
**Agricultural wheeled tractors —
Rear-mounted three-point linkage —
Categories 1N, 1, 2N, 2, 3N, 3, 4N and 4**

*Tracteurs agricoles à roues — Attelage trois points monté à l'arrière —
Catégories 1N, 1, 2N, 2, 3N, 3, 4N et 4*

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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 2.

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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 730 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 4, *Tractors*.

This first edition of ISO 730 cancels and replaces ISO 730-1:1994 and ISO 730-2:1979, of which it constitutes a technical revision. It also incorporates the Technical Corrigendum ISO 730-1:1994/Cor 1:1995.

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Agricultural wheeled tractors — Rear-mounted three-point linkage — Categories 1N, 1, 2N, 2, 3N, 3, 4N and 4

1 Scope

This International Standard specifies the dimensions and requirements of the three-point linkage for the attachment of implements or equipment to the rear of agricultural wheeled tractors.

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 789-1:1990, *Agricultural tractors — Test procedures — Part 1: Power tests for power take-off*

ISO 2332:2009, *Agricultural tractors and machinery — Connection of implements via three-point linkage — Clearance zone around implement*

ISO 8759-1:1998, *Agricultural wheeled tractors — Front-mounted equipment — Part 1: Power take-off and three-point linkage* <https://standards.iteh.ai/catalog/standards/sist/0c0478a2-45bb-4613-a41-02d681fda309/iso-730-2009>

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 General

3.1.1 linkage

combination of one upper link and two lower links, each articulated to the tractor and the implement at opposite ends, in order to connect the implement to the tractor

3.1.2 hitch point

articulated connection between link and implement

NOTE For geometrical purposes, the hitch point is the centre of the articulated connection between the link and the implement.

3.1.3 link point

articulated connection between link and tractor

NOTE For geometrical purposes, the link point is the centre of the articulated connection between link and tractor.

3.1.4

three-point hitch coupler

device which facilitates the connection of the tractor three-point linkage to the implement

NOTE For examples, see References [5] to [8].

3.1.5

narrow-hitch

N

standard hitch in all dimensions except for the lower hitch point span, which is that of the next smallest category

EXAMPLE A category 3N hitch can also be a category 2 hitch in all dimensions excepting the upper and lower hitch point pin diameters, which are category 3.

3.2 Three-point linkage components and dimensions (see Figure 1)

3.2.1

upper link

upper linkage element, fitted with an articulated connection at both ends

3.2.2

lower link

lower linkage element, fitted with an articulated connection at both ends

3.2.3

upper hitch point

articulated connection between the upper link and the implement

3.2.4

lower hitch point

articulated connection between a lower link and the implement

3.2.5

upper link point

articulated connection between the upper link and the tractor

3.2.6

lower link point

articulated connection between a lower link and the tractor

3.2.7

upper hitch attachment

pin, usually detachable and forming part of the upper link assembly, by which an upper link is secured

3.2.8

lower hitch attachment

pin, or clevis and pin, usually attached to the implement, by which a lower link is secured

3.2.9

upper link attachment

pin by which the upper link is connected to the tractor

3.2.10

linchpin

pin, usually fitted with a spring-retaining device, by which an articulated connection is retained in position

NOTE See Reference [4].

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3.2.11**lift rods**

connections that transmit force to the lower links for raising and lowering

3.2.12**mast**

component that provides the location of the upper hitch point on the implement

3.2.13**mast height**

vertical distance between the upper hitch point and the common axis of the lower hitch points

3.2.14**lower hitch point height**

height of the centre of the lower hitch points above the ground level when they are fully lowered using the full extent of manual adjustment provided in the lift rods in conjunction with the movement range, and when the lower hitch point axis is maintained horizontal to the ground in a transverse plane

3.2.15**levelling adjustment**

movement allowing inclination of the implement, measured vertically and with one lower link horizontal, so that either lower hitch point can be moved higher or lower than the other

3.2.16**lower hitch point span**

distance between the shoulders of the lower hitch pins, against which the sides of the lower link ball joints abut

3.2.17**linchpin hole distance**

distance from the centreline of the linchpin hole to the shoulder of the hitch pin

3.2.18**movement range**

vertical movement of the lower hitch points corresponding to the power travel of the lift, excluding any adjustment in the lift rod linkage

3.2.19**transport height**

total height of the lower hitch points above the ground using the full extent of manual adjustment provided in the lift rods in conjunction with the movement range, with the lower hitch point axis maintained horizontal to the ground in a transverse plane

