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1.- GENERAL CHARACTERISTICS



LFXO: Cooling only and heat pump unit for R-22 and R-407C refrigerant
LFCK: Cooling only unit R-407C
LFHK: Heat pump unit R-407C
LFHA: Heat pump unit R-22

1.1.- PHYSICAL DATA

UNIT MODELS		10	12	16	22	24	28	30
NET WEIGHT	Kg	70	70	100	130	140	150	150

1.2.- ELECTRICAL DATA

UNIT MODELS		LFXO 10	LFXO 12	LFXO 16	LFHA 22 LFCK 22 LFHK 22	LFHA 24 LFCK 24 LFHK 24	LFHA 28 LFCK 28 LFHK 28	LFHA 30 LFCK 30 LFHK 30
Voltage	V/f (50 Hz)	230V/ 1Ph						
		230V-400V/ 3Ph						
Rated absorbed power	Kw	0,38	0,38	0,90	1,30	1,35	1,35	1,35
Maximum current	A	2,6	2,6					
				7/4	7,4/4,3	7,4/4,3	7,4/4,3	7,4/4,3
Start up current	A	7,8	7,8					
				21/13	22/14	22/14	22/14	22/14

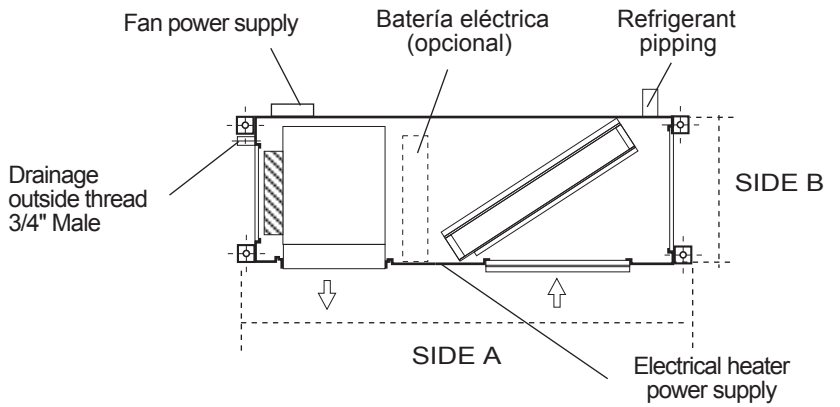
1.3.- FAN SERVICES

MODELS		AIR FLOW m ³ /h						
		10	12	16	22	24	28	30
AVAILABLE STATIC PRESSURE Pa.	0	2350	2300	3700	5350	6300	6000	6000
	10	2275	2250	3625	5200	6225	5925	5925
	20	2240	2200	3550	5090	6140	5860	5860
	30	2190	2150	3475	4960	6100	5800	5800
	40	2140	2100	3400	4850	6010	5725	5725
	50	2080	2040	3320	4725	5930	5650	5650
	60	2025	1975	3240	4610	5875	5600	5600
	70	1975	1925	3160	4505	5790	5510	5510
	80	1925	1860	3090	4400	5710	5440	5440
	90	1840	1800	3000	4300	5620	5350	5350
	100	1775	1730	2915	4160	5540	5275	5275
	110	1625	1650	2825	4040	5450	5190	5190
	120	1500	---	2750	3925	5350	5100	5100
	130	---	---	2670	3800	5320	5000	5000
	140	---	---	2580	3700	5150	4910	4910
	160	---	---	2400	3525	4940	4700	4700
	180	---	---	---	3200	4700	4500	4500
200	---	---	---	---	4425	4250	---	
220	---	---	---	---	4175	---	---	
240	---	---	---	---	4000	---	---	

