

## Air Handling Unit

Double standing heatrecovery exchangers

### DIA2X



Counter cross heat exchanger

Danish AHU Manufacturer

Dyrholm ApS

Teglvaenget 89, 7400 Herning

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# DIA2X air handling unit

DIA2X AHU with double cross heat exchanger are designed and sized for the medium and large airflow units from 9.000m<sup>3</sup>/h and up to 40.000m<sup>3</sup>/h.

The external static pressure available is standard calculated for approx. 300Pa. You may also inform us which pressure is needed for your DIA2X AHU and we will calculate the fan`s which is suitable for your request.

The cabinets are constructed of bended galvanized steel plates to sandwich panels. The sandwich panels are 50mm thick. The panels consist of 2 pieces galvanized steel plates with intermediate compressed glass wool insulation.

DIA2X AHU can be offered for either horizontal duct connection or vertical duct connection.

Positions for duct connection determine the size of the unit as seen on our tables (page 5).

The cabinets are smooth out / inside, which ensures easy cleaning. The cabinets are also offered with inner perforated galvanized steel sheet, which ensure improved noise reduction on the fans.

The service access is equipped with tight-fitting doors, which is constructed as the panels and fitted with rubber seals. The doors are provided with twist locks, and can be opened approximately 160°, which ensures easy access for inspection and service purposes. The doors come also as removable panels, if the technical room is too small.

DIA2X is always available with centrifugal ventilators.

The DIA2X AHU is dimensioned for less power consumption per. m<sup>3</sup> ventilated air per. hour (SFP) hereby; the system pressure loss will be as little as possible.

DIA2X AHU offers outdoor installation for additional charge:

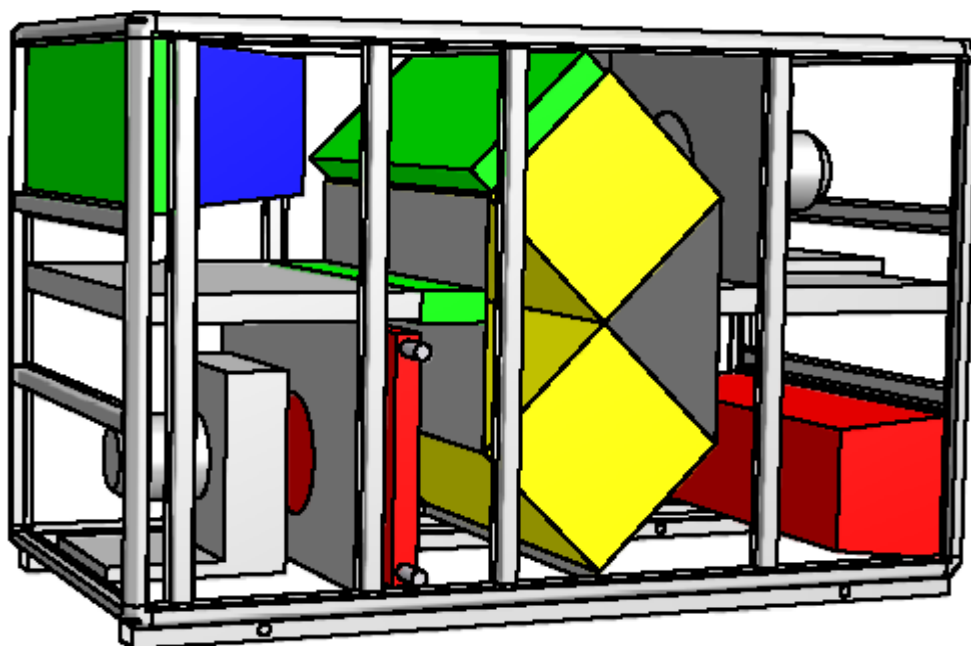
- AHU for external location comes with water drains and roofing felt on the roof structure.
- AHU is also offered with exterior installation requires IP54 protection class on electrical components.

DIA2X AHU components can also be offered with cooling coil`s and cooling unit`s, please contact us for more details and additional price.

Notices: DIA2X AHU without ATEX classifications must not be installed or work in an ATEX environment.

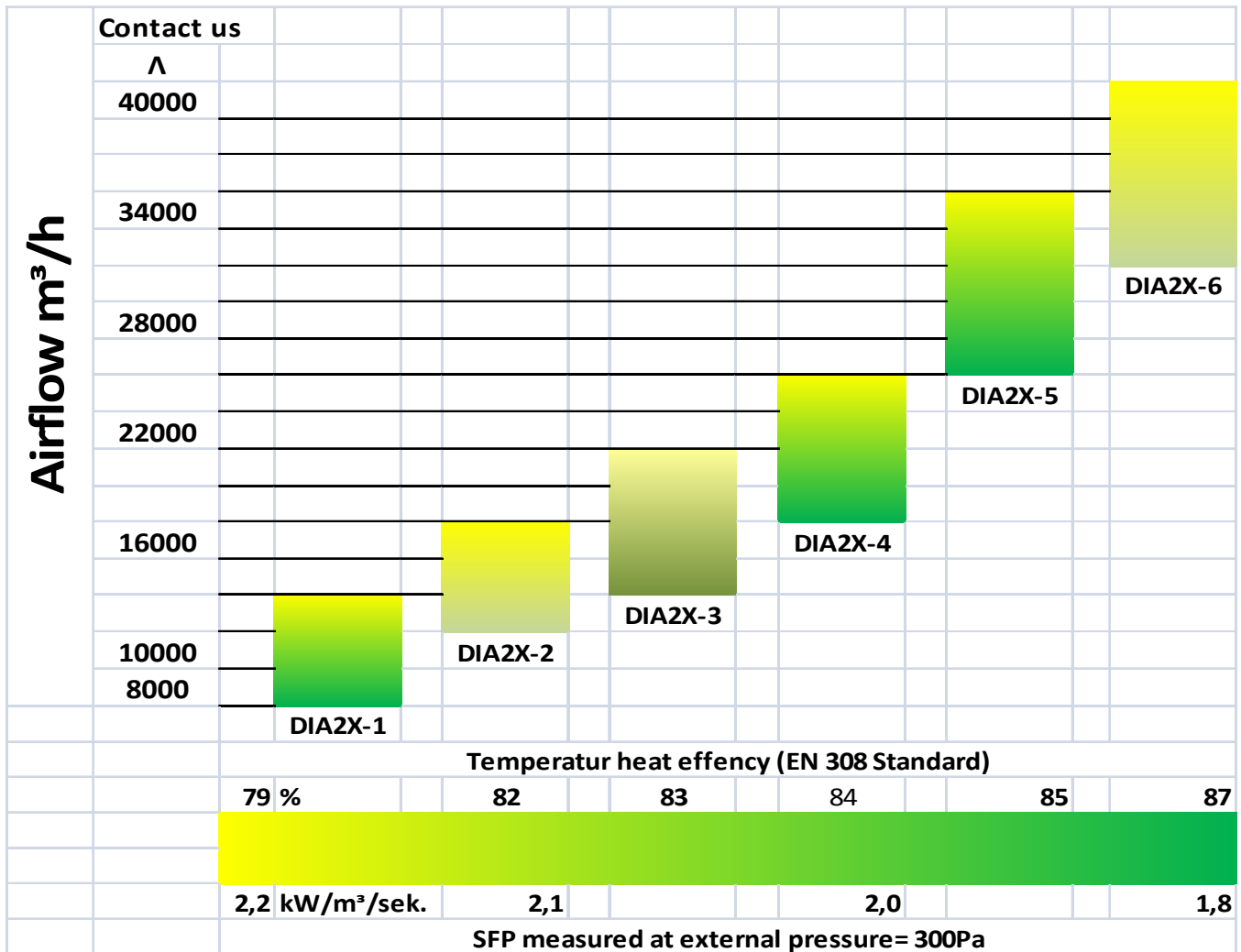
DIA2X AHU is as standard fitted with a bottom frame underneath the unit.

The DIA2X AHU is constructed to work in temperatures from minimum -25 to max. +35°C.



Drawing from construction of a DIA2X-2 pos. 2.7

# Product overhead





# Position options





 Inlet Filter

 Exhaust Filter

 Recuperator

 Heating coil

 Damper

 Fan

# Technical specifications: DIA2X 1 - 6

## Climate & airhandling units for comfort/industrial use

<b>Position (pos.)</b> see page 5, position opportunities	: acc. to order confirmation
<b>Material:</b>	
Bottom frame	: Steel 37.2 galv. T= 3mm
Panels, roof and doors	: Steel 37.2 galv.
Centrifugal fan`s	: Plastic or steel
Recovery heat exchanger	: Aluminum
Heating/cooling coil	: Aluminum, Cobber
Filter frames	: Plastic (EX-zone: galv.steel)
Handles on doors (with lock)	: Plastic and steel
Dampers	: Aluminum
Hinges	: Plastic
<b>Centrifugal fan:</b>	
Centrifugal fan	: Standard
Transmission from centrifugal fan	: Directly from motor
Supplier	: Ziehl-abegg
<b>Electric:</b>	
Controller	: Regin Corrigo
Sensors and relays	: Honeywell, Sauter, HKI
Cables	: Solar
<b>Weight:</b>	: see AHU data p. 7-12
<b>Manufactor:</b>	: Dyrholm ApS

# DIA2X-1

## Standard unit

	Length	Width	Height	Filters			Options			Weight (kg)
				Length	Bags	Sq.(m <sup>2</sup> )	recirculation	Cooling	ATEX	
Position 2.7	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.7S	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.8	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.8S	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.9	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.9S	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.10	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.10S	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.11	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.11S	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.12	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323
Position 2.12S	3550	1945	2350	535	8	15,60	Y	(Y)	Y	1323

The above measure is including bottom console.

When selecting cooling, the length of the AHU added 400mm. If not, you can install the coil as shunt inside the supply air duct.

Effect:	137,82 kW
Air flow:	9000-12000m <sup>3</sup> /h
Recovery efficiency:	86,1 – 83,7% EN 308
Electrical consumption:	7,5 kW / 16,4 Amp
Power:	380-400V
Heating coil (standard):	max. 30kW t <sub>F</sub> /t <sub>R</sub> 70/40 connection 1”

### Duct connections:

- outlet duct W: 1805 x H: 652mm.
- inlet duct W: 1805 x H: 652mm.

- Clean air filter – F7 filter 3 pcs. W:592 x H:592/8
- Process air filters – F5 bag filter 3 pcs. W:592 x H:592/8

Used standard for mounting internally only, but if desired ask for external placing when ordering.

