

RAUDTEEALASED RAKENDUSED. PIDURDAMINE.
JAOTUS- JA ERALDUSKLAPID

Railway applications - Braking - Distributor valves and
distributor-isolating devices

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

| | |
|---|--|
| See Eesti standard EVS-EN 15355:2019 sisaldab Euroopa standardi EN 15355:2019 ingliskeelset teksti. | This Estonian standard EVS-EN 15355:2019 consists of the English text of the European standard EN 15355:2019. |
| 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. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.05.2019. | Date of Availability of the European standard is 15.05.2019. |
| Standard on kättesaadav Eesti Standardikeskusest. | The standard is available from the Estonian Centre for Standardisation. |

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

ICS 45.060.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

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

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
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

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.

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

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

English Version

Railway applications - Braking - Distributor valves and distributor-isolating devices

Applications ferroviaires - Freinage - Distributeurs de freinage et robinet d'isolement

Bahnanwendungen - Bremse - Steuerventile und Bremsabsperreinrichtungen

This European Standard was approved by CEN on 18 February 2019.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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 Symbols and abbreviations | 14 |
| 4.1 Symbols..... | 14 |
| 4.2 Abbreviations..... | 14 |
| 5 Requirements to function, design and manufacturing..... | 14 |
| 5.1 Functional requirements..... | 14 |
| 5.2 Control chamber..... | 14 |
| 5.3 Pilot volume | 14 |
| 5.4 Auxiliary reservoir volume and brake cylinder size..... | 14 |
| 5.5 Shock and vibration | 15 |
| 5.6 Service life..... | 15 |
| 5.7 Compressed air quality | 15 |
| 5.8 Environmental conditions | 15 |
| 5.8.1 General..... | 15 |
| 5.8.2 Ambient temperature..... | 15 |
| 5.8.3 Altitude | 15 |
| 5.8.4 Humidity..... | 15 |
| 5.8.5 Other environmental specifications..... | 16 |
| 5.9 Design requirements regarding structural integrity at maximum pressure | 17 |
| 5.10 Tightness..... | 17 |
| 5.11 Fire behaviour | 17 |
| 6 Functional requirements and Type tests..... | 17 |
| 6.1 General..... | 17 |
| 6.2 Test benches | 17 |
| 6.3 Functional requirements and tests..... | 18 |
| 6.3.1 General..... | 18 |
| 6.3.2 Tightness..... | 18 |
| 6.3.3 Inexhaustibility..... | 20 |
| 6.3.4 Compensation of output pressure during brake application..... | 24 |
| 6.3.5 Normal working pressure | 25 |
| 6.3.6 Released and stand by position | 26 |
| 6.3.7 Maximum output pressure in relation to input pressure reduction | 29 |
| 6.3.8 Maximum output pressure and build-up and release times of an individual distributor valve..... | 30 |
| 6.3.9 Release time within a train consist..... | 32 |
| 6.3.10 Sensitivity | 32 |
| 6.3.11 Insensitivity..... | 33 |
| 6.3.12 Control sensitivity and hysteresis..... | 34 |
| 6.3.13 Quick service function | 35 |
| 6.3.14 Propagation speed | 36 |
| 6.3.15 Inshot function | 37 |
| 6.3.16 Manual release function | 37 |

| | | |
|--------------|---|----|
| 6.3.17 | Distributor isolating device | 40 |
| 6.3.18 | Protection against input pressure overcharge | 45 |
| 6.3.19 | Initial charging of the brake system of a vehicle..... | 47 |
| 6.3.20 | Initial charging of the brake system of a train | 49 |
| 6.3.21 | Maximum supply pressure..... | 49 |
| 6.3.22 | Tests at different temperatures | 49 |
| 6.3.23 | Shock and vibration..... | 51 |
| 6.3.24 | Distributor dump valve | 52 |
| 7 | In-service assessment..... | 53 |
| 8 | Designation | 53 |
| 9 | Identification and marking | 54 |
| 9.1 | Distributor valve..... | 54 |
| 9.2 | Distributor-isolating device..... | 54 |
| Annex A | (normative) Test benches | 55 |
| A.1 | General | 55 |
| A.2 | Test bench Type A for single vehicle | 55 |
| A.3 | Test bench Type B for train with 400 m length | 57 |
| A.4 | Test bench Type C for train with 500 m length..... | 57 |
| A.5 | Test bench Type D for train with 750 m length | 57 |
| A.6 | Test bench Type E for train with 1 200 m length | 57 |
| Annex B | (normative) Handle for operating the distributor-isolating device | 58 |
| Annex C | (normative) In-service assessment..... | 59 |
| Annex ZA | (informative) Relationship between this European Standard and the essential requirements of EU Directive 2008/57/EC aimed to be covered | 60 |
| Bibliography | | 62 |

European foreword

This document (EN 15355:2019) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

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 November 2019, and conflicting national standards shall be withdrawn at the latest by November 2019.

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.

This document supersedes EN 15355:2008+A1:2010.

The main changes compared to EN 15355:2008+A1:2010 are:

- a) the standard’s scope has been modified;
- b) normative references have been updated;
- c) terms and definitions have been revised;
- d) requirements on function, design and manufacturing have been revised;
- e) requirements on type tests have been revised;
- f) requirements on in-service assessment have been revised;
- g) requirements on designation have been revised;
- h) requirements on identification and marking have been revised;
- i) normative annexes have been revised;
- j) Annex ZA has been updated.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document applies to distributor valves and distributor-isolating devices.

The distributor valves contained in this document are of graduable release type. Direct release types are not included.

Functionally they are regarded as not containing relay valves of any type, even if the relay valves are physically an integral part of the distributor valves.

This document applies to both distributor-isolating devices mounted separate from the distributor valve and distributor-isolating devices integral with the distributor valve.

This document specifies the requirements for the design, testing and quality assurance of distributor valves and distributor-isolating devices.

The distributor valve and distributor-isolating device are intended to be part of a brake system mounted in a vehicle with maximum length of 31 m and maximum brake pipe volume of 25 l taking into consideration brake pipe inner diameters between 25 mm and 32 mm.

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 14198, *Railway applications — Braking — Requirements for the brake system of trains hauled by locomotives*

EN 14478:2017, *Railway applications — Braking — Generic vocabulary*

EN 15611, *Railway applications — Braking — Relay valves*

EN 45545-2, *Railway applications — Fire protection on railway vehicles — Part 2: Requirements for fire behaviour of materials and components*

EN 60721-3-5:1997, *Classification of environmental conditions — Part 3: Classification of groups of environmental parameters and their severities — Section 5: Ground vehicle installations (IEC 60721-3-5:1997)*

EN 61373:2010, *Railway applications — Rolling stock equipment — Shock and vibration tests (IEC 61373:2010)*

ISO 8573-1:2010, *Compressed air — Part 1: Contaminants and purity classes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14478, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>;
- ISO Online browsing platform: available at <http://www.iso.org/obp>.

NOTE Some of the curves in this clause are simplified, not showing the real pressure development. This is considered to be sufficient for the purpose of this clause.