

MANUALE DI ISTRUZIONI / INSTRUCTION MANUAL

MODE D'EMPLOI / MANUAL DE INSTRUCCIONES

BRC type

Monocircuito / Single circuit / Circuit unique / Monocircuito
014m - 021m - 025m - 030m - 040m - 052m

Bicircuito / Double circuit / Double circuit / Bicircuito
042b - 051b - 077b - 088b - 093b - 102b - 120b



IT

Condensatori esterni autonomi

- ST, Versione Standard
- LT, Versione Bassa Temperatura

EN

External Condenser

- ST, Standard Version
- LT, Low Temperature Version

FR

Condenseurs externes autonomes

- ST, Version Standard
- LT, Version Basse Température

ES

Condensadores exteriores autónomos

- ST, Versión estándar
- LT, Versión baja temperatura

DECLARATION OF CONFORMITY



The Company:
Climaveneta Home System S.r.l. / Delonghi Group
con sede Legale in Via Seitz, 47
31100 TREVISO

DECLARES
under its own responsibility

- the EXTERNAL AIR COOLED CONDENSERS
are in conformity with:
 - Machinery Directive 98/37/EC.
 - Low Voltage Directive 73/23/EC.
- Electromagnetic Compatibility Directive 89/336/EC.

Date: 07 July 2006

CEO:

Carlo Grossi

UNIT IDENTIFICATION SYSTEM

BRC

BRC = cexternal air cooled
condenser

030

Total cooling ca-
pacity kW

M

m = single circuit
b = double circuit

STD

ST = standard
version

LT = low tempera-
ture version

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SYMBOLS USED

SYMBOL

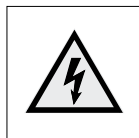
MEANING



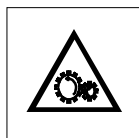
DANGER



IMPORTANT WARNING



LIVE COMPONENTS RISK OF ELECTRIC SHOCK



MOVING PARTS



HOT SURFACE

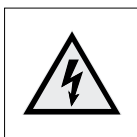


SHARP SURFACES

SAFETY INSTRUCTIONS



- **READ THE INSTRUCTION MANUAL CAREFULLY BEFORE CARRYING OUT ANY WORK ON THE EQUIPMENT.**
- The condenser is factory precharged with dry nitrogen or with dry air to prevent the ingress of any water vapour. Before removing the plugs from the inlet and outlet connections for installation, discharge the nitrogen by means of the needle valve on the inlet manifold
- The condenser contains gas above atmospheric pressure: tampering with connections or pipework can cause leakage of compressed gas
- The temperature of the inlet pipe to the condenser can rise above 70°C and therefore presents the risk of burns
- **INSTALL THE CONDENSER IN A POSITION WHICH IS INACCESSIBLE TO UNAUTHORISED PERSONNEL:** the fins of the heat exchanger are made from thin aluminium sheet and can cause cuts in the event of accidental contact.



- The condenser contains live electrical parts and rotating devices: **before carrying out any work on the electrics or on the fan, isolate the unit (turn optional isolator to position 'O')**
- **All service and maintenance operations which require access to the inside of the unit while it is in operation must be performed by qualified and experienced personnel who are aware of the precautions which must be taken.**
- **In the event of fire**, water and other conductive substances must not be used to put out the fire near live electrical components. This warning must be displayed on notices in the unit installation location.
- If the refrigerants used come into contact with fire they decompose, forming acids and other irritants.
The smell of these substances, even at concentrations below danger levels, gives enough warning to allow evacuation of the area at risk.



Make sure that the power supply voltage corresponds to the value shown on the data plate.

UNIT DESCRIPTION

GENERAL DESCRIPTION

Remote condensers with axial-type fan(s) for outdoor installation, fully pre-assembled, assembled and tested in the factory.

Installation may be vertical with a horizontal air outflow or, using special brackets, horizontal with an upward air outflow.

The very low noise, adjustable-speed fans are excellent for use in both technological and civil applications.

The condensers in the BRC range operate with a single-phase 230/1/50 power supply totally independent and separate from the indoor unit AXO, AXU. These condensing units are therefore also suited for use without being directly connected to AXO, AXU type indoor units.

