

Application guide

FLATAIR - FLCK/FLHK



- Providing indoor climate comfort



Congratulations you have made a wise choice and we feel sure that it will meet your expectation

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GENERAL DESCRIPTION

The horizontal air conditioning units, range Flatair, cooling only or heat pump are air condensed units designed for small shopping center and housing. Those units have two sections: outdoors and indoors. They can be supplied either compact or on split system.

Due to their small dimensions they are designed for false ceiling and can be placed in air conducts both indoors and outdoors.

A wide range of optionals, completed-factory assembled are also available.

FURNITURE

Painted in galvanized metal furniture, high resistant to corrosion. The units are provided with metal profiles, capable of withstanding the unit and able as well of installing the unit hung from the ceiling or mounted on the floor.

The panel are easily inter exchangeable, giving several air suction and return alternatives. The outdoor sections are equipped with a meta grilles with in the blower panel " except in models 24-28-30 and in the duct discharge to avoid damages (in the whole models).

An insulation with a protection of mesh is used in indoor units with a classification of M1 and F1, certifying that the material is auto-extinguishable and avoiding the fumes inside the room to be aconditionned. The auto extinguishable insulation M1 is used in indoor units.

COMPRESSORS

All units are provided with scroll compressor, cooling by a suction gas with thermic protection inside the engine, so no other additional protection is required. It is mounted on anti-vibration devices both external and internal.

On units 24/28/30 the compressors have a screwed connection into the pipe- Thus, they can be more easily to assembled.

In heat pump units the compressors are provided with a crankcase heater to heat the oil in the compressor so that a suitable lubrication can take place.

AIR FILTER

Washable air filter; auto extinguishable material with M1 classification, high efficiency filtrate with G2 classification. It can be removed through the upper and the sizes.

FAN

Outdoor and indoor fans are centrifugal with an assembled engine, statically balancing, with a low sound level.

Those fans are assembled to the inserted panel of the units and split from upper side of the fan with insulated materials to void vibrations.

EXCHANGER

Made-up with copper pipes and aluminium wings, designed to get a high heating transfer. Their dimensions and design of the circuits have been specially worked to obtain the maximum performance of the exchanger increasing the power of the unit and reducing the consumption.

COOLING CIRCUIT

Carried out with welded deshydratable copper pipes with pressuring outlets with plugged valves in the suction and liquid lines both indoors and outdoor units.

In unit 24-28-30 the pressuring outlets in the outdoor section are approachable from the outer part of the unit.

The unit is equipped with both high-low pressure switches with an automatic rearm. It also has a dehumidifying filter, expansion system with restrictors in units 10-12-16; stoppage of impurities/dirts and air reducing valves in units 22-24-28-30. The heat pump units are equipped as well with a suction pump battery to avoid the leaks to the compressor, reversible valves to reserve the cycle of unidirectional valve.

ELECTRICAL CIRCUIT

Designed according to EN 60204-1 normative hermetically sealed to avoid condensation. With protective fuses for compressors and fans. All the engines in compressors and fans have internal thermic protectors and an electronic control plate controls the unit.

GENERAL DESCRIPTION

CONTROL

Made up with a printed control circuit plate for the opening unit and with a walled terminal thermostat to be placed in the room to be aconditioned; with sound output inside the terminal and with a sound installed in the outdoor batteries for the regulation of the system.

With a LCD display with alarm visualization, exclusive connection with two files between terminal thermostat and electrical box in the unit, possibility to adjust internal parameters. automatic restarting and high pressure control ON/OFF on unit models 22-24-28-30, with well intelligent defrosting control adapted to ambient conditions in each moment and each side (for small heat pump).

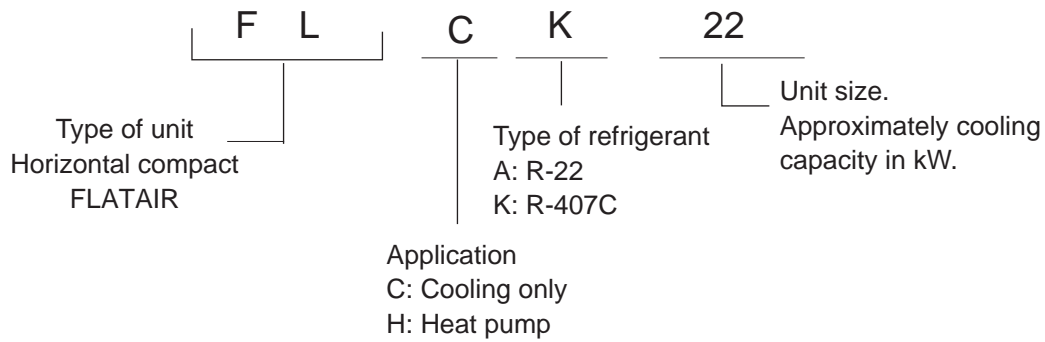
PHOTOGRAPHY CORRESPONDING TO A TERMINAL THERMOSTAT.



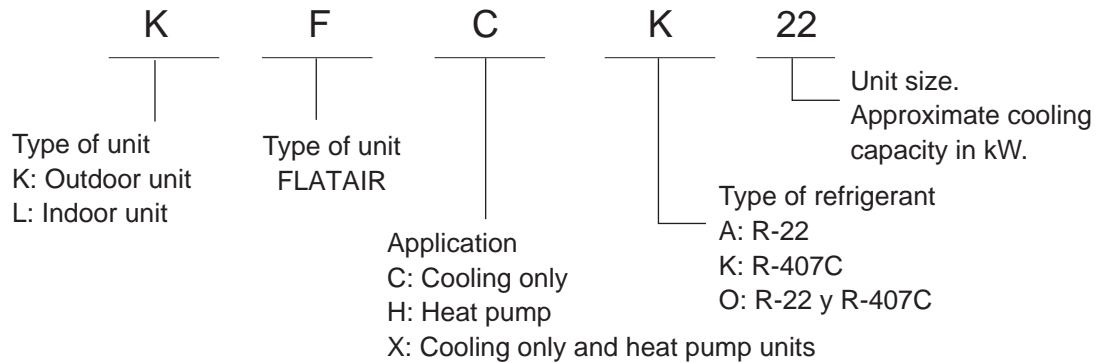
OPTIONS

- Heating electrical heater, type armoured pipe to be mounted into the unit.
- Hot water coil.
- Head pressure control ON/OFF for models 10-12-16.
- Crankcase for units cooling only.
- Main switch.
- Phase sequencer (3 phase unit).
- Hot gas bypass valve.
- Control programmable controller.
- Remote duct sensor on return.
- Ambient remote sensor.
- Thermostatic freecooling.
- Sound muffler.
- External mounting kit.
- Freecooling external mounted kit.
- Outdoor air filter.

PACKAGED UNITS



INDOOR UNIT + OUTDOOR UNIT



RANGE PRODUCT

UNITS COOLING ONLY WITH REFRIGERANT R-407C

MODEL	OUTDOOR UNIT	INDOOR UNIT	V / Ph / 50 Hz	NOMINAL CAPACITY W		NOMINAL CONSUMPTION kW	
				COOLING		COOLING	
FLCK 10	KFCK 10	LFXO 10	230V/1Ph	9.800		3,68	
FLCK 10	KFCK 10		230-400V/3Ph				
FLCK 12	KFCK 12	LFXO 12	230-400V/3Ph	11.800		4,57	
FLCK 16	KFCK 16	LFXO 16	230-400V/3Ph	15.300		6,40	
FLCK 22	KFCK 22	LFCK 22	230-400V/3Ph	19.500		8,09	
FLCK 24	KFCK 24	LFCK 24	230-400V/3Ph	22.000		9,02	
FLCK 28	KFCK 28	LFCK 28	230-400V/3Ph	26.300		10,40	
FLCK 30	KFCK 30	LFCK 30	230-400V/3Ph	28.100		12,20	

UNITS HEAT PUMP WITH REFRIGERANT R-22

MODEL	OUTDOOR UNIT	INDOOR UNIT	V / Ph / 50 Hz	NOMINAL CAPACITY W		NOMINAL CONSUMPTION kW	
				COOLING	H. PUMP	COOLING	H. PUMP
FLHA 10	KFHA 10	LFXO 10	230V/1Ph	9.400	10.300	3,50	2,93
FLHA 10	KFHA 10		230-400V/3Ph				
FLHA 12	KFHA 12	LFXO 12	230-400V/3Ph	11.300	12.300	4,31	3,44
FLHA 16	KFHA 16	LFXO 16	230-400V/3Ph	14.700	15.600	6,11	4,94
FLHA 22	KFHA 22	LFHA 22	230-400V/3Ph	19.200	20.000	7,92	6,60
FLHA 24	KFHA 24	LFHA 24	230-400V/3Ph	21.000	22.800	8,80	7,80
FLHA 28	KFHA 28	LFHA 28	230-400V/3Ph	26.000	27.000	10,36	8,43
FLHA 30	KFHA 30	LFHA 30	230-400V/3Ph	27.600	29.800	11,78	9,43

UNITS HEAT PUMP WITH REFRIGERANT R-407C

MODEL	OUTDOOR UNIT	INDOOR UNIT	V / Ph / 50 Hz	NOMINAL CAPACITY W		NOMINAL CONSUMPTION kW	
				COOLING	H. PUMP	COOLING	H. PUMP
FLHK 10	KFHK 10	LFXO 10	230V/1Ph	9.800	10.000	3,68	3,16
FLHK 10	KFHK 10		230-400V/3Ph				
FLHK 12	KFHK 12	LFXO 12	230-400V/3Ph	11.800	12.000	4,57	4,11
FLHK 16	KFHK 16	LFXO 16	230-400V/3Ph	15.300	15.500	6,40	5,60
FLHK 22	KFHK 22	LFHK 22	230-400V/3Ph	19.500	20.200	8,09	6,74
FLHK 24	KFHK 24	LFHK 24	230-400V/3Ph	22.000	22.500	9,02	8,60
FLHK 28	KFHK 28	LFHK 28	230-400V/3Ph	26.300	27.000	10,40	9,20
FLHK 30	KFHK 30	LFHK 30	230-400V/3Ph	28.100	28.700	12,20	10,32

PHYSICAL DATA (COOLING ONLY)

R-407C

SET			FLCK 10	FLCK 12	FLCK 16	FLCK 22	FLCK 24	FLCK 28	FLCK 30	
Cooling capacity	(*)	kW	9,8	11,8	15,3	19,5	22,0	26,3	28,1	
DIMENSIONS										
Height		mm.	495	495	595	595	645	645	645	
Width		mm.	1250	1250	1300	1450	1500	1500	1500	
Depth		mm.	1250	1250	1330	1520	1800	1800	1800	
NET WEIGHT			Kg	200	205	280	325	405	425	430
OUTDOOR UNIT			KFCK 10	KFCK 12	KFCK 16	KFCK 22	KFCK 24	KFCK 28	KFCK 30	
COMPRESSOR	No. / Type		1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	
FAN										
Maximum air flow		m³/h.	3500	3400	4950	5900	6600	6400	6400	
Minimum air flow		m³/h.	2350	2400	3750	4350	4500	5000	5250	
Maximum available pressure (1)		Pa	100	90	120	150	160	120	100	
NET WEIGHT			Kg	130	135	180	195	265	275	285
DIMENSIONS										
Height		mm.	495	495	595	595	645	645	645	
Width		mm.	1250	1250	1300	1450	1500	1500	1500	
Depth		mm.	820	820	830	900	1025	1025	1025	
PIPES CONNEXIONS										
Liquid			3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"	
Gas			3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"	
INDOOR UNIT			LFXO 10	LFXO 12	LFXO 16	LFCK 22	LFCK 24	LFCK 28	LFCK 30	
FAN										
Maximum air flow		m³/h.	2350	2300	3700	5350	6300	6000	6000	
Minimum air flow		m³/h.	1500	1650	2400	3200	4000	4250	4500	
Maximum available pressure (1)		Pa	120	110	160	180	240	200	180	
NET WEIGHT			Kg	70	70	100	130	140	150	150
DIMENSIONS										
Height		mm.	495	495	595	595	645	645	645	
Width		mm.	1250	1250	1300	1450	1500	1500	1500	
Depth		mm.	430	430	500	620	775	775	775	
PIPES CONNEXIONS										
Liquid			3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"	
Gas			3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"	

(*) Air intake temperature in the indoor exchanger 27°C DB/19°C WB

(*) Air intake temperature in the outdoor exchanger: 35°C DB

DB.- Dry bulb temperature

WB.- Wet bulb temperature

(1) With admissible minimum air flow.

SET			FLHA 10	FLHA 12	FLHA 16	FLHA 22	FLHA 24	FLHA 28	FLHA 30
Cooling capacity	(*)	kW	9,4	11,3	14,7	19,2	21,0	26,0	27,6
Heating capacity	(**)	kW	10,3	12,3	15,6	20,0	22,8	27,0	29,8
DIMENSIONS									
Height		mm.	495	495	595	595	645	645	645
Width		mm.	1250	1250	1300	1450	1500	1500	1500
Depth		mm.	1250	1250	1330	1520	1800	1800	1800
NET WEIGHT		Kg	205	210	285	330	410	430	435
OUTDOOR UNIT			KFHA 10	KFHA 12	KFHA 16	KFHA 22	KFHA 24	KFHA 28	KFHA30
COMPRESSOR	No. / Type		1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll
FAN									
Maximum air flow		m³/h.	3500	3400	4950	5900	6600	6400	6400
Minimum air flow		m³/h.	2350	2400	3750	4350	4500	5000	5250
Maximum available pressure (1)		Pa	100	90	120	150	160	120	100
NET WEIGHT		Kg	135	140	185	200	270	280	285
DIMENSIONS									
Height		mm.	495	495	595	595	645	645	645
Width		mm.	1250	1250	1300	1450	1500	1500	1500
Depth		mm.	820	820	830	900	1025	1025	1025
PIPES CONNEXIONS									
Liquid			3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"
Gas			3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"
INDOOR UNIT			LFXO 10	LFXO 12	LFXO 16	LFHA 22	LFHA 24	LFHA 28	LFHA30
FAN									
Maximum air flow		m³/h.	2350	2300	3700	5350	6300	6000	6000
Minimum air flow		m³/h.	1500	1650	2400	3200	4000	4250	4500
Maximum available pressure (1)		Pa	120	110	160	180	240	200	180
NET WEIGHT		Kg	70	70	100	130	140	150	150
DIMENSIONS									
Height		mm.	495	495	595	595	645	645	645
Width		mm.	1250	1250	1300	1450	1500	1500	1500
Depth		mm.	430	430	500	620	775	775	775
PIPES CONNEXIONS									
Liquid			3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"
Gas			3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"

(*) Air intake temperature in the indoor exchanger: 27°C DB/19°C WB

(*) Air intake temperature in the outdoor exchanger: 35°C DB

(**) Air intake temperature in the indoor exchanger: 20°C DB / 12°C WB

(**) Air intake temperature in the outdoor exchanger: 7°C DB / 6°C WB

DB.- Dry bulb temperature

WB.- Wet bulb temperature

(1) With admissible minimum air flow.

SET		FLHK 10	FLHK 12	FLHK 16	FLHK 22	FLHK 24	FLHK 28	FLHK 30
Cooling capacity	(*) kW	9,8	11,8	15,3	19,5	22,0	26,3	28,1
Heating capacity	(**) kW	10,0	12,0	15,5	20,2	22,5	27,0	28,7
DIMENSIONS								
Height	mm.	495	495	595	595	645	645	645
Width	mm.	1250	1250	1300	1450	1500	1500	1500
Depth	mm.	1250	1250	1330	1520	1800	1800	1800
NET WEIGHT		Kg	205	210	285	330	410	435
OUTDOOR UNIT		KFHK 10	KFHK 12	KFHK 16	KFHK 22	KFHK 24	KFHK 28	KFHK 30
COMPRESSOR	No. / Type	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll	1 / Scroll
FAN								
Maximum air flow	m ³ /h.	3500	3400	4950	5900	6600	6400	6400
Minimum air flow	m ³ /h.	2350	2400	3750	4350	4500	5000	5250
Maximum available pressure (1)	Pa	100	90	120	150	160	120	100
NET WEIGHT		Kg	135	140	185	200	270	285
DIMENSIONS								
Height	mm.	495	495	595	595	645	645	645
Width	mm.	1250	1250	1300	1450	1500	1500	1500
Depth	mm.	820	820	830	900	1025	1025	1025
PIPES CONNEXIONS								
Liquid		3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"
Gas		3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"
INDOOR UNIT		LFXO 10	LFXO 12	LFXO 16	LFHK 22	LFHK 24	LFHK 28	LFHK 30
FAN								
Maximum air flow	m ³ /h.	2350	2300	3700	5350	6300	6000	6000
Minimum air flow	m ³ /h.	1500	1650	2400	3200	4000	4250	4500
Maximum available pressure (1)	Pa	120	110	160	180	240	200	180
NET WEIGHT		Kg	70	70	100	130	140	150
DIMENSIONS								
Height	mm.	495	495	595	595	645	645	645
Width	mm.	1250	1250	1300	1450	1500	1500	1500
Depth	mm.	430	430	500	620	775	775	775
PIPES CONNEXIONS								
Liquid		3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"
Gas		3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"

(*) Air intake temperature in the indoor exchanger: 27°C DB/19°C WB

(*) Air intake temperature in the outdoor exchanger: 35°C DB

(**) Air intake temperature in the indoor exchanger: 20°C DB / 12°C WB

(**) Air intake temperature in the outdoor exchanger: 7°C DB / 6°C WB

DB.- Dry bulb temperature

WB.- Wet bulb temperature

(1) With admissible minimum air flow.

