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Agricultural tractors — Front-mounted equipment —

Part 1: Safety requirements and clearance zone around PTO

Tracteurs agricoles — Équipement monté à l'avant —

*Partie 1: Prise de force: Exigences de sécurité et zone de dégagement
autour de la prise de force*



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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This third edition of [ISO 8759-1](#), together with the first editions of [ISO 8759-3](#) and [ISO 8759-4](#), cancels and replaces [ISO 8759-1:1998](#), which has been technically revised. The main changes compared to the previous edition are as follows:

- the content has been split into 3 parts:
 - the general specifications of the power take-off and the location requirements have been moved to a new part;
 - the specifications of the three-point linkage have been moved to a new part;
- specifications for PTO type 4 have been added;
- the dimensions for the tractor master shield and clearance zone have been updated;
- the dimensions of the protective device/tractor master shield and the clearance zone have been presented in one figure.

A list of all parts in the [ISO 8759](#) series can be found on the ISO website.

Agricultural tractors — Front-mounted equipment —

Part 1:

Power take-off: Safety requirements and clearance zone around PTO

1 Scope

This document specifies safety requirements for, and clearance zones around, front-mounted power take-offs (PTO) on agricultural tractors.

NOTE 1 Further specifications for front-mounted power take-offs are given in [ISO 8759-3](#).

It is not applicable to tractors which are designed to run in two directions, where either end can be considered to be the front or the rear.

NOTE 2 In this case, ISO 500 (all parts) apply.

2 Normative reference(s)

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

front

leading end of the machine when moving in the normally accepted direction of travel on the road, as characterized by the relative positions of the seat, steering wheels, controls and road lighting equipment

4 Safety requirements

4.1 The PTO master shield, as shown in [Figure 1](#) and [Table 1](#), shall be supplied by the tractor manufacturer and shall be fixed to the tractor. If the same degree of safety protection is reached and the clearance zone is respected, equivalent protection devices (e.g. towing frame or front three-point hitch) can be used instead of the PTO master shield. It can be necessary that parts of the lower links reach into the clearance zone of the front PTO, especially in the upper lifting position of the lower links (e.g. in parking position when the lower links are not in use).

4.2 If the PTO master shield cannot be used as a step, it may be flexible.

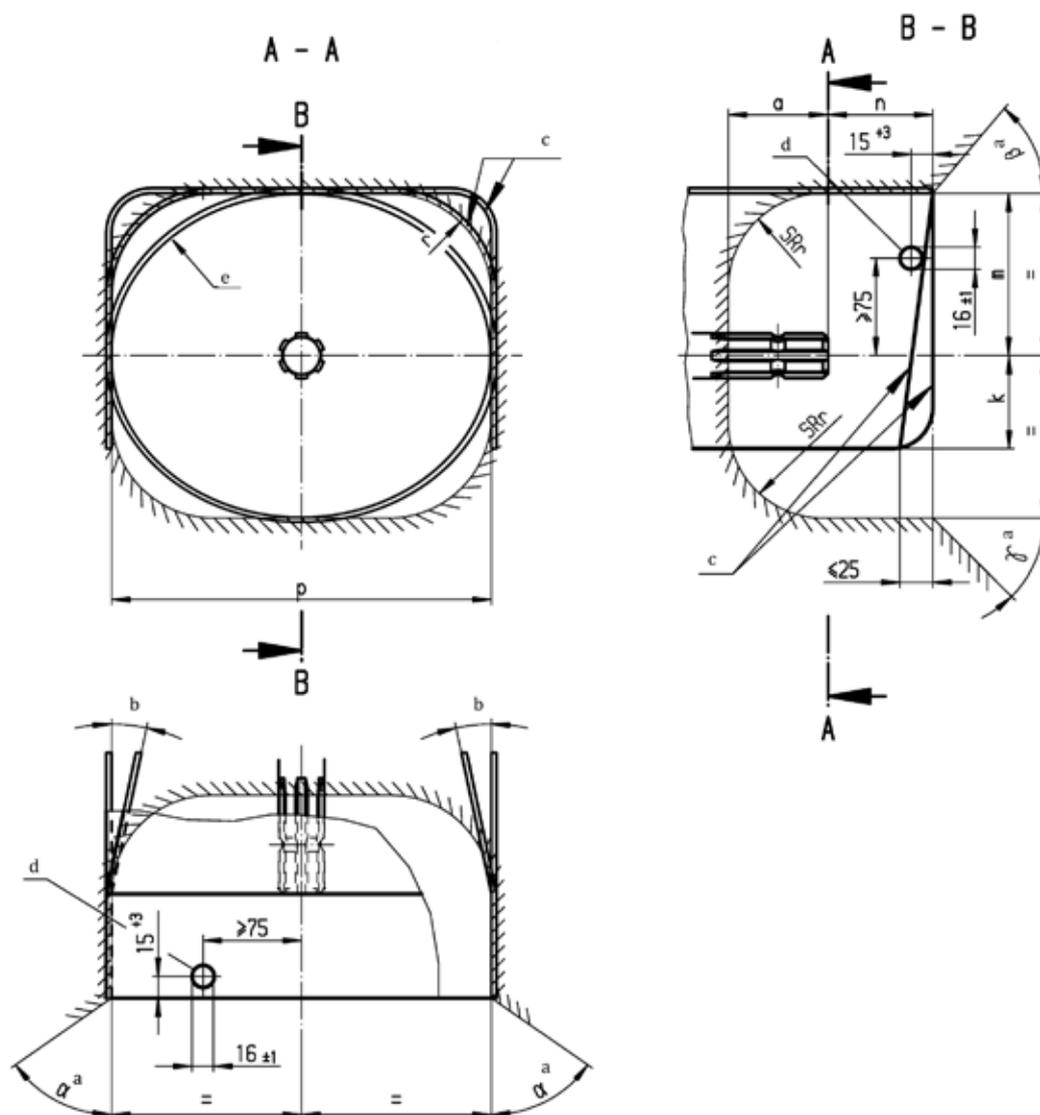
4.3 Provisions shall be made for anchoring the restraining member of the PTO drive shaft guard. Fully-closed PTO master shield may be used.

