

enervent[®]

Ventilation unit with heat pump

Planning, installation and operational instructions manual

Before installing and operating this unit,
please read this manual thoroughly, and retain it for future reference.

EDX

www.enervent.fi

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WARNINGS AND NOTIFICATIONS

- After opening the maintenance hatch wait for two (2) minutes before starting the maintenance work! The fans rotate for a while even after the power is cut. There are no user-serviceable parts inside the control panel or inside the electrical cabinet, leave the service of these parts to a professional. It is important during troubleshooting not to turn on the power of the unit before being assured what the problem is.
- The unit must be disconnected from the electric network if voltage tests, insulation resistance measuring or other measurements/electrical work, which can harm sensitive electronic equipment are done.
- The regulation and control equipment of the unit can cause leakage current. Therefore the fault current protection doesn't always work correctly with the unit. The electrical connections must be made according to prevailing local directives.
- All EDX-ventilation units are controlled with the EDA control. It is therefore important that You also read the EDA operation manual before starting up the system. In case the EDX and EDA operating manuals contain information about the same topic, the EDX-operating manual should be followed.
- The warranty will end if the installation of the heat pump is not carried out by a qualified cooling installer!



TYPE MARKING

Inside the ventilation unit is a type shield. Fill in the type shield's data here to have it easily available when it is needed, e.g. when buying new filters.

This manual covers the following units:

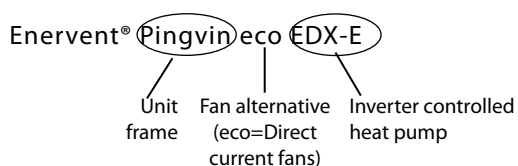
- Enervent® Enervent Pingvin eco EDX-E
- Enervent® Enervent Pandion eco EDX-E
- Enervent® Enervent Pelican eco EDX-E
- Enervent® Enervent Pegasos eco EDX-E
- Enervent® Enervent Pegasos eco XL EDX-E
- Enervent® Enervent LTR-3 eco EDX-E
- Enervent® Enervent LTR-6 eco EDX-E
- Enervent® Enervent LTR-7 eco EDX-E
- Enervent® Enervent LTR-7 eco XL EDX-E



Example of serial number

Outside unit serial number:

TYPE DESCRIPTION



- eco Ventilation unit with direct current fans and EDA control.
- EDX-E Inverter controlled heat pump and electrical duct heater.

FOREWORD

The eco EDX-E ventilation units are designed and manufactured for use all year round. In Finland Enervent ventilation units have been installed in houses and other spaces for over 25 years and their popularity is increasing each year. Because of the knowledge and experience we have amassed during the years we can now manufacture more energy efficient and user friendly ventilation units. The Enervent eco EDX-E unit series is the result of a long product development.

A unit with basic functions can be pre-installed, by your self, with the help of this manual, but certain special functions and the extra equipment should be connected by an electrician. The installation of heat pumps requires a permission because it is a cooling apparatus. Installation of these apparatus should only be done by authorized installers. We recommend that the installation of the ventilation unit be performed by a qualified ventilation engineer.

OPERATING PRINCIPAL

The Enervent eco EDX-E ventilation units are a combination of regenerative heat recovery and an inverter controlled heat pump. A characteristic of the regenerative heat exchanger is its high rate of heat recovery (or efficiency). The system is realized with a rotating heat exchanger through which the supply and exhaust air flow in opposite directions. The outside air temperature is first raised in the rotating heat exchanger and then in the supply air coil. Heat is transferred from the outside unit to the supply air coil by the compressor benefitting from the change in the refrigerant's state. The refrigerant effectively binds heat when it changes from fluid to vapour. The heat is released when the refrigerant condensates back to fluid. In heating mode the refrigerant binds the heat when it evaporates in the outside unit. The refrigerant is pushed to the supply air coil by the compressor and condenses to fluid due to the pressure and releases the heat energy it has binded in the supply air. The heat pump's continuous heat production is once in a while interrupted by the defrosting function. At that time the process is temporarily turned to cooling to allow the ice formed on the outside unit to melt. The electric duct heater insures the supply air temperature stays at set level during the defrosting function and during very cold periods. The EDX-system is completely controlled by the automation. If the heat pump can not produce enough heat the automation will automatically switch on the duct heater.

In cooling mode the flow is turned around which means the refrigerant evaporates in the supply air coil binding heat energy and cooling the supply air. The heat energy is released from the refrigerant outside by the outside unit.

The EDX-E works as an additional heat source of the house as it economically produces over heated supply air with the heat pump technology. Further more the system effectively cools in the summer time. The used eco fans are energy efficient direct current fans.

USING THE SYSTEM

SPECIAL FEATURES OF THE EDX SYSTEM

The EDX system's outside unit might frost over and freeze during the winter. Snow might also accumulate on the outside unit during blizzards. This is completely normal and it doesn't affect the outside unit's function. The frost over occurs because the refrigerant evaporates in the outside unit during heating mode. This causes the lamella surfaces in the outside unit to cool down. The humidity in the outside air freezes when it comes in contact with these cold surfaces. This is commonly seen as white frost on the outside unit surfaces. The phenomenon is emphasized at temperatures around $\pm 0^{\circ}\text{C}$.

The easiest way to melt a severely frozen outside unit is to pour warm water over it. It allows the ice to melt without harming the outside unit. The ice must not be removed by hitting with a chisel or such. Cut the power to the outside unit before attempting to melt it!

An ice pile gathers beneath the outside unit due to the melting water. It can be removed as needed. NOTE! If the space between the outside unit and the surface beneath it is small, the ice gathering under the outside unit might lift it of its place. If the space is small, the ice must be removed often. We recommend that 40 cm free space is left under the outside unit.

The ventilation unit fans always run on 70 % when the EDX-system is heating or cooling!

THE ENERVENT ECO EDX-E SYSTEM ASSEMBLY

| ULKOYKSIKKÖ | | | |
|-------------------|-------------------|----------------------------|-------------------------------|
| COMP 1 | COMP 2 | COMP 3 | COMP 4 |
| Pingvin eco EDX-E | Pegasos eco EDX-E | Pegasos eco XL EDX-E | Pegasos eco XL EDX-E (option) |
| Pandion eco EDX-E | LTR-7 eco EDX-E | LTR-7 eco XL EDX-E | LTR-7 eco XL EDX-E (option) |
| Pelican eco EDX-E | | Pegasos eco EDX-E (option) | |
| LTR-3 eco EDX-E | | LTR-7 eco EDX-E (option) | |
| LTR-6 eco EDX-E | | | |
| | | | |

THE ENERVENT ECO EDX-E SYSTEM ASSEMBLY

| | | COMP 1 (RP-35) | COMP 2 (RP-50) | COMP 3 (RP-60) | COMP 4 (RP-71) |
|------------------------------|-----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Compressor | Type | Rotation | Rotation | Rotation | Rotation |
| | Brand | Mitsubishi | Mitsubishi | Mitsubishi | Mitsubishi |
| Outside unit | Size H-W-D (mm) | 600 - 800 - 330 (+23) | 600 - 800 - 330 (+23) | 943-950-330 (+30) | 943-950-330 (+30) |
| | Net weight (kg) | 45 | 45 | 75 | 75 |
| | Nominal heating efficiency (kW) | 4.1 (1.6-5.2) | 6.0 (2.5-7.3) | 7.0 (2.8-8.2) | 8.0 (3.5-10.2) |
| | Nominal cooling efficiency (kW) | 3.6 (1.6-4.5) | 4.9 (2.3-5.6) | 6.0 (2.7-6.7) | 7.1 (3.3-8.1) |
| | COP heating * | ~ 3.75 | ~ 3.85 | ~ 4.00 | ~ 4.00 |
| | Sound level (dBA) heating/cooling | 46/44 | 46/44 | 48/47 | 48/47 |
| | Refrigerant | R410A | R410A | R410A | R410A |
| | Refrigerant amount (g) | 2 500 | 2 500 | 3 500 | 3 500 |
| Piping | Pipe size fluid | Ø 6,35/0,8 mm (1/4") | Ø 6,35/0,8 mm (1/4") | Ø 9,52/0,8 mm (3/8") | Ø 9,52/0,8 mm (3/8") |
| | Pipe size gas | Ø 12,7/0,8 mm (1/2") | Ø 12,7/0,8 mm (1/2") | Ø 15,88/0,8 mm (5/8") | Ø 15,88/0,8 mm (5/8") |
| | Max. length (m) | 20 | 20 | 20 | 20 |
| | Max. height difference (m) | 10 | 10 | 10 | 10 |
| Surrounding temp. (°C) | -25°C ... +43°C | -25°C ... +43°C | -25°C ... +43°C | -25°C ... +43°C | |
| Outside unit supply (Ph/V/A) | 1~ / 230 VAC / 16 A | 1~ / 230 VAC / 16 A | 1~ / 230 VAC / 20 A | 1~ / 230 VAC / 20 A | |

* Incoming air temperature +15°C (coil). Outside air temperature -10°C (COP can vary depending on air amounts).

LIST OF COMPONENTS

THE EDX-E DELIVERY INCLUDES:

1. Supply air coil. Built-in or duct coil depending on unit model
2. Outside unit Mitsubishi PUHZ-RP
3. Control unit Mitsubishi PAC-IF011/12B-E
4. Sensors 3 pcs
5. Electrical duct heater

A list of the components included in the ventilation unit delivery is found in the ventilation unit manual.

The ventilation unit is installed according to the separate manual delivered with it. NOTE! LTR-6 and LTR-7 units have to be installed with the service hatch on the side if they are equipped with EDX. If the supply air coil isn't built-in, it is to be installed in the duct. Note point 3 here under. Because the EDX system is a cooling system, it has to be drained through a water lock. The drainage is situated on the duct coil or in the bottom of the ventilation unit.

Phases of installation:

1. Install the ventilation unit as advised in the separate manual delivered with the unit. NOTE! LTR-6 and LTR-7 units have to be installed with the service hatch on the side if they are equipped with EDX. Take into consideration the space needed for draining the condense water.
2. Make sure that there is enough free space in front of the unit's maintenance hatch and remember to leave the electric wirings easily accessible.
3. If the supply air coil isn't built in, it needs to be connected to the duct. NOTE! The coil should be installed with the condense drain downwards in a horizontal part of the duct. Attach the duct to the unit with flexible connections. We recommend silencers in the supply and exhaust air ducts. The silencer should be installed after the supply air coil.
4. Connect a pipe between the drain outlet and the nearest floor drain or water trap of a sink (min. water column 60 mm). Connecting the unit directly into the sewage system is not allowed.

Installation of the outside unit:

The outside unit is installed outside on a max. distance of 20 m and on a max height difference of 10 m from the coil. There are no special requirements regarding the placement of the outside unit because the outside air temperature doesn't vary much depending on the place of installation. The outside air unit should be mounted steadily to avoid resonance. If the outside air unit i.e. is mounted on a boarded wall it should be equipped with proper absorbing rubber pads to avoid resonance. The unit should not be mounted on the wall outside the bedroom, because it is hard to get rid of all resonance. We recommend that a rack be built for the unit so it doesn't have to lie close to the wall. It is also possible to build an open cover for the unit as long as it doesn't disturb the air flow. The unit is not to be mounted in a closed space. The unit must be mounted high enough to prevent snow from blocking the air flow in wintertime.

Piping and electrical wiring:

Enervent eco EDX is a combination of a ventilation unit and a heat pump. The heat pump is a cooling apparatus. The installation of a cooling apparatus requires a license. Installation of cooling apparatus should only be carried out by licensed companies. The pipes between the outside air unit and the supply air coil are not included in the standard delivery.

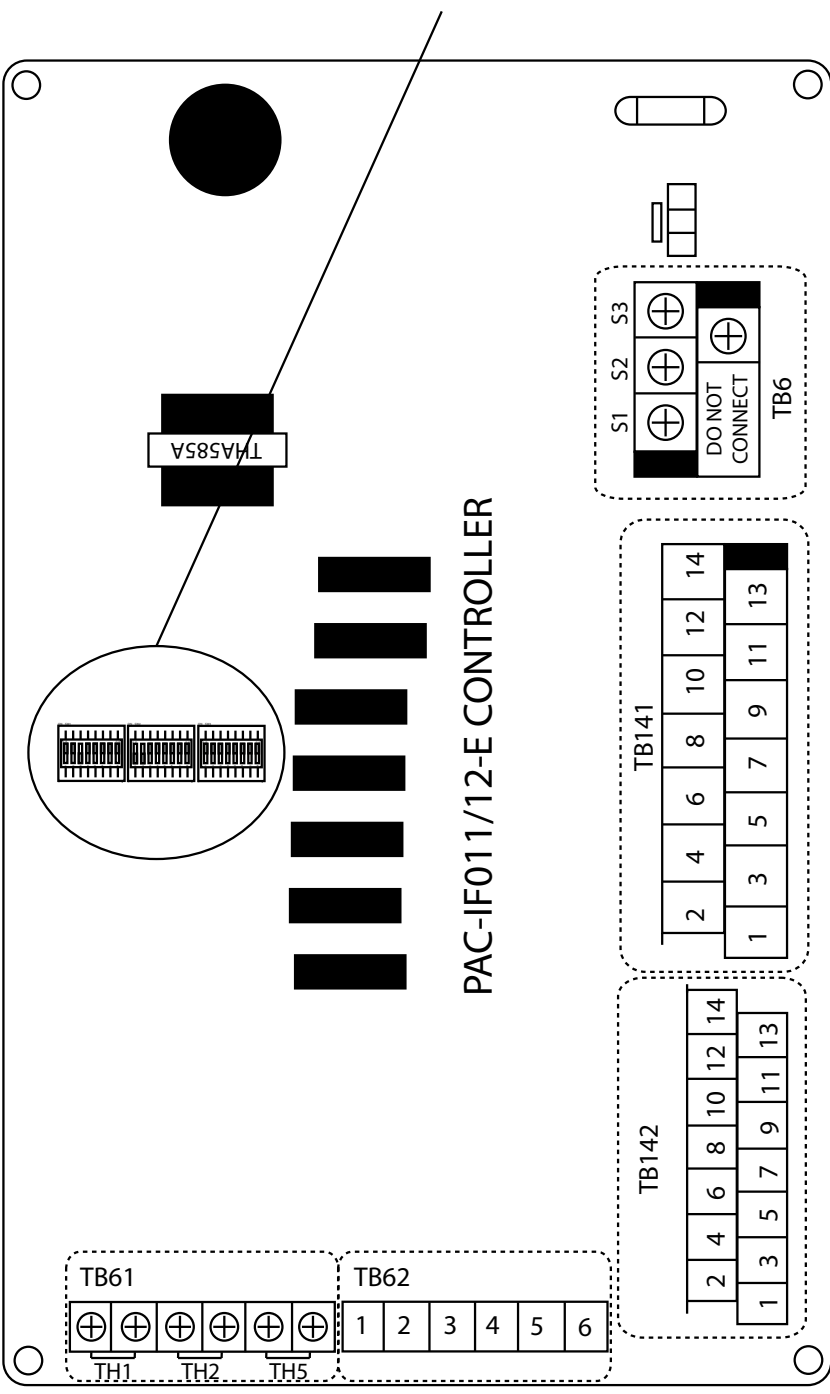
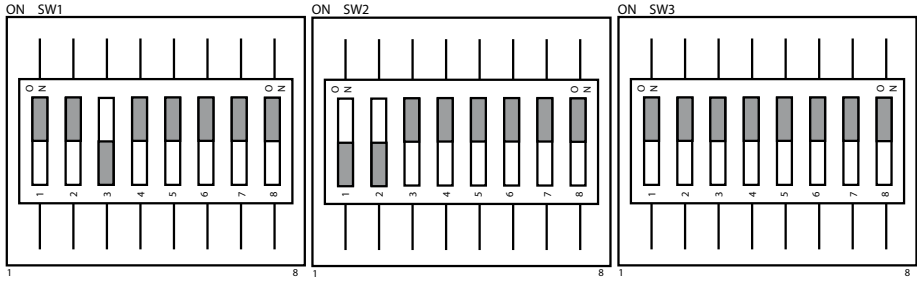
The outside air unit also requires electrification. We recommend that the heat pump has its own output on the switchboard. Electrical installations as the installation of cooling apparatus, requires a license. Some companies employ both electricians and installers of cooling apparatus. The cable between the outside unit and ventilation unit is not included in the delivery.

Installing the electrical duct heater:

The heater is designed for insertion into standard spiral ducting and is fixed to the ducting with screws. The air must flow through the heater in the direction indicated by the arrow on the side of the connection box. The heater can be fitted in either horizontal or vertical ducting. The connection box can be freely placed facing upwards or sideways to a maximum angle of 90°. Fitting with the connection box facing downwards is NOT allowed. The distance from (to) the heater to (from) a duct bend, valve, filter, etc., should correspond to at least twice the duct diameter. Otherwise there is a risk that the airflow through the heater will be uneven which can cause activation of the overheating cut-out. The duct heater may be insulated in accordance with valid regulations for ventilation ducting. However, the insulation must be incombustible. The insulation must not cover the lid, since the rating plate must be visible and the lid must be removable. Furthermore, the insulation must not cover any heatsinks, nor the side of the connection box where the SCR's (Triac's) are mounted. The duct heater must be accessible for replacement and inspection. The distance from the heater metal casing to any wood or other combustible material must NOT be less than 30mm.

