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Prevozni namakalni stroji - 1. del: Obratovalne lastnosti in metode laboratorijskih in terenskih preskusov (ISO 8224-1:2003)

Traveller irrigation machines - Part 1: Operational characteristics and laboratory and field test methods (ISO 8224-1:2003)

Mobile Beregnungsmaschinen - Teil 1: Betriebskennwerte, Prüfverfahren für Labor- und Felduntersuchungen (ISO 8224-1:2003)

Machines d'arrosage mobiles - Partie 1: Caractéristiques opérationnelles et méthodes d'essai en laboratoire et au champ (ISO 8224-1:2003)

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| 65.060.35 | Namakalna in drenažna oprema | Irrigation and drainage equipment |
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 8224-1

February 2003

ICS 65.060.35

English version

Traveller irrigation machines - Part 1: Operational characteristics and laboratory and field test methods (ISO 8224-1:2003)

Machines d'arrosage mobiles - Partie 1: Caractéristiques opérationnelles et méthodes d'essai en laboratoire et au champ (ISO 8224-1:2003)

Mobile Beregnungsmaschinen - Teil 1: Betriebskennwerte, Prüfverfahren für Labor- und Felduntersuchungen (ISO 8224-1:2003)

This European Standard was approved by CEN on 18 December 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Management Centre: rue de Stassart, 36 B-1050 Brussels

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| CORRECTED 2003-03-19 |
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Foreword

This document (EN ISO 8224-1:2003) has been prepared by Technical Committee ISO/TC 23 "Tractors and machinery for agriculture and forestry" in collaboration with Technical Committee CEN/TC 334 "Irrigation techniques", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2003, and conflicting national standards shall be withdrawn at the latest by August 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 8224-1:2003 has been approved by CEN as EN ISO 8224-1:2003 without any modifications.

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NOTE Normative references to International Standards are listed in Annex ZA (normative).

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Annex ZA (normative)

Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN</u> | <u>Year</u> |
|--------------------|-------------|--|--------------|-------------|
| ISO 11545 | 2001 | Agricultural irrigation equipment - Centre-pivot and moving lateral irrigation machines with sprayer or sprinkler nozzles - Determination of uniformity of water distribution | EN ISO 11545 | 2001 |

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INTERNATIONAL STANDARD

ISO
8224-1

Second edition
2003-02-01

Corrected version
2004-02-15

Traveller irrigation machines —

Part 1:

Operational characteristics and laboratory and field test methods

*Machines d'irrigation mobiles —
Partie 1: Caractéristiques de fonctionnement et méthodes d'essai en
laboratoire et au champ*

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Contents

Page

| | |
|--|-----------|
| Foreword..... | iv |
| 1 Scope..... | 1 |
| 2 Normative references | 1 |
| 3 Terms, definitions and symbols | 1 |
| 4 Functional aspects and technical information..... | 8 |
| 5 Test specifications..... | 8 |
| 5.1 General..... | 8 |
| 5.2 Test liquid..... | 8 |
| 5.3 Calculation of field resistance coefficient..... | 9 |
| 5.4 Sampling and general preparation of test traveller irrigation machine..... | 10 |
| 5.5 Specific machines..... | 10 |
| 6 Laboratory uniformity tests | 10 |
| 6.1 General..... | 10 |
| 6.2 Test conditions..... | 11 |
| 6.3 Apparatus..... | 14 |
| 6.4 Required pre-test data..... | 17 |
| 6.5 Procedure..... | 18 |
| 6.6 Processing laboratory uniformity test data..... | 20 |
| 6.7 Presentation of results | 22 |
| 7 Laboratory drive tests | 27 |
| 7.1 General..... | 27 |
| 7.2 Laboratory drive test equipment..... | 27 |
| 7.3 Laboratory drive test conditions..... | 27 |
| 7.4 Laboratory drive test procedure..... | 28 |
| 7.5 Laboratory drive test results..... | 28 |
| 8 Field uniformity tests..... | 28 |
| 8.1 General..... | 28 |
| 8.2 Apparatus..... | 29 |
| 8.3 Field uniformity test procedure..... | 30 |
| 8.4 Field uniformity test data processing and results..... | 32 |
| 8.5 Graphs of field uniformity test results..... | 36 |

ISO 8224-1:2003(E)

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 8224-1 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 18, *Irrigation and drainage equipment and systems*.

This second edition cancels and replaces the first edition (ISO 8224-1:1985), which has been technically revised.

ISO 8224 consists of the following parts, under the general title *Traveller irrigation machines*:

- *Part 1: Operational characteristics and laboratory and field test methods*
- *Part 2: Softwall hose and couplings — Test methods*

This corrected version of ISO 8224-1:2003 incorporates the following corrections.

The French title has been corrected.