ELECTRICAL DATA

R-22

UNIT MODELS		FLHA 10	FLHA 12	FLHA 16	FLHA 22	FLHA 24	FLHA 28	FLHA 30	
Voltage	V/f (50 Hz)	230V/ 1Ph							
		230V-400V/ 3Ph							
Rated absorbed power									
	Total power in cooling cycle	kW	3,50	4,31	6,11	7,92	8,80	10,36	11,78
	Total power in heating cycle	kW	2,93	3,44	4,94	6,60	7,80	8,43	9,43
Maximum current									
	Total current	A	24,3						
			22,4/12,9	25,0/14,4	31,7/18,3	37,2/21,5	39,8/23,0	44,0/25,4	52,0/30,0
Start up current									
		A	101						
			97/52	104/56	145/73	193/110	182/108	226/132	240/136

UNIT MODELS		KFHA 10	KFHA 12	KFHA 16	KFHA 22	KFHA 24	KFHA 28	KFHA 30	
Voltage	V/f (50 Hz)	230V/ 1Ph							
		230V-400V/ 3Ph							
Rated absorbed power									
	Compressor (cooling cycle)	kW	2,60	3,41	4,11	5,02	5,85	7,41	8,83
	Compressor (heating cycle)	kW	2,03	2,54	2,94	3,70	4,85	5,48	6,48
	Fan outdoor section	kW	0,52	0,52	1,10	1,60	1,60	1,60	1,60
	Total power in cooling cycle	kW	3,12	3,93	5,21	6,62	7,45	9,01	10,43
	Total power in heating cycle	kW	2,55	3,06	3,50	5,30	6,45	7,08	8,08
Maximum current									
	Compressor	A	18,6						
			16,7/7,2	19,3/8,7	19,9/11,5	22,4/12,9	25,3/14,6	28,5/16,3	36,5/21,0
	Fan outdoor section	A	3,1	3,1					
					4,8/2,8	7,4/4,3	8,1/4,7	8,1/4,7	8,1/4,7
	Total current	A	21,7						
			19,8/10,3	22,4/11,8	24,7/14,3	29,8/17,2	33,4/19,3	36,6/21,0	44,6/25,7
Start up current									
		A	98						
			94/49	101/53	138/69	185/105	174/104	218/128	232/132

UNIT MODELS		LFXO 10	LFXO 12	LFXO 16	LFHA 22	LFHA 24	LFHA 28	LFHA 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

ELECTRICAL DATA

R-407C

UNIT MODELS		FLCK 10 FLHK 10	FLCK 12 FLHK 12	FLCK 16 FLHK 16	FLCK 22 FLHK 22	FLCK 24 FLHK 24	FLCK 28 FLHK 28	FLCK 30 FLHK 30
Voltage	V/f (50 Hz)	230V/ 1Ph						
		230V-400V/ 3Ph						
Rated absorbed power								
Total power in cooling cycle	kW	3,68	4,57	6,40	8,09	9,02	10,40	12,20
Total power in heating cycle	kW	3,16	4,11	5,60	6,74	8,60	9,20	10,32
Maximum current								
Total current	A	24,3						
		22,4/12,9	25,0/14,4	31,7/18,3	37,2/21,5	39,8/23,0	44,0/25,4	52,0/30,0
Start up current	A	101						
		97/52	104/56	145/73	193/110	182/108	226/132	240/136

UNIT MODELS		KFCK 10 KFHK 10	KFCK 12 KFHK 12	KFCK 16 KFHK 16	KFCK 22 KFHK 22	KFCK 24 KFHK 24	KFCK 28 KFHK 28	KFCK 30 KFHK 30
Voltage	V/f (50 Hz)	230V/ 1Ph						
		230V-400V/ 3Ph						
Rated absorbed power								
Compressor (cooling cycle)	kW	2,78	3,67	4,40	5,19	6,07	7,45	9,25
Compressor (heating cycle)	kW	2,26	3,21	3,60	3,84	5,65	6,25	7,37
Fan outdoor section	kW	0,52	0,52	1,10	1,60	1,60	1,60	1,60
Total power in cooling cycle	kW	3,30	4,19	5,50	6,79	7,67	9,05	10,85
Total power in heating cycle	kW	2,78	3,73	4,70	5,44	7,25	7,85	8,97
Maximum current								
Compressor	A	18,6						
		16,7/7,2	19,3/8,7	19,9/11,5	22,4/12,9	25,3/14,6	28,5/16,3	36,5/21,0
Fan outdoor section	A	3,1						
				4,8/2,8	7,4/4,3	8,1/4,7	8,1/4,7	8,1/4,7
Total current	A	21,7						
		19,8/10,3	22,4/11,8	24,7/14,3	29,8/17,2	33,4/19,3	36,6/21,0	44,6/25,7
Start up current	A	98						
		94/49	101/53	138/69	185/105	174/104	218/128	232/132

UNIT MODELS		LFCK 10 LFHK 10	LFCK 12 LFHK 12	LFCK 16 LFHK 16	LFCK 22 LFHK 22	LFCK 24 LFHK 24	LFCK 28 LFHK 28	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						
				7/4	7,4/4,3	7,4/4,3	7,4/4,3	7,4/4,3
Start up current	A	7,8						
				21/13	22/14	22/14	22/14	22/14

INDOOR UNITS


NOMINAL
AIR FLOW

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	---	---

OUTDOOR UNITS


NOMINAL
AIR FLOW

MODELS		AIR FLOW m ³ /h						
		10	12	16	22	24	28	30
AVAILABLE STATIC PRESSURE Pa.	0	3500	3400	4950	5900	6600	6400	6400
	10	3410	3325	4850	5800	6490	6300	6300
	20	3300	3160	4750	5700	6340	6200	6200
	30	3190	3075	4625	5600	6225	6100	6100
	40	3080	2980	4525	5495	6100	5980	5980
	50	2970	2890	4425	5390	5960	5870	5870
	60	2840	2790	4325	5280	5850	5725	5725
	70	2700	2690	4225	5180	5710	5600	5600
	80	2560	2580	4125	5075	5600	5490	5490
	90	2410	2400	4040	4975	5480	5375	5375
	100	2350	---	3940	4875	5350	5250	5250
	110	---	---	3840	4775	5200	5100	---
	120	---	---	3750	4675	5090	5000	---
	130	---	---	---	4575	4950	---	---
	140	---	---	---	4460	4800	---	---
	150	---	---	---	4350	4650	---	---
	160	---	---	---	---	4500	---	---

NOTE:

Keep in mind reduction on air flow and static pressure services if you use mufflers or external air filter.
(See: page 42 fan services).

TECHNICAL DATA

SOUND LEVEL IN INDOOR UNITS

UNIT MODELS		LFXO 10	LFXO 12	LFXO 16	LFCK 22 LFHK 22 LFHA 22	LFCK 24 LFHK 24 LFHA 24	LFCK 28 LFHK 28 LFHA 28	LFCK 30 LFHK 30 LFHA 30
Sound pressure level (Lp) (*)	dB	49	48	49	57	59	56	55

(*) Sound pressure level estimated, radiated by indoor unit fans on site with normal acoustic absorption, measured to a discharged distance of 2m of the unit depending on suction or discharge.

SOUND LEVEL IN OUTDOOR UNITS

UNIT MODELS		KFCK 10 KFHK 10 KFHA 10	KFCK 12 KFHK 12 KFHA 12	KFCK 16 KFHK 16 KFHA 16	KFCK 22 KFHK 22 KFHA 22	KFCK 24 KFHK 24 KFHA 24	KFCK 28 KFHK 28 KFHA 28	KFCK 30 KFHK 30 KFHA 30
Sound pressure level (Lp) (*)	dB	43	43	45	49	49	48	48

(*) Measured in free field condition at a distance of 10m (depending on suction or in duct discharge)

SOUND LEVEL OUTDOOR UNIT + MUFFLER (OPTIONAL)

UNIT MODELS		KFCK 16 KFHK 16 KFHA 16	KFCK 22 KFHK 22 KFHA 22	KFCK 24 KFHK 24 KFHA 24	KFCK 28 KFHK 28 KFHA 28	KFCK 30 KFHK 30 KFHA 30
Sound pressure level (Lp) (*)	dB	43	45	45	45	45

(*) Setting a muffler (optional) directly connected to the discharge of outdoor fan of the unit measured in free-field condition at a distance of 10m. (depending on no suction and discharge installation duct).

COOLING CAPACITIES

R-407C

FLCK / FLHK 10

FLCK / FLHK 12

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	9,20	8,89	8,56	8,19	7,77	10,99	10,62	10,22	9,77	9,27
15°C WB	SENSIBLE	7,08	6,93	6,77	6,59	6,40	7,98	7,79	7,59	7,37	7,12
24°C DB	TOTAL	9,89	9,56	9,20	8,81	8,36	11,79	11,39	10,96	10,49	9,95
17°C WB	SENSIBLE	7,59	7,44	7,28	7,10	6,90	8,50	8,31	8,11	7,88	7,63
27°C DB	TOTAL	10,62	10,27	9,80	9,46	8,98	12,64	12,22	11,80	11,25	10,67
19°C WB	SENSIBLE	8,08	7,93	7,70	7,59	7,39	9,00	8,81	8,64	8,38	8,12
29°C DB	TOTAL	11,40	11,02	10,61	10,15	9,63	13,56	13,11	12,61	12,06	11,43
21°C WB	SENSIBLE	8,07	7,92	7,76	7,57	7,37	8,99	8,80	8,59	8,36	8,10
32°C DB	TOTAL	12,22	11,82	11,38	10,88	10,31	14,54	14,05	13,52	12,93	---
23°C WB	SENSIBLE	8,54	8,38	8,22	8,04	7,86	9,46	9,27	9,06	8,83	---

FLCK / FLHK 16

FLCK / FLHK 22

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	14,24	13,72	13,17	12,59	11,96	17,99	17,36	16,69	15,96	15,16
15°C WB	SENSIBLE	10,96	10,71	10,45	10,17	9,87	14,58	14,28	13,97	13,63	13,27
24°C DB	TOTAL	15,34	14,78	14,20	13,57	12,90	19,40	18,74	18,03	17,25	16,39
17°C WB	SENSIBLE	11,77	11,52	11,25	10,97	10,68	15,74	15,45	15,13	14,79	14,42
27°C DB	TOTAL	16,50	15,92	15,30	14,62	13,89	20,92	20,22	19,50	18,63	17,71
19°C WB	SENSIBLE	12,55	12,30	12,04	11,75	11,45	16,86	16,57	16,30	15,92	15,54
29°C DB	TOTAL	17,75	17,13	16,46	15,74	14,96	22,56	21,81	21,00	20,11	19,13
21°C WB	SENSIBLE	12,55	12,30	12,03	11,75	11,44	16,87	16,58	16,26	15,92	15,55
32°C DB	TOTAL	19,07	18,41	17,70	16,93	---	24,31	23,51	22,64	21,69	20,63
23°C WB	SENSIBLE	13,28	13,03	12,77	12,48	---	17,95	17,65	17,34	17,00	16,62

FLCK / FLHK 24

FLCK / FLHK 28

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	20,62	19,87	19,09	18,28	17,43	24,63	23,71	22,77	21,80	20,81
15°C WB	SENSIBLE	16,37	16,01	15,64	15,26	14,87	19,08	18,64	18,19	17,73	17,26
24°C DB	TOTAL	22,19	21,39	20,56	19,69	18,79	26,45	25,48	24,48	23,45	22,39
17°C WB	SENSIBLE	17,62	17,26	16,89	16,51	16,11	20,47	20,03	19,57	19,11	18,65
27°C DB	TOTAL	23,88	23,02	22,00	21,21	20,25	28,40	27,37	26,30	25,21	24,08
19°C WB	SENSIBLE	18,33	18,47	18,00	17,72	17,32	21,81	21,37	20,92	20,46	19,99
29°C DB	TOTAL	25,20	24,78	23,83	22,85	21,82	30,50	29,40	28,26	27,10	---
21°C WB	SENSIBLE	18,82	18,46	18,09	17,71	17,31	21,78	21,34	20,89	20,43	---
32°C DB	TOTAL	27,65	26,67	25,65	24,59	23,50	32,73	31,56	30,35	29,11	---
23°C WB	SENSIBLE	19,98	19,62	19,25	18,87	18,47	23,06	22,62	22,11	21,71	---

DB - Dry Bulb
WB - Wet Bulb

COOLING CAPACITIES

R-407C

FLCK / FLHK 30

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	26,37	25,39	24,39	23,35	22,29
15°C WB	SENSIBLE	20,08	19,60	19,12	18,62	18,12
24°C DB	TOTAL	28,30	27,25	26,18	25,08	---
17°C WB	SENSIBLE	21,50	21,02	20,53	20,03	---
27°C DB	TOTAL	30,36	29,25	28,10	26,93	---
19°C WB	SENSIBLE	22,86	22,38	21,89	21,40	---
29°C DB	TOTAL	32,57	31,39	30,18	28,92	---
21°C WB	SENSIBLE	22,83	22,35	21,86	21,36	---
32°C DB	TOTAL	34,93	33,67	32,37	31,03	---
23°C WB	SENSIBLE	24,13	23,65	23,13	22,66	---

DB - Dry Bulb
WB - Wet Bulb

CALCULATION OF COOLING CAPACITY DEPENDING ON AIR FLOW

CORRECTION COEFFICIENT TO FIX TO THE CAPACITY OF DIFFERENT INDOOR AIR FLOW

MODELS 10-12-16-22			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,97	x1,00	x1,01
Sensible capacity	x0,90	x1,00	x1,03

MODELS 24-28-30			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,98	x1,00	x1,01
Sensible capacity	x0,95	x1,00	x1,02

CORRECTION COEFFICIENT TO FIX TO THE CAPACITY OF DIFFERENT OUTDOOR AIR FLOW

MODELS 10-12-16-22			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,97	x1,00	x1,01
Sensible capacity	x0,97	x1,00	x1,01

MODELS 24-28-30			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,98	x1,00	x1,01
Sensible capacity	x0,98	x1,00	x1,01

COOLING CAPACITIES

R-22

FLHA 10

FLHA 12

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	8,73	8,46	8,18	7,88	7,55	10,60	10,27	9,92	9,52	9,07
15°C WB	SENSIBLE	6,82	6,69	6,56	6,42	6,26	7,81	7,65	7,47	7,28	7,06
24°C DB	TOTAL	9,34	9,06	8,76	8,44	8,10	11,33	10,99	10,61	10,18	9,69
17°C WB	SENSIBLE	7,31	7,18	7,05	6,90	6,75	8,32	8,15	7,97	7,78	7,55
27°C DB	TOTAL	9,99	9,69	9,40	9,03	8,67	12,12	11,75	11,30	10,89	10,35
19°C WB	SENSIBLE	7,78	7,65	7,52	7,37	7,22	8,80	8,64	8,46	8,26	8,03
29°C DB	TOTAL	10,69	10,37	10,03	9,67	9,28	12,96	12,57	12,13	11,63	11,05
21°C WB	SENSIBLE	7,75	7,62	7,49	7,35	7,20	8,77	8,61	8,43	8,22	7,99
32°C DB	TOTAL	11,42	11,08	10,71	10,33	9,92	13,86	13,43	12,96	12,42	11,78
23°C WB	SENSIBLE	8,19	8,07	7,93	7,79	7,64	9,23	9,06	8,88	8,67	8,43

FLHA 16

FLHA 22

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	13,56	13,11	12,62	12,09	11,50	17,62	17,09	16,50	15,85	15,08
15°C WB	SENSIBLE	10,48	10,27	10,04	9,78	9,50	14,35	14,10	13,82	13,52	13,17
24°C DB	TOTAL	14,54	14,06	13,55	12,98	12,35	18,91	18,35	17,74	17,04	16,21
17°C WB	SENSIBLE	11,23	11,02	10,79	10,53	10,26	15,45	15,21	14,94	14,63	14,28
27°C DB	TOTAL	15,58	15,07	14,70	13,93	13,26	20,26	19,69	19,20	18,30	17,40
19°C WB	SENSIBLE	11,96	11,74	11,51	11,26	10,98	16,51	16,28	16,01	15,71	15,34
29°C DB	TOTAL	16,69	16,15	15,57	14,93	14,23	21,71	21,11	20,43	19,64	18,63
21°C WB	SENSIBLE	11,92	11,71	11,48	11,23	10,95	16,46	16,23	15,97	15,66	15,28
32°C DB	TOTAL	17,86	17,28	16,66	15,99	15,24	22,22	22,60	21,88	21,02	19,86
23°C WB	SENSIBLE	12,61	12,39	12,16	11,91	11,64	17,46	17,24	16,98	16,67	16,26

FLHA 24

FLHA 28

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	19,56	18,94	18,32	17,68	17,02	24,36	23,69	22,77	21,88	20,92
15°C WB	SENSIBLE	15,75	15,46	15,16	14,87	14,56	18,96	18,59	18,20	17,78	17,33
24°C DB	TOTAL	20,98	20,33	19,66	18,98	18,29	26,07	25,24	24,36	23,41	22,38
17°C WB	SENSIBLE	16,94	16,65	16,36	16,06	15,76	20,31	19,94	19,54	19,12	18,66
27°C DB	TOTAL	22,50	21,81	21,00	20,39	19,65	27,88	26,99	26,00	25,03	23,92
19°C WB	SENSIBLE	18,10	17,81	17,51	17,22	16,92	21,61	21,23	20,83	20,40	19,94
29°C DB	TOTAL	24,15	23,41	22,66	21,90	21,12	29,82	28,86	27,84	26,74	25,55
21°C WB	SENSIBLE	18,06	17,77	17,48	17,18	16,88	21,52	21,14	20,74	20,31	19,85
32°C DB	TOTAL	25,90	25,11	24,32	23,51	22,68	31,85	30,82	29,72	28,54	27,26
23°C WB	SENSIBLE	19,16	18,88	18,59	18,30	18,00	22,75	22,37	21,96	21,53	21,06

DB - Dry Bulb
WB - Wet Bulb

COOLING CAPACITIES

R-22

FLHA 30

AIR ENTRY TEMPERATURE INDOOR UNIT	CAPACITY IN kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C DRY BULB				
		25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	25,76	24,93	24,39	23,08	22,02
15°C WB	SENSIBLE	19,70	19,30	18,87	18,41	17,90
24°C DB	TOTAL	27,55	26,66	25,70	24,66	23,52
17°C WB	SENSIBLE	21,05	20,64	20,21	19,74	19,23
27°C DB	TOTAL	29,44	28,48	27,60	26,33	25,10
19°C WB	SENSIBLE	22,35	21,94	21,50	21,02	20,51
29°C DB	TOTAL	31,45	30,42	29,30	28,10	26,77
21°C WB	SENSIBLE	22,26	21,84	21,40	20,92	20,40
32°C DB	TOTAL	33,57	32,45	31,25	29,94	---
23°C WB	SENSIBLE	23,48	23,06	22,61	22,13	---

DB - Dry Bulb
WB - Wet Bulb

CALCULATION OF COOLING CAPACITY DEPENDING ON AIR FLOW

CORRECTION COEFFICIENT TO FIX TO THE CAPACITY OF DIFFERENT INDOOR AIR FLOW

MODELS 10-12-16-22			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,97	x1,00	x1,01
Sensible capacity	x0,90	x1,00	x1,03

MODELS 24-28-30			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,98	x1,00	x1,01
Sensible capacity	x0,95	x1,00	x1,02

CORRECTION COEFFICIENT TO FIX TO THE CAPACITY OF DIFFERENT OUTDOOR AIR FLOW

MODELS 10-12-16-22			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,97	x1,00	x1,01
Sensible capacity	x0,97	x1,00	x1,01

MODELS 24-28-30			
Air flow	minimum	nominal	maximum
Cooling capacity	x0,98	x1,00	x1,01
Sensible capacity	x0,98	x1,00	x1,01

HEATING CAPACITIES

R-407C

FLHK 10

FLHK 12

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB						AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C	-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	6,83	7,61	8,49	10,06	11,95	14,10	8,37	9,31	10,35	12,13	14,25	16,66
	T. consumption	2,63	2,70	2,79	2,94	3,14	3,38	3,33	3,44	3,57	3,79	4,06	4,38
18°C DB	Total capacity	6,82	7,59	8,47	10,02	11,88	13,99	8,37	9,30	10,32	12,08	14,16	16,52
	T. consumption	2,77	2,84	2,93	3,09	3,30	3,55	3,49	3,61	3,74	3,97	4,26	4,61
20°C DB	Total capacity	6,82	7,58	8,46	10,00	11,83	13,92	8,37	9,29	10,30	12,00	14,10	16,42
	T. consumption	2,86	2,94	3,03	3,16	3,41	3,67	3,60	3,73	3,86	4,11	4,40	4,77
24°C DB	Total capacity	6,82	7,587	8,44	9,94	11,75	13,76	8,37	9,27	10,27	11,97	13,98	16,21
	T. consumption	3,06	3,15	3,25	3,43	3,66	3,93	3,84	3,97	4,12	4,38	4,71	5,12

FLHK 16

FLHK 22

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB						AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C	-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	10,64	11,87	13,26	15,67	18,57	21,86	13,80	15,43	17,24	20,42	24,35	28,97
	T. consumption	4,66	4,80	4,97	5,27	5,65	6,11	5,86	5,98	6,13	6,39	6,75	7,20
18°C DB	Total capacity	10,60	11,82	13,20	15,58	18,44	21,67	13,76	15,37	17,17	20,32	24,20	28,75
	T. consumption	4,84	4,99	5,17	5,48	5,88	6,36	6,07	6,21	6,36	6,64	7,00	7,48
20°C DB	Total capacity	10,58	11,80	13,16	15,50	18,36	21,55	13,73	15,34	17,14	20,20	24,10	28,60
	T. consumption	4,97	5,13	5,31	5,60	6,04	6,53	6,23	6,37	6,53	6,74	7,19	7,68
24°C DB	Total capacity	10,56	11,76	13,11	15,42	18,18	21,29	13,70	15,30	17,07	20,15	23,91	28,29
	T. consumption	5,24	5,41	5,61	5,95	6,39	6,90	6,57	6,72	6,89	7,19	7,60	8,10

FLHK 24

FLHK 28

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB						AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C	-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	15,76	17,47	19,36	22,61	26,53	31,04	19,02	21,06	23,34	27,29	32,11	37,68
	T. consumption	7,17	7,39	7,63	8,04	8,55	9,17	7,71	7,91	8,14	8,56	9,09	9,75
18°C DB	Total capacity	15,75	17,44	19,31	22,52	26,37	30,80	19,01	21,03	23,27	27,18	31,92	37,41
	T. consumption	7,46	7,69	7,94	8,37	8,91	9,55	8,03	8,24	8,49	8,92	9,49	10,18
20°C DB	Total capacity	15,75	17,43	19,28	22,50	26,27	30,65	19,01	21,01	23,24	27,00	32,41	37,24
	T. consumption	7,66	7,90	8,16	8,60	9,15	9,82	8,25	8,47	8,73	9,20	9,77	10,48
24°C DB	Total capacity	15,75	17,41	19,23	22,34	26,07	30,34	19,04	21,01	23,20	27,00	31,60	36,92
	T. consumption	8,07	8,33	8,61	9,08	9,68	10,38	8,71	8,96	9,24	9,73	10,35	11,11

FLHK 30

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	20,04	22,17	24,55	28,71	33,80	39,74
	T. consumption	8,45	8,69	8,96	9,44	10,06	10,82
18°C DB	Total capacity	20,06	22,17	24,53	28,63	33,67	39,51
	T. consumption	8,82	9,08	9,36	9,87	10,52	11,32
20°C DB	Total capacity	20,09	22,18	24,52	28,70	33,58	39,37
	T. consumption	9,08	9,34	9,64	10,32	10,84	11,68
24°C DB	Total capacity	20,67	22,24	24,54	28,55	33,43	39,11
	T. consumption	9,62	9,91	10,23	10,80	11,53	12,42

