

# PRODUCT CERTIFICATE

## NAME OF PRODUCT

Uponor ventilation system

## MANUFACTURER

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 Finland



## PRODUCT DESCRIPTION

The ducts and duct parts of Uponor Ventilation System made of polypropylene are intended to be used in supply and exhaust air ducts of apartment-specific ventilation system in single-family, terraced and semi-detached houses as well as in multi-storey buildings in new building and in renovation. The nominal diameters of the ducts and duct parts are Ø100, Ø125, Ø160 and Ø200mm.

Due to the manufacturing techniques and the material, the ducts and duct parts are antistatic and the inner surfaces are clean, oil-free and plain.

## CERTIFICATION PROCEDURE

This certificate has been granted as accredited. Eurofins Expert Services Oy is certification body (S017) accredited by Finnish Accreditation Service FINAS.

This certificate is based on an initial type assessment of the product and an initial inspection of the factory production control according to the certification criteria R045 and section 3. The general certification procedures are based on the certification system of Eurofins Expert Services Oy.

The conditions of validity of this certificate are described in section 18.

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## REGULATIONS, STANDARDS AND INSTRUCTIONS

### 1 Regulations and product requirement standards

According to the assessment of Eurofins Expert Services Oy, Uponor Ventilation System, if used in accordance with the provisions of this certificate, will contribute to meet the relevant requirements of the Finnish building legislation, guidelines and standards as stated in the following:

132/1999	Land use and building act
1009/2017	Decree of the Ministry of the Environment on the Indoor Climate and Ventilation of New Buildings  Guidelines of the Indoor Climate and Ventilation, updated June 11, 2019 <a href="https://www.talotekniikkainfo.fi">https://www.talotekniikkainfo.fi</a>
848/2017	Decree of the Ministry of the Environment on the Fire safety of Buildings  Guidelines of the Fire Safety of ventilation systems, updated December 23, 2019 <a href="https://www.talotekniikkainfo.fi">https://www.talotekniikkainfo.fi</a>
SFS 3543	Ventilating sheet metal ducts. Strength and air tightness. 1987.
ISO 5660-1	Reaction-to-fire tests -- Heat release, smoke production and mass loss rate
RT 07-11297	Indoor air classification 2018. Rakennustietosäätiö RTS.

### 2 Other standards and instructions

According to the manufacture the following guidelines and standards also have relevance for the use of Uponor Ventilation System:

31701_FI_04_2020	Apartment-specific ventilation system in single-family and in multi-storey buildings. The manufacturer's design and installation instructions of Uponor Ventilation System. Uponor Suomi Oy
IEC 61340-4-10	Standard test methods for specific applications – Two-point resistance measurement (antistatic of ducts). Inoperative December 30, 2016.
SFS EN ISO 9001	Quality management systems. Model for quality assurance in design or product development, production, installation and in after delivery services.
EN ISO 14001	Environmental management systems. Requirements with guidance for use.
VTT-R-05113-10	FDS-Fire simulation program.
SFS-EN 1506:2007	Ventilation for buildings. Sheet metal air ducts and fittings with circular cross-section. Dimensions.
ISO/TR 10358	Plastics pipes and fittings. Combined chemical-resistance classification table.
SFS-EN 1411	Plastics piping and ducting systems. Thermoplastics pipes. Determination of resistance to external blows by the staircase method. Inoperative October 27, 2017.

## PRODUCT INFORMATION

### 3 Product description, marking and quality control

The ducts, which are black, are marked, at one meter intervals, with the product name Uponor indoor air duct, the size and length (3000 mm) of the duct, material marking (PP), information of the production time, production site mark, number of the machine, EUFI29-19006237-C, SITAC type approval number and mark, SITAC accreditation number, bar-code and EAN code.

The insulated duct is marked on the insulation, Uponor-preinsulated indoor air duct, the size and length (3000 mm), recycling mark, material marking (PE).

The black duct parts are marked with sign Uponor, the name and code of product, material marking, recycling mark, and the information of production time and lot.

The insulated duct parts are marked with the stamped text, Uponor indoor air and the size.

The plastic bags of the duct parts have a sticker with the product name, bar-code and EAN-code

The ducts and duct parts of Uponor Ventilation System made on polypropylene are intended to be used in inlet and exhaust air ducts of apartment-specific ventilation system in single-family, terraced and semi-detached houses as well as in multi-storey buildings. The nominal diameters of the ducts and duct parts are Ø100, Ø125, Ø160 and Ø200mm. Thickness of the duct insulation is 15 mm.