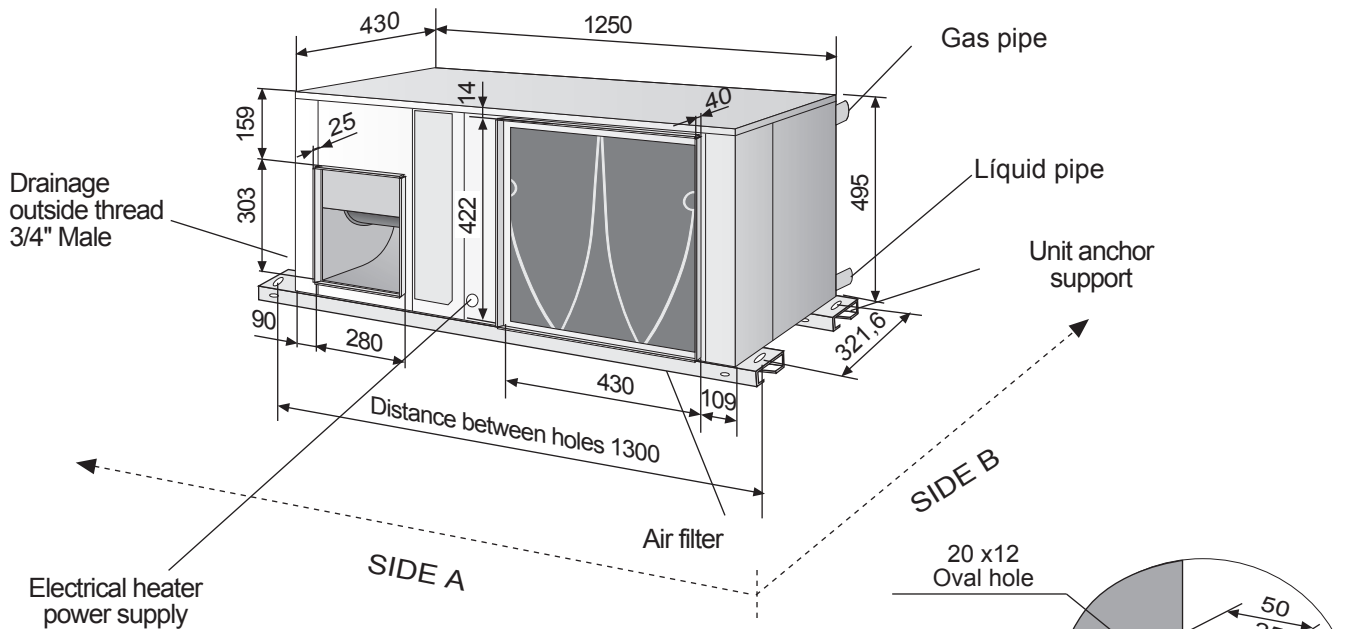

 NOMINAL
 AIR FLOW

1.- GENERAL CHARACTERISTICS

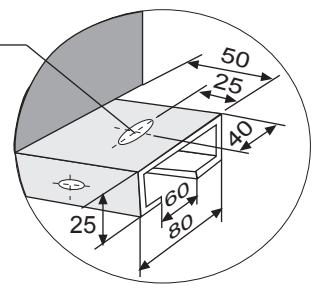
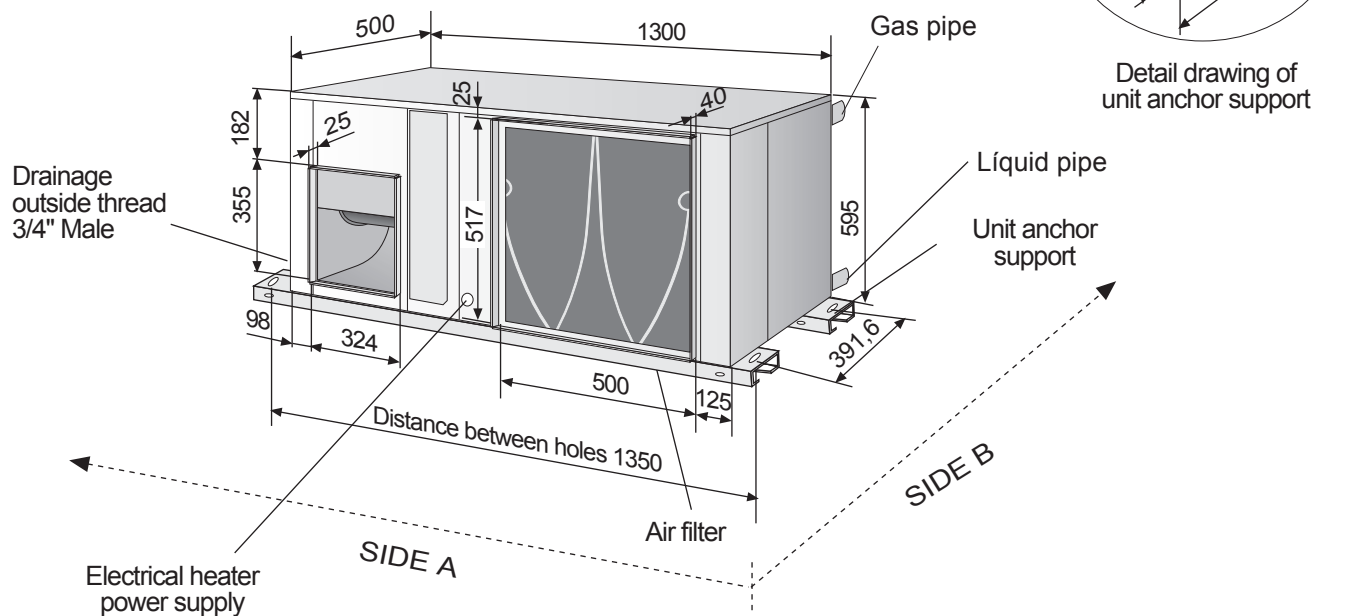
1.4.- UNIT DIMENSIONS