# DIA2X-2

## Standard model

	Length	Width	Height	Filters			Options			Weight (kg)
				Length	Bags	Sq.(m <sup>2</sup> )	recirculation	Cooling	ATEX	
Position 2.7	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.7S	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.8	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.8S	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.9	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.9S	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.10	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.10S	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.11	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.11S	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.12	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609
Position 2.12S	3960	1945	2705	535	10 / 3	22,40	Y	(Y)	Y	1609

The above measure is including bottom console.

When selecting cooling, the length of the AHU added 400mm. If not, you can install the coil as shunt inside the supply air duct.

Effect:	195,42 kW
Air flow:	12.000-17.000m <sup>3</sup> /h
Electrical consumption:	10,18 kW / 22,60 Amp
Power:	380-400V
Heating coil (standard):	max. 50 kW t <sub>F</sub> /t <sub>R</sub> 70/40 connection 1"

### Duct connections:

- outlet duct W: 1805 x H: 952mm.
- inlet duct W: 1805 x H: 952mm.

- Clean air filter F7 bag filters 3 pcs. W:592 x H:592mm./10 + 3 pcs. W:592 x H:287mm./3
- Process air filters F5 bag filters 3 pcs. W:592 x H:592mm./10 + 3 pcs. W:592 x H:287mm./3

Used standard for mounting internally only, but if desired ask for external placing when ordering.



# DIA2X-3

## Standard model

	Length	Width	Height	Filters			Options			Weight (kg)
				Length	Bags	Sq.(m <sup>2</sup> )	recirculation	Cooling	ATEX	
Position 2.7	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.7S	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.8	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.8S	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.9	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.9S	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.10	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.10S	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.11	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.11S	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.12	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064
Position 2.12S	4650	1945	3240	535	8	31,20	Y	(Y)	Y	2064

The above measure is including bottom console.

When selecting cooling, the length of the AHU added 400mm. If not, you can install the coil as shunt inside the supply air duct.

Effect:	283 kW
Air flow:	15.000-22.000m <sup>3</sup> /h
Electrical consumption:	15 kW / 30,40 Amp
Power:	380-400V
Heating coil (standard):	max. 92 kW t <sub>F</sub> /t <sub>R</sub> 70/40 connection 1"

### Duct connections:

- outlet duct W: 1805 x H: 1252mm.
- inlet duct W: 1805 x H: 1252mm.
  
- Clean air filter – F7 bag filters 6 pcs. W:592xH:592/8
- Process air filters – F5 bag filters 6 pcs. W:592xH:592/8

Used standard for mounting internally only, but if desired ask for external placing when ordering.

# DIA2X-4

## Standard model

	Length	Width	Height	Filters			Options			Weight (kg)
				Length	Bags	Sq.(m <sup>2</sup> )	recirculation	Cooling	ATEX	
Position 2.7	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.7S	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.8	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.8S	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.9	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.9S	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.10	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.10S	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.11	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.11S	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.12	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340
Position 2.12S	4650	2250	3240	535	8 / 4	36,40	Y	(Y)	Y	2340

The above measure is including bottom console.

When selecting cooling, the length of the AHU added 400mm. If not, you can install the coil as shunt inside the supply air duct.

Effect: 306 kW  
 Air flow: 17.000-26.000m<sup>3</sup>/h  
 Electrical consumption: 15 kW / 32 Amp  
 Power: 380-400V  
 Heating coil (standard): max. 80 kW t<sub>F</sub>/t<sub>R</sub> 70/40 connection 1 1/4"

Duct connections:  
 - outlet duct W: 2110 x H: 1252mm.  
 - inlet duct W: 2110 x H: 1252mm.

- Clean air filter – F7 filter 6 pcs. W:592 x H:592/8 + 2 x W:287 x H:592mm./4
- Process air filters – F5 bag filters 6 pcs. W:592 x H:592/8 + 2 x W:287 x H:592mm./4

Used standard for mounting internally only, but if desired ask for external placing when ordering.

# DIA2X-5

## Standard model

	Length	Width	Height	Filters			Options			Weight (kg)
				Length	Bags	Sq.(m <sup>2</sup> )	recirculation	Cooling	ATEX	
Position 2.7	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.7S	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.8	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.8S	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.10	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.10S	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.11	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845
Position 2.11S	4850	2500	3240	535	8 / 4	52,00	Y	(Y)	Y	2845

The above measure is including bottom console.

When selecting cooling, the length of the AHU added 400mm. If not, you can install the coil as shunt inside the supply air duct.

Effect:	401 kW
Air flow:	26.000-34.000m <sup>3</sup> /h
Electrical consumption:	22 kW / 48 Amp
Power:	380-400V
Heating coil (standard):	max. 141 kW t <sub>F</sub> /t <sub>R</sub> 70/40 connection 1 1/4"

### Duct connections:

- outlet duct W: 2415 x H: 952mm.
- inlet duct W: 2415 x H: 1552mm.

- Clean air filter – F7 bag filters 8 pcs. W:592 x H:592/8 + 4 pcs. W:287 x H:592mm./4
- Process air filters – F5 bag filters 8 pcs. W:592 x H:592/8 + 4 pcs. W:287 x H:592mm./4

Used standard for mounting internally only, but if desired ask for external placing when ordering.

# DIA2X-6

## Standard model

	Length	Width	Height	Filters			Options			Weight (kg)
				Length	Bags	Sq.(m <sup>2</sup> )	recirculation	Cooling	ATEX	
Position 2.7	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.7S	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.8	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.8S	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.10	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.10S	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.11	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813
Position 2.11S	5500	3065	3840	535	8	62,40	Y	(Y)	Y	3813

The above measure is including bottom console.

When selecting cooling, the length of the AHU added 400mm. If not, you can install the coil as shunt inside the supply air duct.

Effect: 482 kW  
 Air flow: 32.000-40.000m<sup>3</sup>/h  
 Electrical consumption: 30 kW / 60 Amp  
 Power: 380-400V  
 Heating coil (standard): max. 132 kW t<sub>F</sub>/t<sub>R</sub> 70/40 connection 1 1/4"

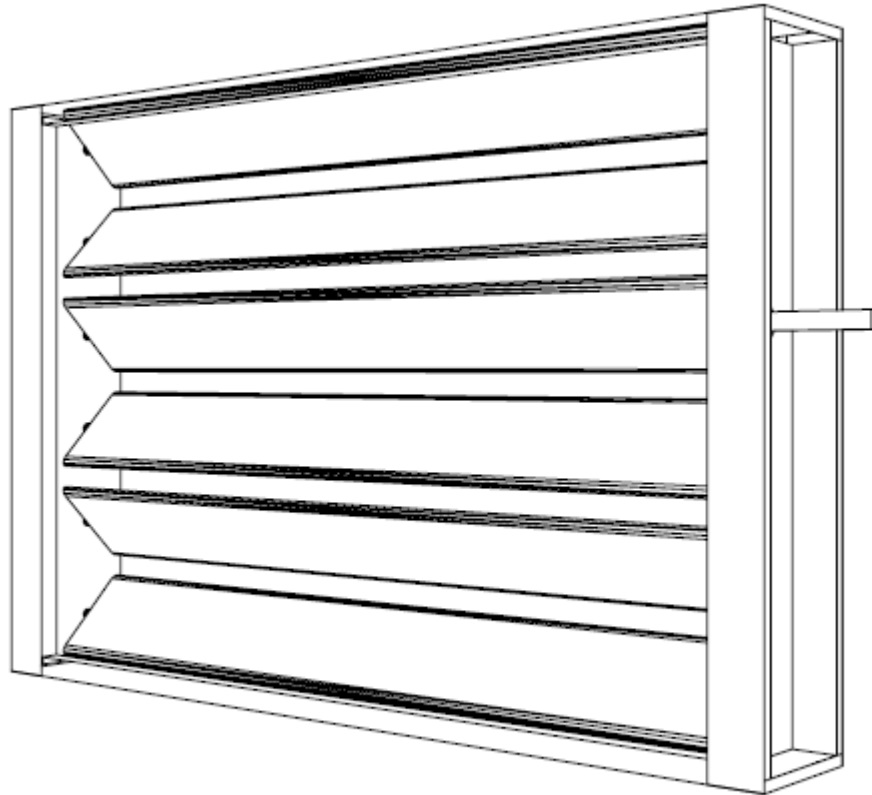
Duct connections:

- outlet duct W: 2415 x H: 1552mm.
- inlet duct W: 2415 x H: 1552mm.

- Clean air filter – F7 filter 12 pcs. W:592 x H:592/8
- Process air filters – F5 bag filters 12 pcs. W:592 x H:592/8

Used standard for mounting internally only, but if desired ask for external placing when ordering.

# Damper



## Louvre damper

Frost protection dampers are an louvre damper which is located inside the unit and is used to regulate fresh air supply and ensuring the drag and risk of frost at the water heating coil.

(Supplied as standard on DIA2X)

The damper blades are made of extruded aluminum and mounted in aluminum frame, using plastic bushings. The damper brass shafts can be directly connected to actuators, or at extra cost mutually coupled with a rod drive.

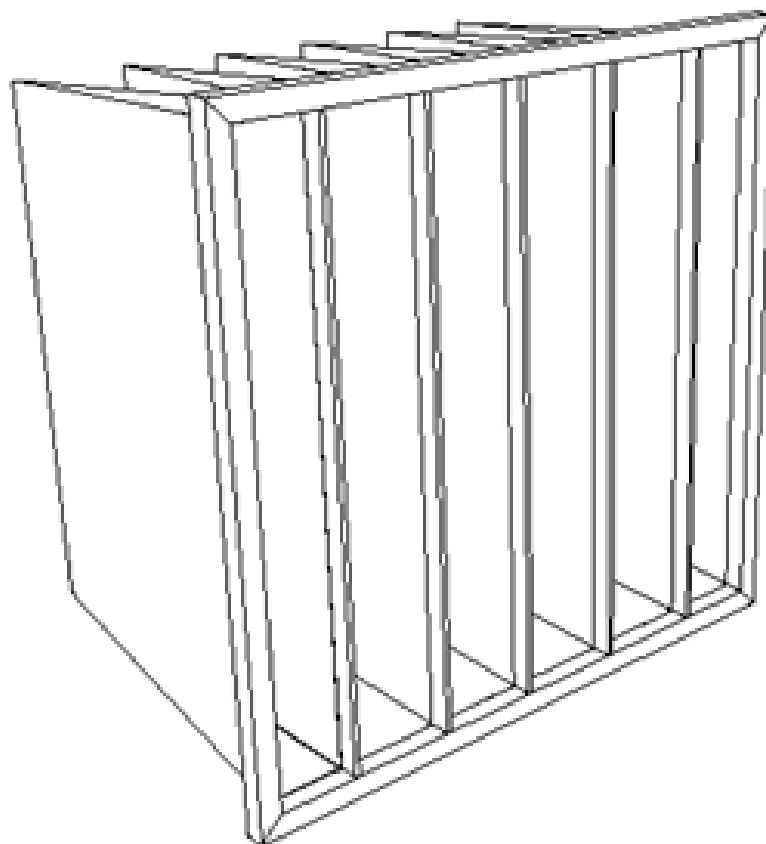
## Mixing and recirculation damper (optional on some models)

For variation during AHU stop and mix of outdoor air is re-circulated and differentiation of exhaust air. Recirculation damper is used primarily for night operation where to want the heating must be done using the unit through the heating surface.

