

SYSHRW

96 / 96HE / 120

Water source heat pump

R407C

26.6 → 38.1kW

21.7 → 29.9kW

4700 → 5 600 m³/h



INSTALLATION INSTRUCTION

NOTICE D'INSTALLATION

INSTALLATIONSHANDBUCH

ISTRUZIONI INSTALLAZIONE

INSTRUCCIONES DE INSTALACIÓN

English

Français

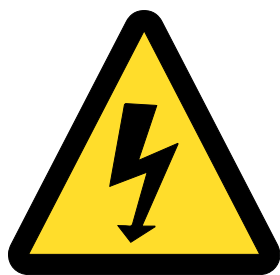
Deutsch

Italiano

Español

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POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING WORK IN THE ELECTRIC CONTROL BOX

1. GENERAL RECOMMENDATIONS

The purpose of this Manual is to provide users with instructions for installing, commissioning, using and maintaining the units. It also contains instructions on starting up the machine as well as recommendations to avoid bodily injury and risks of damage to the device during its operation.

It does not contain the complete description of all the maintenance operations guaranteeing the unit's long life and reliability. Only the services of a qualified technician can guarantee the unit's safe operation over a long service life.

Please read the following safety precautions very carefully before installing the unit.

1.1. SAFETY DIRECTIONS

Follow the safety rules in force when you are working on your appliance.

The installation, commissioning, use and maintenance of these units should be performed by qualified personnel who have a good knowledge of standards and local regulations, as well as experience of this type of equipment.

This appliance has not been designed for use by persons (including children) with reduced physical, sensorial or mental faculties or by persons without any experience or knowledge of heating systems, unless they act under the safety and supervision of a responsible person or have received prior training concerning the use of the appliance.

The unit should be handled using lifting and handling equipment appropriate to the unit's size and weight.

Any wiring produced on site must comply with the corresponding national electrical regulations.

Make sure that the power supply and its frequency are adapted to the required electric current of operation, taking into account specific conditions of the location and the current required for any other appliance connected to the same circuit.

The unit must be EARTHED to avoid any risks caused by insulation defects.

Work must not be carried out on the electrical components if water or high humidity is present at the installation site.

SAFETY SYMBOLS



**ELECTRIC
VOLTAGE**



ROTATING PART



**RISK OF
CUTTING**



RISK OF BURNS



**RISK OF
ASPHYXIA**



**PRESSURIZED
EQUIPMENT**

1.2. WARNING

Cut off the power supply before starting work on the appliance.

When forming the hydraulic connections, ensure that no impurities are introduced into the pipe work.

The manufacturer declines any responsibility and the warranty becomes void if these instructions are not complied with.

If you encounter a problem, please call the Technical Department for your area.

If possible, assemble the compulsory or optional accessories before placing the appliance in its final location (see instructions provided with each accessory).

To familiarize yourself fully with the appliance, we recommend that you also read our Technical Instructions.

The information contained in these Instructions is subject to modification without advance notice.

1.3. EQUIPMENT SAFETY DATA

Safety Data	R407C
Toxicity	Low
In contact with skin	Liquid splashes or sprays may cause freeze burns. Unlikely to be hazardous by skin absorption. However, R407C may be slightly irritant and, if liquid, it has a strong degreasing effect. Flush contaminated skin areas with running water. If it comes into contact with fabrics, the liquid refrigerant will cause them to freeze and adhere to the skin. Carefully remove the contaminated clothing since it might adhere to the skin and cause freeze burns. Contact a doctor if the affected skin areas are reddened or irritated.
In contact with eyes	Vapours have no effect. Liquid splashes or sprays may cause freeze burns. In these cases rinse your eyes with running water or with a solution for eye lavages for at least 10 minutes. Immediately contact a doctor.
Ingestion	Very unlikely to occur. If this should be the case, it may cause freeze burns. Never induce vomiting. Keep the patient awake. Make him rinse his mouth with running water and make him drink about 1/4 of a litre. Immediately contact a doctor.
Inhalation	R407C: High concentration levels of its vapours in the air can produce an anaesthetic effect, including the loss of consciousness. Particularly severe exposures may cause heart arrhythmia and sometimes prove to be also fatal. At high concentrations there is a danger of asphyxia due to a reduced oxygen content in the atmosphere. In these cases take the patient to the open air, in a cool place and keep him at rest. Administer oxygen, if required. Apply artificial respiration if breathing has ceased or if it has become irregular. In case of heart failure immediately apply cardiac massage. Immediately contact a doctor.
Further Medical Advice	A symptomatic and supportive therapy is generally suitable. A heart sensitisation has been observed in some cases, as a result of exposures to particularly high concentrations. In the presence of catecholamines (such as for example adrenaline) in the blood flow, it has increased the irregularity of the cardiac rhythm and then caused the heart failure.
Long-term exposure	R407C: A lifetime study which has been conducted on the effects inhalation may have on rats at 50,000 ppm has shown the onset of benign tumours of the testicle. These remarks suggest that there is no danger for human beings if they are exposed to concentrations below the occupational limits or equal to them.
Occupational exposure limits	R407C: Recommended limits: 1,000 ppm v/v 8 hours TWA.
Stability	R407C: Not specified.
Conditions to avoid	Use in the presence of exposed flames, red heat surfaces and high humidity levels.
Hazardous reactions	Possibility of violent reactions with sodium, potassium, barium and other alkaline substances. Incompatible materials: magnesium and all the alloys containing over 2% of magnesium.
Hazardous decomposition products	R407 C: Halogen acids deriving from thermal decomposition and hydrolysis.
General precautions	Avoid the inhalation of high concentrations of vapours. The concentration in the atmosphere shall be kept at the minimum value and anyway below the occupational limits. Since vapours are heavier than air and they tend to stagnate and to build up in closed areas, any opening for ventilation shall be made at the lowest level.
Breathing protection	In case of doubt about the actual concentration, wear breathing apparatus. It should be self-contained and approved by the bodies for safety protection.
Storage Preservation	Refrigerant containers shall be stored in a cool place, away from fire risk, direct sunlight and all heat sources, such as radiators. The maximum temperature shall never exceed 45°C in the storage place.
Protection clothes	Wear boots, safety gloves and glasses or masks for facial protection.
Behaviour in case of leaks or escapes	Never forget to wear protection clothes and breathing apparatus. Isolate the source of the leakage, provided that this operation may be performed in safety conditions. Any small quantity of refrigerant which may have escaped in its liquid state may evaporate provided that the room is well ventilated. In case of a large leakage, ventilate the room immediately. Stop the leakage with sand, earth or any suitable absorbing material. Prevent the liquid refrigerant from flowing into drains, sewers, foundations or absorbing wells since its vapours may create an asphyxiating atmosphere.
Disposal	The best procedure involves recovery and recycle. If this is not possible, the refrigerant shall be given to a plant which is well equipped to destroy and neutralise any acid and toxic by-product which may derive from its disposal.
Combustibility features	R407C: Non flammable in the atmosphere.
Containers	If they are exposed to the fire, they shall be constantly cooled down by water sprays. Containers may explode if they are overheated.
Behaviour in case of fire	In case of fire wear protection clothes and self-contained breathing apparatus.

2. INSPECTION AND STORAGE

At the time of receiving the equipment carefully cross check all the elements against the shipping documents in order to ensure that all the crates and boxes have been received. Inspect all the units for any visible or hidden damage.

In the event of shipping damage, write precise details of the damage on the shipper's delivery note and send immediately a registered letter to the shipper within 48 hours, clearly stating the damage caused. Forward a copy of this letter to the manufacturer or his representative.

Never store or transport the unit upside down. It must be stored indoors, completely protected from rain, snow etc. The unit must not be damaged by changes in the weather (high and low temperatures). Excessively high temperatures (above 60 °C) can harm certain plastic materials and cause permanent damage. Moreover, the performance of certain electrical or electronic components can be impaired.

3. WARRANTY

The appliances are delivered fully assembled, factory tested and ready to operate.

Any modification to the units without the manufacturer's prior approval, shall automatically render the warranty null and void.

The following conditions must be respected in order to maintain the validity of the warranty:

- Commissioning shall be performed by specialised technicians from technical services approved by the manufacturer.
- Maintenance shall be performed by technicians trained for this purpose.
- Only Original Equipment spare parts shall be used.
- All the operations listed in the present manual shall be performed within the required time limits.



THE WARRANTY SHALL BE NULL AND VOID IN THE EVENT OF NON-COMPLIANCE WITH ANY OF THE ABOVE CONDITIONS.

4. TECHNICAL SUPPORT AND AFTER-SALES SERVICE HOTLINE

For technical questions, work under warranty, commissioning, a manufacturer's visit or repair quotations.

Our technical support and after-sales service hotline can be reached on:

- (0)891 700 407 in France
- support@systemair.fr for export customers

5. PRESENTATION

The **SYSHRW** units are produced in compliance with state-of-the-art design and manufacturing standards. This guarantees their high performance and reliability as well as their compatibility with all types of air conditioning installations. The unit, designed for an indoor mounted application, is not suitable for any uses other than those specified in this manual.

Following assembly of the units in the factory:

1. the electrical circuits are tested.
2. refrigeration circuits receive their operational refrigerant charge and are subject to pressurized leak detection tests.
3. The **SYSHRW** units are tested.

These tests are conducted to guarantee the correct operation and quality of our products.

6. CONTENTS OF PACKAGE

Package contents:

- 1 appliance
- 1 installation manual

6.1. OPTIONAL ACCESSORIES

- 1 RCS control module

On opening the box, check that all of the accessories required for installation are present.

7. DIMENSIONS

SEE APPENDIX

8. HANDLING

8.1. NET WEIGHT

		96	96HE	120
Weight	kg	253	259	262

8.2. GENERAL HANDLING

The handling method depends on the **SYSHRW** model and its final destination.

- Take care to avoid any rough handling or impacts when unloading and moving the appliance.
- Before hoisting the appliance into position, perform a test lift to ensure stability and balance. Avoid twisting or uneven lifting of the units.
- The units shall be carefully inspected before unit installation to make sure this has not happened.
- All of these sections are inspected before they leave the factory. Prior to commissioning, it is therefore important to make sure that no bolts, screws or other fastening components are loosened or missing.



Caution

Never subject the metal work (panels, posts) of the **SYSHRW** to handling constraints, as only its base is designed for that purpose.



Caution

To avoid irreversible damage, do not tilt the **SYSHRW** by more than 45° during handling.

8.2.1. HANDLING WITH A FORKLIFT

A forklift can be used to handle the **SYSHRW** units when palletized.

Place a safety wedge between the unit base and the fork lift truck to avoid damaging the unit's structure and casing.

9. TECHNICAL SPECIFICATIONS

9.1. MODELS DESIGNATION

SYSHRW 96 . H . 13000W . SYS . S1 . G2M1 . MBRT . RCS . SECT . SOND

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

REP.	Description
① Size	SYSHRW 96 : size 96 SYSHRW 96HE : size 96 High Efficiency SYSHRW 120 : size 120
② Version	L : Cooling only H : Heat pump
③ Electric heater	Blank : Without heater 13000W : Capacity 13000W 16000W : Capacity 16000W
④ Brand	SYS : Systemair
⑤ Air outlet	S1 : Frontal S2 : Lateral
⑥ Filter	G2M1 : G2M1 filter G3M1 : G3M1 filter
⑦ Communication protocol	Blank : Stand Alone BNMS : Bacnet MSTP LON : Bacnet IP MBRT : Modbus RTU BNIP : Bacnet IP
⑧ Remote control	Blank : Without remote control RCS : POL822
⑨ Main switch	Blank : Without main switch SECT : Main switch
⑩ Option	SOND : Room temperature sensor

The product plate on the device shows the full model reference number and should be used to check that the actual unit matches the model ordered. It also provides the following information:

➤ General information

- ✓ serial number
- ✓ year of manufacture
- ✓ IP index

➤ Electrical information

- ✓ supply voltage
- ✓ maximum operating current
- ✓ starting current

➤ Thermodynamic circuit information

- ✓ type of refrigerant
- ✓ refrigerant charge in each circuit
- ✓ Service pressure of refrigeration circuit
- ✓ refrigeration circuit service temperatures

➤ Hydraulic circuit information

- ✓ nominal water flow
- ✓ maximum water pressure

9.2. PHYSICAL CHARACTERISTICS

Models		96	96HE	120	
Total cooling capacities (1)	W	21 743	24 500	29 951	
Sensible cooling capacities (1)	W	17 986	19 499	24 413	
Total absorbed power (3)	W	6 317	5 954	8 547	
EER according to EN14511		3.84	4.61	4.21	
Total Heating capacities (2)	W	26 637	28 501	38 109	
Total absorbed power (3)	W	7 895	7 115	10 224	
COP according to EN14511		3.54	4.46	4.25	
VENTILATION					
Air flow	m³/h	4 700	4 700	5 600	
Available pressure	Pa	120	120	120	
Fan absorbed power	W	1 100	1 100	1 500	
Air filter - Number / Efficiency		2/G2M1			
HYDRAULIC CIRCUIT					
Water exchanger	Nbr	1			
Exchanger type		coaxial			
Water pressure max.	bar	16			
Cooling mode	Nominal water flow	l/h	4 860	5 111	6 408
	Water pressure drop at nominal flow	kPa	55	55.3	80.5
	Minimum water flow	l/h	2 448	2 556	3 204
Heating mode	Nominal water flow	l/h	4 860	5 111	6 408
	Water pressure drop at nominal flow	kPa	55	55.3	80.5
	Minimum water flow	l/h	2 448	2 556	3 204
Water connections Input/output	pouces	1" 1/4 - Male gas thread			
Condensate outlet Ø	mm	22			
REFRIGERANT CIRCUIT					
Number of circuit	Nbr	1			
Compressor type		Scroll			
Refrigerant		R407C			
Load	g	5 100	5 100	5 100	
ELECTRICAL DATA					
Electrical power supply		400V / 3~ N / 50Hz			
Max. current (4)	A	19.4	19.4	23.9	
starting current (5)	A	98.5	98.5	122.3	
Electric heating - Power (6)	W	13 000	13 000	13 000	
ACOUSTICAL DATA					
Sound power level (7)	dB(A)	70/69/68	70/69/68	72/69/70	
Sound pressure level (7)	dB(A)	49/48/47	49/48/47	51/48/49	
NR (7)	dB(A)	56/54/52	56/54/52	56/53/50	

- (1) Nominal cooling capacities based on : entering air temperature of 27 °C dry bulb, 19 °C wet bulb with entering water temperature of 30 °C.
- (2) Nominal heating capacities based on : entering air temperature of 20 °C dry bulb, 15 °C wet bulb with entering water temperature of 20 °C.
- (3) Absorbed power (compressor + fan) at nominal conditions.
- (4) Nominal currents are given at +/- 5%.
- (5) Starting currents are given at +/- 10%.
- (6) Electric heating coil is available optional.
- (7) Informative data, considering an hypothetical sound attenuation of the room and installation of 21dB.

9.3. ELECTRIC SPECIFICATIONS

A variance of $\pm 10\%$ is acceptable in relation to the operating voltage marked on the appliance's Maker's Plate. Phase imbalance on three phase units must not exceed 2%.

Operating voltages :

➤ 400V / 3ph / 50Hz + N (360 Volts mini ; 440 Volts maxi.)

Comments: the stated voltages represent the accepted range. However, certain components may be subject to premature wear on appliances operating continuously, for extensive periods, on abnormally low or high voltages.

MODELS			96	96HE	120
Supply voltage			400V / 3~ N / 50Hz		
without heating	Full load current (max)	A	19.4	19.4	23.9
	Starting amperage	A	98.5	98.5	122.3
with heating	Full load current (max)	A	24.1	24.1	98.5
	Starting amperage	A	29.7	29.7	122.3

9.4. OPERATING LIMITS

9.4.1. ENVIRONMENT

This equipment is designed EXCLUSIVELY for INDOOR installation.

In general, sheltered locations such as garages, roof space, etc, do not provide sufficient protection against extreme temperatures and/or humidity and may be harmful to the unit's performance, reliability and service life.

9.4.2. TEMPERATURE LIMITS

		Cooling	Heating
Air inlet temperature	Minimum	21 °C DB / 15 °C WB	15 °C
	Normal *	27 °C DB / 19 °C WB	20 °C
	Maximum	38 °C DB / 28 °C WB	25 °C
Water inlet temperature	Minimum	20 °C	13 °C
	Normal *	30 °C	20 °C
	Maximum	48 °C	34 °C
Maximum hydraulic pressure		16 bar	

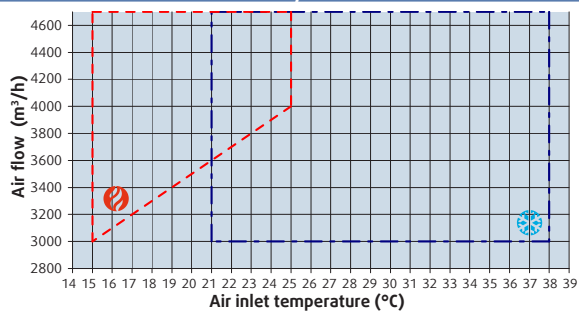
DB: dry bulb WB: bulbe humide

* Conditions in accordance with the standard:
EN 14511-2

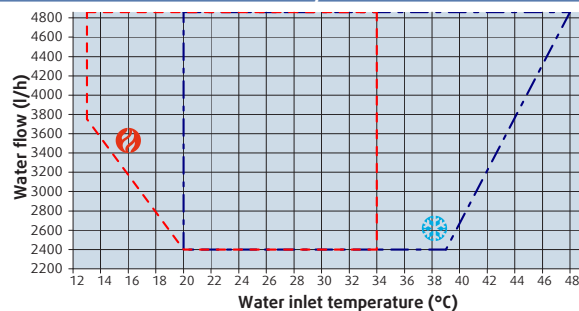
9.4.3. FLOW LIMITS

9.4.3.1. MODEL SYSHRW96

Nominal air flow : 4 700 m³/h

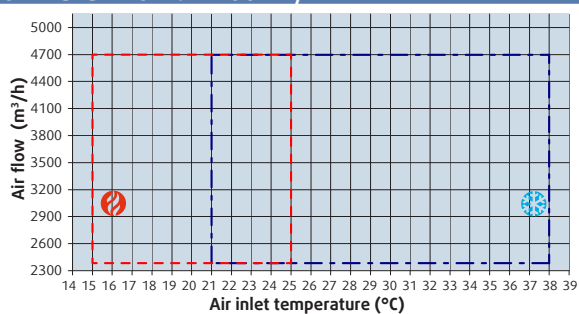


Nominal water flow : 4 860 l/h

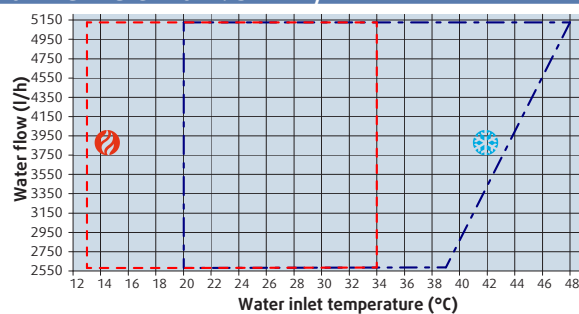


9.4.3.2. MODEL SYSHRW96HE

Nominal air flow : 4 700 m³/h

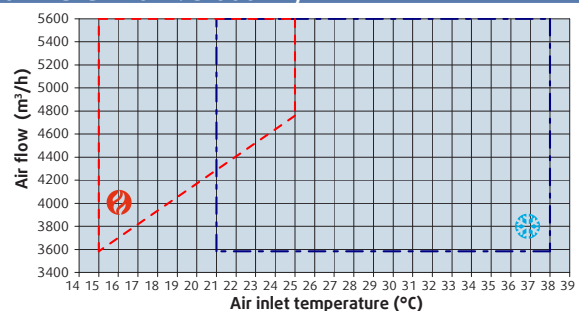


Nominal water flow : 5 111 l/h

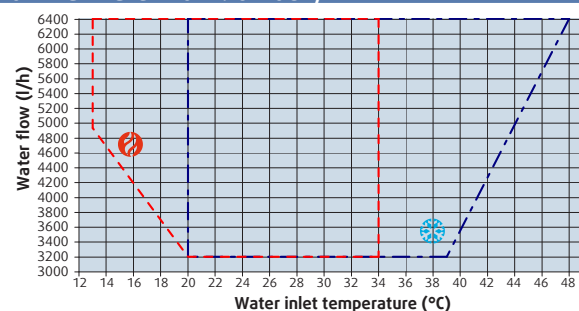


9.4.3.3. MODEL SYSHRW120

Nominal air flow : 5 600 m³/h



Nominal water flow : 6 408 l/h



9.5. REFRIGERATION SPECIFICATIONS

9.5.1. REFRIGERANT CIRCUIT DIAGRAM

SEE APPENDIX

9.5.2. REFRIGERANT CHARGE



Caution

This equipment contains fluorinated gas with greenhouse gas effects covered by the Kyoto agreement.

