

# Flexline NG

Air Handling Unit



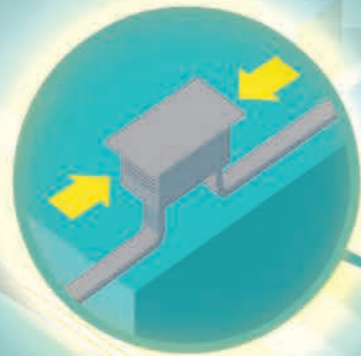


# Systemair – an important part of everyday life

Systemair products and ventilation systems are part of our everyday life that we do not always think about. They exist as an invisible part of our lives, providing a comfortable and healthy indoor climate in our homes and social properties, as well as in the workplace. Systemair provides ventilation products and applications in several different sectors.

## Air Handling Units

Compact and modular units for use in industry, commerce, schools, hospitals etc.



## Air Curtains and Heating Products

Air curtains, fan heaters and radiant heaters are marketed under the Frico brand.



## Air Conditioning

Liquid and air cooled air conditioning products, together with heat pumps for comfort and industrial cooling.



## Fans and Accessories

Products such as circular and rectangular duct fans, roof fans, box fans and axial fans.



## Air Distribution

Products for air distribution, including supply and exhaust diffusers, iris dampers and grilles.



## Tunnel Ventilation

Fans and systems for ventilation of all types of tunnels for roads, rail and metro systems.



## Garage Ventilation

Comprehensive system solutions for multi-storey/underground car parks and fire/smoke applications.



## Residential Ventilation

Small ventilation units for apartment buildings and single-family houses, mostly including heat recovery.



## Fire Safety

Products that have been tested and certified to withstand high temperatures for a long period.



## Swimming Pool Ventilation

Extra high efficiency ventilation units for environments with indoor swimming pools or very high air humidity.



# Contents

8	Systemair Worldwide
10	About Us
12	1. Flexline NG Overview
16	2. Quick Selection Table
18	3. Quality and Standards
19	3.1 Quality Certifications
20	3.2 Standards
22	3.3 RLT (German AHU Manufacturers Association)
24	3.4 Ecodesign Directive
26	3.5 Ecodesign Requirements
28	3.6 Ecodesign in Airware
30	3.7 Air Handling Unit Test and Performance Measurement
32	4. Automation

# Systemair Worldwide

Over **300,000 m<sup>2</sup>** of production area in **24** factories in **19** countries



- 1 Skinnskatteberg, Sweden
- 2 Windischbuch, Germany
- 3 Istanbul, Turkey
- 4 Barlassina, Italy
- 5 Tillieres, France
- 6 Bratislava, Slovakia
- 7 Maribor, Slovenia
- 8 Ukmerge, Lithuania
- 9 Mülheim an der Ruhr, Germany
- 10 Waalwijk, Netherlands
- 11 Kansas City, USA
- 12 Madrid, Spain
- 13 Bouctouche, Canada
- 14 Aarhus, Denmark
- 15 Tillsonburg, Canada
- 16 Dal, Eidsvoll, Norway
- 17 Langenfeld, Germany
- 18 Hässleholm, Sweden
- 19 Wujiang, China
- 20 New Delhi, India
- 21 Hyderabad, India
- 22 Sao Paulo, Brazil
- 23 Kuala Lumpur, Malaysia
- 24 Johannesburg, South Africa



## About Us

Systemair was founded in 1974 in Sweden by Gerald Engström as a pioneering company in the development and market release of inline centrifugal fans which simplify ventilation systems.

The products Systemair manufactures include air handling units, fans, heating and air conditioning, tunnel and car park ventilation systems, air distribution products, fire safety products, data center cooling products, and air curtains.

The business approach of Systemair which operates on the basic values of simplicity and reliability is based on developing, manufacturing, and marketing high quality ventilation products.

Systemair has registered operational profit every year since its founding. The average annual growth rate for the last 10 years is 15%.

