

# SLOVENSKI STANDARD

## kSIST-TS FprCEN/TS 17607:2020

01-december-2020

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**Obratovanje, servisiranje, vzdrževanje, popravilo in razgradnja opreme za hlajenje, klimatizacijo in toplotne črpalke, ki vsebuje vnetljiva hladilna sredstva, za dopolnitev obstoječih standardov**

Operation, servicing, maintenance, repair and decommissioning of refrigeration, air conditioning and heat pump equipment containing flammable refrigerants, complementing existing standards

Betrieb, Wartung, Instandhaltung, Reparatur und Außerbetriebnahme von Kälte-, Klima- und Wärmepumpenanlagen, die brennbare Kältemittel enthalten, zur Ergänzung bestehender Normen

Exploitation, entretien, maintenance, réparation et mise hors service d'équipements de réfrigération, de climatisation et de pompes à chaleur contenant des réfrigérants inflammables, en complément des normes existantes

**Ta slovenski standard je istoveten z: FprCEN/TS 17607**

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**ICS:**

23.080	Črpalke	Pumps
27.200	Hladilna tehnologija	Refrigerating technology
91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning systems

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TECHNICAL SPECIFICATION  
SPÉCIFICATION TECHNIQUE  
TECHNISCHE SPEZIFIKATION

**FINAL DRAFT**  
**FprCEN/TS 17607**

October 2020

ICS 23.080; 27.200; 91.140.30

English Version

**Operation, servicing, maintenance, repair and  
decommissioning of refrigeration, air conditioning and  
heat pump equipment containing flammable refrigerants,  
complementing existing standards**

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enthalten, zur Ergänzung bestehender Normen

This draft Technical Specification is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 182.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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## European foreword

This document (FprCEN/TS 17607:2020) has been prepared by Technical Committee CEN/TC 182 “Refrigerating systems, safety and environmental requirements”, the secretariat of which is held by DIN.

This document is currently submitted to the Vote on TS.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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**FprCEN/TS 17607:2020 (E)****Introduction**

The adoption of refrigerants with low Global Warming Potential, in response to concerns about the effect of some fluorocarbons on climate, has raised the profile of fluids which were previously limited in their use due to flammability. As the industry moves towards greater use of low GWP flammable refrigerants, in particular from flammability class A3, it is important to ensure that operation, service and decommissioning practices also change to support this technology transition.

The need for technical specifications for all stakeholders in operation and service is particularly important.

The purpose of this document is to provide information to ensure acceptable risk levels when applying flammable refrigerants.

This document therefore provides technical specifications to the companies and individuals directly involved in activities at the worksite; the owner, his operational staff that provide routine maintenance, subcontractors that undertake specialist service work of various types and decommissioning contractors.

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## 1 Scope

This document provides technical specifications for the operation, servicing, maintenance, repair and decommissioning of refrigeration, air conditioning and heat pump equipment containing flammable refrigerants, in particular from class A3, complementing existing standards.

Refrigerants from toxicity class B are excluded from this scope.

This document includes risk mitigation measures not yet addressed in existing standards for specific refrigerant classes, or not fully reflecting the state of the art, and establishes complementary technical specifications for the operation, servicing, maintenance, repair and decommissioning, .

The following aspects are considered:

- explosive atmosphere workplace and equipment;

NOTE Further information can be found in Directive 99/92/EC (ATEX Workplace Directive) and Directive 2014/34/EU (ATEX Equipment Directive).

- good practice for the operation, servicing, maintenance, repair and decommissioning, including tools and personal protection;
- risk mitigation methods;
- risk assessments;
- competence of personnel;
- health and safety of personnel;
- location of the equipment.

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## 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.