The type and quantity of refrigerating fluid per circuit are indicated on the product plate.

The installer and end user will get informed on local environmental regulations for the installation, operation and disposal of the equipment ; more particularly, for the collection of substances hazardous for the environment (refrigerating fluid, oil, antifreeze, etc.). A refrigerating fluid, whatever it is, must not be vented. Refrigerating fluids must be handled by skilled personnel.



Caution

SYSHRW units use the R407C fluoro-carbonated fluid, belonging to group 2 as defined in directive 2014/68/UE. Considering the maximum operating pressure of these units (42 bar g), they integrate category 2 (or lower) components as defined in directive 2014/68/UE.

9.5.3. FLUOROCARBON GAS REGULATIONS

The EC No. 517/2014 regulation covering fluorinated greenhouse gases requires of refrigeration equipment operators to comply with the following five obligations:

1. Installation, servicing, maintenance as well as checking the sealing must be carried out by qualified personnel.
2. The fluorinated gas must be recovered during servicing and maintenance as well as the end of the installation.
3. All the necessary measures must be taken to prevent the leakage of fluorinated gases and any leaks must be repaired as rapidly as possible.
4. Regular checks on any leaks must be performed according to the following conditions:
 - ✓ for equipment containing fluorinated greenhouse gases in quantities greater than or equal to the equivalent of 5 tonnes of CO₂ but less than the equivalent of 50 tonnes of CO₂: at least every twelve months or, if a leak detection system is installed, at least every twenty-four months
 - ✓ for equipment containing fluorinated greenhouse gases in quantities greater than or equal to the equivalent of 50 tonnes of CO₂ but less than the equivalent of 500 tonnes of CO₂: at least every six months or, if a leak detection system is installed, at least every twelve months
 - ✓ for equipment containing fluorinated greenhouse gases in quantities greater than or equal to the equivalent of 500 tonnes of CO₂: at least every three months or, if a leak detection system is installed, at least every six months.
5. A document grouping a description of all the operations carried out on the cooling circuit must be drafted and conserved.



Caution

Non-compliance with one of these obligations constitutes an offense and can result in financial penalties.

Furthermore, compliance of the equipment with the fluorinated gases regulation must be proven to the insurance company.

9.5.3.1. CALCULATING GREENHOUSE GAS QUANTITIES

$$\text{Greenhouse gas quantity (kg of CO}_2\text{)} = \text{Quantity of gas (kg)} \times \text{gas' GWP}$$

Quantity of greenhouse gas expressed in weight (kg) and CO₂ equivalent

GWP (Global Warming Potential) of the gas contained in the machine (see ID plate)

Quantity of gas: amount of gas contained in the machine in kg (see ID plate)

➤ **GWP for the R407C = 1774**

10. INSTALLATION



Caution

The unit is not designed to withstand weights or stresses from adjacent equipment, pipe work or constructions. Any foreign weight or stress on the unit structure could lead to a malfunction or damage, which could prove hazardous to personnel and property. In such an event, the warranty shall be voided.



Caution

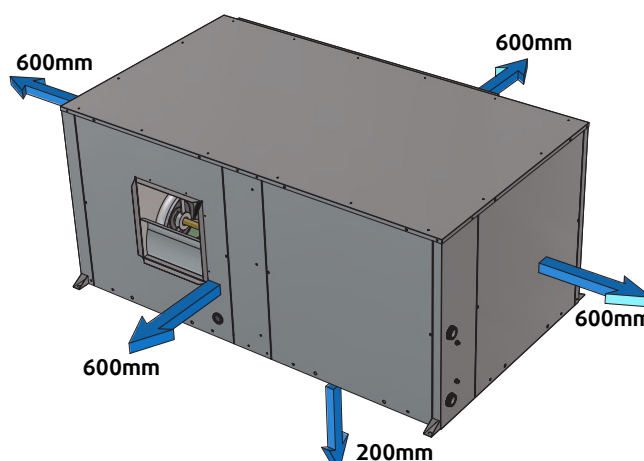
The unit base shall be arranged as indicated in the manual. There could be a risk of personal injury or damage to property in the event of the unit being incorrectly supported.

10.1. GENERALITIES

1. To avoid any damage, this equipment must not be used to supply heating or cooling during building work.
2. Check that the voltage, the number of phases and the capacity of the unit comply with the installation plans.
3. Check the size of the unit in relation to the plans to ensure that the unit will be installed in the right location.
4. After having removed the packing box, take out the suspension kit that is to be found inside the fan outlet frame.
5. Before installing the unit, check its height in relation to the available free ceiling height.
6. Take particular care over the location and routing of the water pipes and the condensate drainage pipe as well as the electrical wiring. The location and routing of these items must be clearly indicated on the plans.
7. It is always advisable for the heat pump installer to consult with all the various entrepreneurs responsible for the pipe work, partitioning, ceiling and electrical installation on the site.
8. We advise the installer to cover the appliances with a plastic sheet to protect it during the final building work.
This is particularly important if work such as spraying the joists with fire retardant, sanding, spray painting and plastering has not been completed.

10.2. CLEARANCE

When installing the **SYSHRW**, take care to leave enough space for dismantling the filter and access panels of the electrical box/compressor, fan, leaving enough room for maintenance personnel to conduct maintenance and repair operations. Leave enough room for water, electricity and ductwork connections.



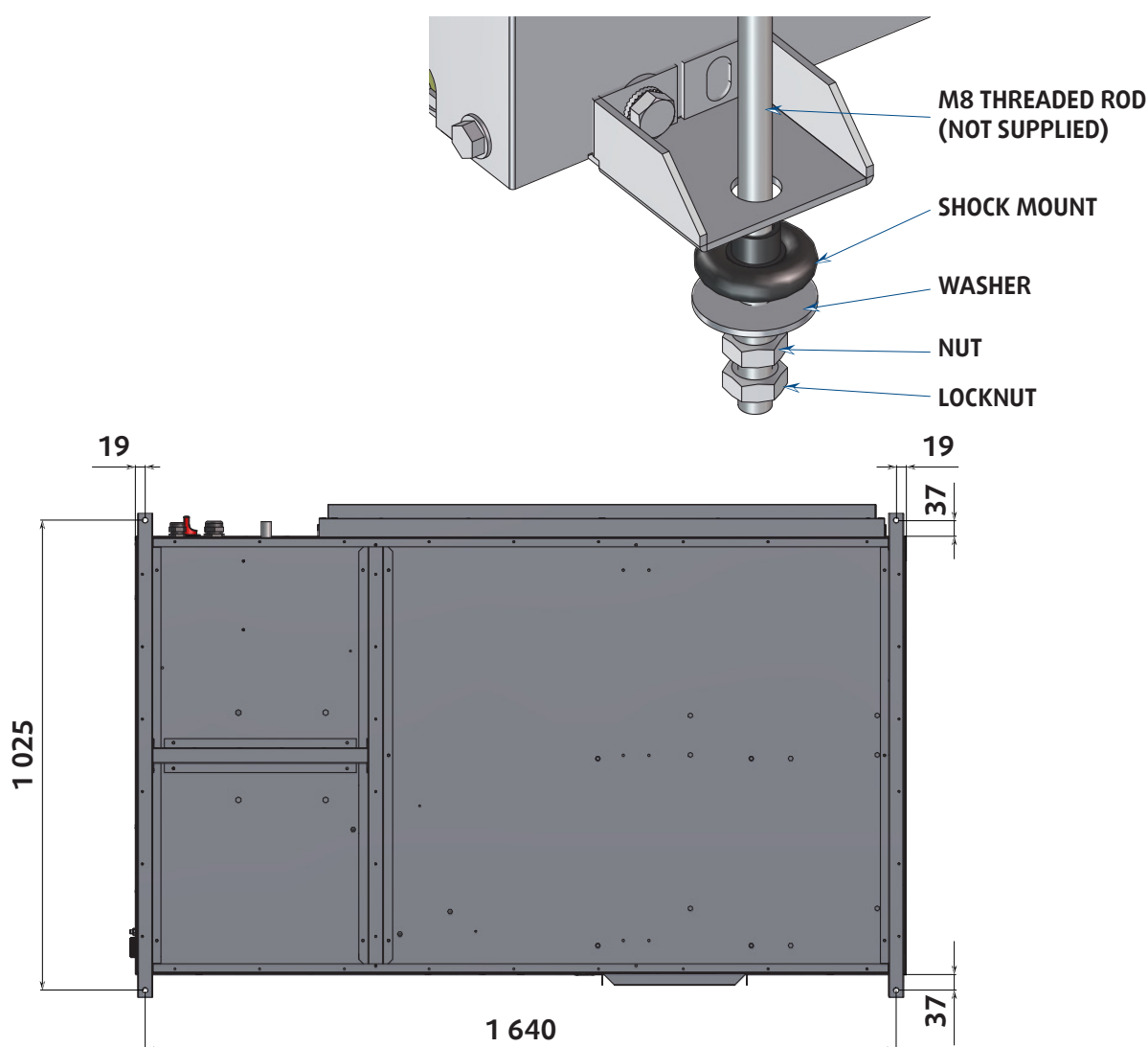
10.3. UNIT LOCATION



Caution

The unit base shall be arranged as indicated in the manual. There could be a risk of personal injury or damage to property in the event of the unit being incorrectly supported.

1. The installer must ensure that access under the suspended ceiling is provided, and that sufficient space is provided for the suspension angle brackets, the duct attachment collars and the water and electrical connections.
2. Provide space under the unit for a siphon on the condensates drainage pipe. Do not install the unit on top of pipe work.
3. Each unit is suspended from the ceiling on four threaded rods. The rods are attached through the shock mounts to the corners of the unit by suspension angle brackets.
Warning! Do not use rods of a diameter smaller than that stated below. The rods must be solidly anchored to the ceiling and to the ceiling joists.
4. Each unit is supplied with a set of pre-fitted suspension angle brackets and a fitting kit contained in the pouch with the technical manual. The kit comprises 4 shock mounts, 4 washers, 4 nuts and 4 locknuts.
5. Arrange the threaded rods in accordance with the dimensions stated below. The use of nuts and locknuts is recommended for attaching the suspension rods to the unit as the unit's vibrations may loosen a single nut. The installer is liable for any damage in the event of this recommendation not being followed.
6. To facilitate drainage, the unit must be angled in both planes towards the condensates drainage pipe. (Slope minimum: 2 ‰)



11. DUCTING AND NOISE LEVEL REDUCTION

Water circuit heat pumps are usually installed in conjunction with an air blowing duct. A return air duct may also be required. All ductwork shall be compliant with best air conditioning engineering practices.

The air blowing duct system normally consists of a flexible connector mounted on the unit, a bridging section to link to the size of the main duct, a short section of straight duct, an elbow without a damper and a main duct with spurs equipped with distribution grilles as illustrated in the drawing below. The sum total of the bridging section angles must not be higher than 30°, otherwise there will be significant performance losses.

Do not connect the main duct directly to the unit without a bridging section to reduce the duct size to that of the unit's connection collar. In the event of using metal ducts, only the sides of the elbow section and all the spur duct sections should be covered with fibreglass sound insulation for reducing the noise level. Fibreglass duct panels are more sound absorbent and may enable the flexible canvas connection to be eliminated.

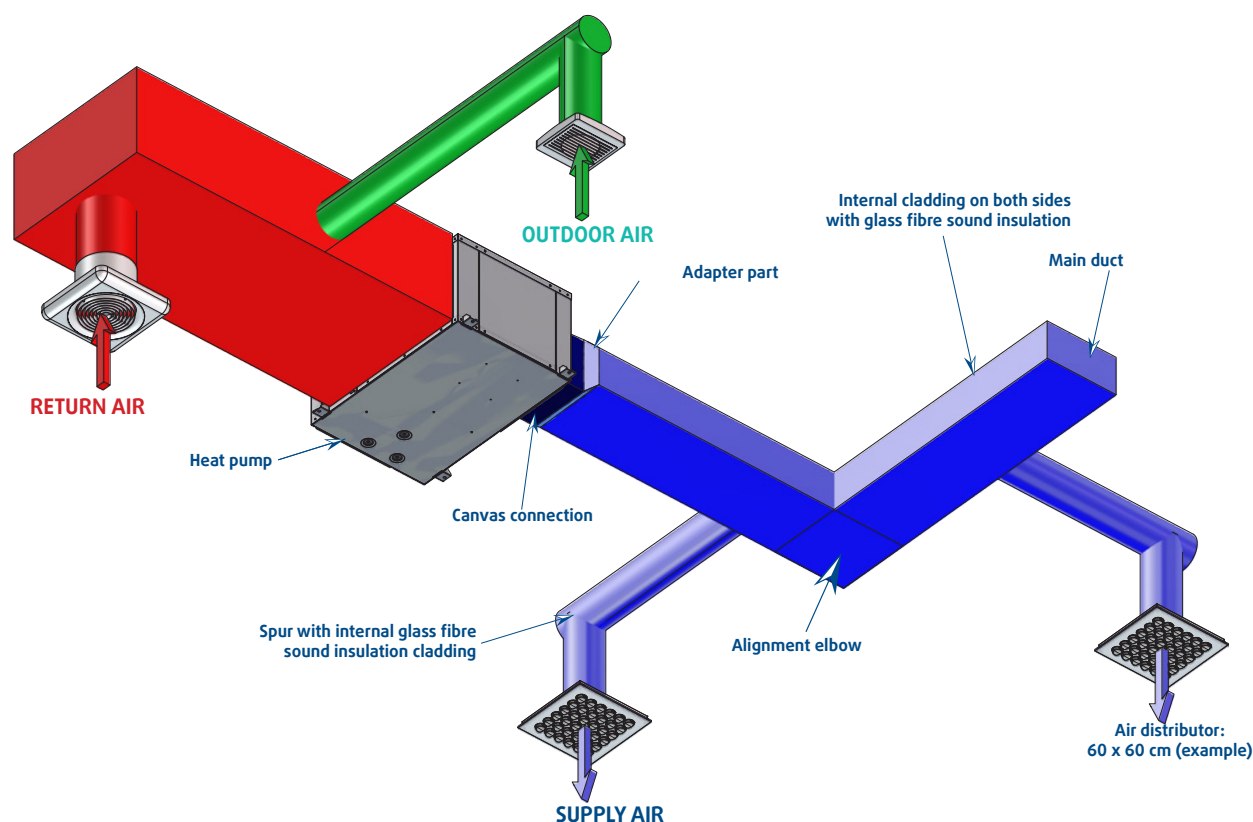
The duct network must be laid out to avoid any rectilinear runs between the heat pump outlet and the air distribution outlets.

The return air intake ducts can be connected to a grille/filter located at the base of a wall, then directed via hollow partitions towards a ceiling mounted plenum or via ceiling mounted grilles. The ceiling grilles must not be located directly below the air conditioning unit.

The return air intake duct can be connected directly to the standard filter bracket. (Lateral filter removal advisable).

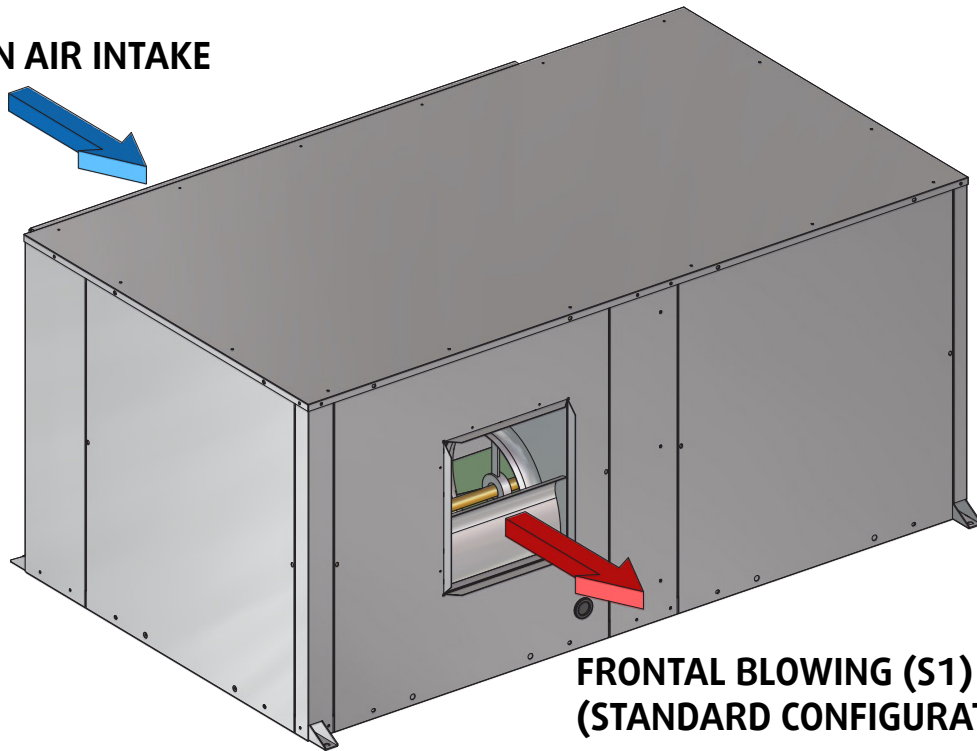
Do not drill panel screws directly into the unit's casing for connecting the blowing and return air intake ducts, especially on the air return side, as there is a risk of damaging the condensate recovery tray and the battery.

