AKU/AKU EKO

EN MOUNTING AND INSTALLATION INSTRUCTION

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SYMBOLS AND MARKING

Figure 1.1 - Technical label

1 - Logo; 2 - Product code (SKU); 3 - Product name; 4 - Technical data; 5 - Production place; 6 - Lot number and production date.

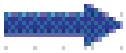


Figure 1.2 - Indication for air flow direction.

GENERAL INFORMATION

Before installing the unit read the entire information provided in this document.
Installation of the unit shall only be performed by trained and qualified personnel aware of installation of such type of units, inspection, maintenance and tools required for installation works.
If the provided information is unclear or any doubts arise regarding safe installation and operation, please contact the manufacturer or his representative.
The unit shall be operated only under the below listed conditions.
It is strictly forbidden to use the unit for non-designed purposes or in contradiction to the specified working conditions without written permission of manufacturer or his representative.
The manufacturer or his representative shall be notified about any fault, including description of the fault and data specified on the manufacturer's label.
Any repair or dismantle of the unit in case of fault is forbidden without previous written permission of manufacturer or his representative.
Dismantling, repair or modification of the unit shall be performed only upon previous written consent from manufacturer or his representative.
Original purchaser should be certain of suitability of the unit for operating in selected conditions before placing order and mounting the unit.

TRANSPORTATION AND STORAGE

All units are packed in the factory to withstand regular conditions of transportation.
Upon unpacking, check the unit for any damages caused during transportation. It is forbidden to install damaged units!!!
The package is only a protection measure!
At unloading and storing the units, use suitable lifting equipment to avoid damages and injuries. Do not lift units by holding on power supply cables, connection boxes, air intake or discharge flanges. Avoid hits and shock overloads. Before installation units shall be stored in a dry room with the relative air humidity not exceeding 70% (at +20°) and with the average ambient temperature ranging between +5°C and +30°C. The place of storage shall be protected against dirt and water.
The units shall be stored and transported only with connection flanges in a horizontal position.
The storage is not recommended for a period longer than one year. In case of storage longer than one year, it is necessary to check free rotation of bearings before installation (turn the impeller by hand).

PURPOSE OF THE DEVICE

The unit is designed for the use in the ventilation and air conditioning systems to supply/extract from a room the clean air only (free of chemical compounds causing metal corrosion, of substances aggressive to zinc, plastic and rubber, and of particles of solid, adhesive and fibre materials).

DESCRIPTION

Rotation speed of fan motors in controlled using external 0..10VDC or 10VDC PWM signal.
Maintenance-free bearings.
Integrated thermal protection of motor.
Thickness of acoustic and thermal insulation of walls – 50mm.
Fans with Tacho Out output can be connected to the external revolution counter (1 revolution per pulse), controller, alarm circuit or speed indicators. Maximum output current: 3mA.

OPERATING CONDITIONS

Units are forbidden to be used in potentially explosive environment.
Unit is designed to supply/extract only clean air from a room (free of chemical compounds causing metal corrosion, of substances aggressive to zinc, plastic and rubber, and of particles of solid, adhesive and fibred materials).
Unit shall be operated indoors only.
Maximum permissible ambient air temperature shall be considered.
Minimum permissible ambient air temperature: -20 °C.

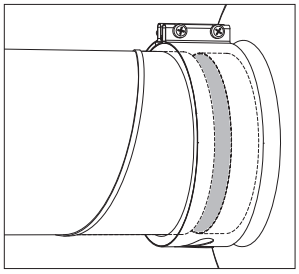
SAFETY MEASURES

Do not use this unit for purposes other than those provided in its design.
Do not dismantle and modify the unit. Such actions can cause mechanical fault or even injury.
Use special working clothes when installing and maintaining the unit. Be careful – angles and edges of the unit and its components can be sharp and cause injuries.
Being near the unit, do not wear free streaming clothes that could be sucked into the operating fan.
All products packed in the factory are not prepared for eventual operation.
The units can be used only by connecting them to air ducts or by installing protection grilles in air intake and exhaust openings.
Do not put fingers or any other objects into protection grilles of air intake and exhaust or into connected air duct. In case any foreign body get into the unit, disconnect the power supply source immediately. Before removal of foreign body, make sure that any mechanical movement in the unit has stopped. In addition, make sure that the accidental switching-on of the unit is impossible.
Avoid direct contact with the flow of supplied and extracted air.
Do not connect the unit to the mains other than indicated in the manufacturer's label on the casing of the unit.
Never use a damaged power supply cable.
Never touch with wet hands the power supply cables connected to the mains.
Never dip extension cords and plugs in water.
Do not install and use the unit on uneven surfaces or other unstable planes.
Never use this unit in the environment conducive to explosion and containing any aggressive materials.

