



SLOVENSKI STANDARD
oSIST prEN ISO 19659-1:2023
01-julij-2023

Železniške naprave - Ogrevalni, prezračevalni in klimatski sistemi za vozna sredstva - 1. del: Izrazi in definicije (ISO 19659-1:2017)

Railway applications - Heating, ventilation and air conditioning systems for rolling stock - Part 1: Terms and definitions (ISO 19659-1:2017)

Bahnanwendungen - Heizung, Lüftung und Klimatisierung von Schienenfahrzeugen - Teil 1: Begriffe und Definitionen (ISO 19659-1:2017)

Applications ferroviaires - Systèmes de chauffage, ventilation et climatisation pour le matériel roulant - Partie 1: Termes et définitions (ISO 19659-1:2017)

Ta slovenski standard je istoveten z: prEN ISO 19659-1

ICS:

01.040.45	Železniška tehnika (Slovarji)	Railway engineering (Vocabularies)
45.060.01	Železniška vozila na splošno	Railway rolling stock in general

oSIST prEN ISO 19659-1:2023

en,fr,de

INTERNATIONAL
STANDARD

ISO
19659-1

First edition
2017-08

**Railway applications — Heating,
ventilation and air conditioning
systems for rolling stock —**

**Part 1:
Terms and definitions**

*iTeh STANDARD PREVIEW
(standards.itoh.ai)*
*Applications ferroviaires — Systèmes de chauffage, ventilation et
climatisation pour le matériel roulant —
Partie 1: Termes et définitions*

[oSIST prEN ISO 19659-1:2023](https://standards.itoh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececddef7339a/osist-pren-iso-19659-1-2023)

<https://standards.itoh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececddef7339a/osist-pren-iso-19659-1-2023>



Reference number
ISO 19659-1:2017(E)

© ISO 2017

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 19659-1:2023](https://standards.iteh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececedef7339a/osist-pren-iso-19659-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececedef7339a/osist-pren-iso-19659-1-2023>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	18
4.1 Symbols.....	18
4.2 Abbreviated terms.....	19
Bibliography	20

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 19659-1:2023](https://standards.iteh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececddef7339a/osist-pren-iso-19659-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececddef7339a/osist-pren-iso-19659-1-2023>

ISO 19659-1:2017(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 269, *Railway applications*, Subcommittee SC 2, *Rolling stock*.

A list of all parts in the ISO 19659 series can be found on the ISO website.

Introduction

The ISO 19659 series defines terms, thermal comfort, energy efficiency and system installation of heating, ventilation and air conditioning (HVAC) for rolling stock.

The purpose of this document is to standardize the terms, definitions, symbols and abbreviated terms used throughout trains systems for the cooling, heating and internal air circulation that are commonly known as heating, ventilation and air conditioning (HVAC). These can be broken down into multiples of these functions and as an example, ventilation and air conditioning (VAC), etc.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN ISO 19659-1:2023](https://standards.iteh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececddef7339a/osist-pren-iso-19659-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/8110a899-c707-4efa-abe8-ececddef7339a/osist-pren-iso-19659-1-2023>

Railway applications — Heating, ventilation and air conditioning systems for rolling stock —

Part 1: Terms and definitions

1 Scope

This document is applicable to rail vehicles and specifies the terms, definitions, symbols and abbreviated terms to be used in the ISO 19659 series, heating, ventilation and air conditioning for rolling stock.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 HVAC system

3.1.1 Function

3.1.1.1

cooling

process which enables the interior temperature to be lowered or maintained

3.1.1.2

pre-cooling

process which enables the interior temperature to be lowered (without the presence of passengers)

3.1.1.3

dehumidification

process which removes water vapour from air to reduce the absolute humidity

[SOURCE: ISO/TR 16344:2012, 2.1.32, modified — “relative humidity” has been changed to “absolute humidity”.]

3.1.1.4

heating

process which enables the interior temperature to be raised or maintained

3.1.1.5

pre-heating

process which enables the interior temperature to be raised (without the presence of passengers)

ISO 19659-1:2017(E)

3.1.1.6

supplementary heating

additional *heating* ([3.1.1.4](#)) which provides support for the HVAC system

Note 1 to entry: This can also be referred to as “auxiliary heating”.

3.1.1.7

ventilation

movement of fresh (outside) air to and/or recirculating air in an enclosed space

3.1.1.8

natural air ventilation

air circulation generated without a mechanical action

3.1.1.9

forced air ventilation

air circulation generated by a mechanical action

3.1.1.10

emergency ventilation

ventilation ([3.1.1.7](#)) if main power source has failed

3.1.1.11

filtering

process which removes particles from the air

3.1.1.12

purifying

process which removes non-particulate contaminants from the air

Note 1 to entry: Odours and pathogens are examples of non-particulate contaminants from the air.

3.1.1.13

heat recovery

process which transfers heat (latent/sensible) between *fresh air* ([3.4.1](#)) and *exhaust air* ([3.4.10](#))

3.1.2 Position

3.1.2.1

centralized system

system which consists of one set of *HVAC unit* ([3.1.3.1](#)) per car

3.1.2.2

decentralized system

system which consists of two or more sets of *HVAC unit* ([3.1.3.1](#)) per car

Note 1 to entry: This can also be referred to as “dispersed system”.

3.1.3 Equipment

3.1.3.1

HVAC unit

unit intended for *cooling* ([3.1.1.1](#)) and/or *dehumidification* ([3.1.1.3](#)) and/or *heating* ([3.1.1.4](#)), and/or *ventilation* ([3.1.1.7](#))

3.1.3.2

controller unit

unit which operates the HVAC system in a predetermined behaviour while exchanging data with external devices

3.1.3.3**cooling unit**

system which provides *cooling* (3.1.1.1)

Note 1 to entry: See [Figure 2](#) to [Figure 5](#).

3.1.3.4**heating unit**

system which provides *heating* (3.1.1.4)

Note 1 to entry: See [Figure 2](#) to [Figure 5](#).

3.1.3.5**supplementary heater**

heater that carries out a *heating* (3.1.1.4) function in a decentralized manner either associated with *forced air ventilation* (3.1.1.9) or not

Note 1 to entry: This can also be referred to as “auxiliary heater”.

Note 2 to entry: This can include floor heater, roof heater, body side heater, entrance heater, duct heater, etc.

Note 3 to entry: See [Figure 5](#).

3.1.3.6**total heat exchanger**

device using temperature and humidity difference to recover energy

3.1.3.7**ventilation unit**

system ensuring *ventilation* (3.1.1.7)

Note 1 to entry: See [Figure 3](#).

3.1.3.8**exhaust air fan****exhaust air unit**

device or unit providing the extraction of air by mechanical action to the outside

Note 1 to entry: See [Figure 4](#).

3.1.3.9**supplementary fan**

device installed outside of *HVAC unit* (3.1.3.1) to move the air locally

Note 1 to entry: See [Figure 3](#).

3.1.3.10**booster fan**

supplementary fan (3.1.3.9) used to compensate (part of) the pressure drop inside air ducts

3.1.3.11**pressure protection device**

device providing protection against undue vehicle interior tympanic pressure variations caused by exterior pressure variations

3.1.3.12**pressure protection fan**

device providing pressure protection while maintaining a certain degree of *ventilation* (3.1.1.7)

3.1.3.13**ducting**

installations that guide air flows