BRITISH STANDARD

BS EN
12324-1:1999

Irrigation techniques — Reel machine systems —

Part 1: Size series

The European Standard EN 12324-1:1998 has the status of a British Standard

ICS 65.060.35

National foreword

This British Standard is the English language version of EN 12324-1:1998.

The UK participation in its preparation was entrusted to Technical Committee AGE/30, Irrigation and drainage equipment, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 6, an inside back cover and a back cover.

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English version

Irrigation techniques — Reel machine systems — Part 1: Size series

Techniques d'irrigation — Installations avec enrouleurs — Partie 1: Gammes dimensionelles

Bewässerungsverfahren — Beregnungsmaschinen mit Regnereinzug — Teil 1: Baureihen

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CEN

European Committee for Standardization
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Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

This European Standard has been prepared by 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of an identical text or by endorsement, at the latest by June 1999, and conflicting national standards shall be withdrawn at the latest by June 1999.

Within its work programme, CEN/TC 334 requested Working Group CEN/TC 334/WG 1, Reel machines systems, to prepare the following standard:

prEN 12324-1, *Irrigation techniques — Reel machine systems — Part 1: Size series.*

The other parts of this standard are:

prEN 12324-2, *Irrigation techniques — Reel machine systems — Part 2: Specifications of polyethylene tubes for reel machines.*

prEN 12324-3, *Irrigation techniques — Reel machine systems — Part 3: Presentation of technical characteristics.*

prEN 12324-4, *Irrigation techniques — Reel machine systems — Part 4: Check list for user requirements.*

prEN ISO 8224-1, *Traveller irrigation machines — Part 1: Laboratory and field test methods.*

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Contents

1 Scope

This part of prEN 12324 gives the dimensional specifications of the reel machine structures and of the corresponding polyethylene tubes.

2 Normative references

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.

prEN 12324-2:1996, *Irrigation techniques — Reel machine systems — Part 2: Specifications of polyethylene tubes for reel machines.*

prEN 908, *Agricultural and forestry machinery — Reel machines for irrigation — Safety.*

3 Definitions

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

3.1

reel machine

type of traveller irrigation machine featuring a stationary structure with a reel, coiling a tube which carries irrigation water to, and drags a travelling cart upon which is affixed the distribution system, which is most often an irrigation gun

NOTE A sketch showing the main parts of a reel machine and their names is given in Figure 1.

3.2

structure (ST)

conventional designation for the various sizes of a reel machine frame, allowing it to accommodate a polyethylene tube for reel-machines, the diameter of which is listed in a range of polyethylene tubes, and the length of which conforms to specific conditions

3.3

polyethylene tube (for reel machine)

one of the parts of a reel machine which connects the cart to the structure (also = distribution tube)

NOTE Distribution tubes are currently manufactured of polyethylene and currently referred to as polyethylene tubes.

3.4

range of the polyethylene tubes

list of those external diameters of the polyethylene tubes for reel machine that can be accommodated on a given structure

3.5

central diameter of the range of the polyethylene tubes

diameter of the reference polyethylene tube of the range of the polyethylene tubes that the structure must be able to accommodate

3.6

minimal length of the tube of central diameter of the range of polyethylene tubes

minimal length of polyethylene tube that the structure is required to accommodate, when the tube has a diameter equal to the central diameter of the range of polyethylene tubes corresponding to the structure

3.7

series of a polyethylene tube

one of the characteristics of a polyethylene tube for reel-machines related to its length, in accordance with prEN 12324-2:1996, Table 3, column 3

4 Specifications of the structures

4.1 Range of polyethylene tubes

The various structures shall be able to accommodate the appropriate range of polyethylene tubes.

These ranges are specified in Table 1.

They are constituted of a lower diameter of the range, a central diameter of the range, and possibly a greater diameter of the range.

4.1.1 *Central diameter*

The structure shall be able to accommodate a polyethylene tube, the diameter of which is the central diameter of the corresponding range of polyethylene tubes, and the reference length of which is at least equal to the minimum length of the tube of central diameter.

This central diameter is used as a reference for the dimensions of the structure.