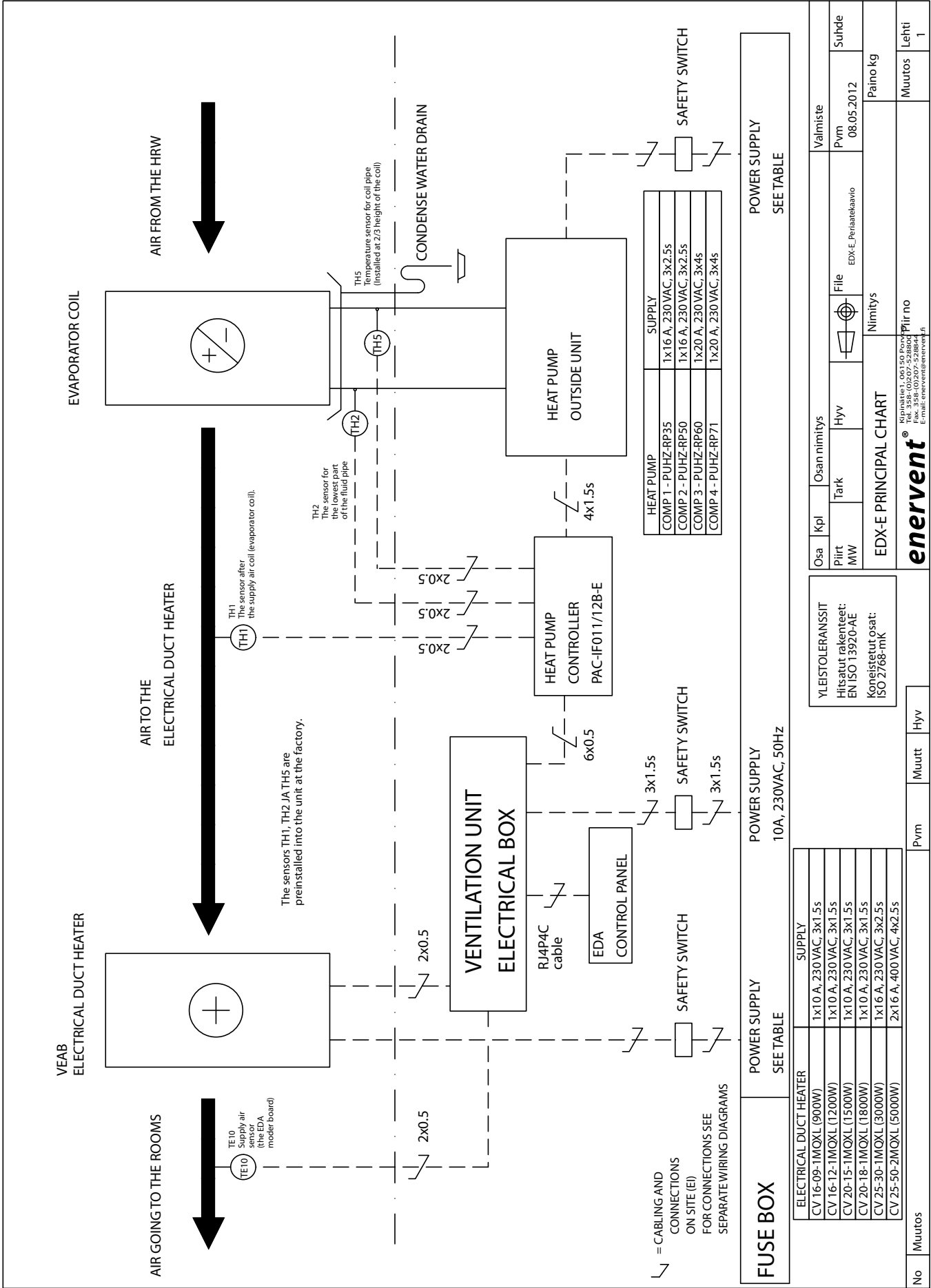
Electrifying the outside unit:

We recommend that the heat pump has its own output on the switchboard. The Mitsubishi controller unit must be installed in a warm space. Thus the sensor cables might have to be elongated on the site. Power supply is brought ONLY to the outside unit, not to the PAC. See the picture on the next page.



PAC-IF011/12-E CONTROLLER

1. Connect the sensors **TH1**, **TH2** and **TH5** to the marked points on the connector TB61.
TH1 is the supply air temperature sensor. It should be placed after the evaporator coil in the duct. Preferably the sensor is placed in the same place as the EDA control supply air sensor.
TH5 is placed in the bigger pipe after the evaporator. Sensors installed in copper pipes must be insulated from the air flow, so the sensor measures the pipe's temperature as accurately as possible.
TH2 is placed in the smaller pipe going to the evaporator. This sensor must also be insulated.
 2. Connect point 4 on connector TB141, point 8 on connector TB141 and point 4 on connector TB62.
 3. Make the connections between the PAC and the EDA -mother board. There is a connector strip 1, 2, 3, 4, 5, 6 in the ventilation unit electrical box. The points on this connector strip are connected to the PAC board as follows;
 4. Place the PAC dip switches SW1, SW2 and SW3 in the right positions. The right positions are also shown on the connection diagram.
 5. Connect the earth wire to TB6 on the PAC board. Finally connect **S1**, **S2** and **S3** from point TB6 to the corresponding points on the outside unit. Bring 16 A power supply to the outside unit.
Power supply is brought only to the outside unit NOT to the PAC!
- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------|---------------------|---------------|---|---------------|---|---------------|---|---------------|---|---------------|---|--------------|---|---|---------------|---------------------|---------------|---|---------------|---|---------------|---|---------------|---|---------------|---|--------------|---|
| <table border="0"> <tr> <td style="text-align: center;">PAC connector</td> <td style="text-align: center;">EDA connector strip</td> </tr> <tr> <td style="text-align: center;">TB141 point 3</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">TB141 point 4</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">TB141 point 7</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">TB142 point 3</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">TB142 point 4</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">TB62 point 3</td> <td style="text-align: center;">6</td> </tr> </table> | PAC connector | EDA connector strip | TB141 point 3 | 1 | TB141 point 4 | 2 | TB141 point 7 | 3 | TB142 point 3 | 4 | TB142 point 4 | 5 | TB62 point 3 | 6 | <table border="0"> <tr> <td style="text-align: center;">PAC connector</td> <td style="text-align: center;">EDA connector strip</td> </tr> <tr> <td style="text-align: center;">TB141 point 3</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">TB141 point 4</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">TB141 point 7</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">TB142 point 3</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">TB142 point 4</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">TB62 point 3</td> <td style="text-align: center;">6</td> </tr> </table> | PAC connector | EDA connector strip | TB141 point 3 | 1 | TB141 point 4 | 2 | TB141 point 7 | 3 | TB142 point 3 | 4 | TB142 point 4 | 5 | TB62 point 3 | 6 |
| PAC connector | EDA connector strip | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB141 point 3 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB141 point 4 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB141 point 7 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB142 point 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB142 point 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB62 point 3 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| TB141 point 7 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB142 point 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB142 point 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB62 point 3 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| FUSE BOX | POWER SUPPLY SEE TABLE | POWER SUPPLY 10A, 230VAC, 50HZ | POWER SUPPLY SEE TABLE |
|------------------------|------------------------|--------------------------------|------------------------|
| ELECTRICAL DUCT HEATER | 1x10 A, 230VAC, 3x1.5s | 10A, 230VAC, 50HZ | SEE TABLE |
| CV 16-09-1MOXL (900W) | 1x10 A, 230VAC, 3x1.5s | | |
| CV 16-12-1MOXL (1200W) | 1x10 A, 230VAC, 3x1.5s | | |
| CV 20-15-1MOXL (1500W) | 1x10 A, 230VAC, 3x1.5s | | |
| CV 20-18-1MOXL (1800W) | 1x10 A, 230VAC, 3x1.5s | | |
| CV 25-30-1MOXL (3000W) | 1x16 A, 230VAC, 3x2.5s | | |
| CV 25-50-2MOXL (5000W) | 2x16 A, 400VAC, 4x2.5s | | |

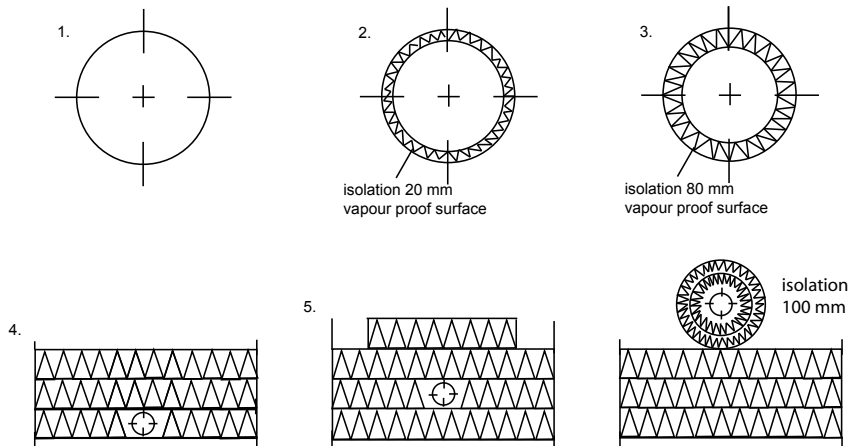
| HEAT PUMP | SUPPLY |
|--------------------|-------------------------|
| COMP 1 - PUHZ-RP35 | 1x16 A, 230 VAC, 3x2.5s |
| COMP 2 - PUHZ-RP50 | 1x16 A, 230 VAC, 3x2.5s |
| COMP 3 - PUHZ-RP60 | 1x20 A, 230 VAC, 3x4s |
| COMP 4 - PUHZ-RP71 | 1x20 A, 230 VAC, 3x4s |

YLEISTOLERANSSIT
 Hitsatut rakenteet:
 EN ISO 13920-AE
 Konsistensit,osat:
 ISO 2768-mik

| Osa | Kpl | Osan nimitys | Valmiste |
|--|------|--------------|--------------------------|
| Piirt MW | Tank | Hyv | Pvm 08.05.2012 |
| EDX-E PRINCIPAL CHART | | | Paino kg |
| Kipinätehti, 06150 Pentti Tel. 358-03207-528800 Fax: 358-03207-528801 Email: info@enervent.fi | | | Muutos Lehti Muutos 1 |

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DUCT HEAT INSULATION



Examples of different insulation alternatives:

1. Exhaust air duct in a warm room.
2. Supply air duct between ventilation unit and terminal equipment.
3. Waste air and outside air duct in warm spacing (indoors).
4. Exhaust air duct in the ceiling insulation.
5. All ducts in a cold attic. Outside air and waste air ducts must not be assembled directly above the steam barrier. Both ducts require an insulation layer of 100 mm thick mineral wool.

STARTING THE SYSTEM

The Enervent eco EDX system can be started when the following installations have been made:

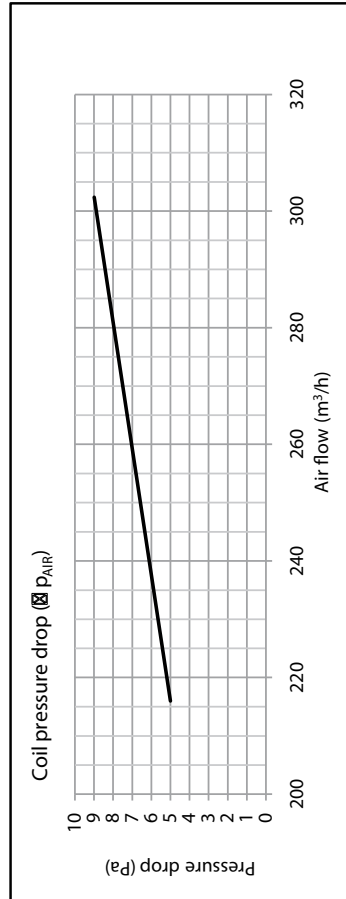
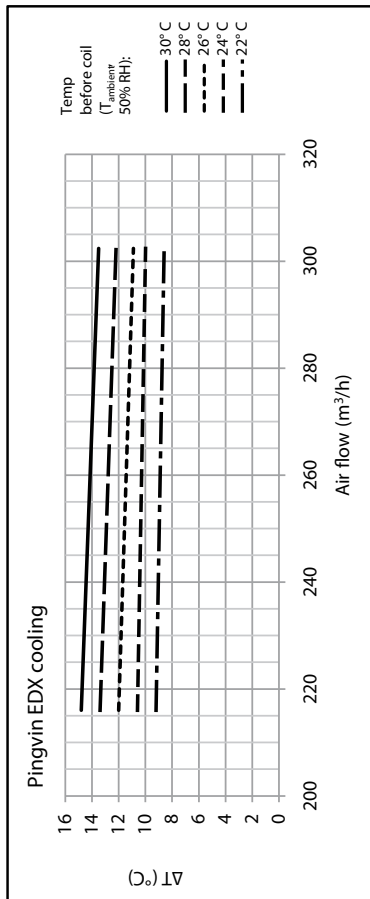
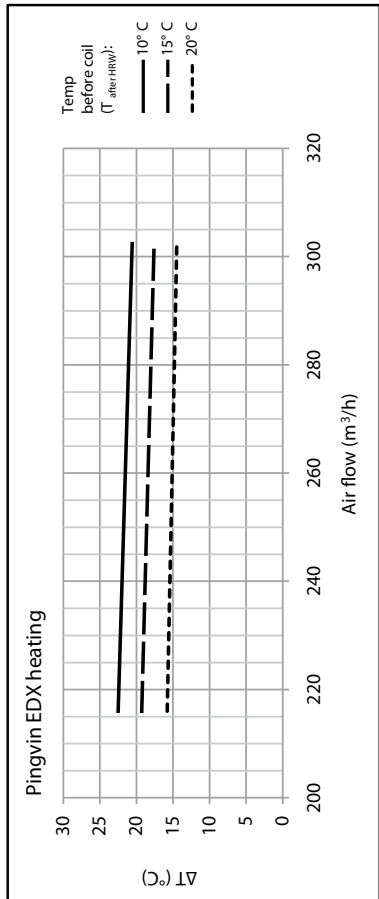
- The ventilation unit is installed.
- The supply air coil is installed, if it is a duct coil.
- The electrical duct heater is installed.
- The outside unit is mounted.
- The piping between the outside unit and the coil is done.
- The refrigerant circuit is evacuated and filled.
- The draining of condense water is connected through a water lock.
- The ducts with silencers are connected to the ventilation unit.
- The terminal equipments are installed.
- An outside air grille has been mounted on the fresh air intake (NOTE! Do not put an insect net on the fresh air intake because it blocks up very easily).
- Make the roof pass-through. We recommend the use of a factory made, insulated roof pass-through.
- The ducts has been insulated as instructed.
- The ventiation unit and the outside unit have been provided with the appropriate power supply and the control cable has been connected.
- Connect the control panel to the unit (mother board plug OP1) with the cable provided.
- The air flows have been regulated.
- PYR4 is set to the right value. Detailed instructions on page 28.

Open the unit's maintenance hatch when all the above mentioned installation work is done. Check that the unit is clean on the inside, that there are no spare parts inside it and that the filters are clean. Close the maintenance hatch carefully. NOTE! The unit should not be run with the hatch open. The EDX unit is started by connecting the current to the unit. In this mode both the fans and the rotating heat exchanger run.

EDX COIL HEATING AND COOLING CAPACITY

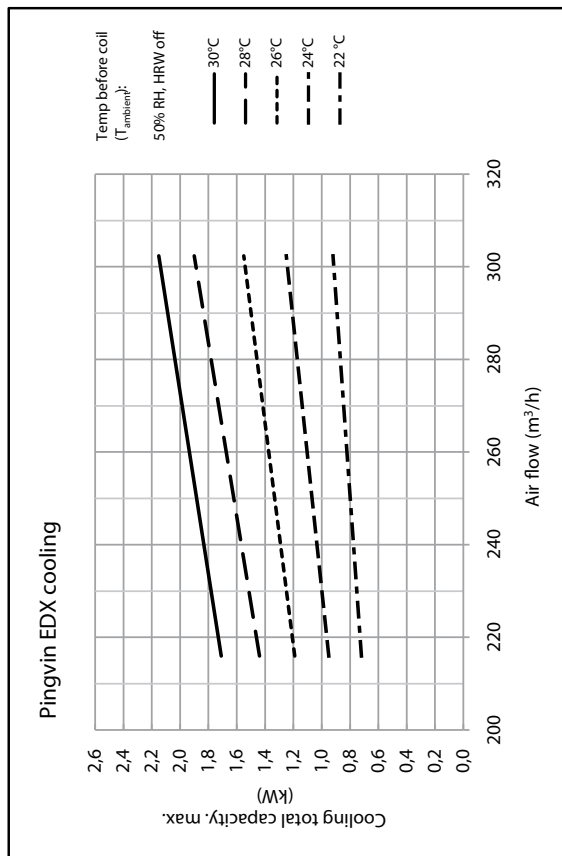
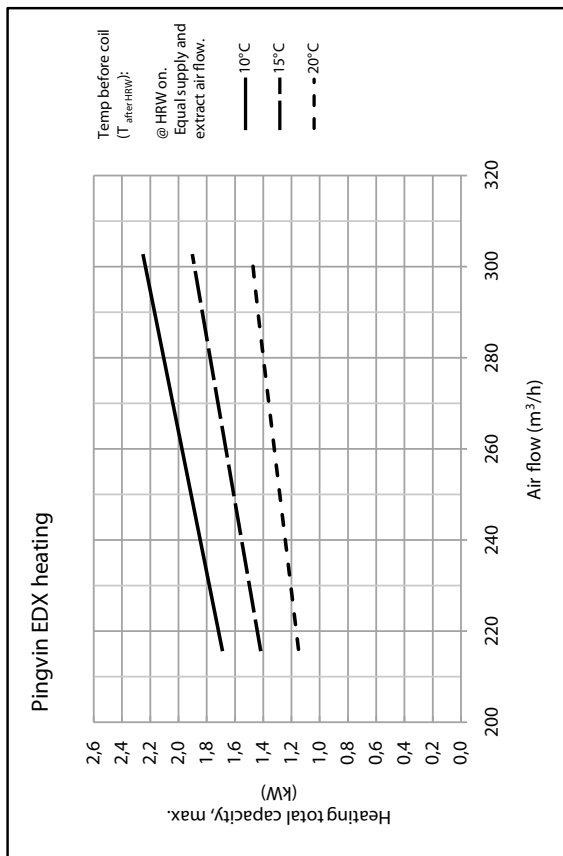
Pingvin EDX - coil heating and cooling capacity (ΔT)

Heat pump RP-35
Cooling media R-410A
Duct mounted coil 1007182



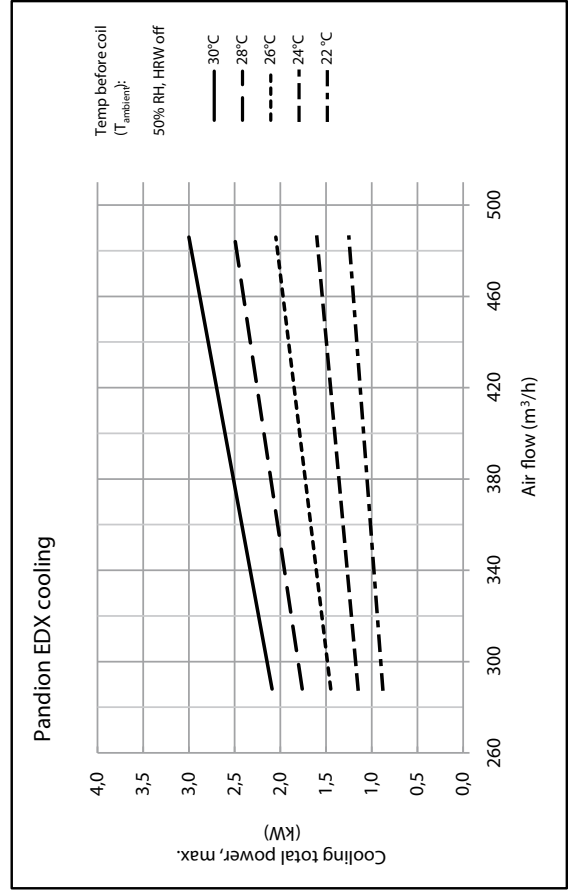
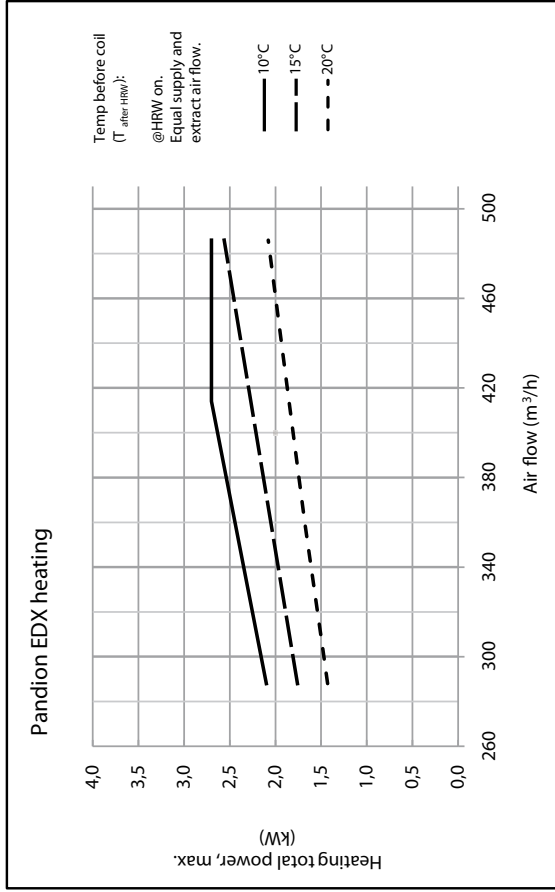
Pingvin EDX coil heating and cooling capacity (kW)

