Doc. TED 22 (12922)WC
JULY 2023

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा
ट्रैक्टर और ट्रेलरो के बीच वायवीय युग्मन के लिए विशिष्टिता

Draft Indian Standard

SPECIFICATION FOR PNEUMATIC COUPLING BETWEEN TRACTORS AND TRAILERS

(First Revision of IS 9905)

ICS 43.040.70;65.060.10

Transport Tractors, Trailers and Industrial Trucks Sectional Committee, TED 22

Last date for receipt of comments is 25.09.2023

Transport Tractors, Trailers and Industrial Trucks Sectional Committee, TED 22

FOREWORD

(*Formal clauses to be added later on*)

This standard was first published in 1981 and was based on IS0 1728: 1980 ‘Road vehicles - Pneumatic braking connections between motor vehicles and towed vehicles - Interchangeability’. This was formulated to ensure interchangeability of the pneumaticbraking connections between tractors and trailers.

Revision of this standard has been taken up to accommodate the advancement in technology and to incorporate the changes introduced in ISO 1728 :2006.

Major change in this revision is introduction of clause 3.4.2.

Committee responsible for formulation of this standard is given at Annex-XXX (will be added later)

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off numerical values (second revision)’. The number of significant places retained in the rounded off value should bethe same as that of specified value in this standard

Draft Indian Standard

SPECIFICATION FOR PNEUMATIC COUPLING BETWEEN TRACTORS AND TRAILERS

(First Revision of IS 9905)

1 SCOPE

1.1 This standard specifies the requirements which ensure interchangeability of the pneumatic braking connections between motor vehicles and towed vehicles.

1.2 It concerns vehicle combinations equipped with pneumatic braking systems with two lines: one control line and one supply line.

2 REFERENCES

The following Indian Standard is necessary adjuncts to this standard. At the time of publication, the editionindicated was valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

ISO 4009 : 2000	Commercial vehicles – Location of electrical and pneumatic connections between towing vehicles and trailers.

3 REQUIREMENTS

3.1 General

The towing vehicle shall be equipped with an automatic device ensuring, without manual operation, the continuity of the pipelines when they are coupled, and their closure on uncoupling, this device shall not affect interchangeability.

The coupling head shall make provision for any type of valve to be fitted to the towing vehicle, provided that the valve may be opened by the standard coupling head on the towed vehicle and that the ability to be coupled with all coupling heads corresponding to this standard is not compromised.

3.2 Coupling Head Type

The “Palm type” coupling head shall be used. It shall be fitted with an inhibiting device to prevent incorrect coupling (see Fig. 2 and 3).

3.3 Coupling Head Dimensions

The dimensions of the coupling heads shall be as given in Tables 1 and 2, and as shown in Fig.2 and 3.

NOTE — This standard specifies only the dimensional details necessary for the coupling. All other dimensions not shown, as well as details of design, are left to the discretion of the manufacturer.

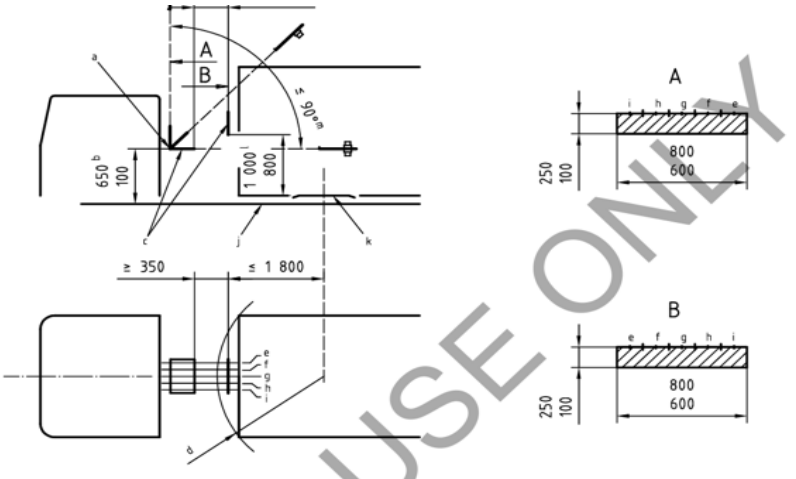
3.4 Location of Coupling Heads and Flexible Pipe Connections

Location of Coupling Heads and Flexible Pipe Connections shall be either as per **3.4.1** or **3.4.2**

3.4.1 The locations of both electrical and pneumatic connections between towing and towed vehicles are specified in ISO 4009. The location of coupling heads and flexible pipe connections on the towing and towed vehicles shall comply with ISO 4009.

