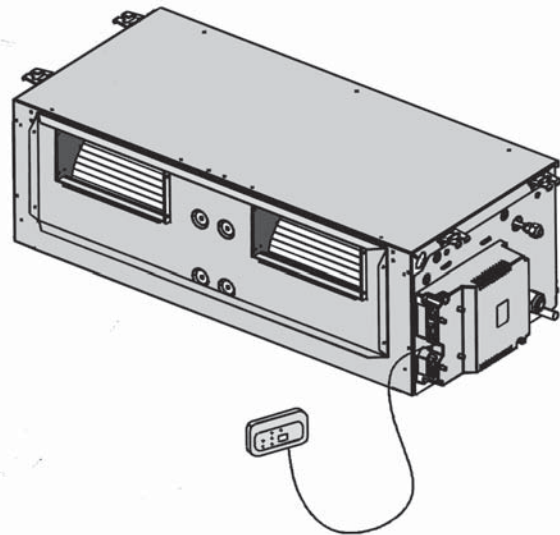


BS

Ductable Split-System

R-407C

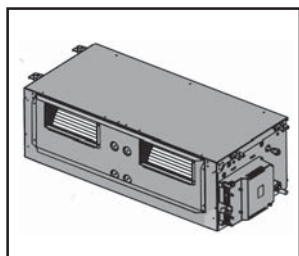


	Cooling capacity (W)	Heating capacity (W)
BS 36	10260	10990
BS 43	12600	14000

Airwell

INDIVIDUAL COMFORT RANGE

Technical Manual
TM03BSb 2 GB A
Supersedes : *TM03BSb 1 GB A*



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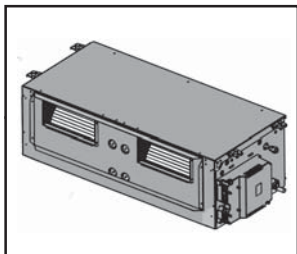
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INTRODUCTION

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

BS split systems are easy to use both connected to a system of air distribution.

Split-systems include an exclusive microprocessor control system with automatic programs and infrared remote control units.

1. Advantages

- A small wall-mounted infrared receiver located where desired allows selection of all the available air conditioning functions using the remote control.
- The low height of the **BS** indoor units, (300 mm) facilitates installation in a double ceiling.
- The fan motors of the **BS** systems have three speeds to allow accurate output adjustment according to pressure losses in the ducts. In automatic mode, the system adjusts automatically to requirements at all times.

2. Refrigerant line

- The indoor and outdoor units are equipped with flare couplings allowing the use of flares refrigerant lines (refrigerant grade copper pipe).
- The **GCN** outdoor units are equipped with service valves.
- The refrigerant piping length is 50 m maximum.

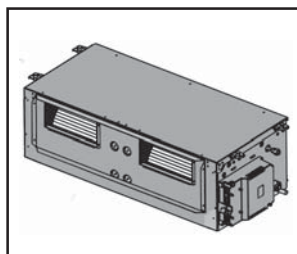
3. Description

- The indoor unit is designed for installation in a double ceiling supported by four anchor points used to attachment and leveling.
- The indoor units are supplied with a dry nitrogen charge at a pressure of 8 bars.
- Install the unit on the ground or against a wall using suitable supports, according to availabilities. The outdoor units are supplied with refrigerant charge.
- The outdoor units are equipped with SCROLL compressor.

4. Maintenance

- The trap door at the bottom facilitates internal access.
- The terminal box on the side is readily accessible from the bottom.

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



TECHNICAL SPECIFICATIONS

Models		BS 36	BS 43
Nominal refrigerating capacity (*1)	W	10260	12600
Total power input	W	3840	5180
Nominal heating capacity (*2)	W	10990	14000
Total power input	W	4040	5360
indoor unit dimensions BS			
Height	mm	300	300
Width	mm	930	1105
Depth	mm	475	475
Net weight/Gross weight	kg	32/37	40/45
Sound pressure (*3)	dBA	54.5	64
Refrigerant		R-407C	
Control system		Capillary	
Internal fan			
Rated output	m ³ /h	1175/1380/1535	1430/1600/1765
Available static pressure	Pa	37/70	50/90
Connections Refrigerant line			
Gas line diameter	"	3/4	3/4
Liquid line diameter	"	3/8	3/8
Condensate drainage line			
Diameter	mm	16	16
Corresponding outdoor unit		GCN 36 GCN 36RC	GCN 43 GCN 43RC
Outdoor unit dimensions			
Height	mm	970	970
Width	mm	900	900
Depth	mm	350	350
Net weight	kg	93	95
Sound pressure (*4)	dBA	62	64
Compressor type SCROLL			
Number		1	1
Fan			
Motor rating		2	2
Refrigerant			
R-407C			
Refrigerant lines			
Gas line diameter	"	3/4	3/4
Liquid line diameter	"	3/8	3/8
Electric power supply		3N~400V - 50Hz	

NOTES:

*1

Cooling test conditions.