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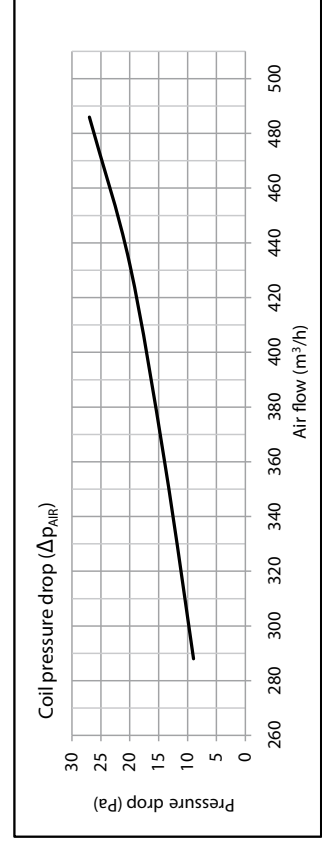
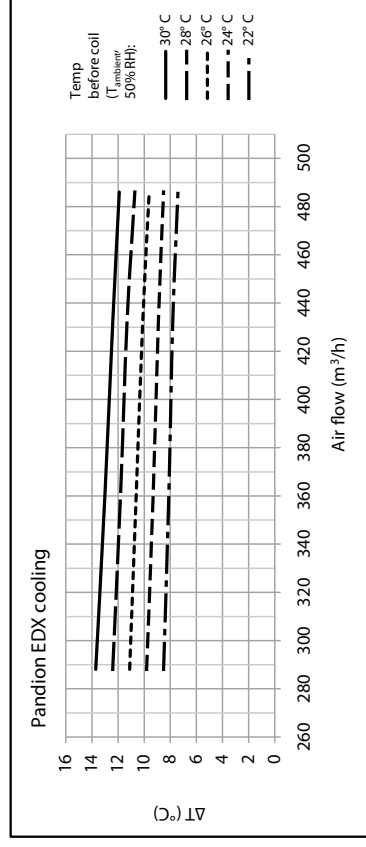
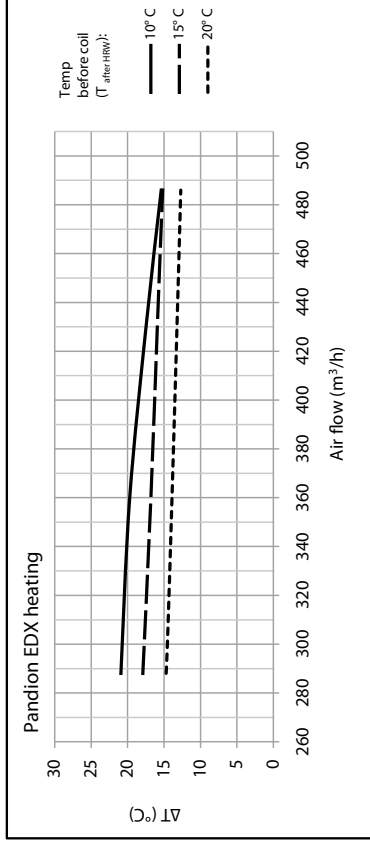
Pandion EDX coil heating and cooling capacity (kW)

Heat pump RP-35
Cooling media R-410A
Coil integrated in AHU 1007156
Duct mounted coil 1007182



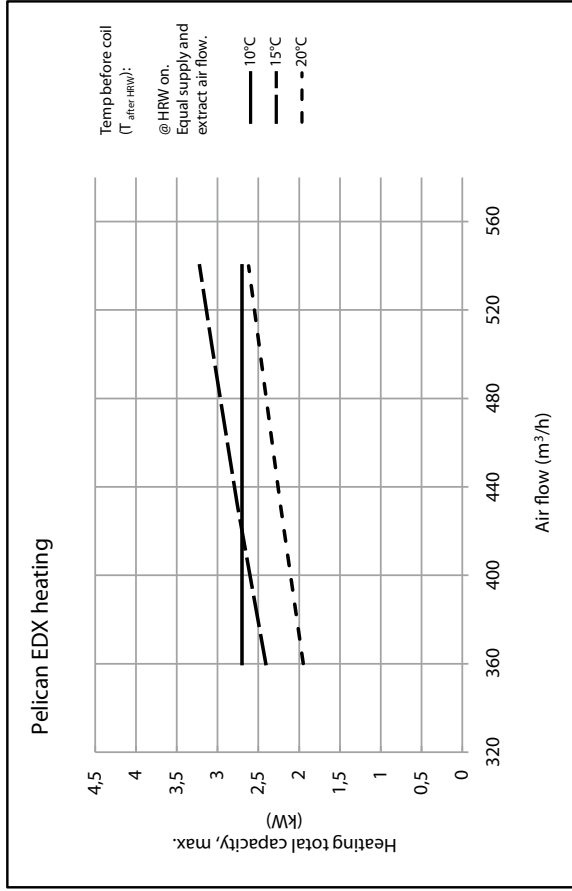
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Coil integrated in AHU 1007156
Duct mounted coil 1007182



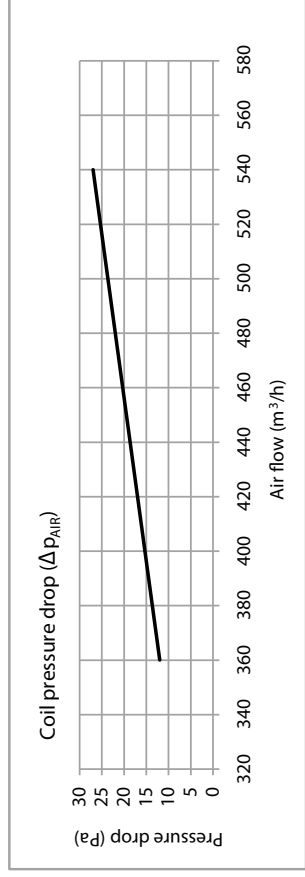
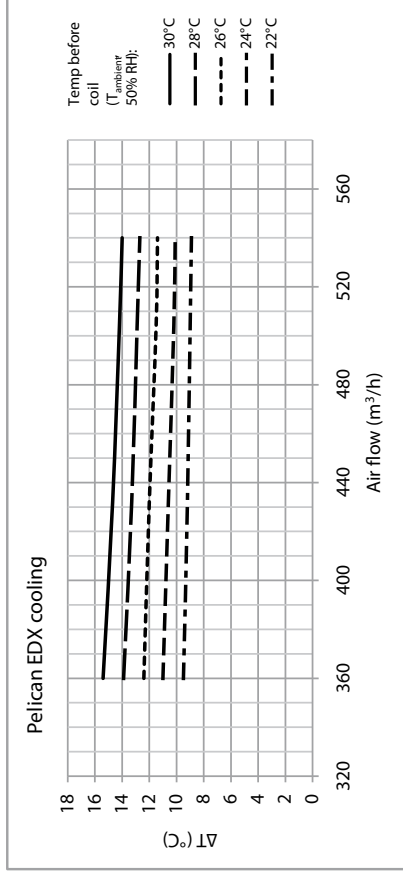
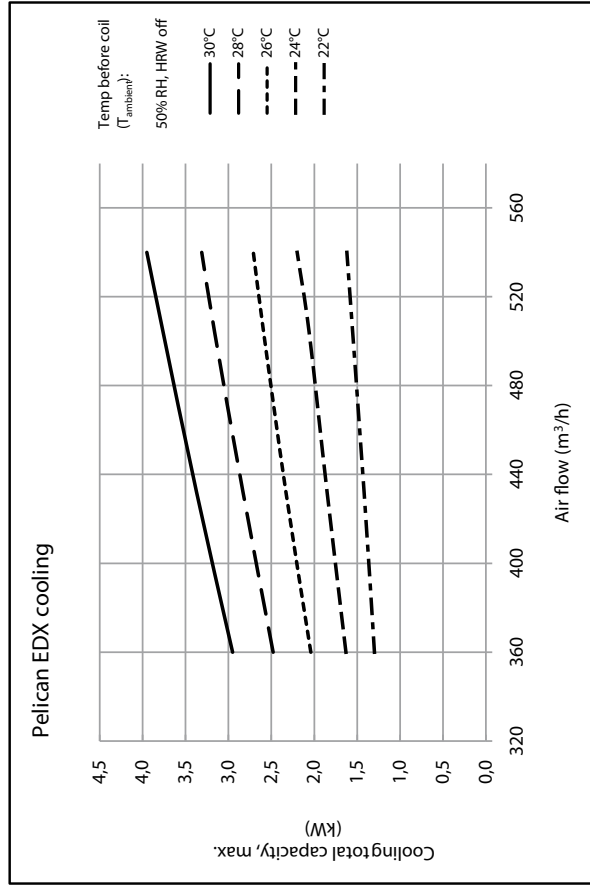
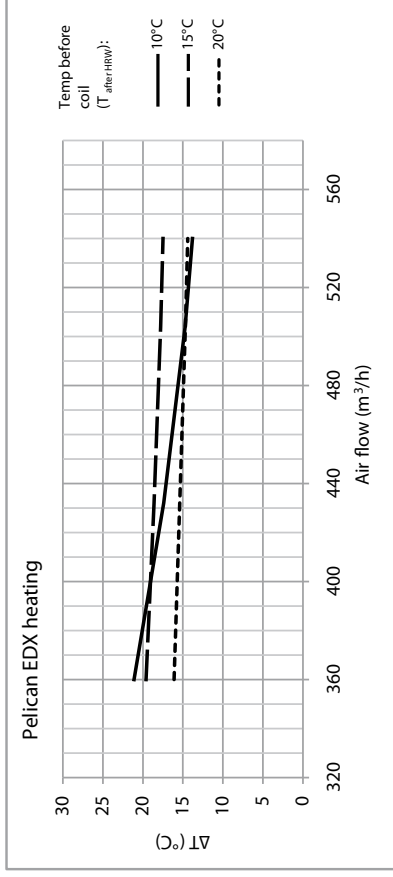
Pelican EDX coil heating and cooling capacity (kW)

Heat pump RP-35
Cooling media R-410A
Coil integrated in AHU 1007286



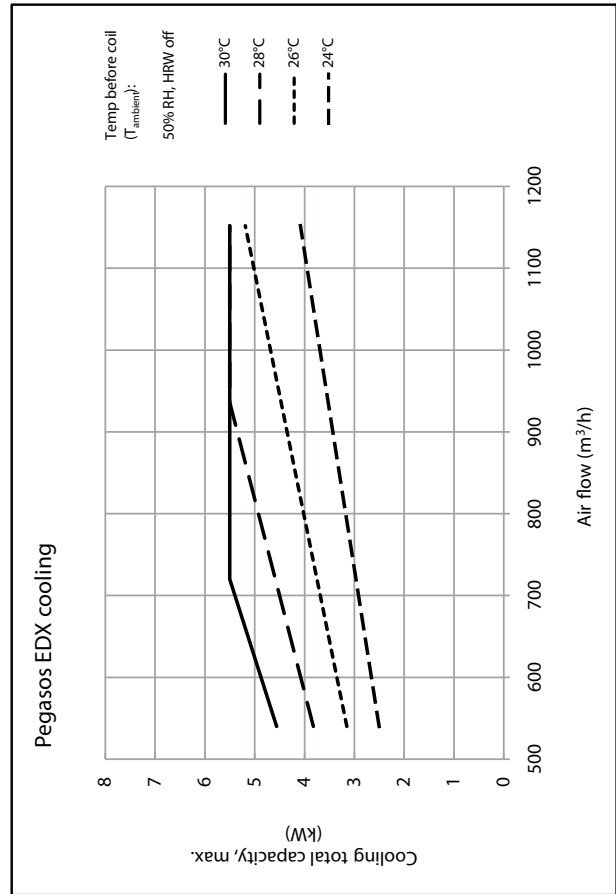
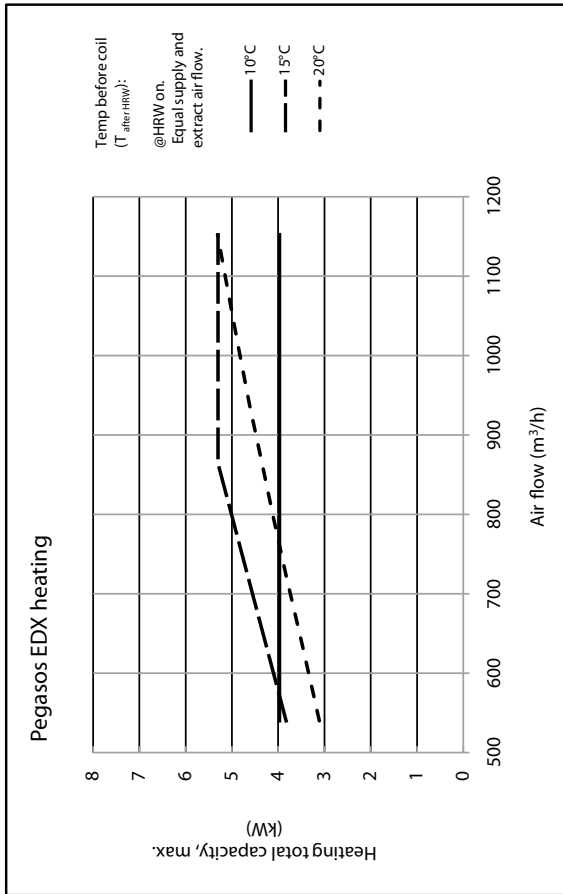
Pelican EDX coil heating and cooling capacity (ΔT)

Heat pump RP-35
Cooling media R-410A
Coil integrated in AHU 100796



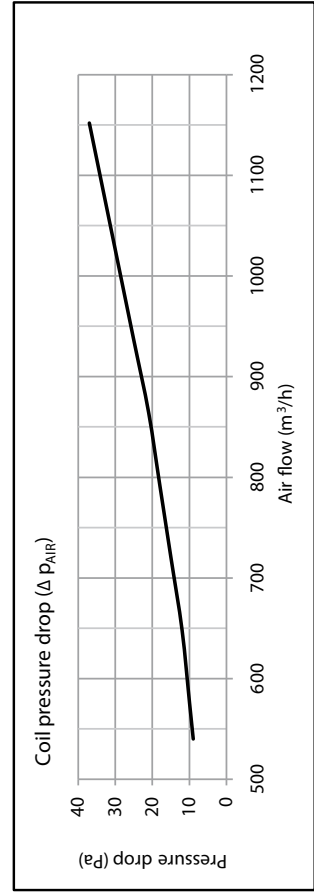
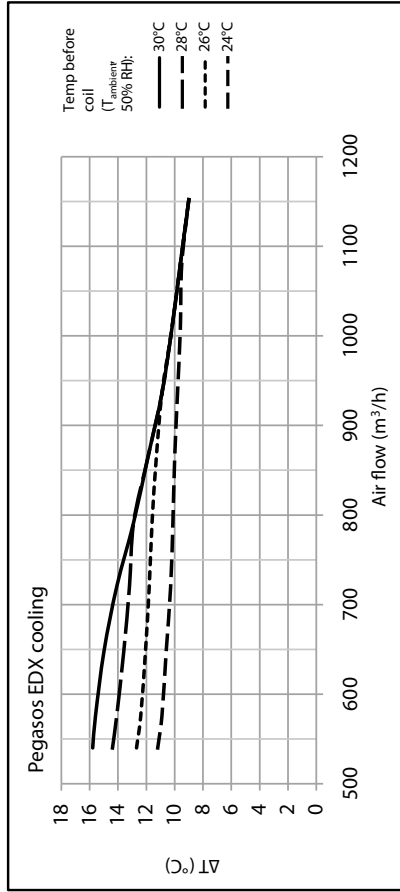
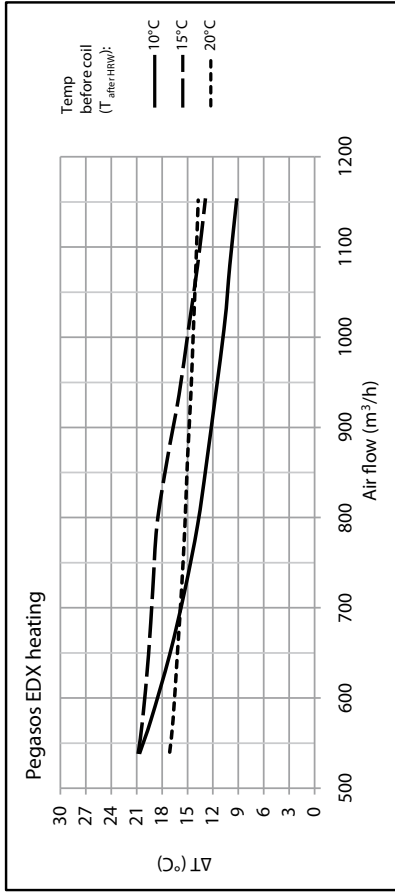
Pegasos EDX coil heating and cooling capacity (kW)

