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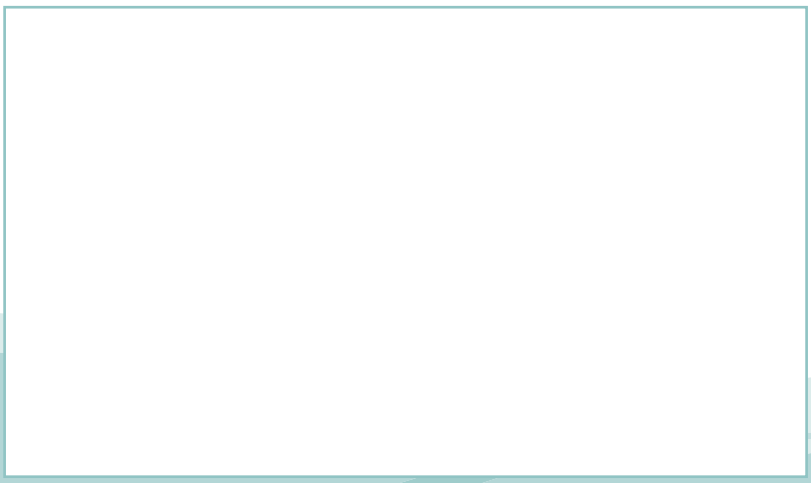
SWEDISH STANDARDS INSTITUTE

Järnvägar – Bromssystem – Reläventiler

Railway applications – Braking – Relay valves



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Europastandarden EN 15611:2008+A1:2010 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 15611:2008+A1:2010.

Denna standard ersätter SS-EN 15611:2008, utgåva 1.

The European Standard EN 15611:2008+A1:2010 has the status of a Swedish Standard. This document contains the official version of EN 15611:2008+A1:2010.

This standard supersedes the Swedish Standard SS-EN 15611:2008, edition 1.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Järnvägar, SIS/TK 254.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15611:2008+A1

October 2010

ICS 45.060.01

Supersedes EN 15611:2008

English Version

Railway applications - Braking - Relay valves

Applications ferroviaires - Freinage - Relais pneumatiques

Bahnanwendungen - Bremse - Relaisventile

This European Standard was approved by CEN on 27 September 2008 and includes Amendment 1 approved by CEN on 30 August 2010.

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 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 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 15611:2008+A1:2010: E

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Foreword

This document (EN 15611:2008+A1:2010) 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 April 2011, and conflicting national standards shall be withdrawn at the latest by April 2011.

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

This document includes Amendment 1, approved by CEN on 2010-08-30.

This document supersedes EN 15611:2008.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] 〈A1〉.

[A1] This document has been prepared under a mandate given to CEN/CENELEC/ETSI 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 2008/57/EC, see informative Annex ZA, which is an integral part of this document. 〈A1〉

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard is applicable to relay valves designed to control the brake cylinder pressure of compressed air brakes fitted to railway vehicles, in association with an air brake distributor valve or other control device, and in response to a change in vehicle load that is either continuously variable or in two stages i.e. empty - loaded.

Relay valves operating with other pressures, in particular the brake pipe pressure, are not included.

This European Standard specifies the requirements for the design, manufacture and testing of relay valves.

2 Normative references

The following referenced documents are indispensable for the application 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 14478:2005, *Railway applications — Braking — Generic vocabulary*

EN 15355, *Railway applications — Braking — Distributor valves and distributor-isolating devices*

EN 15625, *Railway applications — Braking — Automatic variable load sensing devices*

EN 50125-1, *Railway applications — Environmental conditions for equipment — Part 1: Equipment on board rolling stock*

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 61373:1999, *Railway applications — Rolling stock equipment — Shock and vibration tests (IEC 61373:1999)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

