SysReco

User Manual

systemair

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1. Introduction

Thank you for choosing SysReco FX, the concealed ceiling type heat recovery unit bearing the SYSTEMAIR HSK brand. The purpose of this document is to give provide operators of the SysReco FX with highlights on unit components and their properties, and information on commissioning, operation, and maintenance of the unit. This document does not list the maintenance conditions required to extend the equipment's useful life and increase its reliability in the form of long lists that will exhaust the reader. Reliable and long lasting operation can only be achieved through the services of a competent engineer or a technician employed by the authorized maintenance firm. The client can acquire from us assembly, annual maintenance, and renovation services for installation and operation of their equipment.

2. Warranty

The SysReco FX concealed ceiling type heat recovery unit guarantees the conditions that are taken as understood and accepted by the customer. SYSTEMAIR HSK guarantees the good quality of the equipment it manufactures. It undertakes to provide repair and replacement services and to make replacements and repairs as soon as possible in faults resulting from materials, in construction faults, and in structural faults that may arise during the warranty period despite the equipment being operated in compliance with conditions specified in the user manual. SYSTEMAIR HSK does not accept responsibility for direct damages, and for faults that occur due to units being treated without due care. The functions that are within the scope of the warranty are: Provided that the considerations that require attention regarding delivery, storage, handling, installation, operation, maintenance, safety and malfunctions stated in the user manual are followed; malfunctions that are the fault of the manufacturing company regarding all mechanical and electromechanical components; and malfunctions that are the fault of the manufacturing company regarding all electrical components inside the device are covered by the SYSTEMAIR HSK warranty for 1 years from the date of delivery to the customer.
The warranty becomes invalid in the event of repairs performed without the written authorization of the manufacturer, or replacement with non-original components.
Depending on the type of malfunction, the defective component(s) may, after being tested at the main factory, be replaced or dispatched by a technician for assembly/repair. If the cause of malfunction falls within the scope of the warranty, any replacement and transportation costs pertaining to the device and the technician shall be assumed by the manufacturer, failing which these costs shall be covered by the customer.

3. Warnings

Unless the following warnings are heeded, accidents may occur which can result in fires, injury, and death.

Caution

CAUTION
All electrical connections on the unit must be made by authorized personnel and/or technical service crews.
Prior to any maintenance application, bring the isolator switch to the off position to cut power supply to the unit. Make sure the electrical supply has been severed.
Make sure there is no energy while making the mains connection.
Make sure grounding has been carried out for the electrical heater. Electrical heater must not be supplied with energy before the ground line has been connected.

Warnings

WARNINGS
Be cautious of injuries and of the possibility of unit tipping during the transport and ceiling mounting of the unit.
Do not carry the unit by holding on to the access door rails. Make sure no physical damage occurs to the access door rails during the unit's transport and handling.
For your safety, make sure the resistances are fully off during service and maintenance.
Contact with hot resistances may cause severe skin burns.
Please refrain from vertical and horizontal handling by applying force to coil collectors. Do not step on coil collectors and top panels.
Make sure the suitable rods, nuts, and washers are available before fixing the unit on the mounting surface using the mounting brackets.
Do not open the access doors while the unit is in operation under any conditions.
Open only one access door at a time. If you open both access doors simultaneously, you cannot access the inner equipment of the unit.

4. Accepting Delivery

Following the equipment's arrival at your workplace and before signing the document of delivery, examine the equipment thoroughly while it is still on the vehicle; in case of any damages take note of said damages on the delivery document and in order to be able to make a claim, notify the final delivery firm responsible for the equipment and the insurance company, if any, by registered mail as soon as possible. Please notify SYSTEMAIR HSK of the issue.

In case of a problem, we recommend that you document the problem by taking a photograph before unloading your equipment from the vehicle and that you procure the driver's signature on the document reporting the damage.

After accepting delivery of your SysReco FX unit, make sure that the ordered equipment has been delivered in its entirety. If there is anything missing from the list of ordered equipment, SYSTEMAIR HSK should be notified of this prior to assembly.

5. Delivery, Handling, and Storage

5.1. Delivery and Handling

- It must be ensured that the vehicle used for delivery will deliver the equipment in a safe manner. Special attention should be given to usable width, length, and height of vehicle bodies and a vehicle loading plan should be requested from SYSTEMAIR HSK when necessary.
  Care must be taken to ensure that the vehicle is suited to the unloading site. (The vehicle's manoeuvrability in the unloading site should also be taken into consideration.)
- Units should be fastened to the vehicle body with thick cables or similar suitable materials. The use of steel cables for fastening should be avoided.
- At the points where the rope contacts the unit, wooden wedges, cardboard or other suitable material should be placed between the cable and the unit to prevent the cable from damaging the unit.
- Before delivery, isolators from wood, cardboard polystyrene or other suitable material should be placed between the units on the vehicle body.
- Care should be taken to ensure that no harm befalls the unit's door rail system, door handles, switch box, condensate drainage pipe, hanger apparatus, electrical sockets etc. of the unit during transport and delivery.
- The unit should be wrapped in plastic to protect it against external elements such as dust, rain, and snow, and should be stored in this fashion, and transported with all of its required components.
- Do not use coil connections, flanges dampers, and access door rails to hold on to while handling, lifting, pulling, or pushing the unit.
- The unit should not be tipped or tilted during handling or lifting.
- During the removal of the units from the vehicle with a forklift, care should be taken to ensure that the load is distributed evenly on the forks and that the forks do not hit the access doors or the fixed panel.
- Care and measures should be taken against severe shocks during the lifting or placing of the unit.
- Care should be taken to ensure that all existing procedures and guidelines regarding loading and unloading are applied.
- SysReco FX door rails should be delivered in one piece facing downward for convenient handling.

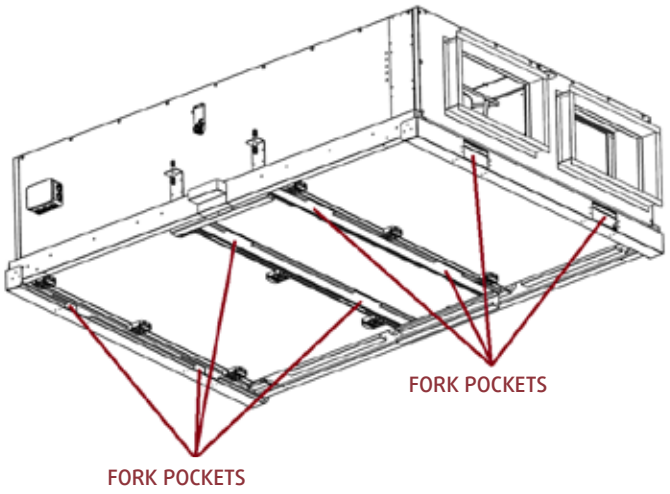


Figure 5.1-1 - Fork Pockets

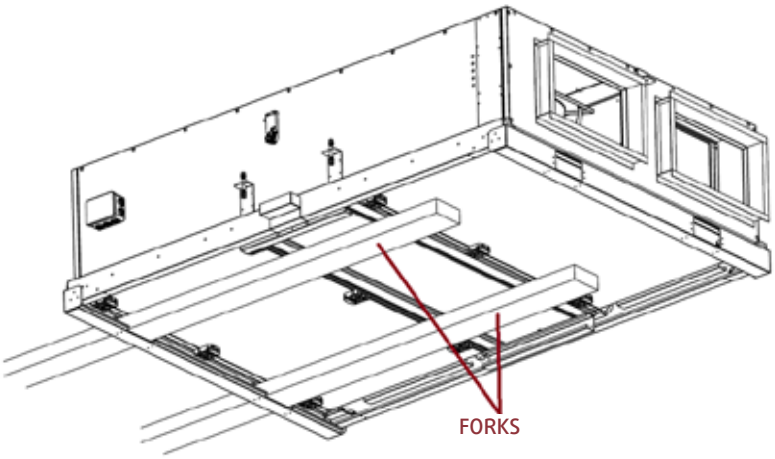


Figure 5.1-2 – Handling with Forklift

- The forklift forks should be inserted carefully into the pockets during the handling of the unit, and the exterior surface of the unit should not be damaged.

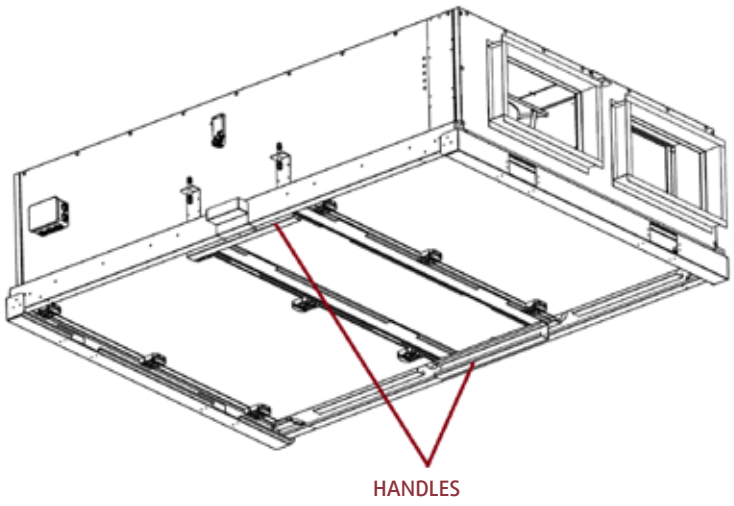


Figure 5.1-3 – SysReco Handle

- After assembly of the SysReco unit is complete, the nuts fastening the transport handles to the rails should be removed and the unit should be detached. Leaving the transport handles on the unit will prevent the movement of SysReco access doors on their rails.

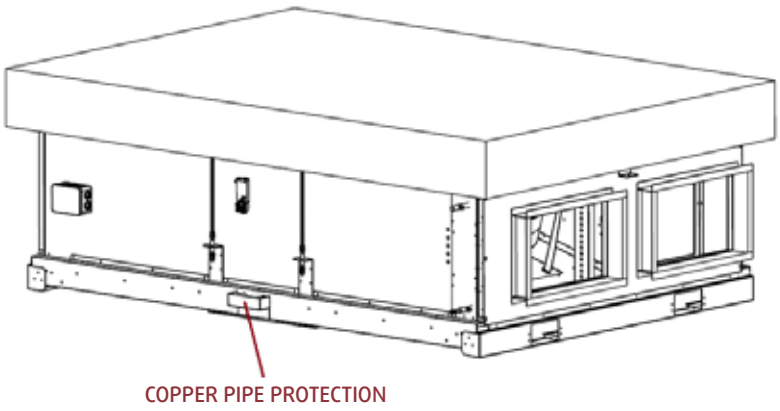


Figure 5.1-4 - Copper Pipe Protection Sheet

- After the ceiling mounting of the SysReco device has been completed, please remove the copper pipe protection sheet indicated in Figure 5.1.4.

WARNINGS
Be cautious of injuries and of the possibility of unit tipping during the transport and ceiling mounting of the unit.
Do not carry the unit by holding on to the access door rails. Make sure no physical damage occurs to the access door rails during the unit's transport and handling.