(not supplied as standard DIA2X)

# Filter

## Bag filters



DIA2X is supplied with bag filters. These types of filters have minimal pressuredrop and secure a longer period of operation time before they must be replaced.

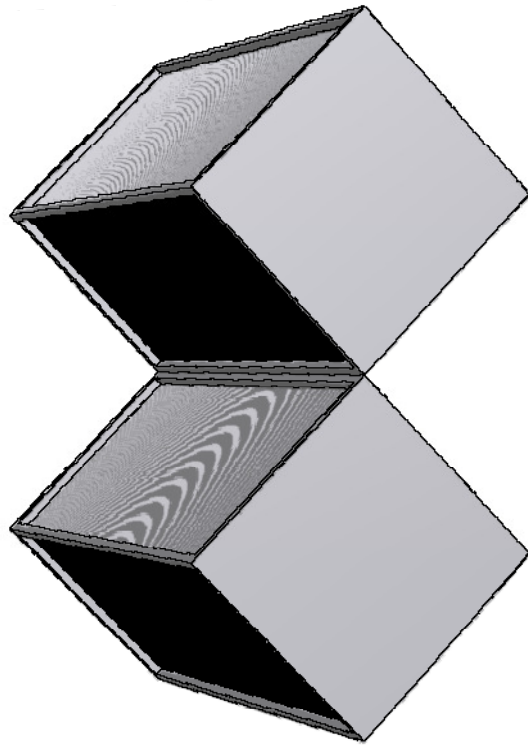
The filters can be supplied in different types and sizes, all depending on the purity and separation demands of the ventilated air. As standard, the filters applies in class:

Outlet: F5

Intake: F7

Str.	1/1	1/2-1	1/2
Width	592	287	592
Height	592	592	287
Length	535	535	535

# Recovery heat exchanger



## Cross heat exchanger series connected

The Heat Exchangers which is connected in series has the same high heat recovery efficiency as for example the counter- flow heat exchanger, but with a lower pressure drop, as the density of the aluminum inside the heat exchanger is higher than the counter- flow exchanger, without the cell division, where the air is moved, becomes too tight.

The Connected Series cross counter- flow heat exchanger is a connected counter- flow of the air flowing to function optimally. Therefore this heat recovery unit per. definition is called a counter- flow heat exchanger.

The air outlet and the outdoor air pass through the large number of narrow channels twice to maximize the extraction of energy. This provides a very large heat transfer area mm. and thereby a high heat recovery rate of the transfer process (up to 80% dry). Since the two airstreams are completely separated, no humidity or dust and gas particles are transferred between these airstreams.

At low outdoor temperatures, there will be excreted condensation in the hot air flow which is drained via a drip tray placed in the bottom of the AHU. The by-pass function is needed to ensure cold air does not backflow through to the heat exchanger and risk freeze damage during the winter period.

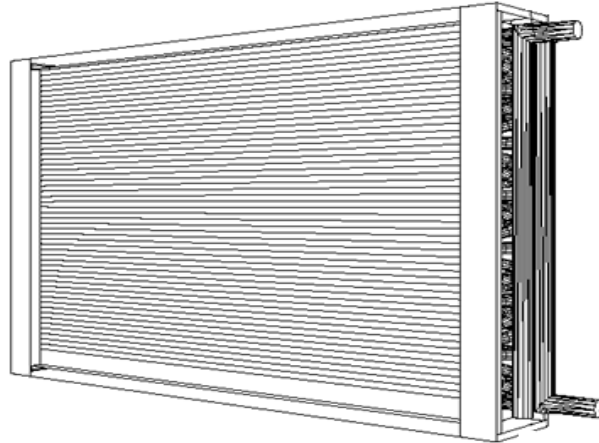
The high efficiency level means a higher system pressure-drop, which goes beyond SFP value, therefore it should be prioritized between the high efficiency level and the required external static pressure available from project to project, the higher external static pressure the higher electricity consumption (SFP).

Note. The temperature heat- efficiency level is in the following data curves informed in EN 308 wet standard.

## By-pass

To adjust the heat exchanger's performance, a by-pass damper and a by-pass duct are placed in the middle deck, of the AHU. The fresh air can then be partially diverted from the heat exchanger.

# Heating coil



## Heating water coil

The Heating coil is constructed with copper tubes and aluminum fins with integrated steel-plate frame.

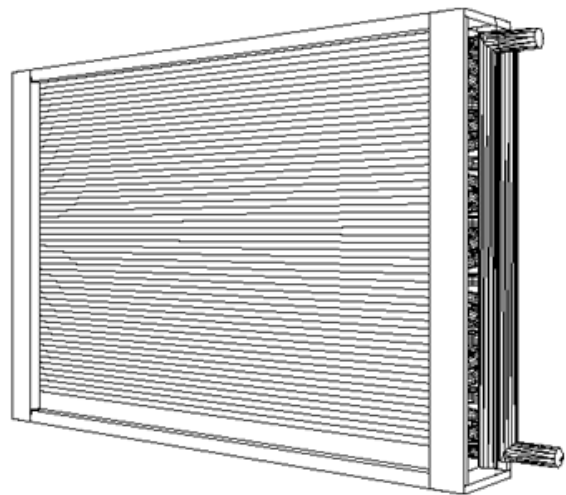
The Heating coil is supplied with different numbers of tubes and circuits in the light of the current heat demand. Water is supplied via the supply pipe and discharged through the return flow pipe, brought out through the front panel of the doors on the AHU (standard). Heating coils are demountable and can be extracted for inspection and maintenance after the pipe connections when panels are removed. The Heating coil is usually designed for hot water temperature  $t_f 70/t_r 40$  °C and a theoretical heating supply air temperature of 20 °C.

# Cooling coil

## Cooling coils (DX R407C)

Cooling coil is constructed with copper tubes with aluminum-lamellar plate integrated in a steel plate frame. Cooling coils come with different numbers of tubes and circuits taking into account the cooling requirements. The refrigerant is supplied through a splitter and discharged through the collecting tubes, led out as standard through the front of the AHU. Cooling coils are demountable and can be extracted for inspection and maintenance after the pipe connections and the panels are removed.

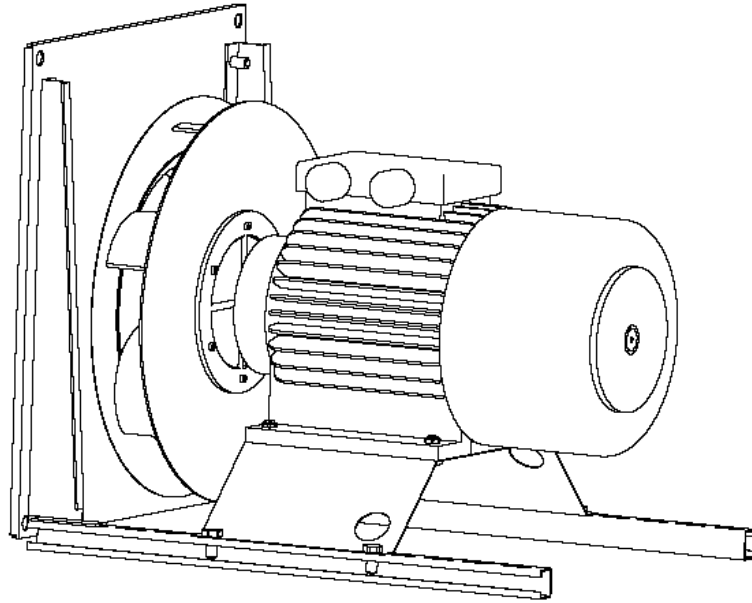
Cooling coil is equipped as standard for evaporation temperatures 7 °C and air temperature 28/17 °C, RH = 60%.



Dyrholm ApS also offers a refrigeration system and condenser refrigerant as example R407C, for use in Dyrholm compressor systems, where there is also the option for reverse function and heat pump systems of the AHU.



# Plug fan



## Plug fan

The fan for the DIA2X units standard is offered with plug fans. The fan unit consists of impeller, inlet flange, motor and mounting frame, which is mounted on rubber or spring shock absorbers.

The fan inlet flange is connected to the channel through a flexible rubber connection, so that the vibrations from the fan is not transferred out though to the rest of the air handling unit.

This fan type has a very high efficiency partly due to the direct transmission, and at the same time it also has a very low noise level, and very good economics.

This fan type usually requires a frequency converter which partly a controller device.

**IMPORTANT:** start up must latest be made 6 months after receiving of your unit. Start up the unit after this date; invalidate the warranty on the inverters.

## Air flow and pressure

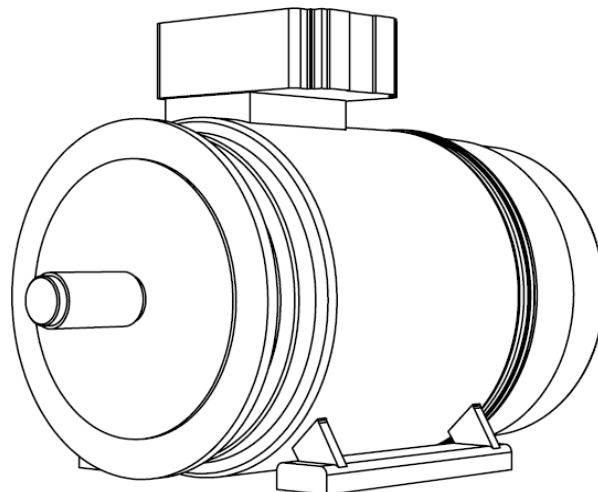
Plug fans are equipped as standard for an airflow accordance with the size, and a total pressure according to system pressure loss, this provides an external pressure of approx. 250-300 Pa.

## Position options for the fan

Position possibilities for the plugfan is only one and it is due that this fan type have no fanhousing, but only a fan wheel when the wheel using the casing inside the AHU as blowing chamber. This does not mean that opportunities for the duct connection on the unit is limited by this, on the contrary, duct connectivity to the air handling unit of this type of fan is virtually unlimited

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# Motor



## Motor

The fans are delivered with minimum IE 2 motors

For operation with frequency-controlled motors can flow rate adjusted continuously and achieve great energy efficiency when operating at low speed.