**Recommended layout diagram for installation
with several air distribution outlets**

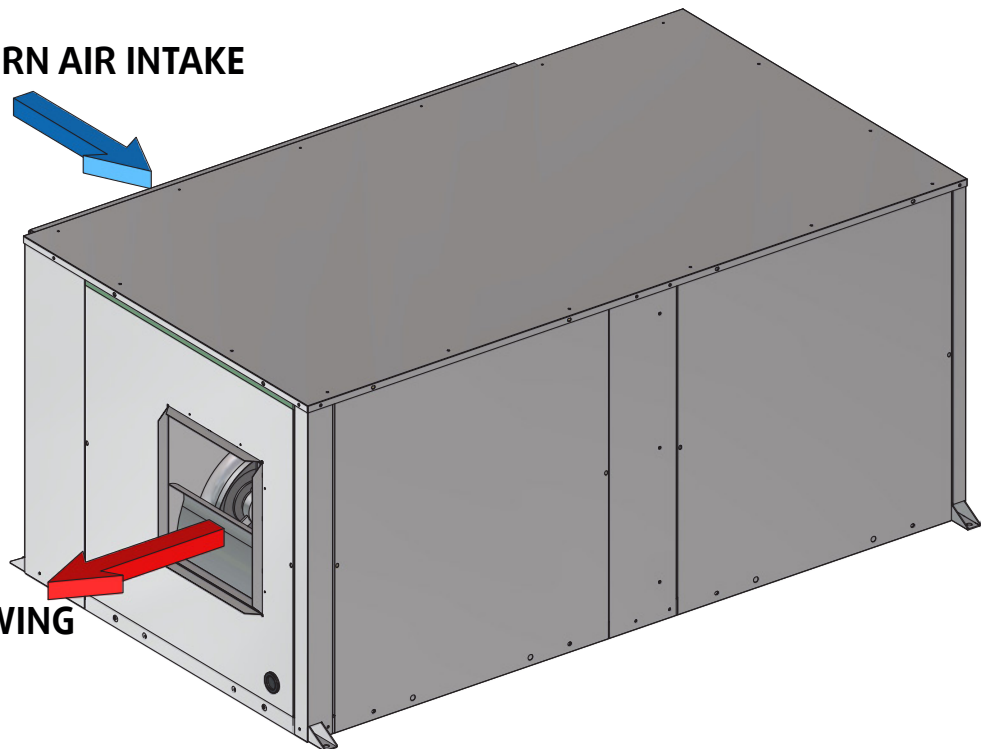


11.1. AIR BLOWING FRAME AND RETURN AIR INTAKE FRAME

RETURN AIR INTAKE

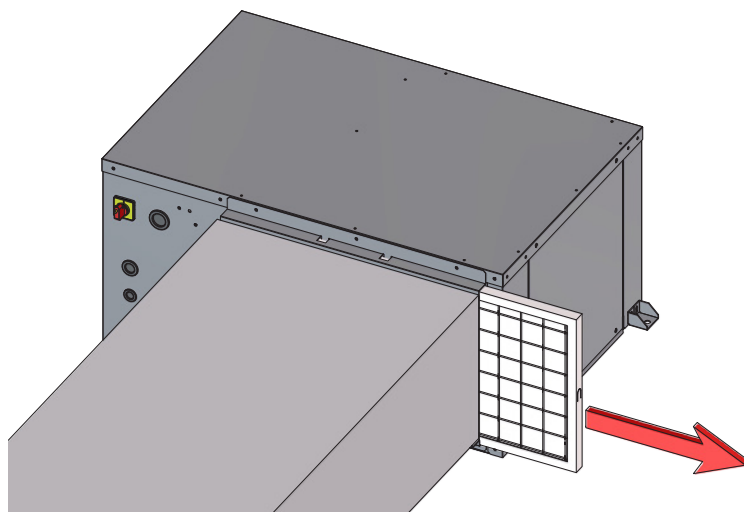


RETURN AIR INTAKE



11.2. FILTER ACCESS

Each unit is supplied with a connection frame also serving as the filter support. This enables the filter to be removed from the side without having to dismantle the duct or the connection frame.



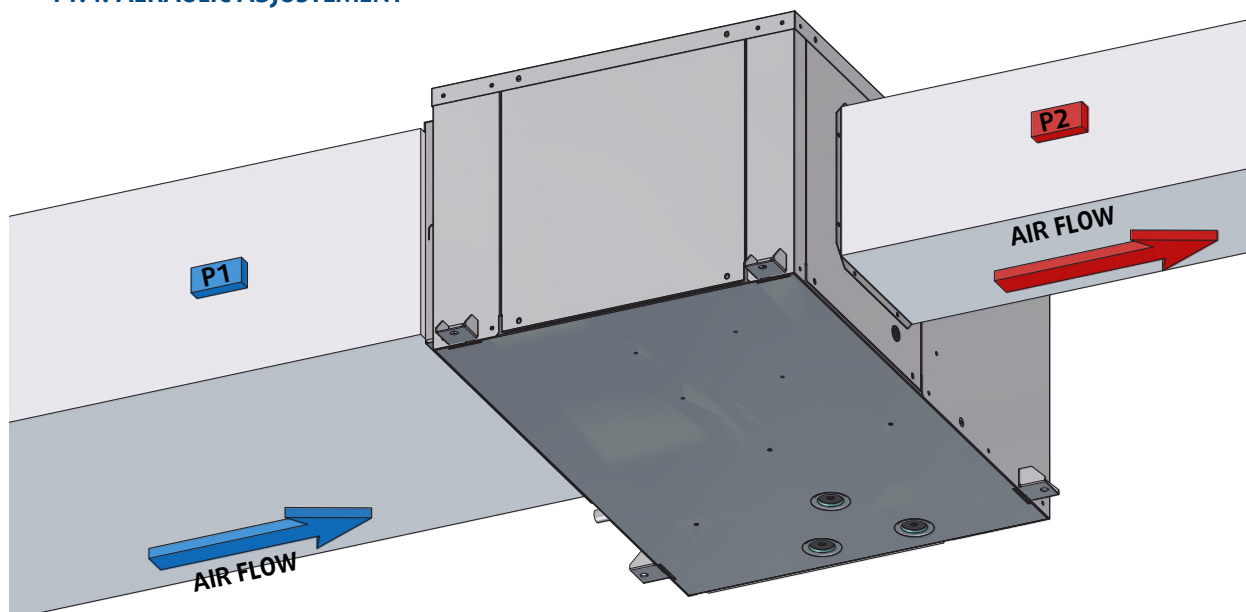
11.3. VENTILATION

An outdoor air intake (new air) may be required for ventilation. The blown air temperature must be controlled in order to avoid the temperature of the mixture of outdoor air and return air at the heat pump inlet exceeding the appliance's operating limits. It is also common practice to shut down ventilation during periods of inoccupation (night time setting of the set temperature).

Each appliance's ventilation system is generally a sub-system within the building, with its own distribution duct network. The simple introduction of outdoor air into each return air plenum, quite close to the unit's return air intake is sufficient and recommended. New air should not be introduced directly into the appliance. Provide for a sufficient distance to ensure effective mixing of the outdoor air with the return air. (Refer to the § OPERATING LIMITS, page 9).

The flow / static pressure adjustment is made with the aid of a variable pulley. When adjusting this pulley, it is important to ensure that the belt is positioned properly. The pulleys / belt assembly must be aligned perfectly and the belt tensioned in accordance with best practices.

11.4. AERAULIC ADJUSTEMENT

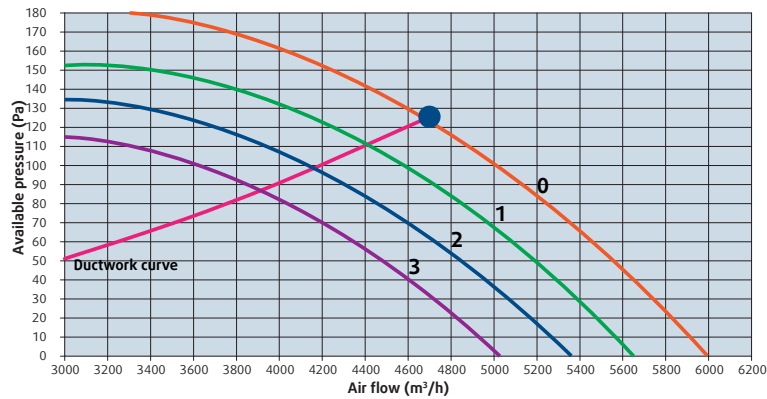


P1 : External static pressure at the air intake

P2 : External static pressure at blowing

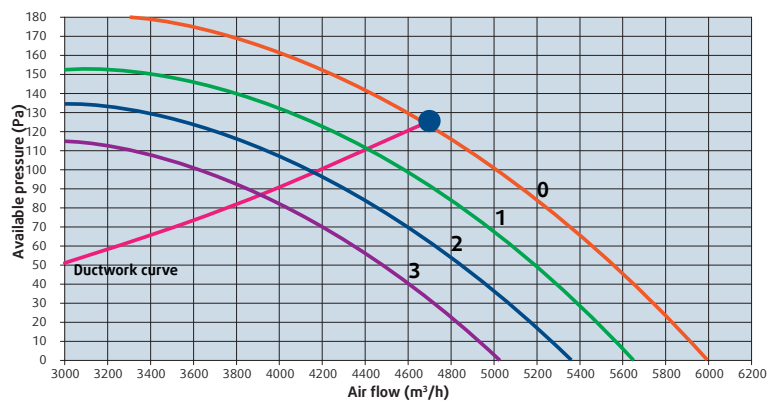
$$\text{EXTERNAL STATIC PRESSURE} = P2 - P1$$

11.4.1. MODEL SYSHRW96



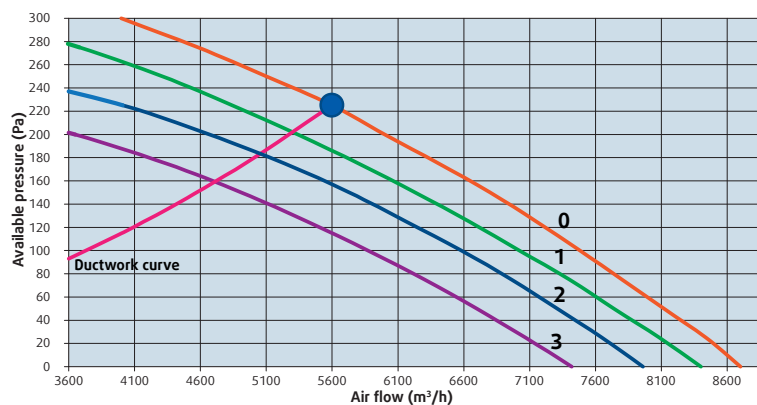
- 0. Pulley close 0 round
- 1. Pulley open 1 round
- 2. Pulley open 2 round
- 3. Pulley open 3 round

11.4.2. MODEL SYSHRW96HE



- 0. Pulley close 0 round
- 1. Pulley open 1 round
- 2. Pulley open 2 round
- 3. Pulley open 3 round

11.4.3. MODEL SYSHRW120



- 0. Pulley close 0 round
- 1. Pulley open 1 round
- 2. Pulley open 2 round
- 3. Pulley open 3 round

12. HYDRAULIC LINKS



Caution

THE WARRANTY DOES NOT COVER DAMAGE DUE TO CORROSION RESULTING FROM ELECTROLYTIC PHENOMENA.

12.1. WATER QUALITY

The water must be analyzed; the hydraulic network system installed must include all elements necessary for water treatment: filters, additives, intermediate exchangers, drain valves, vents, check valves, etc., according to the results of the analysis.



Caution

The SYSHRW must not run on a network with open loops, likely to cause incidents related to oxygenation, or with non treated table water.

Using improperly treated or non treated water in the **SYSHRW** may cause scaling, erosion, corrosion or algae or sludge deposits in the exchangers. Refer to a specialist skilled in water treatment to determine any treatment to apply. The manufacturer will not be held liable for damages caused when non treated or improperly treated water, demineralized water, salty water or sea water are used.

Apply the following guidelines :

- No NH_4^+ ammonium ions in the water, highly detrimental to copper. <10mg/l
- Cl⁻ chloride ions are detrimental to copper with a risk of puncture by picking corrosion. <10mg/l.
- SO_4^{2-} sulphate ions may cause perforating corrosion. < 30mg/l.
- No fluoride ions (<0.1 mg/l)
- No Fe^{2+} and Fe^{3+} ions, particularly in case of dissolved oxygen. Fe < 5mg/l with dissolved oxygen < 5mg/l. The presence of these ions with dissolved oxygen indicates corrosion of steel parts, likely to generate corrosion of copper parts under Fe deposits, particularly in the case of multitubular exchangers.
- Dissolved silica: silica is an acid element of water and may also cause corrosion. Content < 1mg/l.
- Water hardness: Values between 10°FH and 30°FH may be recommended. This facilitates scaling deposits likely to limit copper corrosion. Excess TH values may lead to clogging the pipes.
- TAC < 100
- Dissolved oxygen: Prevent any sudden change in the water's oxygenation conditions. Also, avoid deoxygenating water by sparging inert gas as well as overoxygenating it by pure oxygen sparging. Disturbing oxygenation conditions destabilizes copper hydroxides and particle salting-out.
- Electrical Resistivity - Conductivity: The higher the resistivity, the slower the corrosion. Values above 3000 ohm/cm are preferred. A neutral environment favours maximum resistivity. For electrical conductivity, values around 200-600 S/cm can be recommended.
- pH: neutral pH at 20°C ($7 < \text{pH} < 9$)



Caution

If the water circuit is to be drained for a time exceeding one month, the circuit must be fully charged with nitrogen to prevent any risk of corrosion by differential venting.



Caution

The manufacturer is not liable for recommendations in terms of water treatment (call a specialized company).

However, this matter has a critical nature, and particular care must be given to ensure that the type of treatment applied is effective.

The liability of the manufacturer or its representative will not be sought when non treated water or non compliant quality water is used.

12.2. RECOMMENDATIONS FOR HYDRAULIC CONNECTIONS

1. It is recommended that all units are connected to a water supply and return pipe system of the Tickelman Loop type. The Tickelman Loop system is self-balancing and thus only requires manual balancing if a large number of units with different flow and pressure loss characteristics are connected to a single hydraulic loop. A very simple way of checking the hydraulic balance is to measure the temperature difference between the water connections. To ensure a correct water flow, the difference must be in the region of 3 to 7 °C in Cooling mode and 2 to 5°C in Heating mode.

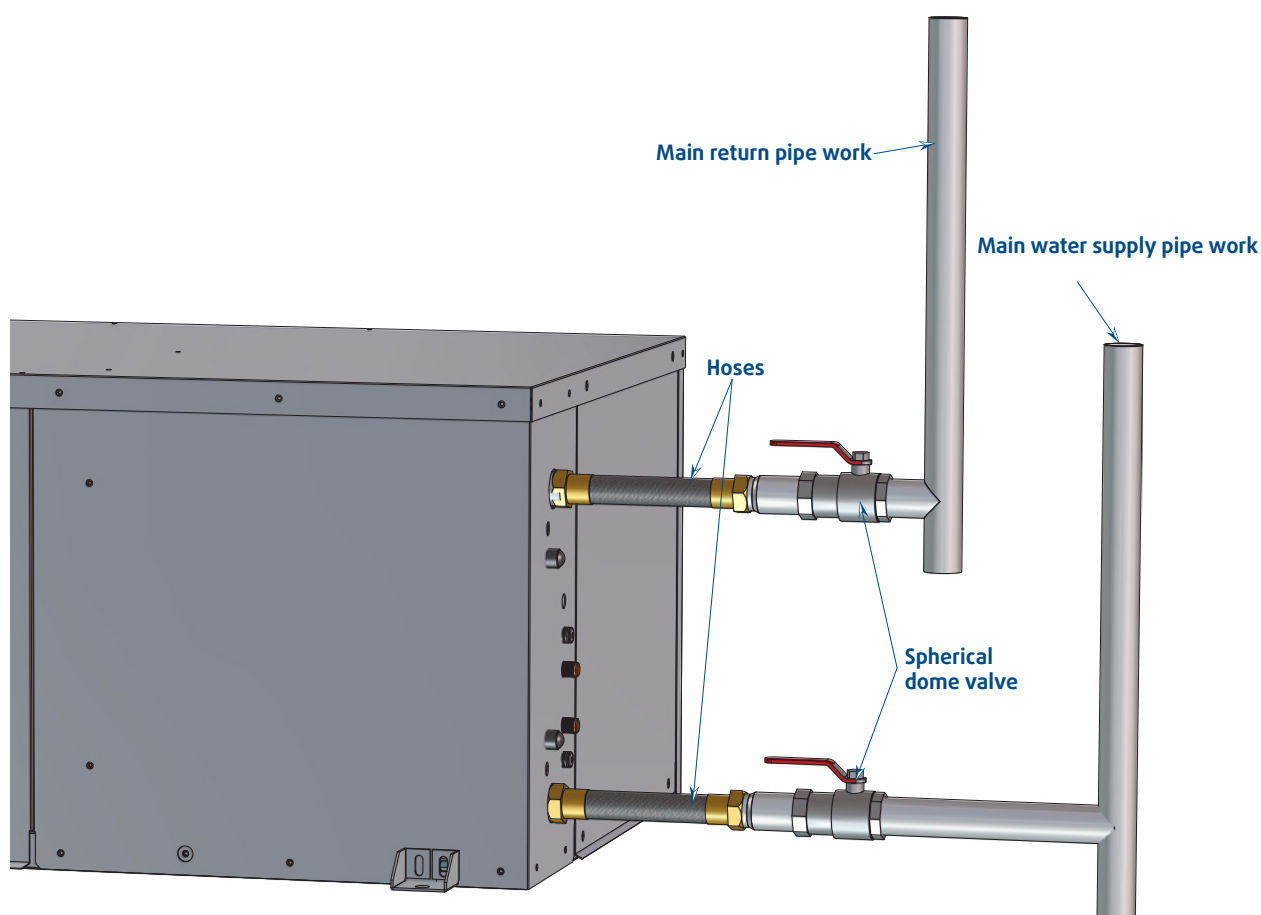
A system with two parallel pipes can also operate in a perfectly adequate manner, but it is more difficult to achieve, and to maintain, balance.



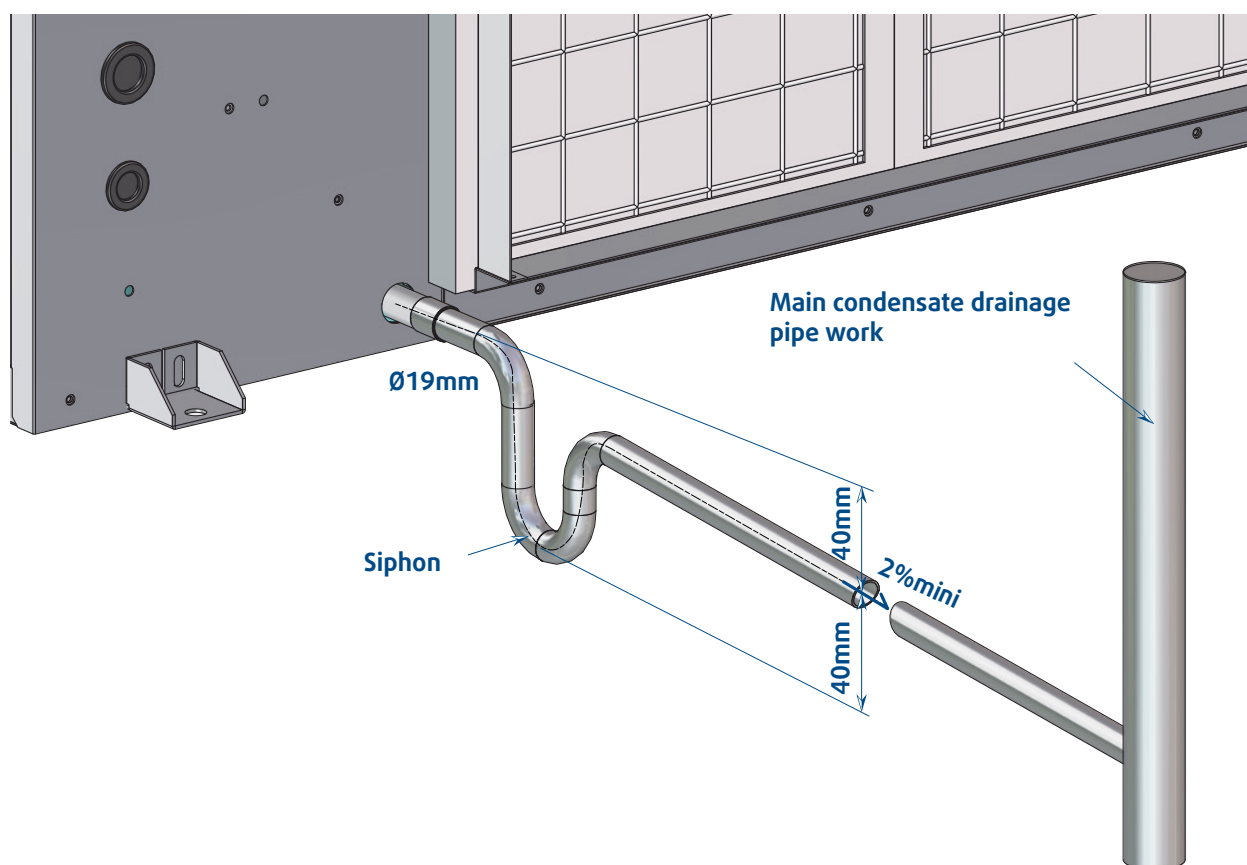
2. **Never connect a unit to the water supply and return lines without completely cleaning and flushing out the hydraulic loop beforehand.** After performing these operations, the units must be connected, with all valves completely open, ready for the system to be filled with water.
3. Water exchanger clogging reduces efficient appliance operation. We recommend the installation of a **strainer filter** (Ø 0.8mm) on the appliance's water inlet pipe. The filter must be installed if the water circuit cannot be cleaned. This filter should be installed between two cut-off valves and it must remain easily accessible for the user so that it can be checked at regular intervals.
4. Steel, copper or P.V.C. pressure pipes may be used.
5. It is advisable to make the unit's water supply and return conveyance lines with short lengths of high-pressure hose, as they form excellent shock absorbers for unit operating noise and hydraulic pressure surges.

