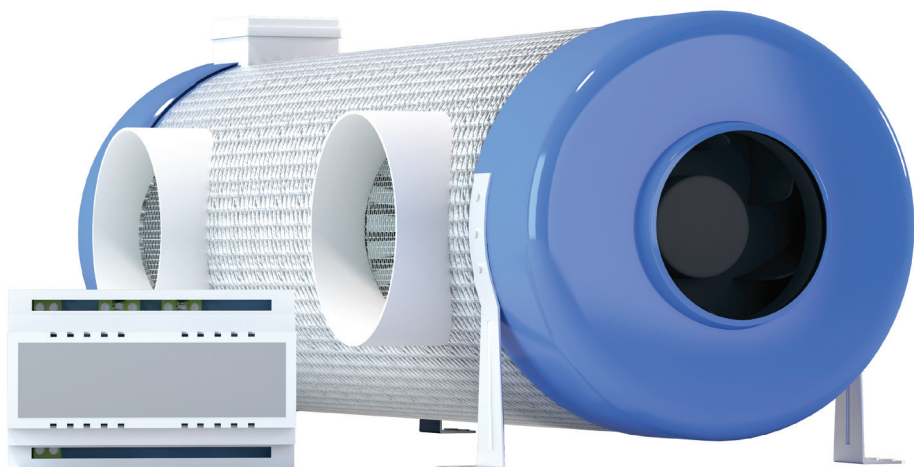




TECHNICAL DATA SHEET

Inflow and exhaust ventilation system
with heat recovery



PRANA-340S



SYSTEM DESCRIPTION

PRANA- 340S monoblocks of the decentralized direct flow inflow-exhaust ventilation belong to the reliable products aimed at creating and maintaining a healthy microclimate in premises of various functional purposes.

The innovative solutions supporting competitiveness, high operation efficiency and reliability of the device are as follows:

- direct flow removal of exhaust air, improving operation efficiency, extending the process maintenance intervals and ensuring removal of moisture in a dispersed state, therefore solving the problem of the heat exchanger freezing at low ambient temperatures;
- the system for inflow air cyclone treatment allows abandoning the coarse filters, maintaining high efficiency of supply air treatment making it 85 to 91% dust free;
- the copper heat exchanger, despite its small size provides high recuperation rate.
- disinfection of inflow air. Such solution preserves the energetic component of air (the ion composition, prane) and allows abandoning the fine filters.

Technologically, the system is a monoblock with high-efficiency direct copper recuperator ready to use in accordance with the design and assembly tasks and conditions.

The system is highly efficient and reliable. The main focus covered giving maximal consideration to specifics of human breathing physiology.

PURPOSE

The industrial grade PRANA-340S ventilation systems are intended for creation and maintenance of certain microclimate in the premises of any process (particularly ad-hoc) purpose.

High efficiency and significant margin of generated pressure make it possible to apply these systems for deploying industrial grade ventilation in the premises of practically any technological purpose.

The technical solution for ventilation with recuperation features the ability to form simultaneously to counter flows of air that do not overlap within the same monoblock. The warm air that is removed from the premise (extraction), passing through a copper heat exchanger transmits its warmth to the heat exchanger; the warmth is used to heat up the cold supply air.

Structurally PRANA-340S ventilation systems are manufactured in the following versions:

- «AB» - for loose mounting (optionally - in the space between the overhead and the suspended ceiling), featuring central inflow and 2-channel symmetric extraction (fig. 1 a).
- «AB» - (custom produced) for loose mounting (optionally - in the space between the overhead and the suspended ceiling), featuring central extraction and 2-channel symmetric inflow (fig. 1 б).

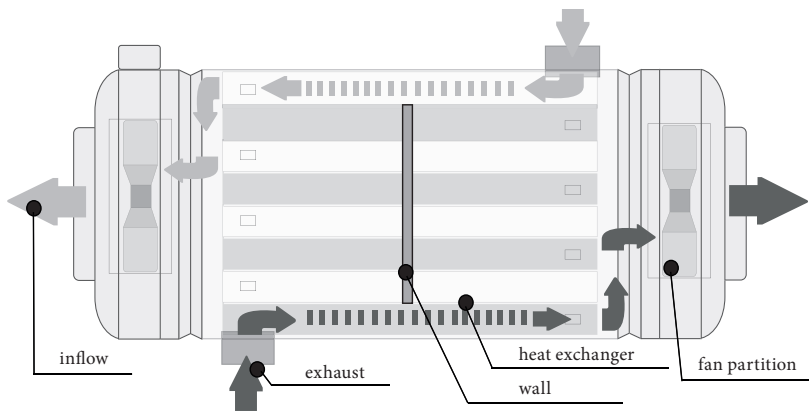


Fig. 1a. Air flows pattern for «AB» type systems, featuring central inflow and 2-channel symmetric extraction (loose mounting).