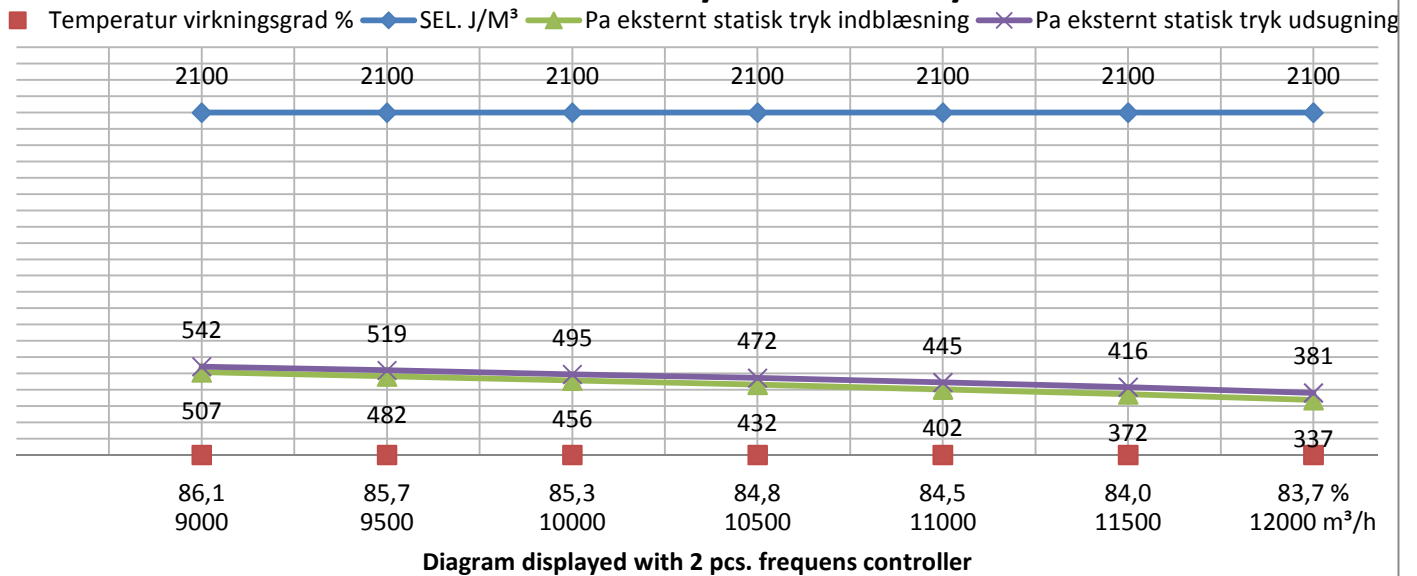
The combination of fan, motor and frequency inverter is very suitable, for example. systems with variable volume flow VAV systems.

**IMPORTANT:** start up must latest be made 6 months after receiving of your unit. Start up the unit after this date, invalidate the warranty on the inverters.

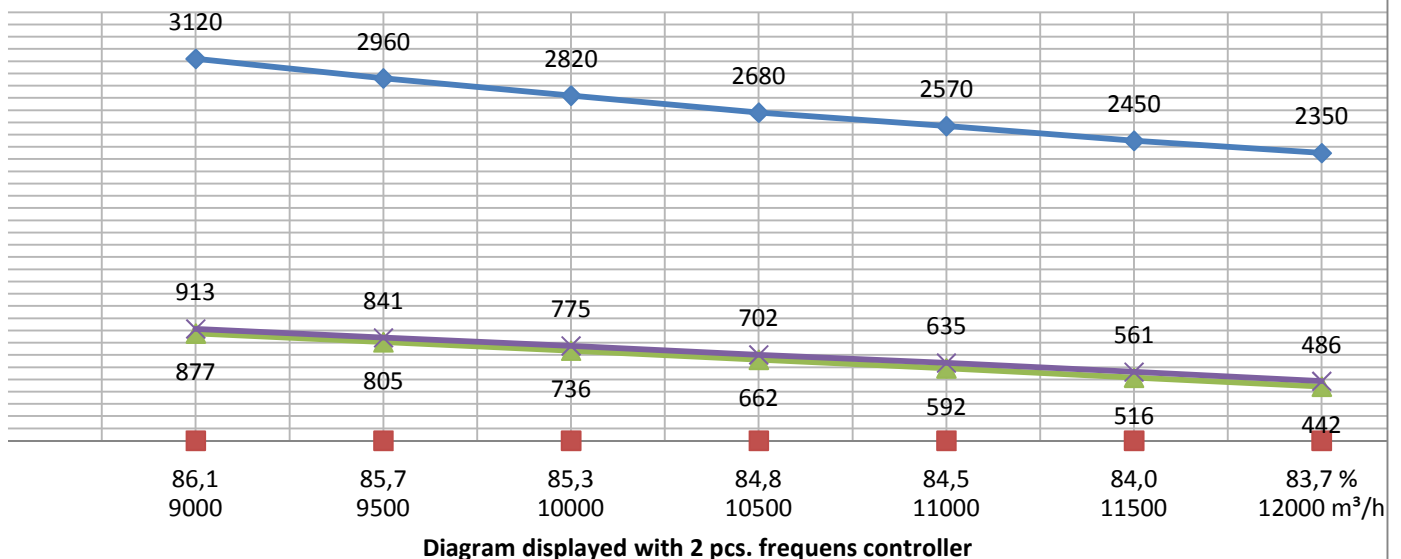
The motor is fitted with factory-lubricated bearings which does not require maintenance.

**NOTE:** motors and fans without ATEX classification may not be installed in EX-zones.

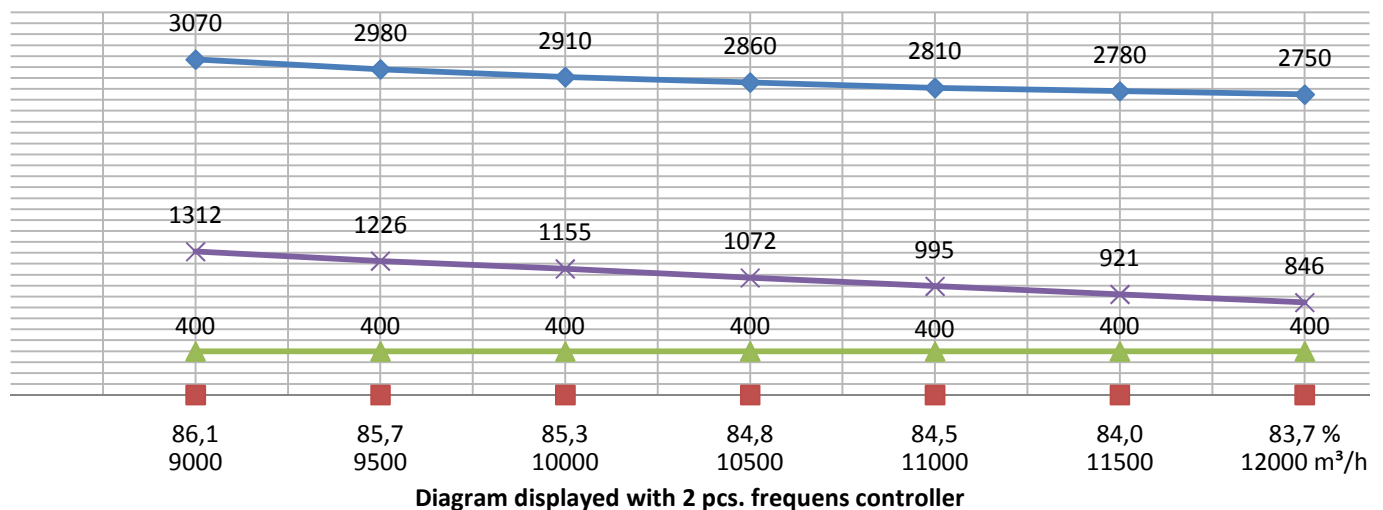
### DIA2X-1 SEL/SFP= 2100 J/M<sup>3</sup>



