

# versatile

Heating · Cooling · Ventilation



**SALUTEM**  
VENTILATION UNIT



## Why **Ventilate?**

**Ventilation** has always been important, for the health of the building and the occupants, but never more so than now. Latest guidelines from the World Health Organisation and others suggests that viruses can be transmitted via the air in a room and cause harm in just the same way other contaminants and pollutants such as bad odours, CO<sub>2</sub>, and excessive moisture can do. It is therefore critical that indoor spaces are well ventilated, to change the air within the room as quickly and effectively as possible.

This can be done by simply opening a window of course, but whilst outdoor air is a good thing, if it is unfiltered it may bring with it new pollutants such as nitrous oxide from traffic fumes, as well as noise. Throughout the majority of the year, opening the window will also mean losing expensive heat from the room.

Salutem solves all these problems. Salutem extracts stale and polluted room air and replaces it with filtered outdoor air, with the heat in the extracted air being recovered by a thermal wheel heat recovery device of up to 85% efficiency.

## **Salutem** Simple ventilation

**Salutem** is a complete packaged ventilation unit that can be installed directly in the room to be ventilated.

Installation could not be much more simple. Openings should be made in the external wall for the two ducts, one to bring fresh outdoor air in and one to let stale extract air out, and the unit connected to a standard mains power supply. The installation work can be carried out very quickly and easily and the unit can be operational in just a few hours.

**Salutem** can be quickly and easily installed to provide comfort ventilation in:

- Classrooms
- Day nurseries
- Conference halls
- Offices
- Opticians
- Dental surgeries
- Care homes
- Shops
- Pubs
- Restaurants
- and more





## Why should I choose **Salutem** ?

### **/01** Simple Installation

The units can be installed quickly and easily and this involves minimal strain on the business operations while the installation is in progress. The only work required involves forming the openings in the external wall for the outdoor air and exhaust air ducts as well as connecting the unit to the mains electric supply.

### **/03** Optimal Operating Economy

Salutem achieves optimal operating economy thanks to their energy saving fans, effective heat recovery and complete control of temperatures, airflows and operation periods as well as economic control functions. This lowers the costs of operation whilst ensuring comfortable ventilation rates are achieved.

### **/02** Economical Control Functions

A large number of functions integrated into the control system are ready to be activated, many of which offer unique opportunities for saving energy. The air handling units are ready to be connected to most existing building management systems. Communication can also take place directly in a network via an ordinary web browser.

### **/04** Effective Ventilation

Salutem uses the displacement ventilation principle to provide effective ventilation and to lift contaminants from the space via naturally rising air currents, without creating any draught.

# Salutem



Salutem

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# Quick and Simple Installation, Effective and Economic Ventilation!

## Complete Room Units

The Salutem units are complete air handling units that can be installed directly in the room to be ventilated.

The Salutem units are designed for comfort ventilation and can be used in classrooms, day nurseries, conference halls, smaller offices, workrooms, shops, restaurants and similar public premises.

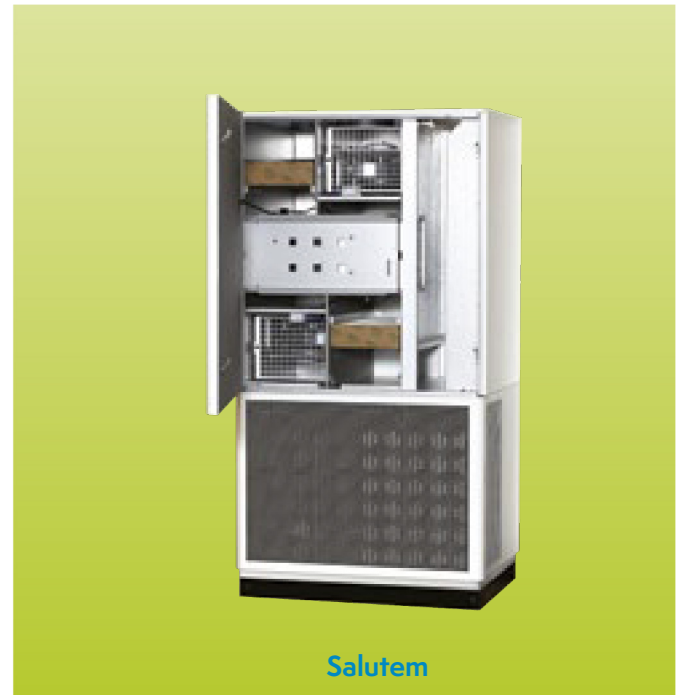
The ducts for outdoor air and exhaust air should be connected to the top of the unit and should be arranged to lead out through the wall. Other than that, you need only connect the unit to the mains electric supply. The installation work can be carried out very quickly and easily and if the task of cutting openings through the wall is not complicated, the unit can be operational in just a few hours. It is also simple to relocate the air handling unit if the nature of the activities conducted in the room changes.

The ventilation is very effective thanks to the displacement air ventilation method used. The built-in control equipment has several functions for economical operation.

## The air distribution pattern is easily adjustable.

The built-in, low-velocity air diffuser in the Salutem units is equipped with unique VARIZON®discs for the highest degree of comfort and optimum operation.

VARIZON®discs operate as air deflectors and can be individually set without altering the airflow, pressure drop or level of flow generated sound. The near zone can thus be adapted for each individual case.



## Strong Reasons Why You Should Choose Salutem Ventilation

### Simple Installation

The units can be installed quickly and easily and this involves minimal strain on the business operations while the refurbishment is in progress. The only work required involves cutting the openings in the external wall for the outdoor air and exhaust air ducts as well as connecting the unit to the mains electric supply.

### Optimal Operating Economy

The Salutem units achieve optimal operating economy thanks to their energy-saving fans, effective heat recovery and complete control of temperatures, airflows and in-operation periods as well as economic control functions.

### Economical Control Functions

A large number of functions integrated into the control system are ready to be activated and several of them offer unique opportunities for saving energy. The air handling units are ready to be connected to most existing supervisory systems. Communication can also take place directly in a network via an ordinary web browser.

### Effective Ventilation

The displacement air ventilation principle used provides effective ventilation and the air distribution pattern can be adjusted for optimum comfort and operation.

# Salutem Have That Little Extra!

Introducing the new Salutem series, Versatile offers air handling units for small air volumes without having to reduce its standards of performance, energy efficiency, control functionality and communications multiplicity.

## Energy-efficient Fans

The fans in the Salutem series are direct-driven plug fans. They are equipped with EC motors that provide high efficiency across the entire operating range.

The fans are compact and take up little space. Sharp duct bends can be connected directly to the fan outlet without pressure losses. The fans also generate low noise levels.

## Heat Exchanger with High Efficiency

All of the units in the Salutem series are equipped with the RECOeconomic rotary heat exchanger, one of the most efficient heat exchangers on the market.

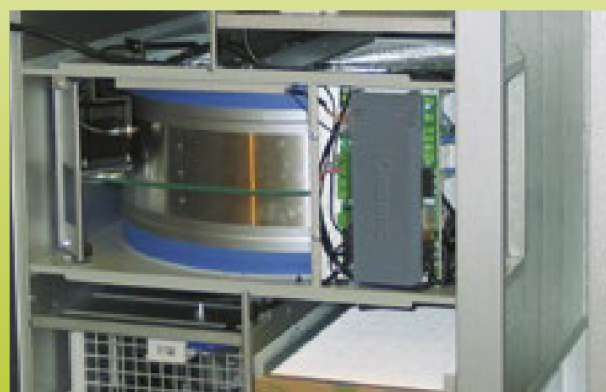
The temperature efficiency of the RECOeconomic is high, up to 85%, and the pressure drop across it is low. The heat exchanger is driven by a step motor that permits extremely high precision for controlling the rotor speed and heat recovery efficiency as well.

