LENNOX
Think far*

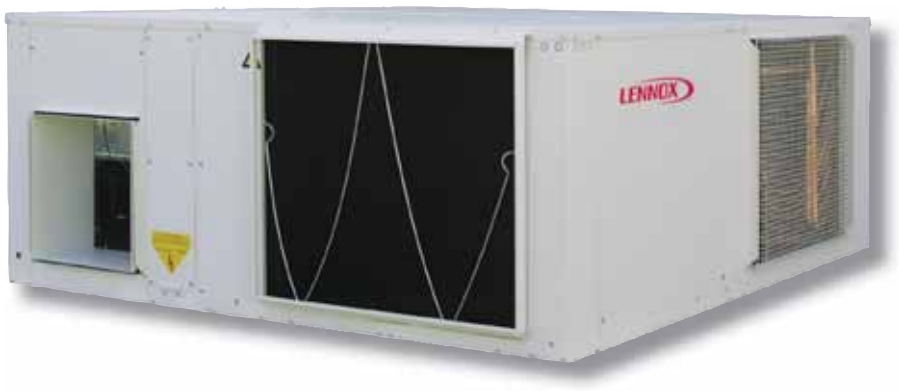
APPLICATION GUIDE

FLATAIR

FMC - H
FIC - H
FSC - H

Horizontal packaged air conditioners

10 → 28 kW



FLATAIR™

APPLICATION GUIDE

Ref : FLATAIR AGU-MSL60-1505-E

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1.1- 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. 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 indoor and outdoor sections.
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.
Panels are easily inter exchangeable, giving several air suction and return alternatives.
An insulation with a protection of mesh is used in indoor section with a classification of M1 and F1, certifying that the material is auto-extinguishable and avoiding the fumes inside the room to be aconditionned. Auto extinguishable insulation M1 is used in outdoor 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. All compresors are R410A

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 part and from both sides.

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 fings, designed to get a high heat transfer.

Their dimensions and design of the refrigenrant circuit 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 pressure intakes with schraeder valves in the suction and liquid lines both indoors and outdoor units.

In unit 20-25-30 the pressure intakes 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 reset. It also has a dehydrating filter, expansion system with restrictors in units 10-12-15; expansion valves in units 20-25-30. The heat pump units are equipped as well with a suction accumulator to avoid the liquid return to the compressor, 4 way valve and no-return valve.

ELECTRICAL CIRCUIT

Designed according to EN 60204-1 normative hermetically sealed to avoid condensation. With circuits breakers to protecto the unit from overloading.

Flatair units are designed for false ceiling mounting, to be installed exclusively indoor. For outdoor mounting, a shelter or roof structure has to be installed, to avoid direct water entry in the sensible parts of the unit (electrical board, joints between the indoor unit and the outdoor unit).

1.2- CONTROL

CLIMATIC 40 VERSION
CLIMATIC 60 VERSION

We have two versions of Control in Flatair units:

- The basic C40 platform, wich includes one terminal in the unit and another DC40 remote
- The advanced platform C60 which includes one terminal in the unit, and 3 remote terminals as in option (DC, DS, DM)

CLIMATIC™ 60 controller intelligently improves efficiency and helps set up and service operations to guarantee long lasting performance.

OPTIMIZED OPERATION AND SETUP SAVES ENERGY

CLIMATIC™ 60 is designed to provide the best energy efficiency throughout unit's life cycle while ensuring reliable and consistent operation with user friendly interfaces. This new controller constantly monitors more machine parameters than ever to improve rooftop operation and maximize efficiency and reliability

1.3- OPTIONS

Flatair units can be equipped with the following options:

- Main switch
- Heating electrical heater, made of blinded elements and assembled inside the unit
- Kit low ambient -15 degrees
- Kit low ambient 0 degrees (only for cooling units)
- 3 Phase controller (only for 3 phase units)
- Customer terminal DC60 (only for CLIMATIC 60 version)
- Service terminal DS60 (only for CLIMATIC 60 version)
- Remote duct sensor in return
- Ambient remote sensor (only en CLIMATIC 40 version)
- Thermostatic freecooling
- Enthalpic freecooling (only in CLIMATIC 60 version)
- Second return damper for kit freecooling
- Different airflow configurations in return and supply
- BMS communication interface (CLIMATIC 40 as standard and CLIMATIC 60 as an option)
- Echelon communication interface (CLIMATIC 60)
- Bacnet communication interface (CLIMATIC 60)

EXAMPLE :

F M C 0 1 5 S N M 1 M

F FLATAIR

M Compact unit
S Outdoor unit
I Indoor unit

C Cooling only
H Heat pump
X Cooling only / heat pump

Approximate Cooling capacity in kW

S 1 Circuit

- - -

M R410A

Revision number

M 400V/3/50

FMC: Cooling only unit R-410A
FMH: Heat pump unit R-410A

		A BOX		B BOX	C BOX	D BOX	
FCM/FCH		10	12	15	20	25	30
Cooling capacity * (cooling only)	kW	9.7	12	15	19.5	23.5	27
Heating capacity* (heat pump)	kW	10	12.5	15.5	20.5	25	27.9
DIMENSIONS							
Height	mm	495	495	595	595	645	645
Lenght	mm	1250	1250	1300	1450	1500	1500
Depth	mm	1250	1250	1330	1520	1800	1800
NET WEIGHT	Kg	170	174	250	268	322	338
OUTDOOR UNIT FSC/FSH		10	12	15	20	25	30
Number & Type of compressor		**1 / Scroll**					
FAN							
Maximum airflow rate	m^3/h	3500	3400	4500	5650	6000	5850
Minimum airflow rate	m^3/h	2350	2400	3740	4095	4760	5000
Maximum available presure (1)	Pa	100	90	120	150	160	100
NET WEIGHT	kg	112	116	165	159	202	208
DIMENSIONS							
Height	mm	495	495	595	595	645	465
Lenght	mm	1250	1250	1300	1450	1500	1500
Depth	mm	820	820	830	900	1025	1025
PIPES CONNEXIONS							
Liquid	m^3/h	3/8"	3/8"	1/2"	5/8"	5/8"	5/8"
Gas	m^3/h	3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"
INDOOR UNIT FIX		FIX 10	FIX 12	FIX 15	FIC/H 2O 20	FIC/H 25	FIC/H 30
Number & Type of compressor		**1 / Scroll**					
FAN							
Maximum airflow rate	m^3/h	2350	2300	3575	4850	5750	5500
Minimum airflow rate	m^3/h	1500	1650	2410	2090	3455	3695
Maximum available presure (1)	Pa	120	110	160	200	240	180
NET WEIGHT	kg	58	58	85	109	121	131
OPTIONS WIEGHT							
Electrical heater	kg	**7**	**7**	**7**	**7**	**8**	**8**
Free-cooling 1 damper	kg	**12**	**12**	**12**	**14**	**15**	**15**
Free-cooling 2 damper	kg	**24**	**24**	**24**	**28**	**30**	**30**
DIMENSIONS							
Height	mm	495	495	595	595	645	645
Lenght	mm	1250	1250	1300	1450	1500	1500
Depth	mm	430	430	500	620	775	775
PIPES CONNEXIONS							
Liquid	m^3/h	3/8"	3/8"	1/2"	5/8"	5/8"	5/8"
Gas	m^3/h	3/4"	3/4"	7/8"	7/8"	1-1/8"	1-1/8"

(*) Air intake temperature in the indoor exchanger : 27ºC DB/19ºC WB
(*) Air intake temperature in the outdoor exchanger: : 35ºC DB

DB Dry bulb temperature
WB Wet bulb temperature

(1) With admissible minimum air flow

3.1 DIMENSIONS

Box	Unit		Lenght	Deep	Height
A	**10-12**	Packaged	1250	1250	495
B	**15**		1300	1330	595
C	**20**		1450	1520	595
D	**25-30**		1500	1800	645
A	**10-12**	Indoor unit	1250	430	495
B	**15**		1300	500	595
C	**20**		1450	620	595
D	**25-30**		1500	775	645
A	**10-12**	Outdoor unit	1250	820	495
B	**15**		1300	830	595
C	**20**		1450	900	595
D	**25-30**		1500	1025	645

3.2 MINIMUM, MAXIMUM AND NOMINAL AIRFLOW RATES

INDOOR UNIT

FIC/H	AIRFLOW RATE		
	Maximum	Nominal	Minimum
FIH 10	2350	2140	1500
FIH 12	2300	2040	1650
FIH 15	3575	3170	2410
FIH 20	4850	4500	3090
FIH 25	5750	5470	3455
FIH 30	5500	5060	3695

OUTDOOR UNIT

FSC/H	AIRFLOW RATE		
	Maximum	Nominal	Minimum
FSH 10	3500	2970	2350
FSH 12	3400	2890	2400
FSH 15	4500	4250	3740
FSH 20	5650	5150	4095
FSH 25	6000	5600	4760
FSH 30	5850	5400	5000

3.3 WEIGHTS

FLATAIR (STANDARD)

		MODEL	10	12	15	20	25	30
Cooling only units	Indoor unit	**FIX/FIC**	58	58	85	109	121	131
	Outdoor unit	**FSC**	112	116	165	159	202	208
	Package (indoor+outdoor)	**FMC**	170	174	250	268	322	338
Heat pump units	Indoor unit	**FIX/FIH**	58	58	85	109	121	131
	Outdoor unit	**FSH**	117	121	170	164	207	213
	Package (indoor+outdoor)	**FMH**	175	179	255	273	327	343

OPTIONS

to add indoor unit	electrical heater	7	7	7	7	8	8
	free-cooling 1 damper	12	12	12	14	15	15
	free-cooling 2 damper	24	24	24	28	30	30

4 - OPERATION LIMITS

OPERATION LIMITS FOR COOLING ONLY UNITS

		Maximum temperatures	Minimum temperatures
Cooling mode	Indoor temperature	32ºC DB / 23ºC WB	21ºC DB / 15ºC WB
	Outdoor temperature	Table 1	Standard unit : + 15ºC 0ºC(*) / -15ºC(**)

(*) With option kit low temperature 0ºC
(**) With option kit low temperature -15ºC

DB.- Dry bulb temperature
WB.- Wet bulb temperature

OPERATION LIMITS FOR HEAT PUMP UNITS

		Maximum temperatures	Minimum temperatures
Cooling mode	Indoor temperature	32ºC DB / 23ºC WB	21ºC DB / 15ºC WB
	Outdoor temperature	Table 1	+ 15ºC STANDARD UNIT 0ºC(*) / -15ºC(**)
Heat pump mode	Indoor temperature	27ºC DB	15ºC DB
	Outdoor temperature	Sizes 12-15-20-30 : 25ºC (1) Sizes 12-25 : 23ºC	-12ºC

(*) Active CL40 parameter to operate at 0ºC
(**) With option kit low temperature -15ºC

(1) : Indoor temperature : 20°C
DB.- Dry bulb temperature
WB.- Wet bulb temperature

INDOOR UNITS

Available static pressure (Pa)	Airflow rate (m³/h)					
	10	**12**	**15**	**20**	**25**	**30**
0	2350	2300	3575	4850	5750	5500
10	2275	2250	3495	4785	5730	5455
20	2240	2200	3410	4715	5705	5405
30	2190	2150	3330	4645	5670	5350
40	2140	2100	3250	4575	5630	5285
50	2080	2040	3170	4500	5580	5220
60	2025	1975	3095	4425	5530	5140
70	1975	1925	3020	4345	5470	5060
80	1925	1860	2945	4260	5405	4965
90	1840	1800	2875	4175	5330	4870
100	1775	1730	2800	4090	5250	4765
110	1625	1650	2735	4000	5165	4655
120	1500	----	2665	3910	5075	4640
130	---	---	2600	3815	4975	4415
140	---	---	2535	3720	4870	4285
150	---	---	2470	3620	4755	4150
160	---	---	2410	3520	4640	4005
170	---	---	---	3415	4515	3855
180	---	---	---	3310	4380	3695
190	---	---	---	3200	4245	---
200	---	---	---	3090	4100	---
210	---	---	---	---	3945	---
220	---	---	---	---	3790	---
230	---	---	---	---	3625	---
240	---	---	---	---	3455	---

OUTDOOR UNITS

Available static pressure (Pa)	Airflow rate (m³/h)					
	10	**12**	**15**	**20**	**25**	**30**
0	3500	3400	4500	5650	6000	5850
10	3410	3325	4460	5550	5920	5755
20	3300	3160	4410	5450	5840	5665
30	3190	3075	4360	5350	5760	5575
40	3080	2980	4310	5250	5680	5485
50	2970	2890	4250	5150	5600	5400
60	2840	2790	4190	5050	5520	5315
70	2700	2690	4125	4945	5445	5235
80	2560	2580	4055	4840	4365	5155
90	2410	2400	3980	47365	5290	5075
100	2350	---	3905	4630	5210	5000
110	---	---	3825	4525	5135	----
120	---	---	3740	4420	5060	----
130	---	---	---	4315	4985	----
140	---	---	---	4205	4910	----
150	---	---	---	4095	4835	----
160	---	---	---	---	4760	----

With option G4 additional pressure drop 50Pa

Keep in mind reduction on air flow and static pressure services if you use mufflers or external air filter.