Indoor unit inlet temperature: 27°C BS / 19°C BH

Outdoor unit inlet temperature: 35°C BS / 24°C BH

*2

Heating test conditions

Indoor unit inlet temperature: 20°C BS / 15°C BH

Outdoor unit inlet temperature: 7°C BS / 6°C BH

Global acoustic pressure in dBA (1m) under nominal conditions:

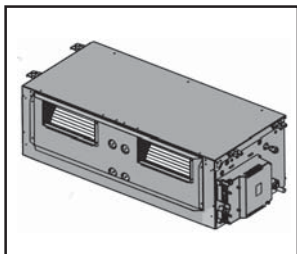
*3

Indoor Unit: installation in an average sized room (MV-0.5 s of reverberation)

*4

Outdoor unit: in a free field against a reflective background.

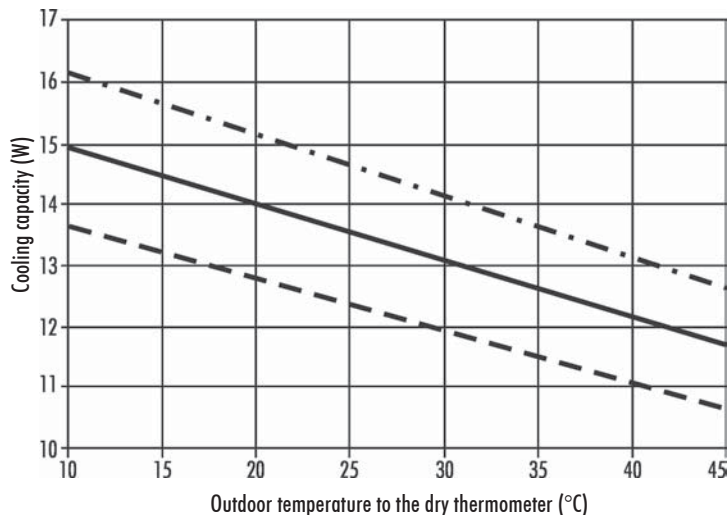
These characteristics are for information only and may be changed without advance notice.



COOLING PERFORMANCES

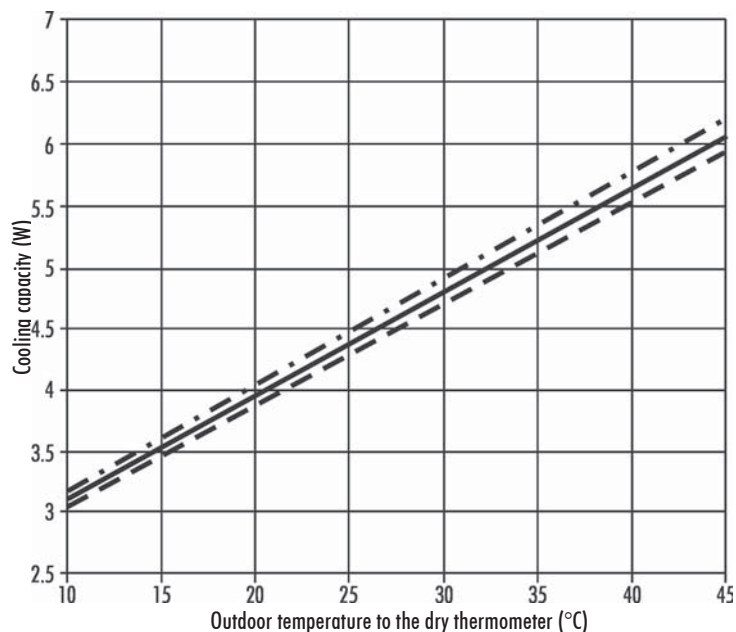
BS 43

Indoor temperature to the dry thermometer
 - - - - - 30°C
 ————— 27°C
 - - - - - 23°C



BS 43

Indoor temperature to the dry thermometer
 - - - - - 30°C
 ————— 27°C
 - - - - - 23°C



**Power Correction Factors
 MODE ACCORDING
 to Refrigerant Line Length**

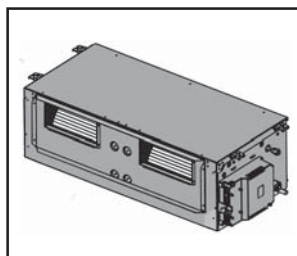
Modèles	Longueur de la ligne frigorifique, une voie (m)				
	8	15	25	35	50
BS 36/GCN 36	1,00	0,965	0,935	0,910	0,850
BS 43/GCN 43	1,00	0,980	0,960	0,940	0,900

**Power Correction Factors
 According to Flow Rate**

Débit d'air Q	$Q_n \times 0,8$	$Q_n \times 1,1$
Puissance frigorifique PT	$PT_n \times 0,95$	$PT_n \times 1,02$

Q_n : Nominal air flow rate.

PT_n : Rated cooling power.