Heat pump RP-50
Cooling media R-410A
Coil integrated in AHU 1007286



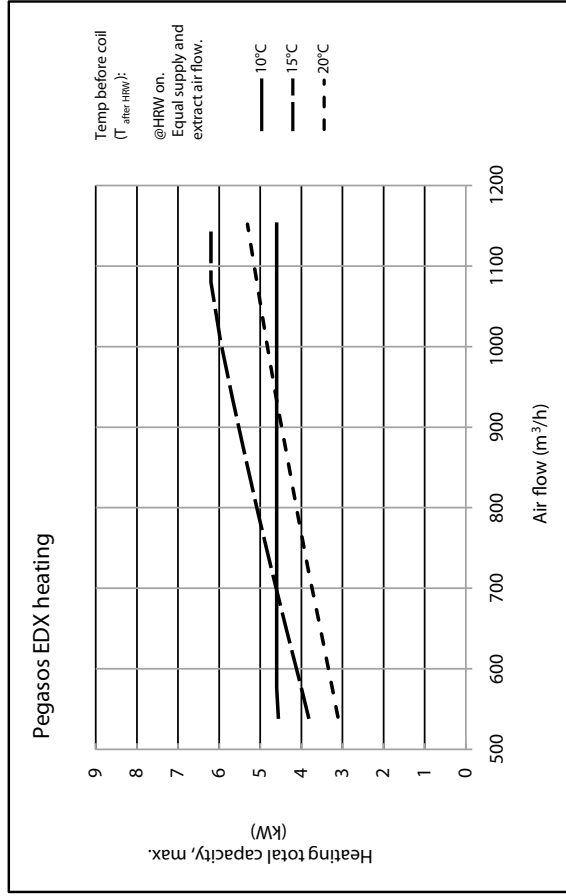
Pegasos EDX coil heating and cooling capacity (ΔT)

Heat pump RP-50
Cooling media R-410A
Coil integrated in AHU 1007286



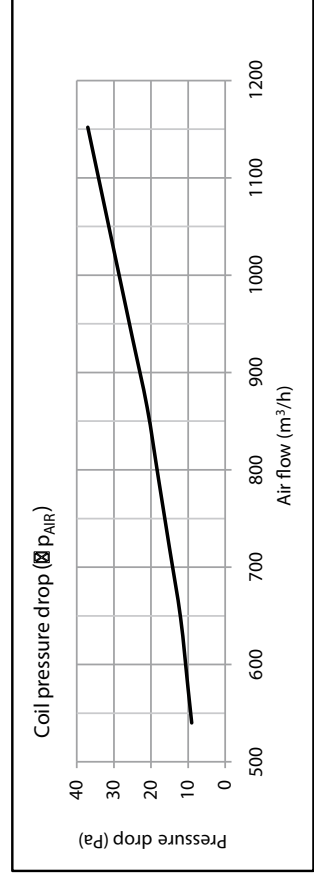
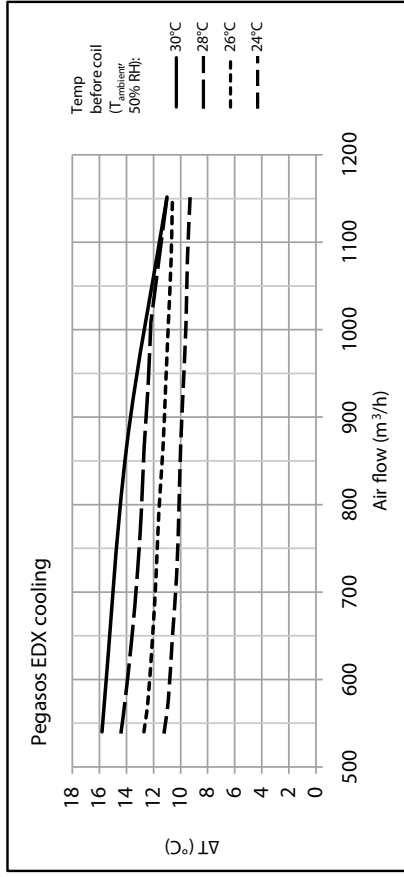
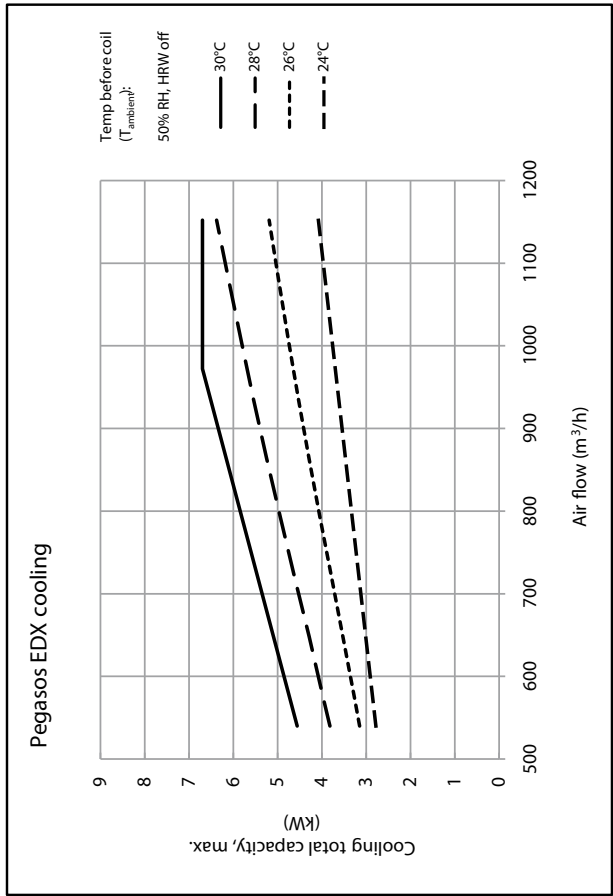
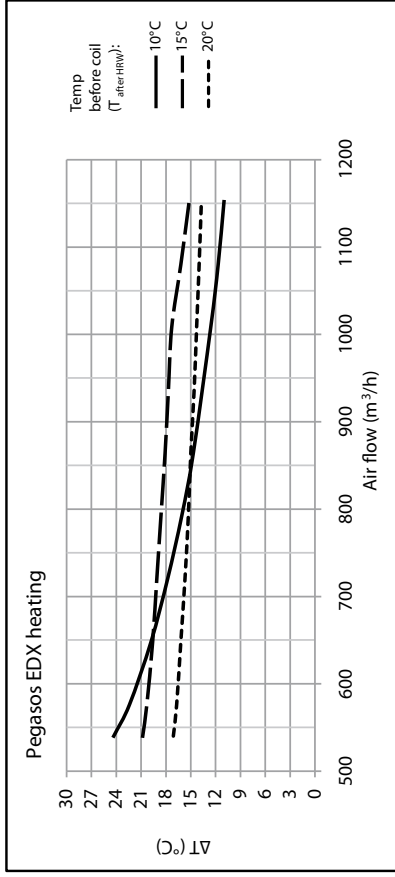
Pegasos EDX coil heating and cooling capacity (kW)

Heat pump RP-60 (option)
Cooling media R-410A
Coil integrated in AHU 1007286



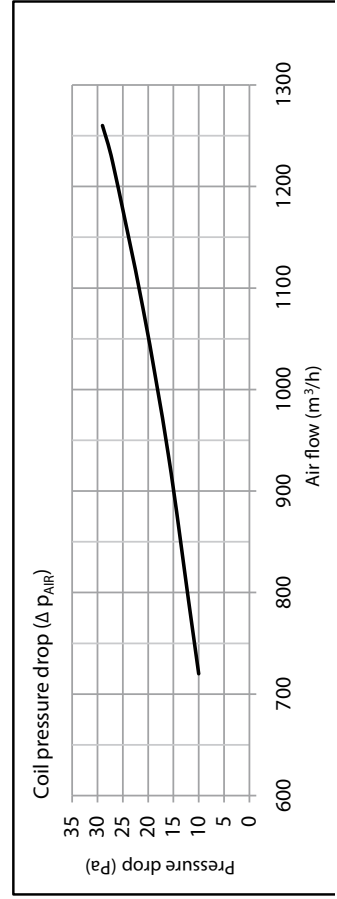
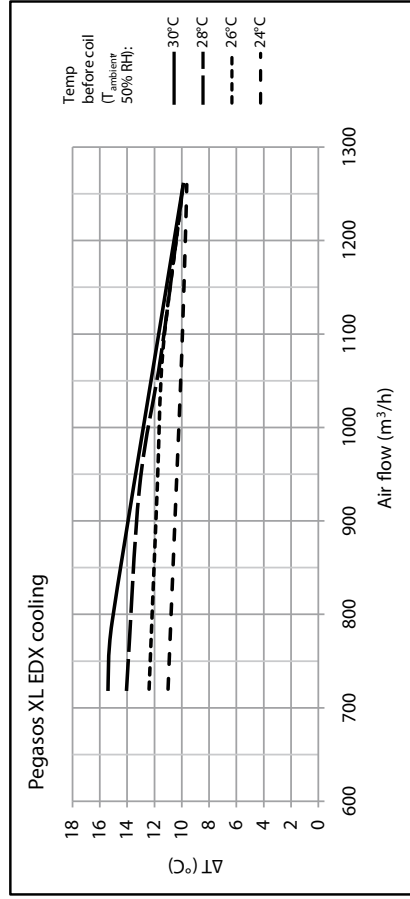
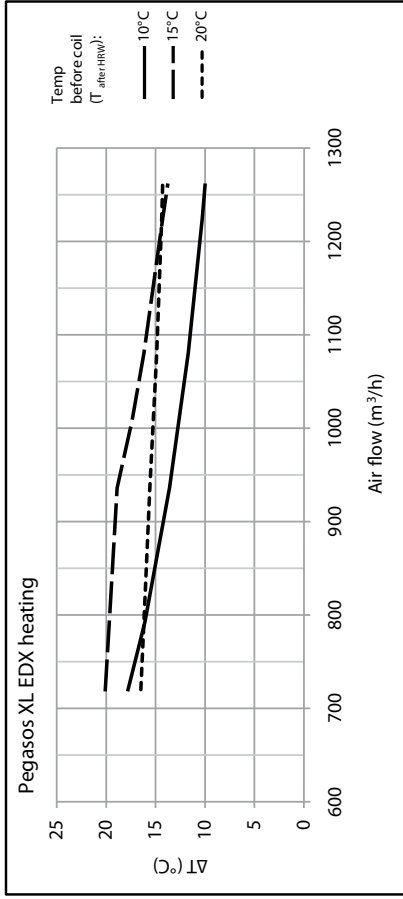
Pegasos EDX - coil heating and cooling capacity (ΔT)

Heat pump RP-60 (option)
Cooling media R-410A
Coil integrated in AHU 1007286



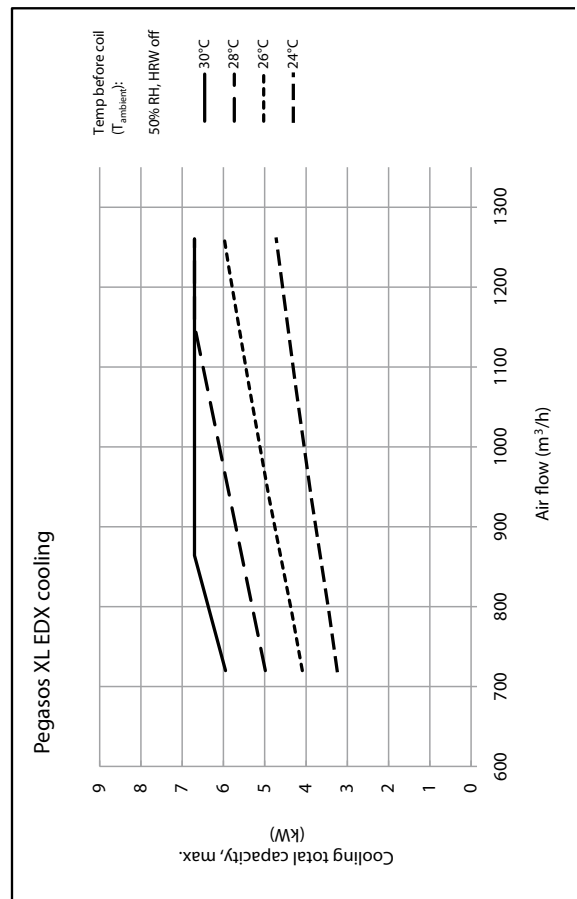
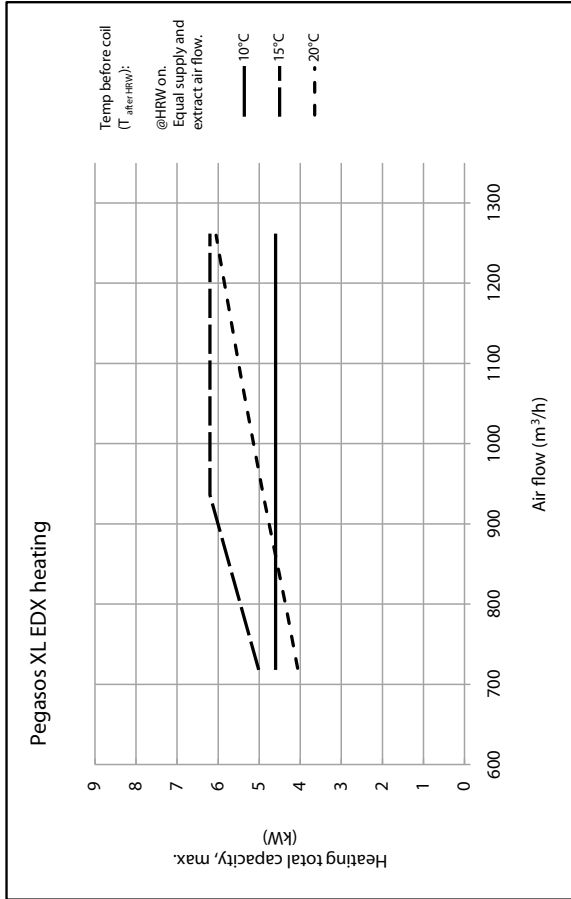
Pegasos XL EDX coil heating and cooling capacity (ΔT)

Heat pump RP-60
Cooling media R-410A
Duct mounted coil 1007521



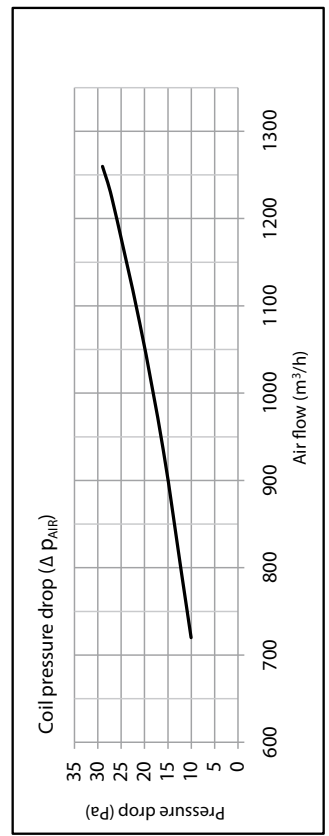
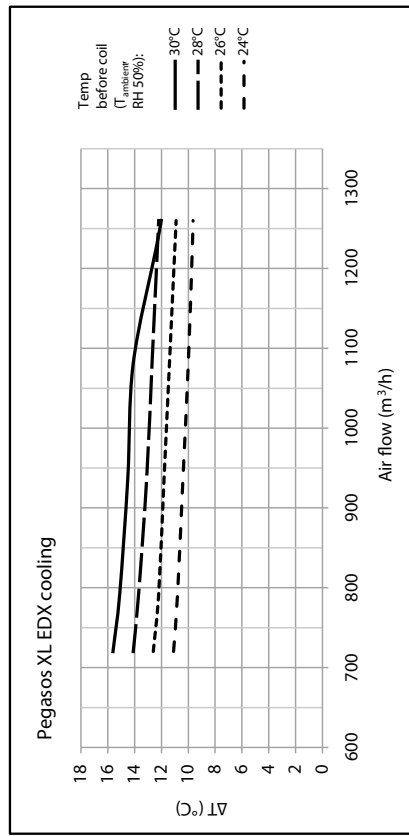
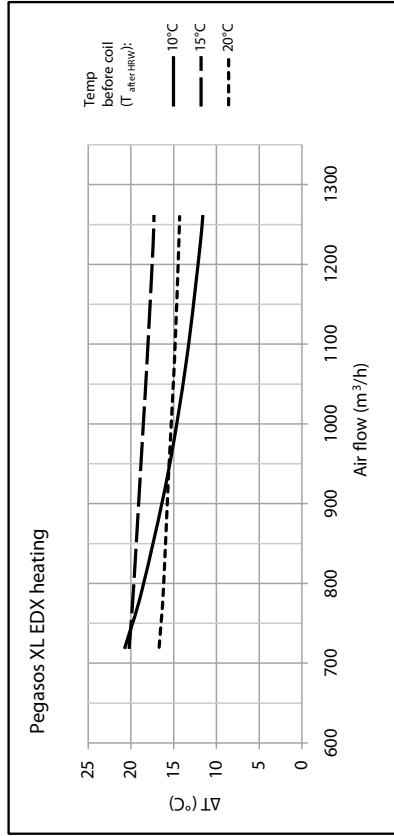
Pegasos XL EDX coil heating and cooling capacity (kW)

Heat pump RP-60
Cooling media R-410A
Duct mounted coil 1007521



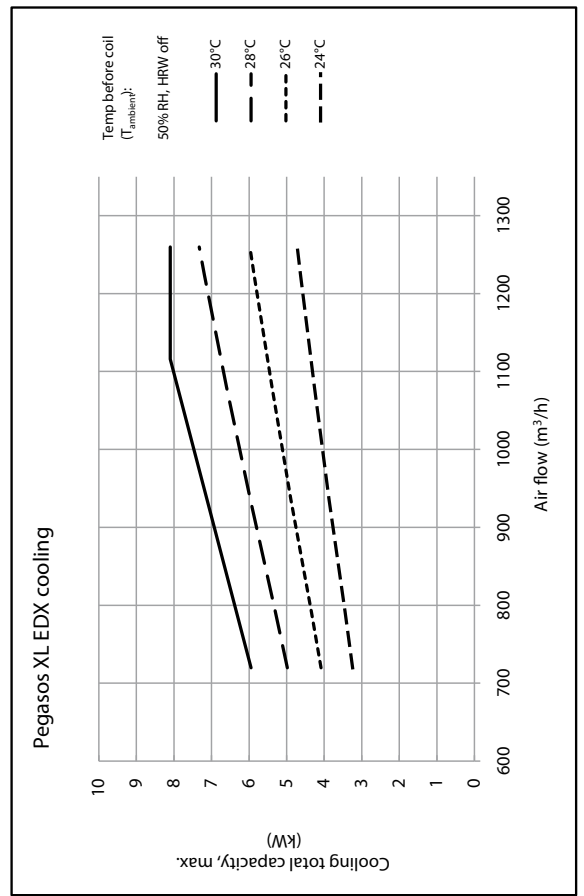
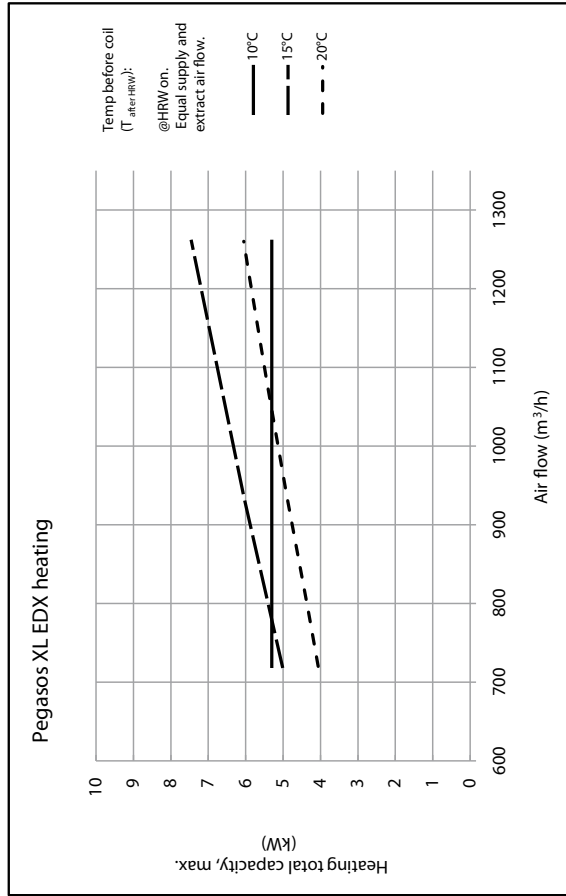
Pegasos XL EDX - coil heating and cooling capacity (ΔT)

