

**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**

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

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

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

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:

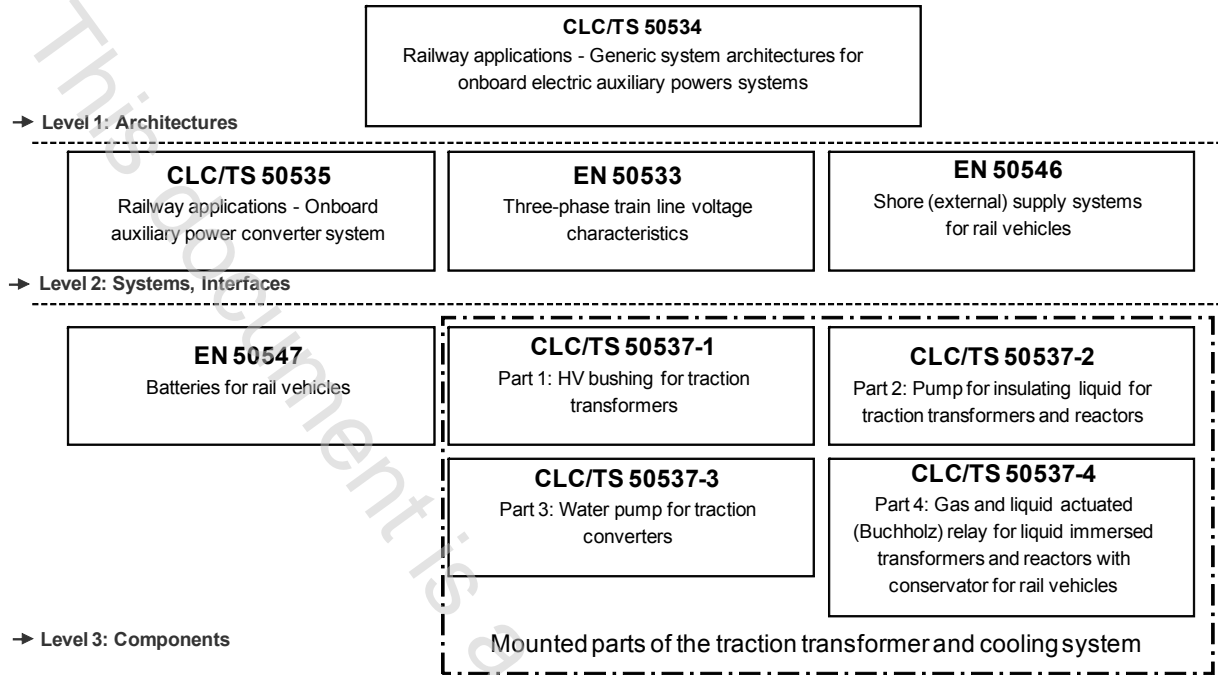
- Part 1: HV bushing for traction transformers;
- Part 2: Pump for insulating liquid for traction transformers and reactors;
- Part 3: Water pump for traction converters;
- Part 4: Gas and liquid actuated (Buchholz) relay for liquid immersed transformers and reactors with conservator for rail vehicles.

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:

¹⁾ Under development.

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



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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.