

Industrial valves - Actuators - Part 6: Hydraulic linear actuators for industrial valves - Basic requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15714-6:2022 sisaldab Euroopa standardi EN 15714-6:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 15714-6:2022 consists of the English text of the European standard EN 15714-6:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 19.10.2022.	Date of Availability of the European standard is 19.10.2022.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.060.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis-ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis-ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Industrial valves - Actuators - Part 6: Hydraulic linear actuators for industrial valves - Basic requirements

Robinetterie industrielle - Actionneurs - Partie 6 :
Actionneurs linéaires hydrauliques - Prescriptions de
base

Industriearmaturen - Stellantriebe - Teil 6:
Hydraulische Linearantriebe - Grundlegende
Anforderungen

This European Standard was approved by CEN on 19 September 2022.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Classification/Designation	7
4.1 Duty classification.....	7
4.1.1 General.....	7
4.1.2 On-off duty.....	7
4.1.3 Modulating duty.....	7
4.2 Action.....	7
4.2.1 Double Acting (DA).....	7
4.2.2 Single Acting (SA).....	7
5 Motive energy.....	7
5.1 Operating medium.....	7
5.2 Quality.....	8
5.3 Pressure.....	8
5.3.1 General.....	8
5.3.2 Maximum allowable pressure (MAP)	8
5.3.3 Design pressure	8
5.3.4 Working pressure	8
5.3.5 Structural test pressure.....	8
5.3.6 Minimum moving pressure	8
6 Actuator basic performances.....	9
6.1 Double acting version.....	9
6.2 Single acting version	10
6.3 Displacement volume	10
6.4 Operating time	10
7 Basic design requirements	10
7.1 Safety requirements.....	10
7.2 Linear actuator attachment.....	11
7.3 Attachments size	12
7.4 Nominal stroke.....	12
7.5 Endurance.....	13
7.5.1 General.....	13
7.5.2 Double acting version.....	13
7.5.3 Single acting version	13
7.6 Leakage	13
7.7 Environmental conditions	14
7.7.1 Ambient temperature.....	14
7.7.2 Enclosure protection.....	14
7.7.3 Corrosion protection.....	14
7.8 Pressure connections	15
7.8.1 General.....	15
7.8.2 Remotely mounted pilot valves	16

7.8.3	Direct mounted pilot valves.....	17
7.9	Structural safety factors.....	18
8	Optional equipment.....	18
8.1	General	18
8.2	Ancillaries	18
8.3	Manual operation device	19
8.4	Mechanical end stop	19
8.5	Position indicator	19
8.6	Bracket	19
8.7	Anti-rotation device.....	19
9	Conformity assessment	19
9.1	General	19
9.2	Type tests.....	19
9.3	Control of production process	20
10	Marking.....	22
10.1	Mandatory requirements	22
10.2	Optional requirements.....	22
11	Documentation	23
12	Linear actuator selection guidelines	23
Annex A (normative) Endurance test procedure		24
A.1	General	24
A.2	Test equipment.....	24
A.3	Test conditions	24
A.4	Test procedure	24
A.5	Acceptance criteria	25
Annex B (informative) Actuator selection guidelines		26
B.1	General	26
B.2	Selection parameters	26
B.2.1	General	26
B.2.2	Valve questions	26
B.2.3	Actuator questions	27
B.2.4	Ancillary questions	27
B.2.5	Environmental conditions.....	27
B.3	Actuator selection	27
Annex C (informative) Guideline to establish the basic performances for single acting version.....		28
C.1	General	28
C.2	Specific thrusts definitions relevant to the single acting version.....	28
C.3	Criteria for performances selection.....	28
Bibliography		30

European foreword

This document (EN 15714-6:2022) has been prepared by Technical Committee CEN/TC 69 “Industrial valves”, 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 April 2023, and conflicting national standards shall be withdrawn at the latest by April 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies basic requirements for piston type hydraulic linear actuators for industrial valve, both double acting and single acting, used for on-off and modulating control duties. It includes criteria, method and guidelines for design, qualification, corrosion protection, control and testing.

It does not apply to hydraulic actuators which are integral parts of control valves. Other requirements, or conditions of use, different from those indicated in this document, are expected to be subject to negotiations, between the purchaser and the manufacturer/supplier, prior to order.

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.

EN ISO 5210:2017, *Industrial valves - Multi-turn valve actuator attachments (ISO 5210:2017)*

EN 12570, *Industrial valves - Method for sizing the operating element*

EN 15714-1, *Industrial valves - Actuators - Part 1: Terminology and definitions*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

ISO 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits*

ISO 4401, *Hydraulic fluid power — Four-port directional control valves — Mounting surfaces*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15714-1 and the following 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 <https://www.electropedia.org/>

3.1

stroke

single and complete movement from one end of travel to the other

3.2

end stop

mechanical part designed to stop the actuator drive train at an end position

Note 1 to entry: End stop can be fixed or adjustable.