Heat pump RP-71 (option)
Cooling media R-410A
Duct mounted coil 1007521



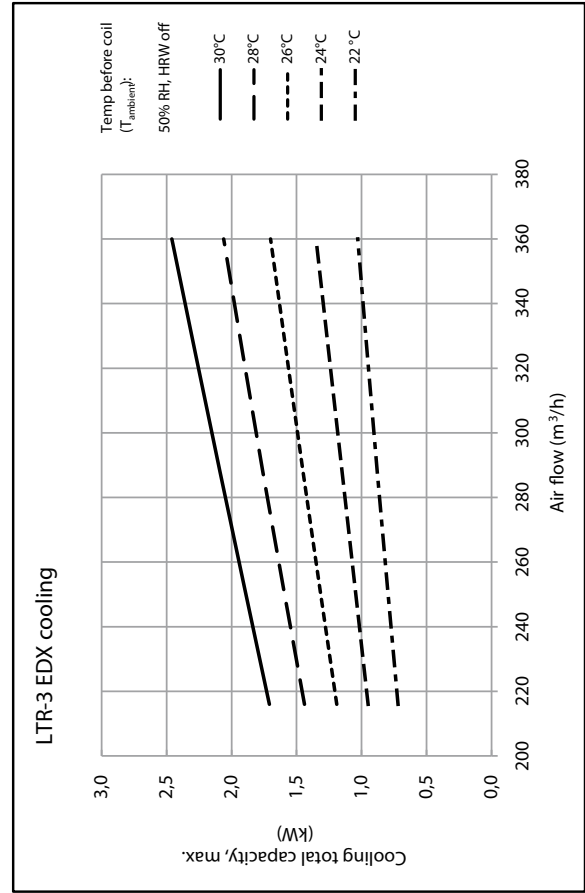
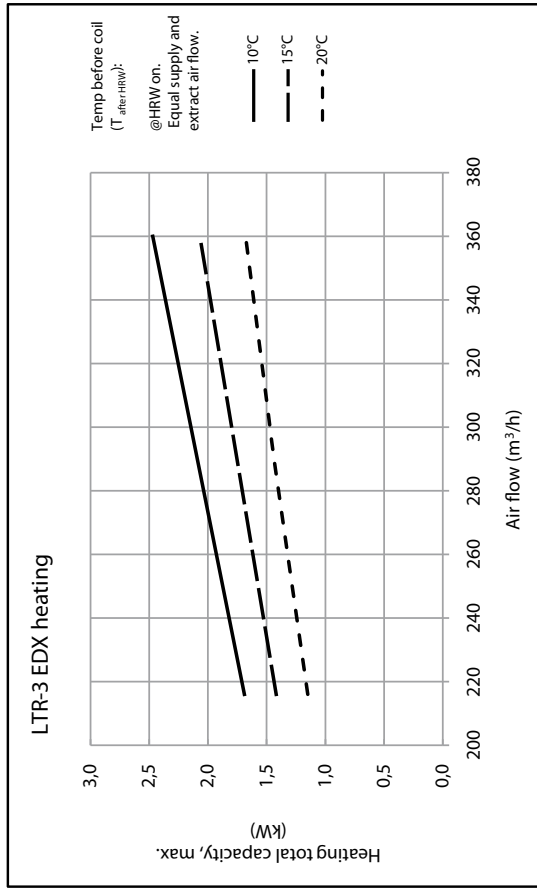
Pegasos XL EDX coil heating and cooling capacity (kW)

Heat pump RP-71 (option)
Cooling media R-410A
Duct mounted coil 1007521



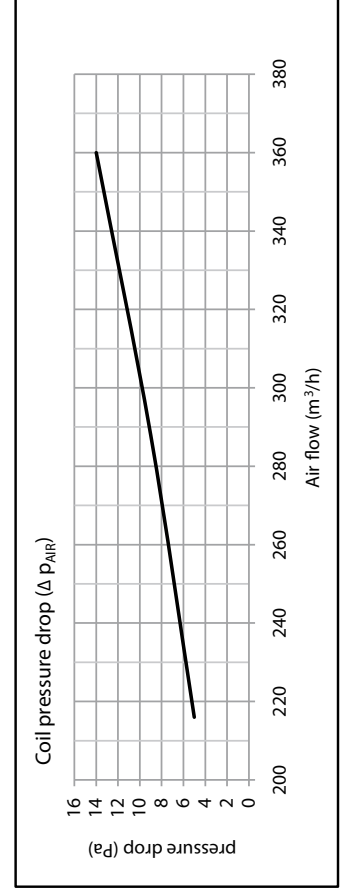
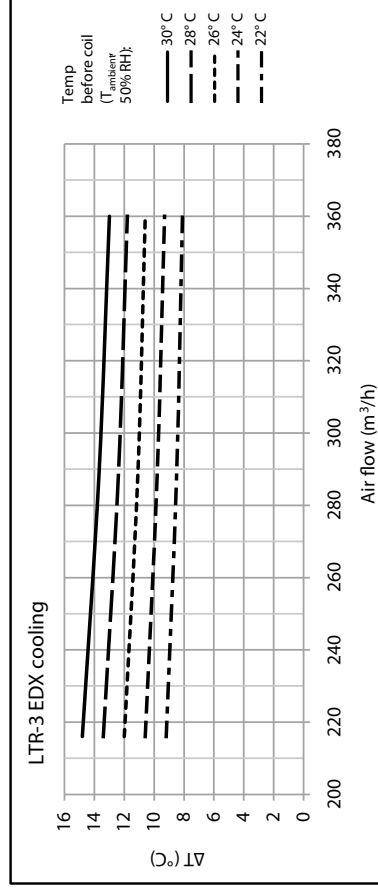
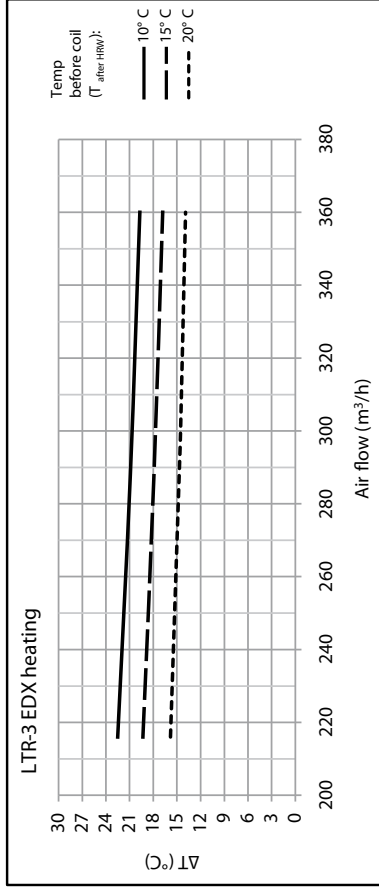
LTR-3 EDX coil heating and cooling capacity (kW)

Heat pump RP-35
Cooling media R-410A
Duct mounted coil 1007182



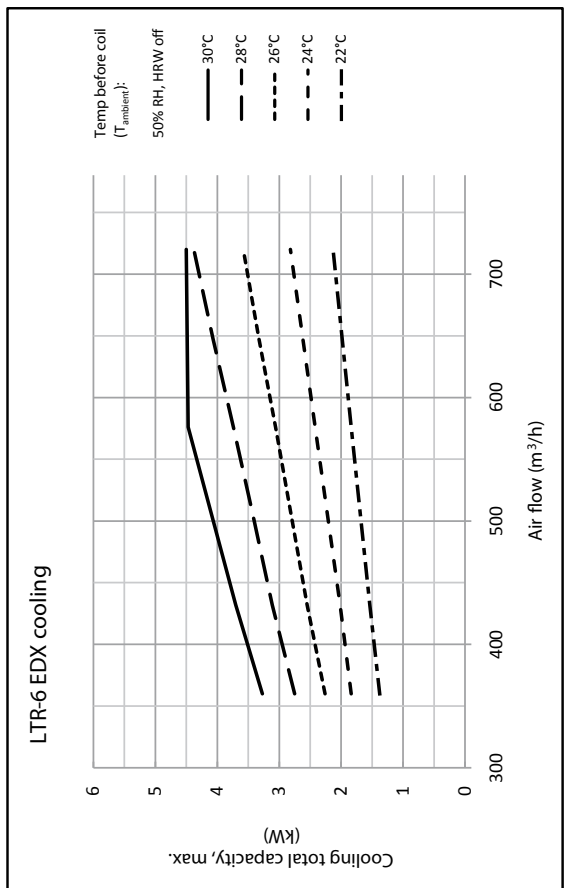
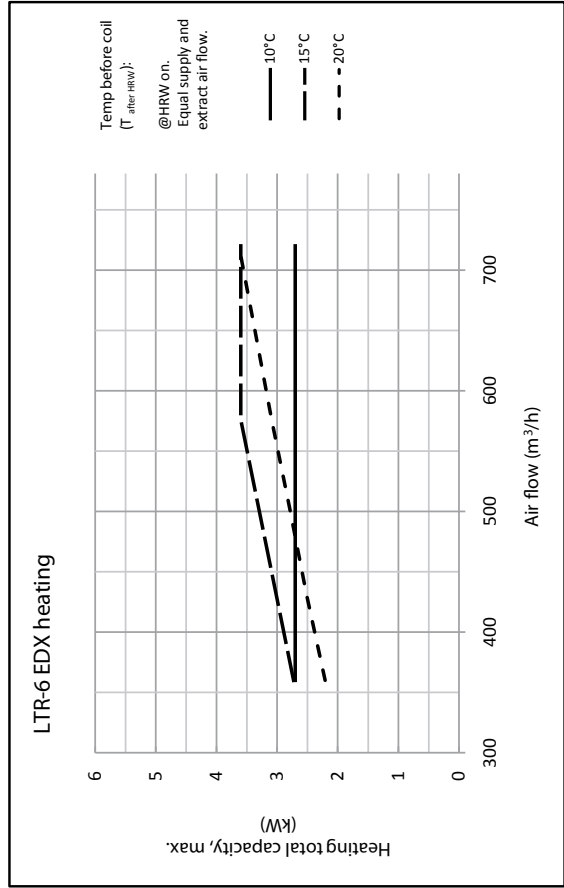
LTR-3 EDX coil heating and cooling capacity (ΔT)

Heat pump RP-35
Cooling media R-410A
Duct mounted coil 1007182



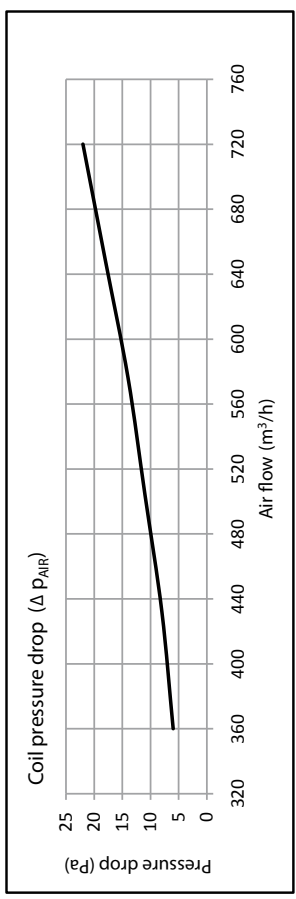
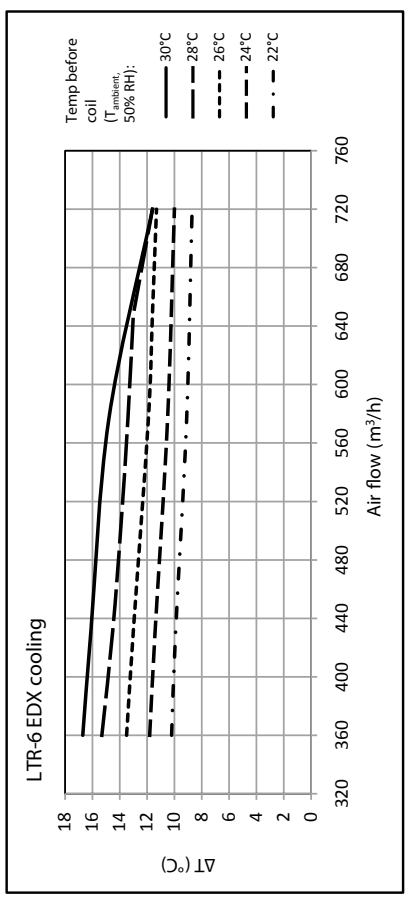
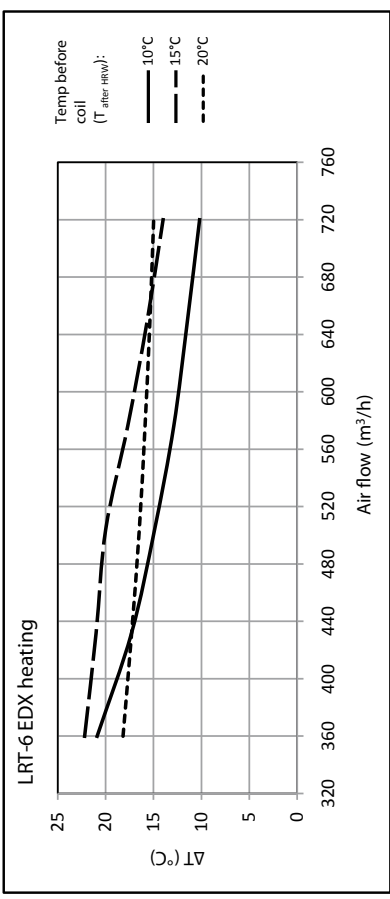
LTR-6 EDX coil heating and cooling capacity (kW)

Heat pump **RP-35**
 Cooling media **R-410A**
 Coil integrated in AHU **100711**
 Duct mounted coil **1007139**



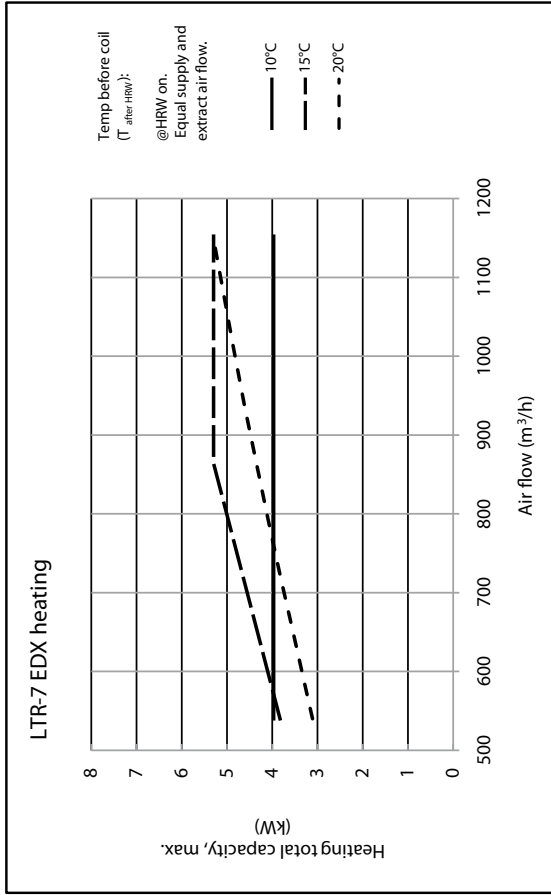
LTR-6 EDX coil heating and cooling capacity (ΔT)

Heat pump **RP-35**
 Cooling media **R-410A**
 Coil integrated in AHU **100711**
 Duct mounted coil **1007139**



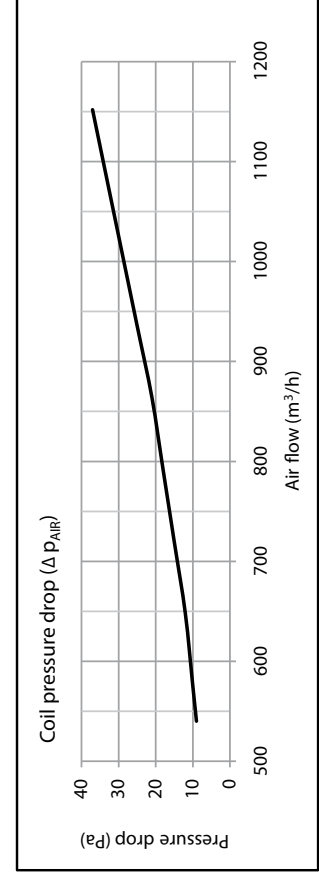
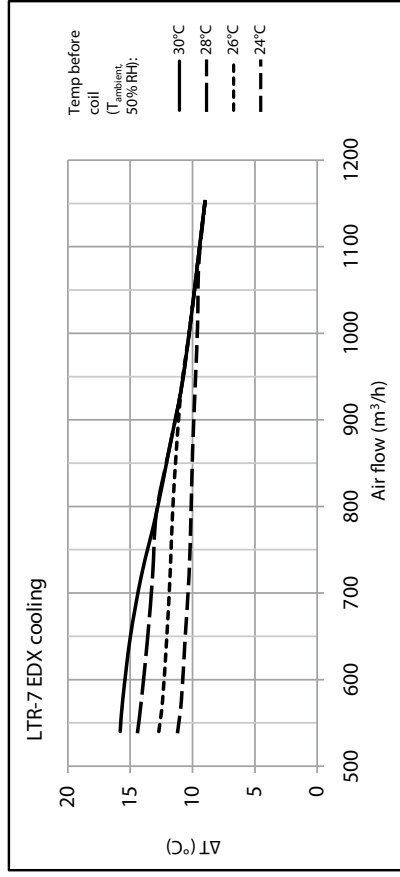
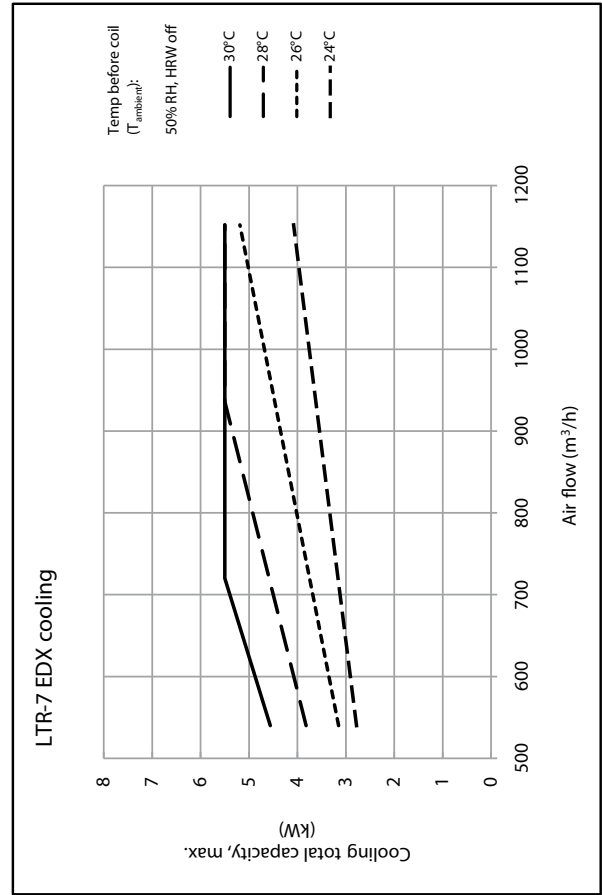
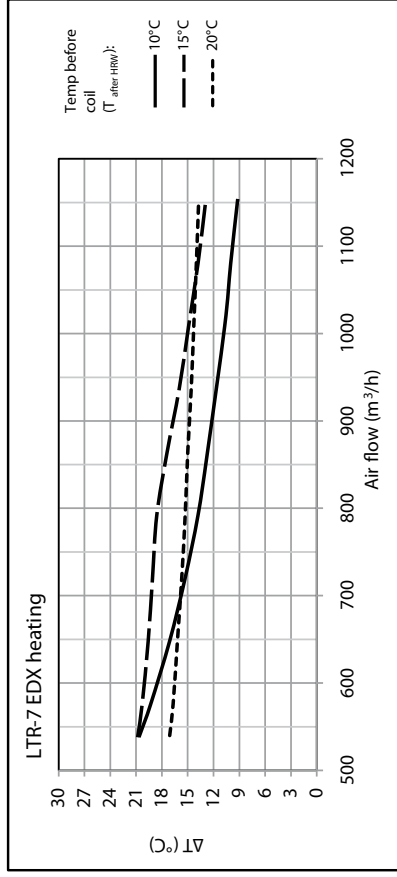
LTR-7 EDX coil heating and cooling capacity (kW)

