BS

Ductable
Split-System

R-407C

	Cooling capacity (W)	Heating capacity (W)
BS 11	3230	3500
BS 15	3800	4500
BS 18	5520	5990
BS 24	6590	7530
BS 30	8500	9960

Airwell

INDIVIDUAL COMFORT RANGE

Technical Manual
TM03BSa 1 GB A
Supersedes :

CONTENTS

INTRODUCTION

These appliance have been optimized to operate with the **R-407C** coolant which contains no chlorine and has no effect on the ozone layer.

The range of room air conditioners of the **"DUCTABLE SPLIT-SYSTEM"** type provides many solutions of air distribution allowing to satisfy any need whatever the volume of new or existing premises to be treated, be they new or existing premises.

Each of the models of different cooling capacity are composed of two distinct parts :
- the indoor unit (**BS**) with pressure available for connection with a duct network. It can be installed in a false ceiling or on the floor in a technical room,
- the air cooled outdoor condensing unit (**GC/GCN**).
- control with infrared remote control and remote IR receveir.

Two options of this range are available :
- **STANDARD OPTION**
  Cooling with electric heating in kit.
- **HEATPUMP OPTION**
  Cooling and thermodynamic heating with electric heating in kit.

1. INDOOR AIR TREATMENT UNIT (BS)

It combines technical quality, dependability and easiness of installation, either floor or ceiling mounted. It comprises :
- an insulated, flat (245 and 270 mm according to model) unit to be flush mounted,
- depending on the model, 2 or 3 ventilation speeds as preferred,
- electric casing in plastic box easily to connect,
- electronic control to be installed in the room with a linking cable (7 m) and a connector,
- drain condensates : by gravity,
- 3 heating possibilities :
  cooling only models
  – electric heating kit,
  heatpump models
  – thermodynamic heating only,
  – thermodynamic + electric heating kit,
- 2 installation possibilities: floor or ceiling mounted with different kits :
  – cassette plenum for air return + duct connector at discharge Ø 200,
  – plenum for duct connector at discharge and air return Ø 200.

2. OUTDOOR CONDENSING UNIT (GC/GCN)

It combines in a small volume requiring a small space on the floor: the cooling compressor, the ventilo-condenser and the electric casing box.
It includes :
- a casing especially treated to withstand bad weather conditions,
- a special sound proof compartment containing the compressor,
- two installation possibilities: on the floor or hung on the wall with accessory, supplied separately,
- a ventilation of helicoid type with axial, horizontal flow,
- protection grille at the air discharge.

3. COOLING CONNECTIONS

The indoor and outdoor units are equipped with flare couplings allowing to use flare cooling pipes (copper pipes of cooling quality equipped at their ends with a nut).

4. DESCRIPTION

4.1 Panelling

- Sheet metal panels galvanized of the indoor unit. Treatment against corrosion with powder paint or oven-baked coating of the outdoor unit.
- Prepunched hole for connection with a fresh air intake on the **BS**.

4.2 Insulation

Sound and heat insulation is used throughout the indoor unit (**ST**).
Sound insulation of the compressor compartment of the outdoor unit.

4.3 Cooling circuit

- Hermetic type compressor rotating or Scroll type with thermal and electrical protections, linked to a sealed and entirely brazed cooling circuit.
- **Capillary** type, foolproof pressure reduction device.
- Built-in refrigerant filter.
- Electronic **"AROUND THE YEAR"** system (accessory) controlling the high pressure of the cooling circuit for cooling operation down to outdoor temperatures of –10°C by changing the ventilation speed (standard model).
- Cycle reversing valve for heatpump heating (**RC**).
- Non return valve and additional capillary for heatpump models (**RCRC**)

4.4 Ventilation

- Helicoid type fan, profiled for axial flow and low rotational speed for the condensing unit (**GC/GCNG**).
- For the air treatment unit: centrifugal fan with double air intake, mounted on self-aligning bearings.
- Soundproof multispeed motors mounted on anti-vibration rubber blocks (**ST**) and equipped with internal heat safety devices (**ST** and **GC/GCNG**).

4.5 Filters (ST)

- Airfilter mounted on the appliance in an oblong duct connection flange.
- Filter cleaning: by removing the dust or washing with cold water with added detergent.

4.6 Electric heater

Standard and Heatpump models can be equipped with an electric heating device (accessory).

- **BS 11/15/18** - **BS 11/15/18 RC** models :
  the electric heating coils are equipped with PTC (Positive Temperature Coefficient) type ceramic elements.
- **BS 24/30 - BS 24/30 RC** models :
  the electric heating device provided with heating element are thermically protected againt all abnormal temperature elevation with two thermostat :
  – a thermostat with automatic reset,
  – a thermostat with manual reset.

Consult the corresponding instructions and follow the recommendations when carrying out any work

4.7 Heatpump heating

Models of the **RC** series are equipped with a cycle reversing cooling system which allows them to operate as an **AIR/AIR** heatpump down to an outdoor temperature of –10°C with electric heating.
Heat transfer from outside towards the room to be treated is obtained with an excellent coefficient of performance (COP).

4.8 Condensate draining

- Outdoor units (**GC/GCNG**) of the heatpump models (**RC**) can be equipped with a **"condensing tray"** in kit including feet to raise the tray and a drain pipe with a male outlet.

4.9 Remote control

The casing box of electronic control and regulation is to the connect on site; it is equipped with a connecting cable of 10 m with connector.
The remote control infrared groups the following functions :

- ON/OFF - Ventilation only.
- Thermostat.
- Programming:
  – automatic Heating/Cooling.
  – ventilation speed.

5. MAINTENANCE

AIR TREATMENT UNIT

Easy accessibility of the (ceiling mounted) indoor unit's main components for maintenance and after-sales service.

- Electric diagram and identification plate.
- Connectors and terminal strips for electric connections.
- Cooling couplings.

OUTDOOR CONDENSING UNIT

Removal of the panel gives access to all electric, cooling and ventilation components.

6. DOCUMENTATION

With every appliance are supplied its basic electrical diagrams of connection, specific instructions for installation and use.

Every accessory (or kit) is delivered with the technical specifications of assembly and adjustment if need be. The technical is available upon request.

TECHNICAL SPECIFICATIONS

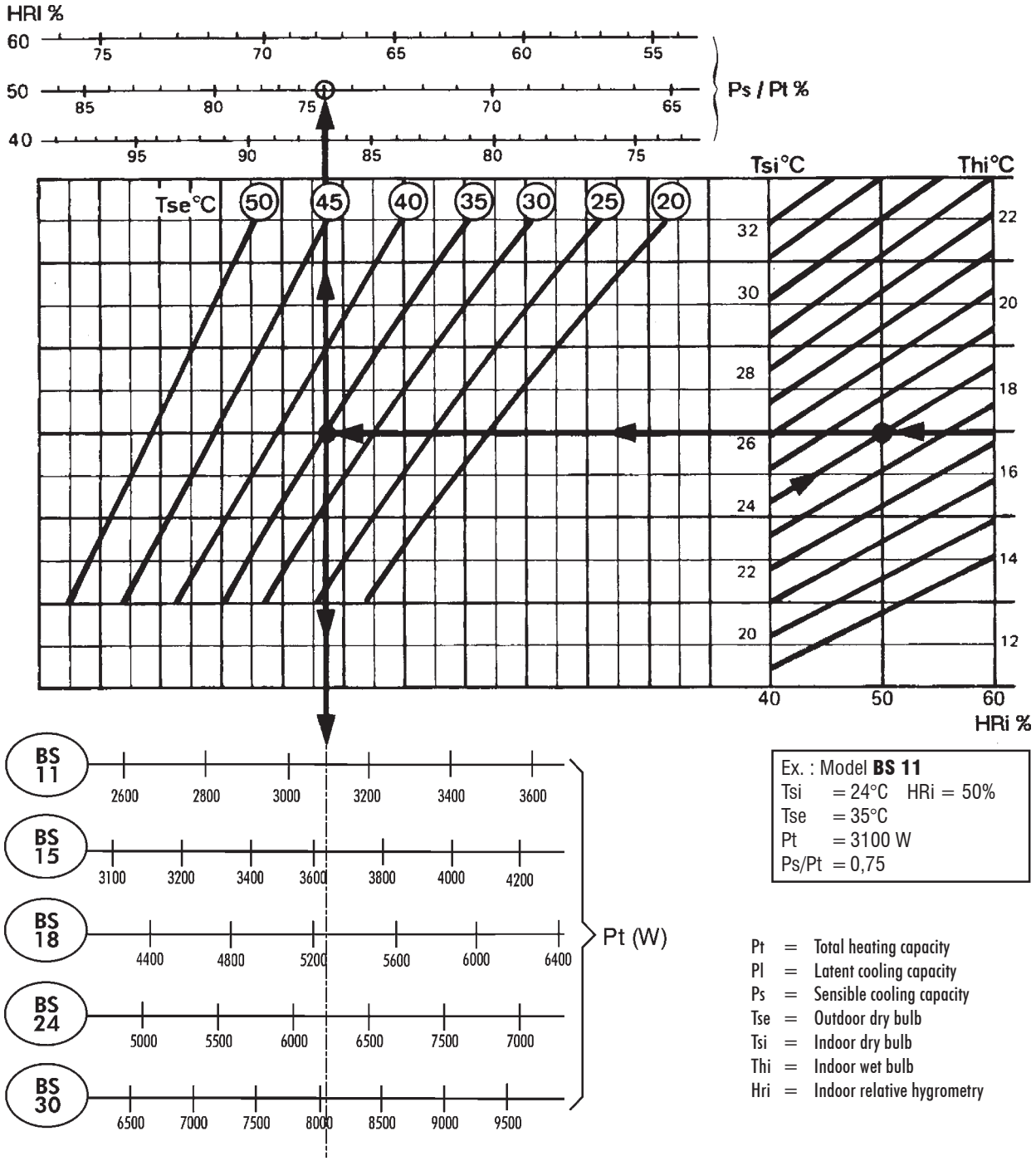
Models		BS 11	BS 15	BS 18	BS 24	BS 30
Nominal cooling capacity (1)	W	3230	3800	5520	6590	8500
Air flow (average values)						
Air traité						
• High speed	m³/h	520	610	680	1120	1360
• Medium speed	m³/h	480	570	630	1035	1150
• Low speed	m³/h	420	530	570	910	1040
Nominal power supply	V	~230 V - 50 Hz		~230 V / 3N~400V - 50 Hz		
• Voltage range	V	198/254 V		198/254 V - 340/420 V		
• Power input	W	1310	1700	2240	2930	3520
Sound level (2)						
• Indoor unit (ST) MS	dBA	37	40	41	41	43
• Outdoor unit (GC)	dBA	53	54	47	47	49
Remote control						
• Wire of lenght	m	8				
• Battery supplied (AAA model)	V	1.5				
Dimensions and Weight						
Air treatmenr unit(ST) (W x D x H)	mm	860 x 675 x 245			1190 x 675 x 270	
• Net weight	kg	39		39	66	
Condensing unit (GC) (W x D x H)	mm	795x290x610		850x370x690		900x340 x860
• Net weight	kg	38	41	56	58	82
Packing						
• Gross weight (ST/GC)	kg	42/41	42/44	42/60	70/62	70/86
• Packed volume (ST/GC)	m³	0.20/0.17	0.20/0.17	0.20/0.33	0.25/0.33	0.25/0.31
Heatpump models OPTIONAL (see page 32)		**BS 11 RC**	**BS 15 RC**	**BS 18 RC**	**BS 24 RC**	**BS 30 RC**
• Heating capacity	W	3500	4500	5990	7530	9960
• Nominal power input	W	1320	1660	2110	2780	3360
• Nominal performance coefficient	W/W	2.65	2.71	2.83	2.70	2.96
ACCESSORIES (only model)						
• Electrical heating(3)						
Nominal capacity~230 V - 50 Hz	W	1600	1900	1900	4000	4000
Nominal capacity 3N~400 V - 50 Hz	W	-	-	-	4000	4000
• Precharged linking pipes 2.5 / 5 / 8	m	•	•	•	•	•
• "AROUND THE YEAR" system		•	•	•	•	•
• Wall bracket for outdoor unit		•	•	•	•	•
• Plenum air return						
+ duct coupling discharge Ø200	mm	907x298	907x298	907x298	907x298	907x298
• Plenum ducts coupling discharge		2 x 200	2 x 200	2 x 200	2 x 200	2 x 200
and return air		2 x 200	2 x 200	2 x 200	2 x 200	2 x 200
Factory-mounted						
Discharge and return air oblong duct connection		220 x 837			220 x 1167	
flange + filter		220 x 837			220 x 837	