MODELS 10-12



MODEL 16

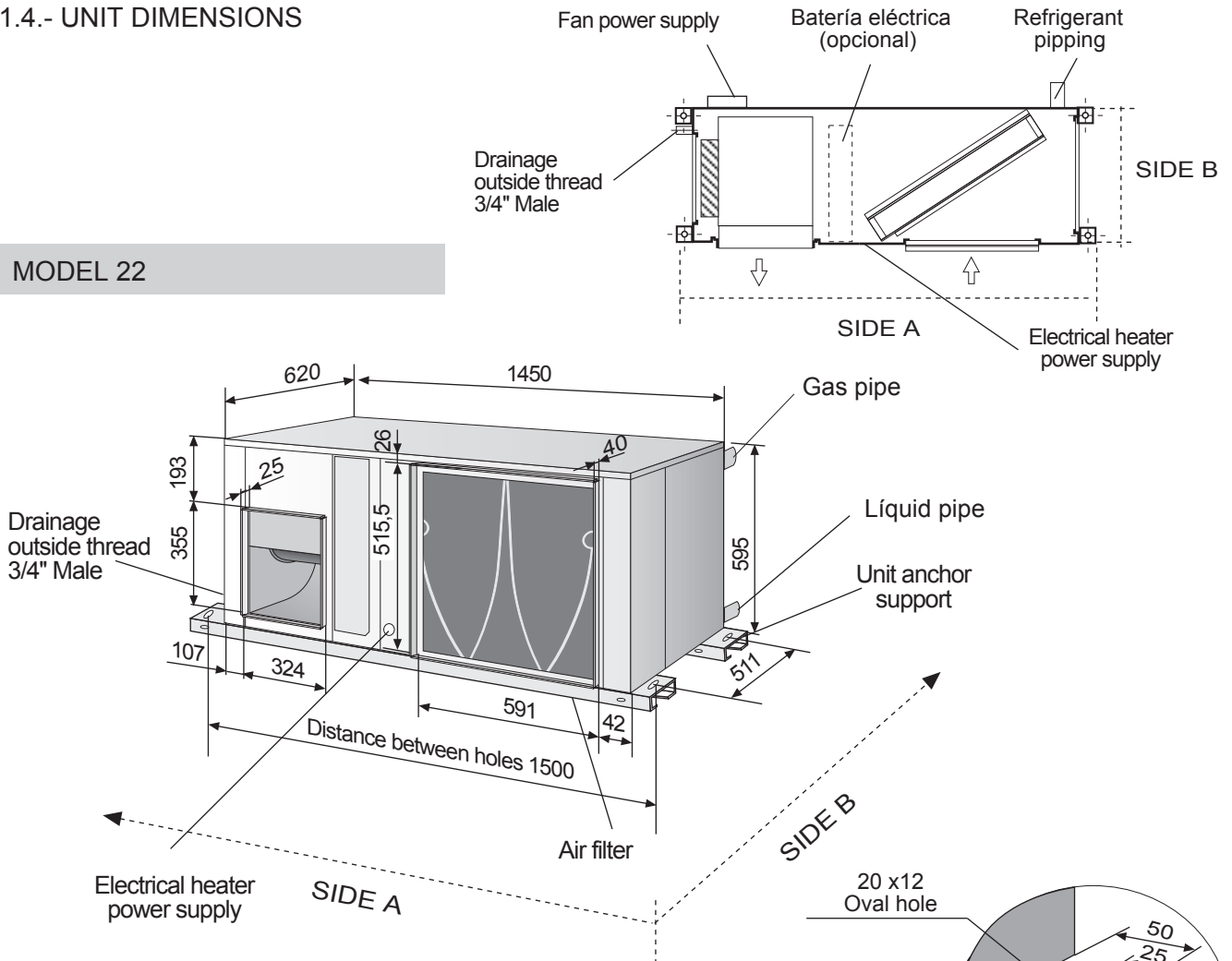


Detail drawing of unit anchor support

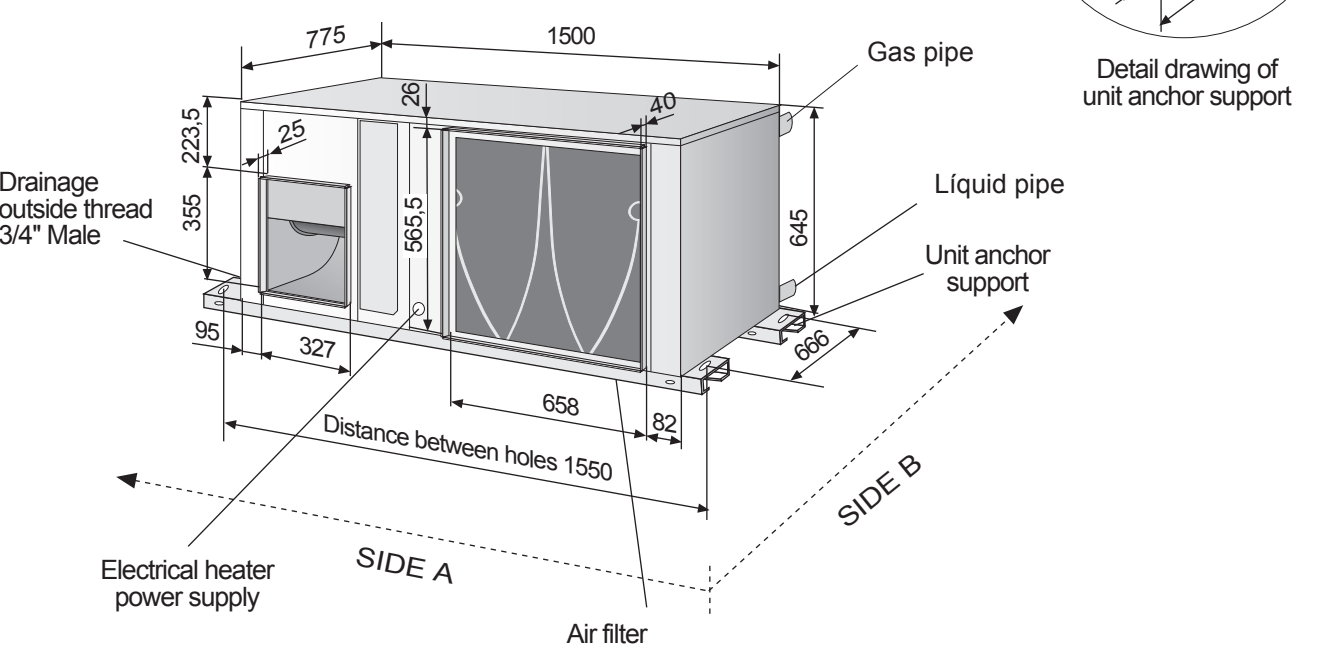
1.- GENERAL CHARACTERISTICS

1.4.- UNIT DIMENSIONS

MODEL 22



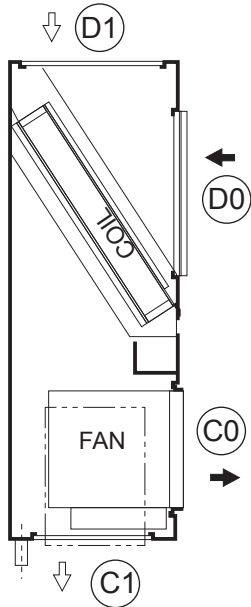
MODELS 24-28-30



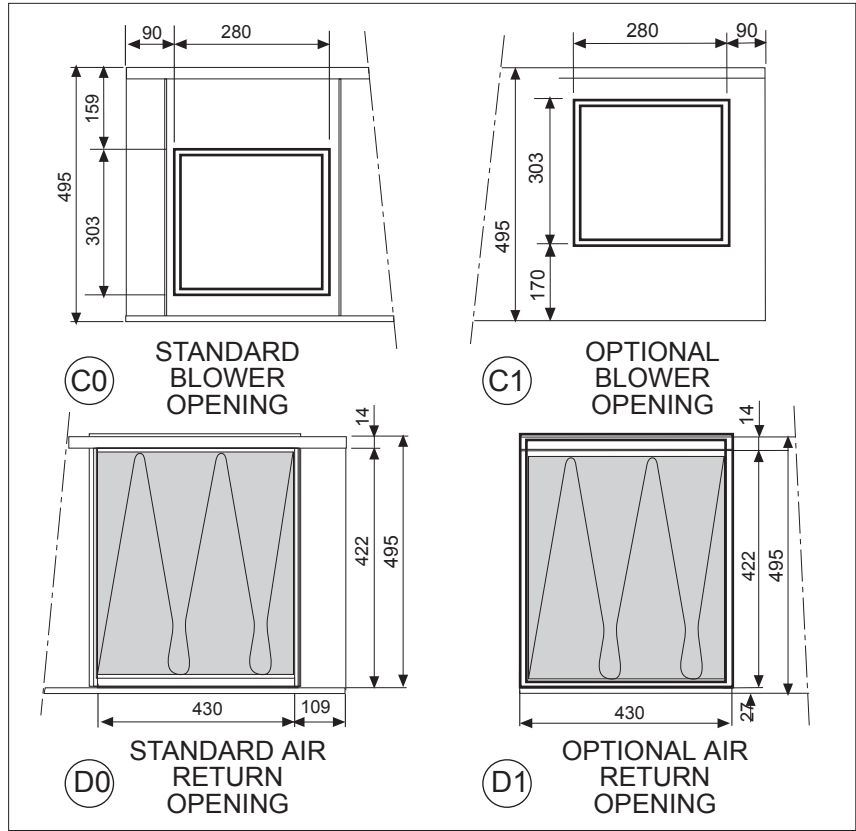
1.- GENERAL CHARACTERISTICS

1.5.- UNIT OPENING SIZES

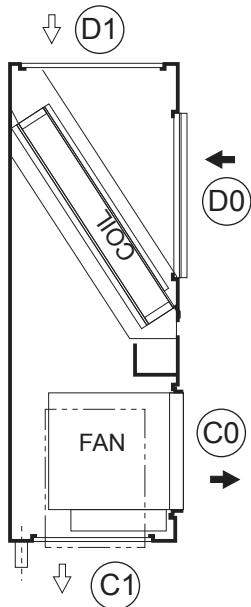
UNITS MODELS 10-12



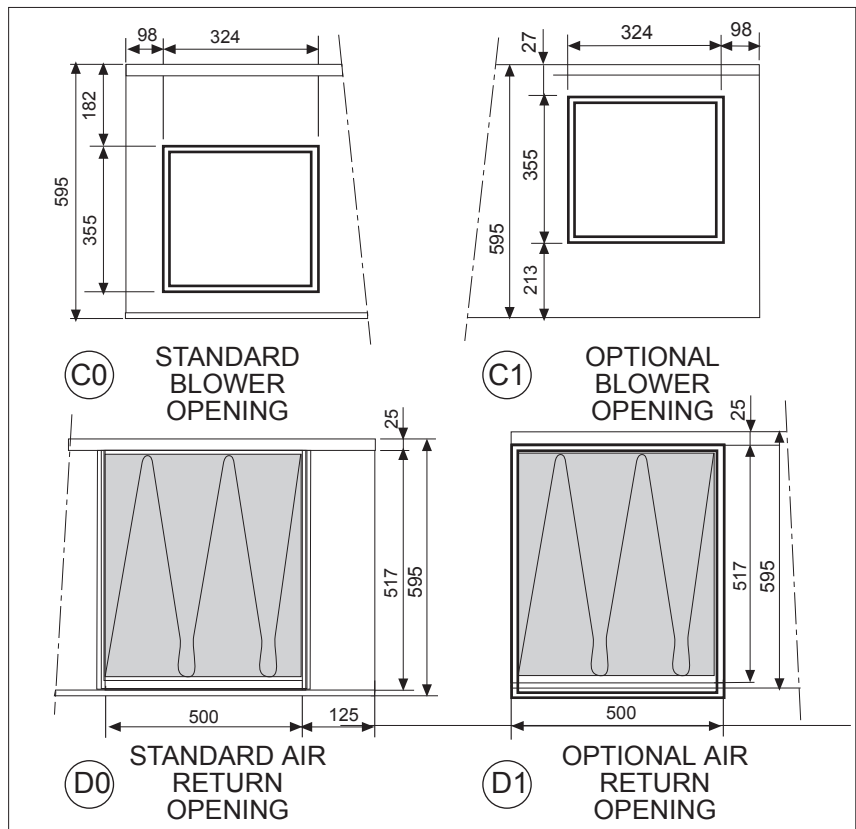
STANDARD CONFIGURATION
 OPTIONAL CONFIGURATION



UNIT MODEL 16



STANDARD CONFIGURATION
 OPTIONAL CONFIGURATION

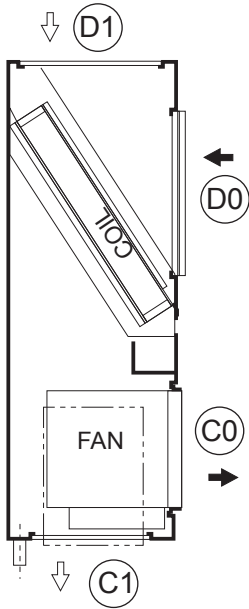


If the unit is going to be hung using the anchor supports and the optional air return opening, the supports must be repositioned so that the air filter may be removed.
 To move the supports, unscrew them from the inside and fix them again using the holes located next to the initial position.

