SLOVENSKI STANDARD
SIST EN ISO 29461-1:2021

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Nadomešča:
SIST EN ISO 29461-1:2013

Zračni filtrski sistemi rotacijskih strojev - Preskusne metode - 1. del: Statični filtrski elementi (ISO 29461-1:2021)

Air intake filter systems for rotary machinery - Test methods - Part 1: Static filter elements (ISO 29461-1:2021)

Ansaugfiltersysteme von Rotationsmaschinen - Prüfverfahren - Teil 1: Statische Filterelemente (ISO 29461-1:2021)

Systèmes de filtration d'air d'admission pour machines tournantes - Méthodes d'essai - Partie 1: Éléments filtrants pour filtres statiques (ISO 29461-1:2021)

Ta slovenski standard je istoveten z: **EN ISO 29461-1:2021**

ICS:

29.160.99	Drugi standardi v zvezi z rotacijskimi stroji	Other standards related to rotating machinery

SIST EN ISO 29461-1:2021 **en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 29461-1

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English Version

Air intake filter systems for rotary machinery - Test methods - Part 1: Static filter elements (ISO 29461-1:2021)

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Ansaugfiltersysteme von Rotationsmaschinen - Prüfverfahren - Teil 1: Statische Filterelemente (ISO 29461-1:2021)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN ISO 29461-1:2021) has been prepared by Technical Committee ISO/TC 142 "Cleaning equipment for air and other gases" in collaboration with Technical Committee CEN/TC 195 “Cleaning equipment for air and other gases” the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2022, and conflicting national standards shall be withdrawn at the latest by April 2022.

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

This document supersedes EN ISO 29461-1:2013.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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Endorsement notice

The text of ISO 29461-1:2021 has been approved by CEN as EN ISO 29461-1:2021 without any modification.

INTERNATIONAL STANDARD

ISO 29461-1

Second edition
2021-09

Air intake filter systems for rotary machinery — Test methods —

Part 1: Static filter elements

Systèmes de filtration d'air d'admission pour machines tournantes — Méthodes d'essai —

Partie 1: Éléments filtrants pour filtres statiques

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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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 142, *Cleaning equipment for air and other gases*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 195, *Cleaning equipment for air and other gases*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 29461-1:2013), which has been technically revised.

The main changes compared to the previous edition are as follows:

— a new test method, referring to ISO 16890 (all parts) and ISO 29463 (all parts), has been added;

— a classification table has been added;

— previous Annexes A, B, C and D have been deleted; previous Annex E has become Annex A.

A list of all parts in the ISO 29461 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

In rotating machinery applications, the filtering systems, typically a set of filter elements arranged in a suitable manner, are an important part of the whole turbine/compressor system. The development of turbine machinery used for energy production or others has led to more sophisticated equipment; and therefore the importance of good protection of these systems has become more important in the recent years. It is known that particulate contamination can deteriorate a turbine power system quite substantially if not taken care of.

This event is often described as “erosion”, “fouling” and “hot corrosion” where salt and other corrosive particles are known as potential problems. Other particulate matters can also cause significant reduction of efficiency of the systems. It is important to understand that air filter devices in such systems are located in various environmental conditions. The range of climate and particulate contamination is very wide, ranging from deserts to humid rain forests to arctic environments. The requirements on these filter systems are obviously different depending on where they will be operating.

ISO 29461 (all parts) has based the performance of the air intake filter systems not only upon heavy dust collection but also particulate efficiency in a size range that is considered to be the problematic area for these applications. Both ultra-fine and fine particles, as well as larger particles, should be considered when evaluating turbine fouling. In typical outdoor air, ultra-fine and fine particles in the size range from 0,01 µm to 1 µm contribute to > 99 % of the number concentration and to > 90 % of the surface contamination. The majority of the mass normally comes from larger particles (>1,0 µm).

Turbo-machinery filters comprise a wide range of products from filters for very coarse particles to filters for very fine, sub-micron particles. The range of products varies from depth to surface loading systems, which can be regenerated e.g. by pulse cleaning. The filters and the systems have to withstand a wide temperature and humidity range, very low to very high dust concentration and mechanical stress. The shape of products existing today can be of many different types and have different functions such as droplet separators, coalescing products, filter pads, metal filters, inertial filters, filter cells, bag filters, panel-type, cleanable and depth loading filter cartridges and pleated media surface filter elements.

ISO 29461 (all parts) provides a way to compare these products in a similar way and define what criteria are important for air filter intake systems for rotary machinery performance protection. The aim is to compare different filters and filter types with respect to the operating conditions they finally will be used in. For instance, if a filter or a filter system is meant to operate in an extreme, very dusty environment, the real particulate efficiency of such a filter cannot be predicted because the dust loading of the filter plays an important role. A further part of ISO 29461 will address the performance of cleanable and surface loading filters. Filters in turbo-machinery applications can also face very harsh operating conditions such as high air flow rates or water and salt ingress. Further parts of ISO 29461 will address the performance of filters under such harsh conditions.