3.4.2 If the dimensions "a" as shown in Fig. 1 are not fulfilled, the coupling heads and flexible pipe connections should be installed such a way that, they are easily accessible for coupling / de-coupling and in operation they do not come in contact with sharp edges of vehicle structure when mounted on the prime mover.

Similarly, the coupling heads and flexible pipe connections can be mounted between 400 to 1500 mm instead of the dimension 600 to 800 mm shown in view "A" of Fig. 1 provided they do not come in contact with sharp edges of vehicle structure and does not have an impact on safe vehicle operation.



a Centre of rotation.

b When connections are mounted lower than 450 mm, the sockets and plugs shall be oriented upwards. Moreover, if dimensions 100 mm to 650 mm are not fulfilled, the designer shall ensure that in operation the coiled pipes and contacts do not come in contact with sharp edges of the vehicle structure (a typical solution is the use of a fixture mounted in front of the wall of the trailer).

c Mounting surfaces.

d See ISO 1726.

e Supply line (see ISO 1728)

f ABS (see ISO 7638-1).

g 7-pin S (ISO 3731).

h 7-pin N/15-pin (ISO 1185, ISO 12098 or alternative connectors).

i Control line (ISO 1728 or alternative quick coupling head).

j Upper edge chassis frame (longitudinal/tractor).

k Upper edge of fifth wheel plate

l For dedicated semi-trailers without a suitable front-wall structure, such as container chassis and semi-trailers with a front refrigeration unit, the couplings may be mounted lower than 800 mm to 1000 mm. However, for safety reasons, mountings shall be as high as possible without risk of fouling the load.

m The arrangement area on the tractor may be turned 90° max. upwards from the horizontal.

FIG. 1 ARTICULATED VEHICLES
(TYPE D LOCATION ZONES)

3.5 Colour Coding for Connections

For the supply line: RED.

For the control line: YELLOW.

The colour shall be related to the coupling head or to a clearly visible point close to the head, for example, pipes or an identification tag.

3.6 Orientation of Coupling Heads

The coupling axis of the fixed coupling heads shall be horizontal. The vertical sealing face shall be located as follows, according to whether it concerns a road train or an articulatedroad train:

Truck : Towards the right when the vehicle is viewed from the rear;

Semi-trailer : Towards the left when the vehicle is viewed from the rear.