NOTE :

1) International standards
   - Type A: 27°C/19°C wet bulb
   - outside air 35°C/24°C wet bulb.
   - heating: 20°C/12°C wet bulb
   - outside air: 7°C/6°C wet bulb
2) Overall acoustic pressure in dBA (1 m) under nominal conditions:
   - Outdoor unit: in open space on reflecting surface,
   - Indoor unit: installation in medium sized premises (flow speed - reverberation period : 0.5 s).
3) At nominal air flow, 20°C, under 230 V (see page 8).

These characteristuics are for information only and may be changed without advance notice.

COOLING PERFORMANCES



Ex. : Model **BS 11**
Tsi = 24°C HRi = 50%
Tse = 35°C
Pt = 3100 W
Ps/Pt = 0,75

Pt = Total heating capacity
Pl = Latent cooling capacity
Ps = Sensible cooling capacity
Tse = Outdoor dry bulb
Tsi = Indoor dry bulb
Thi = Indoor wet bulb
Hri = Indoor relative hygrometry

Nominal cooling capacity ~ 230 V - 50 Hz		BS11	BS15	BS18	BS24	BS30
International standard type A (27°C/19°C wet bulb - Outdoor air 35°C/24°C wet bulb)	W	3230	3800	5520	6590	8500

WORKING RANGE

CONTINUOUS RUNNING NOMINAL AIR FLOW

WORKING MODE

Maximum temperature							
Models			BS11	BS15	BS18	BS24	BS30
Indoor temperature	°C	Thi	13	13	13	13	13
		Tsi	19	19	19	19	19
Outdoor temperature	°C	Tse	21	21	21	21	21

Minimum temperature							
Models			BS11	BS15	BS18	BS24	BS30
Indoor temperature	°C	Thi	23	23	23	23	23
		Tsi	32	32	32	32	32
Outdoor temperature	°C	Tse	43	43	43	43	43

Tse = Outdoor dry bulb
Tsi = Indoor dry bulb
Thi = Indoor wet bulb

The **"AROUND THE YEAR"** - system (accessory, not factory mounted) allows working in **"COOLING"** position at low outdoor temperatures down to –10°C for air conditioning of rooms with high internal heat gains.

WORKING

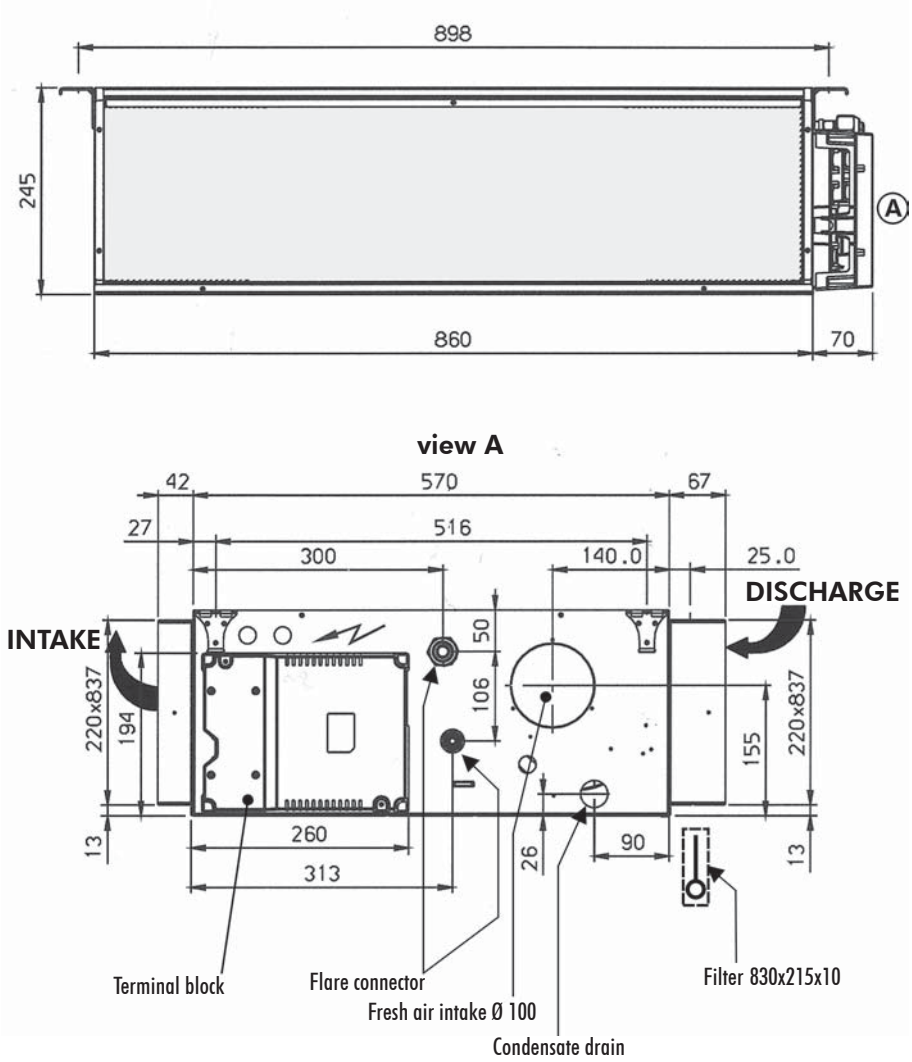
Outdoor unit works with automatic variable speed of rotating of fan depending on condensing pressure.

WORKING RANGE
CONTINUOUS RUNNING - NOMINAL AIR FLOW

Minimum temperature							
Models			BS11	BS15	BS18	BS24	BS30
Indoor temperature	°C	Thi	13	13	13	13	13
		Tsi	19	19	19	19	19
Outdoor temperature	°C	Tse	–10	–10	–10	–10	–10

