



SLOVENSKI STANDARD
oSIST prEN IEC 60730-2-8:2024
01-maj-2024

Avtomatske električne krmilne naprave - 2-8. del: Posebne zahteve za električno krmiljene vodne ventile, vključno z mehanskimi zahtevami

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

Dispositifs de commande électriques automatiques - Partie 2-8: Exigences particulières pour les électrovannes hydrauliques, y compris les exigences mécaniques

Ta slovenski standard je istoveten z: prEN IEC 60730-2-8:2024

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ICS:

97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use
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OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
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TITLE:

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

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

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110 INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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FOREWORD

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120 all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international
121 co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and
122 in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports,
123 Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their
124 preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with
125 may participate in this preparatory work. International, governmental and non-governmental organizations liaising
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127 Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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147 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is
148 indispensable for the correct application of this publication.

149 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent
150 rights. IEC shall not be held responsible for identifying any or all such patent rights.

151 IEC 60730-2-8 has been prepared by IEC technical committee 72: automatic electrical controls. It
152 is an International Standard.

153 This fourth edition of IEC 60730-2-8 cancels and replaces the third edition IEC 60730-2-8:2018
154 and Amendment 1:2021. This edition constitutes a technical revision.

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

157 adoption to IEC 60730-1:2022 with all its significant changes to IEC 60730-1:2013, Amendment
158 1:2015 and Amendment 2:2020.

159 The text of this International Standard is based on the following documents:

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

160

161 Full information on the voting for its approval can be found in the report on voting indicated in
162 the above table.

163 The language used for the development of this International Standard is English.

164 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
165 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available
166 at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are
167 described in greater detail at www.iec.ch/publications.

168 A list of all parts of the IEC 60730 series, under the general title: automatic electrical control, can
169 be found on the IEC website.

170 This part 2-8 is intended to be used in conjunction with IEC 60730-1:2022. Consideration may
171 be given to future editions of, or amendments to, IEC 60730-1.

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

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

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

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

181 The reader's attention is drawn to the fact that Annex Q to Annex T list all of the "in-some-
182 country" clauses on differing practices of a less permanent nature relating to the subject of this
183 document.

184 In this publication:

185 1) The following print types are used:

- 186 – requirements proper: in roman type;
- 187 – *test specifications: in italic type;*
- 188 – explanatory matter: in smaller roman type.
- 189 – Defined terms: **bold type.**

190 2) Subclauses, notes or items which are additional to those in Part 1 are numbered starting
191 from 101, additional annexes are lettered AA, BB, etc.

192

193
194

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

- 198 • reconfirmed,
199 • withdrawn,
200 • replaced by a revised edition, or
201 • amended.

202

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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AUTOMATIC ELECTRICAL CONTROLS –

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

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212 1 Scope

213 *Replacement:*

214 This document applies to **electrically operated water valves**

- 215 • for use in, on, or in association with equipment for household appliance and similar use;

216 NOTE 1 Throughout this document, the word "equipment" means "appliance and equipment" and "control" means
217 "electrically operated water valve".

218 EXAMPLE 1 **Electrically operated water valves** for appliances within the scope of IEC 60335.

- 219 • for building automation within the scope of ISO 16484 series and IEC 63044 series
220 (HBES/BACS);

221 EXAMPLE 1 Independently mounted **water valves**, controls in smart grid systems and controls for building
222 automation systems within the scope of ISO 16484-2.

- 223 • for equipment that is used by the public, such as equipment intended to be used in shops,
224 offices, hospitals, farms and commercial and industrial applications;

225 EXAMPLE 2 **Electrically operated water valves** for commercial catering, heating and air-conditioning equipment.

- 226 • that are **smart enabled electrically operated water valves**;

227 EXAMPLE 3 Smart grid control, remote interfaces/control of energy-consuming equipment including computer or
228 smart phone.

