NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 19408.6-2020

Agricultural vehicles - Mechanical connections between towed and towing vehicles - Part 6: Specifications for nonswivel clevis couplings

Issued on: November 19, 2020 **Implemented on: June 1, 2021**

Issued by: SAMR; SAC

Table of Contents

1 Scope

This Part of GB/T 19408 specifies the technical requirements for non-swivel clevis couplings, which are used to connect agricultural towing vehicles that are equipped with swivel hitch rings (as defined in GB/T 32538.3-2020).

This Part applies to the agricultural towing vehicles that are equipped with swivel hitch rings (as defined in GB/T 32538.3-2020).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 1592.1, Agricultural tractors - Rear-mounted power take-off types 1, 2, 3 and and clearance zone (GB/T 1592.1-2016, ISO 500-1:2014, MOD)

GB/T 1800.1, Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes - Part 1: Basis of tolerances, deviations and fits (GB/T 1800.1-2020, ISO 286-1:2010, MOD)

GB/T 1804-2000, General Tolerances - Tolerances for Linear and Angular Dimensions without Individual Tolerance Indications (eqv ISO 2768-1:1989)

GB/T 32538.3-2020, Agricultural vehicles - Mechanical connections on towed vehicles - Part 3: Swivel hitch rings (ISO 5692-3:2011, IDT)

3 Terms and definitions

The following terms and definitions are applicable to this document.

3.1 non-swivel clevis coupling Hitching device, not rotating around the horizontal axis (pin) and longitudinal axis (pin), for the mechanical connection of towing and towed vehicles.

3.2 coupling reference centre The intersection of the pin centreline and the horizontally symmetrical centreline of the clevis coupling.

3.3 D value The value of the load acting on the towed vehicle along the longitudinal axis of the vehicle.

Note: in kilonewtons (kN).

3.4 vertical load on the coupling point The vertical load, under static load conditions, on the coupling reference centre.

Note: in kilograms (kg).

4 Dimensions

Values not specified in this Part shall be specified as appropriate. Tolerances on dimensions without individual tolerance indications shall be in accordance with GB/T 1804-2000, Table 1, tolerance class C. Limits and fits shall be in accordance with GB/T 1800.1.

The dimensions of non-swivel clevis coupling shall be in accordance with Figure 1 and

Table 1.

D - the value of the load acting on the towed vehicle along the longitudinal axis of the vehicle, in kilonewtons (kN);

g - the acceleration due to gravity, g = 9.81 m/s2;

mr - the allowable mass of the towed vehicle, in tones (t);

mt - the maximum allowable mass of the tractor or the curb mass of the towing vehicle, in tones (t).

6 Technical requirements

6.1 The shape of the non-swivel clevis coupling shall be such that the swivel hitch ring can meet the following minimum angles (see Figure 1):

-- +/-60° in the horizontal plane (yaw);

-- +/-20° in the vertical plane (pitch);

-- +/-20° around its longitudinal axis (roll).

6.2 Where a fixing device is used between the tractor or towing vehicle and the non-swivel clevis coupling, the fixing device shall be tested according to the maximum bearing load of

the non-swivel clevis coupling.

6.3 When a tractor or towing vehicle uses a non-swivel clevis coupling, in order to avoid unintentional uncoupling, a safety device shall be provided, which shall be:

-- easy to apply;

-- retained on the hitch unit;

-- tested by the application of a static load of 0.25D.

6.4 The non-swivel clevis coupling shall be designed according to the D values specified in Table 1.

7 Installation location The non-swivel clevis coupling shall be installed on the longitudinal axis of the tractor or towing vehicle, as shown in Figure 2. The distance t, between the centre of the non-swivel clevis coupling and the end of the power take-off (PTO) shaft, is shown in Table 2. The installation of the non-swivel clevis coupling shall be as high as possible, without any part of the clevis/ring coupling or its construction entering the clearance zone specified for the PTO in GB/T 1592.1.