

# Agricultural vehicles — Mechanical connections on towed vehicles —

## Part 1: Dimensions for hitch rings

ICS 65.060.10

## National foreword

This British Standard reproduces verbatim ISO 5692-1:2004 and implements it as the UK national standard. It supersedes BS 5891:1980 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AGE/6, Agricultural tractors and forestry machinery, which has the responsibility to:

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### Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii and iii, a blank page, pages 1 to 5 and a back cover.

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**Agricultural vehicles — Mechanical  
connections on towed vehicles —**

**Part 1:  
Dimensions for hitch rings**

*Véhicules agricoles — Liaisons mécaniques sur véhicules remorqués —  
Partie 1: Dimensions des anneaux d'attelage*



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## Foreword

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ISO 5692-1 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 4, *Tractors*.

This first edition of ISO 5692-1, together with ISO 5692-2:2002, cancels and replaces ISO 5692:1979 which has been technically revised.

ISO 5692 consists of the following parts, under the general title *Agricultural vehicles — Mechanical connections on towed vehicles*:

- *Part 1: Dimensions for hitch rings*
- *Part 2: Coupling ring 40 with socket*

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# Agricultural vehicles — Mechanical connections on towed vehicles —

## Part 1: Dimensions for hitch rings

### 1 Scope

This part of ISO 5692 specifies the requirements for the attachment of agricultural non-balanced trailers and implements by means of hitch rings to the rear of the towing vehicle equipped with either a hook as specified in ISO 6489-1, or a piton-type coupling as specified in ISO 6489-4. Its purpose is to ensure the interchangeability of mechanical connections on agricultural towed vehicles.

This part of ISO 5692 is applicable to rings whose coupling point is below the centre-line of the rear axle and below the power take-off (PTO) of the tractor.

NOTE Other International Standards are under development for rings coupled above the PTO.

### 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.

ISO 6489-1, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 1: Dimensions of hitch-hooks*

ISO 6489-4, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 4: Dimensions of piton-type coupling*

### 3 Interchangeability dimensions

#### 3.1 General

The hitch ring and the shank shall have the dimensions shown in Figures 1 and 2. Interchangeability is ensured provided that the attachment on the towing vehicle is in accordance with ISO 6489-1 or ISO 6489-4.