One of the hose ends must be fitted with a rotating connector to facilitate removal for maintenance. Rigid pipes can be connected directly to the unit, but this is not recommended due to their inability to absorb vibrations and noise.

Rigid pipes must be equipped with removable connectors to facilitate future removal of the unit from its location.



6. Certain flexible hose threaded connectors are supplied with sealing paste. If this is not the case, use Teflon tape to create a tight seal.
7. Each unit must be equipped with isolation valves on the water inlet and outlet pipes. The return isolation valve is used for both cutting off the water supply and balancing the installation's water flow. As it is used to establish the balance of the flows, **it must be equipped with a lockable position end stop**. This end stop ensures that, after the valve is closed, it can only be re-opened as far as the position required to maintain a balanced water flow.
8. Use steel, copper or P.V.C. pipes for the condensates drainage pipe. Each unit is supplied with a connector for condensates drainage.
9. The condensates drainage line must comprise a siphon and run from the unit on a downward slope of at least 2%. Generally, the siphon is connected directly to the unit's condensates drainage outlet. A length of plastic pipe can be used between the siphon and the condensates drainage line.



A complete condensates drainage system with copper or P.V.C. pipe can also be used. Screw-on connectors shall be fitted to facilitate drainage pipe removal if copper pipe is used for the drainage pipe work.

10. No point of the condensates drainage pipe work should be located above the level of one of the units' condensate drainage outlet connection.
11. The circuits' high points must be bled of air.
12. Comply with current regulations in terms of dielectric isolation of the connectors and the pipe work.

12.3. RECOMMENDATIONS FOR CLEANING AND FLUSHING OUT THE SYSTEM

1. Before commissioning an appliance for the first time, the water loop must be cleaned and rinsed out to remove any dirt and manufacturing debris.

If the appliances are equipped with isolation valves (either electric or pressostatic), the water supply and return conveyance circuits to and from each machine must be connected to each other. This will avoid any dirt being introduced into the units.

Flushing water through the units is acceptable if they are not equipped with water flow control devices.

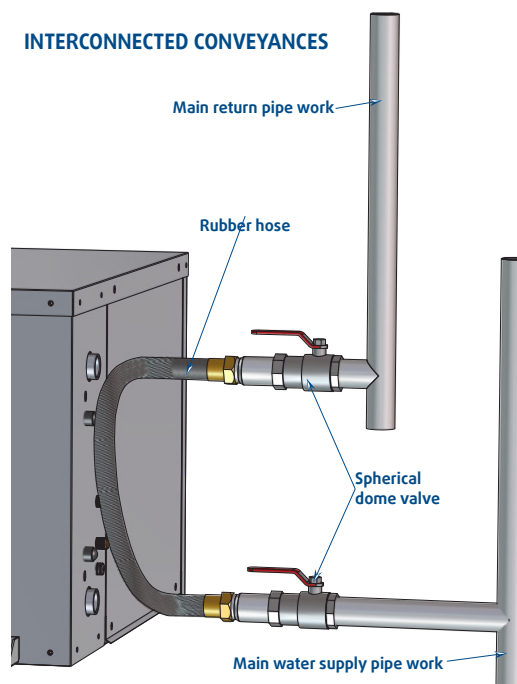
2. The system must be filled from the mains water supply. All air bleeds must be open during filling. Close the air bleeds once the system is filled. The installer must start the main circulation pump with the water top-up tap on the pressure reduction valve in the open position. Check the air bleeds by increasing order of height to ensure water flows freely throughout the entire system.

Power supply to the cooling tower must be shut down, and the water loop temperature regulation thermostat must be set at 27 °C.

As the water circulates through the system, the installer must seek out and repair any possible pipe work leaks. The drain cocks, on the lowest points on the circuit, must be open for flushing out and chasing out any impurities. Ensure that the mains water valves are adjusted to allow water to enter at the same speed as it exits. Check the pump inlet pressure gauge and manually adjust the compensating valve to maintain the same pressure before and after the opening of the drain taps. Flushing must be performed for at least two hours, or longer if necessary, until clear and clean water is obtained at the drain taps.

3. Stop the additional heating and the water circulation pump. Open all the bleed points and the drain taps to empty the system completely. The short-circuited water supplies and returns must now be connected to the units' inlet and outlet connections. It is recommended to use Teflon tape on the pipe connector threads. Do not use sealing paste on the hoses' rotating connectors.
4. **Formerly, sodium tri-phosphate used to be recommended as a cleaning agent for flushing.** However, nowadays numerous countries forbid the introduction of phosphates into their wastewater networks. **Therefore, it is now recommended that the system is flushed out with hot water (30 °C).**
5. Fill the system again with clean water. Test the water acidity level (litmus paper), and treat as required to obtain a slightly alkaline water quality. At this stage, the recommended percentage of anti-freeze can be added. Use commercial quality anti-freeze specifically intended for air conditioning systems. Do not use automobile radiator anti-freeze.
6. On the main electrical cabinet, adjust the heater set temperature point at 20 °C and the cooling tower set temperature at 30 °C. Connect the power supply to all motors and start the circulation pumps.

When the normal flow level has been reached through all components, including the cooler (irrespective of the season) and when the air is bled from the system and the loop temperature has stabilised, each appliance is ready to be checked, tested and started for balancing the air and water flows.



13. WIRING DIAGRAM AND LEGEND

13.1. WIRING DIAGRAM

SEE APPENDIX

SE4918	SYSHRW 96/96HE/120	Control Siemens POL423	400V / 3~ N / 50Hz +/- 10%
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13.2. WIRING DIAGRAM KEY DESCRIPTIONS

SEE APPENDIX

13.3. POWER SUPPLY

The power supply is from a single point at the main terminal X or at the optional disconnecting switch Q1 (copper cable recommended)

The power supply must be protected by an FFG mains circuit breaker or fuses supplied by the installer. Refer to the § ELECTRIC SPECIFICATIONS, page 9

All the electrical installations and wiring associated with this equipment must comply with local installations regulations.

Connection to the terminals:

	PHASE			NEUTRAL	GROUND
	L1	L2	L3		
X	L1	L2	L3	N	PE
Q1	L1	L2	L3	N	PE

13.4. PRESSOSTATS SETTING

LP : Low Pressure fixed setting: 1.5 bar (22 PSI) reset at 2.4 bar (35 PSI)

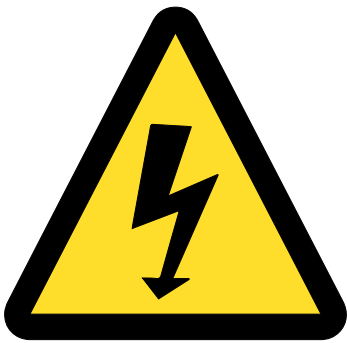
HP : High Pressure fixed setting: 29 bar (420 PSI) reset at 21 bar (305 PSI)

13.5. SETTING OF THERMAL PROTECTION AND FUSES

MODELS	96	96HE	120
FT3 A	2.5	2.5	3.3
FF7 A	2	2	2
FF2 A (gG)	25	25	32

14. ELECTRICAL CONNECTIONS

WARNING



BEFORE CARRYING OUT ANY WORK ON THE EQUIPMENT, MAKE SURE THAT THE ELECTRICAL POWER SUPPLY IS DISCONNECTED AND THAT THERE IS NO POSSIBILITY OF THE UNIT BEING STARTED INADVERTENTLY. ALSO MAKE SURE THAT THE ALARM INDICATOR CABLES ARE DISCONNECTED. NON-COMPLIANCE WITH THE ABOVE INSTRUCTIONS CAN LEAD TO INJURY OR DEATH BY ELECTROCUTION.

The electrical installation must be performed by a fully qualified electrician, and in accordance with local electrical standards and the wiring diagram corresponding to the unit model.

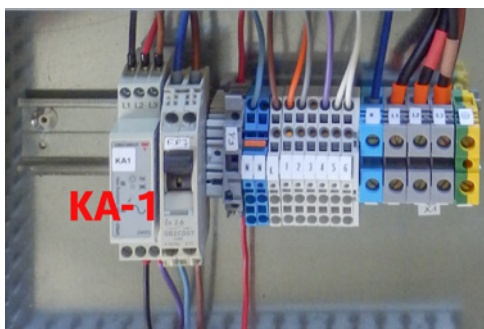
Any modification made without our consent will void the unit's warranty.

The power supply cable section must be sufficient to provide the appropriate voltage to the unit's power supply terminals, both at start-up and under full load operating conditions.

The power supply cable shall be selected in accordance with the following criteria:

1. Power supply cable length.
2. Maximum current draw of unit in operation.
3. Maximum current draw of unit at start-up
4. Installation method of power supply cables.

It is recommended to provide short circuit protection by means of a type aM fuse or a circuit breaker with high breaking capacity on the distribution board. Protection must be selected according to the current values shown in § ELECTRIC SPECIFICATIONS, page 9

**VERY IMPORTANT:****3N~400V-50HZ**

The **SYSHRW** unit is equipped as standard with a phase sequence and cut-out controller located in the electrical box.

THE LEDS INDICATE THE FOLLOWING CONDITIONS:**Green LED = 1****Yellow LED =1**

Power ON

The compressor rotation direction is correct.

Green LED = 1**Yellow LED =0**

Phase inversion or phase absent (L1)

The compressor and the fans do not start.

Green LED = 0**Yellow LED =0**

Phase absent (L2 or L3)

The compressor and the fans do not start.

**Caution**

Before connecting the supply lines, check that the voltage available is within the limits specified (Refer to the § ELECTRIC SPECIFICATIONS, page 9).

Voltage differences between each phase do not have to exceed 2%.

If the unbalance is unacceptable, call the distribution company to have this anomaly corrected.

**Caution**

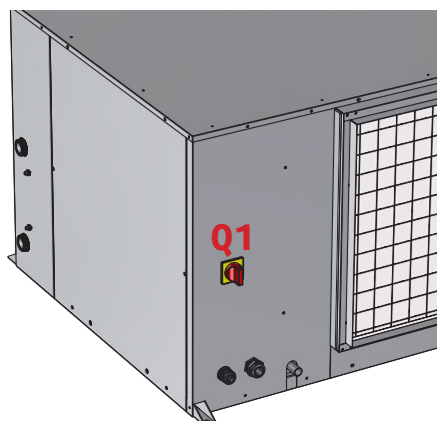
Supplying the unit with a line with an unbalance exceeding the acceptable value will void the warranty.

**Caution**

Correction of the excessive centralized power factor (>0.95) may generate transient phenomena dangerous for the unit motors and contactors during the start and stop phases. Check instant voltages during these phases.

14.1. UNIT POWER SUPPLY

Unit power supply cables must be routed to the main terminal block (**X**) or the switch (**Q1**) through cable glands.



To ensure proper contact, fit the end pieces adapted to the cross-section of the connecting cable.

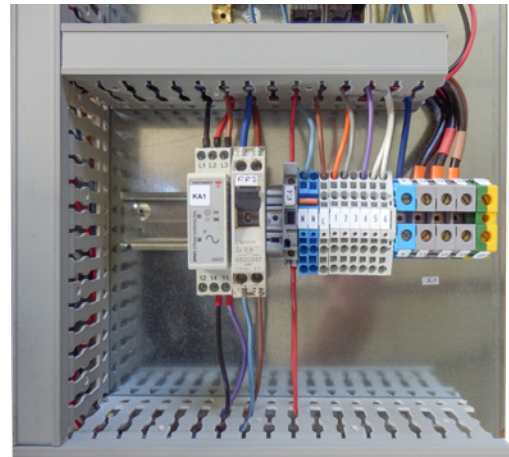
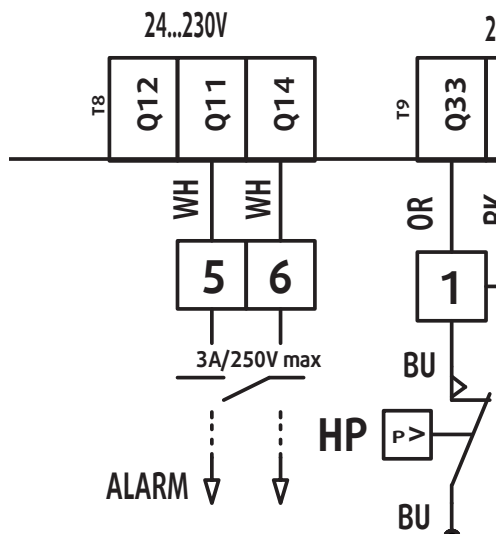
Maximum cross-section of the copper power cables:

MODEL			96	96HE	120
TERMINAL	RIGID CABLE	mm ²	16	16	16
	FLEXIBLE CABLE	mm ²	10	10	10
SWITCH	RIGID CABLE	mm ²	10	10	10
	FLEXIBLE CABLE	mm ²	6	6	6



14.2. ALARM INDICATORS

The **SYSHRW** control system has a dedicated alarm indicator. This information is available via a dry contact (Normally Closed) by connecting to the unit's terminals 5 and 6.



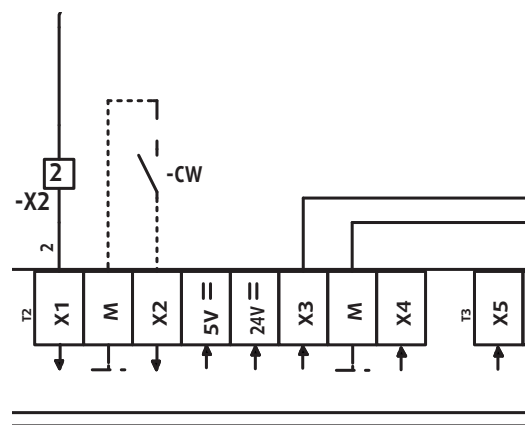
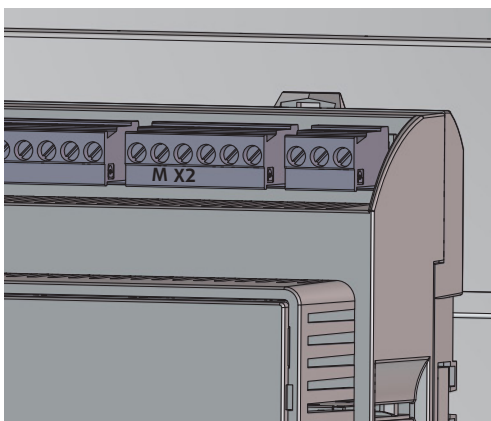
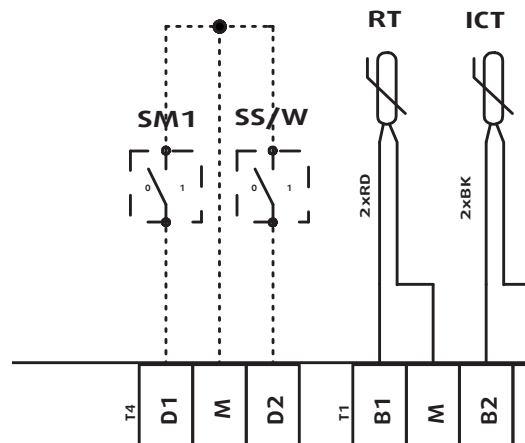
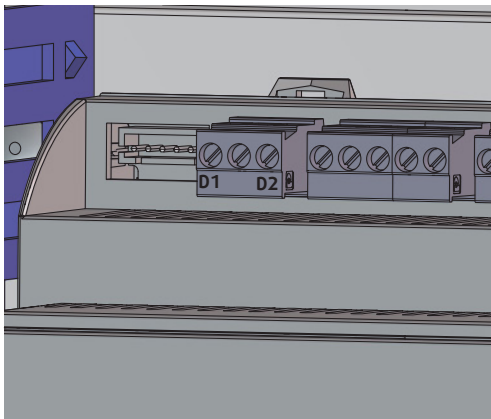
Caution

The unit must only be rendered accessible for maintenance if the client cables connected to terminals 5 and 6 are locked out/tagged out (disconnected or rendered inoperative upstream of the unit).

14.3. REMOTE CONTROLS

The **SYSHRW** has two remote controls operating via dry contacts (not supplied):

- ON/OFF function (SM1) connected to terminals D1 and M on the controller
- operating mode selection (SS/W) connected to terminals D2 and M on the controller
- IN-USE/NOT IN-USE or window open mode selection (CW) connected to terminals D2 and M on the controller.

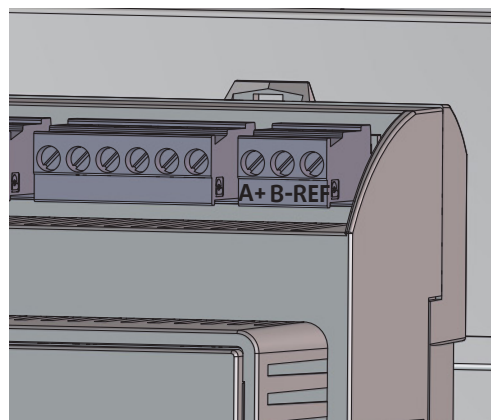


14.4. COMMUNICATION

The **SYSHRW** has two different communication protocols:

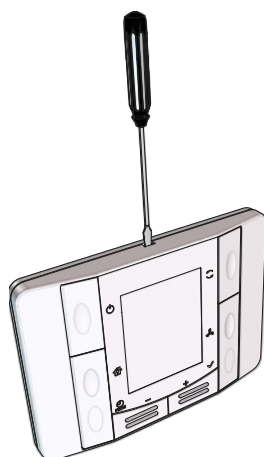
- Modbus RTU
- BACnet MS/TP

Modbus RTU or BACnet MS/TP communications are via the RS485 connection on the controller (terminals A+ and B+) and a BUS type cable (1 twisted pair, shielded) with a 0.22 mm² cross-section.



14.5. REMOTE CONTROL

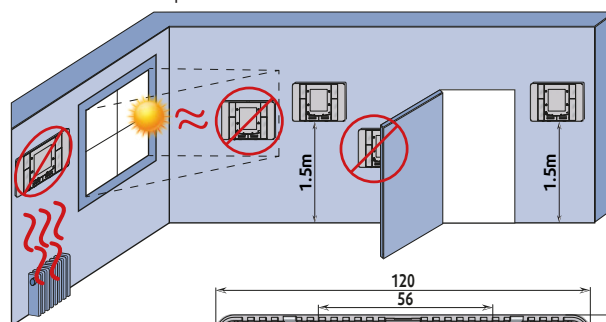
14.5.1. WALL MOUNTING



1. Separate the remote control from its rear plate.

Checking the support bracket :

Ensure that the wall surface is completely flat at the point where you wish to install the remote control, as it is important that the remote control is not twisted on installation, because any bending could lead to the control not clipping together properly and result in operating difficulties.