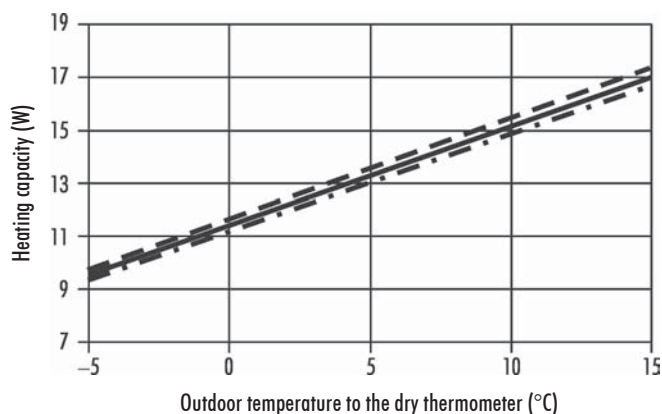


HEATING PERFORMANCES

Low limit -10°C

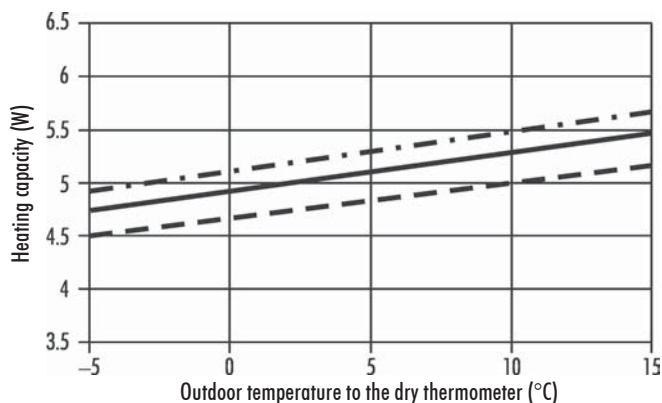
BS 43

Indoor temperature to the dry thermometer
 - - - - - 20°C
 ———— 18°C
 - - - - - 15°C



BS 43

Indoor temperature to the dry thermometer
 - - - - - 20°C
 ———— 18°C
 - - - - - 15°C



Power Correction Factors According to Flow Rate

Débit d'air Q	$Q_n \times 0,8$	$Q_n \times 1,1$
Puissance frigorifique PT	$PT_n \times 0,95$	$PT_n \times 1,01$

Q_n : Nominal air flow rate.

PT_n : Rated cooling power.

Heating power correction factors due to the effect of ice on the outdoor unit.

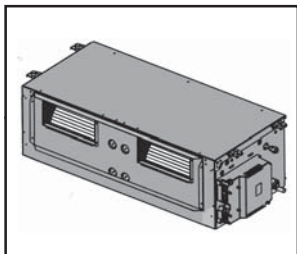
Température de l'air extérieur (°C BH)	-5	-2	0	2
Puissance calorifique PC	$PC \times 0,81$	$PC \times 0,82$	$PC \times 0,86$	$PC \times 0,93$

BH : Temperature to the humid thermometer

The values given in the tables above do not take into account the power reduction due to deicing. The correction factors in the table below correspond to the average power loss due to the effect of ice and deicing.

Power Correction Factors IN HEATING According to Refrigerant Line Length

Models	Refrigerant line length, one way (m)				
	8	15	25	35	50
BS 36/GCN 36	1,00	1,00	1,00	0,995	0,985
BS 43/GCN 43	1,00	1,00	1,00	0,995	0,985



OPERATING LIMITS

The **BS/GCN** air conditioners alone and with heat pump operate normally within the following limits :

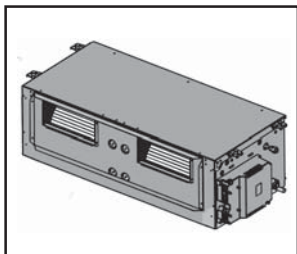
	Cooling operation	
	Exchanger air inlet temperature	
	°C BS	°C BH
Indoor unit (1)		
Minimum	21	15
Maximum	32	23
Outdoor unit		
Minimum	21	–
Maximum	46	–

For models with heat pump, the heating operating limits are :

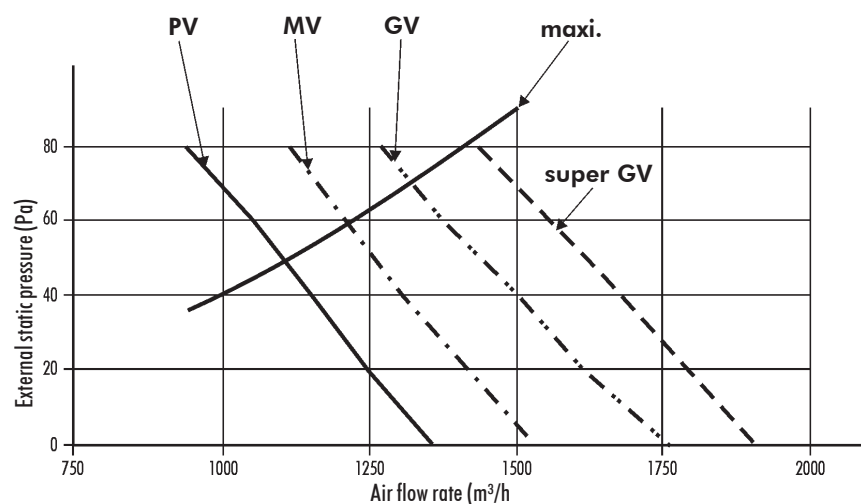
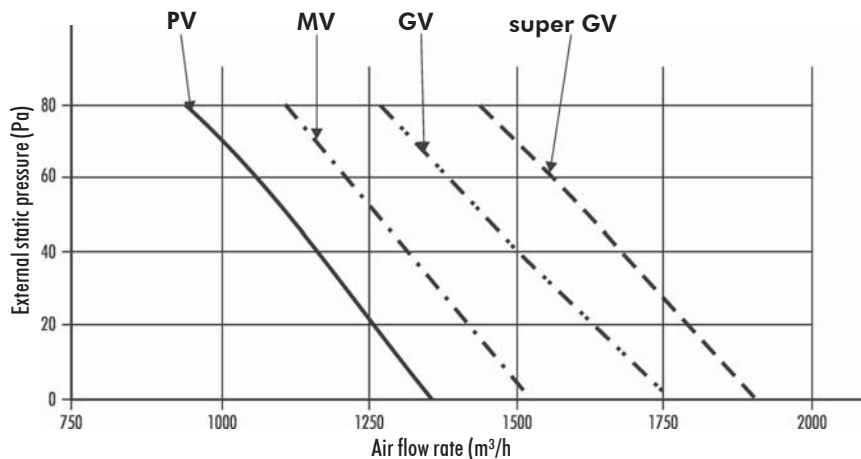
	Heating operation	
	Exchanger air inlet temperature	
	°C BS	°C BH
Indoor unit (1)		
Maximum	27	20
Outdoor unit		
Minimum	–9	-10
Maximum	24	18