## Compact Filters

The air handling units are equipped with Class ePM1 50% (F7) so-called pleated filters for both the supply air and the extract air. A filter monitoring function is integrated into the control system.



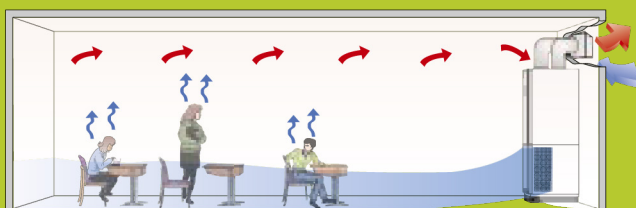
Energy-efficient Fans



Efficient RECOeconomic heat exchanger

## Optimal Comfort and Operating Economy

### Normal Operation



In normal applications, the Salutem provides effective displacement ventilation. The slightly cooler supply air is discharged to flow along the floor and rises around heat sources, such as the occupants.

# The IQnomic Control System – An Intelligent Economist on which You Can Always Rely!

## Complete Control System

The IQnomic control system controls and regulates fans, heat exchanger, temperatures, airflows and in-operation periods. Every conceivable function for an air handling unit has been integrated into the system and is ready to activate.

All the settings and readings can be entered/viewed in plain text and in the language of your choice via a user-friendly control panel on the inspection door.

The fact that the control equipment is integrated into and specifically developed for the Salutem ensures that its electronics and mechanics operate hand in hand.

## Smart and Economical Control Functions

Typical smart and economical control functions available only in the IQnomic:

- **ERS Regulation (control).** Can be used when the rooms served have excess heat. In most applications, no reheating coil is needed.
- **Density-corrected airflow.** Automatically takes into consideration how the air density varies and accordingly provides different air volume at different temperatures.
- **Seasonally compensated airflow.** The airflow can be reduced in the winter according to a preset performance curve.
- **Summer night cooling.** An energy-saving function for supplying cool outdoor air to the rooms at night.
- **Cooling energy recovery.** The heat exchanger is also automatically utilised for recovering the relative cooling energy that may be available in the room.

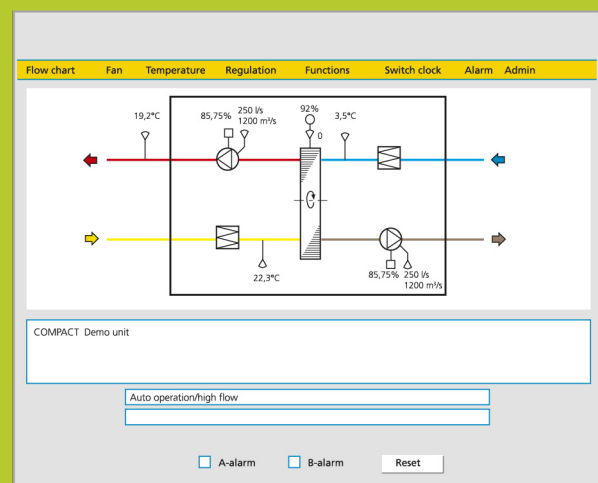


## Communication Is Standard

Communication via TCP/IP and EIA 485 are included as standard. The TBLZ Communication unit is used for communication via LON and Trend.

The Salutem also has built-in web communication. Communication with the Salutem can be established via an ordinary web browser (such as Internet Explorer) and your own network, i.e. without any main control systems whatever.

In addition to the above, the Salutem units have inputs and outputs for external functions such as the forwarding of alarms or overtime operation via keyed entries.



## Technical Description of the Salutem Units

### General

The Salutem units are complete air handling units in two sizes with direct-driven supply air and extract air fans, supply air and extract air filters, rotary heat exchanger, silencer, built-in, low-velocity air diffuser and built-in control equipment.

The two sizes have the same physical dimensions but different airflow capacity.

### Effective Ventilation

The air handling units provide very effective ventilation thanks to the displacement air ventilation principle used. The built-in control equipment has several functions for economic operation.

### Built-in Control Equipment

The Salutem units have built-in control equipment that can be operated from a fixed control panel secured to the inspection door.

The electrical and control system is completely integrated into the air handling unit. The microprocessor-based equipment controls and regulates temperatures, airflows and other functions. A large number of functions are built into the system and are simple to activate.

### Attractive Design

The Salutem units have an attractive and elegant design that fits in well in various décor.

### Range of application

The Salutem are designed for comfort ventilation and can be used in classrooms, day nurseries, conference halls, smaller offices, workrooms, shops, restaurants and similar public premises.

The Salutem is designed and tested for ambient temperatures from -25°C to +40°C, and temperatures in the air stream from -40°C to +40°C. However, for the rotary heat exchanger the temperature difference between the outdoor air and extract air must not exceed 70°C.

### Simple Installation

The air handling unit is installed directly in the room that is to be ventilated. The ducts for outdoor air and exhaust air should be connected to the top of the unit, insulated and run out through the wall. Other than that, you need only connect the unit to the mains electric supply. To facilitate its transport within the site, the unit can be split into an upper section and a lower section.

### Certification

Certified Quality Assurance System that conforms to ISO 9001 Standard and a certified Environmental Management System to ISO 14001.



Salutem

# Technical Description of the Salutem Units

## Mechanical Design

### Casing

The room unit casing has an outer skin of galvanized sheet steel that has been prepainted in a shade of white (NCS S 0502-G), and has an inner skin of aluminium-zinc plated sheet steel. The exterior surfaces of the room unit conform to Environmental Class C4. The casing has 30 mm thick mineral wool insulation; the inspection door has 50 mm thick insulation.

The inspection door is hung on hinges secured to the left-hand edge. The door can be opened and closed using a special key. A lockable door lock is available as an accessory.

### Fans

The fans are direct-driven plug fans. They are equipped with EC motors that provide high efficiency across the entire operating range. Flow measurement and control are standard.

The fans are equipped with a protective screen and they are effectively vibration-isolated from the casing. They can be dismantled and removed from the air handling unit if required.

### Heat Exchanger

The rotary heat exchanger is of the patented RECOmic type. The heat exchanger is driven by a step motor that controls the rotor speed with high precision and also controls the heat recovery efficiency. The rotation monitor and controls are standard.

The heat exchanger is fitted with safety guards.

### Filters

The air handling unit has pleated Class ePM1 50% (F7) filters for both the supply air and the extract air. Filter monitoring is standard.

### Environmental Product Declaration

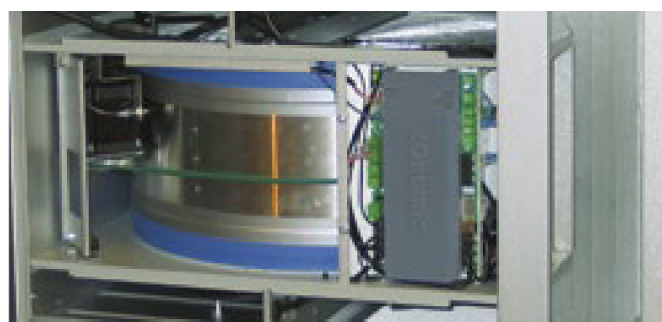
A certified environmental management system that conforms to ISO 14001 Standard and is registered on the REPA Register, no. 5560778465.