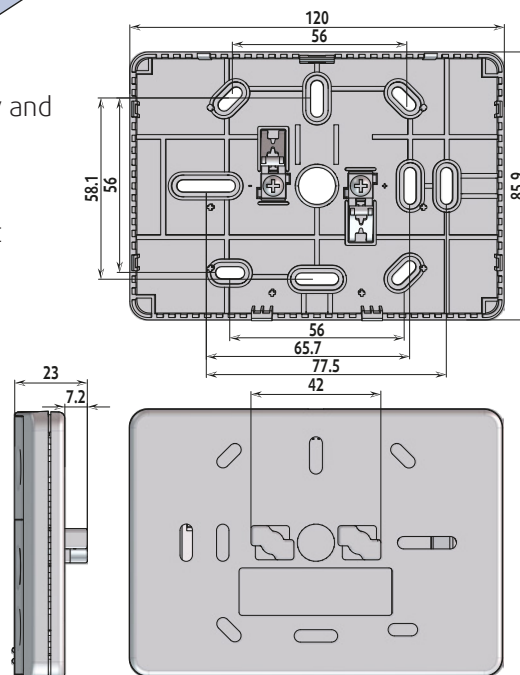


2. Fitting the rear plate :

- Present the rear plate to the desired location and align it with a spirit level.
- Mark the screw locations.
- Make a hole or install appropriate plugs according to the material (wood, concrete, plasterboard etc.).
- Screw the rear plate to the wall.

3. Wire the remote control in accordance with the wiring diagram.

4. Clip the remote control onto the rear plate.

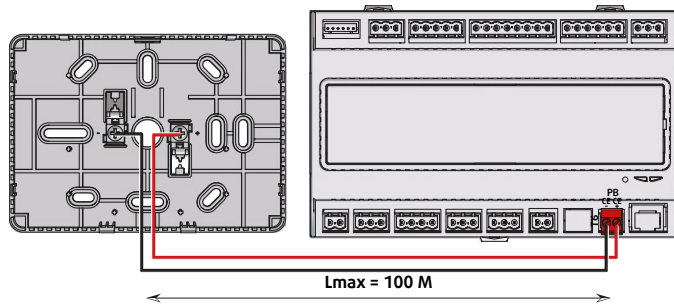


14.5.2. ELECTRICAL CONNECTIONS

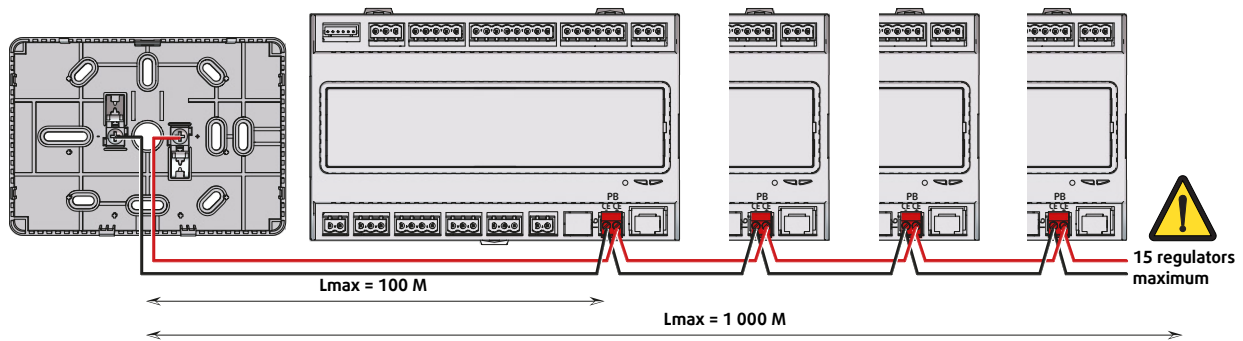
The control return must be connected as per the following diagrams.

For the connection, use a KNX TP1 type cable (Twisted pair with insulation) with a 0.8mm^2 cross-section.

SYSHRW - AUTONOMOUS



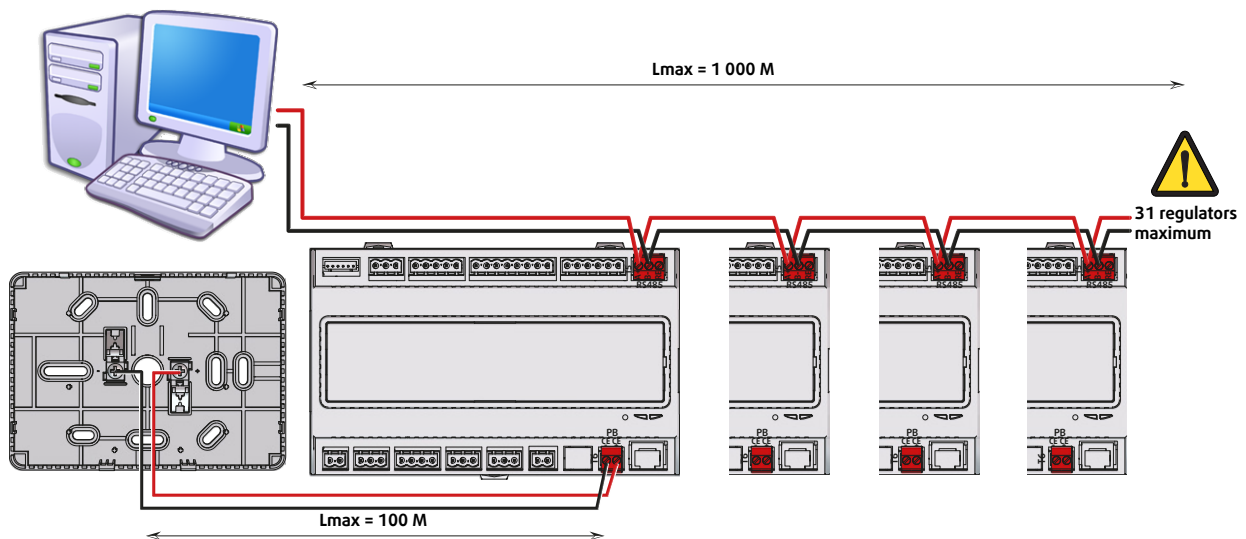
SYSHRW - MASTER/SLAVES



Caution

Master/slaves operation requires the allocation of a specific address to each controller. This addressing occurs by connecting a POL871 or POL895 display to the "BSP-BUS" port of each controller.

SYSHRW - MODBUS



15. REGULATION

SYSHRW units are fitted with an electronic control system. It provides the command, control and alarm functions.

15.1. ORDER OF PRIORITY FOR CONTROL SYSTEMS

The integrated regulator in the **SYSHRW** can be controlled by various interfaces and systems. The order of priority for each drive system is as follows:

1. All remote control: the commands are given by the user directly on the unit

2. Digital inputs: the client can transmit commands electro-mechanically over 3 dry contacts:

- ✓ Input **D1**: ON/OFF
- ✓ Input **D2** : summer/winter
- ✓ Input **X2**: configurable



3. The BMS : the remote supervision transmits its commands according to the communication protocols

4. Timing programming: this scheduling is integrated in the regulator

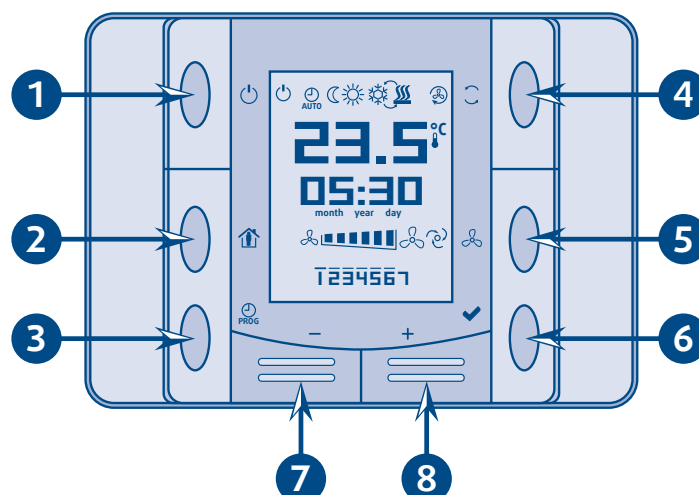
15.2. WALL-MOUNTED CONTROL

This control is a liquid crystal display with 8 buttons.

It enables the end user to interface with the unit:

- activation
- setpoint change
- ventilation speed
- alarm code...

It also includes a temperature sensor to measure the ambient temperature.



15.2.1. KEYPAD

	Name	Icons	Functions
1	ON/OFF		Briefly press to switch the unit on or off. Press and hold to activate scheduling. To disable the time programming, press briefly.
2	Eco/Comfort modes		Briefly press to toggle from eco to comfort mode.
3	Scheduling Time settings		Press and hold to set the unit's date and time. When the minutes are set, the unit displays the normal operating screen. Briefly press to access time programming.
4	Operating mode		Briefly press to change the operating mode. COOL/HEAT/AUTO CHANGEOVER/ VENTILATION In auto-changeover mode, the control displays the active temperature control mode.
5	Ventilation		The SYSHRW 96, 96HE and 120 are single speed machines.
6	Confirmation		Confirms the modification of a setting
7	-		Edits the value of a setting when it is selected.
8	+		

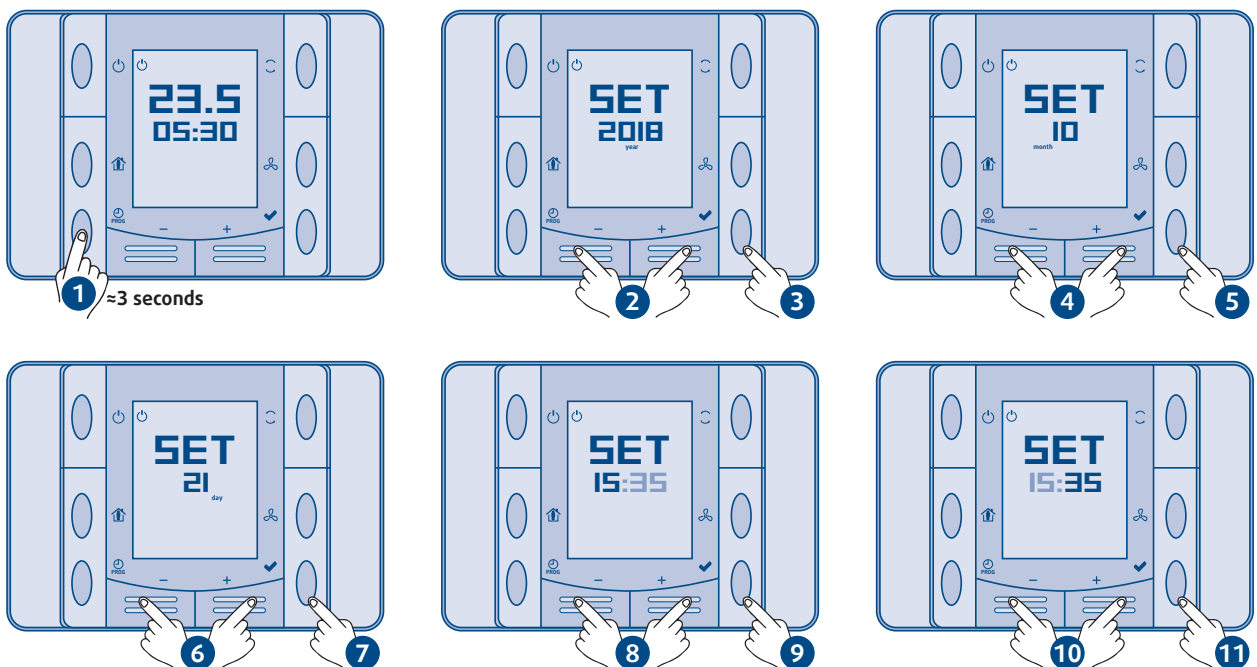
15.2.2. SCREEN



Icons	Meanings
	SYSHRW off
	Hourly programming active
	Operation in Eco mode
	Operation in Comfort mode
	COOL mode
	HEAT Mode
	Auto-changeover mode. The control displays the active heat or control mode.
	Ventilation only
	When the unit is off, the temperature displayed is that measured by the control's internal sensor. When the unit is on, the temperature displayed is that of the setting set by the user.
	System time
	Fan speed The symbol indicates that the ventilation speed is controlled automatically. The SYSHRW 96, 96HE and 120 are single speed machines.
	Scheduling day and time slot

15.2.3. TIME SETTINGS

Press and hold the button to set the unit's date and time. Set in the following sequence: year, month, day, hour, minutes. When the minutes are set, the unit displays the normal operating screen.



This setting is important for the alarm log as well as to display the time on the room thermostat.

**Caution**

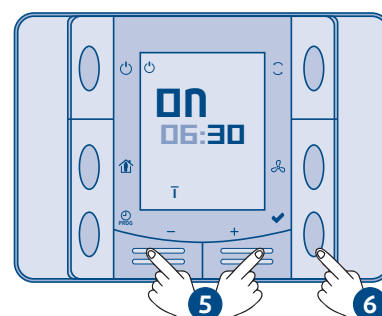
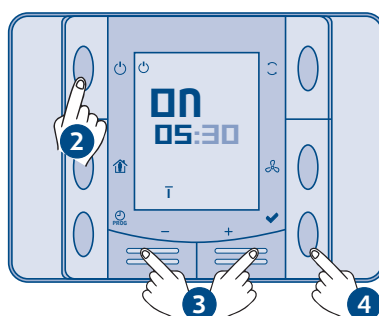
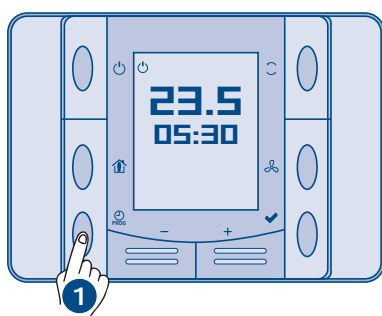
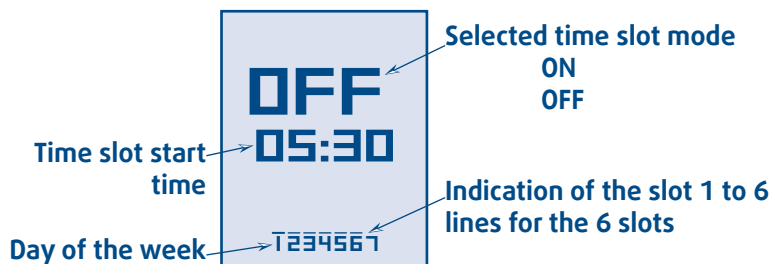
A power outage leads to the loss of time after 6 hours.

15.2.4. SCHEDULING

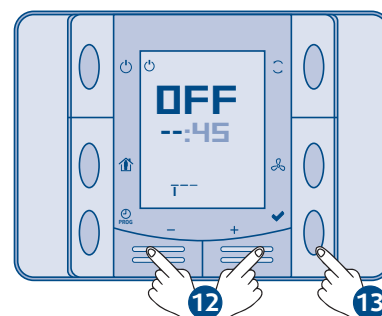
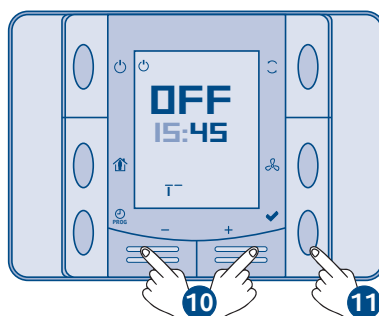
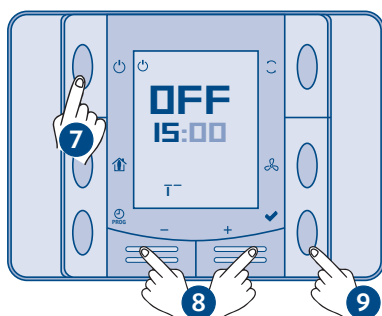
Scheduling is used to select the unit activation and shutdown times. Each day is broken down into 6 time slots set by

- A start time
- A state: ON or OFF

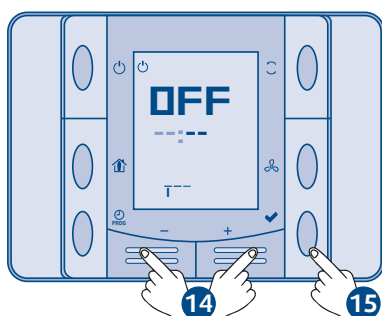
To open the time programming, briefly press the  button.



Once the time is confirmed, the following slot is displayed



To disable a time slot, replace the time with "--:--"



Once the 6 slots confirmed, the first slot of the day is displayed.



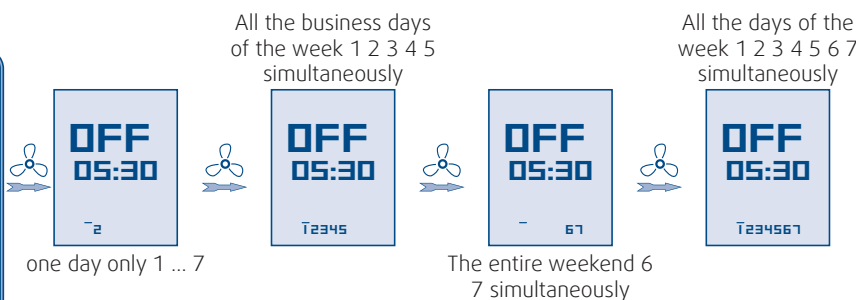
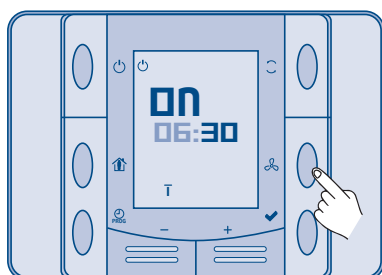
Information

To close, you can briefly press the  button again.



Information

After an idle period of 30s, the time programming menu will close, but all the changes will be saved.



If the unit is in time programming mode, the unit will switch to the mode shown in the current slot until the next slot begins. Its state will then be the one of the future slot.

16. FINAL TASKS

Place the plugs back on the valves and check that they are properly tightened.

If needed, fix the cables and the pipes on the wall with clamping collars.

Operate the **SYSHRW** in the presence of the user and explain all functions.

Show him how to remove, clean and place back the filters.

17. STARTING - RECOMMENDATIONS - SETTINGS



Caution

The operations of parameter setting and commissioning of the SYSHRW require the use of a POL895 remote control.

1. Check that all the water valves are open and that water circulates in the appliance before making any demand for heating or cooling.
2. Ensure that the units are connected correctly to the mains power supply (Refer to the § ELECTRIC SPECIFICATIONS, page 9 and in § WIRING DIAGRAM, page IX).
3. Before attempting any start-up, ensure that the air and water temperatures are within the appliance's operating limits (Refer to the § OPERATING LIMITS, page 9).
4. Rotate the fan by hand to ensure that it turns freely and that the fan turbine is properly attached to the motor shaft.
5. Check that the condensates drainage pipe is properly attached and free of any blockages.
6. Check the correct positioning of the filters and that they are clean and accessible.
7. Ensure that the finned heat exchanger surfaces are clean. Clean if required.
8. Check that the connection hoses are correctly fitted and ensure that the appliance's water circuit has been correctly bled of any air.
9. Ensure that no Alarm code is displayed when the mains power supply is switched on (Refer to the § ALARM CODES, page 35).
10. Carry out the usual checks on the main water loop and particularly to ensure that the water circulation pump operates correctly.





Caution

Non-compliance with this rule may result in irreversible damage. In addition, we recommend the use of a flow controller on the units' inlet pipe (not supplied).



17.1. COMMISSIONING

After performing all the above-mentioned checks, proceed with creating a demand for Cooling and Heating or vice versa.