HOUSING: designed to allow easy access to internal components, is made from smooth finish aluminium/magnesium and, in some cases, from prepainted galvanized sheet steel BRC and it:

- offers high corrosion strength and impact resistance;
- is resistant at low temperatures;
- is non toxic;
- does not produce polluting debris;
- is completely covered in a protective plastic film.

ELECTRIC FANS of an axial type, statically and dynamically balanced on two levels, with blades in an inoxidable material and external rotor motor suitable for adjusting the speed, all mounted on a metal supporting grid in conformity with safety regulations.

The motors are to VDE 0530-12.84.

The protection rating is IP54 to DIN40050

CONDENSING COIL: the combination of innovative corrugated fins with the use of smooth pipes on the exchanger ensures excellent heat transfer with a minimum amount of fluid.

The heat exchangers consist of aluminium fins and copper pipes with a nominal diameter of 3/8" in the 400 and 500 mm diameter range of fans and with a nominal diameter of 1/2" in the 600 mm diameter fans.

The pitch between the fins is 2.1mm

REFRIGERANT CIRCUIT CONNECTIONS are arranged along one side of the condenser and are to be welded for safe connection that prevents any gas leak.

ISOLATING SWITCH, contained in an electric box with protection rating IP54, with switch control accessible from the outside and connecting terminals.

PRESSOSTATIC FANS SPEED REGULATOR; condensing units BRC type, are not provided with integrated fans speed regulator per standard. However, CLIMAVENETA can provide such fans speed regulator as OPTIONAL, by installing it directly inside the indoor unit ACCURATE on AX version (direct expansion air cooled). BRC fans in fact are suitable to be regulated from a speed regulator.

The pressostatic fans speed regulator, with IP54 protection degree, is suitable to manage the condenser exchange capacity through fans speed modulation based on the high pressure value on the circuit, and it's able to keep steady condensation temperature.

CONFIGURATION

O - HORIZONTAL flow

V - VERTICAL flow

VERSION

ST - Standard

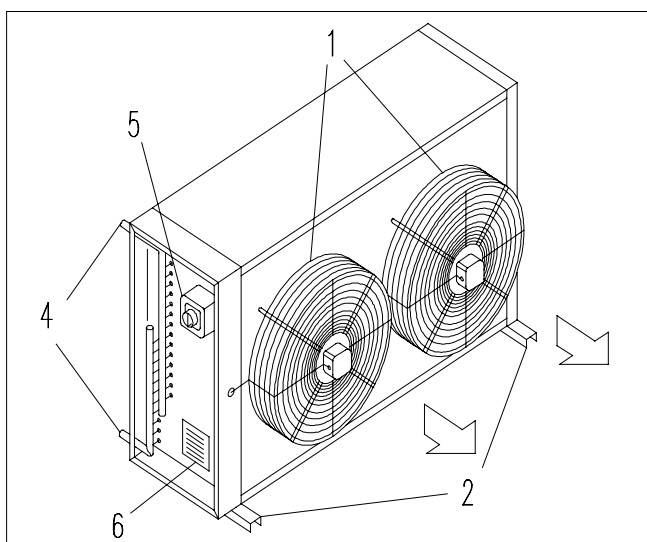
LT - Low temperature

MAIN ACCESSORIES

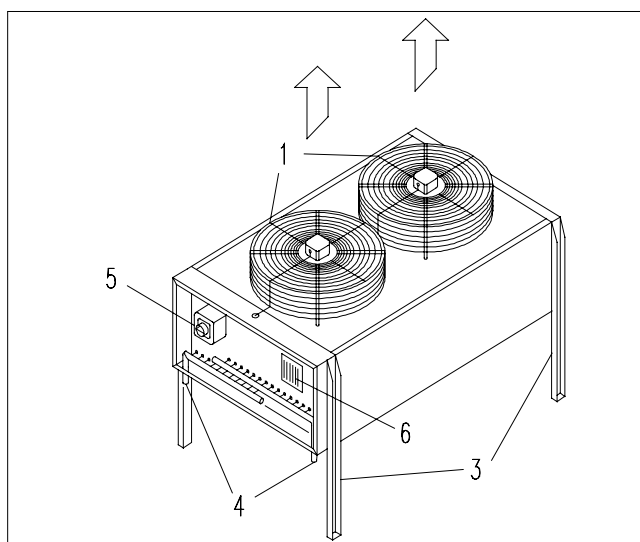
ACCESSORIES

Support brackets for horizontal mounting (vertical air discharge) Surface treatments on customer demand

AIR FLOW CONFIGURATIONS



HORIZONTAL AIR DISCHARGE ARRANGEMENT



VERTICAL AIR DISCHARGE ARRANGEMENT

1 Propeller fan

2 Holding brackets

3 Holding legs

4 Connections

5 Mains isolator

6 Identification plate

TRANSPORT - POSITIONING ON SITE

SYMBOL

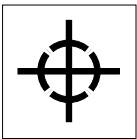
MEANING



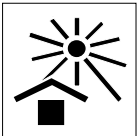
FRAGILE: handle with care.



