
Data Book

T_iAXPRECISE_1120_EN - HFC R410A

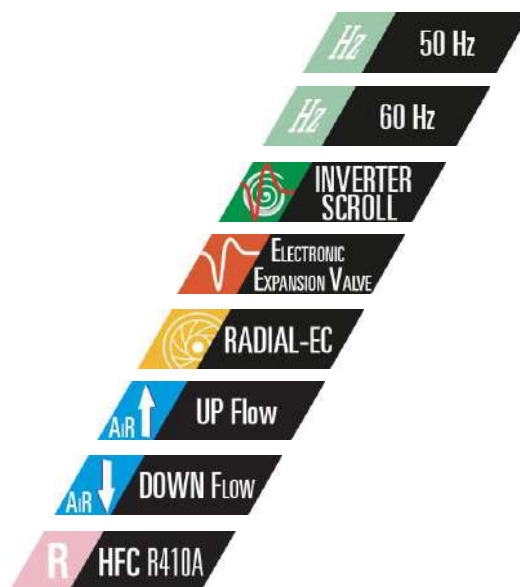
i-AX PRECISE

4-17 kW

FULL INVERTER direct expansion air conditioners for IT Cooling.
For metrology rooms and laboratories. To be matched with remote air-cooled condenser.



The picture of the unit is indicative and may vary depending on the model



- For metrology rooms and laboratories
- Precise control of temperature and humidity
- Perimeter installation
- Fully hermetic BLDC inverter compressors

- Single refrigerant circuit
- Air delivery from the bottom or from the top
- Plug fans with EC electric motor
- Electronic expansion valve

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i-AX PRECISE

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CERTIFICATIONS



ISO 9001 CERTIFICATION
Quality Management System



ISO 14001 CERTIFICATION
Environmental Management System



BS OHSAS 18001 CERTIFICATION
Occupational Health and Safety Management System



CE MARKING



CCC – CQC CERTIFICATION
(People's Republic of China)



EAC CERTIFICATION
(Russian Federation, Belarus, Kazakhstan)

GENERAL CHARACTERISTICS



UNDER
Downflow air delivery



OVER
Upflow air delivery

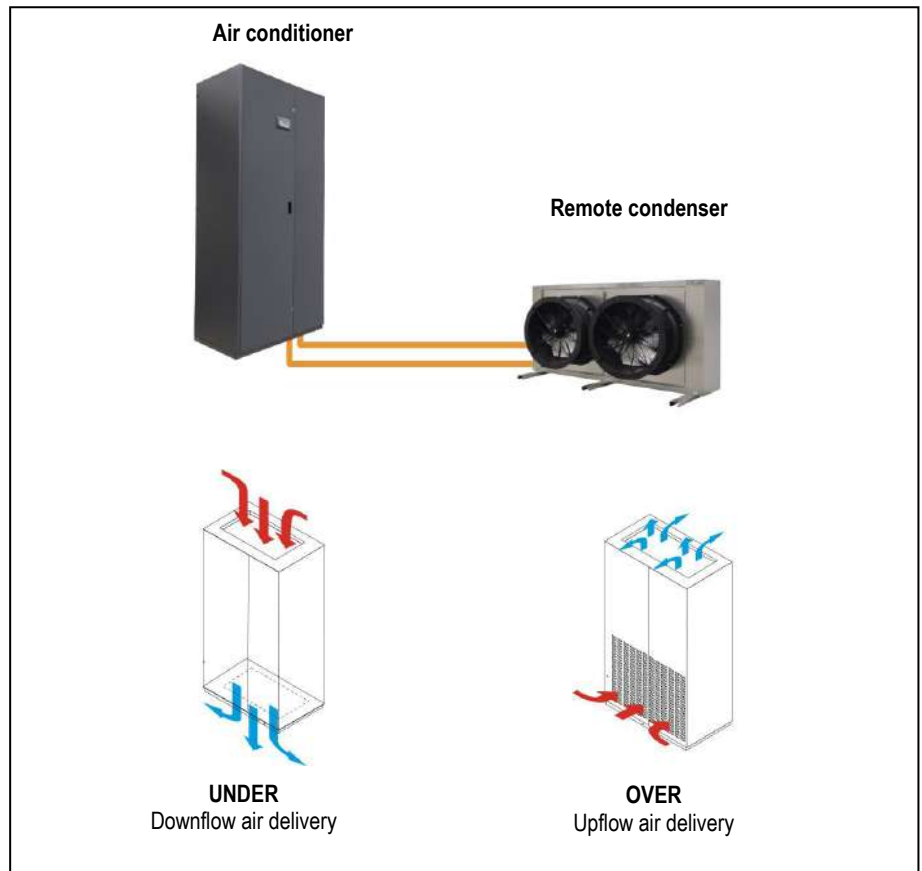
FULL INVERTER Air Conditioners for IT Cooling for metrology rooms and laboratories.

- Direct expansion, air cooled.
- For matching with remote air-cooled condenser.
- BLDC inverter compressors.
- Plug fans with EC electric motor.
- Single refrigerant circuit.

This series, for perimeter installation, is offered in 2 models available in the following versions:

- The upflow version (Over) is characterized by air intake from the front through honeycomb grille and air delivery from the top of the unit.
- The downflow version (Under) is characterized by air intake from the top and air delivery from the bottom of the unit.

Cooling capacity: 4 ÷ 17 kW



The machines are made for indoor installation.

The constructive solutions and the internal lay-out allow high application flexibility and the frontal access to the main components for the inspection and routine maintenance.

The installation requires refrigerant charge, electrical and hydraulic connections.

Final assembly on all machines before shipment including running test, reading and monitoring of operating parameters, alarms simulation and visual check.

INSTALLATION

The series is especially suitable for the installation in laboratories, archives, museums, and for tobacco, textile and pharmaceutical processing plants where the parameters of temperature and humidity influences measurement, test and stockage of sensitive goods.

The combination of modulating hot gas reheating, modulation of cooling capacity by the inverter compressor, and accurate and continuous adjustment of steam production (optional accessory), the unit ensures precise temperature and humidity control (± 0.3 °C and ± 2 % RH). In order to achieve this extraordinary performance, several important conditions are required:

- Heat load must be constant or stable, with variations no greater than 25% per hour;
- The unit must be properly installed and ducted;
- The space needs to be suitably insulated against outside loads (especially doors, windows, etc.);
- Return air conditions must be as shown in the paragraph on OPERATING LIMITS.

OPTIONAL

An extensive list of accessories allows the unit to adapt effectively to the real needs of the system, reducing the time and cost of installation.

PRODUCT FEATURES AND BENEFITS

- EER up to 4,47 at partial load;
- Single BLDC inverter compressor for each refrigerant circuit in order to provide always the best efficiency;
- New plug fans with EC electric motors which guarantees a reduction of power consumption;
- New fans electric motor that do not require maintenance;
- Total modulating;
- Improvement of the control software with advanced control logic;
- Single refrigerant circuit;

F-GAS DIRECTIVE

The units highlighted in this publication contain <HFC R410A [GWP₁₀₀ 2088]> fluorinated greenhouse gases.

MODEL IDENTIFICATION

Air conditioners for IT Cooling for metrology rooms and laboratories

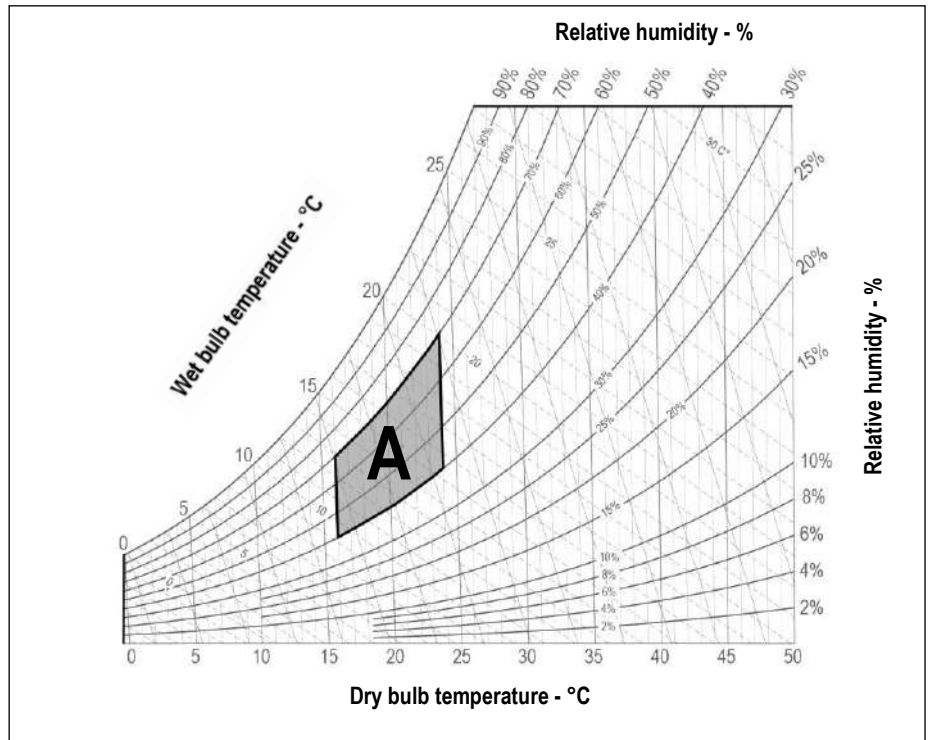
Model: i-AX PRECISE 12 BASIC F02

i-AX PRECISE	Series direct expansion, air cooled
12	Model / Cooling capacity (kW) at nominal conditions
BASIC	Version BASIC with EC fans speed control of the matched remote condenser LT version for low ambient air temperature
F02	Size

TRANSPORT AND STORAGE TEMPERATURE

During transport and if the machine is not installed at the reception, do not remove the packaging and place the machine in an enclosed, dry and protected from sunlight site at temperatures ranging between -30°C and 50°C in absence of superficial condensation.

WORKING LIMITS



ROOM AIR CONDITIONS

Room air temperature:

- 16°C minimum temperature with dry bulb.
- 24°C maximum temperature with dry bulb.

AREA "A". Machine operating envelope.

Room air humidity:

- 40%UR minimum relative humidity.
- 70%UR maximum relative humidity.

AMBIENT AIR TEMPERATURE

- 46°C Maximum ambient air temperature
- 20°C Minimum ambient air temperature

LT VERSION FOR LOW AMBIENT TEMPERATURE OPERATION

- 45°C minimum ambient air temperature with remote condensers with AC fans
- 35°C minimum ambient air temperature with remote condensers with EC fans

All the values are indicative. The working temperatures are influenced by a series of variables as:

- Working conditions;
- Thermal load;
- Set of the microprocessor control.

POWER SUPPLY

- ± 10% Maximum tolerance of the supply voltage (V)
- ± 2% Maximum unbalancing of the phases.

MAIN COMPONENTS



FRAMEWORK

- Base, frame and panels in galvanized steel sheet with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders. Colour RAL 7016 hammered;
- Panels insulated with polyurethane foam and seals to ensure air tight.
- Hinged front panels with quick release removal system.
- Total front access for routine maintenance.
- Removable lateral and back side panels.
- Air flow OVER version:
 - Air intake from the front through honeycomb type grille and air delivery from the top.
- Air flow UNDER version:
 - Air intake from the top and air delivery from the bottom.
- Compartment for electrical panel on unit front for direct access to control and regulation devices;

FILTER SECTION

- Washable air filters with COARSE 60% efficiency (according to ISO EN 16890), with cells in synthetic fibre and metallic frame.
- Air filters access:
 - Frontal access for all machines .

BLDC INVERTER COMPRESSORS SECTION

Model 12:

- Rotary BLDC inverter compressor for R410A refrigerant.

Model 18:

- Scroll BLDC inverter compressors with spiral profile optimized for R410A refrigerant.

FOR ALL COMPRESSORS:

- Synchronous brushless inverter driven motor.
- Inverter for modulating capacity control.
- Reactance for the reduction of electromagnetic noise and interference.
- Crankcase heater.
- Rubber supports.

FAN SECTION

The EC BASIC fan section (with low external static pressure) is contained within the machine and includes:

- Centrifugal fans with backward curved blades with wing profile, single suction and without scroll housings (Plug-fans), directly coupled to external rotor electric motor.
- Brushless type synchronous EC motor with integrated electronic commutated system and continuous variation of the rotation speed. The motor rotation control is obtained with the EC system (Electronic Commutation) that manage the motor according to the signal coming from the microprocessor control.
- Fans control with proportional signal 0-10V.
- Adjustable External Static Pressure (ESP).
- Speed control is modulating and settable from the user terminal to grant the correct setting of the required static pressure.
- Protection net for OVER version.