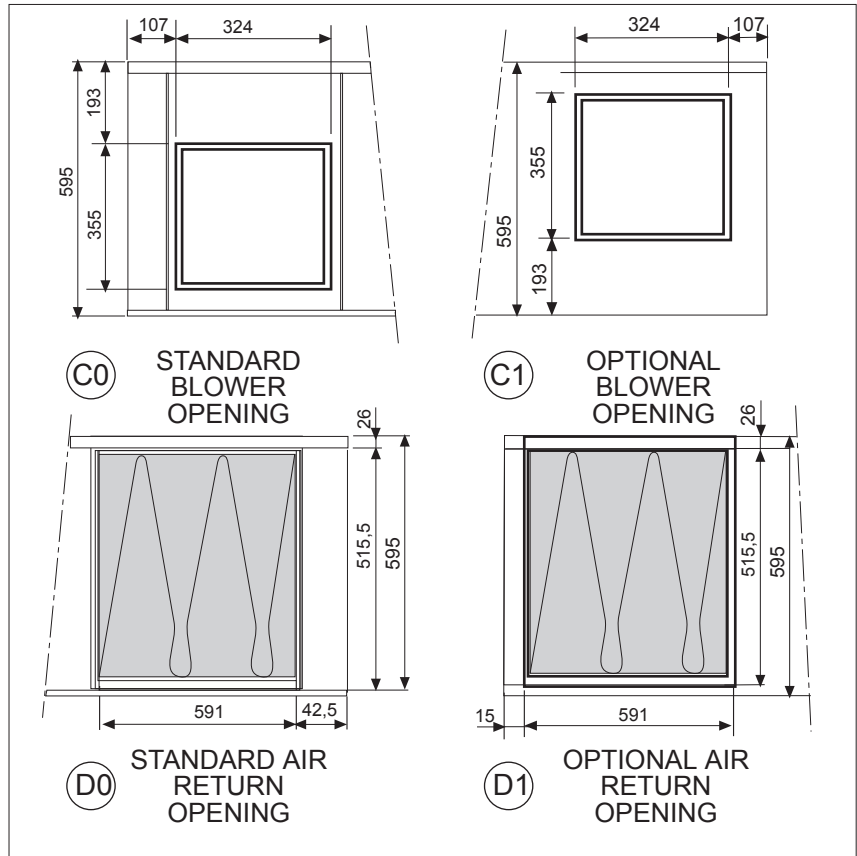
1.- GENERAL CHARACTERISTICS

1.5.- UNIT OPENING SIZES

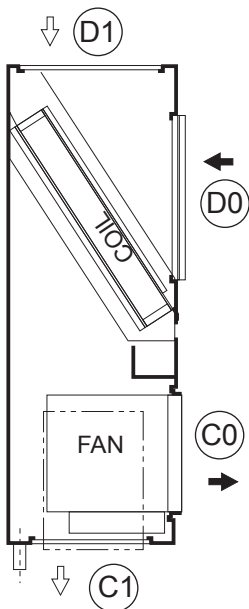
UNIT MODEL 22



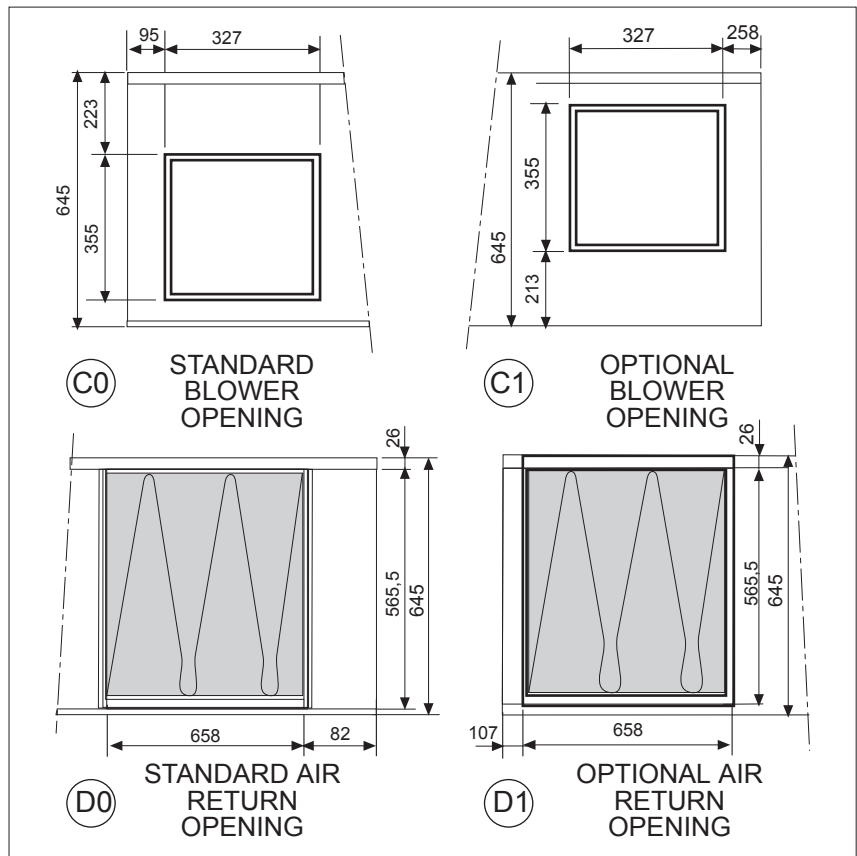
STANDARD CONFIGURATION
 OPTIONAL CONFIGURATION



UNITS MODELS 24-28-30



STANDARD CONFIGURATION
 OPTIONAL CONFIGURATION



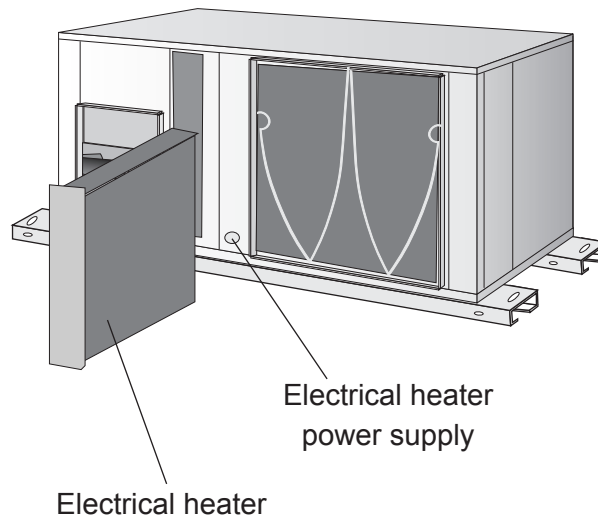
1.- GENERAL CHARACTERISTICS

1.6.- AVAILABLE OPTIONS

ELECTRIC HEATER

Optionally, these units can contain shielded element electric heating batteries that are mounted on the inside of the unit in the schematic opposite.

The electric heater must get its power from the unit's electrical box.



2.- INSTALLATION

2.1.- PRELIMINARY PREPARATIONS



All INSTALLATION, SERVICE and MAINTENANCE operations must be carried out by QUALIFIED PERSONNEL.

The unit must be transported in a HORIZONTAL POSITION on its metal bedplate profiles and TRANSPORTATION BLOCKS. Any other position may cause serious damage to the machine. When the unit is received, it should be checked to assure that there are no bumps or other damage, following the instructions on the packaging. If there is damage, the unit may be rejected by notifying the LENNOX Distribution Department and reporting why the machine is unacceptable on the transport agent's delivery notice. Any later complaint or claim made to the LENNOX Distribution Department, for this type of anomaly, cannot be considered under the Guarantee. Sufficient space must be allowed to facilitate placement of the unit. The unit may be mounted outdoors. There should be NO possibility of flooding if floor mounted.



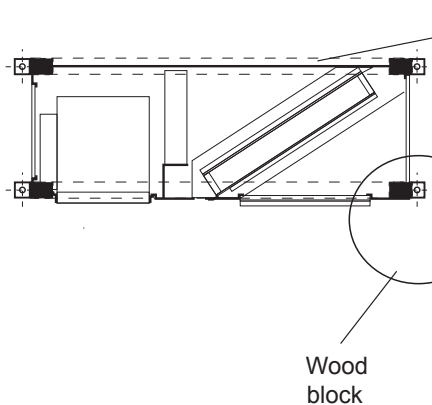
When positioning the unit, be sure that the Rating Plate will always be visible since this data will be necessary to assure proper maintenance.

The units are designed to be installed with ducts, calculated by qualified technical staff. The joints to be used between ducts and the openings to the unit should be Elastic Joints. Avoid the use of BYPASS joints between the extraction air and input air in both the outdoor and indoor sections. The structure where the unit is placed must be able to support the weight of the unit during operation.

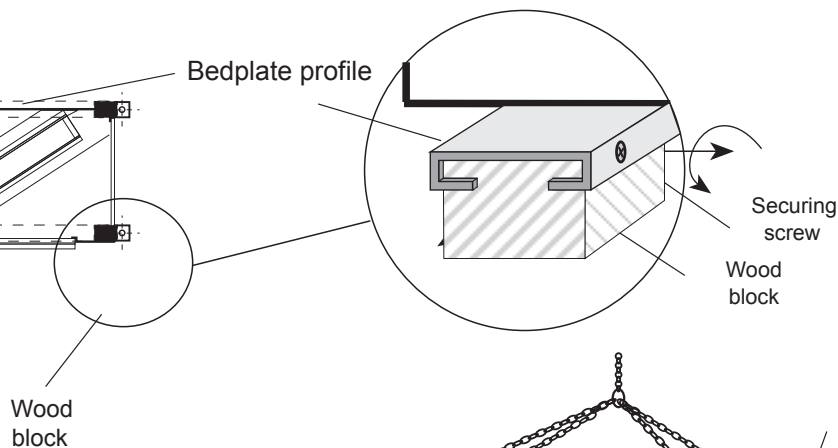
2.2.- UNIT RECEPTION

All the units have Metal Bedplate Profiles and Wooden Blocks for transportation. These wooden blocks must be removed when positioning the unit in its final position.

