CSA C22.2 No. 139:19

Electrically operated valves

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Preface

This is the fifth edition of CSA C22.2 No. 139, *Electrically operated valves*. It supersedes the previous editions, published in 2013, 2010, 1982, and 1973.

This Standard is one of a series of Standards issued by CSA Group under Part II of the *Canadian Electrical Code*.

The following are the major changes to this edition:

a) Scope expanded to include electro-hydraulic actuators.
b) Spacing requirements for printed circuit boards rated for use above 300 V to 600 V have been added.
c) Construction requirements for electro-hydraulic actuators have been added.
d) Endurance cycle requirements added for damper actuator category.
e) Repositioning range for modulating valves for hazardous fluids added.
f) Endurance cycles for hydraulic control valves clarified.
g) Cycle and reposition requirements for modulating general purpose valve/actuators used in specific end applications clarified.

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This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Subcommittee on Electrically Operated Valves, under the jurisdiction of the Technical Committee on Industrial Products and the Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee.

Interpretations: The Strategic Steering Committee on Requirements for Electrical Safety has provided the following direction for the interpretation of standards under its jurisdiction: "The literal text shall be used in judging compliance of products with the safety requirements of this Standard. When the literal text cannot be applied to the product, such as for new materials or construction, and when a relevant CSA committee interpretation has not already been published, CSA Group's procedures for interpretation shall be followed to determine the intended safety principle."

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include "Request for interpretation" in the subject line:*
   a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
   b) *provide an explanation of circumstances surrounding the actual field condition; and*
   c) *where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization *and are available on the* Current Standards Activities *page at standardsactivities.csa.ca.*

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   a) *Standard designation (number);*
   b) *relevant clause, table, and/or figure number;*
   c) *wording of the proposed change; and*
   d) *rationale for the change.*

CSA C22.2 No. 139:19
Electrically operated valves

1 Scope

1.1
This Standard applies to electrically operated, general-purpose valves* and safety valves* that are intended to be used in ordinary locations in accordance with CSA C22.1, *Canadian Electrical Code, Part I*, for the control of fluids (e.g., air, gases, oils, refrigerants, steam, water, etc.), and rated 600 V and less.

* *For convenience, the shorter term "valve" is used where the same requirements apply to both general-purpose and safety valves.*

1.2
This Standard applies to electrically powered mechanisms that are designed to provide the signals needed for monitoring valve operation from a remote location and to electrically powered valve actuators* that are designed to be fitted to valves.

* *For convenience, the term valve includes valve actuator unless otherwise stated.*

1.3
This Standard applies to self-contained electro-hydraulic* actuators, both linear and rotary type.

* *These types of actuators are electrically operated and use hydraulic fluid as a driving medium. They can be operated in conjunction with a remote signal.*

1.4
This Standard contains requirements for electrical features of valves and requirements for mechanical features of valves that affect their safe operation.

1.5
With respect to construction and tests of electrical features, the requirements of this Standard complement those of ANSI Z21.21/CSA 6.5.

1.6
Electrically operated damper actuators are evaluated to the requirements of CSA C22.2 No. 24.

1.7
This Standard does not contain requirements for mechanical and operational features that do not directly affect the safe operation of a valve.

1.8
This Standard does not apply to water valves of connection size larger than 2-inch pipe size or pressure rating above 1600 kPa (232 psi) for valve bodies of thermoplastic material.

1.9
The values given in SI units are the units of record for the purposes of this Standard. Where the values are given in parentheses, they are for information and comparison only.

1.10
In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

2 Reference publications
This Standard refers to the following publications. For dated references, only the edition cited shall apply. For undated references, the latest edition of the referenced document (including any amendments) shall apply.

CSA Group

B51:19
Boiler, pressure vessel, and pressure piping code

C22.1-18
Canadian Electrical Code, Part I

CAN/CSA-C22.2 No. 0-10 (R2015)
General requirements — Canadian Electrical Code, Part II

CAN/CSA-C22.2 No. 0.4-17
Bonding of electrical equipment

C22.2 No. 0.8:19
Safety functions incorporating electronic technology

C22.2 No. 0.15-15
Adhesive labels

CAN/CSA-C22.2 No. 0.17-00 (R2018)
Evaluation of properties of polymeric materials

C22.2 No. 14-18
Industrial control equipment