The Salutem units are made of the following materials:

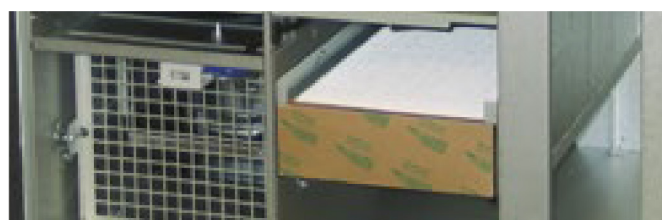
Type of Material	Percentage of total weight
Sheet steel	Approx. 84%
Aluminium	Approx. 4%
Polymeric material	Approx. 1%
Mineral wool insulation	Approx. 6%
Filter	Approx. 1%
Electronic equipment, motors	Approx. 4%



Direct-driven fans with EC motors.



RECOmic rotary heat exchanger.

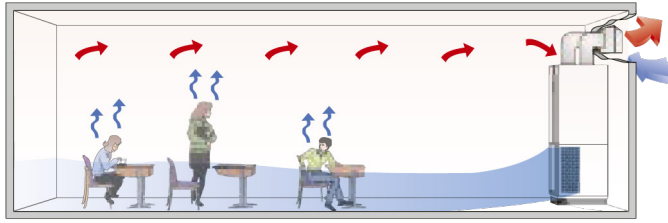


Pleated Class ePM1 50% (F7) filter.

## Technical Description of the Salutem Units

### How the Unit Operates

#### Normal Operation

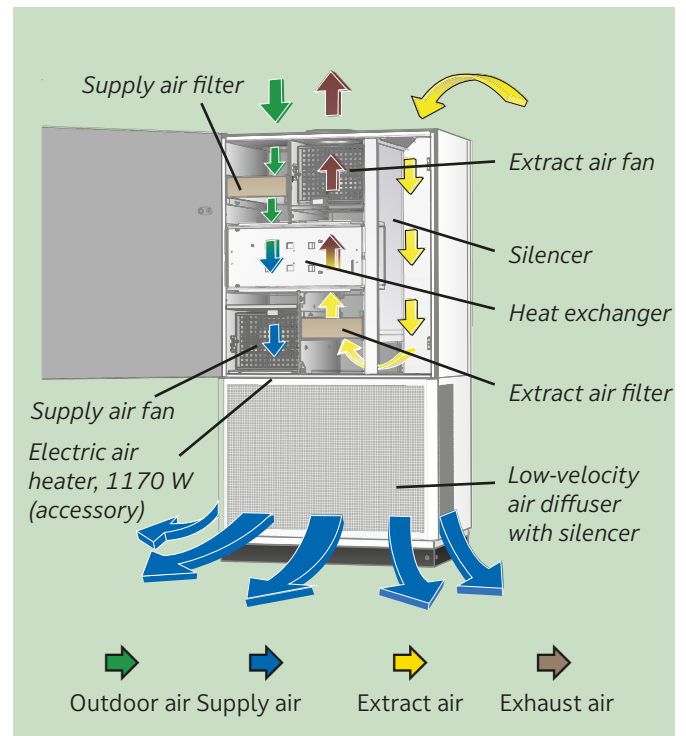


Outdoor air is conveyed via the duct into the unit where it passes through the filter and heat exchanger.

If required, the air can be reheated by an electric heater for 1.2 kW output (accessory Salutem ). However in most applications, the ventilation system can operate without any air heater because the heat exchanger has a high temperature efficiency and with the displacement air ventilation principle, the supply air will be slightly cooler than the room air. A special function is also available for reducing the supply airflow if the heat exchanger cannot manage to maintain the temperature required.

After that, the air passes through the built-in silencer and is discharged via the low-velocity air diffuser into the room. The slightly cooler supply air rises around the heat sources, such as the occupants, and presses the room air toward the ceiling.

The Salutem then sucks in room air via an extract air inlet at the top of the unit. The extract air passes the silencer, filter and heat exchanger and is then discharged through a duct to the open air.



## Technical Description of the Salutem Units Electrical and Control System

### General

The IQnomic control system is completely integrated into the air handling unit. The microprocessor-based equipment controls and regulates temperatures, airflows and other functions. A large number of functions are built into the system and are simple to activate. See the special section entitled "Salutem Control System".

The air handling unit can be automatically controlled in several ways via the integrated time switch clock (timer), however it can also be demand-controlled via a CO<sub>2</sub> sensor or presence detector. Manual control is also possible.

A large number of functions and settings can be also activated/entered via communication.

### Control Inaccuracy:

Temperature  $\pm 1^{\circ}\text{C}$ .

Airflow  $\pm 5\%$ .

### Power Efficiency

The design and performance of the air handling unit are optimized for achieving excellent power efficiency.

### Standards

The air handling units conform to the provisions in the SS EN 60204-1 Standard.

### Interference Level

The air handling units conform to the provisions of the EMC Directive and are tested according to EN 61000-6-2 and EN 61000-6-3 Standards (radiation in residential buildings, office buildings, shops and similar indoor environments and for immunity in industrial facilities).

### Use of an earth fault circuit breaker

The earth fault circuit breaker, if required, should only serve the air handling unit and must be of a type designed for use with the control system of the EC motor.

### Communication

Communication via TCP/IP and EIA 485 is included as standard. The TBLZ Communication unit is used for communication via LON and Trend.

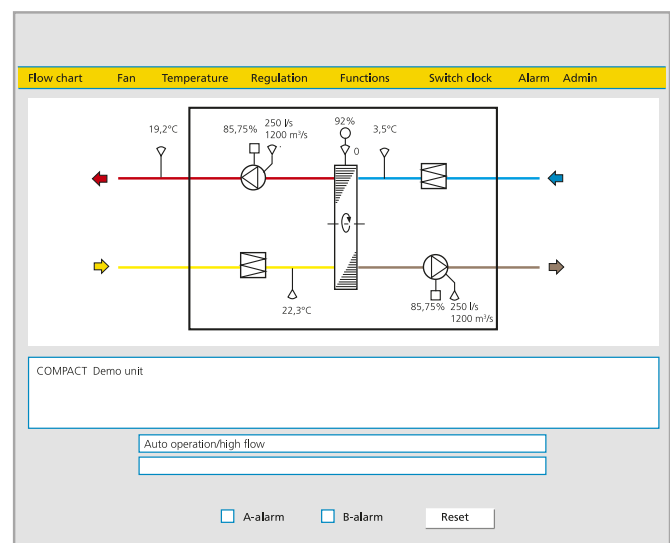
The Salutem also has built-in web communication.

Communication with the Salutem can be established via an ordinary web browser (such as Internet Explorer) and your own network, i.e. without any main control systems whatever.

In addition to the above, the Salutem units have inputs and outputs for external functions such as the forwarding of alarms or overtime operation that can be keyed in.



*IQnomic control unit.*



*Typical flow diagram for web communication.*

## Technical Description of the Salutem Units

### Electrical and Control System

#### Flow Diagram, Salutem

When you calculate performance data in the ProUnit AHU selection program, the program furnishes a project-specific flow diagram and a description of the unit's functions.

The individual components are specified below.

#### Components of the Salutem Units

V1 Outdoor air filter.

BT3 Outdoor air temperature sensor. Indicates for control of functions that affect temperature.

E1 Variable speed-controlled REConomic rotary heat exchanger.

M3 Step motor for variable speed control of the rotary heat exchanger.