DB - Dry Bulb
WB - Wet Bulb

HEATING CAPACITIES

R-22

FLHA 10

FLHA 12

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB						AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C	-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	7,13	7,94	8,84	10,38	12,22	14,30	8,51	9,48	10,53	12,33	14,47	16,90
	T. consumption	2,51	2,56	2,63	2,73	2,86	3,02	2,87	2,96	3,05	3,19	3,36	3,57
18°C DB	Total capacity	7,12	7,92	8,81	10,33	12,15	14,19	8,52	9,47	10,52	12,30	14,41	16,79
	T. consumption	2,62	2,68	2,74	2,85	2,99	3,16	3,00	3,09	3,18	3,34	3,52	3,74
20°C DB	Total capacity	7,12	7,91	8,79	10,30	12,09	14,12	8,52	9,47	10,51	12,30	14,36	16,72
	T. consumption	2,70	2,76	2,82	2,93	3,08	3,26	3,10	3,18	3,28	3,44	3,63	3,86
24°C DB	Total capacity	7,11	7,89	8,76	10,25	12,01	13,98	8,54	9,47	10,49	12,23	14,27	16,57
	T. consumption	2,87	2,93	3,00	3,12	3,27	3,46	3,29	3,38	3,48	3,66	3,87	4,12

FLHA 16

FLHA 22

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB						AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C	-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	10,95	12,14	13,46	15,74	18,45	21,51	13,70	15,30	17,08	20,13	23,73	27,80
	T. consumption	4,25	4,34	4,44	4,62	4,85	5,15	5,64	5,76	5,90	6,15	6,47	6,85
18°C DB	Total capacity	10,93	12,11	13,42	15,67	18,33	21,35	13,66	15,24	17,00	20,02	23,60	27,64
	T. consumption	4,42	4,51	4,62	4,81	5,05	5,36	5,82	5,95	6,09	6,35	6,68	7,08
20°C DB	Total capacity	10,93	12,09	13,39	15,60	18,26	21,24	13,64	15,20	16,95	20,00	23,52	27,53
	T. consumption	4,55	4,64	4,74	4,94	5,19	5,51	5,94	6,08	6,23	6,60	6,84	7,25
24°C DB	Total capacity	10,92	12,07	13,35	15,53	18,11	21,02	13,60	15,14	16,86	19,82	23,34	27,29
	T. consumption	4,81	4,90	5,01	5,22	5,49	5,83	6,21	6,35	6,51	6,80	7,16	7,59

FLHA 24

FLHA 28

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB						AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C	-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	15,82	17,61	19,54	22,80	26,69	31,18	18,61	20,68	22,98	26,93	31,67	37,08
	T. consumption	6,69	6,86	7,04	7,32	7,67	8,10	7,23	7,40	7,58	7,90	8,30	8,78
18°C DB	Total capacity	15,81	17,58	19,48	22,70	26,53	30,97	18,60	20,66	22,93	26,84	31,51	36,82
	T. consumption	3,93	7,10	7,28	7,58	7,95	8,40	7,51	7,69	7,88	8,22	8,64	9,14
20°C DB	Total capacity	15,81	17,56	19,45	22,80	26,44	30,83	18,60	20,65	22,91	27,00	31,40	36,65
	T. consumption	7,09	7,27	7,46	7,80	8,14	8,61	7,71	7,89	8,09	8,43	8,87	9,38
24°C DB	Total capacity	15,82	17,55	19,41	22,53	26,26	30,58	18,59	20,63	22,86	26,68	31,19	36,31
	T. consumption	7,44	7,64	7,83	8,16	8,56	9,06	8,11	8,31	8,53	8,90	9,36	9,91

FLHA 30

AIR ENTRY TEMPERATURE INDOOR UNIT	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C WET BULB					
		-8°C	-4°C	0°C	6°C	12°C	18°C
15°C DB	Total capacity	20,51	22,78	25,30	29,64	34,85	40,79
	T. consumption	7,89	8,10	8,34	8,75	9,26	9,87
18°C DB	Total capacity	20,51	22,78	25,28	29,58	34,71	40,54
	T. consumption	8,21	8,44	8,69	9,12	9,65	10,29
20°C DB	Total capacity	20,52	22,77	25,27	29,80	34,62	40,38
	T. consumption	8,44	8,67	8,93	9,43	9,92	10,59
24°C DB	Total capacity	20,54	22,78	25,25	29,46	34,43	40,05
	T. consumption	8,90	9,16	9,44	9,92	10,51	11,21

DB - Dry Bulb
WB - Wet Bulb

CALCULATION OF HEATING POWER DEPENDING ON AIR FLOW

CORRECTION COEFFICIENT TO FIX
TO THE CAPACITY OF DIFFERENT
INDOOR AIR FLOW

MODELS 10-12-16-22			
Air flow	minimum	nominal	maximum
Heating capacity	x0,98	x1,00	x1,01
Total consumption	x0,98	x1,00	x1,01

MODELS 24-28-30			
Air flow	minimum	nominal	maximum
Heating capacity	x0,91	x1,00	x1,03
Total consumption	x0,98	x1,00	x1,01

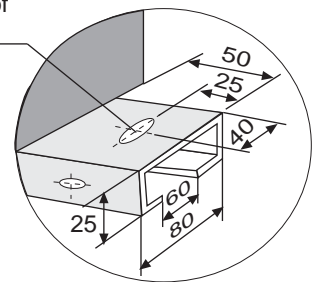
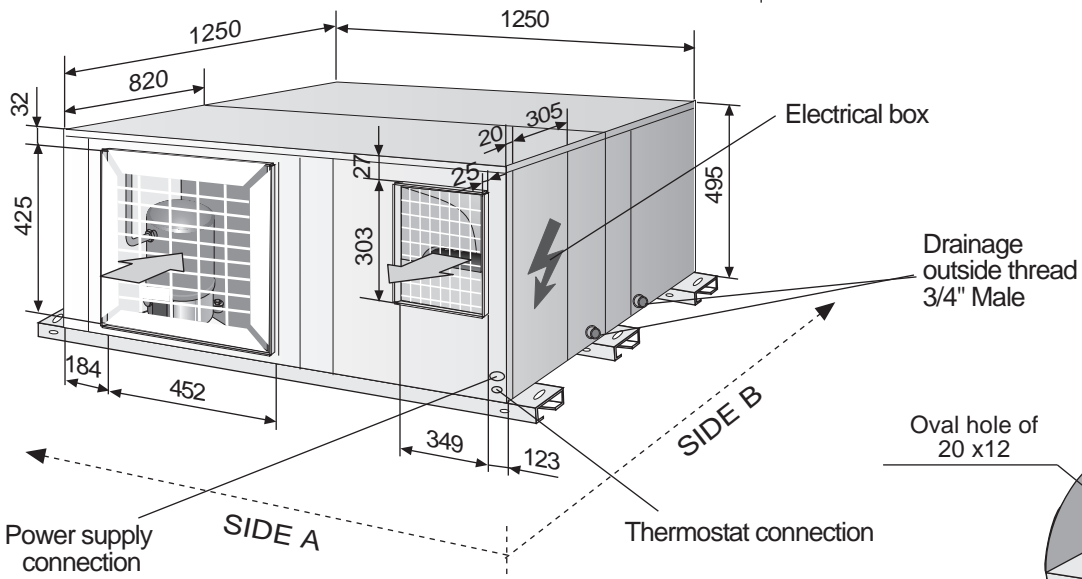
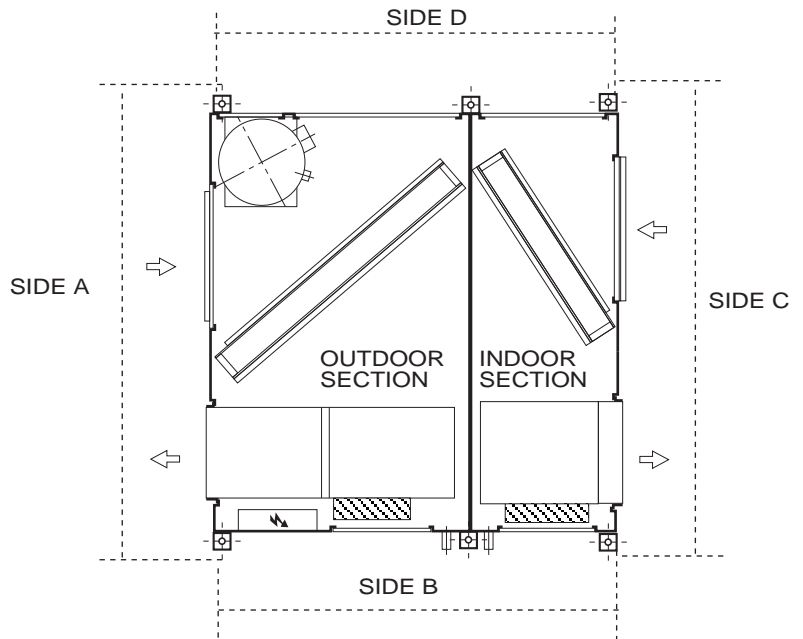
CORRECTION COEFFICIENT TO FIX
TO THE CAPACITY OF DIFFERENT
OUTDOOR AIR FLOW

MODELS 10-12-16-22			
Air flow	minimum	nominal	maximum
Heating capacity	x0,98	x1,00	x1,01
Total consumption	x0,98	x1,00	x1,01

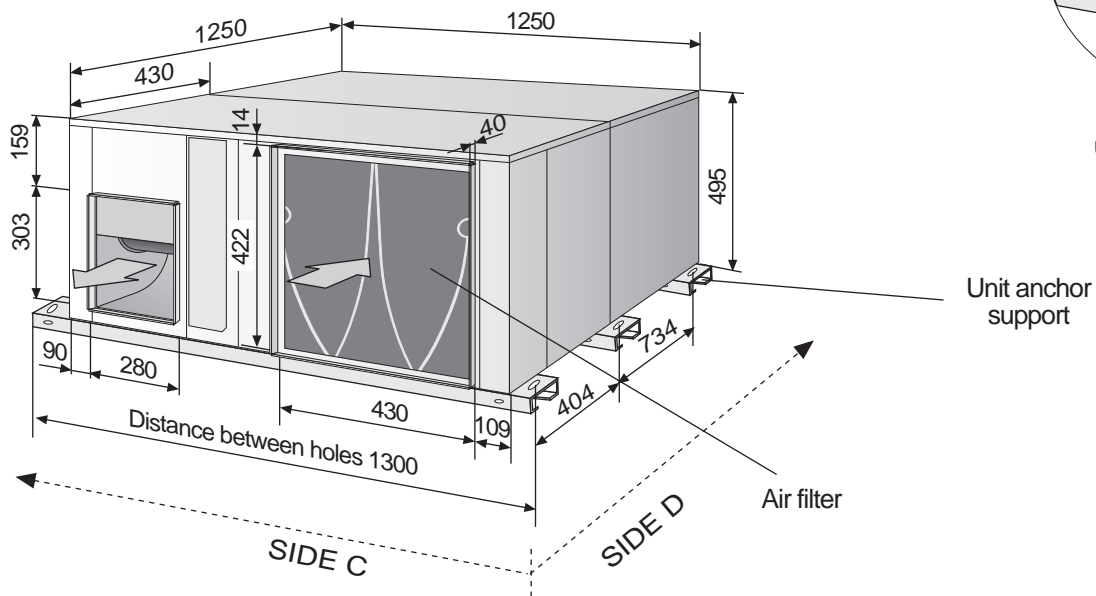
MODELS 24-28-30			
Air flow	minimum	nominal	maximum
Heating capacity	x0,91	x1,00	x1,03
Total consumption	x0,98	x1,00	x1,01

UNITS DIMENSIONS

**MODELS 10-12
(Packaged units)**

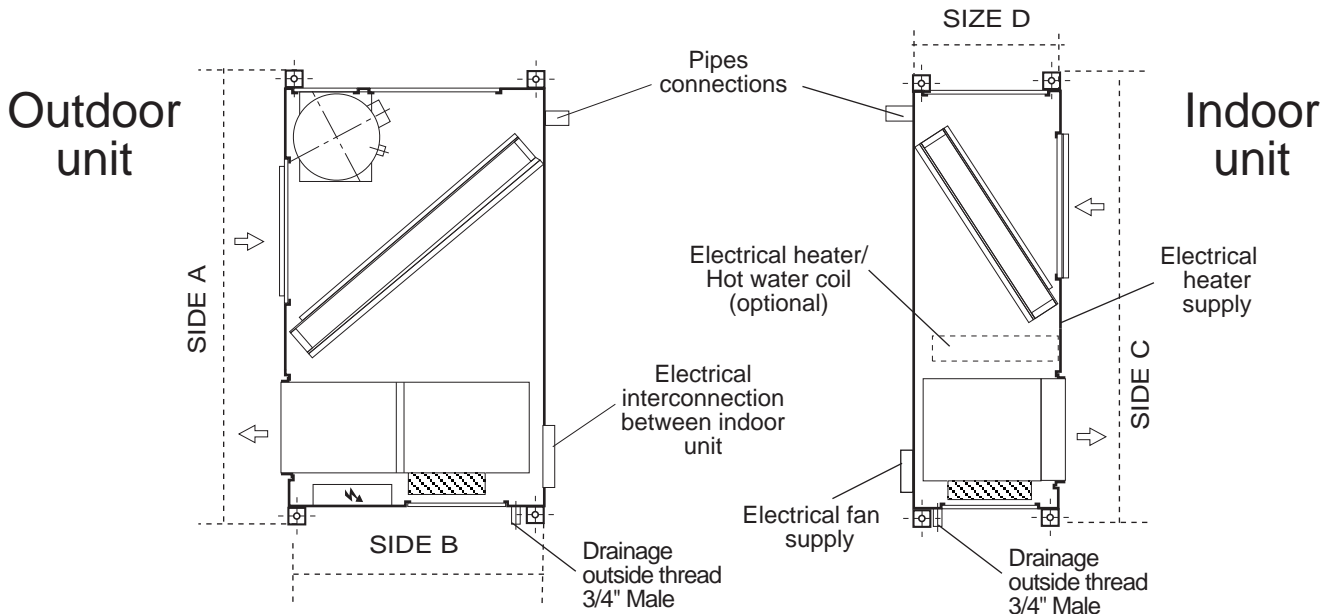


Detail drawing of unit anchor support

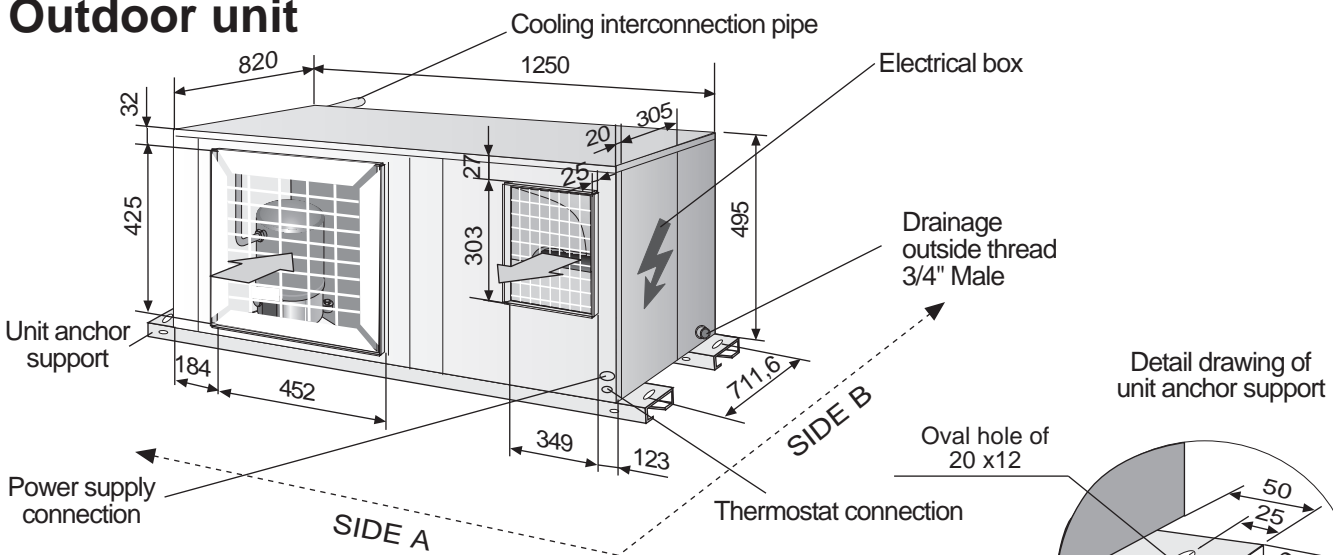


DIMENSIONS SPLIT SYSTEM

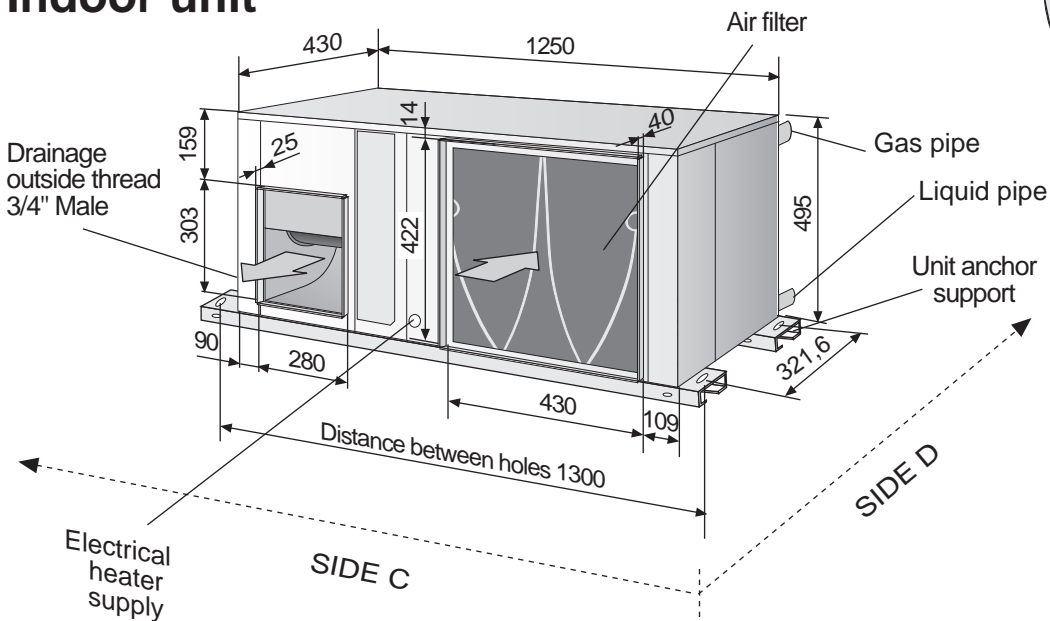
**MODELS 10-12
(Split unit)**



Outdoor unit

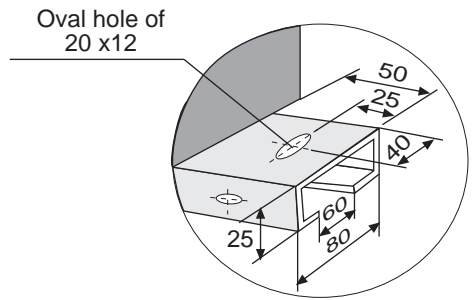
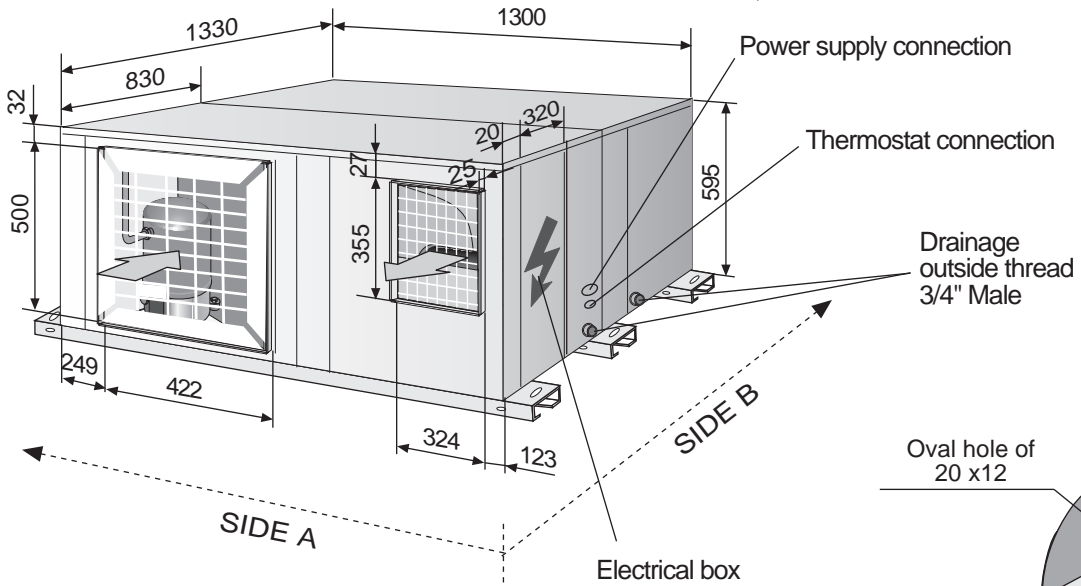
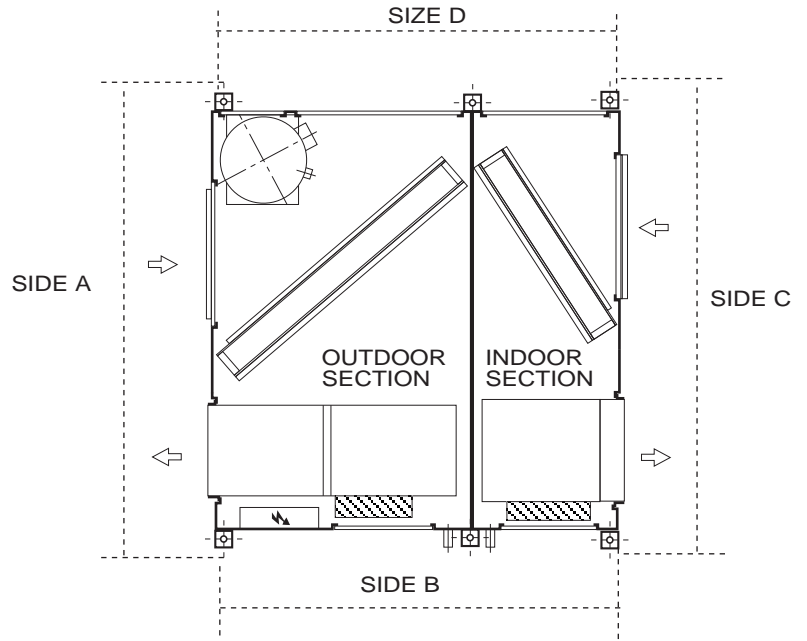


