

Fresh air from

**ÖSTBERG**  
THE FAN COMPANY

# SAU

Supply air unit



# Contents

|                                  |          |
|----------------------------------|----------|
| <b>SUPPLY AIR UNIT SAU</b> ..... | <b>3</b> |
| <b>SAU 125 A1</b> .....          | <b>4</b> |
| <b>SAU 125 C1</b> .....          | <b>4</b> |
| <b>SAU 200 B1/B3</b> .....       | <b>5</b> |
| <b>SAU 200 C3</b> .....          | <b>5</b> |
| <b>SAU 250 E1</b> .....          | <b>6</b> |
| <b>GENERAL FAN FACTS</b> .....   | <b>7</b> |

# FOR A PLEASANT INDOOR CLIMATE



## Supply air unit SAU

Supply air unit SAU is designed to give a pleasant indoor climate, controlling the heat and providing clean air.

The unit is delivered complete with filter, fan and heater.

SAU is manufactured from galvanised steel and are insulated with 50 mm mineral wool insulation with a weaved fiberglass surface which is easy to clean. That's why the unit can be placed in both warm or cold area.

The motor is a maintenance free ball bearing mounted external rotor motor, with a backward curved impeller. The fan is easy to clean due to the swing-out design.

There are three sizes and five different capacities available of SAU.

### REGULATION

With the externally placed operating panel one can choose between two fan speeds as well as on/off for the heater radiator.

SAU 125 och 200 can also be delivered with a built-in pulser (with an externally placed switch to select the proper value) and duct sensor.

To regulate the SAU 250 a control unit is a possible accessory, consisting of regulator, 3-way valve, shutter valve motor and duct sensor. A 5-step transformer is a suitable controller for the fan.



# SAU 125 A1

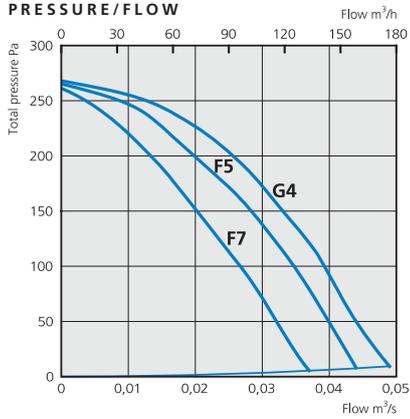
# SAU 125 C1

Supply air unit with backward curved impeller and swing-out design

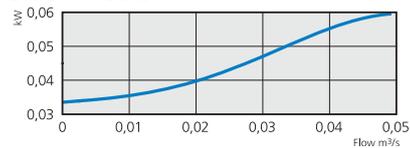


## SAU 125 A1

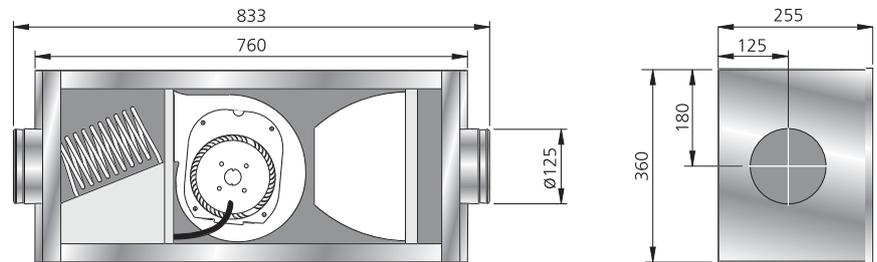
### PRESSURE/FLOW



### EFFECT/FLOW



### DIMENSIONS (mm)



### TECHNICAL DATA

| Voltage V/Hz | Voltage with pulser | Current A | Fan power W | Total power W | Heater power W | Weight kg | Duct connection |
|--------------|---------------------|-----------|-------------|---------------|----------------|-----------|-----------------|
| 230/50       | 230/50              | 4,5       | 41          | 1041          | 1000           | 20        | 125 Ø mm        |

