Installation and maintenance manual

SYSHRW

019 / 27 / 27HE / 30 / 30HE / 36 / 36HE
42 / 42HE / 48 / 60 / 60HE / 72 / 72HE

Water source heat pump

R407C

5.8 ➔ 22.6kW

5.3 ➔ 20.6kW

1 250 ➔ 4 000 m³/h

CE

INSTALLATION INSTRUCTION — English

NOTICE D'INSTALLATION — Français

INSTALLATIONSHANDBUCH — Deutsch

ISTRUZIONI INSTALLAZIONE — Italiano

INSTRUCCIONES DE INSTALACIÓN — Español

English

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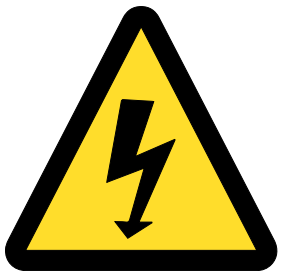


POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING WORK IN THE ELECTRIC CONTROL BOX

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 suspension kit comprising:

- 4 nuts
- 4 locknuts
- 4 shock mounts
- 4 washers

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

		19	27	27HE	30	30HE	36	36HE	42	42HE	48	60	60HE	72	72HE
Weigth	kg	80	100	112	100	100	112	133	133	135	140	144	149	149	253

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 42 . H . 3750W . SYS . S1 . G2M1 . MBRT . RCS . SECT . SOND

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

REP.		Description		
①	Size	**SYSHRW 19** : size 19 **SYSHRW 27** : size 27 **SYSHRW 27HE** : size 27 High Efficiency **SYSHRW 30** : size 30 **SYSHRW 30HE** : size 30 High Efficiency	**SYSHRW 36** : size 36 **SYSHRW 36HE** : size 36 High Efficiency **SYSHRW 42** : size 42 **SYSHRW 42HE** : size 42 High Efficiency **SYSHRW 48** : size 48	**SYSHRW 60** : size 60 **SYSHRW 60HE** : size 60 High Efficiency **SYSHRW 72** : size 72 **SYSHRW 72HE** : size 72 High Efficiency
②	Version	**L** : Cooling only	**H** : Heat pump	
③	Electric heater	Blank : Without heater **2250W** : Capacity 2250W **3750W** : Capacity 3750W	**4500W** : Capacity 4500W **5400W** : Capacity 5400W **6500W** : Capacity 6500W	**7500W** : Capacity 7500W **9000W** : Capacity 9000W
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 **MBRT** : Modbus RTU	**BNMS** : Bacnet MSTP **BNIP** : Bacnet IP	**LON** : 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			19	27	27HE	30	30HE	36	36HE
Total cooling capacities (1)		W	5 278	7 419	7 320	8 691	8 710	10 138	11 060
Sensible cooling capacities (1)		W	4 257	5 824	5 600	6 315	6 676	7 278	9 070
Total absorbed power (3)		W	1 557	2 118	1 981	2 658	2 357	3 044	2 909
EER according to EN14511			4.20	3.72	4.00	3.77	4.15	3.77	4.31
Total Heating capacities (2)		W	5 826	8 342	9 252	9 759	9 960	11 036	12 200
Total absorbed power (3)		W	1 611	2 332	2 382	2 983	2 475	3 460	3 203
COP according to EN14511			4.40	3.69	4.21	3.50	4.30	3.38	4.28
VENTILATION									
Air flow		m^3/h	1 250	1 185	1 180	1 490	1 500	1 580	1 900
Available pressure		Pa	90	90	90	150	150	190	190
Fan absorbed power		W	450	450	450	950	950	950	950
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	921	1 540	1 563	1 764	1 838	2 030	2 335
	Water pressure drop at nominal flow	kPa	13	17	15.7	23	21	25	27.6
	Minimum water flow	l/h	460	770	782	882	900	1 015	1 168
Heating mode	Nominal water flow	l/h	921	1 540	1 563	1 764	1 838	2030	2 335
	Water pressure drop at nominal flow	kPa	13	17	15.7	23	21	25	27.6
	Minimum water flow	l/h	460	770	782	882	919	1 015	1 168
Water connections Input/output		pouces	3/4" Female gas thread						
Condensate outlet Ø		mm	19						
REFRIGERANT CIRCUIT									
Number of circuit		Nbr	1						
Compressor type			Rotary	Scroll					
Refrigerant			R407C						
Load		g	1 160	1 483	2 534	1 594	1 950	1 950	3 200
ELECTRICAL DATA									
Electrical power supply			230/1/ 50	400V / 3~ N / 50Hz					
Max. current (4)		A	12.3	8.5	8.5	12.3	12.3	13	13
starting current (5)		A	35.4	35.4	35.4	46	46	52	52
Electric heating - Power (6)		W	1 500+750	3 750	3 750	3 750	3 750	4 500	4 500
ACOUSTICAL DATA									
Sound power level (7) (LS/MS/HS)		dB(A)	51/54/58	54/56/57	54/56/57	53/54/57	53/54/57	53/56/58	53/56/58
Sound pressure level (7)		dB(A)	30/33/37	33/35/36	33/35/36	32/33/36	32/33/36	32/35/37	32/35/37
NR (7) (LS/MS/HS)		dB(A)	34/37/40	33/34/37	33/34/37	33/35/38	33/35/38	34/37/41	34/37/41

(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.

Models			42	42HE	48	60	60HE	72	72HE
Total cooling capacities (1)		W	11 366	12 500	12 965	14 344	16 700	17 174	20 600
Sensible cooling capacities (1)		W	8 849	9 542	10 051	10 988	13 900	13 536	17 699
Total absorbed power (3)		W	3 584	3 423	4 200	4 989	4 278	6 280	5 279
EER according to EN14511			3.44	4.00	4.03	3.23	4.44	3.26	4.74
Total Heating capacities (2)		W	14 422	14 450	14 904	16 147	18 800	21 500	22 601
Total absorbed power (3)		W	3 920	3 479	4 300	5 150	5 098	7 347	6 188
COP according to EN14511			3.84	4.36	4.25	3.33	4.20	3.15	4.23
VENTILATION									
Air flow		m^3/h	2 040	2 040	2 750	2 840	3 050	3 570	4 000
Available pressure		Pa	115	115	190	160	160	220	220
Fan absorbed power		W	950	950	1 500	1 500	1 500	1 500	736
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	2 592	2 641	2 822	3 348	3 458	3 924	4 319
	Water pressure drop at nominal flow	kPa	33	30	34	40	30	61	45
	Minimum water flow	l/h	1 296	1 321	1 411	1 692	1 729	1 944	2 160
Heating mode	Nominal water flow	l/h	2 592	2 641	2 822	3 348	3 458	3 924	4 319
	Water pressure drop at nominal flow	kPa	33	30	34	40	30	61	45
	Minimum water flow	l/h	1 296	1 321	1 411	1 692	1 729	1 944	2 160
Water connections Input/output		pouces	3/4" Female gas thread				1" 1/4 Male gas thread	3/4" Female gas thread	1" 1/4 Male gas thread
Condensate outlet Ø		mm	19						22
REFRIGERANT CIRCUIT									
Number of circuit		Nbr	1						
Compressor type			Scroll						
Refrigerant			R407C						
Load		g	3 200	2 800	3 200	3 200	3 400	2 700	3 800
ELECTRICAL DATA									
Electrical power supply			400V / 3~ N / 50Hz						
Max. current (4)		A	16	16	18	19	19	22.5	22.5
starting current (5)		A	56	56	58	73.5	73.5	108.5	108.5
Electric heating - Power (6)		W	5 400	5 400	6 500	7 500	7 500	9 000	9 000
ACOUSTICAL DATA									
Sound power level (7) (LS/MS/HS)		dB(A)	54/56/58	54/56/58	55/59/63	55/59/63	55/59/63	57/60/63	55/59/62
Sound pressure level (7)		dB(A)	33/35/37	33/35/37	34/38/42	34/38/42	34/38/42	36/39/42	34/38/41
NR (7) (LS/MS/HS)		dB(A)	36/40/43	36/40/43	39/43/46	39/43/46	39/43/46	36/39/44	36/39/44

(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 ±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 :

- 230V / 1 ph / 50 Hz (207 Volts minimum; 253 Volts maximum.)
- 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			19	27	27HE	30	30HE	36	36HE
Supply voltage			230V 50Hz	400V / 3~ N / 50Hz					
without heating	Full load current (max)	A	12.3	8.5	8.5	12.3	12.3	13	13
	Starting amperage	A	35.4	35.4	35.4	46	46	52	52
with heating	Full load current (max)	A	14.2	9.4	9.4	12.3	12.3	13.1	13.1
	Starting amperage	A	35.4	35.4	35.4	46	46	52	52

MODELS			42	42HE	48	60	60HE	72	72HE
Supply voltage			400V / 3~ N / 50Hz						
without heating	Full load current (max)	A	16	16	18	19	19	22.5	23.2
	Starting amperage	A	56	56	58	73.5	73.5	108.5	109.2
with heating	Full load current (max)	A	16	16	18.3	19.9	19.9	22.5	23.2
	Starting amperage	A	56	56	58	73.5	73.5	108.5	109.2

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	27 °C
Water inlet temperature	Minimum	18 °C	13 °C
	Normal *	30 °C	20 °C
	Maximum	44 °C	34 °C
Maximum hydraulic pressure		16 bar	