17.1.1. DEMAND FOR COOLING

1. With the key  on the control module, select COOL mode  and then set the minimum temperature with the UP and DOWN arrows. The ambient temperature should be within the operating limits (Refer to the § OPERATING LIMITS, page 9). In the same way, during the pre-commissioning checks, the exchanger pump(s) water loop inlet temperature should be within the limits corresponding to each operating mode (Refer to the § OPERATING LIMITS, page 9).
Reminder: if one of these factors is situated at its minimum or maximum level, the other should be situated at a normal level in order to ensure the unit's correct and normal operation.
2. Ensure that the thermostat is connected properly and set the set temperature below the ambient temperature of the zone to be cooled. After 3 minutes, the compressor starts operating.
3. When the appliance has been operating for a few minutes, check the presence of cold air at the blowing grille.
4. When the appliance has been operating for a few minutes, check the temperature of the unit's outlet water. Generally, this should be around 5°C above the unit's water loop inlet temperature. A variance lower than 3.5°C indicates that the water flow is too high, whilst a variance higher than 8°C indicates that the water flow is too low.
5. Adjust the isolation/balancing valve on the outlet water pipe to obtain the appliance's nominal water flow (Refer to the Maker's Plate)
6. Check that the condensates drainage system is working properly and check that a siphon is included in the drainage line.
7. Check for the absence of vibrations and water leaks.
8. When all the above tests have been completed, adjust the system to maintain the desired comfort level.

17.1.2. DEMAND FOR HEATING

1. With the key  on the control modules, select HEAT mode  and then set the maximum temperature with the UP and DOWN arrows. The ambient temperature should be within the operating limits (Refer to the § OPERATING LIMITS, page 9). In the same way, during the pre-commissioning checks the exchanger pump(s) water loop inlet temperature should be within the limits corresponding to each operating mode (Refer to the § OPERATING LIMITS, page 9).
Reminder: if one of these factors is situated at its minimum or maximum level, the other should be situated at a normal level in order to ensure the unit's correct and normal operation.
2. Ensure that the thermostat is connected properly and set the set temperature above the ambient temperature of the zone to be cooled. After 3 minutes, the compressor starts operating.
3. When the appliance has been operating for a few minutes, check the presence of hot air at the blowing grille.
4. When the appliance has been operating for a few minutes, check the temperature of the unit's outlet water. Generally, this should be around 3°C below the unit's water loop inlet temperature. A variance lower than 2°C indicates that the water flow is too high, whilst a variance higher than 6°C indicates that the water flow is too low.
5. Adjust the isolation/balancing valve on the outlet water pipe to obtain the appliance's nominal water flow (Refer to the Maker's Plate)
6. Check for the absence of vibrations and water leaks.
7. When all the above tests have been completed, adjust the system to maintain the desired comfort level.

Note: If the unit does not operate, perform a fault diagnosis (Refer to the § MAINTENANCE AND SERVICING, page 32). If the fault analysis does not enable the cause of the problem(s) to be determined or if the unit still does not operate, contact a qualified after-sales technician to obtain a correct diagnosis and to repair the equipment.

17.1.3. FINAL CHECK

1. All panels and fan guards are in place and secured.
2. Unit clean and free of any installation material.

18. MAINTENANCE AND SERVICING

Maintenance in accordance with our instructions will prolong the service life of your **SYSHRW** :

- Better refrigeration performance
- Reduced power consumption
- Accidental component breakage prevention
- Prevention of heavy, late, and expensive maintenance work
- Environment protection

Depending on actual operational constraints and regulatory changes, the installer might recommend increased maintenance operations and more frequent inspections.



Caution

The user is responsible for ensuring that the unit is in perfect working order and that the technical installation and **minimum maintenance** operations have been performed by a qualified technician in accordance with the procedures described in this manual.

18.1. MAINTENANCE PROCEDURES

18.1.1. GENERAL

These units have been designed for minimum maintenance through the use of permanently lubricated components. However, there are operational maintenance requirements that require regular attention to ensure optimum performance.

Maintenance must be performed by appropriately experienced personnel only.

WARNING : Isolate unit from power supply before working on unit.

On commissioning, a record of voltages, current draw and temperature variances should be made. Thereafter, on an annual basis further measurements can be compared to these initial values and will be useful for giving an overall indication for the equipment's general condition.

18.1.2. GENERAL INSPECTION

Carry out a visual inspection of the complete installation in service.

Check the general cleanness of the installation, and check if the condensate evacuations is not blocked.

The condensates tray must be checked and cleaned and rinsed if necessary.

18.1.3. REFRIGERATION CIRCUIT

Clean the heat exchanger using a special product for aluminium-copper heat exchangers, and rinse with water. Do not use hot water or steam, as this could cause the pressure of the refrigerant to rise.

Check that the surface of the aluminium fins of the heat exchanger is not damaged by impacts or scratches, and clean with an appropriate tool if necessary.

The refrigeration system is hermetically sealed and should require no regular maintenance. However, it is recommended to leak test the refrigerant system and check the general operating conditions and control devices on a regular basis. The operating pressures should be checked particularly as they are an excellent guide for maintenance. Pressure checks are performed by means of the LP and HP pressures take-offs on the fascia. The gas contained in the pressure gauge hoses must be re-injected as the gas charge is very low.

18.1.4. ELECTRICAL SECTION

Check that the main power supply cable is not damaged or altered in such a way as to affect the insulation.

The contact surfaces of relays and contactors should be inspected regularly by an electrician and replaced as judged necessary. On these occasions the control box should be blown out with compressed air to remove any accumulation of dust or other contaminants.

Check the earth grounding connection.

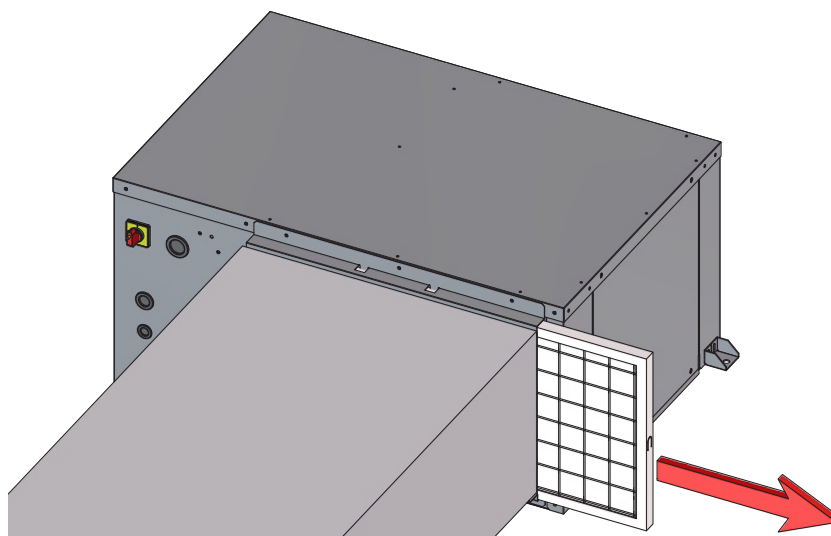
18.1.5. AIR FILTER

In order for the installation to operate correctly, it is essential to regularly clean the air filter located in the intake of the indoor unit.

When clogged, the filter reduces the air flow through the heat exchanger of the indoor unit, which in turn reduces the efficiency of the installation and inhibits the cooling of the fan motor.

Check the cleanness of the indoor heat exchanger.

The filters must be changed at regular intervals. The frequency is dependent on the specific application conditions. Certain installations, for example in hotels where there large amounts of fluff due to the frequent bedding changes and the presence of fitted carpets, require more frequent filter changes. It is recommended that the filters are checked every 60 days during the first year of operation in order to determine the frequency required. If it is not possible to see light through the filter when it is held up to the sun or in front of a strong light, the filter must be replaced. A more rigorous standard of cleanliness may be required.



Caution

The unit shall have a filter installed in the return air side. The attachment systems must be relocked in place after changing the filter.

Non compliance with these instructions can affect the unit's electrical safety and render the qualified personnel performing the work liable for any ensuing damage.

18.1.6. VENTILATION SYSTEM

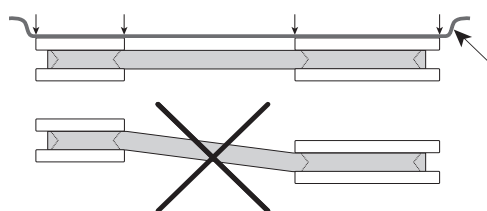
Fan shaft and motor bearings are of permanently lubricated, sealed type and require no regular maintenance other than a check on their general condition.

However during periodic maintenance, check that fan wheel does not touch the housing and adjust, if necessary, clearance.

If fan motor overload protection open, wait for automatic overload reset and try to determine the cause.

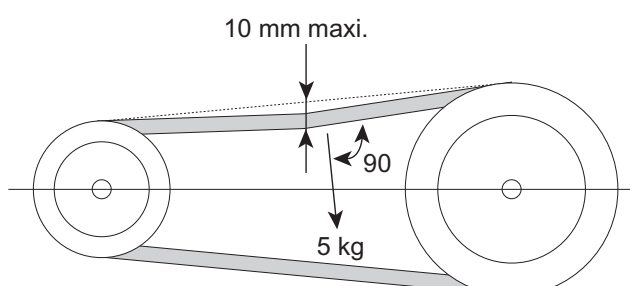
The fan belt tension should be checked regularly and belt surfaces inspected for cracks or excessive wear.

Belt alignment



For a quick check, make sure that the small rope touch each end of the pulleys as shown on drawing opposite.

Belt tensioning



18.2. FAULT FINDING

18.2.1. NEITHER THE FAN NOR THE COMPRESSOR OPERATE

1. The system is in alarm mode when the mains power supply is switched on. Check the points mentioned in § ALARM CODES, page 35 for diagnosis.
2. Check the wiring of the remote control.
3. Check that the appliance is properly set in COOL, HEAT or FAN mode.
4. Check the condition of the fuse or the mains power supply. Check the compressor and fan wiring.
5. Check for any loose or broken wiring and tighten or replace as required.
6. The mains supply voltage is too low. If this is the case, check the supply conditions with the electricity provider.

18.2.2. VENTILATION (FAN) MODE OPERATES BUT THE COMPRESSOR DOES NOT OPERATE

1. Check the current available and the wiring.
2. Check for any loose or broken wiring and tighten or replace as required.
3. Check that the machine is not in alarm mode. Refer to the § ALARM CODES, page 35 for diagnosis.
4. Check the thermostat's set temperature point.
5. The compressor may be grounded, in which case replace the compressor.
6. The internal compressor circuit is open circuit, perform a continuity test with an Ohmmeter. If the circuit is open circuit, replace the compressor.

18.2.3. INSUFFICIENT COOLING OR HEATING PRODUCTION

1. Check that the thermostat is properly located in the zone to be heated or cooled and that it is not near to a source of cold or heat that may influence the reading.
2. Check the proper operation of the Return Air Temperature (RT) sensor, located on the fin exchanger.
3. Airflow is insufficient. Check for clogged filters. Clean and replace as required.
4. The cycle inversion valve may be defective and be creating a refrigerant by-pass. If the unit does not produce heat, check the wiring of the inversion valve coil.
5. Check the proper operation of the pressure relief valve.
6. Measure the water flow on the water loop.
7. Check the configuration of the appliance.

18.2.4. INSUFFICIENT WATER FLOW AT THE LEVEL OF THE COAXIAL EXCHANGER.

1. Check for proper water circulation at the level of the water circulation pump.
2. If a valve is fitted to the water loop, check that it is open.
3. Check that air is not being sucked into the hydraulic system. Bleed the system if required.

18.2.5. APPEARANCE OF WATER DROPLETS IN THE APPLIANCE

1. Check that the condensates drainage pipe is not blocked and that water drains away normally.
 2. Check the correct operation of the condensates tray anti-overflow float (Refer to the § ALARM CODES, page 35).
 3. Check that the float moves freely on its rod. If this is not the case, clean the tray and the float.
 4. Check the cleanliness of the filters.
-

18.2.6. APPEARANCE OF ABNORMAL NOISES AND VIBRATIONS IN THE CASING

1. Check that the turbine is not rubbing against the scroll and that the latter is not damaged. Replace as required.
2. Check that the turbine has not worked loose on its shaft. Centre the turbine and tighten it as required.
3. Check that the compressor is mounted correctly on its shock pads.
4. Check that no part of the turbine rubs against the compressor or any other surface. Reposition slightly as required.
5. Check that all the attachment screws are tightened properly.
6. Check that air is not being sucked into the hydraulic system.
7. Test that the relays open and close correctly. Replace as required.

18.3. ALARM CODES

Code	Type	Message
0	alarm	HP switch
		LP switch
		Low.Wat.T.Clg
		High.Wat.T.Clg
		Low.Wat.T.Htg
		High.Wat.T.Htg
1	alarm	Room temp.open loop
2	alarm	Coil temp.open loop
3	alarm	Leaving water T.open loop
4	alarm	High coil T.
5	lock-out	Fault fan lck
6	alarm	High coil T.lck
7	lock-out	HP switch lck.
8	lock-out	LP switch lck.
9	lock-out	L.Wat.T.C.lck
10	lock-out	H.Wat.T.C.lck
11	lock-out	L.Wat.T.H.lck
12	lock-out	H.Wat.T.H.lck
13	alarm	FlowSw & Cond.
	lock-out	FS & Cond.lck.

19. WARRANTY CLAIM - MATERIAL RETURN PROCEDURE

Equipment must not be returned without the permission of our After Sales Department.

To return the equipment, contact your nearest sales office (Refer to the § TECHNICAL SUPPORT AND AFTER-SALES SERVICE HOTLINE, page 5) and ask for a "return form". The return form shall be sent with the returned equipment and shall contain all necessary information concerning the problem encountered.

A part return does not constitute a replacement order. Therefore, a purchase order must be submitted through your nearest distributor or regional sales office. The order should include the part name, part number, model number and serial number of the unit involved.

Following our personal inspection of the returned part, if it is determined that the failure is due to faulty equipment or workmanship, and the part is still under warranty, credit will be applied to the customer's purchase order. All parts shall be returned to our factory, transportation charges prepaid.

20. ORDERING SERVICE AND SPARE PARTS ORDER

The part number, the order confirmation and the unit serial number indicated on the name plate must be provided whenever services or spare parts are ordered.

For any spare part order, indicate the date of unit installation and date of failure. Use the part number provided by our spare parts department. If the part number is not available, provide a full description of the part required.

21. DISPOSAL

The disposal of refrigerating systems and their component parts must be carried out in accordance with applicable local and national regulations.

Used refrigerant which is not going to be reutilized must be treated as a waste material requiring safe disposal.

The discharge of refrigerants is only permissible when there will be no harm to persons, property or the environment, and provided it is in accordance with legal requirements.

Used oil that cannot be reprocessed must be stored in a suitable separate container and must be treated as a waste material requiring safe disposal.

Other components of the refrigerating system which contain refrigerant and oil must also be disposed of in an appropriate manner.

If necessary, you should seek the advice of a competent person on the disposal of waste refrigerant and oil products.



Information

For additional information on the recovery, reutilization and disposal of refrigerating systems, please see NF EN 378-4, sect. 6.