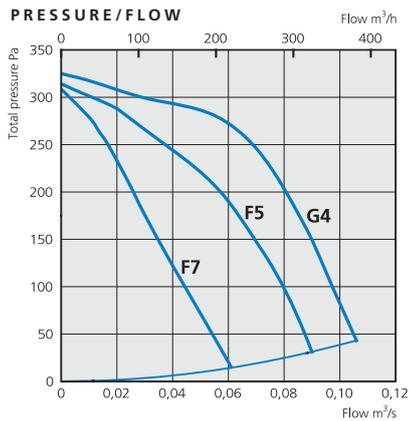
### SOUND DATA

| SAU 125 A1, 0,027 m³/s | L <sub>pA</sub> Tot | L <sub>wA</sub> Tot | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|------------------------|---------------------|---------------------|----|-----|-----|-----|----|----|----|----|
| Environment            | 38                  | 45                  | 28 | 33  | 38  | 41  | 36 | 33 | 30 | 32 |
| Inlet                  |                     | 55                  | 47 | 52  | 50  | 42  | 38 | 36 | 32 | 31 |
| Outlet                 |                     | 59                  | 49 | 54  | 50  | 51  | 53 | 48 | 42 | 36 |

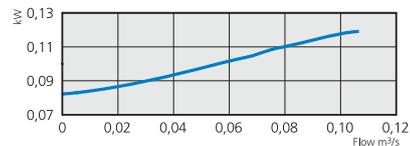
All above sound data are measured with G4-filter (highest pressure/flow). Filter only reduces pressure -> same sound data irrespective of filter at the same flow.

## SAU 125 C1

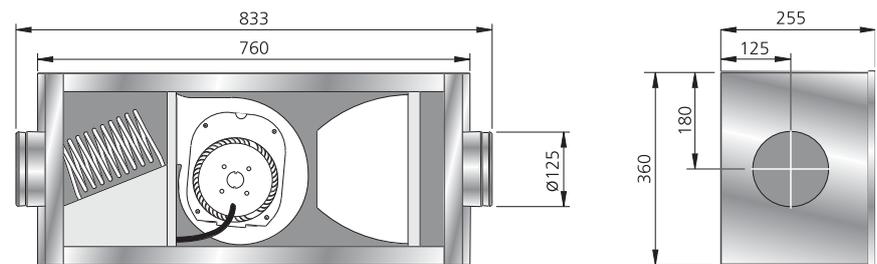
### PRESSURE/FLOW



### EFFECT/FLOW



### DIMENSIONS (mm)



### TECHNICAL DATA

| Voltage V/Hz | Voltage with pulser | Current A | Fan power W | Total power W | Heater power W | Weight kg | Duct connection |
|--------------|---------------------|-----------|-------------|---------------|----------------|-----------|-----------------|
| 230/50       | 230/50              | 9,2       | 110         | 2110          | 2000           | 20        | 125 Ø mm        |

### SOUND DATA

| SAU 125 C1, 0,063 m³/s | L <sub>pA</sub> Tot | L <sub>wA</sub> Tot | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|------------------------|---------------------|---------------------|----|-----|-----|-----|----|----|----|----|
| Environment            | 42                  | 49                  | 28 | 38  | 44  | 45  | 39 | 36 | 32 | 32 |
| Inlet                  |                     | 60                  | 50 | 56  | 56  | 48  | 43 | 42 | 40 | 30 |
| Outlet                 |                     | 65                  | 52 | 60  | 56  | 56  | 58 | 57 | 49 | 45 |

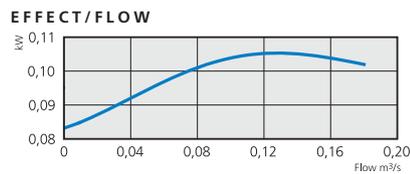
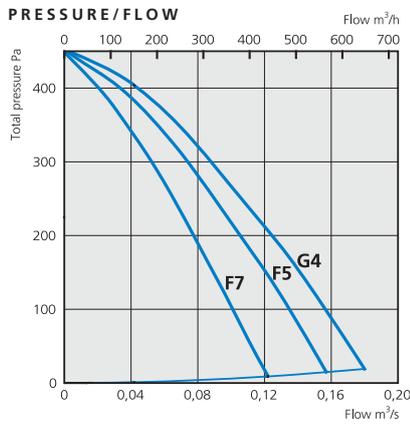
All above sound data are measured with G4-filter (highest pressure/flow). Filter only reduces pressure -> same sound data irrespective of filter at the same flow.