Indoor unit

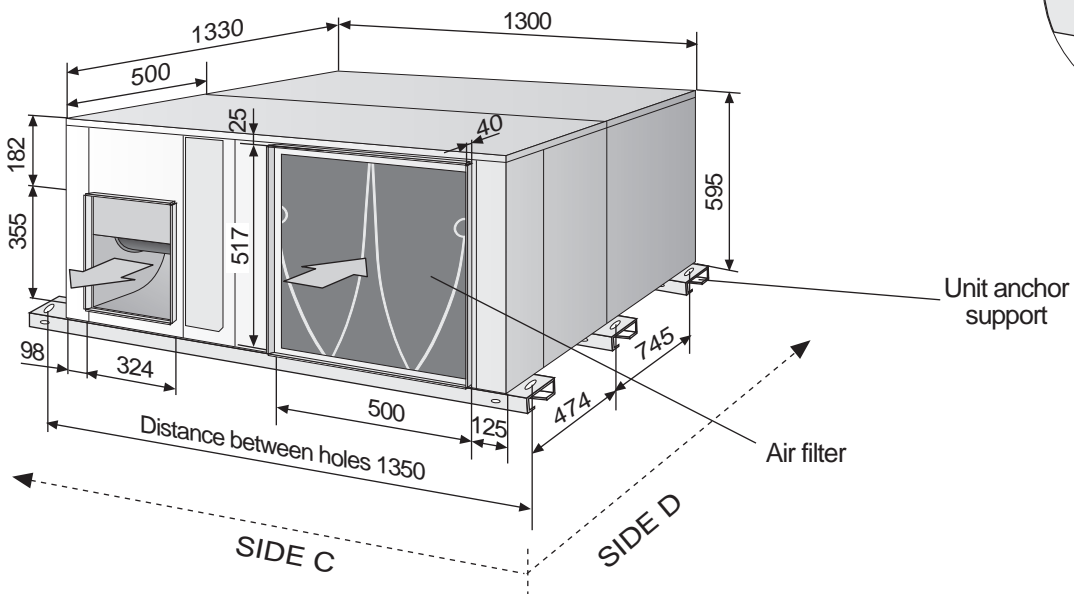


UNITS DIMENSIONS

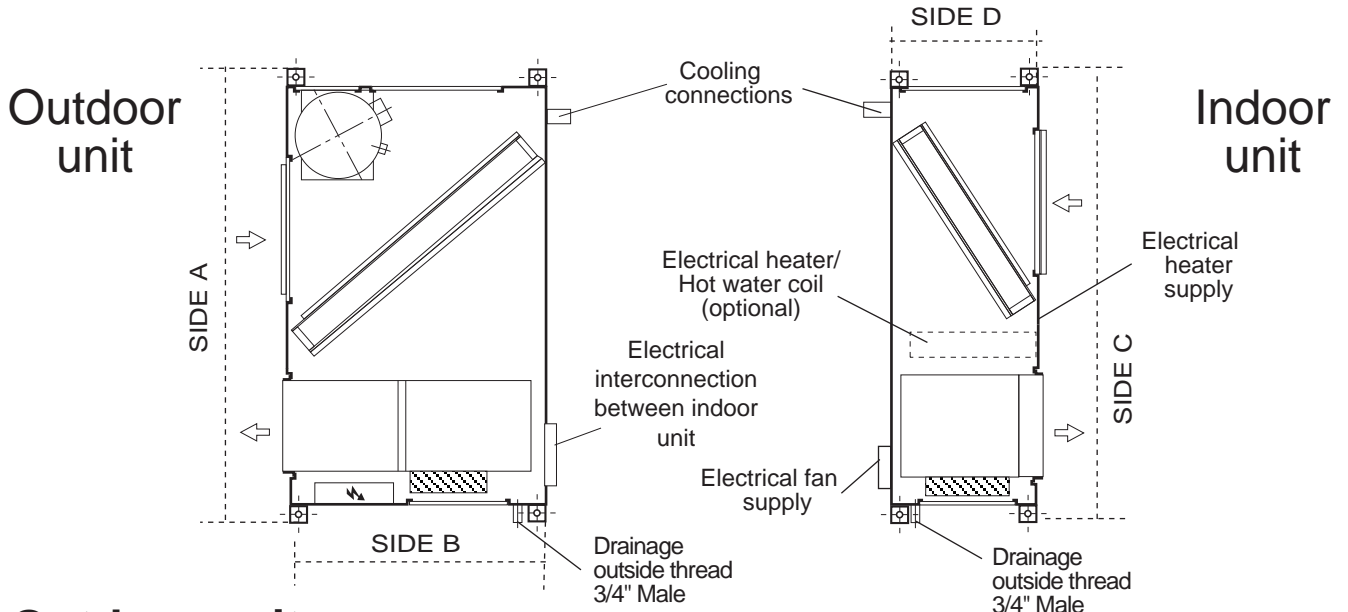
**MODEL 16
(Packaged units)**



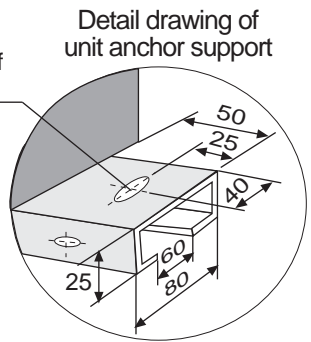
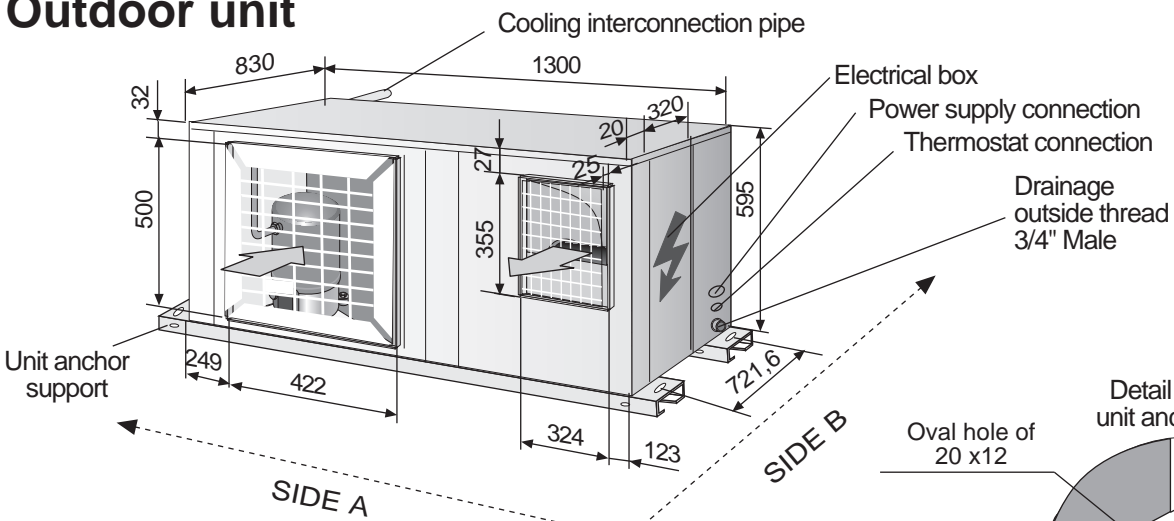
Detail drawing of unit anchor support



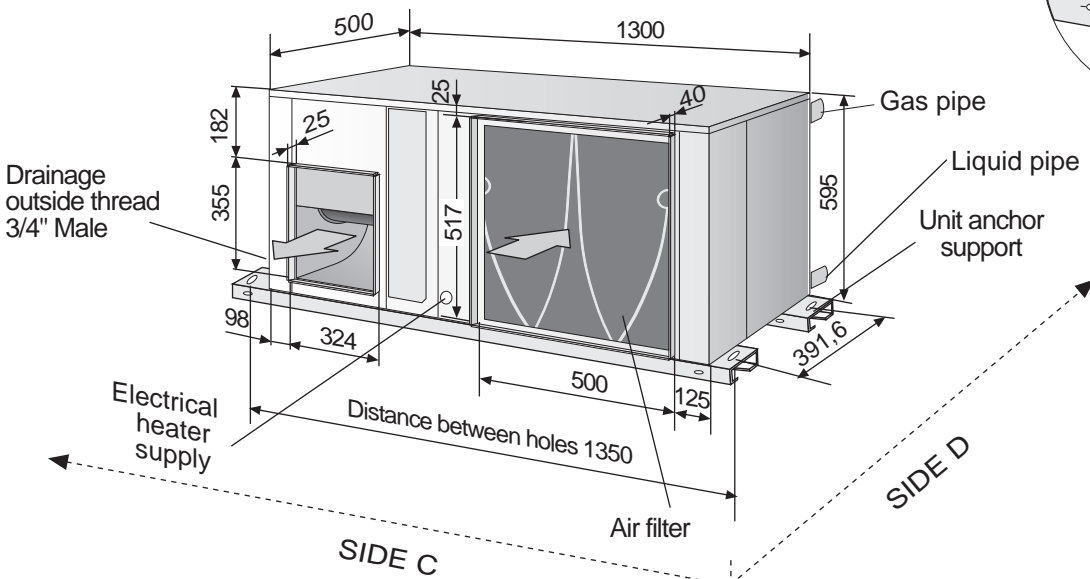
MODEL 16 (Split unit)



Outdoor unit

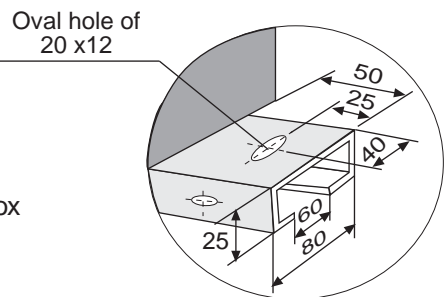
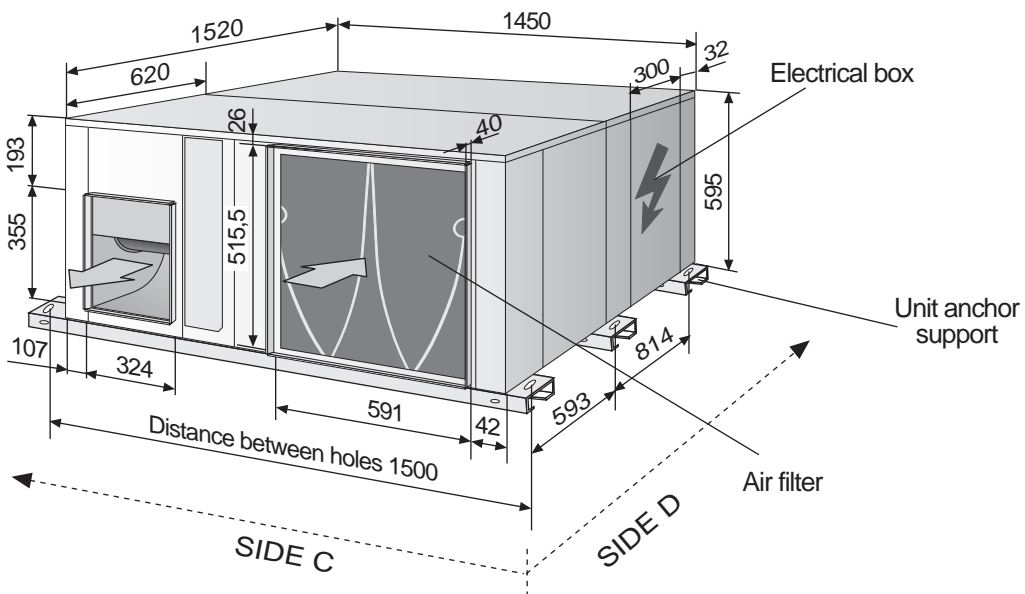
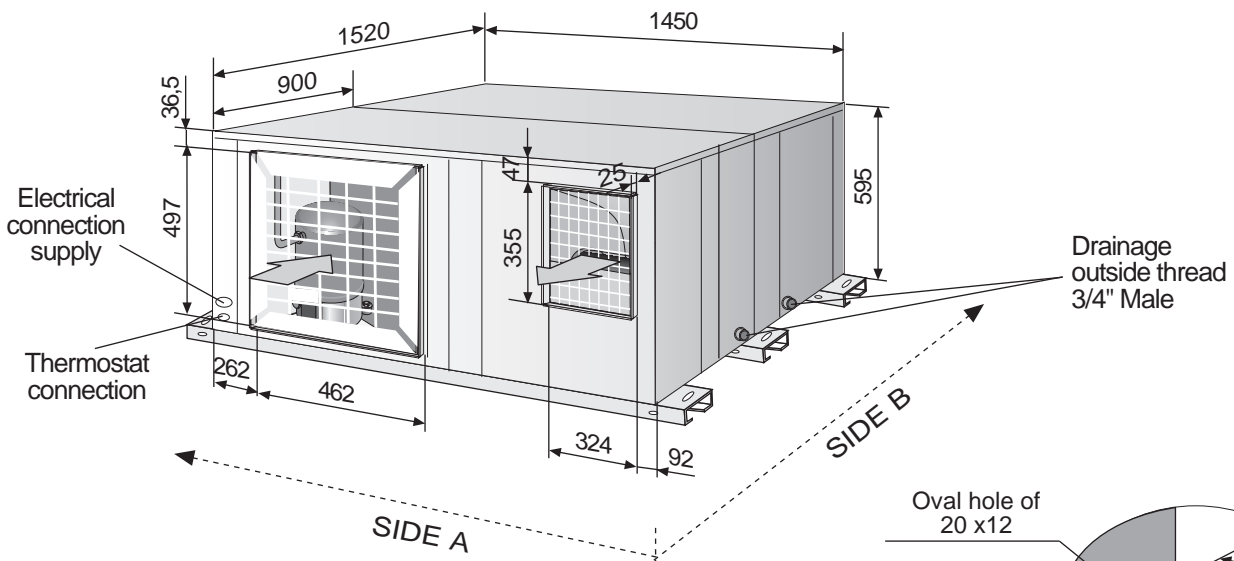
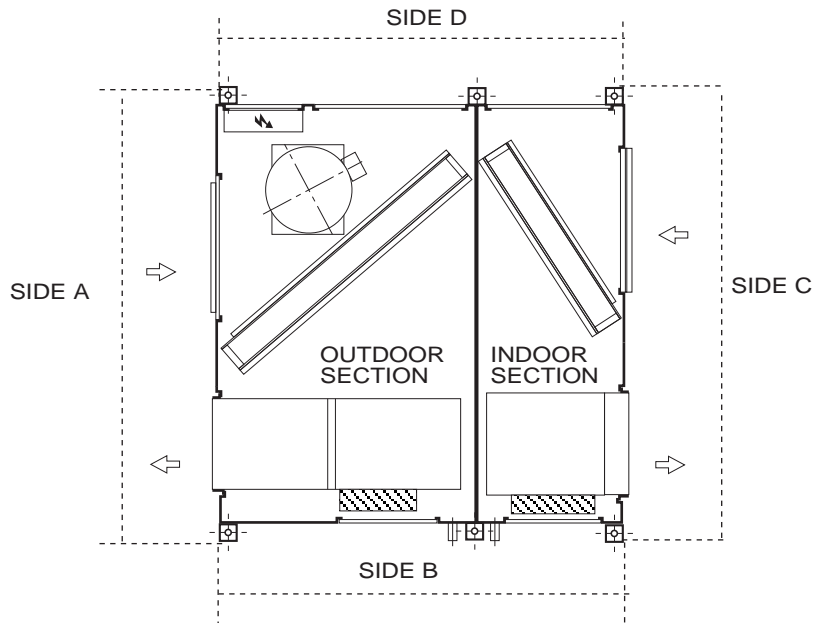


