

STN	Stavebnicové konštrukcie pre elektrické a elektronické zariadenia Kontajnerové uličky pre IT skrine Časť 2: Podrobnosti o požiadavkách na prúdenie vzduchu, separáciu vzduchu a chladenie vzduchu	STN EN IEC 62966-2 18 8001
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Mechanical structures for electrical and electronic equipment - Aisle containment for IT cabinets - Part 2: Details of air flow, air separation and air cooling requirements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Mechanical structures for electrical and electronic equipment -
Aisle containment for IT cabinets - Part 2: Details of air flow, air
separation and air cooling requirements
(IEC 62966-2:2020)**

Structures mécaniques pour équipements électriques et
électroniques - Confinement d'allées pour les baies
informatiques - Partie 2: Détails des exigences relatives au
flux d'air, à la séparation des flux d'air et au refroidissement
par air
(IEC 62966-2:2020)

Mechanische Bauweisen für elektrische und elektronische
Einrichtungen - Gangeinhausung für IT-Schränke - Teil 2:
Einzelheiten zu Luftstrom-, Lufttrennungs- und
Luftkühlungsanforderungen
(IEC 62966-2:2020)

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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 62966-2:2020 (E)**European foreword**

The text of document 48D/722/FDIS, future edition 1 of IEC 62966-2, prepared by SC 48D "Mechanical structures for electrical and electronic equipment" of IEC/TC 48 "Electrical connectors and mechanical structures for electrical and electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62966-2:2020.

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- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-05-19
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Annex ZA (normative)

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NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62966-1	-	Mechanical structures for electrical and electronic equipment - Aisle containment for IT cabinets - Part 1: Dimensions and mechanical requirements	EN IEC 62966-1	-
ISO 9972	-	Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method	EN ISO 9972	-



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d'air et au refroidissement par air**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Mechanical structures for electrical and electronic equipment – Aisle
containment for it cabinets –
Part 2: Details of air flow, air separation and air cooling requirements**

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Confinement d'allées pour les baies informatiques –
Partie 2: Détails des exigences relatives au flux d'air, à la séparation des flux
d'air et au refroidissement par air**

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 Determination of the air leak rate.....	9
4.1 Determination of the air leak rate of the individual components of an aisle containment.....	9
4.2 Components and system characteristic curves.....	10
4.2.1 General	10
4.2.2 Equipment requirements.....	11
4.3 Measurement procedure	11
4.3.1 Measurement conditions.....	11
4.3.2 Preparing the elements of the test housing for measurement.....	11
4.3.3 Measurement of the air leak rate	13
4.4 Test report.....	14
4.5 Measurement precision.....	14
5 Air leakage rate of the aisle containment – Creation of an overall system characteristic curve for the aisle containment	15
6 Determination of the air leak rate – Determination of the air leak rate of the overall system in operation, including the IT equipment	15
Annex A (informative) Aisle containments according to operation mode.....	17
A.1 Allocation of the aisle containments according to operation mode.....	17
A.1.1 General	17
A.1.2 Types of climate control.....	17
A.1.3 Closed-circuit climate control.....	17
A.1.4 In-line climate control	17
A.2 Cold aisle containment.....	18
A.2.1 Principle of the cold aisle containment.....	18
A.2.2 Objective of the cold aisle.....	18
A.2.3 Climate control	18
A.3 Hot aisle containment	18
A.3.1 Principle of the hot aisle containment	18
A.3.2 Objective of the hot aisle	19
A.3.3 Climate control	19
A.4 Cold and hot aisle containment.....	19
A.4.1 Principle of the cold and hot aisle containment	19
A.4.2 Objective of the cold aisle in a cold and hot aisle containment.....	20
A.4.3 Climate control	20
Annex B (informative) Thermodynamic variables within aisle containments.....	21
B.1 Air pressure	21
B.1.1 General	21
B.1.2 Minimum differential pressure.....	21
B.1.3 Overpressure in hot aisle containments	21
B.1.4 Negative pressure in hot aisle containments	21
B.1.5 Overpressure in cold aisle containments.....	21
B.1.6 Negative pressure in cold aisle containments	21

B.2	Directions of flow	22
B.2.1	Directions of flow "from the front to the back"	22
B.2.2	Direction of flow "to the side"	22
B.3	Flow velocities	22
B.3.1	Closed-circuit climate control	22
B.3.2	In-line climate control	22
B.3.3	Design of the aisle containments	22
B.4	Temperatures and humidity	23
B.4.1	General	23
B.4.2	Temperatures	23
B.4.3	Humidity	23
Bibliography		24
Figure 1	– Example of the components – Roof	9
Figure 2	– Example of the components – Door	10
Figure 3	– Example of the components – Enclosures	10
Figure 4	– Sealing the installation level	12
Figure 5	– Example of a connecting design to the neighbouring enclosure	12
Figure 6	– Example of a connecting design to the roof	13
Figure 7	– Example of a connecting design to the end door	13
Figure 8	– Example of component and system characteristic curves	14
Figure 9	– Example of a hydraulic addition of individual characteristic curves	15
Figure 10	– Classification of aisle containment by class factors	16
Figure A.1	– Example of an in-line climate control	17
Figure A.2	– Example of a cold aisle containment	18
Figure A.3	– Example of a hot aisle containment	19
Figure A.4	– Example of a cold and hot aisle containment	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MECHANICAL STRUCTURES FOR
ELECTRICAL AND ELECTRONIC EQUIPMENT –
AISLE CONTAINMENT FOR IT CABINETS –**
Part 2: Details of air flow, air separation and air cooling requirements**FOREWORD**