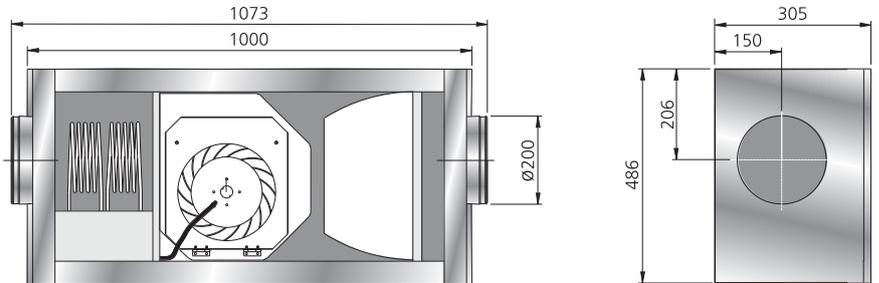
# SAU 200 B1/B3 SAU 200 C3

Supply air unit with backward curved impeller and swing-out design

## SAU 200 B1/B3



### DIMENSIONS (mm)



### TECHNICAL DATA

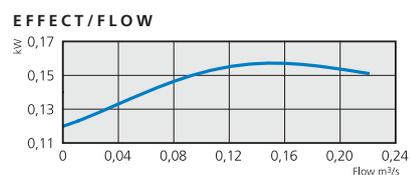
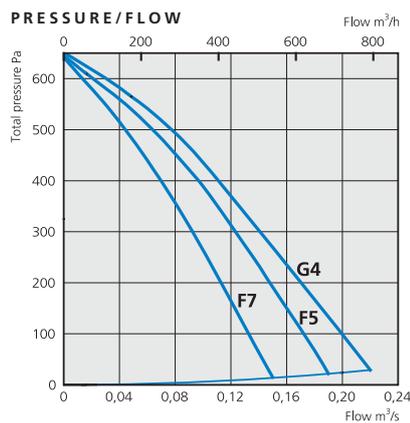
|            | Voltage<br>V/Hz | Voltage<br>with pulser | Current<br>A | Fan power<br>W | Total power<br>W | Heater<br>power W | Weight<br>kg | Duct<br>connection |
|------------|-----------------|------------------------|--------------|----------------|------------------|-------------------|--------------|--------------------|
| SAU 200 B1 | 230/50          | 230/50                 | 9,2          | 105            | 2105             | 2000              | 31           | 200 Ø mm           |
| SAU 200 B3 | 3x400/50        | 2x400/50               | 2x6,4        | 105            | 4505/5105        | 4400/5000         | 33           | 200 Ø mm           |

### SOUND DATA

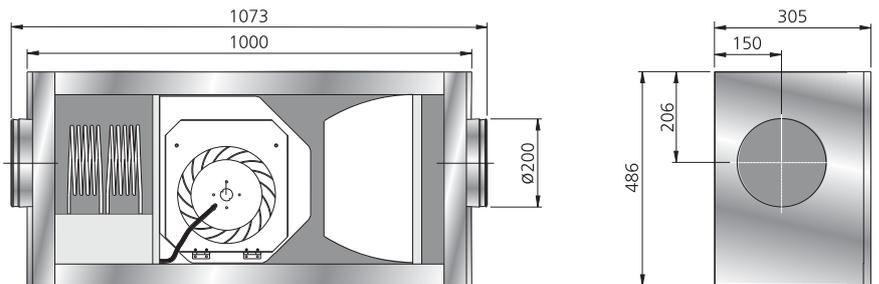
| SAU 200 B1/B3, 0,095 m³/s | $L_{pA}Tot$ | $L_{wA}Tot$ | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---------------------------|-------------|-------------|----|-----|-----|-----|----|----|----|----|
| Environment               | 43          | 50          | 46 | 41  | 44  | 46  | 41 | 38 | 34 | 32 |
| Inlet                     |             | 62          | 45 | 53  | 59  | 58  | 49 | 44 | 40 | 27 |
| Outlet                    |             | 69          | 51 | 55  | 62  | 66  | 63 | 58 | 51 | 39 |