COOLING SECTION

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops.
- Finned pack with hydrophilic treatment that assure the condensate water drop, high thermal conductivity and does not favour the growth of micro-organisms.
- Condensate tray in stainless steel with PVC flexible discharge pipe.
- Temperature sensor on air intake with function of control and regulation.
- Temperature sensor on air delivery with function of temperature display.
- Air flow sensor. Activates an alarm in case of insufficient air flow.



POST-HEATING WITH MODULATING HOT GAS COIL

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops.
- Modulating valve with 0-10V control, that activates post-heating circuit.
- The modulating hot gas coil is installed downstream of the evaporator coil and it is used together with the inverter compressor to ensure accurate and continuous unit cooling capacity modulation thus precisely controlling temperature and humidity.

REFRIGERANT CIRCUIT

- Electronic expansion valve. The valve allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure.
- Sight glass.
- Filter dryer on liquid line.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- High pressure and low pressure safety switch with manual reset.
- Liquid receiver.
- Pressure relief valve on liquid receiver for model 12.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Lubricant oil charge.
- Liquid separator on gas suction.
- Oil separator on gas discharge.
- Valves on gas delivery and liquid return for coupling to remote air-cooled condenser.
- 0÷10V proportional signal to manage the condensing control system of the remote air-cooled condenser.
- Condensing control by continuous variation of remote condenser fan rotation speed for operations with ambient temperature down to -20°C.

ELECTRICAL PANEL

In accordance with EN60204-1 norms, suitable for indoor installation, complete with:

- Main switch with door lock safety on frontal panel.
- Magnetothermic switches for each compressor and for supply fans
- Contactors for each load. BLDC inverter compressors and supply fans equipped with EC electric motor don't require contactors.
- Transformer for auxiliary circuit and microprocessor supply.
- Numbered wirings.
- Terminals for remote condenser power supply, with magnetothermic switch,
- Terminals:

OUTLETS

- Voltage free deviating contact for General Alarm 1-2.
- Voltage free contact for supply fans status.
- Voltage free contact for compressor operating signal.
- Voltage free contact for smoke / fire sensor (the sensors are accessory)

INLETS

- External enabling.
- Power supply:
 - 230/1/50 for model 12.
 - 400/3+N/50 for model 18.

CONTROL SYSTEM

Microprocessor control system with graphic display for control and monitor of operating and alarms status. The system includes:

- Built-in clock for alarms date and time displaying and storing;
- Built-in memory for the storing of the intervened events (up to 200 events recorded);
- Predisposition for additional connectivity board housing (RS 485, RS 232, ETHERNET, LON). The electronic cards are optional accessories.
- Main components hour-meter;
- Non-volatile "Flash" memory for data storage in case of power supply faulty;
- Menu with protection password;
- Demand Limit function (for machines with double refrigerant circuit only);
- LAN connection (max 15 units).

REMOTE AIR-COOLED CONDENSERS

The descriptions of these series can be found in Chapter REMOTE AIR-COOLED CONDENSERS.

.....	Remote air-cooled condenser Remote air-cooled condenser in PERALUMAN aluminium alloy with microchannel condensing coil: <ul style="list-style-type: none">- with AC axial fans and standard acoustic version series GR-Z A B 50;- with AC axial fans and low noise acoustic version series GR-Z A L 50;- with EC axial fans and standard acoustic version series GR-Z E B 50;- with EC axial fans and low noise acoustic version series GR-Z E L 50.
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OPTIONAL ACCESSORIES

The descriptions of these additional components can be found in Chapter OPTIONAL ACCESSORIES.

B262.....	OVER discharge front suction.
B263.....	OVER discharge bottom suction.
B264.....	OVER discharge back suction.
A725.....	High pressure EC fans. EC fans with higher external static pressure.
A554.....	230/3/60 power supply. For model 18.
A557.....	460/3/60 power supply. For model 18.
A558.....	380/3/60 power supply. For model 18.
A559.....	230/1/60 power supply. For model 12.
383.....	Numbered wirings + UK requests.
A431.....	Electric heater. Heating with electric heaters.
A432.....	Extra power electric heater.
A801.....	Humidity sensor only. Combined Temperature / Humidity sensor on air intake. The optional replace the standard temperature sensor on machine air intake.
A802.....	Humidifier only. Modulating steam humidifier with immersed electrodes with electronic control.
A803.....	Dehumidification only (sensor included).
A804.....	Humidifier + Dehumidification.
B231.....	Std cylinder – medium conductivity. Humidifier cylinder.
B232.....	Low conductivity cylinder. Humidifier cylinder.
B233.....	High conductivity cylinder. Humidifier cylinder.
A352.....	No display. Machine without microprocessor display.
A357.....	Lowered display. For machine equipped with base moulding under the machine.
A471 | A472 | A473 | A474.....	Serial card A471 – with RS 485 serial card; A472 – with RS 232 serial card; A473 – with ETHERNET card; A474 – with LON card.
A501.....	Clogged filter sensor. Differential pressure switch on the air side for clogged filters alarm signal.
A521.....	Fire detector. Supplied in mounting kit.
A511.....	Smoke detector. Supplied in mounting kit.
A491.....	Water leakage detector. Supplied in mounting kit.
5891.....	Control unit via kiplink.
A212.....	EU5 air filter. Air filter with ePM ₁₀ 50% efficiency.
A213.....	EU6 air filter. Air filter with ePM _{2,5} 50% efficiency.
A214.....	EU7 air filter. Air filter with ePM ₁ 50% efficiency.
A215.....	EU8 air filter. Air filter with ePM ₁ 70% efficiency.
A272.....	CL. 0 or A1 (EN 13501-1) insulation: Panelling with fire reaction in class "0" or "A1";
A181.....	Compressor soundproof jacket. Compressor soundproof jacket for a sound level reduction of 2 dB(A).
A532.....	Motorized damper with spring return. Non-return air damper with frame installed over the machine.
A001.....	With fresh air.
A842.....	Network analyzer. Multifunction utility for calculating and displaying the machine electrical measurements.
7387062700.....	STD condensate drain pump kit. For condensate water discharge.

7387062800	.....	H.T. condensate drain pump kit. For condensate water and humidifier drain cycle hot water discharge.
5587198800	.....	ATS Dual power supply kit 400/3+N/50Hz-230/3/60Hz 4P 80A. Kit for 400/3/50 and 230/3/60 power supplies.
5587200900	.....	ATS dual power supply kit 230/1/50Hz-230/1/60Hz 2P 80A. Kit for 230/1/50 and 230/1/60 power supplies.
5587243600	.....	ATS dual power supply kit 460/3/60Hz 3P 40A. Kit for 460/3/60 power supply.
5587243800	.....	ATS dual power supply kit 380/3/60Hz3P 100A. Kit for 380/3/60 power supply.
7387012600	.....	Remote terminal display EVOLUTION. For wall installation.
7387036600	.....	GSM external modem with connecting cable.
C64600000H	.....	4,0 liters tin of oil FV50S. Lubricant oil for inverter compressors.
7387003800	.....	Plenum frontal delivery with grilles.
7387014500	.....	Plenum top suction / delivery.
7387018900	.....	Plenum frontal delivery with grilles Class 0 or A1 (EN 13501-1).
7387019100	.....	Plenum top suction /delivery Class 0 or A1 (EN 13501-1).
7387028000	.....	Plenum delivery SOUND PROOF.
7387030600	.....	Plenum suction SOUND PROOF.
7387031800	.....	Plenum suction SOUND PROOF Class 0 or A1 (EN 13501-1).
7387032500	.....	Plenum delivery SOUND PROOF Class 0 or A1 (EN 13501-1).
7387006300	.....	Base moulding H=200mm.
7387015100	.....	Base moulding with frontal grilles.
7387020500	.....	Base moulding with frontal grilles Class 0 or A1 (EN 13501-1).
5587010600	.....	Base frame (H = 200-600mm).
9973	.....	Wooden cage packing. The machines are delivered on wooden pallet, covered with shrink wrap and packaged in wooden cage.

WARNING

The Manufacturers reserves the right to accept the matching of the optional installed on the machine.

MANDATORY COMBINATIONS OF ACCESSORIES

1. When optional accessories "A802 Humidifier" and "A804 Humidifier + Dehumidification" are present, they require one of the "B231, B232, B233 Humidifier cylinder as mandatory accessory.
2. When optional accessories "A802 Humidifier" is present, it requires mandatory accessory "A801 Humidity sensor only".

TECHNICAL DATA

MODEL	12					18					
SIZE	F02					F02					
COOLING CAPACITY (1)	100%	80%	60%	40%	30%	100%	80%	60%	40%	30%	
Total	kW	11,1	8,88	6,66	4,44	4,34	16,6	13,3	9,96	6,64	5,65
Sensible	kW	10,6	8,49	6,4	4,43	4,34	16,6	13	9,96	6,64	5,65
SHR (2)		0,95	0,96	0,96	1,00	1,00	1,00	0,98	1,00	1,00	1,00
Total power input (Comp. + Fans.)	kW	2,94	2,19	1,59	1,00	0,97	5,05	3,54	2,49	1,69	1,43
"EC" SUPPLY FANS	n.	2					2				
Air flow	m ³ /h	3500	2922	2344	1766	1740	4900	4157	3414	2672	2450
Nominal external static pressure	Pa	20	20	20	20	20	20	20	20	20	20
Maximum external static pressure	Pa	380	--	--	--	--	32	--	--	--	--
Power input (3)	kW	0,4	0,26	0,17	0,09	0,07	0,96	0,62	0,39	0,25	0,18
COMPRESSORS		Rotary					Scroll				
BLDC compressor	n.	1					1				
Cooling Capacity Control		Modulating					Modulating				
Compressors power input	kW	2,54	1,93	1,41	0,9	0,9	4,09	2,92	2,09	1,44	1,25
HOT GAS POST-HEATING											
Heating Capacity Control		Modulating					Modulating				
Heating Capacity	kW	10,2					12,5				
AIR FILTERS	n.	1					1				
Efficiency (ISO EN 16890)	COARSE	60%					60%				
GAS CIRCUITS	n.	1					1				
POWER SUPPLY	V/Ph/Hz	230/1/50					400/3+N/50				
ENERGY EFFICIENCY INDEXES (1)											
EER - Energy Efficiency Ratio (4)	kW/kW	3,78	4,05	4,19	4,44	4,47	3,29	3,76	4,00	3,93	3,95
DIMENSIONS											
Length	mm	1000					1000				
Width	mm	500					500				
Height	mm	1980					1980				
NET WEIGHT	kg	262					262				
REFRIGERANT CONNECTIONS											
Gas delivery	ODS Ø	12					18				
Liquid return	ODS Ø	12					12				
HYDRAULIC CONNECTIONS											
CONDENSATE DISCHARGE											
Rubber pipe – internal diameter	Ø mm	20					20				

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD

1. Gross value. Characteristics referred to entering air at 24°C-50%UR; condensing temperature 45°C; ESP=20Pa.
2. SHR = Sensible cooling capacity / Total cooling capacity.
3. Corresponding to the nominal external static pressure.
4. The Energy Efficiency Index does not consider the remote air-cooled condenser.

The units highlighted in this publication contain <HFC R410A [GWP₁₀₀ 2088]> fluorinated greenhouse gas.

NOTE:

Below 30% of cooling capacity, the inverter compressor enters the "cycling" area in which the compressor operates with ON / OFF cycles below the minimum modulation frequency (operation only for short periods).

SELECT THE UNIT IN THE MODULATION FIELD.

"LT" VERSION FOR OPERATION WITH VERY LOW AMBIENT TEMPERATURE

The version is necessary for the correct machine start up and operation with very low ambient air temperatures:

- Between -20°C and -45°C for air conditioners matched with remote air-cooled condensers with axial fans with AC electric motors and standard acoustic version.
- Between -20°C and -35°C for air conditioners matched with remote air-cooled condensers with axial fans with EC electric motors and standard acoustic version.

ACOUSTIC DATA

Acoustic data of the standard machine at full load working conditions.

WARNING:

In a closed room the noise produced by a sound source reaches the listener in two different ways:

- Directly
- Reflected from the surrounding walls, floor, ceiling, from furniture.

With the same sound source, the noise produced in a closed room is greater than that produced outdoors. In fact, the sound pressure level generated by the source, must be added to the one reflected from the room. Also, the shape of the room affects the sound.

MODEL		12	18
COOLING CAPACITY		100%	100%
SOUND LEVEL ISO 3744 (1)			
On air delivery Under	dB(A)	53	57
On air delivery Over	dB(A)	53	57

1. Noise pressure level at 1 meter in free field – ISO 3744

ELECTRICAL DATA

Electrical data of the system at full load working conditions.