Indoor unit



UNITS DIMENSIONS

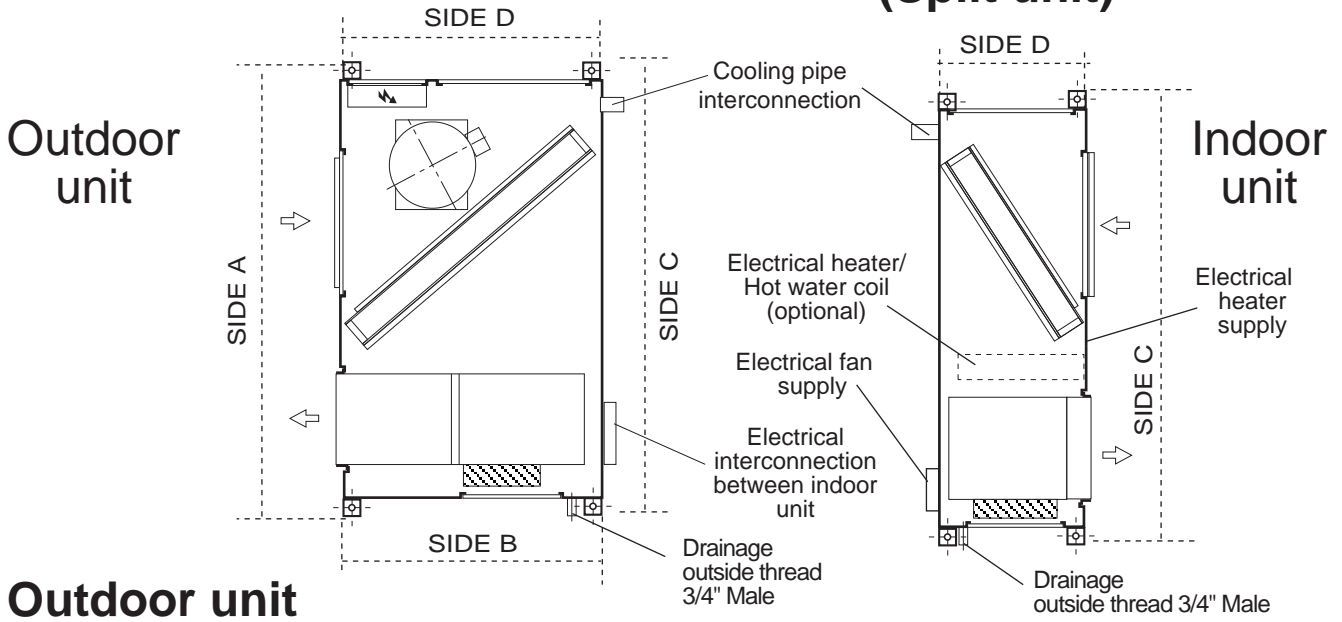
**MODEL 22
(Packaged units)**



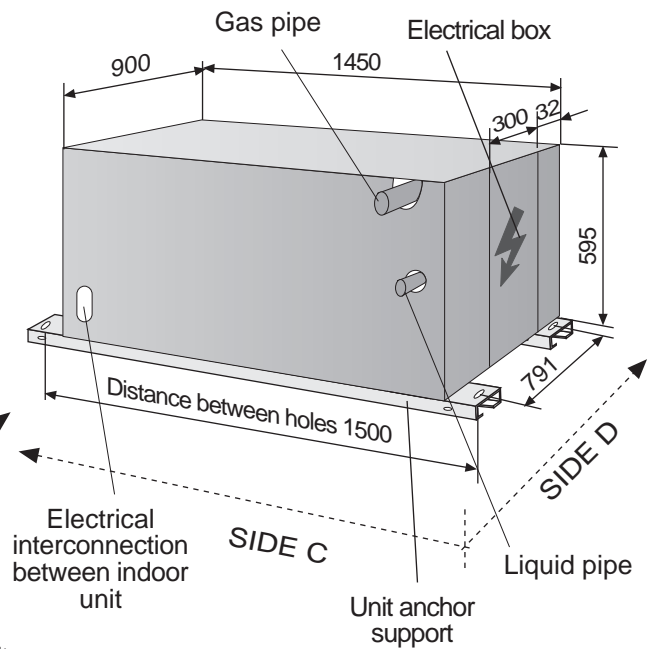
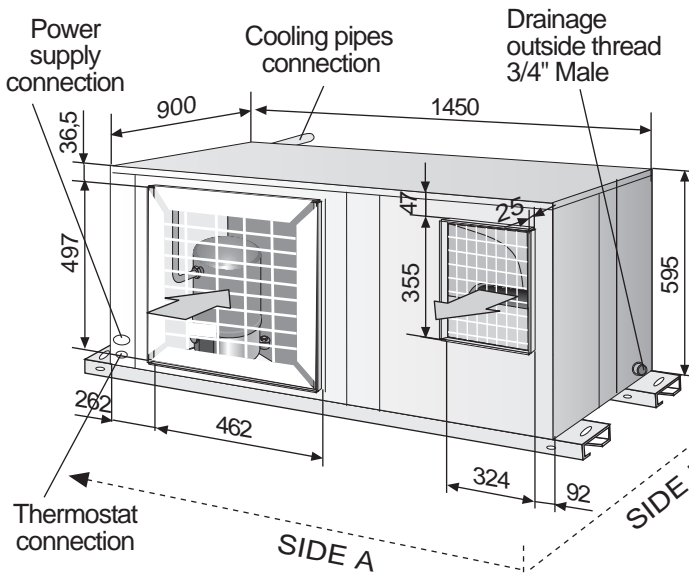
Detail drawing of unit anchor support

DIMENSIONS SPLIT SYSTEM

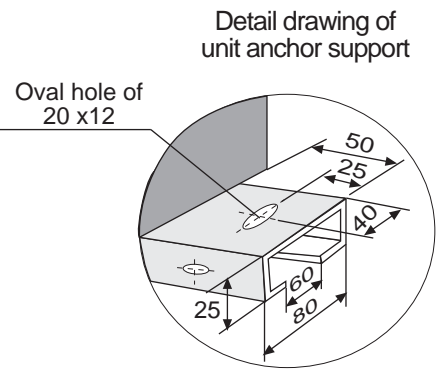
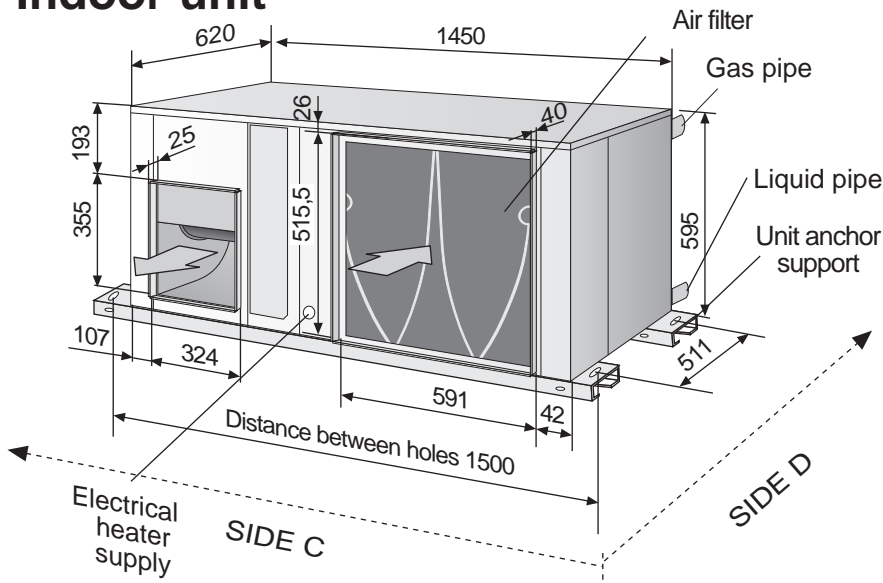
**MODEL 22
(Split unit)**



Outdoor unit

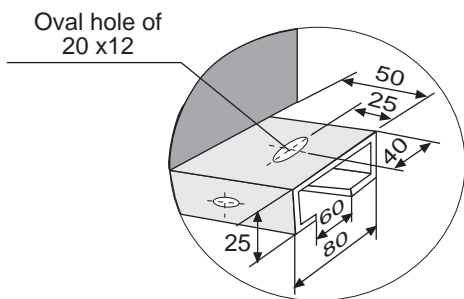
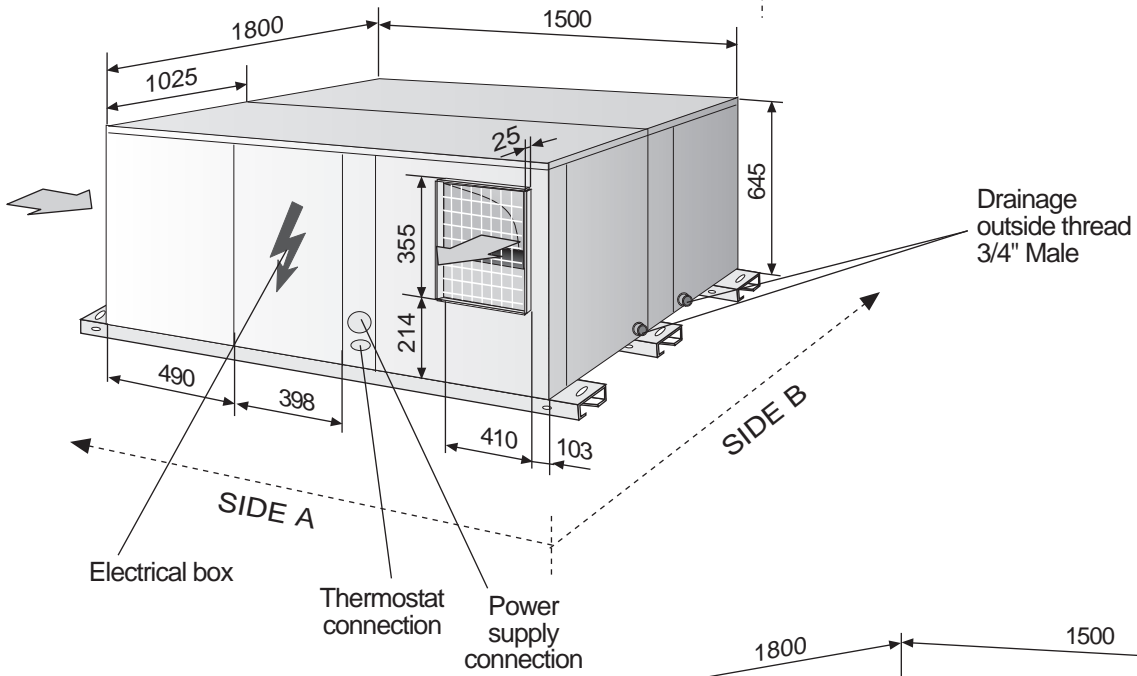
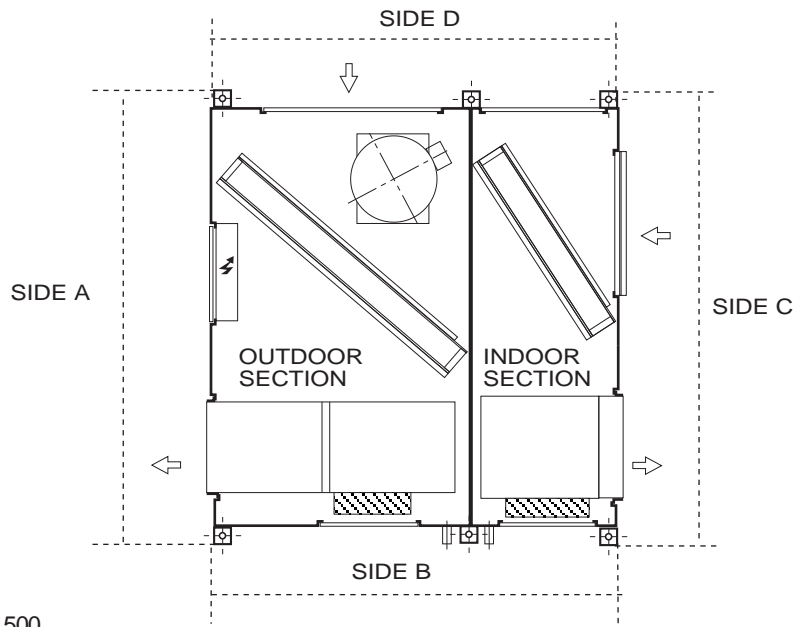


Indoor unit



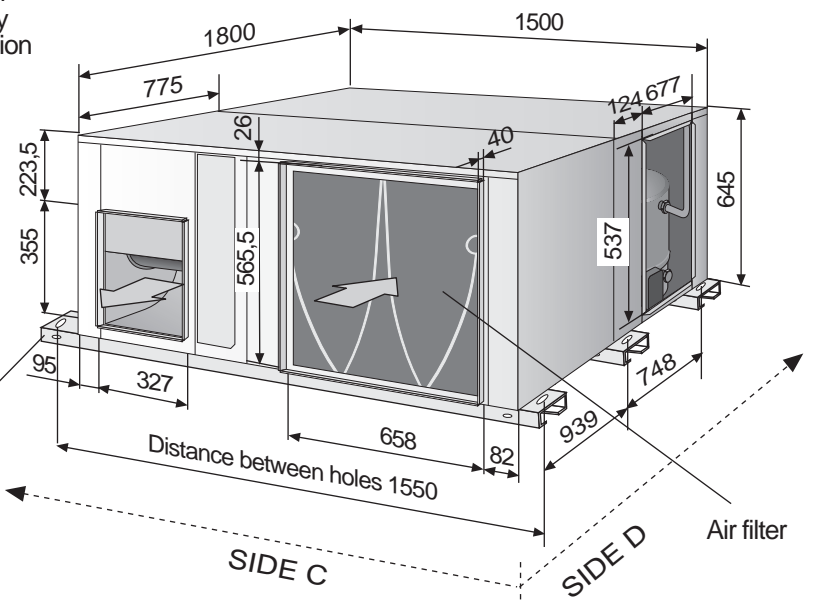
UNITS DIMENSIONS

**MODELS 24-28-30
(Packaged units)**



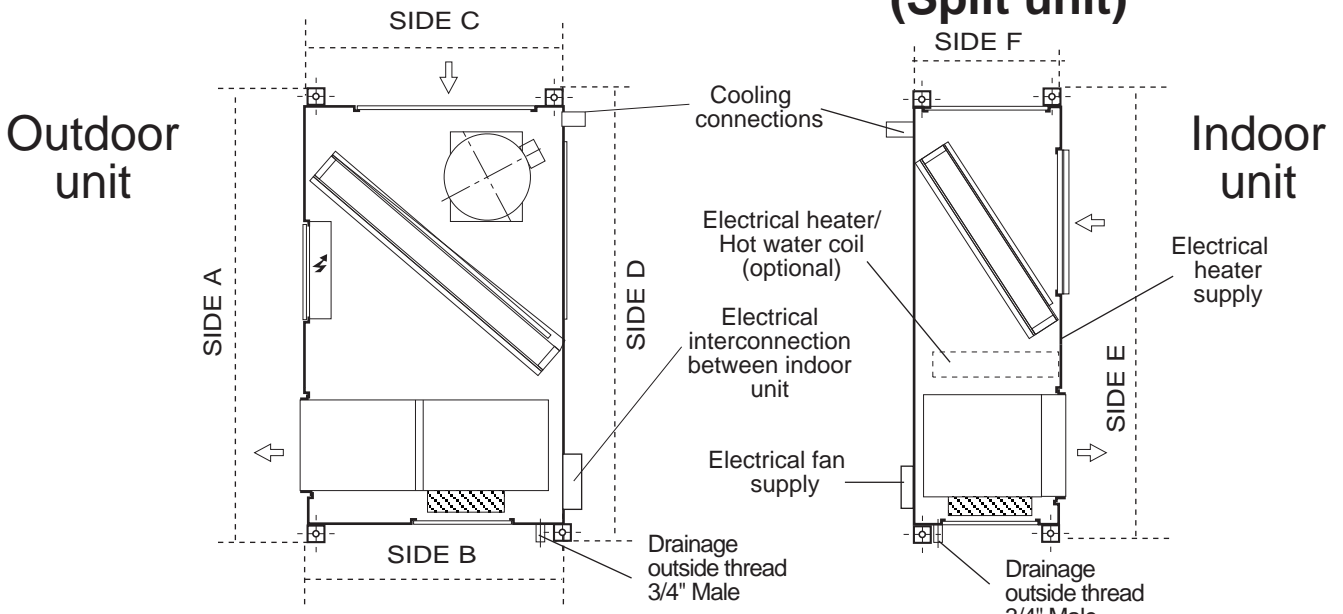
Detail drawing of unit anchor support

Unit anchor support

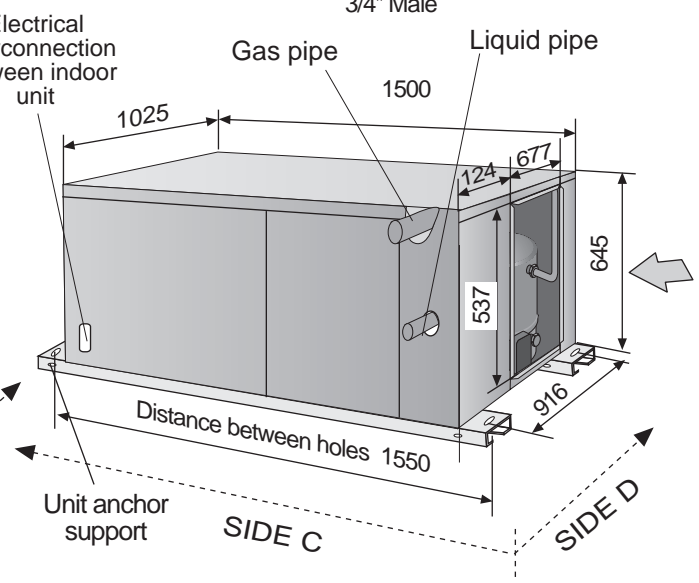
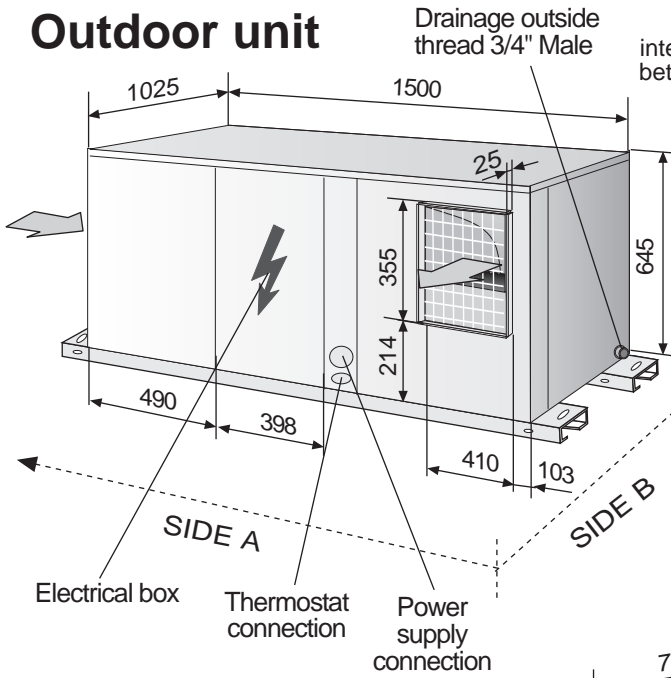


Air filter

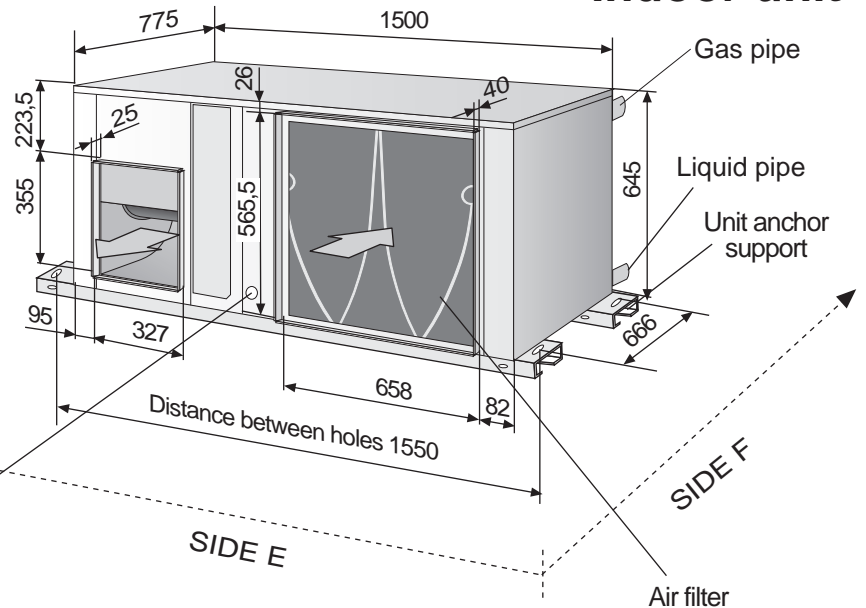
MODELS 24-28-30 (Split unit)



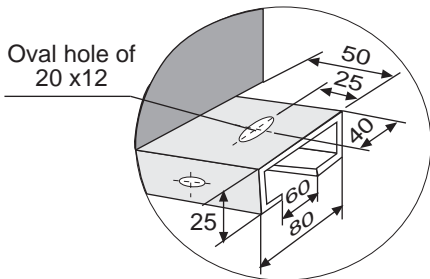
Outdoor unit



Indoor unit



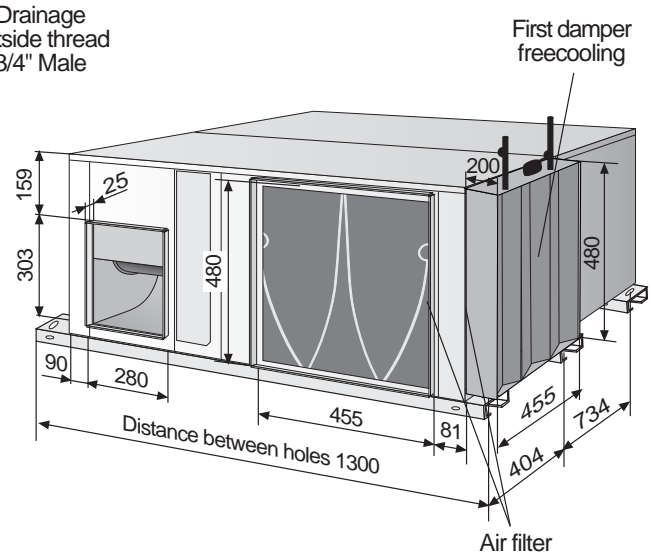
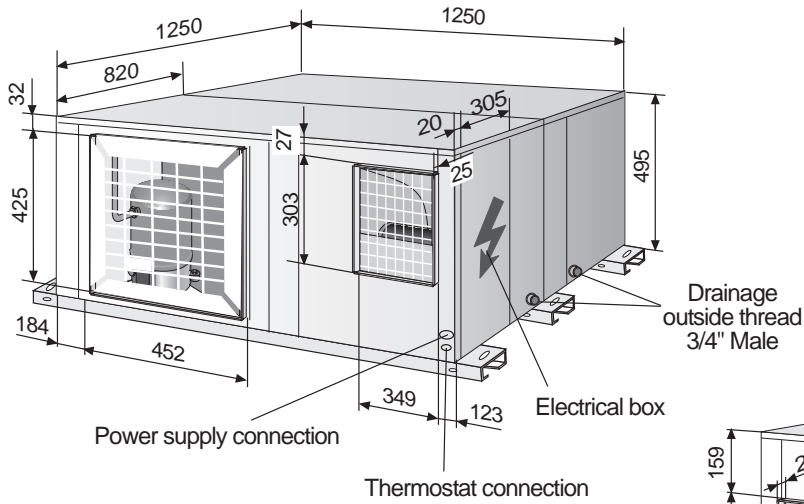
Detail drawing of unit anchor support