- Systemair group has made sales in the amount of 6.8 billion SEK in the 2016/2017 fiscal year,
- Has subsidiaries in 45 countries spread over Europe, North and South America, the Middle East, Asia, and South Africa,
- Has 24 factories with a total storage and manufacturing area of over 300,000 m<sup>2</sup>,
- The highest credit score available (AAA),
- Is publicly traded in the NASDAQ OMX Nordic Stock Exchange,
- Has 4,500 employees in 56 companies.

Systemair HSK which has 40 years of manufacturing experience joined the group in 2012, and manufactures modular air handling units in its 28,000 m<sup>2</sup> brand new factory.

Production in the Systemair HSK factory is carried out using a fully automated sheet metal processing machine found in a choice handful of AHU plants in Europe.

The performance of air handling units is tested on 1 in every 200 units, using the Air Handling Unit Performance Testing Room within the facility.

In addition to comfort air conditioning applications, Systemair HSK factory is a group facility that specializes in hygiene, industrial, Atex, and marine applications.

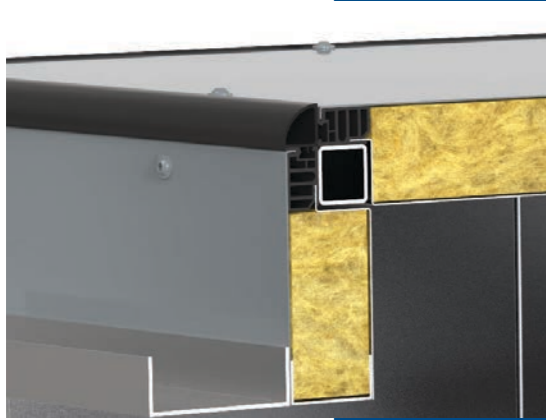
# 1. Flexline NG Overview

Systemair works toward high efficiency, high tech and aesthetically pleasing products. Superior mechanical properties have been preserved in the reinvented Flexline NG air handling unit while guiding market standards with the use of fewer parts and modern design.

**New elegant design** with RAL 7040 painted exterior sheet metal and black corners.

**Simple, robust and reliable casing** thanks to panel design comprising fewer parts





#### Casing with steel profile embedded into the panels

Galvanized steel box profiles are not exposed to the elements. Sealing around the profiles prevents metal-on-metal contact preventing thermal bridging while helping prevent leakage. Thus Flexline NG Air Handling Units have TB2 thermal bridging and L1 leakage class.



#### Section merging detail

Thanks to the newly designed locking section joint Flexline NG sections are assembled in perfect alignment, ensuring full continuity in the base of the air handling unit.



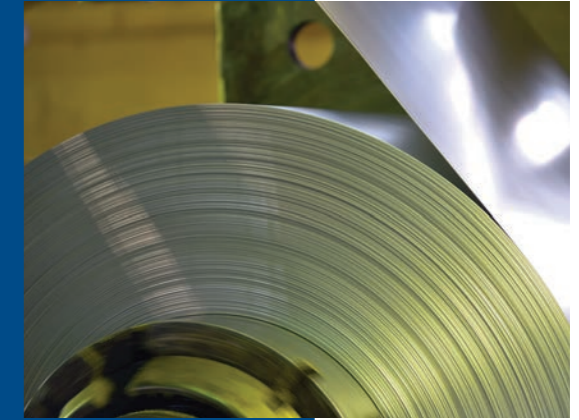
#### Standard dimensions according to filter sizes

Standard air handling unit dimensions have been defined to be compatible with modular filter sizes. The entire air cross section is covered with filters, ensuring low pressure loss and long filter lifetime.



#### Removable sound attenuator baffles

The section can be easily cleaned by removing each baffle separately that are placed horizontally on rails. Baffles are easy to remove thanks to standardized baffle dimensions according to air handling unit modules.



#### High corrosion resistance

High corrosion resistance thanks to galvanized steel sheets and profiles with standard density of 275 g/m<sup>2</sup>.



