International Standard 3895

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

Road vehicles — Screened and waterproof spark plug and its connection — Type 2

Véhicules routiers — Bougie d'allumage blindée et étanche et sa connexion — Type 2

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Descriptors : road vehicles, ignition systems, spark plugs, spark ignition engines, electric connections, dimensions, dimensional tolerances

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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 3895 was developed by Technical Committee ISO/TC 22, *Road vehicles,* and was circulated to the member bodies in December 1978.

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

Australia	Italy	South Africa, Rep. of
Austria	Japan	Spain
Belgium	Korea, Dem. P. Rep. of	Sweden
Bulgaria	Korea, Rep. of	Switzerland
Chile	Libyan Arab Jamahiriya	Turkey
Czechoslovakia	Mexico	United Kingdom
France	Netherlands	USA
Germany, F.R.	New Zealand	Yugoslavia
Ireland	Romania	

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 3895-1976).

Printed in Switzerland

Road vehicles — Screened and waterproof spark plug and its connection — Type 2

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 screened and waterproof spark plugs and their connections, type 2.

3 REFERENCES

ISO 68, *ISO general purpose screw threads — Basic profile.*

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

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

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

ISO 3412, *Road vehicles — Screened and waterproof spark plug and its connection — Type 1.*

ISO 3896, *Road vehicles — Screened and waterproof spark plug and its connection — Type 3.* [1)]

4 REQUIRED CHARACTERISTICS FOR THE SPARK PLUG AND THE HOUSING IN THE CYLINDER HEAD

4.1 Dimensions and thread (see figure)

4.1.1 *Plug reach and installed height*

Dimensions in millimetres

Type of reach	*A*	*B* max.	*C* (see 4.1.2)
Short reach	12,5 ± 0,2	70	1,1 to 1,7
Long reach	20,3 ± 0,2	65	2,0 to 2,3

4.1.2 *Gasket*

When the spark plugs have been tightened with a torque of 48 N·m (threads clean, smooth and dry), the gasket thickness shall correspond with dimension *C* in the table in 4.1.1. If the gaskets are of a different thickness, a corresponding adjustment to dimension *A* shall be made.

4.1.3 *Thread*

4.1.3.1 DIMENSION LIMITS

Dimensions in millimetres

Dimension		Plug thread (on finished plug) 6e	Tapped hole in cylinder head 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 ⩾ 0,150 mm (0,1 *P*).

4.1.3.2 TOLERANCE CLASSES

The tolerance classes of thread M18 × 1,5 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 M18 × 1,5 of the spark plugs and the corresponding tapped holes in the cylinder head shall conform to ISO 68, ISO 261, ISO 965/1 and ISO 965/3.

2 In order that the spark plugs complying 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.

1) At present at the stage of draft. (Revision of ISO 3896-1976.)

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 965/1, clause 10, according to the formula given below :

$$\begin{aligned}\text{Minor diameter max.} &= d_1 - es - 2(H/4 - H/6)\\ &= 16{,}376 - 0{,}067 - 0{,}217\\ &= 16{,}376 - 0{,}284^{1)} = 16{,}092\end{aligned}$$

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

3 The minimum clearance of 0,067 mm, ensured by the tolerance classes 6e and 6H, 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.

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

The other dimensions are indicated on the figure.

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

5 REQUIRED CHARACTERISTICS FOR THE CONNECTION

5.1 Dimension limits of the 3/4-20 UNEF-3 connection thread

Dimensions in millimetres

Dimension		Plug thread 3/4-20 UNEF-3A	Connector thread 3/4-20 UNEF-3B
Major diameter	max.	19,050	not specified
	min.	18,845	19,050
Pitch diameter	max.	18,224	18,333
	min.	18,141	18,225
Minor diameter	max.	17,492	17,873
	min.	not specified	17,679