5.2. Storage

- Make sure that the unit is carried safely, particularly as it arrives at the work site on the transport vehicle. Make sure that the unit is shipped to you under a cover in wet weather. Visually inspect the units against any damages incurred during transport, and if you find any damage please call your insurance company and transport company immediately.
- Your unit will be wrapped within cling film when shipped out of our factory. Your equipment will be at risk of corrosion in case water seeps inside the cling film during delivery and storage in the assembly area. Care should be taken about this, to prevent the risk of corrosion.
- Care should be taken to ensure that units are stored in a covered area without removing their packaging until the time of installation.
- Care should be taken to avoid exposing unit sections which you carry to the site or assembly area to the elements, and to avoid excessive dust and contamination in the environment.
- Units should not be walked on or have loads placed on them. Panels, profiles or similar materials that can damage the units should not be propped against the units.

6. Assembly

The ceiling type heat recovery unit was designed for indoor use.

The unit should be mounted horizontally with the access doors facing downward.

Use a water gage to make sure the mounting surface is level. It is essential that your unit is placed on an even surface.

Mount the unit on the ceiling with a 1-2° angle of inclination in the direction where the drainage pipes are located. Make sure that the mounting surface is dry, clean, and capable of bearing the unit's weight.

The necessary maintenance clearances should be observed while determining the mounting place of the unit. Once the unit has been mounted, the access doors should be easily reachable for access to unit's internal components.

To avoid problems, units should not be removed from their packaging during transport, and only opened when in their final position at the time of installation.

Care should be taken to ensure that the surface on which the unit will be placed is capable of bearing the weight of the unit. The required maintenance clearances should be observed while placing the unit.

WARNINGS
Be cautious of injuries and of the possibility of unit tipping during the transport and ceiling mounting of the unit.
Do not carry the unit by holding on to the access door rails. Make sure no physical damage occurs to the access door rails during the unit's transport and handling.

6.1. Ceiling Mounting of the Unit

The supply and exhaust air line directions of the unit are as follows.

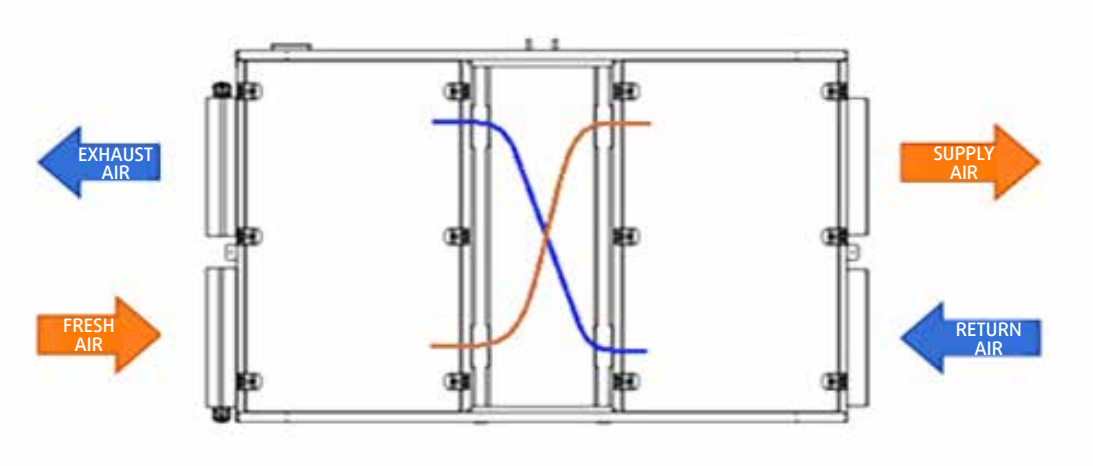


Figure 6.1-1 - The Unit's Air Line

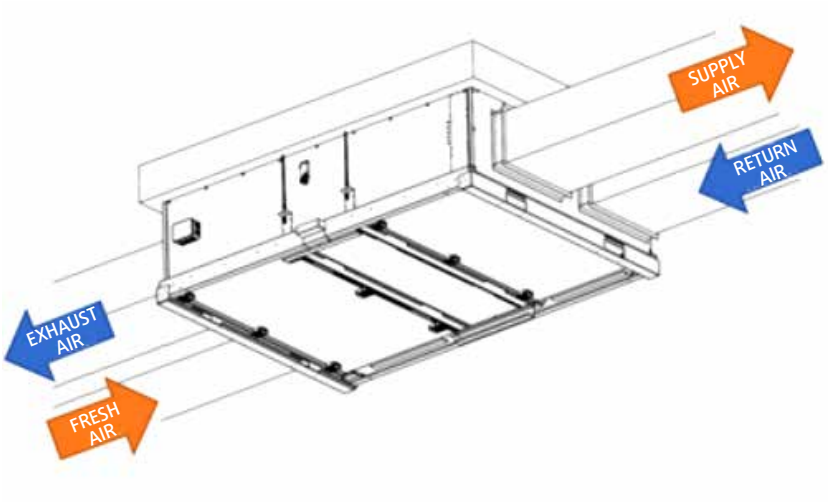


Figure 6.1-2 – The Unit's Air Line (2)

Before lifting the unit up to the mounting surface, make sure that you are using the proper lifting tool. Lift the unit up to the surface on which it will be mounted.

There are a total of 6 mounting brackets on the unit, to facilitate mounting the unit on the ceiling, as shown in Figure 6.1.3.

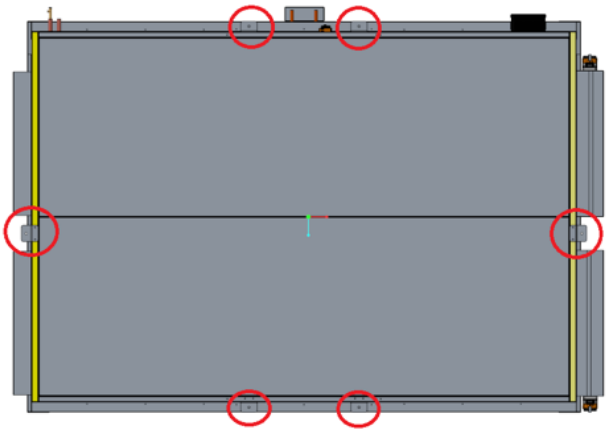


Figure 6.1-3 - The Unit's Mounting Bracket

Mount the unit on the surface using rods of the proper diameter and length, from the mounting brackets found on the unit.

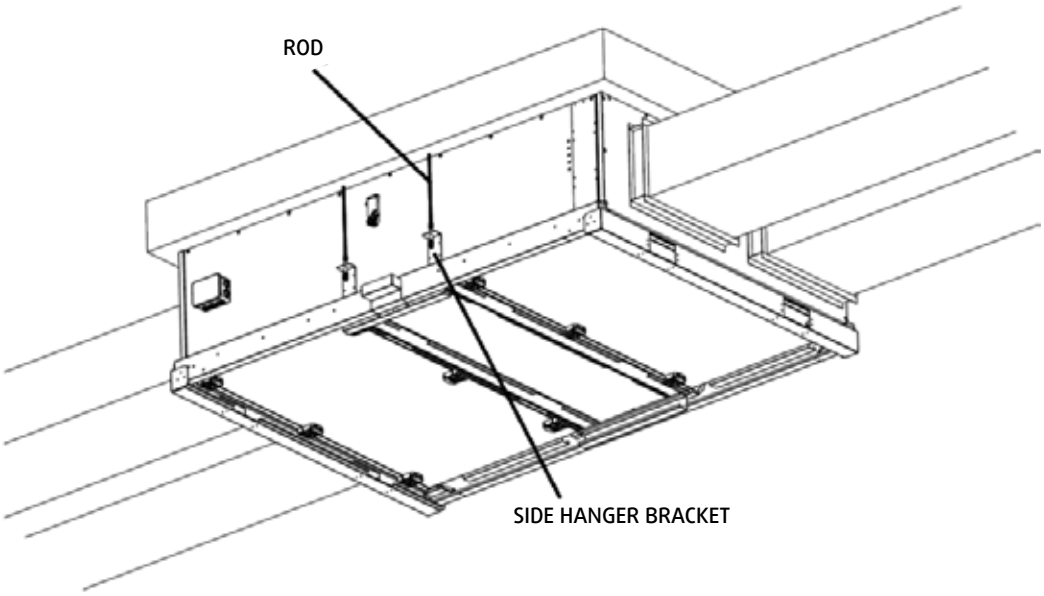
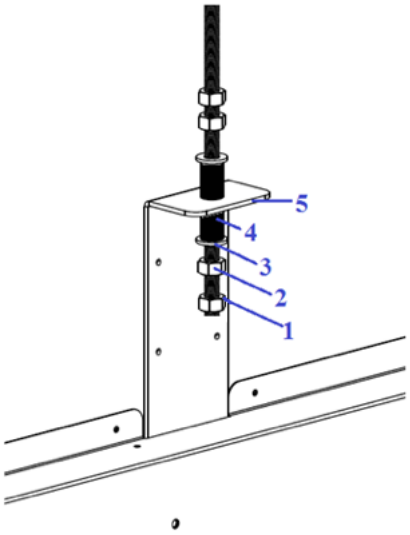


Figure 6.1-4 – SysReco Ceiling Mounting



No	Description
1	Rod
2	M10 Nut
3	M10 Washer
4	Rubber Isolator
5	Mounting Brackets for Ceiling Mounting

NOTE

Use rubber Isolator of suitable dimensions to prevent vibration while mounting the unit on the ceiling.

Figure 6.1-5 - Connection for Ceiling Mounting

WARNINGS

Make sure the suitable rods, nuts, and washers are available before fixing the unit on the mounting surface using the mounting brackets.

Be cautious of injuries and of the possibility of unit tipping during the transport and ceiling mounting of the unit.

Do not carry the unit by holding on to the access door rails. Make sure no physical damage occurs to the access door rails during the unit's transport and handling.

Once the unit has been mounted on the ceiling, detach the transport handles shown in Figure 6.1.6 from the unit. If the transport handles are not removed, it will not be possible to open the unit's access doors.

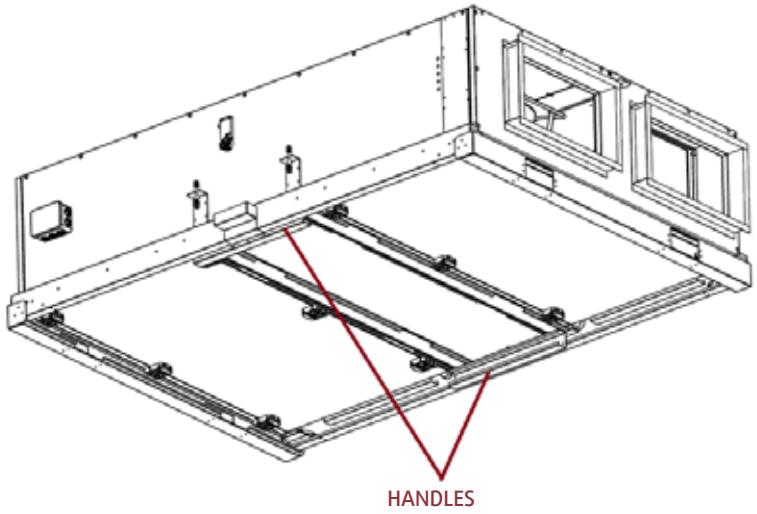


Figure 6.1-6 – Handles

6.2. Condensate Drainage

Two condensation pans manufactured from 1 mm stainless steel sheet in all models as standard equipment underneath the cross flow aluminum plate heat recovery device within the unit. Each pan has a drainage pipe to drain the condensate water from the pan. The pans have been designed with the angle of inclination needed to drain the condensate. The condensed water collects in the condensation pan, and is directed to the drain by means of this inclination. Please make the drainage connections required for the condensate water.