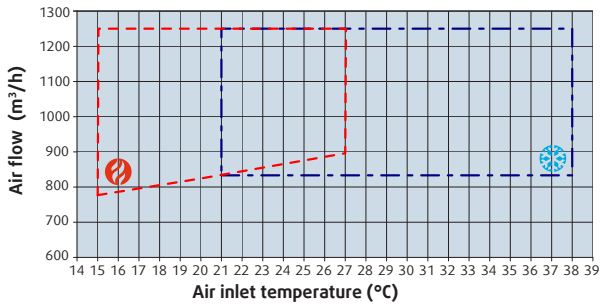
DB: dry bulb WB: bulbe humide

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

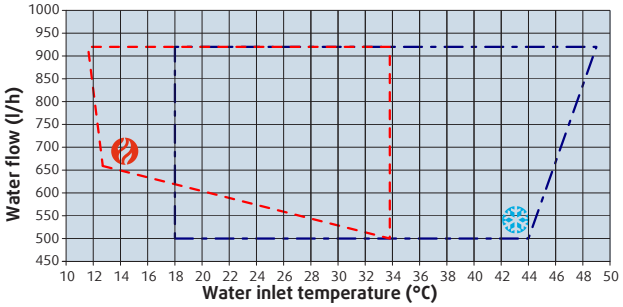
9.4.3. FLOW LIMITS

9.4.3.1. MODEL SYSHRW19

Nominal air flow : 1 250 m³/h

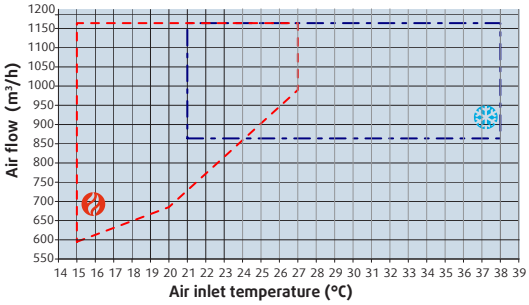


Nominal water flow : 921 l/h

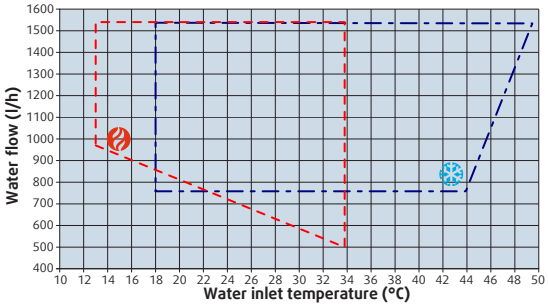


9.4.3.2. MODEL SYSHRW27

Nominal air flow : 1 185 m³/h

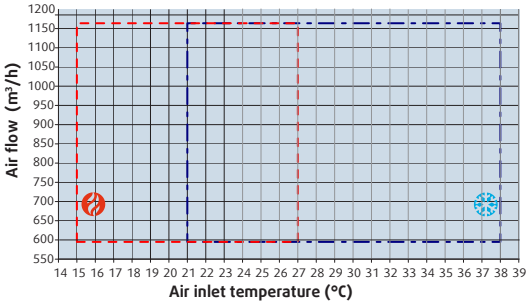


Nominal water flow : 1 540 l/h

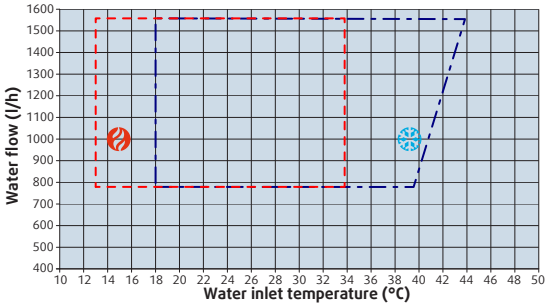


9.4.3.3. MODEL SYSHRW27HE

Nominal air flow : 1 180 m³/h

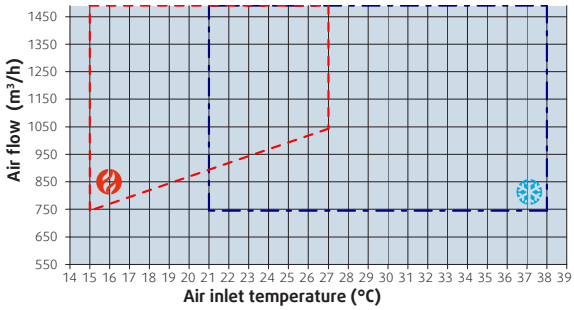


Nominal water flow : 1 563 l/h

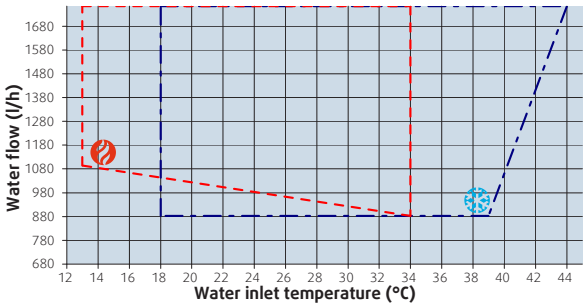


9.4.3.4. MODEL SYSHRW30

Nominal air flow : 1 490 m³/h



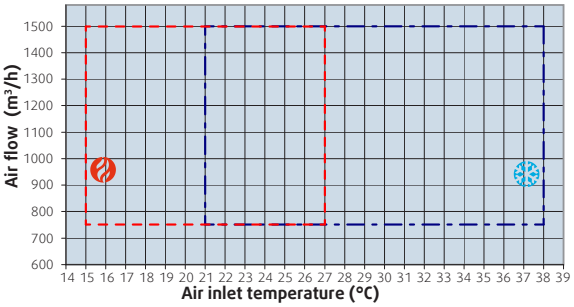
Nominal water flow : 1 764 l/h



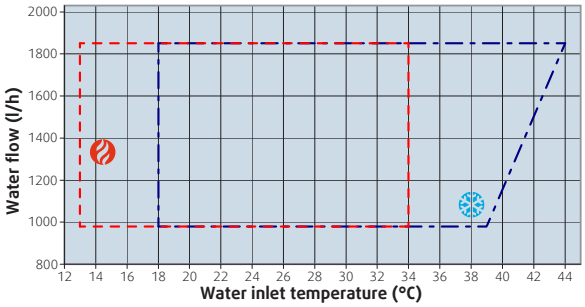
English

9.4.3.5. MODEL SYSHRW30HE

Nominal air flow : 1 500 m³/h

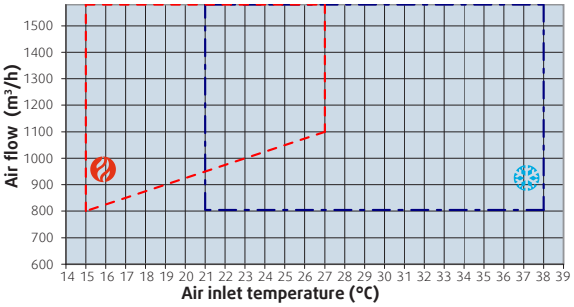


Nominal water flow : 1 838 l/h

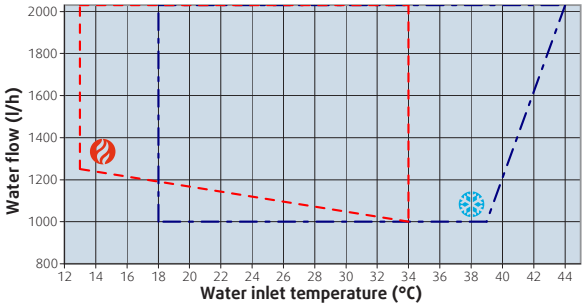


9.4.3.6. MODEL SYSHRW36

Nominal air flow : 1 580 m³/h

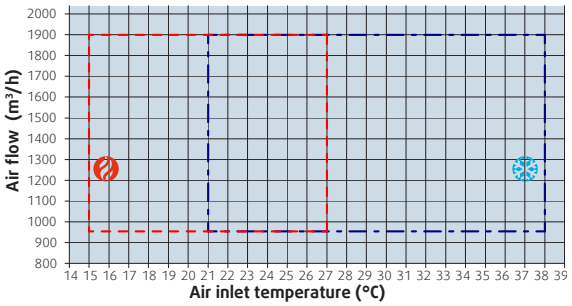


Nominal water flow : 2 030 l/h

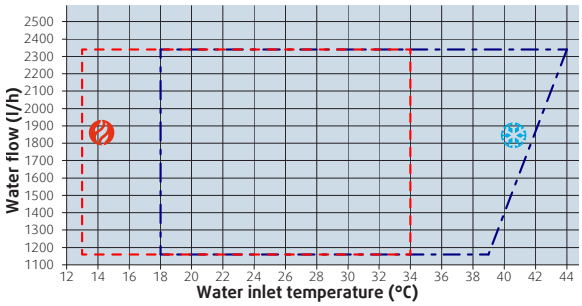


9.4.3.7. MODEL SYSHRW36HE

Nominal air flow : 1 900 m³/h

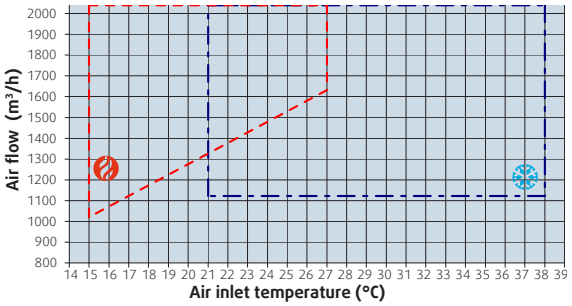


Nominal water flow : 2 335 l/h

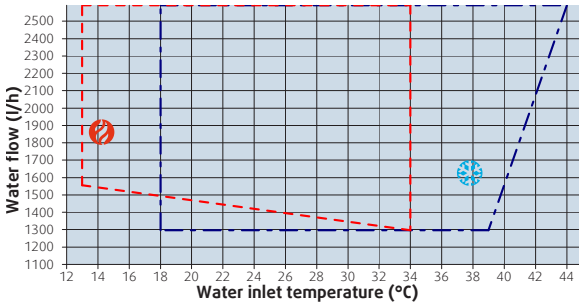


9.4.3.8. MODEL SYSHRW42

Nominal air flow : 2 040 m³/h

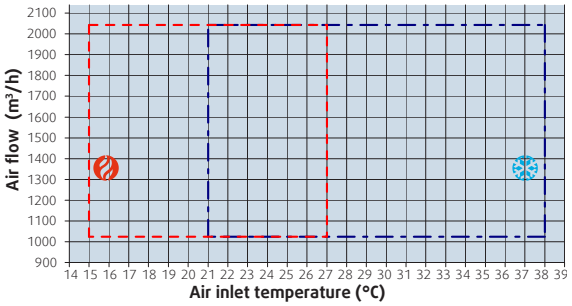


Nominal water flow : 2 592 l/h

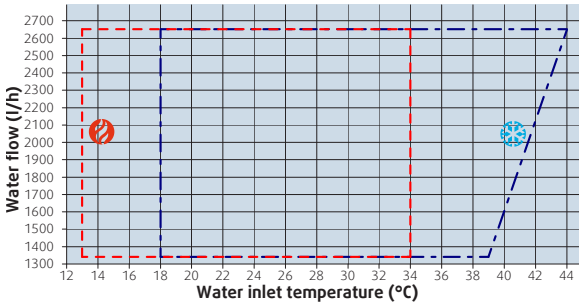


9.4.3.9. MODEL SYSHRW42HE

Nominal air flow : 2 040 m³/h

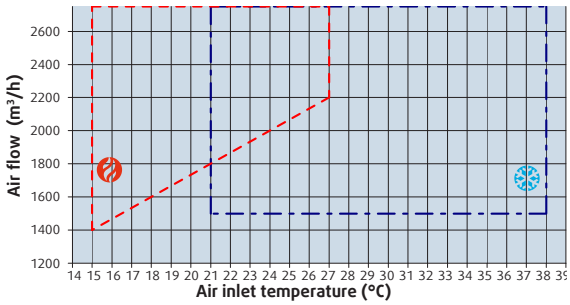


Nominal water flow : 2 641 l/h

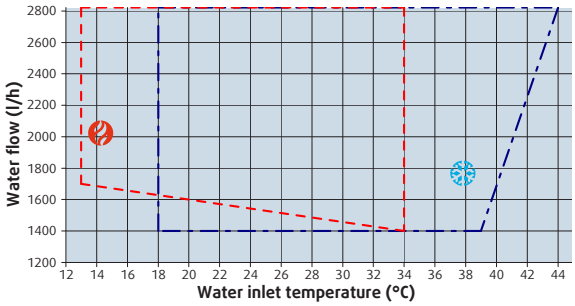


9.4.3.10. MODEL SYSHRW48

Nominal air flow : 2 750 m³/h

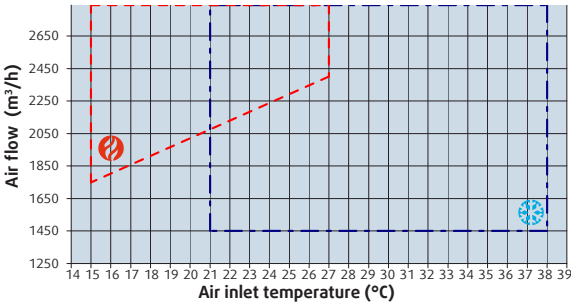


Nominal water flow : 2 822 l/h

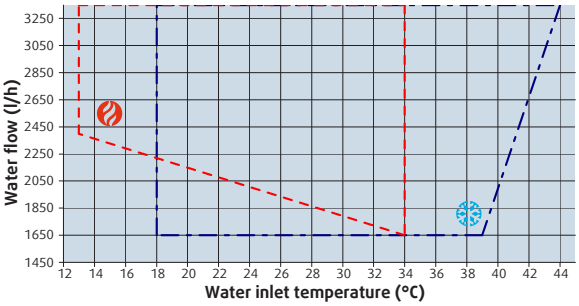


9.4.3.11. MODEL SYSHRW60

Nominal air flow : 2 840 m³/h

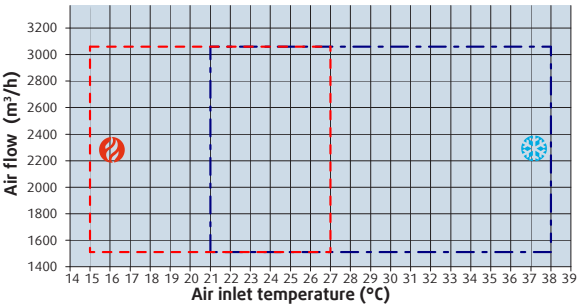


Nominal water flow : 3 348 l/h

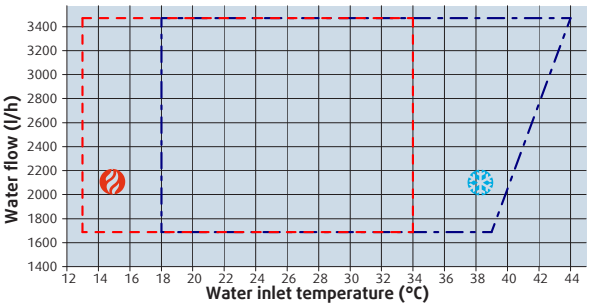


9.4.3.12. MODEL SYSHRW60HE

Nominal air flow : 3 050 m³/h

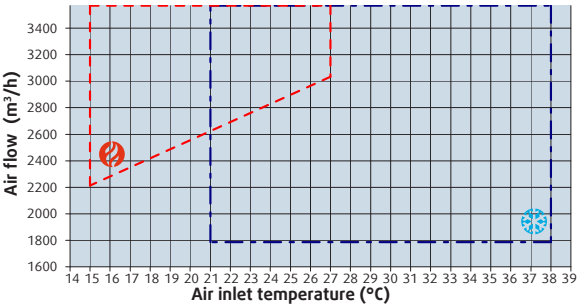


Nominal water flow : 3 458 l/h

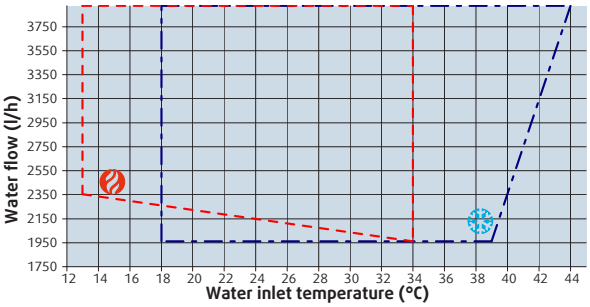


9.4.3.13. MODEL SYSHRW72

Nominal air flow : 3 570 m³/h

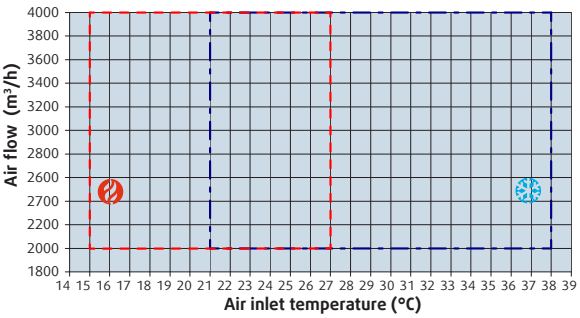


Nominal water flow : 3 924 l/h

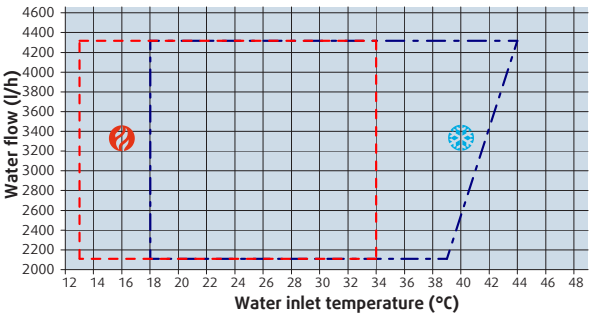


9.4.3.14. MODEL SYSHRW72HE

Nominal air flow : 4 000 m³/h



Nominal water flow : 4 319 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 CO_2 but less than the equivalent of 50 tonnes of CO_2: 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 CO_2 but less than the equivalent of 500 tonnes of CO_2: 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 CO_2: 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

Greenhouse gas quantity (kg of CO_2) = Quantity of gas (kg) x gas' GWP

Quantity of greenhouse gas expressed in weight (kg) and CO_2 equivalent

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

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

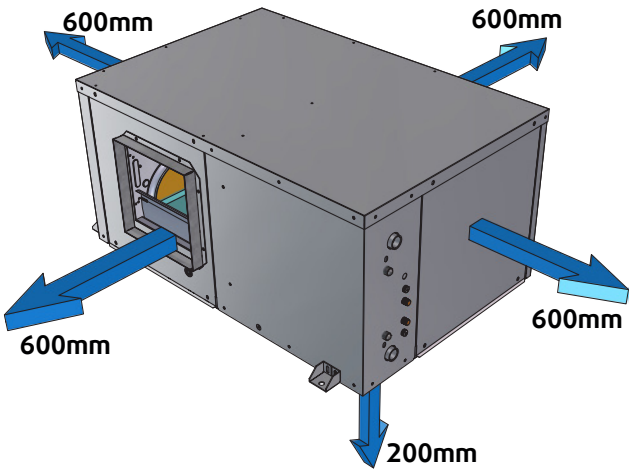
The unit base shall be arranged as indicated in the manual. There could be a risk of personal injury or damage to property in the event of the unit being incorrectly supported.

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. If necessary, change the direction of the airflow inlet from the front to the side of the appliance, or vice versa, prior to installing the unit in the ceiling. Refer to the instructions detailed in § MODIFYING THE AIR BLOWING DIRECTION, page 18.
9. 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.



English

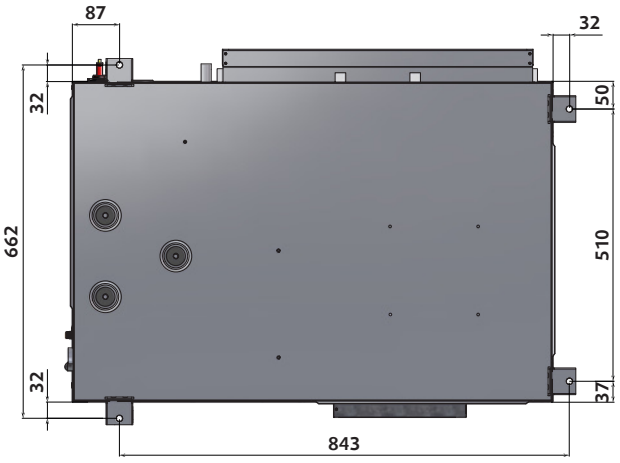
10.3. UNIT LOCATION

Caution

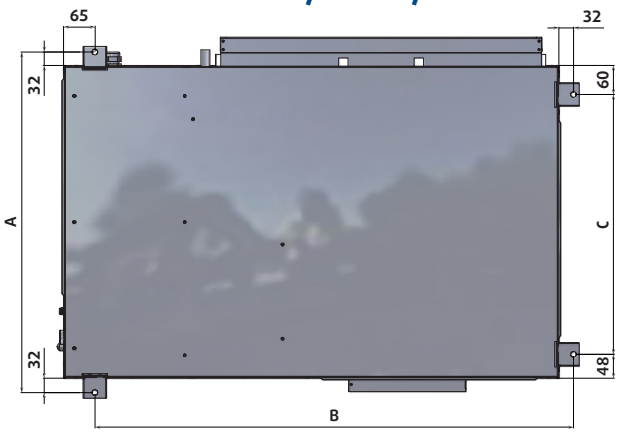
The unit base shall be arranged as indicated in the manual. There could be a risk of personal injury or damage to property in the event of the unit being incorrectly supported.

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 %)

SYSHRW 19

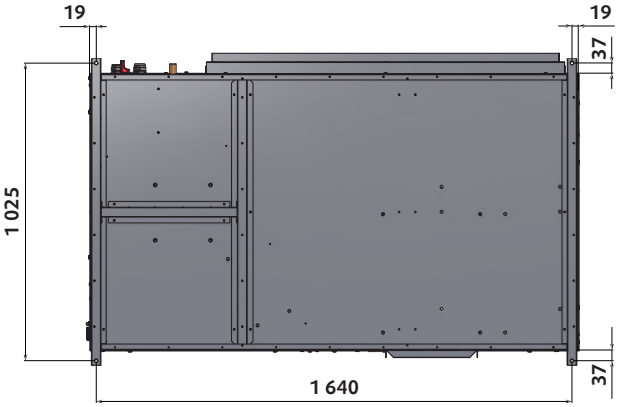


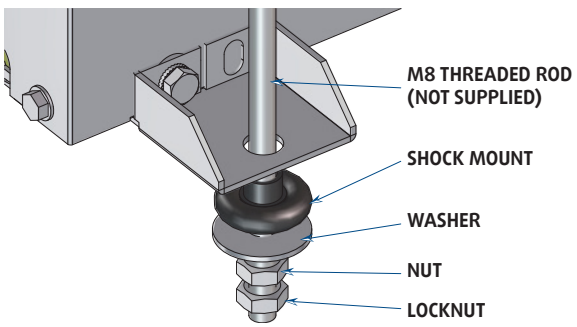
SYSHRW 27 / 27HE / 30 / 30HE /36
SYSHRW 36HE / 42 / 42HE /48
SYSHRW 60 / 60HE / 72



	A	B	C
27-27HE-30-30HE-36	722	1 015	551
36HE-42-42HE-48-60-60HE-72	769	1 215	596

SYSHRW 72HE





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.

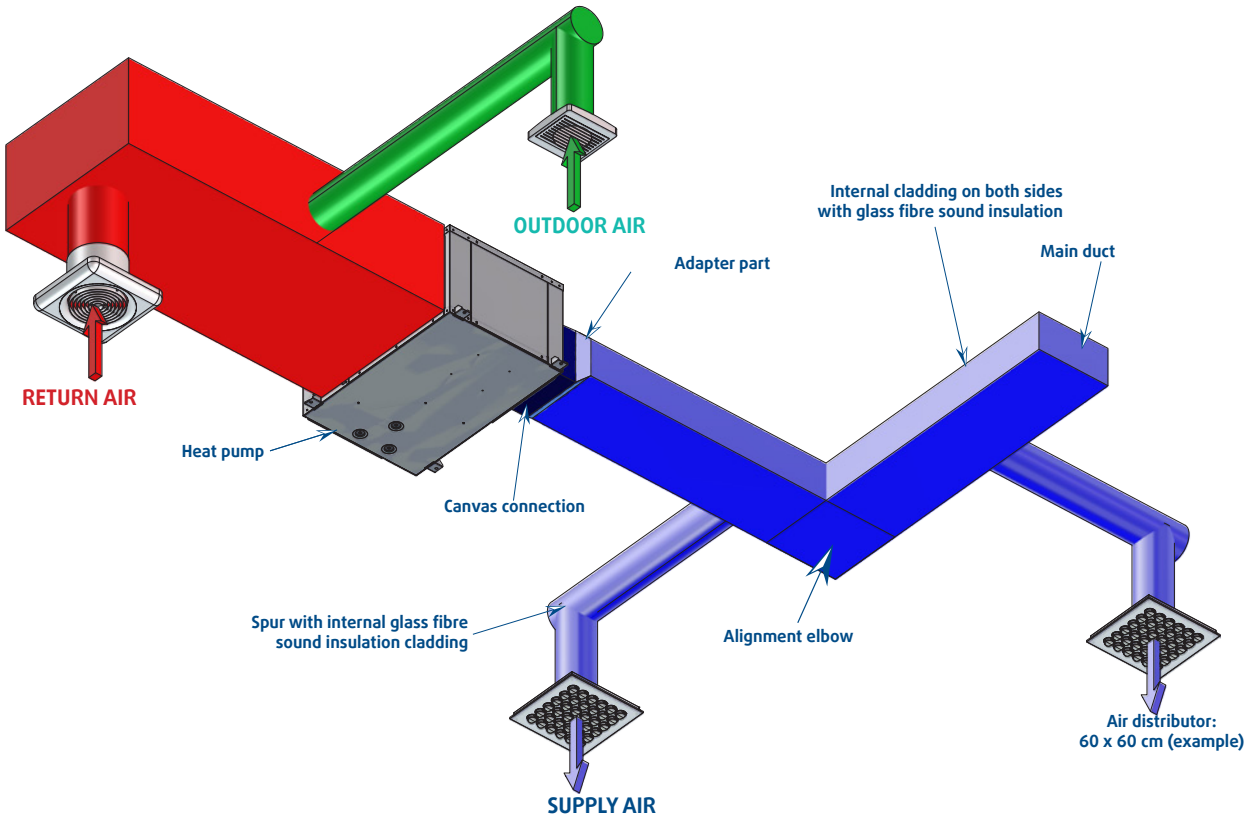
The duct network must be laid out to avoid any rectilinear runs betweens the heat pump outlet and the air distribution outlets.

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.

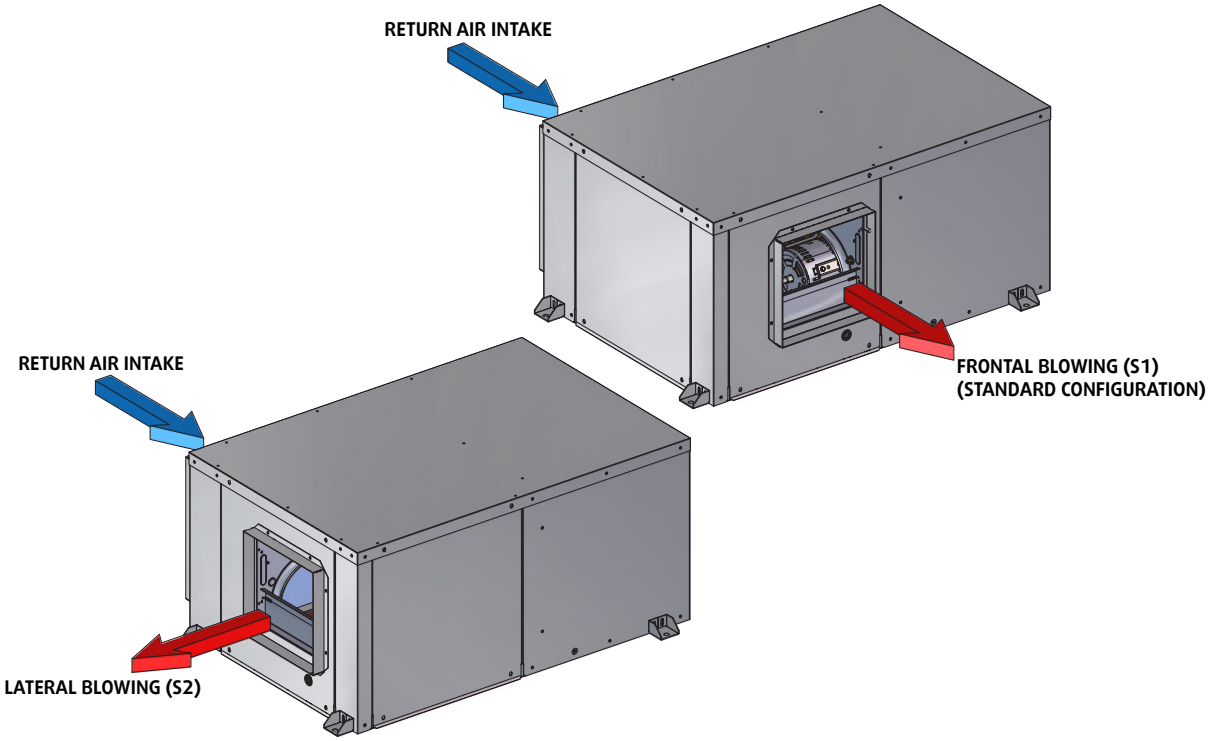
The return air intake duct can be connected directly to the standard filter bracket. (Lateral filter removal advisable).

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

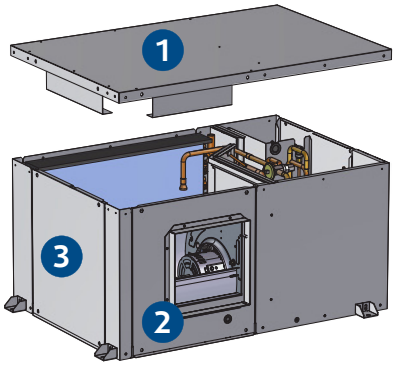


11.1. AIR BLOWING FRAME AND RETURN AIR INTAKE FRAME

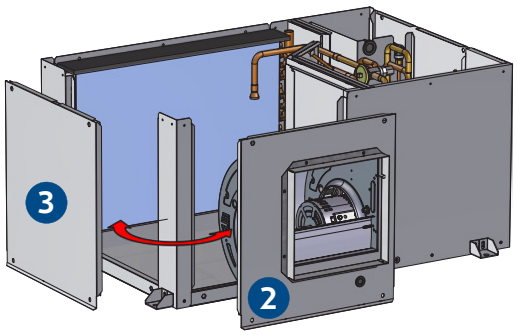


11.2. MODIFYING THE AIR BLOWING DIRECTION

The unit **SYSHRW** (except SYSHRW72HE) can be supplied configured for either frontal air blowing or for lateral air blowing. It is also possible to modify the air-blowing configuration on site. To achieve this:

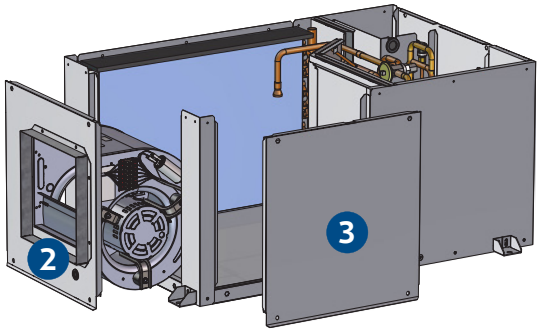


1. Remove the top panel **1**.

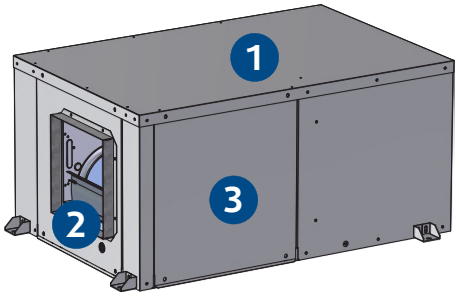


2. Remove the fan motor access panel 2 and release a small length of motor cable.

3. Remove the fan blower panel **3**.



4. Fit the fan blower panel **3** in the same location as the access panel **2**.

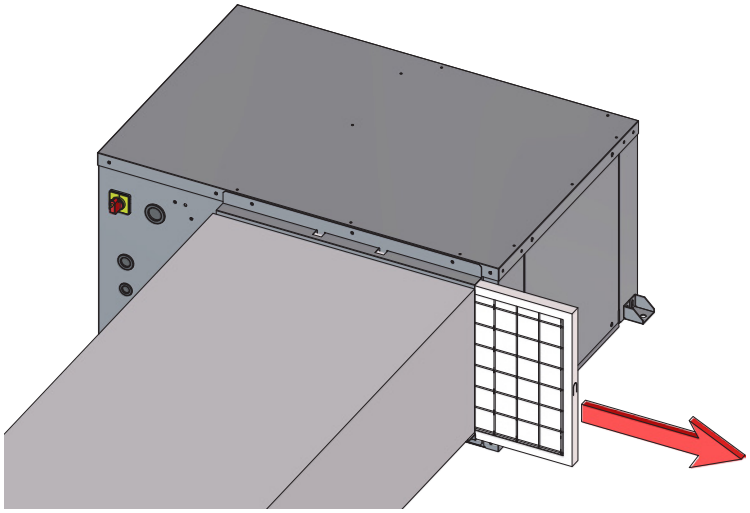


5. Refit the fan access panel **2**.

6. Refit the top panel **1**.

11.3. FILTER ACCESS

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

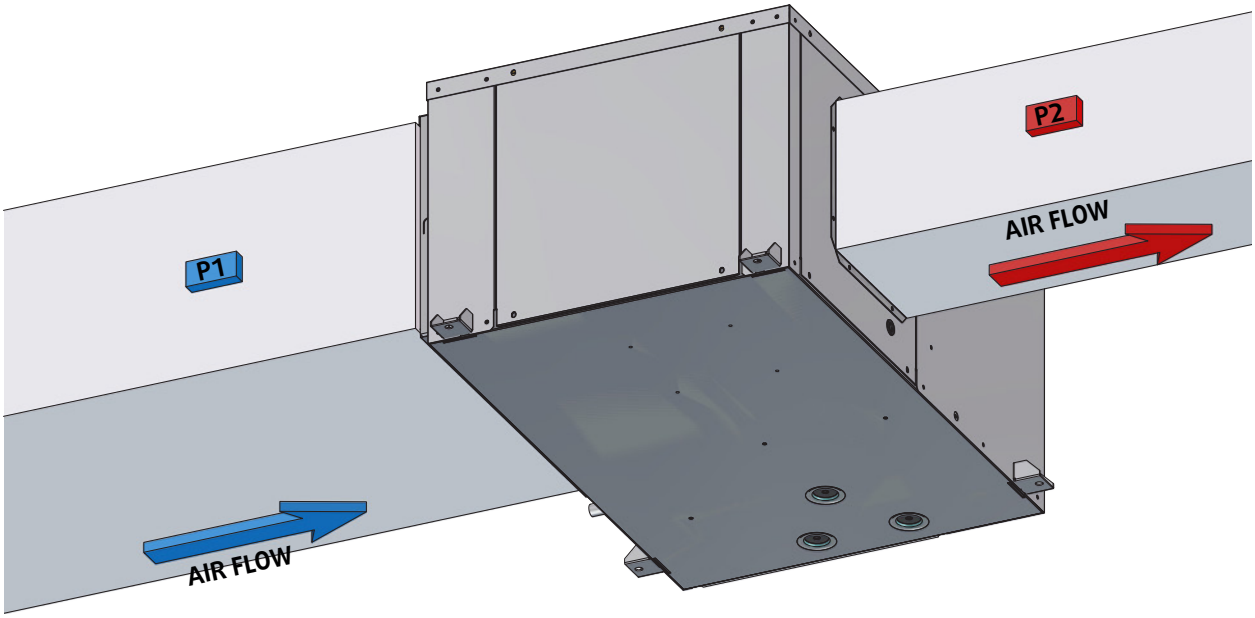


11.4. VENTILATION

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 10).