NOTES :

(1) Other conditions with the same enthalpies are equivalent.



**AERAULIC CHARACTERISTICS
BS 36**

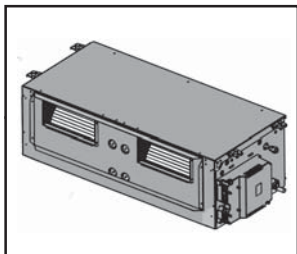


The values in the graphs correspond to :

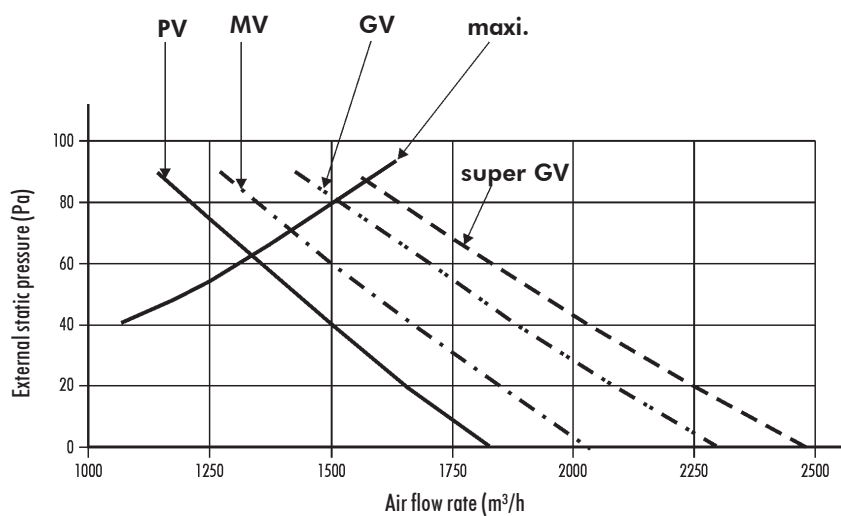
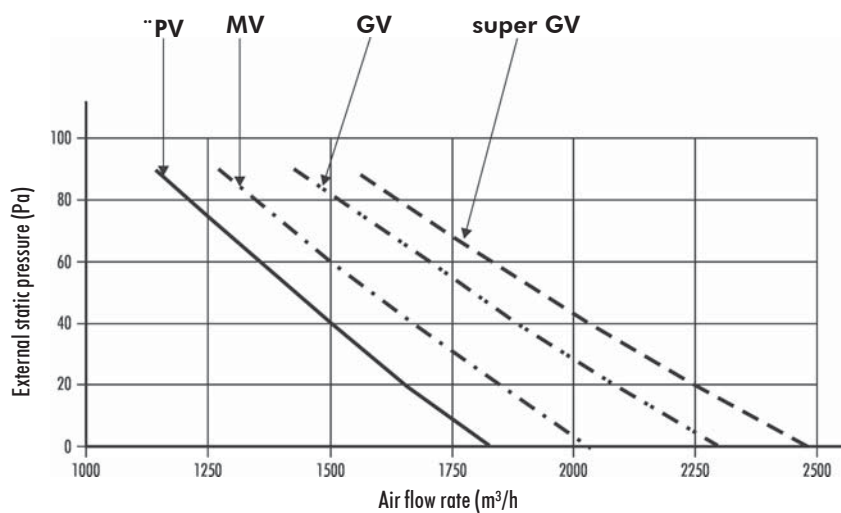
- Fan running at maximum speed.
- Battery dry and air filter clean.
- Power supply voltage 220 /230 V, 50 Hz.

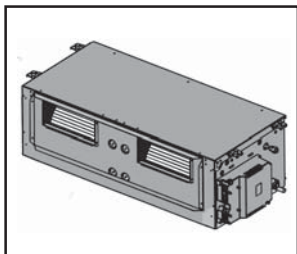
When designing the system, it is recommended to avoid air flow rates greater than 110 percent above the nominal air flow rate to avoid the entrainment of condensation droplets through the ducts.