3.2.20**lower hitch point clearance**

clearance, expressed as a radial dimension, from the lower hitch point axis to the outside diameter of the tyre, mudguard or other part of the tractor, measured in a longitudinal vertical plane with the implement raised to transport height and all side-sway prevented

3.2.21**pitch**

angle of the mast to the vertical, considered positive when viewed anticlockwise from the left-hand side of the tractor

3.2.22**mast adjustment**

usable range of pitch of the mast from a vertical plane, measured at the maximum and minimum heights of the lower hitch points above the ground between which the mast, at the specified mast height, can be adjusted to

any inclination between + 5° and – 5° from the vertical for categories 1, 2N, 2, 3N, 3, 4N and 4, and between the vertical and 10° to the vertical towards the rear for category 1N

NOTE 1 Mast adjustment is not shown in Figure 1.

NOTE 2 Adjustment of the mast controls the pitch of the implement. Specifying the mast adjustment to be provided enables the tractor designer to determine the minimum acceptable adjustment of the length of the top link in relation to the points of attachment of the linkage. It also permits the implement designer to determine the range of operating depths of the implement over which pitch adjustment can be obtained.

**3.2.23
torsional free float distance**

vertical distance over which either of the lower hitch points can move freely relative to the other to allow the implement to roll, with lower links initially horizontal

**3.2.24
transport pitch**

pitch reached by the mast when lifted to standard transport height from a position with lower links horizontal and mast vertical

**3.2.25
horizontal convergence distance**

horizontal distance from the lower hitch points to the point of convergence of the lower links when the lower links are horizontal and laterally symmetrical, seen in a plan view

NOTE See Annex A.

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**3.2.26
vertical convergence distance**

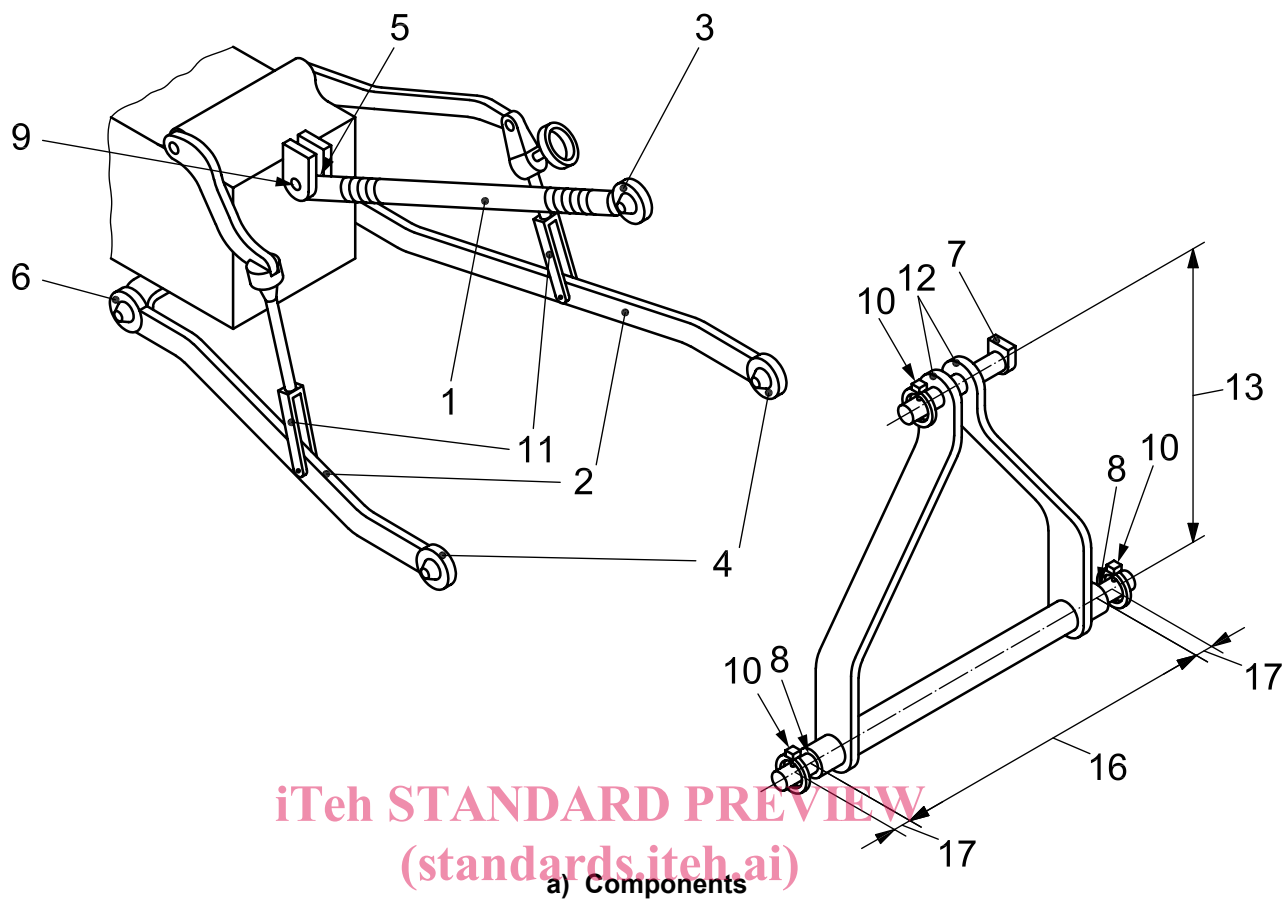
horizontal distance from the lower hitch points to the point of convergence formed in the vertical longitudinal plane by the top link and the lower links