11.5. AERAULIC ADJUSTEMENT

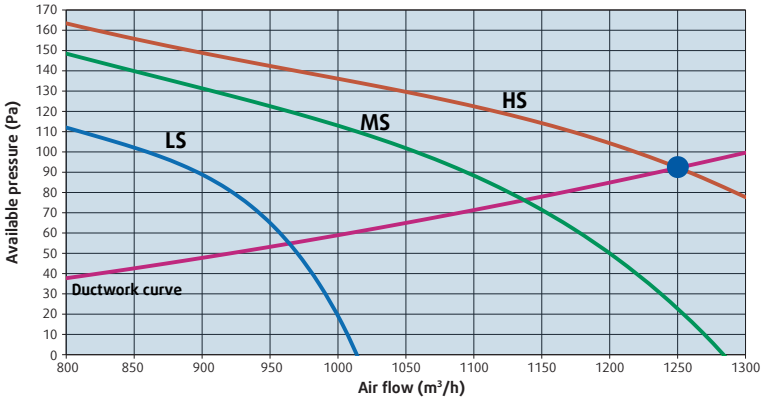


P1 : External static pressure at the air intake

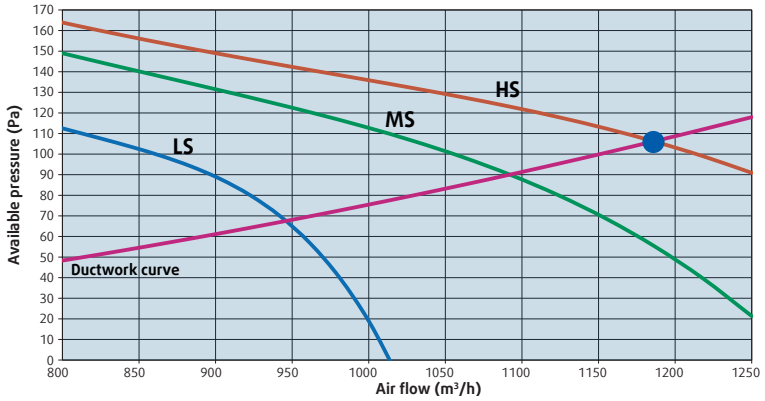
P2 : External static pressure at blowing

EXTERNAL STATIC PRESSURE = P2-P1

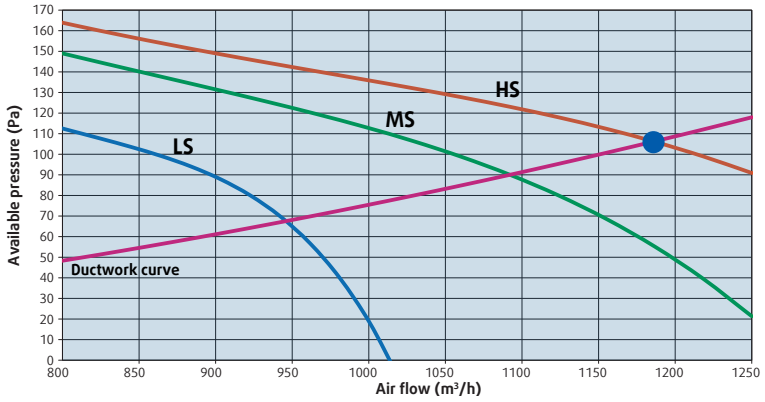
11.5.1. MODEL SYSHRW19



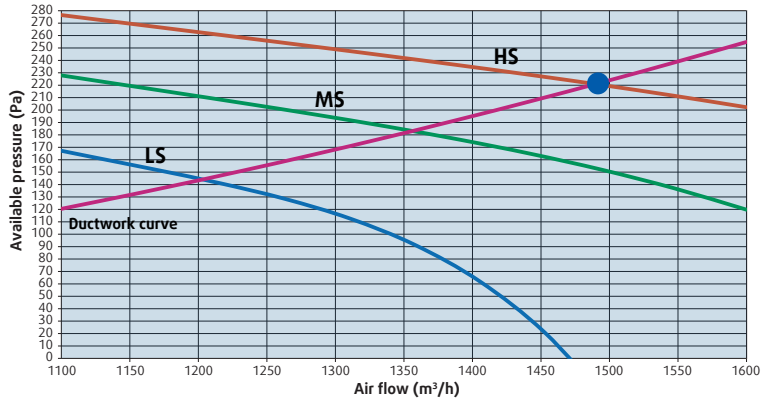
11.5.2. MODEL SYSHRW27



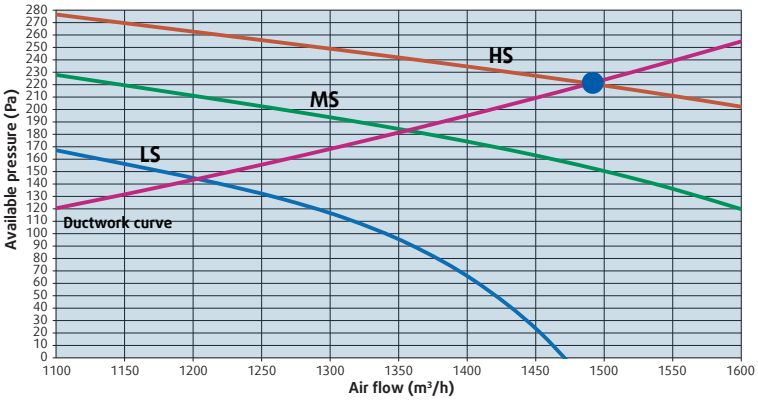
11.5.3. MODEL SYSHRW27HE



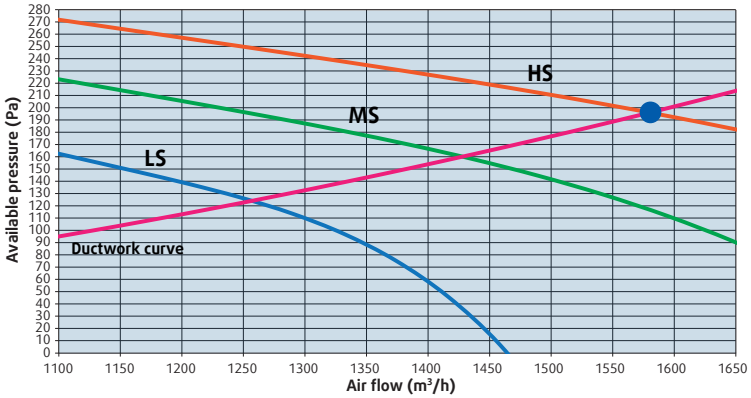
11.5.4. MODEL SYSHRW30



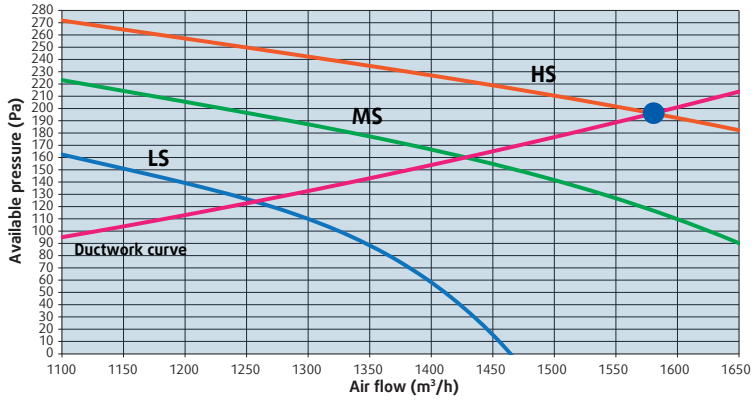
11.5.5. MODEL SYSHRW30HE



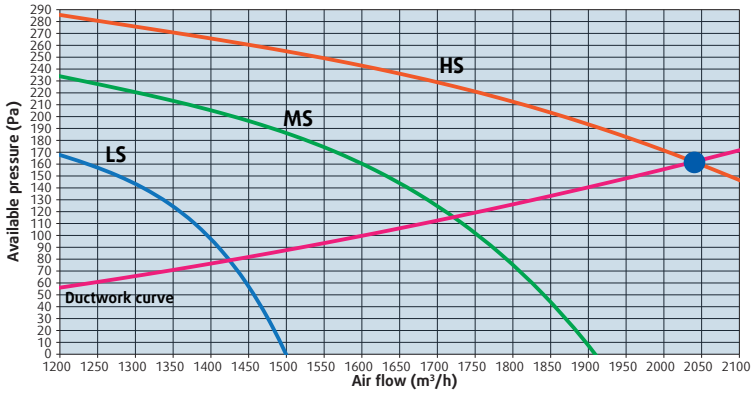
11.5.6. MODEL SYSHRW36



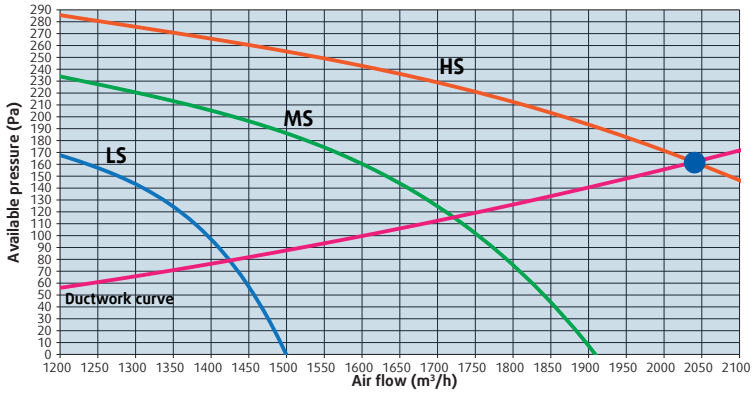
11.5.7. MODEL SYSHRW36HE



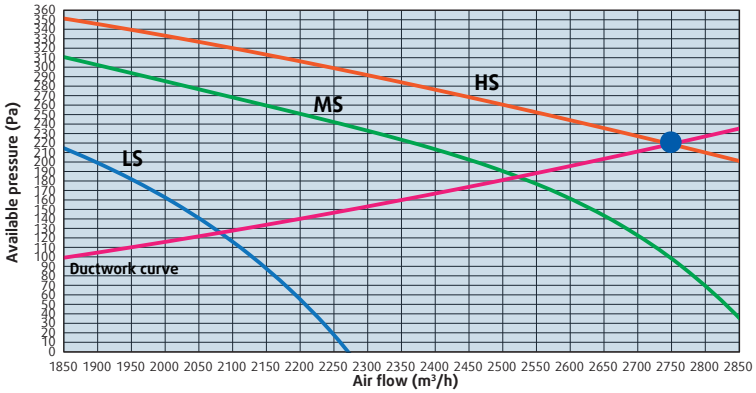
11.5.8. MODEL SYSHRW42



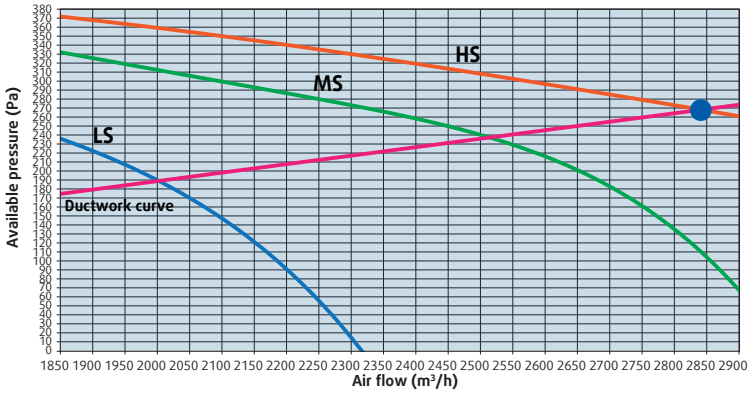
11.5.9. MODEL SYSHRW42HE



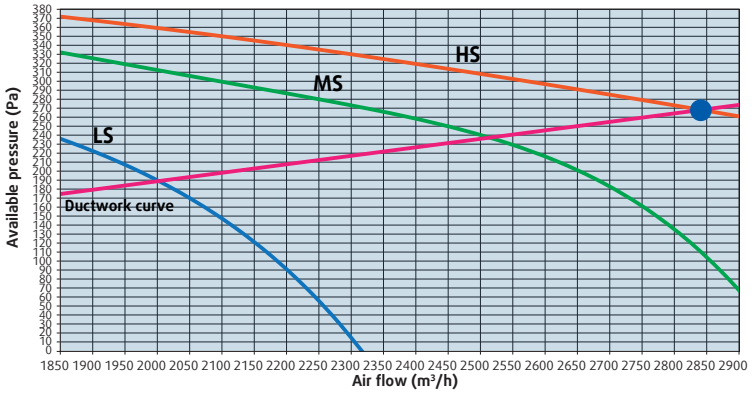
11.5.10. MODEL SYSHRW48



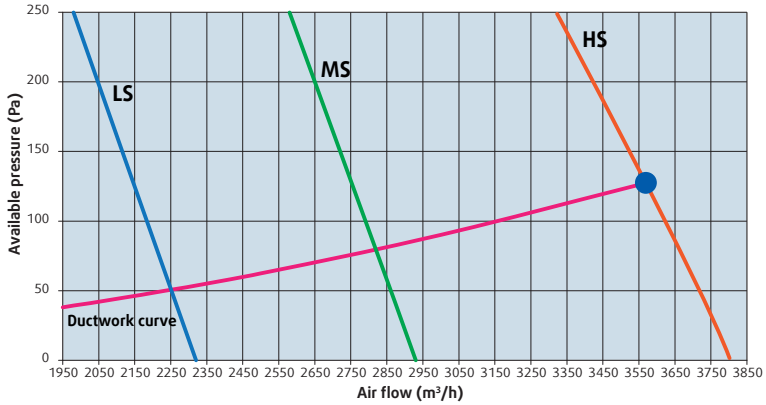
11.5.11. MODEL SYSHRW60



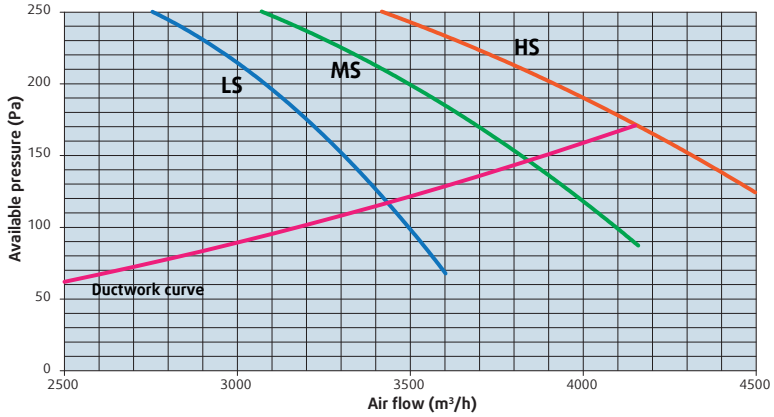
11.5.12. MODEL SYSHRW60HE



11.5.13. MODEL SYSHRW72



11.5.14. MODEL SYSHRW72HE



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 < 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

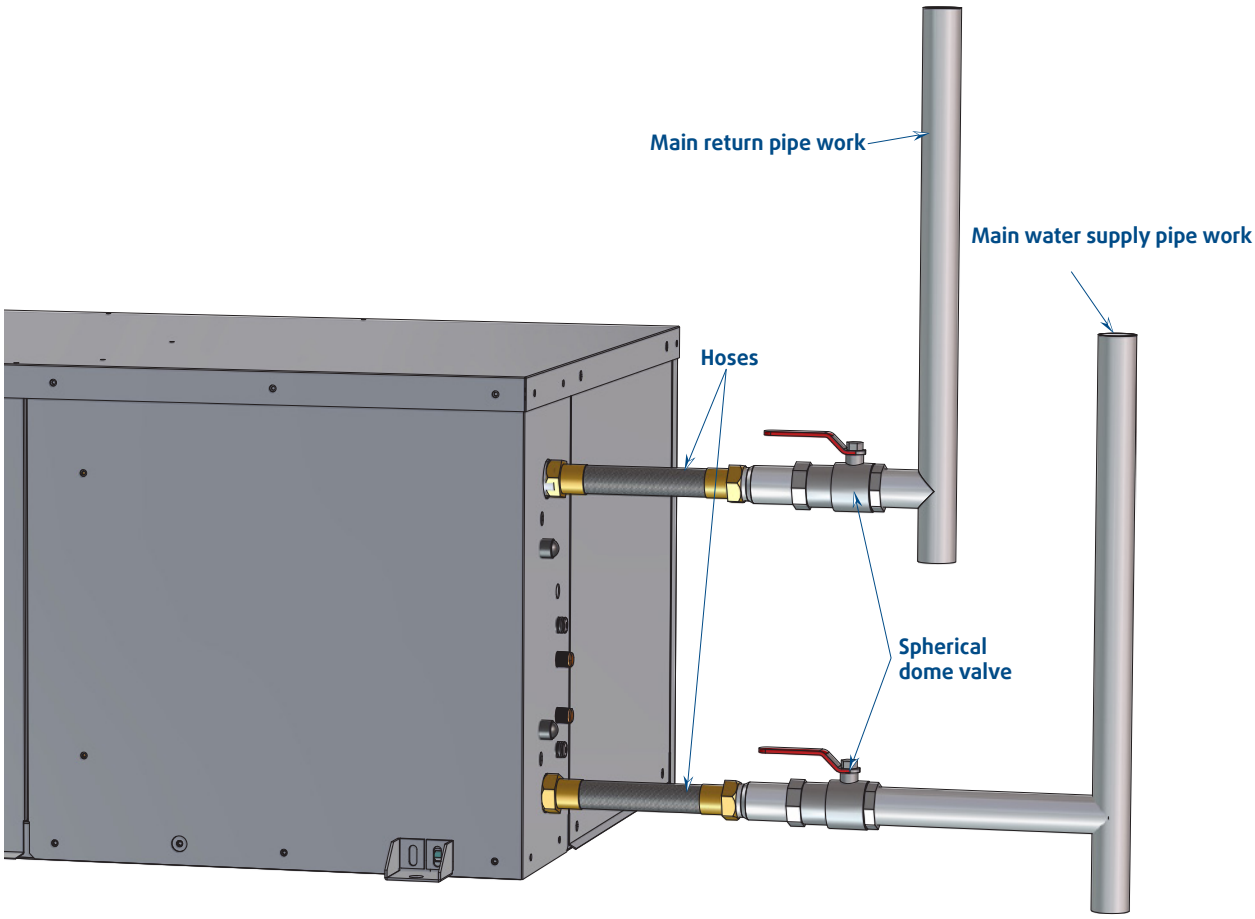
1. It is recommended that all units are connected to a water supply and return pipe system of the Tickelman Loop type. The Tickelman Loop system is self-balancing and thus only requires manual balancing if a large number of units with different flow and pressure loss characteristics are connected to 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.