#### Large square inspection glasses

Large inspection glasses designed in accordance with DIN 1946-4 maintain their transparency for many years.



#### New door handle design

The newly designed hygienic door handle makes the AHU doors to apply force externally to the panels, which does not create an obstacle on the interior air handling unit surface.



#### Outdoor Protection

Excellent protection for outdoor applications thanks to membrane coated watertight roof.



## 2. Quick Selection Table

Interior cross sections of Flexline NG air handling units have been defined to be compatible with standard filter sizes.

### Flexline NG Modules

Dimensions in Flexline NG air handling units are expressed in terms of modules. The first module indicates height while the second module indicates width.

#### Example:

FL NG 30x60 → 30 Height (H) Module, 60 Width (W) Module

The modules increase in multiples of 10 such as 20, 30, 30, 40, 50 etc. and each 10 modules correspond to 306 mm. The inner height and inner width of the air handling unit can be calculated by multiplying the number of modules with 30.6 mm.

#### Example:

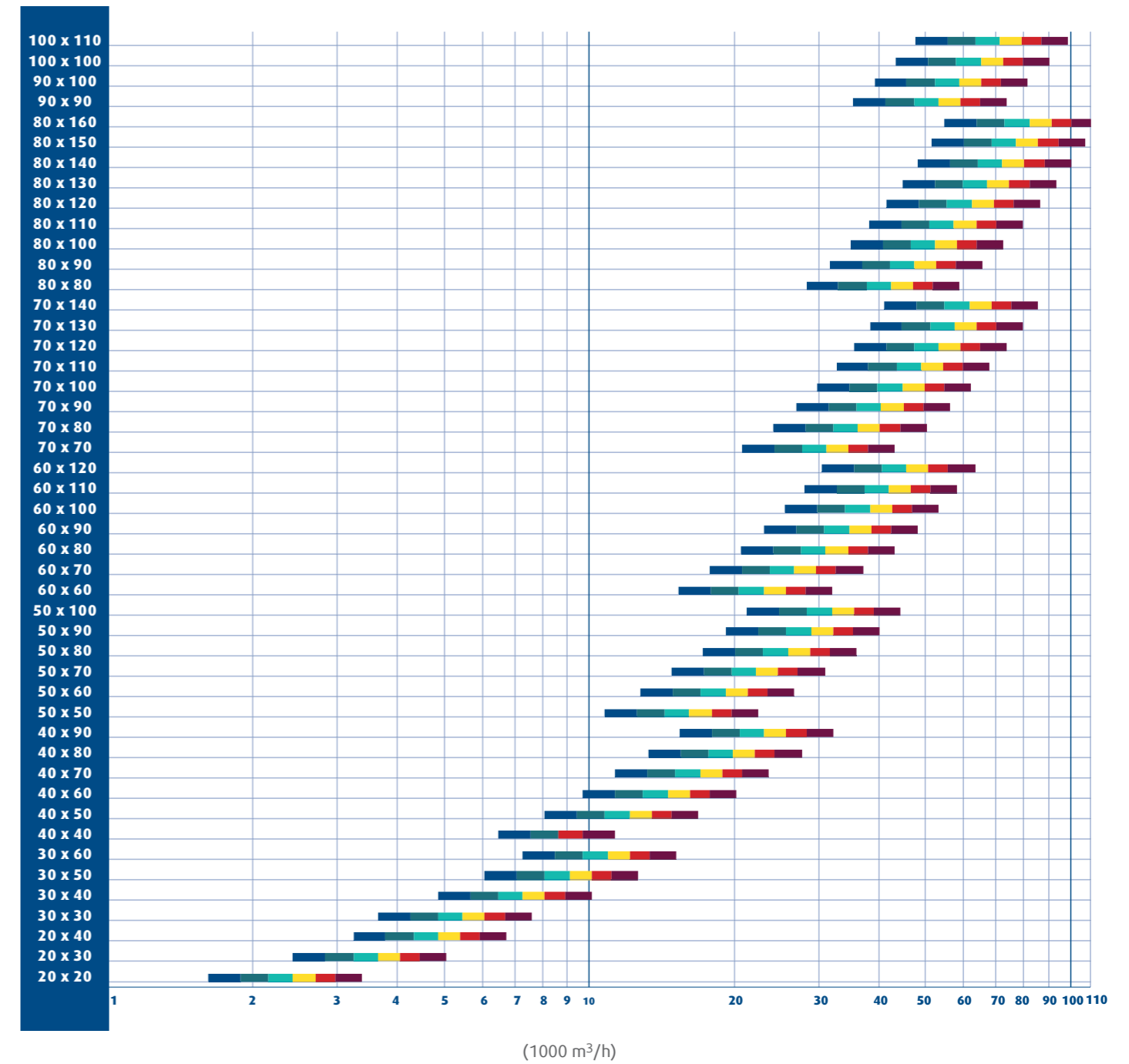
FL NG 40x50 → Height (H) Module 40 →  $40 \times 30.6 = 1224$  mm inner height  
Width (W) Module 50 →  $50 \times 30.6 = 1530$  mm inner width