A redundant reference to the three travelling rate settings has been deleted from 6.2.2 b).

Cross-references have been corrected.

A typographical error in the title of Figure 6 has been corrected.

The y-axis legend for Figure 7 d) has been corrected to indicate travel speed.

The arrows indicating pressure and flow rate in Figure 7 e) now correspond to the appropriate longitudinal variations shown on the graph.

The reference to the role of the third pressure gauge in 8.2.4 has been clarified.

In 8.4.3.1 d), the explanation of the ratio has been given its true sense. The same has been done in respect of the different ratio mentioned in 8.4.3.2.

Traveller irrigation machines —

Part 1: Operational characteristics and laboratory and field test methods

1 Scope

This part of ISO 8224 specifies the operational characteristics of, and laboratory and field test methods for, traveller irrigation machines. It includes

- user-oriented technical information for inclusion in the manufacturer's accompanying product literature,
- laboratory test procedures for evaluating the uniformity of water application on an irrigated strip by a machine operating within a specified range of conditions and for determining the maximum travelling rates the drive mechanism is able to achieve in response to specified operating conditions, and
- field test procedures for determining the uniformity of water application on a given irrigated strip under local conditions prevailing in the field at time of testing.

It is applicable only to traveller irrigation machines and not to other types of irrigation machine such as centre-pivot and moving lateral irrigation machines.

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 7749-2:1990, *Irrigation equipment — Rotating sprinklers — Part 2: Uniformity of distribution and test methods*

ISO 8026, *Agricultural irrigation equipment — Sprayers — General requirements and test methods*

ISO 11545, *Agricultural irrigation equipment — Centre-pivot and moving lateral irrigation machines with sprayer or sprinkler nozzles — Determination of uniformity of water distribution*

3 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols (see Table 1) apply.

3.1

traveller irrigation machine

machine designed to irrigate a field sequentially, strip by strip, by causing, through various coiling techniques, a cart equipped with a travelling water distribution system (sprinkler or gun-type sprinkler, combination of sprinklers and guns, boom with set of sprinklers, sprayers or other kinds of water distribution devices) to travel

ISO 8224-1:2003(E)

across a field, and which is intended to be moved to, and operated from, several supply points established in advance in the field

NOTE There are three types of traveller irrigation machine, each having a structure that includes a reel, spool or winch and a travelling water distribution system.

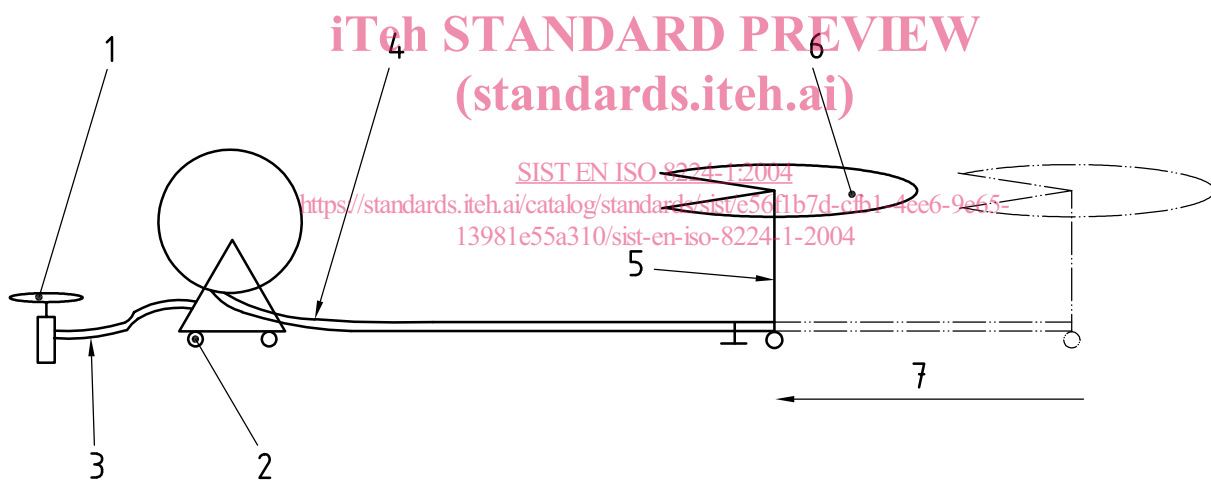
- Type 1 traveller irrigation machines feature a stationary reel with a hydraulic motor that coils and drags a distribution tube and a travelling cart that supports a water distribution system — commonly referred to as “reel machines” (see 3.2).
- Type 2 traveller irrigation machines feature a travelling winch with a hydraulic motor that supports a water distribution system, coils a tow cable and drags a distribution hose — commonly referred to as “travellers” (see 3.3).
- Type 3 traveller irrigation machines feature a travelling reel that supports a water distribution system with self-propelled wheels and coiling a stationary distribution tube — commonly referred to as “self-propelled reel machines” (see 3.4) — or they can be engine-driven machines.