Make sure to use the drainage pipe for water drainage that is suitable for the specific climate conditions. The water is drained via the drainage pipe that is connected to the condensation pan located on the exhaust line in winter conditions, and is connected to the condensation pans located on both the exhaust and the discharge lines during summer conditions.

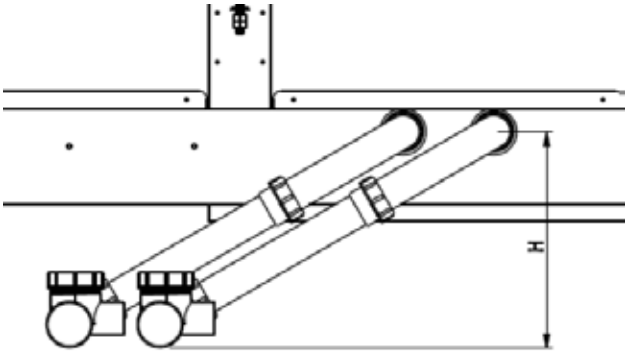


Figure 6.2-1 – The Drainage System

NOTE

Condensate drainage should not be connected to the rain water and sewage drains. Drain outlets should be directed to the plant's independent drainage facility.

The height "H" in the drainage installation should be at least equal to the value calculated using the following formula. These values have been determined according to models and have also been presented in tabular form.

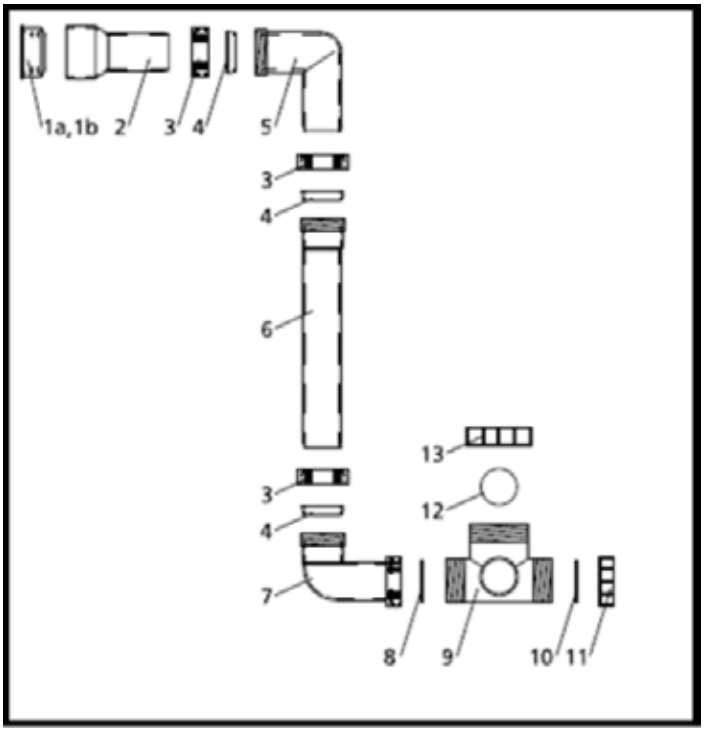
H=P/10+X (mm)

P= Fan Static Pressure (Pascal)

X= Thickness of the base panel of unit (mm)

Model	H (mm)
SysReco FX 01	75
SysReco FX 02	75
SysReco FX 04	150
SysReco FX 05	95
SysReco FX 06	120
SysReco FX 08	125
SysReco FX 11	125
SysReco FX 13	120

Table 6.2-1 – Drainage Height "H"



No	Description
1a	Rubber Piece
1b	Rubber Piece
2	Connecting Pipe
3	Geared Coupling
4	Conical Gasket
5	Elbow-pipe
6	Pipe
7	Elbow
8	Straight Gasket
9	Non-Return Valve
10	Straight Gasket
11	Cover
12	Ball
13	Cover

Figure 6.2-2 – Ball Siphon Assembly

Instructions for Ball Siphon Assembly

1 Rubber parts (1a,1b) shall be mounted on the part number (2).

2 The geared coupling (3) shall be passed through the connecting pipe number (2) and a conical gasket (4) shall be placed inside the elbow-pipe part number (5). After the connecting pipe (2) has been passed through the elbow-pipe number (5), it shall be tightened with the geared coupling (3).

3 The geared coupling (3) shall be slid over the exposed end of the elbow-pipe (5). After a conical gasket (4) has been placed inside the water flow pipe (6) the elbow-pipe (5) and the water flow pipe (6) shall be installed.

4 Another geared connector (3) shall be slid over the exposed end of the water flow pipe (6), and after a conical gasket (4) has been placed inside the elbow piece (7), and the water flow pipe (6) has been slid inside the elbow (7), shall be tightened using a geared coupling (3).

5 Finally, a geared coupling (3) shall be slid over the exposed end of the elbow piece (7) and after a straight gasket (8) has been placed on the end of the elbow (7), the non-return valve piece (9) shall be installed, and tightened using the geared coupling.

6 A straight gasket (10) shall be placed on the other exposed end, and shall be capped with a lid (11). The ball (12) shall be placed over the top of the non-return valve (9) and shall be capped with a lid (11).

6.3. Supply Air Temperature Sensor

An electrical socket has been left on the unit for the supply air temperature sensor. The supply air temperature sensor is connected to the automation panel easily over the socket, without requiring any cabling. The supply air temperature sensor should be installed in the duct at least 1 m after the electrical heater in units with electrical after heaters.

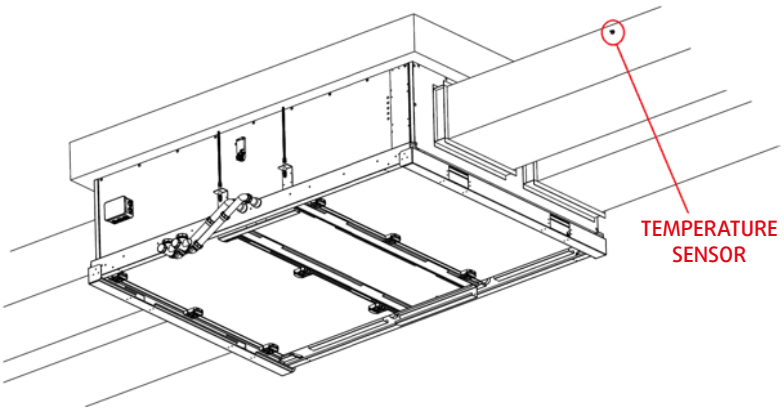


Figure 6.3-1 – Temperature Sensor

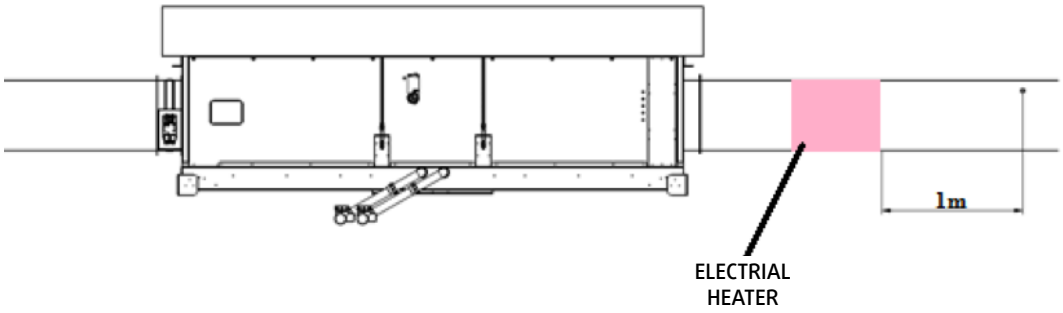


Figure 6.3-2 – Installation of Temperature Sensor

6.4. Water Connection for Water Heating Coil

In models with optional water heating coils, the unit is supplied with the water heating coil pre-installed inside the unit, after the supply fan. Water connection pipes for the water connection of the water heating coil are located outside the unit. Water heating coil pipes are equipped with movable bushings and air purgers. The water intake of the water heater is from the bottom pipe, while the water outlet is from the top pipe. The water connection of the water heater can be made easily with the aid of the movable bushing.

If the unit with water heating coil has been ordered with a valve and valve actuator, the valve and valve actuator are shipped separately with the unit. The valve and valve actuator can be easily connected via the moving bushing found on the water heating coil pipes. The valve and valve actuator should be connected after the water outlet of the water heating coil.

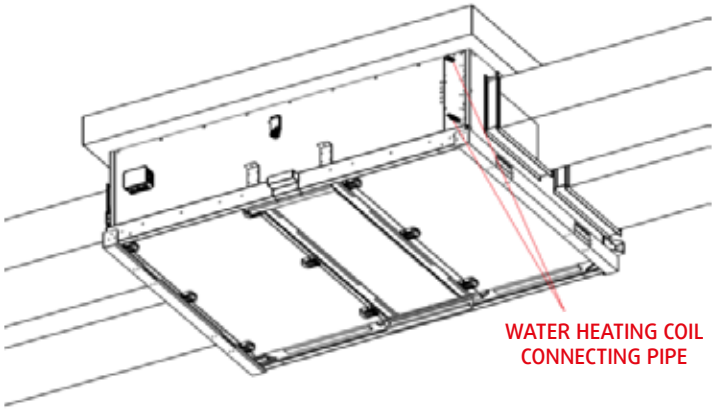


Figure 6.4-1- Water Heating Coil Connection Pipes

WARNINGS

Please refrain from vertical and horizontal handling by applying force on coil collectors. Do not step on coil collectors and top panels.

6.5. Electrical Heater Assembly

Duct type electrical heaters are used in the SysReco FX unit. Electrical heaters are not pre-installed on the unit, but are shipped separately with the unit.
Electrical heaters can be mounted horizontally or vertically on the duct. The direction of air flow should be the same as the direction indicated with an arrow on the electrical heater. The junction box can be above or mounted with a 90° to the left or right. Do not install the electrical heater with the junction box facing downward. Install the electrical heater only in the positions shown Figure 6.5.1.

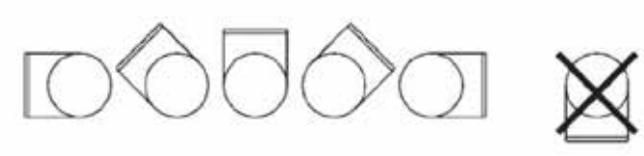


Figure 6.5-1 – Electrical Heater Assembly

The electrical heater should be mounted on the unit's duct connection/ damper at a minimum distance of twice the diameter of the electrical connection.