INSTALLATION

MECHANICAL CONNECTION

Installation works shall be performed only by trained and qualified personnel.
Unit shall be installed firmly and tightly to ensure safe operation.
Before connecting to the air duct system, the connection openings of ventilation system air ducts shall be closed.
Protection against contact with the impeller of the operating fan shall be ensured (special accessories are used for this reason or an appropriate length of air duct is selected).
Do not connect the elbows near the connection flanges of the unit. The minimum distance of the straight air duct between the unit and the first branch of the air duct in the suction air duct must be 1xD, in air exhaust duct 3xD, where D is diameter of the air duct.
When connecting air ducts, consider the direction of air flow indicated on the casing of the unit.
It is recommended to use the accessories – clamps (Fig. 1) for connection of the fan into the air duct system. This will reduce vibration transmitted by the unit to the air duct system and environment.
Installation shall be performed in such manner that the weight of the air duct system and its components would not overload the ventilation unit.
It is recommended to use air filters reducing accumulation of dirt on the fan impeller. The accumulated dirt misbalances the impeller and causes vibrations. It may be the reason of fault of the motor of the fan.
If the installed fan is near the wall, it may transmit noise vibrations to the premises even though the level of noise caused by the fan is admissible. The installation is recommended at the distance of 400mm from the nearest wall. If it is not possible, the installation of the unit is recommended on the wall of the room where the level of noise is not important.
In addition, vibrations may also be transmitted through the floor and ceiling. If possible, the floor and ceiling shall be additionally insulated in order to suppress the noise.
If there is a possibility for condensate or water to access the unit, external protective measures shall be fitted.
Fan can be installed on the floor, wall or ceiling as shown in Fig. 2. 4 fastening screws are supplied for this purpose (Fig. 3).
Inappropriate way of fan installation is shown in Fig. 4.
IMPORTANT. The fan shall be installed only in such a way that the entire surface of the fan fully adhere to the surface of installation (Fig. 5).
During installation enough space shall be retained for opening of the fan maintenance door. (Fig. 6).
If there is not enough space, the maintenance door may be removed as it is shown in Fig. 7 a; b.
If necessary, the option to change the opening side of the fan maintenance doors is provided (Fig. 7).



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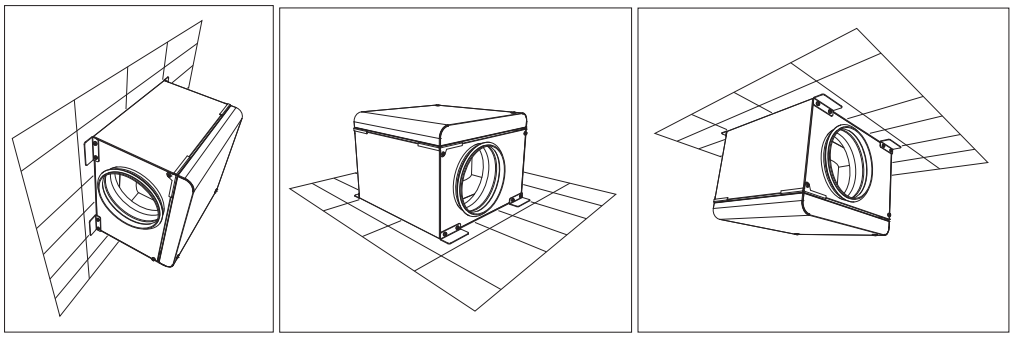

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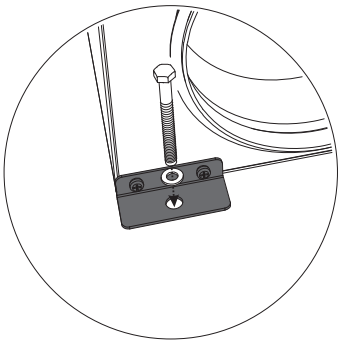

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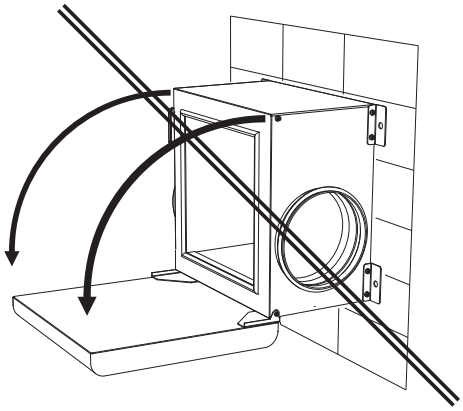