Eurovent Energy Labeling Reference for Free Cross Sectional Velocity							
V	m/s	A+	A	B	C	D	E
		1,4	1,6	1,8	2	2,2	

Eurovent energy class calculation: Reference air velocities on free cross section

### FL NG



## 3. Quality and Standards

Certificates and quality documents demonstrate that the product is safe and legal. They certify that all specifications claimed for the products are guaranteed by an independent authority. Certified products also offer advantages in terms of delivery times to the customer, by offering easy custom clearance.

### 3.1 Quality Certifications:

#### CE:

Ce mark shows the product's conformity to European product regulations. The CE mark is an abbreviation of the phrase "Conformité Européenne" and its meaning in literature is "European Conformity," i.e. conformity with European norms. The CE Mark indicates that a product or product group conforms to basic requirements known as "product directives" which the European Union has established with respect to health, safety, and protection of the environment and of the consumer. Beginning with 2016 CE marking of air handling units also requires conformity to the Ecodesign directive number 2009/125/EC. Products which do not have the CE mark can not enter European Union countries, therefore the CE mark can be described as an "Industrial Product Passport" allowing free movement in the internal market of the European Union.

It is also a mark that enables free movement of the product within the EU, whose use has become mandatory in the Turkish domestic market as of January 1, 2004, which is a declaration of warranty by the manufacturer.

#### EUROVENT Certificate:

The Eurovent certificate documents the performance classification of air conditioning and cooling product groups in accordance with European Union and international standards. Systemair has been awarded the Eurovent certificate following the tests performed in TÜV laboratories in Germany in 2001. It has been determined that Systemair Air Handling Units that were awarded the Eurovent Certified Performance logo have successfully met the prescribed performance values in EN 1886.

#### Declaration of Conformity to the Customs Union (GOST CU):

The Declaration of Conformity to the Customs Union is an official document which verifies the conformity of products to approved regulations of the CIS regions. It has the same legal effect as the Certificate of Conformity. The CU Declaration can be used in the export of goods to Russia, Belarus, or Kazakhstan. Only a Russian legal entity can be the recipient of the declaration. Russian companies cited in the declaration are responsible for the quality of the products within the Russian Federation.

#### TSEK Certificate:

Systemair has been rewarded by the Turkish Standards Institute for its products' conformance to the required standards. The TSEK Brand comprises monograms that can be used within the framework of a contract, certifying that the products (or the packages of products) it is placed on has been manufactured and marketed in accordance with the Quality Factors and Values accepted by the Turkish Standards Institute. TSE EN 814, is used on labelled products which comply to TSEK and electrical specifications.

#### ISO 9001 Certificate:

This is the internationally accepted management standard which has been developed and implemented by the International Organization for Standardization (ISO), for constant improvement of efficiency and quality in management, production or service efforts, for fulfilment of customer's conditions, and maximization of customer satisfaction through the introduction of certain conditions to the management systems of enterprises.

