INTERNATIONAL STANDARD 1103

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

Road vehicles — Caravans and light trailers — Coupling ball — Dimensional characteristics

Véhicules routiers — Caravanes et remorques légères — Boule d'attelage — Caractéristiques dimensionnelles

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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 1103 was drawn up by Technical Committee ISO/TC 22, *Road vehicles*. This second edition was submitted directly to the ISO Council, in accordance with clause 6.12.1 of the Directives for the technical work of ISO.

This International Standard cancels and replaces International Standard ISO 1103-1975, which had been approved by the Member Bodies of the following countries :

Australia	Hungary	South Africa, Rep. of
Austria	Iran	Spain
Belgium	Ireland	Sweden
Brazil	Italy	Switzerland
Bulgaria	Japan	Thailand
Chile	Netherlands	Turkey
Czechoslovakia	New Zealand	United Kingdom
Finland	Poland	Yugoslavia
France	Portugal	
Germany	Romania	

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

U.S.A.

Printed in Switzerland

Road vehicles — Caravans and light trailers — Coupling ball — Dimensional characteristics

1 SCOPE

This International Standard lays down the dimensional characteristics necessary for the compatibility of mechanical coupling devices between light trailers, caravans and towing vehicles when the latter are fitted with a coupling ball.

2 FIELD OF APPLICATION

This International Standard applies to a coupling ball designed for caravans and light trailers, the maximum total weight of which is less than or equal to 3,5 tonnes[1]. It does not necessarily apply to special trailers drawn by special vehicles.

3 REFERENCES

ISO 1176, *Road vehicles — Weights — Vocabulary.*

ISO 3853, *Road vehicles — Caravans and light trailers — Towing brackets and coupling balls — Strength test.*

4 DIMENSIONAL CHARACTERISTICS

4.1 Dimensions and tolerances for coupling ball (see figure 1).

4.1.1 The diameter of the spherical surface of the coupling ball is 50 mm, tolerance h13.

4.1.2 The surface referred to in 4.1.1 is a partial sphere, the upper portion of which terminates above the centre O of the sphere in a flat horizontal surface. The diameter of this surface is 18 ± 1 mm.

The lower portion of the sphere terminates at the intersection of the surface defined above and the horizontal plane located not less than 15 mm below point O.

4.1.3 The connecting radius between the ball and the neck should be tangent both to the neck and to the lower horizontal surface as defined in 4.1.2.

4.1.4 The diameter of the neck of the ball shall be between 27 and 29 mm, down to a horizontal plane situated at not less than 32 mm below point O.

4.2 Marking

When coupling balls are manufactured to the requirements of this International Standard, the marking "ISO 50" shall be applied on the surface forming the upper limit of the zone defined in 4.1.2. This marking, which only implies dimensional conformity, shall be complemented if necessary by the marking indicated in ISO 3853.

Dimensions in millimetres

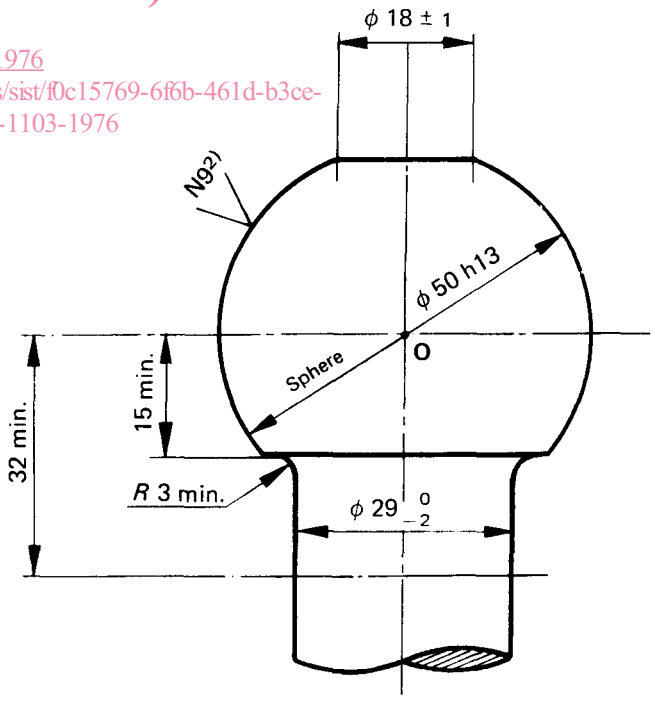

FIGURE 1 — **Dimensions and tolerances of the coupling ball**

1) This value is chosen to include categories 01 and 02 of trailers according to the classification of vehicles given in document E/ECE/324/Rev. 1/Add. 12 of the Economic Commission for Europe of the United Nations.

This document is entitled : *"Agreement concerning the adoption of uniform conditions of approval and reciprocal recognition of approval for motor vehicle equipment and parts* — done at GENEVA on 20 March 1958 — Addendum 12 : Regulation No. 13 to be annexed to the Agreement : *Uniform provisions concerning the approval of vehicles with regard to braking".*

2) See ISO/R 468 and ISO 1302; the roughness number N9 refers to an R_a value of 6,3 μm.