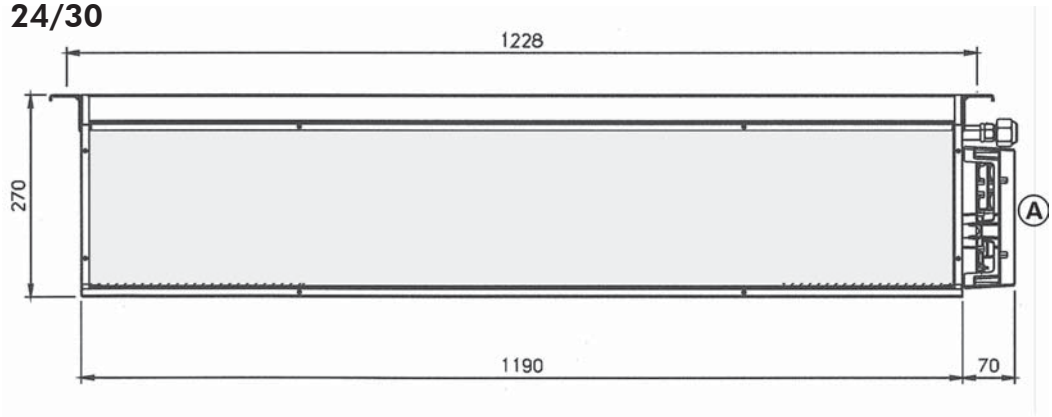
DIMENSIONS

Air treatment unit
BS 11/15/18

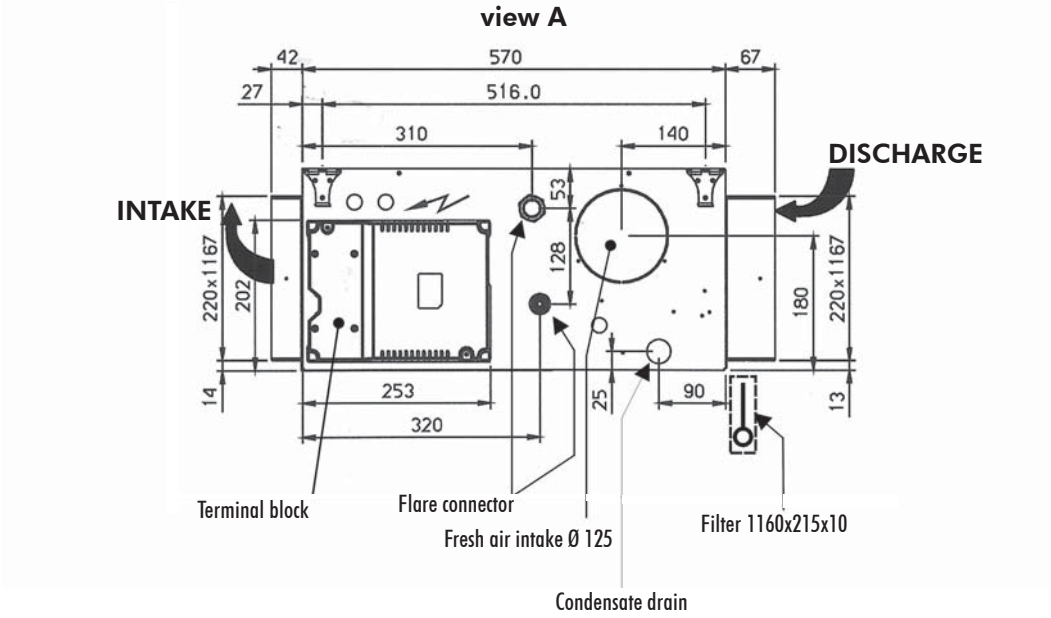


DIMENSIONS

Air treatment unit
BS 24/30



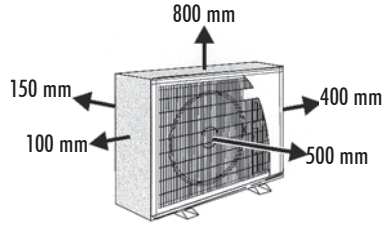
view A



DIMENSIONS

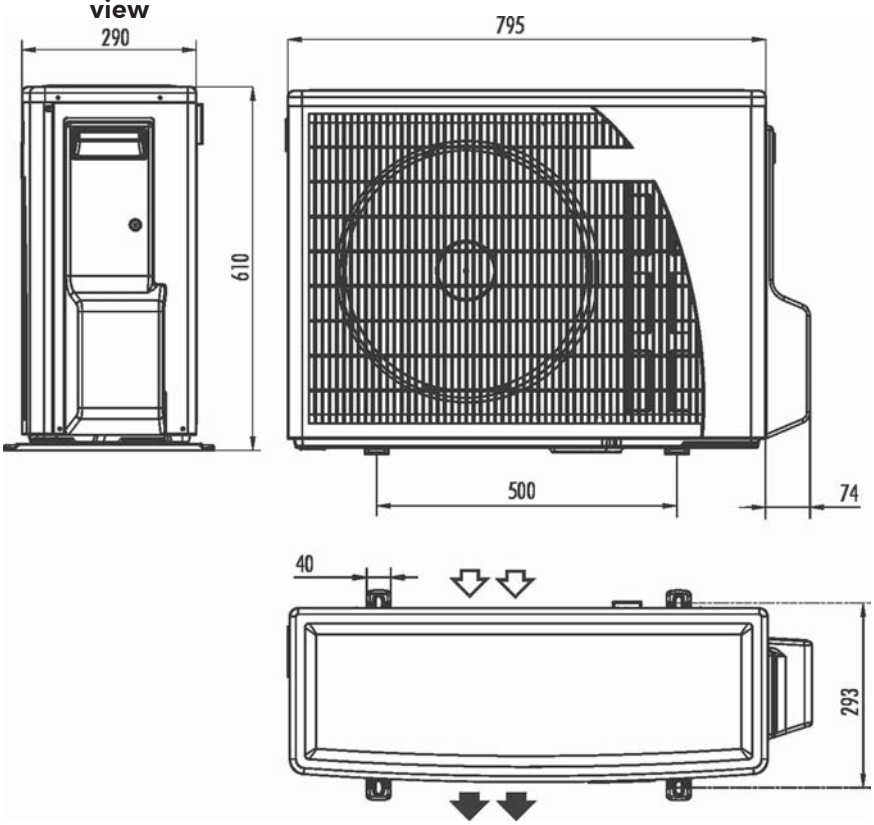
Condensing unit
GCNG 12
GCNG 14

Clearances



Lateral view

Front view



Above view

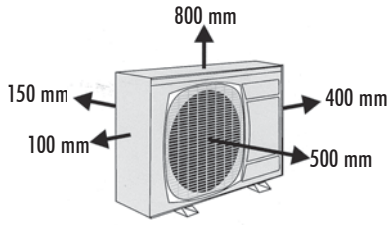
DISCHARGE

INTAKE

DIMENSIONS

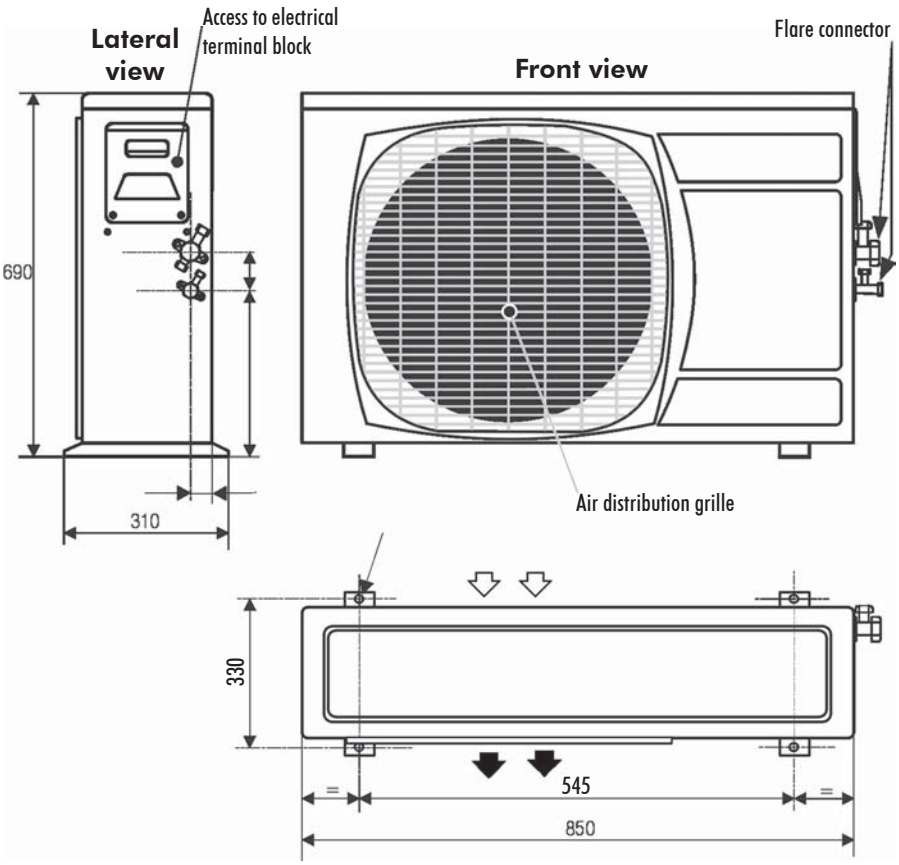
Condensing unit
GC 18
GC 24

Clearances



DISCHARGE

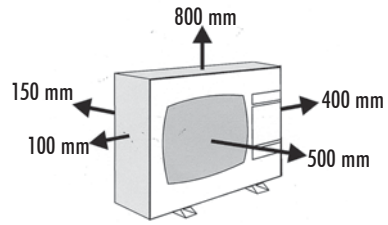
INTAKE



DIMENSIONS

Condensing unit
GCN 30

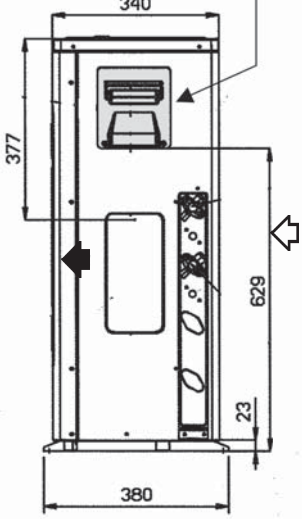
Clearances



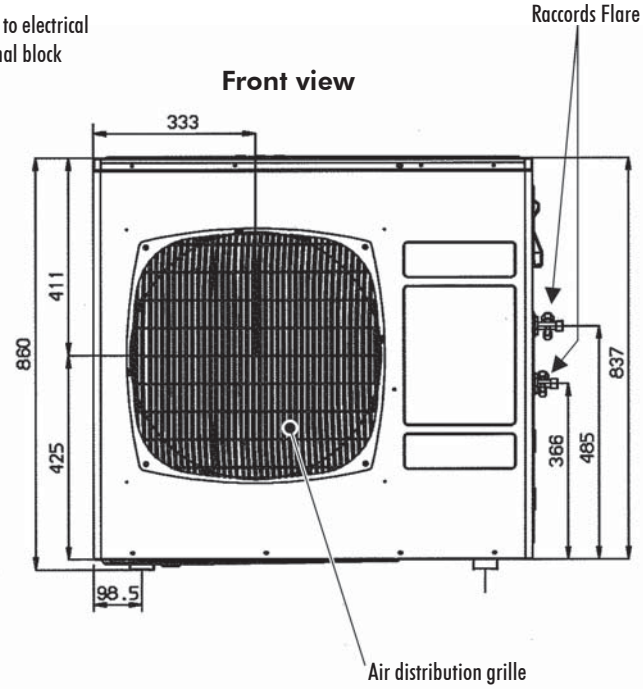
DISCHARGE

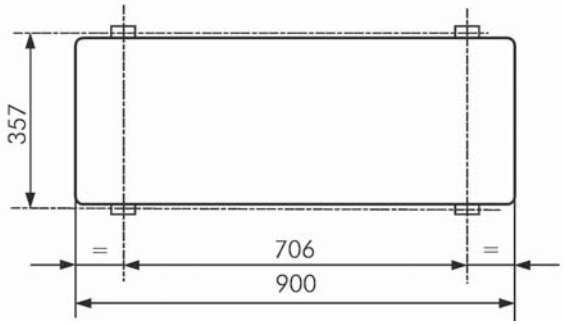
INTAKE

Lateral view



Front view





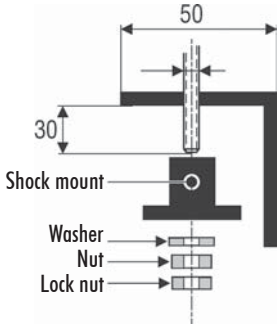
Above view

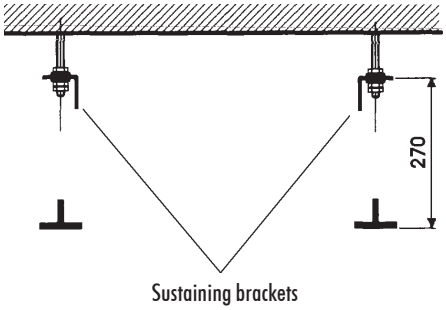
INSTALLATION

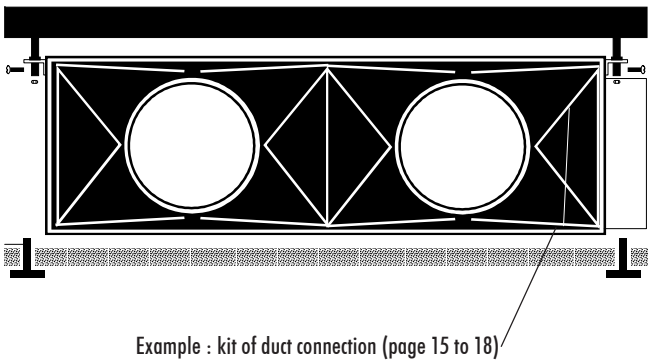
See exact mounting specifications in the installation instructions supplied with the material.

The Indoor Unit can be installed :
- f**lush mounted in a false ceiling**,
- **on the wall at floorlevel** : in a technical room.