All above sound data are measured with G4-filter (highest pressure/flow). Filter only reduces pressure -> same sound data irrespective of filter at the same flow.

## SAU 200 C3



### DIMENSIONS (mm)



### TECHNICAL DATA

| Voltage<br>V/Hz | Voltage<br>with pulser | Current<br>A | Fan power<br>W | Total power<br>W | Heater power<br>W | Weight<br>kg | Duct<br>connection |
|-----------------|------------------------|--------------|----------------|------------------|-------------------|--------------|--------------------|
| 3x400/50        | 2x400/50               | 2x6,5        | 160            | 4560/5160        | 4400/5000         | 35           | 200 Ø mm           |

### SOUND DATA

| SAU 200 C3, 0,102 m³/s | $L_{pA}Tot$ | $L_{wA}Tot$ | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|------------------------|-------------|-------------|----|-----|-----|-----|----|----|----|----|
| Environment            | 46          | 53          | 40 | 41  | 47  | 49  | 44 | 41 | 37 | 33 |
| Inlet                  |             | 64          | 50 | 57  | 60  | 60  | 50 | 46 | 44 | 33 |
| Outlet                 |             | 72          | 54 | 59  | 64  | 68  | 66 | 61 | 54 | 46 |

All above sound data are measured with G4-filter (highest pressure/flow). Filter only reduces pressure -> same sound data irrespective of filter at the same flow.

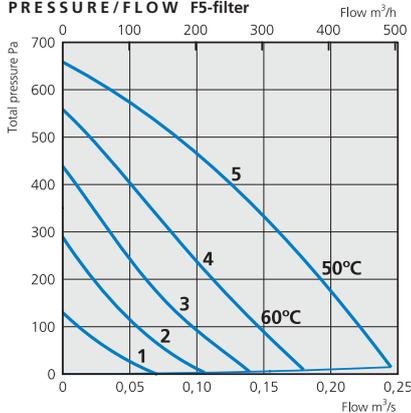
# SAU 250 E 1

Supply air unit with water battery, backward curved impeller and swing-out design