Heat pump RP-50
Cooling media R-410A
Duct mounted coil 1007286



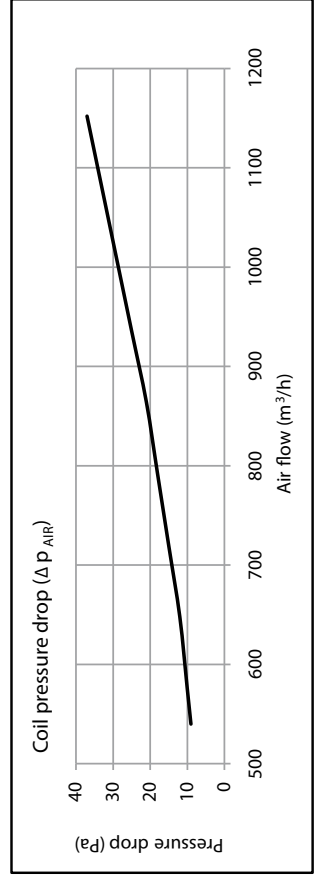
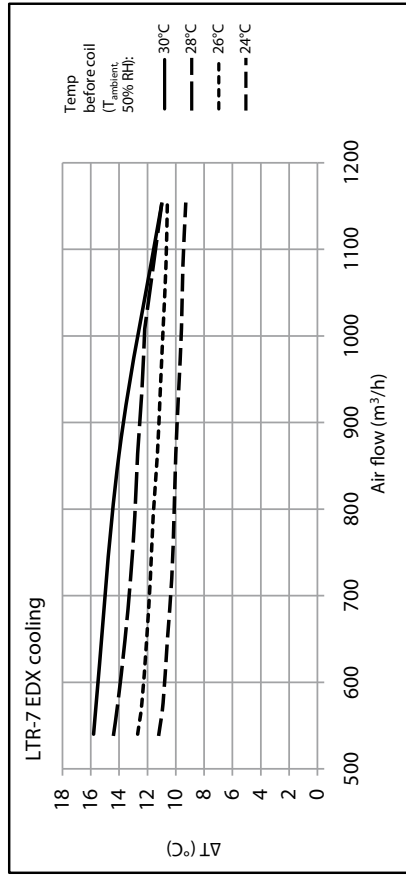
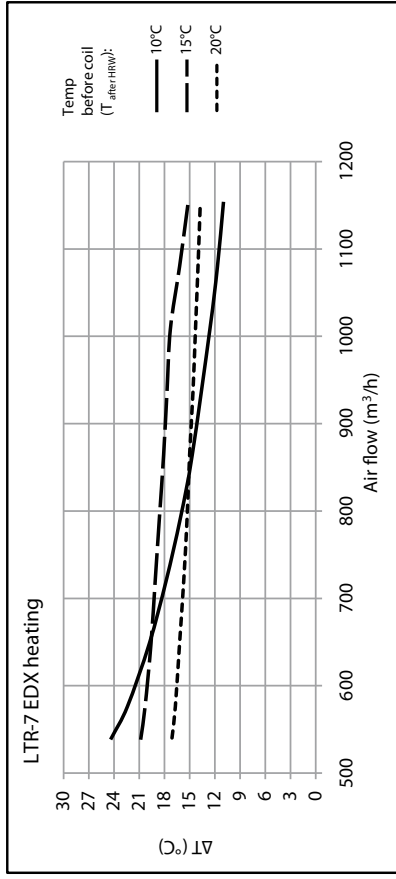
LTR-7 EDX coil heating and cooling capacity (ΔT)

Heat pump RP-50
Cooling media R-410A
Duct mounted coil 1007286



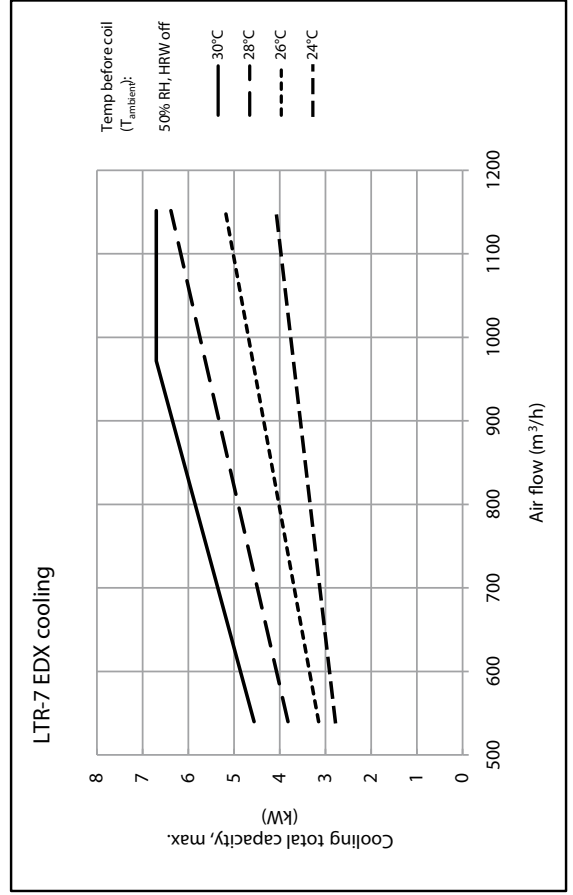
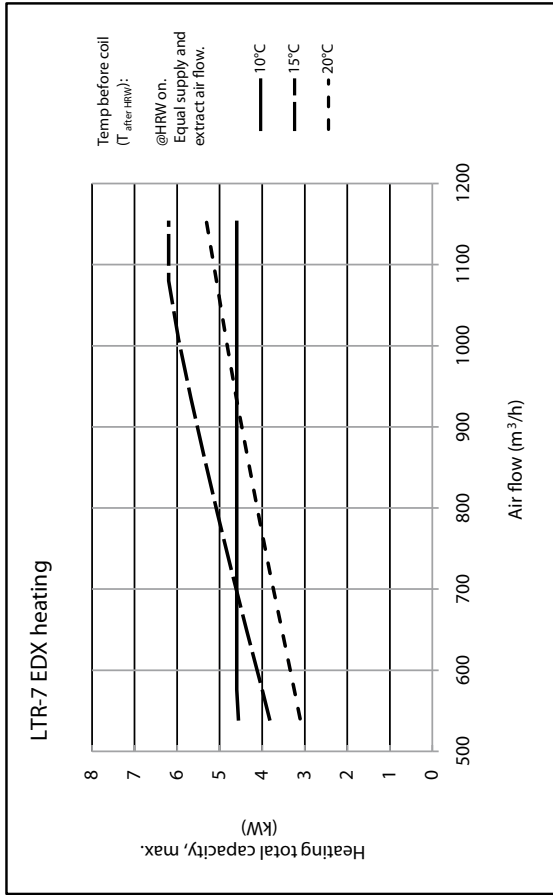
LTR-7 EDX coil heating and cooling capacity (ΔT)

Heat pump RP-60 (option)
Cooling media R-410A
Duct mounted coil 1007286



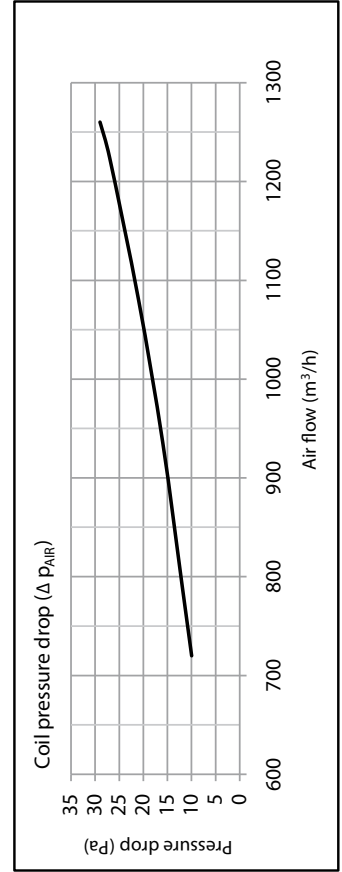
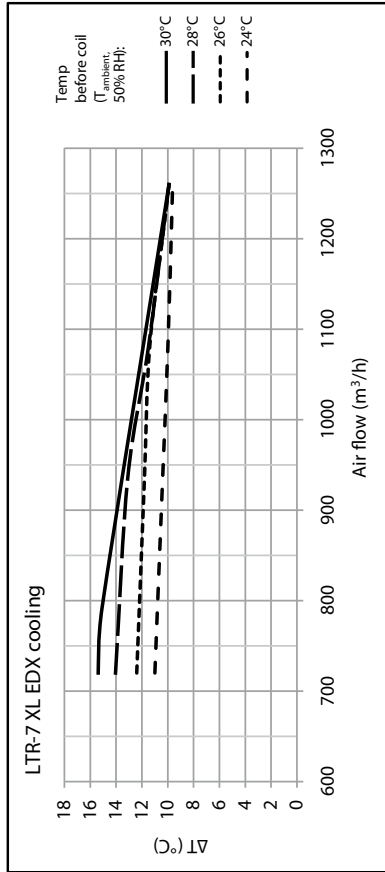
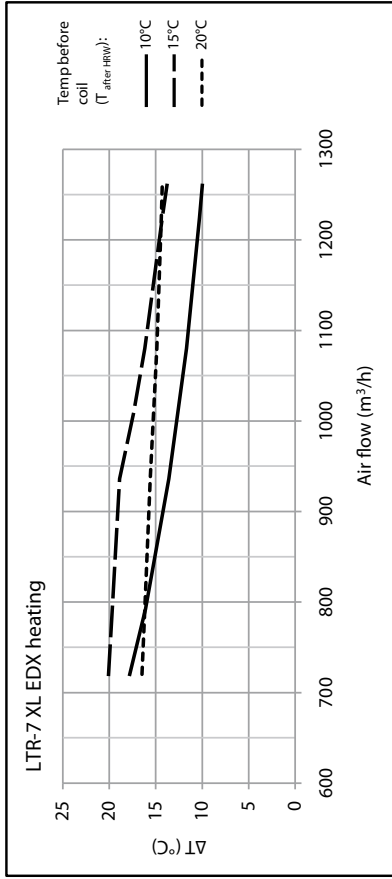
LTR-7 EDX coil heating and cooling capacity (kW)

Heat pump RP-60 (option)
Cooling media R-410A
Duct mounted coil 1007286



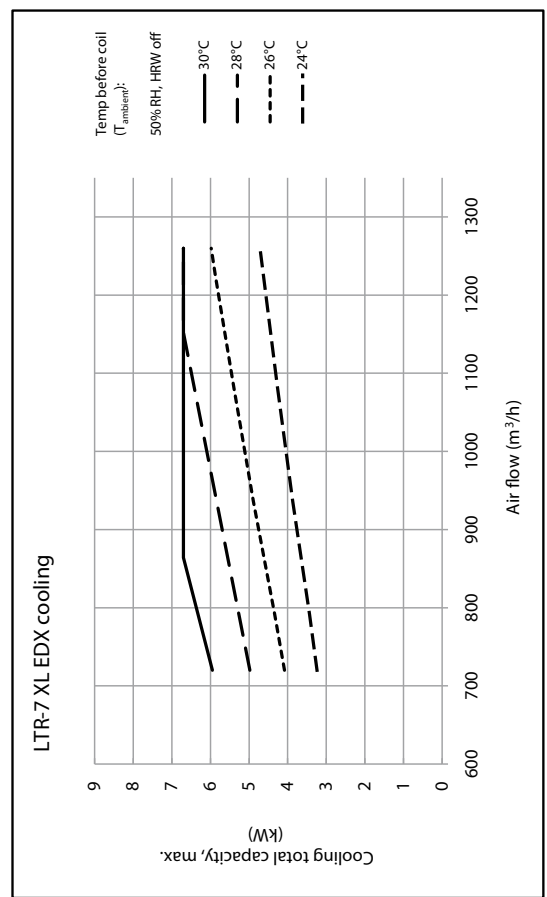
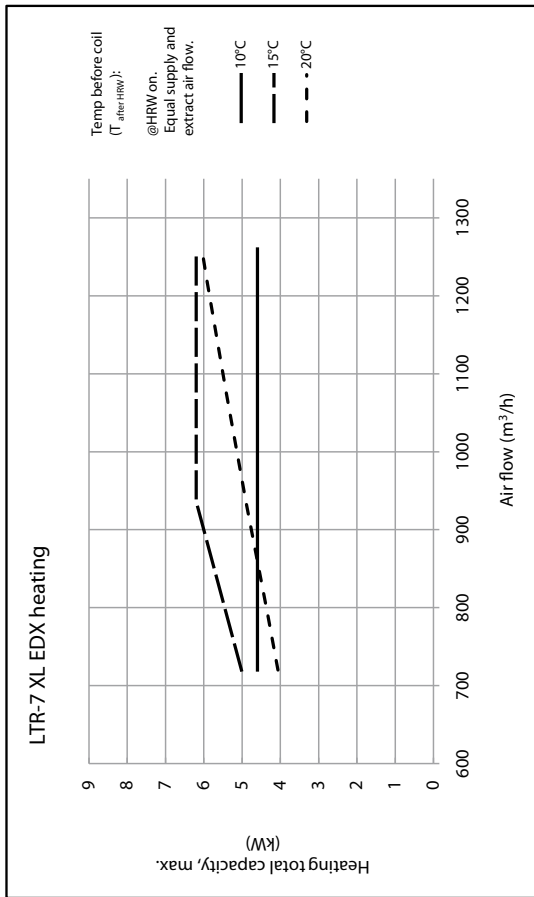
LTR-7 XL EDX - coil heating and cooling capacity (ΔT)

Heat pump RP-60
Cooling media R-410A
Duct mounted coil 1007521



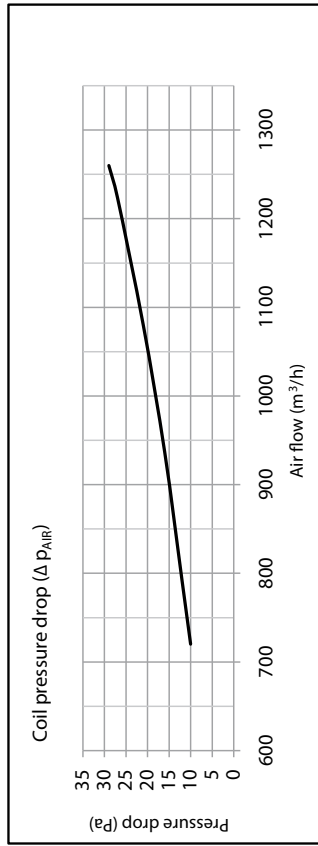
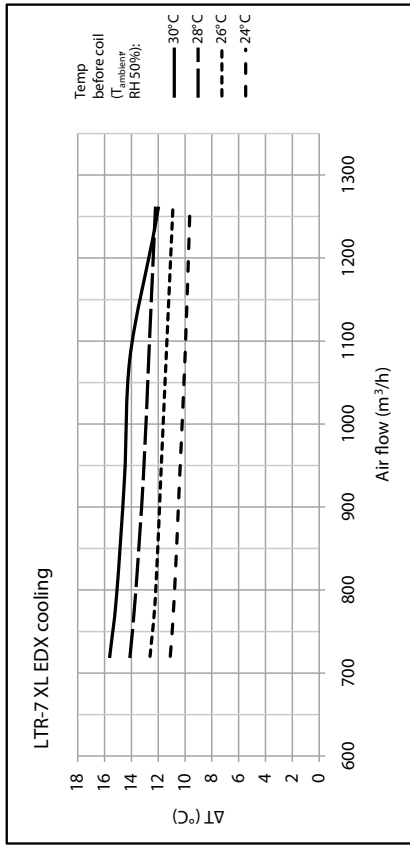
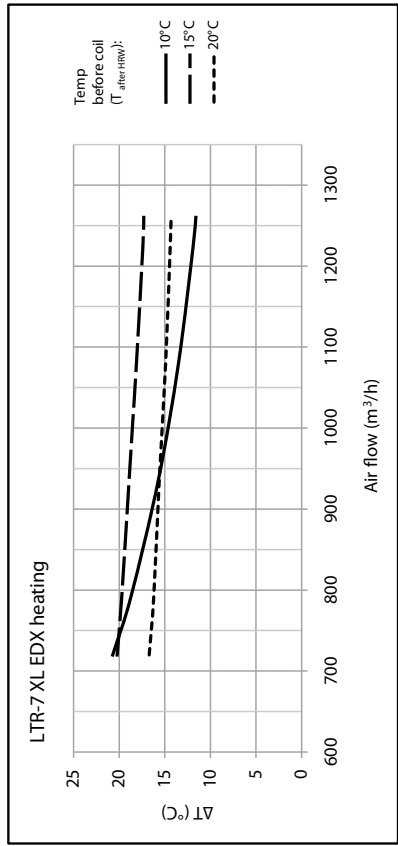
LTR-7 XL EDX coil heating and cooling capacity (kW)