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APPENDIX

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ALLEGATO

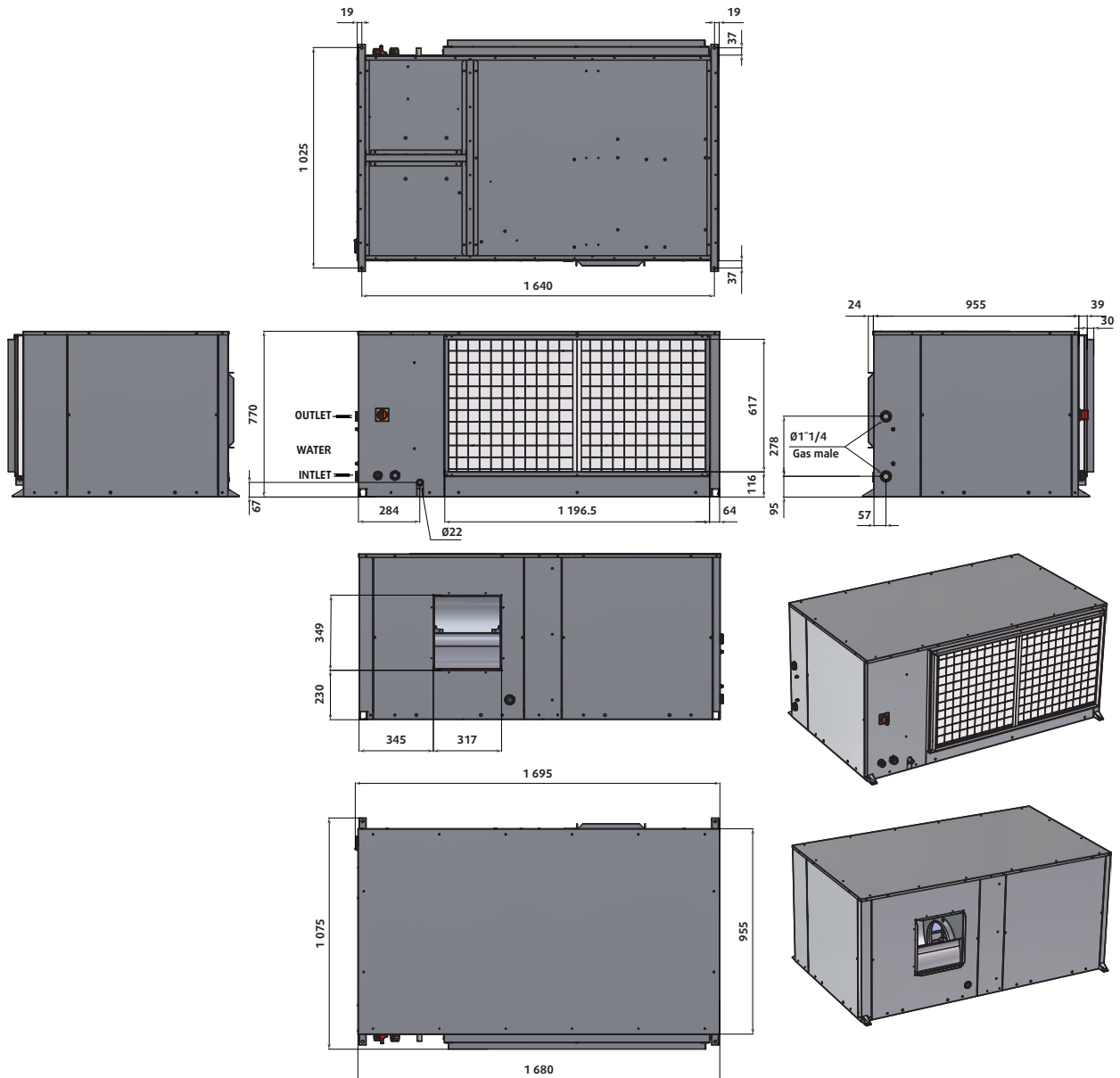
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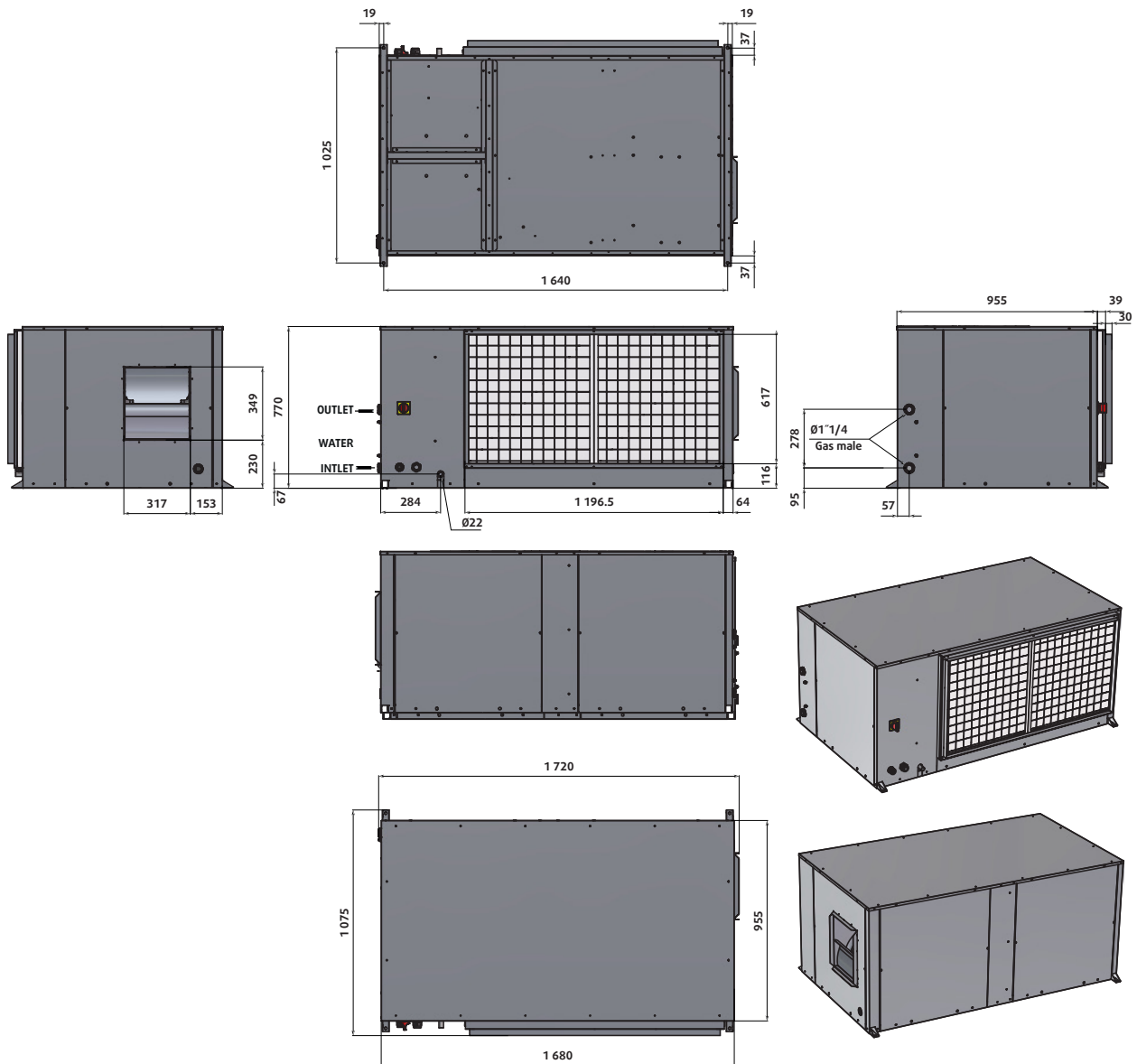
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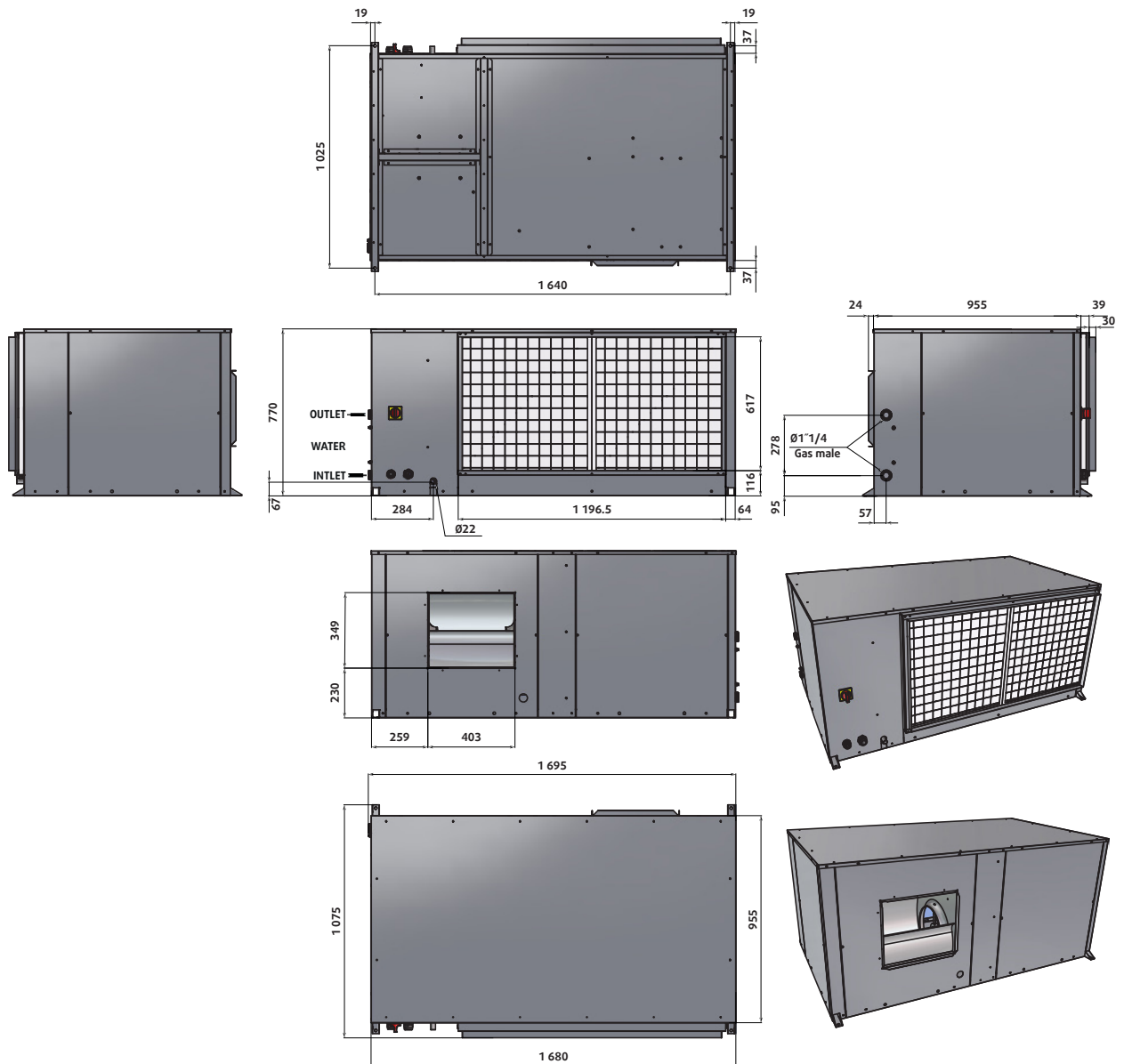


APPENDIX / ANNEXE / ANLAGE / ALLEGATO / ANEXO

SYSHRW 96 / 96HE - SE

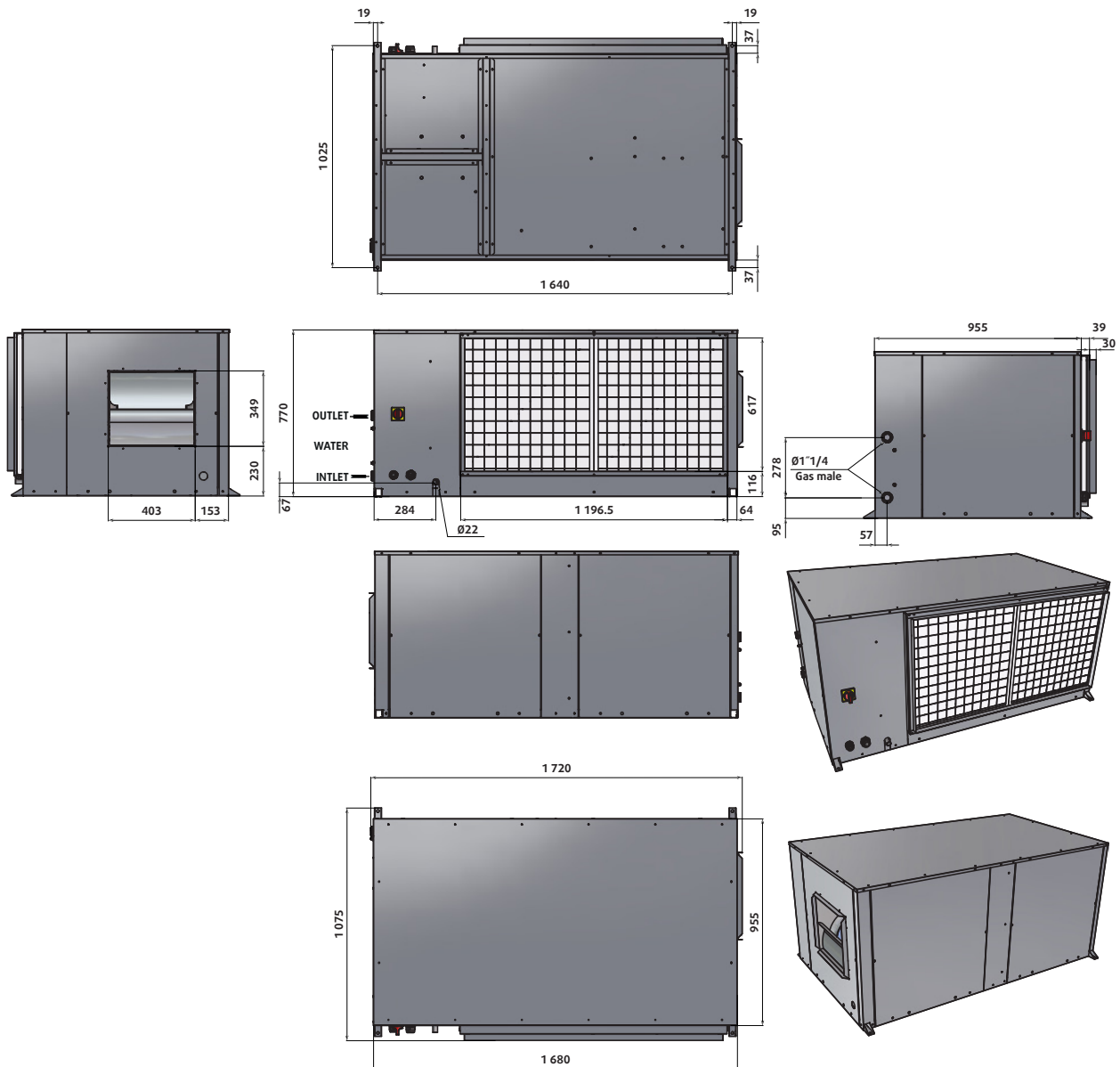


SYSHRW 120 - SL



APPENDIX / ANNEXE / ANLAGE / ALLEGATO / ANEXO

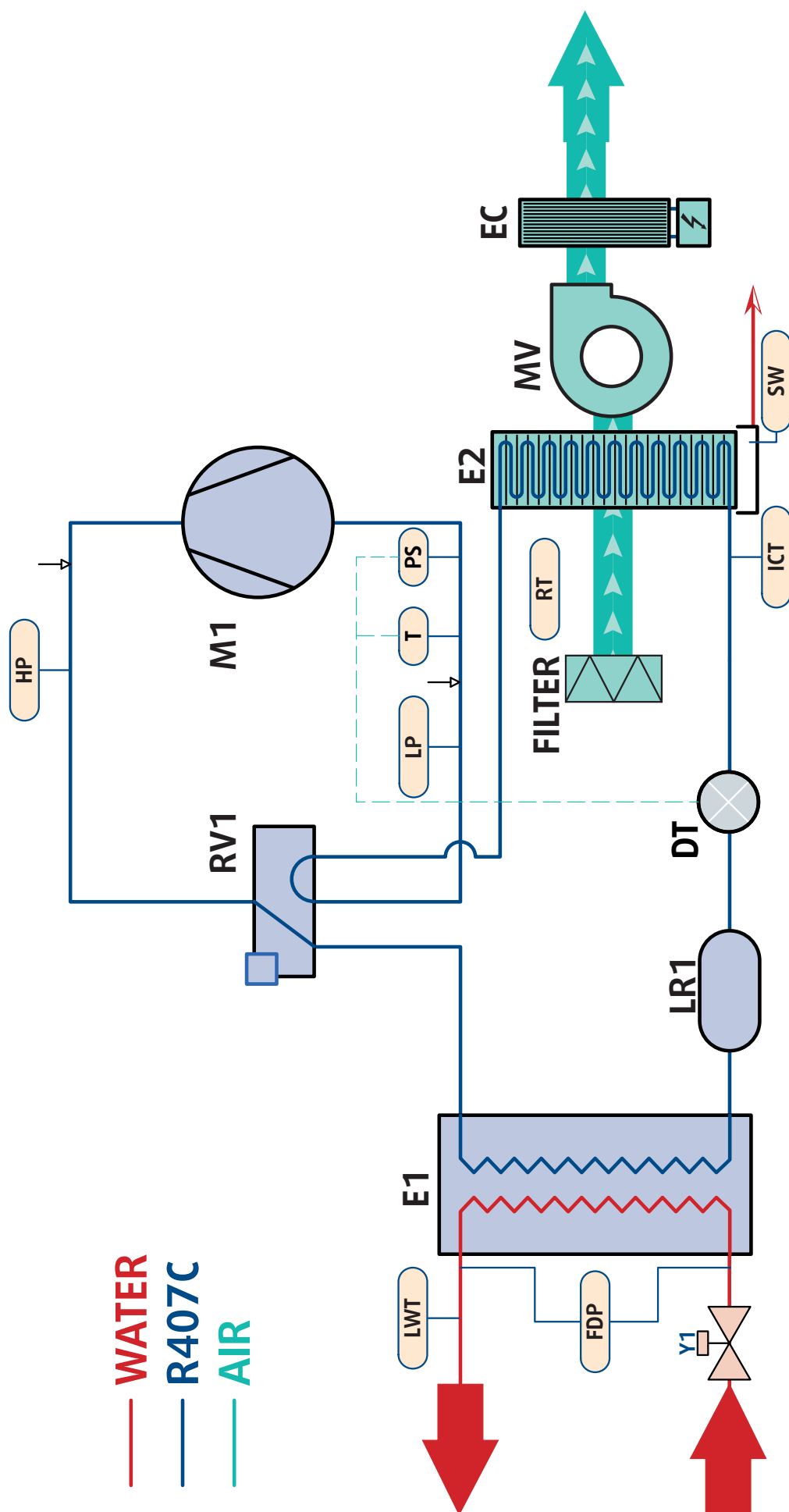
SYSHRW 120 - SE



REFRIGERANT CIRCUIT DIAGRAM SCHEMA DU CIRCUIT FRIGORIFIQUE KÄLTEKREISLAUFDIAGRAMM SCHEMA DEL CIRCUITO REFRIGERANTE ESQUEMA DEL CIRCUITO FRIGORÍFICO

English	Français	Deutsch
M1 : Compressor	M1 : Compresseur	M1 : Verdichter
RV1 : Cycle reversal valve	RV1 : Vanne d'inversion	RV1 : Umkehrzyklusventil
E1 : Plate heat exchanger	E1 : Echangeur à plaques	E1 : Plattenverdampfer
DT : thermostatic expansion valve	DT : Détendeur thermostatique	DT : Thermostatisches Expansionsventil
E2 : Finned coil	E2 : échangeur à ailettes	E2 : Rippenwärmetauscher
MV : Fan	MV : Ventilateur	MV : Motor der Lüftung
EC : Electric heating coil (option)	EC : Batterie électrique (option)	EC : Elektrisches Heizregister (Option)
↓ : Schrader valve	↓ : Valve Schrader	↓ : Schrader-Ventil
HP : High pressure switch	HP : Pressostat HP	HP : Überdruckschalter
T : Thermostatic expansion valve bulb	T : Bulbe détendeur	T : Fühler am Expansionsventil
PS : Pressure fitting of thermostatic expansion valve	PS : Prise pression détendeur	PS : Druckaufnehmer am Expansionsventil
LP : Low pressure switch	LP : Pressostat BP	LP : Niederdruckschalter
LWT : Outlet water temperature sensor	LWT : Sonde de température de sortie d'eau	LWT : Wasseraustrittstemperaturfühler
FDP : Water circuit inlet / outlet differential pressostat	FDP : pressostat différentiel entrée / sortie du circuit d'eau	FDP : Differentialpressostat Eintritt / Austritt des Wasserkreislaufs
ICT : Anti-freezing protection sensor	ICT : Sonde anti-givre	ICT : Frostschutztemperaturfühler
RT : Air temperature sensor	RT : Sonde de température d'air	RT : Lufttemperaturfühler
Y1 : Water circuit valve (option)	Y1 : Vanne sur circuit d'eau (option)	Y1 : Hydraulisch betätigter Absperrschieber (option)
SW : Condensed water level detector	SW : Détecteur de niveau d'eau de condensation	SW : Wasserstandsmelder Kondenswasser

Italiano	Español
M1 : Compressore	M1 : Compresore
RV1 : Valvola inversione di ciclo	RV1 : Válvula de inversión de ciclo
E1 : Scambiatore a piastre	E1 : Intercambiador de placas
DT : Valvola di espansione termostatica	DT : Válvula de expansión termostática
E2 : Batteria alettata	E2 : Intercambiador con aletas
MV : Ventilatore	MV : Ventilación
EC : Batteria elettrica (optional)	EC : Batería eléctrica (opcional)
↓ : Valvola Schrader	↓ : Válvula Schrader
HP : Pressostato AP	HP : Presóstato de alta presión
T : Bulbo della valvola di espansione	T : Bulbo della válvula de expansión termostática
PS : Presa di pressione di valvola di espansione	PS : Toma de presión del regulador de la presión
LP : Pressostato BP	LP : Presóstato de baja presión
LWT : Sensore di temperatura di uscita dell'acqua	LWT : Sonda de temperatura de salida de agua
FDP : Pressostato differenziale ingresso / uscita del circuito dell'acqua	FDP : Presostato diferencial entrada/ salida del circuito de agua
ICT : Sensore antigelo	ICT : Sonda antiescarcha
RT : Sensore di temperatura dell'aria	RT : Sonda de temperatura de aire
Y1 : Valvola circuito dell'acqua (optional)	Y1 : Válvula de parada hidráulica (optional)
SW : Rivelatore di livello d'acqua di condensazione	SW : Detector de nivel de agua de condensación



**WIRING DIAGRAM
SCHEMAS ELECTRIQUES
STROMLAUFPLANS
SCHEMA ELETRICO
ESQUEMA ELECTRICO****TAKE CARE!**

These wiring diagrams are correct at the time of publication. Manufacturing changes can lead to modifications. Always refer to the diagram supplied with the product.

ATTENTION

Ces schémas sont corrects au moment de la publication. Les variantes en fabrication peuvent entraîner des modifications. Reportez-vous toujours au schéma livré avec le produit.

ACHTUNG!

Diese Stromlaufplans sind zum Zeitpunkt der Veröffentlichung gültig. In Herstellung befindliche Varianten können Änderungen mit sich bringen. In jedem Fall den mit dem Produkt gelieferten Stromlaufplan hinzuziehen.

ATTENZIONE !

Questi schemi sono corretti al momento della pubblicazione. Le varianti apportate nel corso della fabbricazione possono comportare modifiche. Far sempre riferimento allo schema fornito con il prodotto.

ATENCIÓN !

Esto esquemas son correctos en el momento de la publicación. Pero las variantes en la fabricación pueden ser motivo de modificaciones. Remítase siempre al esquema entregado con el producto.



**POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING TO WORK IN
THE ELECTRIC CONTROL BOXES!**

**MISE HORS TENSION OBLIGATOIRE AVANT TOUTE INTERVENTION DANS LES
BOITIERS ELECTRIQUES.**

**VOR JEDEM EINGRIFF AN DEN ANSCHLUßKÄSTEN UNBEDINGT DAS GERÄT
ABSCHALTEN!**

**PRIMA DI OGNI INTERVENTO SULLE CASSETTE ELETTRICHE ESCLUDERE
TASSATIVAMENTE L'ALIMENTAZIONE !**

**PUESTA FUERA DE TNESIÓN OBLIGATORIA ANTES DE CUALQUIER
INTERVENCIÓN EN LAS CAJAS ELÉCTRICAS!**

APPENDIX / ANNEXE / ANLAGE / ALLEGATO / ANEXO

LEGEND

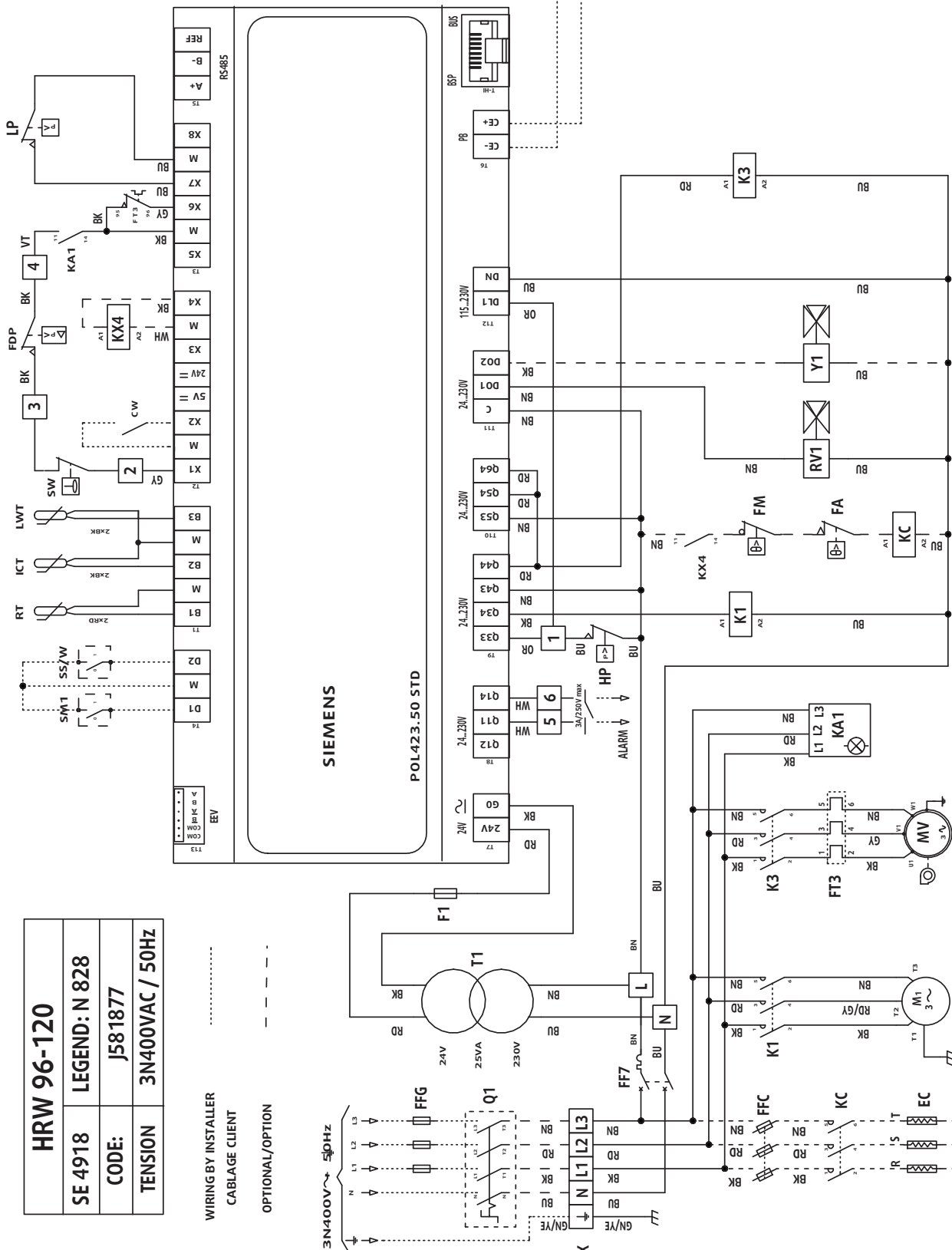
REPARE	English	Français	Deutsch	Italiano	Español
	DESCRIPTION	DESIGNATION	BEZEICHNUNG	DENOMINAZIONE	DESCRIPCIÓN
CW	Window contact switch	Contact de fenêtre	Fensterkontakt	Contacto di finestra	Contacto de ventana
EC	Heating resistors	Résistances chauffantes	Heizwiderstände	Resistenze di riscaldamento	Resistencias de calefacción
F1	Fuse terminal + fuse 1A	Borne fusible + fusible 1A	"Sicherungsklemme + Sicherung 1A"	Portafusibile + fusibile 1A	Permal de fusible + fusible 1A
FA	Automatic reset heating safety thermostat (option)	Thermostat de sécurité chauffage à réarmement automatique (option)	"Sicherheitsthermostat Heizung mit automatischer Wiedereinschaltvorrichtung (Option)"	Termostato di sicurezza riscaldamento a ripristino automatico (optional)	Termostato de seguridad de calefacción con restablecimiento automático (opcional)
FDP	Water circuit inlet / outlet differential pressostat	pressostat différentiel entrée / sortie du circuit d'eau	Differentialpressostat Eintritt / Austritt des Wasserkreislaufs	Pressostato differenziale ingresso / uscita del circuito dell'acqua	Presostato diferencial entrada/salida del circuito de agua
FF7	Magneto-thermal trip switch	disjoncteur magnéto-thermique	Magnetothermischer Sicherungs	interruttore magnetotermico	disyuntor magnetotérmico
FFC	Fuse carrier for heating	porte-fusibles chauffage	Sicherungseinsatzträger für Heizelemente	porta-fusibile per elementi riscaldanti	portafusibles batería eléctrica
FFG	Protection fuses (not supplied)	fusibles de protection (non fournis)	Sicherungen (nicht mitgeliefert)	Fusibili di protezione (non in dotazione)	Fusibles de protección (no suministrados)
FM	Manual reset heating safety thermostat (option)	Thermostat de sécurité chauffage à réarmement manuel (option)	Sicherheitsthermostat Heizung, manuelle Rückstellvorrichtung (Option)	Termostato di sicurezza riscaldamento a ripristino manuale (optional)	Termostato de seguridad de calefacción con restablecimiento manual (opcional)
FT3	MV thermal relay	relais thermique du moteur MV	Überstromrelais von MV	relè termici di MV	relé térmico del motor MV
HP	Automatic reset high-pressure pressostats	pressostat haute pression à réarmement automatique.	"Überdruckwächter mit automatischer Wiedereinschaltung"	pressostato alta pressione a riarmo automatico.	presostato alta presión con rearme automático
ICT	Anti-freezing protection sensors	Sonde anti-givre	Frostschutztemperaturfühler	Sonda antibirina	Sonda antiescarcha
K1	Compressor power circuit contactor	Contacteurs de puissance du compresseur	Leistungsschütze der Kompressor	Contattori di potenza del compressore	Contactores de potencia del compresor
K3	MV motor contactor	Contacteurs du moteur MV	Leistungsschütze des Motors MV	Contattori del motore MV	Contactores del motor MV
KA1	Three-phase network control relay (phase sequence and cut-out)	module de contrôle d'ordre et de coupure de phases (modèles triphasés uniquement)	Phasenabschaltungs- und reihenfolge Kontrollmodul	Modulo di controllo d'ordine e di interruzione di fasi	Módulo de control de orden y de corte de fases
KC	Power contactors for heating elements (option)	Contacteurs de puissance des éléments chauffants (option)	Leistungsschütze Heizelemente (Option)	Contattori di potenza degli elementi riscaldanti (optional)	Contactores de potencia de los elementos calefactores (opcional)
KX4	heating contactor control relay	relais de commande des contacteurs chauffage	Regelrelais für Heizschütz	relè di controllo del contattore di riscaldamento	relé de control del contactor de calefacción
LP	Automatic reset Low Pressure pressostat	Pressostat basse pression à réarmement automatique	"Niederdruckpressostat mit automatischer Wiedereinschaltung"	Pressostato bassa pressione con riarmo automatico	Presostato de baja presión con rearme automático
LWT	Outlet water temperature probe	Sonde de température de sortie d'eau	Wasseraustritt-Temperaturfühler	Sonda di temperatura di uscita dell'acqua	Sonda de temperatura de salida de agua
M1	Compressor	Compresseur	Verdichter	Compressori	Compresore
MV	Treated air fan motor	moteur de ventilation air traité	Lüftermotor Zuluft	motore di ventilazione aria trattata	motor de ventilación aire tratado
POL423.50	SIEMENS regulator	régulateur SIEMENS	SIEMENS-Regler	Regolatore SIEMENS	regulador SIEMENS
POL822	remote control	rappel de commandes	Fernbedienung	control remoto	control remoto

REPERE	English	Français	Deutsch	Italiano	Español
	DESCRIPTION	DESIGNATION	BEZEICHNUNG	DENOMINAZIONE	DESCRIPCIÓN
Q1	Main section switch	Interrupteur sectionneur principal	Hauptschalter	Interruttore principale	Interruptor seccionador principal
RT	Return air temperature sensor	Sonde de température air repris	Rücklufttemperaturfühler	"sonda di temperatura aria di recupero"	"sonda de temperatura del aire de retorno"
RV1	4-way cycle changeover valves	Vanne d'inversion de cycle	Umkehrzyklusventil	Valvole di inversione di ciclo	Válvula de inversión de ciclo
SM1	ON/OFF switch (not supplied)	interrupteur marche/arrêt (non fourni)	Ein-/Aus-Schalter (nicht mitgeliefert)	interruttore on/off (non fornito)	interruptor funcionamiento/parada (no suministrado)
SW	Condensed water level detector	"Détecteur de niveau d'eau de condensation"	"Detektor des Wasserstandes der Verdampfung"	"Rivelatore di livello d'acqua di condensazione"	"Detector de nivel de agua de condensación"
SS/W	Switch winter / summer (not supplied)	Interrupteur hiver/été (non-fourni)	Winter/Sommer-Schalter	Interruttore inverno /estate (non fornito)	Interruptor invierno/verano (no suministrado)
T1	Transformer 230V/24V	Transformateur 230V/24V	Transformator 230V/24V	Trasformatore 230V/24V	Transformador 230V/24V
X	Connection terminal block	bornier de raccordement	Anschlussklemmenleiste	morsetiera di collegamento	placa de bornes de conexión
Y1	Water circuit by-pass valve (no supplied)	Vanne by-pass circuit d'eau (non fournie)	Bypass-Ventil Wasserkreislauf (nicht geliefert)	Valvola by-pass circuito dell'acqua (non fornita)	Válvula by-pass del circuito de agua (no incluida)

XII SYSHRW

HRW 96-120	
SE 4918	LEGEND: N 828
CODE:	J581877
TENSION	3N400VAC / 50Hz

OPTIONAL/OPTION



IDENTIFICATION CLIENT:

N° affaire: Nom de l'affaire:

Nom du client: Lieu de l'installation:

Nom du responsable local: ☎:

IDENTIFICATION INSTALLATEUR:

Nom de la société: Adresse:

Nom de l'installateur: ☎:

IDENTIFICATION METTEUR EN SERVICE:

Nom de la société: Adresse:

Nom du technicien: ☎:

IDENTIFICATION SYSHRW:

N° Série:

96	96HE	120

	OUI	NON		OUI	NON
Vanne d'eau motorisée	<input type="checkbox"/>	<input type="checkbox"/>	Centrale de supervision µBMS	<input type="checkbox"/>	<input type="checkbox"/>
Disjoncteur	<input type="checkbox"/>	<input type="checkbox"/>	Supervision par MODBUS	<input type="checkbox"/>	<input type="checkbox"/>
Relais renvoi défaut général	<input type="checkbox"/>	<input type="checkbox"/>			



Attention de bien réinjecter le fluide contenu dans le flexible HP avant de déconnecter les manomètres (risque de coupures BP)

CONTROLE DE L'INSTALLATION:

	OUI	NON		OUI	NON
Déformations ou chocs visibles	<input type="checkbox"/>	<input type="checkbox"/>	Continuité de terre sur les tuyauteries	<input type="checkbox"/>	<input type="checkbox"/>
Dégagements autour de l'unité conformes	<input type="checkbox"/>	<input type="checkbox"/>	Raccordement, nettoyage rinçage et purge du réseau hydraulique	<input type="checkbox"/>	<input type="checkbox"/>
L'unité est installée de niveau	<input type="checkbox"/>	<input type="checkbox"/>	Protection des circuits d'eau contre le gel	<input type="checkbox"/>	<input type="checkbox"/>
L'alimentation électrique correspond à la plaque d'identification de l'unité	<input type="checkbox"/>	<input type="checkbox"/>	Présence du filtre à tamis à l'entrée de la machine	<input type="checkbox"/>	<input type="checkbox"/>
Le câblage du circuit électrique est d'une section correcte et a été installé correctement	<input type="checkbox"/>	<input type="checkbox"/>	Test coupure contrôleur de débit	<input type="checkbox"/>	<input type="checkbox"/>
Le câble de terre de l'unité a été raccordé	<input type="checkbox"/>	<input type="checkbox"/>	Raccordement des condensats	<input type="checkbox"/>	<input type="checkbox"/>
La protection du circuit électrique est d'un calibre correct et a été installée correctement	<input type="checkbox"/>	<input type="checkbox"/>	Présence d'une vanne de réglage	<input type="checkbox"/>	<input type="checkbox"/>
Toutes les bornes sont serrées	<input type="checkbox"/>	<input type="checkbox"/>	Présence des filtres à air	<input type="checkbox"/>	<input type="checkbox"/>

OBSERVATIONS:

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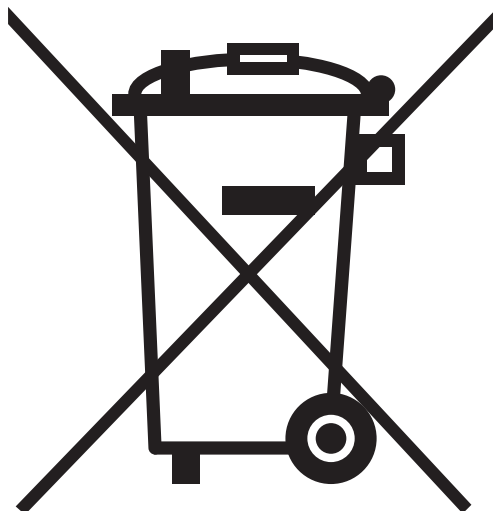
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English

The meaning of the above logo representing a crossed-out wheeled bin is that this unit must not be disposed of as unsorted municipal waste but should be collected separately as WEEE (Waste Electrical and Electronic Equipment).

The presence of hazardous substances in electrical and electronic equipment or an improper use of such equipments or of parts thereof as well as the hazards of not separating WEEE from unsorted domestic waste, may affect the environment and human health.

As an End User, you are required to place WEEE in a collection separate from that for unsorted domestic waste. Please contact a point of sale or installer to find out the collection system available at your local community. You may return your old air conditioning unit for free to the point of sale or the installer when purchasing a new one.

As an End User, it is your role to contribute to the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste. This will help preserve your environment.

Français

Le logo ci-dessus représentant une "poubelle barrée" signifie qu'il ne faut pas se débarrasser de cet appareil comme d'un déchet classique mais que celui-ci doit être collecté séparément en tant que DEEE (Déchet d'Équipement Électrique et Électronique).

La présence de substances dangereuses dans les équipements électriques et électroniques, l'utilisation inappropriée de tels équipements ou partie de tels équipements ainsi que le danger représentant la collecte non centralisée de matériels DEEE peuvent être préjudiciables à l'environnement et à la santé publique.

En tant qu'utilisateur final, il vous est demandé de collecter les DEEE séparément des déchets ordinaires.

Vous êtes priés de prendre contact avec votre revendeur ou votre installateur pour qu'il vous indique le mode de collecte de votre commune. Lors du renouvellement de votre appareil, vous avez la possibilité de rendre votre ancien appareil gratuitement à votre installateur ou votre revendeur qui se chargera d'en assurer la collecte.

En tant qu'utilisateur final, il est de votre devoir de participer à la réutilisation, au recyclage, et à toute autre forme de récupération de tels déchets afin d'en diminuer la quantité. Cela contribuera à la préservation de l'environnement.

Deutsch

Die Bedeutung des Logos mit der durchgestrichenen Mülltonne besteht darin, dass es sich bei diesem Gerät nicht um Hausmüll (Wertstoffmüll oder Restmüll) handelt.

Dieses Gerät ist nach der Elektro- und Elektronikgerätegesetz ElektroG (WEEE) zu sammeln und zu entsorgen.

Durch das Vorhandensein von gefährlichen Substanzen in elektrischen oder elektronischen Bauteilen kann die missbräuchliche Verwendung solcher Teile oder das Entsorgen solcher Geräte über den Hausmüll zu nicht unerheblichen Umwelt- und/oder Gesundheitsschäden führen.

Sie als Endkunde sind angehalten, Geräte, welche unter die ElektroG (WEEE) fallen, separat vom Hausmüll zu entsorgen. Bitte informieren Sie den Händler, Installateur oder Ihre Stadt- oder Gemeindeverwaltung, um einen Entsorgungsbetrieb in Ihrer Nähe ausfindig zu machen. Eine Möglichkeit besteht darin, das Gerät kostenlos bei Ihrem Händler oder Installateur abzugeben, wenn Sie sich ein neues Gerät kaufen.

Als Endkunde beteiligen Sie sich so an der Wiederverwendung, Rückgewinnung oder Wiederverwertung von derartigen Rohstoffen. Sie helfen, Müll zu vermeiden und leisten so Ihren Beitrag zu einer sauberen Umwelt.

Italiano

Il significato del logo qui sopra rappresentato indica che il apparecchio non deve essere rottamato come rifiuto nella spazzatura indifferenziata, ma deve essere smaltito separatamente in base alle direttive WEEE (Waste Electrical and Electronic Equipment - rifiuti elettrici ed elettronici), in accordo con il decreto legislativo n.151/2005.

A causa della presenza di sostanze tossiche nella componentistica elettrica o elettronica, uno smaltimento di queste o di parti di esse nei rifiuti non riciclabili, può avere effetti nocivi sull'ambiente e sulla salute umana.

Il Cliente è tenuto a separare i prodotti o parte di essi etichettati in base alle normative WEEE dai rifiuti domestici solidi. Per ulteriori informazioni si contatti un punto vendita o un installatore per conoscere il punto di raccolta più vicino alla propria città. Il Cliente può smaltire gratuitamente il vecchio apparecchio presso il punto vendita o l'installatore contestualmente all'acquisto di un nuovo apparecchio.

Qualora il punto vendita o l'installatore non si prendano carico delle incombenze necessarie allo smaltimento del vecchio apparecchio secondo la normativa prevista, potranno essere soggetti ad un'ammenda compresa tra i 150 ed i 400 euro per ogni unità.

E' compito del Cliente provvedere al riutilizzo, al riciclo e ad altre forme di riduzione degli sprechi in modo tale da ridurre la quantità di rifiuti da smaltire. Questa normativa viene introdotta a sostegno di politiche ambientali. Il mancato rispetto della legislazione vigente prevede quattro sanzioni pecuniarie comprese tra 25,82 e 619,74 euro.

Español

El significado de este logo que representa un cubo de basura con ruedas tachado, es que esta unidad no debe ser desechada como residuo doméstico sin clasificar, sino que deberá ser recogida de forma separada como RAEE (residuos aparatos eléctricos y electrónicos).

La presencia de sustancias peligrosas en los aparatos eléctricos y electrónicos o un uso impropio de tales aparatos o de partes de los mismos, así como los peligros de no separar RAEE de los residuos domésticos sin clasificar, puede afectar al medio ambiente y a la salud.

Como usuario final, se le requiere para que ponga los RAEE en una recogida distinta de los residuos domésticos sin clasificar. Por favor, contacte con un punto de venta o instalador para averiguar el sistema de recogida disponible en su comunidad. Puede devolver gratis su antigua unidad al punto de venta o instalador cuando compre una unidad.

Como usuario final, su papel es contribuir a la reutilización, reciclado y otras formas de recuperación de dichos residuos para reducir la eliminación de basura. Esto ayudará a mantener el medio ambiente.

As part of our ongoing product improvement programme, our products are subject to change without prior notice. Non contractual photos.

Systemair AC SAS

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IOM HRW 03-N-14GB

Part number : **J38179GB**

Supersedes : IOM HRW 03-N-13GB