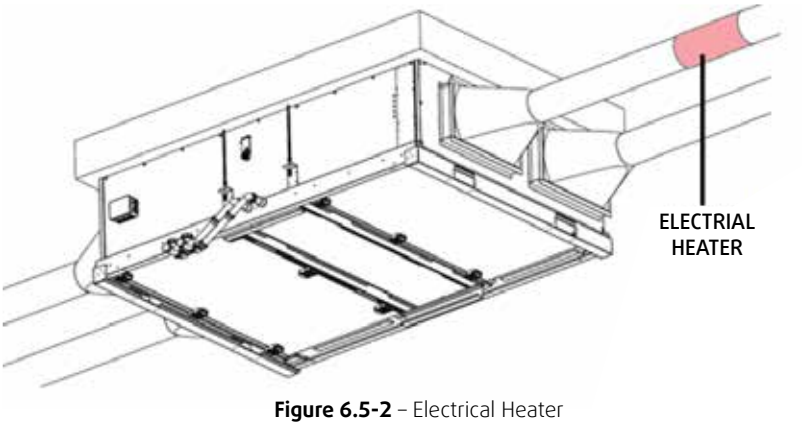


Figure 6.5-2 – Electrical Heater

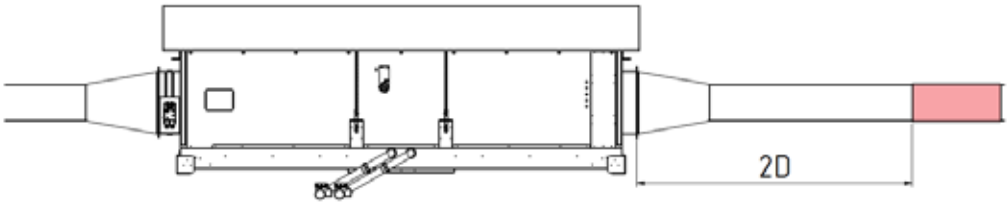


Figure 6.5-3 – Electrical Heater (2)

There is a connecting socket on the unit casing for the electrical connection of the electrical heater. The electrical heater can be easily connected with the help of this socket.

6.6. Duct Connection

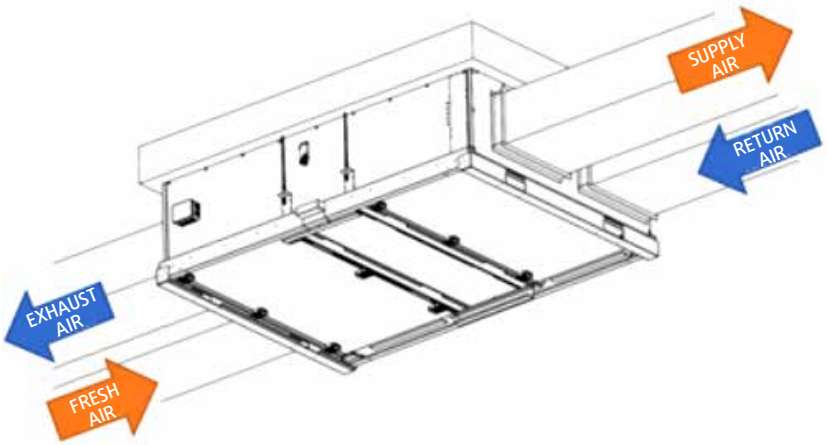


Figure 6.6-1 –Directions of Flow of the Unit's Air Lines

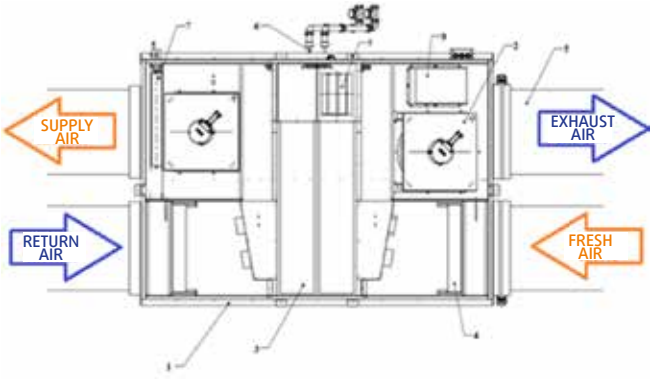


Figure 6.6-2 – Duct Connection and Components

No	Description
1	Casing
2	Fan
3	Exchanger
4	Filter
5	Duct Connections
6	Drain Pan and Drainage
7	Water Heating Coil (Optional)
8	Bypass Damper (Optional)

6.7. Electrical Connections

A junction box is found on the unit casing as a standard feature. There is a connection diagram inside the junction box. All electrical connections should be made within this junction box. The junction box is easily opened by removing the 4 screws located on its cover.

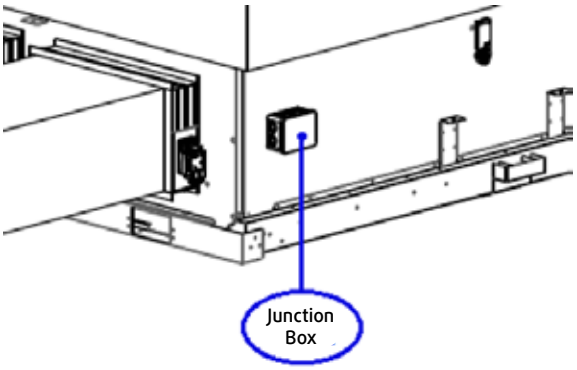


Figure 6.7-1 – Junction Box

CAUTION

All electrical connections on the unit must be made by authorized personnel and/or technical service crews.

7. Product Properties

The concealed ceiling type heat recovery unit manufactured bearing the SYSTEMAIR HSK brand is called SysReco. It has been designed to save energy by recovering heat energy through the exchanger within the unit.

Its purpose is to provide indoor air quality in environments such as offices, cafeterias, dormitories, and classrooms; and in residences, to exhaust the dirty and humid air in indoor spaces of higher temperature such as bathrooms and kitchens, and to supply fresh air to spaces requiring more oxygen such as bedrooms and living rooms.

This user manual contains information pertaining to the following models.

Models:

Model
SysReco FX01
SysReco FX02
SysReco FX04
SysReco FX05
SysReco FX06
SysReco FX08
SysReco FX11
SysReco FX13

Options:

SysReco FX 01 HB G4

- Standard G4-G4 Panel Filter
- Optional F7-M5 Panel Filter
- D : On-off outdoor air damper
- H: With water heating coil
- B: With bypass damper
- DH: With water heating coil and on-off outdoor air damper
- DB: With bypass, on-off outdoor air damper
- DHB: With water heating coil, bypass, and on-off damper
- Model numbers 01, 02, 04, 05, 06, 08, 11, 13

G4 panel filters are used as standard on supply and exhaust lines in SysReco models. As an option, F7 and M5 panel filters can be used on the supply and exhaust lines respectively.

In models with optional water heating coils, the unit is supplied with the water heating coil pre-installed inside the unit. Water connection can be made easily thanks to the moving bushing found within water heating coil pipes.

7.1. Dimensions

A junction box is found on the unit casing as a standard feature. There is a connection diagram inside the junction box. All electrical connections should be made within this junction box. The junction box is easily opened by removing the 4 screws located on its cover.

Table 7.1-1 – Table of Dimensions of the SysReco FX Unit

Models	Measurements (mm)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
SysReco FX 01	1200	1400	390	1455	1150	633	611	615	223	128	400	210	296	531	368
SysReco FX 02	1300	1400	390	1455	1250	708	686	615	223	128	400	210	296	581	417
SysReco FX 04	1300	1500	531	1550	1250	708	686	594	364	199	400	210	296	581	417
SysReco FX 05	1400	1700	531	1750	1350	732	711	694	364	148	500	310	346	631	417
SysReco FX 06	1400	1700	531	1750	1350	732	711	694	364	148	500	310	346	631	417
SysReco FX 08	1600	2100	531	2150	1550	823	802	894	364	128	600	350	409	725	461
SysReco FX 11	1600	2100	672	2150	1550	823	802	823	505	199	600	350	409	725	461
SysReco FX 13	1800	2500	672	2550	1750	973	952	1023	505	199	600	350	409	825	561

*Flange thickness is 30 mm for flanged models

**The V measurement is 85 mm for flanged models, and 125 mm for models with outdoor air dampers.

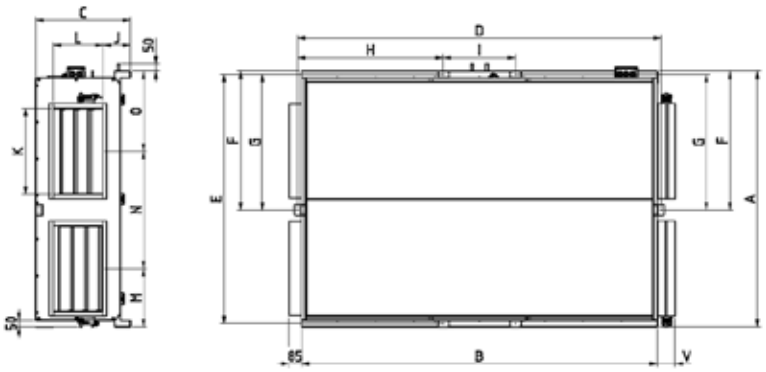


Figure 7.1-1 -Unit Dimensions

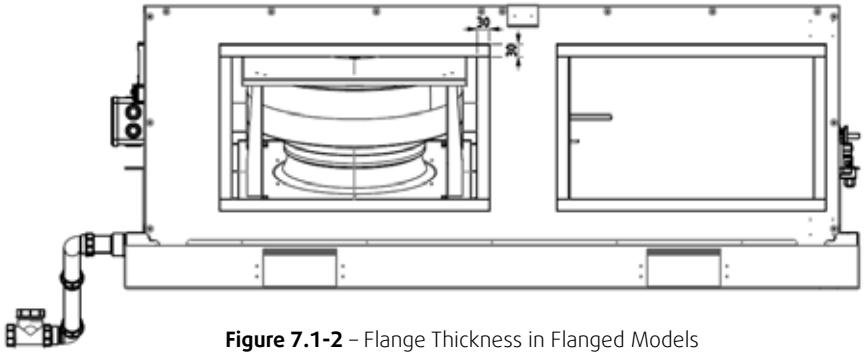


Figure 7.1-2 – Flange Thickness in Flanged Models

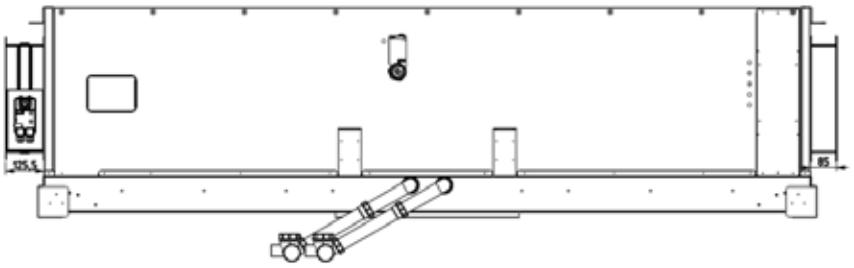


Figure 7.1-3 – Measurement "V"

7.2. Technical Specifications

Table 7.2-1 – Table of Technical Specifications for the SysReco FX Unit

		SysReco Fx 01	SysReco Fx 02	SysReco Fx 04	SysReco Fx 05	SysReco Fx 06	SysReco Fx 08	SysReco Fx 11	SysReco Fx 13
Nominal Fan Motor Power	w	2x85	2x170	2x500	2x470	2x500	2x790	2x1100	2x1320
Nominal Current	A	2x0.7	2x1.4	2x.2.2	2x3.1	2x2.2	2x1.25	2x1.7	2x2.1
Filter Type	Standard G4-G4 Filter / Optional F7-M5 Filter								
Fan Mains Connection	V/Hz/Ph	230/50/1						400/50/3	
Sound Pressure Level	dbA	43	41	53	49	50	52	54	48
Unit Weight	kg	130	140	170	190	190	240	245	345
Heating Coil Connection Diameter	Copper	1/2"	1/2″	1/2″	1/2″	1/2″	1/2″	3/4"	3/4″
Heat Recovery Efficiency	%	57	50	57	57	58	58	58	58

Filter classes are in conformance with EN779 standards.