#### OHSAS 18001 Certificate:

OHSAS 18001 is a generalized concept of work health and safety, including the protection of workers, of the enterprise and production from all sorts of hazards and damages.



## 3.2 Standards

The distinction in the manufacture of air handling units is due to the high-tech casing structure and the use of high efficiency components. There are two basic European standards which assess and classify these properties. These are the EN 1886 which regulates mechanical properties and the EN 13053 which regulates the performance of the components used as well as the accuracy of the selection software.

FL NG Technical Specifications (EN 1886)						
Thermal transmittance		T5	T4	T3	T2	T1
Thermal bridging		TB5	TB4	TB3	TB2	TB1
Filter by-pass class	G1-G4	F5	F6	F7	F8	F9
Casing air leakage				L3	L2	L1
Mechanical strength				D3	D2	D1

### Performance Values According to EN 1886

Flexline NG air handling units have been tested at TÜV-SÜD laboratories, classified according to EN 1886 standards, and been certified by Eurovent.

#### Rigid Casing Structure

Excellent casing strength with D1 class mechanical strength. Thanks to its steel frame, it maintains rigidity in the most stringent conditions that can occur during shipping and on site.

#### Hygienic Structure

The perfect choice for hygiene applications with L1 casing leakage class and F9 filter by-pass class.

#### Thermal Performance

T2 thermal transmittance class ensures low thermal transmission from panels, and high energy efficiency.

#### Low Condensation Risk

The risk of condensation on the unit casing is very low thanks to TB2 thermal bridging class. This enables the air handling unit to perform without corrosion for many years, even under the most extreme climate conditions.

#### Acoustic Performance

With 50 mm rock wool insulation and unique construction, Flexline NG air handling units leave their competition behind in terms of sound attenuation from casing. It is suitable for operation in proximity to critical spaces in terms of sound levels.

Acoustic Insulation of Casing	
125Hz	16,5dB
250Hz	20,8dB
500Hz	29,8dB
1000Hz	35,0dB
2000Hz	33,7dB
4000Hz	35,9dB
8000Hz	45,5dB



### Air Handling Unit Performance According to EN 13053

The EN 13053 standard specifies component selections for air handling units and tests for energy efficiency. The Airware Air Handling Unit Selection Software has been certified by Eurovent as a result of testing according to the EN 13053 standard and comparison of tests with data from the selection software.

During tests performed according to the EN 13053 standard, the performance of air handling unit equipment including heat recovery, heating-cooling coils, fans, filters, dampers, mixing section, humidifiers, sound attenuators, etc. are evaluated. Many details are examined such as surface smoothness, accessibility, measures against condensation - drainage etc.

### DIN 1946-4

The German DIN 1946-4 standard defines hygiene applications and the components to be used. With its casing design, Flexline NG air handling units meet all requirements related to the cleanability of the unit specified in the DIN 1946-4 standard. The DIN 1946-4 standard also requires hygienic air handling units to meet certain mechanical and thermal performance classes according to EN 1886. Performance classes according to EN 1886 of Flexline NG air handling units are beyond specified requirements and have been certified by TÜV-SÜD laboratories. The principal requirements of air handling unit design in the DIN 1946-4 are the following:

- The existence of access doors on both sides allowing servicing of each section of the air handling unit.
- The use of internal surfaces and components with high corrosion resistance.
- The use of two stage filters of the specified efficiency class, and placement of air handling unit components between these two filter stages.
- The use of droplet eliminators and drain pans on specified sections.
- The use of lighting switches on specified sections.



