



**SLOVENSKI STANDARD**  
**SIST EN 12484-2:2001**  
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Irrigation techniques - Automatic turf irrigation systems - Part 2: Design and definition of typical technical templates

Bewässerungsverfahren - Automatische Rasenbewässerungssysteme - Teil 2:  
Gestaltung und Definition von typischen technischen Darstellungen

Techniques d'irrigation - Installations avec arrosage automatique intégré des espaces  
verts - Partie 2: Conception et définition de descriptifs techniques types

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**ICS:**

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

EN 12484-2

May 2000

ICS 65.060.35

English version

## Irrigation techniques - Automatic turf irrigation systems - Part 2: Design and definition of typical technical templates

Techniques d'irrigation - Installations avec arrosage  
automatique intégré des espaces verts - Partie 2:  
Conception et définition de descriptifs techniques types

Bewässerungsverfahren - Automatische  
Rasenbewässerungssysteme - Teil 2: Gestaltung und  
Definition von typischen technischen Darstellungen

This European Standard was approved by CEN on 13 April 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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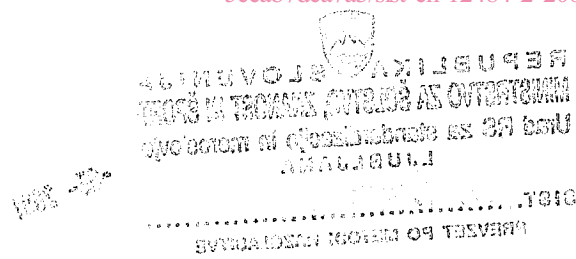
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## Foreword

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 November 2000, and conflicting national standards shall be withdrawn at the latest by November 2000.

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.

Within the framework of its work programme, the CEN/TC 334 has entrusted the preparation of this standard to CEN/TC 334/WG 4 "Automatic turf irrigation systems" working group to prepare the present draft :

EN 12484-2, *Irrigation techniques - Automatic turf irrigation systems - Part 2 : Design and definition of typical technical templates.*

The other parts of this Standard are :

EN 12484-1, *Irrigation techniques - Automatic turf irrigation systems - Part 1 : Definition of the programme of equipment by the owner.*

EN 12484-3, *Irrigation techniques - Automatic turf irrigation systems - Part 3 : Automatic control and system management.*

prEN 12484-4, *Irrigation techniques - Automatic turf irrigation systems - Part 4 : Installation, acceptance and safety.*

prEN 12484-5, *Irrigation techniques - Automatic turf irrigation systems - Part 5 : Testing methods of systems.*

Annex A is normative.

## 1 Scope

This part of this European standard EN 12484 is intended to :

- set forth the information and requirements taken into account by to project manager for designing an automatic irrigation system and justify the technical decisions made ;
- quantify and define the equipment and methods used as a basis for carrying out the installation of an automatic irrigation system.

## 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.

EN 736-1:1995, *Valves - Terminology - Part 1 : Definition of types of valves.*

EN 50086-2-4, *Conduits systems for electrical installations - Part 2.4 : Particular requirements for conduits systems buried underground.*

HD 21.1 S3, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 1 : General requirements.*

HD 21.2 S3, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 2 : Test methods.*

HD 21.3 S3, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 3 : Non-sheathed cables for fixed wiring.* (IEC 60227-3:1993, modified).

HD 21.4 S2, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 4 : Sheathed cables for fixed wiring.*

HD 21.5 S3, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 5 : Flexible cables (cords).* (IEC 60227-5:1979, modified).

HD 21.7 S2, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 7 : Single core non-sheathed cables for internal wiring for a conductor temperature of 90 "Grad" C.*

HD 21.9 S2, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 9 : Single core non-sheathed cable for installation at low temperatures.*

HD 21.10 S1, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 10 : Extensible leads.*

HD 21.12 S1, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 12 : Heat-resistant flexible cables (cords).*

HD 21.13 S1, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 13 : Oil resistant PVC sheathed cables with two or more conductors.*

EN 1452-1, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1 : General.*

EN 1452-2, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 2 : Pipes.*

EN 1452-3, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 3 : Fittings.*

EN 1452-4, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 4 : Valves and ancillary equipment.*

