
**Agricultural machinery — Agricultural
trailers and trailed equipment — Drawbar
jacks**

*Matériel agricole — Remorques agricoles et matériel traîné — Béquilles
d'attelage*

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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.

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.

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International Standard ISO 12140 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort of the operator*.

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Agricultural machinery — Agricultural trailers and trailed equipment — Drawbar jacks

1 Scope

This International Standard specifies the requirements for the performance and fitting of jacks supplied as original equipment and/or replacement jacks for adjusting the height of the drawbars of agricultural trailers and trailed equipment. The drawbars are those which are designed to couple with the mechanical connections of towing vehicles as specified in ISO 6489-3.

This International Standard also includes recommendations for designers and gives requirements for testing and marking the jacks.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6489-3:1992, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 3: Tractor drawbar.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 jack

hand or power-operated mechanism, with a ground contact pad or wheel and fixing point, designed for controlled vertical movement

3.2 jack, mechanical

jack which uses only mechanical means to control movement

3.3 jack, hydraulic

jack which uses fluid displacement to control movement

3.4 load

total vertical force to be raised and supported by the jack

**3.5
load rating**

rated load, as specified by the manufacturer, that the jack, when fitted to a drawbar, is capable of safely raising and lowering

**3.6
overload**

any load greater than the rated load

**3.7
overtravel**

movement beyond the maximum travel for which the jack was designed

4 Requirements**4.1 Ground contact pad**

The ground contact pad of the jack shall be of such an area that the pressure at the rated load shall not exceed 40 N/cm². This requirement does not apply to jacks fitted with wheels in place of ground contact pads.

4.2 Overtravel restriction

The jack shall incorporate a positive stop or method to prevent overtravel, but such a stop shall not alter the operating characteristics of the jack.

4.3 Operating crank handle

If the design of a mechanical jack includes an operating crank handle for controlling the height adjustment of the drawbar, then it shall be possible to stow the handle to avoid impalement.

4.4 Prevention of ground contact when not in use

The jack shall be either so designed, or have such a device installed, that it can be prevented from winding or dropping down by its own volition, whilst the trailer or trailed equipment is in motion over the ground.

4.5 Security in operating position

For jacks which can be folded or moved into a storage position when not in use, it shall be possible to locate them securely in the working position. This requirement shall be verified during the test described in 4.7.1.

4.6 Performance

It shall be possible to raise a load equal to 120 % of the rated load of the jack by applying a manual force not greater than 150 N.

4.7 Strength**4.7.1 Test method**

Attach the jack to a trailer or trailed implement drawbar or their equivalent by means of its normal fitments and in accordance with the manufacturer's instructions.

Extend the jack to its maximum length.

Apply a load equal to 200 % of the rated load.

Reduce the load to 120 % of the rated load. With the ground contact pad of the jack held against a rigid vertical step, apply a horizontal force to the jack fixing point equal to 50 % of the load, firstly in the longitudinal direction and secondly in the lateral direction most likely to cause failure of the jack.

4.7.2 Acceptance criteria

When the test force has been removed, the jack shall not have suffered any crack, fracture or permanent distortion and shall remain fully operable.

4.8 Maintenance of the load

NOTE — This procedure applies to hydraulic jacks only.

Attach the jack in accordance with 4.7.1.

Apply a load equal to the rated load.

Extend the jack to its maximum length and measure the vertical height of the point of application of the load.

At each interval of 10 min over a period of 30 min, re-measure the vertical height.

The decrease in the height of the point of application of the load after each 10 min interval shall not exceed 1 mm.

The ambient temperature and hydraulic fluid temperature at the start of measuring shall be recorded.

5 Recommendations

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Controls should be designed to provide a means of operation and adjustment which will protect the operator and others from injury when operated in accordance with the manufacturer's instructions. The jack should be designed to minimize the ingress of rain water, and to promote drainage of any water that does enter. The ground contact pad should be securely fixed to the base of the jack.

Where use of the jack on soft ground (e.g. sand) is envisaged, the area of the ground contact pad should be increased. Refer to figure 1 for guidance.

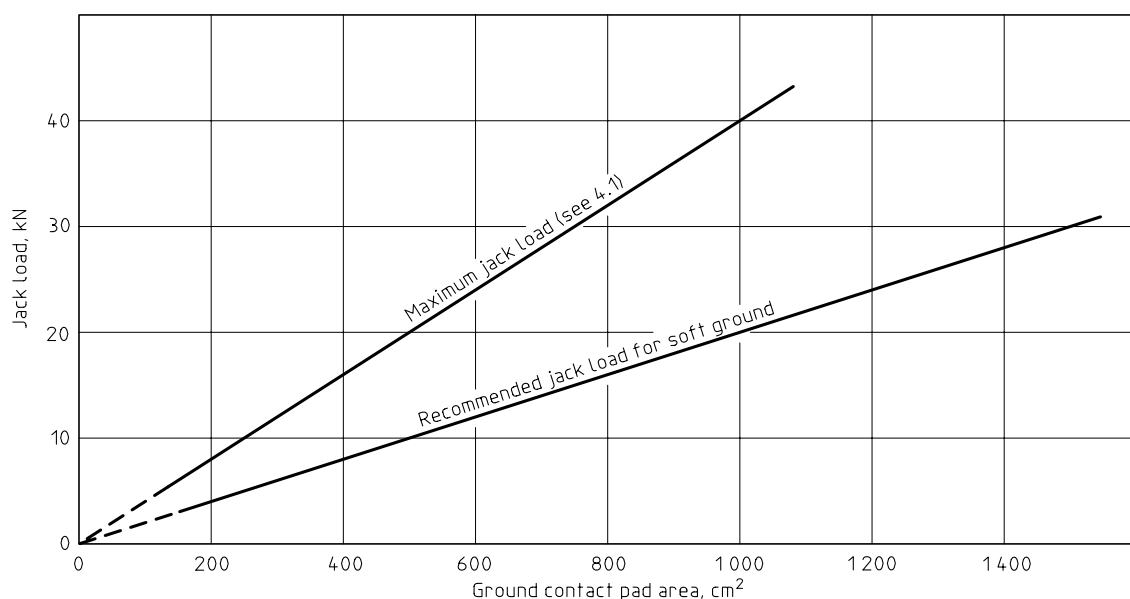


Figure 1 — Jack load and recommended ground contact pad area

6 Instructions

The manufacturer of the jack shall provide printed fitting, operating, inspection and maintenance instructions for safe use with each jack. The instructions shall draw attention to the following:

- a) the need to ensure that the load rating is appropriate for the jack's task;
- b) that there is a suitable fixing point for the jack;
- c) that the jack is capable of being operated without fouling any part of the trailer or equipment;
- d) that the jack must be securely held in the raised or storage position when not in use;
- e) where unusually soft ground conditions apply, extra support may need to be provided for the ground contact pad;
- f) that, if applicable, the jack crank handle does not remain in the vertical position when not in use;
- g) that if the jack is fitted with a ground contact wheel then it is only suitable for use on hard ground;
- h) that information is to be given on how to fill hydraulic jacks with fluid and the type of fluid to be used.

7 Marking

The rated load shall be legibly and durably marked in a prominent position on the jack. The manufacturer's name or trademark and the number and year of this International Standard shall also be legibly marked on the jack together with, in the case of a hydraulic jack, the fluid to be used and an indication that it is essential that only a recommended fluid be used.

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