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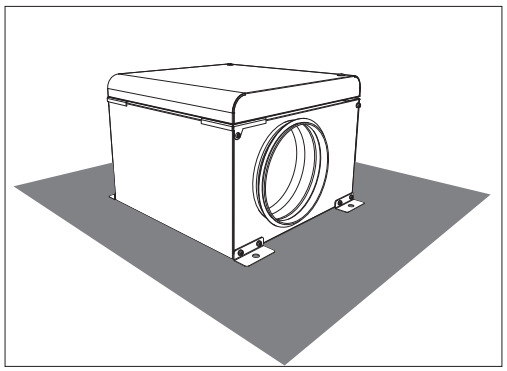

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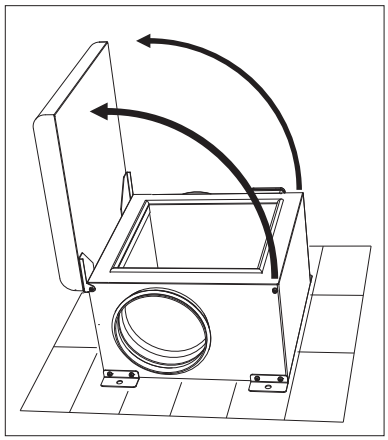

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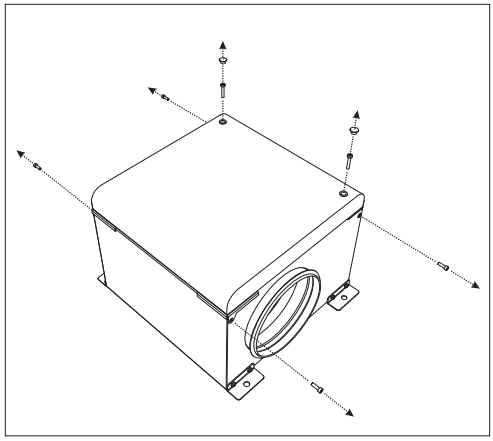
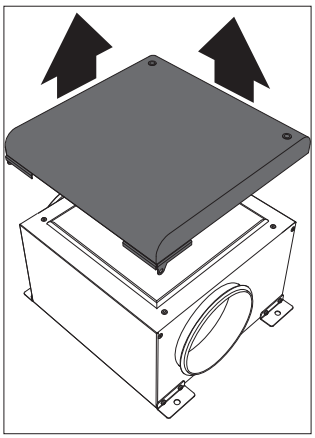


7a.



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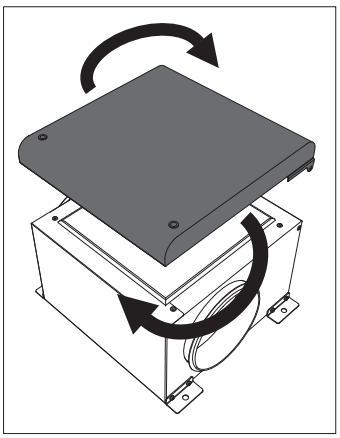
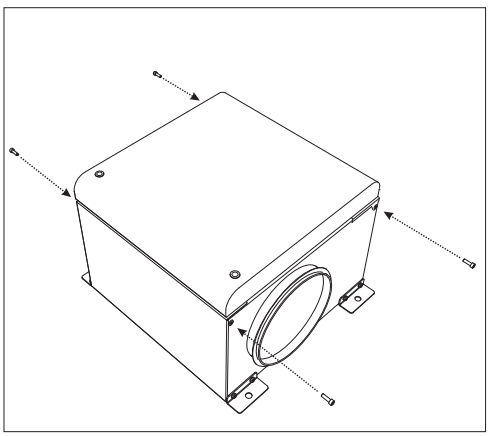


7c.



