

Annex 9 Testing of Mechanical Coupling devices or Components for Agricultural Vehicles

Annex 9 point 3

-Dynamic pulsating endurance test with resultant test force.

-Alternatively,

a two-component synchronous dynamic endurance test is also permissible

$$F_{res} = \sqrt{F_h^2 + F_s^2} \text{ (kN)}$$

Angle force appl.

$$(\alpha) = \text{Arctan } F_s/F_h$$

Annex 9 p3.1.3

Horizontal load (kN)

$$F_h = 1,0 \cdot D$$

Annex 6 p3.1.3

Vertical load

$$F_s = g \cdot S + 0,3V$$

$$V = a \cdot C \cdot (x/l)^2$$

$$a = 1.8$$

$$(x/l) = 1.2$$

Annex 9 p3.5.1

Towing brackets shall be subjected to the same forces during testing as the coupling. The test load shall be applied at a horizontal and vertical distance corresponding to the position of the coupling device which exerts the least favourable load on the towing bracket

Annex 9 p3.5.2

Towing brackets with connections for a quick height-adjustable latching rail plate on the point of coupling side shall be subject to a static test in the transverse direction:

Force = 0.6 * D
(kN)

- Angle of application **60°** to the longitudinal centre line.
- Point of force application to the coupling point see 3.6.1

Test preparation

The tests must be carried out on a special machine, with the towing bracket device and any structure connecting it to the body of the tractor attached to a rigid structure by means of the same components used to mount it on the tractor.

Test instruments

The instruments used to record loads applied and movements must have the following degree of accuracy:

- loads applied ± 50 daN,
- movements $\pm 0,01$ mm.

Test procedure

The towing bracket device must first be subjected to a pre-traction load which does not exceed 15 % of the traction test load defined above.

The above operation described must be repeated at least twice, starting with a zero load, which is gradually increased until the value prescribed is reached, and then decreased to 500 daN; the settling load must be maintained for at least 60 seconds.

The data recorded for plotting the load/deformation curve under traction, or the graph of that curve provided by the printer linked to the traction machine, must be based on the application of increasing loads only, starting from 500 daN, in relation to the reference centre of the towing bracket device.

There must be no breaks for values up to and including the traction test load; in addition, the load/deformation curve must show a smooth progression, without irregularities, in the interval between 500 daN and 2/3 of the maximum traction load.

Permanent deformation is recorded on the load/deformation curve in relation to the load of 500 daN after the test load has been brought back to that value.

During the test, permanent deformation of the towing bracket device must not exceed 10 % of the maximum elastic deformation occurring.

The check is carried out after removing the load and returning to the initial load of 500 daN.