Nominal airflow rate

OUTDOOR UNIT

Size / Hz	dB							Lw dB(A)
	125	250	500	1000	2000	4000	8000	
10	73	70	71	72.9	69.3	68.9	62.8	77
12	74	78	69	73.6	66.3	66.1	60.5	77
15	79	74	77	78.0	75.5	72.9	68.0	82
20	81	75	81	81.9	79.2	76.5	72.2	86
25	83	76	76	76.4	75.3	72.4	65.9	81
30	83	75	75	76.0	74.7	71.6	65.0	81

With compressor jacket, estimated reduction of 2 Dba

INDOOR UNIT

Size / Hz	dB							Lw dB(A)
	125	250	500	1000	2000	4000	8000	
10	71	67	67	67.4	64.9	64.1	58.3	72
12	71	67	67	67.4	64.9	64.1	58.3	72
15	74	69	72	71.3	69.1	66.0	59.7	76
20	77	71	75	75.8	73.4	70.7	65.7	80
25	79	73	79	80.2	77.4	74.5	74.3	84
30	78	72	77	78.4	75.7	72.9	68.4	83

With compressor jacket, estimated reduction of 2 Dba

COOLING CAPACITIES

FMC/H 10				Air inlet temperature at condenser (dry bulb)																	
Mixed air temperature °C		Indoor wet bulb	Indoor dry bulb	20 °C			25 °C			30 °C			35°C			40 °C			45 °C		
				NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC
Minimum airflow rate	1500 m³/h	16	21	9,56	2,80	5,88	9,29	2,96	5,75	8,96	3,16	5,60	8,57	3,41	5,43	8,12	3,74	5,23	7,62	4,21	5,00
			24	9,56	2,80	7,21	9,30	2,96	7,07	8,98	3,16	6,91	8,59	3,41	6,71	8,15	3,74	6,47	7,66	4,20	6,19
			27	9,60	2,80	8,41	9,35	2,96	8,27	9,03	3,16	8,09	8,66	3,41	7,87	8,22	3,74	7,61	7,73	4,20	7,29
		19	24	10,46	2,84	5,78	10,15	3,00	5,65	9,79	3,21	5,51	9,36	3,46	5,35	8,88	3,80	5,17	8,34	4,29	4,96
			27	10,45	2,84	7,14	10,15	3,00	7,00	9,79	3,21	6,84	9,37	3,46	6,65	8,90	3,80	6,43	8,36	4,29	6,18
			30	10,48	2,84	8,33	10,18	3,01	8,19	9,83	3,21	8,02	9,42	3,47	7,81	8,95	3,81	7,57	8,42	4,28	7,27
		22	27	11,46	2,88	5,61	11,12	3,05	5,48	10,71	3,26	5,35	10,25	3,52	5,21	9,73	3,87	5,06	9,15	4,36	4,88
			30	11,44	2,88	6,98	11,10	3,05	6,85	10,70	3,26	6,70	10,25	3,52	6,53	9,73	3,87	6,34	9,16	4,36	6,11
			33	11,45	2,88	8,18	11,11	3,05	8,05	10,72	3,26	7,89	10,28	3,52	7,70	9,77	3,87	7,48	9,20	4,36	7,22
Nominal airflow rate	2140 m³/h	16	21	9,96	3,05	6,61	9,65	3,21	6,48	9,28	3,40	6,32	8,85	3,65	6,14	8,37	3,98	5,93	7,82	4,44	5,68
			24	9,98	3,05	8,36	9,67	3,21	8,21	9,31	3,40	8,02	8,89	3,65	7,79	8,41	3,97	7,52	7,87	4,43	7,19
			27	10,03	3,05	9,97	9,75	3,22	9,75	9,45	3,42	9,45	9,09	3,68	9,09	8,68	4,02	8,68	8,22	4,49	8,22
		19	24	10,90	3,09	6,46	10,55	3,26	6,34	10,15	3,46	6,20	9,68	3,72	6,04	9,16	4,06	5,85	8,57	4,55	5,63
			27	10,90	3,09	8,27	10,56	3,26	8,12	10,16	3,46	7,95	9,70	3,72	7,74	9,18	4,06	7,49	8,61	4,54	7,19
			30	10,94	3,09	9,91	10,60	3,26	9,74	10,21	3,46	9,54	9,76	3,72	9,30	9,25	4,06	9,00	8,68	4,54	8,64
		22	27	11,93	3,13	6,22	11,55	3,31	6,11	11,11	3,52	6,00	10,60	3,78	5,86	10,04	4,14	5,71	9,42	4,64	5,52
			30	11,92	3,13	8,08	11,54	3,31	7,95	11,10	3,52	7,79	10,61	3,78	7,61	10,05	4,14	7,39	9,44	4,64	7,13
			33	11,94	3,13	9,76	11,57	3,31	9,61	11,14	3,52	9,43	10,65	3,78	9,21	10,10	4,14	8,94	9,49	4,64	8,62
Maximum airflow rate	2350 m³/h	16	21	10,00	3,15	6,83	9,67	3,31	6,70	9,29	3,51	6,54	8,85	3,77	6,36	8,35	4,11	6,13	7,79	4,59	5,87
			24	10,02	3,15	8,71	9,70	3,31	8,55	9,32	3,51	8,35	8,89	3,76	8,11	8,40	4,10	7,82	7,84	4,58	7,47
			27	10,18	3,16	10,18	9,91	3,33	9,91	9,59	3,54	9,59	9,21	3,80	9,21	8,79	4,14	8,79	8,31	4,63	8,31
		19	24	10,95	3,19	6,68	10,59	3,36	6,56	10,17	3,57	6,42	9,69	3,84	6,25	9,15	4,19	6,06	8,56	4,71	5,82
			27	10,95	3,19	8,62	10,60	3,36	8,47	10,18	3,57	8,29	9,71	3,84	8,07	9,18	4,19	7,80	8,59	4,70	7,48
			30	10,99	3,19	10,40	10,64	3,36	10,23	10,24	3,57	10,01	9,77	3,84	9,75	9,32	4,21	9,32	8,77	4,73	8,77
		22	27	11,99	3,24	6,42	11,59	3,41	6,32	11,14	3,63	6,21	10,62	3,90	6,07	10,05	4,27	5,91	9,42	4,80	5,72
			30	11,98	3,24	8,43	11,59	3,41	8,30	11,14	3,63	8,14	10,63	3,90	7,95	10,06	4,27	7,72	9,44	4,80	7,44
			33	12,00	3,24	10,26	11,62	3,41	10,11	11,18	3,63	9,91	10,67	3,90	9,68	10,11	4,27	9,39	9,49	4,79	9,04

HEATING CAPACITIES

FMH 10			Air inlet temperature at condenser (dry bulb)													
Indoor Dry Bulb			-10 °C		-5 °C		0 °C		5°C		7 °C		10 °C		15 °C	
			NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC
Minimum airflow	1500 m³/h	15	6,40	2,44	7,39	2,62	8,37	2,79	9,34	2,96	9,73	3,03	10,31	3,13	11,27	3,31
		18	6,40	2,60	7,36	2,77	8,32	2,95	9,27	3,13	9,65	3,20	10,21	3,31	11,15	3,50
		20	6,41	2,71	7,36	2,89	8,30	3,07	9,23	3,25	9,60	3,32	10,16	3,44	11,08	3,64
		23	6,43	2,88	7,35	3,07	8,27	3,26	9,18	3,45	9,55	3,53	10,09	3,65	10,99	3,87
		25	6,45	3,01	7,36	3,20	8,26	3,39	9,16	3,59	9,51	3,68	10,05	3,80	10,93	4,03
		27	6,48	3,15	7,37	3,34	8,26	3,54	9,14	3,74	9,49	3,83	10,01	3,97	10,88	4,21
Nominal airflow	2140 m³/h	15	6,62	2,50	7,66	2,63	8,69	2,76	9,72	2,89	10,13	2,94	10,75	3,02	11,76	3,16
		19	6,61	2,70	7,62	2,83	8,63	2,96	9,63	3,10	10,02	3,15	10,62	3,23	11,60	3,37
		20	6,61	2,76	7,62	2,89	8,61	3,02	9,61	3,15	10,00	3,21	10,59	3,29	11,57	3,43
		23	6,63	2,93	7,61	3,06	8,58	3,19	9,55	3,32	9,94	3,38	10,51	3,47	11,47	3,62
		25	6,65	3,05	7,61	3,18	8,57	3,31	9,52	3,45	9,90	3,50	10,47	3,59	11,41	3,75
		27	6,67	3,18	7,62	3,31	8,56	3,44	9,50	3,58	9,87	3,64	10,43	3,73	11,35	3,89
Maximum air-flow rate	2350 m³/h	15	6,84	2,49	7,90	2,61	8,95	2,73	10,00	2,84	10,42	2,89	11,04	2,96	12,08	3,08
		19	6,83	2,69	7,86	2,80	8,88	2,92	9,90	3,03	10,31	3,08	10,91	3,15	11,92	3,28
		20	6,83	2,74	7,85	2,85	8,87	2,97	9,88	3,08	10,28	3,13	10,88	3,20	11,88	3,33
		23	6,84	2,90	7,84	3,01	8,84	3,12	9,82	3,24	10,22	3,29	10,80	3,37	11,78	3,50
		25	6,86	3,02	7,84	3,12	8,82	3,23	9,79	3,35	10,18	3,40	10,76	3,48	11,71	3,62
		27	6,88	3,14	7,85	3,24	8,81	3,35	9,77	3,47	10,15	3,52	10,72	3,60	11,66	3,75

NC (kW) :	Net cooling capacity	**NH (kW) :**	Net heating capacity	**SC (kW) :**	Sensible cooling capacity	**AC (kW) :**	Compressor absorbed power

COOLING CAPACITIES

FMC/H 12				Air inlet temperature at condenser (dry bulb)																	
Mixed air temperature °C		Indoor wet bulb	Indoor dry bulb	20 °C			25 °C			30 °C			35°C			40 °C			43 °C		
				NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC
Minimum airflow rate	1650 m³/h	16	21	12,12	3,88	7,28	11,76	4,13	7,10	11,30	4,45	6,89	10,74	4,88	6,64	10,08	5,50	6,35	9,64	6,03	6,15
			24	12,13	3,88	8,79	11,77	4,13	8,60	11,31	4,45	8,37	10,75	4,88	8,09	10,10	5,50	7,75	9,67	6,03	7,51
			27	12,14	3,88	10,21	11,79	4,13	10,03	11,33	4,45	9,79	10,78	4,88	9,48	10,13	5,50	9,09	9,70	6,03	8,82
		19	24	13,22	3,94	7,16	12,81	4,20	6,97	12,30	4,52	6,77	11,70	4,96	6,53	11,01	5,59	6,26	10,54	6,13	6,08
			27	13,22	3,94	8,65	12,82	4,20	8,47	12,32	4,52	8,25	11,72	4,96	7,99	11,03	5,59	7,67	10,56	6,13	7,45
			30	13,24	3,94	10,06	12,84	4,20	9,88	12,34	4,52	9,65	11,75	4,96	9,36	11,06	5,60	9,01	10,60	6,14	8,76
		22	27	14,41	4,03	6,97	13,95	4,30	6,79	13,41	4,64	6,60	12,76	5,09	6,38	12,02	5,75	6,14	11,53	6,31	5,98
			30	14,41	4,03	8,44	13,96	4,30	8,27	13,42	4,64	8,06	12,78	5,09	7,82	12,04	5,75	7,54	11,55	6,31	7,35
			33	14,42	4,03	9,82	13,98	4,30	9,65	13,44	4,64	9,44	12,80	5,10	9,19	12,07	5,76	8,87	11,58	6,32	8,65
Nominal airflow rate	2040 m³/h	16	21	12,48	4,08	7,76	12,08	4,33	7,58	11,58	4,64	7,37	10,99	5,07	7,11	10,30	5,68	6,81	9,84	6,21	6,59
			24	12,49	4,08	9,55	12,10	4,33	9,36	11,60	4,64	9,12	11,01	5,07	8,81	10,33	5,68	8,44	9,87	6,21	8,18
			27	12,51	4,09	11,26	12,12	4,33	11,06	11,63	4,65	10,79	11,05	5,07	10,45	10,37	5,69	10,01	9,91	6,22	9,71
		19	24	13,59	4,15	7,59	13,15	4,40	7,41	12,61	4,73	7,21	11,98	5,17	6,98	11,24	5,81	6,70	10,76	6,36	6,51
			27	13,61	4,15	9,39	13,17	4,40	9,20	12,63	4,73	8,97	12,00	5,17	8,69	11,27	5,81	8,35	10,79	6,36	8,12
			30	13,63	4,15	11,10	13,19	4,41	10,91	12,66	4,74	10,66	12,03	5,18	10,34	11,31	5,82	9,94	10,83	6,36	9,67
		22	27	14,80	4,25	7,34	14,32	4,52	7,18	13,74	4,86	6,99	13,06	5,33	6,79	12,28	6,00	6,54	11,77	6,58	6,38
			30	14,82	4,25	9,14	14,33	4,52	8,97	13,76	4,86	8,76	13,08	5,33	8,51	12,31	6,01	8,21	11,80	6,58	8,01
			33	14,84	4,26	10,84	14,36	4,52	10,67	13,78	4,87	10,44	13,11	5,34	10,16	12,34	6,01	9,81	11,84	6,59	9,57
Maximum airflow rate	2300 m³/h	16	21	12,60	4,23	8,05	12,17	4,48	7,88	11,65	4,80	7,66	11,04	5,23	7,39	10,32	5,87	7,07	9,85	6,41	6,85
			24	12,61	4,24	10,02	12,20	4,48	9,82	11,68	4,80	9,57	11,07	5,23	9,24	10,36	5,87	8,84	9,88	6,41	8,56
			27	12,64	4,24	11,92	12,23	4,49	11,70	11,71	4,81	11,41	11,10	5,24	11,03	10,40	5,87	10,59	9,93	6,41	10,26
		19	24	13,73	4,31	7,86	13,26	4,57	7,69	12,70	4,90	7,49	12,04	5,35	7,25	11,28	6,02	6,96	10,78	6,59	6,77
			27	13,74	4,31	9,85	13,28	4,57	9,66	12,72	4,90	9,43	12,07	5,36	9,13	11,31	6,02	8,77	10,81	6,59	8,52
			30	13,77	4,31	11,76	13,31	4,57	11,56	12,76	4,91	11,29	12,10	5,36	10,94	11,35	6,03	10,52	10,86	6,60	10,21
		22	27	14,95	4,42	7,59	14,44	4,69	7,43	13,83	5,05	7,25	13,13	5,53	7,05	12,33	6,24	6,80	11,80	6,85	6,63
			30	14,97	4,42	9,59	14,46	4,69	9,42	13,86	5,05	9,21	13,16	5,53	8,95	12,36	6,24	8,63	11,84	6,85	8,41
			33	14,99	4,42	11,51	14,49	4,70	11,32	13,89	5,06	11,08	13,20	5,54	10,78	12,40	6,25	10,40	11,88	6,86	10,13

HEATING CAPACITIES

FMH 12			Air inlet temperature at condenser (dry bulb)													
Indoor Dry Bulb			-10 °C		-5 °C		0 °C		5°C		7 °C		10 °C		15 °C	
			NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC
Minimum airflow	1650 m³/h	15	8,31	3,31	9,51	3,57	10,69	3,83	11,85	4,10	12,31	4,21	13,00	4,37	14,13	4,65
		18	8,40	3,58	9,56	3,85	10,71	4,12	11,84	4,40	12,29	4,51	12,96	4,68	14,05	4,99
		20	8,46	3,78	9,60	4,06	10,73	4,33	11,84	4,62	12,28	4,74	12,93	4,92	14,01	5,24
		23	8,57	4,12	9,68	4,40	10,77	4,69	11,85	4,99	12,27	5,12	12,91	5,32	13,95	5,67
		25			9,73	4,66	10,80	4,96	11,86	5,27	12,28	5,41	12,90	5,61	13,92	5,99
		27							11,88	5,58	12,28	5,72	12,89	5,95	13,89	6,35
Nominal airflow	2040 m³/h	15	8,41	3,23	9,65	3,47	10,88	3,69	12,09	3,92	12,56	4,01	13,28	4,15	14,45	4,39
		19	8,51	3,57	9,70	3,80	10,89	4,04	12,05	4,27	12,51	4,37	13,20	4,51	14,33	4,77
		20	8,53	3,66	9,72	3,90	10,89	4,13	12,04	4,37	12,50	4,46	13,18	4,61	14,30	4,87
		23	8,62	3,96	9,78	4,20	10,91	4,44	12,03	4,68	12,48	4,78	13,14	4,94	14,23	5,22
		25	8,69	4,19	9,82	4,42	10,94	4,66	12,03	4,92	12,47	5,02	13,12	5,18	14,18	5,47
		27			9,87	4,67	10,96	4,91	12,04	5,17	12,47	5,28	13,10	5,45	14,14	5,76
Maximum air-flow rate	2300 m³/h	15	8,50	3,26	9,77	3,48	11,03	3,69	12,26	3,89	12,75	3,97	13,48	4,10	14,69	4,31
		19	8,58	3,59	9,81	3,80	11,02	4,01	12,21	4,22	12,68	4,30	13,39	4,43	14,55	4,66
		20	8,61	3,68	9,82	3,89	11,02	4,10	12,20	4,31	12,67	4,40	13,37	4,53	14,52	4,75
		23	8,68	3,98	9,87	4,18	11,03	4,39	12,18	4,61	12,64	4,69	13,31	4,83	14,43	5,07
		25	8,74	4,20	9,90	4,40	11,05	4,61	12,17	4,82	12,62	4,91	13,29	5,05	14,38	5,30
		27	8,80	4,44	9,94	4,63	11,07	4,84	12,17	5,06	12,61	5,15	13,26	5,30	14,34	5,56

