



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 39015.2-2020

**Road vehicles--Interchangeability of mechanical couplings
between tractors and semi-trailers - Part 2: Low-coupling
tractors and high-volume semi-trailers**

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Foreword

GB/T 39015 "Road vehicles - Interchangeability of mechanical couplings between tractors and semi-trailers" consists of two parts:

- Part 1: Semi-trailer tractors and semi-trailers for general cargo transportation;
- Part 2: Low-coupling tractors and high-volume semi-trailers.

This Part is Part 2 of GB/T 39015.

This Part was drafted in accordance with the rules given in GB/T 1.1-2009.

This Part uses redrafting method to modify and adopt ISO 1726-2:2007 "Road vehicles - Mechanical couplings between tractors and semi-trailers - Part 2: Interchangeability between low-coupling tractors and high-volume semi-trailers".

The technical differences and reasons between this Part and ISO 1726-2:2007 are as follows:

- modified Clause 1 as "This Part of GB/T 39015 specifies interchangeability size, control size and marks of interchangeability of mechanical couplings between tractors and semi-trailers. This Part is applicable to two-axle semi-trailer tractors and matching semi-trailers."; added marking requirements to the scope based on the actual content of this Part; at the same time, deleted the description of the maximum allowable total mass and outline size that has nothing to do with the content;

- modified "L3=1800mm" in 2.4.2 to "L3≤1800mm" to meet the requirements of the trailer size limit in the relevant national standards of China.

This Part made the following editorial modifications:

- modified the standard name to "Road vehicles - Interchangeability of mechanical couplings between tractors and semi-trailers - Part 2: Low-coupling tractors and high-volume semi-trailers";
- added notes to r2 and r3 in Figure 3b);
- deleted Bibliography in ISO 1726-2:2007.

This Part was proposed by Ministry of Industry and Information Technology of the People's Republic of China.

Road vehicles - Interchangeability of mechanical
couplings between tractors and semi-trailers - Part 2:
Low-coupling tractors and high-volume semi-trailers

1 Scope

This Part of GB/T 39015 specifies interchangeability size, control size and marks of interchangeability of mechanical couplings between tractors and semi-trailers.

This Part is applicable to two-axle semi-trailer tractors and matching semi-trailers.

2.1 Ground clearance of coupling of tractor under maximum load

Under the maximum load condition, the height h of the joint surface of the coupling of tractor (see Figure 1) shall be 900mm~975mm.

Figure 1 -- Ground clearance of coupling of tractor

2.2 Ground clearance of coupling of tractor when disengaged from semi-trailer

part of the gooseneck of the semi-trailer [see 2.4.1d)];

w1 - Forward angle;

w2 - Backward angle;

phi - Articulation angle.

Figure 2 -- Free space between tractor and semi-trailer

2.4.1 The gooseneck shape shall be located on the outer area of the surface

composed of multiple different planes and a rotating surface connecting the two planes. There shall be a smooth transition between the surfaces, as shown in Figure 3. The planes and rotating surfaces are determined as follows:

- a) The first plane AB is perpendicular to the horizontal plane of the traction pin axis. The length is L1. The width is the same as the width of semi-trailer, and ends at the intersection with the second plane as described in b);
- b) For the second plane BC, the width is same with the width of semi-trailer. The angle with the first plane is γ_1 . It ends with the line of intersection with the third plane as described in c);
- c) For the third plane CD, the width is same with the width of semi-trailer. The angle with the first plane is γ_2 . It ends to the line of intersection with the rotating surface as described in d);
- d) A vertical line segment EF and a segment of arc DE with a radius of r_2 between the third plane and the vertical line segment, form a rotation curve. The rotation curve takes r_3 as radius to rotate around the traction pin axis to form a rotating surface. Each surface shall be continuous;
- e) The fourth plane AU is a horizontal plane at the front end of the semi-trailer and perpendicular to the traction pin of the semi-trailer. The length is L3. The width is same with the width of semi-trailer. It ends to the intersection of the inclined plane UV with an angle α of the horizontal plane. The foremost point V shall not exceed the vertical plane rotated with a radius of 2040mm as the center of the traction pin axis.

2.4.2 The shape of the gooseneck is determined by the following parameters:

- The horizontal length of the first plane, $L_1=500\text{mm}$;

- The sum of the horizontal length of the first plane and the second plane,

$L_2=1350\text{mm}$;

- The horizontal length of the fourth plane, $L_3\leq 1800\text{mm}$;

- The arc radius between the third plane and the vertical line of the

keys:

L_1 - The horizontal length of the first plane (AB);

L_2 - The sum of the horizontal lengths of the first plane and the second plane (AB and BC);

L_3 - The horizontal length of the fourth plane (AU);

r_1 - Front turning radius of semi-trailer;

r_2 - Arc radius (DE);

r_3 - The radius of rotation (EF) formed by the distance between the axis of the traction pin and the vertical line of the gooseneck;

α - The angle between the horizontal plane and the inclined plane;

γ_1 - The angle between the second plane (BC) and the first plane (AB);

γ_2 - The angle between the third plane (CD) and the first plane (AB).

Figure 3 (continued)

3.1 Longitudinal inclination angle of semi-trailer relative to tractor

When a semi-trailer train is running straight, when the front and rear inclination angles of semi-trailer relative to tractor (see Figure 2) meet the following requirements, it shall not contact with the tractor (except hinged parts):

- Forward angle $w_1\leq 3.5^\circ$;
- Backward angle $w_2\leq 4.5^\circ$.

3.2 Lateral inclination angle

When the lateral inclination angle δ of semi-trailer relative to tractor (see Figure 4) changes within $\pm 2^\circ$, there shall be no interference between tractor and semi-trailer.

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