

# INTERNATIONAL STANDARD

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## Agricultural vehicles — Mechanical connections between towed and towing vehicles —

### Part 2: Specifications for clevis coupling 40

Véhicules agricoles — Liaisons mécaniques entre véhicules remorqueurs  
et véhicules remorqués —

Partie 2: Spécifications relatives aux attelages de type chape de 40

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 6489 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6489-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 4, *Tractors*.

This second edition cancels and replaces the first edition (ISO 6489-2:1980), which has been technically revised.

ISO 6489 consists of the following parts, under the general title *Agricultural vehicles — Mechanical connections between towed and towing vehicles*:

- *Part 1: Dimensions of hitch-hooks*
- *Part 2: Specifications for clevis coupling 40*
- *Part 3: Tractor drawbar*
- *Part 4: Dimensions of piton-type coupling*



# Agricultural vehicles — Mechanical connections between towed and towing vehicles —

## Part 2: Specifications for clevis coupling 40

### 1 Scope

This part of ISO 6489 gives specifications for the clevis couplings used in the attachment to agricultural towing vehicles of towed, non-balanced trailers and implements equipped with a coupling ring 40 as specified in ISO 5692-2 and ISO 8755.

The mounting of one of the three trailer coupling shapes, A, B or C, on an agricultural vehicle or trailer is at the manufacturer's or user's discretion. The full interchangeability of the three shapes is provided for.

### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 6489. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 6489 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 286-1, *ISO system of limits and fits — Part 1: Bases of tolerances, deviations and fits*

ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 5692-2, *Agricultural vehicles — Mechanical connections on towed vehicles — Part 2: Coupling ring 40 with socket*

ISO 8755, *Commercial road vehicles — 40 mm drawbar eye — Interchangeability*

### 3 Term and definition

For the purposes of this part of ISO 6489, the following term and definition apply.

#### 3.1

##### *D value*

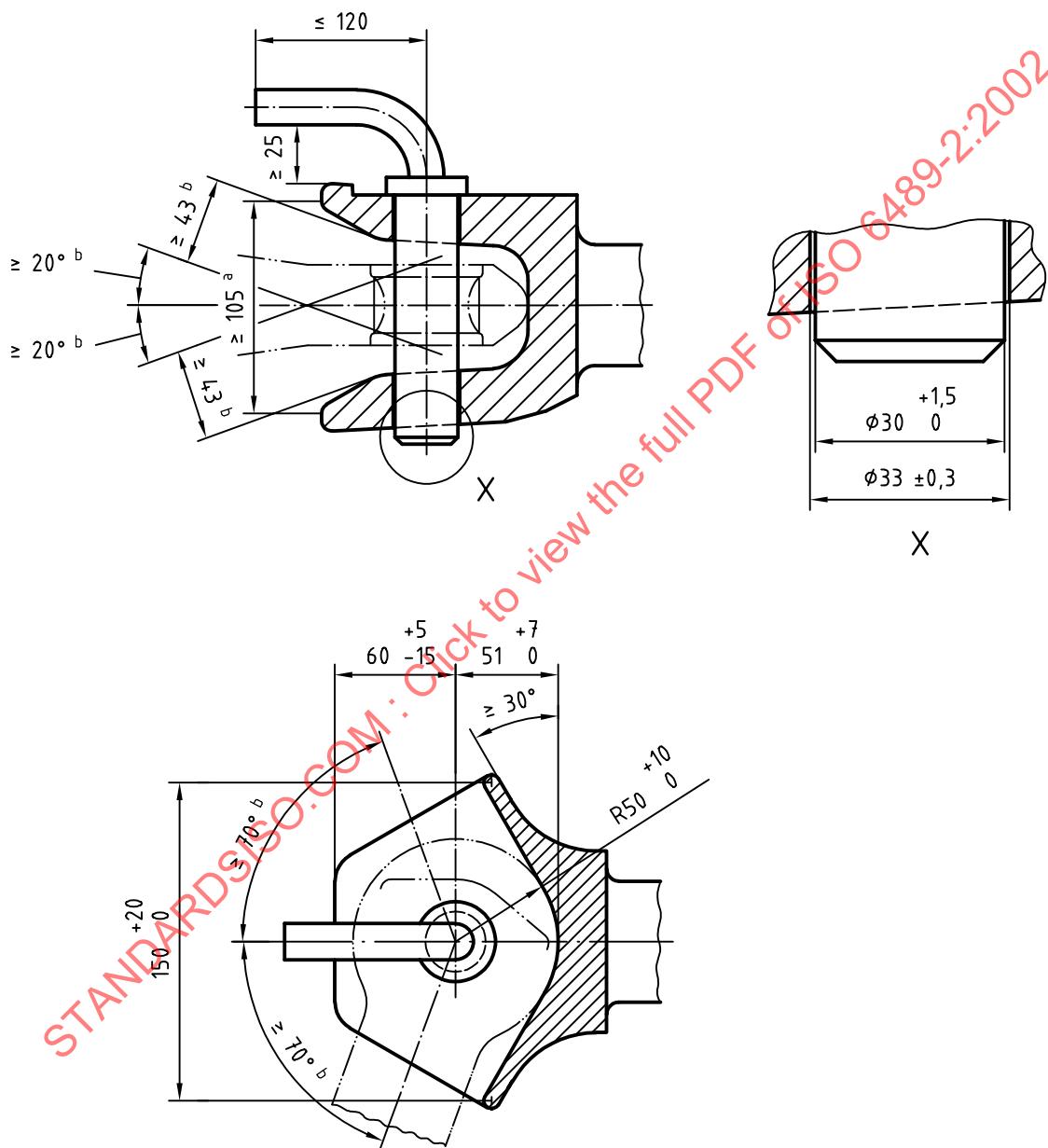
mathematically established representative force for the horizontal component of the force acting on the trailer coupling in the longitudinal axis of the vehicle

