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Agricultural irrigation equipment — Control heads

Matériel agricole d'irrigation — Installations de tête

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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.

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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document 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 11738:2000), which has been technically revised.

The main changes compared to the previous edition are as follows.

— New types of control heads and components of control heads were included, for example, irrigation control head for filtration with two or more media filters.

— Symbols used in this edition were changed or revised to conform to ISO 15081:2011.

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.

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Agricultural irrigation equipment — Control heads

1 Scope

This document specifies requirements for the components and method of installation of pressurized irrigation system control heads, referred to hereinafter as irrigation control heads, with a nominal size of up to and including 200 mm (nominal size of an irrigation control head or nominal size of a component).

This document is applicable only to the above-ground components of irrigation control heads for sprinkler irrigation and micro-irrigation (mini-sprinklers, drip irrigation, etc.). It is applicable to the basic irrigation control head, on which other irrigation control and command components (electrical, electronic and hydraulic) can be assembled, but does not deal with these additional components.

This document is not applicable to systems and/or components that can be required to prevent the water from freezing in the irrigation control head, such as dry-barrel hydrants or other types of hydrants.

This document does not specify construction or operating requirements for the individual components that make up the irrigation control head. These requirements are specified in the relevant standards for each component.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 7005-1, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

3 Terms and definitions

For the purposes 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
activating valve
type of valve which is used to initiate and shut off the flow of water through an *irrigation control head* (3.8)

EXAMPLE Manually operated valve, hydraulically operated valve, *volumetric valve* (3.17).

3.2
automatic self-cleaning strainer-type filter
filter with a flushing capability automatically activated by pressure differential, by duration of infiltration, by volume of water filtered, by some other physical quantity or by any combination of these

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3.3
air release valve
valve which opens automatically to allow air from the atmosphere to enter the water pipeline during drainage of the line and/or venting of air from the water pipeline to the atmosphere during filling or during normal operation of the pipeline under pressure

3.4
backflow preventer
mechanical assembly to prevent flow of water backwards into the distributing pipes of a water supply system to protect against entry of substances which can constitute a health hazard

3.5
check valve
valve which permits flow of water in one direction only

3.6
fertilizer injector tank
pressure vessel connected to an *irrigation system* (3.9) in an in-line or on-line configuration, together with the pipes and fittings connecting it to the irrigation system, for the purpose of injecting chemicals into the irrigation system

3.7
water-driven chemical injector pump
hydraulic pump intended to inject chemicals into an *irrigation system* (3.9), powered by a single source energy supplied by *irrigation water* (3.10) through a hydraulic motor, such as a piston or turbine

3.8
irrigation control head
assembly of components and pipes installed at the head of an irrigated plot which serves to control the functioning of an *irrigation system* (3.9), that is, initiation and shutting off of the flow of water, pressure regulation, water metering, *filtration* (3.19) and injection of chemicals

3.9
irrigation system
assembly of pipes, components, and devices installed in the field for the purpose of irrigating a specific area

3.10
irrigation water
water of potable quality, which may contain chemicals of a type and concentration generally used in agricultural irrigation or which is of a quality approved for use in irrigation

3.11
nominal size of an irrigation control head
numerical designation used to refer to the size of the pipe at the inlet or the outlet, whichever is smaller, of an *irrigation control head* (3.8)

3.12
nominal size of a component
numerical designation used to refer to the size of an *irrigation control head* (3.8) which is identical to the nominal diameter of the pipe or pipes to which the irrigation control head is intended to be connected directly without an intermediate fitting

Note 1 to entry: A single number designation is adequate if the inlet and outlet ports are of the same size.

3.13
pressure regulator
valve in which the water passage widens or narrows automatically without an external device to maintain the pressure at the outlet of the valve close to a pre-set value under varying pressures or flow rates at the inlet of the valve

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3.14
union
threaded coupling which is used to connect two pipes and which does not require rotation of the pipes during assembly and disassembly

3.15
media filter
filter in which clogging material is trapped within the interior of a three-dimensional filter medium, such as sand, gravel, textile, fibres or a porous mass of bonded particles

3.16
strainer-type filter
strainer
device containing one or more filter elements, such as a screen or a mesh, used for separating clogging material from water flowing through the device by collecting it on the surface of the filter element or elements

[SOURCE: ISO 9912-1:2004, 2.8]

3.17
volumetric valve
valve capable of automatically delivering pre-set volumes of water within the range of flow rates, as a result of measuring the volume of water flowing through the valve

[SOURCE: ISO 7714:2018, 3.1]

3.18
pressure regulation
reduction of pressure prevailing in a supply line to maintain it at a relatively constant pre-set value in an *irrigation system* (3.9)

3.19
filtration
process which employs a permeable medium and/or a spinning component to separate, from water, any materials that would clog an *irrigation system* (3.9) and which also employs a means for removing these materials from the permeable medium or the spinning component in order to renew the capacity of the permeable medium or the spinning component to separate these materials from the water

3.20
chemigation
injection of chemicals, including fertilizers, into *irrigation water* (3.10) and conveyance of these chemicals to plants

3.21
automation
methods and means of activating or terminating operation of an *irrigation system* (3.9) or of changing its operating conditions according to a preconceived plan and without manual intervention

3.22
flow regulation
function intended to control the flow rate of water to reduce it to that required in an *irrigation system* (3.9) and maintain it at a relatively constant value

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