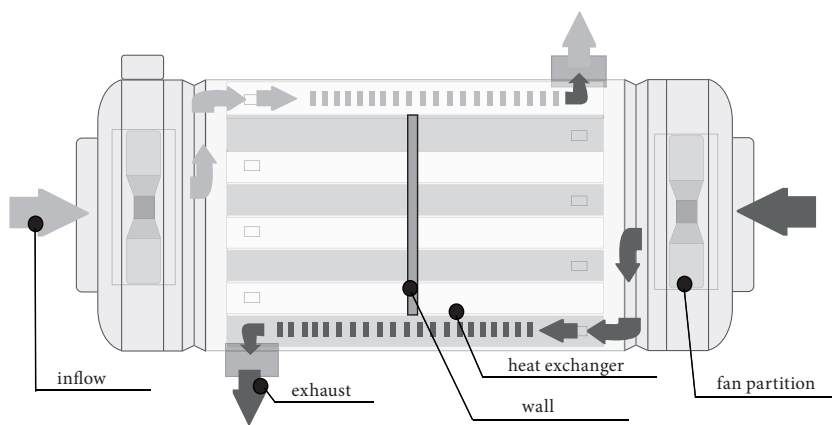


Fig. 1b. Air flows pattern for «BB» type systems (custom produced), featuring central extraction and 2-channel symmetric inflow (loose mounting).

OPERATING PRINCIPLE

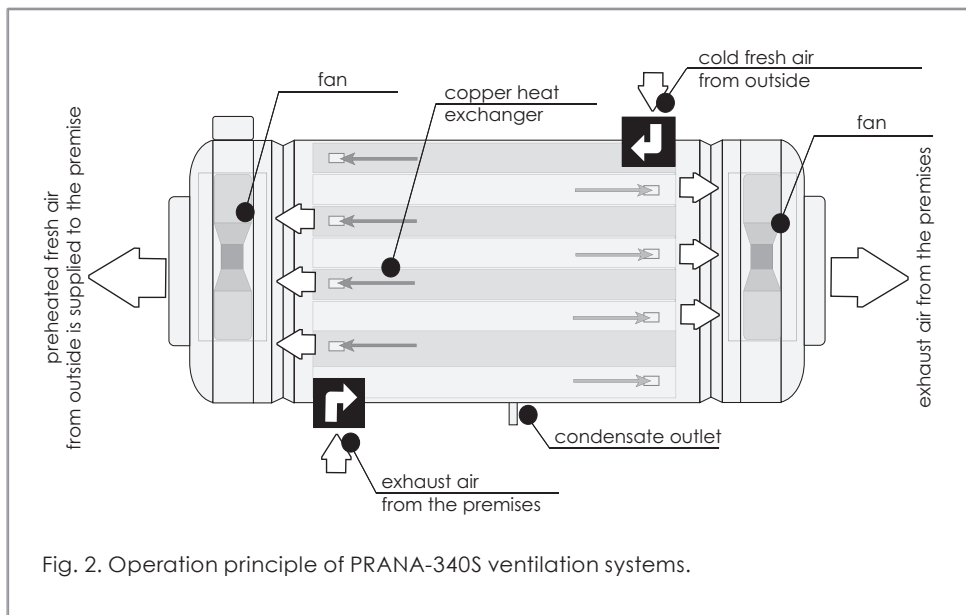
The basis of the technical solution for recuperation ventilation is the direct flow copper heat exchanger with a continuous thermal cycle, which makes it possible to form two different-directed air flows in the volume of one hole (Fig. 2).

High velocity of the flow with sufficient heat transfer efficiency ensures removal of up to 90% of condensed moisture in a dispersed state, preventing freezing of the heat exchanger at low ambient temperatures.

The recuperator's operations cycle is as follows: when operating in extraction mode the warm air that is removed from the premise, passing through a copper heat exchanger transmits its warmth to the heat exchanger and is chilled; simultaneously the counter flow (inflow) is heated up employing such warmth.

The fact that the system allows recovery of heat in aggregate state, which contributes to increasing the overall recuperation rate and automatically maintaining the optimum humidity mode.