4.3 Installation dimensions

4.3.1 The axis of the ball neck passes through the ball centre O, and shall be vertical down to a horizontal plane located not less than 32 mm below point O.

4.3.2 The centre of the ball shall be located at a distance from the ground between 350 and 420 mm (vehicle laden)[1].

4.3.3 Figure 2 defines the clearance space to be maintained around the coupling ball.

Dimensions in millimetres

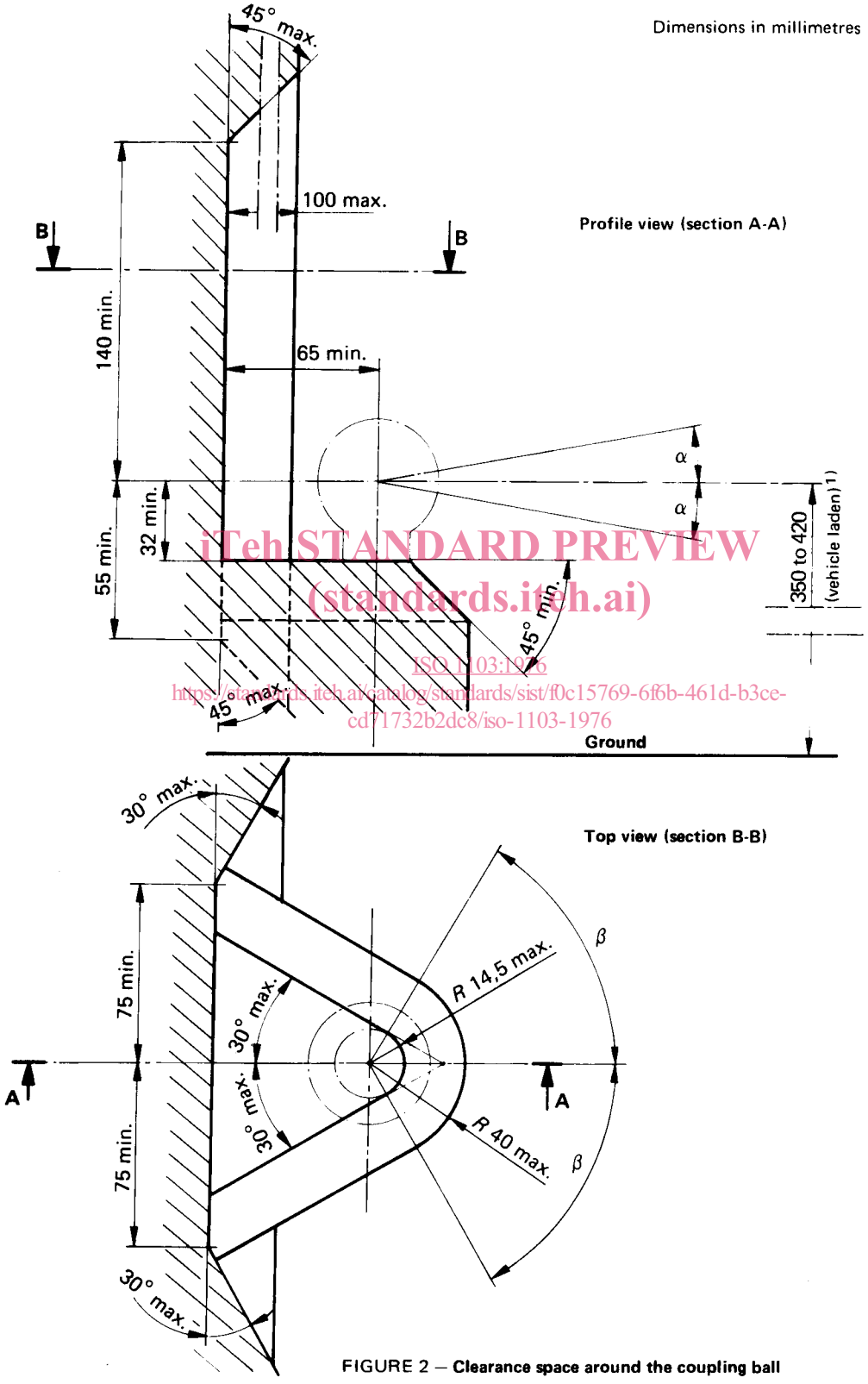

FIGURE 2 — **Clearance space around the coupling ball**

NOTE — The clearance space defined on the sketches of figure 2 is provided to allow normal coupling and uncoupling operations with angles $\alpha = 10°$ min., and $\beta = 60°$ min. and free movement angles of the coupling head $\alpha = 25°$ min., and $\beta = 60°$ min. in the locked position.

1) By "vehicle laden" is meant the maximum total weight set by the manufacturer, respecting the axle load distribution.