The antistatic of the products is confirmed during the production according to the standard IEC 61340-4-10.

The external quality control of the ventilation ducts and duct parts is performed by Eurofins Expert Services Oy according to the valid quality control agreement. The surveillance includes inspection of internal quality control, sampling and testing of samples with the extent defined in the agreement.

The manufacturer has certified quality management system according to standard SFS-EN ISO 9001 and environmental management system according to standard SFS-EN ISO 14001.

External quality control is carried out according to the contract on quality control between the manufacturer and Eurofins Expert Services Oy. The surveillance includes inspection of internal quality control, sampling and testing of samples with the extent defined in the contract.

### 4 Delivery and storage on site

When stored, the shield plug shall be in place and the parts in the plastic covering bags. In long term storage the ducts and duct parts shall be protected from direct sun light.

The ducts are delivered in three meter long sections, with plugged ends. The duct parts are delivered packed in plastic bags.

## DESIGN INFORMATION

### 5 General

The design information given in this certificate is based on the assumption that the structural solutions, fastening methods and other initial data are accordant to this certificate and the given requirements, instructions and standards are followed.

### 6 Installation

The ducts and duct parts are installed, connected to each other, insulated and encapsulated according to the instructions given by the manufacturer. The joint is made pursing by hand. No screws or rivets is needed to use in the joints.

The ducts can be cut by an ordinary fine toothed saw.

The duct should not be thrown, dragged or bruised. It is not recommended to install the ducts in temperatures below -15 °C.

The ducts and duct parts shall be protected from getting dirty in intermediate storing during installation.

The maximum allowed support distance is 1500 mm and the supports are installed so that there is a support close to each joint/part.

Ventilation installations in sauna room should be done according to the instructions given by the manufacturer.

### 7 Structural performance

The ducts fulfil, if installed according to the instructions (maximum support gap is 1500 mm), strength requirements of standard SFS 3543.

The ducts and duct parts fulfil the air tightness requirements of class D of the standard SFS 3543.

The durability for impacts and bruises during installation is taken into account in the installation instructions.

### 8 Performance in relation to moisture

To prevent condensation, the pre-insulated ducts and duct parts shall be used taken into account the installation instructions.

### 9 Performance in case of fire

The fulfilment fire safety requirements of Uponor Ventilation System have been shown according to Decree of the Ministry of the Environment on the Fire safety of Buildings (848/2017) clause 3 and 4 using a procedure based on assumed fire development.

Simulation of a fire incident is made with FDS-fire simulation program. The spreading of fire and smoke and the effect of the ventilation duct to the fire are examined by calculations, in a case when the ducts are installed in encapsulations which fulfil the classification requirements of fire regulations.

#### **Multi-storey buildings**

The plastic ducts and duct parts of Uponor Ventilation System are suitable to be used in air ducts of apartment-specific ventilation systems in multi-storey buildings of the fire class P1 defined in the Decree of the Ministry of the Environment on the Fire safety of Buildings.

According to Uponor Ventilation System design and installation instructions, a steel sheet spiral duct in accordance with standard SFS-EN 1506 is used as kitchen stove local exhaust air duct. The minimum material thickness of the spiral duct is 0,5 mm. Outside the apartment, the kitchen stove local exhaust air duct and the exhaust air duct of the apartment-specific ventilation unit are fire-insulated according to the design and installation instructions.

The ducts and duct parts are installed according to Uponor Ventilation System design and installation instructions into capsule, into cavity of suspended ceiling or into vertical cavity which have as cladding material A2-s1,d0 class construction product. Insulation of the ducts and duct parts are done according to the design and installation instructions.

Flow suppressors according to the Guidelines of the Fire Safety of ventilation systems paragraph 7.2, which restrict the spread of combustion gas, are used as air terminal devices of the ducts.

In the Uponor Ventilation System possible penetrations between fire departments shall be done in such a way that compartmentation requirements are met.

With the provisions of the previous paragraphs the fire safety meeting the regulations is maintained in the apartments of multi-storey building at the same level as in solutions done with C-s2,d1 class ventilation ducts.