Heat pump RP-60
Cooling media R-410A
Duct mounted coil 1007521



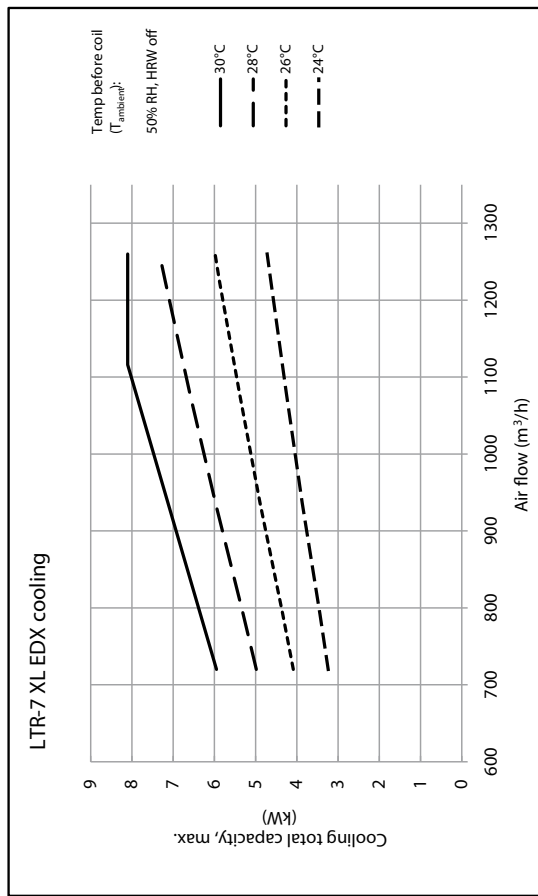
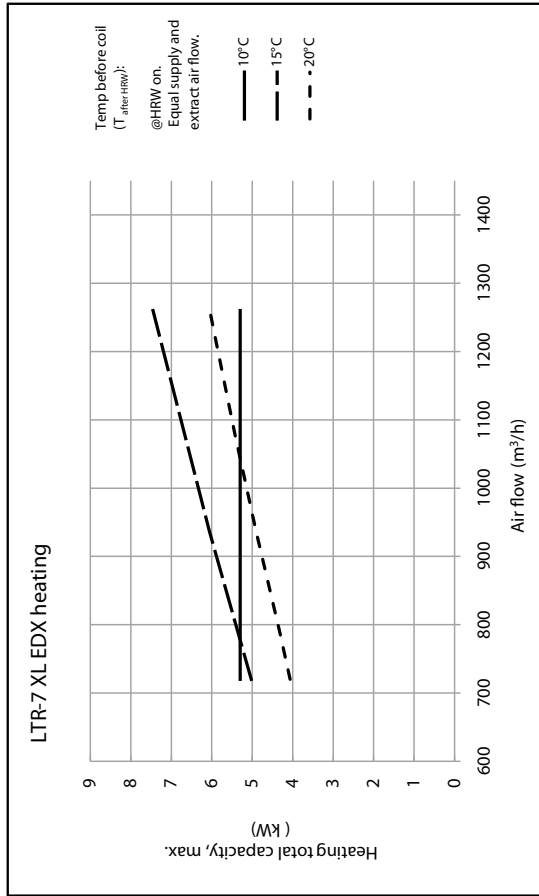
LTR-7 XL EDX coil heating and cooling capacity (ΔT)

Heat pump RP-71 (option)
Cooling media R-410A
Duct mounted coil 1007521

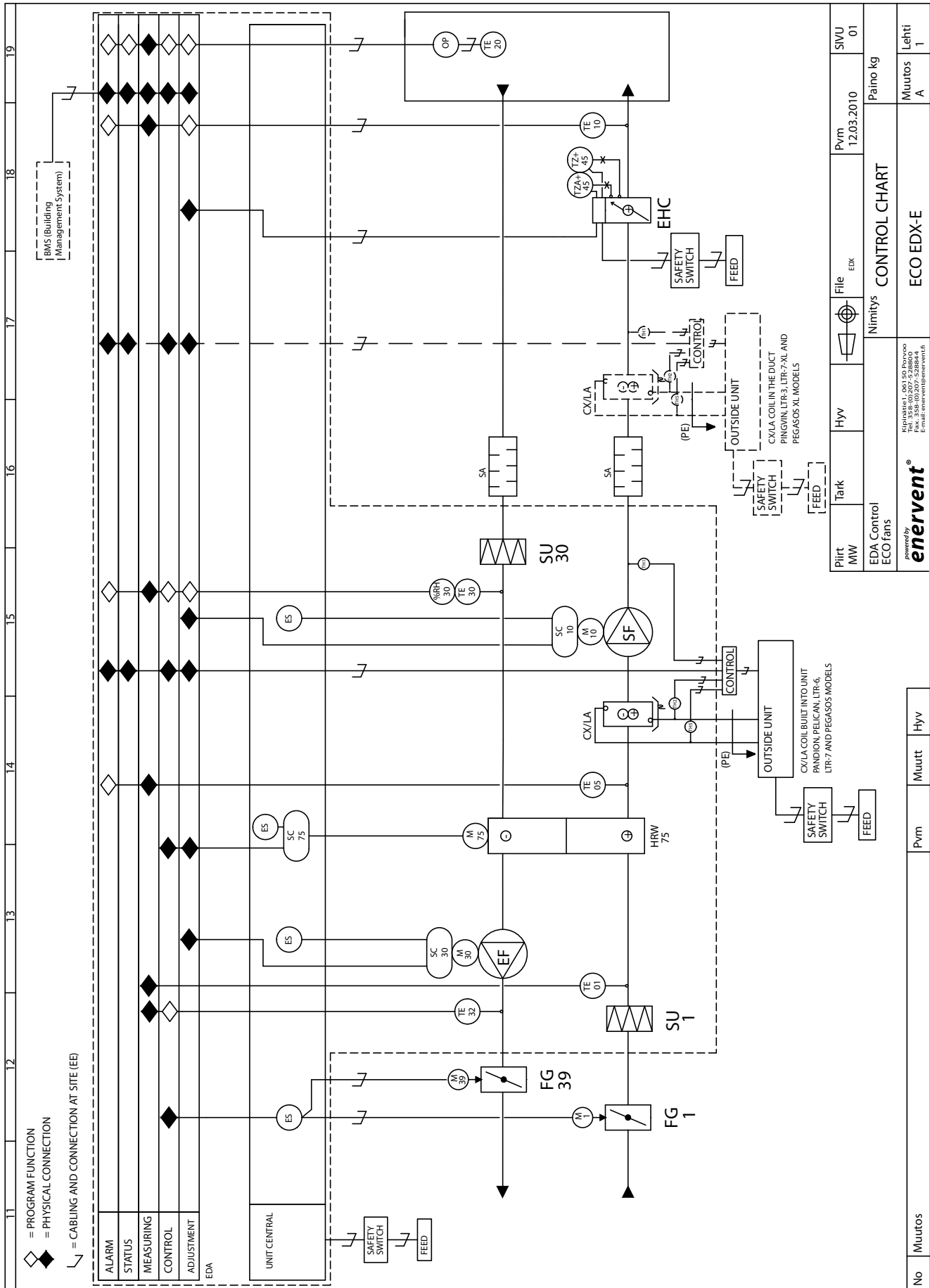


LTR-7 XL EDX coil heating and cooling capacity (kW)

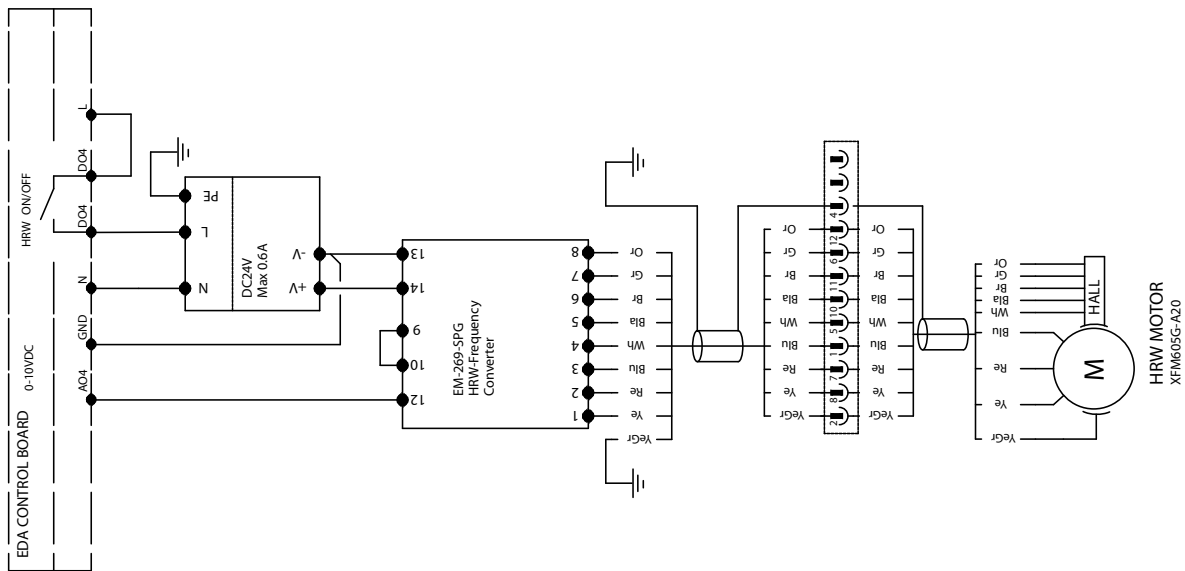
Heat pump RP-71 (option)
Cooling media R-410A
Duct mounted coil 1007521



WIRING DIAGRAM eco EDX-E



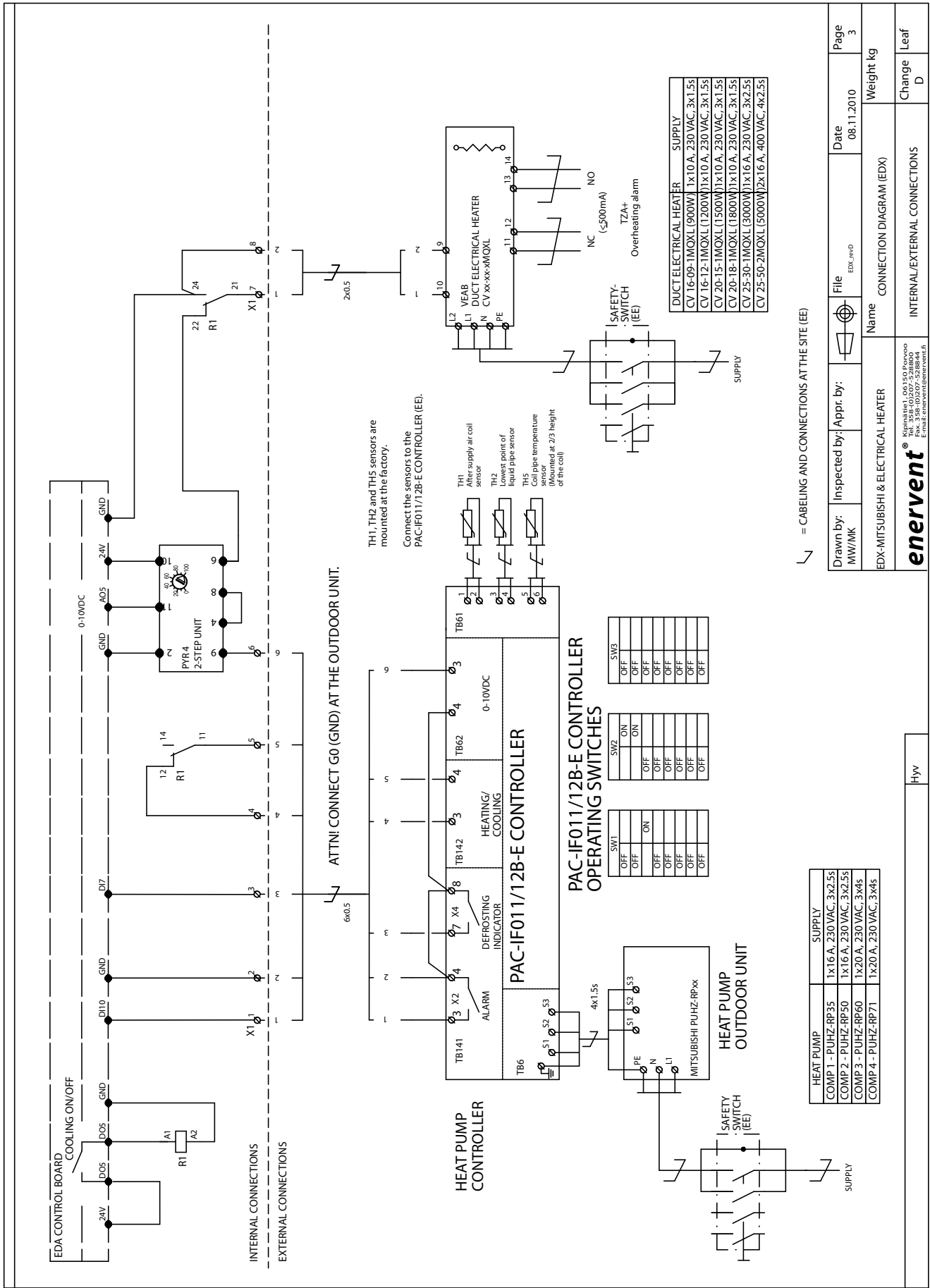
INTERNAL AND EXTERNAL CONNECTIONS



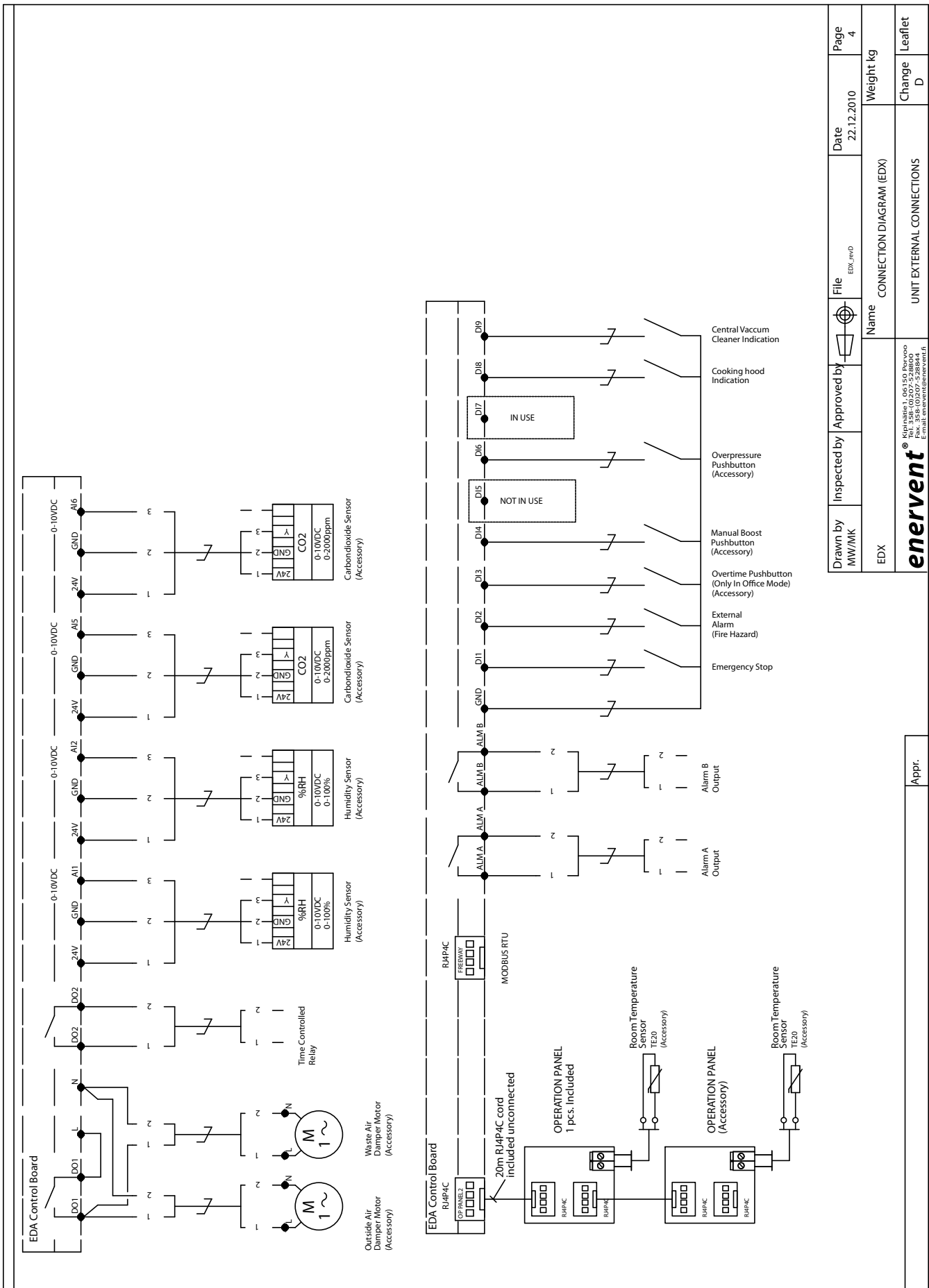
| | | | | | |
|--|---------------|-----------|------------------|--------------------|-----------|
| Drawn by: MW | Inspected by: | Appr. by: | File EDX_revD | Date 08.11.2010 | Page 2 |
| Name HRW MOTOR | | | Weight kg | | |
| Name CONNECTION DIAGRAM (EDX) | | | Change D | | |
| Name INTERNAL CONNECTIONS | | | Leaf | | |
| © Kipinater 1.06.150 Patveo Fax: 358 10107-528844 Email: enervent@enervent.fi enervent | | | | | |

| |
|-------|
| Appr. |
|-------|

INTERNAL/EXTERNAL CONNECTIONS



EXTERNAL CONNECTIONS



| | | | | | |
|--|---------------------|-------------|------------------|--------------------|-----------|
| Drawn by MW/MK | Inspected by EDX | Approved by | File EDX_REV0 | Date 22.12.2010 | Page 4 |
| Name CONNECTION DIAGRAM (EDX) | | | Weight Kg | | |
| enervent Via: Strada 1, 60116 Pinerolo (TO) Tel. +39 011 507 52 88 00 Fax. +39 011 507 52 88 44 E-Mail: info@enervent.com | | | Change D | | |
| UNIT EXTERNAL CONNECTIONS | | | Leaflet | | |

Appr.