4.4 An additional non-rotating casing which fully covers the front PTO may also be supplied with the tractor to cover the front PTO when the front PTO is not in use.

5 Clearance zone around PTO

The clearance zone around the power take-off shall be in accordance with [Figure 1](#) and [Table 1](#).

Dimensions in millimetres



Key

-  clearance zone
-  master shield aperture
- a The clearance may be restricted by movable and/or detachable devices.
- b Angle optional under consideration of clearance zone.
- c Shape optional.
- d This hole is for coupling the restraining member of the PTO drive shaft guard. This hole may be located either on the top or on the right side or on the left side of the master shield aperture. Holes in flexible PTO master shields may be of different size and may be in a different location.
- e Optional shape only for PTO master shield made of flexible material.

Figure 1 — Tractor master shield aperture and clearance zone around PTO

Table 1 — Tractor master shield controlling dimensions for aperture and clearance zone dimensions

| Dimension | PTO type | | | |
|-----------------|-----------------------|-----------------------|---------------------|---------------------|
| | 1 | 2 | 3 ^c | 4 ^d |
| a_{\min} | 80 mm | 80 mm | 95 mm | 105 mm |
| α_{\min} | 30° | 30° | 30° | 30° |
| β_{\min} | 50° | 50° | 50° | 50° |
| γ_{\min} | 45° | 45° | 45° | 45° |
| SRr_{\max} | 76 mm | 76 mm | 90 mm | 90 mm |
| k_{\min} | 70 mm | 70 mm | 80 mm | 80 mm |
| $m \pm 5$ mm | 125 mm ^a | 125 mm ^a | 150 mm | 150 mm |
| $n \pm 5$ mm | 85 mm ^a | 85 mm ^a | 100 mm | 100 mm |
| $p \pm 10$ mm | 290 mm ^{a,b} | 290 mm ^{a,b} | 360 mm ^b | 360 mm ^b |
| r_{\max} | 76 mm | 76 mm | 90 mm | 90 mm |

^a On tractors with a minimum track setting of less than 1 150 mm, or on low clearance tractors, dimensions may be reduced down to $m = 100$ mm, $n = 40$ mm and $p = 175$ mm.

^b When using a PTO master shield made of flexible material, dimension p may be reduced down to 200 mm for PTO types 1 and 2 and to 295 mm for PTO type 3.

^c For tractors equipped with the PTO type 3 that can be adapted to also provide a PTO type 1 or 2, the tractor master shield needs only meet the specifications in [Figure 1](#) and [Table 1](#) for the PTO type 3.

^d For tractors equipped with the PTO type 4 that can be adapted to also provide a PTO type 1, 2 or 3, the tractor master shield needs only meet the specifications in [Figure 1](#) and [Table 1](#) for the PTO type 4.

Bibliography

- [1] ISO 500 (all parts), *Agricultural tractors — Rear-mounted power take-off types 1, 2, 3 and 4*
- [2] ISO 5673-2:2005, *Agricultural tractors and machinery — Power take-off drive shafts and power-input connection — Part 2: Specification for use of PTO drive shafts, and position and clearance of PTO drive line and PIC for various attachments*