Heat recovery efficiencies have been provided for -3°C winter outdoor temperature, 22°C indoor temperature and 50% relative humidity.

The sound pressure level is that which is felt in the room from a distance of 1 m from the ceiling, if the unit is mounted in a concealed ceiling.

7.3. Maintenance Clearance

Service access to the unit has been allowed only from below for intervention in cases of malfunction of the fans within the unit or for replacement of dirty filters.

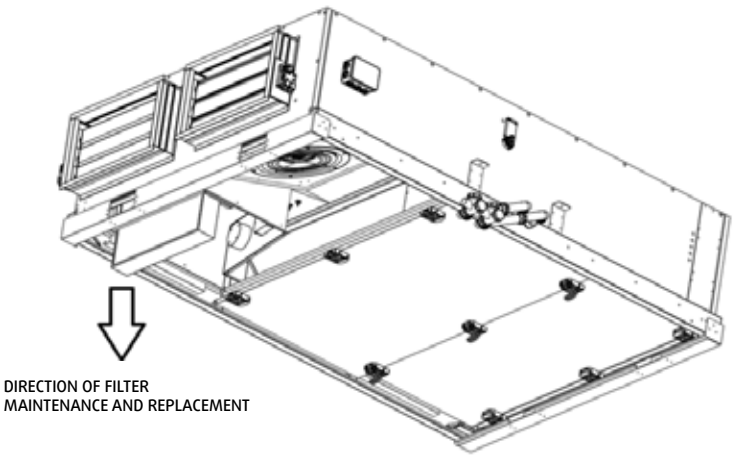


Figure 7.3-1 – Direction of Filter Replacement

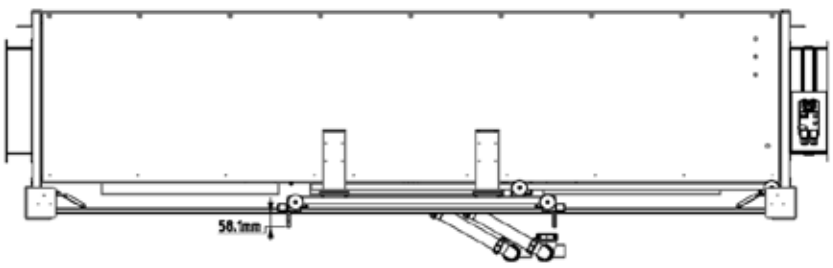


Figure 7.3-2 – Service Height

The service clearance from beneath the unit should be equal to the height of the door handle when the access door is open (60 mm).

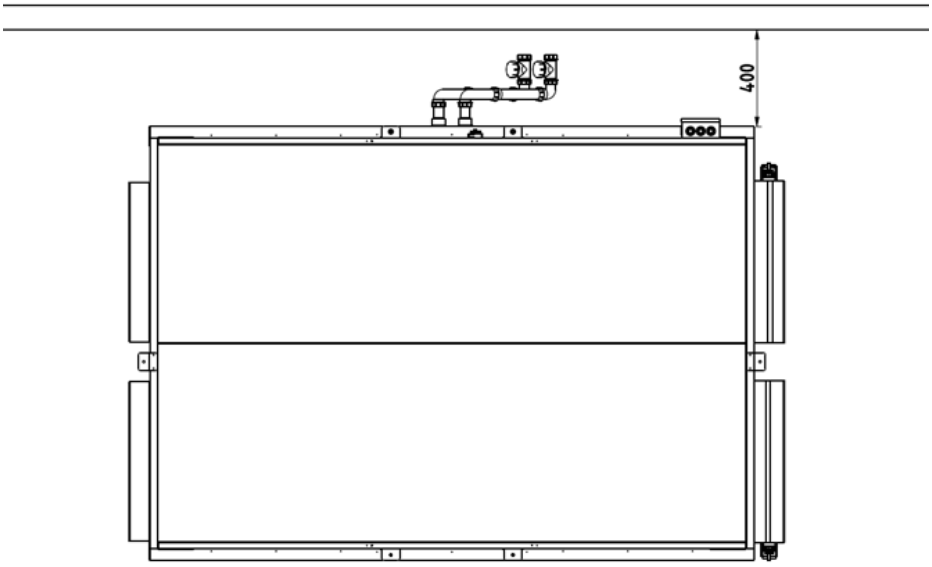


Figure 7.3-3 – Maintenance Access Width

400 mm of service clearance should be provided on the side where the junction box and drainage pipes are located, to allow the connection of the mains supply and of the drainage pipes to the unit. No clearance needs to be left on the other side of the unit.

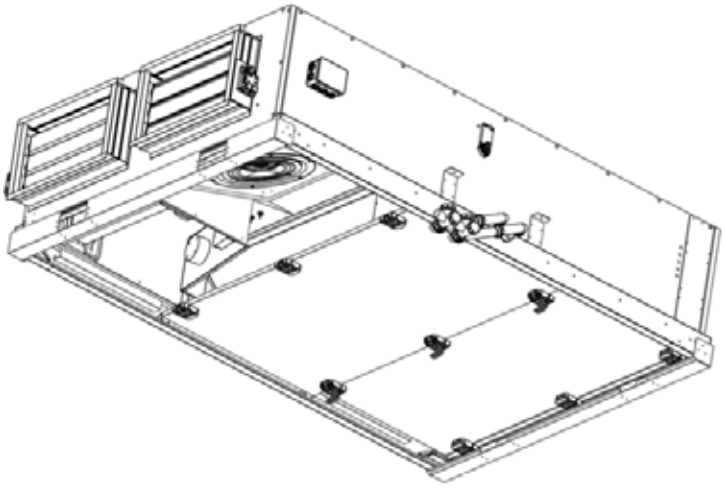


Figure 7.3-4 – With Door Open

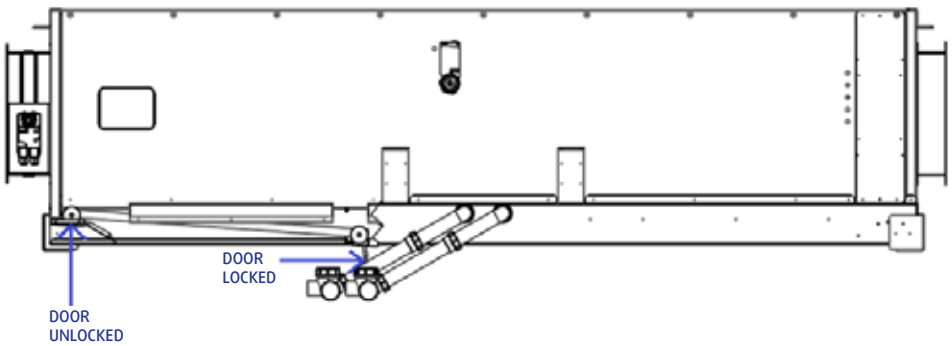


Figure 7.3-5 – A Single Handle is Unlocked While Opening the Door

8. Parts of the Unit

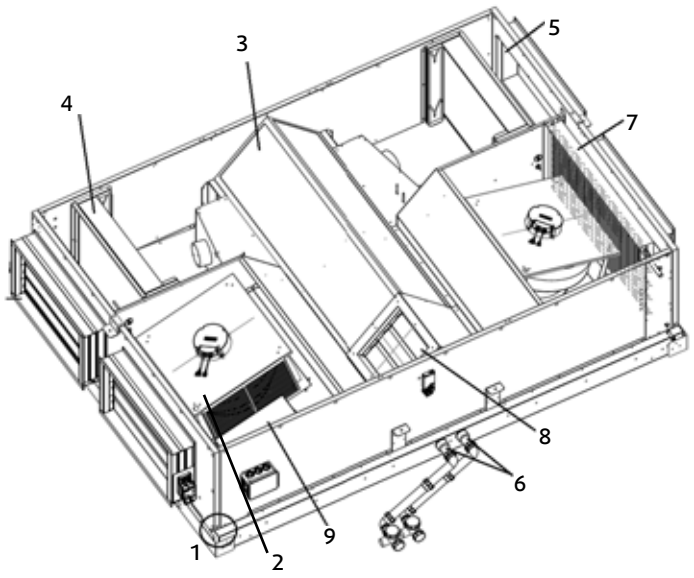


Figure 8-1 – Parts of the Unit

The unit's parts and main components are the following.

No	Description
1	Casing
2	Fan
3	Exchanger
4	Filter
5	Duct Connections
6	Drain Pan and Drainage
7	Water Heating Coil (Optional)
8	Bypass Damper (Optional)
9	Automation Panel

8.1. Casing

The unit's entire casing is manufactured from 1mm galvanized steel sheet, oven dyed with color code RAL 7040. Thus it is resistant to corrosion.

Black fiberglass coated rock wool with a thickness of 25 mm is used for sound and thermal insulation, which is a durable, flexible, lightweight, long-lasting, and environmentally friendly material with high insulation performance.

A junction box of dimensions 110x150x70mm is mounted on the casing as a standard feature. 6- and 3-way electrical sockets are provided on the casing for optional equipment and accessories. Connections to the automation panel or to the junction box can be made easily with the aid of these sockets, without the need for any further electrical wiring.

8.2. Fan

The units are equipped with and silent single suction plug fans with reverse inclined blades and high efficiency EC motors as a standard. Fans can be easily accessed through access doors, and fans can be detached from the unit for maintenance as described in the fan maintenance section.

8.3. . Exchanger

High efficiency cross-flow heat exchangers with low pressure loss, manufactured of aluminum are used in the SysReco heat recovery unit.

8.4. Filter

G4 panel filters are used as standard one on the discharge and one on the exhaust line in SysReco models, and are easily accessible via access doors on units. As an option, F7 and M5 panel filters can be used on the supply and exhaust lines respectively. The units are suited for use with filters of G4, M5, F7 efficiency class according to the EN 779 standard, with frame thicknesses of 22 mm, 48 mm, and 98 mm, without requiring any amendments to be made inside the unit.