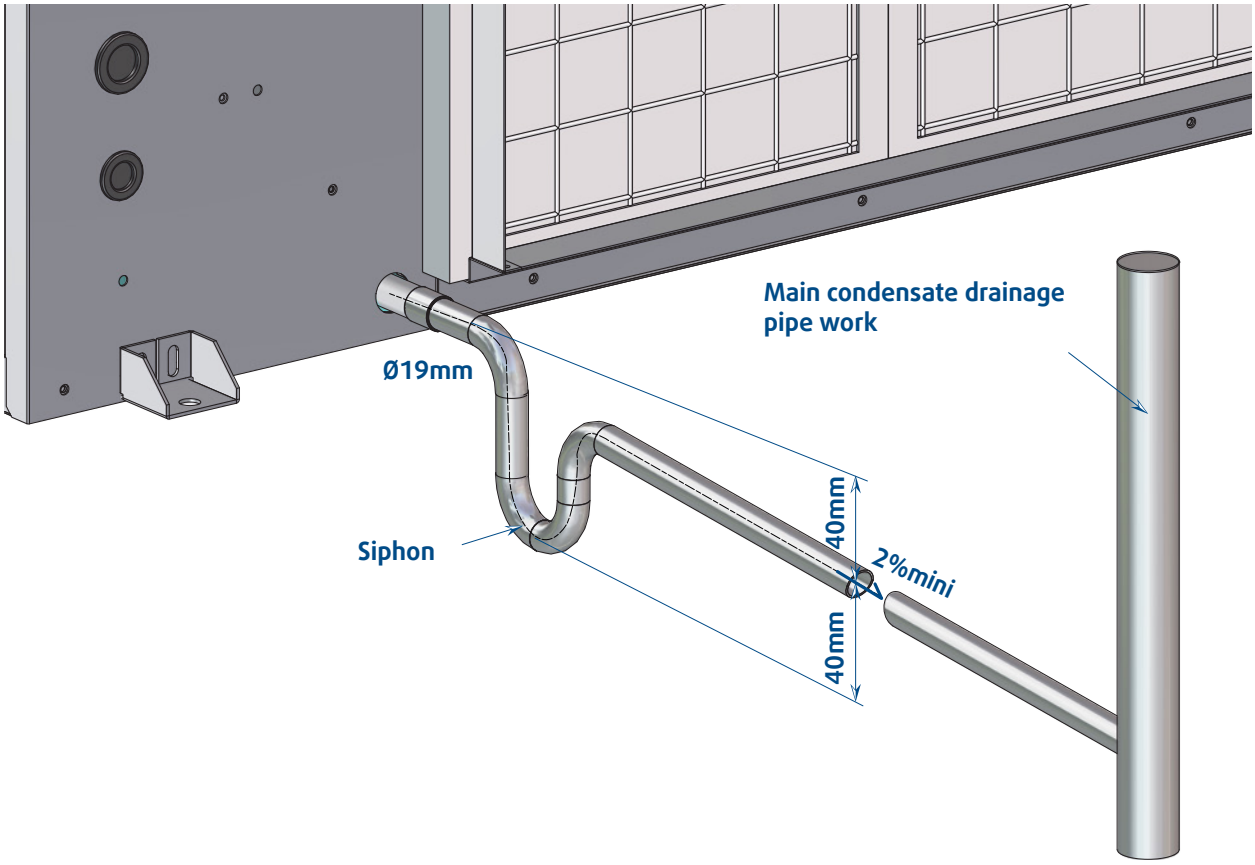
3. Water exchanger clogging reduces efficient appliance operation. We recommend the installation of a **strainer filter** (Ø 0.8mm) on the appliance's water inlet pipe. The filter must be installed if the water circuit cannot be cleaned. This filter should be installed between two cut-off valves and 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.

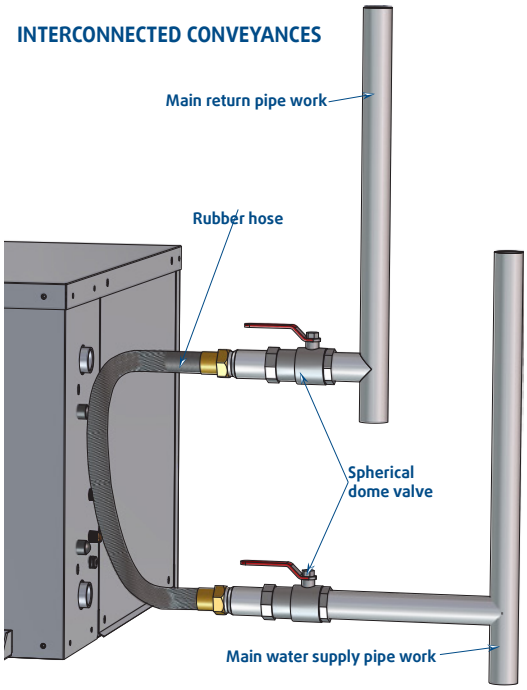


A complete condensates drainage system with copper or P.V.C. pipe can also be used. Screw-on connectors shall be fitted to facilitate drainage pipe removal if copper pipe is used for the drainage pipe work.

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 connecters.
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 form 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

SE4915	SYSHRW 19	Control Siemens POL423	230V 50Hz +/- 10%
SE4916	SYSHRW 27/27HE/30/30HE/36/36HE/42/42HE/48/60/60HE	Control Siemens POL423	400V / 3~ N / 50Hz +/- 10%
SE4917	SYSHRW 72	Control Siemens POL423	400V / 3~ N / 50Hz +/- 10%
SE4987	SYSHRW 72HE	Control Siemens POL423	400V / 3~ N / 50Hz +/- 10%

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 10

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)

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.

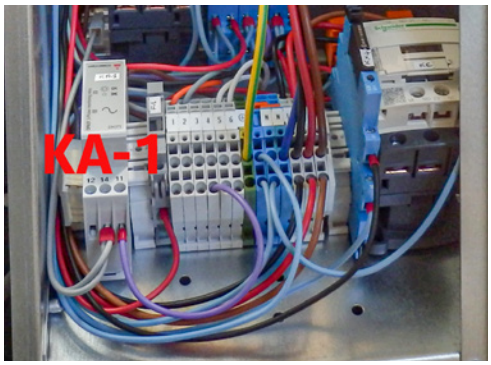
Any modification made without our consent will void the unit's warranty.

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 10



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 10).

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

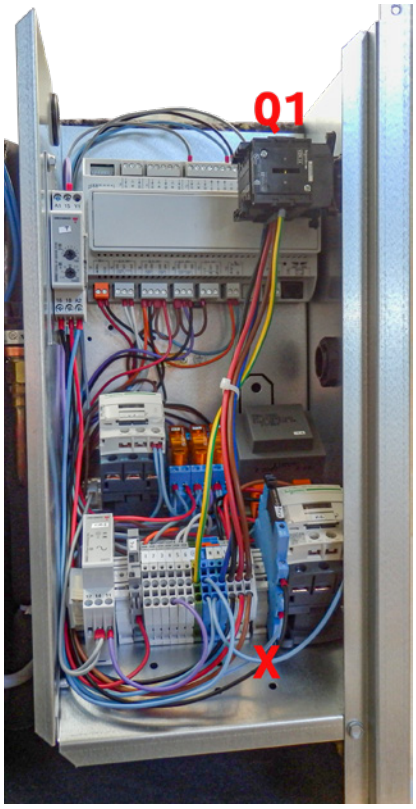
Supplying the unit with a line with an unbalance exceeding the acceptable value will void the warranty.

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.

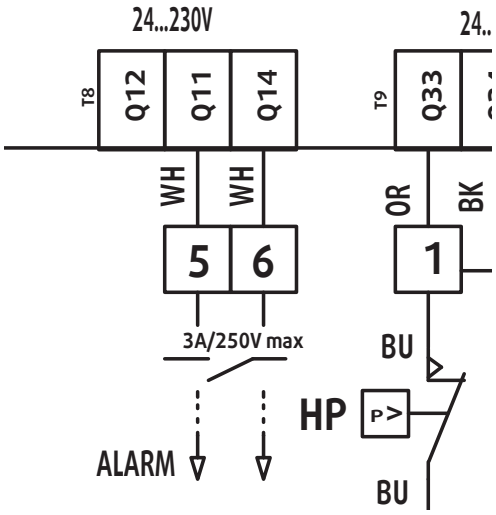
Maximum cross-section of the copper power cables:

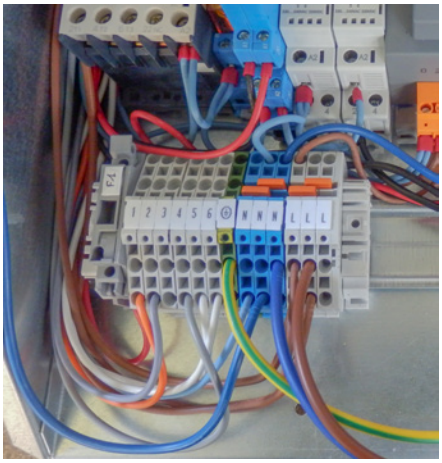
MODEL			19	27	27HE	30	30HE	36	36HE
TERMINAL	RIGID CABLE	mm^2	4	4	4	4	4	4	4
	FLEXIBLE CABLE	mm^2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
SWITCH	RIGID CABLE	mm^2	4	4	4	4	4	4	4
	FLEXIBLE CABLE	mm^2	4	4	4	4	4	4	4

MODEL			42	42HE	48	60	60HE	72	72HE
TERMINAL	RIGID CABLE	mm^2	4	4	4	4	4	4	4
	FLEXIBLE CABLE	mm^2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
SWITCH	RIGID CABLE	mm^2	4	4	4	4	4	10	10
	FLEXIBLE CABLE	mm^2	4	4	4	4	4	10	10

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.





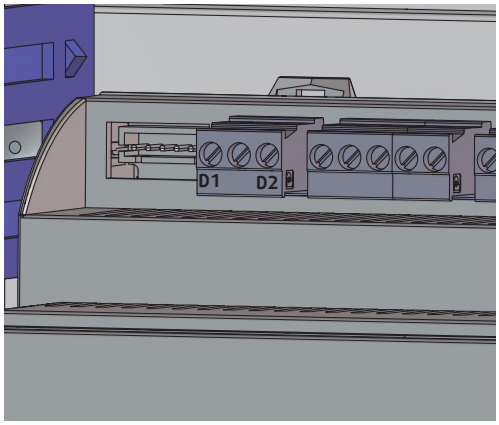
Caution

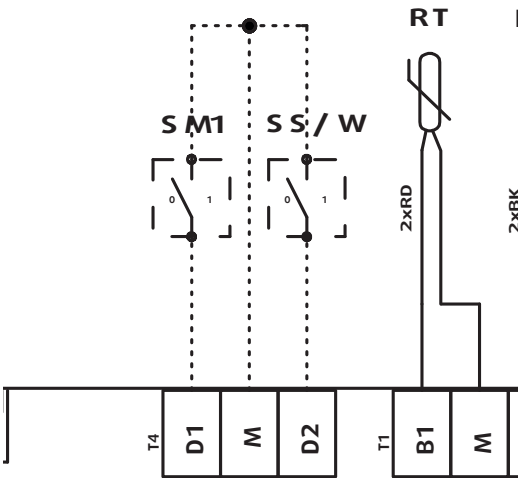
The unit must only be rendered accessible for maintenance if the client cables connected to terminals 5 and 6 are locked out/tagged out (disconnected or rendered inoperative upstream of the unit).

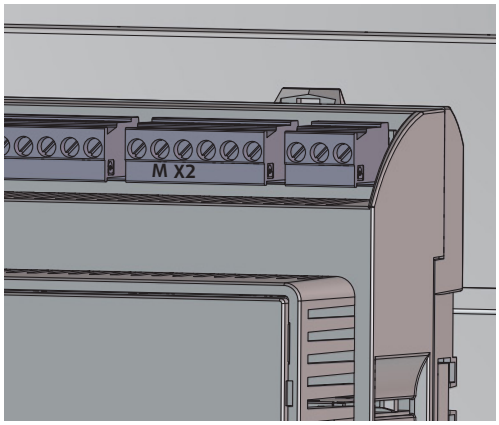
14.3. REMOTE CONTROLS

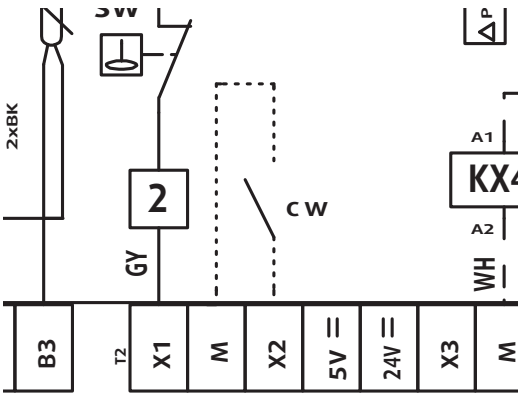
The **SYSHRW** has two remote controls operating via dry contacts (not supplied):

- 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 X2 and M on the controller.





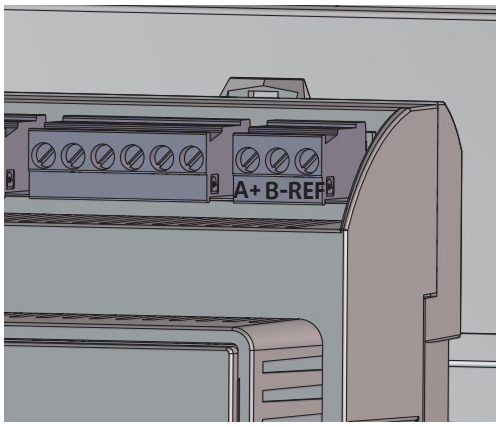




14.4. COMMUNICATION

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

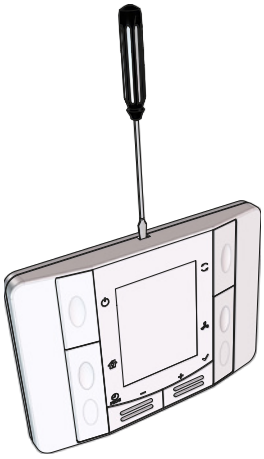
- Modbus RTU
- BACNet MS/TP



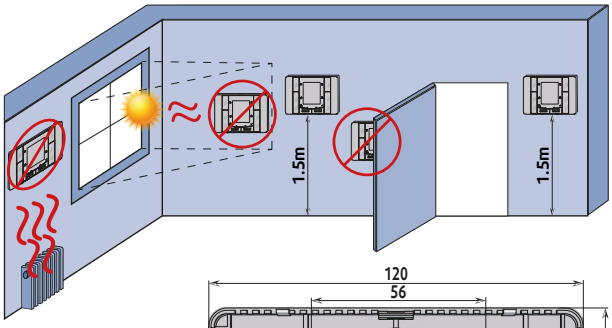
Modbus RTU or BACnet MS/TP communications are via the RS485 connection on the controller (terminals A+ and B+) and a BUS type cable (1 twisted pair, shielded) with a 0.22 mm^2 cross-section.

14.5. REMOTE CONTROL

14.5.1. WALL MOUNTING

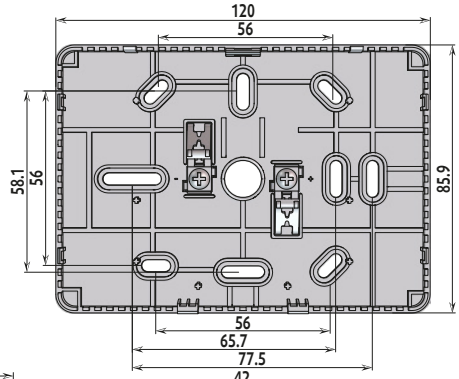


1. Separate the remote control from its rear plate.



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.

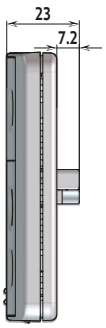


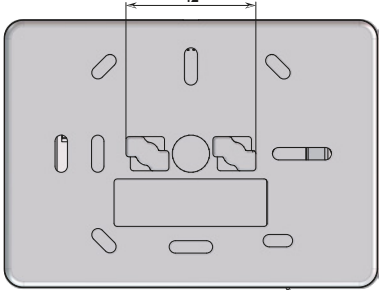
2. Fitting the rear plate :

- 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 wal.

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

4. Clip the remote control onto the rear plate.



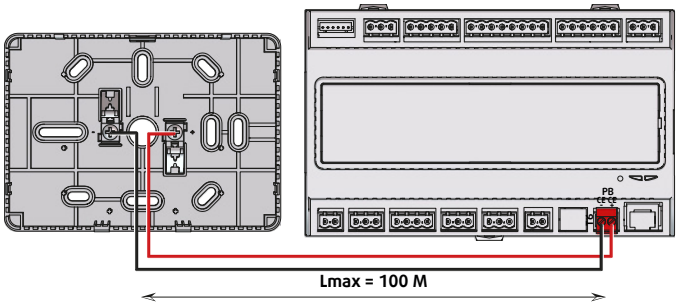


14.5.2. ELECTRICAL CONNECTIONS

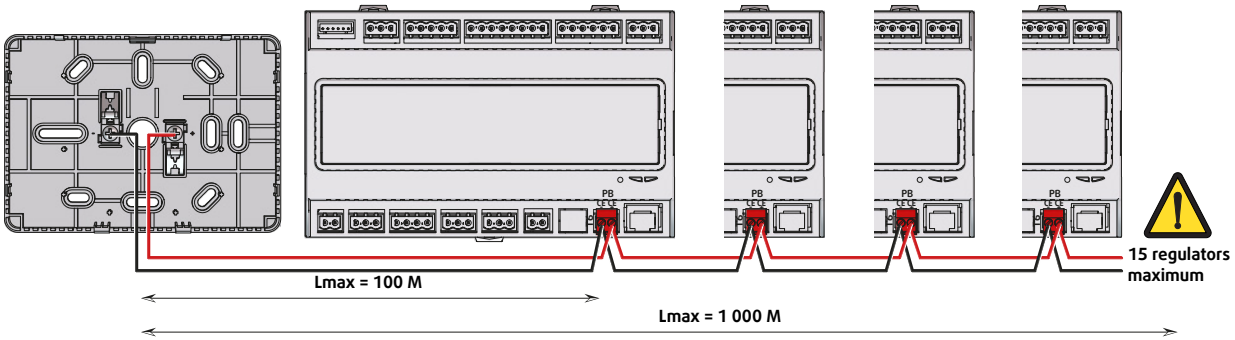
The control return must be connected as per the following diagrams.

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

SYSHRW - AUTONOMOUS



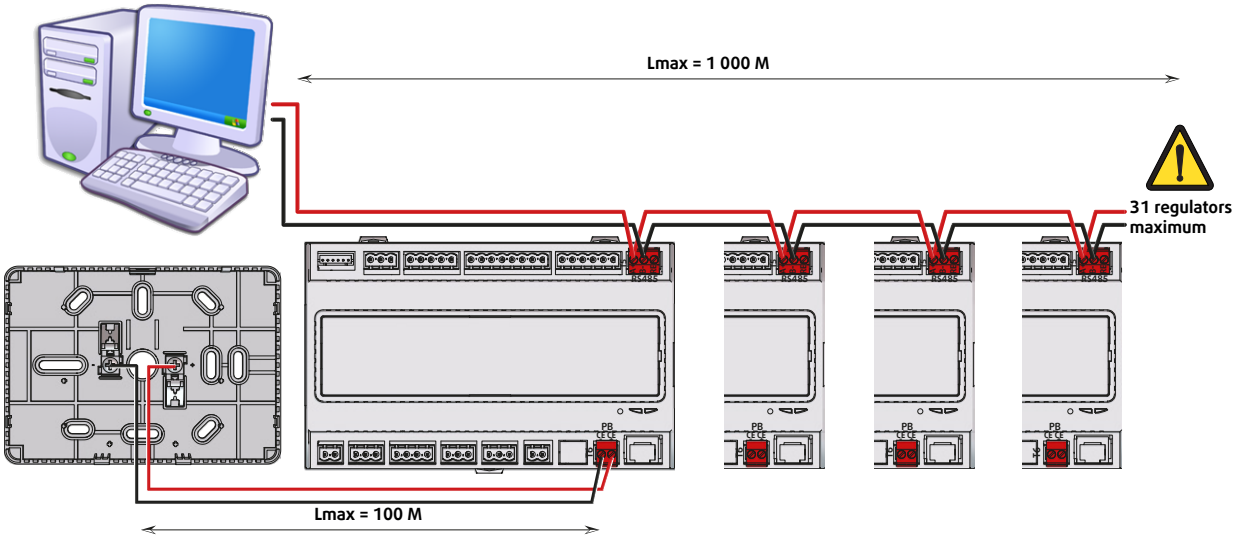
SYSHRW - MASTER/SLAVES



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 it commands according to the communication protocols
4. Timing programming: this scheduling is integrated in the regulator

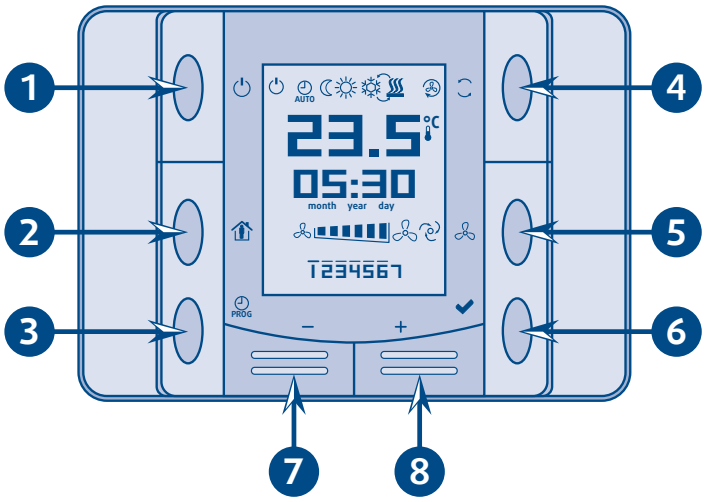
15.2. WALL-MOUNTED CONTROL

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...

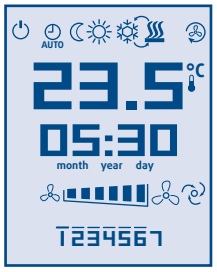
It also includes a temperature sensor to measure the ambient temperature.