Air flow rates less than 80 percent of the nominal air flow rate substantially affect the efficiency of the unit.



AERAULIC CHARACTERISTICS
BS 43





INSTALLATION

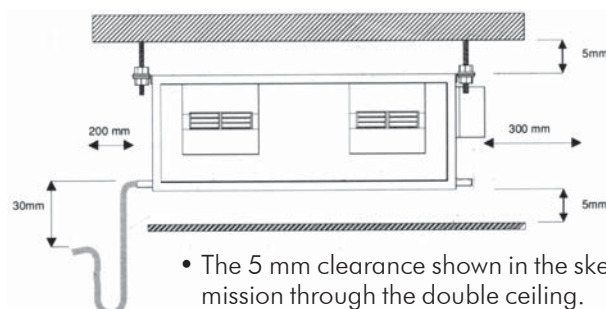
LOCATION OF THE INDOOR UNIT



CAUTION :

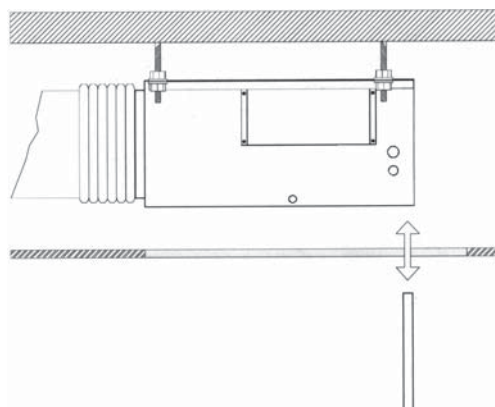
The indoor units are supplied with a dry nitrogen charge at a pressure of 8 bars.

- Installation of the indoor unit : only horizontal
- The indoor unit is designed for installation in a double ceiling supported by four anchor points used to attachment and leveling.
- The tubing between the indoor and outdoor units routed through a 60-mm wall opening. Connect both sections, taking the shortest, most direct route.
- Install away from smoke and dust that could foul the suction filter, decrease the equipment performance and affect the quality of the conditioned air.



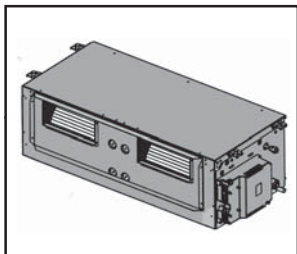
- The 5 mm clearance shown in the sketch prevents noise transmission through the double ceiling.
- The siphon shown, minimum 30 mm, on the condensate line guarantees condensate drainage during operation of the internal fan. (equipment not supplied).
If prevented by insufficient height, provide a special pump on the equipment panel. (equipment not supplied).

It is recommended to provide a flexible coupling between the supply duct and the indoor unit to prevent noise from being transmitted in the air processed (accessory not supplied).



Nota :

If the indoor unit is installed in a region where the relative humidity is high, provide additional insulation on the appliance to prevent risks of condensation spots.



INSTALLATION

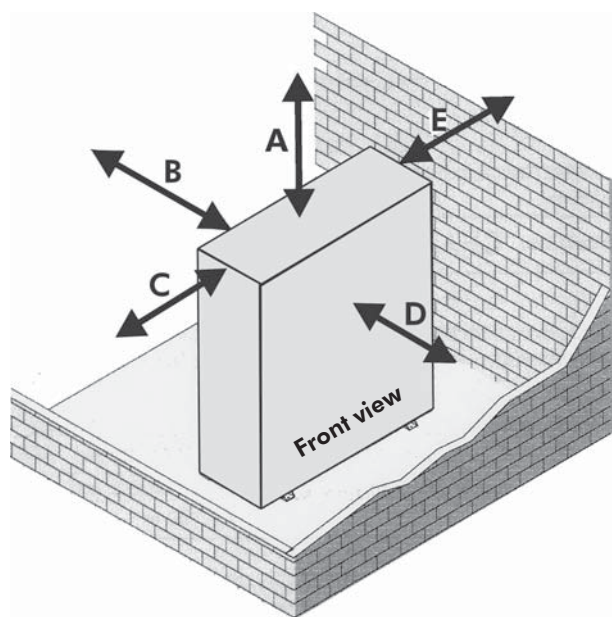
LOCATION OF THE OUTDOOR UNIT



CAUTION :

The outdoor units are supplied with refrigerant charge.

- The outdoor unit must be installed **outdoors in a location** allowing free air flow through the unit and access for periodic maintenance.
- Install the unit on the ground or against a wall using suitable supports, according to availabilities.
- In all cases, comply with the minimum clearance specified for the model used.
- For Heatpump models, if the outdoor temperature is likely to fall below +0°C, provide a system to prevent the condensates from freezing (e.g. heating cord)

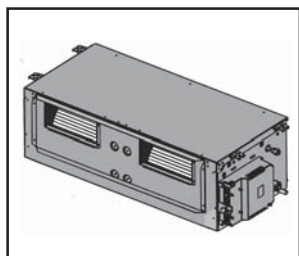


NOTES :

(1) With lateral air intake.

Keep free of any obstacles that could impede free air flow through the exchanger.