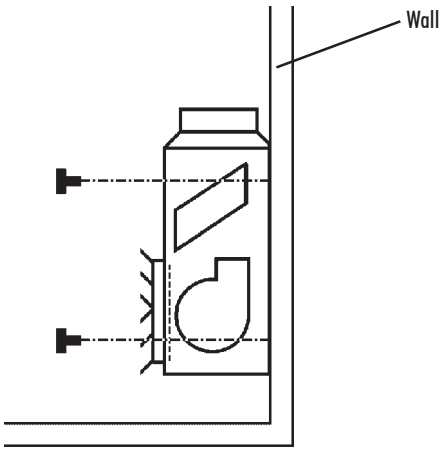
Flush mounted in a ceiling





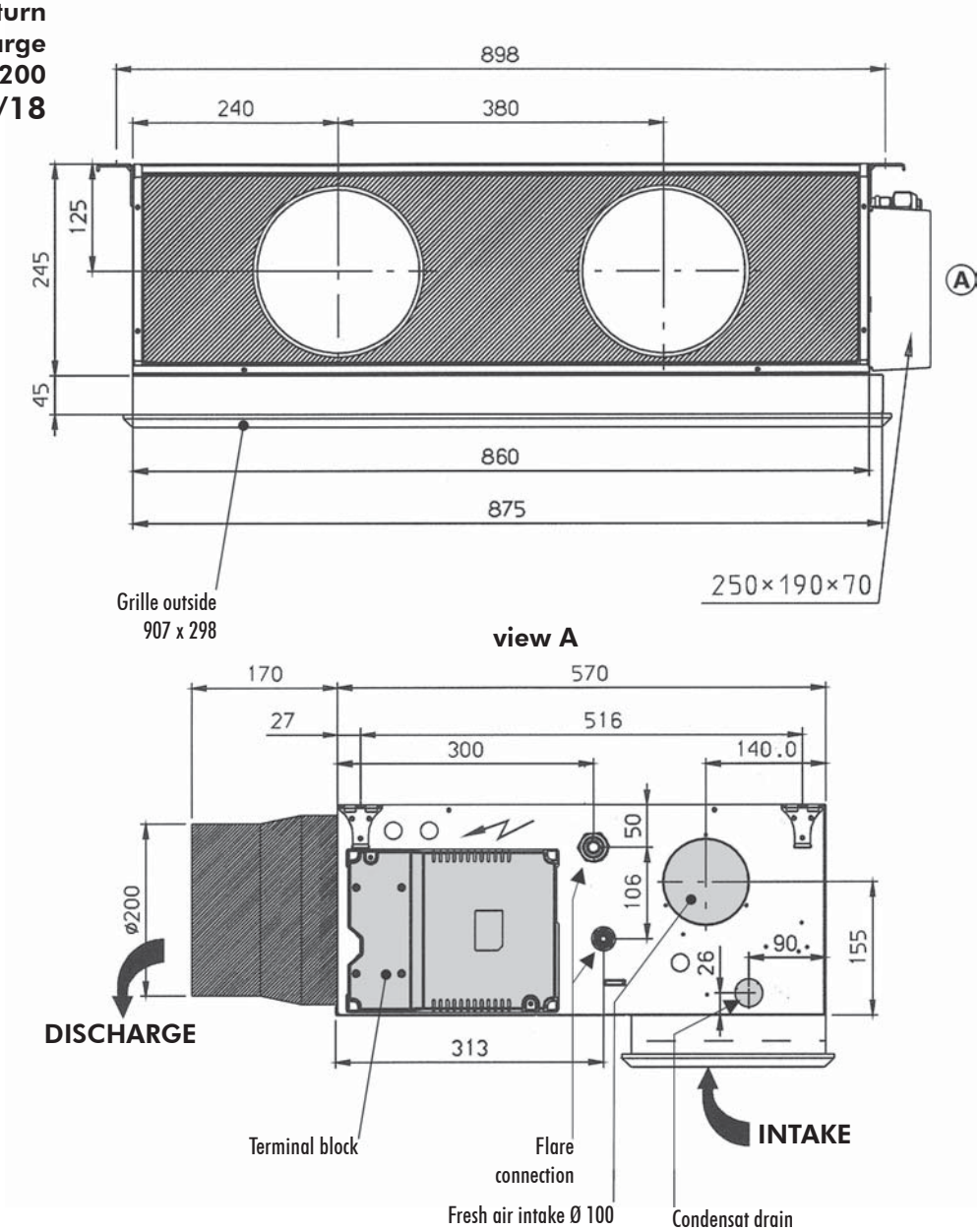


Wall mounted on floor level



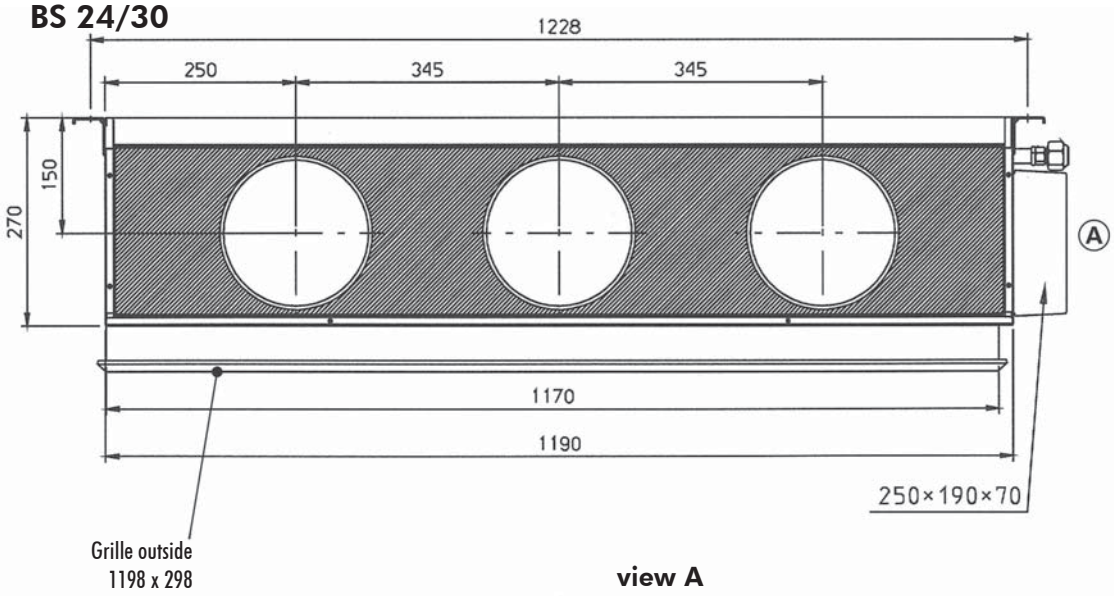
KIT N° 1(accessory)

Cassette plenum for air return + duct connector for discharge Ø 200
BS 11/15/18

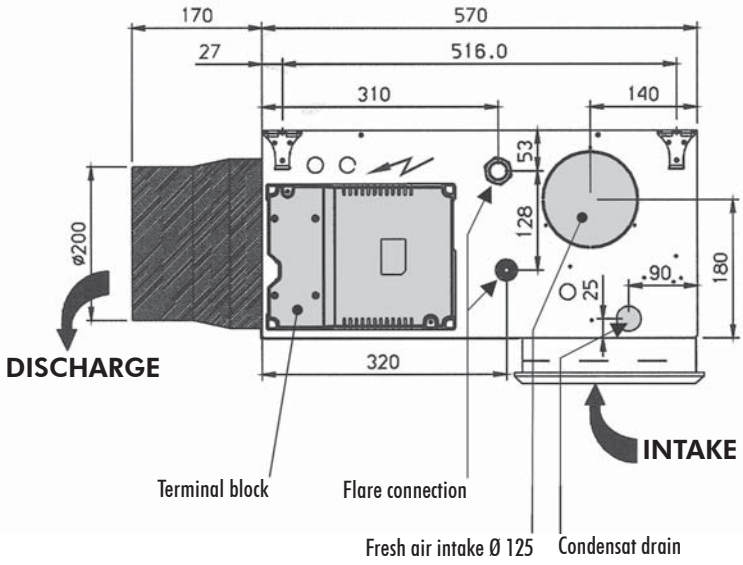


KIT N° 1 (accessory)

