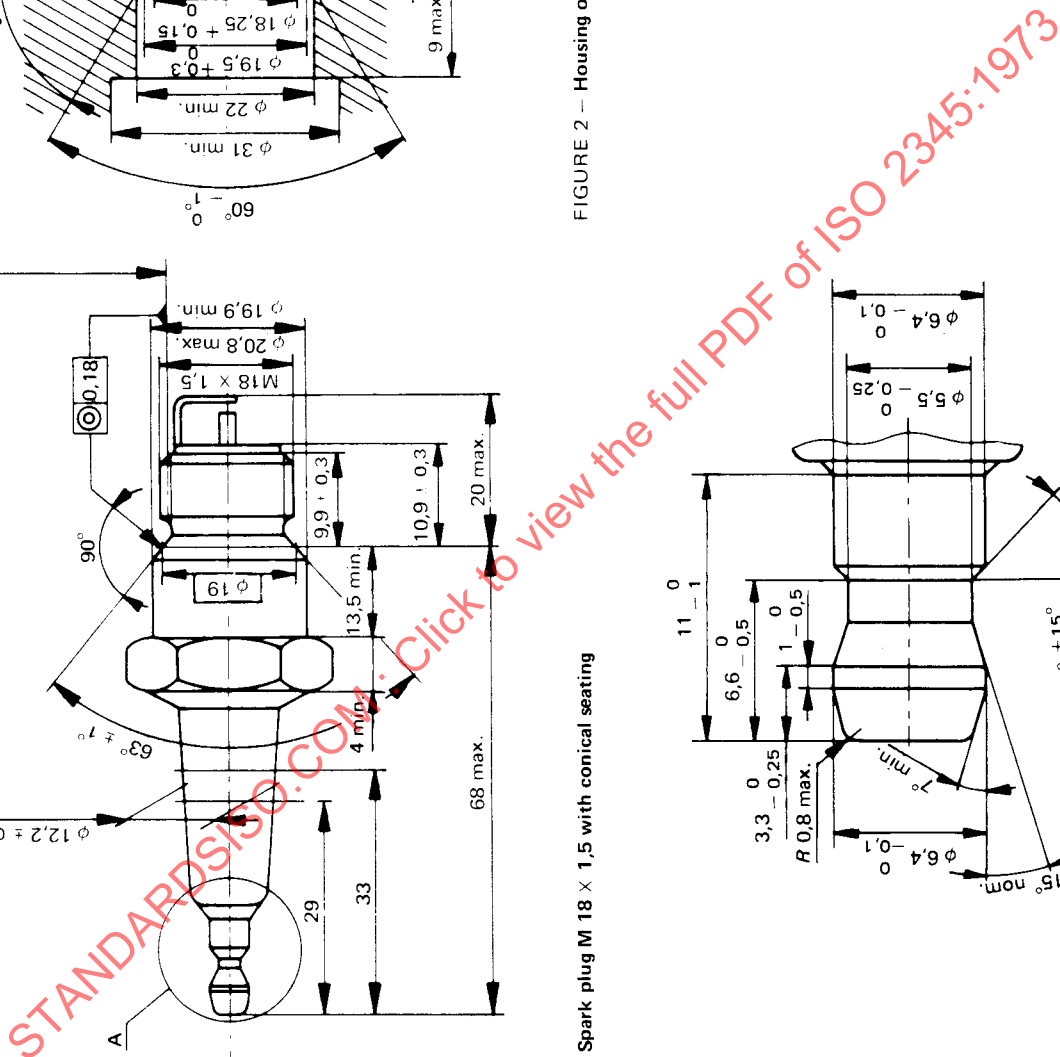


FIGURE 1 – Spark plug M 18 × 1,5 with conical seating

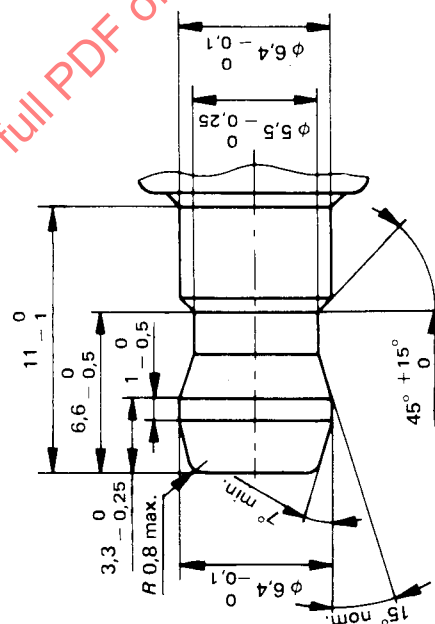


FIGURE 3 – Solid post terminal (detail A of the Figure 1)

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 shall be left to the manufacturer's choice.