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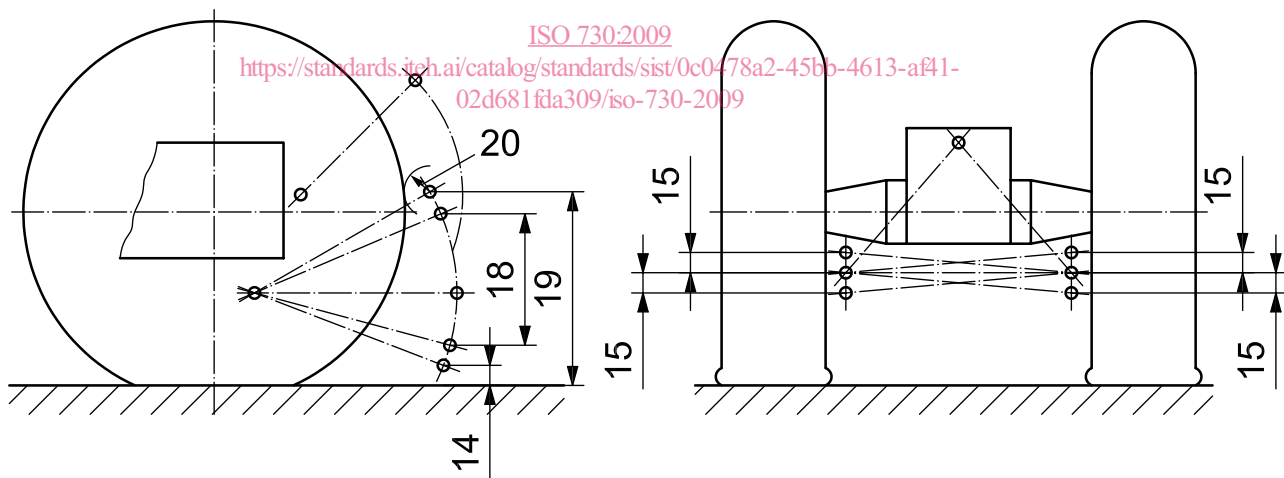
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NOTE See Annex A.



a) Components



b) Dimensions

Key

- | | | |
|--------------------------|-----------------------------|--------------------------------|
| 1 upper link | 8 lower hitch attachment | 15 levelling adjustment |
| 2 lower link | 9 upper link attachment | 16 lower hitch point span |
| 3 upper hitch point | 10 linchpin | 17 linchpin hole distance |
| 4 lower hitch point | 11 lift rods | 18 movement range |
| 5 upper link point | 12 mast | 19 transport height |
| 6 lower link point | 13 mast height | 20 lower hitch point clearance |
| 7 upper hitch attachment | 14 lower hitch point height | |

NOTE Each of the key items listed above is numbered so that its corresponds to the last element in the number of the term as defined in 3.2. For example, item 1, "upper link", is defined in 3.2.1, while item 20, "lower hitch point clearance", is defined in 3.2.20.

Figure 1 — Components and dimensions of three-point linkage

4 Tractor requirements

4.1 Categories

The categories of rear-mounted three-point linkages to be used on the various ranges of agricultural tractors are given in Table 1.

Table 1 — Categories of rear-mounted three-point linkages

Category	PTO power at rated rotational frequency of engine ^a kW
1N	Up to 35
1	Up to 48
2N/2	30 to 92
3N/3	60 to 185
4N/4	110 to 350

^a Determined in accordance with ISO 789-1.

