



Smart air handling units
for residential buildings

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Considerably lower ventilation and heating costs

SALDA air handling units for residential premises features high energy efficiency (most of them are assigned to Class A), while Smarty 2-3 X air handling units equipped with demand controllers exceed the requirements applicable to the highest Class A+. This is achieved with the help of high-efficiency of the internal components and the smart automated adjustment system.

Reliable EC fans

The AHU are equipped with energy efficient EC type fans supplied by German (Ebm-Papst, ZIEHL-ABEGG) or Spanish (Soler & Palau) manufacturers. Their normal lifetime is more than 15 years. The most economical fans use only 0.22W for transportation of 1 m³/h!

Reliable external tightness

High quality assembly of air handling units are characteristic of high external tightness. Smarty X series products are assigned to class A1 with a leakage rate of less than 1.2%, eliminating the need for extra consumption of electricity to compensate for external air losses.

Efficient Heat Exchangers - Rotary and Counter Flow Plate Type

The installed rotor or counter flow plate heat exchangers are manufactured by leading European manufacturers. High rate of heat recovery according to the EU 1253/2014 calculations¹:

- > up to 91% - with counter flow heat exchanger;
- > up to 81% - with rotary heat exchanger.

Smart electric heater control

In a temperate climate zone, e.g. in Berlin, an air handling unit with an electric heater consumes only 15-30% electricity for ventilation, remaining electricity consumption is used to heat the outdoor or supply air. The automation in SALDA air handling units controls electric heaters on the basis of data provided by temperature sensor by using 0-10V method thus reducing energy consumption by up to 30%.

Smart control

The control equipment of automatic unit is equally important in reducing energy consumption.

Smart SALDA air handling units have many control algorithms that helps to reduce energy consumption by up to 30%. Few these are:

Night cooling significantly reduces costs during summer. Using the set algorithm and the temperature sensor data, the air handling unit supplies cool night air, thus reducing the room temperature.

Temperature compensation optimizes the use of an electric heater. Using the algorithm the air handling unit controls fans, maintain the best supply air temperature. The electric heater is also used less, which significantly reduces electricity costs.

Smart Frost Protection¹. Automation controls the air flows using the data provided by the temperature sensors, thus heat exchanger is defrosted cyclically. Smarty X air handling units may not use an electric pre-heater even if temperature outdoors is even up to -15 °C.

Calendar mode is a standard automation feature of SALDA air handling units. It sets suitable ventilation modes according to the rhythm of Your life – thus reducing the intensity of ventilation when you are not at home.

Ventilation using the data of the demand sensors. All SALDA Air handling unit can be connected to 1 or 2 sensors (presence detectors, CO₂, relative air humidity (RH)), according to the data of which the ventilation intensity is automatically regulated. The RH sensor is fitted as standard in RIS / RIRS EKO 3.0 air handling units.

¹ - only on Smarty X AHU



Enthalpy heat exchanger now an option for Smarty X range

The enthalpy heat exchanger in the Smarty X units recovers not only heat but also humidity from the extract air. It is a perfect solution to use in residential premises with low humidity to ensure a comfortable microclimate inside the premises.



Operating principle

Moisture is transferred through the special polymer membrane with a high coefficient of thermal conductivity and moisture transfer. The membrane enables diffusion of water vapor but blocks transition of biological contaminants, viruses, gases and foreign smells.

Benefits for installers and end users

Increased comfort and healthy room conditions all year round: humidifying in winter, drying in summer. No condensation formation and freezing under normal conditions, in turn recovery efficiency stays constant and there is no need for a drainage system to be connected. Increased savings due to lower frost point of the heat-exchanger and less electricity used for pre-heating. Retrofitting is possible. It is possible to retrofit an existing Smarty HRV unit with an enthalpy heat exchanger on site.



SALDA air handling units for residential premises

AHU	Heat exchanger	Duct connection	Mounting				Approximate size of the apartment, m
			on the wall	on the floor	on the ceiling	in a kitchen cabinet	
Ceiling							
Smarty 2X P	counter flow condensing or enthalpy	universal			+		120
Smarty 3X P	counter flow condensing or enthalpy	universal			+		220
Smarty 4X P	counter flow condensing or enthalpy	universal			+		320
RIS 400 PE/PW EKO 3.0	counter flow condensing	ceiling			+		220
RIS 700 PE/PW EKO 3.0	counter flow condensing	ceiling			+		380
RIRS 350 PE/PW EKO 3.0	rotary condensing	ceiling	+	+	+		170
Vertical							
Smarty 2X V	counter flow condensing or enthalpy	vertical	+	+		+	100
Smarty 3X V	counter flow condensing or enthalpy	vertical	+	+			220
Smarty 4X V	counter flow condensing or enthalpy	vertical	+	+			320
Smarty 2R VE	rotary condensing	vertical	+			+	110
Smarty 2R VE plus	rotary condensing	vertical	+			+	140
RIS 700 VE/VW EKO 3.0	counter flow condensing	vertical		+			410
RIRS 400 VE/VW EKO 3.0	rotary condensing	vertical		+			210
RIRS 700 VE/VW EKO 3.0	rotary condensing	vertical		+			410
Horizontal							
RIS 700 HE/HW EKO 3.0	counter flow condensing	horizontal		+			420
RIRS 400 HE/HW EKO 3.0	rotary condensing	horizontal		+			220
RIRS 700 HE/HW EKO 3.0	rotary condensing	horizontal		+			400