Minimum Requirements for Conformance to the DIN 1946-4 Standard	Flexline NG
D2	D1
L2	L1
F9	F9
T3	T2
TB3	TB2

### 3.3 RLT (German AHU Manufacturers Association)

RLT Geräte e.V. (original name Der Herstellerverband Raumluftechnische Geräte e.V.) is an association comprising leading manufacturers which sell to Germany and neighbouring countries. The joint purpose of the association is the release of high technology air handling units to the market. Air handling units are labelled as A+, A, and B with respect to energy expenditure based on the special certification system developed for this purpose. Thus investors and project developers are guided with the common know how and technology of air handling unit manufacturers and energy expenditure is reduced. The RLT Association currently has 28 members, the majority of which are German manufacturers. After long technical preparation and work Systemair took its place among manufacturers who are RLT's members as of 2016.

RLT has published 4 design guides for various applications. The principal guide number 01 has been published as a manual which references many norms such as VDI 6022, DIN 1946-4, EN 1886, EN 1751, and EN 13053 and also classifies energy expenditure as well as mechanical performance. As a result of tests performed according to the guide number 01, Systemair can manufacture air handling units bearing RLT certificates and labels.



Energieeffizienzklasse

A+

nach RLT-Richtlinie  
Zertifizierung



Energieeffizienzklasse

A



Energieeffizienzklasse

B



## 3.4 The Ecodesign Directive

The directive which was published in Europe in 2005 with the title EuP (Energy using products) and renamed in 2009 as ErP (Energy-related Products) specifies minimum requirements regarding energy consuming products. The purpose of the ErP directive is to reduce energy consumption and CO<sub>2</sub> emissions, and thus increase the share of renewable energy. The regulation covers all products within the European Economic Area (EEA). Export operations to countries outside the European Economic Area are outside the scope of the directive.

### ErP encompasses two main directives:

- Ecodesign (2009 / 125 / EC)
- Energy Labelling (2010 / 30 / EU)

Regulation number 1253/2014/EG regarding central ventilation units was published on November 26, 2014 within the scope of the Ecodesign directive. As of January 2016, conformance to this directive became obligatory for sales of air handling units within the European economic area.

### Scope of Application

The regulation covers air handling units which uses fresh air mixed with a quantity of return air from the indoor area as well as air handling units which exhaust air directly from the indoor area. Air handling units where at least one of the air flows is associated with an industrial application or production process are outside the scope of the regulation.

### Ventilation Unit Categories

There are two equipment categories which are central ventilation units and residential ventilation units. Products which provide air flow of 1000 m<sup>3</sup>/h and more are categorized as central ventilation units. Products which provide air flow of 250 m<sup>3</sup>/h and less are categorized as residential ventilation units. Products which provide air flow between 250 m<sup>3</sup>/h and 1000 m<sup>3</sup>/h are categorized by the manufacturer. While Regulation number 1253/2014 defines central ventilation units, Regulation number 1254/2014 defines residential ventilation units. Residential ventilation units are also subject to energy labeling according to the directive number 2010/30/EU.

### Applications that are Outside the Scope of the Regulation

- Swimming Pools (Dehumidification)
- Agricultural Applications (Greenhouses, warehouses etc.)
- Industrial and Commercial Kitchen Exhaust (Exhaust of greasy and steamy air)
- Data Centers and Server Rooms
- Machinery Exhaust (Including car park exhaust)
- Mixture Air Equipment for Clean Rooms and Operating Theatres
- Equipment for Heat Rejection (Such as compressor rooms, TV studios etc.)
- Foundries, Manufacturing Facilities with Metal Pressing Processes
- Atex Applications (Explosive areas)
- Paper Production Facilities
- Air Handling Units with Integrated Cooling Circuits

### Validity Calender:

**November 2014:** Date of first publication of the regulation and determination of 2016 and 2018 criteria.

**January 2016:** Obligation of delivered products to comply with 2016 criteria specified in the ErP regulation.

**January 2018:** Obligation of delivered products to comply with 2018 criteria specified in the ErP regulation.

**January 2020:** Obligation of delivered products to comply with 2020 criteria that are currently being developed in the ErP regulation.







### 3.5 Ecodesign Requirements

#### UVU (Uni-Directional Ventilation Unit)

UVU are units which operate in only one direction, discharging air from the indoor area to the outdoor environment (exhaust) or supplying air from the outdoor environment to the interior space (supply).