Cassette plenum for air return
+ duct connector for discharge
Ø 200
BS 24/30

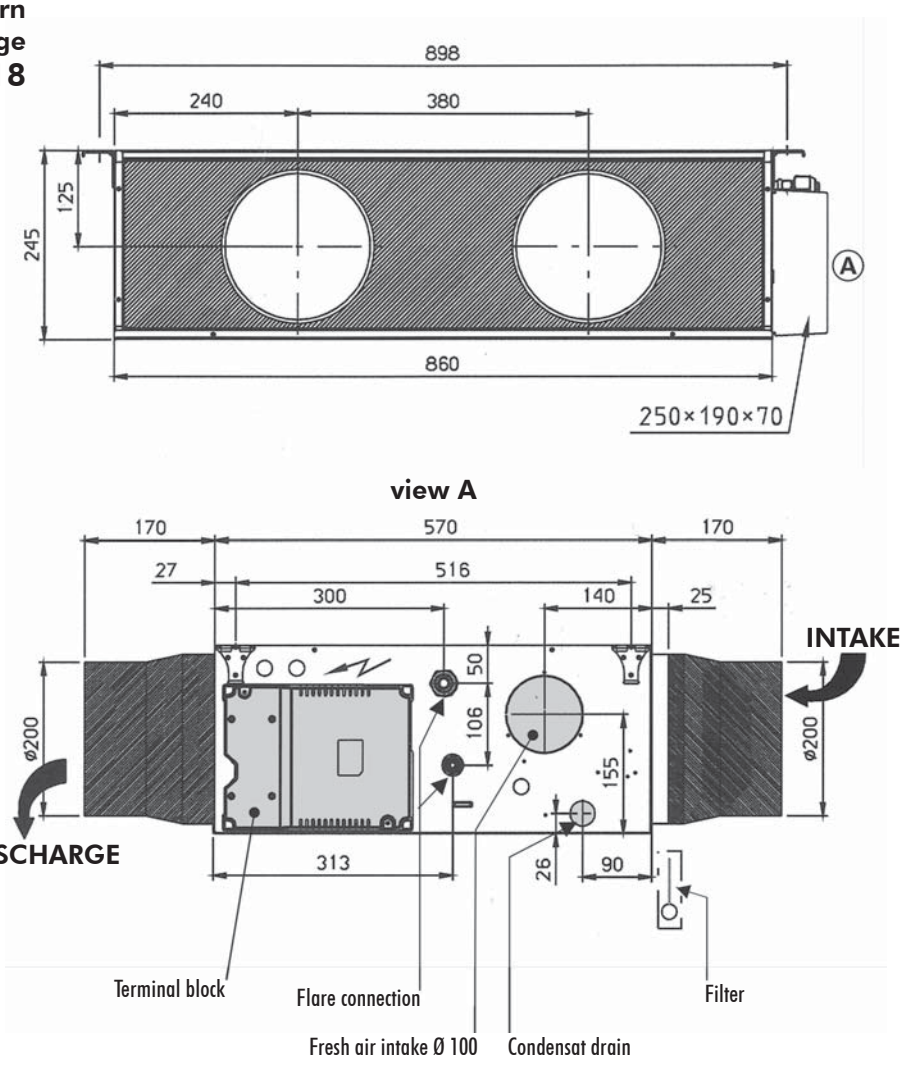


view A



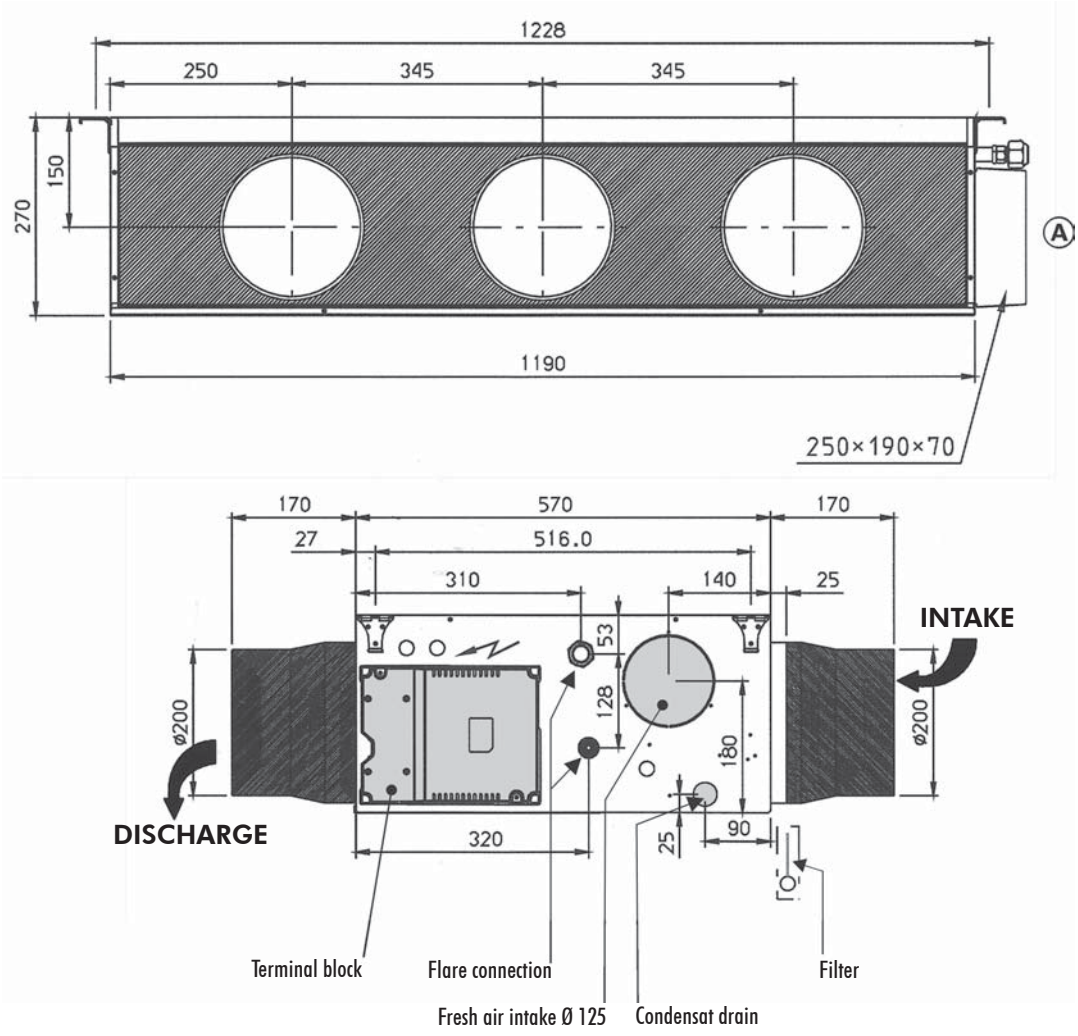
KIT N° 2(accessory)

Square ductflange for air return and discharge
BS 11/15/18



KIT N° 2(accessory)

Square ductflange for air return and discharge
BS 24/30



SOUFFLAGE

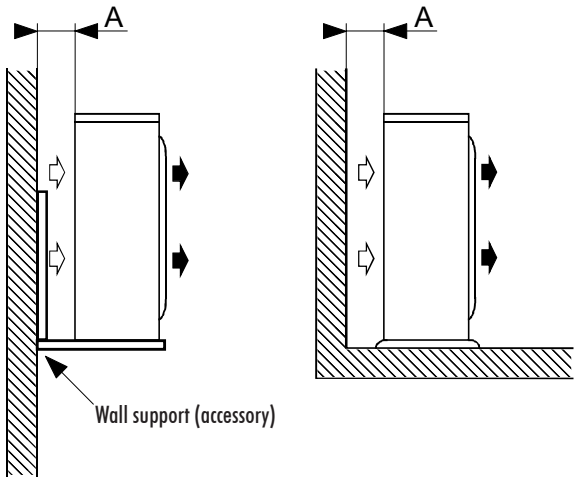
INSTALLATION

See mounting specifications in the installation instructions supplied with the material.

SUSPENDED **ON THE FLOOR**

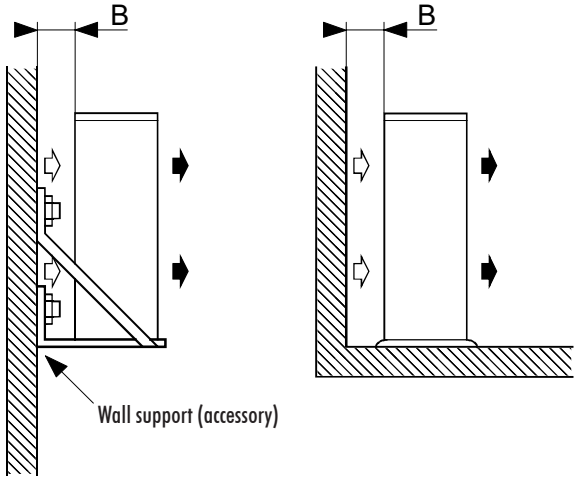
GC 12/14

Minimum clearance:
A = 100 mm



GC 18/24/30

B = 150 mm



INTAKE

DISCHARGE

IMPERATIVE :
Avoid recycling of air, even partially between suction and discharge.

FILTER

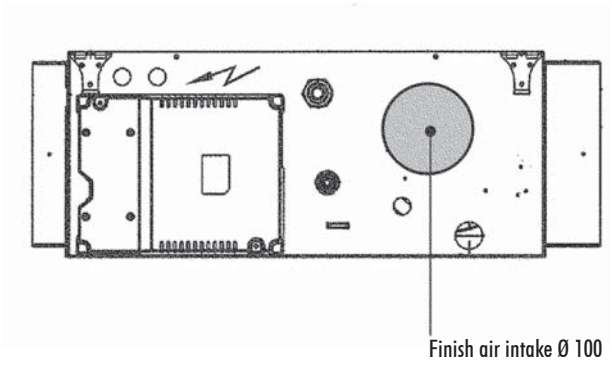
Airfilter mounted on the appliance in an oblong duct connection flange

- Filter type: ..... Rapidly removable cassettes
- Media: ..... Woven synthetics
- Fire resistance: M1
- Efficiency: 85%
  (EUROVENT 4/5 -ASHRAE 52-76NF X 44-012)
- Maintenance..... Washable
  (cold water with detergent not more than 25 washings) or dry dedusting.

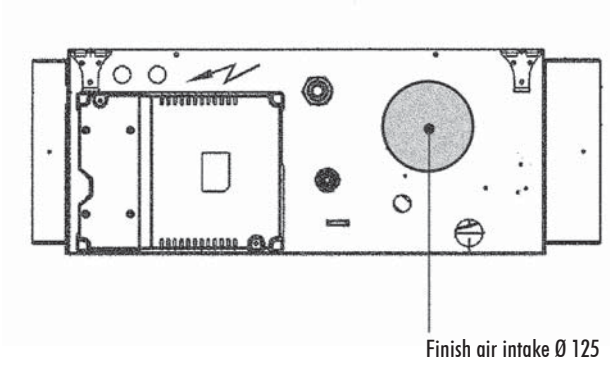
FRESH AIR INTAKE

Prepunched opening at the side allows to install ducts to intake fresh air from the outside.

Models
BS 11/15/18



Models
BS 24/30



Models		BS11	BS15	BS18	BS24	BS30
Nominal air flow - GV	m^3/h	520	610	680	920	1320
Maximal fresh air flow	m^3/h	60	70	80	110	130

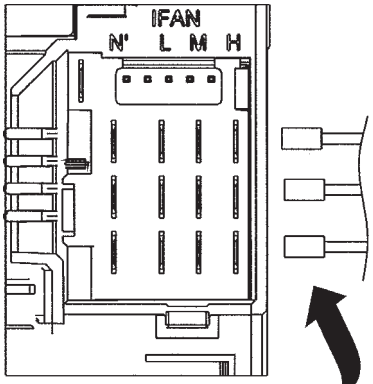
AERAULIC CHARACTERISTICS

The range of **"DUCTABLE SPLIT-SYSTEM"** type room air conditioners offer the possibility to obtain various values of available static pressure according to the user's preference.

According to the **BS** model two or three ventilation speeds can be used :
- **BS 11/15/18** : 3 speeds (H /M /L speed),
- **BS 24/30** : 2 speeds (H /L speed).

The various values of available static pressure are obtained as follows are gotten by permutation:
- Interchange of electric connections inside the electric casing box (see installation instructions).

AERAULIC CHARACTERISTICS



Speed selection terminal board

Example : BS 15 High Speed

To obtain a pressure of a 3 mm water column:

1°) In the **table of pressures** =
Spot the letter corresponding with the desired pressure **B**.

Table of pressure

High Speed (HS)		A	B	C	D
BS 11	mm CE	1	4.5	6	
BS 15	mm CE	1.5	3	5	
BS 18	mm CE	1	2.5	4	
BS 24	mm CE	2	3	7	11
BS 30	mm CE	2	3	7	11

2°) In the **table of connections** =
Spot in column B the wires to be connected with the terminal strip.
H : VT / **M** : BU / **L** : RD

Table of connection

	A			B			C			D		
	H	M	L	H	M	L	H	M	L	H	M	L
BS 11	BU	GY	RD	VT	BU	RD	BK	VT	BU			
BS 15	BU	GY	RD	VT	BU	RD	BK	VT	BU			
BS 18	BU	GY	RD	VT	BU	RD	BK	VT	BU			
BS 24	GY	BN	RD	OG	VT	RD	WH	OG	BN	BK	WH	GY
BS 30	GY	BN	RD	OG	VT	RD	WH	OG	BN	BK	WH	GY

BK	Black
BU	Blue
GY	Grey
OG	Orange
RD	Red
VT	Green
WH	White

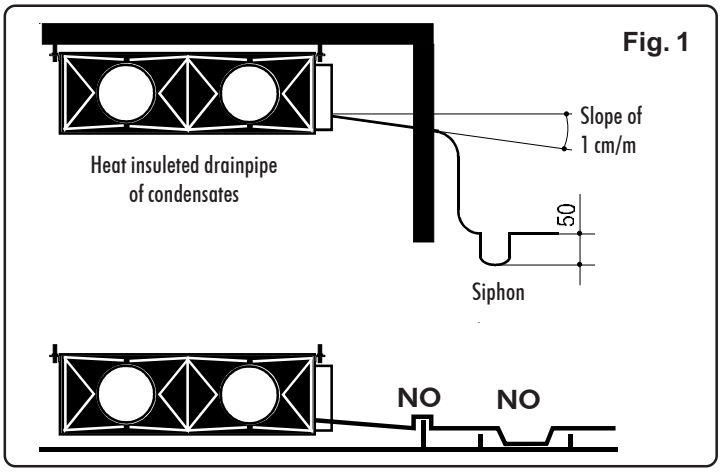
CONDENSATE DRAINING

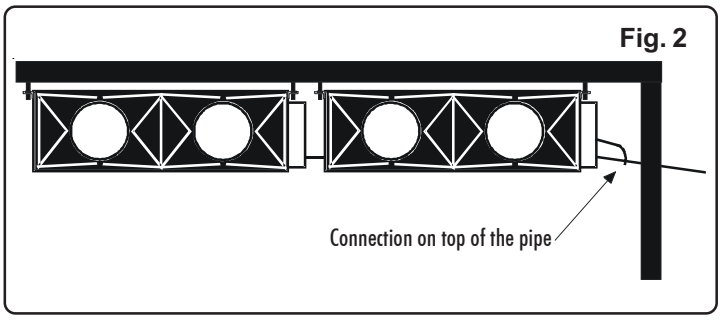
In order to drain condensates the down slope should be 1 cm per meter without any pipe narrowing nor uphill part (see Fig.1).
A siphon, at least 50 mm high, should be installed so as to avoid bad odors in the room.