### DIA2X-1 maximum performens with 2 pcs. standard fan

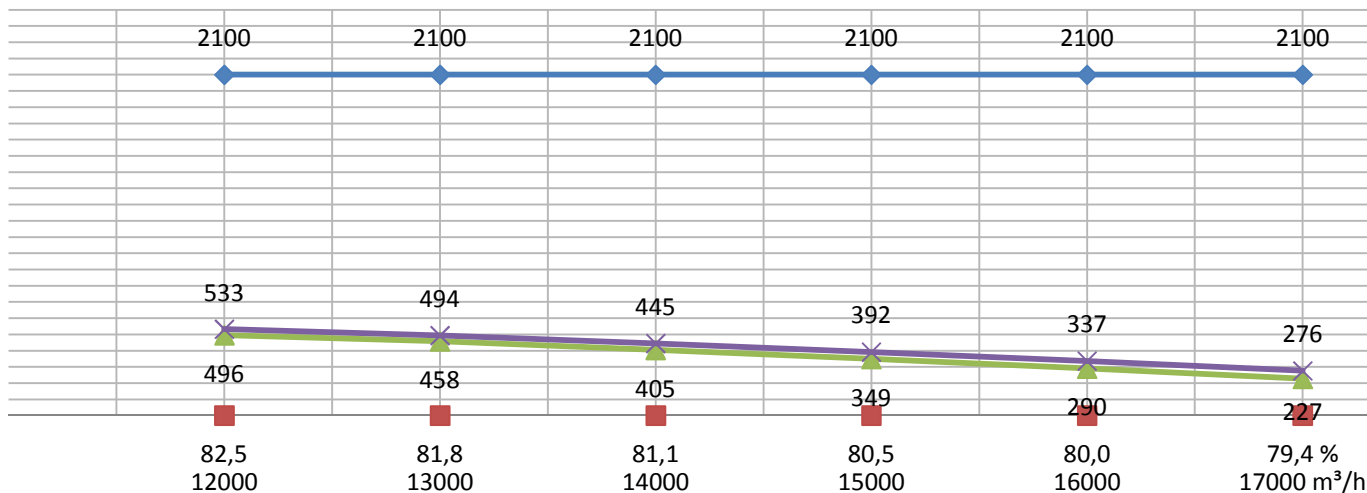


### DIA2X-1 performens with maximum size extraction fan

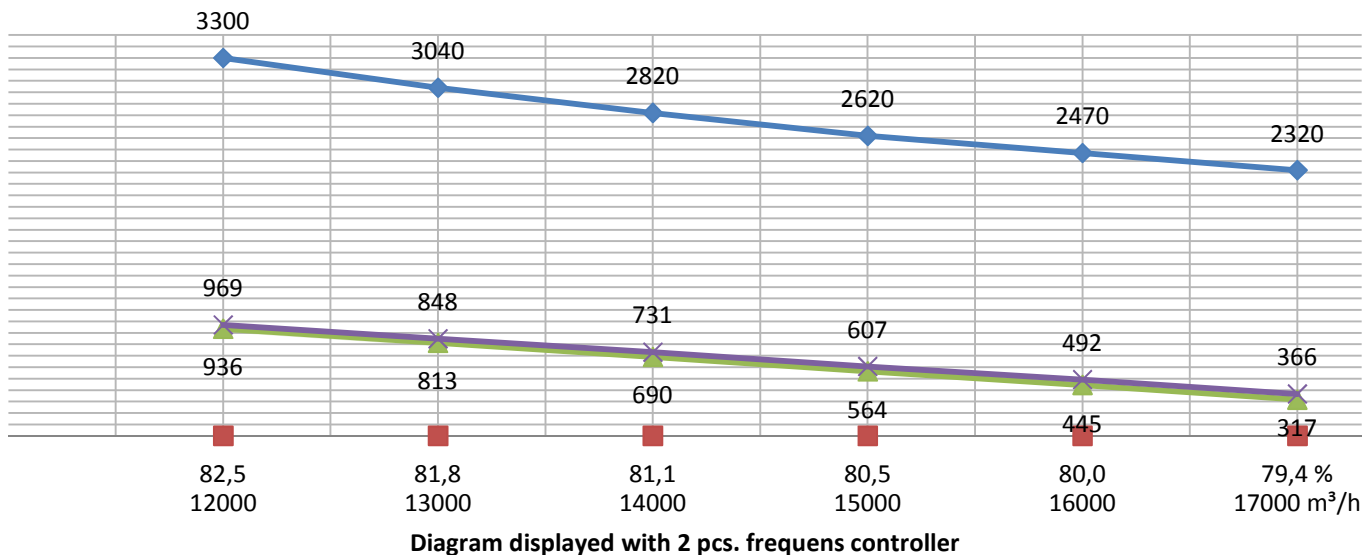


### DIA2X-2 SEL/SFP= 2100 J/M<sup>3</sup>

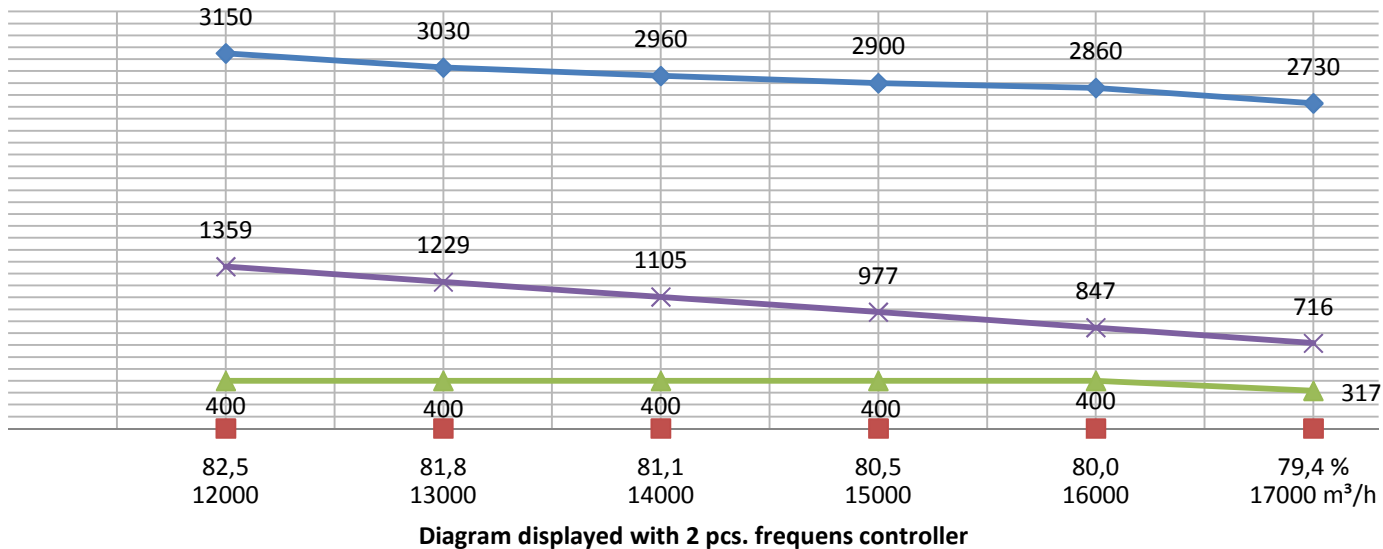
■ Temperatur virkningsgrad % ◆ SEL, J/M<sup>3</sup> ▲ Pa eksternt statisk tryk indblæsning ✕ Pa eksternt statisk tryk udsugning



### DIA2X-2 maximum performens with 2 pcs. standard fan



### DIA2X-2 performing with maximum size extraction fan



### DIA2X-3 SEL/SFP= 2100 J/M<sup>3</sup>

■ Temperatur virkningsgrad %    ◆ SEL. J/M<sup>3</sup>    ▲ Pa eksternt statistisk tryk indblæsning    ✕ Pa eksternt statistisk tryk udsugning