## 4 Dimensions

Any specification not given in this part of ISO 6489 shall be chosen appropriately. Tolerances on dimensions without individual tolerance indications shall be in accordance with ISO 2768-1:1989, tolerance class c. Limits and fits shall be in accordance with ISO 286-1.

The dimensions of trailer couplings of shapes A, B and C shall be as shown in Figures 1, 2 and 3, respectively.

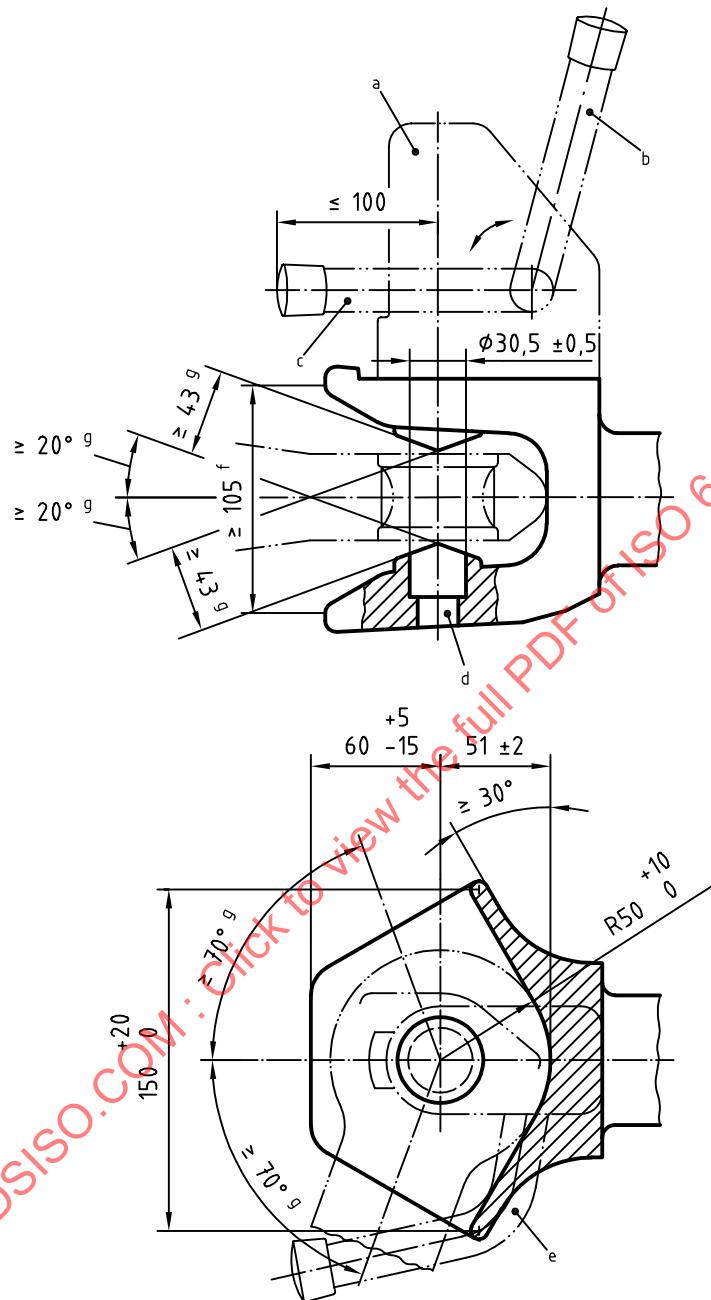
Dimensions in millimetres



- a The clevis height shall be greater than half the clevis width.
- b The values of the angles of articulation shall be obtained together with the coupling rings used.