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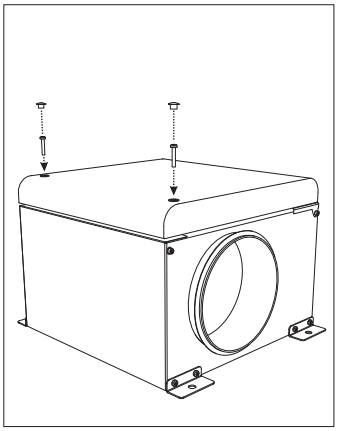
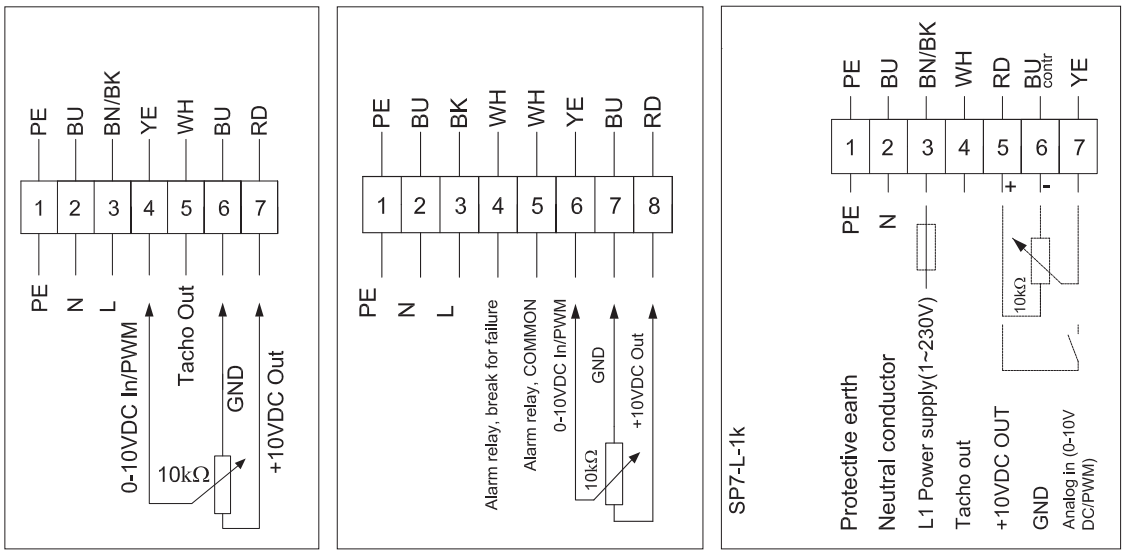


7e.

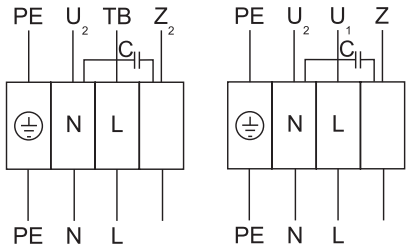
ELECTRIC INSTALLATION

Units contain rotating parts and are connected to the mains. It may cause risk to people health and life. Therefore, it is obligatory to follow safety requirements when performing installation works. In case of any doubts regarding safe installation and operation of the unit, please contact the manufacturer or his representative.
Installation works shall be performed only by trained and qualified personnel.
Make sure that specifications of the connected mains correspond to the specifications indicated in the manufacturer label on casing of the unit.
Selected power supply cable shall match the power of the unit.
Fan shall be connected according to its wiring diagram indicated in this document and as it is shown under the cover of power supply connection box (Fig. 8).
The external protective mechanism (automatic switch or cut-out) shall be connected, the activation current of which shall be 1.5 times higher than the maximum current of the unit (indicated in product's label).
The unit must be adequately grounded.
If the speed controller of the fan motor is used, make sure it provides safe operation of the motor.
The minimum speed of motor shall be ensured at which the back draft shutters open (if installed).

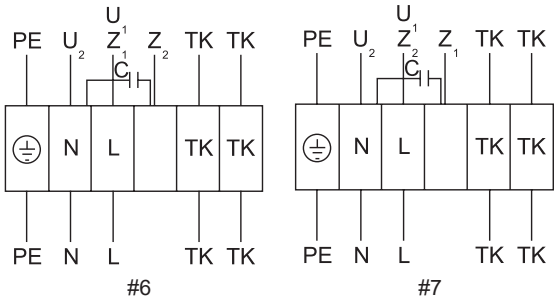
WIRING DIAGRAM



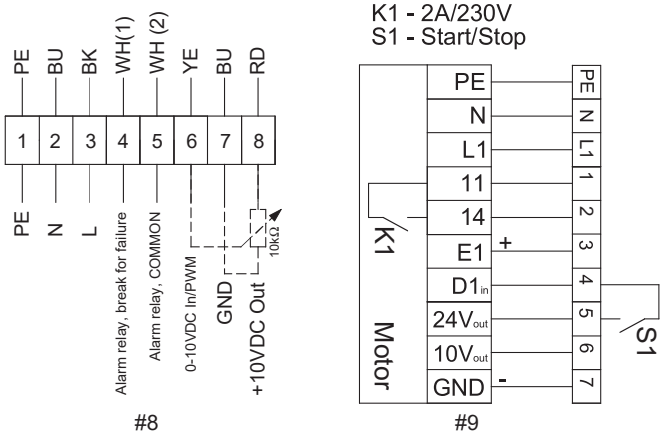
PE	BU	BN	BK	YE	WH	RD
yellow – green	blue	brown	black	yellow	white	red



PE	U_2	TB (#4)/ Z(#5)	Z_2
yellow – green	blue	brown	black



PE	U_1	U_2	Z_1	Z_2	TK
yellow – green	brown	blue	black	orange	white



START-UP

Operation start-up of the unit shall be performed only by trained and qualified personnel.
Before start-up, make sure that power supply circuit corresponds to the specification indicated in the label.
Before start-up, make sure that the unit is connected to the mains in accordance with the wiring diagram shown in this document and under the cover of power supply connection box.
Before start-up of the fan, make sure that the above instructions of safety and installation are applied.
Upon start-up of the unit, make sure that the motor rotates evenly, without vibration and outside noise.
Upon start-up of the unit, make sure that the air flow generated by the unit matches the direction(s) of air indicated on the casing.
The current of the motor shall be tested for compliance with the maximum allowed current (indicated in manufacturer label).
Check of the motor overheat is obligatory.
Too frequent turn on or turn-off of the fan is not allowed to avoid overheat of the motor windings or damage of the insulation.