The drainpipe should be heat insulated with 5 to 10 mm thick insulation material such as polyure-thane, propylane or neoprene, to avoid condensation to respect the reglementations in force.

An auxiliary pump to drain condensates and a level controller should be installed if it is necessary to drain condensates at a higher level than the air treatment unit.
It is recommended to install an appliance equipped with a safety float stopping the compressor in case the auxiliary pump should be damaged.

If several indoor units are placed in the same room, a drain system could be installed as indicated in figure 2.





The opening across the wall of the **BS** has a diameter of 32.5 mm (see space requirements).

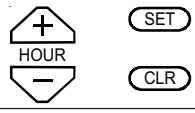
The pipe connecting with the condensing tray of the **BS** has an outside diameter of 15.8 mm.

REMOTE CONTROL

RESET FUNCTION:

1) Remove 1 battery.
2) Simultaneously hold down these 4 keys until the symbols disappear.
3) Put the battery back.

The four keys concerned are:



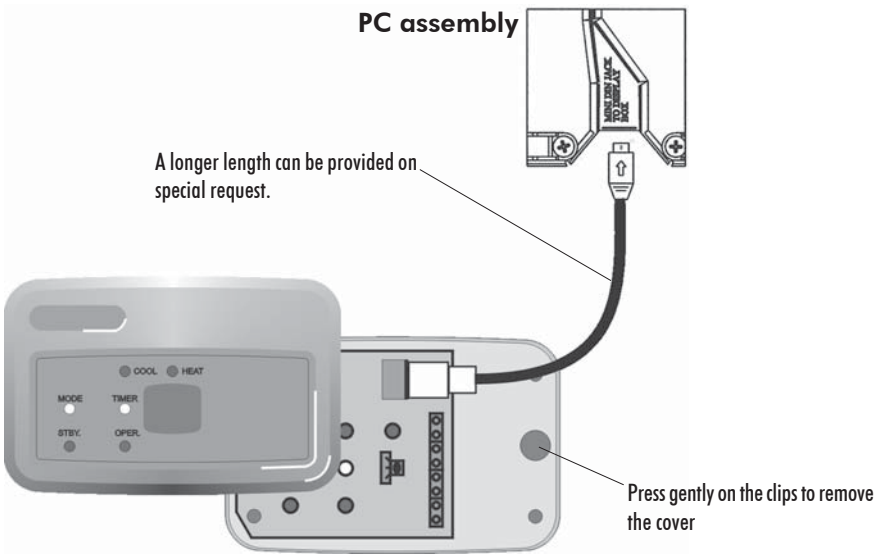
Note :
Open the cover/shutter to gain access to the controls.

RC4

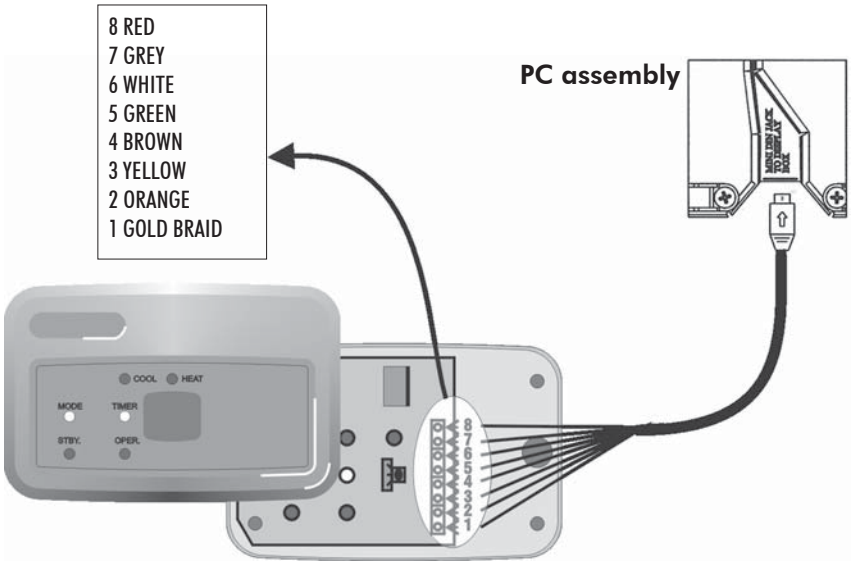
1 ON/OFF key
2 COOL, HEAT, AUTO HEAT/COOL, FAN, DRY mode selector
3 I FEEL key: local detection of the temperature
4 FAN SPEED/AUTO FAN selector
5 Key to raise the room temperature
6 Key to lower the room temperature
7 SLEEP Key
8 Inactive key
9 Inactive key
10 TIMER key
11 + key: increases operating time
12 – key: decreases operating time
13 LCD display
14 I FEEL sensor
15 Infrared signal transmitter
16 ROOM key: display of the room temperature
17 SET key: Sets timer on and/or off times
18 CLR key: Clears timer settings
19 LOCK key

ACCESSORY

Control panel/infrared receiver interconnection



- A 7 m shuelded cable with connectors at both ends is provided with the equipment for interconncting the control panel and infrared receiver.
- In case of difficulties with the connector cut it off the cable and wire the cable directly on the infrared receiver terminal board.



- In this case, follow the color codes shown on the terminal boardn corresponding to the 7 cable conductors plus the bonding braid, to be connected to the last terminal, marked Gd.
- To guarantee satisfactory connection, fit the cable ends with terminals for a 0.25 mm^2 size.

ELECTRIC HEATING

PTC ELECTRIC HEATING POWER

PTC electric heating for BS 11/15/18 - BS 11/15/18 RC

- The PTC electric heating (accessory) is made with ceramics.
- The ohmic resistance of the PTC increases with the temperature (PTC = Positive Temperature Coefficient) and prevents, by principle, any abnormal temperature rise, even in case of fan failure.
- In addition, the PTC's is self controlled according to air inlet temperature and air flow rate even in case of clogged filters. The power supplied varies depending on temperature and airflow.

Models		BS 11	BS 15	BS 18	BS 11RC	BS 15RC	BS 18RC
Nominal capacity PTC + high speed ventilation	W	1600	1900	1900	1600	1900	1900
Reduced capacity PTC + low speed ventilation	W	1450	1700	1700	1450	1700	1700
Additionnal nominal capacity PTC + thermodynamic heating	W				1380	1650	1650
Additionnal reduced capacity PTC + thermodynalic heating	W				1200	1400	1400

NOTE :
The PTC's is essential for heatpump models RCF with outdoor temperature < 0°C.

- Power supply of PTC electric heating : ~230 V - 50 Hz
  (likewise for the **BS 18 T** tri 400 V)

PTC electric heating for BS 24/30 - BS 24/30 RC

The electric heating device provided with heating element are thermically protected againt all abnormal temperature elevation with two thermostat wet "positive security" (definitive cut off the electric heating through mechanical or thermal destruction of the capillary) :

- a thermostat with automatic reset,
- a thermostat with manual reset.

For the reverse models the electric heater is in addition to the heat pump heating, it is controlled by a thermostat.

Models		BS24	BS30
PTC nominal capacity	W	4000	4000

NOTE :
The PTC's is essential for heatpump models (RCF) with outdoor temperature < 0°C.

Power supply : ~230 V - 50 Hz

COOLING PIPES

The **Split-systems** are designed to be connected with outdoor units by means of flare cooling pipes (copper pipes of cooling quality equipped at their ends with a flare nut and insulated over their whole length).

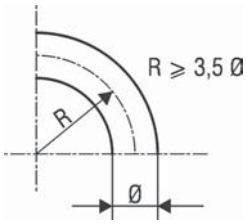
Flare pipes are available at the factory at various lengths: fixed lengths: 2.5 - 5 - 8 m.

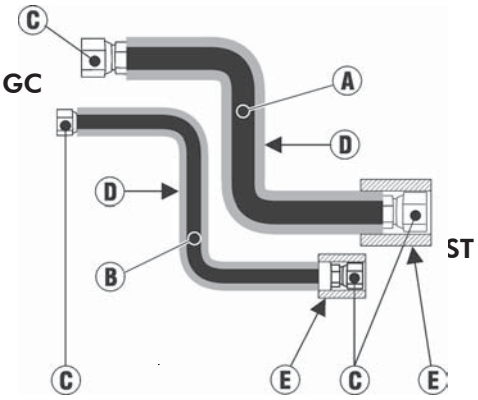
Tightening torque

Pipes Ø	Torque
1/4" pipe	15-20 Nm
3/8" pipe	30-35 Nm
1/2" pipe	50-54 Nm
5/8" pipe	70-75 Nm

1 Newton-mètre = 0,1 mètre-kilo

Bending of refrigeration pipes

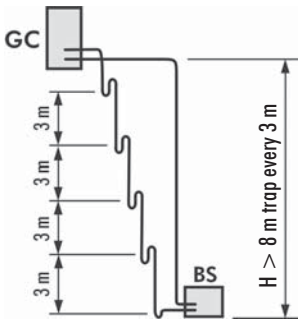




- (A) "GAS" pipe
- (B) "LIQUID" pipe
- (C) Flare nut
- (D) Pipe insulation
- (E) Insulating sleeve"GAS" pipe

			Max. length of the linking pipes				Max.height difference
			15 m	20 m	25 m	30 m	
BS11/BS11RC	"GAS" pipe	Pipe Ø	1/2"				7 m
	"LIQUID" pipe	Pipe Ø	1/4"				
BS15/BS15RC	"GAS" pipe	Pipe Ø	1/2"				7 m
	"LIQUID" pipe	Pipe Ø	1/4"				
BS18	"GAS" pipe	Pipe Ø	5/8"				10 m
	"LIQUID" pipe	Pipe Ø	3/8"				
BS18RC	"GAS" pipe	Pipe Ø	5/8"				10 m
	"LIQUID" pipe	Pipe Ø	3/8"				
BS24/BS24RC	"GAS" pipe	Pipe Ø	5/8"				10 m
	"LIQUID" pipe	Pipe Ø	3/8"				
BS30/BS30RC	"GAS" pipe	Pipe Ø	5/8"				10 m
	"LIQUID" pipe	Pipe Ø	3/8"				

If the suction tube has a vertical section more than 8 m in length, it is **MANDATORY** to provide a siphon every three meters when the condensor unit is installed above the processing unit (interconnecting tubes with a bottle).



Only the outdoor unit contains a **R-407C** charge. The indoor unit contains a small quantity of a neutral gas. This is the reason it is mandatory to vacuum the linking pipes and the indoor unit, after having installed the linking pipes (see intstallation instructions).
The **R-407C** charge depends on the length of the cooling linking pipes:
• Refer to the nome plate for additionnal refrigerant charge in the field.