ISO 8573-1:2001, *Compressed air — Part 1: Contaminants and purity classes*

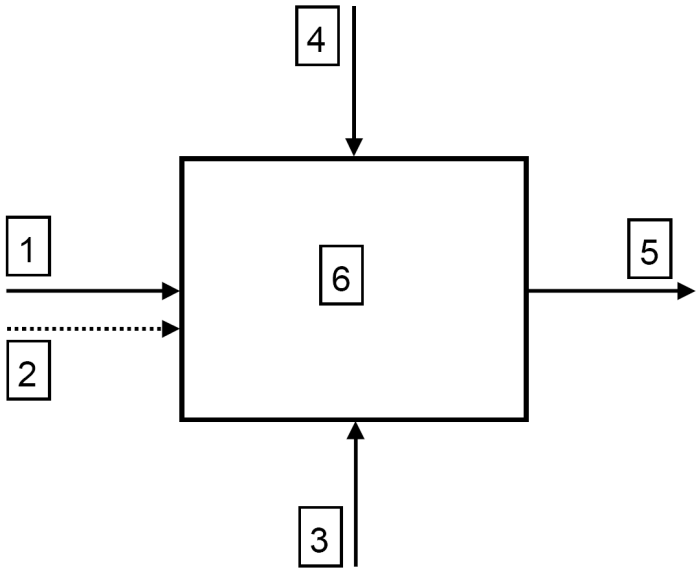
3 Terms and definitions, symbols and abbreviations

For the purposes of this document, the terms and definitions, symbols and abbreviations given in EN 14478:2005 and the following apply.

3.1 Terms and definitions

3.1.1
relay valve
device, the main function of which is to control a pneumatic output pressure as a function of the variation of one or more input pressures

NOTE 1 See Figure 1.



Key

1 first input pressure

2 second input pressure

3 control signal - continuous load sensing pressure (Lcp), or control signal - empty/load signal pressure (Lsp), or mechanical input (lever) or electrical input

4 auxiliary reservoir pressure, supply pressure (AR)

5 output pressure

6 relay valve

Figure 1 — Relay valve, pressures and control signals

NOTE 2 The definition of “relay valve” in EN 14478 is specific to a load dependant relay valve. This EN standard considers one or more input pressures in accordance with the diagram in Figure 1.

3.1.2
input pressure
control pressure received by the relay valve

NOTE Pressure generally considered as being the output pressure from a distributor or a brake control unit; sometimes referred to as pilot pressure or dummy brake cylinder pressure.

3.1.3
output pressure
pressure output from the relay valve

NOTE Pressure generally considered as being the brake cylinder pressure when the relay valve is used in a variable load braking system. This pressure can also be used as the input pressure to another relay valve. The output pressure can obtain one, two or three fixed levels or it can be changed continuously between a minimum and a maximum or vice versa.

3.1.4
relay valve ratio
ratio of the output pressure to input pressure

3.1.5
control signal
signal received from the continuous load sensing device (Lcp) or empty - loaded changeover device (Lsp) or a mechanical input (lever) or an electrical input that varies the relay valve ratio dependant on vehicle load

NOTE This can also be a speed signal or other parameter, dependant on the relay valve application.

3.1.6 Relay valve types

3.1.6.1
single stage relay valve
relay valve type A
relay valve with one fixed relay valve ratio, where the ratio can be less (step-down), equal or greater (step-up) than 1

3.1.6.2
multi stage relay valve
relay valve type B
relay valve with more than one fixed relay valve ratio, where the ratios can be less (step-down), equal or greater (step-up) than 1

3.1.6.2.1
relay valve type B1
multi stage relay valve that can change relay valve ratio during a brake application

NOTE Typically used on vehicles normally operated in empty or fully loaded condition.

3.1.6.2.2
relay valve type B2
multi stage relay valve where a change of relay valve ratio cannot take place during a brake application

NOTE Blocking the relay valve ratio during brake application is typically used to avoid frequent changeovers taking place on vehicles operated near the changeover weight.

3.1.6.2.3
empty/load relay valve
specific type of multi stage relay valve (type B1 or B2) with only two stages, giving an empty (tare) or a loaded output pressure proportional to input pressure dependant on the load signal input

3.1.6.3
variable load relay valve
relay valve type C
relay valve with a continuously changeable relay valve ratio, where a load signal is used to change the ratio

3.1.6.4
multi stage variable load relay valve
relay valve type C1
relay valve with a continuously changeable relay valve ratio, where a load signal is used to change the ratio and with a multi stage feature added

NOTE Typically a load signal is used to change the relay valve ratio and a control signal (automatic or manual) is used to change the stage(s). The typical result is that at the same load and input pressure, in the lower stage (e.g. P-mode, passenger train) results a lower output pressure and in a higher stage (e.g. R-mode, rapid passenger train) this results in a higher output pressure.

3.1.6.5
two (multi) input relay valve
relay valve type D
relay valve (type A, B or C) with two (or more) input pressures, controlling a single output pressure