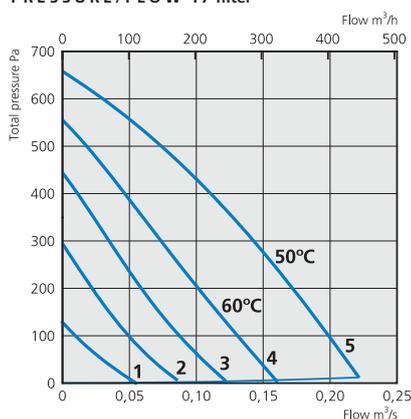


## SAU 250 E 1

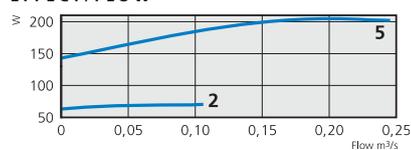
**PRESSURE/FLOW F5-filter**



**PRESSURE/FLOW F7-filter**



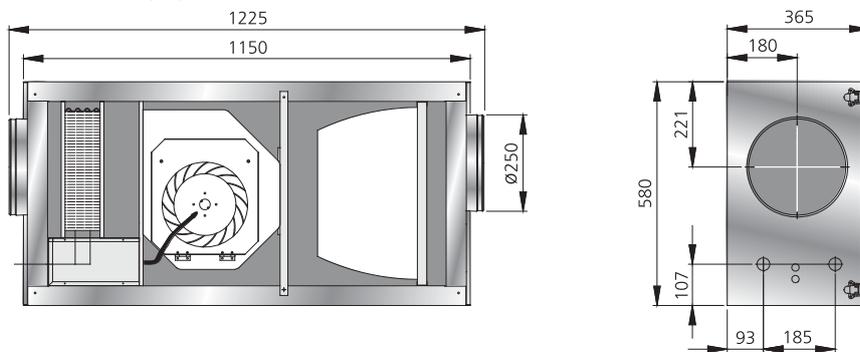
**EFFECT/FLOW**



**TRANSFORMER STEPS**

| 1   | 2    | 3    | 4    | 5    |
|-----|------|------|------|------|
| 80V | 110V | 135V | 165V | 230V |

**DIMENSIONS (mm)**



**TECHNICAL DATA**

| Voltage V/Hz | Voltage with pulser | Current A | Fan power W | Total power W | Heater power W | Weight kg | Duct connection |
|--------------|---------------------|-----------|-------------|---------------|----------------|-----------|-----------------|
| 230/50       | 230/50              | 0,9       | 200         | 192           | -              | 45        | 250 Ø mm        |

**TECHNICAL DATA with water battery**

| Airflow             | Power kW | Temperature water | Pressure drop kPa | Flow l/s | Connection mm |
|---------------------|----------|-------------------|-------------------|----------|---------------|
| 250 l/s och 45°C DT | 14,7     | 60/40             | 11,2              | 0,18     | 18            |
| 200 l/s och 50°C DT | 12,7     | 60/40             | 8,5               | 0,15     | 18            |
| 150 l/s och 55°C DT | 10,3     | 60/40             | 5,9               | 0,12     | 18            |

**SOUND DATA**

| SAU 250 E, 0,170 m³/s | L <sub>pA</sub> Tot | L <sub>wA</sub> Tot | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|-----------------------|---------------------|---------------------|----|-----|-----|-----|----|----|----|----|
| Environment           | 43                  | 50                  | 38 | 40  | 45  | 48  | 35 | 31 | 30 | 28 |
| Inlet                 |                     | 58                  | 50 | 51  | 53  | 54  | 45 | 44 | 42 | 35 |
| Outlet                |                     | 74                  | 54 | 56  | 62  | 73  | 62 | 64 | 62 | 52 |

All above sound data are measured with G4-filter (highest pressure/flow). Filter only reduces pressure -> same sound data irrespective of filter at the same flow.

## Sound data with G4-filter

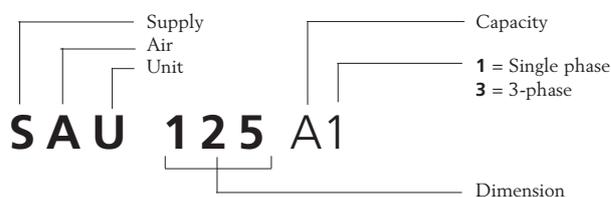
The sound data have been compiled by means of sound measurements methods as follows:  
 Pressure and drop: SS-ISO 5801.  
 Determination of acoustic sound level in duct: SS-ISO 5136.  
 Determination of acoustic sound level in reverberation room: SS-EN ISO 3741.

### DESIGNATIONS

$L_{wA}Tot$ : Total A-weighted sound power level dB(A)  
 (ref  $10^{-12}W$ )= the sum of the sound power level in the octave ranges.  
 $L_{wA}$ : A-weighted sound power level in octave range dB(A)(ref  $10^{-12}W$ ).

$L_{pA}$ : A-weighted sound pressure level in dB(A) according to normed A-weighting correction and relating to an effective absorption area of 20 m<sup>2</sup> with half spherical translation at a distance of 3 metres.