### **Single-family houses**

The plastic ducts and duct parts of Uponor Ventilation System are suitable to be used in air ducts of apartment-specific ventilation systems in single-family, terraced and semi-detached houses of the fire class P3 defined in the Decree of the Ministry of the Environment on the Fire safety of Buildings.

According to Uponor Ventilation System design and installation instructions, a steel sheet spiral duct in accordance with standard SFS-EN 1506 is used as kitchen stove local exhaust air duct. The minimum material thickness of the spiral duct is 0,5 mm. Outside the apartment, the kitchen stove local exhaust air duct are fire-insulated according to the design and installation instructions.

The ducts and duct parts of Uponor Ventilation System are installed into encapsulation, into cavity of suspended ceiling, into vertical chase, attic space of a building or insulation layer of the roof in accordance with Uponor Ventilation System design and installation instructions. Insulation of the ventilation ducts and duct parts shall be done according to design- and installation instructions.

The fire class of the encapsulating- and hung ceiling material shall be at least D-s2,d2

The fire resistance of kitchen stove local exhaust duct at the attic and attic cavity shall be at least EI 30.

## **10 Thermal insulation performance**

According to the installation instructions thermal insulation of the ventilation system is based on pre-insulated ducts and duct parts and additional external heat insulation if needed. Heat conductivity of the pre-insulation (PE) of the ducts is 0.0377 W/Km

## **11 Acoustical performance**

Designing of the ductwork shall be carried out according to the design and installation instructions/guidelines.

## **12 Durability**

The thermal resistance of the ducts is in continuous use -50 °C - +85 °C. The recommended minimum installation and handling temperature is -15 °C.

## **13 Environmental aspects**

The material of ducts and duct parts fulfil the requirements of the emission class M1 of construction materials in Indoor air classification 2018.

## INSTRUCTIONS FOR INSTALLATION AND USE

### 14 Manufacturer's instructions

The installation and maintenance of the duct system is performed according to the Uponor Ventilation System installation and design instructions 31701\_FI\_04\_2020.

## TECHNICAL SURVEY

### 15 Testing and calculations

Eurofins Expert Services Oy has performed assessment based on manufacturer's documentation, test results and calculations.

The following properties of the ducts and duct parts have been defined at VTT:

- Tightness
- Pressure losses (diagrams)
- Fire behaviour with calculations
- The emissions provided by the emission class of the material.

### 16 Other material

The tests and investigations by VTT, University of Kuopio (University of Eastern Finland) and Helsinki University of Technology (Aalto University) concerning the contamination, clean ability and susceptibility to moulding of the duct system.

The quality control instructions of the manufacturer.

The raw material supplier's report of applicability of the material for food use.

## VALIDITY OF THE CERTIFICATE

### 17 Validity period of the certificate

This certificate is valid until May 17, 2025.

The validity of the certificate will be ended, if the product falls into the scope of CE-marking.

The validity of the certificate may be confirmed at Eurofins Expert Services Oy web pages ([www.sertifikaattihaku.fi](http://www.sertifikaattihaku.fi)).

### 18 Conditions of validity

The certificate is valid assuming that no fundamental changes are made to the product, and that the manufacturer has a valid contract on quality control.

### 19 Other conditions

The references made in this certificate to standards and instructions are valid in the format used at the time the certificate was signed.

The recommendations in this certificate concerning the safe use of this product are minimum requirements that shall be satisfied when using the product. The certificate does not override current or future requirements imposed by acts and decrees. In addition to the issues presented in this certificate, design, manufacturing and use shall follow appropriate construction methods.

The manufacturer is in charge of the product's quality and factory production control. In awarding this certificate, Eurofins Expert Services Oy does not bind itself to indemnification liability concerning personal injury or other damage that may directly or indirectly result from using the product described in this certificate.

This certificate is the English version of the original EUFI29-19006237-C Finnish certificate. In case of dispute the Finnish original of the certificate is valid.

This revised certificate EUFI29-19006237-C (issued first on May 31, 2002 Nro 158/01 and December 1, 2010 Nro VTT-C-6220-10) has been granted as described above to Uponor Suomi Oy.

On behalf of Eurofins Expert Services Oy on August 24, 2020

Tiina Ala-Outinen  
Manager, certification and inspection

Mikko Saari  
Asessor

*This document has been signed electronically*