MODEL		12	18
Power supply	V/ph/Hz	230/1/50	400/3+N/50
Maximum current input (FLA)	A	29,1	19,4
Maximum starting current (SA)	A	11,6	20,0

WARNING:

The electric data indicated refer only to the indoor unit.

Optional accessories electric data are included within the dedicated chapters and must be added.

Please refer to ELCA WORLD selection program to calculate the electrical data of the air conditioner according to the requested optional accessories. If the power supply of the remote air-cooled condenser came from the electrical panel of the indoor unit, sum the electric consumption of the remote condenser to the value referred to the indoor unit. For the electrical data of the remote condenser please refer to the Data Book of the series.

REFRIGERANT CHARGE

The air conditioner is supplied with a minimum R410A refrigerant charge. **Refrigerant must be charged.** The following table shows the refrigerant charge that must be introduced for the air conditioner only. Remote condenser, connections pipes and optional are excluded.

MODEL		12	18
REFRIGERANT		R410A	R410A
Refrigerant circuits x Refrigerant charge (1)	n x kg	1 x 2,2	1 x 3,0
HFC R410A - F Gas - CO ₂ equivalent	t	4,59	6,26

1. Refrigerant charge required for the air conditioner only operation. Remote condenser, connections pipes and optional are excluded.

PRESSURE RELIEF VALVE

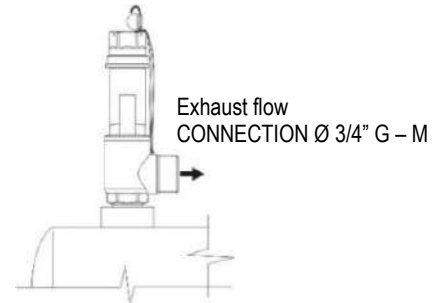
The valve has the purpose of protecting the circuit from overpressure.

It is up to the installer to check whether the system complies with the 2014/68 / EU standard regarding the installation of the pressure relief valve.

By plant we mean the complete system that includes the internal machine, the remote condenser and the connecting pipes

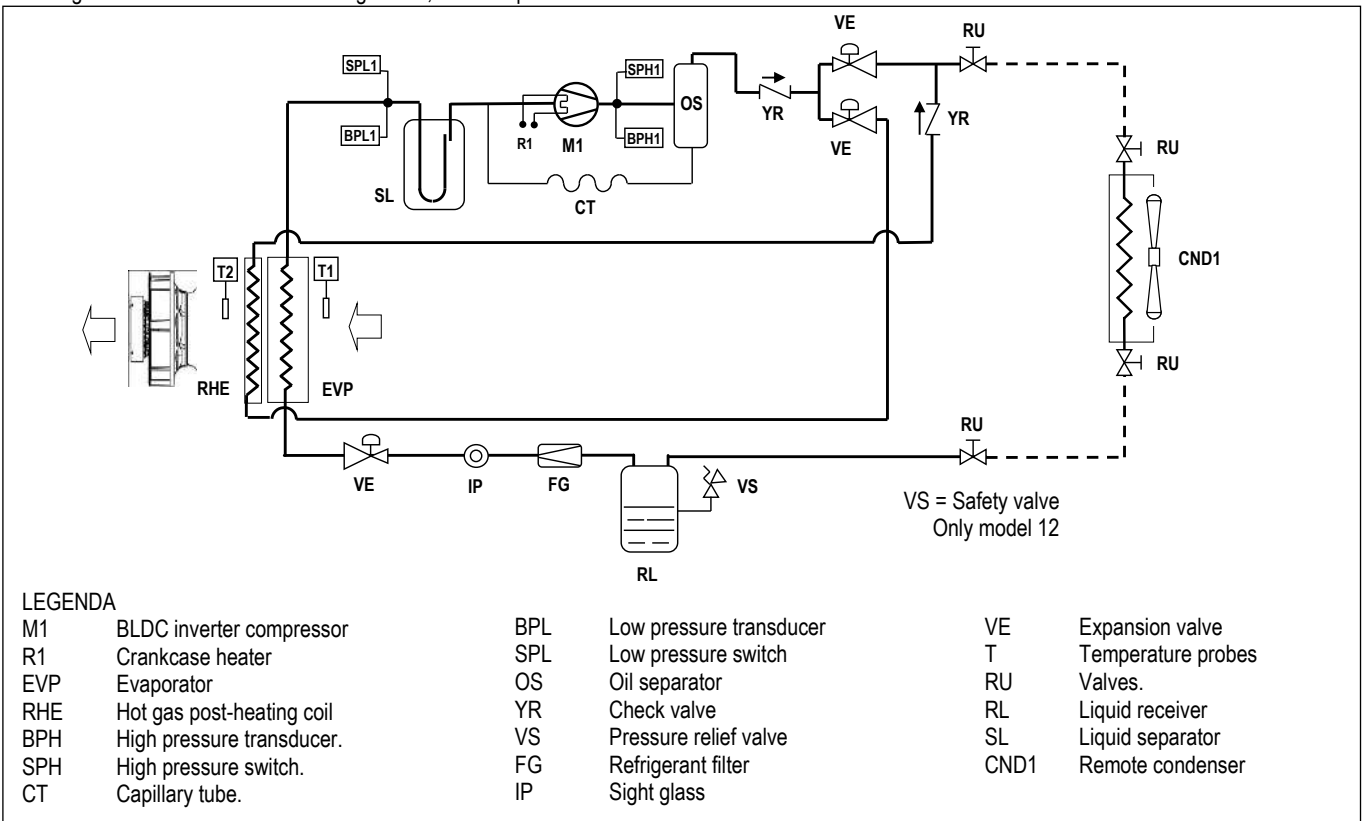
The installer must calculate the amount of refrigerant contained in the system and, if the refrigerant charge is higher than 10 kg, he must install the pressure relief valve.

	Factory installed components	At Installer care
	Pressure relief valve on liquid receiver	Possible pressure relief valve
Model	[bar]	[bar]
12	41,5	---
18	---	41,5



REFRIGERANT CIRCUIT

The diagrams refer to the standard configuration, without optional.



RECOMMENDED REFRIGERANT LINES

Diameter of the recommended refrigerant lines for connection to MEHITS S.p.A. air conditioners and referred to "EQUIVALENT LENGHT".

Please always refer to the "INSTALLATION DIAGRAM" to properly select all necessary components

Verify the need to use pressure limiting devices (safety valves) where not already provided for by Directive 2014/68 / EU.

Nominal diameter: Refrigerant connection of the indoor unit. In some cases, the diameter of the refrigerant lines may not correspond with the nominal diameter. This is completely normal. It is enough to provide a reduction fitting to adjust the diameter.

"SI" INTERNATIONAL SYSTEM PIPES DIAMETERS

SI system	Diameter	mm	6	8	10	12	16	18	22	28	35
	Thickness	mm	1	1	1	1	1	1	1	1,5	1,5

Model	Line	Nominal diameter Ø [mm]	EQUIVALENT LENGHT [m] FOR INVERTER COMPRESSOR R410A																			
			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12	Gas	12	12	12	12	12	12	12	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Liquid	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
18	Gas	16	16	16	16	16	16	16	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	Liquid	12	12	12	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16

For equivalent lengths over 100m, please contact the Manufacturer's Sales Office.

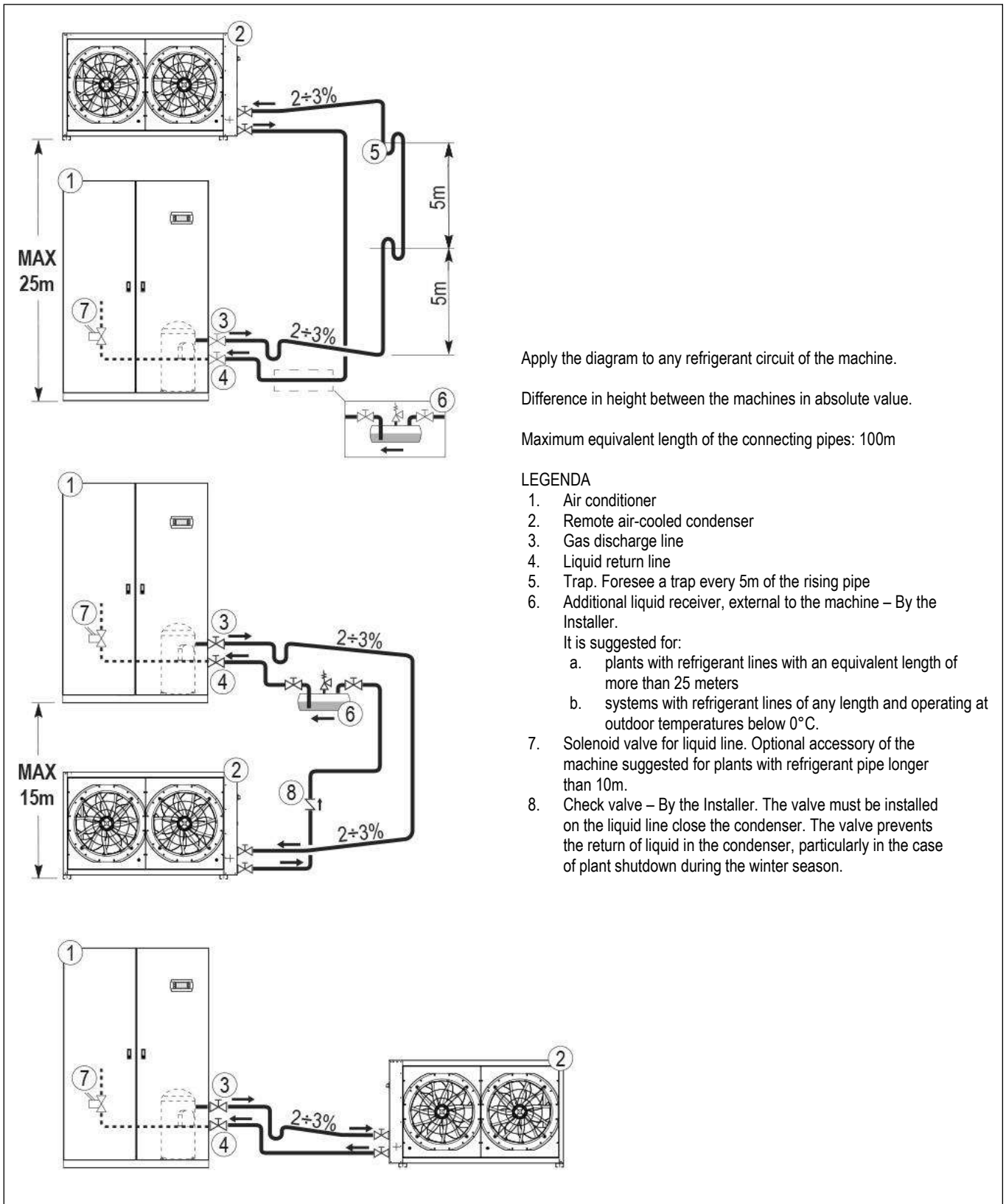
"IMPERIAL" SYSTEM PIPES DIAMETERS

IMPERIAL system	Diameter	inch	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 3/8"
		mm	6,35	9,52	12,7	15,87	19,05	22,22	25,4	28,57	34,92
	Thickness	mm	1	1	1	1	1	1	1	1,25	1,25

Model	Line	Nominal diameter Ø [mm]	EQUIVALENT LENGHT [ft] FOR INVERTER COMPRESSOR R410A																			
			15	35	50	65	80	100	115	130	150	165	180	195	215	230	245	260	280	295	310	330
12	Gas	12	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
	Liqui	12	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
18	Gas	16	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
	Liquido	12	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"

For equivalent lengths over 330ft please contact the Manufacturer's Sales Office.

INSTALLATION DIAGRAM



WARNING

It is necessary to provide the refrigerant charge for the connection pipes and for the remote air-cooled condenser. Charge refrigerant in the suitable quantity and lubricant oil in 10% ratio of charged refrigerant. Lubricant oil must be the same type as the charged one as shown on the compressor plate.

MICROPROCESSOR CONTROL SYSTEM



Controller



Keyboard and Display

The unit is equipped with the controller connected to a 6 keys keyboard with graphic display on which all information in English language or easily identifiable symbols are displayed. The controller disposes of a “flash” memory that preserves the information even in absence of power supply. Part of memory is dedicated to the registration of intervened events - up to 200 events. The system can manage up to 4 T/H probes on air intake, 4 T/H probes on air delivery, 4 remote T/H probes and a T/H probe for outdoor air.