Taking into account that the streams are separated and regulated at "inflow" – "exhaust" level, there is practically no mixing of different-directional air flows.



TECHNICAL AND OPERATIONAL SPECIFICATIONS

	PRANA-340S
Recovery efficiency, %	78-48
Energy efficiency class (A+ to G)	A
Amounts of air exchange during recovery, m ³ per hour (the inflow and exhaust work simultaneously):	
-inflow	1100
-exhaust	1020
- «min mode»	110
- «off-mode» (passive air exchange)	15-30
Operation temperatures range:	
Inside the premise	0..+35 °C
Outside the premise	-20..+45 °C
Energy consumption, W * h: (subject to the operation mode)	80-310
Power supply, V	AC: 230±10%
Class of insulation	II
Degree of protection	IP 24
Acoustic pressure from the product at a distance of 3 m, dB (A):	52
Dynamic pressure, Pa	350
Diameter of the working module, mm	340
with thermal insulation, mm	350
Diameter of the mounting hole, mm (subject to wall mounting)	≥ 350
Control:	
- Control unit with mains switch	standard features customized
- Ventilation system's control unit electric heating	
Weight of the system in individual packing, kg	≥ 20

The established service life of the system: 10 years.

The warranty period: 2 years.

OPERATING PRINCIPLE

The charts show technical capacities of PRANA-340S ventilation systems.

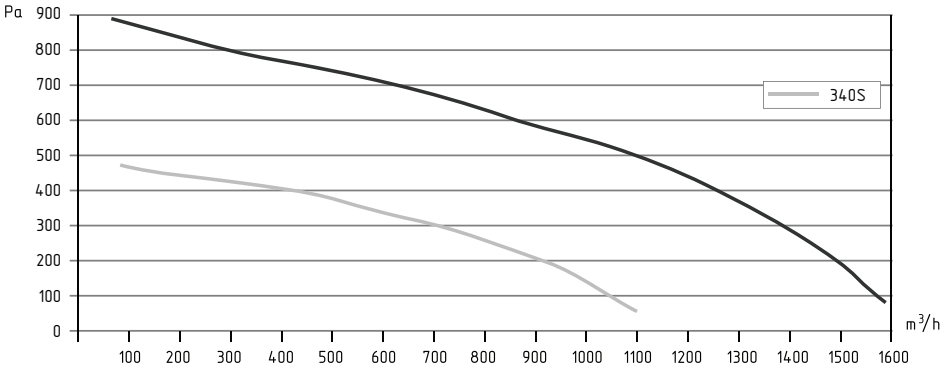


Fig. 3. Productivity of PRANA-340S ventilation systems, m³ per hour

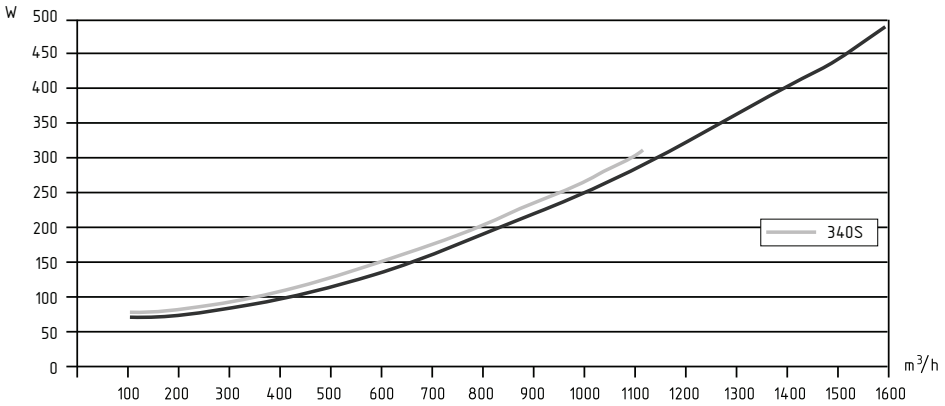


Fig. 4. Power consumption of PRANA-340S ventilation systems in the recuperation mode, W

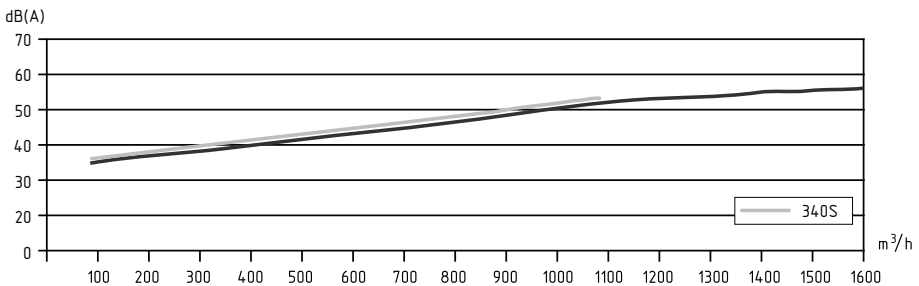


Fig. 5. Overall sound pressure consumption of PRANA-340S ventilation systems at a distance of 3 m in the recuperation mode, dB(A).

