

PRODUCT CERTIFICATE

ETS NORD AS

manufactures

wall outlet terminal devices RVD 125L and RVD 160

RVD 125L ja RVD 160 are intended to be used as wall outlet and inlet terminal devices of a residential ventilation. The wall outlet terminals comply with the requirements of the certification criteria *SERT R074: Requirements of wall outlet terminal devices for exhaust air and inlet terminal devices for outdoor air of a residential ventilation (Appendix 3)*. Summary of the characteristics of the wall outlet terminal device RVD 125L at the minimum set point is presented below. Summary of the wall outlet terminal device RVD 125L at maximum set point and device RVD 160 is presented in Appendix 1. Technical specification of the devices is presented in Appendix 2.

Property	Result
Leakage	Meets the requirement.
Aerodynamic performance (pressure / air flow)	The measured values correspond to the values declared by the manufacturer.
Acoustic performance	$L_{WA} < 30$ dB(A) to the external surrounding at nominal air flow. The measured values correspond to the values declared by the manufacturer. Meets the requirements.
Air velocity of the exhaust air in outlet nozzle	5 m/s at nominal air flow 18 dm ³ /s (at minimum set point).
Air velocity of the outdoor air in inlet grille of combination devices	0.68 m/s at nominal air flow. Meets the requirement.
Throw pattern of exhaust air jet	Throw length 3.1 m (0.5 m/s) at nominal air flow. The measured values correspond to the values declared by the manufacturer.
Rainwater rejection efficiency of exhaust air outlet, and outdoor air inlet of combination devices.	Exhaust air: 86.7 % at nominal air flow (class C). Outdoor air: 100 % at nominal air flow (class A). The removal of water from device has been implemented reliably. Meets the requirements.
Amount of exhaust air in outdoor air flow of combination devices.	0 % at nominal air flow. Meets the requirement.
Operation at low outdoor air temperatures	Operation tested at -20 °C outdoor temperature. Meets the requirement
Installation and maintenance guidelines, user manual	Meets the requirements presented in Appendix 3.

This certificate is valid until November 26, 2022 on condition that the product is not essentially changed and the manufacturer and Eurofins Expert Services Oy have a valid contract on quality control. To check the validity of this certificate, www.sertifikaattihaku.fi. Other conditions are listed on the page 2 of the certificate

Espoo November 30, 2020

 Tiina Ala-Outinen
 Manager, certification and inspection

 Mikko Saari
 Assessor

This document has been signed electronically

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Conditions of the validity of the certificate:

Where reference is made in this certificate to any regulations, publications, standards or other documents, it shall be construed as a reference to such publication in the form of which it is in force at the date of this certificate.

The manufacturer is responsible for the quality and continuous quality control of the product. In granting this certificate, Eurofins Expert Services Oy does not accept responsibility to any person or body for any loss or damage incurred in respect of personal injury arising as direct or indirect result of the use of this product.

The use of the name of Eurofins Expert Services Oy or the name Eurofins in any other form in advertising or distribution in part of this certificate is only permissible with written authorisation from Eurofins Expert Services Oy.

This certificate is the English version of the original EUFI29-20003237-C Finnish certificate. In case of dispute the Finnish original of the certificate is valid.

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Summary of the characteristics of the wall outlet terminal device ETS NORD RVD 125L at maximum set point.

Property	Result
Leakage	Meets the requirement.
Aerodynamic performance (pressure / air flow)	The measured values correspond to the values declared by the manufacturer.
Acoustic performance	$L_{WA} < 35$ dB(A) to the external surrounding at nominal air flow. The measured values correspond to the values declared by the manufacturer. Meets the requirements.
Air velocity of the exhaust air in outlet nozzle	5 m/s at nominal air flow 42 dm ³ /s (at maximum set point).
Air velocity of the outdoor air in inlet grille of combination devices	1.6 m/s at nominal air flow. Meets the requirement.
Throw pattern of exhaust air jet	Throw length 6.4 m (0.5 m/s) at nominal air flow. The measured values correspond to the values declared by the manufacturer.
Rainwater rejection efficiency of exhaust air outlet, and outdoor air inlet of combination devices.	Exhaust air: 82.8 % at nominal air flow (class C). Outdoor air: 100 % at nominal air flow (class A). The removal of water from device has been implemented reliably. Meets the requirements.
Amount of exhaust air in outdoor air flow of combination devices.	0 % at nominal air flow. Meets the requirement.
Operation at low outdoor air temperatures	Operation tested at -20 °C outdoor temperature. Meets the requirement
Installation and maintenance guidelines, user manual	Meets the requirements presented in Appendix 3.