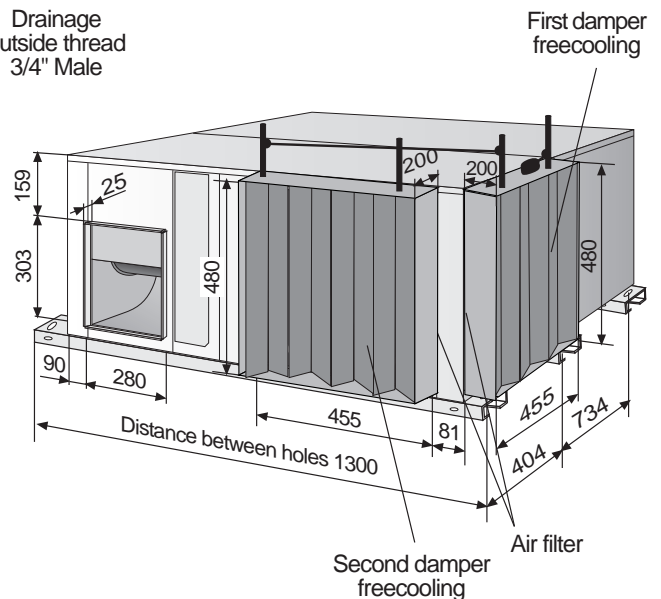
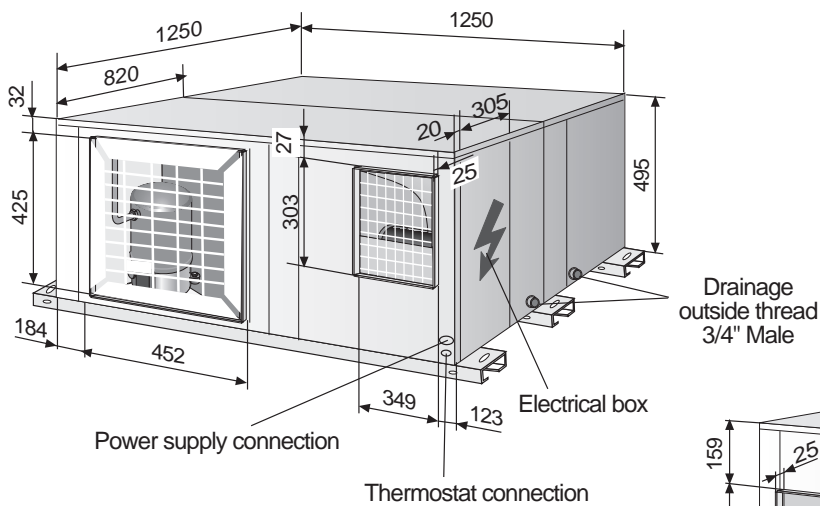
DIMENSIONS FREECOOLING

MODELS 10-12

FREECOOLING 1-DAMPER



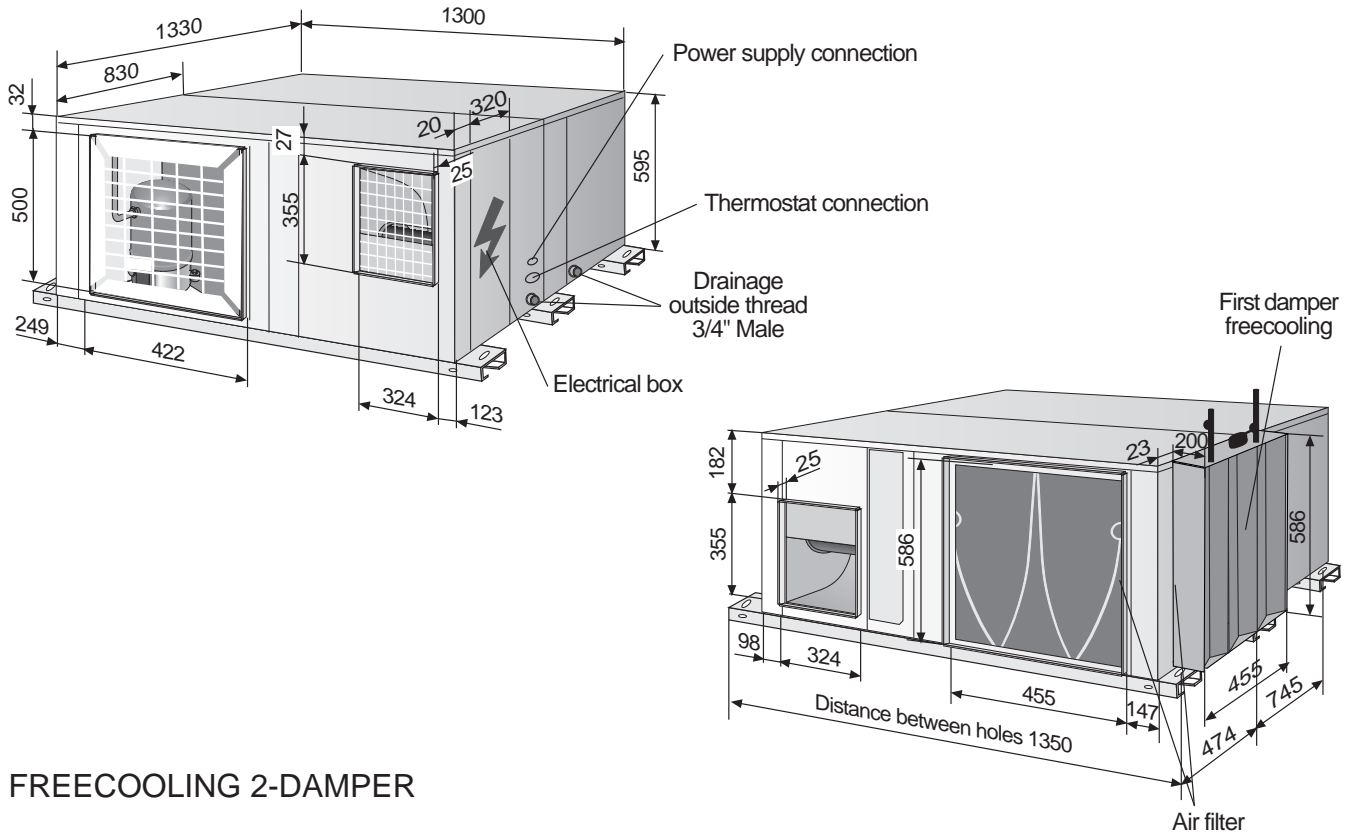
FREECOOLING 2-DAMPER



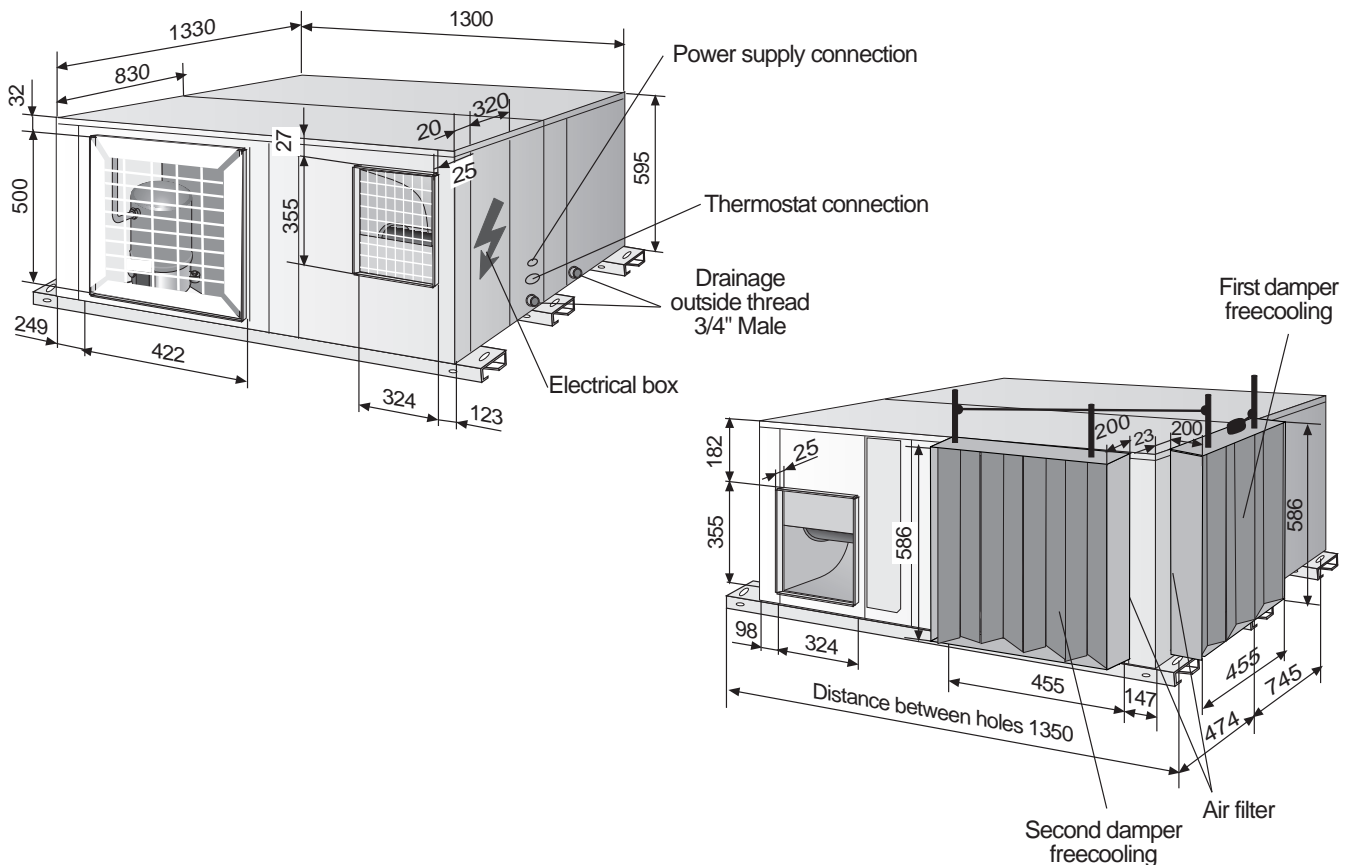
DIMENSIONS FREECOOLING

MODEL 16

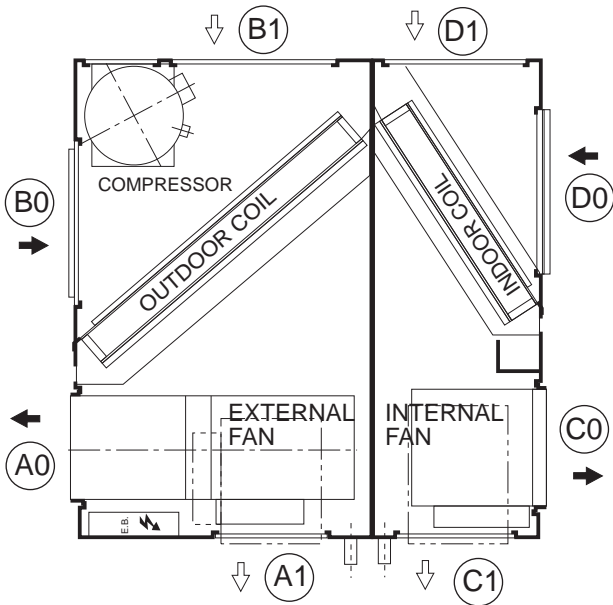
FREECOOLING 1-DAMPER



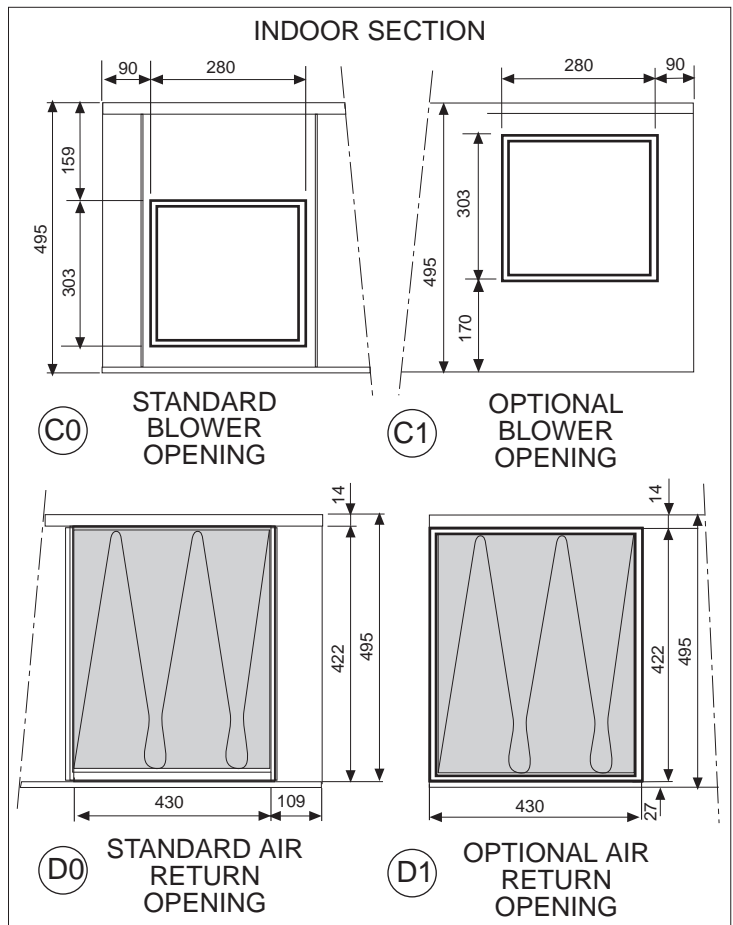
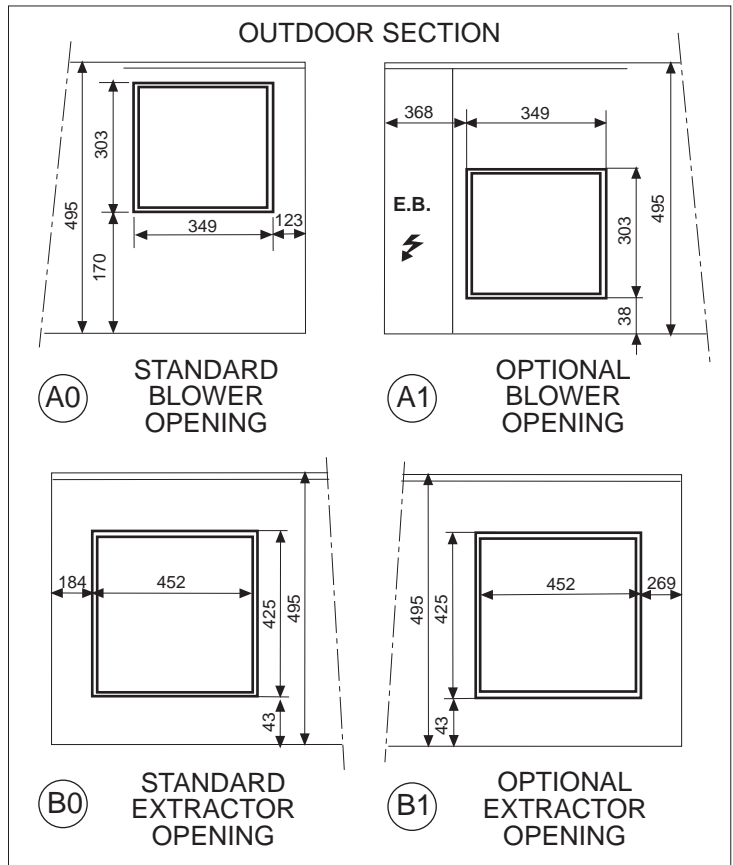
FREECOOLING 2-DAMPER

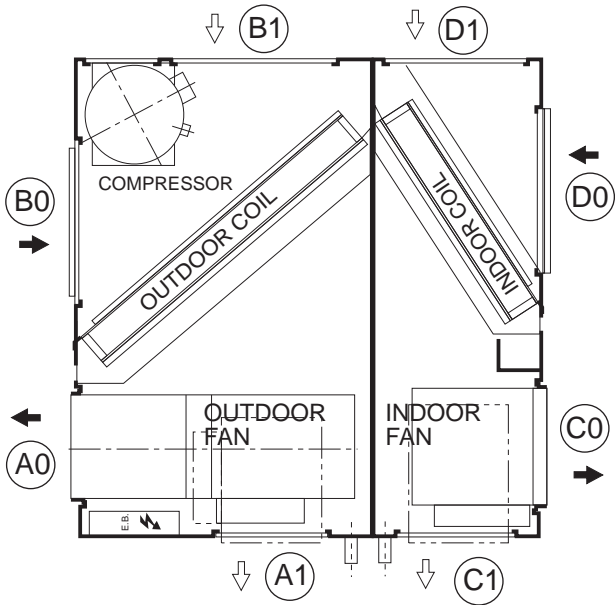


UNIT OPENING SIZES MODELS 10-12

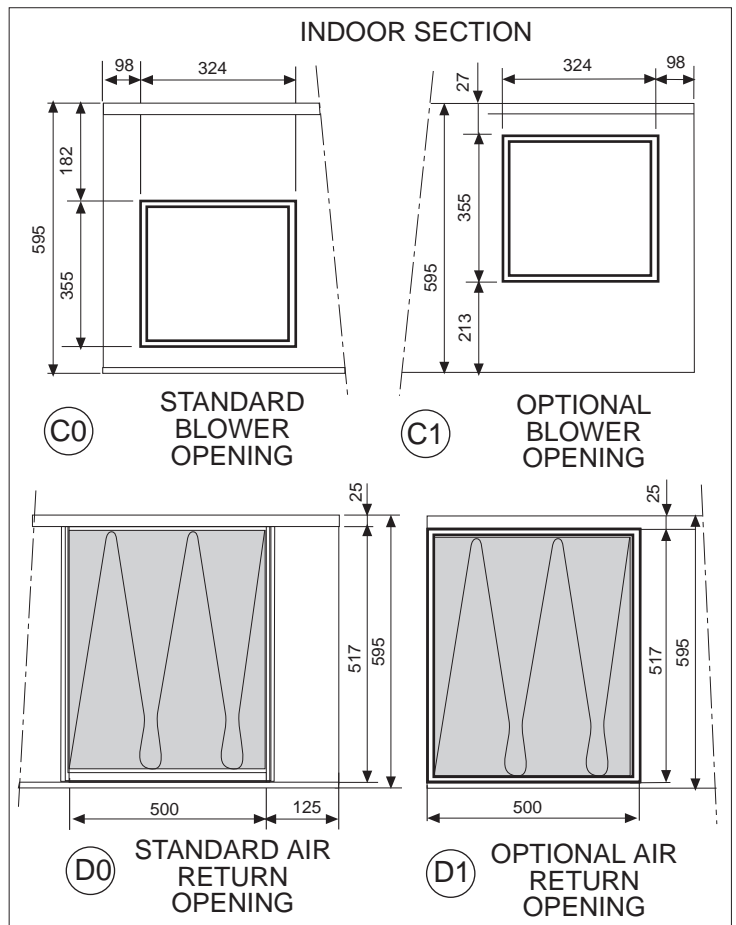
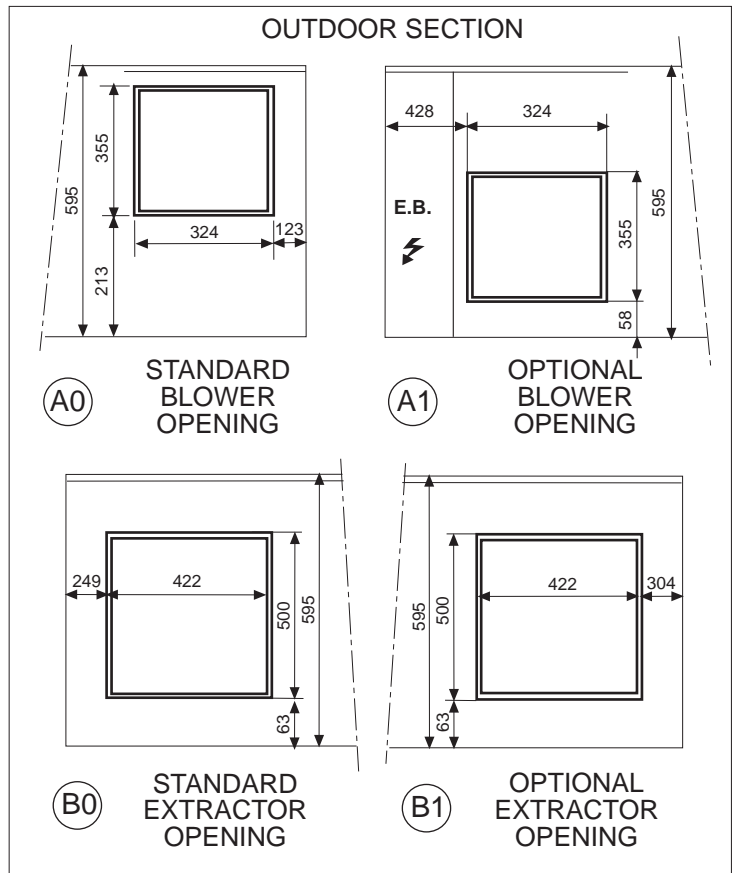


