
**Road vehicles — M14 × 1,25 spark-plugs
with flat seating and their cylinder head
 housings**

*Véhicules routiers — Bougies d'allumage M14 × 1,25 à siège plat
et leurs logements dans la culasse*



Foreword

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International Standard ISO 1919 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 1, *Ignition equipment*.

This fifth edition cancels and replaces the fourth edition (ISO 1919:1988), of which it constitutes a technical revision.

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Road vehicles — M14 × 1,25 spark-plugs with flat seating and their cylinder head housings

1 Scope

This International Standard specifies the main characteristics of M14 × 1,25 spark-plugs with flat seating with normal or long reach and their cylinder head housings, for use with spark-ignition engines.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 68:1973, *ISO general-purpose screw threads — Basic profile — Part 1: Metric screw threads.*

ISO 261:1973, *ISO general-purpose metric screw threads — General plan.*

ISO 965-1:1980, *ISO general-purpose metric screw threads — Tolerances — Part 1: Principles and basic data.*

ISO 965-3:1980, *ISO general-purpose metric screw threads — Tolerances — Part 3: Deviations for constructional threads.*

ISO 14508:1997, *Road vehicles — Spark-plugs — Terminals.*

3 Requirements

3.1 Terminals

The spark-plug terminal shall be either the solid post or the threaded type as specified in ISO 14508. A spark-plug with threaded terminal on which a nut is applied shall respect the dimensions specified for spark-plugs with solid post terminals (see figure 1).

3.2 Dimensions and threads (see figures 1 to 3)

3.2.1 Spark-plug reach

Spark-plug reach shall be in accordance with table 1.

Table 1

Dimensions in millimetres

Type of reach	<i>A</i> ± 0,2	<i>B</i> max.	<i>Y</i> ± 0,3
Normal reach	12,7	21	11,7
Long reach	19	27	18

3.2.2 Gasket

When the spark-plugs have been tightened with a torque of 30 N·m, on threads that are clean, smooth and dry, the gaskets shall be 1,3 mm to 2 mm thick. If the gasket thicknesses are different, a corresponding adjustment to dimensions *A*, *B* and *Y* shall be made.

Non-captive gaskets may be used in special cases.

3.2.3 Threads for spark-plugs and cylinder heads

3.2.3.1 General requirements

The threads of M14 × 1,25 spark-plugs and the corresponding tapped holes in the cylinder head shall be in accordance with ISO 68-1, ISO 261, ISO 965-1 and ISO 965-3. Their limiting dimensions and their tolerance classes are specified in 3.2.3.2 and 3.2.3.3 respectively.

3.2.3.2 Limiting dimensions

The limiting dimensions are given in table 2.

Table 2

Dimensions in millimetres

Dimension		Plug thread (on finished plug)	Tapped hole in cylinder head
Major diameter	max.	13,937	not specified
	min.	13,725	14
Pitch diameter	max.	13,125	13,368
	min.	12,993	13,188
Minor diameter	max.	12,404	12,912
	min.	12,181 ¹⁾	12,647

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

3.2.3.3 Tolerance classes

The thread tolerance classes of finished M14 × 1,25 spark-plugs and of the corresponding tapped holes in the cylinder head shall be as follows:

- 6e for spark-plugs (see note 1);
- 6H for tapped holes in the cylinder head.

NOTES

1 In order that spark-plugs complying with this International Standard can be fitted in existing cylinder heads even in extreme cases, the value for the maximum truncation 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 is calculated from a distance of $H/6$ for the maximum truncation instead of the value given by the formula in ISO 965-1:1980, clause 11, according to the following formula:

$$\begin{aligned} \text{Minor diameter, maximum} &= d_1 - es - 2(H/4 - H/6) \\ &= 12,647 - 0,063 - 0,180 \\ &= 12,647 - 0,243 = 12,404 \end{aligned}$$

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

2 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 spark-plugs and their cylinder head housings

The other dimensions shall be as indicated in figures 1, 2 and 3.

The contour of the insulator is optional; however, between the reference planes defined for spark-plugs with solid post terminals by the dimensions 29 mm and 33 mm, and for spark-plugs with threaded terminals by the dimensions 26 mm and 30 mm, its largest diameter shall be $12,2 \text{ mm} \pm 0,3 \text{ mm}$.