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	PROG	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		Press to modify the ventilation speed.
6	Confirmation		Confirms the modification of a setting
7	-		Edits the value of a setting when it is selected.
8	+		

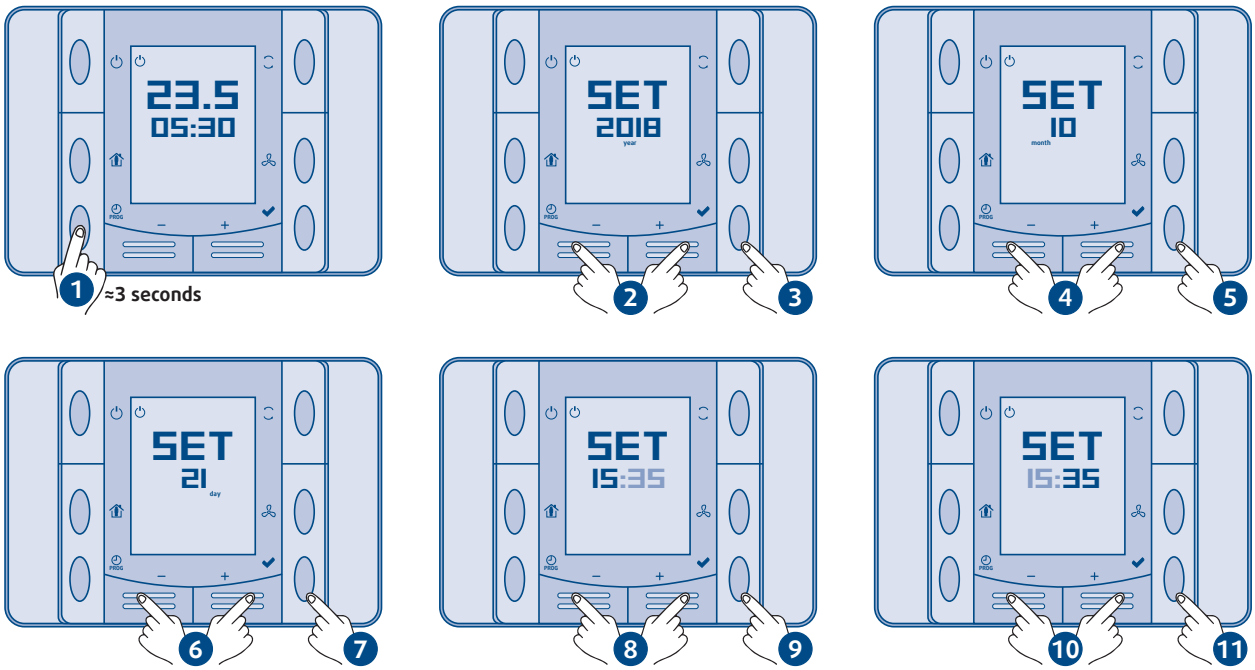
15.2.2. SCREEN



Icons	Meanings
	SYSHRW off
AUTO	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
23.5 °C	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.
05:30	System time
	Fan speed In all modes, the number of bars shows the fan's actual operating speed. The symbol indicates that the ventilation speed is controlled automatically.
T234567	Scheduling day and time slot

15.2.3. TIME SETTINGS

Press and hold the PROG 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

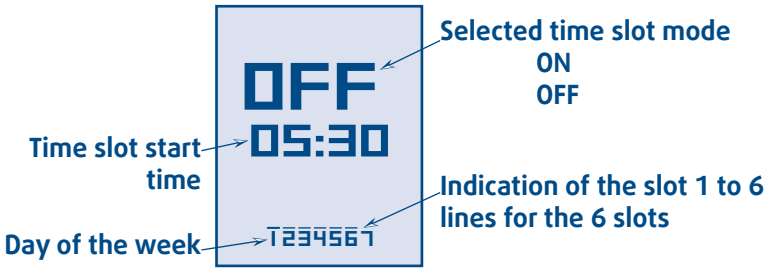
A power outage leads to the loss of time after 6 hours.

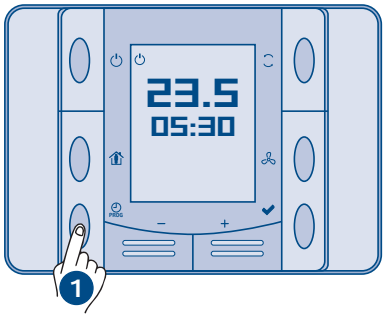
15.2.4. SCHEDULING

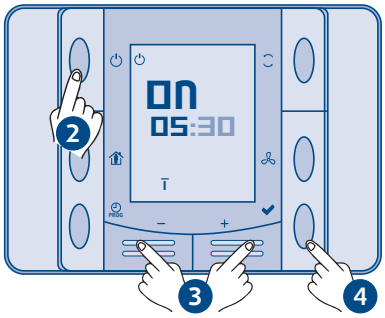
Scheduling is used to select the unit activation and shutdown times. Each day is broken down into 6 time slots set by

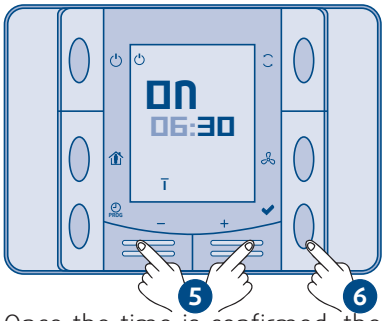
- A start time
- A state: ON or OFF

To open the time programming, briefly press the PROG button.

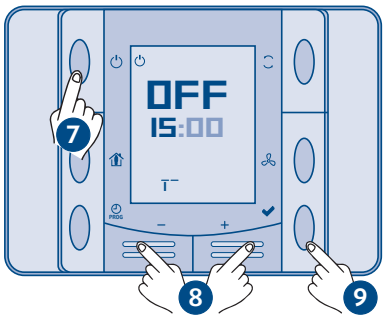


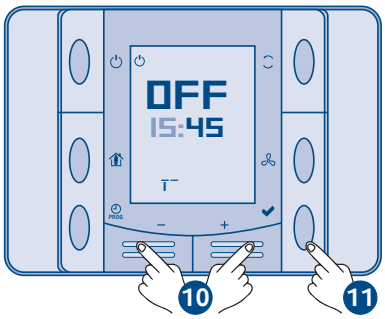


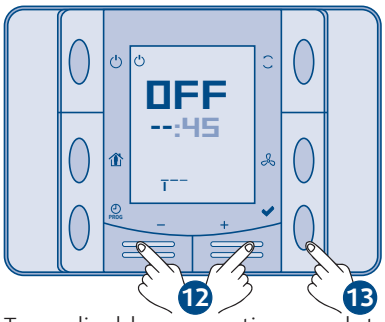




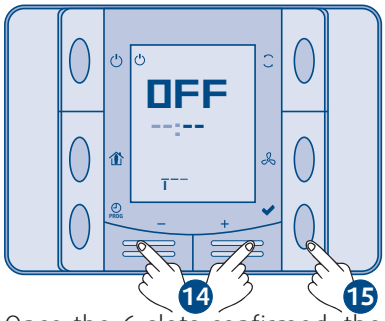
Once the time is confirmed, the following slot is displayed







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



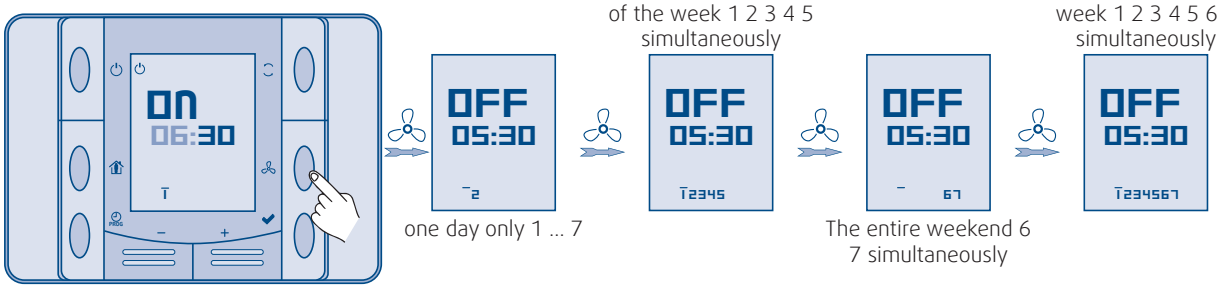
Once the 6 slots confirmed, the first slot of the day is displayed.

Information

To close, you can briefly press the PROG 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 10 and in § WIRING DIAGRAM, page XVII).
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 10).
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 a 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 41).
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 10). 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 10). 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 10). 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 10). 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 38). 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.

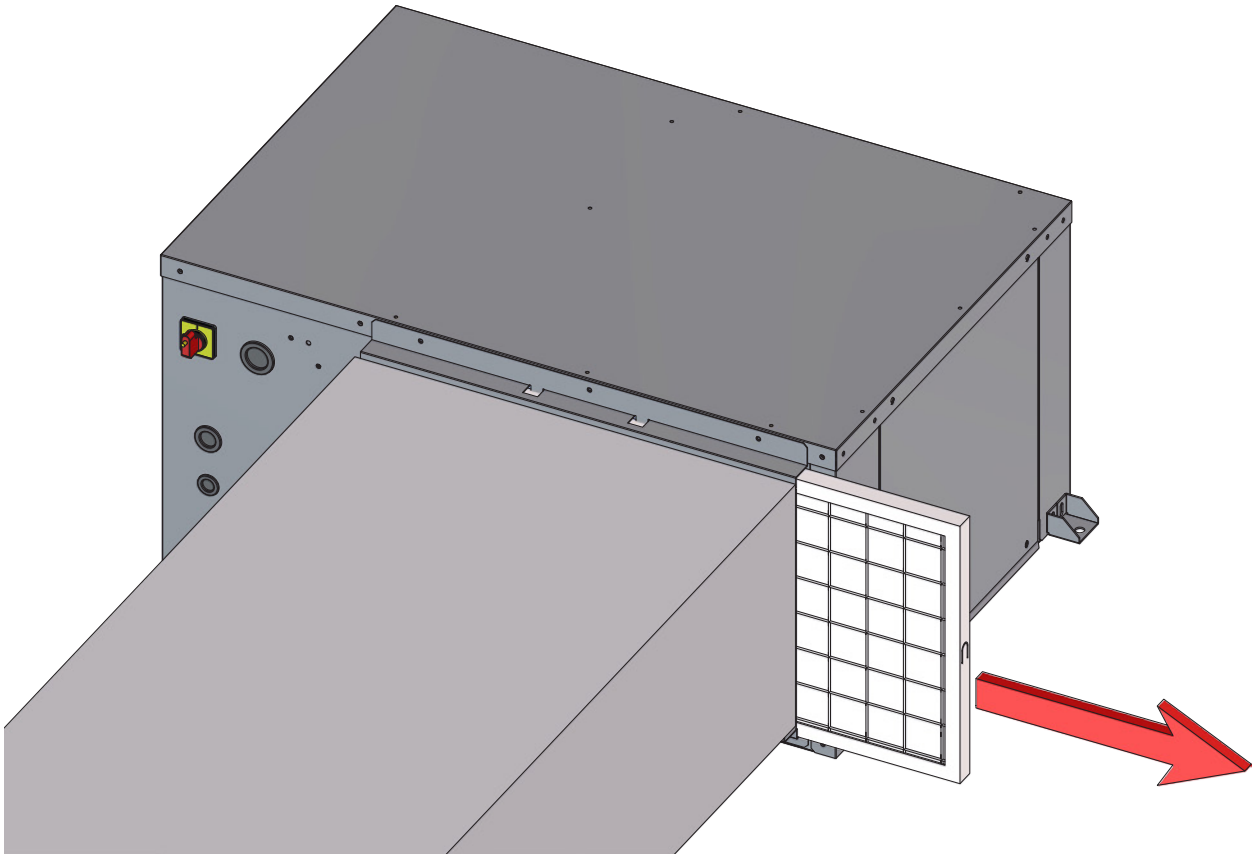
18.1.5. AIR FILTER

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. FAN MOTOR ASSEMBLY

There is no particular maintenance on fan and motor assembly. All fan coil units utilize permanently lubricated fan motor bearings.

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.

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 41 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 41 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 41).
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.

APPENDIX
ANNEXE
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APPENDIX

ANNEXE

ANLAGE

ALLEGATO

ANEXO

DIMENSIONS
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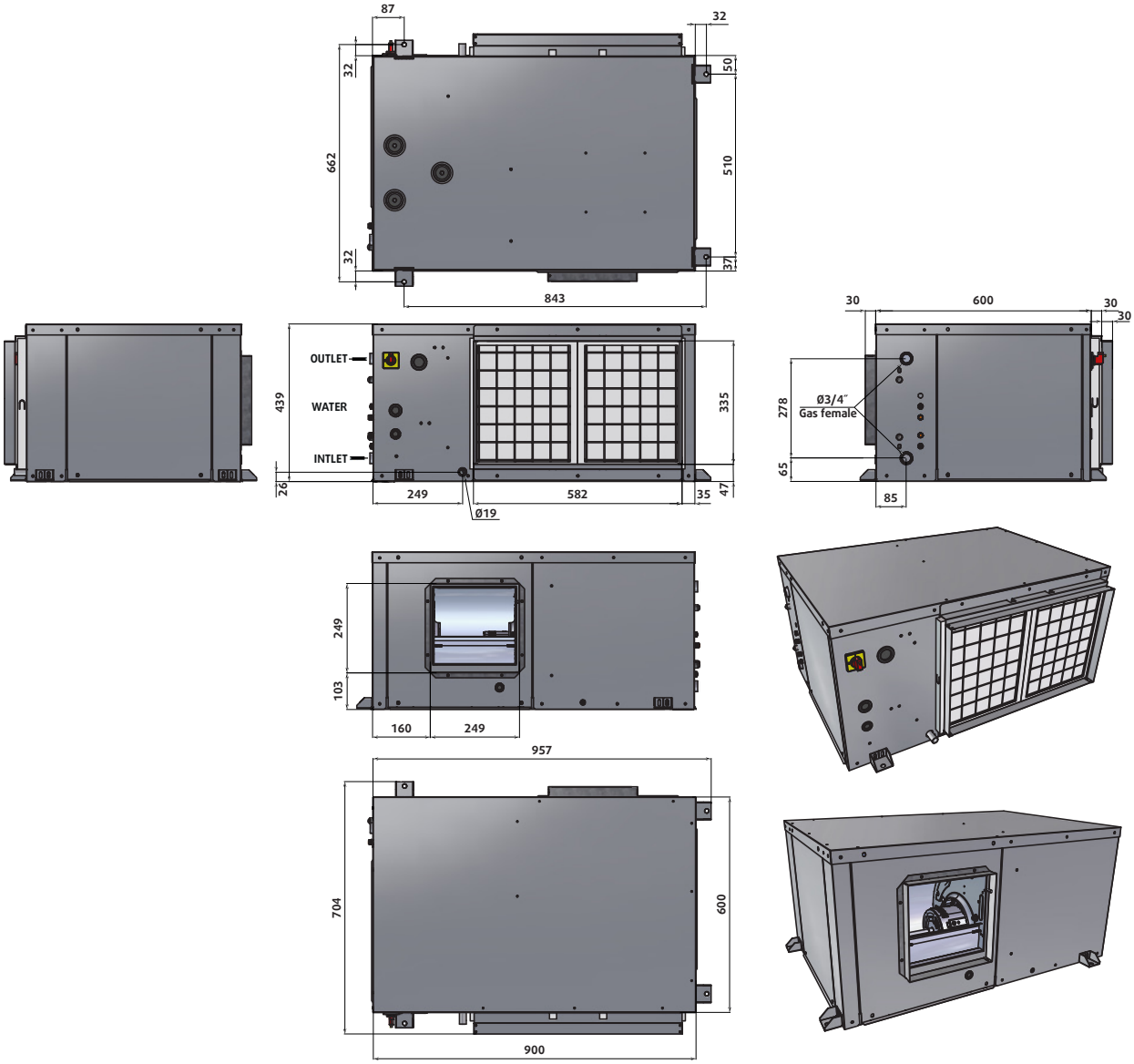
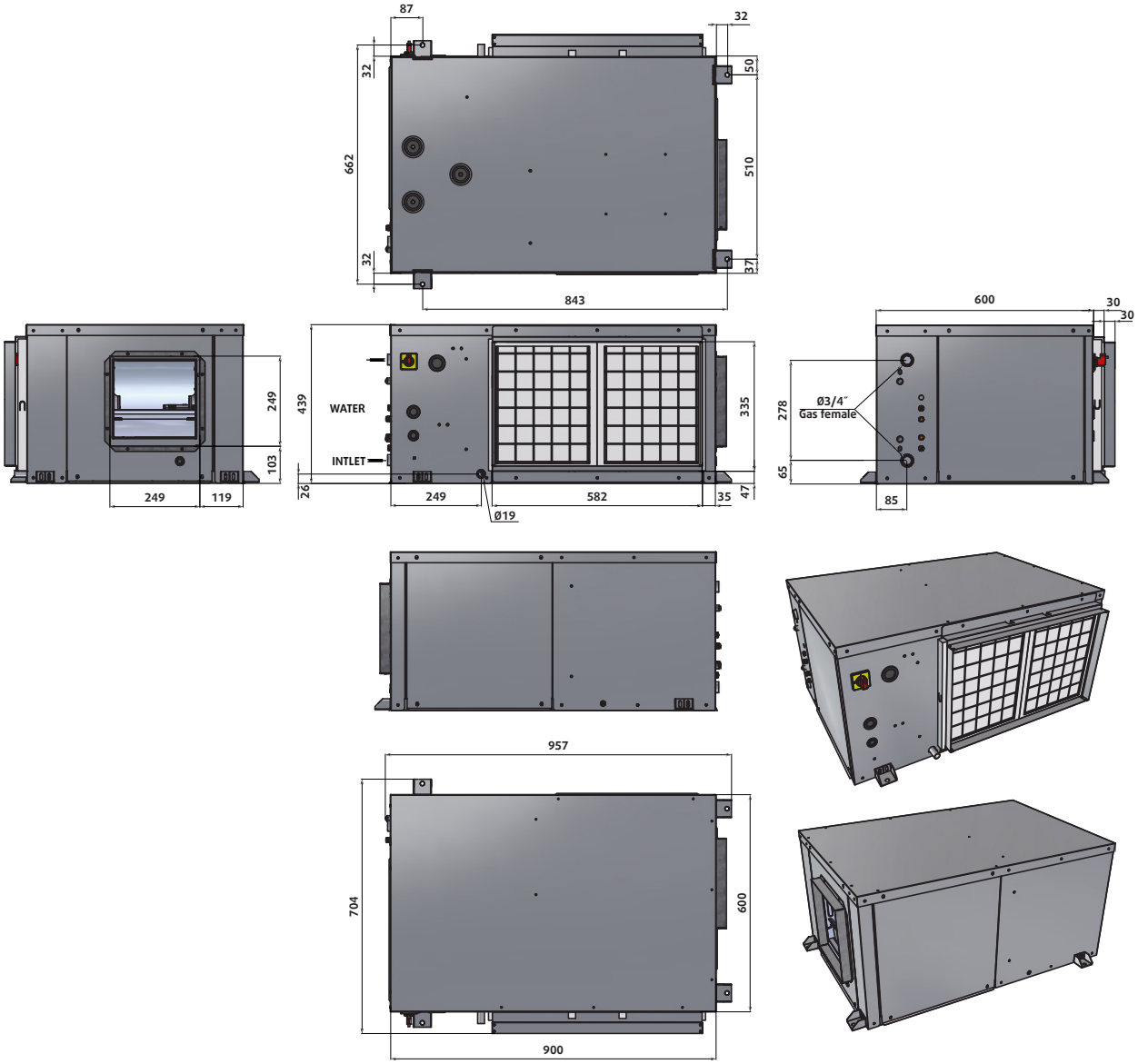
DIMENSIONES