EN 1452-5, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 5 : Fitness for purpose of the system.*

prENV 1452-6:1999, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 6 : Guidance for installation.*

prENV 1452-7:1999, *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 7 : Guidance for the assessment of conformity.*

prEN 1717:1999, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow.*

prEN 12201-1:1995, *Plastics piping systems for water supply - Polyethylene (PE) - Part 1 : General.*

prEN 12201-2:1995, *Plastics piping systems for water supply - Polyethylene (PE) - Part 2 : Pipes.*

prEN 12201-3:1995, *Plastics piping systems for water supply - Polyethylene (PE) - Part 3 : Fittings.*

prEN 12201-4:1997, *Plastics piping systems for water supply - Polyethylene (PE) - Part 4 : Valves.*

prEN 12201-5:1995, *Plastics piping systems for water supply - Polyethylene (PE) - Part 5 : Fitness for purpose of the system.*

prEN 12201-7:1997, *Plastics piping systems for water supply - Polyethylene (PE) - Part 7 : Assessment of conformity.*

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ISO 161-1, *Thermoplastics pipes for the conveyance of fluids - Nominal outside diameters and nominal pressures - Part 1 : Metric series.*

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ISO 3458, *Assembled joints between fittings and polyethylene (PE) pressure pipes - Test of leakproofness under internal pressure.*

ISO 3459, *Polyethylene (PE) pressure pipes - Joints assembled with mechanical fittings - Internal under pressure test method and requirement.*

ISO 3501, *Assembled joints between fittings and polyethylene (PE) pressure pipes - Test of resistance to pull out.*

ISO 3503, *Assembled joints between fittings and polyethylene (PE) pressure pipes - Test of leakproofness under internal pressure when subjected to bending.*

ISO 11922-1, *Thermoplastics pipes for the conveyance of fluids - Dimensions and tolerances - Part 1 : Metric series.*

IEC/TR3 61201, *Extra-low voltage (ELV) - Limit values.*

### 3 Definitions and graphic symbols

#### 3.1 Definitions

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

##### 3.1.1

##### **flow meter**

device designed to measure the volumes of water used in time units

##### 3.1.2

##### **water meter**

device designed to measure the amount of water used in volumetric units

### 3.1.3

#### **pump station**

installation comprising one or more pumps, including all necessary equipment and accessories

### 3.1.4

#### **booster pump**

installation comprising one or more pumps, and intended for increasing the pressure within the distribution network

### 3.1.5

#### **water source**

point of supply of pressurized water supplying the irrigation system

### 3.1.6

#### **injection pump**

device designed to inject fertilizer and treatment products into irrigation water

### 3.1.7

#### **flow limiter**

device which limits the supply flow rate per unit of time to a given maximum value

### 3.1.8

#### **inline vacuum breaker**

device designed to allow air to enter pipe network to prevent any depression

### 3.1.9

#### **pressure regulator**

device to maintain a pre-defined downstream pressure lower or equal to the upstream pressure

### 3.1.10

#### **check valve**

valve which automatically opens by fluid flow in a defined direction and which automatically closes to prevent fluid flow in the reverse direction

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[EN 736-1:1995]

### 3.1.11

#### **double action air vent**

device designed to vent out air during system fill-up and admit air into the pipeline when system is drained. The device is usually installed at the highest point in the system

### 3.1.12

#### **valve**

pipng component which influences the fluid flow by opening, closing or partially obstructing the passage of the fluid flow or by diverting or mixing the fluid flow

[EN 736-1:1995]

### 3.1.13

#### **manual valve**

manually operated valve designated to allow or prevent flow of a fluid

### 3.1.14

#### **drain valve**

valve used to drain all or part of a pipeline. These automatic or manually operated valves are placed in low points in the pipelines

### 3.1.15

#### **automatic remote control valve**

valve activated by remote control by an Extra Low Voltage electric line or hydraulic or pneumatic control tubing

### 3.1.16

#### **self-powered programmable valve**

valve equipped with its own programming system and energy source



**3.1.17****quick-coupling valve**

water supply outlet enabling the rapid connection of a sprinkler or a hose by the introduction of a specific connecting key

**3.1.18****reduced pressure backflow preventer**

device designed to create a pressure break between upstream and downstream in an hydraulic circuit

**3.1.19****irrigation water outlet**

valve box with cover set to grade. Inside there is a manual valve with a quick connector to attach an hose

**3.1.20****range (of a sprinkler or diffuser)**

maximum distance, measured under normal operation, between the vertical axis of the apparatus and the point where the sprinkler intensity exceeds 0,25 mm/h and 0,13 mm/h for an apparatus with a discharge less than or equal to 75l/h (points corresponding to a circular sector limit are excluded)