BG1 Rotation monitor sensor for monitoring the heat exchanger's rotation.

G1 Direct-driven supply air fan with EC motor.

T1 Motor control system for variable regulation of the supply air fan

BF1 Flow pressure sensor, supply air. Indicates for control of the supply air fan's speed and monitors the filter status.

E2 Electric air heater (accessory) reheats the supply air if required.

BT1 Supply air temperature sensor. Indicates for control of functions that affect temperature.

V2 Extract air filter.

BT2 Extract air temperature sensor. Indicates for control of functions that affect temperature.

BQ1 VOC sensor Measures the content of emissions/impurities in the room air for regulating the airflow.

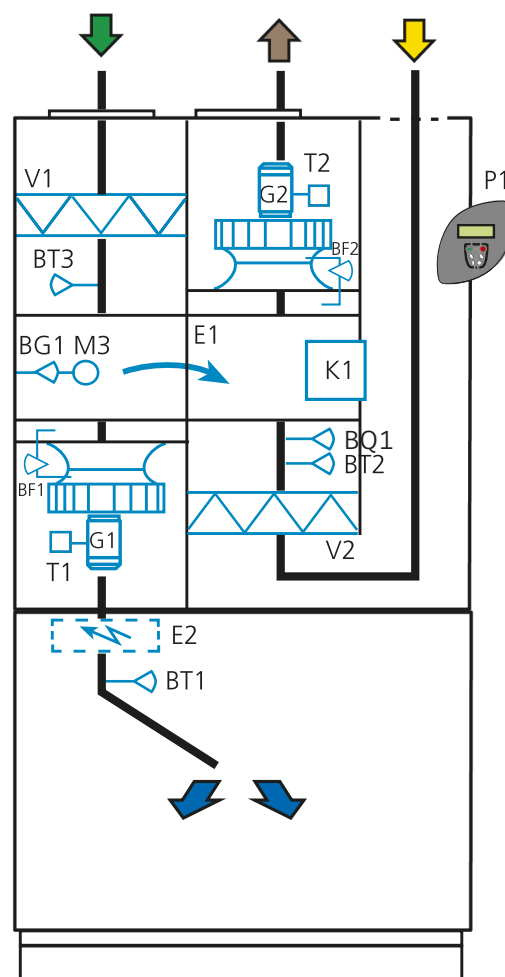
G Direct-driven extract air fan with EC motor.

T Motor control system for variable regulation of the extract air fan

BF2 Extract air flow pressure sensor. Indicates for control of the extract air fan's speed and monitors the filter status.

K IQnomic control unit containing control circuit card and other electrical equipment for controlling internal and external functions.

P Control panel for setting and reading airflows, temperatures, control functions, in-operation periods, etc. as well as alarms.



Salutem



## Technical Description of the Salutem Units

### Electrical and Control System

#### Control panel

All the settings and readings can be entered/viewed in plain text and in the language of your choice via a user-friendly control panel on the inspection door.

The control panel has keys for entering the various commands. The display screen and the keys have background lighting. A red indicating LED flashes in the event of an alarm. The preset values are stored and will not be affected in the event of a power failure.

The control panel contains logically composed menus arranged in various levels as follows:

- Main Menu 1. Intended for use by occupants in the room. Only temporary changes can be made, see the specific section below.
- Main Menu 2. An access code is required (obtainable in the maintenance instructions). Selection of automatic or manual operation and switching off the air handling unit.
- User level. Settings and readings for the functions selected.
- Installation level. An access code is required (obtainable in the maintenance instructions). Selection of functions and the setting of limit values.
- Service level. An access code is required (disclosed on completion of special training course).



Control panel on the inspection door.

#### Settings in Main Menu 1

Main Menu 1 is intended for use by occupants in the room. Only temporary changes can be made as follows:

##### Normal operation

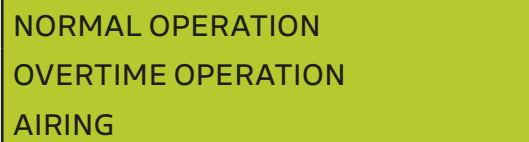
Indicates that the air handling unit is automatically operating according to the preset settings.

##### Overtime operation

Can be activated if the room is to be used one evening and the time switch clock (timer) then has controlled the air handling unit to operate at low speed or stop. The fans in the air handling unit will then operate at high speed during the preset period (Factory Setting: 45 minutes).

##### Airing

Can be activated during a break if there are many occupants in the room. The fans in the air handling unit will then operate at max. speed during the preset period (Factory Setting: 15 minutes).



Possible settings for the Salutem in Main Menu 1.

# Installation, Salutem

## General

### Delivery and Scope for Division into Sections

The Salutem units are always supplied as one unit and on a wooden pallet. To facilitate their transport within the site, the units can be split into upper and lower sections.

The fans and the inspection door in the upper section can also be dismantled. The air distribution grille in the lower section can be dismantled.

Special lifting handles to be secured to the upper section are supplied with the unit.

### Duct Connections

Circular 250 mm dia. duct connections for outdoor air and exhaust air are arranged at the top of the air handling unit. The ducts should be insulated according to local standards. *See also the section "Installation Tips" on the next page.*

### Base Beams with Base Frame

The air handling unit is equipped with 90 mm high base beams. A base frame painted black is supplied in unmounted condition with the unit for assembly at the building site.

## Connection to Power Supply

### Salutem

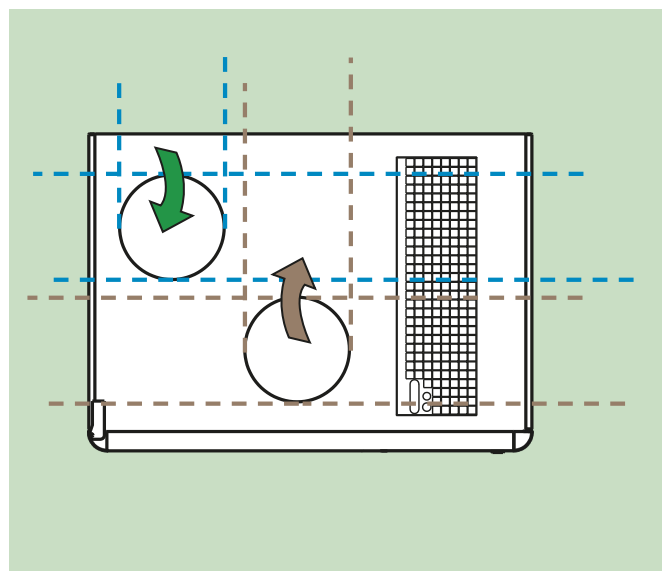
The air handling unit is equipped with a 3 metre long power supply cable (measured from the top of the air handling unit) and a mains plug for connection to an earthed electric outlet for a single-phase, 230 V, 10 A mains supply.

### Fixed electrical connection

If a fixed electrical connection is required, an external main switch must be fitted.



*The air handling units can be split to make easier to transport them within the site.*



*The duct connections for outdoor air and exhaust air are arranged in such a way that the ducts will not block one another.*

## Installation, Salutem

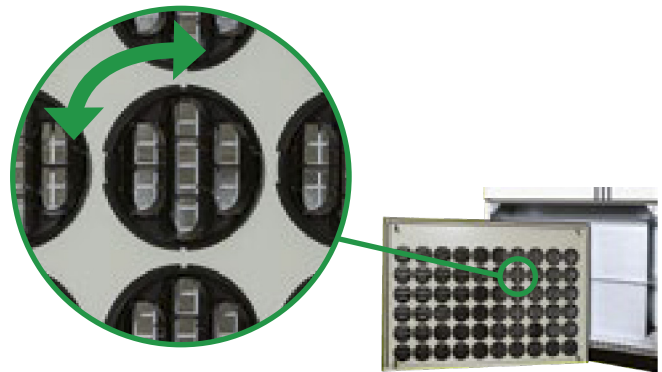
### Flexible Air Distribution Pattern

The built-in, low-velocity air diffuser in the Salutem units is equipped with unique VARI-ZON® discs for the highest degree of comfort and optimal operation. The discs are arranged on the backside of the perforated panel in the lower section of the unit.