**Figure 1 — Non-automatic trailer coupling with cylindrical pin — Shape A**

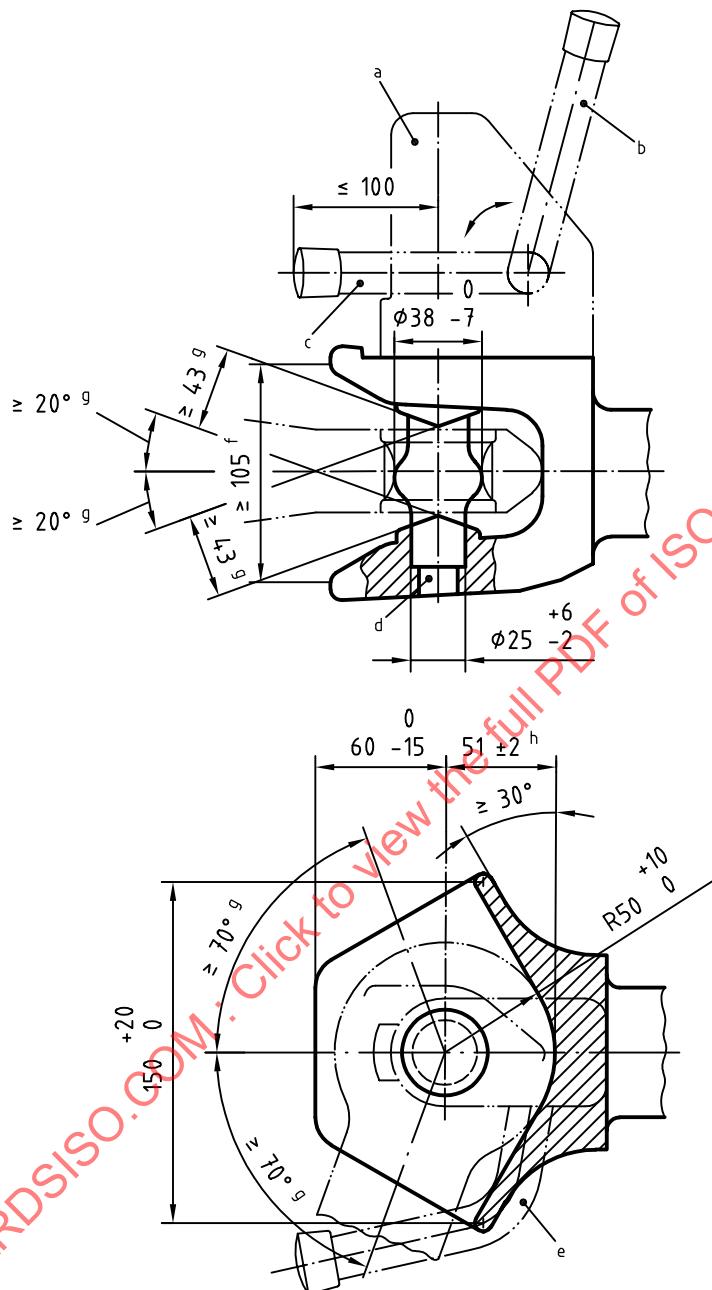
Dimensions in millimetres



- a Example for design
- b Ready for coupling
- c Coupled
- d The opening shall be designed so that no dust can collect inside.
- e Hand lever, optionally at left
- f The clevis height shall be greater than half the clevis width.
- g The values of the angles of articulation shall be obtained together with the coupling rings used.

**Figure 2 — Automatic trailer coupling with cylindrical pin — Shape B**

Dimensions in millimetres



- a Example for design
- b Ready for coupling
- c Coupled
- d The opening shall be designed so that no dust can collect inside.
- e Hand lever, optionally at left
- f The clevis height shall be at least greater than half the clevis width.
- g The values of the angles of articulation shall be obtained together with the coupling rings used.
- h The lower tolerance up to  $-2$  is permissible only when the bolt diameter  $(38\ 0)$  mm is reduced by twice the real tolerance: i.e.  $(51 - 1)$  mm = 50 mm,  $[38 - (2 \times 1)]$  mm = 36 mm,  $(51 - 2)$  mm = 49 mm,  $[38 - (2 \times 2)]$  mm = 34 mm.