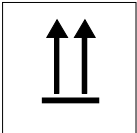
PROTECT AGAINST MOISTURE: the packed unit must be stored in a dry place.



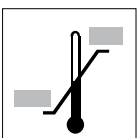
CENTRE OF GRAVITY: shows the centre of gravity of the packed unit.



KEEP AWAY FROM HEAT: the unit must be kept away from heat sources.



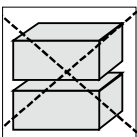
THIS SIDE UP shows the orientation of the unit.



TEMPERATURE LIMITS: the unit must not be stored outside these limits.



NO HOOKS: do not use hooks to lift the packed unit.



DO NOT STACK

TECHNICAL DATA SHEET

Models BRC		014m	021m	025m	030m	040m	052m	042b	051b	077b	088b	093b	102b	120b
Nominal characteristics														
Nominal heat exchange capacity (1)	kW	14	21	25	30	42	52	42	52	77	89	93	100	120
Nominal air flow	m ³ /h	4700	6410	8780	8410	12820	17560	12820	17560	26340	25230	23610	35120	33640
Sound pressure 10m	dB(A)	40	37	46	46	39	49	39	49	51	51	51	51	51
Fan														
Number		1	1	1	1	2	2	2	2	3	3	3	4	4
Fan Diameter	mm	500	630	630	630	630	630	630	630	630	630	630	630	630
Supply voltage	V	220V/1/50												
TOT. Power abs.	W	290	400	780	780	800	1560	800	1560	2340	2340	2340	3120	3120
Fan Abs. TOT	A	1,25	1,8	3,5	3,5	3,6	7	3,6	7	10,5	10,5	10,5	14	14
Speed of rotation	rpm	950	650	900	900	650	900	650	900	900	900	900	900	900
Heat exchanger														
Casing material		Aluminium/Magnesium												
Fin material		Aluminium												
Tube material		Copper												
Dimesions														
Width	mm	1175	1325	1325	1325	2425	2425	2425	2425	3525	3525	3525	4625	4625
Depth	mm	510	630	630	630	630	630	630	630	630	630	630	630	630
Height	mm	872	1210	1210	1210	1210	1210	1210	1210	1210	1210	1210	1210	1210
Weights														
Net	kg	45	90	90	95	110	167	110	167	240	253	295	320	337
Packaging	kg	56	85	110	115	163	170	177	190	455	455	550	563	580
Connections														
In - GAS	mm	22	28	28	28	35	35	2X28	2X28	2X35	2X42	2X42	2x42	2x42
Out - LIQUID	mm	16	22	22	22	28	28	2X22	2X22	2X28	2X35	2X35	2x35	2x35

1 Nominal capacities according to std. ENV327

FUNCTIONAL LIMITS

ALL VERSIONS

Condensers units BRC types, are provided to work inside following functional limits (limits are for new units where installation and maintenance are properly provided):

External ambient conditions

from -25.0°C to +46°C standard version

from -45.0°C to +46°C LT (low temperature version)

INSTALLATION

Position the condenser in the open air out of direct sunlight.

It can be installed:

- with horizontal air discharge (standard version) for best protection (from snow or from objects falling from above) and easier maintenance; in this configuration the condenser must be protected from the wind which could interfere with the operation of the fan;
- with vertical air discharge; this configuration is recommended for installation in windy locations or where a horizontal air flow would be easily obstructed, available with optional leg kit.

Position the condenser on a solid, level surface.