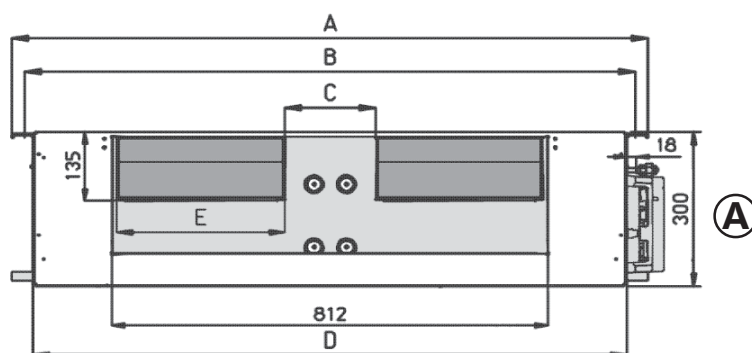
Models	Minimum clearance				
	A	B	C	D	E
GC 36	300	800	200	300	600
GC 43	300	800	200	300	600



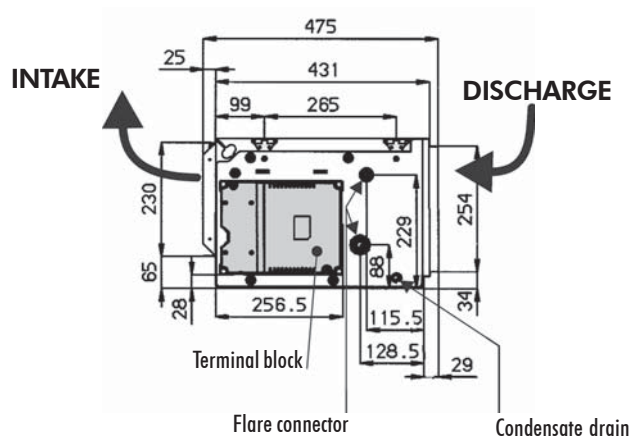
DIMENSIONS

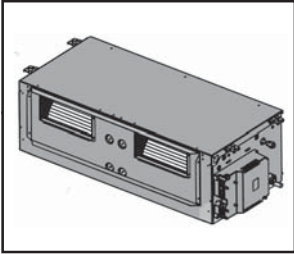
**Air treatment unit
BS 36**

	A	B	C	D	E
BS36	1100	965	200	930	256
BS43	1185	1140	168	1105	312



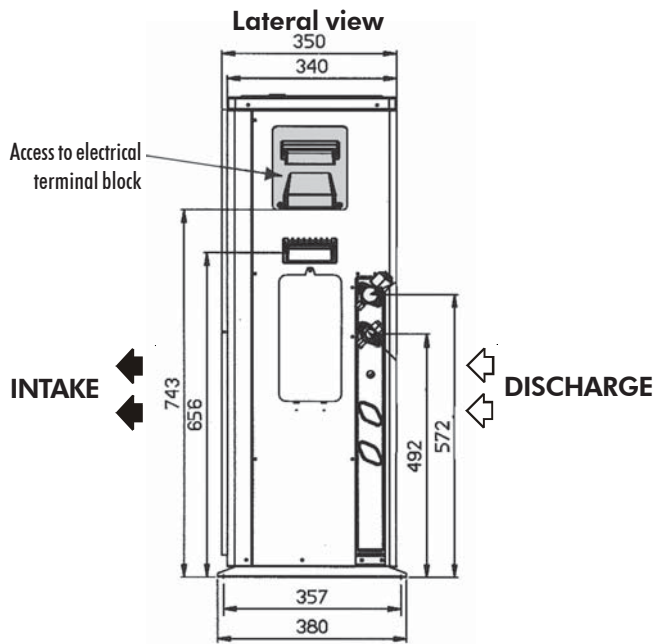
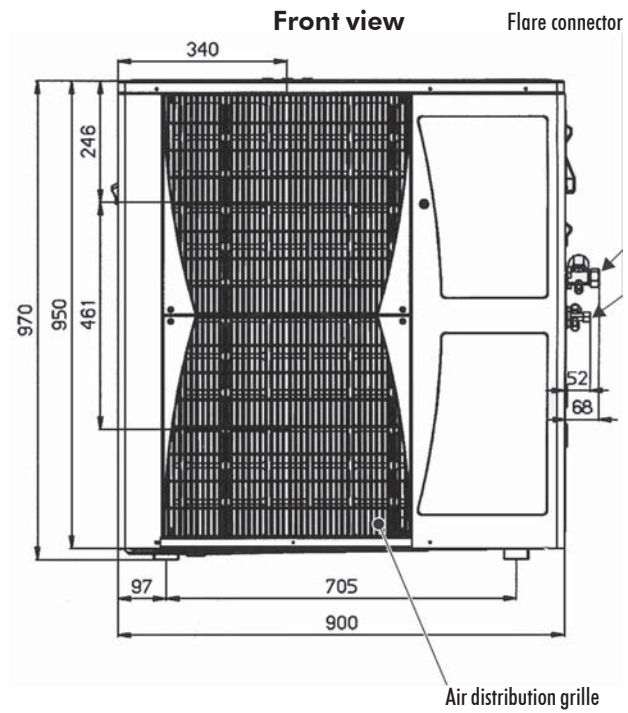
view A