SYSHRW 19 - S1



SYSHRW 19 - S2


87
32
32
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662
510
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37
843
600
30
30
249
103
439
WATER
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335
278
Ø3/4"
Gas female
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249
119
26
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582
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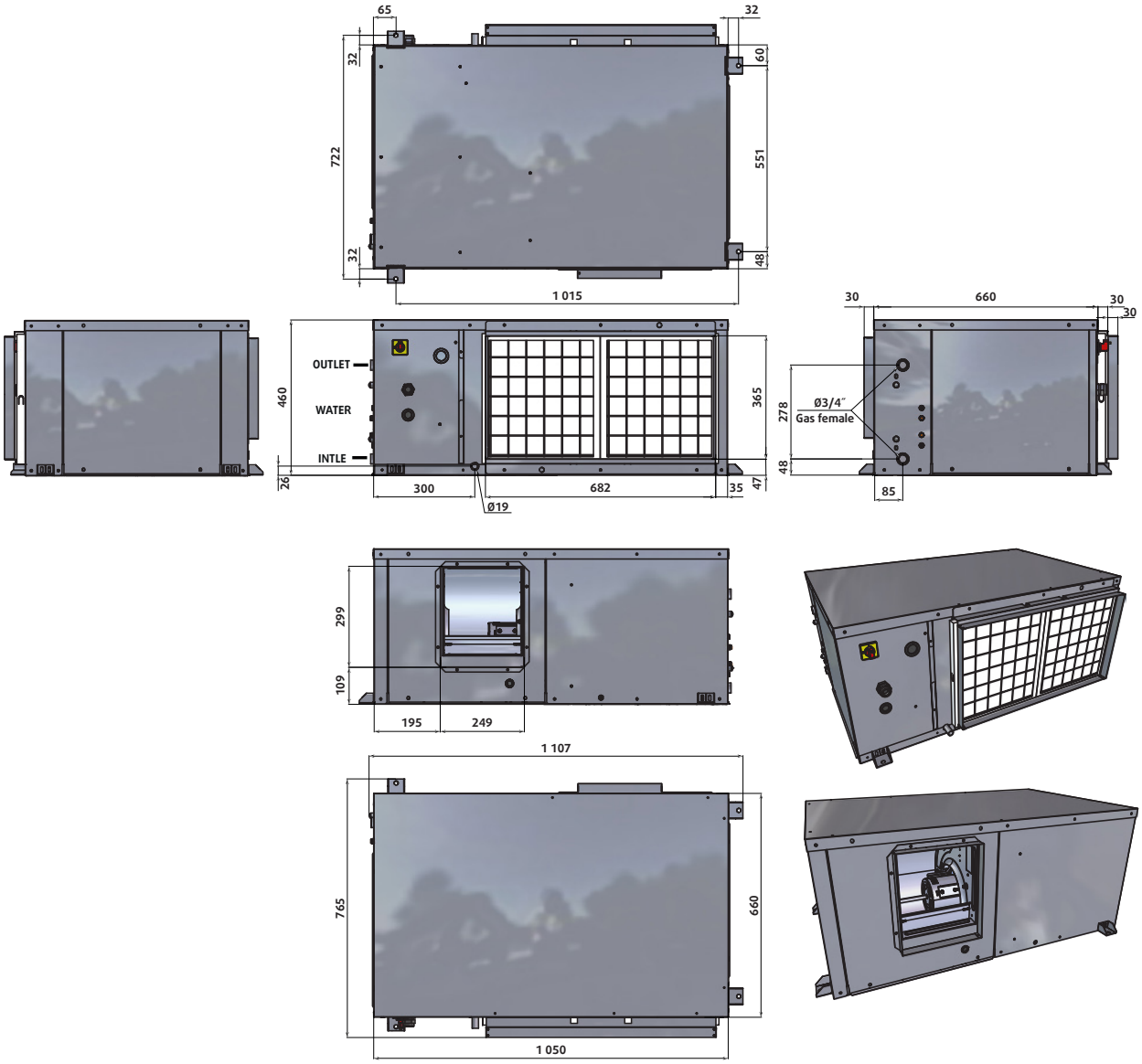
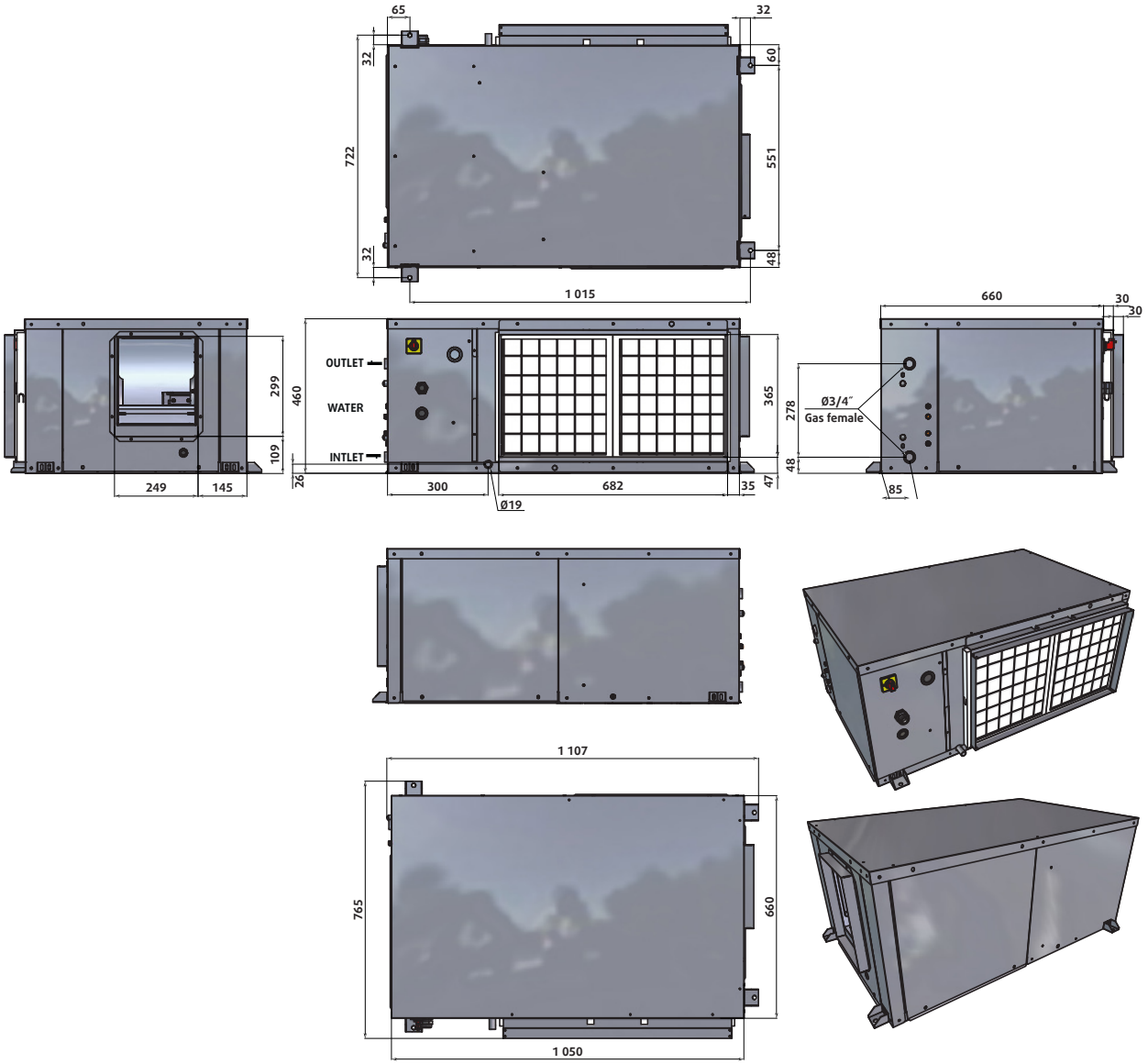
900