GC (kW) :	Gross cooling capacity	**NH (kW) :**	Net heating capacity	**SC (kW) :**	Sensible cooling capacity	**AC (kW) :**	Compressor absorbed power

COOLING CAPACITIES

FMC/H 15				Air inlet temperature at condenser (dry bulb)																	
Mixed air temperature °C		Indoor wet bulb	Indoor dry bulb	20 °C			25 °C			30 °C			35°C			40 °C			45 °C		
				NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC
Minimum airflow rate	2410 m³/h	16	21	14,83	4,75	9,09	14,39	4,98	8,90	13,85	5,25	8,66	13,21	5,60	8,39	12,47	6,06	8,07	11,63	6,72	7,69
			24	14,84	4,75	11,40	14,41	4,98	11,16	13,89	5,26	10,88	13,27	5,60	10,53	12,55	6,07	10,12	11,73	6,73	9,63
			27	15,00	4,76	13,26	14,60	4,99	13,01	14,09	5,27	12,69	13,49	5,62	12,30	12,79	6,08	11,84	12,00	6,72	11,29
		19	24	16,26	4,79	8,89	15,77	5,02	8,72	15,17	5,30	8,52	14,48	5,65	8,28	13,68	6,12	8,00	12,79	6,79	7,68
			27	16,20	4,79	11,37	15,72	5,02	11,15	15,15	5,30	10,88	14,47	5,66	10,56	13,70	6,13	10,19	12,83	6,80	9,74
			30	16,29	4,79	13,32	15,84	5,02	13,07	15,28	5,31	12,77	14,63	5,66	12,40	13,87	6,13	11,96	13,02	6,79	11,45
		22	27	17,95	4,83	8,31	17,40	5,06	8,18	16,75	5,34	8,03	16,01	5,70	7,86	15,16	6,16	7,66	14,22	6,81	7,41
			30	17,82	4,82	11,01	17,29	5,06	10,82	16,66	5,34	10,60	15,93	5,70	10,34	15,11	6,17	10,02	14,18	6,82	9,65
			33	17,84	4,82	13,12	17,33	5,06	12,90	16,72	5,34	12,63	16,01	5,70	12,31	15,21	6,17	11,93	14,30	6,82	11,47
Nominal airflow rate	3170 m³/h	16	21	15,36	4,98	10,17	14,89	5,20	9,96	14,31	5,47	9,71	13,64	5,82	9,41	12,87	6,28	9,06	12,00	6,93	8,64
			24	15,43	4,98	12,89	14,98	5,21	12,63	14,43	5,48	12,30	13,78	5,83	11,92	13,03	6,29	11,46	12,18	6,94	10,91
			27	15,67	5,00	15,17	15,23	5,22	14,88	14,70	5,49	14,52	14,10	5,85	14,10	13,45	6,31	13,45	12,71	6,93	12,71
		19	24	16,81	5,02	10,00	16,28	5,24	9,82	15,66	5,52	9,60	14,93	5,88	9,34	14,11	6,35	9,04	13,19	7,01	8,67
			27	16,82	5,02	12,91	16,31	5,25	12,66	15,70	5,53	12,36	15,00	5,88	12,01	14,20	6,36	11,58	13,30	7,02	11,08
			30	16,99	5,03	15,29	16,50	5,26	15,01	15,91	5,54	14,66	15,23	5,89	14,25	14,44	6,36	13,75	13,56	7,01	13,16
		22	27	18,52	5,05	9,45	17,94	5,28	9,32	17,27	5,56	9,16	16,49	5,92	8,97	15,61	6,39	8,73	14,64	7,05	8,45
			30	18,46	5,05	12,60	17,90	5,28	12,40	17,24	5,56	12,15	16,49	5,92	11,85	15,63	6,40	11,49	14,67	7,06	11,06
			33	18,55	5,05	15,16	18,01	5,29	14,91	17,37	5,57	14,61	16,63	5,93	14,23	15,80	6,40	13,79	14,86	7,06	13,26
Maximum airflow rate	3575 m³/h	16	21	15,46	5,13	10,69	14,97	5,36	10,47	14,38	5,64	10,20	13,69	5,99	9,89	12,90	6,47	9,51	12,02	7,16	9,06
			24	15,57	5,14	13,60	15,10	5,37	13,32	14,53	5,65	12,98	13,86	6,00	12,56	13,09	6,48	12,07	12,23	7,16	11,49
			27	15,90	5,16	15,90	15,48	5,39	15,48	14,97	5,67	14,97	14,38	6,02	14,38	13,70	6,48	13,70	12,94	7,11	12,94
		19	24	16,92	5,16	10,56	16,38	5,40	10,36	15,74	5,68	10,13	14,99	6,05	9,86	14,15	6,54	9,52	13,22	7,25	9,13
			27	16,97	5,17	13,66	16,44	5,40	13,40	15,82	5,69	13,09	15,10	6,06	12,70	14,28	6,55	12,25	13,36	7,25	11,71
			30	17,17	5,18	16,27	16,67	5,41	15,96	16,06	5,70	15,59	15,36	6,07	15,14	14,57	6,55	14,57	13,73	7,26	13,73
		22	27	18,65	5,20	10,04	18,05	5,43	9,90	17,35	5,72	9,73	16,56	6,09	9,52	15,67	6,58	9,27	14,68	7,27	8,96
			30	18,62	5,20	13,41	18,05	5,43	13,19	17,37	5,73	12,92	16,60	6,10	12,59	15,72	6,59	12,20	14,75	7,28	11,74
			33	18,75	5,20	16,20	18,19	5,44	15,93	17,54	5,73	15,59	16,78	6,10	15,19	15,93	6,59	14,71	14,98	7,28	14,13

HEATING CAPACITIES

FMH 15			Air inlet temperature at condenser (dry bulb)													
Indoor Dry Bulb			-10 °C		-5 °C		0 °C		5°C		7 °C		10 °C		15 °C	
			NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC
Minimum airflow	2410 m³/h	15	10,12	4,46	11,66	4,68	13,19	4,89	14,71	5,08	15,31	5,16	16,21	5,28	17,69	5,47
		18	10,07	4,69	11,59	4,91	13,08	5,12	14,57	5,33	15,16	5,41	16,04	5,53	17,49	5,73
		20	10,04	4,85	11,53	5,07	13,01	5,29	14,47	5,50	15,05	5,58	15,92	5,71	17,35	5,92
		23	9,98	5,09	11,44	5,32	12,89	5,54	14,32	5,76	14,89	5,85	15,74	5,99	17,14	6,21
		25	9,94	5,25	11,38	5,49	12,81	5,72	14,22	5,95	14,78	6,04	15,62	6,18	17,00	6,42
		27	9,90	5,42	11,32	5,66	12,73	5,90	14,12	6,14	14,67	6,24	15,49	6,38	16,85	6,64
Nominal airflow	3170 m³/h	15	10,34	4,47	11,95	4,65	13,55	4,82	15,13	4,98	15,75	5,05	16,69	5,14	18,24	5,30
		19	10,28	4,77	11,85	4,95	13,40	5,13	14,94	5,29	15,55	5,36	16,46	5,46	17,97	5,62
		20	10,26	4,85	11,82	5,03	13,37	5,20	14,89	5,37	15,50	5,44	16,41	5,54	17,90	5,71
		23	10,21	5,09	11,74	5,27	13,25	5,45	14,75	5,62	15,34	5,69	16,23	5,79	17,69	5,97
		25	10,17	5,26	11,68	5,44	13,17	5,61	14,65	5,79	15,23	5,86	16,11	5,97	17,55	6,16
		27	10,13	5,42	11,62	5,60	13,09	5,78	14,55	5,97	15,12	6,04	15,99	6,16	17,41	6,35
Maximum air-flow rate	3575	15	10,46	4,56	12,10	4,72	13,74	4,87	15,35	5,01	15,99	5,06	16,95	5,15	18,53	5,29
		19	10,40	4,88	12,00	5,03	13,59	5,17	15,17	5,32	15,79	5,37	16,72	5,46	18,27	5,60
		20	10,38	4,96	11,98	5,11	13,56	5,25	15,12	5,40	15,74	5,45	16,67	5,54	18,20	5,69
		23	10,33	5,21	11,89	5,36	13,44	5,50	14,97	5,65	15,58	5,70	16,49	5,79	17,99	5,95
		25	10,29	5,38	11,84	5,53	13,36	5,67	14,88	5,82	15,48	5,88	16,37	5,97	17,85	6,13
		27	10,25	5,56	11,78	5,70	13,28	5,84	14,77	5,99	15,37	6,06	16,25	6,15	17,71	6,32

NC (kW) :	Net cooling capacity	**NH (kW) :**	Net heating capacity	**SC (kW) :**	Sensible cooling capacity	**AC (kW) :**	Compressor absorbed power

COOLING CAPACITIES

FMC/H 20				Air inlet temperature at condenser (dry bulb)																	
Mixed air temperature °C		Indoor wet bulb	Indoor dry bulb	20 °C			25 °C			30 °C			35°C			40 °C			44 °C		
				NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC
Minimum airflow rate	3090 m³/h	16	21	19,16	6,03	11,63	18,60	6,35	11,40	17,92	6,74	11,11	17,11	7,26	10,77	16,19	7,96	10,37	15,37	8,74	9,99
			24	19,14	6,02	14,52	18,61	6,34	14,22	17,95	6,74	13,85	17,18	7,26	13,40	16,28	7,96	12,88	15,48	8,75	12,39
			27	19,30	6,04	16,83	18,79	6,37	16,48	18,16	6,77	16,06	17,41	7,29	15,55	16,54	8,00	14,95	15,76	8,78	14,39
		19	24	20,92	6,17	11,31	20,29	6,50	11,12	19,55	6,90	10,88	18,68	7,42	10,59	17,70	8,12	10,24	16,82	8,91	9,92
			27	20,82	6,16	14,41	20,22	6,48	14,13	19,50	6,89	13,79	18,66	7,41	13,39	17,71	8,12	12,91	16,85	8,91	12,47
			30	20,89	6,16	16,83	20,32	6,49	16,50	19,63	6,90	16,10	18,82	7,43	15,62	17,89	8,14	15,05	17,05	8,93	14,53
		22	27	22,99	6,34	10,52	22,31	6,67	10,39	21,50	7,08	10,22	20,57	7,61	10,01	19,52	8,32	9,76	18,60	9,10	9,52
			30	22,81	6,32	13,89	22,15	6,65	13,66	21,37	7,06	13,38	20,47	7,59	13,05	19,45	8,31	12,65	18,54	9,10	12,27
			33	22,80	6,32	16,50	22,16	6,65	16,21	21,41	7,07	15,86	20,53	7,60	15,44	19,54	8,32	14,94	18,65	9,11	14,47
Nominal airflow rate	4500 m³/h	16	21	19,98	6,57	13,41	19,37	6,88	13,15	18,63	7,26	12,82	17,78	7,77	12,42	16,80	8,46	11,95	15,94	9,23	11,52
			24	20,10	6,58	16,93	19,51	6,89	16,58	18,81	7,29	16,14	17,98	7,79	15,63	17,03	8,49	15,01	16,18	9,25	14,45
			27	20,40	6,62	19,89	19,84	6,94	19,48	19,15	7,33	18,98	18,22	7,97	18,22	17,35	8,72	17,35	16,58	9,55	16,58
		19	24	21,78	6,71	13,20	21,10	7,03	12,97	20,30	7,43	12,69	19,38	7,94	12,35	18,34	8,65	11,94	17,43	9,43	11,56
			27	21,81	6,71	16,95	21,16	7,04	16,62	20,39	7,44	16,22	19,50	7,96	15,74	18,49	8,67	15,18	17,59	9,45	14,65
			30	22,03	6,74	20,04	21,40	7,07	19,64	20,66	7,47	19,16	19,79	8,00	18,59	18,81	8,71	17,91	17,93	9,48	17,29
		22	27	23,88	6,88	12,52	23,14	7,21	12,36	22,28	7,62	12,15	21,30	8,14	11,90	20,20	8,86	11,58	19,23	9,65	11,28
			30	23,84	6,88	16,57	23,13	7,21	16,29	22,29	7,62	15,95	21,34	8,15	15,55	20,26	8,87	15,06	19,31	9,66	14,61
			33	23,96	6,89	19,88	23,27	7,22	19,52	22,47	7,64	19,09	21,54	8,18	18,58	20,49	8,90	17,97	19,56	9,69	17,41
Maximum airflow rate	4850 m³/h	16	21	19,93	6,82	13,83	19,30	7,15	13,54	18,56	7,56	13,20	17,69	8,11	12,78	16,70	8,86	12,28	15,82	9,71	11,82
			24	20,08	6,84	17,47	19,48	7,17	17,09	18,76	7,59	16,64	17,92	8,14	16,09	16,96	8,89	15,44	16,10	9,73	14,85
			27	20,46	6,88	20,46	19,92	7,22	19,92	19,26	7,63	19,26	18,50	8,17	18,50	17,62	8,90	17,62	16,83	9,69	16,83
		19	24	21,73	6,96	13,67	21,04	7,30	13,43	20,23	7,72	13,13	19,30	8,28	12,76	18,25	9,04	12,32	17,32	9,90	11,91
			27	21,80	6,97	17,55	21,14	7,31	17,20	20,35	7,74	16,77	19,45	8,30	16,27	18,42	9,07	15,66	17,52	9,92	15,11
			30	22,05	7,00	20,78	21,41	7,35	20,36	20,65	7,78	19,85	19,78	8,34	19,24	18,78	9,11	18,53	17,89	9,96	17,87
		22	27	23,85	7,13	13,06	23,09	7,48	12,88	22,22	7,91	12,65	21,22	8,48	12,38	20,11	9,25	12,03	19,13	10,11	11,71
			30	23,84	7,13	17,23	23,11	7,48	16,94	22,26	7,92	16,58	21,29	8,49	16,14	20,21	9,26	15,62	19,25	10,13	15,13
			33	23,99	7,15	20,69	23,29	7,50	20,31	22,47	7,94	19,85	21,53	8,52	19,30	20,47	9,30	18,66	19,53	10,16	18,06