ELECTRICAL SPECIFICATIONS for installation

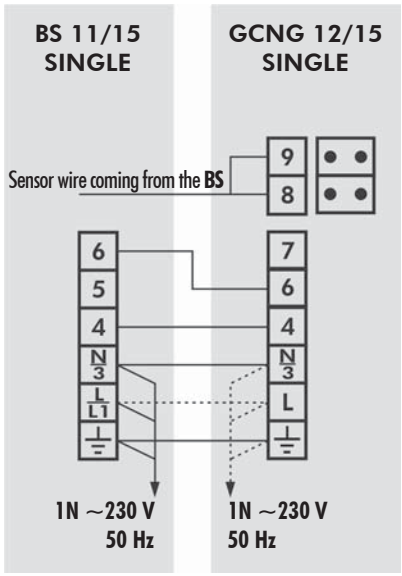
TYPE OF APPLIANCE		BS 11	BS 15	BS 18	BS 24	BS 30
Power supply ~ 230V - 50 Hz		•	•	•	•	•
Cooling+ Ventilation						
Nominal current	A	4,7	7,6	8,7	12,3	17,4
Maximum current	A	6,2	11,7	12,25	16,57	24,8
Fuse rating aM	A	8	12	16	20	32
Fuse rating ASE/VDE *	A	10	16	16	20	25
Cable section *	mm^2	3G 1,5	3G 1,5	3G 1,5	3G 2,5	3G 4
Linkings						
Maximum current	A	6,2	1	1	2	2,7
Cable section *	mm^2	4G 1,5	5G 1,5	5G 1,5	5G 1,5	5G 1,5
Dehumidification mode (cooling + ventilation + electric heating						
Nominal current	A	11,7	15,9	17,5	29,7	34,8
Maximum current	A	14,6	21,7	22,86	37,7	45,8
Fuse rating aM	A	16	25	25	40	50
Fuse rating ASE/VDE *	A	16	25	25	50	50
Cable section *	mm^2	3G 1,5	3G 4	3G 4	3G 10	3G 10
Linkings						
Maximum current	A	14,6	10,5	11	23	23,8
Cable section *	mm^2	4G 1,5	5G 1,5	5G 1,5	5G 4	5G 4

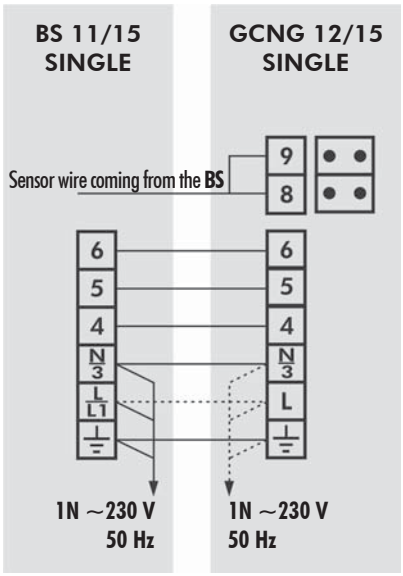
TYPE OF APPLIANCE		BS 18	BS 24	BS 30
Power supply ~ 230V - 50 Hz		•	•	•
Cooling+ Ventilation				
Nominal current	A	3.4	4.8	9.3
Maximum current	A	4,75	6,38	11.3
Fuse rating aM	A	6	8	12
Fuse rating ASE/VDE *	A	10	10	16
Cable section *	mm^2	5G 1,5	5G 1,5	5G 1.5
Linkings				
Maximum current	A	1	2	2.7
Cable section *	mm^2	5G 1,5	5G 1,5	5G 1,5
Dehumidification mode (cooling + ventilation + electric heating				
Nominal current	A	12,2	10,5	15.1
Maximum current	A	15,25	13,46	18.3
Fuse rating aM	A	16	16	20
Fuse rating ASE/VDE *	A	16	16	20
Cable section *	mm^2	5G 1,5	5G 1,5	5G 2.5
Linkings				
Maximum current	A	11	9,1	9.7
Cable section *	mm^2	5G 1,5	7G 1,5	7G 1.5

*** IMPORTANT** :
These values are given for information only; they should be checked and adjusted according to standards in force : they depend on the mode of installation and the type of wires selected.

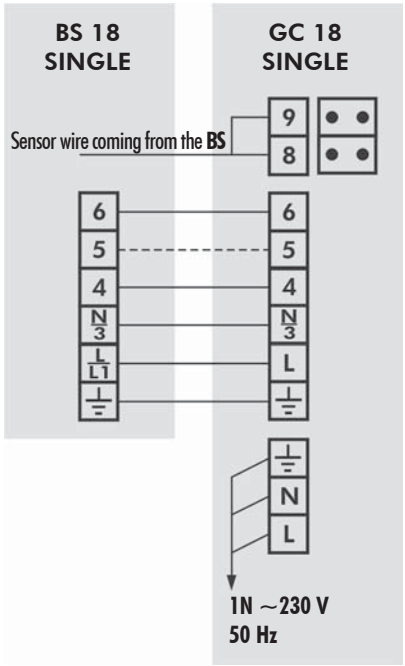
ELECTRICAL CONNECTIONS

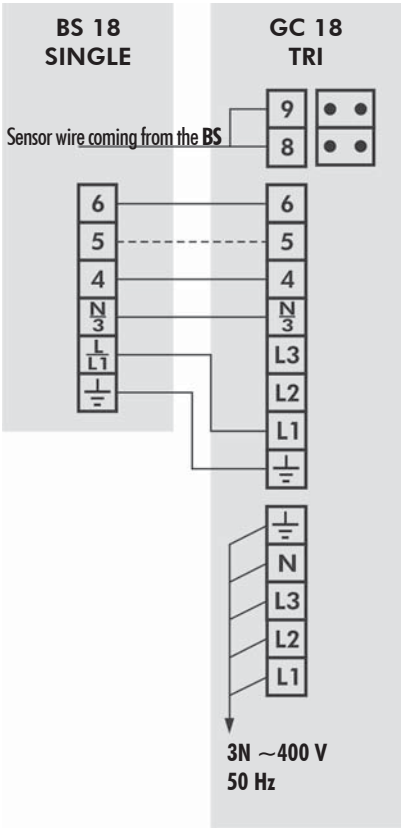
Wiring to be made in case of: **BS15**



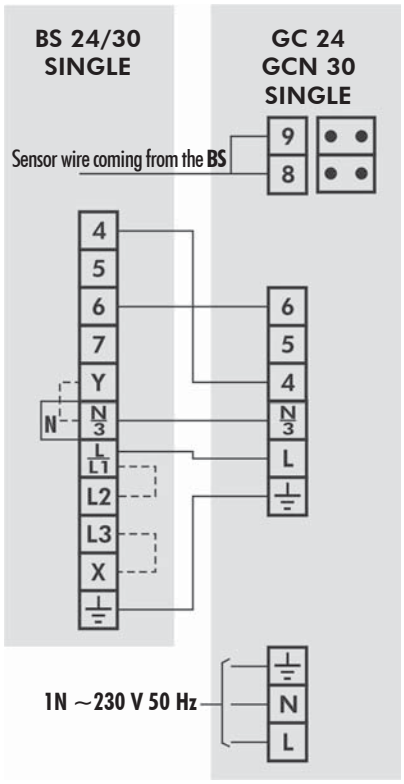


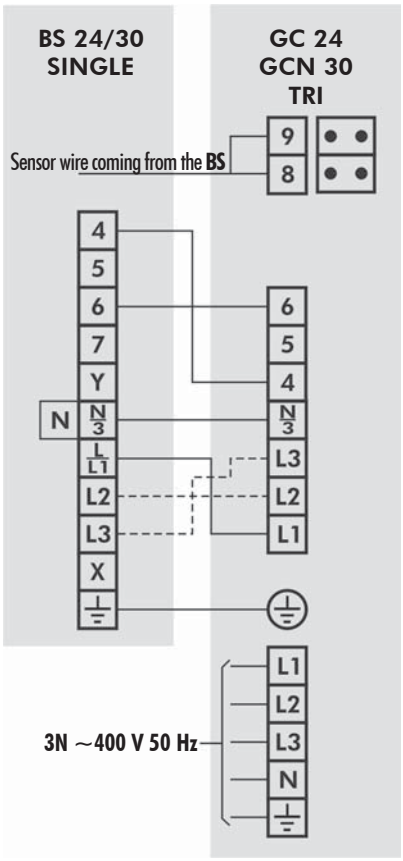
Wiring to be made in case of **Electrical heating**





ELECTRICAL CONNECTIONS





Wiring to be made in case of **Electrical heating**

INTRODUCTION

This chapter includes specifications relative to the **heatpump model**: heating performance, electrical connections and condensing tray.

All characteristics are common with the standard model :
- cooling performance,
- filtration,
- heating,
- space requirements,
- principles of connection, ...

are explained on the plates of the technical instructions, the 2 types of appliance have in common.

PRINCIPLES OF OPERATION

The **BS RC** in its heatpump version is equipped with a cycle reversing system of the cooling cycle allowing operation as an **AIR/AIR** heatpump by thermodynamic production of heat.

The applicance is able to operate down to an outdoor temperature of –10°C.

This heating process consists of transferring calories from the outdoor cold air to the indoor air to be heated with a very favorable coefficient of performance (COP) between 2.2 and 3.7 depending on outdoor weather conditions.

These heatpumps consume on the average, for the same released heating power, 3.2 times less electrical energy than traditional electric heating and are therefore remarkably economical.

ELECTRONIC DE-ICING

Removal of frost produced by cooling off steam contained in the outside air at low temperatures is performed by means of an electronic de-icing system wich equips the air treatment unit.

This system is controlled by a sensor placed on the outdoor coil which starts off an hourly counting as soon as the threshold is reached.

When this temperature is reached for the first time, the cumulated time of operation of the compressor is equal to 40 minutes and de-icing follows. The duration of de-icing cycles varies depending on outside weather conditions but is limited by the electronic system to 10 minutes.

The duration of operation of the compressor between two cycle of de-icing depends on the duration of these cycles:

- If the duration of de-icing is less than 5 minutes, the duration of operation of the compresssor between two de-icing cycles will be 10 minutes longer than the preceding duration of operation.

- If the duration of de-icing exceeds 5 minutes, the duration of operation between two de-icing cycles will be 10 minutes less than the preceding duration of operation.

The cumulated duration of operation of the compressor between two de-icing cycles will always be between 30 and 80 minutes.

ELECTRIC HEATING

Electric heating may be connected to the heatpump model as an addition to the standard thermo-dynamic heating of the appliance.

IMPORTANT :
- Connections as indicated on the diagrams should be respected.
- The **BS RC** being mono/three, standard and heatpump, the fitter must use a suitable adapter for the application.