DISPLAY – KEYBOARD FUNCTIONS

	ALARM	Alarm presence with red light. Push for alarm description. In case of more alarms scroll by UP / DOWN.
	PRG	Menu list, scrolled by UP/DOWN: Unit; Set-point; In/Out; Clock; History; User; Service; Factory. ENTER to execute.
	ESC	Home. Used to come back to the previous menu level or to the main screen.
	UP DOWN	Changes pages and values of sets. By pressing in HOME mask, the synoptic of the main controls is displayed.
	ENTER	Moving the cursor on adjustable Program(s) fields to confirm the changes. Press ENTER to get out the fields.

DISPLAY - MAIN MASK

AREA 11	AREA 1	AREA 12	H	H	:	M	M	D	D	/	M	M	/	Y	Y	
			-	9	9	.	9	°C								
	AREA 2		-	9	9	.	9	%								
	AREA 3	AREA 3_A					AREA 8									
	AREA 4	AREA 5	AREA 6	AREA 7	AREA 9											
				AREA 10												

The main mask shows time, date, room temperature and humidity values (if the relative probe is present) and areas for displaying operating and alarm status with dedicated icons:

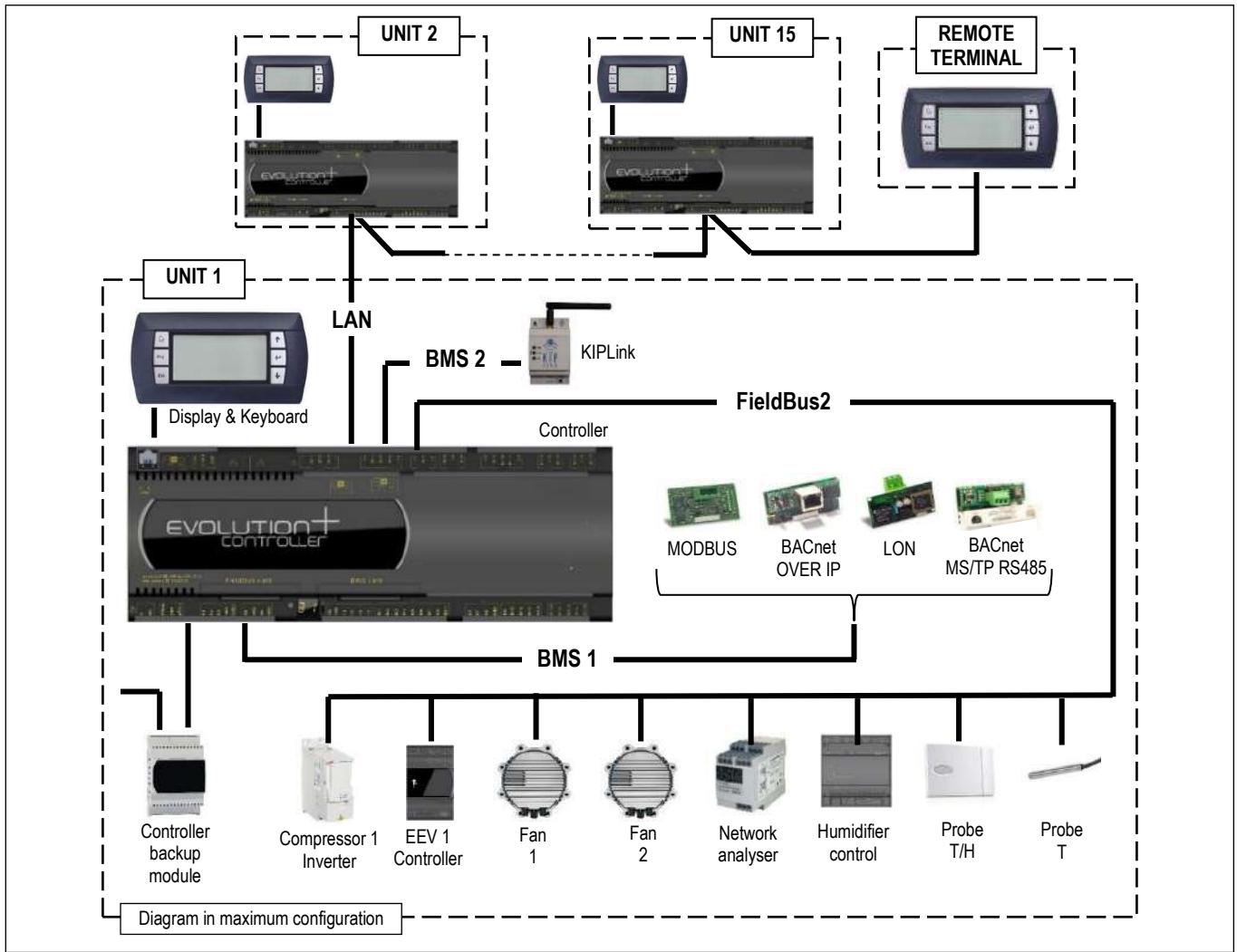
- Area 1: Status of the unit: on / off
- Area 2: Status detail
- Area 3: Type of event (only in case of an event)
- Area 3_A: Code and type of event
- Area 4: Active cooling devices
- Area 5: Active free-cooling devices
- Area 6: Active humidity devices
- Area 7: Active heating devices
- Area 8: on / off parameters
- Area 9: BMS address
- Area 10: LAN address
- Area 11: Schematic representation of units
- Area 12: Active function presence icon

CONNECTIVITY

Through the optional serial port, the microprocessor control enables communication with the modern buildings BMS systems with the following protocols: MODBUS; LON; BACNET MS/TP RS485; BACNET OVER IP.

PASSWORD

- Level 1: On request of the End User. Allowing to reach USER menu
- Level 2: Asks to Service: Allowing to reach SERVICE menu
- Level 3: Asks to Service: Allowing to reach FACTORY menu
- No passwords request to enter: UNIT, SETPOINT, IN/OUT, CLOCK, HISTORY menu



LAN NETWORK

The LAN is part of the control software and it is possible to connect up to 15 units. This type of connection allows to control the units in coherent way, moreover the units can be controlled and managed from a shared remote terminal.

LAN ADDRESS LIST

Units n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Remote terminal
Controller address	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	---
Display & Keyboard address	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	32

The unit connection to the local network (LAN) allows to perform the following functions:

- Balancing the operating hours among the different units by rotating the reserve units.
- Turning on the reserve units in case other units should turn off due to an alarm, maintenance or power feed interruption.
- Turning on reserve units to offset the excessive thermal load.
- Operating with all units based on the average temperature and humidity values read by the temperature probes only in the operating units.
- DYNAMIC MASTER function that makes the role of the Master unit dynamic. In case of alarm, shutdown, maintenance, power failure, etc. on the Master unit, the function automatically elects a new Master unit.

TEMPERATURE PROBE ON AIR RETURN / DELIVERY



Temperature probe installed on the air return and delivery of the unit.
Standard temperature control and regulation on air return.

REMOTE AIR-COOLED CONDENSERS GX-Z SERIES



Remote air-cooled condensers for matching to air conditioners for IT Cooling.
The constructive solutions allow high application flexibility.
Horizontal air flow, from coil to fan.
The series has an independent power supply from the indoor unit.
Among the indoor unit and the condenser is necessary the refrigerant connection and electrical connection of the condensing proportional control signal and the alarms.

For all PRECISE units is possible to power supply the remote condenser from the indoor machine electrical board, that includes magnetothermic switches for condenser fans.

The machines are made with Peraluman alluminum alloy and suitable for outdoor installation.

GX-Z A B 50: Remote condenser equipped with AC fan, microchannel condensing coil and Standard acoustic version.

GX-Z A L 50: Remote condenser equipped with AC fan, microchannel condensing coil and Low noise acoustic version.

GX-Z E B 50: Remote condenser equipped with EC fan, microchannel condensing coil and Standard acoustic version.

GX-Z E L 50: Remote condenser equipped with EC fan, microchannel condensing coil and Low noise acoustic version.

IMPORTANT

For further information about the units, please refer to "GX_Z" technical bulletin

WARNING:

Please refer to ELCA WORLD selection program to calculate the cooling capacity of the air conditioner according to the selected remote condenser.

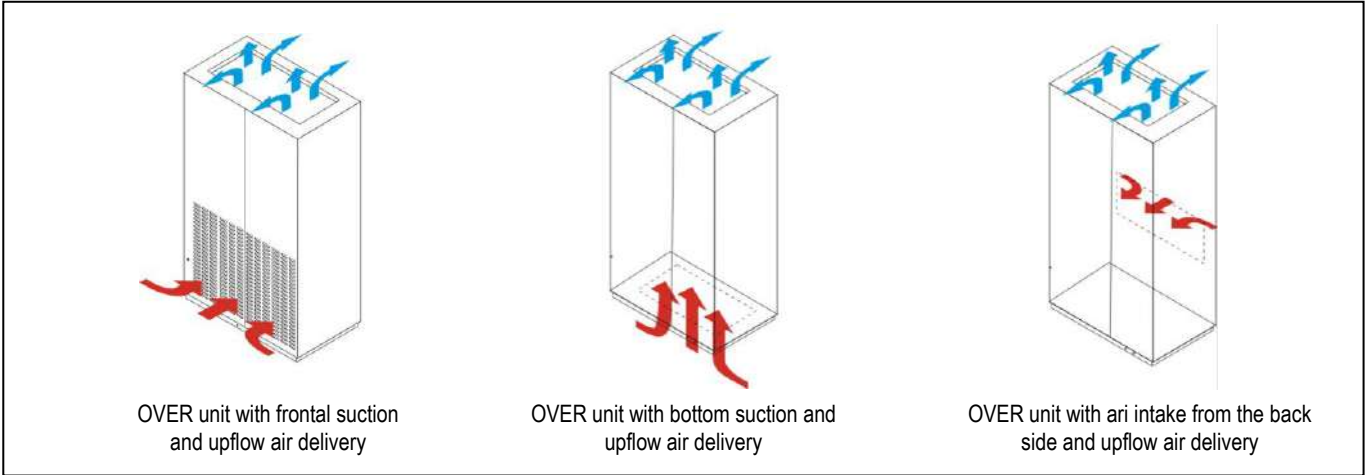
i-AX PRECISE

OPTIONAL ACCESSORIES: B262 – OVER DISCHARGE FRONT SUCTION

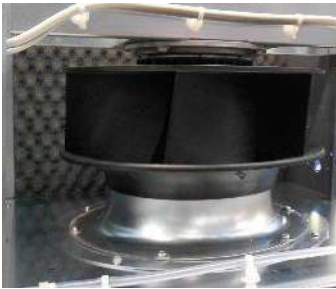
OPTIONAL ACCESSORIES: B263 – OVER DISCHARGE BOTTOM SUCTION

OPTIONAL ACCESSORIES: B264 – OVER DISCHARGE BACK SUCTION

Standard unit is supplied with UNDER air flow.
It is necessary to select the desired air delivery during order phase.



OPTIONAL ACCESSORIES: A725 – HIGH STATIC PRESSURE EC FANS



The EC HP fan section (with high external static pressure) is contained within the machine and includes:

- Centrifugal fans with backward curved blades with wing profile, single suction and without scroll housings (Plug-fans), directly coupled to external rotor electric motor.
- Brushless type synchronous EC motor with integrated electronic commutated system and continuous variation of the rotation speed. The motor rotation control is obtained with the EC system (Electronic Commutation) that manage the motor according to the signal coming from the microprocessor control.
- Fans control with proportional signal 0-10V.
- Adjustable External Static Pressure (ESP).
- Speed control is modulating and settable from the user terminal to grant the correct setting of the required static pressure.
- Protection net for OVER version.

TECHNICAL DATA

MODEL		12	18	18	18
COOLING CAPACITY		100%	100%	100%	100%
Power supply		230/1/50	400/3+N/50	460/3/60	380/3/60
"EC" SUPPLY FANS	n.				
Air flow	m ³ /h	3500	4900	4900	4900
Nominal external static pressure	Pa	20	20	20	20
Maximum external static pressure	Pa	415	96	96	96
Power input (1)	kW	0,31	0,53	0,53	0,53
Maximum indoor unit power input (FLI) (2)	kW	5,00	11,1	11,2	11,1
Maximum indoor unit absorbed current (FLA) (2)	A	31,4	21,7	19,7	22,2

1. Corresponding to the nominal external static pressure
2. The electric data indicated refer only to the indoor unit.

WARNING:

Please refer to ELCA WORLD selection program to calculate the cooling capacity of the air conditioner according to the desired matching.

OPTIONAL ACCESSORIES: A552 – 230/3/60 POWER SUPPLY
OPTIONAL ACCESSORIES: A557 – 460/3/60 POWER SUPPLY
OPTIONAL ACCESSORIES: A558 – 380/3/60 POWER SUPPLY
OPTIONAL ACCESSORIES: A559 – 230/1/60 POWER SUPPLY

Is necessary to select the power supply tension during the order phase.
 Electrical data of the system at full load working conditions.