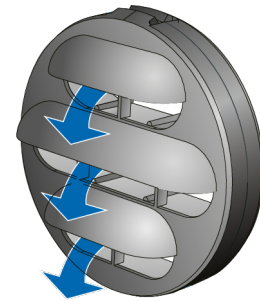
The discs can be turned by hand to the desired position and the extent of the near zone (comfort boundary) can be altered without changing the airflow, pressure drop and the noise level. This flexibility also simplifies any future changes in the way the room is used or changes in its fixtures and furniture.

Since each disc is individually adjustable, the possibilities for modifying the air distribution pattern are practically endless.

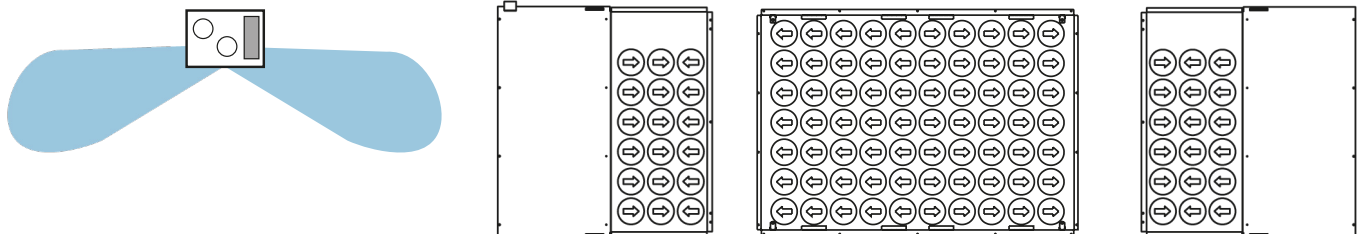
The factory-preset supply air distribution pattern and one example of the possibilities for modifying the air distribution pattern are shown below.



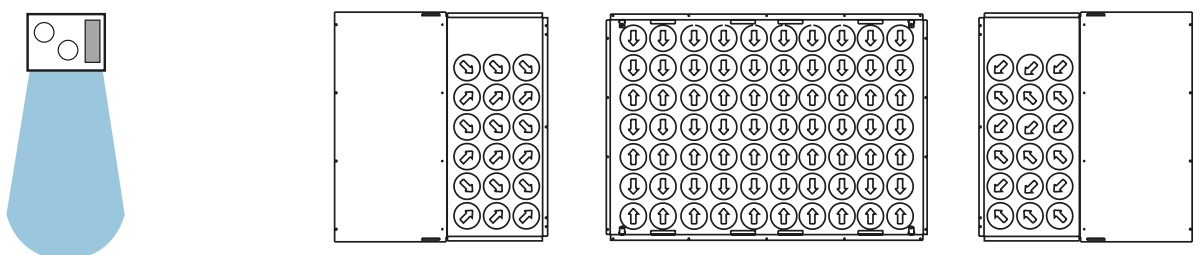
VARI-ZON® discs.



**Factory-preset air distribution discharged to the sides respectively.**



**Example of the distribution of air discharged forward.**



## Installation, Salutem

### Installation Tips

#### Sizing the Duct System

To achieve optimal operating economy and low noise level it is important to design/install the ventilation system with as low pressure drop as possible. Therefore the designer should aim at designing ducts that are as short as possible and incorporate as few duct bends as possible.

The duct connections on the Salutem unit are arranged so that ducts, with a 90° bend, including 30 mm thick insulation, can be run in any direction without blocking one another.

#### Sizing the Heating System

The supply of air that has a temperature that is slightly below the temperature in the room presupposes that the room has an additional heating means. A special function is also available for automatically reducing the supply airflow if the heat exchanger cannot manage to maintain the temperature required.

The consequence of a decrease in supply air flow is sub-atmospheric pressure in the room. Outdoor air is then instead sucked in through untight spots in windows and doors, for instance. This outdoor air must be heated by the normal heating system of the building, which also must be sized/preset to take these conditions into account.

As an alternative, an air heater can be selected as a Salutem accessory.

#### Extract Air from Several Rooms

By employing the extract air connection piece accessory, the extract air can also be taken from rooms other than where the Salutem room unit is placed. If the temperature in this/these room(s) substantially differs from the room where the Salutem unit is placed, the room sensor accessory should be used. The room sensor replaces the air handling unit's regular extract air temperature sensor and should be located where the most representative room temperature is to be found.

#### Transfer Air

Transfer air grilles or door slots to adjacent rooms have a strong influence on the system's performance.

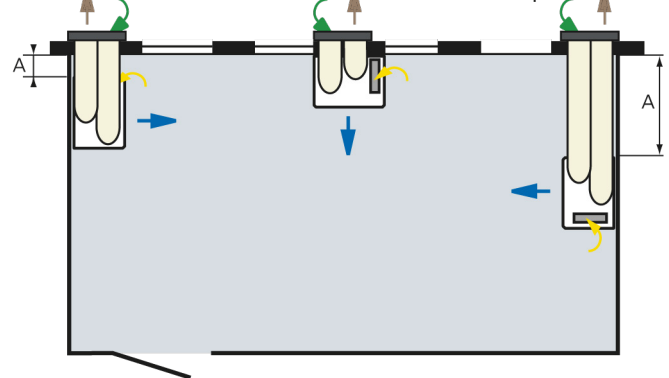
Air transfer grilles positioned low or door slots enable the transfer of fresh air to adjacent rooms as well. This effect may be desirable, but there is also risk that the ventilation in the room where the unit is placed will be insufficient.

Air transfer grilles positioned high involve the risk that contaminated air will be transferred to adjacent rooms. However, the ventilation will not be impaired in the room where the unit is placed.

#### Normal Installation for One Room

The illustration below shows three different possible ways to arrange the Salutem units. The runs of ducting will be shortest if the air handling unit can be located against an outside wall.

The distance between the unit's side and wall (A) must be at least 400 mm in order to avoid acoustical problems.



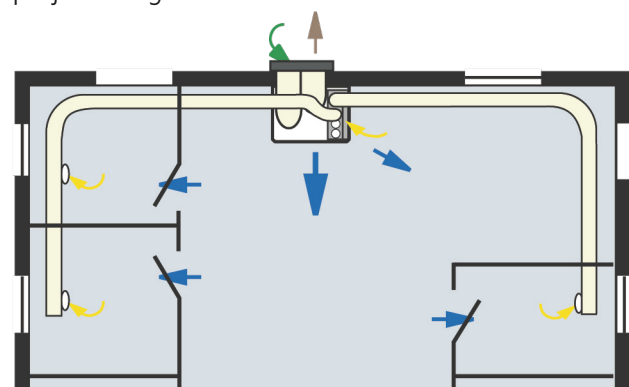
*Alternative Locations in the Room*

#### Installation for Several Rooms

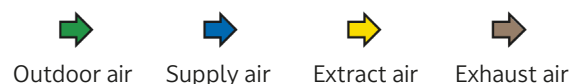
The Salutem unit can convey supply air to several rooms via door slots or transfer air grilles.