PLACEMENT OF THE BEDPLATE AND TRANSPORTATION BLOCKS

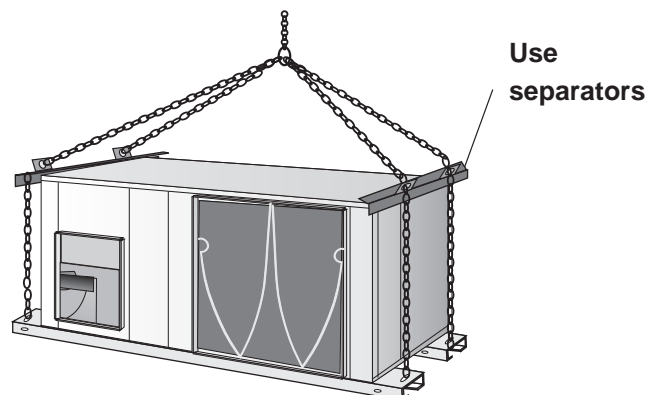


To remove the transportation blocks, remove the screw and slide the block along the metal profile.



How to hoist the unit

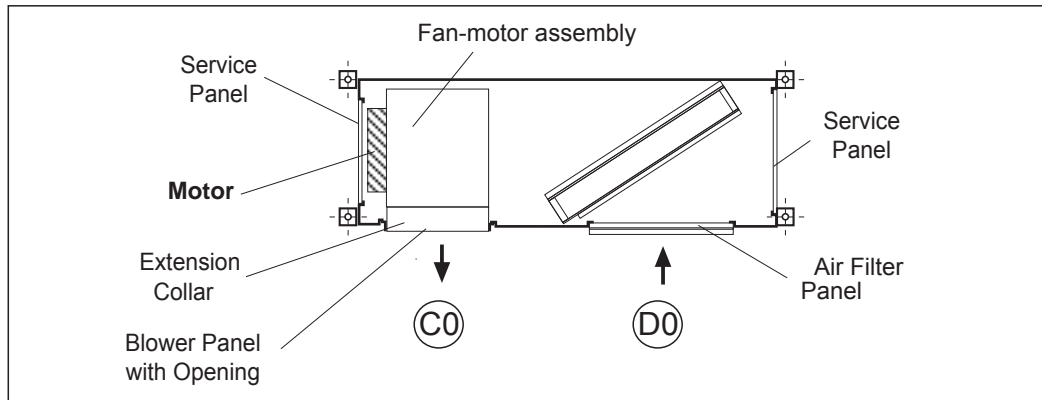
If unloading and placement require the use of a crane, then secure the suspension cables as shown in the figure.



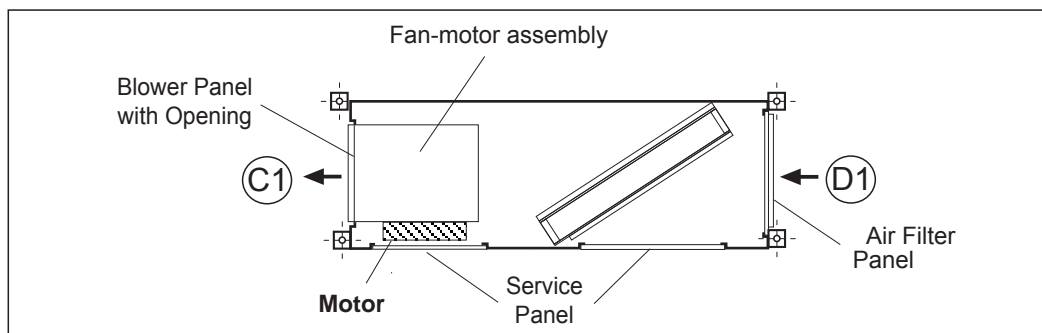
2.- INSTALLATION

2.3.- OPTIONAL OPERATIONS PRIOR TO UNIT INSTALLATION: CHANGE IN THE POSITION OF BLOWERS AND AIR INTAKE

STANDARD AIR INTAKE AND BLOWERS



OPTIONAL AIR INTAKE AND BLOWERS



BLOWER:

From the position (C0) to the position (C1)

- 1) Remove the ceiling of the unit, the Blower Panel with Opening and the Service Panel.
- 2) Remove the motor-fan assembly from the unit unscrewing the supports from the base, and throwing away the extension collar, if there is one.
- 3) Unscrew the supports that have been left on the fan-motor assembly.
- 4) Turn the fan-motor assembly to its new position 90° horizontally and 180° on its shaft. The motor should now be accessible from the Service Panel in this new position.
- 5) Screw down the fan-motor assembly in its new position using the supports.
- 6) Assemble the Blower Panel with Opening and the Service Panel in its new position, taking special care with the weather striping.

RETURN:

From the position (D0) to the position (D1)

- 1) Remove the Intake Opening and the Service Panel.
- 2) Switch the position of the Air Filter and Services Panels.



SEE LOCATIONS AND SIZES FOR THE OPENINGS IN THEIR STANDARD AND OPTIONAL POSITIONS ON THE GENERAL MEASUREMENT DRAWINGS.

2.- INSTALLATION

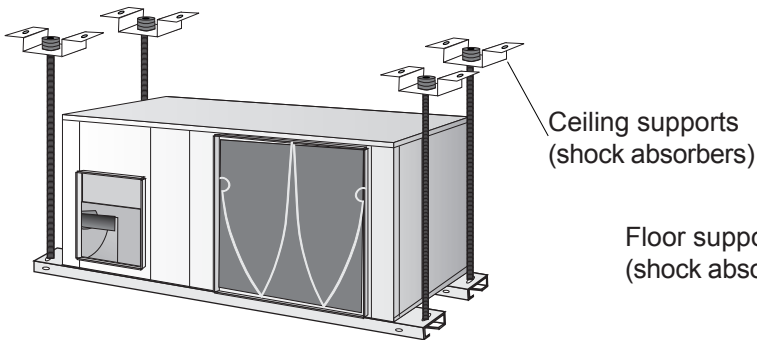
2.4.- UNIT LOCATION AND WEIGHT DISTRIBUTION

The bedplate is made up of three galvanized metal channels, capable of withstanding the weight of the units whether hung from the ceiling or mounted on the floor.