UVU (Uni-directional ventilation unit)		Design Reference	
 <ul style="list-style-type: none"> <li>Unidirectional air flow</li> <li>Fan</li> <li>Filter with F7 efficiency class</li> </ul>			
		ErP 2016	ErP 2018
Fan Efficiency $\eta_s$ (%)	$P_M < 30$ kW	$6,2 \times \ln(P_M) + 35$	$6,2 \times \ln(P_M) + 42$
	$P_M < 30$ kW	56,1	63,1
Maximum SFP <sub>int</sub> value W / (m <sup>3</sup> /s) at reference design		250	230
Variable fan speed control		Obligatory	Obligatory
Filter pressure gauge		-	Obligatory

UVU (Bi-directional ventilation unit)		Reference Design		
 <ul style="list-style-type: none"> <li>Bi-directional air flow</li> <li>F7 filter for fresh air</li> <li>M5 filter for exhaust air</li> <li>Heat recovery system</li> <li>Discharge and exhaust fans</li> </ul>				
		ErP 2016	ErP 2018	
Free cooling by-pass damper in heat recovery system		Obligatory	Obligatory	
Variable fan speed control (Digitally controlled EC motor, Frequency converter, 3-speed fan)		Obligatory	Obligatory	
Filter pressure measurement		-	Obligatory	
Heat recovery temperature according to the EN 308 standard efficiency (Dry) $\eta_t$	Run around type heat recovery	63	68	
	Rotor and plate type heat recovery	67	73	
Maximum SFP <sub>int</sub> value W/(m <sup>3</sup> /s) at reference design	Run around type heat recovery	$1700+E-300 \times Q_{nom}/2-F$	$1600+E-300 \times Q_{nom}/2-F$	
	Rotary plate type heat recovery			$1200+E-300 \times Q_{nom}/2-F$
	Run around type heat recovery	$Q_{nom} > 2m^3/s$	1400+E-F	1300+E-F
	Rotor and plate type heat recovery		900+E-F	800+E-F
Energy efficiency pipe (E)	Run around type heat recovery	$(\eta_t-63) \times 30$	$(\eta_t-68) \times 30$	
	Rotor and plate type heat recovery	$(\eta_t-67) \times 30$	$(\eta_t-73) \times 30$	
Filter correction factor	Reference design	0	0	
	M5 filter missing	160	150	
	F7 filter missing	200	190	
	M5 and F7 filter missing	360	340	

#### BVU (Bi-Directional Ventilation Unit)

BVU are ventilation units which provide air in both directions which are supply and exhaust. According to the regulation number 1253/2014 within the Ecodesign directive, in cases where fresh air is more than 10%, the use of heat recovery in ventilation unit is obligatory and the mixing process cannot be considered as heat recovery.

In central ventilation units, reference design is consisting of cite filters (F7 filter on the supply line, M5 filter on the return line), heat recovery, and fans as ventilation equipment. Heating-cooling equipment, silencers, humidifiers, and additional filters are not considered ventilation equipment and these are not taken into consideration as while determining limit values for the unit. Therefore compliance with Ecodesign becomes more difficult as the use of equipment not included in the reference design in air handling units increases. This is because although only the equipment for reference design are taken into consideration while determining limit values, all equipment within the air handling unit are taken into consideration while determining the SFP<sub>int</sub> value.

### 3.6 Ecodesign in Airware

Conscious to the responsibility of being an European company, the Airware selection software has been updated to comply with the requirements of the Ecodesign directive.

Airware air handling unit selection software can automatically calculate Ecodesign compliance separately for 2016 and 2018 criterias. All details of the calculation are presented to the customer in summarized form on the technical data sheet.



### 3.7 Air Handling Unit Testing and Performance Measurement

In order to be able to measure the performances of air handling units when they are still at the manufacturing area and keep them according to the international standards, Systemair has put the "Air Handling Unit Testing and Performance Measurement Room" into service in 2000.