MAINTENANCE

Bearings of the fan are maintenance-free.
If there is no air filter in front of the fan, the only fan maintenance required is cleaning of the impeller. It is recommended to clean the impeller at least once every six months.
Before cleaning it is necessary to turn-off power supply voltage and to block the switch in order to avoid accidental switching-on during maintenance.
It is necessary to wait until any mechanical movement stops, motor cools down.
Make sure that the fan, its components, as well as accessories fitted to it, are tightly and firmly installed.
Impeller shall be cleaned carefully in order not to affect its balance.
It is strictly forbidden to clean the impeller with mechanical scours, chemical substances, detergents, compressed air stream and any liquids.
Any liquids of any kind are not allowed for washing of the fan.
After maintenance and installation of the unit back to the air duct system, the same actions shall be performed as indicated in clauses Installation and Start-up, and any other requirements followed as provided in this document.

IMPROPER OPERATION AND REPAIR

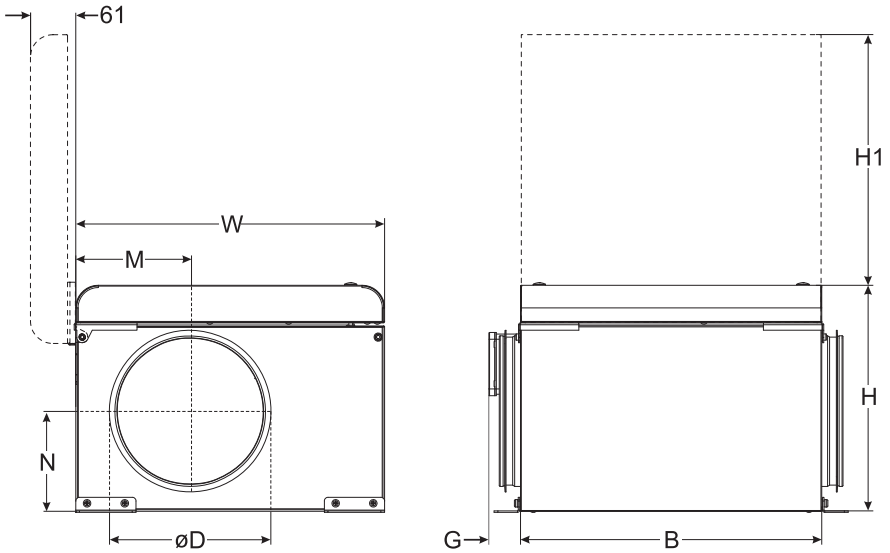
Fault removal works shall be performed only by trained and qualified personnel.

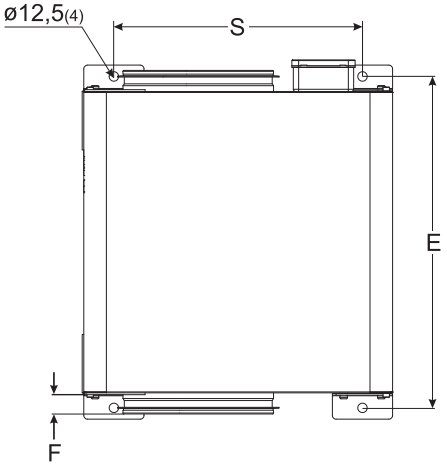
The following actions shall be taken when the unit switches-off:
check if voltage and current of the mains correspond to the requirements indicated in manufacturer label;
check for power loss/availability to the unit;
upon elimination of power supply faults, switch-on the unit again.

If the motor does not turn on repeatedly:
disconnect power supply;
wait for the stop of all mechanical movement, cooling down of the motor;
make sure that the impeller is not blocked;
switch on the unit again.

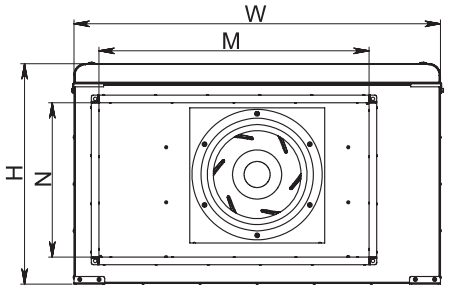
If the fault can not be removed, please contact the supplier.