AHU	Dimensions (LxWxH), mm	El. connection	Maximum electricity consumption, kW/A	Heaters, kW			Filter class	Weight, kg	WC/cooker hood connection, mm
				electrical pre-heater	electrical heater	water			
Ceiling									
Smarty 2X P	1009x590x250	1~230V, 50Hz	0.10 / 0.85	on the duct	on the duct	-	Coarse 65%	30	-
Smarty 3X P	1225x685x318	1~230V, 50Hz	0.17 / 1.55	on the duct	on the duct	-	Coarse 65%	53	-
Smarty 4X P	1225x685x318	1~230V, 50Hz	0.42 / 1.89	on the duct	on the duct	-	Coarse 65%	53	-
RIS 400 PE/PW EKO 3.0	1300x769x330	1~230V, 50Hz	W 0.17 / 1.50 E 0.9 1.07 / 5.50 E1.6 1.77 / 8.50	on the duct	0.9 / 1.6	on the duct	ePM1 70%/ ePM10 50%	74	-
RIS 700 PE/PW EKO 3.0	1380x1074x350	1~230V, 50Hz	W 0.34 / 2.82 E1.2 1.54 / 8.34 E3.0 3.34 / 15.84	on the duct	1.2 / 3.0	on the duct	ePM1 70%/ ePM10 50%	103.5	-
RIRS 350 PE/PW EKO 3.0	900x693x398	1~230V, 50Hz	W 0.17 / 1.60 E 0.77 / 4.20	-	0.6	on the duct	ePM10 50%/ ePM1 70%	54	-
Vertical									
Smarty 2X V*	595x316x697	1~230V, 50Hz	0.67 / 3.35	0.6	on the duct	-	Coarse 65%	25	-
Smarty 3X V*	599x538x810	1~230V, 50Hz	1.37 / 6.75	1.2	on the duct	-	Coarse 65%	39	-
Smarty 4X V*	599x538x810	1~230V, 50Hz	1.62 / 7.09	1.2	on the duct	-	Coarse 65%	39	-

* - There are two versions of the Smarty X AHU, the data is available in version 1.1

AHU	Dimensions (LxWxH), mm	EL. connection	Maximum electricity consumption, kW/A	Heaters, kW			Filter class	Weight, kg	WC/cooker hood connection, mm
				electrical pre-heater	electrical heater	water			
Vertical									
Smarty 2R VE	598x320x620	1~230V, 50Hz	0.75 / 3.91	-	0.6	-	ePM10 65%/ePM10 65%	36	125
Smarty 2R VE plus	598x320x620	1~230V, 50Hz	0.78 / 4.13	-	0.6	-	ePM10 65%/ePM10 65%	36	125
RIS 700 VE/VW EKO 3.0	1000x670x1110	1~230V, 50Hz	W 0.34 / 2.80 E 1.54 / 8.01	on the duct	1.2	on the duct	ePM10 65%/ePM10 65%	112	-
RIRS 400 VE/VW EKO 3.0	900x553x890	1~230V, 50Hz	W 0.18 / 1.60 E 1.38 / 5.94	-	1.2	on the duct	ePM10 50%/ePM1 70%	79.5	-
RIRS 700 VE/VW EKO 3.0	1100x655x1020	1~230V, 50Hz	W 0.34 / 2.90 E 2.34 / 11.60	-	2	on the duct	ePM10 50%/ePM1 70%	108	-
Horizontal									
RIS 700 HE/HW EKO 3.0	1200x670x975	1~230V, 50Hz	W 0.34 / 2.80 E 1.54 / 8.02	on the duct	1.2	on the duct	ePM10 65%/ePM10 65%	111	-
RIRS 400 HE/HW EKO 3.0	1000x560x650	1~230V, 50Hz	W 0.18 / 1.60 E 1.38 / 6.80	-	1.2	on the duct	ePM10 50%/ePM1 70%	72	125
RIRS 700 HE/HW EKO 3.0	1100x653x740	1~230V, 50Hz	W 0.34 / 2.90 E 2.34 / 11.60	-	2	on the duct	ePM10 50%/ePM1 70%	96	125