MODEL		18	18
Power supply	V/ph/Hz	460/3/60	380/3/60
Maximum power input (FLI)	kW	11,2	11,1
Maximum current input (FLA)	A	17,4	19,9
Maximum starting current (SA)	A	20,0	20,0

WARNING:

The electric data indicated refer only to the indoor unit.

Optional accessory electric data are included within the dedicated chapters and must be added.

Please refer to ELCA WORLD selection program to calculate the electrical data of the air conditioner according to the requested optional accessories. If the power supply of the remote air-cooled condenser came from the electrical panel of the indoor unit, sum the electric consumption of the remote condenser to the value referred to the indoor unit. For the electrical data of the remote condenser please refer to the Data Book of the series.

OPTIONAL ACCESSORIES: 383 – NUMBERED WIRINGS + UK REQUESTS

The machine's electrical cables are all numbered for easy identification. For the power section it is possible to change the colour for the UK market.

CABLE	383 – COLOUR FOR UK
EARTH	YELLOW / GREEN
NEUTRAL	BLUE SKY
PHASE 1 (L1)	BROWN
PHASE 2 (L2)	BLACK
PHASE 3 (L3)	GREY
AUXILIARIES	RED

OPTIONAL ACCESSORIES: A431 – ELECTRIC HEATERS

OPTIONAL ACCESSORIES: A432 – EXTRA POWER ELECTRIC HEATERS



A431 – ELECTRIC HEATERS

Electric heater consisting of finned aluminium elements, ensuring low surface temperature and deleting the air ionization problems. The optional is installed downstream the main cooling coil.

In electric heaters with three working steps the activation is binary type.

Components:

- Electric heater in aluminium armoured elements with integral fins
- Electrical control
- Safety thermostat.

MODEL		12	18	18	18
Power supply		230/1/50	400/3+N/50	460/3/60	380/3/60
THERMAL CAPACITY	kW	5,4	8,1	8,1	8,1
Absorbed current (OA)	A	23,5	11,7	10,2	12,3
Working steps	n.	2	3	3	3

The optional accessory modifies the weight of the standard unit.

A432 – EXTRA POWER ELECTRIC HEATERS

The components are the same of the standard accessory.

MODEL		12	18	18	18
Power supply		230/1/50	400/3+N/50	460/3/60	380/3/60
THERMAL CAPACITY	kW	8	12	12	12
Absorbed current (OA)	A	34,8	17,3	15,1	18,3
Working steps	n.	3	3	3	3

The optional accessory modifies the weight of the standard unit.

OPTIONAL ACCESSORIES: A801 – HUMIDITY SENSOR ONLY



Combined Temperature/Humidity probe on air intake.
The accessory replaces the temperature sensor installed on the air intake in the unit and allows the displaying of the relative humidity room value.

The sensor is mandatorily required with following option:

- A802 Humidifier;
- A803 Dehumidification (humidity sensor is included);
- A804 Humidifier + Dehumidification (humidity sensor is included).

OPTIONAL ACCESSORIES: A802 – HUMIDIFIER



Modulating steam humidifier with immersed electrodes fitted with safety and running accessories
The optional includes the control board.

The optional requires mandatory accessory “A801 Humidifier”.

The optional is factory installed and requires only water filling connection.

Humidifier water charge and discharge pipes are not supplied.

It is recommended to install a filter and a shut-off valve on the pipe to the water inlet.

This humidifier produces non-pressurized steam by electrodes immersed in the water inside the cylinder: they bring the electric phase in the water that works as an electrical resistance and overheats. The steam so produced is distributed with dedicated distributors and used for ambient humidification or for industrial processes.

CHARACTERISTICS OF THE SUPPLY WATER

The quality of the used water influences the evaporation process, so the humidifier can be fed with **not-treated water, only when potable and non-demineralised.**

LIMIT VALUES FOR HUMIDIFIER FEED WATER			Normal water		Water with low salt content	
			Min	Max	Min	Max
Mains pressure	bar	1	8	1	8	
Hydrogen ions	pH	7	8,5	7	8,5	
Specific conductivity at 20 °C	$\sigma_{R, 20\text{ }^\circ\text{C}}$ $\mu\text{S/cm}$	350	1250	75	350	
Total dissolved solids	TDS mg/l	(1)	(1)	(1)	(1)	
Dry residue at 180 °C	R ₁₈₀ mg/l	(1)	(1)	(1)	(1)	
Total hardness	TH mg/l CaCO ₃	100 (2)	400	50 (2)	160	
Temporary hardness	mg/l CaCO ₃	60 (3)	300	30 (3)	100	
Iron + Manganese	mg/l Fe + Mn	0	0,2	0	0,2	
Chlorides	ppm Cl	0	30	0	20	
Silica	mg/l SiO ₂	0	20	0	20	
Residual chlorine	mg/l Cl ⁻	0	0,2	0	0,2	
Calcium sulphate	mg/l CaSO ₄	0	100	0	60	
Metallic impurities	mg/l	0	0	0	0	
Solvents, diluents, soaps, lubricants	mg/l	0	0	0	0	

(1) Values depending on specific conductivity; in general: TDS \cong 0,93 * $\sigma_{R, 20\text{ }^\circ\text{C}}$; R₁₈₀ \cong 0,65 * σ_{R}

(2) Not lower than 200% of the chloride content in mg/l di Cl⁻

(3) Not lower than 300% of the chloride content in mg/l di Cl⁻

WARNING:

- Use only with drinking water.
- There is no reliable relationship between hardness and water conductivity
- Do not treat water with softeners! This could cause corrosion of the electrodes or the formation of foam, leading to potential operating problems or failures.
- Do not add disinfectants or corrosion inhibitors to water, as these substances are potentially irritant.
- Is absolutely forbidden to use well water, industrial water or water drawn from cooling circuits; in general, avoid using potentially contaminated water, either from a chemical or bacteriological point of view.
- The water exiting the steam cylinder is very hot.
Operating temperature up to 100°C.

TECHNICAL DATA

MODEL		12	18	18	18
POWER SUPPLY		230/1/50	400/3/50	460/3/60	380/3/60
VAPOUR PRODUCTION	kg/h	3	5	5	4,7
Power input	kW	2,25	3,75	3,75	3,55
Absorbed current (OA)	A	9,8	5,5	4,7	5,7
Water content	l	3,9	3,9	3,9	3,9
HYDRAULIC CONNECTION					
WATER INLET - ISO 228/1 – G M (1)	Ø	3/4"	3/4"	3/4"	3/4"
WATER OUTLED – external diameter	Ø mm	32	32	32	32

(1) The humidifier water supply threaded male fitting is already fitted with a plastic hose, diameter 6mm, for connection to the building's water supply. Optional accessory modifies the weight of the standard unit. Consider the weight of the water content.

OPTIONAL ACCESSORIES: A803 – DEHUMIDIFICATION (sensor included)

The optional accessory includes the humidity sensor.

OPTIONAL ACCESSORIES: A804 – HUMIDIFIER + DEHUMIDIFICATION

Combination of optional accessories A802 and A803.
The optional accessory includes the humidity sensor.
It's necessary to select the desired humidifier cylinder during the order phase.

OPTIONAL ACCESSORIES: B231 - STD HUMIDIFIER CYLINDER – MEDIUM CONDUCTIBILITY.

OPTIONAL ACCESSORIES: B232 - LOW CONDUCTIBILITY HUMIDIFIER CYLINDER.

OPTIONAL ACCESSORIES: B233 - HIGH CONDUCTIBILITY HUMIDIFIER CYLINDER.

CILINDER CONDUCTIVITY		LOW CONDUCTIVITY CYLINDER		MEDIUM CONDUCTIVITY CYLINDER		HIGH CONDUCTIVITY CYLINDER	
		Min	Max	Min	Max	Min	Max
Operating status							
Specific conductivity at 20°C (σR, 20°C)	µS/cm	75	350	350	750	750	1250

Is necessary to select the humidifier cylinder during the order phase.

OPTIONAL ACCESSORIES: A352 – NO DISPLAY

The machine is supplied without microprocessor display

OPTIONAL ACCESSORIES: A357 – LOWERED DISPLAY

For machines installed above the supply plenum.
The display / keypad on the front panel of the machine is installed lowered by about 50cm to facilitate consultation and use

OPTIONAL ACCESSORIES: A471 – RS485 SERIAL CARD



The card is factory installed.
Consult the Interface Manual for all technical information.

OPTIONAL ACCESSORIES: A472 – RS432 SERIAL CARD



The card is factory installed.
Consult the Interface Manual for all technical information

OPTIONAL ACCESSORIES: A473 – ETHERNET CARD



The card is factory installed.
Consult the Interface Manual for all technical information

OPTIONAL ACCESSORIES: A474 – SERIAL CARD LON



The card is factory installed.
The manufacturer will supply the serial card and .NXE file and a .XIF files necessary for LonWorks technicians to configure the network.
The board is programmed by the technician in charge of the integration.
Consult the Interface Manual for all technical information

OPTIONAL ACCESSORIES: A501 - CLOGGED FILTERS SENSOR



The system includes a differential pressure switch installed in the electrical panel or in the front of the indoor unit and the plastic hoses for the relief of the pressure upstream and downstream the air filters.

Control range: 0,5 ... 6,0 mbar (50 ... 600 Pa)
Differential for intervention: 0,30 mbar (30 Pa)

OPTIONAL ACCESSORIES: A511 - SMOKE DETECTORS

OPTIONAL ACCESSORIES: A521 – FIRE DETECTORS



Is possible to install one or both of the following sensors. Sensors are supplied in mounting kit. Installation within the room at customer care.

A511 - SMOKE DETECTOR

The device is supplied in mounting kit.
The optical smoke detector senses the presence of combustion by-products (visible smoke) and activates an alarm.
The operating principle is based on the light scattering technique (Tyndall effect).
The device is in conformity to EN 54-7 standard.
Technical features:

Material	ABS	Relative humidity	<93% not-condensing
Power supply	12...28 Vdc	Index of protection	IP 20
Normal current	50µA 24 Vdc	Testing by magnet	Yes
Alarm current	25mA 24 Vdc	Relay	max. 1A 30Vdc
LED visibility	360° (double led)	Signal repeater	14mA 24 Vdc
Storage temperature	-10...+70°C	Covered area	40m² max.
Operating temperature	-10...+70°C	Shielded connection	Min. 0.5 mm²
Max. speed air	0.2 m/s	Colour	White

Supplied with unit to be connected and installed at customer care close to the unit.

A521 - FIRE DETECTOR

The device is supplied in mounting kit.
The fire detector has been designed to identify temperatures at which fires may start. When the temperature exceeds the set threshold or when there is a rapid variation in temperature, the relay is activated to signal an alarm.
The device is in conformity to EN 54-5 standard.
Technical features:

Material	ABS	Index of protection	IP 20
Power supply	12...28 Vdc	Testing by magnet	Yes
Normal current	50µA 24 Vdc	Relay	max. 1A 30Vdc
Alarm current	25mA 24 Vdc	Signal repeater	14mA - 24 Vdc
LED visibility	360° (double LED)	Alarm temperature	62°C
Storage temperature	-10...+70°C	Covered area	40m² max.
Operating temperature	-10...+70°C	Shielded connection	Min. 0.5 mm²
Relative humidity	<93% non-condensing	Colour	White

Supplied with unit to be connected and installed at customer care close to the unit.

OPTIONAL ACCESSORIES: A491 – WATER LEAKAGE DETECTOR



The system includes an electronic relay installed in the electrical panel of the machine and a water detector. The electrical connections for the probe and the alarm contact are present in the machine's terminal board. Sensor is supplied to be connected and installed at customer care.

OPTIONAL ACCESSORIES: 5891 – CONTROL UNIT VIA KIPLINK



The optional is factory installed. KIPLink is an innovative system based on Wi-Fi technology that allows to operate on a unit directly from Smartphone or Tablet via an APP.

WI-FI MODULE:

- Standard: IEEE 802.11n – 802.11g
- Frequencies: 2.4 – 2.4835 GHz
- Output power: <20 dBm (equivalent to <100mW)
- Safety: WPA2
- Flow: < 20m

MEHITS APP

- Operating System: Android 5® or higher, IOS 8® or higher, Windows 10® or higher
- Download: Google Play®, Apple Store® e Microsoft Store®.



HOW TO USE KIPLINK

KIPLink can be used in two ways:

Proximity keyboard:

Approaching the machine with a Smartphone or a Tablet with the MEHITS APP installed, you can connect to the machine via Wi-Fi and you can control it like the standard controller keyboard. It is possible to switch off / on the machine, change sets and reset alarms. Knowing the relative passwords, you access the parameters of the USER, SERVICE and MANUFACTURER menus.