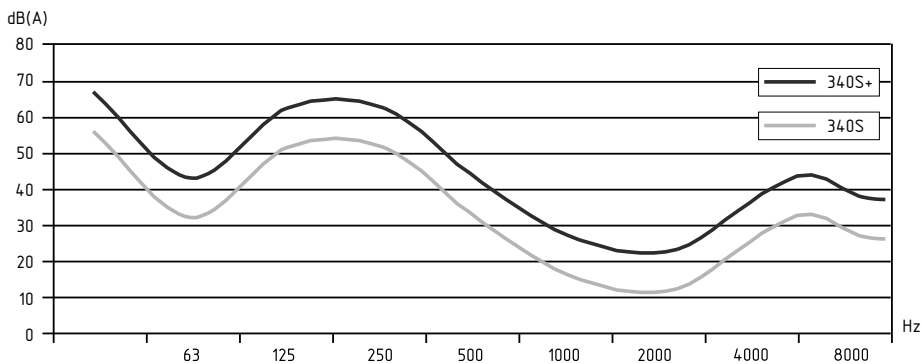


Fig. 6. Level of sound effect on environment for PRANA-340S ventilation systems when operating at maximal output in the recuperation mode, dB(A).

CONTROL

Control block Prana340S is used for controlling PRANA-340S ventilation systems.

The control units provide for adjusting the inflow and extraction volumes and switching on the additional functions. The details of the control options may be found in the Manual for the remote control, as attached to the supply set.

The system may be equipped with Control block A Prana340S reheating, as earmarked for controlling PRANA-340S ventilation systems with option of switching electric preheating.

When using the version with option of switching electric preheating, review the connection manual as attached to the supply set of this control unit.

OVERALL DIMENSIONS

The overall dimensions for wall mounted «PRANA-340S» ventilation systems.

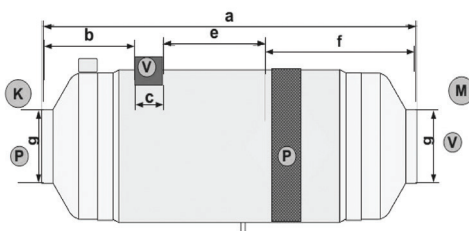
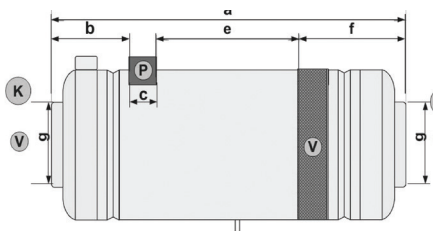
		center - exhaust			center - inflow		
c	e, min	b	f	a	b	f	a
204*60	350	190	290	890	230	330	970
Ø 150				980			1060
Ø 200				1030			1110

(K) - premise;

(M) - outside;

(P) - inflow;

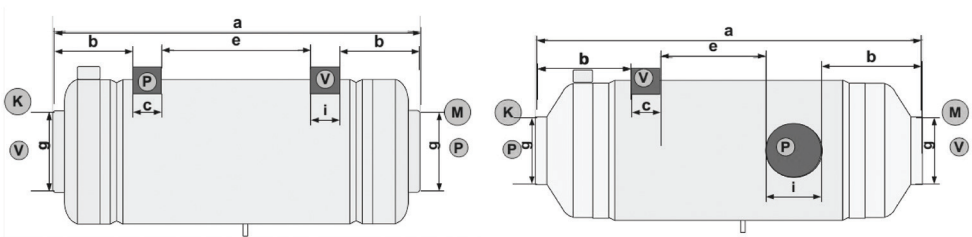
(V) - exhaust.



