SLOVENSKI STANDARD
SIST-TS CLC/TS 50537-4:2010

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Železniške naprave - Vgrajeni deli za transformatorje vlečnih tokokrogov in hladilni sistem - 4. del: Plinsko in tekočinsko vzbujani rele (Buchholz) za v tekočino potopljene transformatorje in dušilke z raztezno posodo, za vozna sredstva

Railway applications - Mounted parts of the traction transformer and cooling system - Part 4: Gas and liquid actuated (Buchholz) relay for liquid immersed transformers and reactors with conservator for rail vehicles

Bahnanwendungen - Anbauteile des Haupttransformators und Kühlsystems - Part 4: Buchholzrelais für Transformatoren und Drosselspulen

Applications ferroviaires - Accessoires des transformateurs de traction et systèmes de refroidissement - Partie 4: Relais de protection (Buchholz) pour transformateurs de matériel roulant ferroviaire

Ta slovenski standard je istoveten z: **CLC/TS 50537-4:2010**

ICS:

29.180	Transformatorji. Dušilke	Transformers. Reactors
45.060.01	Železniška vozila na splošno	Railway rolling stock in general

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TECHNICAL SPECIFICATION

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English version

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Applications ferroviaires - Accessoires des transformateurs de traction et systèmes de refroidissement - Partie 4: Relais de protection (Buchholz) pour transformateurs de matériel roulant ferroviaire

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This Technical Specification was approved by CENELEC on 2010-01-22.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This Technical Specification was prepared by Working Group 25 of SC 9XB, Electromechanical material on board rolling stock, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

It was circulated for voting in accordance with the Internal Regulations, Part 2, Subclause 11.3.3.3 and was accepted as a CENELEC Technical Specification on 2010-01-22.

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

The following date was fixed:

– latest date by which the existence of the CLC/TS has to be announced at national level (doa) 2010-07-22

The CLC/TS 50537 series "*Railway applications – Mounted parts of the traction transformer and cooling system*" consists of four different parts:

- Part 1: HV bushing for traction transformers;
- Part 2: Pump for insulating liquid for traction transformers and reactors;
- Part 3: Water pump for traction converters;
- Part 4: Gas and liquid actuated (Buchholz) relay for liquid immersed transformers and reactors with conservator for rail vehicles.

The CLC/TS 50537 series shall be read in conjunction with CLC/TS 50534 [1] "*Railway applications - Generic system architectures for onboard electric auxiliary power systems*".

This standardization project was derived from the EU-funded Research project MODTRAIN (MODPOWER). It is part of a series of standards, referring to each other. The hierarchy of the standards is intended to be as follows:

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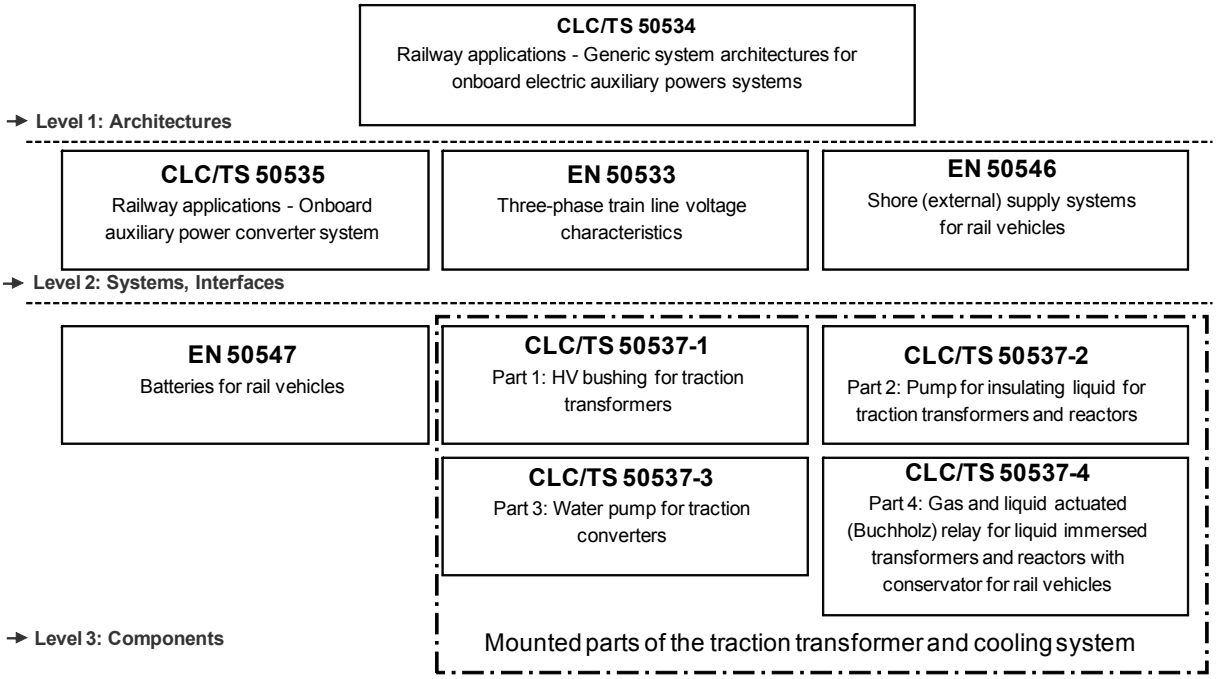
1) Under development.