Local Monitoring:

Using a Smartphone, a Tablet or PC connected to the LAN of the building where the machine is also connected. Access is via WEB via a browser. The system has two access profiles: ONLY READ and READ & WRITE. ONLY READ allows only the visualization of the parameters and it is not possible to control the unit. READ & WRITE allows you to switch off / on the machine, change sets and reset alarms. Knowing the relative passwords, you access the parameters of the USER, SERVICE and MANUFACTURER menus.



DATA STORE

The system can store some data on a 1GB MicroSD card to be installed on the device. The data can be used for Service diagnostics. The card is not provided.

KIPLINK NETWORK

It is possible to set up mixed networks consisting of several KIPLink devices (10 maximum), to display information from different devices (called Client KIPLink) on one single device (called Master KIPLink). The information is collected from the various Client KIPLink devices connected to EVOLUTION+ / W3000 TE/ CX-4 controllers and sent through the Wi-Fi or Ethernet network to the Master KIPLink device, which stores them and makes them available through an appropriate user interface. The connection with the Master KIPLink can take place via Wi-Fi, via Ethernet or a combination of the two.

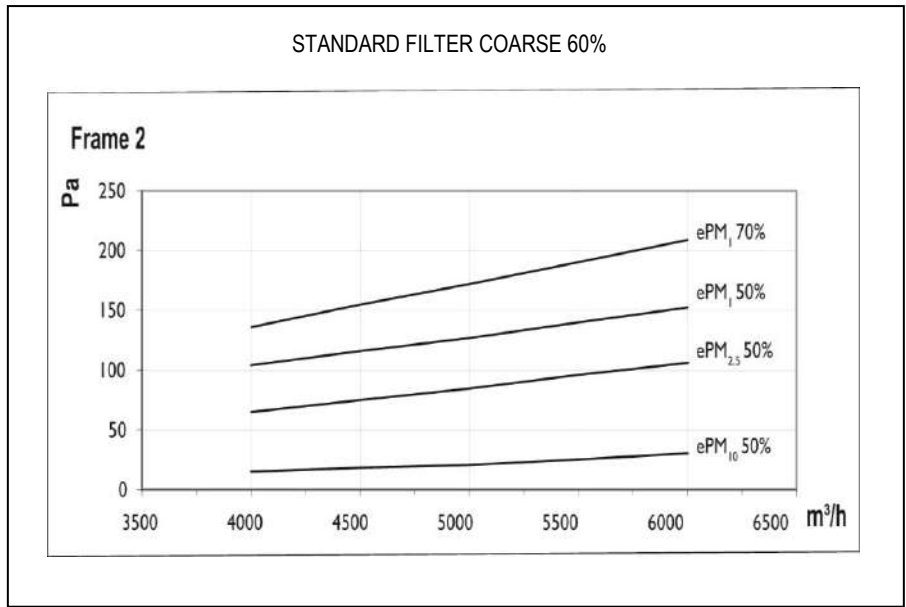
Logos, Trademarks and Company Name, are property of the respective Owners.

For complete information on the KIPLink system, please consult the relative technical documentation.

OPTIONAL ACCESSORIES: A212 / A213 / A214 / A215: AIR FILTERS

- A212.....EU5 air filter. Air filter with ePM₁₀ 50% efficiency.
- A213.....EU6 air filter. Air filter with ePM_{2.5} 50% efficiency.
- A214.....EU7 air filter. Air filter with ePM₁ 50% efficiency.
- A215.....EU8 air filter. Air filter with ePM₁ 70% efficiency.

The standard filter COARSE 60% efficiency (according to ISO EN 16890) and optional (ePM₁₀ 50% / ePM_{2.5} 50% / ePM₁ 50% / ePM₁ 70% efficiency, according to ISO EN 16890) are installed inside the conditioning unit before the finned coil. Additional pressure drop:



WARNING:
With EU5 – EU6 – EU7 – EU8 filters please consider the relevant increase in the pressure drop.

OPTIONAL ACCESSORIES: A272 – CL.0 or A1 (EN13501-1) INSULATION

The optional is designed **TO SUPPLY THE PANELING ONLY WITH FIRE REACTION IN CLASS “0” OR “A1 (EN 13501-1)”**; furthermore, allows a noise insulation of the panels of the air conditioners. The pressure level reduction of the unit is about 2 dB(A). The reduction refers **ONLY** to the sound level radiated from the unit or in front of the unit. The noise level data on return and delivery air do not undergo reductions.

- The accessory includes:
- External part as standard panel.
- Internal part in galvanized steel sheet.
- The inside noise insulation with special soundproof material.

REACTION TO FIRE CLASSIFICATION

On Italian territory, the classification is per the D.M. of June 26, 1984 and subsequent amendments, providing for a sort in "Classes" from 0 (non-combustible material) to 5 (extremely flammable material). The EN 13501-1 regulation is ordered in classes from A1 (non-combustible material) to F (extremely flammable material).

A comparison of the classes is not possible because the methods and evaluation criteria are completely different. The comparison table below is being considered purely indicative.

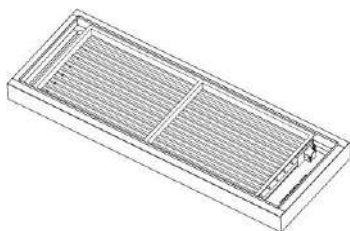
Definition	Italian classes	EN 13501-1
Non-combustible material	Class 0	A1
Combustible material, very limited contribution to fire	Class 1	A2 – B
Combustible material, limited contribution to fire	Class 2	A2 – B - C
Combustible material, medium contribution to fire	Class 3	C – D
Combustible material, highly contribution to fire	Class 4	E
Combustible material, easily flammable	Class 5	F

OPTIONAL ACCESSORIES: A181 – COMPRESSOR SOUNDPROOF JACKET

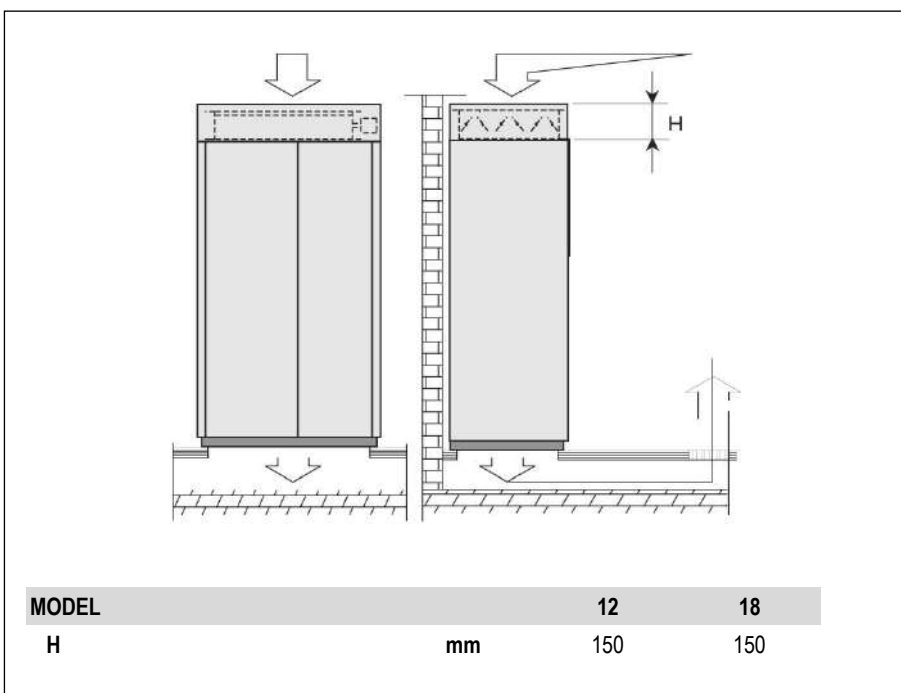


Soundproof jacket for each compressor to obtain a 2 dB (A) reduction of the sound level of the unit.

OPTIONAL ACCESSORIES: A532 – MOTORIZED DAMPER WITH SPRING RETURN



Non-return air damper with frame driven by electric servomotor and spring return. Accessory installed on unit air delivery and it can be matched to plenums and floor stand.



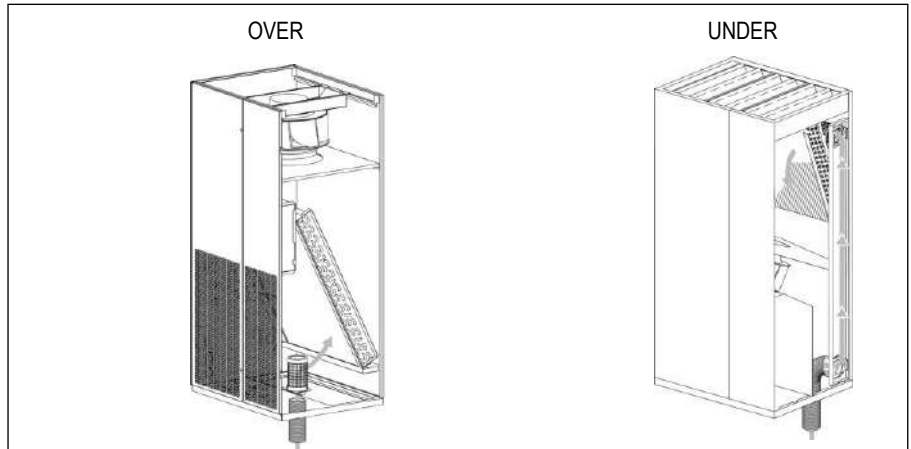
WORKING LOGIC

The damper opens at supply fans activation to allow air flow.

When the fans stop for failure or stop command, the damper closes, preventing air flow into the unit.

OPTIONAL ACCESSORIES: A001 – WITH FRESH AIR

The fresh air kit is supplied with COARSE 50% (according to ISO EN 16890) filter installed in suction side of fan, allowing to mix the fresh air with recirculating air. The fresh air volume is around 5% of nominal air flow of unit. Flexible pipe for connection not supplied.



OPTIONAL ACCESSORIES: A842 – NETWORK ANALYZER



EXTERNAL installation

This device provides continuous measurement of power consumption, monitoring current, voltage and power. These values are sent to unit microprocessor via RS485 serial cable, as shown on the unit wiring diagram.

The displayed variables are:

- Phase to phase voltage, only for three-phase units;
- Phase voltage (phase-neutral);
- Phase current;
- Neutral current only for three-phase units;
- Active phase power, only for three-phase units;
- Total active power;
- Active energy;
- Hour counts

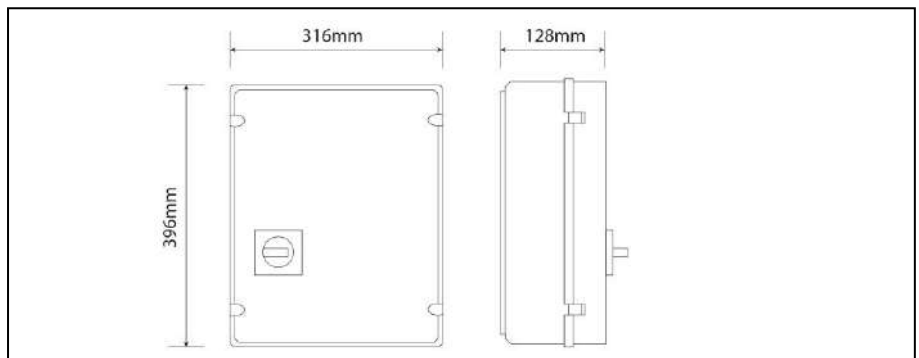
INSTALLATION

Model	Power Supply	Installation
12	400/3+N/50	EXTERNAL to the unit, supplied in kit
18	400/3+N/50	EXTERNAL to the unit, supplied in kit

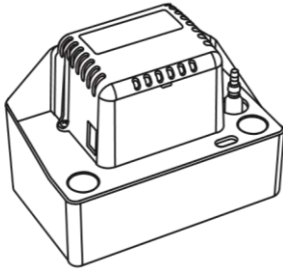
MOUNTING KIT

The optional is supplied in box for external installation to the machine with the dimensions showed in the figure below, and includes:

- Main switch with door lock safety;
- Fuse;
- Network transducer;
- Current transformers, one for each power supply phase cable;
- Terminals.



OPTIONAL ACCESSORIES: 7387062700 – STD CONDENSATE DRAIN PUMP KIT



For condensate water drain.

A plastic case contains the vertical type pump, the water tank with float plus safety switch and hydraulic and electric connection.

The optional has to be installed as shown in the documentation delivered together with the unit.

Wiring includes power supply and an alarm, displayed on microprocessor, that includes motor pump thermal protection and tank overflow.

The condensate discharge pump operation is fully automatic.