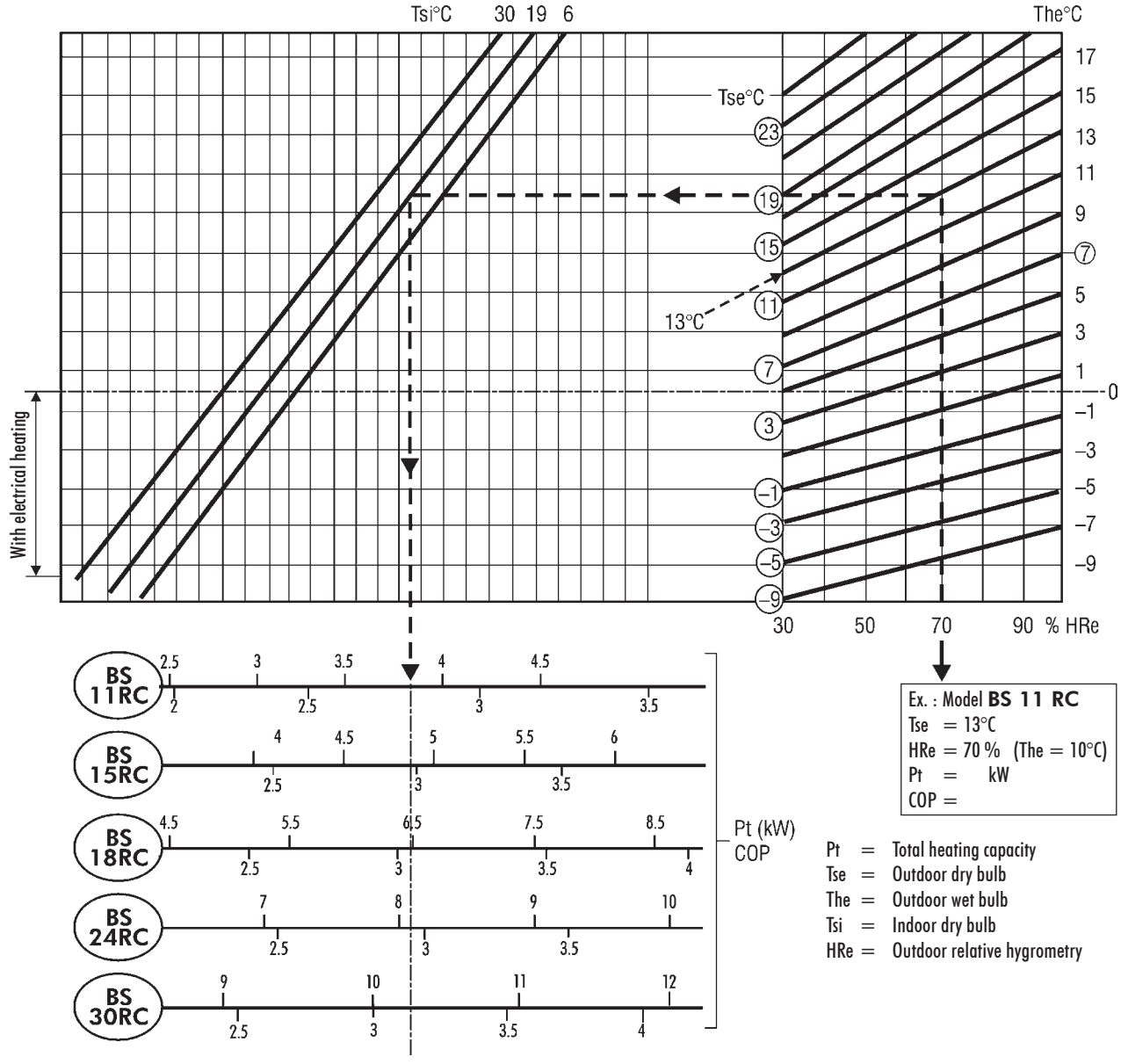
CONDENSING TRAY (accessory)

This tray is intended to collect the water produced during de-icing of the outdoor coil and should be placed underneath the front part of the outdoor **Condensing Unit** (**GC**).

This tray is equipped with two lateral draining connections which may be connected with a drain pipe.

The same accessory includes also 2 supports to be placed under the outdoor unit in order that it stands firmly on the floor, allowing condensates to be smoothly drained.

HEATING PERFORMANCES



WORKING RANGE

winter operation
continuous running - nominal air flow

Maximum temperature				
Indoor temperatur	°C	Tsi	+6	+6
Outdoor temperature	°C	Tse	0	–10
		The	0	–10

Minimum temperature				
Indoor temperature	°C	Tsi	+27	+27
Outdoor temperature	°C	Tse	+24	+24
		The	+18	+18

Nota :
The electric heating accessory is necessary for use with negative outdoor temperatures (< 0°C).

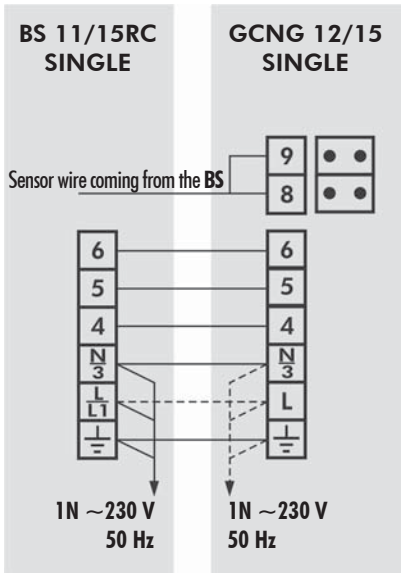
ELECTRICAL SPECIFICATIONS for installation

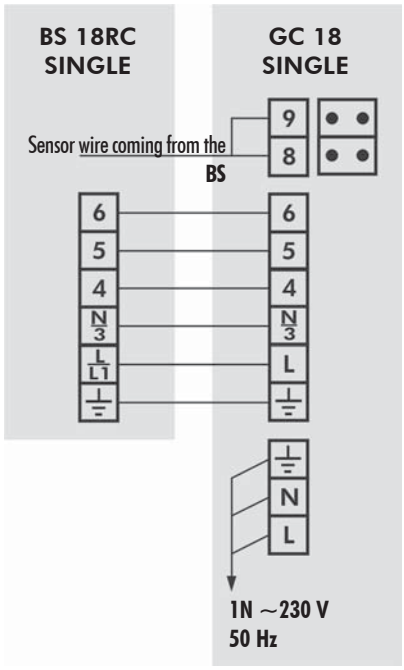
TYPE OF APPLIANCE		BS 11RC	BS 15RC	BS 18RC	BS 24RC
Power supply ~ 230V - 50 Hz		•	•	•	•
Cooling + ventilation (or heatpump heating)					
Nominal current					
– Heatpump heating	A	4.1	6.4	9.3	14
– Cooling + Ventilation	A	4.7	7.6	9.8	14.1
Maximum current	A	6.2	11.7	13.8	19
Fuse rating aM	A	8	12	16	20
Fuse rating ASE/VDE *	A	10	16	16	20
Cable section *	mm^2	3G 1.5	3G 1.5	3G 1.5	3G 2.5
Linkings					
Maximum current	A	6.2	1	1	2
Cable section *	mm^2	5G 1.5	6G 1.5	6G 1.5	6G 1.5
Electric heating + ventilation + heatpump heating					
Nominal current	A	11	14.7	18.1	29.4
Maximum current	A	14.6	21.7	24.3	40
Fuse rating aM	A	16	25	25	40
Fuse rating ASE/VDE *	A	16	25	25	50
Cable section *	mm^2	3G 1.5	3G 4	3G 4	3G 10
Linkings					
Maximum current	A	14.6	10.5	11	23
Cable section *	mm^2	5G 1.5	6G 1.5	6G 1.5	6G 4

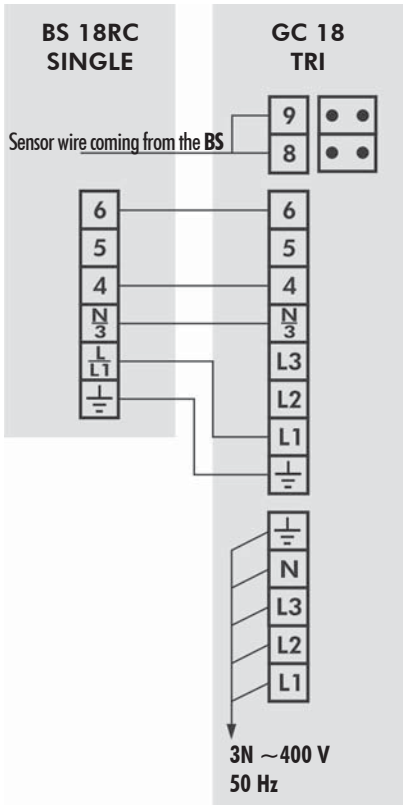
TYPE OF APPLIANCE		BS 18RC	BS 24RC	BS 30RC
Power supply 3N~ 400 V - 50 Hz		•	•	•
Cooling + ventilation (or heatpump heating)				
Nominal current				
– Heatpump heating	A	4	6.7	9.3
– Cooling + Ventilation	A	4.3	6.7	9.3
Maximum current	A	6	8.9	11.3
Fuse rating aM	A	8	10	12
Fuse rating ASE/VDE *	A	10	10	16
Cable section *	mm^2	5G 1.5	5G 1.5	5G 1.5
Linkings				
Maximum current	A	1	2	2.7
Cable section *	mm^2	6G 1.5	6G 1.5	6G 1.5
Electric heating + ventilation + heatpump heating				
Nominal current	A	12.8	10.8	14.5
Maximum current	A	16.5	15.8	18.2
Fuse rating aM	A	20	16	20
Fuse rating ASE/VDE *	A	20	16	20
Cable section *	mm^2	5G 2.5	5G 1.5	5G 2.5
Linkings				
Maximum current	A	11	9.1	9.7
Cable section *	mm^2	6G 1.5	8G 1.5	8G 1.5

*** IMPORTANT** :
These values are given for information only; they should be checked and adjusted according to standards in force : they depend on the mode of installation and the type of wires selected.

ELECTRICAL CONNECTIONS



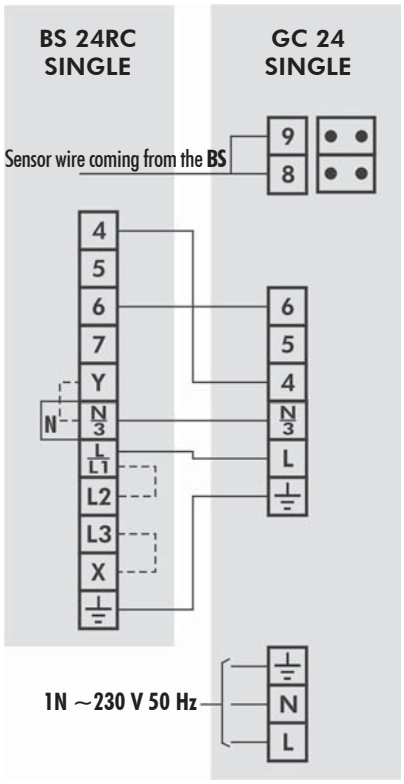


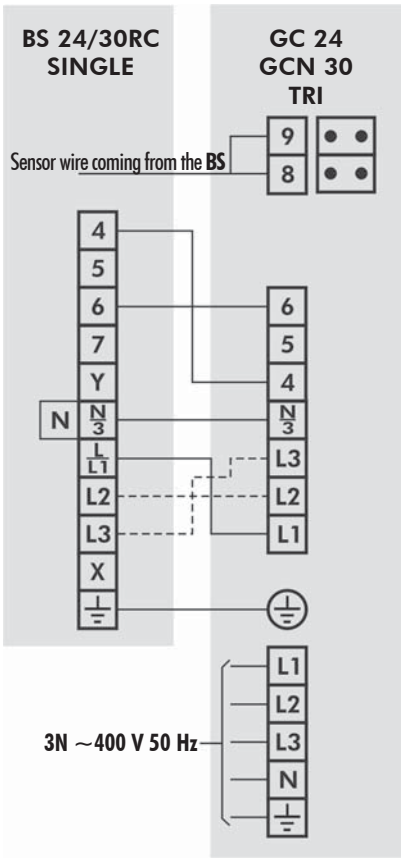


Wiring to be made in case of **Electrical heating**

ELECTRICAL CONNECTIONS

Wiring to be made in case of **Electrical heating**





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