Overview on the technical framework
CLC/TS 50534 defines the basis for other depending standards



Contents

1 Scope 6

2 Normative references 6

3 Terms, definitions and abbreviations 7

3.1 Terms and definitions 7

3.2 Abbreviations 7

4 Service conditions 7

4.1 General 7

4.2 Environmental conditions 7

4.3 Cooling liquid 8

4.4 Shock and vibration 8

4.5 Storage and transportation conditions 8

4.6 Maximum inclination 8

4.7 Operating pressure 8

4.8 Sensitivity of the relay contacts to magnetic fields 8

5 Operational performance 8

5.1 Alarm and tripping contact 8

5.2 Liquid loss from the tank 9

5.3 Latching of trip contact 9

6 Electrical requirements 9

6.1 Switch type 9

6.2 Rated current 9

6.3 Breaking and making capacity 9

7 Mechanical requirements 10

7.1 Main dimensions 10

7.2 Pipe connection 11

7.3 Terminal box 11

7.4 Testing equipment 11

7.5 Gas sampling 11

7.6 Presence of gas in the relay 11

7.7 Mounting instruction 11

8 Reliability and lifetime 12

9 Material 12

10 Markings 12

11 Documentation 12

12 Testing 13

12.1 General 13

12.2 List of tests 14

12.3 Description of tests 14

Bibliography 15

Figures

Figure 1 – Main dimensions of the Buchholz relay 10

Tables

Table 1 – Breaking capacity 9
Table 2 – Maximum mechanical dimensions 10
Table 3 – Minimum clearance for installation, accessibility and gas sampling 10
Table 4 – Mandatory clearance for maintenance and interchangeability 11
Table 5 – List of tests 14

1 Scope

This Technical Specification covers gas and liquid actuated (Buchholz) relays for liquid immersed transformers and reactors with conservator for rail vehicles.

The device is intended to detect

- gas release from the unit to be protected,
- cooling liquid surge from the protected unit to the conservator,
- complete loss of the cooling liquid in the conservator.

This Technical Specification gives consideration to both technical and normative requirements of the railway environment and restricts the variety in particular provided by the industry-wide standard EN 50216-2. It determines requirements and tests enabling the interchangeability of Buchholz relays by defining the following types of interfaces:

- mechanical interface, e.g. flanges for pipe connection, dimensions;
- electrical interface, e.g. supply voltage for making and breaking capability;
- functional interface, e.g. protective operational behaviour.

It is not applicable to flameproof relays. Different liquids may be used, which are typically used for both cooling and insulating.

Furthermore, operating conditions are described.

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.

CLC/TS 50534 [2)]	Railway applications – Generic system architecture for onboard electric auxiliary power systems
EN 50125-1:1999	Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock
EN 50216-2:2002 + A1:2002	Power transformer and reactor fittings – Part 2: Gas and oil actuated relay for liquid immersed transformers and reactors with conservator
EN 50547 [2)]	Railway applications – Batteries for rail vehicles
EN 60529:1991 + A1:2000	Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989 + A1:1999)
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 60947-5-1:2004 + A1:2009	Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices (IEC 60947-5-1:2003 + A1:2009)
EN 61373:1999	Railway applications – Rolling stock equipment – Shock and vibration tests (IEC 61373:1999)
EN ISO 228-1:2003	Pipe threads where pressure-tight joints are not made on the threads – Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)

2) Under development.

3 Terms, definitions and Abbreviations

For the purposes of this document, the following terms and definitions apply.

3.1 Terms and definitions

3.1.1
normal operating conditions
conditions that usually occur during “real” operation

3.2 Abbreviations

For the purposes of this document, the following abbreviation applies.

MTBF Mean Time Between Failures

4 Service conditions

4.1 General

The operation of the Buchholz relay may be affected by the conditions that occur under normal train service conditions, e.g. corrosive gases, carbon dust and other matter from brake shoes and pads or vibration stress.

Among all service conditions described in this clause, malfunction of the Buchholz relay shall not occur.

4.2 Environmental conditions

The Buchholz relay shall ensure appropriate functioning at the given requirements:

Temperature range:

- Ambient temperature: -30 °C ... 80 °C
  Other values, e.g. -40 °C or -50 °C shall be agreed between customer and manufacturer.
- Transport and storage: -30 °C ... 80 °C

Altitude: up to 1 400 m
(EN 50125-1:1999, class A1)

Humidity: 0 % ... 100 % Humidity

Climate class: EN 60721-3-5:1997, 5K2

Biological classification: EN 60721-3-5:1997, 5B3

Chemical classification: EN 60721-3-5:1997, 5C3

Contamination: EN 60721-3-5:1997, 5F3

Mechanical-active matters: EN 60721-3-5:1997, 5S3

Rain: EN 60721-3-5:1997, 5K3

Solar radiation: EN 60721-3-5:1997, 5K3