Dimensions in millimetres

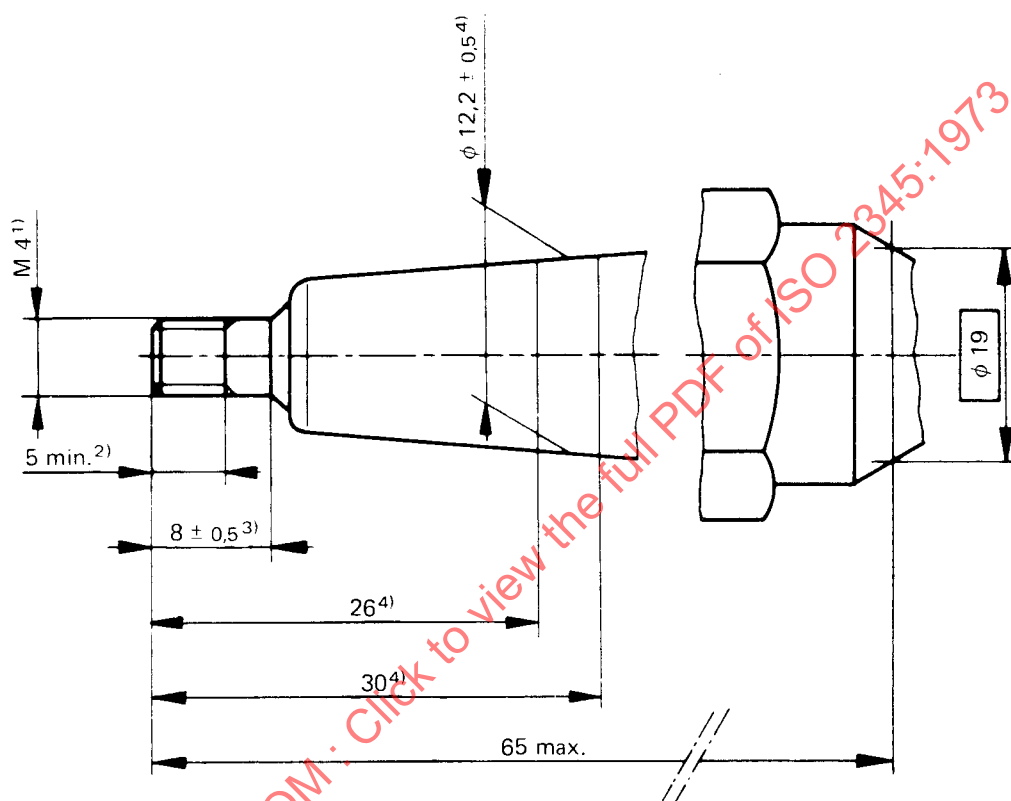


FIGURE 4 – Threaded terminal

The dimension 65 max. is measured from a gauging plane defined by diameter $\phi\ 19$ 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 $12,2 \pm 0,5$ mm shall be complied with between dimensions 26 and 30 mm.