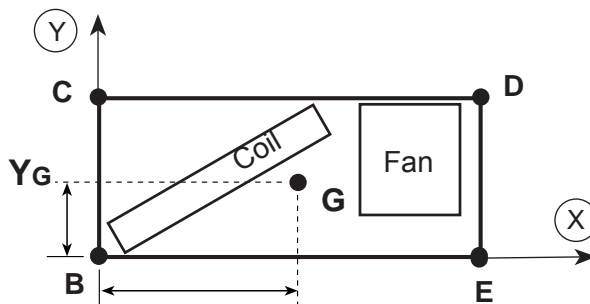
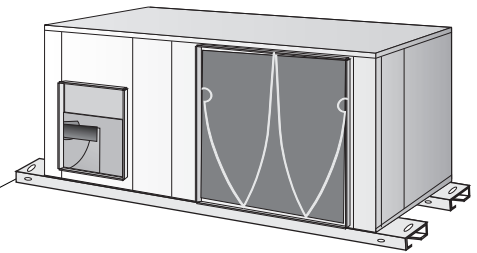
If the unit is floor mounted, then the profiles should be isolated with shock absorbing material such as anti-vibration or pads. If used, consult the weight distribution table below to make the correct selection. Keep in mind that fans rotate at approximately 850 rpm.

If the unit is hung, M-10 threaded rods should be used along with shock absorbing ceiling supports.

UNIT HUNG WITH RODS



UNIT INSTALLED ON SHOCK ABSORBERS



G POINT: Centre of gravity

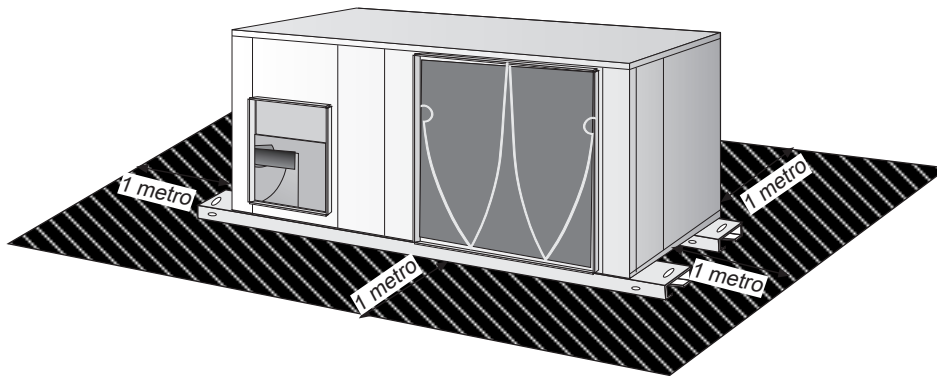
TABLE 1:
WEIGHT DISTRIBUTION
AND CENTRE OF
GRAVITY COORDINATES

Point Model	WEIGHT DISTRIBUTION (Kg)					CENTRE OF GRAVITY COORDINATES (G) (mm.)	
	B	C	D	E	Total	X _G	Y _G
10	10	25	10	25	70	675	220
12	10	25	10	25	70	645	230
16	25	20	30	25	100	730	245
22	25	40	30	35	130	710	325
24	45	15	55	25	140	865	370
28	50	20	55	25	150	795	375
30	50	20	55	25	150	795	375

2.- INSTALLATION

2.5.- INSTALLATION CLEARANCES

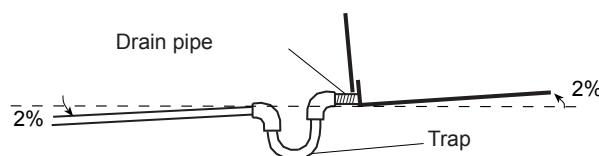
Clearance around the unit for service and maintenance.



For the unit with **optional FREECOOLING**, it should be kept in mind that the bedplate anchors cannot be used to **hang** the unit. Consult other options for outdoor mounting or changes in position of the air return duct if the unit is to be hung.

2.6.- DRAINS

All units have a $\frac{3}{4}$ " steel threaded drain pipe welded to the condensation tray.



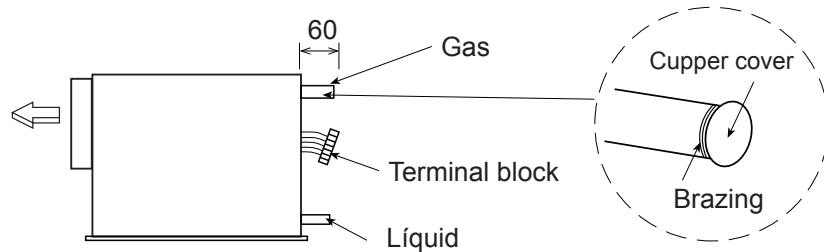
One PVC drain trap is supplied with the units.

Connect the trap/s to the drain pipe/s on the unit and mount the drain pipe with at least a 2% incline from the trap. Also slightly tip the unit (2%) toward the drainage side. Check that the condensation trays are clean and free from dirt and other debris from the works and that water drains correctly.

2.- INSTALLATION

2.7.- REFRIGERANT CONNECTIONS

The units are supplied with gas and liquid lines sealed with copper covers, and located 60mm from casing



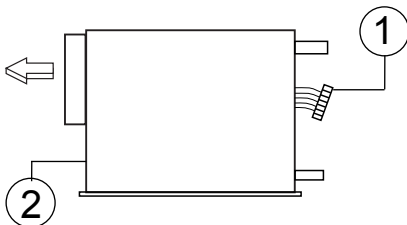
The units are supplied with nitrogen gas, this must be removed and then proceed as follow:

- 1° Remove the nitrogen gas, through the high and low ¼" service ports, make vacuum as safety
- 2° Remove the covers from connecting lines.
- 3° Braze the piping connection lines.



During installation operations, keep gas and liquid pipes covered, in order to prevent humidity and dirt, get into them.
Take special concern about refrigerant pipes are isolated.

2.8.- ELECTRICAL CONNECTIONS



UNIT MODEL	No. CABLES x SECTION	
	①	FAN POWER SUPPLY
10-12	5 x 1,5 mm ²	
16-22-24-28-30	4 x 2,5 mm ² + 2 x 1 mm ²	