Category 1N and 2N apply to narrow-track agricultural wheeled tractors.

Certain specialized implements or farming operations that require narrow spacing require special consideration for the three-point linkage. Categories 3N and 4N hitch categories have been established to respond to these requirements.

Dimensions and requirements for the three-point linkage for the attachment of implements or equipment to the front of agricultural tractors are given in ISO 8759-1.

4.2 Dimensions

4.2.1 General

Dimensions apply to the tractor equipped with the normal range of tyre sizes as recommended by the tractor manufacturer.

4.2.2 Hitch points

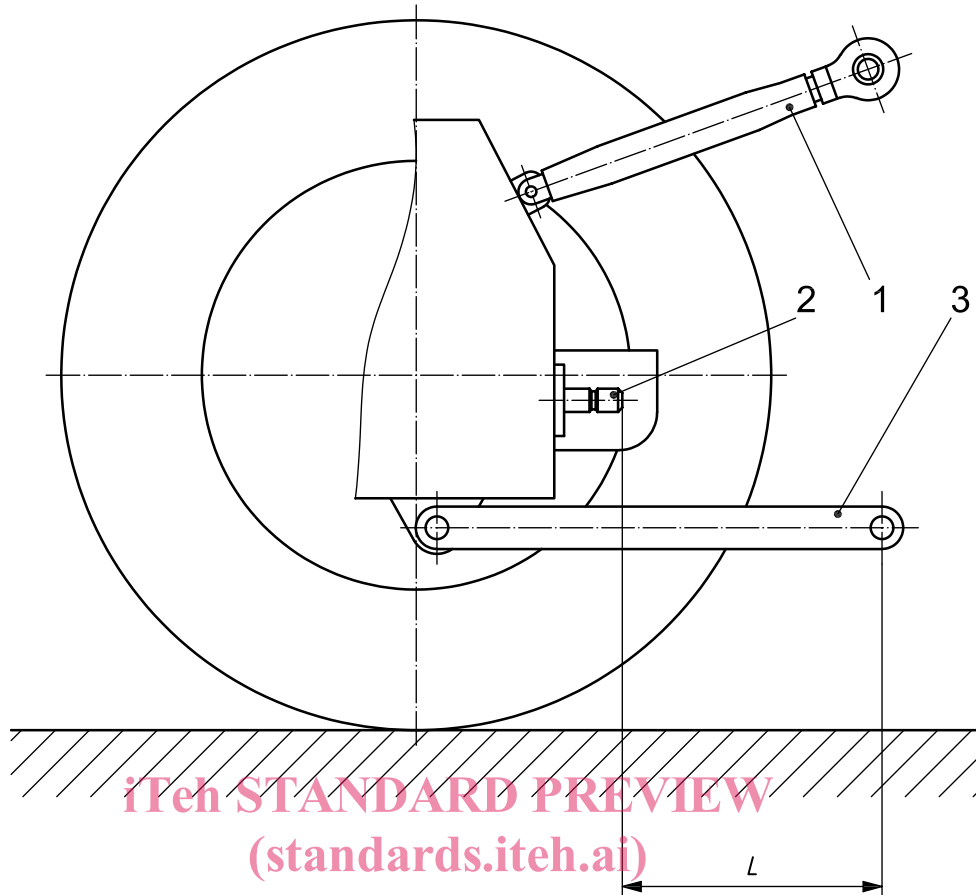
The dimensions related to the hitch points shall be in accordance with Figures 2 and 3, and Table 2.

4.2.3 Upper link point

Upper link point arrangements shall be provided so that the transport pitches of -3° to $+3^\circ$ and $+10^\circ$ to $+15^\circ$ can be achieved at the standard mast height.

4.2.4 Torsional free float

Torsional free float shall be provided at a distance specified in Table 3. It shall be possible to block the torsional free float.

**Key**

- 1 upper link
- 2 PTO
- 3 lower links

NOTE Dimension L is specified in Table 2.

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Figure 2 — Distance from PTO to lower link points

4.2.5 Lift, movement range and levelling adjustments

The ranges of lift, movement range and levelling adjustment shall be as specified in Table 3.

4.2.6 Convergence distances

See Annex A.

4.3 Restriction of transport height

Tractors shall have means by which the operator can easily restrict the transport height, for example by an adjustable stop, particularly to avoid damage to the PTO-shafts of the machine.

4.4 Interchangeability

In the event of connecting a tractor to an implement that does not have the same hitch category, smaller hitch pins may be adapted to the larger sizes with the use of bushings (or adapter balls in the case of ISO 11001-3