

ECODESIGN AND ERP 2016: FRESH AIR FOR FUTURE GENERA- TIONS

The European Union is moving towards its goal to reduce greenhouse gas emissions by 20% and overall energy consumption by 20% up to 2020. The Ecodesign Directive (2009/125/EC) was issued to help implement the EU's strategy. As a result of the EU's regulation, ErPs (Energy Related Products) will be more efficient and

customers will be provided with reliable and unified product information. The legislation will affect the production of Salda's air-handling products. The following information reveals all the changes and basic elements of these regulations

APPLICABLE UNITS

Ecodesign requirements are not applicable to ventilation units:

- › with electric power input less than 30W.
- › with axial and centrifugal fans with housings;
- › for volatile environments;
- › for emergency use;
- › with air temperatures $>100^{\circ}\text{C}$ and $<-40^{\circ}\text{C}$, or operating motor temperatures $>65^{\circ}\text{C}$.
- › with supply voltages $> 1000\text{ V AC}$ or 1500 V DC ;
- › for toxic, highly corrosive, flammable or highly abrasive environments;
- › that include heat exchangers and heat pumps or other heat transfers in addition to heat recovery;
- › that are kitchen appliance hoods.

All Salda AHUs are covered by the regulations.

UNIT CLASSIFICATION

Ventilation units are classified as residential and non-residential. Residential units must have airflows of up to 250 m³/h and can have airflows of up to 1000 m³/h at the supplier's decision.



<p>■ Smarty 2X P/V RIRS 200VE EKO 3.0</p>	<p>■ Smarty 3X P/V RIS 400-700 EKO 3.0 RIRS 300-700 EKO 3.0</p>	<p>■ VEGA 350/700 VEKA INT 350/700 EKO</p>	<p>■ RIS 1200-5500 EKO 3.0 RIS 1900-5500 EC 3.0 RIRS 1200-5500 EKO 3.0 VEKA INT 1000-4000 EKO VEGA 1100 SmartAir</p>
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The classifications make distinctions between unidirectional and bidirectional ventilation units. Unidirectional ventilation units (UVU) are ventilation units that produce an air flow in only one direction, while bidirectional units produce air flows between indoor and outdoor spaces.

Unidirectional VU	Bidirectional VU
VEKA INT EKO	Smarty
VEGA	RIS EKO
SmartAir N	RIRS EKO
	RIS EC
	SmartAir R, C, CX, RR

The regulations apply to ducted and non-ducted VUs. Non-ducted units are single-room ventilation units not intended to be equipped with duct connections. All Salda AHUs are classified as ducted VUs.

EFFICIENCY CALCULATIONS

Ventilation unit efficiency will be expressed using SEC. SEC is a coefficient expressing energy consumed for ventilation per m² of heated floor in a building. It depends on fan efficiency, heat recovery units, ventilation control type, motor speed control and other factors.

Salda allows the client to choose from different air handling unit features. Air handling units (e.g. Smarty 3X P) have standard so-called "clock control." Clients can set various events (such as night cooling, holiday mode, etc.) to save on their energy bills.

In addition to better performance and higher

savings, the company also offers CO₂ and humidity sensors. The control board of an AHU like the Smarty 3X P can automatically adjust ventilation by using sensor data. The data is used to increase performance for greater comfort and minimize ventilation when there's no need for it. This leads to greater energy savings. This control mode is called "local demand control."

The equation gives greater parameters for local demand control units than clock control units, so the energy efficiency coefficient (SEC) for local demand units is higher. With these units, our clients can choose between price and efficiency.

VENTILATION UNIT REQUIREMENTS

Some air-handling units will no longer be sold in the EU. This depends on new efficiency and ergonomic characteristic requirements.

Requirements for ventilation units

Residential units

Criteria	ErP 2016	ErP 2018
SEC for average climate kWh/(a.m ²)	<0	<-20
Min. SEC class	F	D
Sound power level max., dB (Non-ducted units only)	45	40
Multi-speed drive or variable speed drive	Required	Required
Thermal bypass facility	Required	Required
Visual filter change warning signal	Not required	Required

Nonresidential

Criteria	ErP 2016	ErP 2018
Multi-speed drive or variable speed drive	Required	Required
Visual filter change warning signal	Not required	Required
Bidirectional ventilation units		
Heat recovery system	Required	Required
Thermal bypass facility	Required	Required
<i>Run-around HRS</i>		
Thermal efficiency heat recovery min., %	63	68
Internal specific fan power max, W/(m ³ /s)	$1700+E-300*q_{nom}/2-F$	$1600+E-300*q_{nom}/2-F$
If qnom < 2 m ³ /s	1400+E-F	1300+E-F
If qnom ≥ 2 m ³ /s		
<i>Non run-around HRS</i>		
Thermal efficiency heat recovery min., %	67	73
Internal specific fan power max, W/(m ³ /s)	$1200+E-300*q_{nom}/2-F$	$1100+E-300*q_{nom}/2-F$
If qnom < 2 m ³ /s	900+E-F	800+E-F
If qnom ≥ 2 m ³ /s		
Unidirectional ventilation units		
Fan efficiency min, %	$6,2 \% * \ln(P) + 35,0 \%$	$6,2 \% * \ln(P) + 42,0 \%$
Internal specific fan power max, W/(m ³ /s)	250	230

Calculation of the maximum specific fan power limits depends on the filter type and heat recovery factors. Effective heat recovery may lead to higher pressure losses, so higher limits are permissible.