The Z length of the spark-plug housing in the cylinder head shall be sufficient to ensure that the end of the spark-plug thread does not project into the combustion chamber at any point when the gasket is tightened to maximum compression.

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

3.4 Installation tightening torque

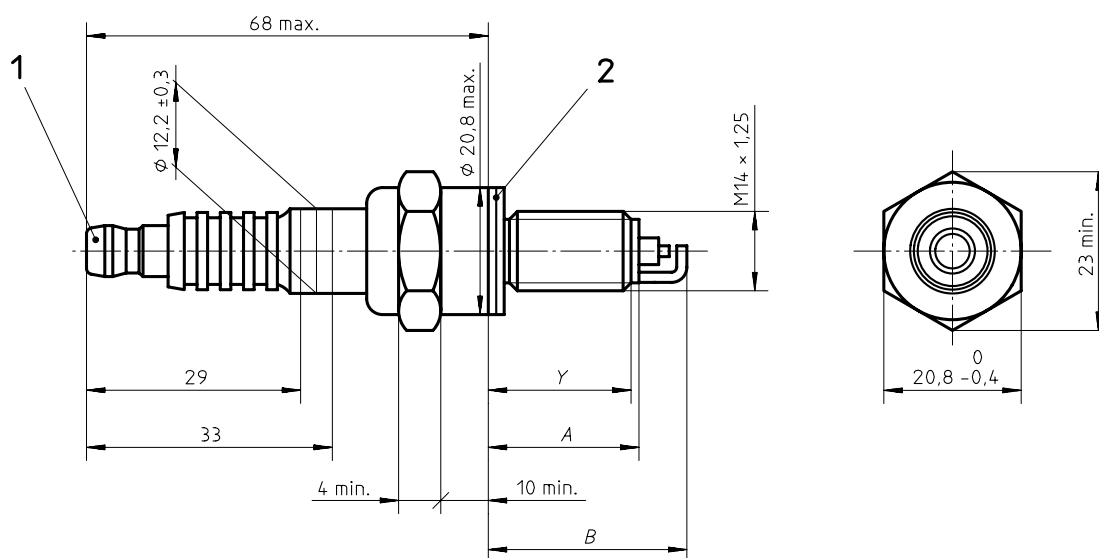
The installation torque values apply to new spark-plugs without lubricant on the threads. If threads are lubricated, the torque value shall be reduced by approximately one-third to avoid overstressing.

Spark-plugs shall be tightened with a torque of

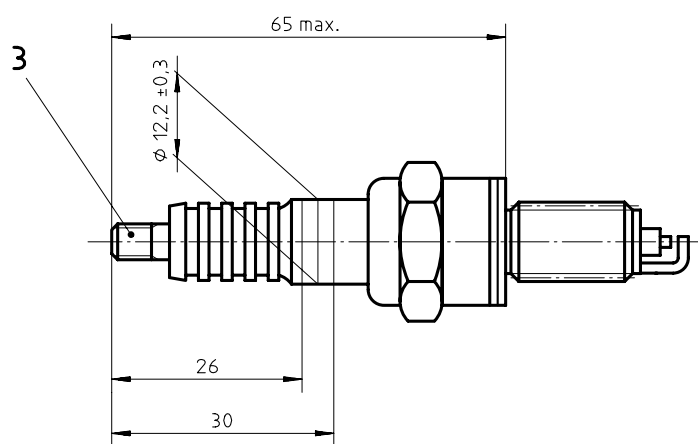
- 20 N·m to 30 N·m in aluminium cylinder heads, and
- 20 N·m to 40 N·m in cast iron cylinder heads.

NOTE — Engine manufacturers may specify a different torque for the first spark-plug installation.