HEATING CAPACITIES

FMH 20			Air inlet temperature at condenser (dry bulb)													
Indoor Dry Bulb			-10 °C		-5 °C		0 °C		5°C		7 °C		10 °C		15 °C	
			NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC
Minimum airflow	3090 m³/h	15	13,12	5,19	15,13	5,57	17,14	5,93	19,15	6,30	19,96	6,45	21,18	6,67	23,20	7,06
		18	13,12	5,51	15,08	5,89	17,05	6,26	19,03	6,65	19,82	6,80	21,01	7,04	22,99	7,45
		20	13,13	5,73	15,06	6,12	17,00	6,50	18,95	6,89	19,73	7,06	20,90	7,30	22,86	7,74
		23	13,15	6,10	15,04	6,49	16,94	6,88	18,84	7,30	19,61	7,47	20,75	7,73	22,67	8,19
		25	13,16	6,35	15,03	6,75	16,90	7,16	18,78	7,59	19,53	7,76	20,66	8,04	22,55	8,53
		27	13,19	6,62	15,02	7,03	16,87	7,45	18,72	7,89	19,46	8,08	20,57	8,37	22,43	8,88
Nominal airflow	4500 m³/h	15	13,56	5,29	15,68	5,60	17,80	5,89	19,92	6,19	20,77	6,31	22,05	6,49	24,19	6,80
		19	13,53	5,69	15,59	5,99	17,65	6,29	19,72	6,60	20,55	6,72	21,80	6,91	23,88	7,24
		20	13,53	5,80	15,57	6,10	17,62	6,40	19,68	6,71	20,50	6,83	21,74	7,03	23,80	7,36
		23	13,52	6,13	15,52	6,43	17,53	6,74	19,54	7,05	20,35	7,18	21,56	7,38	23,59	7,73
		25	13,52	6,37	15,50	6,67	17,48	6,97	19,46	7,30	20,26	7,43	21,45	7,64	23,45	8,00
		27	13,53	6,62	15,47	6,91	17,43	7,22	19,38	7,55	20,17	7,69	21,35	7,90	23,32	8,28
Maximum air-flow rate	4850 m³/h	15	13,79	5,50	15,93	5,77	18,07	6,05	20,23	6,32	21,09	6,43	22,38	6,60	24,55	6,89
		19	13,75	5,92	15,83	6,19	17,92	6,46	20,02	6,74	20,86	6,85	22,12	7,03	24,23	7,34
		20	13,74	6,03	15,81	6,30	17,89	6,57	19,97	6,85	20,80	6,97	22,06	7,14	24,15	7,45
		23	13,73	6,38	15,75	6,64	17,79	6,91	19,83	7,20	20,65	7,32	21,88	7,50	23,93	7,83
		25	13,72	6,62	15,72	6,88	17,73	7,16	19,74	7,45	20,55	7,57	21,76	7,76	23,79	8,10
		27	13,72	6,88	15,70	7,14	17,68	7,41	19,66	7,71	20,46	7,83	21,65	8,03	23,65	8,38

GC (kW) :	Gross cooling capacity	**NH (kW) :**	Net heating capacity	**SC (kW) :**	Sensible cooling capacity	**AC (kW) :**	Compressor absorbed power

COOLING CAPACITIES

FMC/H 25				Air inlet temperature at condenser (dry bulb)																	
Mixed air temperature °C		Indoor wet bulb	Indoor dry bulb	20 °C			25 °C			30 °C			35°C			40 °C			44 °C		
				NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC
Minimum airflow rate	3455 m³/h	16	21	23,00	7,15	13,63	22,35	7,54	13,33	21,55	8,03	12,98	20,58	8,67	12,56	19,46	9,57	12,06	18,44	10,61	11,59
			24	22,91	7,13	16,87	22,28	7,53	16,52	21,50	8,03	16,08	20,55	8,69	15,55	19,45	9,60	14,92	18,45	10,65	14,34
			27	23,05	7,15	19,43	22,45	7,55	19,05	21,68	8,06	18,56	20,76	8,72	17,97	19,67	9,65	17,26	18,69	10,71	16,60
		19	24	25,15	7,29	13,21	24,42	7,68	12,94	23,52	8,18	12,63	22,47	8,83	12,25	21,25	9,73	11,82	20,17	10,75	11,41
			27	24,97	7,27	16,71	24,25	7,67	16,38	23,38	8,17	15,97	22,34	8,83	15,48	21,15	9,75	14,89	20,08	10,80	14,35
			30	25,01	7,27	19,42	24,32	7,68	19,04	23,46	8,19	18,58	22,45	8,86	18,01	21,28	9,79	17,34	20,22	10,85	16,71
		22	27	27,60	7,49	12,18	26,77	7,89	11,97	25,79	8,40	11,73	24,64	9,06	11,45	23,34	9,98	11,11	22,18	11,01	10,80
			30	27,31	7,46	16,02	26,51	7,87	15,72	25,54	8,39	15,37	24,42	9,06	14,96	23,14	9,99	14,46	21,99	11,06	14,00
			33	27,25	7,46	18,96	26,46	7,87	18,62	25,52	8,39	18,21	24,42	9,08	17,70	23,15	10,03	17,10	22,03	11,11	16,53
Nominal airflow rate	5470 m³/h	16	21	24,31	7,92	15,92	23,55	8,28	15,59	22,63	8,75	15,19	21,55	9,36	14,70	20,32	10,22	14,12	19,21	11,21	13,58
			24	24,44	7,93	20,01	23,70	8,30	19,60	22,80	8,78	19,08	21,75	9,40	18,46	20,53	10,28	17,71	19,44	11,27	17,01
			27	24,80	7,97	23,44	24,08	8,35	22,98	23,20	8,83	22,40	22,17	9,47	21,68	20,97	10,35	20,82	28,25	7,35	26,61
		19	24	26,43	8,09	15,65	25,58	8,47	15,35	24,57	8,96	15,00	23,41	9,60	14,56	22,08	10,49	14,04	20,90	11,51	13,56
			27	26,46	8,10	20,02	25,63	8,48	19,63	24,65	8,98	19,14	23,50	9,63	18,55	22,19	10,54	17,85	21,03	11,58	17,20
			30	26,73	8,13	23,62	25,92	8,52	23,16	24,95	9,02	22,60	23,82	9,68	21,91	22,54	10,60	21,08	21,39	11,65	20,31
		22	27	28,84	8,32	14,79	27,90	8,72	14,57	26,80	9,23	14,29	25,55	9,91	13,95	24,13	10,85	13,53	22,88	11,92	13,14
			30	28,77	8,32	19,51	27,86	8,73	19,17	26,78	9,25	18,75	25,54	9,94	18,24	24,14	10,90	17,62	22,91	11,99	17,04
			33	28,93	8,34	23,37	28,03	8,76	22,95	26,97	9,28	22,44	25,75	9,98	21,81	24,38	10,95	21,05	23,16	12,06	20,34
Maximum airflow rate	5750m³/h	16	21	24,01	8,37	16,20	23,23	8,79	15,86	22,30	9,32	15,43	21,21	10,05	14,92	19,95	11,09	14,30	18,83	12,32	13,73
			24	24,17	8,39	20,34	23,41	8,81	19,91	22,50	9,36	19,37	21,43	10,09	18,71	20,19	11,15	17,92	19,09	12,39	17,19
			27	24,56	8,43	23,84	23,82	8,86	23,36	22,93	9,41	22,75	21,90	10,06	21,90	20,79	11,01	20,79	19,80	12,09	19,80
		19	24	26,12	8,54	16,01	25,26	8,97	15,69	24,24	9,53	15,31	23,05	10,28	14,85	21,71	11,36	14,30	20,52	12,62	13,78
			27	26,19	8,55	20,43	25,34	8,99	20,01	24,34	9,55	19,50	23,18	10,32	18,88	21,85	11,41	18,13	20,68	12,70	17,44
			30	26,48	8,58	24,09	25,66	9,03	23,62	24,67	9,60	23,02	23,53	10,37	22,29	22,23	11,48	21,41	21,07	12,77	20,60
		22	27	28,53	8,77	15,24	27,57	9,22	15,00	26,46	9,81	14,70	25,19	10,60	14,33	23,75	11,73	13,88	22,49	13,05	13,44
			30	28,49	8,77	20,01	27,56	9,23	19,64	26,47	9,83	19,19	25,21	10,63	18,65	23,80	11,78	17,99	22,56	13,13	17,37
			33	28,67	8,80	23,94	27,76	9,26	23,50	26,69	9,87	22,95	25,46	10,68	22,28	24,06	11,84	21,47	22,84	13,20	20,72

HEATING CAPACITIES

FMH 25			Air inlet temperature at condenser (dry bulb)													
Indoor Dry Bulb			-10 °C		-5 °C		0 °C		5°C		7 °C		10 °C		15 °C	
			NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC
Minimum airflow	3455 m³/h	15	16,02	6,72	18,42	7,21	20,79	7,71	23,15	8,22	24,09	8,42	25,49	8,74	27,80	9,30
		18	16,00	7,13	18,35	7,64	20,67	8,16	22,98	8,69	23,90	8,91	25,27	9,25	27,53	9,85
		20	15,99	7,43	18,31	7,95	20,60	8,48	22,87	9,03	23,78	9,26	25,13	9,62	27,36	10,26
		23	15,99	7,92	18,26	8,46	20,50	9,02	22,72	9,60	23,60	9,85	24,92	10,24	27,11	10,93
		25	16,00	8,28	18,23	8,83	20,44	9,41	22,63	10,02	23,50	10,29	24,80	10,69	26,94	11,43
		27	16,01	8,67	18,21	9,24	20,38	9,84	22,54	10,48	23,39	10,76	24,67	11,19		
Nominal airflow	5470 m³/h	15	16,69	6,77	19,27	7,14	21,82	7,51	24,35	7,88	25,36	8,03	26,87	8,26	29,36	8,66
		19	16,63	7,26	19,14	7,63	21,62	8,00	24,09	8,38	25,07	8,54	26,53	8,79	28,96	9,21
		20	16,62	7,39	19,11	7,76	21,58	8,13	24,03	8,52	25,00	8,68	26,45	8,93	28,86	9,36
		23	16,59	7,81	19,03	8,18	21,45	8,55	23,84	8,95	24,80	9,12	26,22	9,38	28,58	9,84
		25	16,57	8,11	18,98	8,48	21,36	8,86	23,73	9,27	24,67	9,44	26,08	9,71	28,40	10,19
		27	16,56	8,43	18,94	8,80	21,29	9,18	23,62	9,60	24,55	9,78	25,93	10,06	28,22	10,56
Maximum air-flow rate	5750	15	17,12	7,21	19,72	7,54	22,30	7,87	24,85	8,21	25,87	8,35	27,39	8,57	29,91	8,94
		19	17,05	7,74	19,58	8,06	22,09	8,39	24,58	8,74	25,57	8,89	27,05	9,12	29,50	9,52
		20	17,04	7,88	19,55	8,20	22,05	8,53	24,52	8,89	25,50	9,03	26,97	9,26	29,41	9,67
		23	17,00	8,34	19,47	8,65	21,91	8,98	24,33	9,35	25,30	9,50	26,74	9,74	29,12	10,17
		25	16,99	8,67	19,42	8,98	21,83	9,31	24,22	9,68	25,17	9,84	26,59	10,08	28,94	10,53
		27	16,97	9,03	19,37	9,32	21,75	9,66	24,10	10,03	25,04	10,20	26,44	10,45	28,76	10,92

NC (kW) :	Net cooling capacity	**NH (kW) :**	Net heating capacity	**SC (kW) :**	Sensible cooling capacity	**AC (kW) :**	Compressor absorbed power

COOLING CAPACITIES

FMC/H 30				Air inlet temperature at condenser (dry bulb)																	
Mixed air temperature °C		Indoor wet bulb	Indoor dry bulb	20 °C			25 °C			30 °C			35°C			40 °C			41 °C		
				NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC	NC	AC	SC
Minimum airflow rate	3695 m³/h	16	21	27,18	8,87	16,14	26,31	9,37	15,73	25,21	10,02	15,24	23,88	10,89	14,66	22,32	12,17	13,97	21,98	12,50	13,82
			24	27,15	8,87	19,69	26,30	9,37	19,25	25,22	10,02	18,70	23,90	10,90	18,03	22,35	12,18	17,20	22,01	12,52	17,01
			27	27,18	8,88	22,96	26,35	9,38	22,52	25,28	10,03	21,92	23,98	10,92	21,17	22,44	12,21	20,22	22,11	12,54	20,01
		19	24	29,61	9,10	15,82	28,63	9,63	15,40	27,41	10,31	14,93	25,96	11,25	14,38	24,27	12,63	13,74	23,91	12,99	13,60
			27	29,57	9,09	19,36	28,60	9,63	18,92	27,40	10,32	18,38	25,96	11,26	17,74	24,29	12,64	16,97	23,93	13,00	16,80
			30	29,59	9,10	22,58	28,64	9,63	22,13	27,45	10,33	21,56	26,03	11,27	20,85	24,37	12,66	19,96	24,01	13,02	19,77
		22	27	32,26	9,31	15,37	31,16	9,86	14,97	29,82	10,59	14,52	28,25	11,58	14,02	26,45	13,04	13,45	26,06	13,42	13,32
			30	32,21	9,30	18,87	31,12	9,86	18,45	29,80	10,59	17,95	28,24	11,58	17,36	26,45	13,05	16,66	26,07	13,43	16,51
			33	32,21	9,30	22,04	31,14	9,87	21,61	29,83	10,60	21,08	28,29	11,60	20,43	26,51	13,06	19,63	26,13	13,45	19,45
Nominal airflow rate	5060 m³/h	16	21	28,49	9,38	18,20	27,49	9,86	17,80	26,27	10,48	17,30	24,81	11,33	16,68	23,11	12,58	15,93	22,74	12,90	15,76
			24	28,48	9,38	22,81	27,50	9,86	22,34	26,29	10,49	21,72	24,85	11,34	20,95	23,17	12,59	19,99	22,80	12,91	19,77
			27	28,54	9,39	27,13	27,57	9,87	26,61	26,38	10,50	25,90	25,04	11,66	25,04	23,62	13,09	23,62	23,31	13,46	23,31
		19	24	31,01	9,62	17,73	29,90	10,13	17,34	28,55	10,81	16,88	26,97	11,73	16,32	25,16	13,10	15,64	24,77	13,45	15,49
			27	31,00	9,61	22,39	29,90	10,13	21,94	28,57	10,81	21,36	27,00	11,74	20,65	25,20	13,11	19,77	24,81	13,46	19,57
			30	31,04	9,62	26,73	29,95	10,14	26,23	28,64	10,82	25,57	27,09	11,75	24,72	25,30	13,12	23,67	24,92	13,48	23,43
		22	27	33,76	9,84	17,10	32,52	10,39	16,74	31,06	11,11	16,33	29,36	12,10	15,84	27,42	13,56	15,26	27,01	13,94	15,13
			30	33,73	9,83	21,80	32,51	10,38	21,38	31,06	11,11	20,86	29,37	12,10	20,22	27,45	13,56	19,44	27,04	13,94	19,26
			33	33,75	9,84	26,15	32,55	10,39	25,69	31,11	11,12	25,08	29,44	12,11	24,32	27,53	13,58	23,37	27,13	13,96	23,16
Maximum airflow rate	5500 m³/h	16	21	28,47	9,80	18,76	27,43	10,32	18,34	26,16	11,00	17,82	24,66	11,95	17,18	22,93	13,37	16,39	22,55	13,74	16,21
			24	28,47	9,80	23,64	27,45	10,32	23,14	26,20	11,01	22,50	24,71	11,96	21,67	22,99	13,38	20,65	22,62	13,76	20,42
			27	28,53	9,81	28,25	27,57	10,37	27,57	26,51	11,08	26,51	25,25	12,06	25,25	23,79	13,51	23,79	23,47	13,89	23,47
		19	24	31,02	10,04	18,27	29,87	10,59	17,89	28,48	11,33	17,41	26,86	12,36	16,83	25,00	13,91	16,12	24,60	14,32	15,96
			27	31,02	10,03	23,25	29,88	10,60	22,77	28,50	11,34	22,17	26,89	12,37	21,41	25,05	13,92	20,48	24,66	14,33	20,27
			30	31,06	10,04	27,90	29,94	10,60	27,36	28,58	11,35	26,65	26,99	12,39	25,74	25,16	13,94	24,61	24,77	14,35	24,35
		22	27	33,80	10,25	17,62	32,52	10,85	17,27	31,01	11,63	16,86	29,27	12,73	16,36	27,30	14,39	15,75	26,87	14,82	15,61
			30	33,78	10,25	22,66	32,52	10,85	22,23	31,02	11,63	21,69	29,29	12,74	21,02	27,33	14,39	20,19	26,91	14,83	20,00
			33	33,81	10,25	27,36	32,56	10,85	26,87	31,08	11,64	26,22	29,37	12,75	25,40	27,42	14,41	24,38	27,01	14,84	24,15