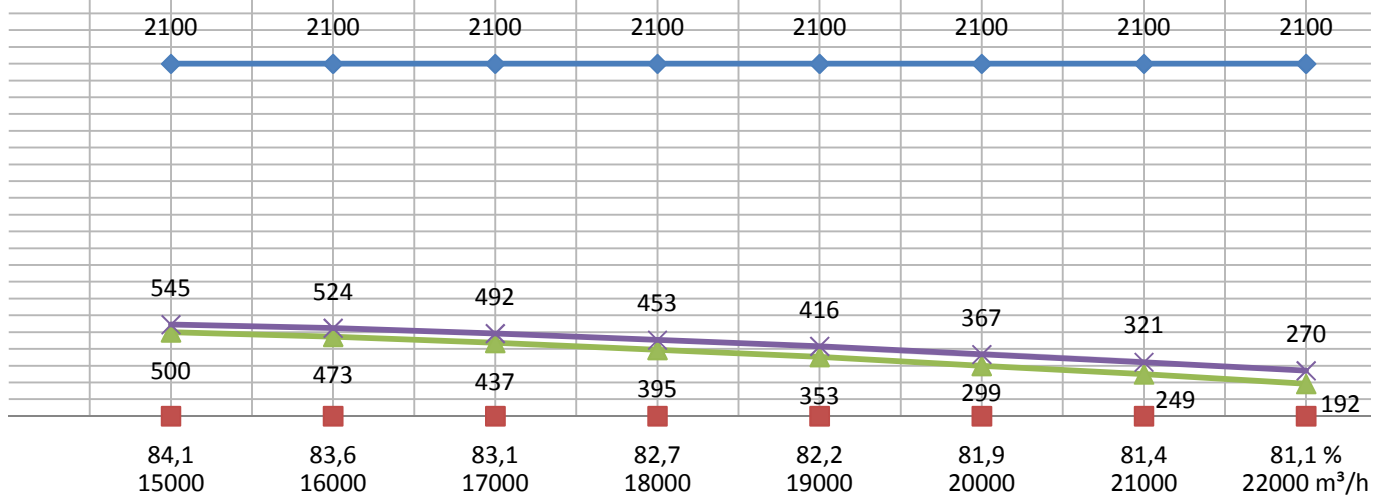


Diagram displayed with 2 pcs. frequens controller

### DIA2X-3 maximum performens with standard fan

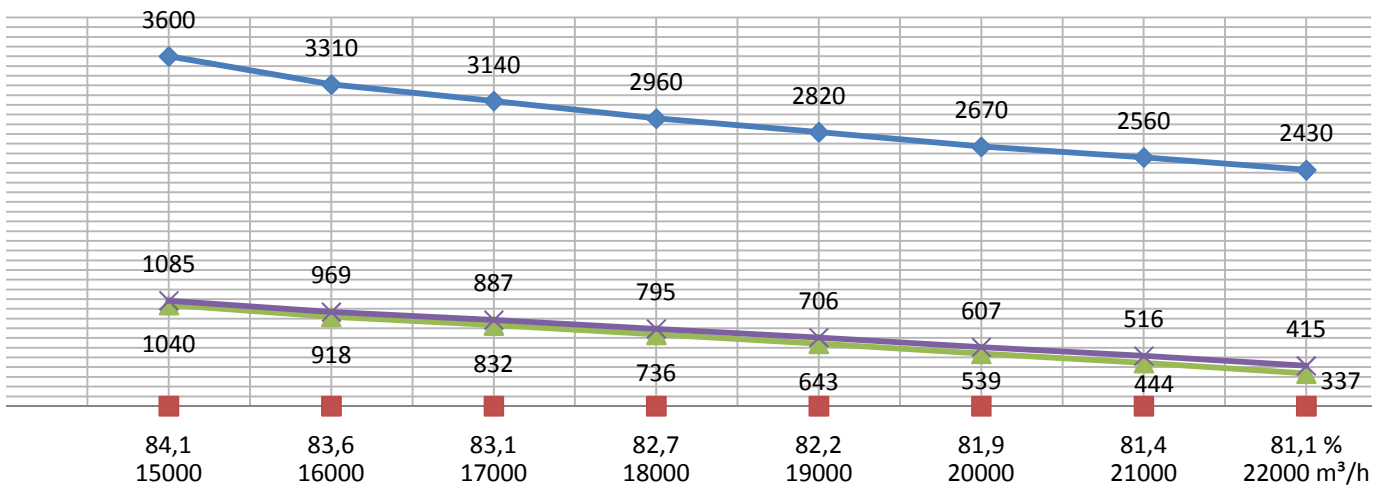


Diagram displayed with 2 pcs. frequens controller

### DIA2X-3 Performing with max. size extraction fan

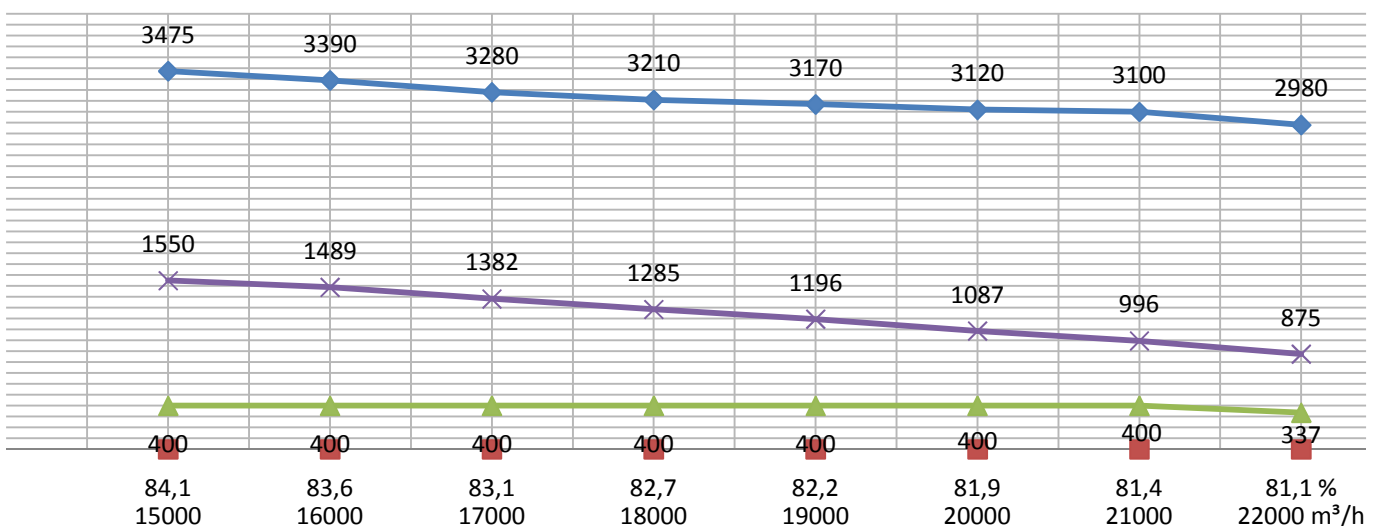
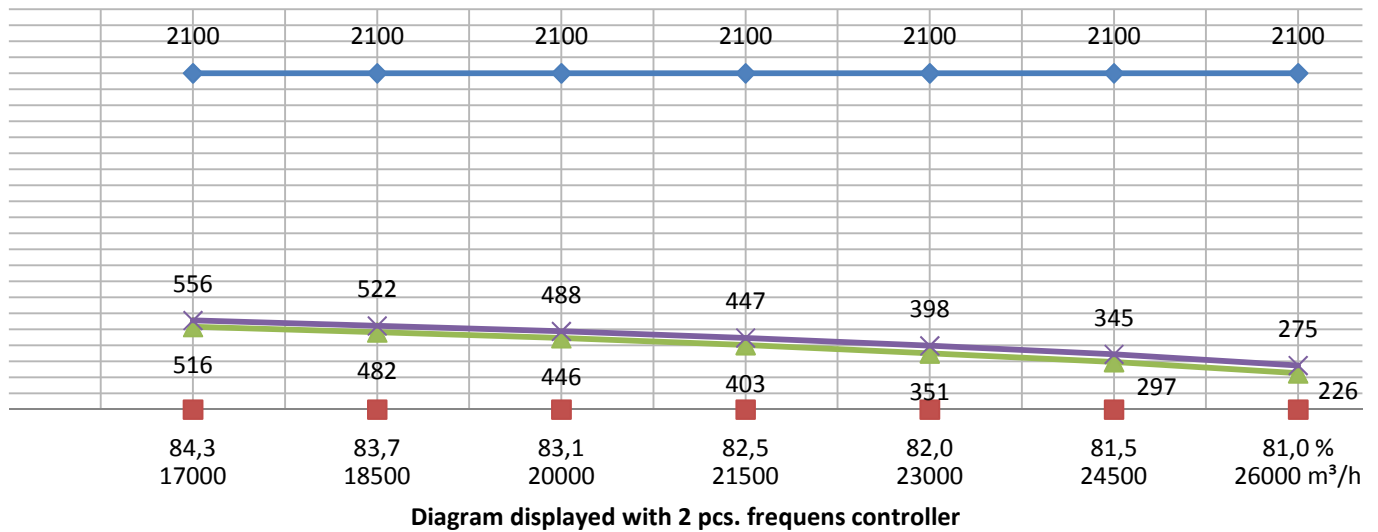
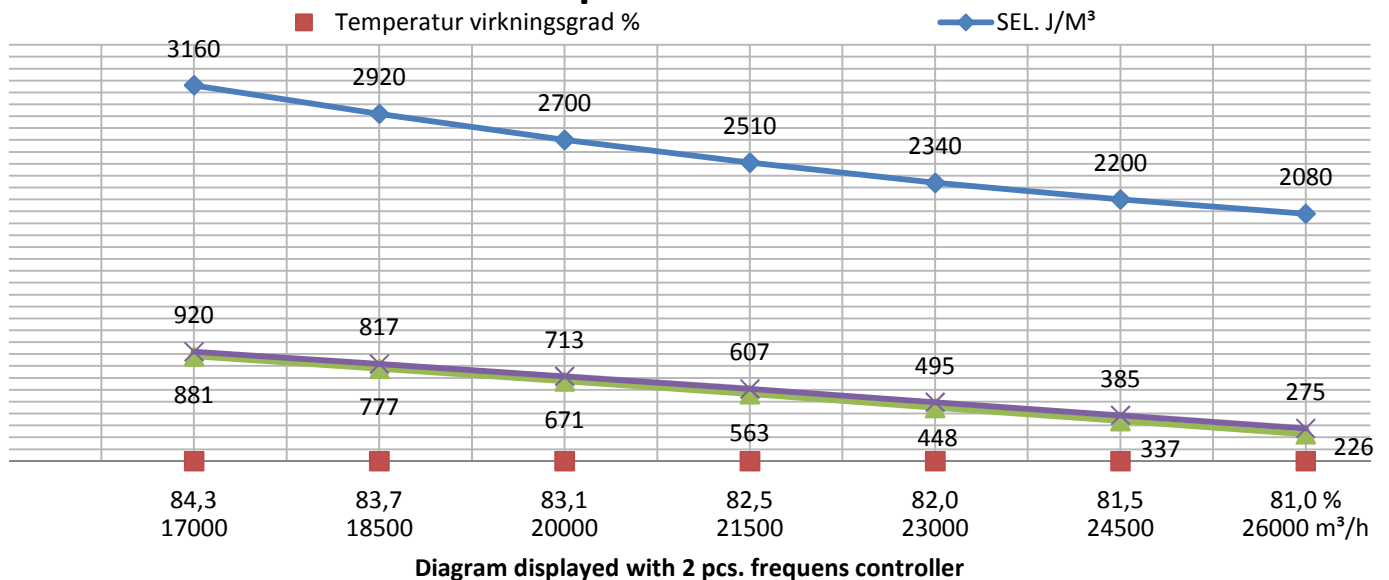


Diagram displayed with 2 pcs. frequens controller

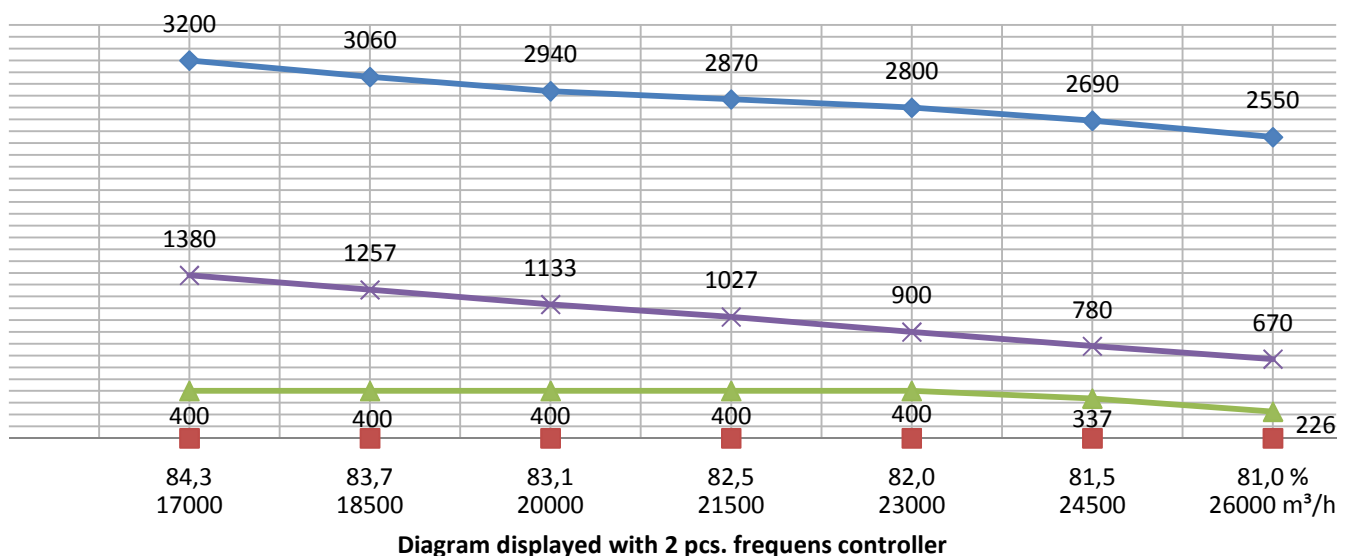
### DIA2X-4 SEL/SFP= 2100 J/M<sup>3</sup>



### DIA2X-4 maximum performens with standard fan



### DIA2X-4 performens with max. size extraction fan



### DIA2X-5 SEL/SFP= 2100 J/M<sup>3</sup>

■ Temperatur virkningsgrad %    ◆ SEL.J/M<sup>3</sup>    ▲ Pa eksternt statistisk tryk indblæsning    ✕ Pa eksternt statistisk tryk udsugning