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Summary of the characteristics of the wall outlet terminal device ETS NORD RVD 160 at minimum set point.

Property	Result
Leakage	Meets the requirement.
Aerodynamic performance (pressure / air flow)	The measured values correspond to the values declared by the manufacturer.
Acoustic performance	$L_{WA} < 30$ dB(A) to the external surrounding at nominal air flow. The measured values correspond to the values declared by the manufacturer. Meets the requirements.
Air velocity of the exhaust air in outlet nozzle	5 m/s at nominal air flow 24 dm ³ /s (at minimum set point).
Air velocity of the outdoor air in inlet grille of combination devices	0.91 m/s at nominal air flow. Meets the requirement.
Throw pattern of exhaust air jet	Throw length 4.0 m (0.5 m/s) at nominal air flow. The measured values correspond to the values declared by the manufacturer.
Rainwater rejection efficiency of exhaust air outlet, and outdoor air inlet of combination devices.	Exhaust air: 87.7 % at nominal air flow (class C). Outdoor air: 100 % at nominal air flow (class A). The removal of water from device has been implemented reliably. Meets the requirements.
Amount of exhaust air in outdoor air flow of combination devices.	0 % at nominal air flow. Meets the requirement.
Operation at low outdoor air temperatures	Operation tested at -20 °C outdoor temperature. Meets the requirement
Installation and maintenance guidelines, user manual	Meets the requirements presented in Appendix 3.

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Summary of the characteristics of the wall outlet terminal device ETS NORD RVD 160 at maximum set point.

Property	Result
Leakage	Meets the requirement.
Aerodynamic performance (pressure / air flow)	The measured values correspond to the values declared by the manufacturer.
Acoustic performance	$L_{WA} < 35$ dB(A) to the external surrounding at nominal air flow. The measured values correspond to the values declared by the manufacturer. Meets the requirements.
Air velocity of the exhaust air in outlet nozzle	5 m/s at nominal air flow 48 dm ³ /s (at maximum set point).
Air velocity of the outdoor air in inlet grille of combination devices	1.8 m/s at nominal air flow. Meets the requirement.
Throw pattern of exhaust air jet	Throw length 4.8 m (0.5 m/s) at nominal air flow. The measured values correspond to the values declared by the manufacturer.
Rainwater rejection efficiency of exhaust air outlet, and outdoor air inlet of combination devices.	Exhaust air: 85.0 % at nominal air flow (class C). Outdoor air: 98.5 % at nominal air flow (class B). The removal of water from device has been implemented reliably. Meets the requirements.
Amount of exhaust air in outdoor air flow of combination devices.	0 % at nominal air flow. Meets the requirement.
Operation at low outdoor air temperatures	Operation tested at -20 °C outdoor temperature. Meets the requirement
Installation and maintenance guidelines, user manual	Meets the requirements presented in Appendix 3.

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Product information of wall outlet terminal devices for exhaust air and inlet terminal devices for outdoor air of a residential ventilation.