**Figure 3 — Automatic trailer coupling with crowned pin — Shape C**

## 5 Calculation of value $D$

The  $D$  value, in kilonewtons, is calculated using the following equation, where the values of  $R$  and  $T$  are known:

$$D = g \left( \frac{T \times R}{T + R} \right)$$

where

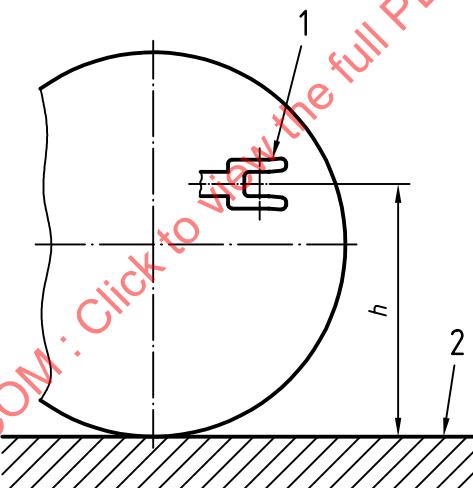
$$g = 9,81 \text{ m/s}^2;$$

$R$  is the admissible towed mass of the towed vehicle, in tonnes;

$T$  is the admissible total mass of the motor vehicle, in tonnes.

## 6 Location

The location of the pin coupling shall be as shown in Figure 4. For height-adjustable couplings, it shall be possible to realize a positioning in accordance with the value  $h$  (see Table 1).



The value of  $h$  shall be in accordance with Table 1.

### Key

- 1 Pin coupling
- 2 Road surface

Figure 4 — Location

Table 1 — Location — Value of  $h$

Agricultural vehicle engine power kW	$h$ mm
$\leq 55$	$825 \pm 75$
$> 55$	$900^{+100}_{-80}$