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Automatisch continue belastingsmeting

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Voorbeeld
Preview

EUROPEAN STANDARD
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EUROPÄISCHE NORM

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English Version

Railway applications - Braking - Automatic variable load sensing devices

Applications ferroviaires - Freinage - Dispositifs de pesée variable automatiques

Bahnanwendungen - Bremse - Automatisch kontinuierlich wirkende Lasterfassungseinrichtungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, 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.

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Orbis
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prEN 15625:2019 (E)

European foreword

This document (prEN 15625:2019) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15625:2008+A1:2010.

This document has been prepared under a standardization request 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 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

Forbidden
Preview

1 Scope

This document applies variable load sensing devices designated to continuously sense the load of a railway vehicle and provide a signal that can be used by a relay valve for the automatic variation of the air pressure used for brake applications, thereby adjusting the brake force accordingly to achieve the required brake performance.

This document specifies the requirements for the design, dimensions, manufacture and testing of automatic variable load sensing devices.

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 14478, *Railway applications — Braking — Generic vocabulary*

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

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

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

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)*

ISO 8573-1, *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>

3.1

automatic variable load sensing device weight device

device connected to the vehicle, which response to the loading of that vehicle to provide a continuous load proportional signal to the brake control device

Note 1 to entry: The load input is normally a share of the wagon's mass because of the devices position in the vehicle suspension system. The result is a pneumatic output signal pressure that can be any value between a minimum at tare mass and a maximum at maximum mass. Most of the existing self-adjusting load-dependant brakes generate the load signal using a weighing device.

prEN 15625:2019 (E)**3.2****mechanically operated pneumatic device**

device or mechanism having both mechanical and pneumatic elements

3.3**hydraulic to pneumatic converter**

device or mechanism which transforms the hydraulic pressure generated by the mass of the vehicle into a pneumatic pressure with a defined transmission ratio

3.4**elastomeric to pneumatic converter**

device or mechanism having both elastomeric and pneumatic components, which transforms the pressure in the elastomer generated by the mass of the vehicle into a pneumatic pressure with a defined transmission ratio

3.5**output signal pressure
load continuous pressure**

L_{cp}

output pressure delivered by the automatic variable load sensing device, which signals the load of the vehicle to the brake control mechanism

3.6**supply pressure**

input pressure of the air supply to pneumatic variable load sensing device

Note 1 to entry: Typically supplied from the vehicle's distributor auxiliary reservoir, or from the vehicle distributor output pressure/brake cylinder pressure system.

3.7**normal litre**

NI

unit of mass for gases equal to the mass of 1 l at a pressure of 1,013 2 bar (1 atmosphere) and at a standard temperature, often 0 °C or 20 °C

Note 1 to entry: Airflow is often stated in normal litres per minute (NI/min).

3.8**sensitivity**

minimum change of load which causes a variation of the output signal pressure (*L_{cp}*), when the change of load (input) is in the same direction

3.9**hysteresis**

difference in output signal pressure (*L_{cp}*) with the same load is first rising to a value and then, having been taken past that value, subsequently falls to the same value

4 Symbols and abbreviations

F mechanical force, generated by the share of vehicle weight acting at the automatic variable load sensing device, expressed in kN

5 Design and manufacture

5.1 General

The design and manufacture of the automatic variable load sensing device shall, for all intended operating conditions, take into account the following requirements.

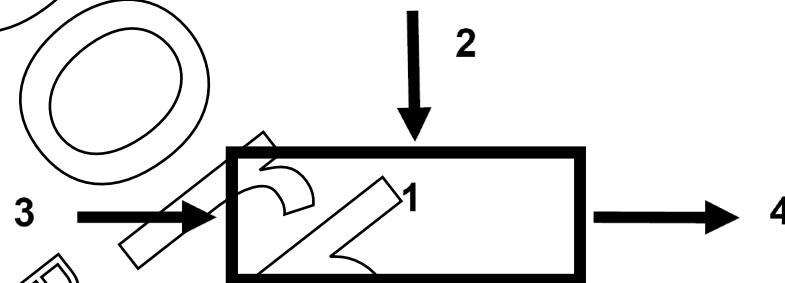
5.2 Functional requirements

5.2.1 Operating requirements

The automatic variable load sensing device shall, in all cases, supply a pneumatic output signal pressure (Lcp) which is a function of the load. The transmission of this load signal to the brake control system shall be pneumatic.

The method of producing the pneumatic signal Lcp can be mechanically operated pneumatic device, a hydraulic to pneumatic converter or an elastomeric to pneumatic converter.

Figure 1 indicates the principles of operation of an automatic variable load sensing device.



Key

- 1 automatic variable load sensing device
- 2 F , mechanical force, generated by a share of the vehicle weight
- 3 supply pressure, typically taken from the distributor auxiliary reservoir
- 4 Lcp , output signal pressure

Figure 1 — Principles of operation of the automatic variable load sensing device

5.2.2 Characteristics of weighing valves

Two characters of weighing valves are defined:

- type 1: $(0,8 \pm 0,1)$ bar/10 kN (see Figure 2);
- type 3: $(1,0 \pm 0,1)$ bar/10 kN (see Figure 3).

The characteristics for type 1 and type 3 shall be tested in accordance with 7.2.6.

These types are recommended for new interoperable freight wagons. For applications other than interoperable freight wagons other characteristics may be used by agreement between the manufacturer and the customer.

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