3.2

reel machine

type 1 traveller irrigation machine featuring a stationary reel coiling a distribution tube that drags a travelling cart on which is installed a water distribution system (most often a gun-type sprinkler) and carries water to the water distribution system

See Figure 1.

**Key**

- 1 water source
- 2 stationary reel
- 3 source connection conduit/hose
- 4 distribution tube — dragged
- 5 cart
- 6 water distribution device or system — gun, sprinkler, boom (on cart)
- 7 direction of movement

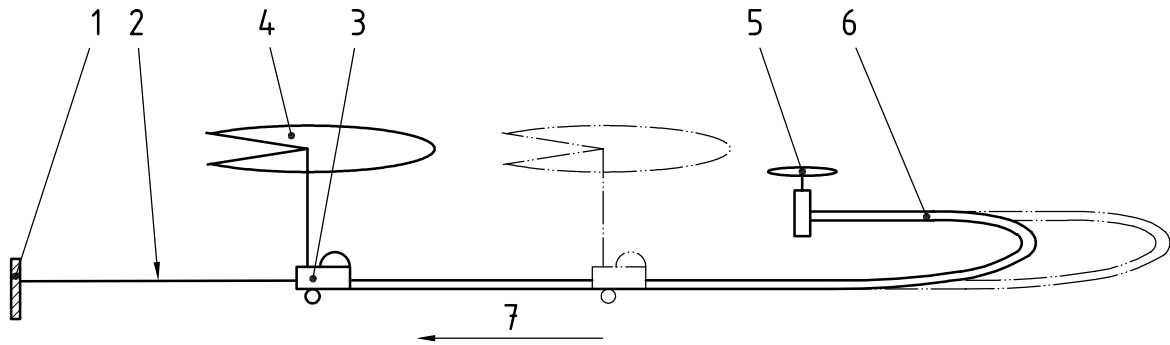
Figure 1 — Sketch of operating type 1 traveller irrigation machine — Reel machine

3.3

traveller

type 2 traveller irrigation machine featuring a travelling winch with hydraulic motor supporting a water distribution system, which coils a cable and drags a distribution hose

See Figure 2.

**Key**

- 1 tow cable anchor
- 2 tow cable
- 3 cart
- 4 water distribution device or system — gun, sprinkler, boom (on cart)
- 5 water source
- 6 distribution hose — dragged
- 7 direction of movement

Figure 2 — Sketch of operating type 2 traveller irrigation machine — Traveller

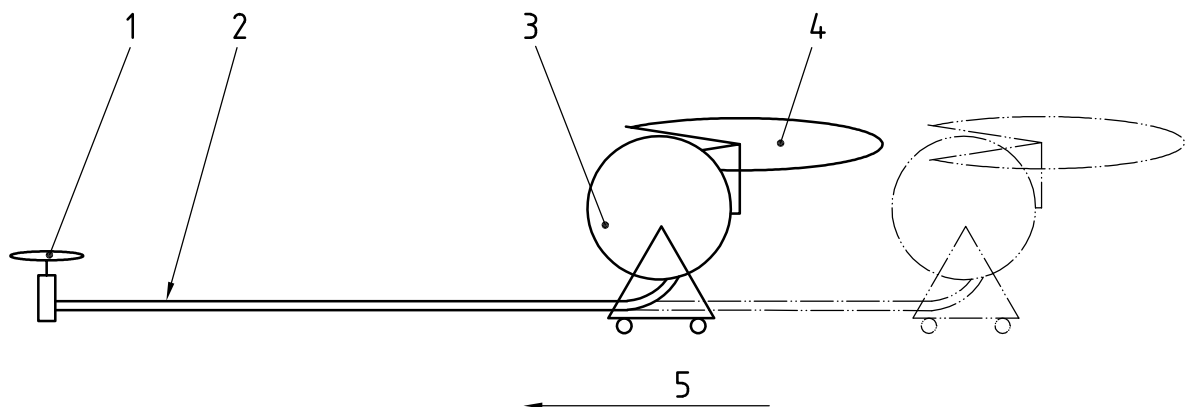
3.4**self-propelled reel machine**

type 3 traveller irrigation machine (featuring a stationary distribution tube that carries irrigation water to a travelling structure accommodating a reel on which the distribution tube is coiled, a drive train, self-propelled wheels and water distribution system

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See Figure 3.

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**Key**

- 1 water source
- 2 distribution tube
- 3 self-propelled structure
- 4 water distribution device or system — gun, sprinkler, boom (on self-propelled structure)
- 5 direction of movement

Figure 3 — Sketch of operating type 3 traveller irrigation machine — Self-propelled reel machine