3.7 Length of Flexible Pipe Connections

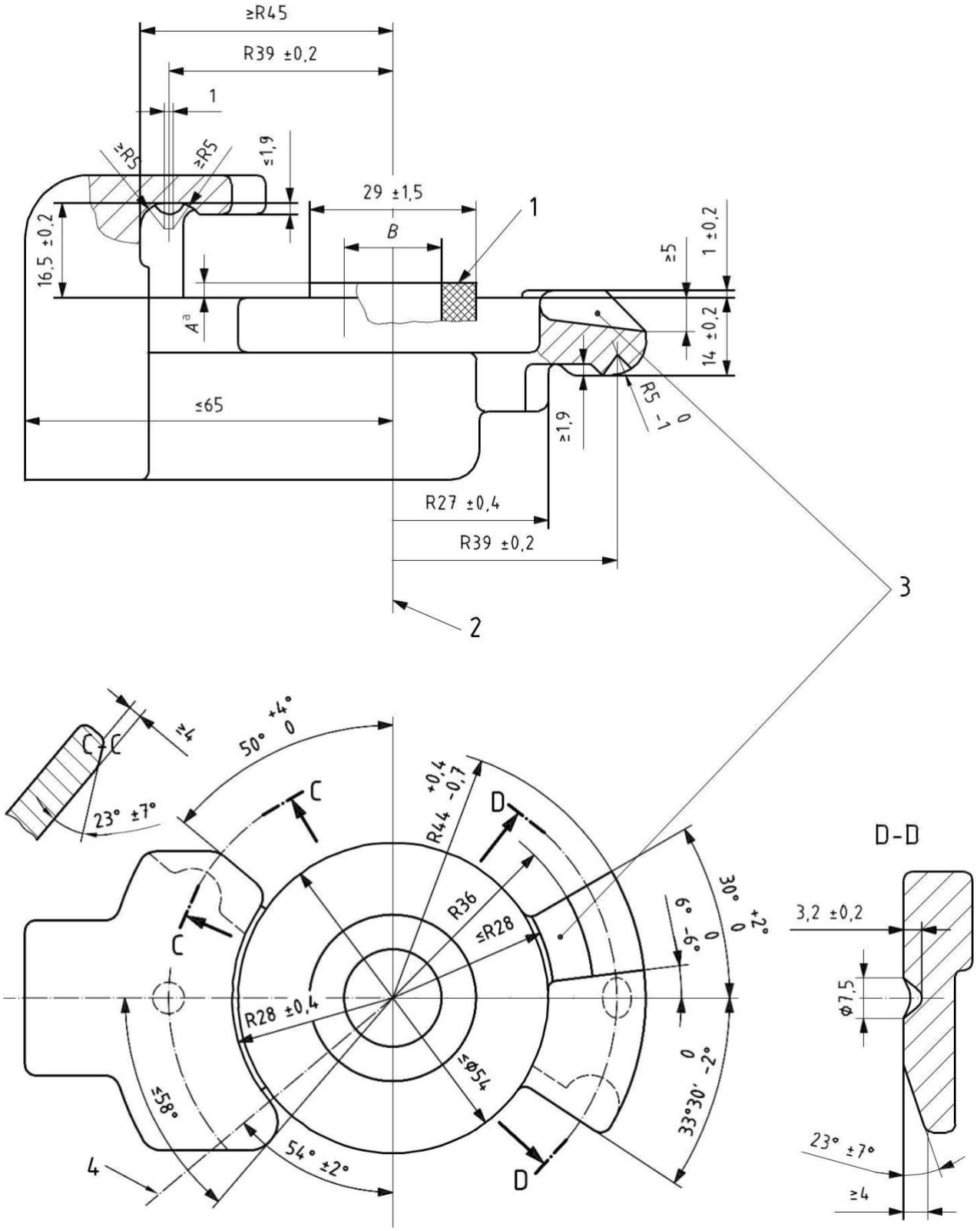
The length of the flexible pipe connections between towing and towed vehicles is specified in ISO 4009. The length of flexible pipe connections on the towing and towed vehicles shall comply with ISO 4009.

Table 1 Dimensions for coupling head for supply line

(Clause 3.3)

Connection	A[a] (mm)	B (mm)
With resilient sealing ring (for heads " tractor" and "trailer")	2.7 ± 0.5	Ø 19 ± 2
With mobile part providing for the opening of the automatic valve (see 4.1)	3.5 + 1	Ø 11 min Ø 21 max.

[a)] The opening of the automatic device shall be assured even when two coupling heads with the most adverse tolerances for pushing down the mobile part are connected together. It shall bepossible to push down the sealing face until the dimension *A* is at zero.

