
**Equipment for crop protection —
Sprayers — Demonstration track for field
crop sprayers**

*Matériel de protection des cultures — Pulvérisateurs — Piste de
démonstration pour les pulvérisateurs*

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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 22763 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 6, *Equipment for crop protection*.

This first edition of ISO 22763 cancels and replaces ISO/TS 22763:2002, of which it constitutes a technical revision.

Introduction

The movement of the spray boom is an important performance criterion for field crop sprayers. During practical demonstrations, the sprayers are driven on demonstration tracks to give the visual impression of the boom movement. The tracks used are very different.

This International Standard specifies a uniform track that can be used for practical demonstrations. As the intention is to show the boom movement visually, not to measure it, and due to the conditions under which practical demonstrations are normally performed, it gives the main characteristics — but not all details — required in, for example, laboratory measurements.

This demonstration track includes three individual sections which respectively

- represent field conditions (Section A), defined by evaluating real, rough field surfaces,
- show the headland situation (Section B), including an extreme obstacle (simulating, for example, a potato dam), and
- include a combination of obstacles (Section C) to show boom movement under very rough conditions exceeding normal/real conditions.

Section A, simulating field conditions, is based on detailed research. It has been proven that this track represents field conditions and excites a wider range of signals than previous demonstration tracks.

Equipment for crop protection — Sprayers — Demonstration track for field crop sprayers

1 Scope

This International Standard specifies a uniform demonstration track for showing the spray boom movement of field crop sprayers in, for example, practical demonstrations. The track specified can be used in demonstrations for mounted, trailed or self-propelled sprayers.

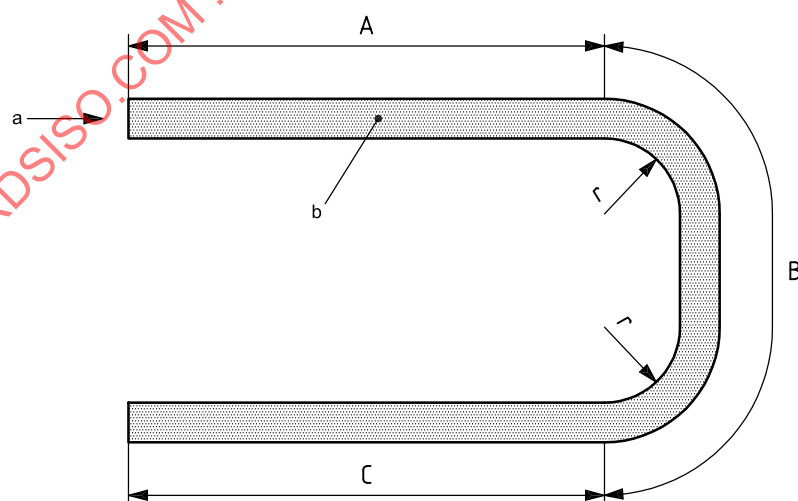
2 General

2.1 The demonstration track may consist of the following sections (see Figure 1):

- Section A, field track;
- Section B, headland turning track;
- Section C, bumpy track.

While Sections B and/or C are optional, the demonstration track shall include Section A.

2.2 National and local regulatory conditions and health and safety requirements for visitors and operators should be observed and followed.



Key

- A field track
- B headland turning track
- C bumpy track
- r radius

- a Start/driving direction.
- b Acceleration zone.

Figure 1 — Demonstration track (Sections A, B and C) — Top view

2.3 The demonstration track shall provide equal conditions for all sprayers independently of when the sprayers are passing over the track. To this end, the ground surface of the demonstration track shall be hard and solid across the total track length. Test blocks, bumps and ground surface shall withstand the loads without deformation or change of position generated by the sprayers or tractor/sprayer combinations, in accordance with 2.5 to 2.8.

2.4 The ground surface shall be generally even along the whole boom width.

2.5 In order to ensure a constant speed at the beginning of the demonstration track, a zone of sufficient length shall be provided for acceleration of the tractor/sprayer. This length shall correspond to the driving speed used (2.9 and 2.10).

