



Smart air handling units for residential buildings

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Air handling units adapted to your needs

On average, we spend approximately 90 percent of lives indoors, thus creation of a favorable indoor microclimate has a major impact on well-being, health, and achievements. Outdoor air pollution has major impact on indoor microclimate. A study conducted in 26 EU States has shown that poor-quality ambient air was a contributor to higher morbidity in more than 67 percent of the cases. The most common diseases associated with this were allergies and asthma. Our series of smart air handling units enable to create healthy and comfortable home-based environment simultaneously saving energy and recovering even up to 91 percent of heat.

Why SALDA Air Handling Units?

- > low power consumption (energy-efficient fans, smart automated control system);
- > exceptional assembly quality (highly hermetic casing of Class A1);
- > reliability (air handling units were tested in climatic and noise chambers).



The ideal air formula at home: effective filtration and no returning odors!

SALDA air handling units are equipped with filters of 3 classes.

- > **Coarse 65% (G4)** coarse filtration - coarse dust, dust mites, animal dandruff, pollen.
- > **ePM10 50% (M5) or ePM10 65% (M5)** - additionally captures medium filtration of mold spores, cement dust.
- > **ePM1 70% (F7)** is referred as one of the most efficient on the market. Additional fine filtration for fine allergens, particulates. Significantly reduces smog exposure!

Reliable internal airtightness reduces the mixing of exhaust and supply air in the ventilation unit. The new generation Smarty X air handling units are characterized by leakages on the inside of less than 1.2%—this ensures that odors extracted from the premises (kitchen, sanitary facilities) are not emitted into the supply air.



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



SALDA air handling units for residential premises

AHU	Heat exchanger	Duct connection	Mounting				Approximate size of the apartment, m ²
			on the wall	on the floor	on the ceiling	in a kitchen cabinet	
Ceiling							
Smarty 2X P	counter flow	universal			+		120
Smarty 3X P	counter flow	universal			+		220
Smarty 4X P	counter flow	universal			+		320
RIS 400 PE/PW EKO 3.0	counter flow	ceiling			+		220
RIS 700 PE/PW EKO 3.0	counter flow	ceiling			+		380
RIRS 350 PE/PW EKO 3.0	rotary	ceiling	+	+	+		170
Smarty 250 CX C	counter flow	ceiling			+		130
Smarty 450 CX C	counter flow	ceiling			+		260
Vertical							
Smarty 2X V	counter flow	vertical	+	+		+	100
Smarty 3X V	counter flow	vertical	+	+			220
Smarty 4X V	counter flow	vertical	+	+			320
Smarty 2R VE	rotary	vertical	+			+	110
Smarty 2R VE plus	rotary	vertical	+			+	140
RIS 700 VE/VW EKO 3.0	counter flow	vertical		+			410
RIRS 400 VE/VW EKO 3.0	rotary	vertical		+			210
RIRS 700 VE/VW EKO 3.0	rotary	vertical		+			410
Horizontal							
RIS 700 HE/HW EKO 3.0	counter flow	horizontal		+			420
RIRS 400 HE/HW EKO 3.0	rotary	horizontal		+			220
RIRS 700 HE/HW EKO 3.0	rotary	horizontal		+			400

AHU	Dimensions (LxWxH), mm	El. connection	Maximum electricity consumption, kW/A	Heaters, kW			Filter class	Weight, kg	The maintenance side	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%	30.0	R	-
Smarty 3X P	1225x685x318	1~230V, 50Hz	0.17 / 1.55	on the duct	on the duct	-	Coarse 65%	53.0	R	-
Smarty 4X P	1225x685x318	1~230V, 50Hz	0.42 / 1.89	on the duct	on the duct	-	Coarse 65%	53.0	R	-
RIS 400 PE/PW EKO 3.0	1300x769x330	1~230V, 50Hz	W 0.17 / 1.50 E0.9 1.07 / 5.50 E1.6 1.77 / 8.50	on the duct	0.9 / 1.6	on the duct	ePM1 70%/ ePM10 50%	74.0	L	-
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	L	-
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	ePM1 70%/ ePM10 50%	54.0	L	-
Smarty 250 CX C	1326x970x350	1~230V, 50Hz	0.07 / 0.72	on the duct	on the duct	-	Coarse 65%	74.0	L	-
Smarty 450 CX C	1326x970x350	1~230V, 50Hz	0.166 / 1.52	on the duct	on the duct	-	Coarse 65%	74.0	L	-
Vertical										
Smarty 2X V*	595x316x697	1~230V, 50Hz	0.67 / 3.35	0.6	on the duct	-	Coarse 65%	25.0	R**	-
Smarty 3X V*	599x538x810	1~230V, 50Hz	1.37 / 6.75	1.2	on the duct	-	Coarse 65%	39.0	R**	-
Smarty 4X V*	599x538x810	1~230V, 50Hz	1.62 / 7.09	1.2	on the duct	-	Coarse 65%	39.0	R**	-