## Key to model types



## Pressure/flow-curves explanation

**FIG. 1:**  
 The fan curve describes the capacity of the fan, i.e. the flow of the fan at different pressures at a certain input voltage.

The fan diagram has the pressure in Pascal, Pa, on the vertical axis and the flow in cubic metres per second, m<sup>3</sup>/s, on the horizontal axis.

The point on the fan curve showing the current pressure and flow is called the fans working point. In our example it is marked with P.

If the pressure increases in the ducts, the working point moves along the fan curve and hence a lower flow is obtained. In the example the working point would move from P1 to P2.

**FIG. 2:**  
 The system line describes the total behaviour of a ventilation system (ducts, silencers and valves etc.).

Along this system line, S, the working point is moved from P2 to P3 as the rotational speed is changed.

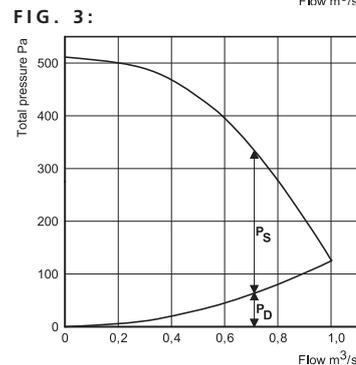
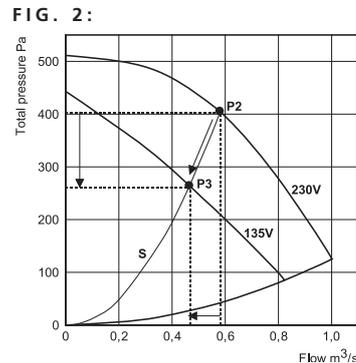
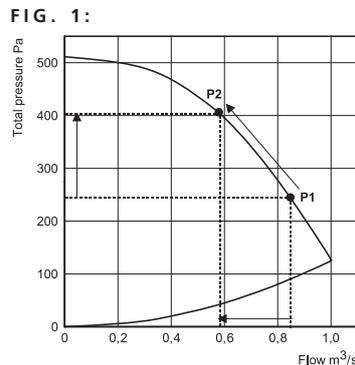
Distinct voltage steps with eg. a transformer produces different fan curves, 135 V and 230 V, indicated in the example.

**FIG. 3:**  
 Our fan curves present the total pressure in Pascal. Total pressure = Static + Dynamic pressure.

The static pressure is the pressure of the fan compared to the atmospheric pressure. It is

this pressure that shall overcome the pressure losses of the ventilation system.

The dynamic pressure is a calculated pressure that arises at the outlet of the fan, and is mostly due to air velocity. The dynamic pressure thus describes how the fan is working. The dynamic pressure is presented with a curve, starting at origo, that increases with increased flow. A high dynamic pressure can with wrong duct connection produce a high pressure loss. If the pressure loss in the system is known, a fan whose difference between the total and the dynamic pressure corresponds to the pressure loss in the system must be found.



## Temperature of transported air

In pressure/flow diagrams or in the table of technical data there are facts about highest temperature of transported air.

All motors have insulation class F which means that the thermal contact disconnects the power when the winding temperature is maximum 155°C. At this winding temperature the

life time of the ball bearings is not optimal. This is why the ambient temperature is shown at a lower winding temperature so the life time of ball bearings becomes optimal.

The winding temperature varies in the diagrams and depending on differences in power/current consumption. The temperatures in our

diagrams are given at the highest winding temperature. Lindingstemperaturen varierar efter fläktkurvan, beroende av skillnader i effekt/strömförbrukning. Temperaturer i våra diagram är angivna vid högsta lindingstemperatur.



## ÖSTBERG - THE FAN COMPANY

Östberg – The Fan Company is one of leading producers of centrifugal in-line duct fans in the world.

30 years ago the founder and owner was one of the inventors of the first centrifugal in-line duct fan in the history.

We have continued to develop new products and today we offer a wide range of centrifugal in-line duct fans.

Our goal has always been to offer quality products at competitive prices.

*Fresh air from*

**ÖSTBERG**  
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