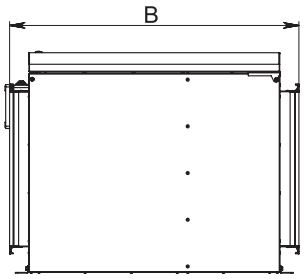
DIMENSIONS AND WEIGHT

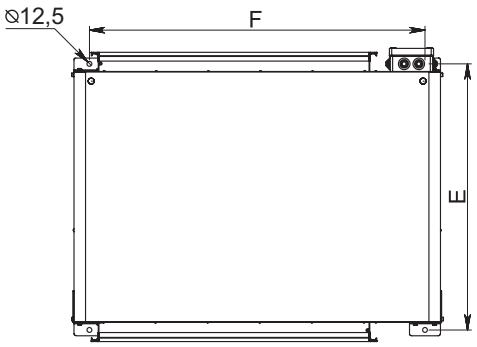




AKU	B [mm]	W [mm]	H [mm]	H1 [mm]	M [mm]	N [mm]	øD [mm]	E [mm]	S [mm]	F [mm]	G [mm]	m [kg]
125 D	400	410	300	332	133	171,5	125	440	330	28	42	13,5
125 M	400	410	300	332	133	171,5	125	440	330	28	42	11,9
160 D	400	410	300	332	261,5	141	160	440	330	28	42	14
160 M	400	410	300	332	261,5	141	160	440	330	28	42	13,6
200 D	400	410	300	332	258	135	200	440	330	28	42	13,7
200 M	444	444	420	366	222	222	250	484	364	28	42	17,0
250 D	694	694	500	616	218	304	250	734	614	38	42	39,0
250 M	444	444	420	366	222	222	250	484	364	38	42	18,0
250 S	694	694	500	616	228	304	250	734	614	38	42	37,0
315 D	768	768	570	690	238	320	315	808	688	38	60	63,0
315 M	694	694	500	616	238	268	315	734	614	38	60	47,0
400 D	768	768	570	690	252	305	400	808	688	68	60	63,0
400 S	705	768	685	690	384	309	400	745	688	68	60	70,0
125 EKO	400	410	325		205	165,5	125	440		28		12,3
160 EKO	550	485	340		149	193	160	590		28		19,0
200 EKO	600	545	425		170	259,5	200	640		28		25,0
250 EKO	600	545	425		194	234,5	250	640		38		25,0
315 EKO	437	595	475		297,5	238	315	477		38		31,0







AKU	B [mm]	E [mm]	F [mm]	H [mm]	M [mm]	N [mm]	W [mm]	m [kg]
500x250 EKO	875	670	815	460	500	250	750	52,0
700x400 EKO	750	690	870	570	700	400	950	49,7
700x400S EKO	750	690	870	570	700	400	950	51,3

TECHNICAL DATA

AKU EKO		125	160	200	250	315
- phase/voltage	[50 Hz/VAC]	~1, 230	~1, 230	~1, 230	~1, 230	~1, 230
- power	[kW]	0,055	0,114	0,195	0,17	0,448
- current	[A]	0,46	0,99	1,45	1,4	2,8
- speed	[min^{-1}]	4480	3490	3380	2860	3580
- max. ambient temperature	[C°]	60	60	60	60	60
- motor protection class		IP-44	IP-44	IP-44	IP-54	IP-54
- wiring diagram		#1	#1	#3	#1	#2

AKU		125 D	125 M	160 D	160 M	200 D	200 M
- phase/voltage	[50 Hz/VAC]	~1, 230	~1, 230	~1, 230	~1, 230	~1, 230	~1, 230
- power	[kW]	0,12	0,075	0,278	0,135	0,278	0,167
- current	[A]	0,53	0,33	1,2	0,59	1,2	0,72
- speed	[min^{-1}]	2480	2335	2647	2480	2647	1550
- capacitor	[µF]	4	2	5	4	5	4
- max. ambient temperature	[C°]	+65	+55	+50	+65	+50	+65
- motor protection class		IP-44	IP-44	IP-44	IP-44	IP-44	IP-44
- wiring diagram		#4	#5	#5	#4	#5	#4

AKU		250 D	250 M	250 S	315 D	315 M	400 D	400S
- phase/voltage	[50 Hz/VAC]	~1, 230	~1, 230	~1, 230	~1, 230	~1, 230	~1, 230	~1, 230
- power	[kW]	0,545	0,265	0,31	1,505	0,95	1,72	1,474
- current	[A]	2,56	1,15	1,35	6,61	4,79	7,63	6,49
- speed	[min^{-1}]	1190	2082	2665	1290	1210	1290	1500
- capacitor	[µF]	10	5	10	35	16	35	25
- max. ambient temperature	[C°]	+40	+40	+60	+40	+40	+40	+40
- motor protection class		IP-54	IP-44	IP-44	IP-54	IP-54	IP-54	IP-54
- wiring diagram		#6	#5	#5	#6	#6	#6	#7