Dimensions in millimetres

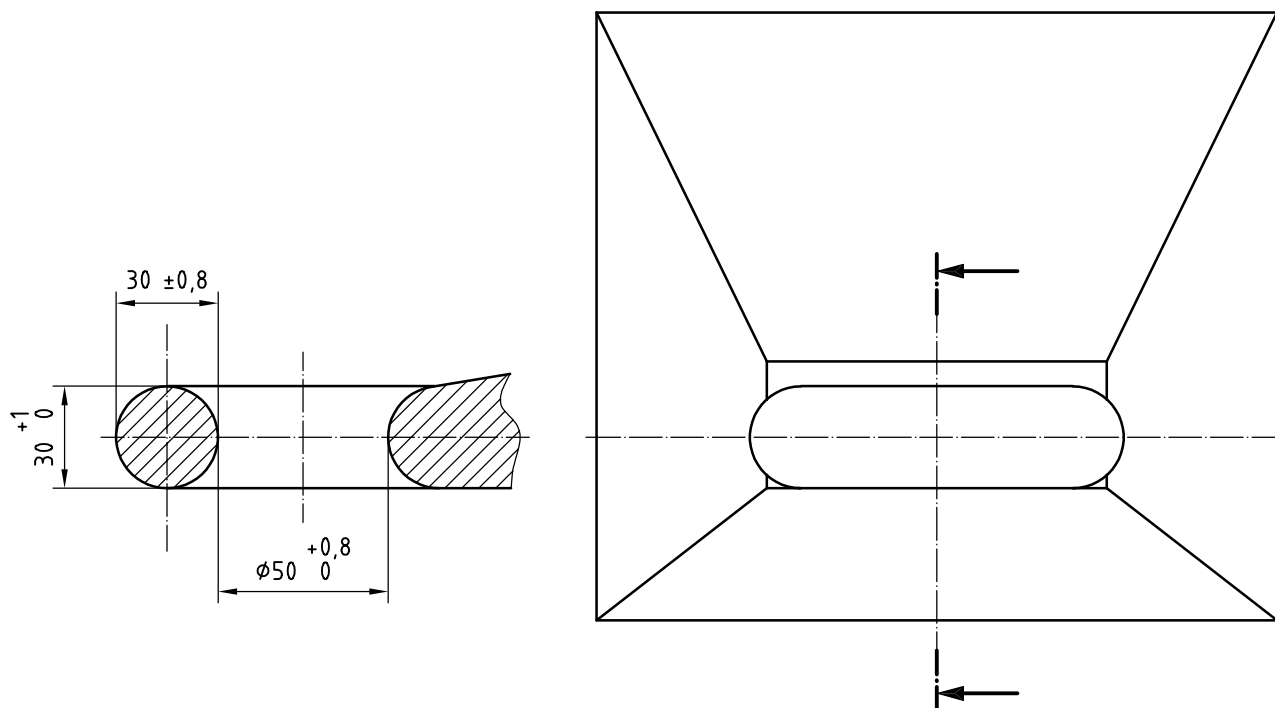


Figure 1 — Hitch ring dimensions

### 3.2 Trailer shank travel angles

When the trailer shank fitted with the specified hitch ring is fixed to the tractor attachment, the shank shall be free to turn so that the angles formed with the horizontal situated in the tractor's plane of symmetry and passing through the coupling point have the following minimum values.

- Angle of yaw: rotation around a vertical axis passing through the coupling point, minimum value of  $60^\circ$  on both sides.
- Angle of pitch: rotation around a horizontal axis passing through the coupling point and perpendicular to the vehicle's longitudinal plane of symmetry, minimum value  $20^\circ$  top and bottom.

Allowance should be made for the towing vehicle being up to  $\pm 3^\circ$  from horizontal, due to front/rear tyre sizes.

- Angle of roll: rotation around a horizontal axis passing through the coupling point and located in the vehicle's plane of symmetry, minimum value  $20^\circ$  top and bottom.

## 4 Constructional requirements

Hitch rings in accordance with this part of ISO 5692 shall be substantially toroidal and shall be manufactured by forging. Shanks shall be forged or machined or both.

The hitch ring shall be fixed on the shank. The hitch hook or piton-type coupling on the tractor shall be designed to allow the travel angles specified in 3.2.

In addition to these requirements relating to fixed hitch rings for towed vehicles, only the towed member (i.e. hitch ring and shank) shall have the option of providing rotational freedom of up to  $360^\circ$  around the shank's horizontal longitudinal axis (roll). Limitation of rotation away from the horizontal, or bias towards the hitch ring remaining horizontal, is optional.