Filters should be replaced as described in the maintenance section, in pre-defined periods in models with filter potentiometers and basic automation; and according to information received from the pressure differential switch in models with advanced automation.

Filters should be changed as described in the maintenance area.

8.5. Duct Connections

2 mm thick galvanized flanges that are suited for connection to ducts with rectangular cross-sections; or custom-manufactured 2 mm thick electrostatic oven painted galvanized steel flanges are used for standard unit connections. Units can be provided with optional on-off motor dampers on fresh air intake and exhaust air discharge connections. On-Off outdoor air dampers can be provided if the advanced automation panel has been selected.

Sockets for electrical connections have been provided on the unit for electrical connection of on-off outdoor air dampers. Electrical connection of dampers can be made with ease with the aid of these sockets.

The unit is supplied with dampers pre-installed, which causes an extension of only 40 mm on the length of the unit.

8.6. Drain Pan and Drainage

Units are equipped with two drain pans manufactured from 1 mm thick stainless steel sheet as standard equipment. Two drain pans are provided on the supply and exhaust air lines where condensation can occur, depending on summer and winter conditions. One copper pipe with a diameter of 16 mm is provided on each drain pan outlet. Drain pans can be easily accessed through access doors.

8.7. Water Heating Coil (Optional)

Water heating coils with aluminum fins and copper pipes are used in units, as optional equipment. The water heating coil is not duct type and is supplied pre-installed inside the unit after the exhaust fan. The water heating coil can be provided if the basic or advanced automation panel has been selected. Precise temperature control is achieved by means of 0-10V proportional valves. An electrical connecting socket has been provided on the unit casing for the electrical connection of the water heating coil valve. Electrical connection can be made easily via this socket.

WARNING

Please refrain from vertical and horizontal handling by applying force on coil collectors. Do not step on coil collectors and top panels.

8.8. Bypass Damper (Optional)

SysReco FX series compact air handling units can be supplied with an optional recuperator bypass damper for freeze protection of the plate during the winter and for free cooling application in seasonal transitions. The bypass damper option can only be provided if an integrated advanced automation panel is in use. If the bypass damper option has been selected, the unit is supplied with the damper actuator installed and cabled to the automation panel.

8.9. Automation Panel

The unit comes with a junction box of dimensions 110x150x70mm pre-installed on the casing as a standard feature. Power inlets are made over this junction box. There is a connection diagram inside the junction box.

Models with advanced automation are equipped with a potentiometer and an automation panel, different from models with basic automation. The automation panel can be easily accessed by means of the large access door.

An isolator switch is found on the section where the access door of the automation panel is located. The isolator switch can be accessed by opening the unit's access door. Turn the isolator switch to the off position without interfering with the automation panel in any way.

WARNINGS

All electrical connections on the unit must be made by authorized personnel and/or technical service crews.

Prior to any maintenance application, bring the isolator switch to the off position to cut power supply to the unit. Make sure the electrical supply has been severed.

9. Control Equipment

9.1. MTV-1/010 Potentiometer

Figure 9.1-1 – Potentiometer

Found in units with potentiometer. Allows the fan speed to be manually adjusted 0-10V.

9.2. RC-C3DFOC Room Thermostat

Figure 9.2-1 - Thermostat

Found in units with basic automation. Allows 3 stage control of the units with an 0-10V input. It also controls 0-10V operation of electrical-water heating coils and water cooling coils by comparing the information it received from the temperature sensor to set values.

Its integrated display allows the temperature information, fan's operational status, and the current heating or cooling mode in effect to be monitored.

9.3. S-TG-K3/PT1000/4.0 Temperature Sensor

Figure 9.3-1 – Temperature Sensor

Found in units with Advanced and Basic automation. It is the temperature measuring component mounted on the unit or the duct. As temperature rises, the resistance of the sensor increases, and as temperature falls the resistance decreases.

9.4. RVAZ4 Valve Motor

Figure 9.4-1 – Valve Motor

One is used as optional equipment per each water heating coil or water cooling coil that will be used in units with Basic and Advanced automation. It is the control component used to control the heating/cooling valves in air handling units. Valve motors are equipped with a net position indicator and manual maneuvering capability.

9.5. ZTV/ZTR Valves (2-Way/3-Way)

Figure 9.5-1 - Valves

One is used as optional equipment per each water heating coil or water cooling coil that will be used in units with Basic and Advanced automation. They are used for control of hot and cold water.

In 2-way valves the casing opens when it is in the lowermost position, and closes when it is in the uppermost position.

In 3-way valves, when the casing is in the highest position, it is closed between the A port and the AB port (opposite ports). In this case, the valve is also open between the connection point B and the common supply point AB. When the casing is in the lowest position, the 3-way valve is completely open between the gate A and the connection point AB, and as a result it is closed between the lower connection point B and the common connection point AB.

9.6. DTV 300X Differential Air Pressure Switch

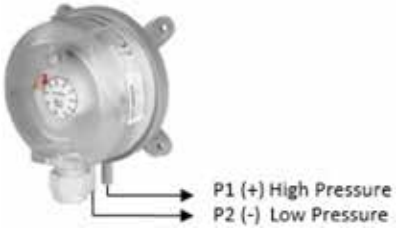


Figure 9.6-1 – Differential Air Pressure Switch

Found in units with Basic and Advanced automation. Used to measure filter dirtiness and in units equipped with electrical heaters.

The switch is used to receive air flow information in the unit. The operation of the electrical heaters is stopped at the moment when the air flow in the unit is stopped, which prevents dangerous situations from occuring.

10. Accessories

You can obtain needed information pertaining to accessories of the SysReco heat recovery unit such as valves, valve actuators, silencers, duct type water coolers, and drop eliminators from the SysReco technical catalogue.

Electrical sockets are provided on the casing for accessories used in the SysReco unit. These sockets allow the electrical connection of accessories to be made easily without requiring any additional wiring.

10.1. Electrical Heater

Electrical heater accessories of various dimensions and capacities are supplied for each SysReco FX model for connection to fresh air or discharge air ducts, depending on place of operation and demand for SysReco FX series compact air handling units. Electrical heaters are duct type devices, and are sent separately with the unit.

The casing is manufactured of Aluzinc coated sheet steel, while the resistances are manufactured of stainless steel material. Thus, the unit has high resistance to corrosion. Electrical heaters are manufactured with circular or rectangular cross-sections, and are suitable for flanged connection. Information pertaining to electrical heaters has been provided in the following table

Table 10.1-1 – Table of Technical Specifications for the Electrical Heater

Models	Capacity	Voltage	Frequency	Phase	Duct Dimensions			Weight
					Ø	B	H	
	kW	V	(Hz)		mm	mm	mm	kg
CV 25-25-2MTXL	2.5	400	50	2	250	-	-	8.32
CV 25-60-2MTXL	6.0	400	50	2	250	-	-	5.53
CV 31-75-3MTXL	7.5	400	50	3	315	-	-	8.32
CV 31-105-3MTXL	10.5	400	50	3	315	-	-	8.32
CV 35-120-3MTXL	12	400	50	3	355	-	-	8.32
VFLPG-600x350-150-3MTXL	15	400	50	3	-	600	350	21.5

CV code electrical heaters are manufactured with circular cross-sections, while VFLPG code electrical heaters have rectangular cross-sections and are suitable for flanged connection. Information regarding the dimensions of electrical heaters are provided below.

• CV Code (Circular Cross - Section) Electrical Heaters

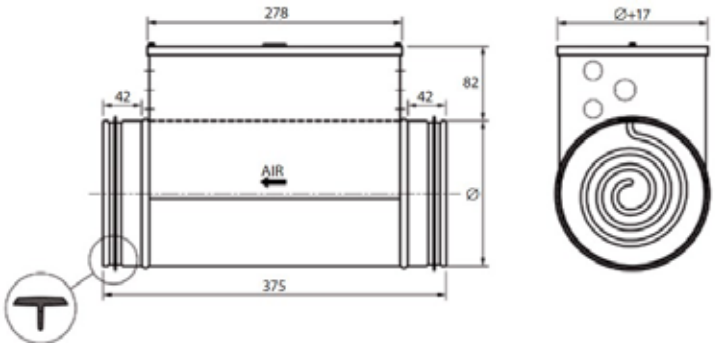


Figure 10.1-1 – CV Code Electrical Heaters

• VFLPG Code (Rectangular Cross - Section) Electrical Heaters

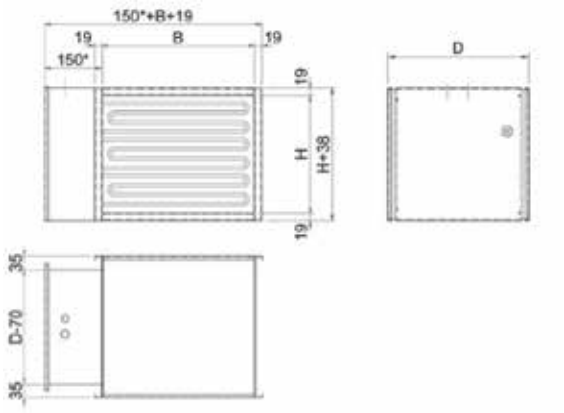


Figure 10.1-2 - VFLPG Code Electrical Heaters

Electrical heaters have two types of overheating protection - automatic and manual. Manual overheating protection is reset via the button found on the cover of the duct type electrical heater.

Electrical heaters are suitable for 0-10V proportional control. The units are supplied with the cabling to the automation panel already in place, allowing the heater to be easily connected via the socket after being installed on the duct on site.

WARNING

All electrical connections on the unit must be made by authorized personnel and/or technical service crews.

WARNING

For your safety, make sure the resistances are fully off during service and maintenance.

CAUTION

Make sure grounding has been carried out for the electrical heater. Electrical heater must not be supplied with energy before the ground line has been connected.

11. Control Screen Description

11.1. Argus (RC-C3DFOC)

→ Sets the operating status of the air handling unit.

→ Is used when adjusting factory set values.

→ Is used when adjusting factory set values.

→ Sets the fan stage.

Figure 11.1-1 - ARGUS (RC-C3DFOC)

11.2. On/Off Control of the Unit

If the OFF symbol is displayed on the control panel screen, press the ON/OFF button once to start the unit. When you press the ON/OFF button to shut down the unit, the text OFF will be displayed on the screen.

11.3. Fan Stage Selection of the Unit

The button is used to change the stage of the unit. There are 5 operating modes for the fan, with 3 stages and automatic (depending on heating/cooling).

11.4. Screen Indicators

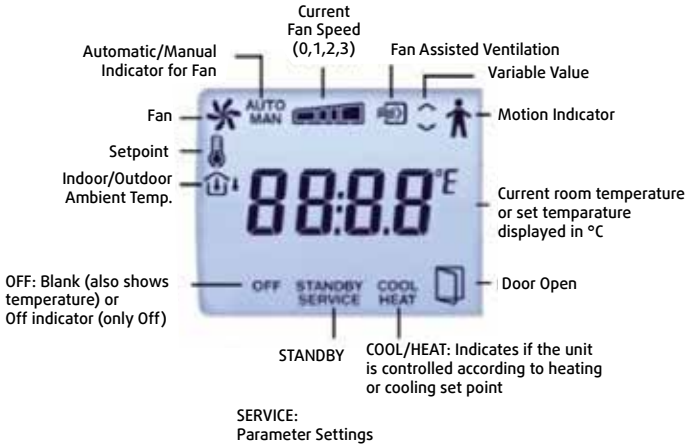


Figure 11.4-1 - Screen

11.4.1 Current Fan Speed Indicator

→ Indicates that the fan is operating in Stage 1 (low).
→ Indicates that the fan is operating in Stage 2 (medium).
→ Indicates that the fan is operating in Stage 3 (high).