Extract air can also be taken from other spaces via ducting and the extract air connection piece accessory.

A professional should be engaged for both project design and installation.



*Supply air to several rooms via doors with an air slot at the bottom. Extract air from adjacent rooms via ducts and the extract air connection piece accessory.*



## Accessories, Salutem

### TBHF External wall hood

For the admission of outdoor air and the discharge of exhaust air. The exhaust air is horizontally discharged through a circular wire mesh grille at the front of the hood. Outdoor air is taken in through a wire mesh grille at the bottom of the hood. This design effectively prevents short-circuit airflow between the outdoor air/exhaust air.

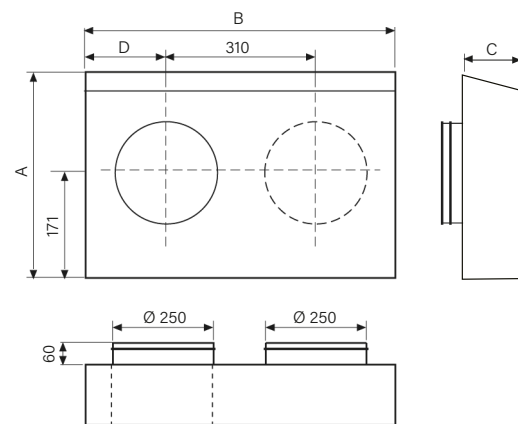
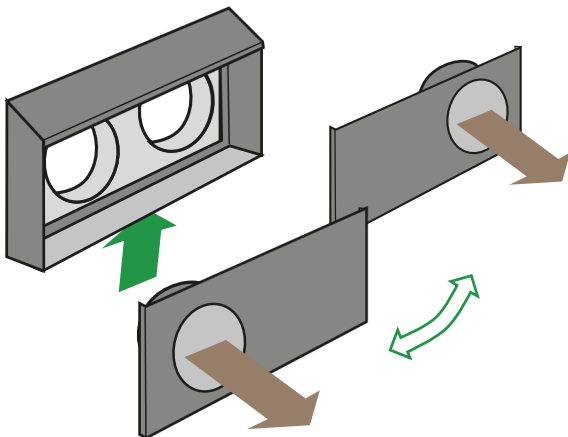
Available in two variants, with or without acoustic insulation.

#### Technical Data

Made of aluminium-zinc plated sheet steel painted dark grey, RAL 7021 (equivalent to NCSS 8502-B), Environmental Class C4.

#### Installation

The 250 mm dia. connections are fitted with rubber seal rings. When you cut an opening in a wall, bear in mind that the ducts must be insulated with at least 30 mm thick insulation and be lined with a damp-proof external material. The front panel of the external wall hood can be lifted off (after removing its screws), reversed and resecured. This makes the duct connections for exhaust air and outdoor air optional.



TBHF	A	B	C	D
Without acoust. insul.	440	683	167	185
With acoust. insul.	470	830	220	260

### CACZ Cover plate

Designed to conceal the duct connections arranged from the top of the air handling unit. Several cover plates can be stacked on one another.

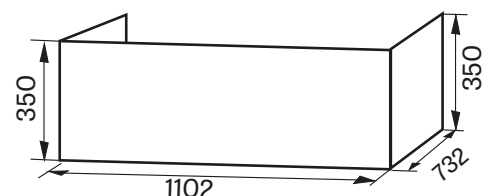
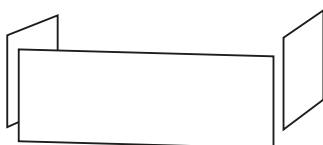
#### Technical Data

The cover plates are painted in the same colour as the Salutem.

#### Installation

The cover plates consist of three sections (end pieces + long side) to be assembled together. If ducts are run to the side, an opening must be made for the ducts.

At least 30 mm open space to the ceiling must be provided.



## Accessories, Salutem

### CACZ Extract air connection piece

For ventilating rooms in addition to the room where the Salutem unit is located.

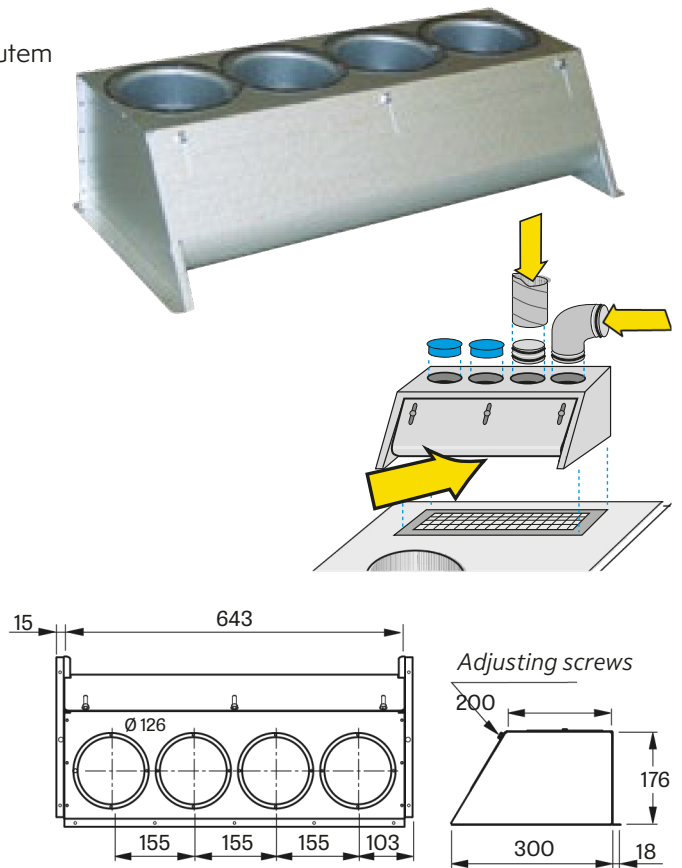
#### Technical Data

Has four 125 mm dia. circular duct connections for extract air from other rooms and a rectangular opening for extract air from the same room where the unit is placed. The rectangular opening is flexible for adjusting the airflows.

#### Installation

To be secured by screws over the air handling unit's regular extract air inlet. Duct bends fit directly into the duct connections. Spiral insertion joints are required for connecting straight ducts. The connections that are not used should be blanked off by a cover.

Duct components are not included in the supply.

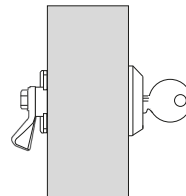


### TBLZ Door lock

For use where more stringent demands on security are made as opposed to locking with a standard special key. Supplied as a set of 2 locks with key.

#### Installation

Supplied loose for changing the existing lock at the building site.



### TBSA Damper

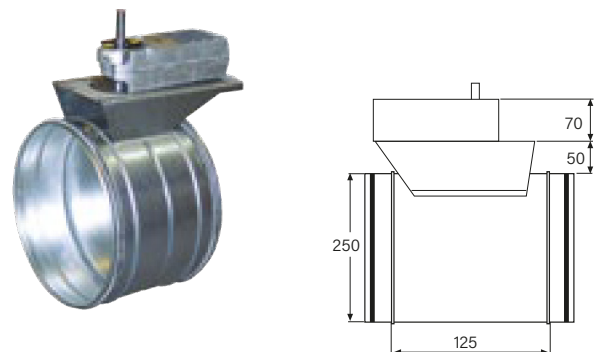
Designed for preventing cold draughts while the air handling unit is switched off. The IQnomic controls the operation of the damper.