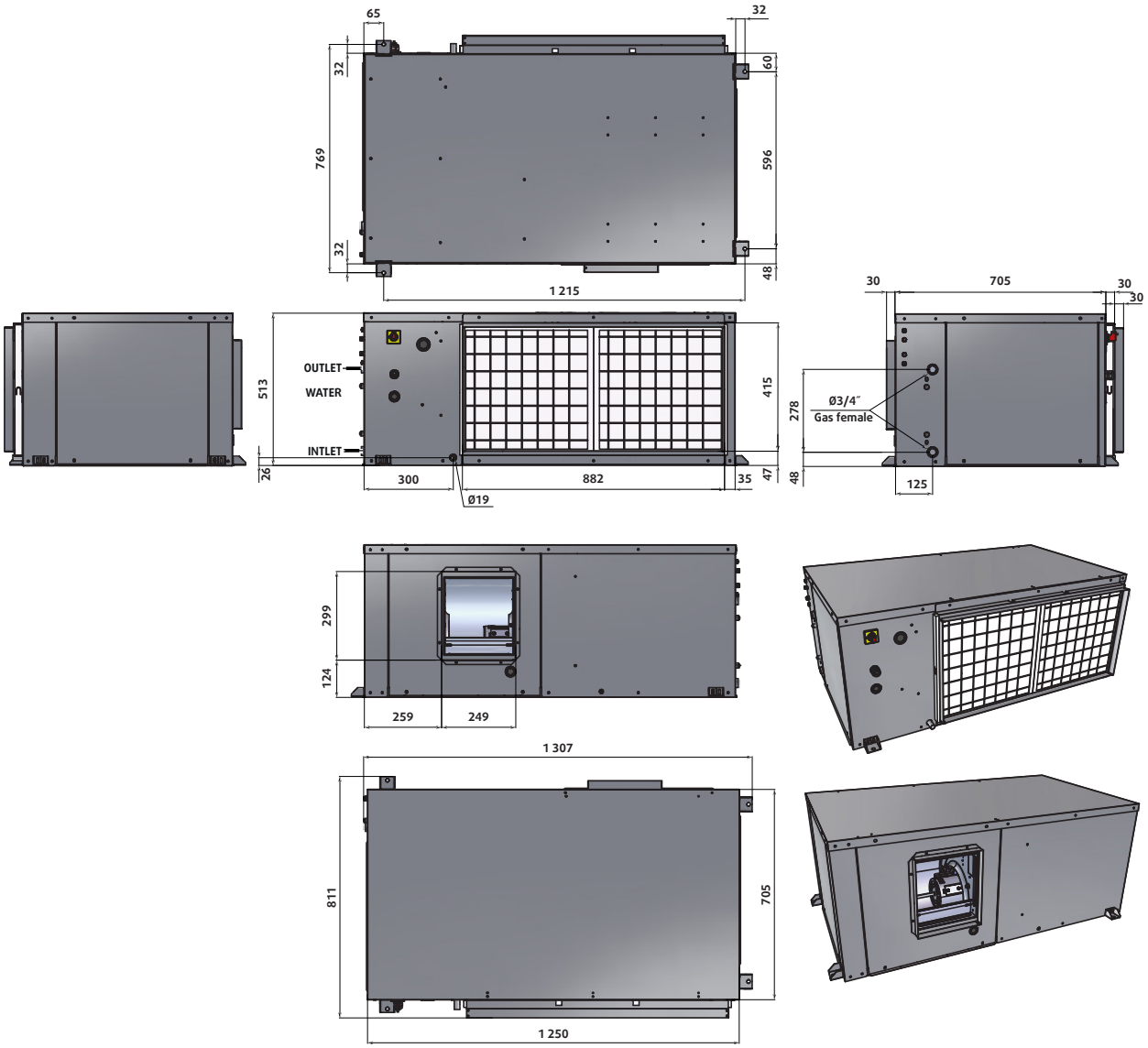
SYSHRW 27 / 27HE / 30 / 30HE / 36 - S1



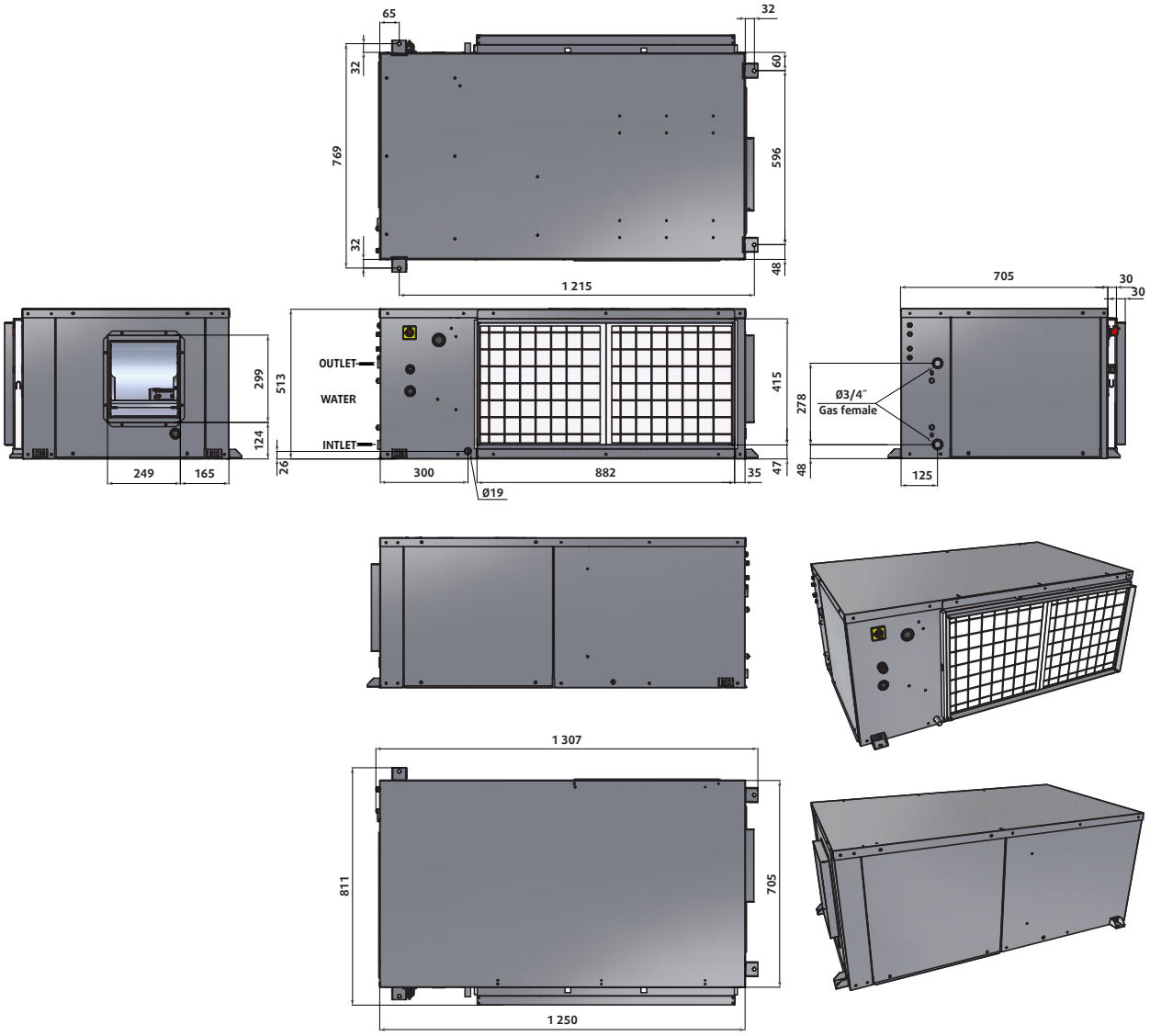
SYSHRW 27 / 27HE / 30 / 30HE / 36 - S2



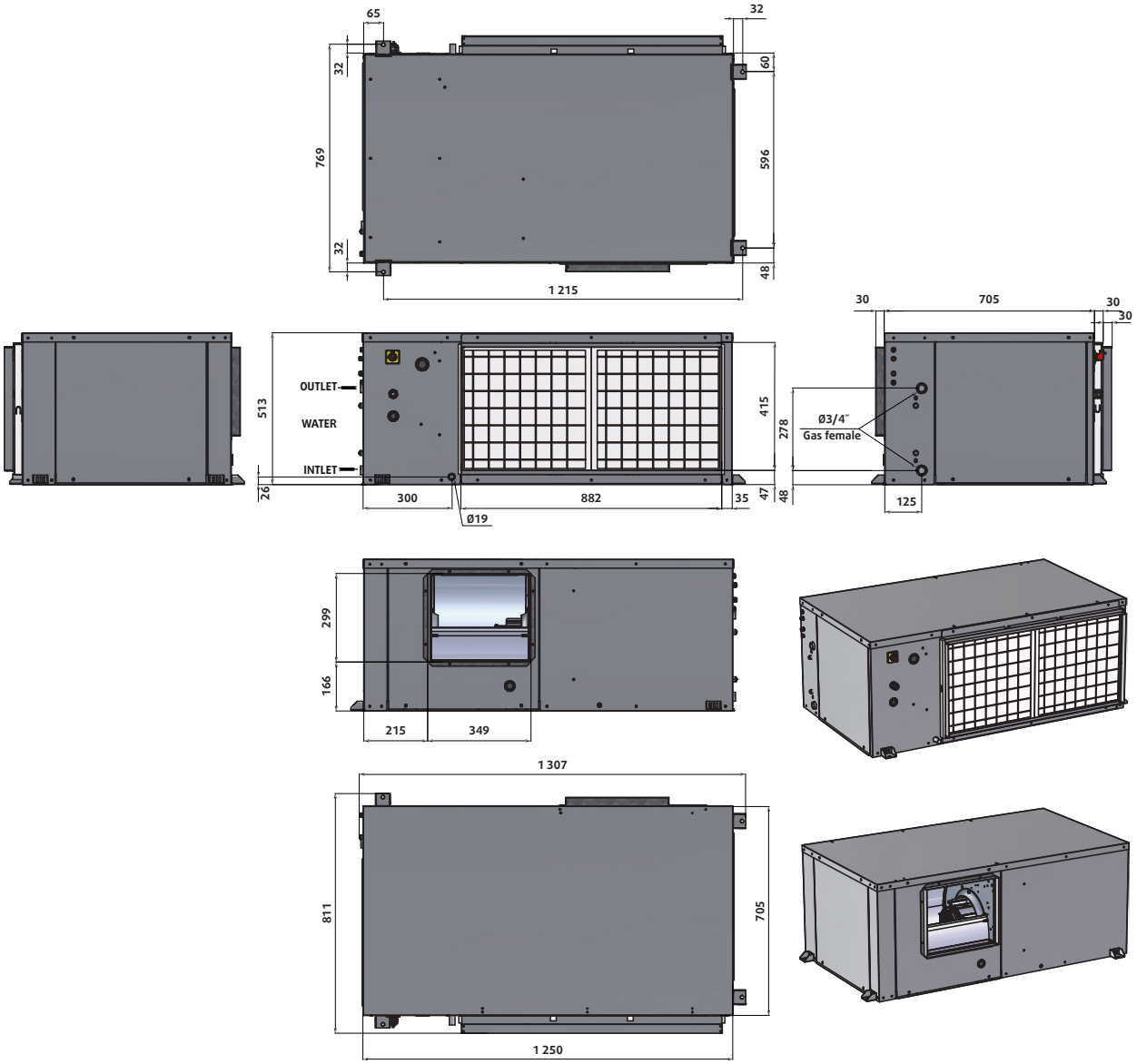
SYSHRW 36HE / 42 / 42HE - S1



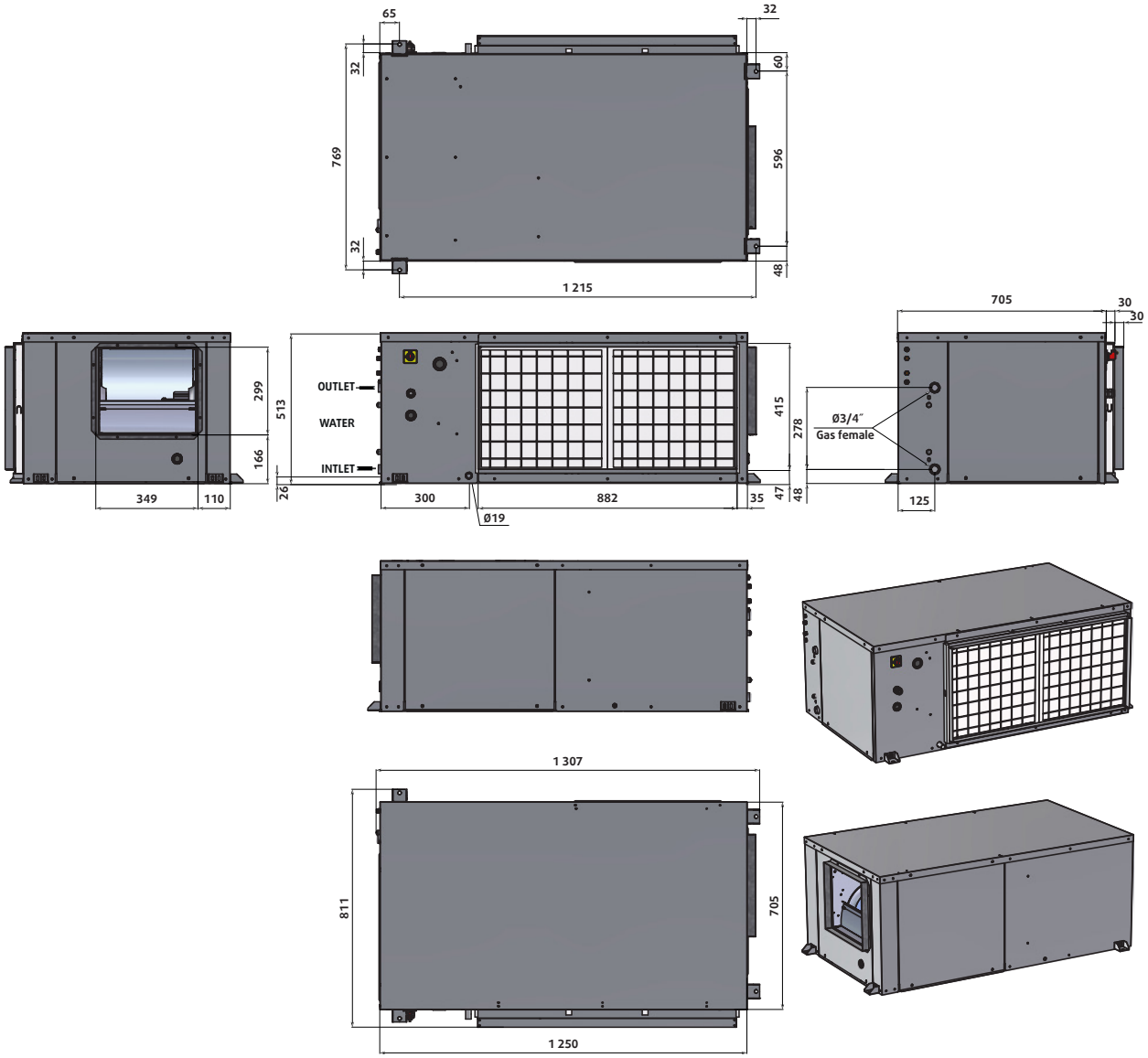
SYSHRW 36HE / 42 / 42HE - S2



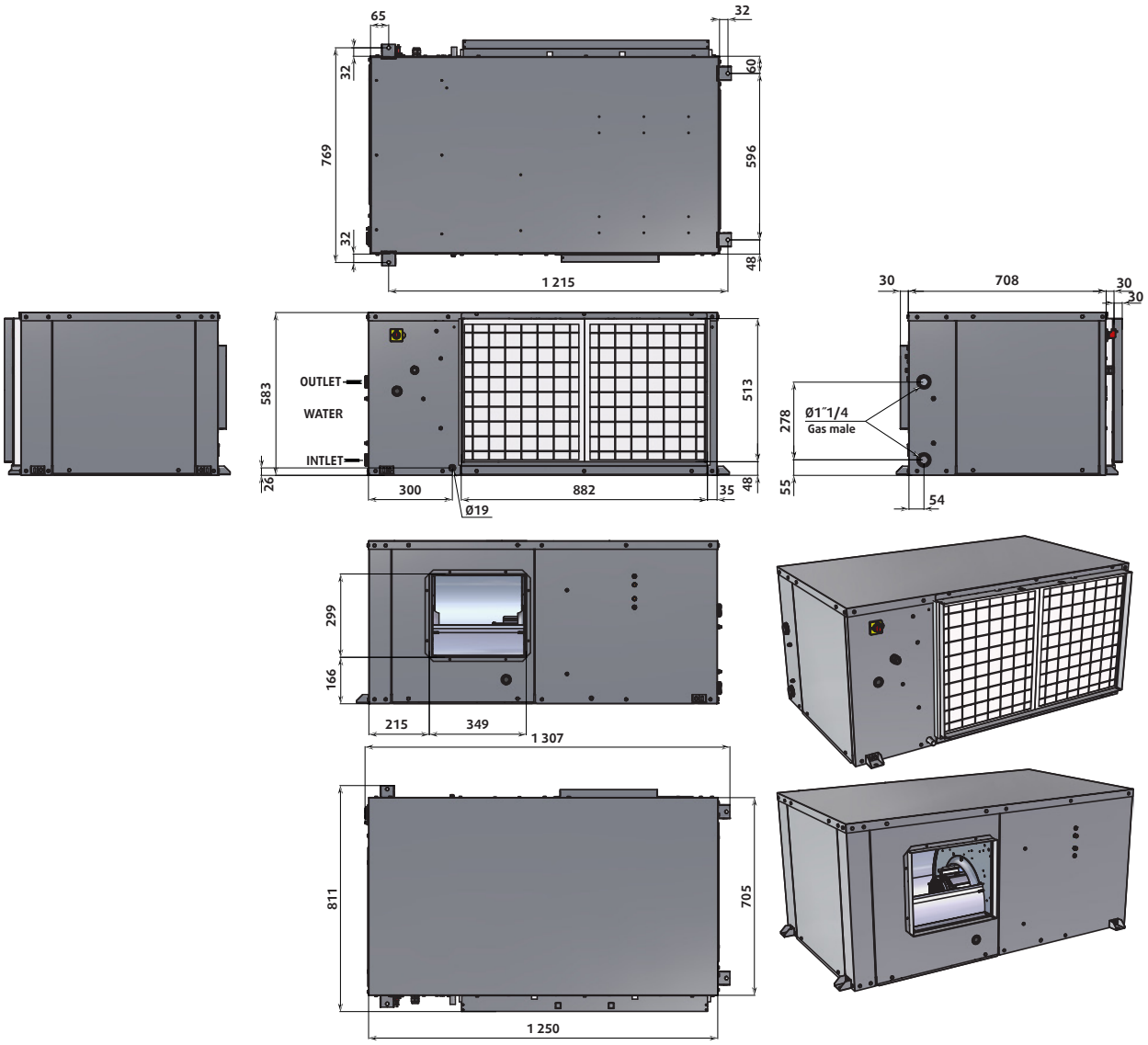
SYSHRW 48 / 60 / 72 - S1



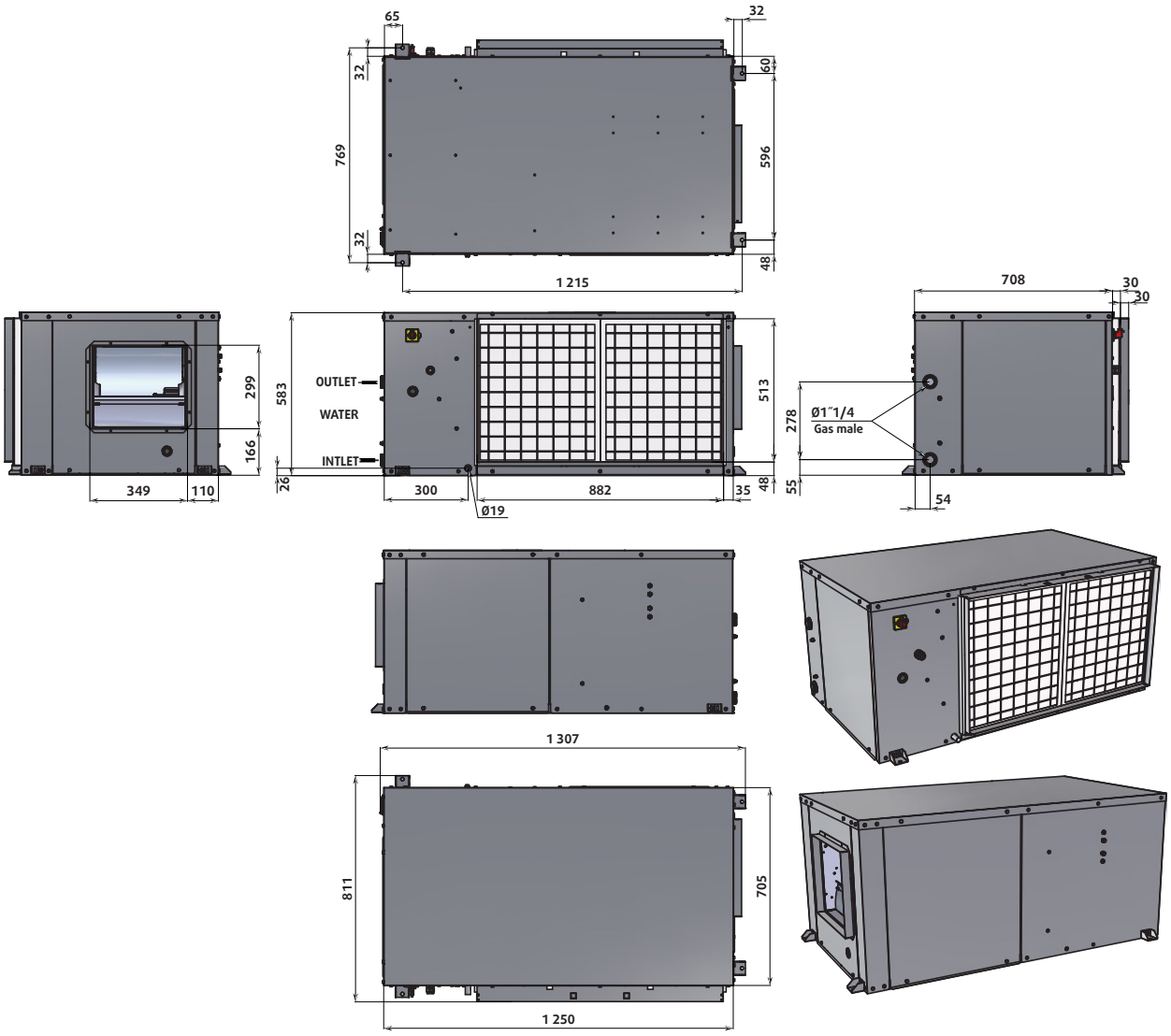
SYSHRW 48 / 60 / 72 - S2



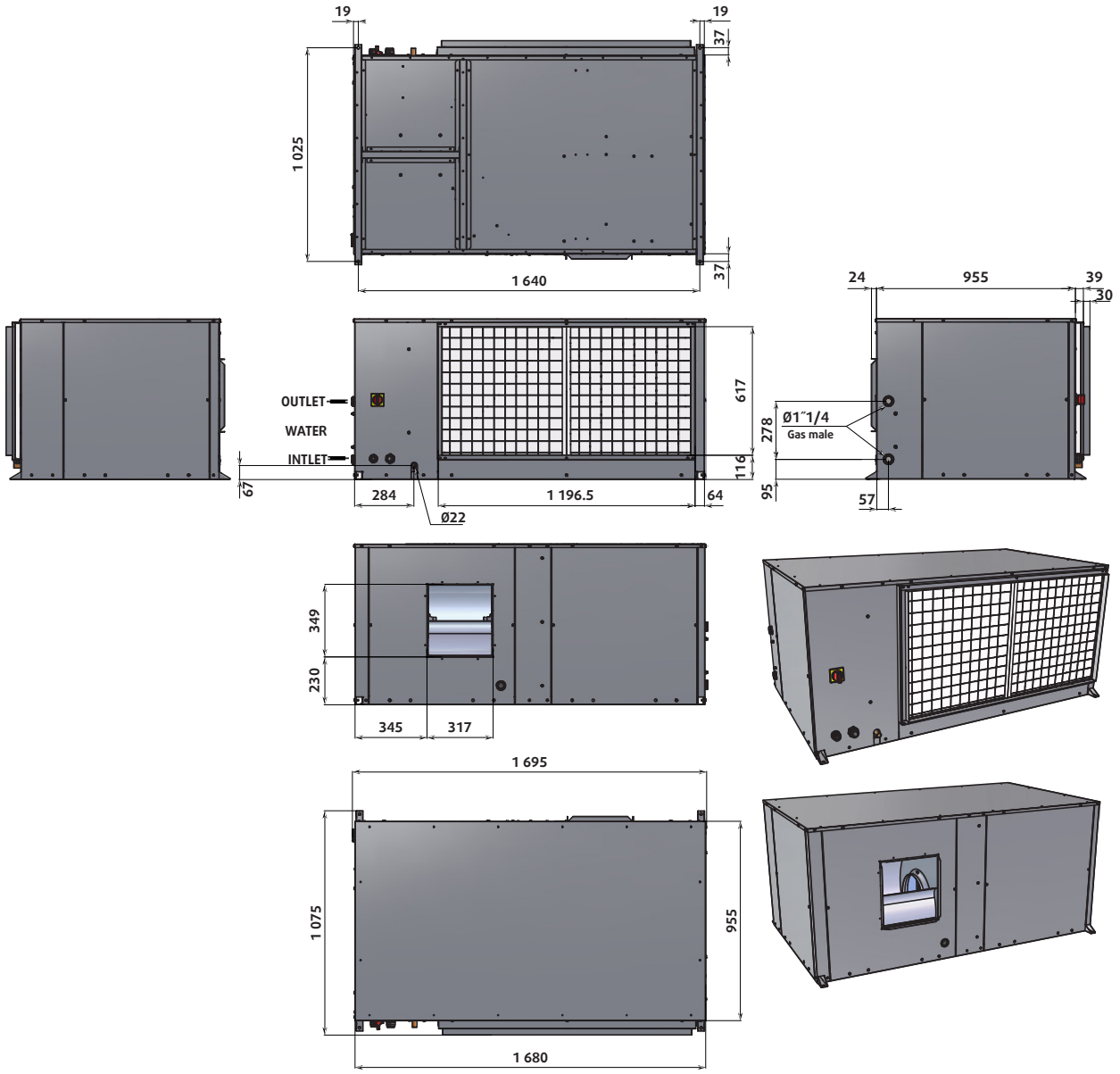
SYSHRW 60HE - S1



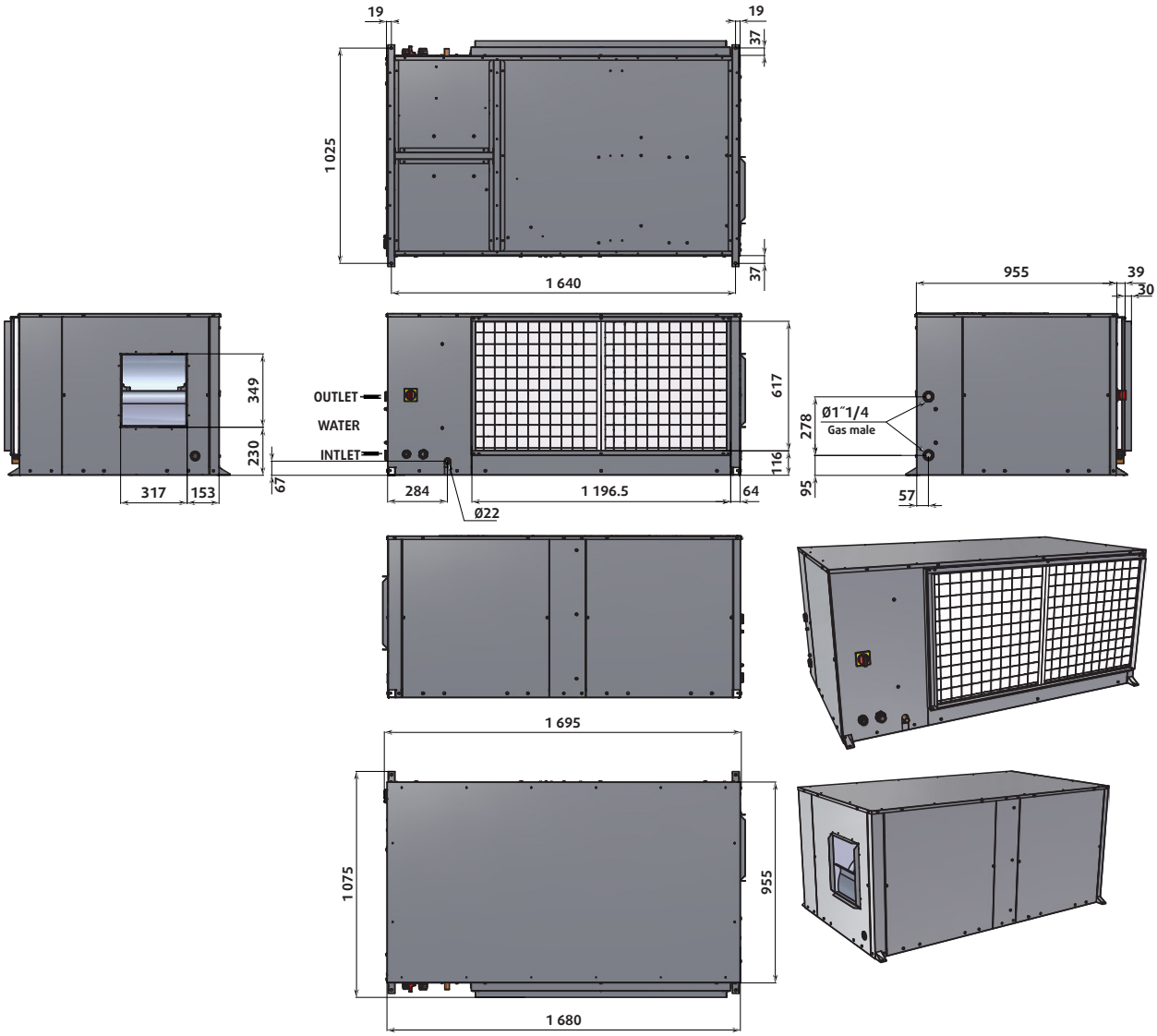
SYSHRW 60HE - S2



SYSHRW 72HE - S1



SYSHRW 72HE - S2



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

English

M1 : Compressor
RV1 : Cycle reversal valve
E1 : Plate heat exchanger
DT : thermostatic expansion valve
E2 : Finned coil
MV : Fan
EC : Electric heating coil (option)
: Schrader valve
HP : High pressure switch
T : Thermostatic expansion valve bulb
PS : Pressure fitting of thermostatic expansion valve
LP : Low pressure switch
LWT : Outlet water temperature sensor
FDP : Water circuit inlet / outlet differential pressostat
ICT: Anti-freezing protection sensor
RT : Air temperature sensor
Y1 : Water circuit valve (option)
SW : Condensed water level detector

Français

M1 : Compresseur
RV1 : Vanne d'inversion
E1 : Echangeur à plaques
DT : Détendeur thermostatique
E2 : échangeur à ailettes
MV : Ventilateur
EC : Batterie électrique (option)
: Valve Schrader
HP : Pressostat HP
T : Bulbe détendeur
PS : Prise pression détendeur
LP : Pressostat BP
LWT : Sonde de température de sortie d'eau
FDP : pressostat différentiel entrée / sortie du circuit d'eau
ICT : Sonde anti-givre
RT : Sonde de température d'air
Y1 : Vanne sur circuit d'eau (option)
SW : Détecteur de niveau d'eau de condensation

Deutsch

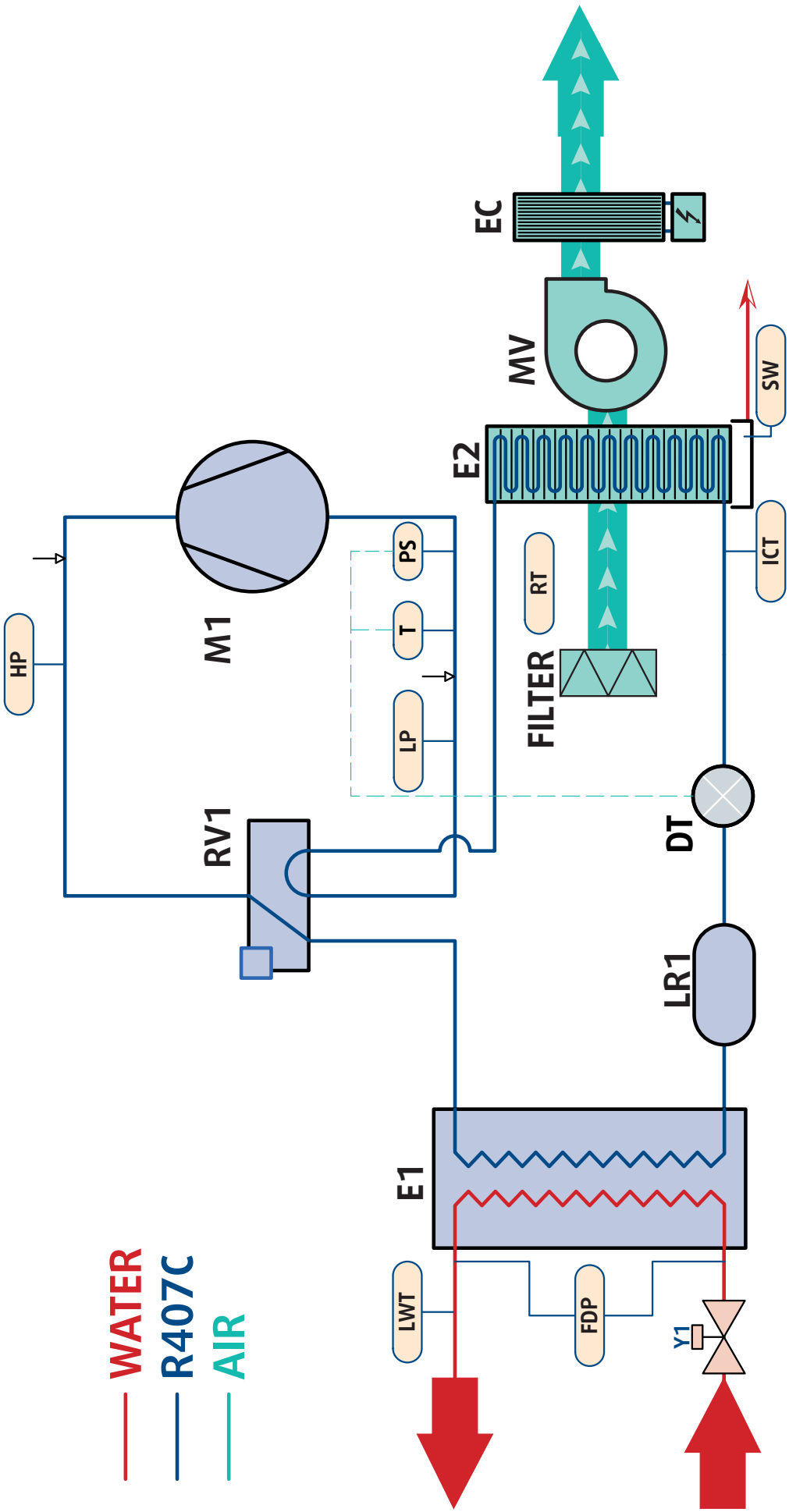
M1 : Verdichter
RV1 : Umkehrzyklusventil
E1 : Plattenverdampfer
DT : Thermostatisches Expansionsventil
E2 : Rippenwärmetauscher
MV : Motor der Lüftung
EC : Elektrisches Heizregister (Option)
: Schrader-Ventil
HP : Überdruckschalter
T : Fühler am Expansionsventil
PS : Druckaufnehmer am Expansionsventil
LP : Niederdruckschalter
LWT : Wasseraustrittstemperaturfühler
FDP : Differentialpressostat Eintritt / Austritt des Wasserkreislaufs
ICT : Frostschutztemperaturfühler
RT : Lufttemperaturfühler
Y1 : Hydraulisch betätigter Absperrschieber (option)
SW : Wasserstandsmelder Kondenswasser

Italiano

M1 : Compressore
RV1 : Valvola inversione di ciclo
E1 : Scambiatore a piastre
DT : Valvola di espansione termostatica
E2 : Batteria alettata
MV : Ventilatore
EC : Batteria elettrica (optional)
: Valvola Schrader
HP : Pressostato AP
T : Bulbo della valvola di espansione
PS : Presa di pressione di valvola di espansione
LP : Pressostato BP
LWT : Sensore di temperatura di uscita dell'acqua
FDP : Pressostato differenziale ingresso / uscita del circuito dell'acqua
ICT : Sensore antigelo
RT : Sensore di temperatura dell'aria
Y1 : Valvola circuito dell'acqua (optional)
SW : Rivelatore di livello d'acqua di condensazione

Español

M1 : Compresore
RV1 : Válvula de inversión de ciclo
E1 : Intercambiador de placas
DT : Válvula de expansión termostática
E2 : Intercambiador con aletas
MV : Ventilación
EC : Batería eléctrica (opcional)
: Válvula Schrader
HP : Presóstato de alta presión
T : Bulbo della válvula de expansión termostática
PS : Toma de presión del regulador de la presión
LP : Presóstato de baja presión
LWT : Sonda de temperatura de salida de agua
FDP : Presostato diferencial entrada/ salida del circuito de agua
ICT : Sonda antiescarcha
RT : Sonda de temperatura de aire
Y1 : Válvula de parada hidráulica (optional)
SW : Detector de nivel de agua de condensación


EC
MV
SW
E2
ICT
RT
PS
T
LP
HP
M1
FILTER
RV1
DT
LR1
E1
LWT
FDP
Y1
WATER
R407C
AIR

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!