Use shims if necessary to ensure a level installation to within one degree. Fix the condenser down using the appropriate bolt holes in the base (horizontal air discharge) or in the bottoms of the legs (vertical air discharge)

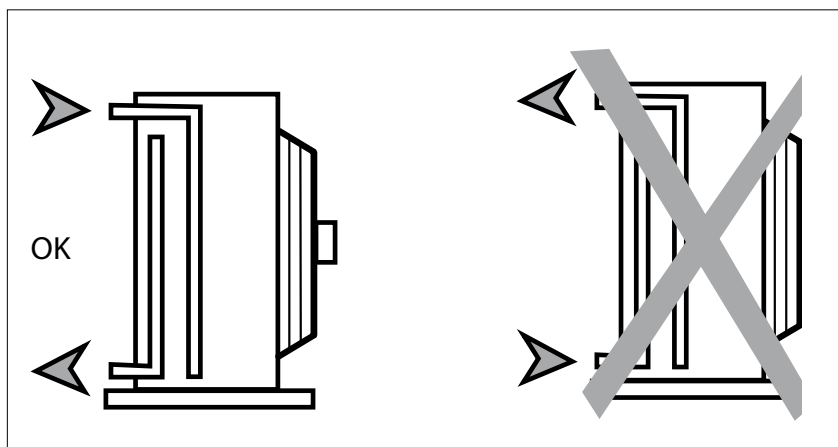
f the condenser is installed in places particularly subject to critical conditions such as:

- snowfall,
- sand storms,
- dense vegetation with danger of falling leaves,
- other critical conditions

the condenser must be covered over, leaving the recommended working spaces (see paragraph: WORKING SPACE) to maintain a correct airflow, correct condenser heat exchange and correct operation of the unit in general.

EARTH

Earthing/grounding is compulsory by law. The installer must connect the earth wire, already connected to earth/ground electrodes, to a point on the appliance (earth/ground metric screw)



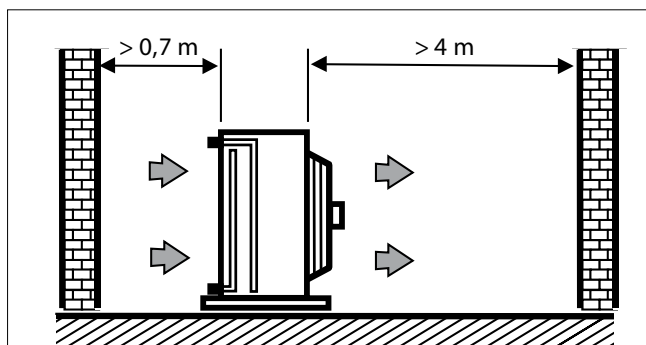
In the low temperature, "LT", versions, a check valve must be installed on the condenser outlet



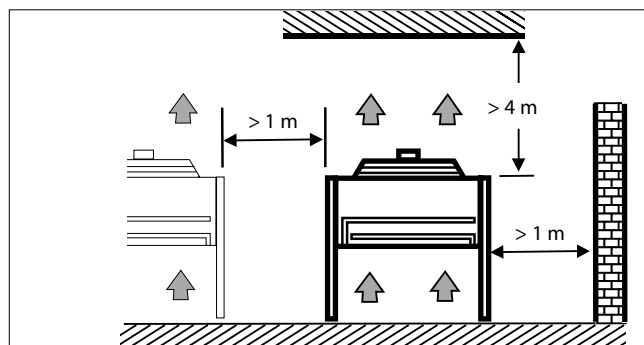
Place the external condenser with gas inlet from the top and the liquid output from the bottom. (See above picture)

WORKING SPACE

Indicated on below pictures, minimum recommended distance to be left clear for a correct unit function and to allow access to the unit for maintenance.