11.4.2 Service Indicator

The blinking text "SERVICE" indicates that an alarm has been generated. Contact Systemair Technical Service when you receive this warning.

11.4.3 Indoor Temperature Indicator

- If there is no external temperature sensor, the temperature information is received from the sensor connected to the room unit. In this case, the temperature displayed on the screen is the temperature of the environment where the room unit is located.
- If there is an external temperature sensor, the temperature information is received from this sensor. In this case, the temperature displayed on the screen is the temperature of the air blown into the room.

11.4.4 Automatic / Manual Mode Indication

- This symbol remains fixed when the unit is not in operation.
- This symbol alternates continuously when the unit is in operation.

12. Commissioning

- Make sure the unit has been assembled as described in the user manual.
- Check the power mains rating from the electrical connection diagram and make the connections accordingly.
- Make sure all socket connections have been made in full.
- Close the panel cover.
- Bring the isolator switch inside the unit from the 0 to the 1 position.
- Make sure both access doors are closed.
- Press the ⏻ button on the room unit once.

When you follow these steps in the given order, your unit will start up. If the device does not start and is indicating an alarm, check your connections.

WARNING

Make sure there is no energy while making the mains connection.

13. Maintenance

CAUTION

Prior to any maintenance application, bring the isolator switch to the off position to cut power supply to the unit. Make sure the electrical supply has been severed.

Regular maintenance should be performed to obtain the highest efficiency from the unit.

Do not start maintenance before the fans and dampers have stopped completely.

Wait for the heater to cool down before starting maintenance on models with water heating coil and electrical heater.

CAUTION

Wait for the heater to cool down before starting maintenance on models with heater. Do not intervene on the unit in any way until the heater cools down.

The forklift directing sheets on the SystReco unit do not hinder the opening of the doors in any way.

There are two access doors on the SysReco unit. The internal components of the SysReco unit can be easily accessed through these access doors.

WARNING

Do not open the access doors while the unit is in operation under any conditions.

Open only one access door at a time. If you open both access doors simultaneously, you cannot access the inner equipment of the unit.

Open the access doors only from the door handles on the sides of doors facing each other, as seen from the following diagram.

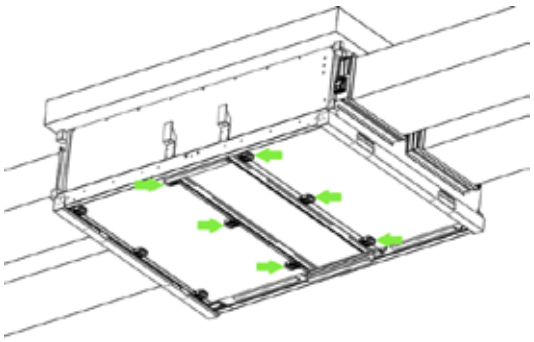


Figure 13-1 – Door Handles That Can Be Opened

Other door handles indicated in the following diagram are in place only to provide support when the door is closed and should never be opened.

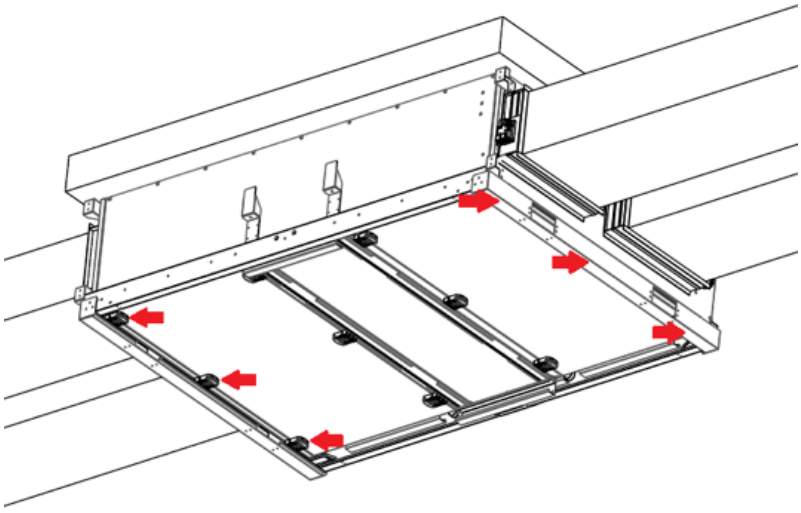


Figure 13-2 – Door Handles that Cannot Be Opened

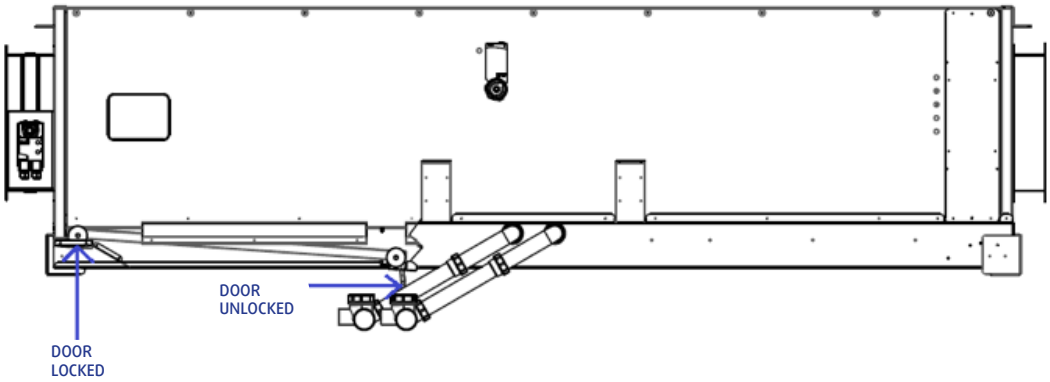


Figure 13-3 – Opening the Door By Unlocking From a Single Direction

13.1. General Maintenance

Twice a year, clean the inside of the unit with a moist cloth and pressurized air to remove the dirt, microbes, and sediments that may collect within the unit.

13.2. Drain Pans and Drainage Line

Condensation pans are easily accessible by opening access doors. Dust and similar polluting particles can collect inside condensation pans in time. Check the drainage line and condensation pans twice a year, and clean if needed.

1 Open the access door on the section housing the condensation pan that will be cleaned.
2 Clean condensation pans with a dry cloth.
3 Check the drainage line for obstruction by pollutants such as dust and mud that may accumulate on the drainage nozzle, and clean it.
4 Carry out the cleaning process using pressurized water, and if there is corrosion or cracks, or if it can not be cleaned, replace it.

13.3. Replacement of Filters

By removing the dust and particles in the air, filters keep the exchanger and fan clean and protected. Panel filters should be checked every three months for dirtiness, and replaced if necessary.

NOTE

Air ducts should be cleaned before commissioning the unit.

Dimensions of filters used in the SysReco FX unit are specified in the following table.

Table 13.3-1 – Table of Filter Dimensions

Model	Width (mm)	Height (mm)
SysReco FX01	400	255
SysReco FX02	400	255
SysReco FX04	400	400
SysReco FX05	500	400
SysReco FX06	500	400
SysReco FX08	625	400
SysReco FX11	625	500
SysReco FX13	625	500

Take the following steps to replace filters;

1 Open the access door in the section housing the filter that is to be replaced.
2 Loosen the Bakelite headed bolts found on the filter tightening elements.
3 Lower the filter tightening element as shown in Figure 13.3-2.

NOTE

The filter will be unfastened once you have lowered the filter tightening elements. Therefore, hold the filter with one hand as you lower the filter tightening parts. This will prevent injuries that may occur due to falling filters.

4 Remove the filter and replace it with a fresh one.
5 Raise the filter tightening part back to its original place, and tighten the filter using a fitting gasket.
6 Tighten the Bakelite headed bolts firmly.

CAUTION

Prior to any maintenance application, bring the isolator switch to the off position to cut power supply to the unit. Make sure the electrical supply has been severed.

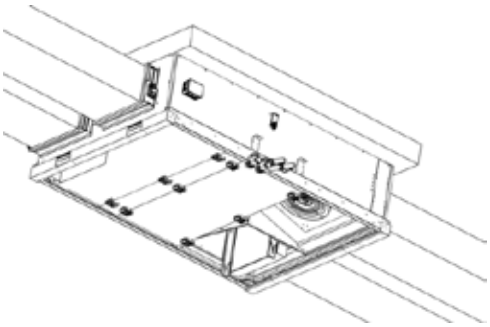
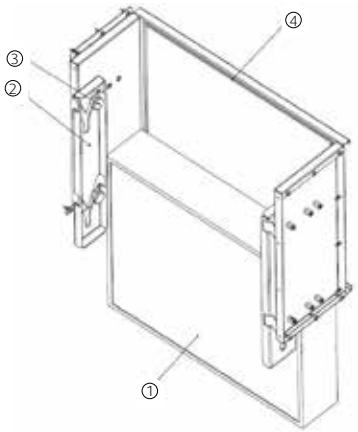


Figure 13.3-1 – Removing the Filter From the Unit

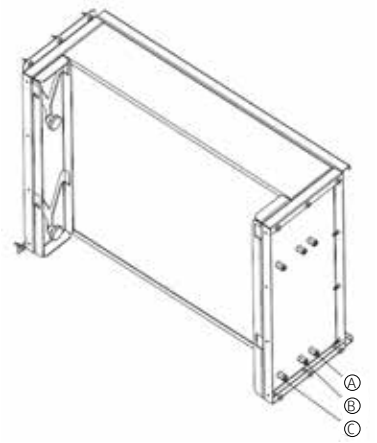


No	Description
1	Filter
2	Filter Compression Part
3	Bakelite Headed Bolt
4	Lipped Gasket

Figure 13.3-2 - Filter Replacement

The units are suited for use with filters of G4, M5, F7 efficiency class according to the EN 779 standard, with frame thicknesses of 22 mm, 48 mm, and 98 mm, without requiring any amendments to be made inside the unit. Take the following steps to replace the filters with those of a different thicknessn.

1 Open the access door in the section housing the filter that is to be replaced.
2 Loosen the Bakelite headed bolts found on the filter tightening elements.
3 Lower the filter tightening element as shown in Figure 13.3-2.
4 Remove the filter and replace it with a fresh one.
5 Raise the filter tightening part back to its original place, and tighten the filter using a fitting gasket.
6 Restore the Bakelite headed bolts to their respective sockets that are suited to the thickness of the new filter, and tighten them firmly.



Positions of flat-headed hexagon rivet nuts according to filter thickness: flat-headed hexagon rivet nut suitable for (A):22 mm, (B): 48 mm, (C): 98 mm filter frame thickness.