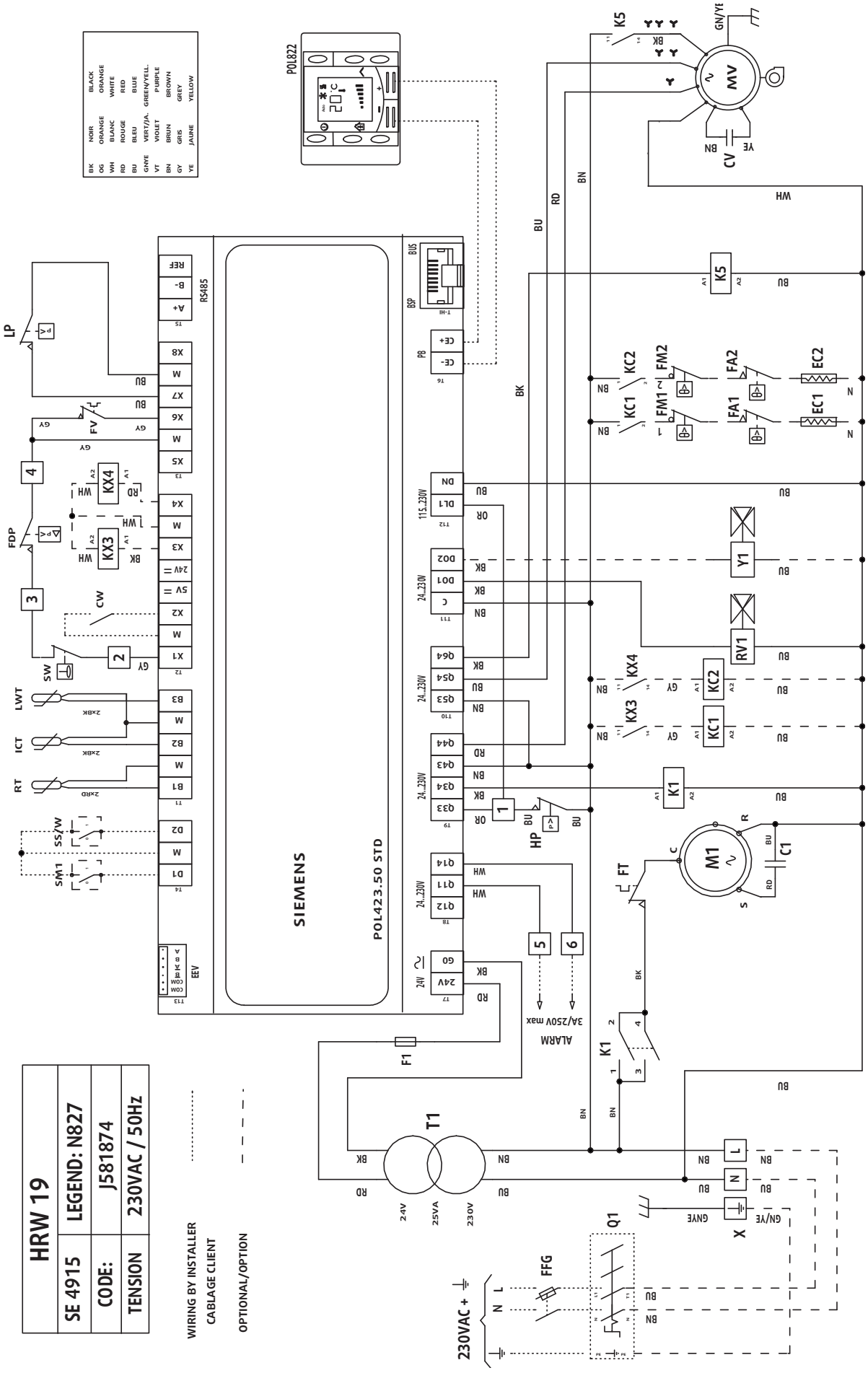
PRIMA DI OGNI INTERVENTO SULLE CASSETTE ELETTRICHE ESCLUDERE TASSATIVAMENTE L'ALIMENTAZIONE !

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

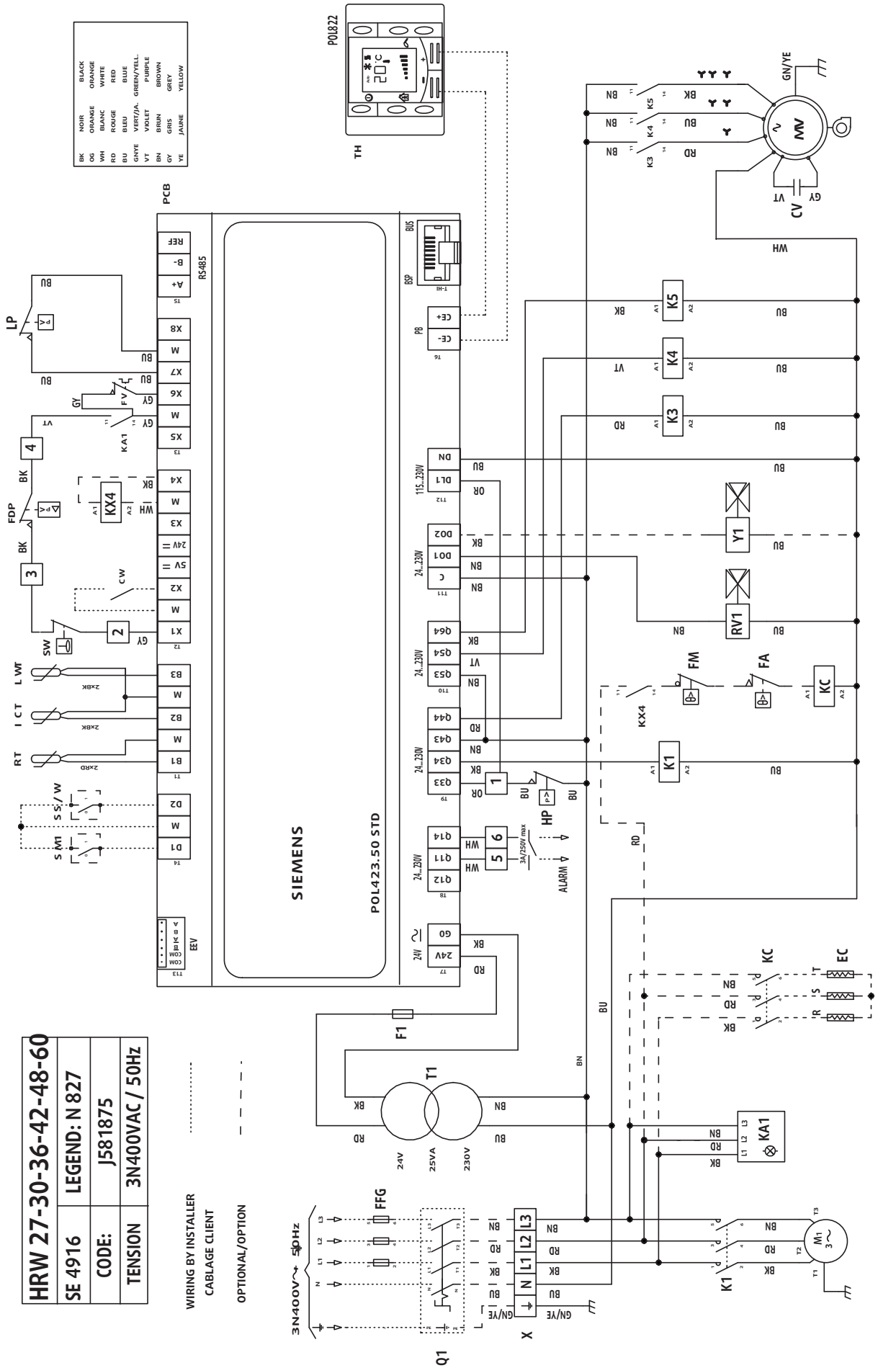
REPERE	English	Français	Deutsch	Italiano	Español
	DESCRIPTION	DESIGNATION	BEZEICHNUNG	DENOMINAZIONE	DESCRIPCIÓN
C1	M1 compressor condenser (single phase models)	condensateur du compresseur M1 (modèles monophasés)	Kondensator von Kompressor M1 (Einphasenmodelle)	condensatore del compressore M1 (modelli monofase)	condensador del compresor M1 (modelos monofásicos)
CV	MV motor condenser	condensateur du moteur MV.	Kondensator des Motors MV	condensatore del motore MV	condensador del motor MV
CW	Window contact switch	Contact de fenêtre	Fensterkontakt	Contatto di finestra	Contacto de ventana
EC EC1 / EC2	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	Perminal 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
FFG	Protection fuses (not supplied)	fusibles de protection (non fournis)	Sicherungen (nicht mitgeliefert)	Fusibili di protezione (non in dotazione)	Fusibles de proteccion (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)
FV	MV motor internal safety device	sécurité interne du moteur MV	Wicklungsschutz des Motors MV	sicurezza interna del motore MV	seguridad interna 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.	presóstato alta presión con rearme automático
HP2	Automatic reset high-pressure pressostats (SYSHRW 72)	pressostat haute pression à réarmement automatique. (SYSHRW 72)	"Überdruckwächter mit automatischer Wiedereinschaltung" (SYSHRW 72)	pressostato alta pressione a riarmo automatico. (SYSHRW 72)	presóstato alta presión con rearme automático (SYSHRW 72)
ICT	Anti-freezing protection sensors	Sonde anti-givre	Frostschutztemperaturfühler	Sonda antibrina	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 / K4 / K5	MV motor relay (SYSHRW 72)	relais du moteur MV (SYSHRW 72)	Relais des Motors MV (SYSHRW 72)	relè del motore MV (SYSHRW 72)	relé del motor MV (SYSHRW 72)
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 KC1 / KC2	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)
KX3 / 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

REPERE	English	Français	Deutsch	Italiano	Español
	DESCRIPTION	DESIGNATION	BEZEICHNUNG	DENOMINAZIONE	DESCRIPCIÓN
POL423.50	SIEMENS regulator	régulateur SIEMENS	SIEMENS-Regler	Regolatore SIEMENS	regulador SIEMENS
POL822	remote control	rappel de commandes	Fernbedienung	control remoto	control remoto
Q1	Main section switch	Interrupteur sectionneur principal	Hauptschalter	Pnterruttore principale	Pnterruptor 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 invero /estate (non fornito)	Interruptor invierno/verano (no suministrado)
T1	Transformer 230V/24V	Transformateur 230V/24V	Transformator 230V/24V	Trasformatore 230V/24V	Transformador 230V/24V
T	Timers (3 min adjustment) (SYSHRW 72)	minuterie (réglage 3mn) (SYSHRW 72)	Zeitschaltunhren (3 Minuten Anpassung) (SYSHRW 72)	timer (3 minuti di regolazione) (SYSHRW 72)	progaladores (ajuste de 3 minutos) (SYSHRW 72)
X	Connection terminal block	bornier de raccordement	Anschlussklemmenleiste	morsettiera 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)

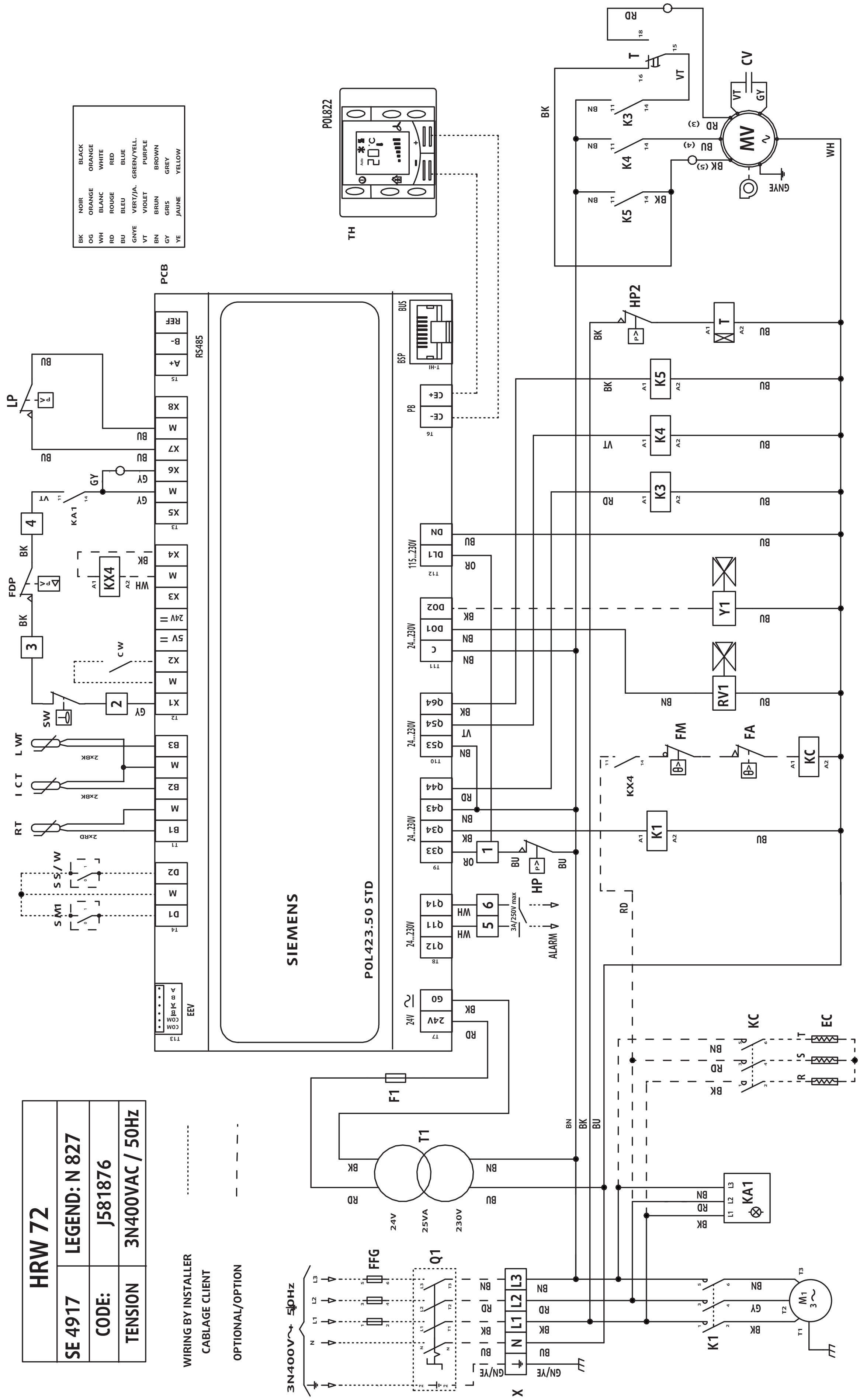
SYSHRW 19


HRW 19
SE 4915
LEGEND: N827
CODE:
J581874
TENSION
230VAC / 50Hz
WIRING BY INSTALLER
CABLAGE CLIENT
OPTIONAL/OPTION
SIEMENS
POL423.50 STD
POL822
RS485
LP
FDP
FV
SW
CW
LWT
ICT
RT
SS
LWS
KX4
KX3
K5
K1
KC1
KC2
FM1
FM2
FA1
FA2
EC1
EC2
Y1
RV1
HP
FT
M1
C1
MV
CV
T1
F1
Q1
FFG
ALARM
3A/250V max
230VAC +
24V
25VA
230V

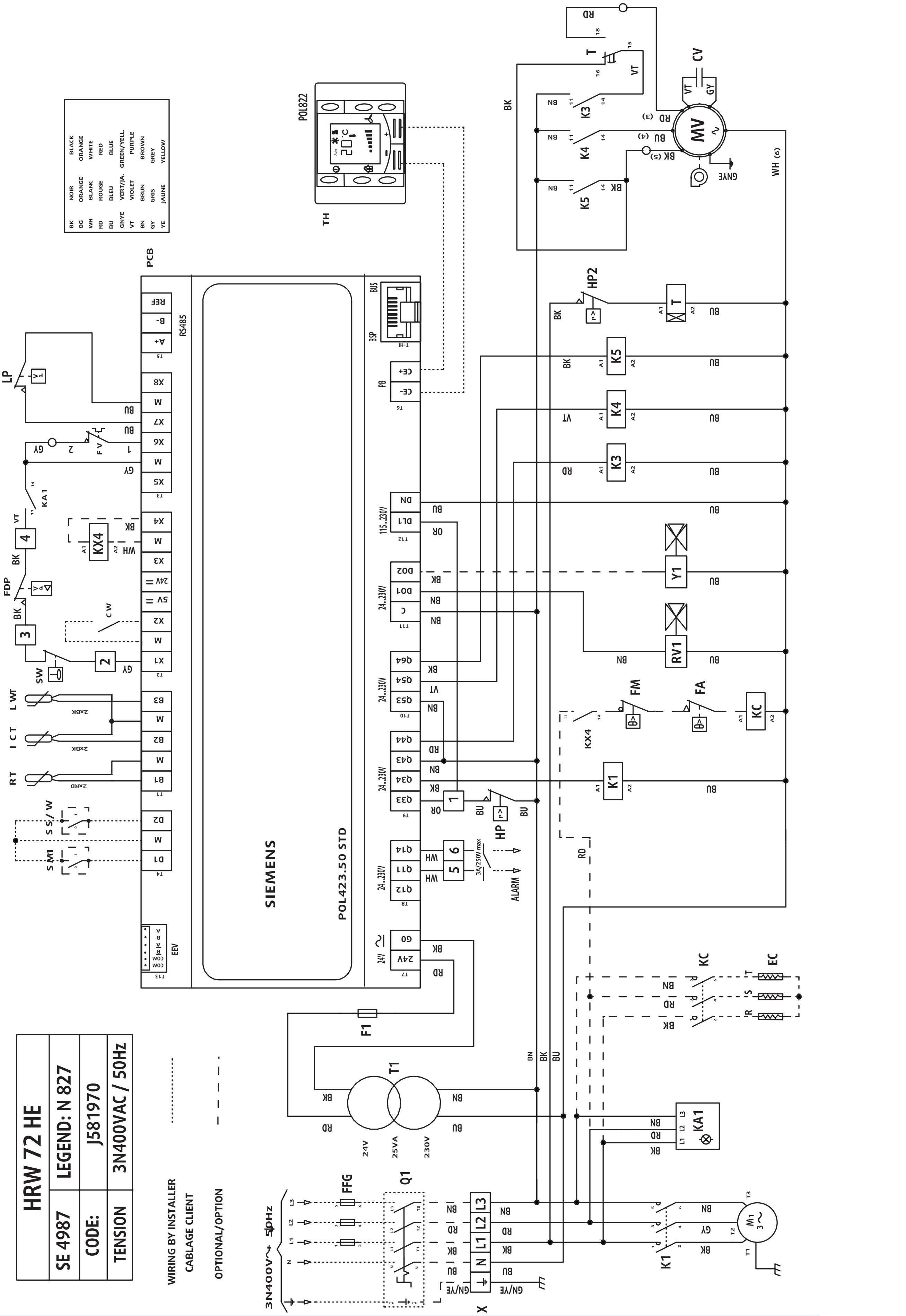
SYSHRW 27 - 30 - 36 - 42 - 48 - 60



SYSHRW 72


HRW 72
SE 4917
LEGEND: N 827
CODE: J581876
TENSION 3N400VAC / 50Hz
WIRING BY INSTALLER
CABLAGE CLIENT
OPTIONAL/OPTION
BK NOIR BLACK
OG ORANGE ORANGE
WH BLANC WHITE
RD ROUGE RED
BU BLEU BLUE
GNYE VERT/JA. GREEN/YELL.
VT VIOLET PURPLE
BN BRUN BROWN
GY GRIS GREY
YE JAUNE YELLOW
SIEMENS
POL423.50 STD
POL822

SYSHRW 72HE


HRW 72 HE
SE 4987
LEGEND: N 827
CODE: J581970
TENSION 3N400VAC / 50Hz
WIRING BY INSTALLER
CABLAGE CLIENT
OPTIONAL/OPTION
BK NOIR BLACK
OG ORANGE ORANGE
WH BLANC WHITE
RD ROUGE RED
BU BLEU BLUE
GNYE VERT/JA. GREEN/YELL.
VT VIOLET PURPLE
BN BRUN BROWN
GY GRIS GREY
YE JAUNE YELLOW
PCB
SIEMENS
POL423.50 STD
POL822
TH
RS485
EEV
3N400V~ 50Hz
FFG
Q1
T1
F1
KA1
K1
MV
CV
KC
EC
ALARM
3A/250V max

START UP FORM / FICHE DE MISE EN SERVICE

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:

19	27	30	36	42	48	60	72

N° Série: .....

	OUI	NON
Vanne d'eau motorisée		
Disjoncteur		
Relais renvoi défaut général		

	OUI	NON
Centrale de supervision µBMS		
Supervision par MODBUS		

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
Déformations ou chocs visibles		
Dégagements autour de l'unité conformes		
L'unité est installée de niveau		
L'alimentation électrique correspond à la plaque d'identification de l'unité		
Le câblage du circuit électrique est d'une section correcte et a été installé correctement		
Le câble de terre de l'unité a été raccordé		
La protection du circuit électrique est d'un calibre correct et a été installée correctement		
Toutes les bornes sont serrées		

	OUI	NON
Continuité de terre sur les tuyauteries		
Raccordement, nettoyage rinçage et purge du réseau hydraulique		
Protection des circuits d'eau contre le gel		
Présence du filtre à tamis à l'entrée de la machine		
Test coupure contrôleur de débit		
Raccordement des condensats		
Présence d'une vanne de réglage		
Présence des filtres à air		

OBSERVATIONS:

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RELEVES SITE:

Température ambiante: ..... Pression ambiante: .....

.....

RELEVES ELECTRIQUES:

Tension L1-N: ..... Tension L1-L2: .....

Tension L1-L3: ..... Tension L2-L3: .....

Déséquilibre de tension inférieur à 2 % OUI ☐ NON ☐

Ne pas mettre en route la pompe à chaleur si le déséquilibre de tension est supérieur à 2 %. Contacter votre compagnie électrique locale pour assistance.

Intensité L1: ..... Intensité L2: Intensité L3: .....

Contrôleur ordre et coupure de phases OUI ☐ NON ☐

Contact sec Marche /Arrêt à distance OUI ☐ NON ☐

RELEVES DE FONCTIONNEMENT:

	MODE FROID	MODE CHAUD
Régime de la boucle d'eau	°C	°C
Débit d'eau	m^3/h	m^3/h
Température entrée d'eau	°C	°C
Température sortie d'eau	°C	°C
Température reprise d'air	°C	°C
Température soufflage d'air	°C	°C
HP	bar	bar
BP	bar	bar

RESERVES:

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TECHNICIEN
Nom:
Signature:

CLIENT
Nom:
Signature:

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

Systemair AC SAS
Route de Verneuil
27570 Tillières-sur-Avre
FRANCE
✆ : +33 (0)2 32 60 61 00
🖷 : +33 (0)2 32 32 55 13

IOM HRW 01-N-22GB
Part number : **J38150GB**
Supersedes : IOM HRW 01-N-21GB