WARNING

For all the machines the optional accessory is supplied in mounting kit.

TECHNICAL DATA

Tank capacity: 2 litres

Recommended maximum head: 4,6m

Maximum water flow-rate: 288 l/h with zero head

Rated power: 0.6A, 230V AC

Noise level: ≤ 60 dB con prevalenza massima

Maximum drain water temperature: 50°C

Safety switch: 4A max

DIMENSIONS

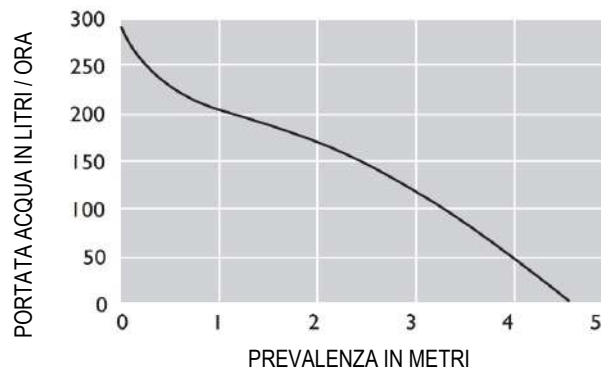
Height: 170mm

Width 235mm

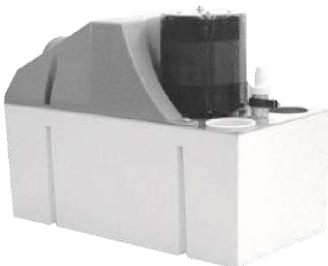
Depth: 140mm

Weight: 1,75kg

DATI DI FUNZIONAMENTO



OPTIONAL ACCESSORIES: 7387062800 – HT CONDENSATE DRAIN PUMP KIT



For condensate water and humidifier drain cycle hot water discharge.

A plastic case contains the vertical type pump, the water tank with float plus safety switch and hydraulic and electric connection.

The optional has to be installed as shown in the documentation delivered together with the unit.

Wiring includes power supply and an alarm, displayed on microprocessor, that includes motor pump thermal protection and tank overflow.

The condensate discharge pump operation is fully automatic.

WARNING

For all the machines the optional accessory is supplied in mounting kit.

TECHNICAL DATA

Tank capacities: 4 litres

Recommended maximum head: 6 m

Maximum water flow-rate: 900 l/h with zero head

Rated power: 0.6A, 230V AC

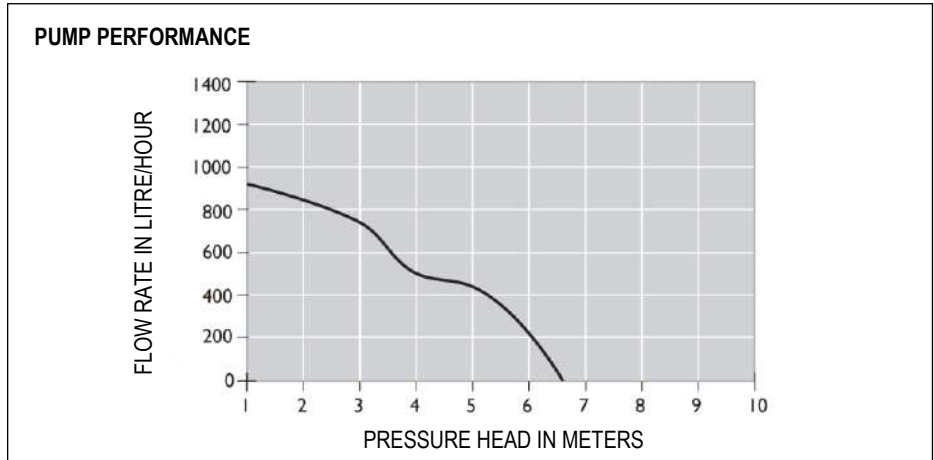
Safety switch: 4A max

Power supply voltage: 220/240 AC

Current draw: 0,7A

Power consumption: 175W

DIMENSIONS
 Height: 205 mm
 Width: 300 mm
 Depth: 150 mm
 Weight: 3,6 kg



- OPTIONAL ACCESSORIES: 5587198800 – ATS DUAL POWER SUPPLY KIT 400/3+N/50HZ - 230/3/60HZ 4P 80A**
- OPTIONAL ACCESSORIES: 5587200900 – ATS DUAL POWER SUPPLY KIT 230/1/50HZ - 230/1/60HZ 2P 80A**
- OPTIONAL ACCESSORIES: 5587243600 – ATS DUAL POWER SUPPLY KIT 460/3/60HZ 3P 40A**
- OPTIONAL ACCESSORIES: 5587243800 – ATS DUAL POWER SUPPLY KIT 380/3/60HZ 3P 100A**



- 5587198800ATS Dual Power supply kit 400/3+N/50Hz-230/3/60Hz 4P 80A.** External kit for 400/3/50 and 230/3/60 power supply.
- 5587200900ATS Dual Power supply kit 230/1/50Hz-230/1/60Hz 2P 80A.** External kit for 230/1/50 and 230/1/60.
- 5587243600ATS Dual Power supply kit 460/3/60Hz 3P 40A.** External kit for 460/3/60.
- 5587243800ATS Dual Power supply kit 380/3/60Hz 3P 100A.** External kit for 380/3/60.

The motorised changeover switches automatically manage changeover under load between two single-phase or three-phase power supplies, or manually for emergency operations. These devices are suitable for low voltage systems with interruption of the supply to the load during transfer. The model supplied in the automatic version checks the source and switches over automatically, based on configurable parameters.

OPEN TRANSITION TYPE TRANSFER SWITCH WITH A MINIMUM INTERRUPTION OF THE SUPPLY DURING TRANSFER.

The microprocessor restarts in case of supply voltage failure.

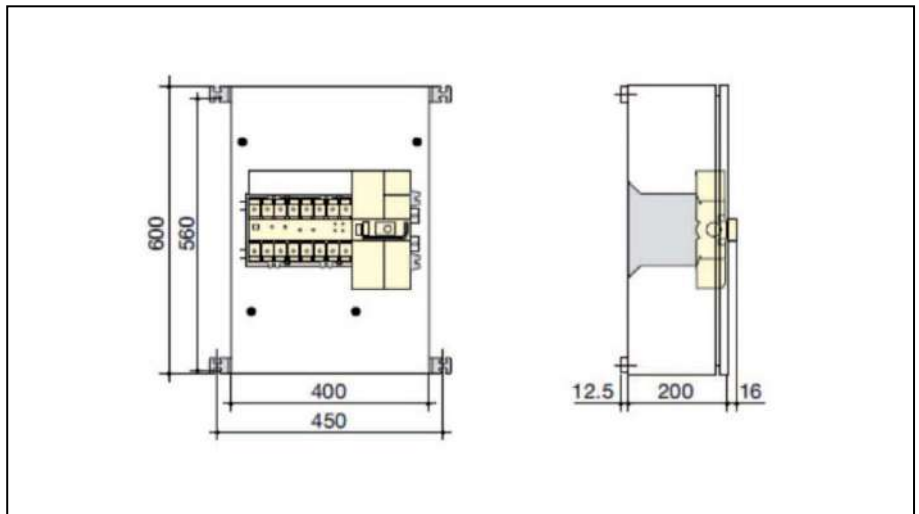
The remote condenser must be powered by the automatic transfer switch.
 It is suggested the power supply for condenser from the indoor machine electrical board.

INSTALLATION

Model	Power Supply	Installation	Code
12	230/1/50	ESTERNA all'unità, fornito in kit	5587200900
18	400/3+N/50	ESTERNA all'unità, fornito in kit	5587198800
18	380/3/60	ESTERNA all'unità, fornito in kit	5587243800
18	460/3/60	ESTERNA all'unità, fornito in kit	5587243600

MOUNTING KIT

For EXTERNAL installation, the optional accessory is supplied in special box with IP 3X ingress protection, with the dimensions shown in the figure below.



OPTIONAL ACCESSORIES: 7387012600 – REMOTE TERMINAL DISPLAY EVOLUTION

| Wall mounting remote display.

OPTIONAL ACCESSORIES: 7387036600 – GSM EXTERNAL MODEM WITH CONNECTING CABLE

| External modem for GSM connection

OPTIONAL ACCESSORIES: C64600000H – 4,0 LITERS TIN OF OIL FV50S

| Lubricant oil for inverter compressor.

i-AX PRECISE

- OPTIONAL ACCESSORIES: 7387003800 – PLENUM FRONTAL DELIVERY WITH GRILLES
- OPTIONAL ACCESSORIES: 7387018900 – PLENUM FRONTAL DELIVERY WITH GRILLES CLASS 0 or A1 (EN 13501-1)
- OPTIONAL ACCESSORIES: 7387014500 – PLENUM TOP SUCTION / DELIVERY
- OPTIONAL ACCESSORIES: 7387019100 – PLENUM TOP SUCTION / DELIVERY CLASS 0 or A1 (EN 13501-1)
- OPTIONAL ACCESSORIES: 7387028000 – PLENUM DELIVERY SOUND PROOF
- OPTIONAL ACCESSORIES: 7387032500 – PLENUM DELIVERY SOUND PROOF CLASS 0 or A1 (EN 13501-1)
- OPTIONAL ACCESSORIES: 7387030600 – PLENUM SUCTION SOUND PROOF
- OPTIONAL ACCESSORIES: 7387031800 – PLENUM SUCTION SOUND PROOF CLASS 0 or A1 (EN 13501-1)
- OPTIONAL ACCESSORIES: 7387006300 – BASE MOULDING H=200mm
- OPTIONAL ACCESSORIES: 7387015100 – BASE MOULDING WITH FRONTAL GRILLES
- OPTIONAL ACCESSORIES: 7387020500 – BASE MOULDING WITH FRONTAL GRILLES CLASS 0 or A1 (EN 13501-1)

The optional is supplied separately and the installation on the unit is at Customer care.
The plenums have same technical characteristics and base dimensions of the machine cabinet.

It is possible to install only a single plenum to ensure stability to the unit.

WARNING

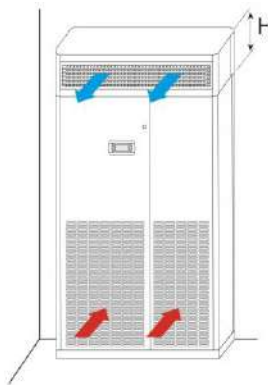
The OVER units are designed for the connections to pass through the base of the unit, nonetheless, if there is no raised floor (units with air intake from the rear or front), to simplify the connection of pipes and cables, a base moulding must be used.



7387003800 – 7387018900: PLENUM FRONTAL DELIVERY WITH GRILLES

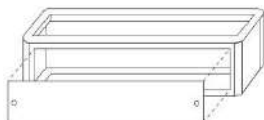
Only for OVER version.
The plenum must be installed on air delivery.
The plenum allows the air distribution directly into the room.
The plenum is supplied with air distribution grilles with double row adjustable grilles on front side.
Also available with fire reaction in class “0” or “A1” (EN 13501-1).

7387003800 – 7387018900: OVER



MODEL	12	18
DIMENSIONS		
H	mm	350

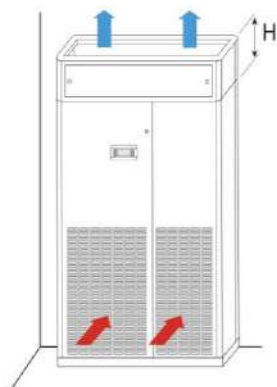
The accessory modifies the weight of the standard unit.



7387014500 – 7387019100: PLENUM TOP SUCTION / DELIVERY

The plenum is void and can be used to rise the intake/delivery air inlet/outlet.
The plenum must be installed over the unit.
Remove the frontal panels for inspection.
Also available with fire reaction in class "0" or "A1" (EN 13501-1).

7387014500 – 7387019100: OVER

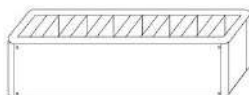


7387014500 – 7387019100: UNDER



MODEL	12	18
DIMENSIONS		
H	mm	350
		350

The accessory modifies the weight of the standard unit.

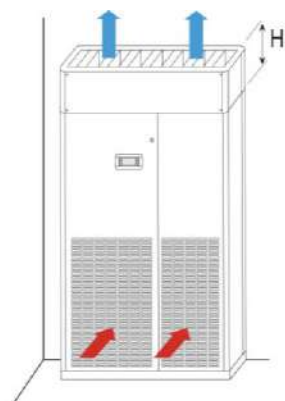


7387028000 – 7387032500: PLENUM DELIVERY SOUNDPROOF

7387030600 – 7387031800: PLENUM SUCTION SOUNDPROOF

The plenum must be installed over the unit.
The plenum has sound absorbers for noise reduction.
Remove the frontal panels for inspection.
Also available with fire reaction in class "0" or "A1" (EN 13501-1).