- ← STANDARD EXECUTION
- ⇐ OPTIONAL EXECUTION
- ⚡ ELECTRICAL BOX

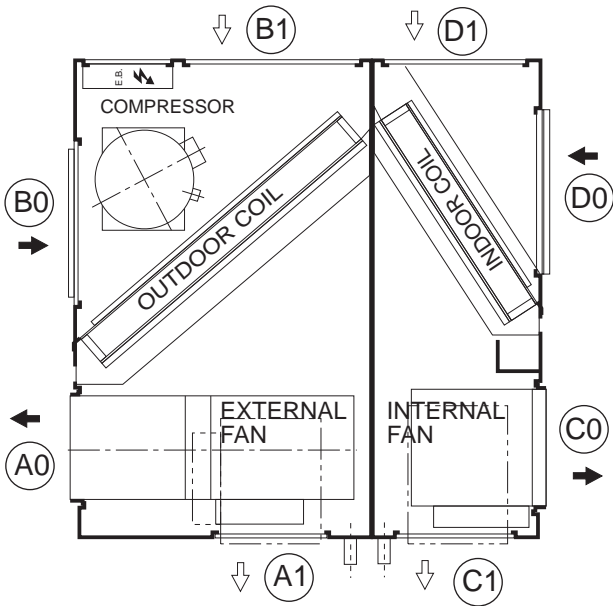




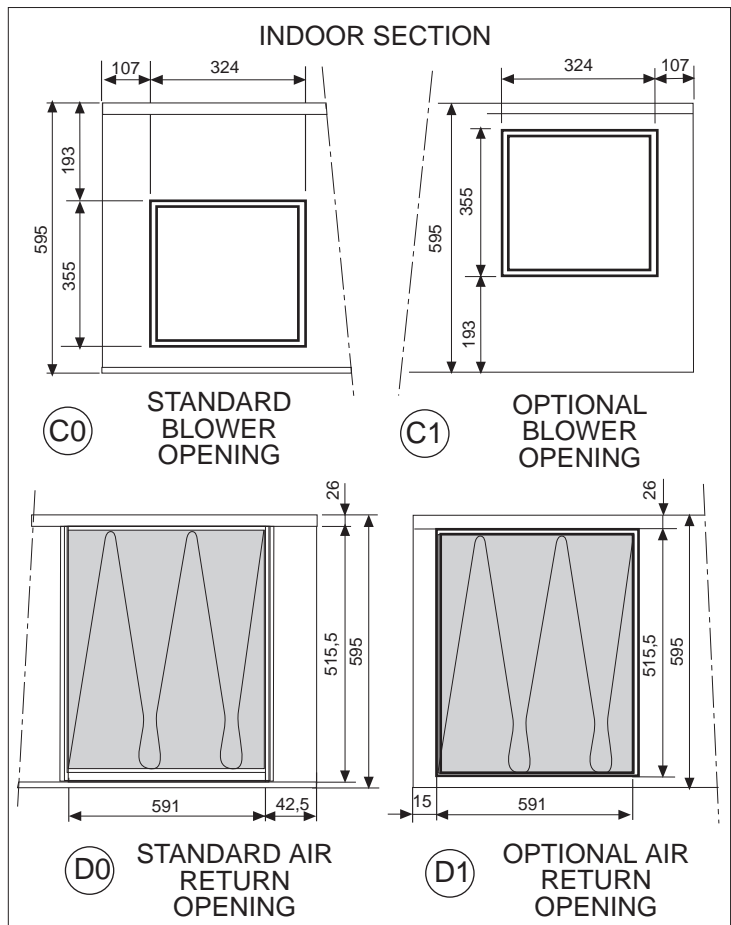
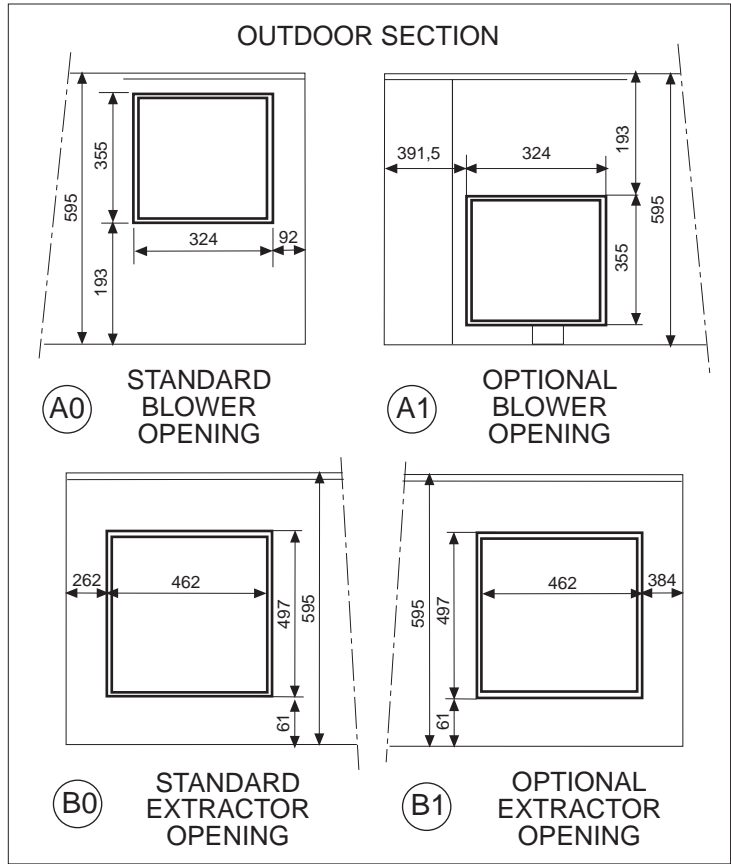
- ← STANDARD CONFIGURATION
- ⇐ OPTIONAL CONFIGURATION
- ⚡ ELECTRICAL BOX



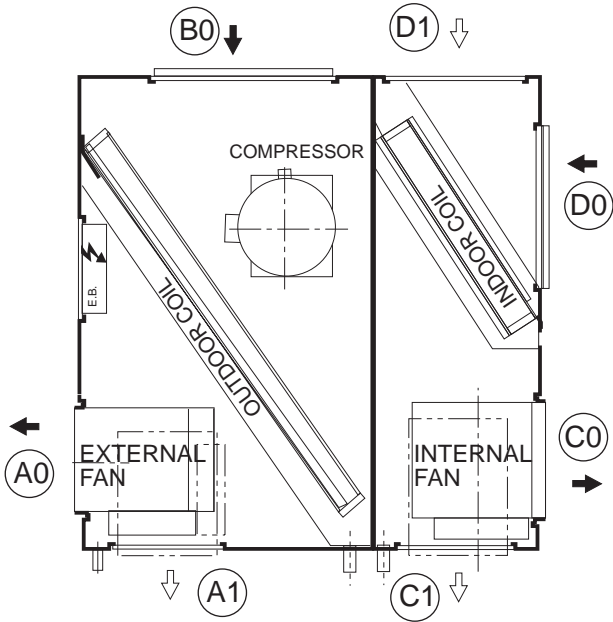
UNIT OPENING SIZES MODEL 22



- ← STANDARD EXECUTION
- ⇐ OPTIONAL EXECUTION
- ⚡ ELECTRICAL BOX

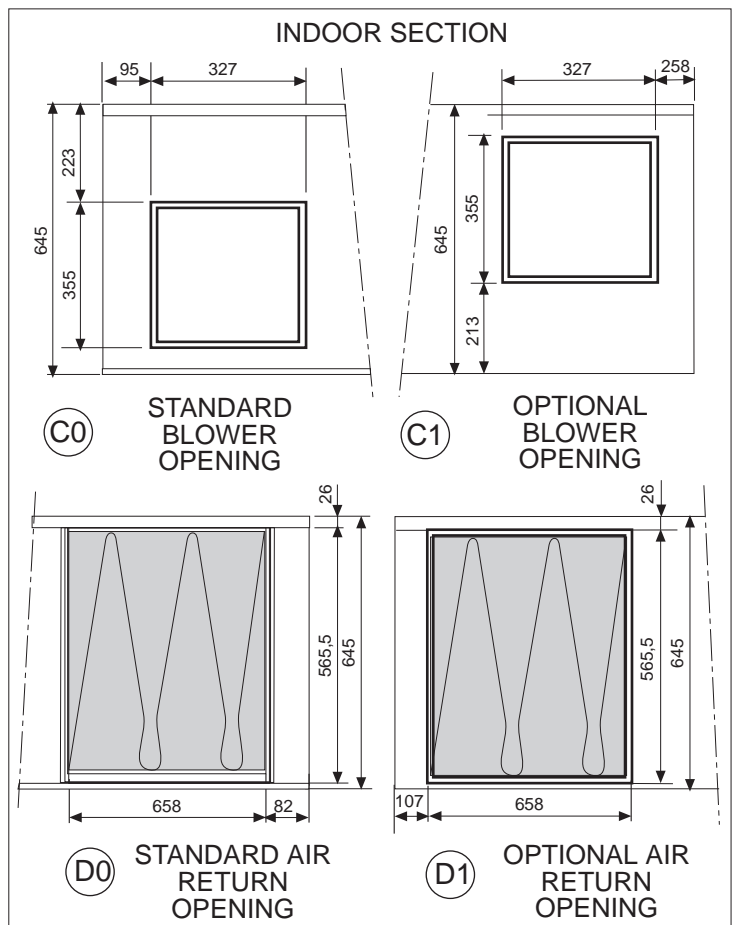
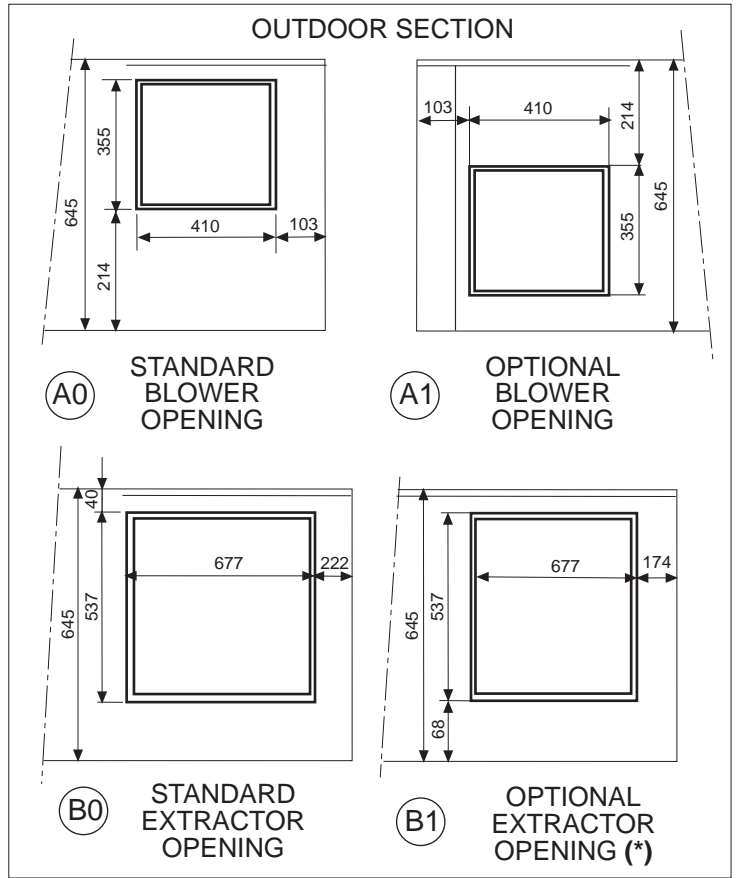
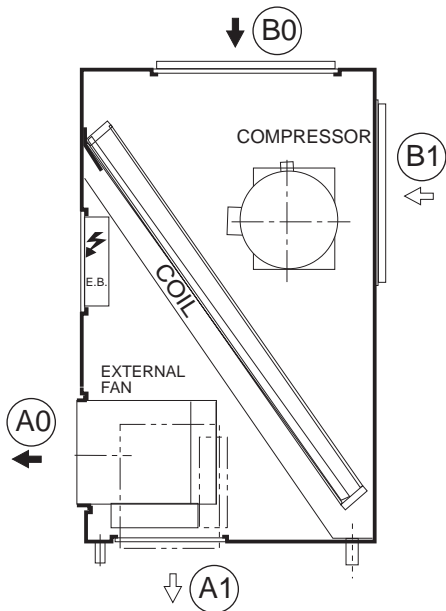


UNIT OPENING SIZES MODELS 24-28-30



- ← STANDARD EXECUTION
- ⇐ OPTIONAL EXECUTION
- ⚡ ELECTRICAL BOX

(*) ONLY AVAILABLE WHEN UNIT IS DELIVER ON SPLIT SYSTEM



UNIT INSTALLATION

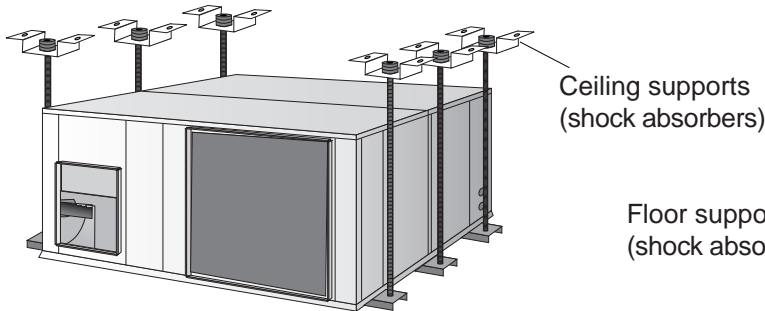
UNIT LOCATION AND WEIGHT DISTRIBUTION

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 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

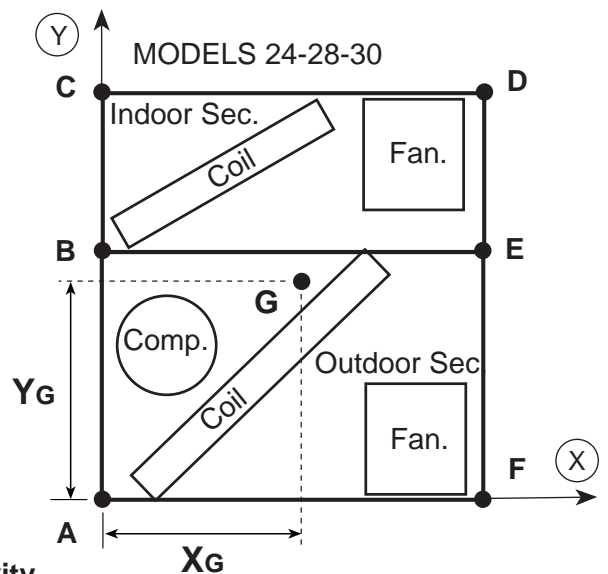
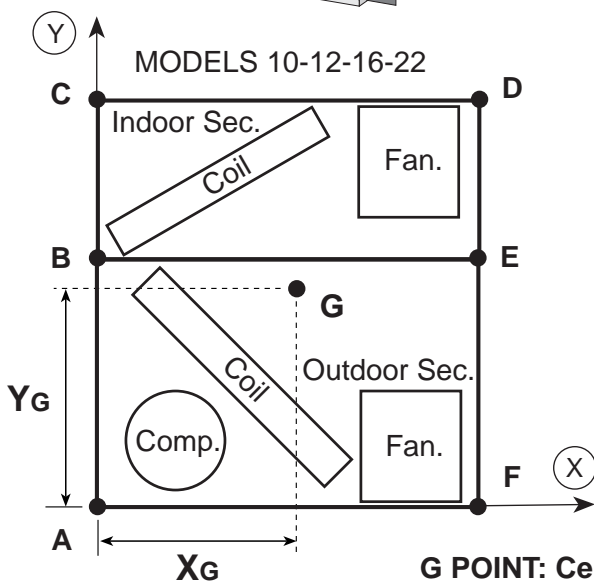
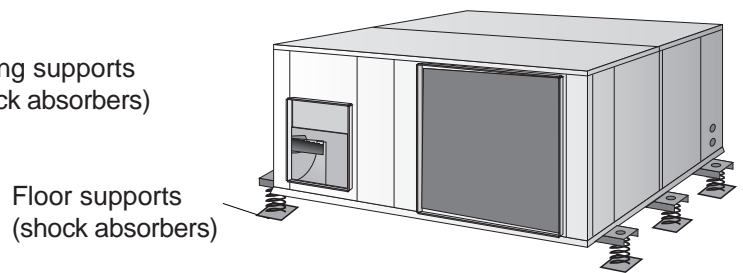


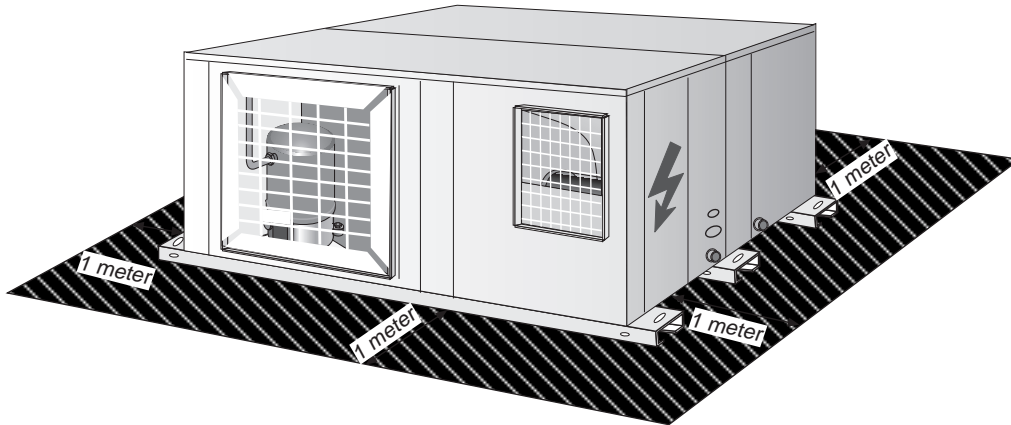
TABLE 1:
WEIGHT DISTRIBUTION
AND CENTRE OF
GRAVITY COORDINATES

Point Model	WEIGHT DISTRIBUTION (Kg)							CENTRE OF GRAVITY COORDINATES (G) (mm.)	
	A	B	C	D	E	F	Total	Xg	Yg
10	35	65	10	20	40	35	205	585	590
12	35	65	15	20	40	35	210	565	615
16	70	60	15	30	80	30	285	630	600
22	80	70	20	40	75	45	330	710	685
24	90	100	15	65	85	55	410	760	815
28	95	110	20	65	85	55	430	715	825
30	95	110	25	70	80	55	435	705	825

UNIT INSTALLATION

FREE SPACE FOR INSTALLATION

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.



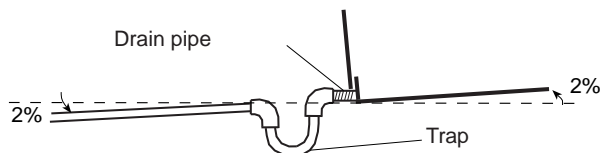
Consult other options for outdoor mounting or changes in position of the air return duct if the unit is to be hung.

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.

DRAINS

All indoor sections of these units (and the outdoors section for the Heat Pump) have a $\frac{3}{4}$ " steel threaded drain pipe welded to the condensation tray.