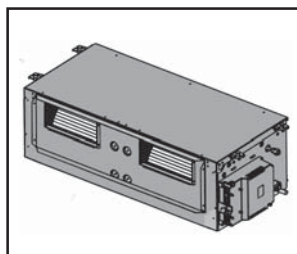




DIMENSIONS

Condensing unit
GCN 36
GCN 43





COOLING PIPES

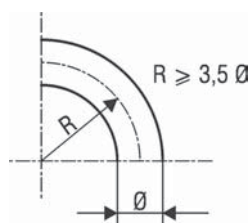
Air conditioner alone and with heatpump		
Refrigerant line dimensions	BS 36 GCN 36	BS 43 GCN 43
Outdoor diameter		
"liquid" line	3/8"	3/8"
"gas" line	3/4"	3/4"
Maximum length	50 m	
Maximum level difference	25 m	

Equivalent line length for the heat losses caused by a few common fittings:

Accessorie	Nominal refrigerant copper pipe diameter					
	3/8"	1/2"	5/8"	3/4"	7/8"	1 1/8"
90° elbow	0,37	0,42	0,48	0,54	0,61	0,80
90° bend	0,24	0,27	0,30	0,36	0,40	0,50
Single siphon	0,64	0,70	0,76	0,98	1,20	1,70
Double siphon	1,25	1,50	1,80	2,10	2,40	3,30

Outdoor unit	Flare nut dimensions 3/8" 22 mm 1/2" 25 mm 5/8" 26,5 mm 3/4" 33 mm 7/8" 40 mm Flare male fitting dimensions 3/8" 16,5 mm 5/8" 23 mm 1/2" 28,5 mm 3/4" 32 mm 7/8" 32 mm	Indoor unit

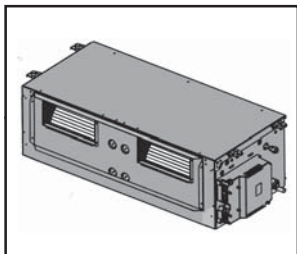
Bending of cooling pipes



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
3/4" pipe	80-85 Nm
7/8" pipe	90-95 Nm

1 Newton-mètre = 0,1 mètre-kilo

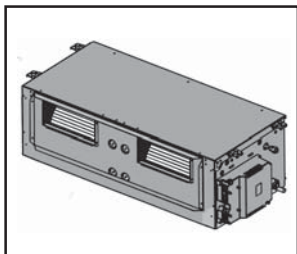


ELECTRICAL SPECIFICATIONS for installation

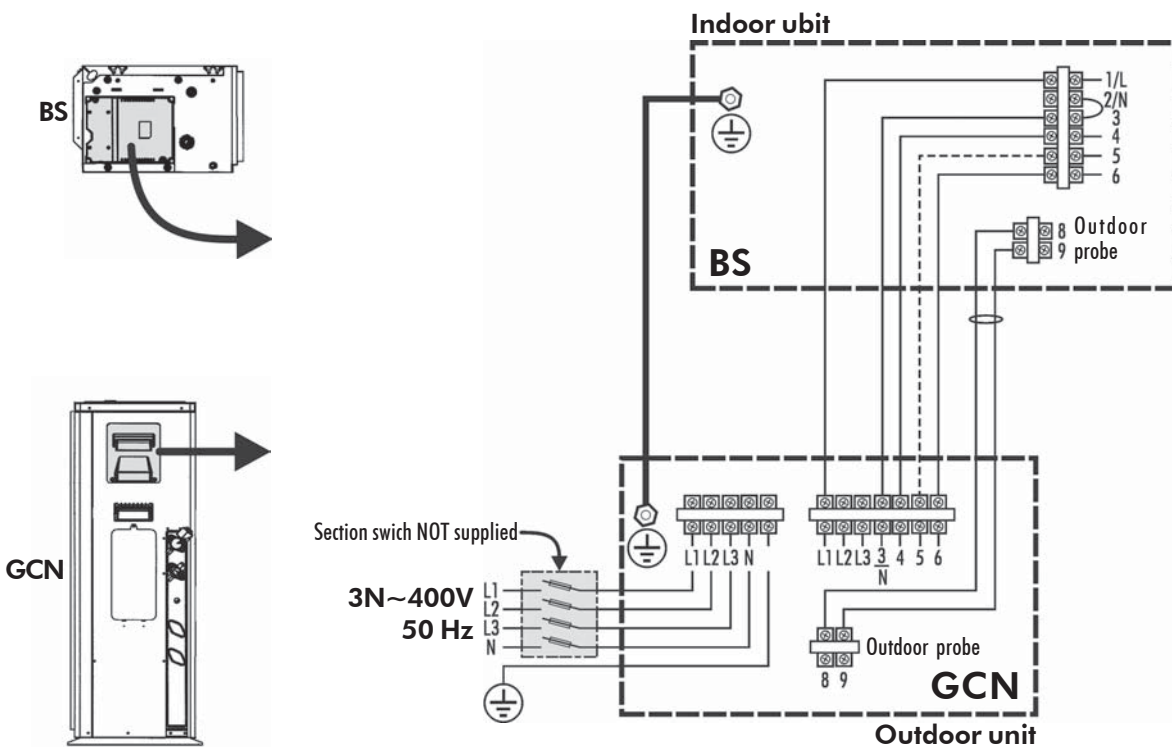
Type of appliance		GCN 36	GCN 43
Power supply 3N - 400V - 50Hz		•	•
Cooling + fan (or heatpump heating)			
Maximum current	A	10.5	13.8
Fuse rating aM	A	12	16
Fuse rating ASE/VDE*	A	16	16
Circuit-breaker rating	A	16	16
Cable section*	mm ²	5G 1.5	5G 1.5
Linking			
Cable section*	mm ²		
– Standard		4G 1.5	4G 1.5
– Heatpump		5G 1.5	5G 1.5