AKU EKO		500X250	700X400	700X400 S
- phase/voltage	[50 Hz/VAC]	~1, 230	~1, 230	~1, 230
- power	[kW]	0,54	0,95	1,33
- current	[A]	2,48	4,3	5,8
- speed	[min^{-1}]	2600	2200	2390
- max. ambient temperature	[C°]	40	60	40
- motor protection class		IP-54	IP-54	IP-54
- wiring diagram		#8	#9	#9

ECODESIGN DATA TABLE

AKU		125 D	125 M	160 D	160 M	200 D	200 M
Specific energy consumption (SEC) cold	[kWh/m²a]	-51,8	-51,2	-50,2	-51,6	-52	-52
Specific energy consumption (SEC) average	[kWh/m²a]	-24,7	-24,1	-23,2	-24,6	-24,9	+24,9
Specific energy consumption (SEC) warm	[kWh/m²a]	-9,2	-8,6	-7,7	-9,1	-9,4	-9,4
Declared typology		Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional
Type of drive installed (fan)		Variable	Variable	Variable	Variable	Variable	Variable
Type of heat recovery system		N/A	N/A	N/A	N/A	N/A	N/A
Thermal efficiency of heat recovery	[%]	N/A	N/A	N/A	N/A	N/A	N/A
Maximum flow rate	[m³/h]	360	195	530	407	596	596
Electric power input of the fan drive at maxi-mum flow rate	[W]	115	73	203	135	152	152
Sound power level (Lwa)	[dB(A)]	49	47	55	52	56	56
Reference flow	[m³/s]	0,07	0,04	0,1	0,08	0,12	0,12
Reference pressure difference	[Pa]	50	50	50	50	50	50
SPI	[W/(m³/h)]	0,22	0,26	0,31	0,23	0,21	0,21
Control factor and control typology		0,65	0,65	0,65	0,65	0,65	0,65
Declared maximum internal leakage rates	[%]	N/A	N/A	N/A	N/A	N/A	N/A
Declared maximum external leakage rates	[%]	<1	<1	<1	<1	<1	<1
Possition and description of visual filter warn-ing for RVU's		N/A	N/A	N/A	N/A	N/A	N/A
AEC average	[kWh]	145	167	205	150	135	135
AEC cold	[kWh]	145	167	205	150	135	135
AEC warm	[kWh]	145	167	205	150	135	135
AHS Average	[kWh/a]	2830	2830	2830	2830	2830	2830
AHS Cold	[kWh/a]	5536	5536	5536	5536	5536	5536
AHS Warm	[kWh/a]	1280	1280	1280	1280	1280	1280
ErP Compliance		2018	2018	2018	2018	2018	2018
Internet address for disassembly instructions							www.salda.lt

AKU EKO		125	160	200	250	315	500X250	700X400	700X400 S
Declared typology		Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional	Unidirec-tional
Type of drive		Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable
Type of HRS		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nominal NRVU flow rate	[m³/s]	0,05	0,12	0,21	0,22	0,33	0,43	0,74	1,02
Effective electric power input	[kW]	0,05	0,09	0,17	0,22	0,4	0,54	0,94	1,32
SFPint	[W/(m³/s)]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Face velocity	[m/s]	0	0	0	0	0	N/A	N/A	N/A
Normal external pressure	[Pa]	340	259	321	380	541	599	597	657
Internal pressure drop of venti-lation components	[Pa]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Static efficiency of fans used in accordance with Regulation No 327/2011	[%]	31,7	35,9	38,8	37,4	44,6	47,4	46,8	50,6
Declared maximum external leakage	[%]	<1	<1	<1	<1	<1	<1	<1	<1
Casing sound power level (Lwa)	[dB(A)]	60	56	60	63	67	65	62	67
ErP Compliance		2018	2018	2018	2018	2018	2018	2018	2018
Internet address for disassem-bly instructions									www.salda.lt

SALDA

DECLARATION OF CONFOMITY

Manufacturer

SALDA, UAB
Ragainės g. 100
LT-78109 Šiauliai, Lithuania
Tel.: +370 41 540415
www.salda.lt

Hereby confirms that the following products - Air handling units:

AKU, AKU EKO*

(where by "*" indicates possible unit installation type and modification)

Provided it was delivered and installed in the facility in accordance with the included installation instructions, comply with all applicable requirements in the following directives:

Machinery Directive 2006/42/EC
Low Voltage Directive 2006/95/EC
EMC Directive 2014/30/EU

The following regulations are applied in applicable parts:

Ecodesign requirements for ventilation units Nr. 1253/2014;
Energy labeling of residential units Nr. 1254/2014.