HEATING CAPACITIES

FMH 30			Air inlet temperature at condenser (dry bulb)													
Indoor Dry Bulb			-10 °C		-5 °C		0 °C		5°C		7 °C		10 °C		15 °C	
			NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC	NH	AC
Minimum airflow	2695 m³/h	15	18,30	7,75	21,01	8,31	23,70	8,87	26,37	9,43	27,43	9,66	29,02	10,01	31,65	10,61
		18	18,32	8,25	20,97	8,82	23,59	9,40	26,19	9,99	27,23	10,23	28,78	10,60	31,35	11,24
		20	18,35	8,60	20,95	9,19	23,53	9,78	26,09	10,39	27,11	10,64	28,63	11,03	31,16	11,71
		23	18,40	9,18	20,94	9,78	23,46	10,40	25,95	11,04	26,95	11,31	28,43	11,72	30,89	12,46
		25	18,45	9,59	20,95	10,21	23,42	10,84	25,87	11,51	26,85	11,79	28,31	12,23	30,73	13,01
		27	18,51	10,03	20,96	10,65	23,39	11,31	25,80	12,01	26,76	12,31	28,20	12,77	30,57	13,60
Nominal airflow	50600 m³/h	15	18,63	7,57	21,49	8,04	24,33	8,50	27,16	8,96	28,28	9,14	29,96	9,42	32,75	9,90
		19	18,61	8,18	21,39	8,66	24,14	9,13	26,88	9,60	27,97	9,79	29,60	10,08	32,30	10,59
		20	18,61	8,34	21,37	8,82	24,10	9,29	26,82	9,77	27,90	9,96	29,52	10,26	32,19	10,78
		23	18,63	8,86	21,32	9,34	23,99	9,82	26,64	10,31	27,70	10,51	29,28	10,83	31,89	11,38
		25	18,66	9,23	21,30	9,71	23,93	10,19	26,54	10,70	27,58	10,91	29,13	11,23	31,70	11,80
		27	18,69	9,62	21,29	10,09	23,88	10,58	26,45	11,10	27,47	11,32	28,99	11,66	31,52	12,26
Maximum air-flow rate	5500 m³/h	15	18,97	7,86	21,88	8,29	24,77	8,71	27,65	9,13	28,79	9,30	30,50	9,56	33,34	10,00
		19	18,94	8,50	21,76	8,93	24,57	9,35	27,35	9,78	28,46	9,96	30,12	10,23	32,87	10,69
		20	18,93	8,67	21,74	9,10	24,52	9,52	27,29	9,95	28,39	10,13	30,04	10,40	32,76	10,88
		23	18,94	9,22	21,68	9,64	24,40	10,06	27,10	10,50	28,18	10,69	29,79	10,97	32,45	11,47
		25	18,96	9,61	21,65	10,02	24,33	10,44	26,99	10,90	28,05	11,08	29,63	11,38	32,25	11,90
		27	18,98	10,01	21,64	10,42	24,27	10,85	26,89	11,31	27,93	11,50	29,49	11,81	32,06	12,35

GC (kW) :	Gross cooling capacity	**NH (kW) :**	Net heating capacity	**SC (kW) :**	Sensible cooling capacity	**AC (kW) :**	Compressor absorbed power

CORRECTION COEFICIENTS

CALCULATION OF COOLING CAPACITY DEPENDING ON AIR FLOW

INDOOR & OUTDOOR AIRFLOW RATES

	Sizes 10-12-15-20			Sizes 25-30		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
Cooling capacity	x 0.97	x 1.00	x 1.01	x 0.98	x 1.00	x 1.01
Sensible capacity	x 0.90	x 1.00	x 1.03	x 0.95	x 1.00	x 1.02

CALCULATION OF HEATING POWER DEPENDING ON AIR FLOW

INDOOR & OUTDOOR AIRFLOW RATES

	Sizes 10-12-15-20			Sizes 25-30		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
Cooling capacity	x 0.98	x 1.00	x 1.01	x 0.91	x 1.00	x 1.03
Sensible capacity	x 0.98	x 1.00	x 1.01	x 0.98	x 1.00	x 1.01

UNITS WITHOUT ELECTRICAL HEATER (STANDARD UNITS)

PACKAGED UNIT (INDOOR+ OUTDOOR)

TYPE	10-230 I	10	12	15	20	25	30
Maximum power (KW)	5,5	5,3	6,6	7,8	10,4	12,6	14,2
Maximum current (A)	31,7	13,7	16,0	18,6	23,6	30,0	31,0
Starting current (A)	90,2	34,1	39,7	49,0	75,3	82,3	86,9
LRC (A)	133,7	48,7	57,2	70,8	109,6	120,0	127,0

INDOOR UNIT

TYPE	10-230 I	10	12	15	20	25	30
Maximum power (KW)	0,4	0,4	0,4	0,8	1,0	1,3	1,3
Maximum current (A)	2,6	2,6	2,6	2,8	4,3	4,3	4,3
Starting current (A)	1,7	1,7	1,7	1,8	2,8	2,8	2,8
LRC (A)	2,6	2,6	2,6	2,8	4,3	4,3	4,3

OUTDOOR UNIT

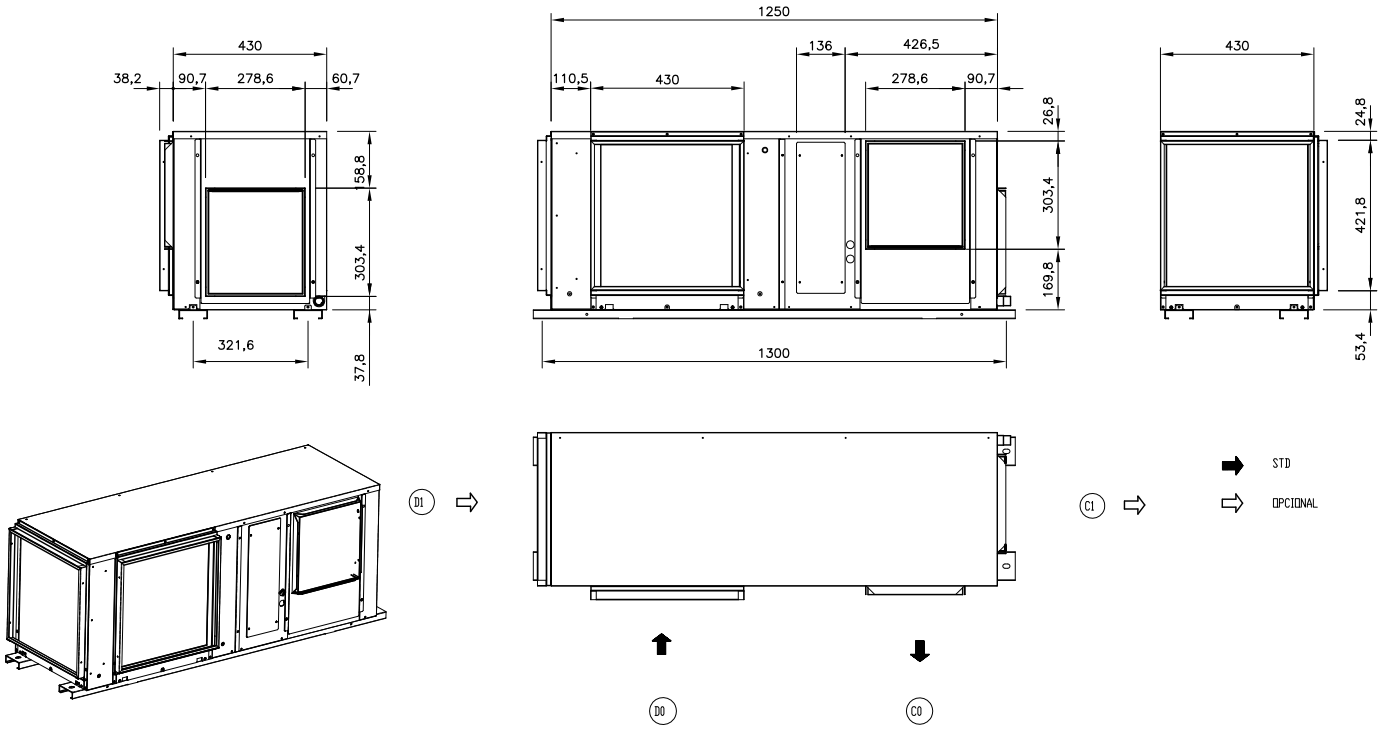
TYPE	10-230 I	10	12	15	20	25	30
Maximum power (KW)	5,1	4,9	6,1	7,0	9,4	11,3	13,0
Maximum current (A)	29,1	11,1	13,4	15,8	19,3	25,7	26,7
Starting current (A)	87,6	31,5	37,1	46,2	71,0	78,0	82,6
LRC (A)	131,1	46,1	54,6	68,0	105,3	115,7	122,7

ELECTRICAL HEATER (add the following consumption for heat pump units)

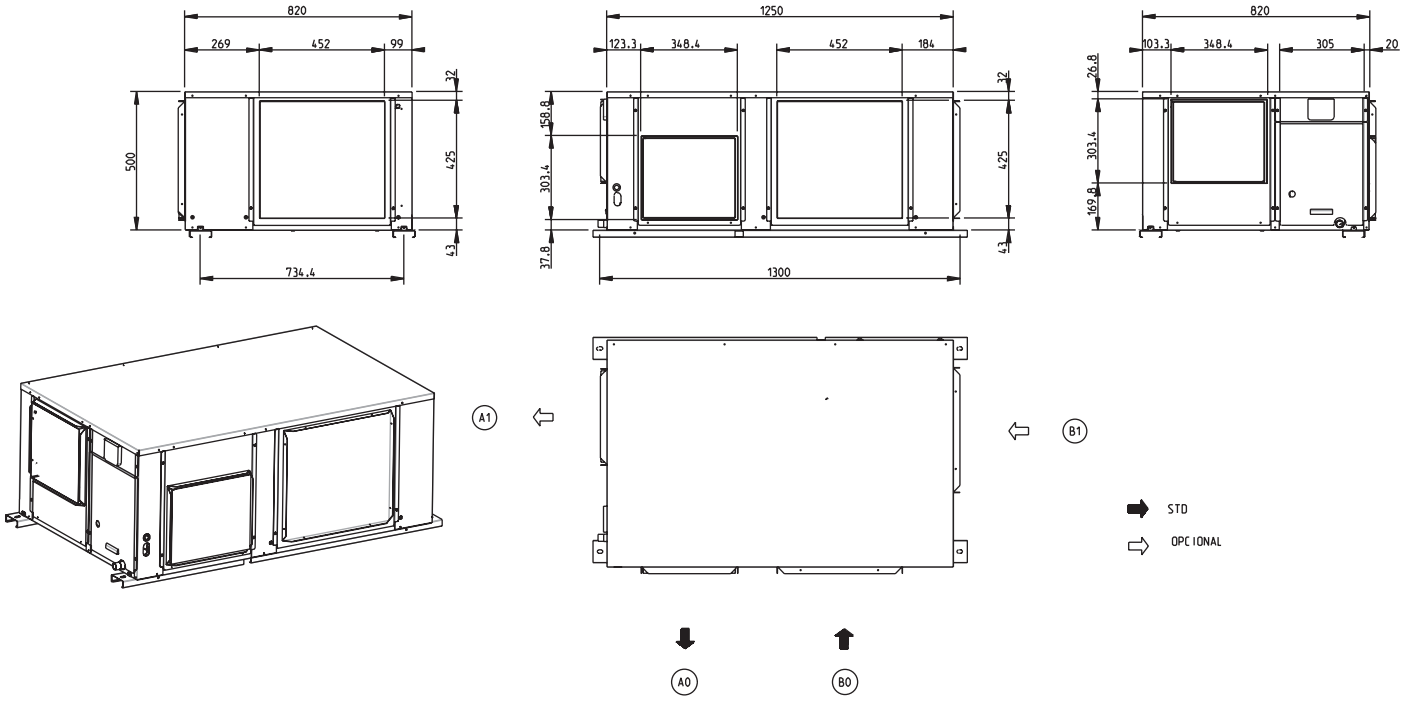
TYPE	10-230 I	10	12	15	20	25	30
Power input (kW)	3	3	4.5			7.5	
	6	6	6			9	
		9	9			12	
Maximum current (A)	13.0	7.5	11.3			18.8	
	26.1	15	15			22.5	
	-	22.5	22.5			30	