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International Standard IEC 62966-2 has been prepared by subcommittee 48D: Mechanical structures for electrical and electronic equipment, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
48D/722/FDIS	48D/727/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62966 series, published under the general title *Mechanical structures for electrical and electronic equipment – Aisle containment for it cabinets*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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INTRODUCTION

Cabinets of the IEC 60297 and IEC 60917 standard series are used as enclosures of electronic and electrical equipment in many different fields of application. A wide field of application is represented by enclosures equipped with electronic information technology (IT) equipment. They are frequently set up in large numbers in server rooms and data centres. During their operation, the electronic equipment installed generates a considerable amount of heat that will be removed from the equipment by means of cooling air. Precise adjustment of the supply air temperature and a sufficient cooling air flow are indispensable prerequisites for the fail-safe operation of equipment in information technology.

It is a common practice to set up cabinets in rows. The server cabinets along the rows are usually arranged in such a way that surfaces with cold supply air inlets face each other across an aisle, and surfaces with hot exhaust air outlets also face each other across an aisle. This row configuration is generally known as hot aisle/cold aisle configuration. Moreover, air is supplied and discharged exclusively via the front and rear panels of the server cabinets, which are frequently perforated doors. It is assumed that inside the IT equipment, the cooling air is moved in a horizontal direction, taking it in at the front and discharging it at the rear.

This part of IEC 62966 specifies the quantification of the air separation, in particular the air leak rate that describes the content of the volumetric flow not used for cooling in the aisle containment for information technology (IT) cabinets. The objective of this document is to stipulate properties and requirements of aisle containment ensuring cost effective installation, energy-efficient and user-friendly operation of IT equipment in data centres server rooms.

The fan pressurization method (overpressure at the system and elements) is used to categorize the air tightness of the aisle containment. In doing so, it is used to quantify the air tightness, in order to compare aisle containments with regard to the air tightness. It is also useful for finding leaks, or to determine the improvement due to improving the air tightness. The fan pressurization method cannot measure the air leak rate, but serves as a basis for determining the air leak rate by calculation. The method can be used to determine air leak rates of the aisle containment at low-pressure and overpressure on the inside compared with the surroundings. Thus, this allows a categorization of the elements of an aisle containment – the enclosure – to be determined.

For this purpose, aisle containment is dismantled into typical individual elements, for example enclosures, doors and roof covers. The corresponding characteristic curves of these components are recorded separately and added to the system characteristic curve of the aisle containment.

The quality of the resulting aisle containment is then classified using a differential pressure measurement.

The IEC 62966 series, *Mechanical structures for electrical and electronic equipment – Aisle containment for IT cabinets*, is subdivided into the following parts:

- IEC 62966-1: *Dimensions and mechanical requirements*
- IEC 62966-2: *Details of air flow, air separation and air cooling requirements*
- IEC 62966-3: *Aspects of operational safety of IT equipment and users of aisle containment*

IEC 62966-1 defines geometric dimensions and mechanical properties ensuring undisturbed, energy-efficient and user-friendly operation of the data centre.

IEC 62966-2 provides the methods and process to get the aisle containment air leakage and define the classification (evaluation) system on the aisle containment air leakage, for designers and users of aisle containments for IT cabinets based on the IEC 60297 and IEC 60917 series.

IEC 62966-3 deals with aspects of safely operating IT equipment in aisle containment, with respect to special fire-protection and fire-fighting issues. It also describes the nature of the doors for access to the aisle containment and possible access control.

MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – AISLE CONTAINMENT FOR IT CABINETS –

Part 2: Details of air flow, air separation and air cooling requirements

1 Scope

This part of IEC 62966, dedicated to aisle containment techniques for information technology (IT) equipment typically used in data centres, describes the quantification of its air tightness, in particular the air loss ratio that describes the content of the volumetric flow not used for cooling the IT equipment. This ratio provides an index of efficiency, being inversely proportional to efficiency (the lower this ratio, the higher the efficiency). This document provides methods to measure an aisle containment air leakage rate and defines a classification system for aisle containment leakage.

This document defines:

- a) the measurement of the air leakage of the individual components of an aisle containment;
- b) a method for calculating the air leakage of an aisle containment based on its individual components;
- c) a method for calculating the air leakage rate of an aisle containment in relation to the utilised IT equipment;
- d) a classification system for aisle containment leakage.

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.

IEC 62966-1, *Mechanical structures for electrical and electronic equipment – Aisle containment for IT equipment – Part 1: Dimensions and mechanical requirements*

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