The overall dimensions for «PRANA-340S» ventilation systems mounted as inbuilt module.

			center - exhaust		center - inflow	
c	i	e	b	a	b	a
204*60	204*60	350	190	850	230	930
204*60	Ø 150			940		1020
204*60	Ø 200			990		1070
Ø 150	204*60			940		1020
Ø 150	Ø 150			1030		1110
Ø 150	Ø 200			1080		1160
Ø 200	204*60			990		1070
Ø 200	Ø 150			1080		1106
Ø 200	Ø 200			1130		1210

- Ⓚ - premise;
- Ⓜ - outside;
- Ⓟ - inflow;
- Ⓥ - exhaust.



INSTALLATION

«PRANA-340S» ventilation systems are monoblocks ready for use in accordance with design and assembly tasks and conditions. The systems feature centralized inflow, 2-channel symmetric extraction, it allows free placement on the supporting surface.

PRANA-340S ventilation module (remunerator) is mounted on the supporting surface using the cross-arms (beyond the scope of delivery) subject to specifics of the mounting site.

To secure the system's interaction with the atmospheric air, the holes of the appropriate diameter (at least 160 mm is recommended) should be provided in the fencing wall of the building adjoining the outside. Distance between the inflow and extraction holes in the fencing wall of the building should be 1500 mm at least. Once the necessary distance may not be provided, the distance between the holes may be reduced to 500 mm (subject to use of the ventilation grids with deflectors and fixing the same in such a way as to ensure different directions of the input and output air flows).

Once the units is installed and fixed on the supporting surface, the extraction and supply air ducts are coupled to the system in line with the ventilation system's design.

The equipment is adapted for using conventional air ducts.

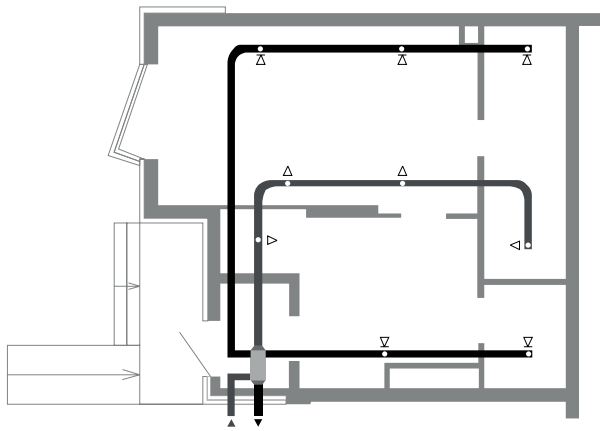


Fig. 7. An example of the installation and arrangement chart for the air ducts of PRANA-340S Inflow and exhaust ventilation system.

Once the operating module is wall mounted, an end-to-end hole should be made in the upper part of the wall adjoining the outside. The hole diameter should be ≥ 350 mm. The operating module should be fixed in the hole with gun foam or any other sealant. The through hole should have a slope of 3-5 degrees towards the outside (Fig. 8).

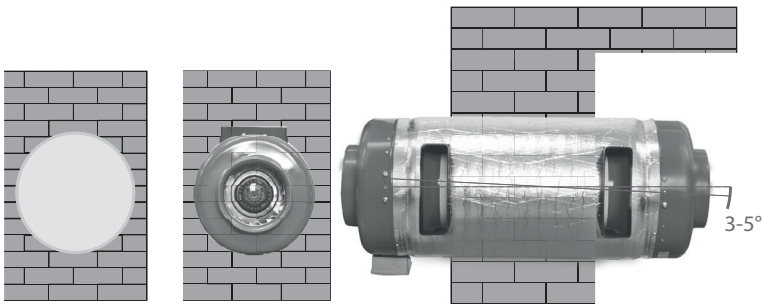


Fig. 8. Pattern of recuperator wall mounting. Frontal and longitudinal cross-section.

In order to ensure the normal operation of PRANA-340S, the outlet duct (outside) should extend beyond the wall sufficiently cause free air intake via the ventilation channel in the product body (Fig. 4).

CONNECTION TO THE ELECTRICAL POWER SUPPLY NETWORK

The circuit diagram of the electrical connections for PRANA ventilation system and connection to the grid is shown on Fig. 12.

All the connecting electrical cables used in the installation should have the cross-section of 0.75 mm at least.