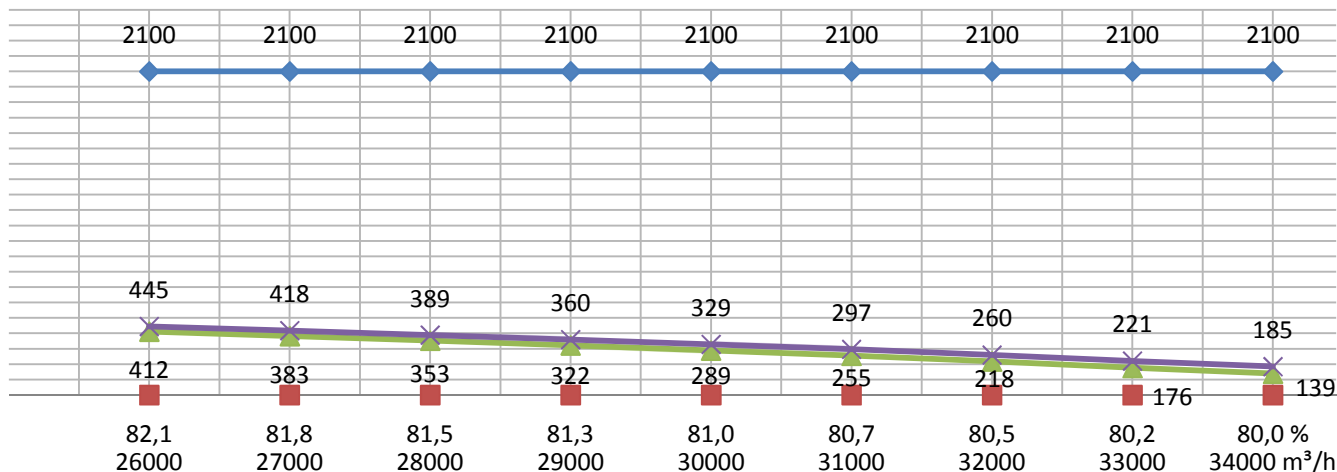


Diagram displayed with 2 pcs. frequens controller

### DIA2X-5 maximum performens with standard fan

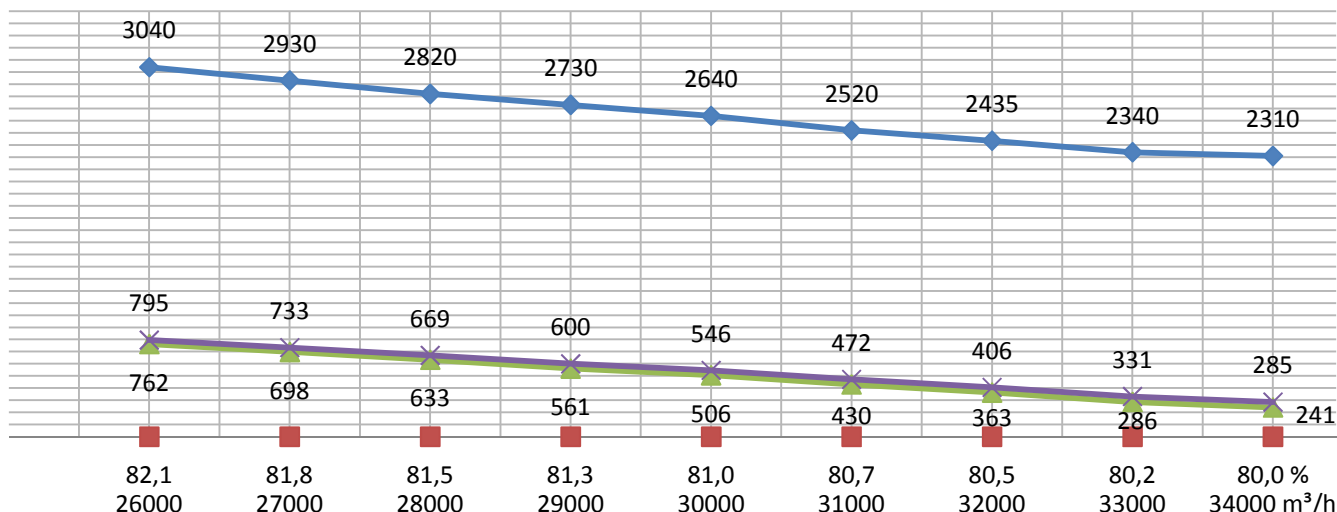


Diagram displayed with 2 pcs. frequens controller

### DIA2X-5 performens with maximum size extraction fan

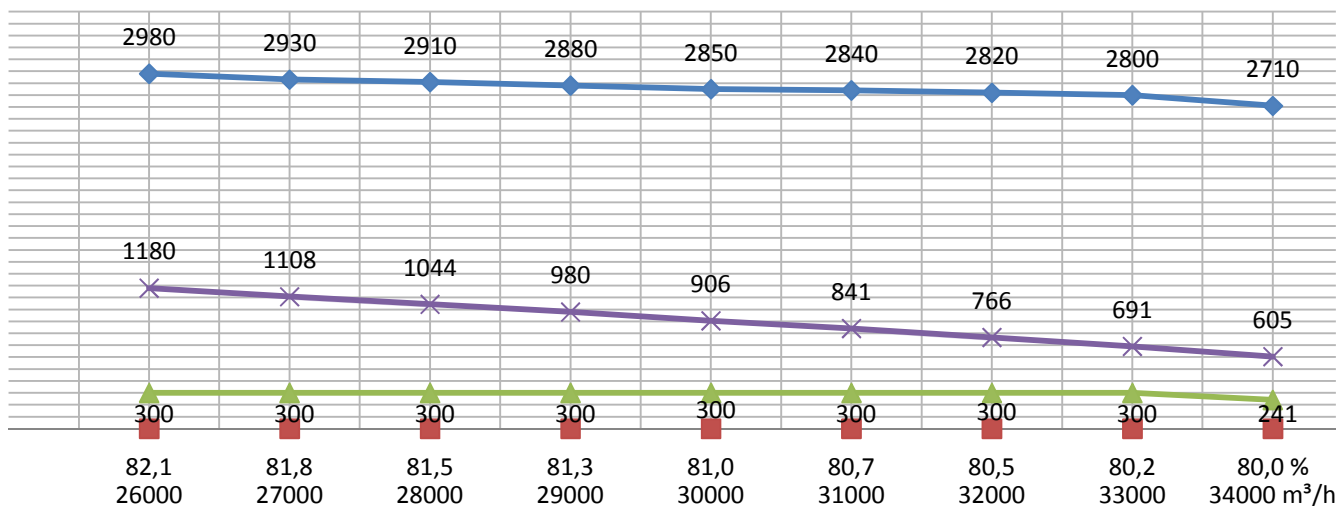


Diagram displayed with 2 pcs. frequens controller

### DIA2X-6 SEL/SFP= 2100 J/M<sup>3</sup>

■ Temperatur virkningsgrad % ◆ SEL.J/M<sup>3</sup> ▲ Pa eksternt statisk tryk indblæsning ✕ Pa eksternt statisk tryk udsugning

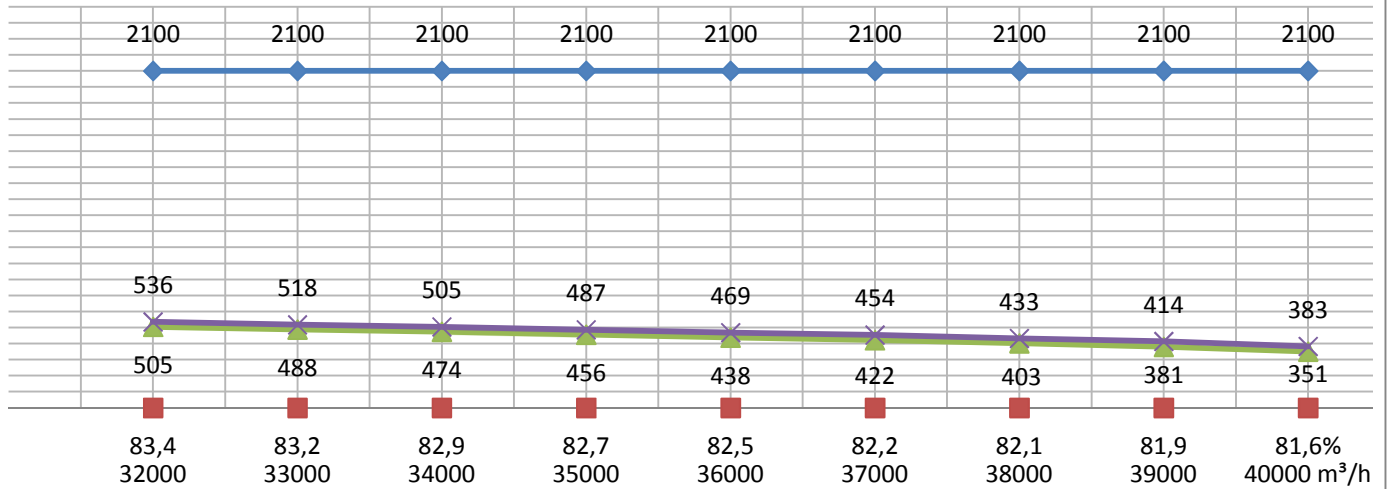


Diagram displayed with 2 pcs. frequens controller

### DIA2X-6 maximum performens with standard fan

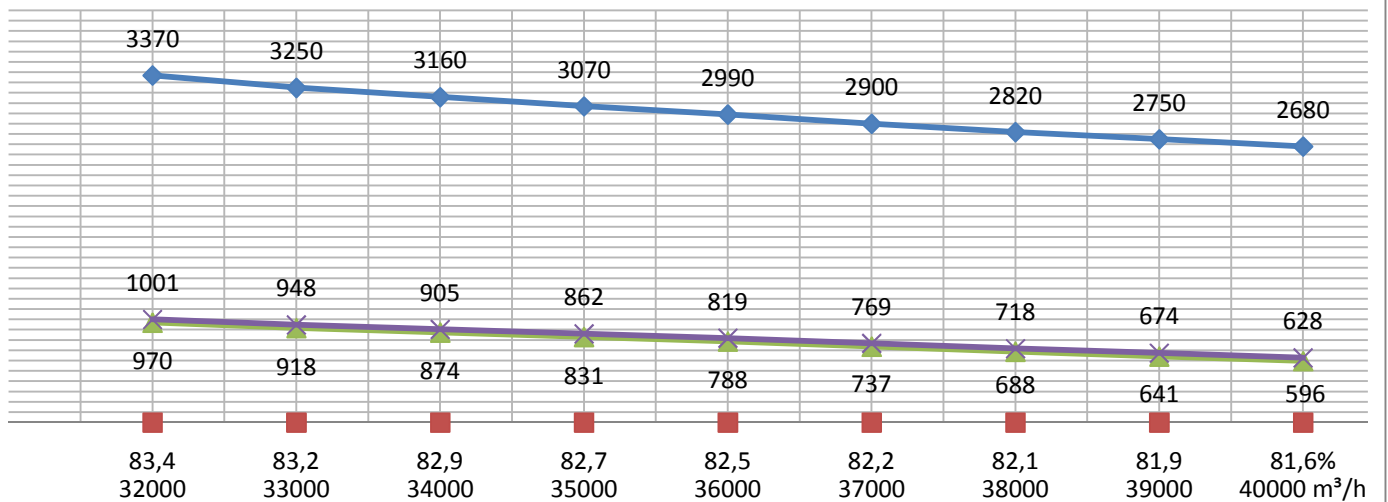


Diagram displayed with 2 pcs. frequens controller

### DIA2X-6 performens with maximum size extraction fan

■ Temperatur virkningsgrad % ◆ SEL. J/M<sup>3</sup> ▲ Pa eksternt statisk tryk indblæsning ✕ Pa eksternt statisk tryk udsugning