- 229 • that are AC or DC powered **electrically operated water valves** with a rated voltage not
230 exceeding 690 V AC or 600 V DC;

- 231 • used in, on, or in association with equipment that use electricity, gas, oil, solid fuel, solar
232 thermal energy, etc., or a combination thereof;

- 233 • utilized as part of a **control system** or **controls** which are mechanically integral with
234 **multifunctional controls** having non-electrical outputs;

- 235 • using NTC or **PTC thermistors** and to discrete **thermistors**, requirements for which are
236 contained in Annex J;

- 237 • that responsive to or controlling such characteristics as temperature, pressure, passage of
238 time, humidity, light, electrostatic effects, flow, or liquid level, current, voltage, acceleration,
239 or combinations thereof;

- 240 • **actuators** and to **valve** bodies which are designed to be fitted to each other.

- 241 • as well as manual controls when such are electrically and/or mechanically integral with
242 automatic controls.

243 NOTE 2 Requirements for manually actuated mechanical switches not forming part of an automatic control are
244 contained in IEC 61058-1-1.

245 This document applies to

- 246 – the inherent safety of **electrically operated water valves**, and
- 247 – functional safety of **electrically operated water valves** and safety related systems,
- 248 – controls where the performance (for example the effect of EMC phenomena) of the product
249 can impair the overall safety and performance of the controlled system,

250 – the operating values, operating times, and operating sequences where such are associated
251 with equipment safety.

252 This document specifies the requirements for construction, operation and testing of **electrically**
253 **operated water valves** used in, on, or in association with an equipment.

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

256 This document does not

257 • apply to **electrically operated water valves** intended exclusively for industrial process
258 applications unless explicitly mentioned in the relevant part 2 or the equipment standard.
259 However, this document can be applied to evaluate automatic electrical controls intended
260 specifically for industrial applications in cases where no relevant safety standard exists.

261 • apply to

262 – **electrically operated water valves** of nominal connection size above DN 50;

263 – **electrically operated water valves** for admissible **nominal pressure rating** above
264 1,6 MPa;

265 – food dispensers;

266 – detergent dispensers;

267 – steam valves;

268 • take into account the **response value** of an **automatic action** of a **electrically operated**
269 **water valve**, if such a **response value** is dependent upon the method of mounting the
270 control in the equipment. Where a **response value** is of significant purpose for the
271 protection of the **user**, or surroundings, the value defined in the appropriate equipment
272 standard or as determined by the manufacturer will apply.

273 • address the integrity of the output signal to the network devices, such as interoperability
274 with other devices unless it has been evaluated as part of the control system.

275 • cover the prevention of contamination of drinking water as a result of contact with materials.

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

277 – "**valve**" is used to denote an **electrically operated water valve** (including **actuator** and
278 **valve body assembly**);

279 – "**actuator**" means "electrically operated mechanism or prime mover";

280 – "**valve body**" means "**valve body assembly**";

281 – "equipment" includes "appliance" and "control system".

282 2 Normative references

283 This clause of Part 1 is applicable except as follows:

284 *Addition:*

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

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

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

290 ISO 630-2:2011, *Structural steels – Part 2: Technical delivery conditions for structural steels*
291 *for general purposes*

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

294 ISO 4144, *Pipework – Stainless steel fittings threaded in accordance with ISO 7-1*

295 **3 Terms and definitions**

296 This clause of Part 1 is applicable except as follows:

297 **3.2 Definitions of types of control according to purpose**

298 **3.2.13**

299 **electrically operated valve**

300 *Addition:*

301 Note 101 to entry: A semi-automatic **valve** that is opened manually and closes automatically or vice versa is also
302 covered by this definition.

303 *Add the following definitions:*

304 **3.2.13.101**

305 **valve**

306 device consisting of an **actuator** connected to a **valve body assembly** and used to stop or
307 regulate the flow of fluid by the closure or partial closure of an orifice

308 **3.2.13.102**

309 **water valve**

310 **valve** intended to be connected to a water supply and to control water flow

311 **3.2.13.103**

312 **heating-water valve**

313 **valve** intended to control the water circulation in heating systems

314 **3.2.13.104**

315 **actuator**

316 electrically operated mechanism or prime mover used to effect the opening or closing action of
317 a **valve**

318 Note 1 to entry: An actuator may be integral with the **valve**, fixed to the **valve body assembly** or delivered as a
319 separate component.