EN 378-1:2016, *Refrigerating systems and heat pumps - Safety and environmental requirements - Part 1: Basic requirements, definitions, classification and selection criteria*

EN 378-4:2016+A1:2019, *Refrigerating systems and heat pumps - Safety and environmental requirements - Part 4: Operation, maintenance, repair and recovery*

prEN ISO 22712:2018, *Refrigerating systems and heat pumps - Competence of personnel (ISO/DIS 22712:2018)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 378-1:2016, prEN ISO 22712:2018 and the following 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 <https://www.iso.org/obp>

**FprCEN/TS 17607:2020 (E)****3.1****maintenance**

act of keeping a piece of equipment in good condition by checking or repairing it regularly

**3.2****servicing**

act of checking and repairing a piece of equipment to keep it in good condition

**3.3****repair**

act of fixing a piece of equipment that is broken or damaged

**3.4****equipment**

single apparatus or set of devices or apparatuses, or the set of main devices of an installation, or all devices necessary to perform a specific task

[Source: IEC 151-11-25]

**3.5****risk analysis**

systematic use of available information to identify *hazards* and to estimate the *risk*

**3.6****risk assessment**

overall process comprising a *risk analysis* and a *risk evaluation*

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**3.7****risk evaluation**

procedure based on the *risk analysis* to determine whether *tolerable risk* has been exceeded

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**3.8****risk mitigation measure**

action or means to eliminate *hazards* or reduce *risks*

EXAMPLE *Inherently safe design*; protective devices; personal protective equipment; information for use and installation; organization of work; training; application of equipment; supervision.

**3.9****safety**

freedom from *risk* which is not tolerable

**3.10****tolerable risk**

level of risk that is accepted in a given context based on the current values of society

Note 1 to entry: For the purposes of this document, the terms “acceptable risk” and “tolerable risk” are considered to be synonymous

**3.11****operator**

natural or legal person exercising actual power over the technical functioning of products and equipment; the owner can be designated as being responsible for the operator’s obligations



## 4 General

The instructions supplied shall be followed for the operation, servicing, maintenance, repair and decommissioning of refrigeration, air conditioning and heat pump equipment.

The manufacturer and the installer of the equipment transfer the responsibilities for the equipment to the operator, according to the contract conditions between those parties.

The operator also assumes the responsibilities of the manufacturer when:

- the intended function of the equipment, already placed on the EU market, is modified; or
- the technical details are modified, in particular with regards to respecting charge size limits and associated risk mitigation measures; or
- the compliance is impacted because the instructions provided for the equipment were not followed.

The following documents contain useful information:

- EN 378-2 provides information on instructions regarding operation and maintenance;
- IEC 60335-2-40:2018 provides information on procedures additional to usual information for air conditioning and heat pump equipment repair, maintenance and decommission procedures when an appliance with flammable refrigerants is affected. (IEC 60335-2-40:2018, Annex A);
- EN 378-4 provides information regarding the operation, maintenance, repair and recovery;
- EN 60079-14 contains the specific requirements for the design, selection, erection and initial inspection of electrical installations in, or associated with, explosive atmospheres;
- EN 60079-17 covers factors directly related to the inspection and maintenance of electrical installations within hazardous areas only, where the hazard could be caused by flammable gases, vapours, mists, dusts, fibres or flyings.

The employer of the worker shall carry out a risk assessment.

NOTE Further information can be found in Directive 99/92/EC.

It is the responsibility of the employer to ensure the safety and health of workers in every aspect related to the work. The employer shall provide instructions, training, and personal protective equipment to enable workers to work safely with flammable refrigerants.

Persons working on refrigerating systems containing flammable refrigerants shall have competence in safety aspects of flammable refrigerant handling. The personnel charged with the operation, supervision and maintenance of the refrigerating system shall be adequately instructed and competent with respect to their tasks, as well as the risk mitigation measures to be observed, and the properties and handling of the refrigerant used. (See EN 378-4:2016+A1:2019, 4.1.2).

NOTE Examples for checklists for explosion protection can be found in Annex A of COM(2003)515 of 25 August 2003.

## 5 Operation

Operation of refrigerating equipment shall be undertaken in accordance with instructions.

NOTE National regulations apply.