Models: ETS Nord RVD 125L ja RVD 160

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Outer dimensions: RVD 125L: 560 mm (width), 233 mm (height) and 100 mm (depth) / with duct connection 140 mm (depth), RVD 160: 590 mm (width), 233 mm (height) and 100 mm (depth) / with duct connection 140 mm (depth)

Weight: RVD 125L 2.4 kg, RVD 160 2.5 kg

Main manufacturing material: Painted steel sheet

Air duct connections: RVD 125L: duct diameter 125 mm, RVD 160: duct diameter 160 mm

Control of air flows: The air velocity at the exhaust air outlet nozzle may be increased by adjustable damper. At the minimum set point, the air velocity of the RVD 125L exhaust air in outlet nozzle is 5 m/s at the air flow 18 dm³/s. At the maximum set point, the air velocity is 5 m/s at the air flow 42 dm³/s. At the minimum set point, the air velocity of the RVD 160 exhaust air in outlet nozzle is 5 m/s at the air flow 24 dm³/s. At the maximum set point, the air velocity is 5 m/s at the air flow 48 dm³/s.



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Requirements of the certification criteria SERT R074: Requirements of wall outlet terminal devices for exhaust air and inlet terminal devices for outdoor air of a residential ventilation.

Property	Determination method	Requirement
Leakage	EN 1751	$\leq 0.2 \text{ dm}^3/\text{s}$ at a test pressure of 250 Pa. ¹⁾
Aerodynamic performance (pressure / air flow)	EN 12238	The measured values correspond to the values declared by the manufacturer. ²⁾
Acoustic performance	ISO 3741, ISO 5135	$L_{WA} \leq 45 \text{ dB(A)}$ to the external surrounding at nominal air flow. The measured values correspond to the values declared by the manufacturer.
Air velocity of the exhaust air in outlet nozzle	$q_v / A_{\text{free area}}$, minimum	$\geq 5 \text{ m/s}$ at nominal air flow
Air velocity of the outdoor air in inlet grille of combination devices	$q_v / A_{\text{free area}}$	$\leq 2.0 \text{ m/s}$ at nominal air flow
Throw pattern of exhaust air jet	EN 12238	The measured throw patterns (velocity 0.5 m/s) correspond to the values declared by the manufacturer.
Rainwater rejection efficiency of exhaust air outlet, and outdoor air inlet of combination devices.	Tests with at least three air flows, EN 13030	$\geq 80 \%$ at applicable velocities. The removal of water from device has been implemented reliably.
Amount of exhaust air in outdoor air flow of combination devices.	Tracer gas method EN 13141-8, CFD-simulation, if necessary	$\leq 0.6 \%$ at nominal air flow, isothermal occasion without wind
Operation at low outdoor air temperatures	Performance test in laboratory applying EN 13141-8 ³⁾	Operation tested and confirmed at $-20 \text{ }^\circ\text{C}$ outdoor temperature. ³⁾
Installation and maintenance guidelines, user manual	Inspection and assessment ⁴⁾	Meets the requirements presented below ⁴⁾

Requirements:

- 1) Leakage: Leakage air flow rate at most $0.2 \text{ dm}^3/\text{s}$ at a test pressure of 250 Pa. Decree of the Ministry of the Environment on the type approval of the ventilation terminal devices. 2008.
- 2) Aerodynamic performance: Suitable air flow range and nominal air flow are declared by manufacturer. Air velocity of the exhaust air in outlet nozzle is calculated according to the free area of the nozzle. If the free area is altered in the jet direction, minimum area is used.
- 3) Operation at low outdoor air temperatures ($-20 \text{ }^\circ\text{C}$, at least 6 hours): The freeze prevention and removal of condensed water from exhaust air has been implemented reliably. Frosting and freezing shall not affect negatively to the ventilation system or cause other hazards to the building or their users. During the test with exhaust air velocity 5 m/s the pressure drop shall increase at most 50 Pa or in actual operation, the air flow decreases at most 20 %. Temperature of exhaust air is $0 \text{ }^\circ\text{C}$ and relative humidity 70 - 95 %. Temperature of exhaust air is $+5 \text{ }^\circ\text{C}$ in icicle test. Ice shall not accumulate in the device in such a way that it can cause danger if dropped (the mass of falling ice does not exceed 100 g).
- 4) Installation instructions: The junction between the device and the outer wall must be made in such a way that airtightness, watertightness and cold bridging are taken into account. Maintenance: Serviceability, cleanability and the functionality of any protective nets and air filters are assessed for pressure drop, possible blockage and bypass.