2.6 All sprayers shall have the same track setting, the same height of the boom, the automatic boom levelling device switched on or off and 50 % volume of the liquid in the tank, unless these aspects are the subject of the demonstration.

2.7 The tyre pressure shall be as recommended by the tyre manufacturer for the full load condition of the sprayer.

2.8 Boom skids designed to maintain the target spraying height shall be removed.

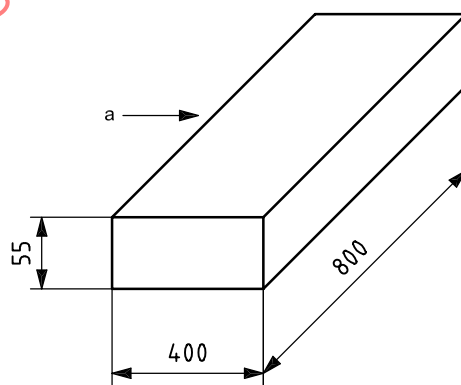
2.9 The driving speeds shall correspond to the local practice and to the different categories of sprayers and be communicated to the participants in a timely manner.

2.10 Driving speeds shall be kept to within a tolerance of ± 1 km/h and should be monitored and communicated to the visitors.

NOTE The specified test track is designed for driving speeds of between 6 km/h (or 4 km/h) and 12 km/h.

3 Section A — Field track

The track is constructed from 143 blocks, all having the same size, as shown in Figure 2, and distributed over the total length of the track (51,6 m) in accordance with Annex A.



Dimensions in millimetres

^a Driving direction.

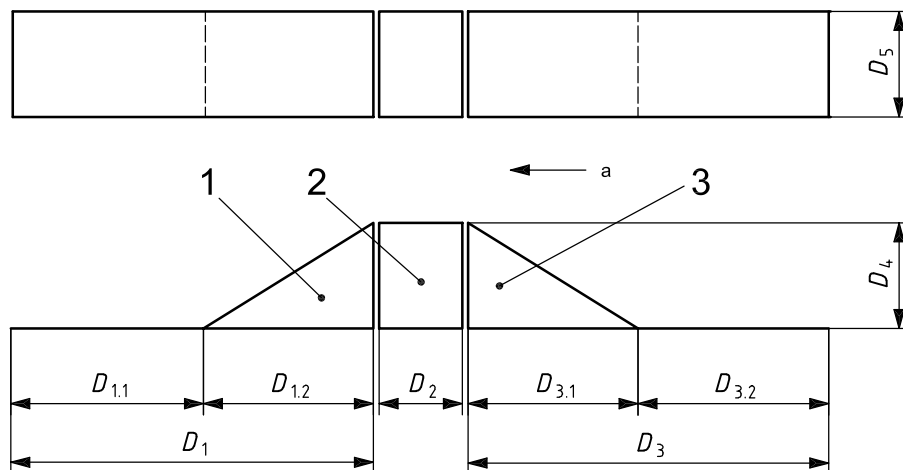
Figure 2 — Field track blocks

4 Section B — Headland turning track

The headland turning track shall

- a) be on even ground,
- b) start/end with a minimum radius, r , of 10 m,
- c) have a straight line part of a minimum of 15 m,
- d) include one test bump (including ramps with integrated plates), as shown in Figure 3, in the middle of the straight line and having the dimensions
 - total length of ramp, $D_1 = 800$ mm,
 - length of ramp plate, $D_{1.1} = 500$ mm,
 - length of ramp wedge, $D_{1.2} = 300$ mm,
 - length of test bump, $D_2 = 100$ mm,
 - total length of ramp, $D_3 = 800$ mm,
 - length of ramp wedge, $D_{3.1} = 300$ mm,
 - length of ramp plate, $D_{3.2} = 500$ mm,
 - height of ramp and test bump, $D_4 = 150$ mm,
 - width of ramp and test bump, $D_5 = 800$ mm.

Optionally, the track may include arrangements to show or to measure accuracy of wheel tracking for trailed and self-propelled machines through the use of soft soil, making track patterns visible.