One PVC drain trap is supplied with the cooling-only units, and two with the heat pump 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 the condensation trays are clean and free from dirt and other debris from the works and that water drains correctly.

PIPE CONNECTIONS

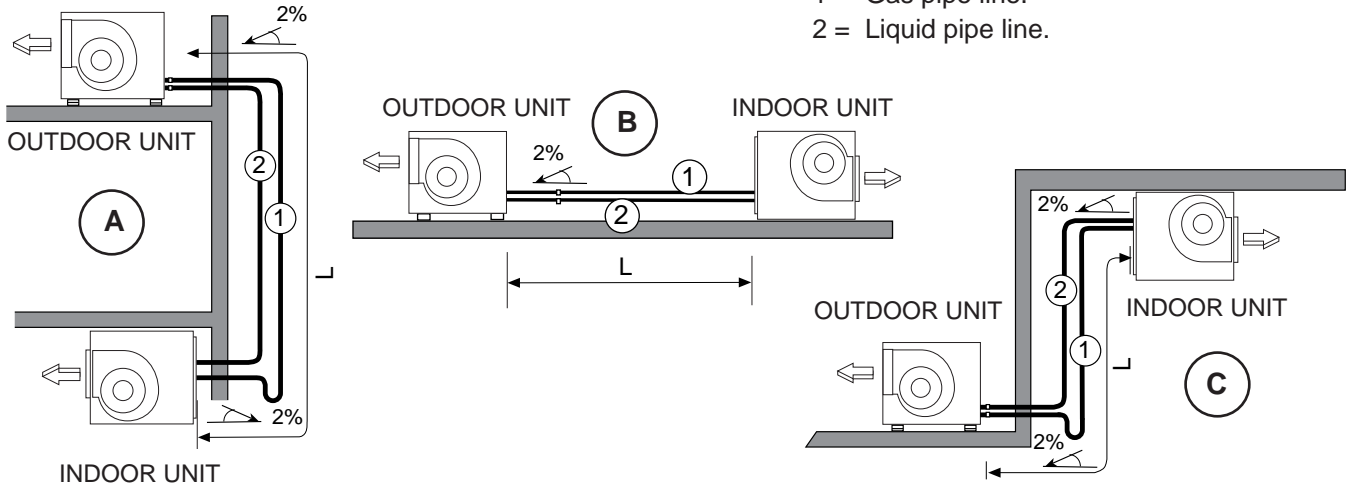
To determine the pipe connections between outdoor and indoor units follow data:

A,B,C : Placement units

L : Total length.

1 = Gas pipe line.

2 = Liquid pipe line.




PLACEMENT A : In gas pipe line is ① necessary to install on vertical base a trap as well as a trap in the upper base each 8m. The minimum speed suction must be below 6m/s.

PLACEMENT B : Do the cooling line pipe inclination to the outdoor unit. Pay attention in distance of more than 10m and avoid collapse on pipe lines installation.

PLACEMENT C : It is necessary to install on the base pipe a vertical trap. It is not necessary intermediate trap.

TABLE 2: SELECTION ON PIPE LINES

PIPES LINE			UNIT - MODEL						
			10	12	16	22	24	28	30
Total line length	0 to 10 m.	∅ Liquid	3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"
		∅ Gas	3/4"	3/4"	7/8"	7/8"	11/8"	11/8"	11/8"
	10 to 30 m.	∅ Liquid	3/8"	3/8"	5/8"	5/8"	5/8"	5/8"	3/4"
		∅ Gas	7/8"	7/8"	7/8"	11/8"	11/8"	11/8"	13/8"
	30 to 50 m. 	∅ Liquid	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	3/4"
		∅ Gas	7/8"	7/8"	11/8"	11/8"	13/8"	13/8"	13/8"
Unit connections	∅ Liquid	3/8"	3/8"	1/2"	5/8"	5/8"	5/8"	5/8"	
	∅ Gas	3/4"	3/4"	7/8"	7/8"	11/8"	11/8"	11/8"	
Maximum vertical line length (m.)			15	15	15	15	15	15	15
Maximum number of bends			12	12	12	12	12	12	12

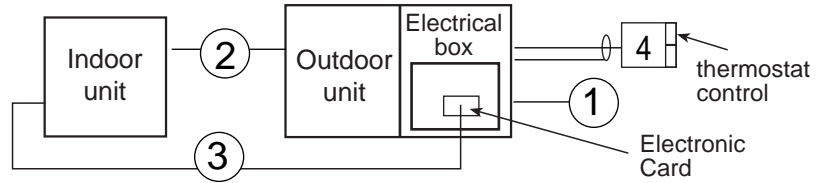
- IN EACH CASE THE GAS PIPE MUST BE ISOLATED.
- THE HORIZONTAL PIPE MUST HAVE AN INCLINATION OF 2 % TO THE OUTDOOR UNIT.
- THE MAXIMUM SPEED ON LINE CAN BE SUPERIOR OF 15m/seg.

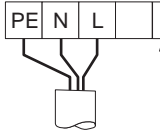


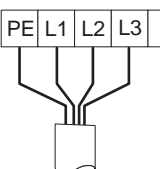
Between length of 30 and 50m superior you have to make a recalculation according to our technical commercial department or distribution itself to maintain certain aspects how to make the installation (additional charge of oil, solenoid valves etc...)

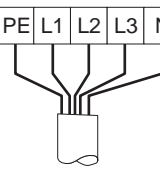
ELECTRICAL CONNECTION

- ① Electrical supply.
- ② Connection indoor / outdoor unit.
- ③ Electrical heater power supply.
- ④ Connection thermostat control.



POWER SUPPLY 230V SINGLE-PHASE UNITS  1N ~ 230V - 50 Hz + PE	UNIT MODEL	Nr. OF CABLES x SECTION (mm ²)				
		① Power supply WITHOUT electrical heater.	① Power supply WITH electrical heater.	② Connection outdoor-indoor unit WITHOUT electrical heater.	③ Electrical heater power supply	④ Shielded Cable
	10	3 x 4	3 x 16	5 x 1,5	3 x 4 + 2 x 1	2 x 1

POWER SUPPLY 230V THREE-PHASE UNITS  3 ~ 230V - 50 Hz + PE	UNIT MODEL	Nr. OF CABLES x SECTION (mm ²)				
		① Power supply WITHOUT electrical heater.	① Power supply WITH electrical heater.	② Connection outdoor-indoor unit WITHOUT electrical heater.	③ Electrical heater power supply	④ Shielded Cable
	10	4 x 4	4 x 10	5 x 1,5	4 x 4 + 2 x 1	2 x 1
	12	4 x 4	4 x 10	5 x 1,5	4 x 4 + 2 x 1	2 x 1
	16	4 x 6	4 x 16	4 x 2,5 + 2 x 1	4 x 4 + 2 x 1	2 x 1
	22	4 x 10	4 x 16	4 x 2,5 + 2 x 1	4 x 4 + 2 x 1	2 x 1
	24	4 x 10	4 x 25	4 x 2,5 + 2 x 1	4 x 4 + 2 x 1	2 x 1
	28	4 x 10	4 x 25	4 x 2,5 + 2 x 1	4 x 4 + 2 x 1	2 x 1
	30	4 x 16	4 x 25	4 x 2,5 + 2 x 1	4 x 4 + 2 x 1	2 x 1

POWER SUPPLY 400V THREE-PHASE UNITS  3N ~ 400V - 50 Hz + PE	UNIT MODEL	Nr. OF CABLES x SECTION (mm ²)				
		① Power supply WITHOUT electrical heater.	① Power supply WITH electrical heater.	② Connection outdoor-indoor unit WITHOUT electrical heater.	③ Electrical heater power supply	④ Shielded Cable
	10	5 x 2,5	5 x 4	5 x 1,5	4 x 2,5 + 2 x 1	2 x 1
	12	5 x 2,5	5 x 4	5 x 1,5	4 x 2,5 + 2 x 1	2 x 1
	16	5 x 4	5 x 6	4 x 1,5 + 2 x 1	4 x 2,5 + 2 x 1	2 x 1
	22	5 x 4	5 x 10	4 x 1,5 + 2 x 1	4 x 2,5 + 2 x 1	2 x 1
	24	5 x 4	5 x 10	4 x 1,5 + 2 x 1	4 x 2,5 + 2 x 1	2 x 1
	28	5 x 4	5 x 10	4 x 1,5 + 2 x 1	4 x 2,5 + 2 x 1	2 x 1
	30	5 x 6	5 x 10	4 x 1,5 + 2 x 1	4 x 2,5 + 2 x 1	2 x 1

The sections have been calculated for a length no longer than 50m and a voltage drop of 10V.

VOLTAGE OPERATING LIMITS

MODELS	VOLTAGE	LIMIT
10	230 V-1Ph-50Hz	198-264 V -1Ph- 50Hz
10-12-16-22	230 V-3Ph-50Hz	180-242 V -3Ph- 50Hz
	400 V-3Ph-50Hz	342-462 V -3Ph- 50Hz
24-28-30	230 V-3Ph-50Hz	198-264 V -3Ph- 50Hz
	400 V-3Ph-50Hz	342-462 V -3Ph- 50Hz

OPERATING LIMITS

OPERATING LIMITS FOR (COOLING ONLY) UNITS

		MAXIMUM TEMPERATURES	MINIMUM TEMPERATURES
COOLING CYCLE OPERATION	INDOOR TEMPERATURE	32°C DB / 23°C WB	21°C DB / 15°C WB
	OUTDOOR TEMPERATURE	DEPENDING ON MODEL (TABLE 1)	0°C (MODELS 22/24/28/30) 19°C (MODELS 10/12/16) (*) -10°C(**)

(*) With condensation pressure control (optional), 0°C minimum outdoor operating temperature.

(**) With kit got gas bypass valve.

OPERATING LIMITS FOR (HEATING PUMP) UNITS

		MAXIMUM TEMPERATURES	MINIMUM TEMPERATURES
COOLING CYCLE OPERATION	INDOOR TEMPERATURE	32°C DB / 23°C WB	21°C DB / 15°C WB
	OUTDOOR TEMPERATURE	DEPENDING ON MODEL (TABLE 1)	0°C (MODELS 22/24/28/30) 19°C (MODELS 10/12/16) (*) -10°C(**)
HEATING CYCLE OPERATION	INDOOR TEMPERATURE	27°C DB	15°C DB
	OUTDOOR TEMPERATURE	24°C DB / 18°C WB	-10°C DB / -11°C WB

(*) With condensation pressure control (optional), 0°C minimum outdoor operating temperature.

(**) With kit got gas bypass valve.

DB.- Dry Bulb Temperature
WB.- Wet Bulb Temperature

TABLE 1- COOLING CYCLE MAXIMUM OUTDOOR OPERATING TEMPERATURES

MODELS WITH REFRIGERANT R-407C

MODELS	10	12	16	22	24	28	30
Rated outdoor flow	45	43	44	45	46	42	41
Minimum outdoor flow	43	43	41	41	42	39	38

MODELS WITH REFRIGERANT R-22

MODELS	10	12	16	22	24	28	30
Rated outdoor flow	48	48	47	48	48	46	44
Minimum outdoor flow	46	45	45	46	44	42	40

OPTIONS

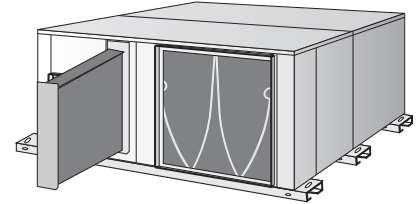
ELECTRIC HEATER

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.

MODELS LFXO		10		12-16-22		24-28-30	
POWER kW		6	9	6	9	7,5	12
MAXIMUM CURRENT (A)	230 / I	26,1	----	----	----	----	----
	230 / III	15,1	22,7	15,1	22,7	18,9	30,2
	400 / III	8,7	13,1	8,7	13,1	10,9	17,4
WEIGHTS Kg (*)		7		7		8	
STAGES		1		1		1	

(*) Add to the unit's weight.



HOT WATER COIL

It is based on a refrigerating coil made of copper tubing with aluminum swirl fins with water inlet and outlet connections.

It is supplied mounted inside the unit as picture shows.

MODELS FLC/FLH INDOOR UNIT	DIFFERENCE IN TEMPERATURES BETWEEN HOT WATER INTAKE AND THE AIR WHICH ENTERS THE COIL			WATER FLOW L/H	WATER COIL PRESSURE DROP kPa	AIR PRESSURE DROP Pa nominal-minimum air flow	Nr ROWS	WEIGHT Kg	WATER OUTLET DIAMETER Inches
	50°C	60°C	70°C						
10-12	CAPACITY IN W			500	0,5	35-30	2	4	3/4"
	9000	11000	12800						
16	CAPACITY IN W			1000	1,5	35-30	2	5	3/4"
	14500	17500	20400						
22	CAPACITY IN W			1000	1,5	30-25	2	6	3/4"
	15000	18000	21000						
24-28-30	CAPACITY IN W			1500	3	25-20	2	7	3/4"
	24500	29500	34400						

PROTECTION AGAINST FREEZING:

- Use glycol water. GLYCOL IS THE ONLY EFFECTIVE PROTECTION AGAINST FREEZING.
- Regulation components should be used and in addition security components if they are needed.
- Drain the installation. You must ensure that the manual or automatic air vents have been installed on all high points in the system. In order to drain the system check that all the drain cocks have been installed on all low points of the system.



A HEATING COIL FROZEN DUE TO LOW AMBIENT CONDITIONS IS NOT COVERED BY THE WARRANTY.

MAIN SWITCH

The main switch is located on the access panel to the electrical box in the outdoor section in such a way that the unit is disconnected when the panel is opened.

(Refer to the size diagram a pages 20 to 31 to see the position of the electrical box access panel).

Check to make sure that the main switch is large enough to handle the current for the unit if electric heaters are installed.

PHASE SEQUENCER (THREE-PHASE UNIT)

The phase sequencer is located in the electrical box in the outdoor section, thus assuring that the unit will not begin operation while the phase connection of the compressor is not correct. Should this occur, then just switch two phase connections.

ON/OFF CONDENSATION PRESSURE CONTROL (MODELS 10-12-16)

Consists of a pressure switch, which starts and stops the outdoor fan regulating the condensation temperature, thus the unit will be able to operate in the cooling cycle when the outdoor temperature is below 19°C (until 0°C).

HOT GAS BYPASS VALVE

The purpose of the BYPASS valve is to make it possible for the unit to operate at low outdoor temperatures (until -10°C), to be used in cooling-only and heat-pump units in the cooling cycle.

It regulates the capacity of the compressor by injecting hot gas from the compressor discharge side to the evaporator.

CONTROL USING A PROGRAMMABLE CONTROLLER.

With the programmable controller option, the desired temperature can be programmed in the area 24 hours a day, 7 days a week.

REMOTE ROOM-TEMPERATURE SENSOR, REMOTE DUCT SENSOR

These sensors may be used in conjunction with remote controller, allowing the controller to be mounted in a room away from the conditioned space.

- REMOTE DUCT SENSOR: The sensor will be located in the return air duct, detecting the air temperature of the air being air conditioned.

- REMOTE ROOM-TEMPERATURE SENSOR: The sensor will be placed in the area to be air conditioned.

FREECOOLING THERMOSTAT KIT

The Freecooling Thermostat Kit will only operate in cooling-only or heat-pump units in the cooling cycle. This is an energy saving system that regulates the dampers doors through which outdoor air is taken in when the outdoor temperature is lower than the area to be air conditioned.

This kit consists of the damper, a motor, power card and a controller with specific programming, safety thermostat for air discharge and outdoor sensor, completely factory-assembled.

CRANKCASE HEATER (COOLING-ONLY UNITS)

When the unit is operating at low outdoor temperatures it is advisable to fit a crankcase heater.

The purpose of the heater is to keep the oil in the compressor at the correct temperature while the compressor is stopped so that it can be properly lubricated when started again.

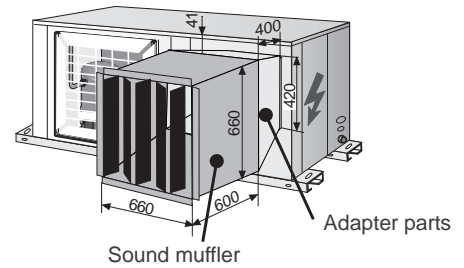
OPTIONS

SOUND MUFFLER

Available for models 16, 22, 24, 28, 30.

Field assembled, designed to be installed at the extractor opening of the outdoor unit in order to reduce noise, particularly when the outdoor unit is installed without ducts, free discharge.

This kit contains the sound muffler and adapter parts for fixing it to the unit.



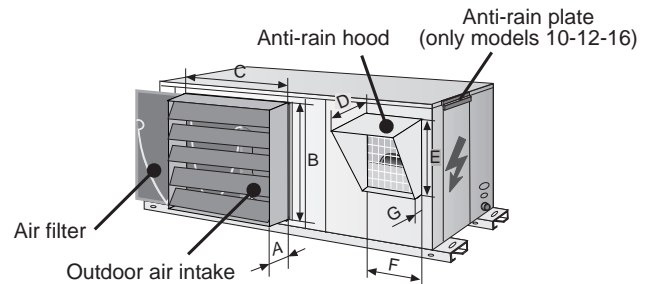
OUTDOOR MOUNTING KIT

Field assembly.

This option has to be ordered for packaged units when they will be installed outside.

The kit includes an air filter and grille for outdoor air intake which should be installed on the suction side of the outdoor unit, an anti-rain hood which should be installed on the discharge side of the outdoor fan. For units 10-12-16 it includes also an anti-rain plate which should be installed on the electrical box.

MODELS	DIMENSIONS						
	A	B	C	D	E	F	G
10-12	180	432	459	280	313	356	104
16	180	507	429	311,8	364	330	104
22	180	505	470	304,9	363	332	96,5
24-28-30	180	544	685	304,9	363	418	96,5



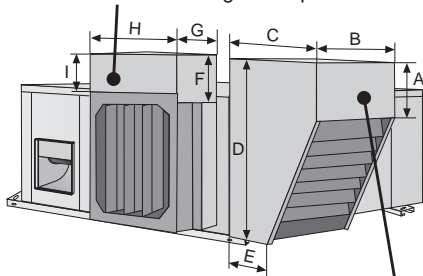
FREECOOLING EXTERNAL MOUNTED KIT

Field assembly.

This option has to be ordered for packaged units with freecooling when they will be installed outside, it includes:

- FREECOOLING 1-DAMPER: It includes an outdoor air inlet grille to cover damper and actuator.
- FREECOOLING 2-DAMPER: It includes an anti-rain cap to cover return air damper.

External mounted freecooling 2-damper



External mounted freecooling 1-damper

MODELS	DIMENSIONS									
	A	B	C	D	E	F	G	H	I	
10-12	200	465	400	635	187,4	162	192	461	153	
16	200	460	600	723	163	174	192	456	174	
22	200	600	600	708	187,5	159	192,5	592	159	
24-28-30	200	712	600	784	187,5	158,5	191	706	158,5	

OUTDOOR AIR FILTER KIT

Field assembly.

The outdoor air filter should be installed on the outdoor air inlet of the outdoor unit and is recommended when working in heavily contaminated area that may soil or clog the outdoor Coil.

ADDITIONAL DROP CHARGE FOR EXTERNAL AIR FILTER (OPTIONAL)

	MODELS						
	10	12	16	22	24	28	30
Nominal flow	30 Pa	30 Pa	30 Pa	30 Pa	30 Pa	30 Pa	30 Pa
Minimum flow	25 Pa	25 Pa	25 Pa	25 Pa	25 Pa	25 Pa	25 Pa
Max. available pressure for minimum flow	75 Pa	65 Pa	95 Pa	125 Pa	145 Pa	95 Pa	75 Pa

ADDITIONAL DROP CHARGE FOR SOUND MUFFLER (OPTIONAL)

	MODELS				
	16	22	24	28	30
Nominal flow	25 Pa	60 Pa	80 Pa	75 Pa	75 Pa
Minimum flow	20 Pa	45 Pa	70 Pa	60 Pa	60 Pa
Max. available pressure for minimum flow	95 Pa	90 Pa	95 Pa	45 Pa	25 Pa

ADDITIONAL DROP CHARGE FOR SOUND MUFFLER (OPTIONAL) + OUTDOOR AIR FILTER (OPTIONAL)

	MODELS				
	16	22	24	28	30
Nominal flow	55 Pa	90 Pa	110 Pa	105 Pa	105 Pa
Minimum flow	40 Pa	70 Pa	95 Pa	85 Pa	85 Pa
Max. available pressure for minimum flow	65 Pa	45 Pa	25 Pa	20 Pa	0 Pa



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