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Automatic electrical controls ~~for household and similar use~~ – Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements

FOREWORD

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5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
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This Redline version is not an official Standard and is intended to provide the user with an indication of what changes have been made to the previous version. Only the IEC International Standard provided in this package is to be considered the official Standard.

This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60730-2-8 has been prepared by IEC technical committee 72: Automatic electrical controls.

This third edition cancels and replaces the second edition published in 2000, Amendment 1:2002 and its Amendment 2:2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- alignment of the text with IEC 60730-1 fifth edition (2013) including Amendment 1:2015;
- introduction of specific requirements for thermoplastic bodied valves for the control of water for tap and shower outlets (18.101.4.3 and Annex CC);
- removal of Subclause 18.102 Wetted material specifications.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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CDV	Report on voting
72/1077/CDV	72/1120/RVC

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This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This part 2-8 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the fifth edition (2013) including Amendment 1 (2015) of that publication.

This part 2-8 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: *Safety requirements for electrically operated water valves, including mechanical requirements.*

Where this part 2-8 states "addition", "modification" or "replacement", the relevant requirement, test specification or explanatory matter in part 1 should be adapted accordingly.

Where no change is necessary, part 2-8 indicates that the relevant clause or subclause applies.

In the development of a fully international standard, it has been necessary to take into consideration the differing requirements resulting from practical experience in various parts of the world and to recognize the variation in national electrical systems and wiring rules.

The "in some countries" notes regarding differing national practices are contained in the following elements:

– Table 1, footnotes ab and ac
– Table 13, footnote aa
– 1.1.4
– 16.2.1
– 18.101.3
– 27.2.3.1
– 27.101
– Table DD. 1, footnote a
– Table DD.2, footnote a

In this publication:

1) The following print types are used:
   – Requirements proper: in roman type.
   – *Test specifications: in italic type.*
   – Notes: in smaller roman type.
   – Defined terms: **in bold type**
2) Subclauses, notes, tables or figures which are additional to those in part 1 are numbered starting from 101, additional annexes are lettered AA, BB, etc.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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AUTOMATIC ELECTRICAL CONTROLS ~~FOR HOUSEHOLD AND SIMILAR USE~~ –

Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements

1 Scope and normative references

This clause of Part 1 is ~~replaced~~ applicable except as follows:

1.1 Scope

Replacement:

~~**1.1** This part 2-8 applies to electrically operated water valves for use in, on or in association with equipment for household and similar use that may use electricity, gas, oil, solid fuel, solar thermal energy, etc. or a combination thereof, including heating, air-conditioning and similar applications.~~

~~This part 2-8 is also applicable to electrically operated water valves for appliances within the scope of IEC 60335.~~

~~**1.1.1** This part 2-8 contains requirements for electrical features of water valves and requirements for mechanical features of valves that affect their intended operation.~~

~~**1.1.2** This part 2-8 applies to the inherent safety, to the operating values, operating sequences where such are associated with equipment protection, and to the testing of automatic electrical controls used in, on or in association with household and similar equipment.~~

~~Electrically operated valves for equipment not intended for normal household use but which may nevertheless be used by the public, such as equipment intended to be used by laymen in shops, in light industry and on farms, are within the scope of this part 2-8.~~

~~This part 2-8 does not apply to electrically operated water valves designed exclusively for industrial applications.~~

This part of IEC 60730 applies to electrically operated water valves for use in, on or in association with equipment for household and similar use, including heating, air-conditioning and similar applications. The equipment can use electricity, gas, oil, solid fuel, solar thermal energy, etc., or a combination thereof.

NOTE 1 Throughout this document, the word "equipment" means "appliances and equipment."

This document is applicable to electrically operated water valves for building automation within the scope of ISO 16484.

This document also applies to automatic electrically operated water valves for equipment that can be used by the public, such as equipment intended to be used in shops, offices, hospitals, farms and commercial and industrial applications.

EXAMPLE 1: Electrically operated water valves for commercial catering, heating and air-conditioning equipment.

This document does not apply to electrically operated water valves intended exclusively for industrial process applications unless explicitly mentioned in the relevant equipment standard.