9.1 - UNIT DIMENSION

FIX 10-12

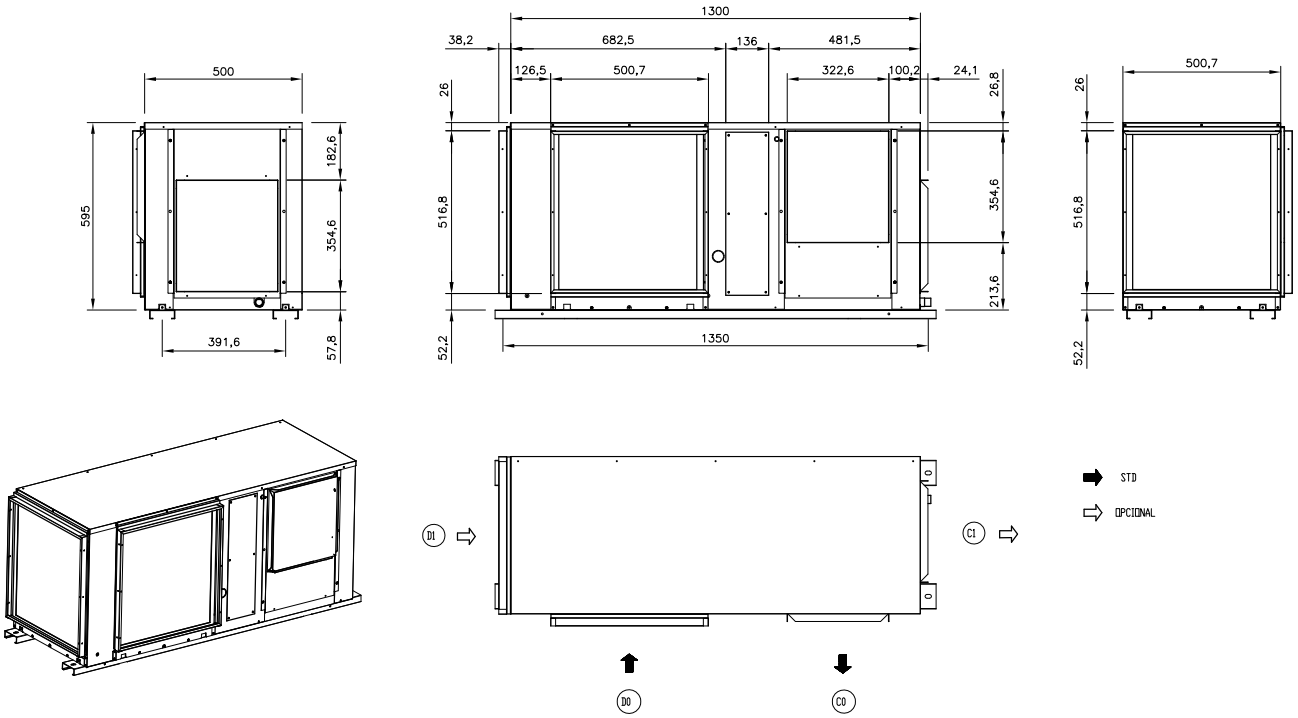


FSC / FSH 10-12



9.1 - UNIT DIMENSION

FIX 15



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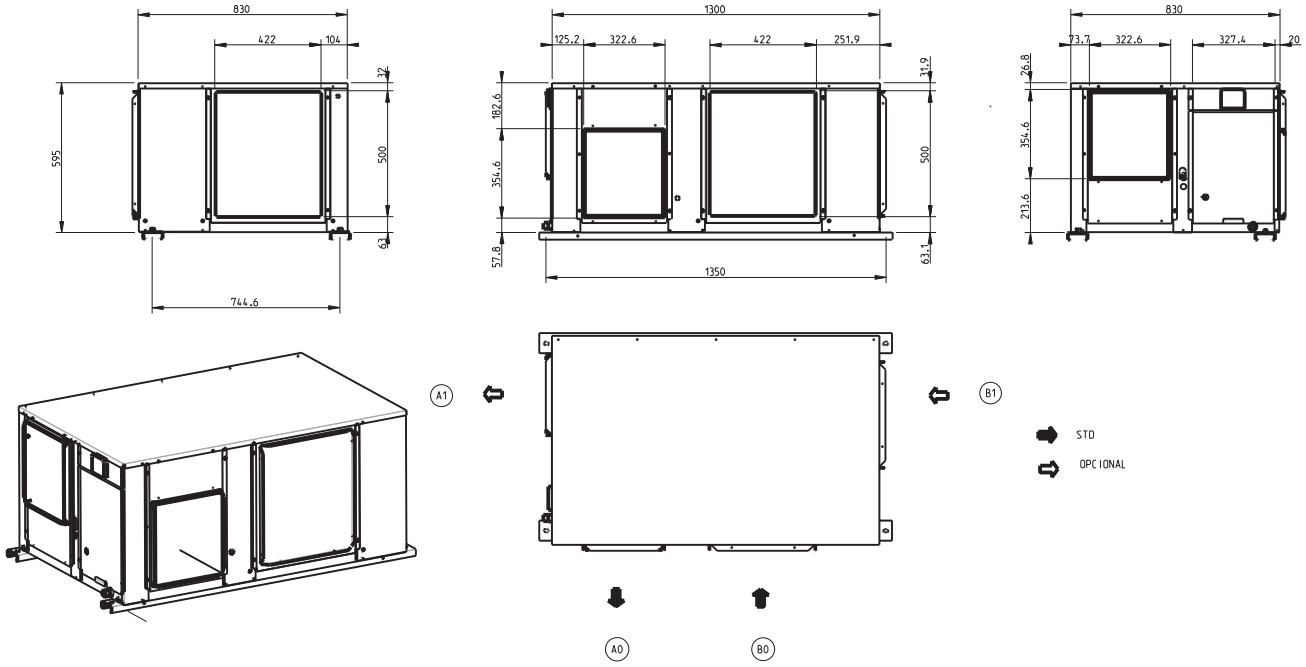
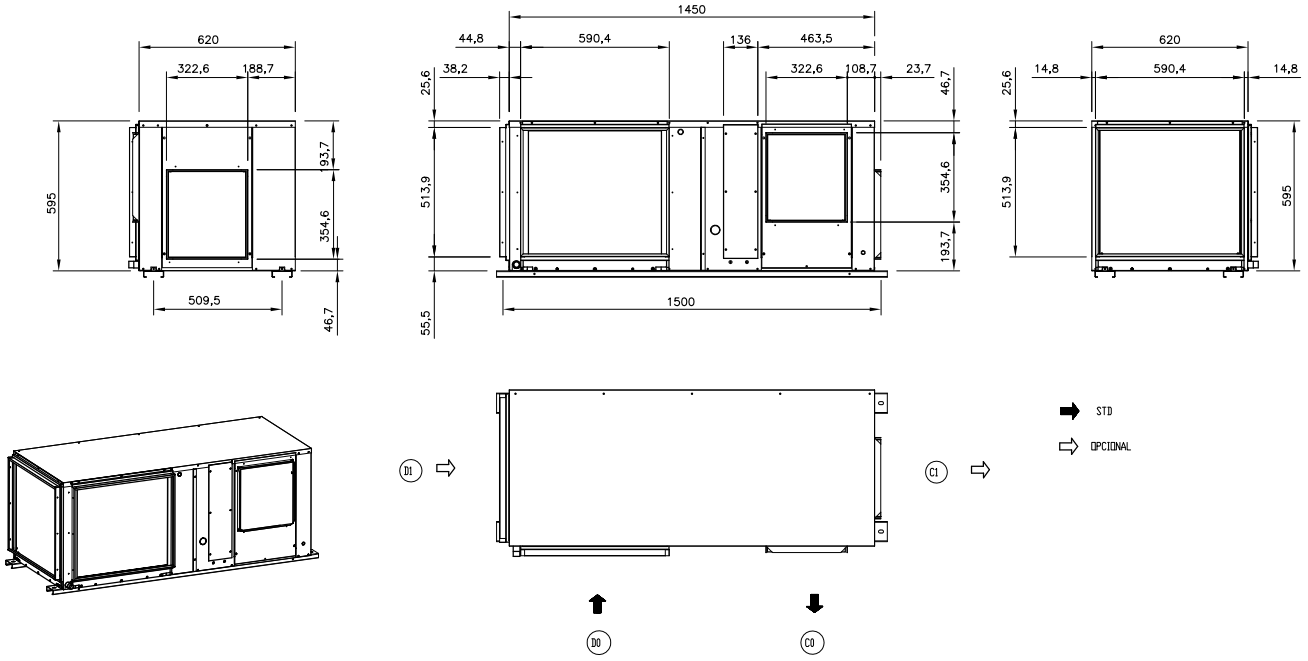


9.1 - UNIT DIMENSION

FIC / FIH 20



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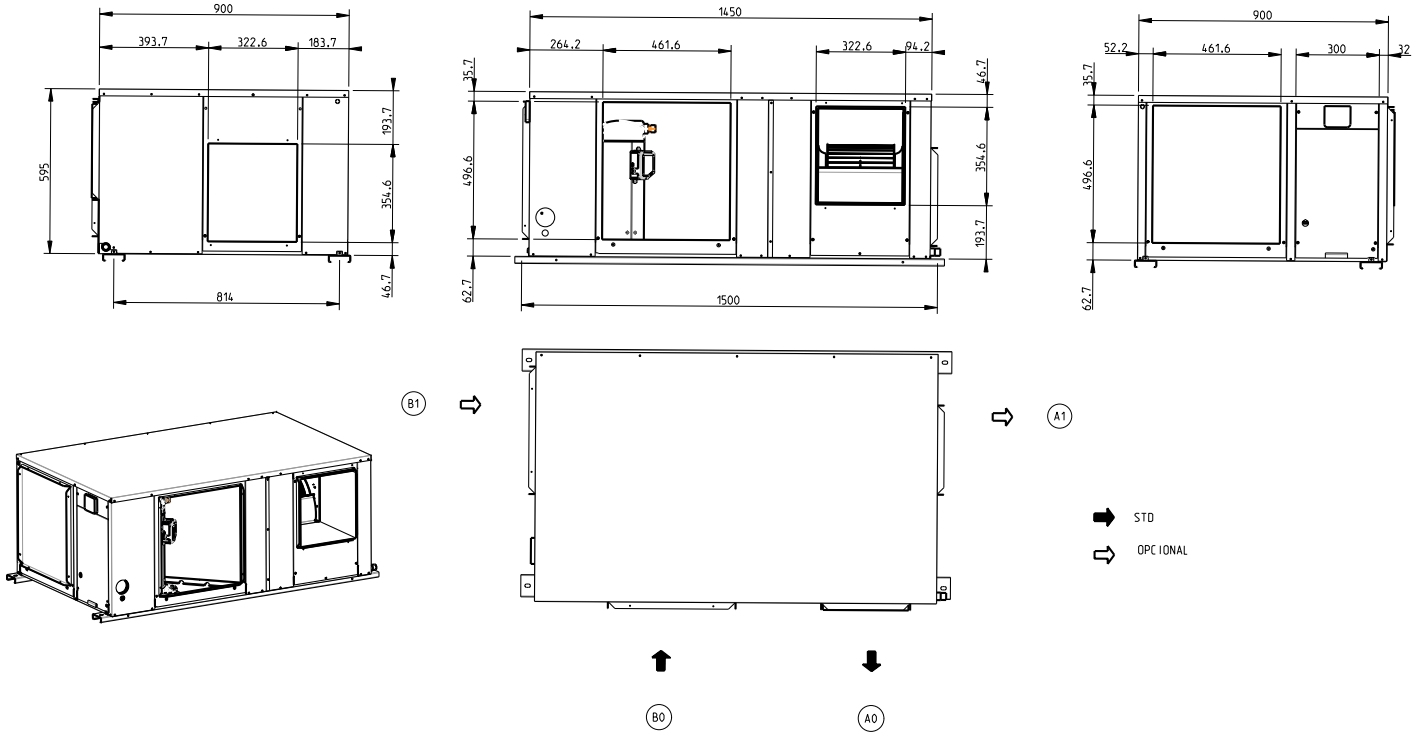
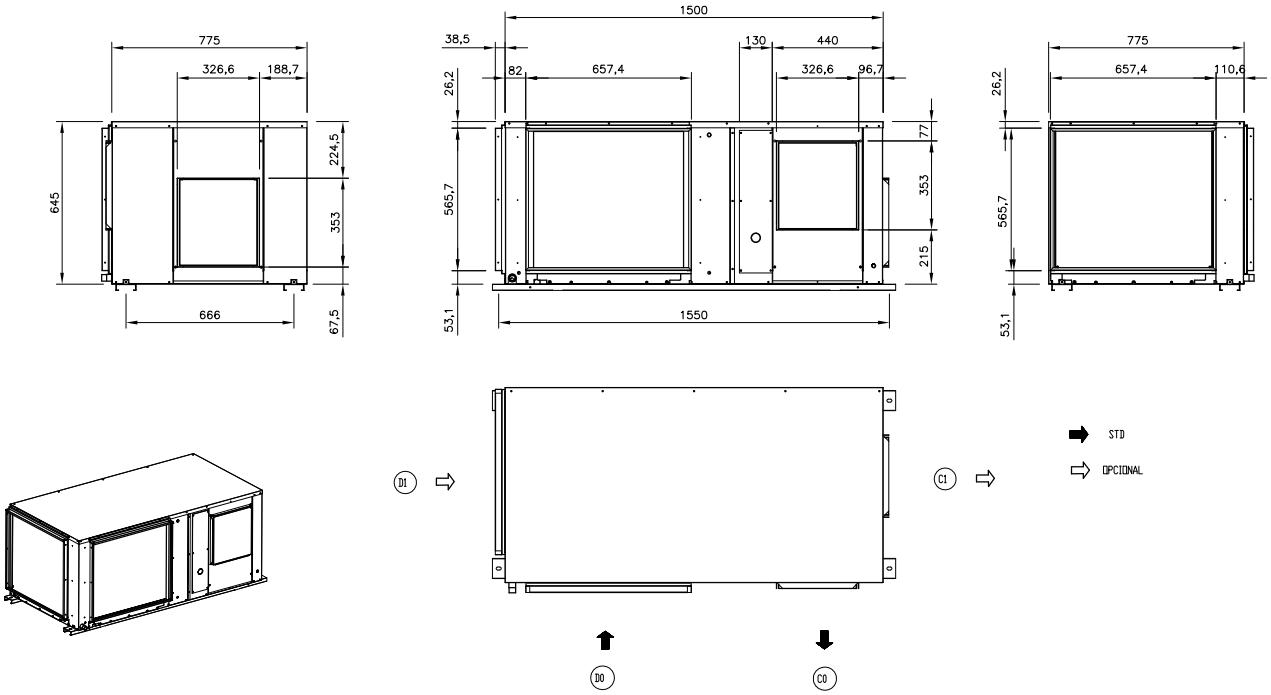
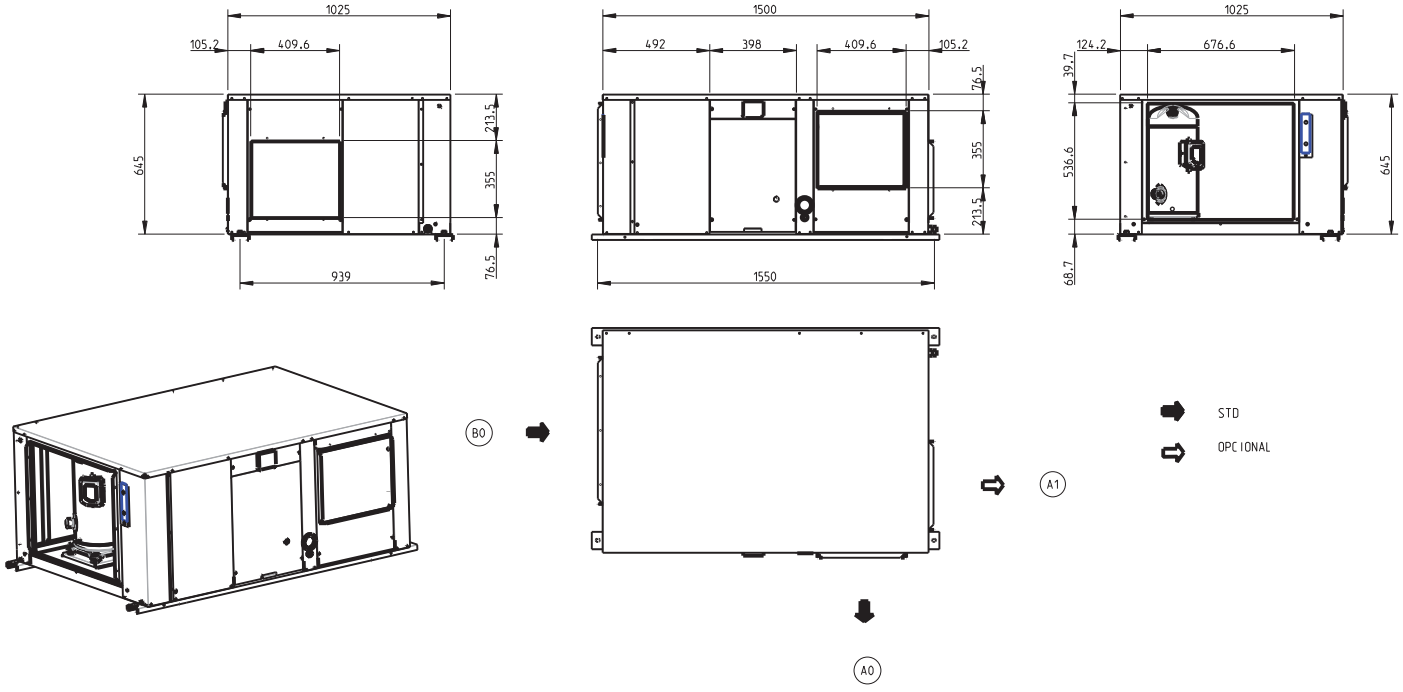