SALDA AHU COMPLIANCE TABLE

Compact air handling unit line	ErP 2016	ErP 2018
Smarty	+	+
RIS EKO	+	+
RIRS EKO	+	+
RIS EC	-	-
VEKA INT EKO	+	-
VEGA	+	-

For modular units, all information about ErP requirement compatibility will be provided by the VentMaster selection software.

PRODUCT INFORMATION

Manufacturers are obligated to provide additional technical information about their units' technical parameters. This information allows consumers to compare the performance of different AHUs and helps them make purchasing decisions based on important parameters besides pricing, such as efficiency and sound level. Salda has always provided reliable and tested

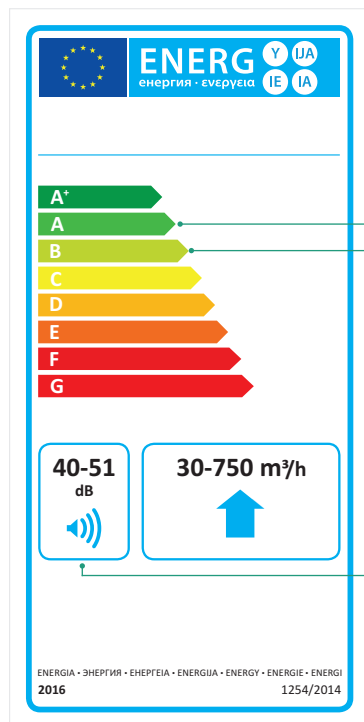
data on its AHUs in technical manuals, catalogues and its website. Starting in 2016, ErP-related information will be available as an annex in the technical manual and on the product page at www.salda.lt as a PDF document. Our clients can easily compare the efficiency of our different ventilation products.

ECOLABEL

Starting in 2016, residential ventilation units will have Ecolabels with their efficiency (SEC) class.

SEC class	SEC in kWh/a.m ²	ErP 2016	ErP 2018
A+ (highest efficiency)	SEC < - 42 A	+	+
A	- 42 ≤ SEC < - 34	+	+
B	- 34 ≤ SEC < - 26	+	+
C	- 26 ≤ SEC < - 23	+	+
D	- 23 ≤ SEC < - 20	+	+
E	- 20 ≤ SEC < - 10	+	-
F	- 10 ≤ SEC < 0	+	-
G (lowest efficiency)	0 ≤ SEC	-	-

There will also be significant differences between various control modes. There are 4 control modes: manual control, time control, central demand control and local demand control. **All Salda residential AHUs come with time control standard**, and their control boards are demand-control-ready. With additional sensor packages, clients can get higher-class products. For example, the Smarty 3X P is a standard "A" class product, but with an additional package of 2 sensors it becomes "A+".



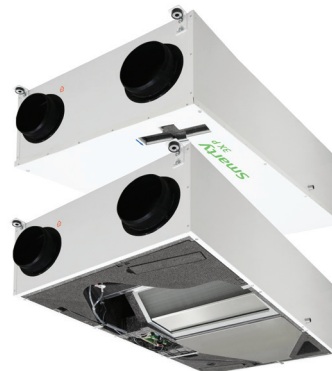
TIME CONTROLLED

DEMAND CONTROLLED



Unit characteristic
SOUND POWER LEVEL

SOUND PRESSURE LEVEL
room <30 dB (A) depending
on the installation



SALDA AIR HANDLING UNIT EFFICIENCY

Salda always seeks to improve the efficiency of their ventilation products. Our AHUs have high efficiency ratings due to our continuous improvements and innovations. By working closely with suppliers, universities and testing facilities, our company offers optimal ventilation solutions. The high efficiency of our AHUs is related to these features:

1. Highly efficient EC fans and new, even more-efficient PM¹ fans.
2. More efficient counterflow and rotor heat exchangers.
3. Minimization of air leakages. Salda tests the airtightness of its AHUs and has made improvements in construction.
4. New casing construction for residential Smarty and SmartAir units assures the best thermal properties and eliminates cold bridges.
5. Improvements of control boards and remote controllers: New PRV 2.6 and MCB control boards provide full local demand control options.

A wide range of high-efficiency ErP-ready ventilation solutions are presented in this catalogue.

To find the Ecodesign Directive itself, please visit <http://eur-lex.europa.eu>.

¹ PM fans are currently available for modular AHUs only.