HORIZONTAL AIR FLOW



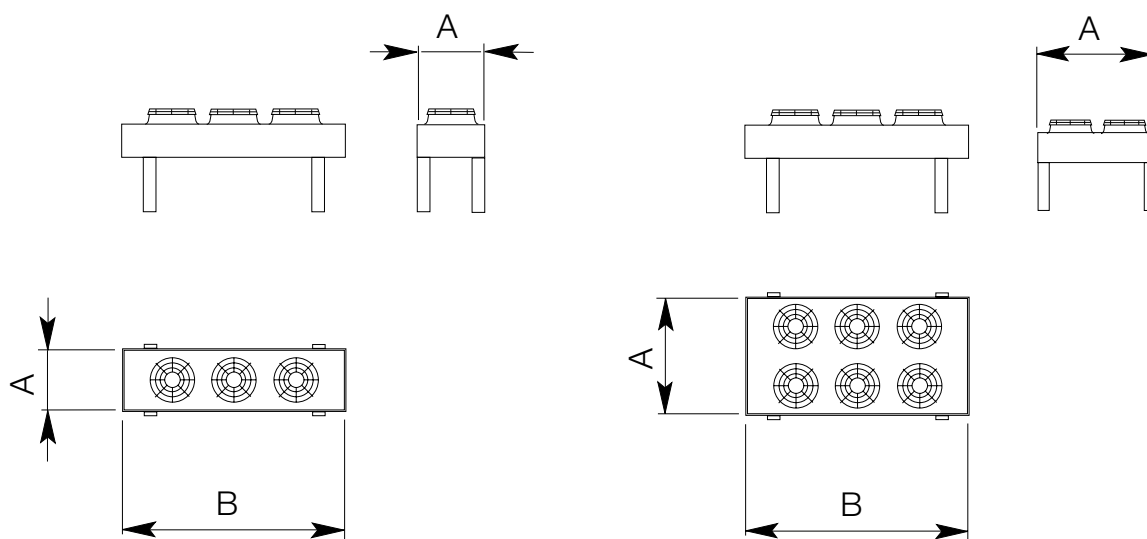
VERTICAL AIR FLOW



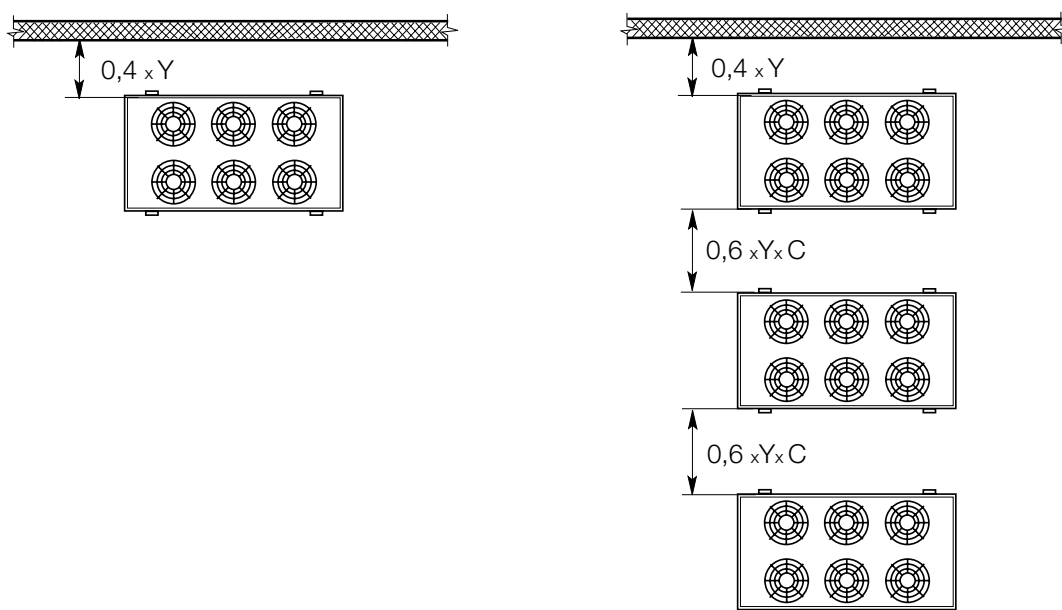
INSTALL THE CONDENSER IN A POSITION WHICH IS INACCESSIBLE TO UNAUTHORISED PERSONNEL:
The heat exchanger fins are made from aluminium sheet which is only 0.1 mm thick and could cause cuts in the event of forceful accidental contact.

N.B. the fan characteristic does not allow any ducting of the air flow.