9.1 - UNIT DIMENSION

FIC / FIH 25-30

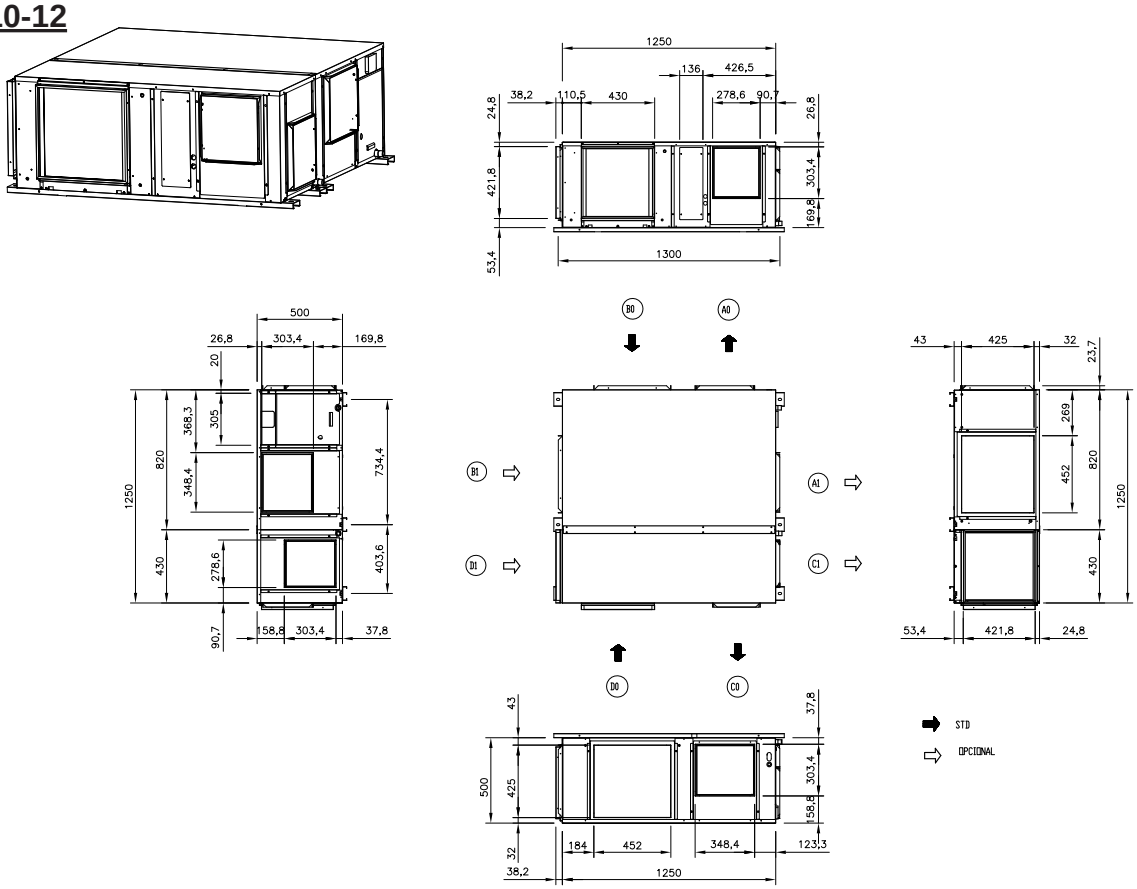


FSC / FSH 25-30



9.1 - UNIT DIMENSION

FMC/FMH 10-12



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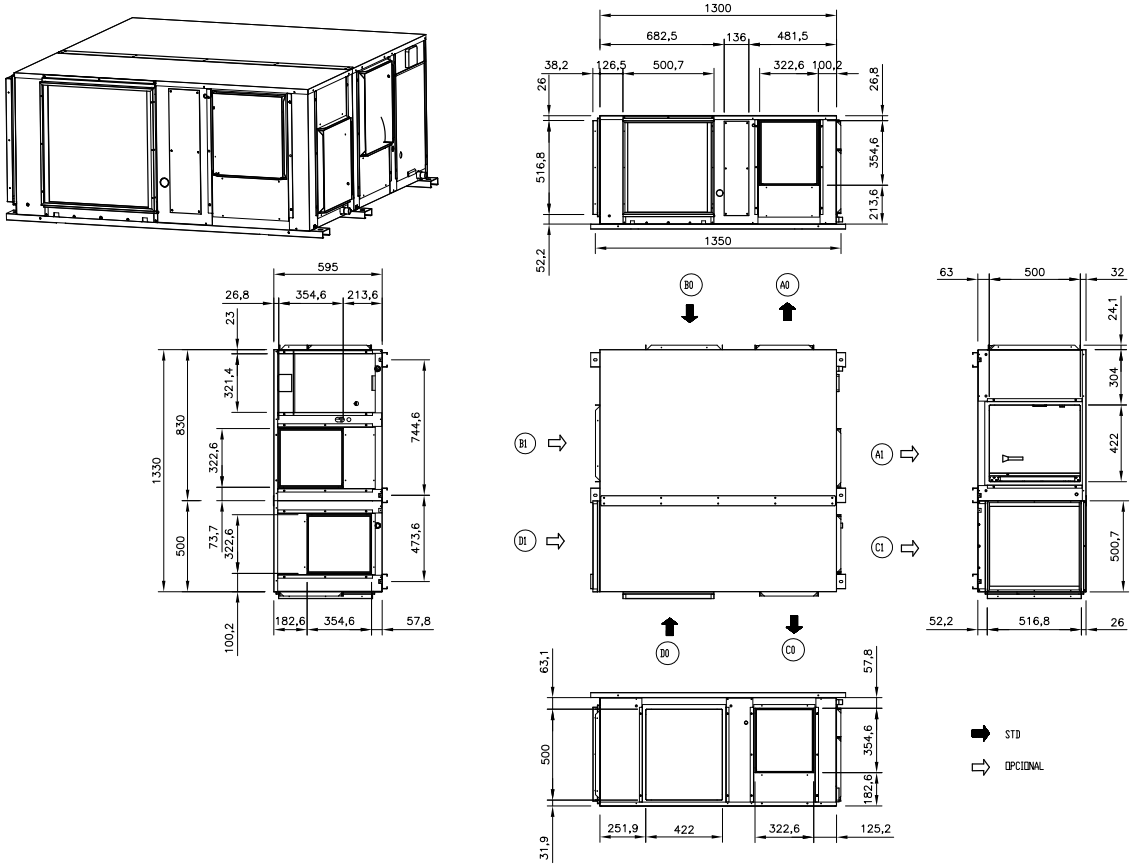

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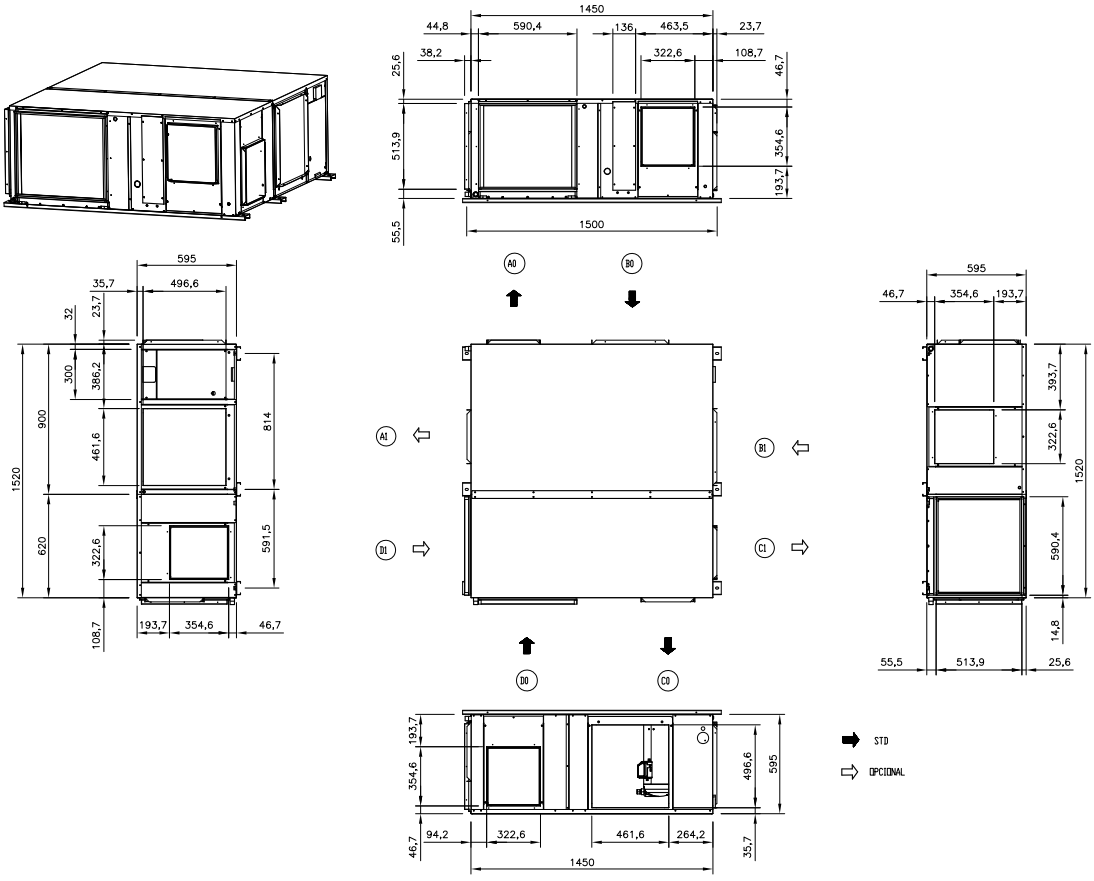
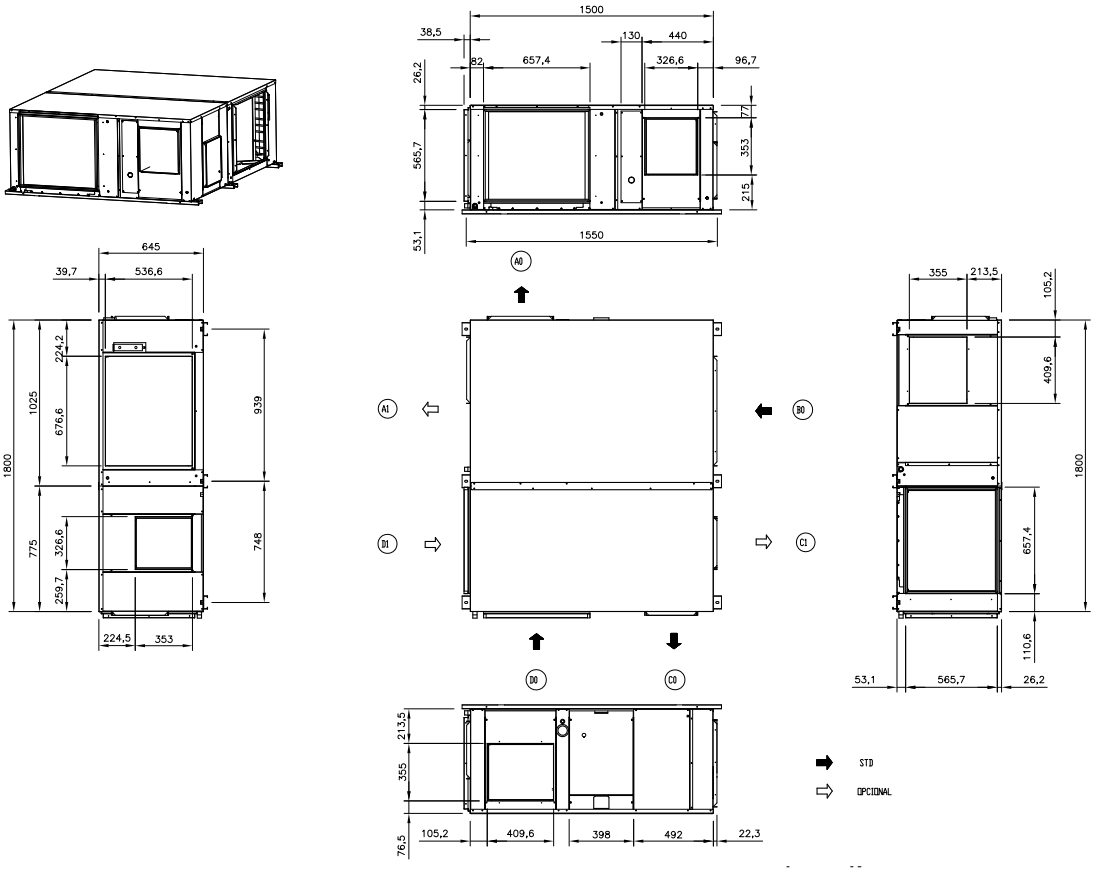
FMC/FMH 20