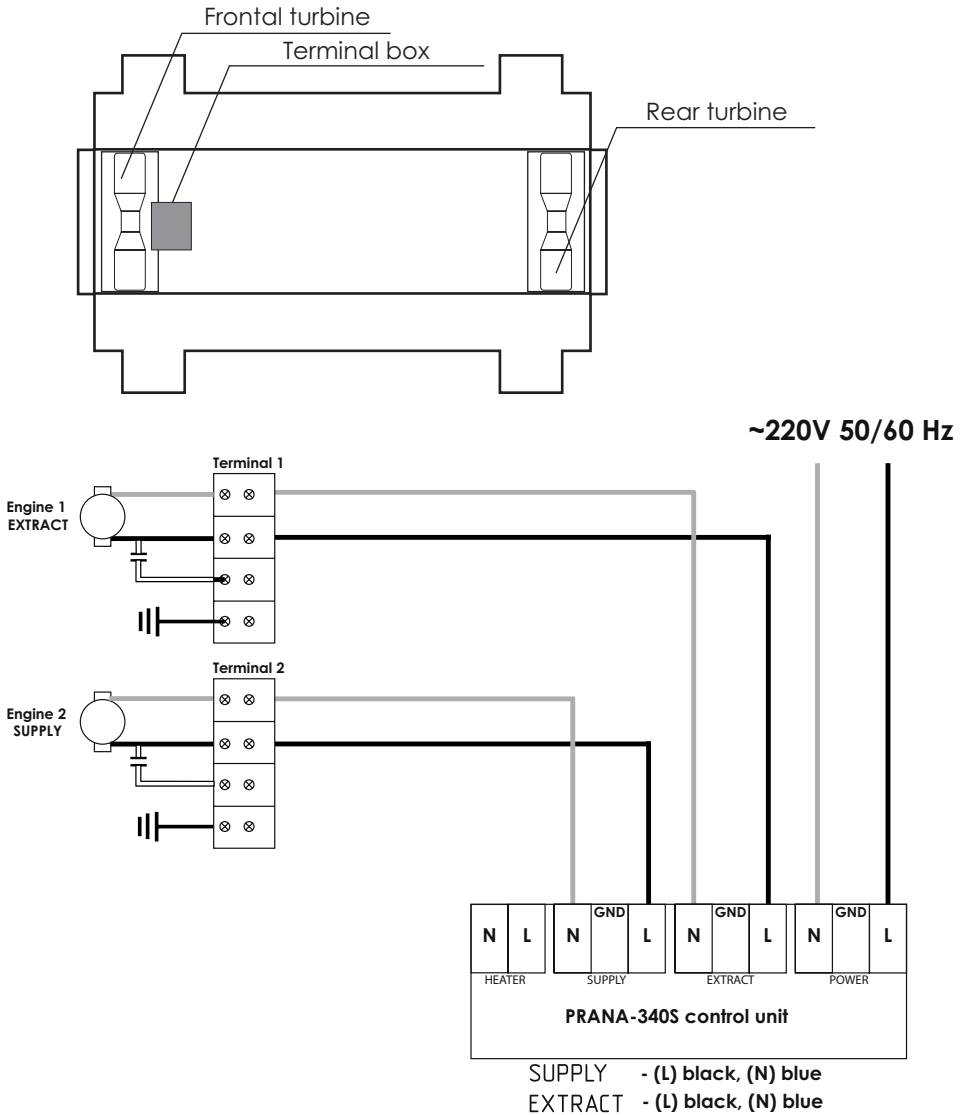


Fig. 12. Circuit diagram for connection of PRANA-340S ventilation systems to the control unit (Control block Prana340S).

SCOPE OF DELIVERY

- Ventilation unit.
- Control unit.
- Remote control unit.
- Technical data sheet.
- Manual for the remote control.
- Preheaters connection manual (if provided for in the supply set).
- Warranty certificate.
- Packing box

SECURITY REQUIREMENTS

The electrical installation works must be carried out only by a qualified specialist with a relevant category of admission to such works.

Make sure that the applicable mechanical and electrical installation works are applied with in eth course of installation.

Upon launch the unit should comply with the provisions of such Directives:

- Directive 2014/35 / EU. Low Voltage Directive (LVD);
- Directive 2006/42 / EU. Safety of Machinery mechanisms;
- Directive 2004/108 / EU. Electromagnetic Compatibility (EMC);
- Directive 2009/128 / EU. Ecodesign (ErP);
- Directive 2011/65 / EU. Restriction of Hazardous Substances (RoHS).

TRANSPORTATION AND STORAGE RULES

Transportation and storage of the packed products is permitted in a horizontal position. The maximal stacking height is 3 packages. Keep the products in enclosed premise (or under the cover) with relative humidity of air of no more than 70% and ambient air temperature from -20°C to + 40°C.

QUALITY

The product's quality is secured with the production cycle process control system, 100% input control of components, 48 hours pre-commissioning running of the products with modes shifting and 2 stage system of acceptance tests.