This document applies to electrically operated water valves powered by primary or secondary batteries, requirements for which are contained within the standard, including Annex V.

This document does not cover the prevention of contamination of drinking water as a result of contact with materials.

1.1.1 This document applies to the inherent safety, to the operating values, operating times and operating sequences where such are associated with equipment safety, and to the testing of automatic electrical control devices used in, on or in association with, household and similar equipment.

This document contains requirements for electrical features of water valves and requirements for mechanical features of valves that affect their intended operation.

This document is also applicable to electrically operated water valves for appliances within the scope of the IEC 60335 series of standards.

This document does not apply to:

– electrically operated water valves of nominal connection size above DN 50;
– electrically operated water valves for admissible nominal pressure rating above 1,6 MPa;
– food dispensers;
– detergent dispensers;
– steam valves;
– electrically operated water valves designed exclusively for industrial applications.

Throughout this document, where it can be used unambiguously, the term:

– "valve" is used to denote an electrically operated water valve (including actuator and valve body assembly);
– "actuator" means "electrically operated mechanism or prime mover";
– "valve body" means "valve body assembly";
– "equipment" includes "appliance" and "control system".

1.1.2 This document applies to electrically operated water valves, responsive to or controlling such characteristics as temperature, pressure, passage of time, humidity, light, electrostatic effects, flow, or liquid level, current, voltage, acceleration, or combinations thereof.

1.1.3 This document also applies to actuators and to valve bodies which are designed to be fitted to each other.

1.1.4 This document applies to individual valves, valves utilized as part of a system and valves mechanically integral with multi-functional controls having non-electrical outputs.

NOTE Attention is drawn to the fact that, in many countries, additional test requirements and by-laws have been established by the water authorities or companies.

1.1.5 This document applies to AC or DC powered electrically operated water valves with a rated voltage not exceeding 690 V AC or 600 V DC.

1.1.6 This document does not take into account the **response value** of an **automatic action** of a valve, if such a **response value** is dependent upon the method of mounting the valve in

the equipment. Where a **response value** is of significant purpose for the protection of the **user**, or surroundings, the value defined in the appropriate equipment standard or as determined by the manufacturer shall apply.

1.1.7 This document applies also to electrically operated water valves incorporating **electronic devices**, requirements for which are contained in Annex H.

1.1.8 This document applies also to electrically operated water valves using NTC or PTC **thermistors**, requirements for which are contained in Annex J.

1.1.9 This document applies to the electrical and **functional safety** of electrically operated water valves capable of receiving and responding to communications signals, including signals for power billing rate and demand response.

The signals can be transmitted to or received from external units being part of the valve (wired), or to and from external units which are not part of the valve (wireless) under test.

1.1.10 This document does not address the integrity of the output signal to the network devices, such as interoperability with other devices unless it has been evaluated as part of the **control system**.

1.2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads – Part 1: Dimensions, tolerances and designation*

ISO 65:1981, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*

ISO 228-1~~:1994~~, *Pipe threads where pressure-tight joints are not made on the threads – Part 1: Dimensions, tolerances and designation*

ISO 630~~:1995~~, [1] *Structural steels – Plates, wide flats, bars sections and profiles*

~~ISO 1179:1981, *Pipe connections threaded to ISO 228-1 for plain end steel and other metal tubes in industrial applications*~~

ISO 1179-1, *Connections for general use and fluid power – Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing – Part 1: Threaded ports*

ISO 4144~~:1979~~, *Pipework – Stainless steel fittings threaded ~~to~~ in accordance with ISO 7-1*

~~ISO 4400:1994, *Fluid power systems and components – Three-pin electrical plug connectors with earth contact – Characteristics and requirements*~~

~~ISO 6952:1994, *Fluid power systems and components – Two-pin electrical plug connectors with earth contact – Characteristics and requirements*~~

[1] ISO 630 has been withdrawn.

IEC 60730-2-8

Edition 3.0 2018-08

INTERNATIONAL STANDARD

Automatic electrical controls –
Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements

IEC 60730-2-8:2018-08(en)

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