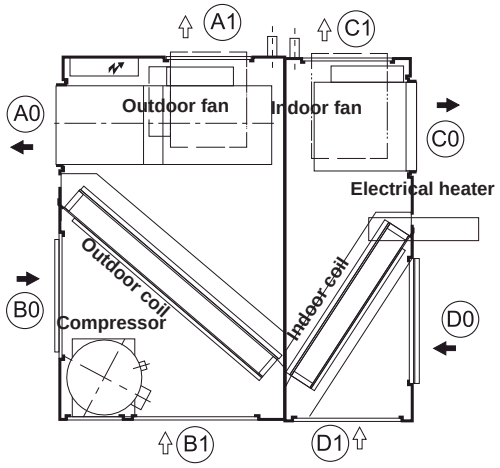
FMC/FMH 25-30



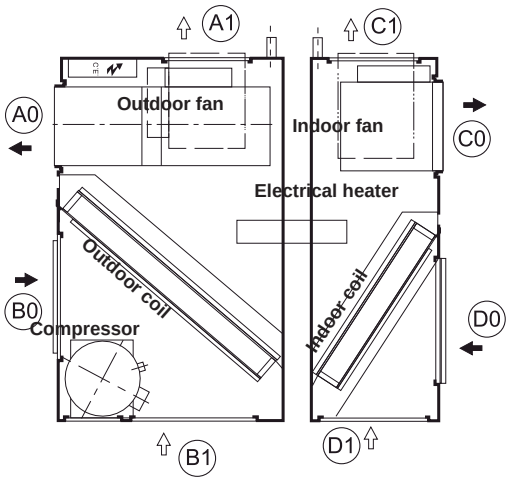
9.2.- DUCT POSITION

MODELS 10-12-15

Packaged unit

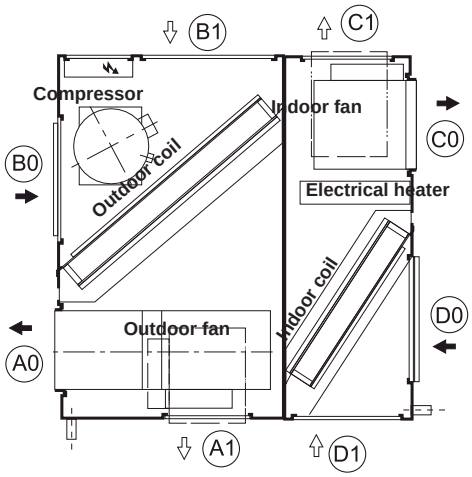


SPLIT UNIT

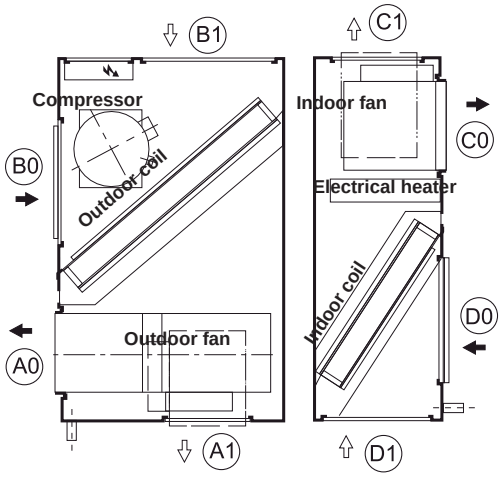


MODEL 20

Packaged unit

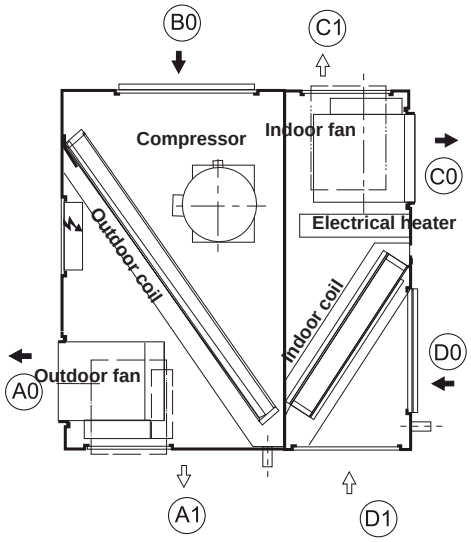


SPLIT UNIT

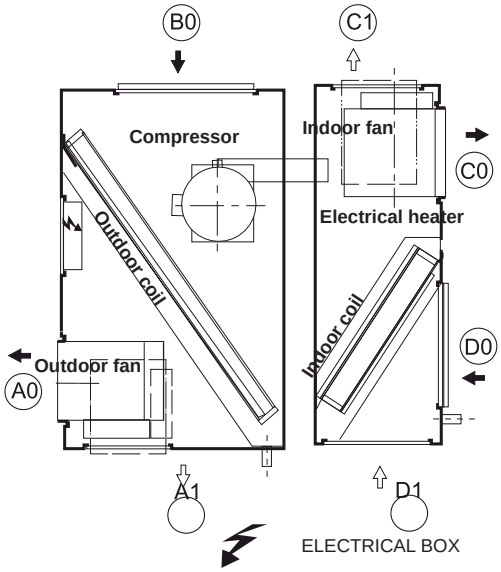


MODELS 25-30

Packaged unit



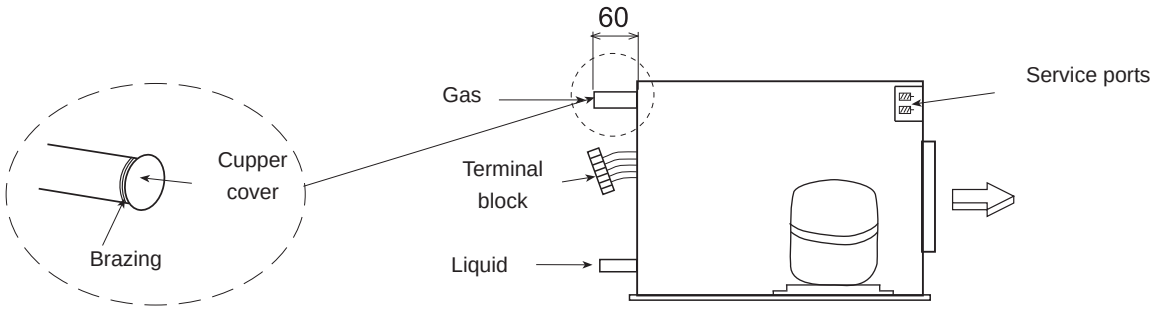
SPLIT UNIT



STANDARD ⇦ OPTION ELECTRICAL BOX

10.1 - REFRIGERANT CONNECTIONS

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



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

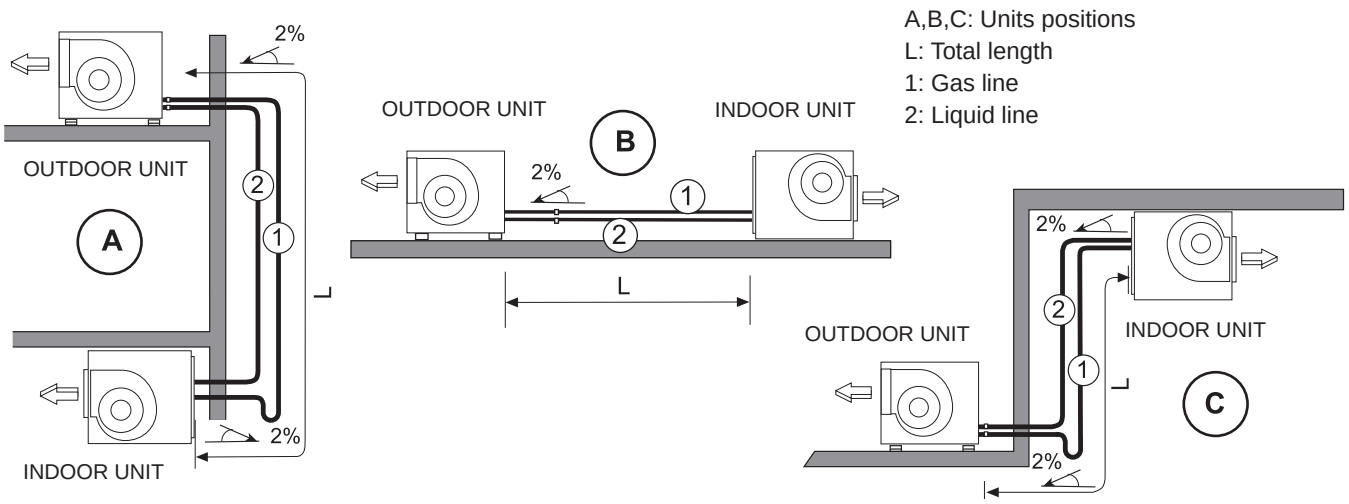
1. Remove the nitrogen gas through the high and low 5/16” service ports located inside and provide a low vacuum for safety.
2. Remove the caps from the connecting lines.
3. Braze the piping connection lines. Select piping diameter from table 2.7.1.
   (When brazing refrigerant pipes, nitrogen gas must be supplied into the pipes through the service ports to remove the air).
4. Leak test:
   Add nitrogen gas, check that a pressure of 5 kg/cm^2 has been reached and that there are no leaks in the circuit or brazing by applying soapy water to the pipes which will cause the bubbles to form where there are leaks.
   To detect small leaks, proceed as follows:

   Add nitrogen gas and check that a pressure of 25 kg/cm^2 has been reached, there are no leaks if the pressure remains the same for at least 24 hours and the final pressure is not less than 10% below the initial pressure.
5. Ensure that the gas line is insulated.
6. Evacuation:
   Remove the nitrogen gas, connect the gauge manifold and vacuum pump to both the liquid and gas lines, fully open the gauge manifold valve and switch on the vacuum pump. Check to make sure the gauge shows a pressure of -750mm Hg. Once a level of -750mm Hg is reached, keep the vacuum pump running for at least one hour.
7. Refrigerant charge:
   - Check TABLE 3.1. and 3.2. for the amount of refrigerant charge, depending on the length and size of the pipe connections.
   - Disconnect the vacuum pump and connect to the refrigerant-charging bottle. Open the charging pump and purge the air from the hose at the pressure gauge manifold.
   - Set up the amount of additional refrigerant on the weighing scale, open the high pressure and charged in the liquid state. If the total amount of refrigerant charge has not been reached because the pressure is balanced, turn off the high side of the gauge manifold, turn on the unit, and add the remaining amount of the refrigerant charge required slowly through the low side of the pressure gauge. (With R-410A refrigerant, the charging bottle must be in a vertical position and charged in the liquid state).
   Close the pressure gauge, disconnect it from the from the service port of the unit and fit caps on the service ports. The unit is then ready to operate.

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.
Avoid collapse on line installation.

10.2 - REFRIGERANT CONNECTIONS

To locate the outdoor and the indoor units, refer to the following information:



POSITION A:

A syphon suction must be installed on the vertical line of the gas line 1, and syphons must be installed every 8 meters upward. The minimum speed suction must not be below 6 m/s.

POSITION B:

Tip the lines toward the outdoor unit. Make special attention to the line length longer than 10m and avoid collapse on pipe lines installation.

w

DISPOSICIÓN C:

Install a syphon at the base of the vertical line, no more syphons are necessary.

TABLE 2.7.1.: REFRIGERANT LINES

REFRIGERANT LINES		SIZE					
		10	12	15	20	25	30
Total length 0 to 30m	Liquid	3/8”	3/8”	1/2”	1/2”	5/8”	5/8”
	Gas	3/4”	3/4”	7/8”	7/8”	1 1/8”	1 1/8”
Maximum vertical line length (m)		15	15	15	15	15	15
Maximum number of bends		12	12	12	12	12	12

For other positions and lines lengths between 30 and 50m or longer, consult the commercial-technical department, pipe dimensions, syphon suction, isolations, refrigerant load, line lengths.

Split units are supplied with nitrogen gas.The installer should remove this gas and charge the units with the charge of refrigerant R410A , shown in the table 2.7.2 plus the charge by additional meter shown in the table 2.7.3.

TABLE 2.7.2 : REFRIGERANT CHARGE

MODELS		10	12	15	20	25	30
Refrigerant charge R-410A	Cooling only	2,14	2,57	3,55	4,46	5,38	6,15
	Heat pump	2,5	2,93	4	4,9	6,3	7

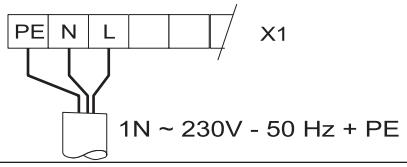
TABLE 2.7.3 : EXTRA REFRIGERANT CHARGE R410A BY METER

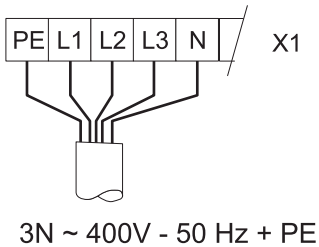
Liquid	Gas	g/m
3/8”	3/4”	57
1/2”	7/8”	108
5/8”	1 1/8”	177

10.3 - ELECTRICAL CONNECTIONS

- Before making any electrical connections, ensure that all circuit breakers are open.
- In order to make the electrical diagram supplied with the unit.

POWER SUPPLY

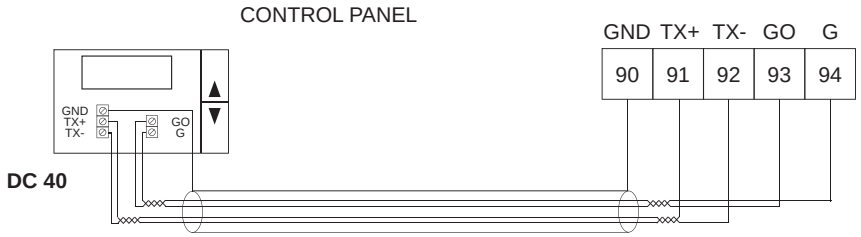
POWER SUPPLY 230V SINGLE PHASE UNITS	SIZE	Nº of cables x section (mm²)	
		Supply without electrical coil	Supply with electrical coil
	10	3 x 4	3 x 16

POWER SUPPLY 400V THREE-PHASE UNITS	SIZE	Nº of cables x section (mm²)	
		Supply without electrical coil	Supply with electrical coil
	10	5 x 2,5	5 x 4
	12	5 x 2,5	5 x 4
	15	5 x 4	5 x 6
	20	5 x 4	5 x 10
	25	5 x 6	5 x 10
	30	5 x 6	5 x 10

VOLTAGE OPERATING LIMITS: 342-462V

SIZE	VOLTAGE	LIMIT
10	230V-1Ph-50 Hz	198-264 V
	400V-3Ph-50 Hz	342-462 V
12-15-20-25-30	400V-3Ph-50 Hz	

DC 40 THERMOSTAT, ELECTRICAL CONNECTION



2 x Shielded twisted pairs AWG 20. 100 m maximum.
1x Shielded twisted pair AWG20 + 2 x 1,5 mm. 200m maximum.

IMPORTANT
THE SHIELDED CONNECTING CABLE BETWEEN THE CONTROL PANEL AND THE UNIT MUST BE SEPARATED FROM ANY OTHER TYPE OF ELECTRICAL WIRING. CONNECT IT TO THE ELECTRIC PANEL LOCATED IN THE OUTDOOR UNIT.

NOTES:
- For securing and connecting the Control Panel, consult the control panel Manual supplied with the unit.
- Connection between the DC40 and the unit must be made using shielded twisted pair cables (where the screens are connected to the control panel and the unit Electrical box).
- The Tx+ and Tx- polarity must strictly comply with the electrical diagram supplied with the unit.

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.

UNIT	10 1F	10 3F	12	15	20	25	30
STANDARD (kW)	3		4.5			7.5	
MEDIUM (kW)	6					9	
HIGH	-	9				12	

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.

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.

KIT 0 DEGREES TEMPERATURE :

This kit includes an crankase heater in the cooling only version , to allow working with outdoor temperatures up to 0 degrees .In heat pump orders , this crankase heater comes as standard .

KIT -15 DEGREES TEMPERATURE :

This kit includes a proportional regulation of the outdoor fan , to allow working with outdoor temperatures up to minus 15 degrees.

FREECOOLING ONE DAMPER

Fresh air damper regulated by the control , to introduce fresh air from the ambient if the temperature conditions are favourable .

SECOND DAMPER FREECOOLING

Second damper for the freecooling , to regulate the return air regarding the % of fresh air introduced in the room . This option is only valid with the option FREECOOLING ONE DAMPER.

LOW NOISE LEVEL

Compressor jacket to reduce the sound level around 2 dBA.

AIRFLOW CONFIGURATIONS

These units have different configurations to manage the airflow , both in the indoor and outdoor section .

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