Having been using for product development studies in the scope of R&D and periodically testing (1/200 AHU) of the manufactured products, this test room is one of the most important tools in ensuring the products reflect high quality and technology. Investors can also view their purchased product before it is shipped out of the factory, and make sure it is operational and that it complies with the required values.

Measurements that are performed in the test room according to the AMCA / ASHRAE standards are combined in three groups:

#### Measurements Performed on the Air Handling Unit

- Air handling unit internal pressure losses
- Current and power of fan motors
- Voltage and frequency of the supply line
- Fan speeds

#### Measurements Performed in the Test Chamber

- Test pressure
- Nozzle initial pressure
- Nozzle pressure differential

#### Atmospheric Measurements

- Dry bulb temperature
- Atmospheric relative humidity
- Atmospheric pressure





## 4. Automation

High comfort conditions in air conditioning systems can be achieved with optimum energy expenditure only with the correct control system. After the correct system for project requirements has been selected, the decision is made regarding the control system which determines the responses the selected system will give under certain conditions.

Systemair Flexline NG series air handling units can be manufactured with integrated automatic control systems. With its extensive experience in air handling unit automations and its team of experts, Systemair guarantees maximum energy efficiency through a control application that meets the requirements of the air conditioning system in the best manner.

### Conventional Ventilation Systems CAV (Constant air flow) Systems

These systems are preferred for applications where thermal loads and fresh air requirements are rather constant. The ventilation system is designed to provide constant air flow rate to indoor area. This constant air flow rate is determined according to the quantity of fresh air required. In cases where the air flow rate is insufficient for heating and cooling, the system is supported with waterborne air conditioning units. Constant flow is maintained in the system regardless of pressure, thanks to CAV terminal units.

CAV (constant air flow) ventilation systems are mostly preferred for areas such as warehouses, hangars, factories, etc. where precise control is not a priority. They are also preferred for projects where temperature control via the central ventilation unit is not required; and where room-based control through units such as fan coil, chilled beam, VRF air conditioners is desirable.

#### Advantages:

- Easy installation and control
- Low suspended ceiling height
- Low ductwork and unit cost

#### Disadvantages:

- Not suitable for room-based control
- Need for additional air conditioning unit  
Problem of noise due to high duct pressure
- Low energy efficiency

### VAV (Variable air flow) Systems

These systems are preferred for achieving optimum operating conditions with varying thermal loads and fresh air requirements. Parameters such as temperature, fresh air, humidity, and room pressure in spaces can be kept under control by varying air flow rate as needed. The area is air conditioned entirely by the central ventilation unit, without the need for an additional air conditioner.

Since the air flow rate that is required for the space is provided, energy expenditure by the air handling unit for heating and cooling is substantially reduced while operating at partial loads. VAV terminal units are smart devices capable of adjusting the operation point regardless of pressure based on the signal received from the automation unit in case of a change in the air flow rate requirement of the space.

#### Advantages:

- High level of comfort through precise control
- Does not require an additional air conditioner in the space
- Low energy expenditure

#### Disadvantages:

- Larger duct dimensions compared to CAV systems
- Higher initial investment cost



**Headquarters**

Büyükdere Cad. No: 121 Ercan Han  
Kat: 3 Esentepe - Şişli / İstanbul  
Tel :+90 212 356 40 60  
Fax :+90 212 356 40 61

**Factory**

Tel :+90 212 623 22 10  
Fax :+90 212 623 22 15

**Ankara Regional Directorate**

Tel :+90 312 472 50 01  
Fax :+90 312 472 50 98

**Gaziantep Regional Sales Office**

Tel :+90 342 324 80 16  
Fax :+90 342 323 07 20

**İzmir Regional Sales Office**

Tel :+90 232 502 31 86/87  
Fax :+90 232 502 01 88

[info@systemairhsk.com.tr](mailto:info@systemairhsk.com.tr)

[www.systemair.com.tr](http://www.systemair.com.tr)