Key

D_1 total length of ramp

$D_{1.1}$ length of ramp plate

$D_{1.2}$ length of ramp wedge

D_2 length of test bump

D_3 total length of ramp

$D_{3.1}$ length of ramp wedge

$D_{3.2}$ length of ramp plate

D_4 height of ramps and test bump

D_5 width of ramps and test bump

1 ramp to facilitate dismounting

2 test bump

3 ramp to facilitate mounting

a Driving direction

Figure 3 — Test bump (including ramps with integrated plates) — Side and top views

5 Section C — Bumpy track

5.1 Subsections

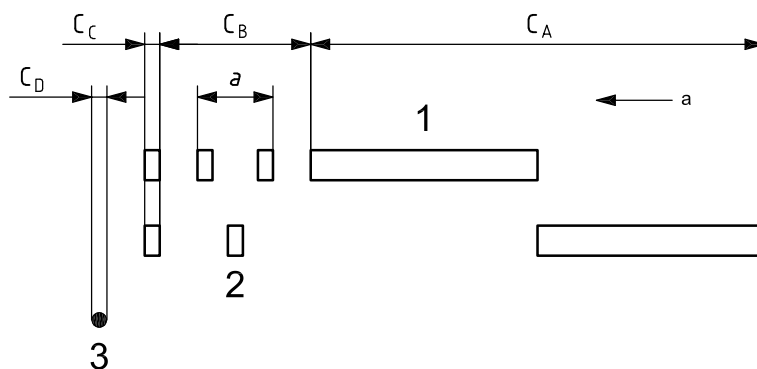
The bumpy track shall consist of the following subsections:

- subsection C_A , following the furrow;
- subsection C_B , passing field irregularities, which shall be 5 m in length;
- subsection C_C , crossing bumps;
- subsection C_D , hitting an obstacle;

All subsections, except for C_D , may be freely located. For practical reasons, subsection C_D shall be located at the end of the section.

The distance between two subsections — from the end of the last test bump to the beginning of the next test bump/obstacle — shall be at least 10 m.

Figure 4 shows an example of a bumpy track and its subsections.

**Key**

a length of passing field irregularities (= 5 m)

C_A furrow

C_B field irregularities

C_C crossing bumps

C_D hitting an obstacle

1 furrow test bump

2 test bump

3 break-back obstacle

a Driving direction.

Figure 4 — Section C — Bumpy track — Example

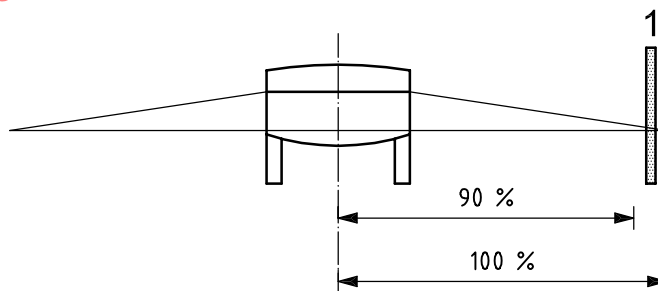
5.2 Obstacle, test bumps and ramps

5.2.1 Break-back test

5.2.1.1 Obstacle

The obstacle shall be a round pole having a minimum diameter of 150 mm and minimum height of 2 m.

It shall be designed such that it does not catch or damage the spray boom, and shall be placed at between 90 % and 100 % of the half-boom width (see Figure 5).

**Key**

1 obstacle

Figure 5 — Position of obstacle

5.2.1.2 Test bumps and ramps (see Figure 3)

5.2.1.2.1 Test bumps

The bumps shall be non-deformable, of rectangular shape and have the following dimensions:

- length $D_2 = 100$ mm,
- height $D_4 = 125$ mm,
- width $D_5 = 800$ mm.

5.2.1.2.2 Test ramps

The ramps shall be non-deformable, with an additional plate in front (500 mm) and the following dimensions:

- total length $D_1 = 750$ mm,
- length of ramp plate $D_{1,1} = 500$ mm,
- length of ramp wedge $D_{1,2} = 250$ mm,
- total length $D_3 = 750$ mm,
- length of ramp wedge $D_{3,1} = 250$ mm,
- length of ramp plate $D_{3,2} = 500$ mm,
- height $D_4 = 125$ mm,
- width $D_5 = 800$ mm.