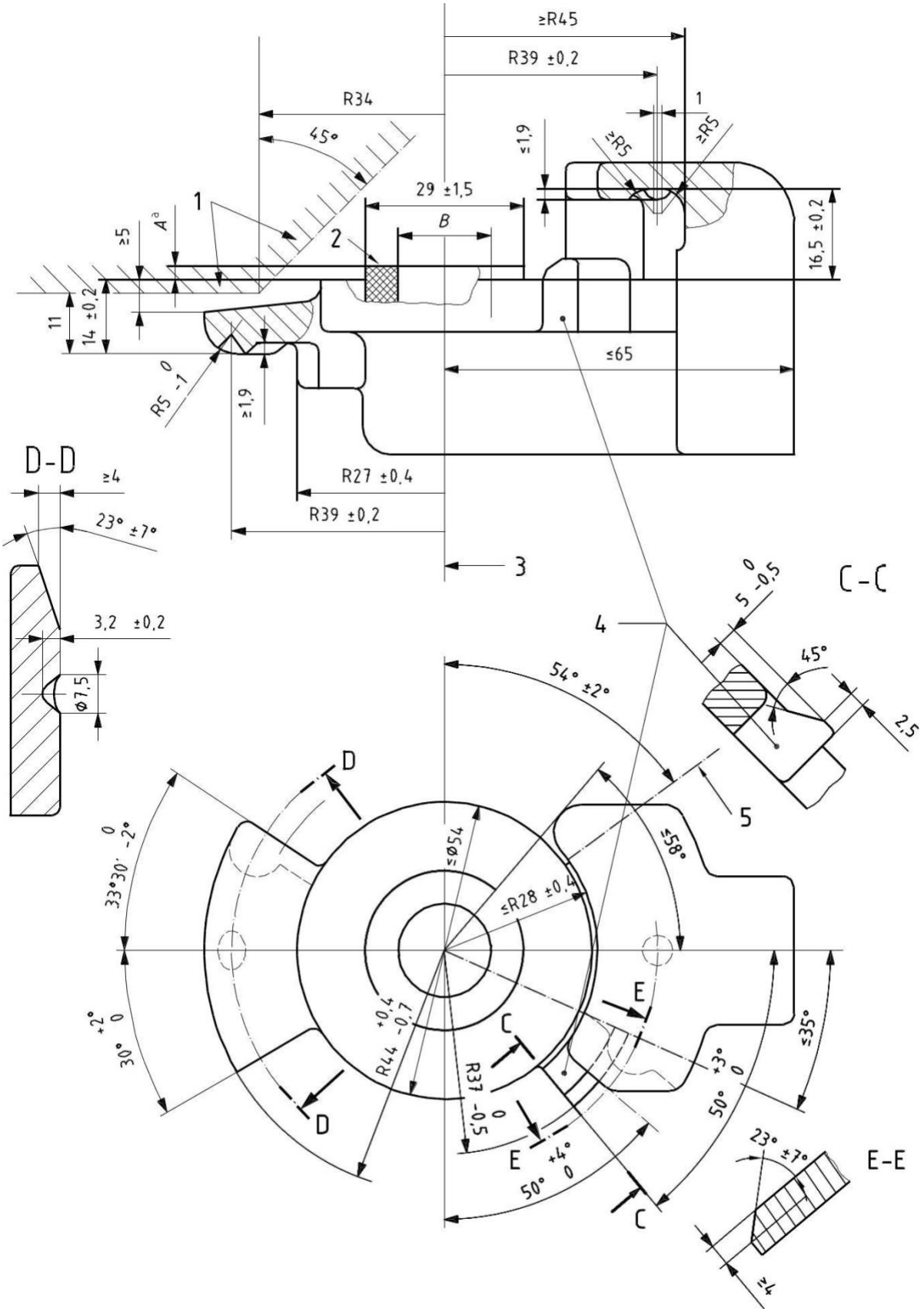


Key

1	Sealing face	3	Inhibiting device
2	Coupling axis	4	Stop

(All dimensions in millimeters)

FIG. 2 COUPLING HEAD FOR SUPPLY LINE



Key

1 Minimum free space for the crossing of inhibiting device of the other head

2 Sealing face; 3 Coupling axis; 4 Inhibiting device; 5 Stop

(All dimensions in millimeters)

FIG. 3 COUPLING HEAD FOR CONTROL LINE

Table 2 Dimensions for coupling head for control line

(*Clause* 3.3)

Connection	A[a)] (mm)	B (mm)
With resilient sealing ring (for heads " tractor" and "trailer")	2.7 ± 0.5	Ø 19 ± 2
With mobile part providing for the opening of the automatic valve (see 4.1)	3.5 + 1	Ø 11 min Ø 21 max.

[a)] The opening of the automatic device shall be assured even when two coupling heads with the most adverse tolerances for pushing down the mobile part are connected together. It shall be possible to push down the sealing face until the dimension *A* is at zero.