Dimensions in millimetres

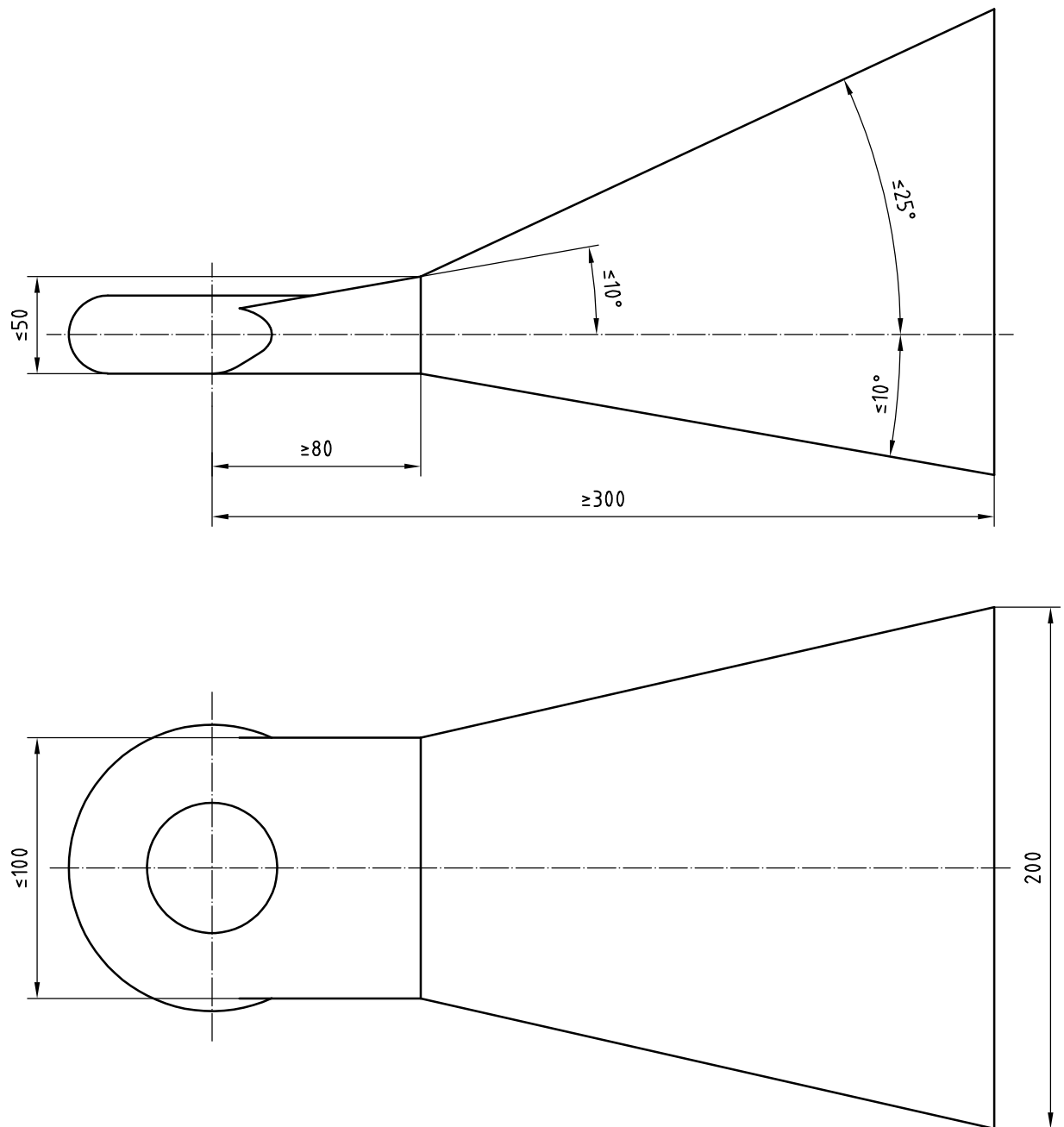


Figure 2 — Hitch shank dimensions

## Annex A (informative)

### Permissible mechanical connection combinations between towed and towing vehicles

Towing vehicle	Towed vehicle
ISO 6489-1:1991 hook type	ISO 5692:1979/ISO 5692-1:2004 hitch ring (50 mm hole centre, 30 mm ring diameter)
ISO 6489-1:2001 hook type <sup>a</sup>	ISO 5692:1979/ISO 5692-1:2004 hitch ring (50 mm hole centre, 30 mm ring diameter)
	ISO 20019:2001 hitch ring (50 mm hole centre, 30 mm to 41 mm ring diameter)
ISO 6489-2:2002 bolt type	ISO 5692-2:2002 coupling ring (40 mm socket)
	ISO 8755:1986 40 mm drawbar coupling <sup>b</sup>
	ISO 1102:1986 50 mm drawbar coupling <sup>b</sup>
ISO 6489-3:— <sup>d</sup> drawbar (Cat 2)	ISO 5692:1979/ISO 5692-1:2004 hitch ring (50 mm hole centre, 30 mm ring diameter) <sup>c</sup>
	ISO 5692-2:2002 coupling ring (40 mm socket)
	ISO 8755:1986 40 mm drawbar coupling
	ISO 1102:1986 50 mm drawbar coupling <sup>c</sup>
ISO 6489-4:2004 piton type	ISO 5692:1979/ISO 5692-1:2004 hitch ring (50 mm hole centre, 30 mm ring diameter)
ISO 24347 <sup>e</sup> ball type	ISO 24347 <sup>e</sup> (80 mm ball diameter)
Only the combinations given above are recommended.	
<sup>a</sup> Connecting an ISO 6489-1:2001 hook, manufactured in accordance with the maximum sizes permitted, to hitch rings in accordance with ISO 5692-1 and of minimum dimensions (30 mm ring diameter) according to ISO 20019 could result in a "jerky" connection between the tractor and the trailer and result in less driving comfort.	
<sup>b</sup> Primarily used on trailers towed behind trucks (on-road).	
<sup>c</sup> Could result in a "jerky" connection between the tractor and the trailer and result in less driving comfort.	
<sup>d</sup> To be published. (Revision of ISO 6489-3:1992)	
<sup>e</sup> Under preparation.	

## Bibliography

- [1] ISO 1102:1986, *Commercial road vehicles — Mechanical connections between towing vehicles and trailers — 50 mm drawbar couplings*
- [2] ISO 5692:1979, *Agricultural vehicles — Mechanical connections on towed vehicles — Hitch-rings — Specifications*
- [3] ISO 5692-2:2002, *Agricultural vehicles — Mechanical connections on towed vehicles — Part 2: Coupling ring 40 with socket*
- [4] ISO 6489-1:1991, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 1: Hook type*
- [5] ISO 6489-1:2001, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 1: Dimensions of hitch-hooks*
- [6] ISO 6489-2:2002, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 2: Specifications for clevis coupling 40*
- [7] ISO 6489-3:—<sup>1)</sup>, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 3: Tractor drawbar*
- [8] ISO 6489-4:2004, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 4: Dimensions of piton-type coupling*
- [9] ISO 8755:1986, *Commercial road vehicles — Mechanical connections between towing vehicles and trailers — 40 mm drawbar coupling*
- [10] ISO 20019:2001, *Agricultural vehicles — Mechanical connections on towed vehicles — Dimensions for hitch rings*
- [11] ISO 24347, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Dimensions of ball-type coupling device (80 mm)*<sup>2)</sup>

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1) To be published. (Revision of ISO 6489-3:1992)

2) Under preparation.

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