**3.1.21****irrigation pipe**

line used to carry irrigation water under pressure

**3.1.22****main pipe**

buried line ensuring the link between the pump or the water source and the lateral pipes. This line is permanently under pressure during all the irrigation season

**3.1.23****lateral pipe**

branch supply line on which distribution devices (sprinklers, emitters) are mounted directly or by means of fittings, risers or tubes. This line is placed downstream of the valve and is under pressure only when the control station is operation

**3.1.24****electrical wire**

used to transport energy or electrical signals

**3.1.25****hydraulic or pneumatic remote control tubing**

small diameter tubing used to transmit an order from the control unit to the automatic hydraulic or pneumatic remote control valve

**3.1.26****recording rainfall gauge**

instrument for measuring the height of rain water assumed to be uniformly spread out and not subject to evaporation and comprising a device for continuous recording of the height of rainwater

**3.1.27****moisture sensor**

instrument which is driven into the ground in order to measure its moisture level

**3.1.28****rain sensor**

adjustable device used to prevent irrigation when rainfall exceeds a pre-set level

**3.1.29****valve box**

prefabricated casing equipped with a cover buried at ground level and which houses equipment which is accessible for inspection and maintenance

**3.1.30****sleeve**

sleeving which allows the laying and protection of pipes through a construction work (highway, road, wall, etc.)

**3.1.31  
conduit**

an assembly of elements and accessories used to protect insulated wires and/or cables in buried electrical installations

**3.1.32  
water application**

height of irrigation water supplied during the course of an irrigation cycle (mm of water height)

**3.1.33  
irrigation program**

set of instructions entered into a controller, taking into consideration the information used to operate the various irrigation sectors (water dose, rain fall supply, run time, frequency, number of cycles, etc.)

**3.1.34  
decoder**

device used in conjunction with one or more electric valves to open and close them according to a coded signal sent from a controller

**3.1.35  
sectoring**

dividing up, during the design stage, the area to be irrigated into coherent sectors

**3.1.36  
irrigation sequence**

irrigation period of a sector defined by the start time and the run time

**3.1.37  
sprinkler station**

controller output monitoring the operation of one or several remote control valves corresponding to a specific irrigated sector and a sprinkler or group of sprinklers

**3.1.38  
irrigation unit**

an assembly including all components needed to equip an irrigation sector and allowing all or some of the following functions : pressurization, filtration, automatic operation, protection and safety

**3.1.39  
irrigation cycle**

successive supply of water over all the sectors so as to achieve a given irrigation over the whole surface area to be irrigated

**3.1.40  
cycle run time**

time elapsing between the start of the first sequence and the end of the last sequence of the cycle

**3.1.41  
irrigation window**

maximum irrigation time during which the design water application is delivered. This figure is in H/day and number of days of irrigation per week

**3.1.42  
irrigation frequency**

interval between two irrigation cycles

**3.1.43  
hydraulic zone**

group of sectors with a common water supply to be operated in sequence such that a predetermined maximum flow is not exceeded

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**3.1.44****sprinkler irrigation**

irrigation method consisting of applying water in the form of artificial rainfall using devices with fixed or rotating streams

**3.1.45****sprinkler**

generic term used to define a device with rotating streams and used to perform sprinkler irrigation

**3.1.46****pop-up sprinkler**

sprinkler that pops down into the ground when irrigation is completed

**3.1.47****non-pop-up sprinkler**

a sprinkler that does not pop down into the ground when irrigation is completed

**3.1.48****spray head**

sprinkler whose fixed spray pattern, calibrated by a nozzle scatters water in fine droplets

**3.1.49****dripper**

device used to apply water at low flow and low pressure in the vicinity of the plants

**3.1.50****spray-jet**

device with fixed spray patterns at low flow and low pressure

**3.1.51****micro-spinner**

device with rotating streams operating at low flow and low pressure

**3.1.52****low voltage**

voltage use to supply power to equipment such as electrical pumps, controllers etc.

**3.1.53****extra low voltage**

voltage use to supply electrical impulse to 24 volts remote control electric valves. The voltage limit values are as defined by IEC/TR3 61201

**3.2 Graphic symbols for the plans**

See in annex A. When no symbol is proposed to indicate information required about the system, this information shall be clearly indicated.