#### Technical Data

Complete with damper actuator for 230 V. The actuator can be selected with spring return or on/off actuation. Tightness Class 3 to EN 1751 Standard.

#### Installation

Is fitted with a rubber seal ring and can be mounted either in a horizontal or a vertical duct. Connect the controls and power supply to the air handling unit's control unit.



## Accessories, Salutem

### TBLZ Louvre damper

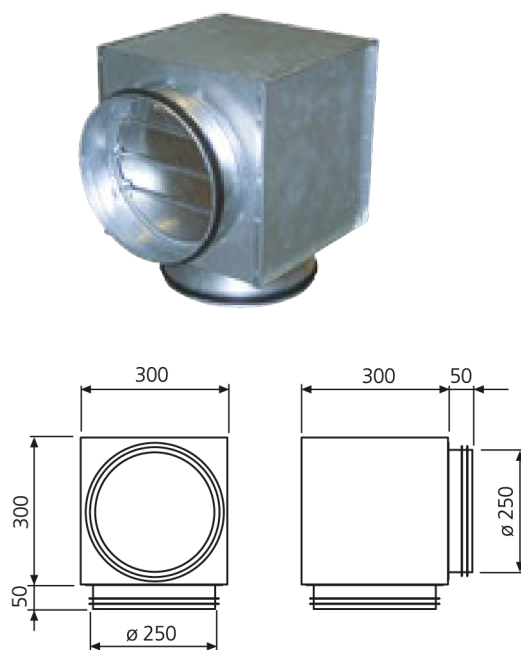
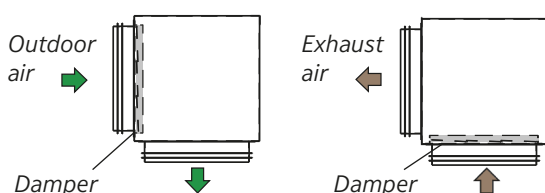
Designed for preventing cold draughts while the air handling unit is switched off.

#### Technical Data

The damper blades in the louvre damper are opened by the air pressure when the fans in the room unit are operating and automatically close when the fans are idle.

#### Installation

Is fitted with a rubber seal ring and is mounted directly on the exhaust air and/or outdoor air connection as illustrated to the right.



### CARE Electric air heater

For reheating supply air.

#### Technical Data

Capacity: 1.2 kW. The overheat protection is included.

#### Installation

Supplied loose for installation at the building site. To be located at prepared place inside the air handling unit. Connect the controls and 230 V power supply to the air handling unit's control unit.



### TBKA, TBKC Air cooler

For cooling supply air.

The Salutem systems can be equipped with air cooler in the outdoor air duct upstream of the air handling unit. The air handling unit's control unit has ready-to-use cooling functions to activate.

TBKA (water) or TBKC (direct expansion) air coolers are recommended. See description in the section entitled: Accessories, in the chapter entitled: Salutem Unit & Top.



## Accessories, Salutem

### Electrical and Control Equipment

#### Presence detector

For controlling high and low speed operation instead of the room unit's built-in timer. As soon as the sensor registers the presence of an occupant in the room, the air handling unit is controlled to the high speed mode; when there are no occupants, to the low speed mode.

To be connected via appropriate terminals on the control unit.

#### Air Quality Sensor

For controlling high and low speed operation instead of the room unit's built-in timer. The air quality sensor registers the carbon dioxide content in the room air and the control unit regulates the airflow required within preset limits.

To be connected via appropriate terminals on the control unit.

#### Room sensor

For use when the room unit's built-in extract air temperature sensor does not provide representative values. Can for example be required when the extract air is taken from adjacent rooms by means of the extract air connection piece accessory.

Designed for wall-mounting and is available for Enclosure Class IP 20. To be connected to appropriate terminals on the control unit.

#### Timer

For time-limited overtime operation when the room unit's built-in time switch has controlled the room unit to operate in the low speed mode or to stop. For strap-on mounting.

To be connected via appropriate terminals on the control unit.

#### Pushbutton

For overtime operation when the room unit's built-in time switch has controlled the room unit to operate in the low speed mode or to stop. For strap-on mounting. Can be selected with or without indication.

To be connected via appropriate terminals on the control unit.

#### SD card

For program transmissions and logging.

#### IQnomic Plus

The extra functions for which the inputs and outputs are not included as standard in the room unit's control unit, for example external monitoring and cooling.

#### TBLZ Communication Unit

For communication via LON FTT-10 – Lon Works and Trend (communication via TCP/IP and EIA 485 as well as via internal webserver is standard in the Salutem).

To be connected to the communication port of the control unit.

## Specification, Salutem

### Air handling unit

#### Air handling unit, Salutem

Size	02	= 02	CA-aa-C-1-1
	03	= 03	

### Electrical and Control Equipment

#### Communication unit

For interface: LON FFT-10 Trend			TBLZ-3-1-a-41
		= 1	
		= 2	

#### Room sensor

For wall mounting. Enclosure Class IP 20. TBLZ-1-24-2

#### Timer

0-2 hour prolonged operation ELQZ-1-406-a

#### Version:

For strap-on mounting	= 1
-----------------------	-----

#### Pushbutton for prolonged operation

Without indicating LED	= 0	TBLZ-1-81-a
With indicating LED	= 1	

#### Presence detector

TBLZ-1-56

#### Air quality sensor, room

ELQZ-2-504

#### SD card

Flash card for program transmissions and logging TBLZ-1-62-a

#### Version:

Without Salutem program	= 1
With Salutem program	= 3

#### IQnomic Plus

Functional module and connection cable TBIQ-2-1-aa

#### Version:

0.25 m	= 00
1 m	= 01
3 m	= 03
5 m	= 05
10 m	= 10
15 m	= 15

#### Modular/terminal adaptor

TBLZ-1-55

### Accessories

#### External wall hood TBHF-2-0025-b

Combination hood for outdoor air/exhaust air

Insulation	Without	= 0	
	With	= 1	

#### Cover plate

CACZ-2-07

**Extract air connection piece** Connection of  
Extract Air from Several Rooms

CACZ-2-06

**Door lock** Set of two door  
locks with key.

TBLZ-1-57

#### Damper with motor

Tightness Class 3, 250 mm dia. duct connection  
Uninsulated damper blades

Damper motor:

With spring return = 1

On/off

TBSA-1-000-025-1-a

= 2

#### Louvre damper

TBLZ-1-54

**CARE-1-01 Electric air heater, Salutem** 1.2 kW for  
installation in Salutem program Air system.

**Air cooler, for chilled water TBKA-5-000-031-1** Capacity  
variant 1. 250 mm dia. duct connection

**Air cooler, for chilled water TBKA-5-000-031-2** Capacity  
variant 2. 315 mm dia. duct connection

#### Valve set, cooling and heating

2(3)-way valve including actuator.

TBVA-1-aaa

Valve size:

Kvs 0.25	= 002
Kvs 0.40	= 004
Kvs 0.63	= 006
Kvs 1.0	= 010
Kvs 1.6	= 016
Kvs 2.5	= 025
Kvs 4	= 040
Kvs 6.3	= 063

#### Air cooler, direct expansion

Duct connection size, 315 mm dia. 1 section.