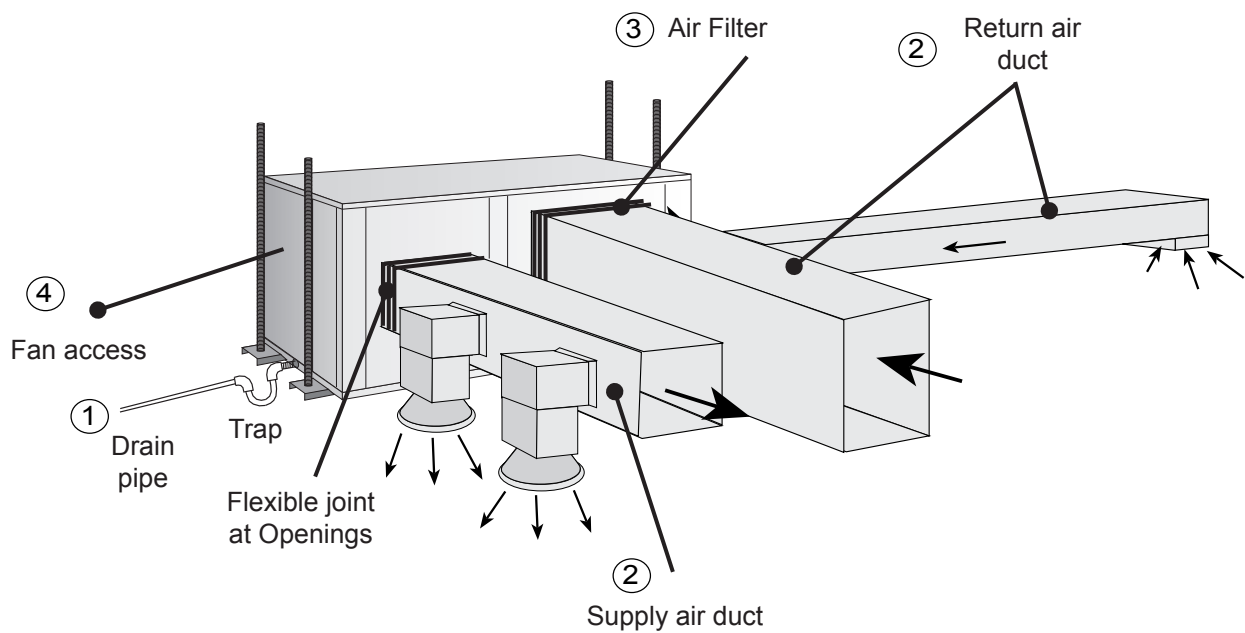
② ELECTRICAL HEATER POWER SUPPLY 230V SINGLE PHASE UNITS	② ELECTRICAL HEATER POWER SUPPLY 230V THREE-PHASE UNITS	② ELECTRICAL HEATER POWER SUPPLY 400V THREE-PHASE UNITS
<p>1N ~ 230V - 50 Hz + PE</p>	<p>3 ~ 230V - 50 Hz + PE</p>	<p>3N ~ 400V - 50 Hz + PE</p>
MODEL 10	MODELS 10-12-16-22-24-28-30	MODELS 10-12-16-22-24-28-30
No. CABLES x SECTION	No. CABLES x SECTION	No. CABLES x SECTION
3 x 4 mm ² + 2 x 1 mm ²	4 x 4 mm ² + 2 x 1 mm ²	4 x 2,5 mm ² + 2 x 1 mm ²

- The sections have been calculated for a length no longer than 50m and a voltage drop of 10V. Do not start the unit if the drop is greater than this.

3.- COMMISSIONING AND OPERATION

3.1.- PRELIMINARY CHECKS

- ① Check that drain pipe connections and their fixtures are secure and that the level of the unit is tipped toward the drain.
- ② Inspect the state of the ducts and grilles (clean and open grilles, no breaks in the duct, etc.).
- ③ Inspect the Air Filter, which should be in its housing and correctly positioned (the metal grille should be toward the inside).
- ④ Check **with your hand** that the fan turns freely.



Close the unit and check that there are no loose panels.

4.- MAINTENANCE

4.1.- PREVENTIVE MAINTENANCE



PREVENTIVE MAINTENANCE PREVENTS COSTLY REPAIRS.
BECAUSE OF THIS PERIODIC INSPECTIONS ARE REQUIRED.

-GENERAL STATE OF THE CASING :

Furniture, paint, deterioration due to bumps, rust spots, leveling and supporting, state of the shock absorbers, if installed, screwed panels, etc.

- ELECTRICAL CONNECTIONS :

State of hoses, tightness of screws, current draw of the fan.

- COOLING CIRCUIT :

Check that pressure values are correct and that there are no leaks. Check that there is no damage to the pipe insulation, that the state of the batteries is correct and that there are no chips or clogs retained by the air flow, etc.

- DRAINS :

Check that water drains correctly and that the drain trays are clean.

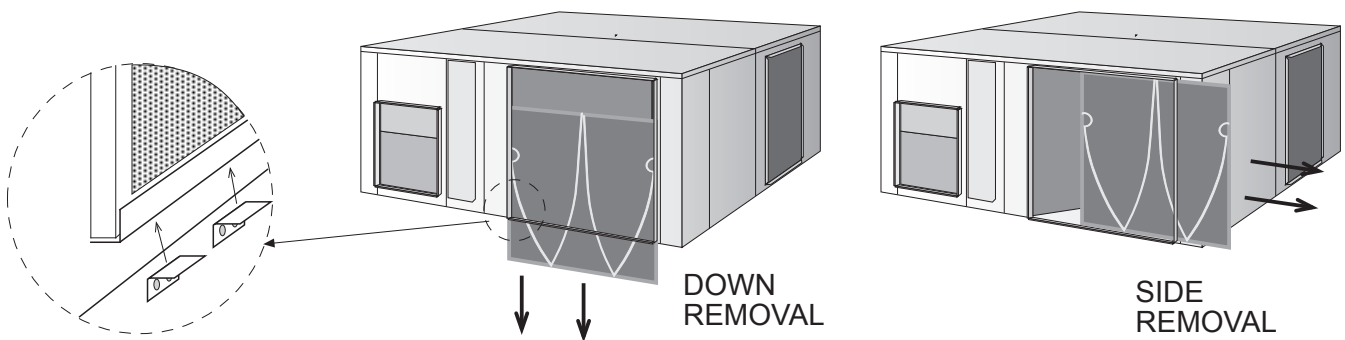
- FAN :

Check that fans turn freely and in the correct direction without excessive noises.

- AIR FILTER :

The air filter can be removed through the side by sliding it over the rail or down. (See figure).

For down removal, remove the two profiles supporting it (depending on the model) which are under the filter guide rail and screwed into the unit.

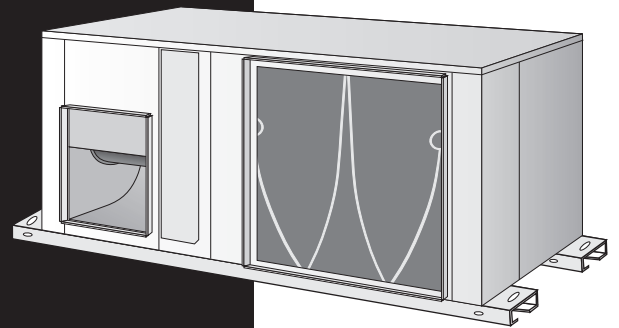


The filter should be cleaned with a vacuum cleaner or washed in soapy water.

The frequency for cleaning or changing the air filters will depend on the quality air in the area (fumes, vapors, suspended dust particles, etc.).

Remember that the metal grille should always be toward the inside of the unit.

INSTALLACIÓN AND
OPERATING MANUAL



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