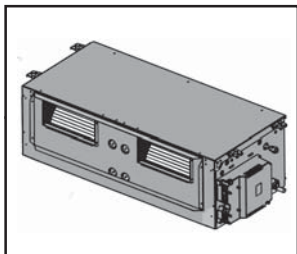
IMPORTANT:

* These values are given for information only; they should be checked and the type of wires selected.



ELECTRICAL CONNECTIONS



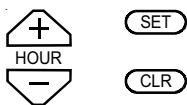


REMOTE CONTROL

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:

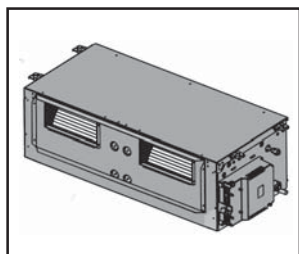


RC4



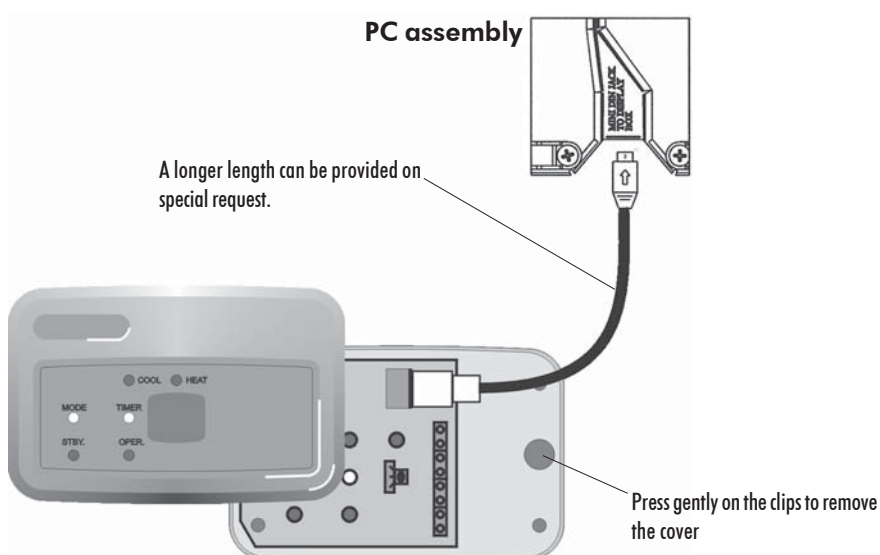
Note :
Open the cover/shutter to gain access to the controls.

- 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

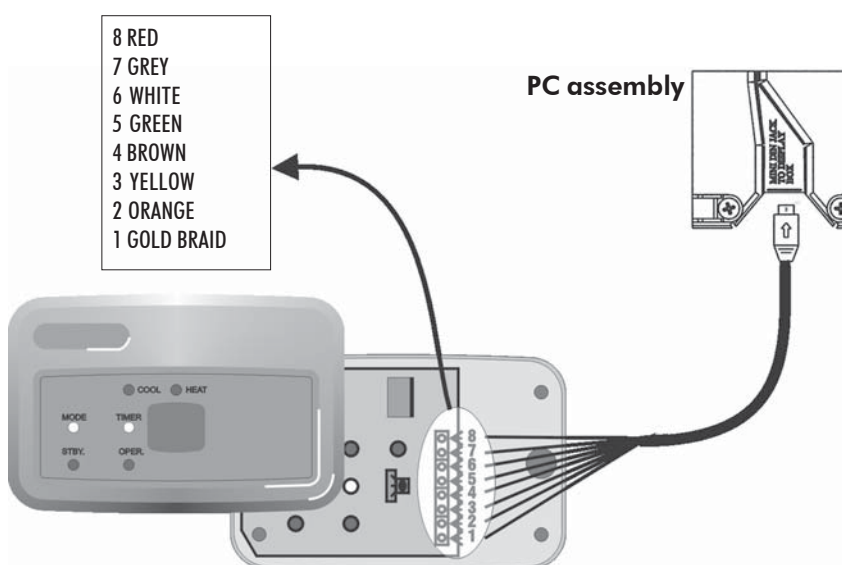


INFRARED RECEIVER INTERCONNECTION

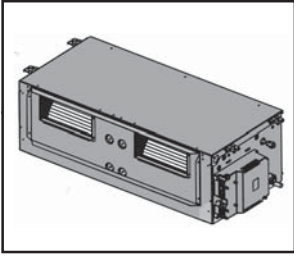
Control panel/infrared receiver interconnection



- A 7 m shielded cable with connectors at both ends is provided with the equipment for interconnecting 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 board 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 mm² size.



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