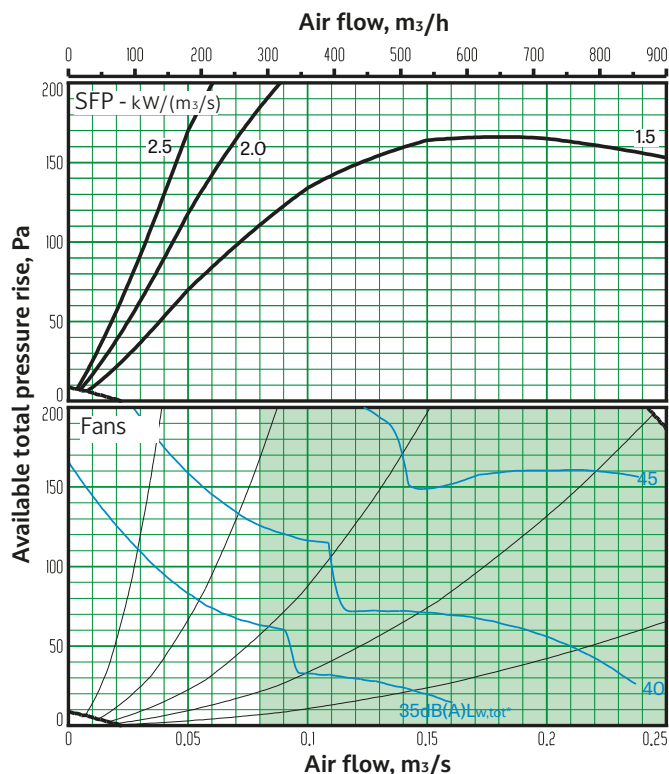
TBKC-4-000-031-1-1

### Replacement Material

**Set of filters, pleated filter, Salutem  
program** For supply air and extract air

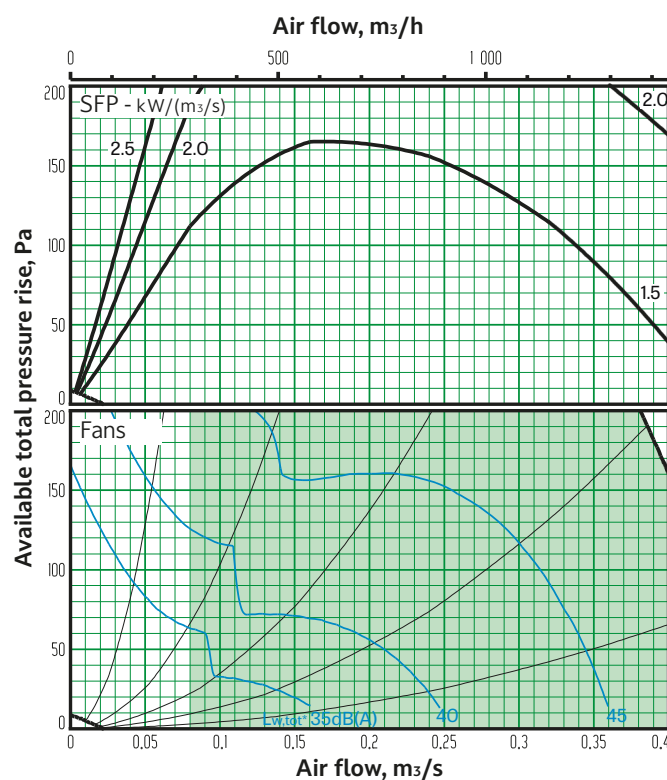
TBFZ-1-07

## Salutem, size 02



The air handling units comply with requirements to Ecodesign 2018.

## Salutem size 03



The air handling units comply with requirements to Ecodesign 2018.

## Acoustic calculations

\*)  $L_{w,tot}$  in the diagram above refers to the total sound pressure level in dB(A) to the room. For additional sound data, see the product selection software AHU Design.

**Min. and max. air flows, Salutem** The tabulated flows are those that are possible to set. The practical flow limits are determined by the external pressure drop.

Salutem	Min. flow rate		Max. flow rate	
	m³/h*	m³/s	m³/h*	m³/s
02	300	0.08	900	0.25
03	300	0.08	1440	0.40

\* When adjusting the flow, round off the value to the nearest settable step.

## Sizing

### Salutem

#### Delivery and Transport within the Site

The air handling unit is produced in one variant in which all the components are arranged at their given physical locations inside the unit.

The air handling unit is delivered on a wooden pallet. The base frame and possible accessories are supplied in unmounted condition.

The air diffuser section can be separated from the main unit section for transporting them within the building site. The inspection door and the fans can also be dismantled from the unit.

#### Electrical Data

##### Minimum power supply

1-phase, 3-wire, 230 V -10/+15%, 50 Hz, 10 AT.

The room unit is equipped a 3 m long cable (measured from the top of the unit) and a mains plug.

If a fixed electrical connection is required, an external main switch must be fitted.

##### Rated data per fan

Size 02: 1 x 230 V, 50/60 Hz, 0.4 kW (0.24 kW)\*

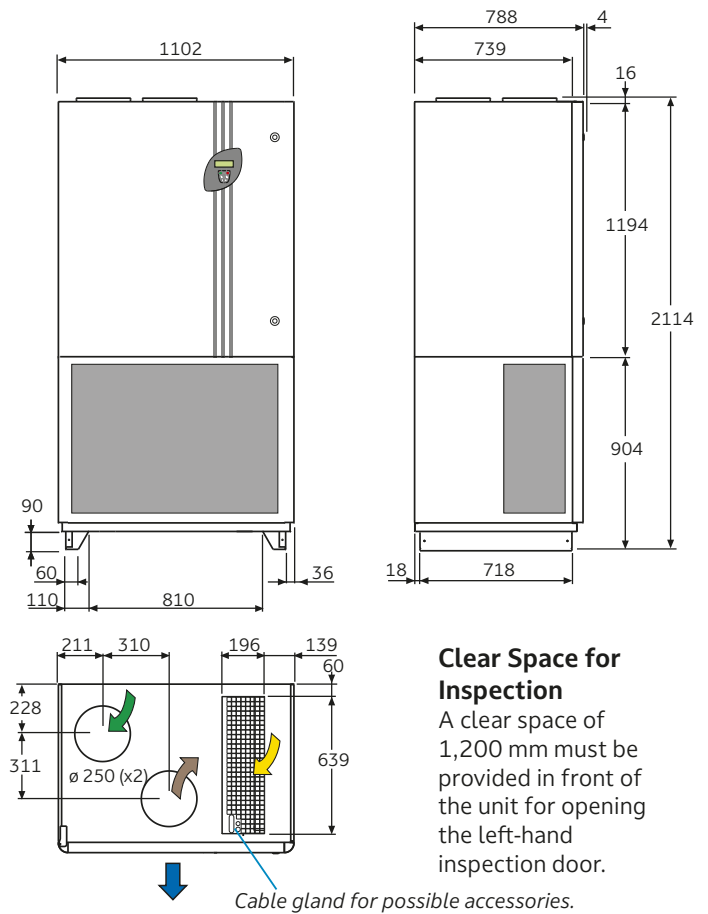
Size 03: 1 x 230 V, 50/60 Hz, 0.4 kW

\*) The motor control system limits the output power to the value specified.

##### Rated data for the heat exchanger drive motor

Step motor, 3-phase, 5.8 A (2A)\*, 62 V max 90 V.

\*) The motor control system limits the output power to the value specified.



#### Clear Space for Inspection

A clear space of 1,200 mm must be provided in front of the unit for opening the left-hand inspection door.




Salutem	Weight, kg Air		
	Unit section	diffuser section	Total
02	214	117	331
03	214	117	331


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