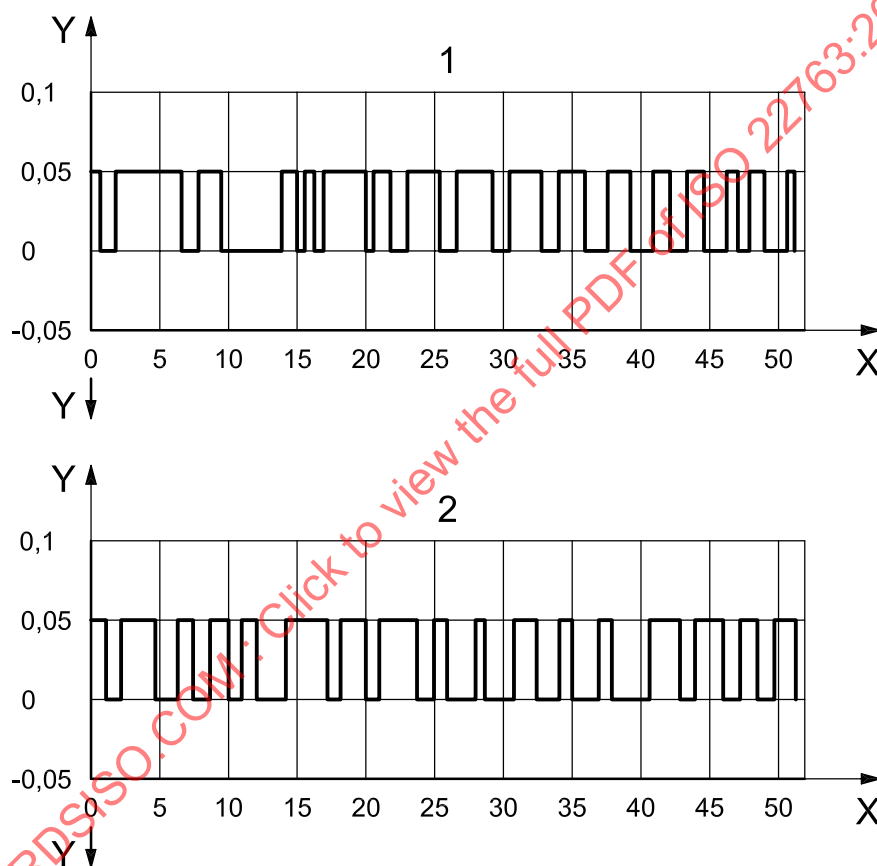
5.2.2 Furrow test

The test bumps and the ramps shall have the same dimensions as those specified in 5.2.1.2, except for the length of test bump, D_2 , which shall be a minimum of 10 m.

Annex A (normative)

Sequence of blocks and spaces over total length of field track

The sequence of 143 blocks over the total length (51,6 m) of the field track as defined in Figure A.1 is given in Table A.1.



Key

- X travel distance, m
- Y height, m
- 1 left side
- 2 right side

Figure A.1 — Field track definition

Table A.1 — Section A — Field track — Sequence of blocks and spaces

Travel distance m	Left side	Right side
0	block	block
0,4	block	block
0,8	0	block
1,2	0	0
1,6	0	0
2	block	0
2,4	block	block
2,8	block	block
3,2	block	block
3,6	block	block
4	block	block
4,4	block	block
4,8	block	0
5,2	block	0
5,6	block	0
6	block	0
6,4	block	block
6,8	0	block
7,2	0	block
7,6	0	0
8	block	0
8,4	block	0
8,8	block	block
9,2	block	block
9,6	0	block
10	0	0
10,4	0	0
10,8	0	block
11,2	0	block
11,6	0	block
12	0	0
12,4	0	0
12,8	0	0
13,2	0	0
13,6	0	0
14	block	block
14,4	block	block
14,8	block	block
15,2	0	block
15,6	block	block
16	block	block
16,4	0	block
16,8	block	block