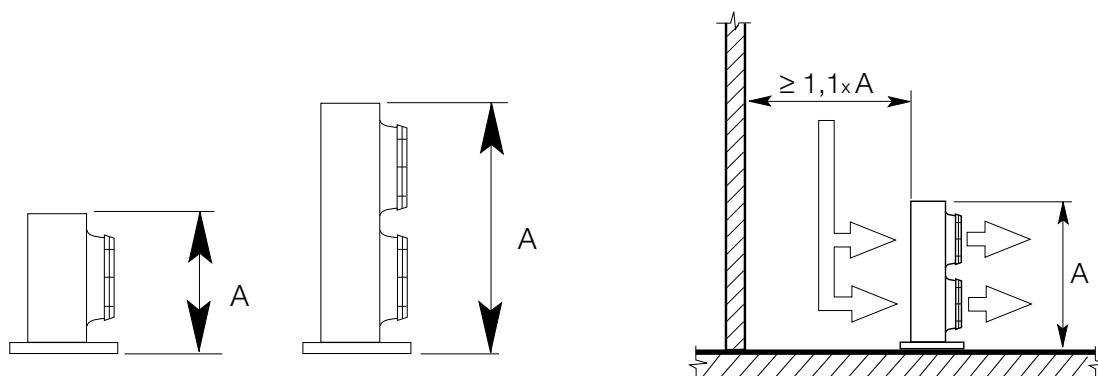
(H) HORIZONTAL INSTALLATION



$$Y = \sqrt{A \times B}$$



(V) VERTICAL INSTALLATION



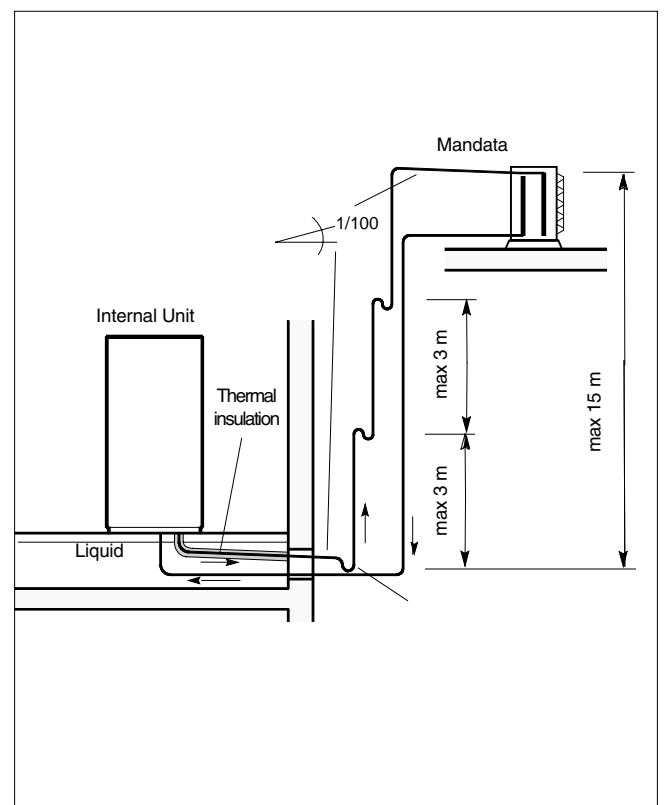
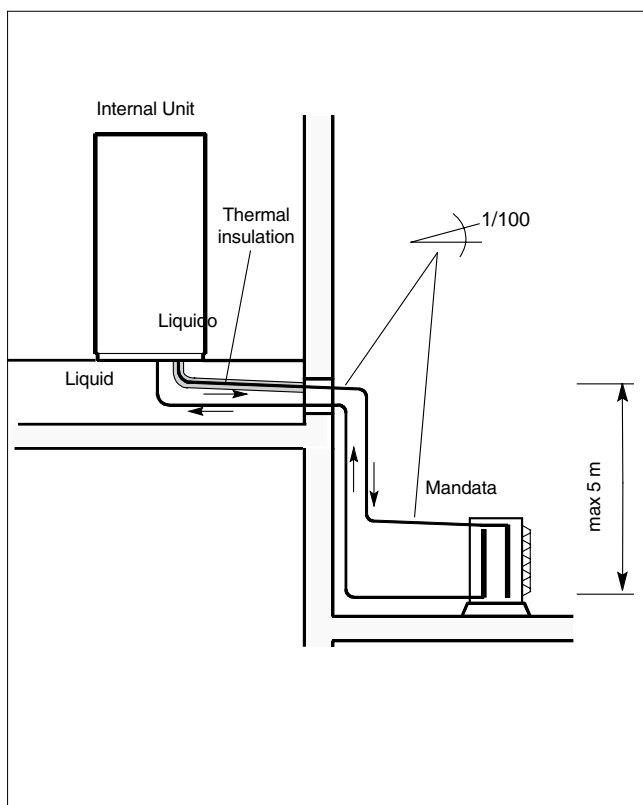
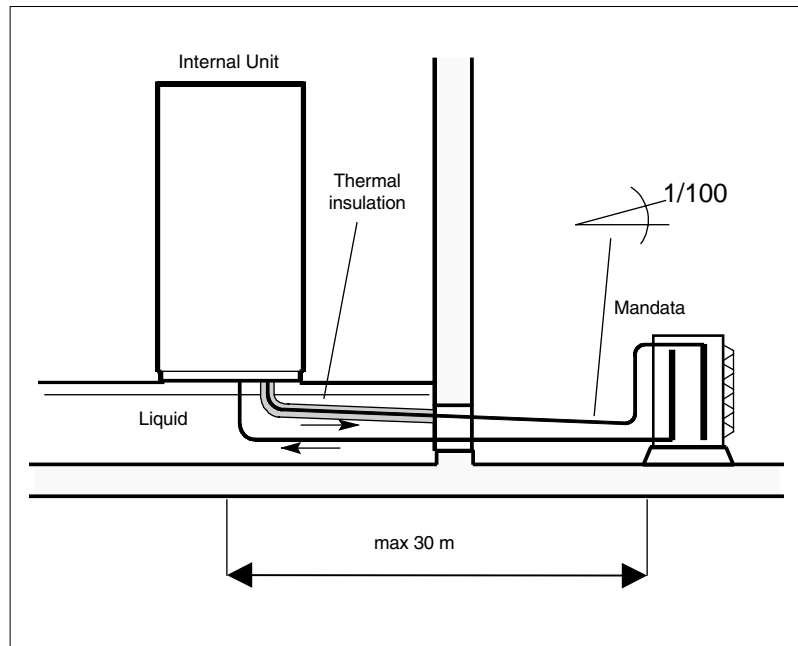
PIPE SHAPE