The following harmonized standards are applied in applicable parts:

LST EN ISO 12100 - Safety of machinery - General principles for design - Risk assessment and risk reduction.
LST EN 60204-1 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
LST EN 60335-1 - Household and similar electrical appliances. Safety. Part 1: General requirements.
LST EN 60529 - Degrees of protection provided by enclosures (IP code).
LST EN 60034-5 - Rotating electrical machines. Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code)
LST EN 61000-6-2 - Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments.
LST EN 61000-6-3 - Electromagnetic compatibility (EMC) -- Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.

Should any alterations be made in the products, this declaration will no longer apply.

Notified body: VšĮ Technikos priežiūros tarnyba, Naugarduko g. 41, LT – 03227 Vilnius, Lithuania, identification number 1399.

Quality: Salda UAB activities are in line with the international quality management system standard **ISO 9001:2015.**

Date 2019-02-01

Giedrius Taujenis
Director product development

WARRANTY

1. All equipment manufactured in our factory is checked in operating conditions and tested befor delivery. Test protocol is supplied together with the unit. The equipment is shipped in good working order and condition to the direct client. The unit is warrantied for the period of two years from the invoice date.
2. If equipment is found to have been damaged during transportation, a claim should be made against carrier, as we assume no responsibility for such damage.
3. This warranty does not apply:
3.1. when transportation, storage, installation and maintenance instructions of the unit are violated;
3.2. when the equipment is improperly maintained, mounted - inadequate maintenance;
3.3. when the equipment without our knowledge and permission has been upgraded or unskilled repairs were made;
3.4. when the unit was used not for its original purpose.
3.5. Company SALDA UAB is not responsible for potential loss of property or personal injury in cases where AHU is manufactured without a control system and the control system will be installed by the client or third parties. The manufacturer's warranty does not cover devices that will be damaged by installing the control system.
4. This warranty does not apply at these malfunction cases:
4.1. mechanical damage;
4.2. damage caused by entering outside objects, materials, liquids;
4.3. damage caused by natural disaster, accident (voltage change in the electricity network, lightning, etc..).
5. The company assumes no liability for its products either directly or indirectly damage, if the damage is caused by failure to comply with installation and mounting regulations, deliberate or careless users or third-party behavior.

These conditions are readily discernable when the equipment is returned to our factory for inspection.
If the direct client determines that equipment is found to be faulty, or a breakdown occurred, he should inform the manufacturer within five working days and deliver the equipment to manufacturer. Delivery costs should be covered by customer.

⚠ **Manufacturer reserves the right to change this technical passport any time without prior notice, if some typographic errors or inaccurate information is found, as well as after improving the apps and/or the devices. Such changes will be included in the new issues of the technical passport. All illustrations are just for information and thus may differ from the original device.**

LIMITED WARRANTY COUPON

Warranty term
24 months*

I received complete package and technical manual of the product ready for usage. I have read warranty terms and conditions and agree with them:

.....
Customer's signature

*refer to WARRANTY CONDITIONS

Dear User, we appreciate your choice and do hereby guarantee that all ventilation equipment manufactured by our Company is inspected and thoroughly tested. An operational and high-quality product is sold to the direct buyer and shipped from the territory of the factory. It is provided with a 24-month warranty since invoice issue date.
Your opinion is important to us, thus we always look forward to hearing your comments, feedback, or suggestions regarding technical and operational characteristics of the Products.
In order to avoid any misunderstandings, please read the instructions for installation and operation of the product as well as other technical documents of the product carefully. The number of the Limited Warranty Coupon and serial number of the product specified on the silver identification sticker attached to the housing must match.
The Limited Warranty Coupon shall be valid provided that the seller's stamps and records are clear. It is prohibited to change, delete, or rewrite the data specified on it in any manner – such a coupon shall be invalid.
With this Limited Warranty Coupon the manufacturer confirms one's obligations to implement the imperative requirements established by effective laws on protection of consumer rights in the event of identification of any defects of the products.
The manufacturer reserves the right to refuse provision of free warranty servicing in cases when the warranty conditions listed below are disregarded.

UNIT'S MAINTENANCE TABLE

Product name*

LOT number*

Instalation	Interval	Date
Fan cleaning	**Once a year****	
Heat exchanger cleaning	**Once a year****	
Filter replacement	**Every 3-4 months****	

* - Look at the product label.
** - At least.

NOTE. The purchaser is required to fill in the "Product maintenance table".

MAN000149

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