320 Note 2 to entry: An actuator may also include the **valve** and **closure member**.

321 **3.2.13.105**

322 **valve body assembly**

323 assembly comprising the **valve body**, inlet and outlet **end connections**, the **valve seat**,
324 **closure member** and **stem** or shaft

325 Note 1 to entry: In some cases, the **stem** and **closure member** may be part of the actuator.

326 **3.2.13.106**

327 **valve body**

328 part of the **valve body assembly** which is the main pressure boundary

329 Note 1 to entry: It provides the water flow passage-ways with **end connections**.

330 **3.2.13.107**

331 **nominal size**

332 numerical designation of size which is common to all components in a fluid-conducting system
333 other than components designated by outside diameter or by thread size

334 Note 1 to entry: It may be designated by "DN" followed by a convenient round number, for reference purposes only.

335 Note 2 to entry: Some older international standards refer to **nominal size** as nominal diameter but, for the purpose
336 of this document, the two terms are synonymous.

337 **3.2.13.108**

338 **nominal pressure rating**

339 numerical designation of pressure rating

340 Note 1 to entry: It may be designated by the letters "PN" (also referred to as the pressure number) followed by a
341 convenient round number, for reference purposes only.

342 **3.2.13.109**

343 **end connection (end-connection)**

344 **valve body** configuration provided to make a pressure-tight joint to the fluid-conducting system

345 **3.2.13.110**

346 **valve seat**

347 surface of the orifice within the **valve** which makes full contact with the **closure member**

348 **3.2.13.111**

349 **closure member**

350 movable part of the **valve** which is positioned in the flow path to modify the rate of flow through
351 the **valve**

352 Note 1 to entry: A **closure member** may be a plug, ball, disc, vane, gate, etc.

353 **3.2.13.112**

354 **stem**

355 component which connects the actuator to, and positions, the **closure member**

356 Note 1 to entry: For rotary **valves**, the word "shaft" should be used in place of "**stem**".

357 Note 2 to entry: In some controls, the **stem** may be part of the actuator.

358 **3.2.13.113**

359 **fitting**

360 any device such as a reducer, expander, elbow, or T-piece which is attached directly to an end-
361 connection of the **valve body assembly**

362 **3.3 Definitions relating to the function of controls**

363 *Add the following definitions:*

364 **3.3.101**

365 **on-off valve**

366 **valve** which is open or closed, without any intermediate positions

367 **3.3.102**

368 **normally closed valve**

369 **valve** which is closed when not electrically energized

370 **3.3.103**

371 **normally open valve**

372 **valve** which is open when not electrically energized

373 **3.3.104**

374 **modulating valve**

375 **valve** which has a variable **flow rate** between predetermined flow limits

376 **3.3.105**
377 **diverting valve**
378 **valve** with one or more inputs and outputs which may permit flow from any combination of inputs
379 to outputs

380 **3.3.106**
381 **closed position**
382 position of the **closure member** when there is no water flow from the outlet side of the **valve**

383 **3.3.107**
384 **travel**
385 displacement of the **closure member** from the **closed position**

386 **3.3.108**
387 **rated travel**
388 displacement of the **closure member** from the **closed position** to the **full open position**

389 **3.3.109**
390 **open position**
391 position of the **closure member** when there is a flow of water from the outlet side of the **valve**

392 **3.3.110**
393 **full(y) open position**
394 position of the **closure member** so that the amount of water flowing through the **valve** is in
395 accordance with the **rated flow rate**

396 **3.3.111**
397 **flow rate**
398 volume of water flowing through the **valve** in unit time

399 **3.3.112**
400 **rated flow rate**
401 **flow rate** at the **rated travel** under standard reference conditions of temperature and pressure
402 declared at a given pressure difference

403 **3.3.113**
404 **flow factor**
405 factor specifying the amount of water which can pass through the **valve** at a specified pressure
406 difference

407 Note 1 to entry: The **flow factor** may be referred to as flow coefficient.

408 Note 2 to entry: The relationship between the different **flow factors** in use is indicated in Annex AA.

409 **3.3.114**
410 **maximum operating pressure differential**
411 declared maximum difference in pressure between inlet and outlet ports of the **valve** against
412 which the actuator can operate the **closure member**

413 **3.3.115**
414 **minimum operating pressure differential**
415 declared minimum pressure difference at which the **valve** opens or closes

416 **3.3.116**
417 **water hammer**
418 excessive **transient pressure** which can occur in some water supply systems as a result of
419 closing a **valve** as intended