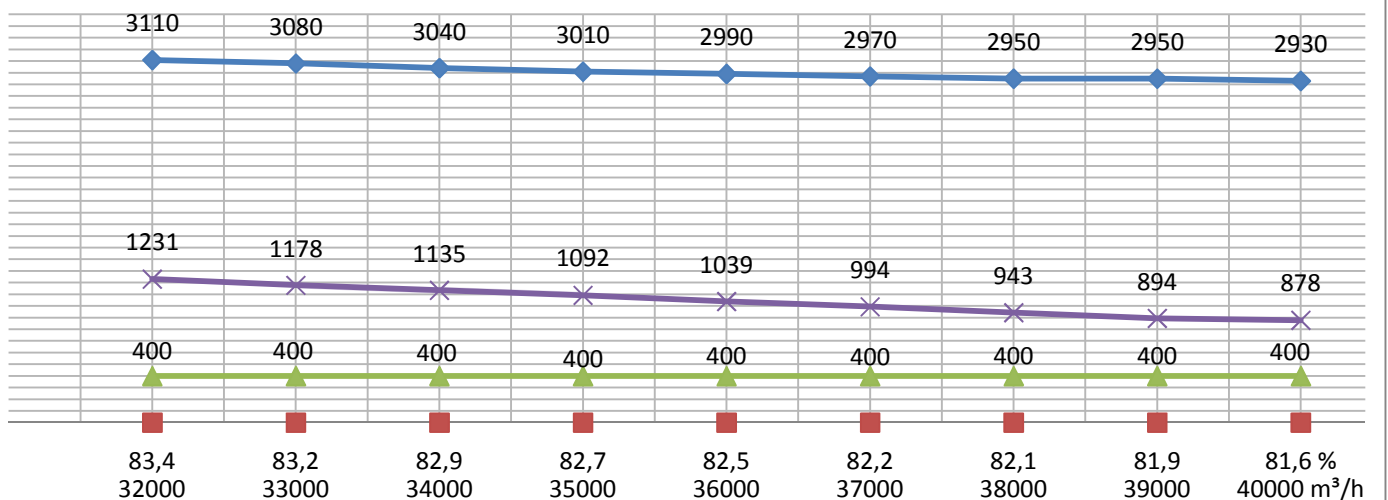


Diagram displayed with 2 pcs. frequens controller



# AHU accessories

## Outlet parts

Jet exhaust hat constructed for the maximum airflow

## Inlet parts

Intake duct 50° with steelnet

Tophat (only when intake duct are placed in rooftop on AHU)

Louvre aluminum grill

**Cooling coil** for directly expansion placed inside AHU.

**Intake damper** for intake, excl. actuator.

(Note: if ordering controller, remember to order dampermotor for inlet damper)

**Outlet damper** for outletduct, excl. actuator.

(Note: if ordering controller, remember to order dampermotor for inlet damper)

**Noise absorbing sections** for reduction af of fan noise

(specified specific requiring suppression in): \_\_\_\_\_ dBa

**Empty sections** number: \_\_\_\_\_ pcs. (H: \_\_\_\_\_ x W: \_\_\_\_\_ x L: \_\_\_\_\_ mm.)

**Laminated outside surface** RAL-code: \_\_\_\_\_

**Duct fittings** from square to round duct (describe in detail underneath)

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# EF/EC declaration of conformity

## Manufacturer:

**Company name:** Dyrholm ApS  
**Address:** Teglvænget 89  
**ZIP code/City:** 7400 Herning  
**Country:** Denmark  
**Phone no.:** +45 97 21 75 15

Hereby declares that:

## DIA2X AHU:

**System:** DIA2X 1 - 6  
**Type:** Climate and process heat recovery unit's  
**Tightness class:** B  
**Year.:** 2010 and forward

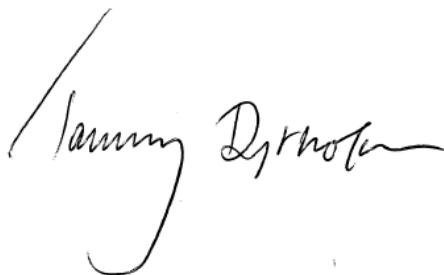
**Serial no.:** \_\_\_\_\_

**Conforms to:** Council on machinery (2006/42/EF)

<b>2006/95/EF</b>	<b>Low Voltage is manufactured in accordance with the following national standards through a harmonized standard</b>
<b>IEC/EN ISO 12100: 2010</b>	<b>Basic terms and principles in projecting and constructing</b>
<b>IEC/EN ISO 12100-1: 2010</b>	<b>Basic thermology and methodology</b>
<b>DS/EN ISO 13857: 2000</b>	<b>Principals for risk assessment</b>
<b>EN 60204-1</b>	<b>Plain requirement for electrical equipment (only if the controller is delivered by Dyrholm ApS)</b>

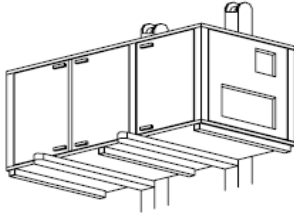
**Title:** Managing Director  
**Name:** Tommy Dyrholm  
**Company:** Dyrholm ApS

Place/date:

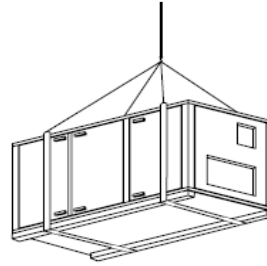


<b>DK:EF-OVERENSSTEMMELSESERKLÆRING</b> <b>GB:DECLARATION OF CONFORMITY</b> <b>D:EU-KONFORMITÄT SERKLÄRUNG</b> <b>F:Déclaration de conformité de l'Union Européenne</b>	<b>N: EF-OVERENSSTEMMELSESERKLÆRING</b> <b>NL: EF-KONFORMITEITS VERKLARING</b> <b>S: EF-ÖVERENSSTÄMMELSEDEKLARATION</b> <b>SF: EF-VAATIMUSTENMUKAISUUSVAKUUTUS</b> <b>IS: ESS-Samræmisstaöfesting</b>
<b>Producer:</b>	Producer:
erklærer på eget ansvar, at følgende produkter: declare on own responsibility that the following products: Verantwortet, daß folgende Produkte: déclare sous sa propre responsabilité que le produit suivant:	erklærer på eget ansvar, at følgende produkter: veklaard dat onderstaaende produkten, deklrerar på eget ansvar, att följande produkter: vastaa siitä, että seuraava tuote: Staöfesti à eigin äbyrgö, að eftirfarandi vörur:
<b>Aggregater (DIA2X)</b>	<b>Aggregater (DIA2X)</b>
som er omfattet af denne erklæring, er i overensstemmelse med følgende standarder: covered by this declaration, are in conformity with the following standards: mit den folgenden Standardbezeichnungen: auguel s'applique cette déclaration est en conformité des normes mentionnées ci-dessous:	som er omfattet av denne erklæring, er i overensstemmelse med følgende standarder: met de onderstaaende standard koderingen: som omfattas av denna deklaration, överensstämmer med följande standarder: joka koostuu tästä selvityksestä, on seuraavien standardien mukainen: sem eru meötalin i staöfestingu Pessari, eru i fullu samræmi við eftirtalda staöla:
<b>IEC/EN ISO 12100 2005 part 1 &amp; 2, 14121-1 2007, 13849-1 2007-2008, 62061 2005</b>	<b>IEC/EN ISO 12100 2005 part 1 &amp; 2, 14121-1 2007, 13849-1 2007-2008, 62061 2005</b>
iht. bestemmelser i direktiv: according to conformity in directive: gemäß folgenden EU-Richtlinien überstimmen: suivant les dispositions prévues aux directives:	Iht. bestemmelser i direktiv: voldoen aan de herionder gestelde eisen: enlgt bestämmelserna i följande direktiv: seurraavien direktiivin määräysten mukaan: med tilvisun til äkvaröana eftirlits:
Maskindirektivet: Machinery Directive: für Maschinen: La directive des machines:	Maskindirektivet: voor machines: Maskindirektivet: Konedirektiivi: Vèlaeftirlitiö:
<b>2006/42/EF</b>	<b>2006/42/EF</b>
Lavspændingsdirektivet: Low voltage Directive: für Niederspannung: La directive de la basse tension:	Lavspenningsdirektivet Laagspanning: Lågspänningsdirektivet: Matalajännitedirektiivi: Smáspennueftirlitiö:
<b>73/23</b>	<b>73/23</b>
EMC-direktivet: EMC Directive: für EMC La directive de la compatibilité électromagnétique:	EMC-direktivet: voor EMC: EMC-direktivet: EMC-direktiivi: EMC-efitrlitiö:
<b>89/336, 92/31</b>	<b>89/336, 92/31</b>
<b>Herning, den 1. juni 2005</b> <b>Adm. Direktør</b> <b>Tommy Dyrholm</b> <b>Managing Director</b> <b>Geschäftsführer, Inhaber</b> <b>Président-directeur général</b>	

# Guidens of installation



Transport with fork lifter



Lifting with crane

## Transport

DIA2X can be transported by fork Lift or lifted by crane, as shown in the drawings.

Note: the forks of the lifter must reach all the way through the bottom frame, so lifted the entire frame structure.

You should also be aware that there may be connections for drain underneath the bottom of the AHU.

Lifting the unit with crane and there sling bar must be performed with straps all the way around the AHU and there must be min. 2 meters from the sling bar and down to the AHU.

Is there any doubt about transport and lifting, please contact Dyrholm ApS.

## Receiving your DIA2X

Upon arrival at the installation site, inspect your DIA2X for any damage, and verify the delivery is complete. If there is any damage or defects, immediately contact Dyrholm ApS, and not later than 8 days after receiving your AHU.

## Storage

Indoor DIA2X is only intended for indoor installation in dry rooms.

If the DIA2X must be stored outdoors, they must be covered so that there is ventilation underneath the cover to avoid condensation. Outdoor storage must be of shorter duration.

Outdoor DIA2X can always be stored outside, but should for reasons of dirt at the site be covered, remember to make sure that there will be ventilation underneath the cover, to avoid condensation.

## Other conditions

Ducting and cabling must be designed so that these do not obstruct door openings, maintenance and operation of the AHU. Electrical installations must be designed so that they make protection against electric shock. There must always be installed safety switches on the outside of the facility in accordance with high voltage regulations and employment inspectors requirements. Installation activities close to the heating and Cooling coil must be done with precautions to avoid damage.

The heat & cooling coil`s connections are designed as a threaded pipe and must be kept in place with a pipetool, to avoid damage on coil.

Heating and Cooling coil must be protected against frost. This is best done at a constant water flow in them and modulating control of water temperature using the controller.

## Startup

**IMPORTANT:** start up must latest be made 6 months after receiving of your unit. Start up the unit after this date, invalidate the warranty on the inverters.

Before starting check that:

All electrical work, plumbing work, refrigeration work has been completed.

The cabinet must be cleaned after connections / assembly work, so that there are no flying parts at startup. All components must be installed.