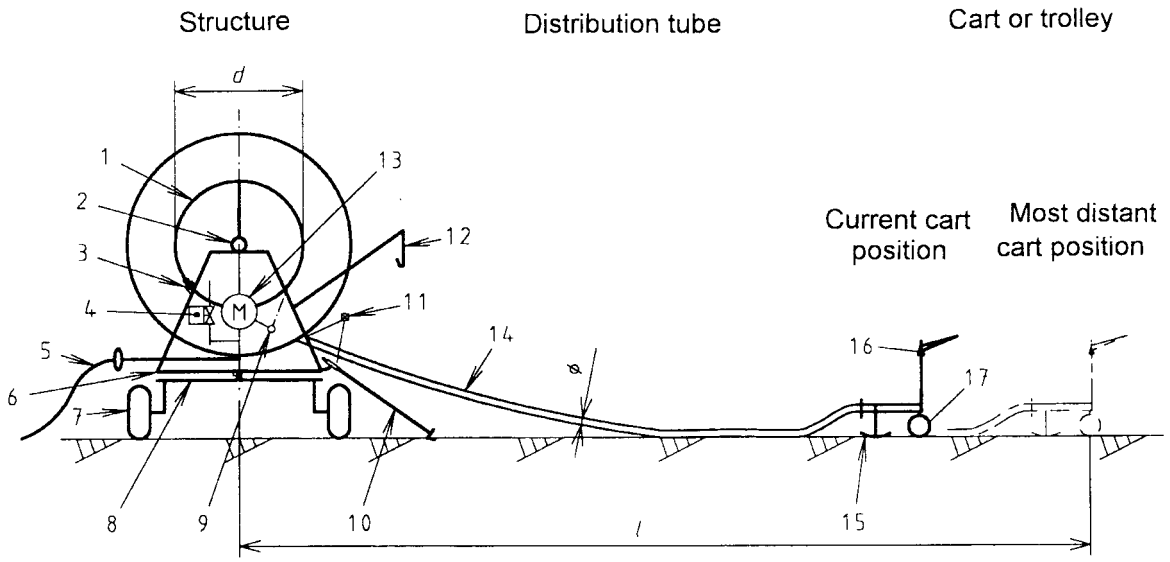
4.1.2 *Lower diameter*

The structure shall also be able to accommodate a polyethylene tube, the diameter of which is immediately lower than the central diameter in the range. The length of this tube shall be at least 10 % greater than the reference minimum length of the hose of central diameter.

4.1.3 *Greater diameter*

The structure should also be able to accommodate a polyethylene tube, the diameter of which is immediately greater than the central diameter.

In this case, the length of the tube is not submitted to a condition of minimal length, but it shall be declared by the manufacturer.



1 Spool drum
d Drum diameter
2 Shaft of the spool
3 Brakes of the spool
4 Control device for water distribution system travel
5 Machine-source connection hose (supply hose)
6 Spool support: fixed or orientable turntable/turret
7 Wheel
8 Chassis
9 External power shaft
10 Stabilizer legs
11 Distribution tube guide mechanism
12 Cart (or trolley) lifting device
13 Hydraulic drive (turbine or piston) and drive train
14 Distribution tube (polyethylene tube)
Ø Distribution tube, outer diameter
l Distribution tube, reference length (usable length of tube)
15 Cart skid
16 Water distribution system: sector-adjustable irrigation gun, broom, or other system
17 Cart wheel

Figure 1 — Sketch showing the main parts of a reel machine

4.2 Diameter of the spool drum

4.2.1 *Minimal diameter of the drum*

For each structure, the diameter of the spool drum shall not be lower than 15 times the central diameter of the range of polyethylene tubes corresponding to the structure.

4.2.2 *Case of derogation*

Nevertheless, by derogation to **4.2.1**, in order to help comply with specific requirements for road transport, the diameter of the spool drum may be adapted in the following case (see in Table 1 the specifications for the derogatory structures ST 8d and ST 9d).

For the structures ST 8d and ST 9d, the diameter of the spool drum may optionally be reduced to 14 times the central diameter of the range of polyethylene tubes, provided the two following conditions are satisfied:

a) no diameter greater than the central diameter shall appear in the range of diameters of polyethylene tubes that this structure shall accommodate; and

b) the minimal reference length of tube of central diameter shall be 10 % greater for this structure.

Table 1 — List of the structures and corresponding ranges of polyethylene tubes

Specifications of structures			Specification of the ranges of polyethylene tubes			
Designation of the structure	Indicative flowrate for the structure	Minimal diameter of drum	Central diameter of the range	Mimimum length of the tube of central diameter of the range	Range of polyethylene tubes	
					Diameter	Minimum length
	m^3/h	mm	mm	m	mm	m
ST 1	20 to 22	945	63	220	50 63 70	240 220 N/S(*)
ST 2	25 to 28	1 050	70	250	63 70 75	275 250 N/S(*)
ST 3	36	1 125	75	270	70 75 82	300 270 N/S(*)
ST 4	40	1 230	82	290	75 82 90	320 290 N/S(*)
ST 5	50	1 350	90	320	82 90 100	350 320 N/S(*)
ST 6	63	1 500	100	360	90 100 110	395 360 N/S(*)
ST 7	80	1 650	110	390	100 110 125	430 390 N/S(*)
ST 8	100	1 875	125	450	110 125 140	495 450 N/S(*)
ST 9	125	2 100	140	500	125 140	550 500
By derogation						
ST 8d	100	1 750	125	445	110 125	490 445
ST 9d	125	1 960	140	550	125 140	605 550

(*) N/S: length not specified.

5 Specifications applying to polyethylene tubes affixed to structures

5.1 General specifications

The polyethylene tubes used for reel machines shall conform to the prEN 12324-2:1996.

5.2 Selection of the appropriate series

The series of the polyethylene tube for reel machines shall be selected according to the length of tube affixed to the structure as specified in Table 2.

Table 2 — Selection of the series of a polyethylene tube according to the tube length affixed to the structure

Length of the polyethylene tube affixed to the structure	Series of the polyethylene tube
From 0 m up to 400 m	Series 1
Over 400 m up to 500 m	Series 2
Over 500 m up to and including 600 m	Series 3

6 Marking

An identification plate shall be affixed to the structure of the reel machine in conformity with prEN 908.

This plate shall indicate in clearly legible and durable characters, the following additional information at least:

a) mark and logo of the manufacturer;

b) designation of the structure (as shown in Table 1, column 1);

c) external diameter of the polyethylene tube affixed on the machine;

d) length and series of the polyethylene tube affixed on the machine.

Example of marking:

XXX
ST 5 – 1998 – n° 0007654321
90 mm 350 m – S1

blank

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