Figure 13.3-3 - Positions of Flush Hexagon Rivet Nuts

13.4. Fan Maintenance

Dust and other pollutants can accumulate in time on the fan depending on the pollution level of the air where the unit is operated. Physical damage due to corrosion and similar causes can also occur on the fan. This leads to a reduction in the fans' performance.
Fans can be easily accessed through access doors. Fans can be easily removed from the unit by following these steps for cleaning or in case of a malfunction.

1 Open the access door in the section housing the fan that is to be maintained.
2 Remove the 4 bolts on the fan. The number of bolts that need to be removed in large models is 12.
3 Remove the electrical connection sockets.
4 Remove the fan from the unit.

WARNING

While detaching the fans from the unit, be careful of fans falling and resulting injuries.

It is recommended that fans are cleaned and checked at least 2 times a year. This should preferably be at the beginning of each heating and cooling season. Pressurized water, acids, and solvent-based cleaning agents should not be used to clean fans. Avoid using objects with sharp edges. Clean the fans with a soft cloth.

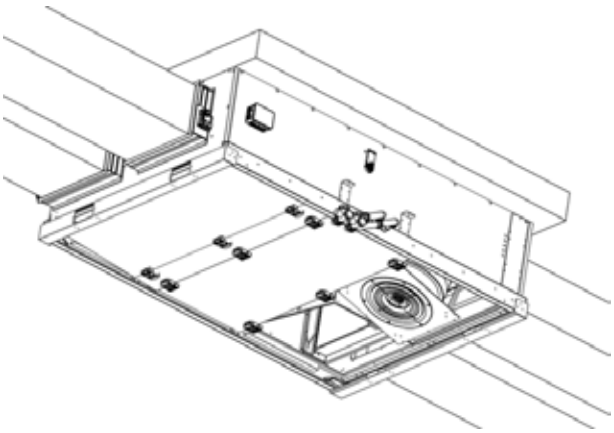


Figure 13.4-1 – Removal of Fans

13.5. Water Heating Coil Maintenance

Air can accumulate in the water circuit of the water heating coil in time, which hinders the circulation of water. This causes the water heating coil to operate in an inefficient manner, and with reduced capacity. The water heating coil should be purged of air once a year, by means of the purger located on it.

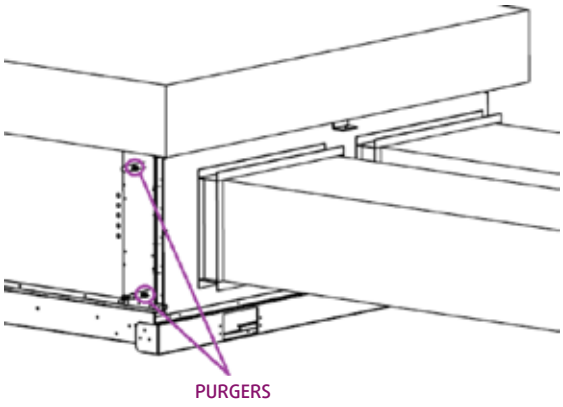


Figure 13.5-1 – Water Heating Coil Purgers Found on the Unit

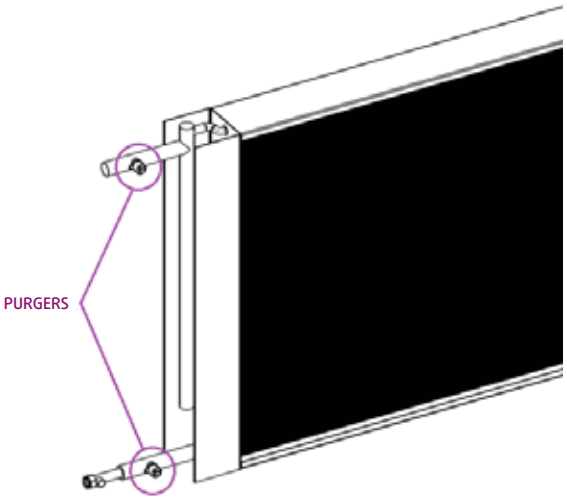


Figure 13.5-2 – Purgers on the Coil

14. Malfunctions

Malfunction	Possible Cause	Solution
Insufficient power or no power to the fan.	The electrical mains connection may not have been made.	Check the electrical mains connection. Verify that the connection sockets have been installed properly. If there are any loose or dislodged electrical connections, correct as needed.
	A fuse may be malfunctioning on the electrical panel serving the room where the unit is operated.	Check whether the fuse on the electrical panel is malfunctioning. Make sure that the fuse is not malfunctioning.
	The unit's isolator switch may be in the off position.	If the unit's isolator switch is in the off position, bring it to the on position.
	The unit may be supplied with insufficient electrical power.	Check whether sufficient electrical power is supplied to the unit from the room's electrical panel.
The fan is working, but the air flow rate is too low.	Filters may be dirty.	Check the dirtiness of the filters, and replace dirty filters as described in the maintenance area.
	Fan may be set to low speed.	Make sure the fan speed is set to the stage you want. If the fan speed is set to a lower stage than the one you want, raise the fan speed stage.
	The fan capacity may have dropped.	Maintain the fans as described in the maintenance section.
	The unit may have received inadequate maintenance.	Make sure all maintenance procedures have been carried out as described in the maintenance section.
	Access doors may not have been fully closed.	Close access doors properly.
	Air ducts may be blocked.	Make sure air ducts are not blocked.
	In models with optional bypass dampers, the damper position may be impacting air flow rate.	Check the position of the bypass damper.
The unit’s operation is very noisy.	Damage may have occurred in fan blades, causing imbalance during rotation.	Manually check the rotation of the fan. Check for any oscillation during rotation and for any damage to fan blades. If there is damage, contact the manufacturer.
	The unit may have been installed in an improper fashion.	Use a water gage to make sure the mounting surface is level. It is essential that your unit is mounted on an even surface. Make sure that the mounting surface is dry, clean, and capable of bearing the unit's weight. Use vibration absorbing rıbber chucks while mounting the unit on the ceiling, as described.
The unit vibrates while operating.	The unit may have been installed on an uneven surface.	Use a water gage to make sure the mounting surface is level. Make sure the unit has been mounted on an even surface.
	The unit may have been mounted on the ceiling in an improper fashion.	Check the tightness of the bolts on the rods that are used while mounting the unit on the ceiling via mounting brackets . Tighten the nuts in the proper manner. Use vibration absorbing rubber chucks as described in the assembly section.
	There may be vibration in the unit's duct connections.	Fasten the unit's duct connections properly.

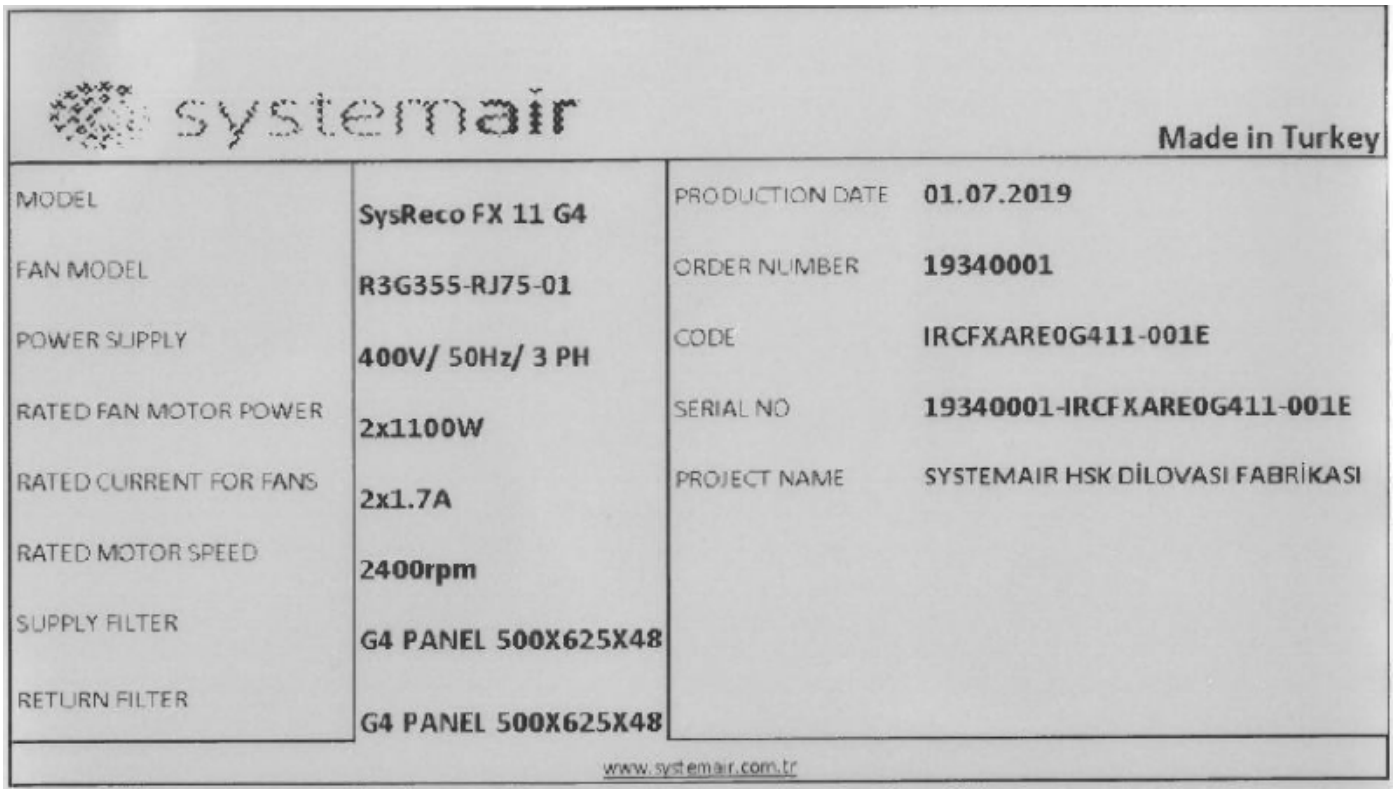
CAUTION

All electrical connections on the unit must be made by authorized personnel and/or technical service crews.

Prior to any maintenance application, bring the isolator switch to the off position to cut power supply to the unit. Make sure the electrical supply has been severed.

15. Service

While receiving technical service for your unit, use the manufacturing date, order number, code and serial number information found on the unit's capacity label. Identify your unit to the technical service staff using this information. A sample capacity label can be found below.



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Made in Turkey

MODEL	SysReco FX 11 G4	PRODUCTION DATE	01.07.2019
FAN MODEL	R3G355-RJ75-01	ORDER NUMBER	19340001
POWER SUPPLY	400V/ 50Hz/ 3 PH	CODE	IRCFXARE0G411-001E
RATED FAN MOTOR POWER	2x1100W	SERIAL NO	19340001-IRCFXARE0G411-001E
RATED CURRENT FOR FANS	2x1.7A	PROJECT NAME	SYSTEMAIR HSK DİLOVASI FABRİKASI
RATED MOTOR SPEED	2400rpm		
SUPPLY FILTER	G4 PANEL 500X625X48		
RETURN FILTER	G4 PANEL 500X625X48		

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Notes

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