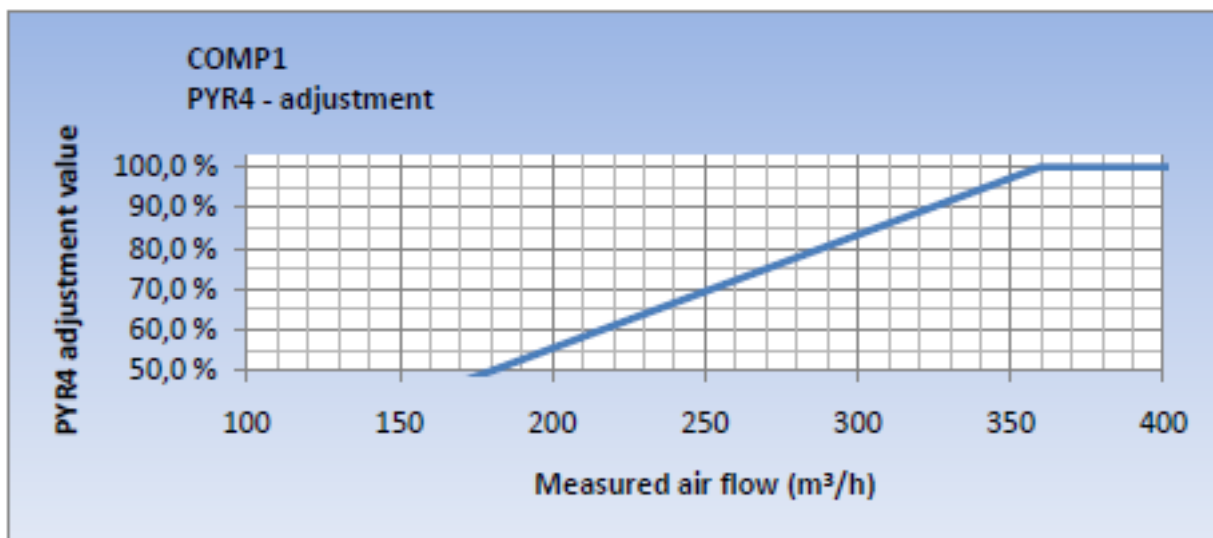
INSTRUCTIONS FOR SETTING PYR4

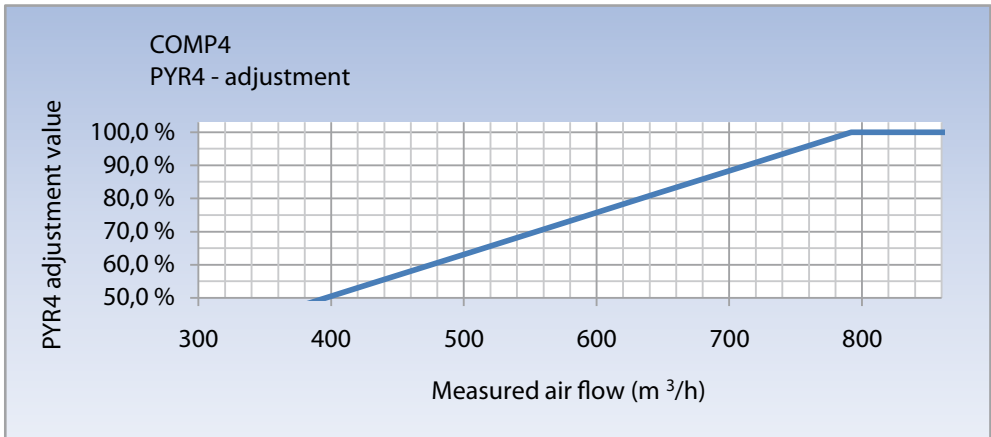
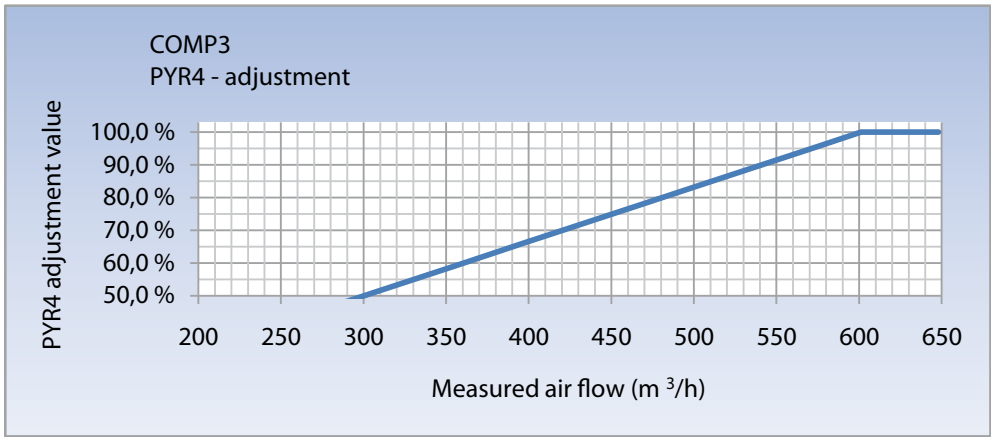
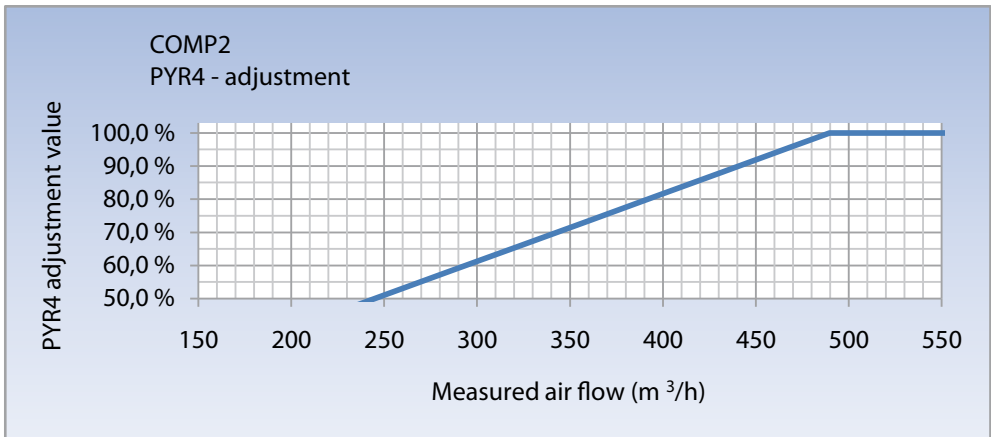
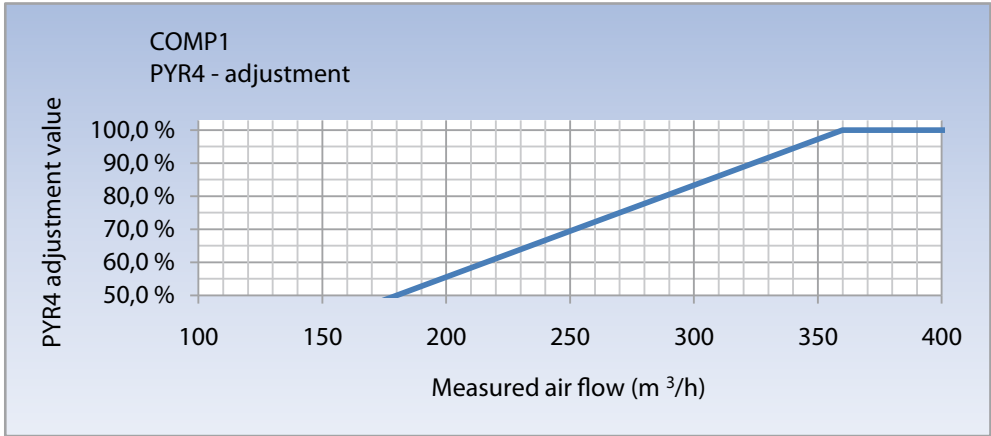
PYR 4 optimizes the heat pump efficiency in proportion to the air flow. This results in a quiet run.

The control signal to the EDX outside unit is proportioned to the air flow with the PYR4 converter, which is found in the ventilation unit connection box (Pingvin and LTR-3 units have an external connection box, the other models have an internal one). PYR4 is adjusted with the nob on the end of the converter, according to the curves for the outside unit in question, after achieved air flows have been measured at the building site. The new set value is written down both in the parameter list in this instruction ("RESTRICTIVE SIGNAL") and on the sticker on PYR4 ("CHANGED SETTING").

Example

Pingvin eco EDX-E unit, with a COMP1 outside unit. Measured normal air flow in the house is 75 l/s. According to the adjustment curve the set value for PYR4 is 75 %.





DECLARATION OF CONFORMITY

We declare that our products follow the provisions of low voltage directive (LVD) 2006/95/EEC, electro magnetic compatibility directive (EMC) 2004/108/EEC and machine directive (MD) 98/37/EEC.

Manufacturer: Enervent Oy
 Manufacturer's contact: Kipinätie 1, 06150 PORVOO FINLAND
 phone +358 (0)207 528 800, fax +358 (0)207 528 844
 enervent@enervent.fi, www.enervent.fi

Description of the product: Ventilation unit with heat recovery and heat pump

Trade name of the products: Enervent® Pingvin eco EDX-E
 Enervent® Pandion eco EDX-E
 Enervent® Pelican eco EDX-E
 Enervent® Pegasos eco (XL) EDX-E
 Enervent® LTR-3 eco EDX-E
 Enervent® LTR-6 eco EDX-E
 Enervent® LTR-7 eco (XL) EDX-E

Representatives for the products in the region of the ETA:

Sweden: Ventener Ab, Örelidsvägen 10, 517 71 OLSFORS, SVERIGE, tel +46 735-62 00 62
 Ventilair AB, Ulvsjövägen 68, 79699 ÄLVDALLEN, SVERIGE, tel +46 70 326 0759
 Climatprodukter AB, Box 366, 184 24 ÅKERSBERGA, SVERIGE, tel +46 8 540 87515
 DeliVent Ab, Markvägen 6, 43091 HÖNÖ, SVERIGE, tel +46 70 204 0809

Norway: Noram Produkter AS, Grini Næringspark 4 A, 1361 ØSTERÅS, NORGE, tel +47 33471245

Denmark: Covent EMJ, Donsvej 55, 6052 VIUF, DANMARK, tel + 45 7556 1534

Estonia: As Comfort Ae, Jaama 1, 72712 PAIDE, EESTI, tel +372 38 49 430

Ireland: Entropic Ltd., Unit 3, Block F, Maynooth Business Campus, Maynooth, Co. Kildare, IRELAND tel +353 64 34920

Germany: e4 energietechnik gmbh, Burgunderweg 2, 79232 MARCH, GERMANY, tel +49 7665 947 25 33

Austria: Inocal Wärmetechnik Gessellschaft m.b.H, Friedhofstrasse 4, 4020 LINZ, AUSTRIA, tel +43 732 65 03 910
 M-Tec Mittermayr GmbH, 4122 ARNREIT, AUSTRIA, tel +43 7282 7009-0

Poland: Iglotech, ul. Toruńska 41, 82-500 KWIDZYN, POLAND, tel +48 55 279 33 43

The products are in conformity with the following standards

LVD EN 60 335-1 (2002) +A1 (2004), +A2 (2006), +A11 (2004), +A12 (2006)
 MD EN ISO 12100-1 + A1 (2009), EN ISO 12100-2 +A1 (2009), EN ISO 14121-1 (2007)
 EMC EN 55014-1 (2006), EN 61 000-3-2 (2006) ja EN 61 000-3-3 (1995)
 EN 55014-2 (1997)+A1 (2001)

The conformity of each of our manufactured products is taken care according to our quality descriptions.
 This product was CE- marked in the year 2010.

Enervent Oy

Tom Palmgren
 Technology manager

THE PARAMETERS OF EDA CONTROL

| ID | MENU | SUB MENU | PARAMETER | FACTORY SETTING | NOTE | FIELD SETTING |
|-------|--------------------|-------------------------|---------------------------------|-----------------|--|---------------|
| | Settings | | | | | |
| 4x51 | Fan speed | Normal spd | Supply fan | 3 (30) | | |
| 4x52 | | | Exhaust fan | 3 (30) | | |
| 4x641 | | | Ulkol.max | -10,0°C | Only PRO series units | |
| 4x642 | | | Ulkol.min | -0,1°C | Only PRO series units | |
| 4x54 | | Over pressure | Supply fan | 6 (80) | | |
| 4x55 | | | Exhaust fan | 5 (60) | | |
| 4x57 | | | OP t | 10 min | | |
| 4x58 | | Stove+CeVaCl+Overpr | CH Sply | 6 (80) | | |
| 4x59 | | | CH Exhst | 5 (60) | | |
| 4x60 | | | CVC Sply | 6 (80) | | |
| 4x61 | | | CVC Exhst | 5 (60) | | |
| 4x62 | | | COC Sply | 7 (90) | | |
| 4x63 | | | COC Exhst | 5 (60) | | |
| 4x64 | | | OCC Sply | 8 (100) | | |
| 4x65 | | | OCC Exhst | 5 (60) | | |
| 1x23 | | YYY (Constant pressure) | Const. ductpr. | | | |
| 4x645 | | | CDPC EC P-a | 2500 Pa | | |
| 4x646 | | | CDPC EC I-t | 5 s | | |
| 4x647 | | | CDPC EC R-t | 5 s | | |
| 4x648 | | | CDPC EC Dz | 2 Pa | | |
| 4x649 | | | CDPC AC Delay | 20 s | | |
| 4x650 | | | CDPC AC Dz | 10 Pa | | |
| 4x637 | | | ??? | ## Pa | | |
| 4x638 | | | ??? | ## Pa | | |
| 4x633 | | | ??? | 0 Pa | | |
| 4x635 | | | ??? | 200 Pa | | |
| 4x634 | | | ??? | 0 Pa | | |
| 4x636 | | | ??? | 200 Pa | | |
| 4x544 | | | TV | 600 s | | |
| 4x545 | | | PV | 600 s | | |
| 4x632 | | | ??? | 10 Pa | | |
| 4x10 | Temperatures | | Supply / Exhaust / Room measrnm | ##°C | Depends on temepature regulation mode | |
| 4x8 | | | Sply msrmt | ##°C | | |
| 4x136 | | | Temp ctrl mde | Exhst | Exhaust control factory setting if the unit is equipped with cooling | |
| 4x135 | | | Setpoint | ##°C | | |
| 4x140 | | | Min | 13,0°C | | |
| 4x141 | | | Max | 40,0°C | | |
| 1x56 | | | OP 1 | √ | | |
| 1x57 | | | OP 2 | | | |
| 1x58 | | | OP 3 | | | |
| 1x59 | | | OP 4 | | | |
| 1x60 | | | OP 5 | | | |
| 1x61 | | | Temp.trans 1 | | | |
| 1x62 | | | Temp.trans 2 | | | |
| 1x63 | | | Temp.trans 3 | | | |
| | Boosting functions | Boosting settings | | | | |
| 4x66 | | Man. boost | Boost time | 30 min | | |
| 4x67 | | | Fanspd | 7 (90) | | |
| 1x17 | | Humidity boost | Function | Fixed limit | | |
| 4x69 | | | Humidity limit | 50 % | | |
| 4x74 | | | Max ventltn | 8 (100) | | |
| 4x71 | | | RH P-band | 20 % | | |
| 4x73 | | | RH I-time | 1 min | | |

| | | | | | | |
|---------------|-------------------------|----------------|---------------------|----------------------|--|--|
| 4x75 | | | RH DZ | 3 % | | |
| 4x72 | | | Reset t | 2 min | | |
| 4x76 | | CO2 boost | CO2 limit | 1000 ppm | | |
| 4x77 | | | Max ventltn | 8 (100) | | |
| 4x78 | | | CO2 P-band | 200 ppm | | |
| 4x80 | | | CO2 I-time | 1 min | | |
| 4x81 | | | CO2 DZ | 50 ppm | | |
| 4x79 | | | Reset t | 1 min | | |
| 4x82 | | Temp. boost | Msrment | Exhaust temp | | |
| 4x83 | | | Max ventltn | 8 (100) | | |
| 4x84 | | | T P-band | 5,0°C | | |
| 4x86 | | | T I-time | 1 min | | |
| 4x87 | | | T DZ | 0,5°C | | |
| 4x85 | | | Reset t | 2 min | | |
| 4x88 | | Limit function | P-band | 5,0°C | | |
| 4x90 | | | I-time | 1 min | | |
| 4x91 | | | Neutral zone | 0,5°C | | |
| 4x89 | | | Reset t | 2 min | | |
| 1x9 | Boosting functions | | Humidity | | | |
| 1x8 | | | Carbn dioxide | | | |
| 1x11 | | | Temp. boost | | | |
| 4x100 | Situation controls | Away | Fanspd | 2 (30) | | |
| 4x101 | | | Temp. drop | 2,0°C | | |
| 1x18 | | | Heat | √ | | |
| 1x19 | | | Cooling | √ | | |
| 4x102 | | Long away | Fanspd | 1 (20) | | |
| 4x103 | | | Temp. drop | 3,0°C | | |
| 1x20 | | | Heat | | | |
| 1x21 | | | Cooling | | | |
| 1x55 | | HRC | HR antifreez | | | |
| 4x170 | | | HRC t | -5,0°C | | |
| 4x168 | | | HRC defr | 30 Pa | | |
| 4x169 | | | HRC delay | 12 min | | |
| 1x64 | Quick choice | | Over pressure | √ | | |
| 1x65 | | | Boosting | √ | | |
| 1x66 | | | Away | √ | | |
| 1x67 | | | Long away | √ | | |
| 1x68 | | | Max heat | √ | | |
| 1x69 | | | Night cooling | √ | | |
| 1x70 | | | Fanspd settings | √ | | |
| 1x71 | | | Temperature ctrl | √ | | |
| 4x140 - 4x141 | | | Min-max | 15°C - 30°C | | |
| | Display settings | | Backgrnd light on | | | |
| | | | Backgrnd light 60 s | √ | | |
| 4x93 | Night cooling | | Snight out li | 10,0°C | | |
| 4x94 | | | Snight start | 25,0°C | | |
| 4x95 | | | Snight stop | 21,0°C | | |
| 4x96 | | | Snight dif | 1,0°C | | |
| 4x92 | | | Snight Fanspd | 6 (80) | | |
| 1x15 | | | Cool off | √ | | |
| 4x98 | | | Star | 22 | | |
| 4x99 | | | Off | 7 | | |
| 4x97 | | | | Su Mo Tu We Th Fr Sa | | |
| 4x640 | XXX (=General settings) | | Modbus addr. | 1 | | |
| 4x199 | | | Drive mode | HOME | To be defined on order | |
| 1x54 | | | Heat | √ | | |
| 1x52 | | | Cooling | √ | | |
| 1x53 | | | HRC | √ | | |
| PYR4 | | | Restrictive signal | 100 % | To be adjusted when the unit is installed (see PYR4 instruction) | |