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

** - unit construction allows to connect ducts from the both sides

AHU	Dimensions (LxWxH), mm	El. connections	Maximum electricity consumption, kW/A	Heaters, kW			Filter class	Weight, kg	The maintenance side	WC/cooker hood connection, mm
				electric pre-heater	electric heater	water				
Vertical										
Smarty 2R VE	598x320x620	1~230V, 50Hz	0.75 / 3.91	-	0.6	-	ePM10 65% / ePM10 65%	36.0	L/R	125
Smarty 2R VE plus	598x320x620	1~230V, 50Hz	0.78 / 4.13	-	0.6	-	ePM10 65% / ePM10 65%	36.0	L/R	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%	112.0	L/R	-
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	ePM1 70% / ePM10 50%	79.5	L/R	-
RIRS 700 VE/VW EKO 3.0	1100x655x1020	1~230V, 50Hz	W 0.34 / 2.90 E 2.34 / 11.60	-	2.0	on the duct	ePM1 70% / ePM10 50%	108.0	L/R	-
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%	111.0	L (modified)	-
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	ePM1 70% / ePM10 50%	72.0	L (modified)	125
RIRS 700 HE/HW EKO 3.0	1100x653x740	1~230V, 50Hz	W 0.34 / 2.90 E 2.34 / 11.60	-	2.0	on the duct	ePM1 70% / ePM10 50%	96.0	L (modified)	125

Ecodesign data

AHU	Energy efficiency		Max. airflow at 100 Pa	Heat recovery, %	SPI, W/(m³/h)	Average annual electricity consumption AEC, kWh	Average annual heat saved AHS, kWh	Sound power level, dBA
	timer	demand controlled						
Ceiling								
Smarty 2X P*	A	A	218	86.3	0.33	423	4486	49
Smarty 3X P*	A	A	395	85.0	0.28	364	4447	45
Smarty 4X P*	B	A	588	82.0	0.42	523	4356	54
RIS 400 PE/PW EKO 3.0	A	A	395	81.9	0.22	252	4410	50
RIS 700 PE/PW EKO 3.0	A	A	700	81.6	0.29	281	4401	50
RIRS 350 PE/PW EKO 3.0	A	A	308	81.0	0.40	362	4356	49
Smarty 250 CX C	A	A	225	85.0	0.21	286	4447	45
Smarty 450 CX C	A	A	469	82.0	0.21	286	4356	47
Vertical								
Smarty 2X V*	A	A+	182	90.4	0.31	391	4610	51
Smarty 3X V*	A	A+	394	86.9	0.26	344	4505	50
Smarty 4X V*	B	A	583	82.0	0.40	501	4356	54
Smarty 2R VE	B	B	201	76.6	0.47	531	4192	49
Smarty 2R VE plus	B	B	256	75.9	0.50	563	4170	48
RIS 700 VE/VW EKO 3.0	A	A	750	81.4	0.27	269	4396	51
RIRS 400 VE/VW EKO 3.0	A	A	388	75.0	0.29	262	4224	46
RIRS 700 VE/VW EKO 3.0	A	A	751	73.0	0.33	299	4169	47
Horizontal								
RIS 700 HE/HW EKO 3.0	A	A	760	81.3	0.25	266	4394	55
RIRS 400 HE/HW EKO 3.0	A	A	400	75.0	0.30	272	4224	46
RIRS 700 HE/HW EKO 3.0	A	A	735	73.0	0.32	290	4169	48

* 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.

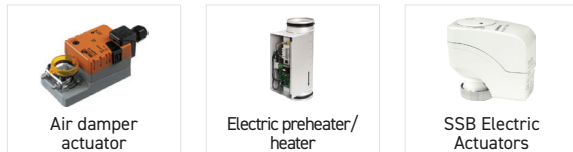
1 -- at lower airflows than those that are used in this Directive, the efficiency of the heat exchanger increases;

* - 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.

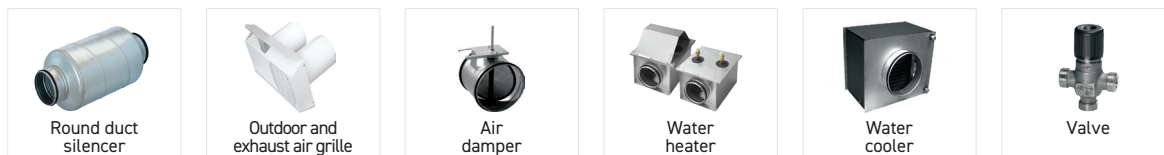
Automation-controlled electrical accessories



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.