

Specification for

Rear-mounted power take-offs on agricultural tractors

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Agricultural Machinery and Implements Standards Policy Committee (AGE/-) to Technical Committee AGE/6, upon which the following bodies were represented:

- AFRC Institute of Engineering Research
- Agricultural and Allied Workers' National Trade Group
- Agricultural Engineers' Association
- British Agricultural and Garden Machinery Association Ltd.
- County Surveyors' Society
- Department of Trade and Industry (Vehicle Division)
- Forestry Commission
- Health and Safety Executive
- Home Timber Merchants' Association of Scotland
- Local Authority Organizations
- Ministry of Agriculture Fisheries and Food
- National Farmers' Union
- Society of Motor Manufacturers and Traders Limited

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National foreword

The revision of this British Standard has been prepared under the direction of the Agricultural Machinery and Implements Standards Policy Committee and is identical with ISO 500:1991 “*Agricultural tractors — Rear-mounted power take-off — Types 1, 2 and 3*” prepared by Technical Committee ISO/TC 23, Tractors and machinery for agriculture and forestry, of the International Organization for Standardization (ISO).

This second edition supersedes BS 5861:1980, which is withdrawn.

Cross-references

International Standard	Corresponding British Standard
ISO 4156:1981	BS 6186 <i>Specification for involute splines: metric module, side fit</i> Part 1:1981 <i>Dimensions and tolerances</i> (Identical)
ISO 6489:1980	BS 6108:1981 <i>Specification for dimensions of hook-type couplings on agricultural towing vehicles</i> (Identical)
ISO 6508:1986	BS 891:1989 <i>Methods for hardness test (Rockwell method) and for verification of hardness testing machines (Rockwell method)</i> (Technically equivalent)

Technical Committee AGE/6 has reviewed the provisions of ISO 4254-1:1989 and ISO 6489-2:1980, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard. ISO 6489-3 is to be published.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard specifies requirements for types 1, 2 and 3 rear-mounted power take-offs (PTO), the clearance zones around them and protection of the power take-off on agricultural tractors.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4156:1981, *Straight cylindrical involute splines — Metric module, side fit — Generalities, dimensions and inspection*.

ISO 4254-1:1989, *Tractors and machinery for agriculture and forestry — Technical means for ensuring safety — Part 1: General*.

ISO 6489-1:1980, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 1: Hook type — Dimensions*.

ISO 6489-2:1980, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 2: Clevis type — Dimensions*.

ISO 6489-3:—, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 3: Tractor drawbar¹⁾*.

ISO 6508:1986, *Metallic materials — Hardness test — Rockwell test (scales A – B – C – D – E – F – G – H – K)*.

3 Types of power take-off

The main characteristics of the three types of PTO shall be as specified in Table 1.

4 Requirements and specifications

4.1 Manufacturing requirements

The dimensions of the main PTO on agricultural tractors shall comply with Figure 1, Figure 2 or Figure 3 and Table 2, and Table 3 or Table 4 as appropriate.

To facilitate coupling, changes of shape at the end (for example, chamfering of splines) of the PTO type 1 profile are admissible.

The hardened portion of the splines shall have a minimum hardness of 48 HRC when tested in accordance with ISO 6508.

4.2 Direction of rotation

The PTO shall rotate clockwise when viewed from behind the tractor.

4.3 Location

On tractors with one PTO shaft, the location of the PTO axis shall lie within the shaded rectangle shown in Figure 4.

4.4 Clearance zone

The clearance zone around the PTO shall be in accordance with Figure 5 and Table 6.

4.5 Safety related requirements

The master shield, as shown in Figure 6 and Table 7, shall be supplied by the manufacturer and shall be fixed to the tractor. It may also be hinged and/or be able to slide. If the same degree of safety is reached, equivalent protection devices (e.g. towing hook or clevis supports) can be used instead of the master shield. In this case, provision shall be made for anchoring the PTO drive-shaft guard.

Safety requirements given in ISO 4254-1 shall also be met.

Table 1 — Characteristics of PTO types

PTO type	Nominal diameter mm	Number and type of splines	PTO rated rotational frequency min ⁻¹
1	35	6 straight splines	540
2	35	21 involute splines	1 000
3	45	20 involute splines	1 000

¹⁾ To be published.