Ecodesign data

AHU	Energy efficiency		Max. airflow at 100 Pa	Heat recovery, %	SPI, W/(m³/h)	Average annual electricity consumption AEC, kW	Average annual heat saved AHS, kWh	Sound power level, dBA
	timer	demand controlled						
Ceiling								
Smarty 2X P*	A	A	218	81	0.33	218	4507	49
Smarty 3X P*	A	A	397	84.8	0.28	192	4587	44
Smarty 4X P*	A	A	573	83	0.34	224	4548	52
RIS 400 PE/PW EKO 3.0	A	A	395	84.9	0.23	251	4491	44
RIS 700 PE/PW EKO 3.0	A	A	697	82.1	0.26	181	4529	53
RIRS 350 PE/PW EKO 3.0	A	A	310	85.1	0.32	169	4592	49
Vertical								
Smarty 2X V*	A	A+	182	88.8	0.3	205	4668	52
Smarty 3X V*	A	A+	409	89	0.27	189	4672	49
Smarty 4X V*	A	A	560	83.1	0.36	234	4550	58
Smarty 2R VE	A	A	203	77	0.47	250	4424	47
Smarty 2R VE plus	A	A	256	75	0.51	271	4383	49
RIS 700 VE/VW EKO 3.0	A	A	779	82.5	0.25	180	1538	52
RIRS 400 VE/VW EKO 3.0	A	A	382	80.1	0.23	124	4488	39
RIRS 700 VE/VW EKO 3.0	A	A	772	78.1	0.27	141	4447	50
Horizontal								
RIS 700 HE/HW EKO 3.0	A	A	799	82.3	0.25	179	4535	52
RIRS 400 HE/HW EKO 3.0	A	A	387	80	0.23	124	4486	41
RIRS 700 HE/HW EKO 3.0	A	A	737	78.6	0.27	144	4457	50

* There are two versions of Smarty X AHU, the presented data is of version 1.1 * There are two versions of Smarty X AHU, the presented data is of version 1.1

Perfect design ensures user-friendly installation and maintenance

Air handling units has been adapted to every type of accommodation. The Smarty 2X fits easily into the kitchen cabinet, while the Smarty 3X are installed in ancillary premises above other household appliances, such as a washing machine.



Smart and easy to adjust



Key Features:

- > 4 airflow modes;
- > BOOST feature;
- > Holiday mode;
- > Weekly mode;
- > Fireplace feature;
- > Night-time cooling feature;
- > Adjustment of relative air humidity*;
- > Protection against dryness*;
- > CO2 level control;
- > Filter contamination control (timer);
- > Heat exchanger protection from freezing;
- > Rotor failure protection;
- > Connection of electric heater and preheater and smart control (on/off or 0-10V);
- > Water heater/cooler or DX cooler control and protection;
- > Motorized air damper control;
- > Connection of fire safety system;
- > BMS connection;
- > Connecting to a computer or a mobile application via MB-Gateway.

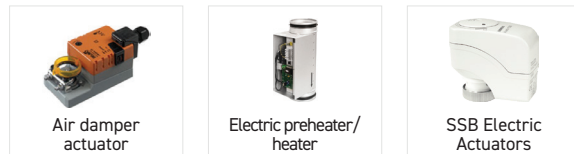
1 -- at lower airflows than those that are used in this Directive, the efficiency of the heat exchanger increases;

* - RIS/RIRS EKO 3.0 has an integrated DTJ sensor (exhaust air humidity and temperature), other air handling units require an additional RH sensor for this function.

Compatible ventilation system components from a single source

- > water valve | air damper actuators;
- > outdoor and exhaust air grilles;
- > electric preheaters | heaters;
- > water heaters | coolers;
- > remote controls;
- > air quality sensors.

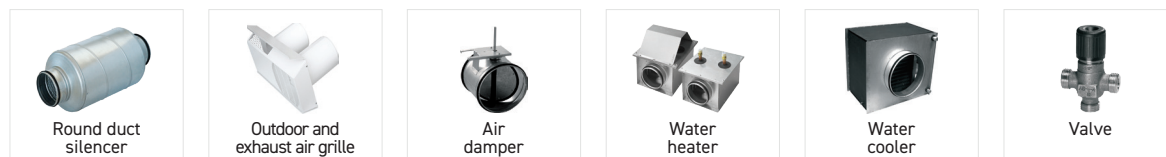
Automation-controlled electrical accessories



Control accessories



Mechanical accessories



Tests performed in independent laboratories

All air handling units developed by SALDA undergo a long testing process:

- > In a climatic chamber - efficiency and performance, as well as functioning of anti-frost protection at temperatures from -35°C to $+40^{\circ}\text{C}$, RH - 90%
- > In multi-tube air flow measuring chamber - measurement of aerodynamic properties of fans;
- > In the noise chamber - measurements of the sound emitted from the housing and spreading to the ducts;
- > Long term performance test - new residential air handling units are tested for a year under real working conditions.





Certified at *PASSIVHAUS* institute

Smarty 2-3X units series certified by Passivhaus Institute - energy efficiency meets the requirements raised for passive houses.



2 year warranty

By assembling products only from reliable components with a modern equipment, we can guarantee an exceptional their service life. Every Smarty X series air handling unit is tested during production to ensure the unit is airtight. All SALDA air handling units have a 2 year warranty.