It is recommended that the piping, whose total length should preferably not exceed 30 metres, be installed by an expert refrigeration operator according to the following instructions (see fig.).

- Where possible make straight lines;
- incline the discharge line with a gradient of 1/100 in the direction of flow to facilitate oil entrainment;
- make a 'U' trap in the discharge line at the bottom of any vertical risers;
- thermally insulate the refrigerant liquid line wherever it may be exposed to sun;
- avoid any contact between the discharge line and the liquid line.

Carry out the evacuation and charging of the complete refrigerant circuit.

N.B.: liquid piping must be protected from solar radiation or other heat sources

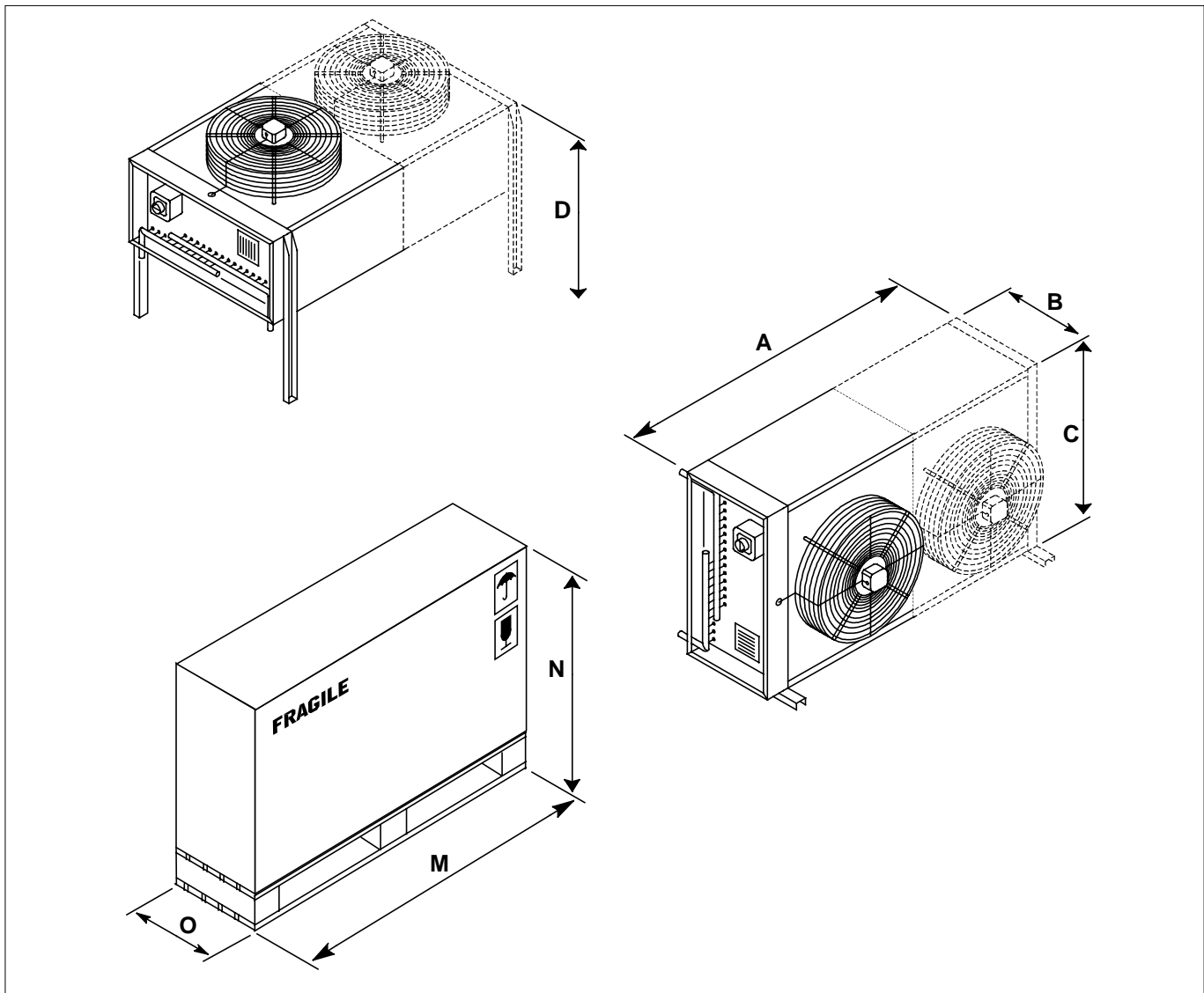


DIMENSIONS AND WEIGHTS

Model BRC		14m	21m	25m	30m	40m	52m	42b	51b	77b	88b	93b	102b	120b
A	mm	1175	1325	1325	1325	2425	2425	2425	2425	3525	3525	3525	4625	4625
B	mm	510	630	630	630	630	630	630	630	630	630	630	630	630
C	mm	872	1210	1210	1210	1210	1210	1210	1210	1210	1210	1210	1210	1210
D	mm	895	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020
M	mm	1290	1525	1525	1525	2625	2625	2625	2625	3750	3750	4850	4750	4750
N	mm	1045	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380
O	mm	570	750	750	750	750	750	750	750	750	750	750	750	750
Weight A	Kg	45	90	90	95	110	167	110	167	240	253	295	320	337
Weight B	Kg	56	85	110	115	163	170	177	190	455	455	550	563	580

Weight A = Net weight

Weight B = Weight including packaging