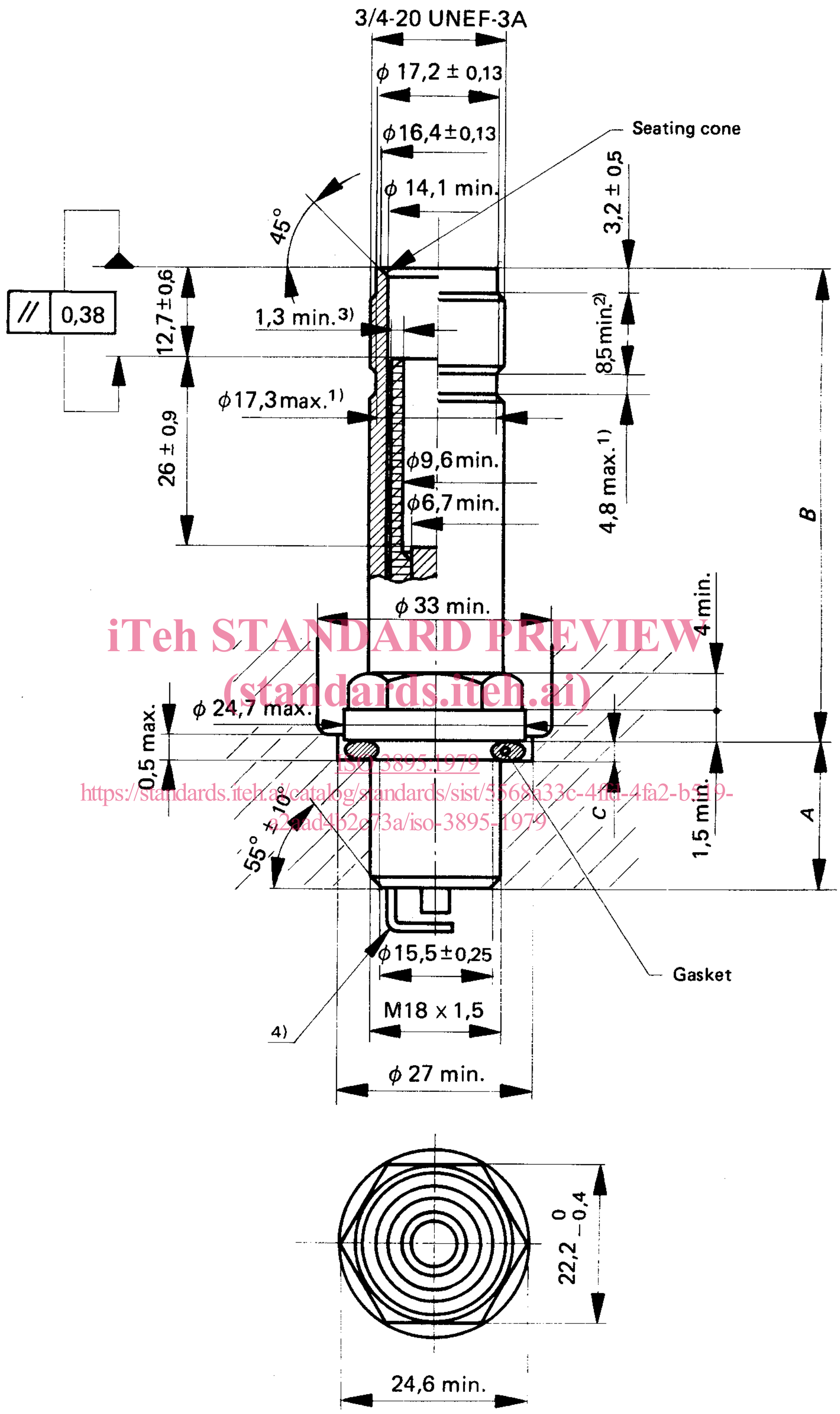
5.2 Other characteristics for the connection

The connector of this spark plug shall have a 3/4-20 UNEF-3B thread and a hexagon size of $22{,}2\ ^{0}_{-0{,}4}$ mm, with a width across corners of 24,6 mm min.

Moreover, the connector fitted to the spark plug must provide good watertightness, good electrical contact and a good screening to radio-electric radiation.

1) This value for the minor diameter is given in ISO 965/3.

Dimensions in millimetres



1) The thread relief is optional.

2) Usable thread length 8,5 min. when thread relief is provided, and 11,4 min. when no thread relief is provided.

3) The surface of 1,3 min. shall be flat and smooth.

4) Electrode gap configuration is optional according to the characteristics of the engine.

FIGURE — **Screened and waterproof spark plug, type 2**

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AMENDMENT SLIP

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Road vehicles — Screened and waterproof spark plug and its connection — Type 2

MODIFICATION TO FOREWORD *(Inside front cover)*

The ISO Member Body for the U.S.A. has now expressed disapproval of this International Standard. The U.S.A. should therefore be included in the list of countries whose Member Bodies have disapproved the document.

Published 1980-09-15

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ERRATUM

Page 1

Clause 3, "References";

Delete the footnote reference "1)" for ISO 3896 and the corresponding footnote.