Dimensions in millimetres



a) with solid post terminal



b) with threaded terminal¹⁾

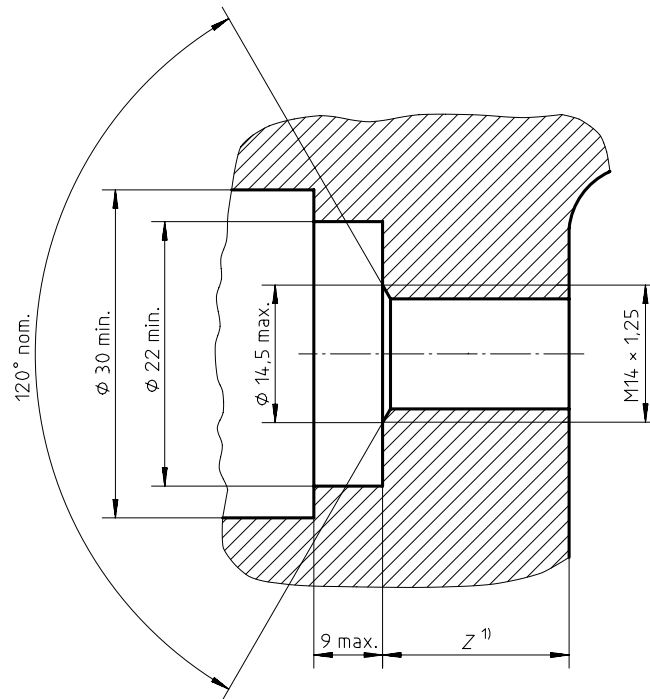
1) For dimensions not shown see figure 1 a).

Key

- 1 Solid post terminal in accordance with ISO 14508
- 2 Captive gasket
- 3 Threaded terminal in accordance with ISO 14508

Figure 1 — M14 x 1,25 spark-plugs with flat seating

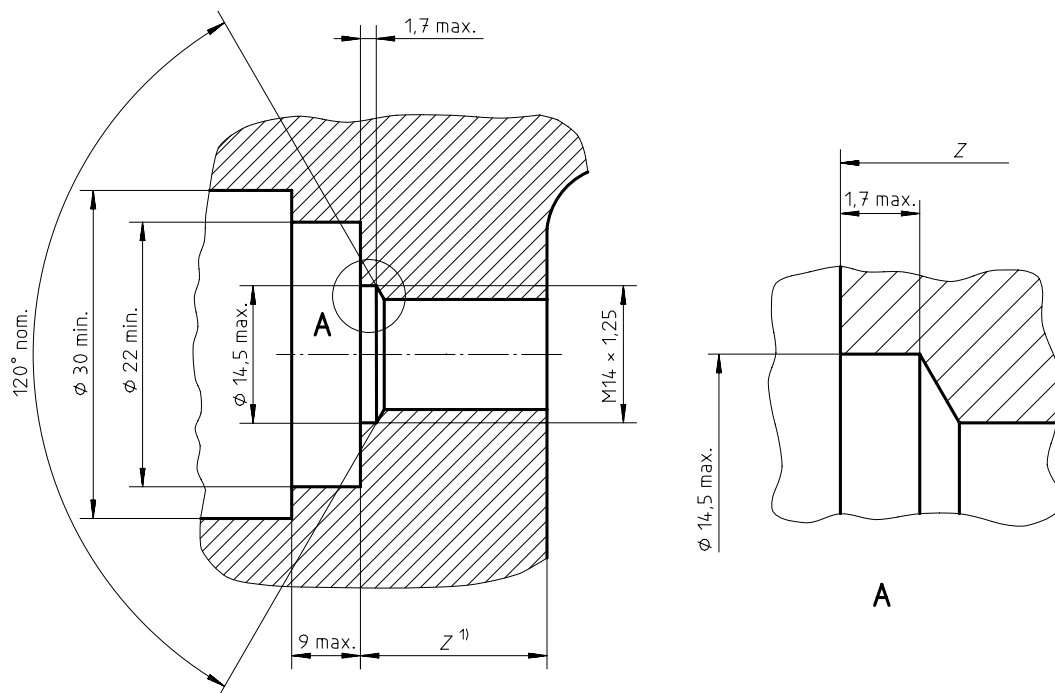
Dimensions in millimetres



1) See 3.3.

Figure 2 — Housing of spark-plug in cylinder head

Dimensions in millimetres



1) See 3.3.

Figure 3 — Optional configuration of housing in cylinder head

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Descriptors: road vehicles, internal combustion engines, controlled ignition engines, ignition systems (engines), spark plugs, housings, specifications, dimensions.

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