MAINTENANCE

- Regularly check the state of the condenser fins; remove from them all foreign objects (leaves, feathers, seeds, dust, etc.) using a jet of compressed air.

The heat exchanger fins are made of thin aluminium sheet and can cause cuts in the event of the accidental contact

- Check that the operation and current absorbed by each fan is normal and without any unusual noises;
- Check that the control device is operating normally (see section CONTROL DEVICES - ADJUSTMENT).

TROUBLESHOOTING

FAULT	CAUSE	RIMEDY
HIGH DISCHARGE PRESSURE: condenser high discharge pressure	The heat exchanger fins are dirty or blocked by foreign objects	Clean the condenser fins following the instructions in the section 'MAINTENANCE'
	Cooling air temperature to condenser too high	Check for potential short circuiting of condenser cooling air
		Check the value of the actual cooling air temperature against the design value for the project
	Lack of condenser air flow	Check that the condenser is installed with the minimum clearances specified
	One or more fans out of service	Check for motor internal protection tripped and if necessary replace the fan motor
Control device out of adjustment or faulty	Check and adjust if necessary the control device; replace if necessary	
HIGH DISCHARGE PRESSURE: condenser high discharge pressure	Control device out of adjustment or faulty	Check and adjust if necessary the control device; replace if necessary
	Refrigerant leak	Locate and rectify the leak and recharge with refrigerant