7387028000 – 7387032500
PLENUM DELIVERY OVER

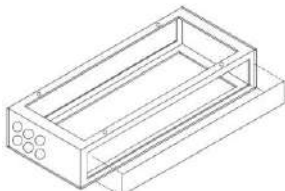


7387030600 – 7387031800
PLENUM SUCTION UNDER



MODEL	12	18
DIMENSIONS		
H	mm	350
		350

The accessory modifies the weight of the standard unit.



7387006300: BASE MOULDING H=200mm

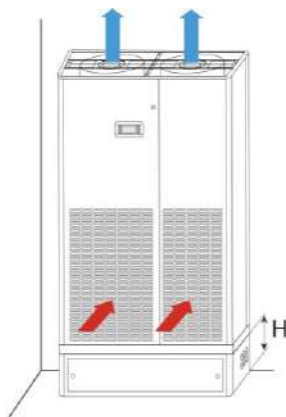
Only for OVER version.

The plenum simplifies the connection of pipes and cables.

Six pre-cut sections for passing the cables and pipes on right and left sides.

Remove the frontal panels for inspection.

7387006300: OVER



MODEL	12	18
DIMENSIONS		
H	mm	200
		200

The accessory modifies the weight of the standard unit.



7387015100 - 7387020500: BASE MOULDING WITH FRONTAL GRILLES

Only for UNDER version.

The plenum must be installed on air delivery.

The plenum allows the air distribution directly into the room.

The plenum is supplied with air distribution grilles with double row adjustable grilles on front side.

Also available with fire reaction in class "0" or "A1" (EN 13501-1).

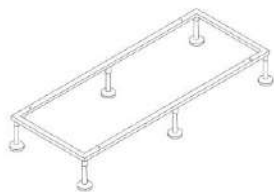
7387006300: OVER



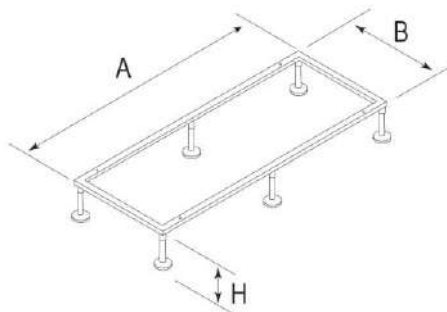
MODEL	12	18
DIMENSIONS		
H	mm	200
		200

The accessory modifies the weight of the standard unit.

OPTIONAL ACCESSORIES: 5587010600 – BASE FRAME (H = 200-600mm)



The accessory is supplied as an assembly kit.
It is not possible to match the unit floor stand with plenum installed under the machine.



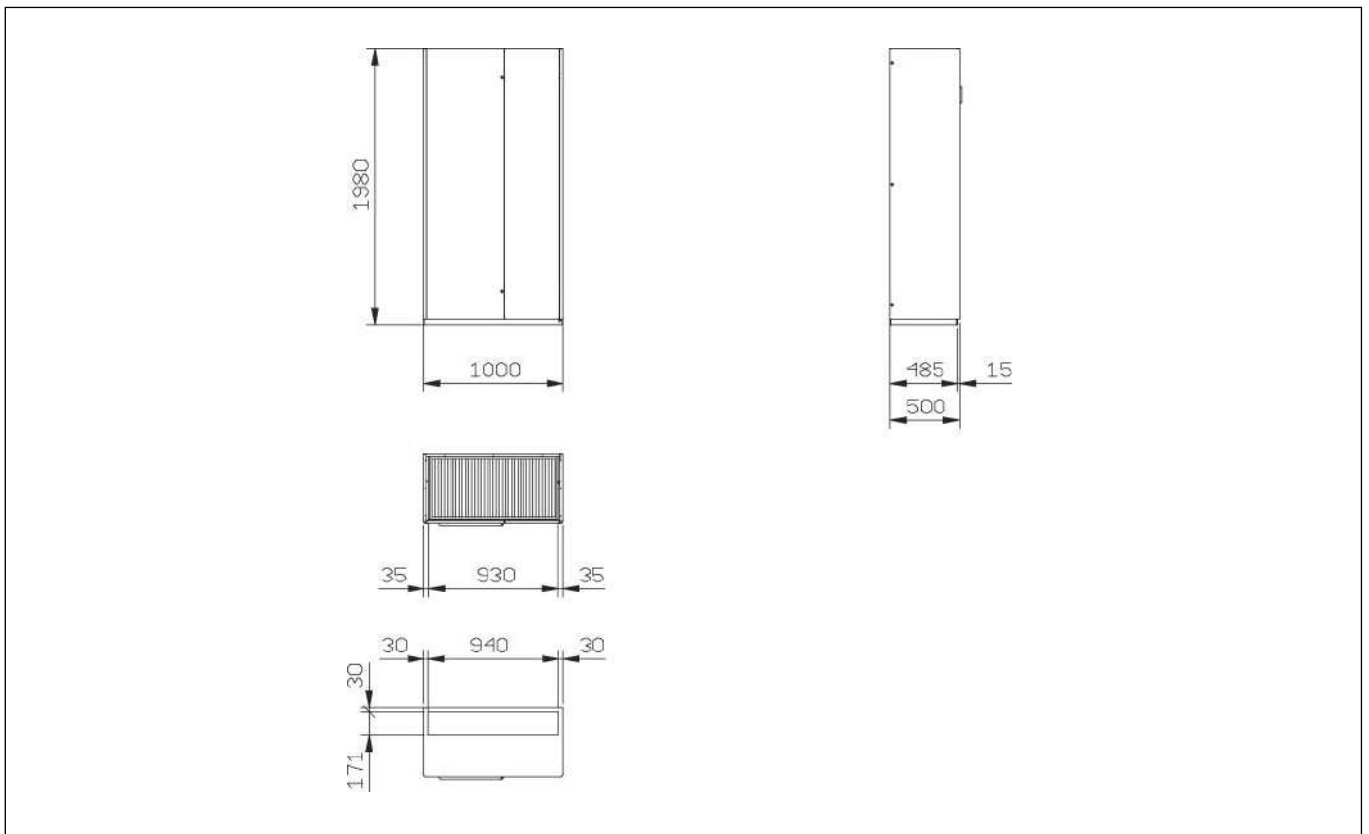
MODEL		12	18
DIMENSIONS			
A	mm	1000	1000
B	mm	485	485
H min	mm	200	200
H max	mm	260	260

The optional accessory modifies the weight of the standard unit.

i-AX PRECISE

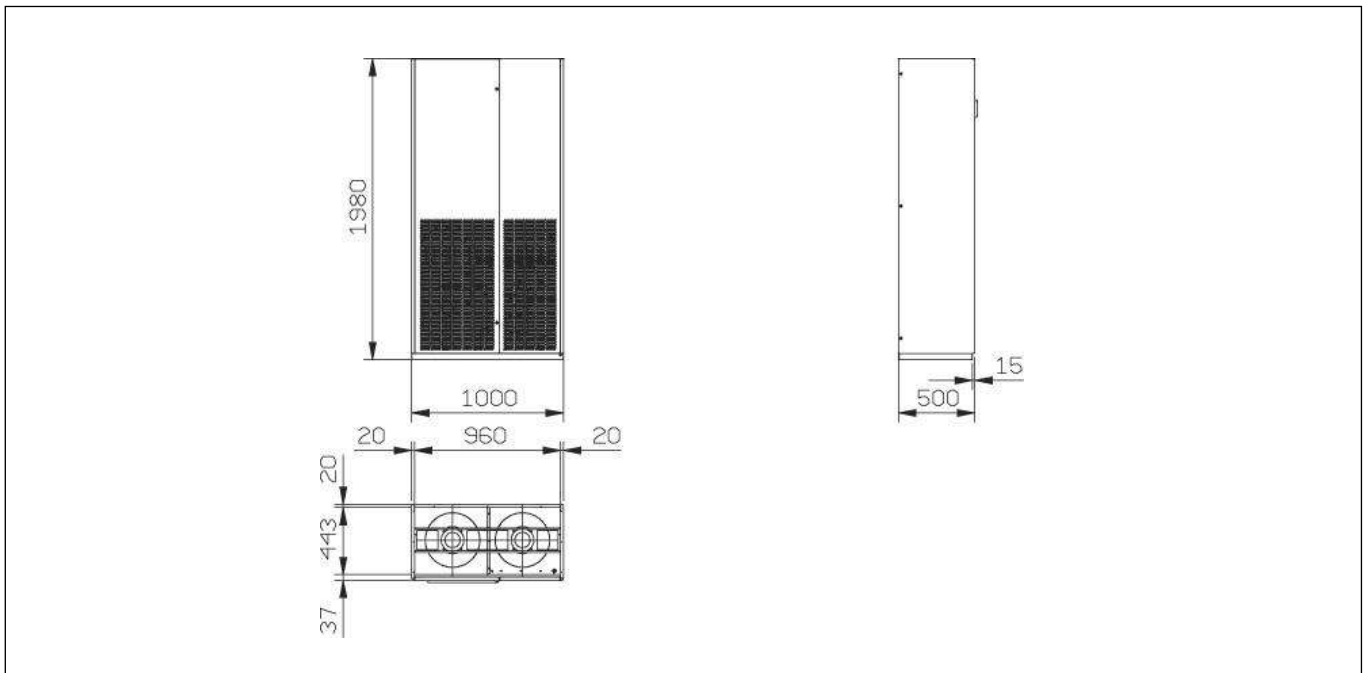
MACHINE DRAWINGS

Dimensions in mm – Models 12-18 - UNDER



MACHINE DRAWINGS

Dimensions in mm – Models 12-18 - OVER



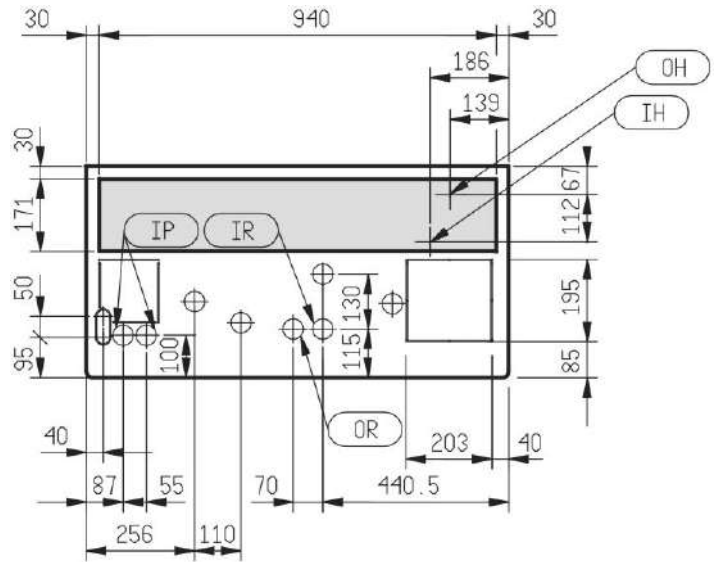
i-AX PRECISE

CONNECTIONS POSITION

OVER CONNECTIONS Models 12-18

- IR IN refrigerant
- OR OUT refrigerant
- IP IN power supply
- IH IN humidifier
- OH OUT humidifier and condensate water drain

PLANT VIEW Dimensions in mm

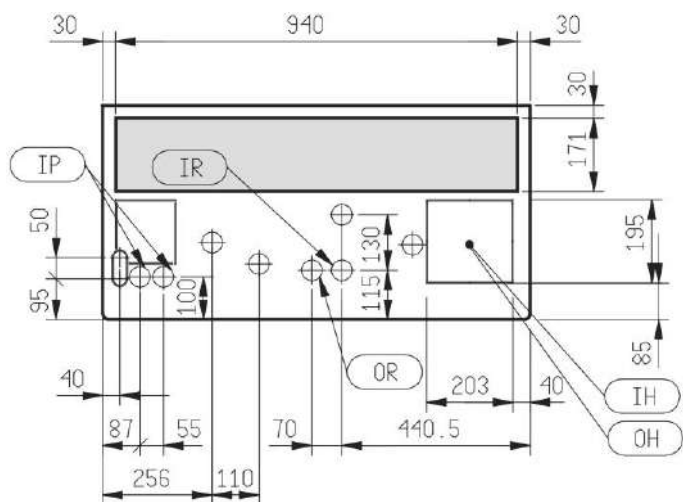


Front unit SIDE

UNDER CONNECTIONS Models 12-18

- IR IN refrigerant
- OR OUT refrigerant
- IP IN power supply
- IH IN humidifier
- OH OUT humidifier and condensate water drain

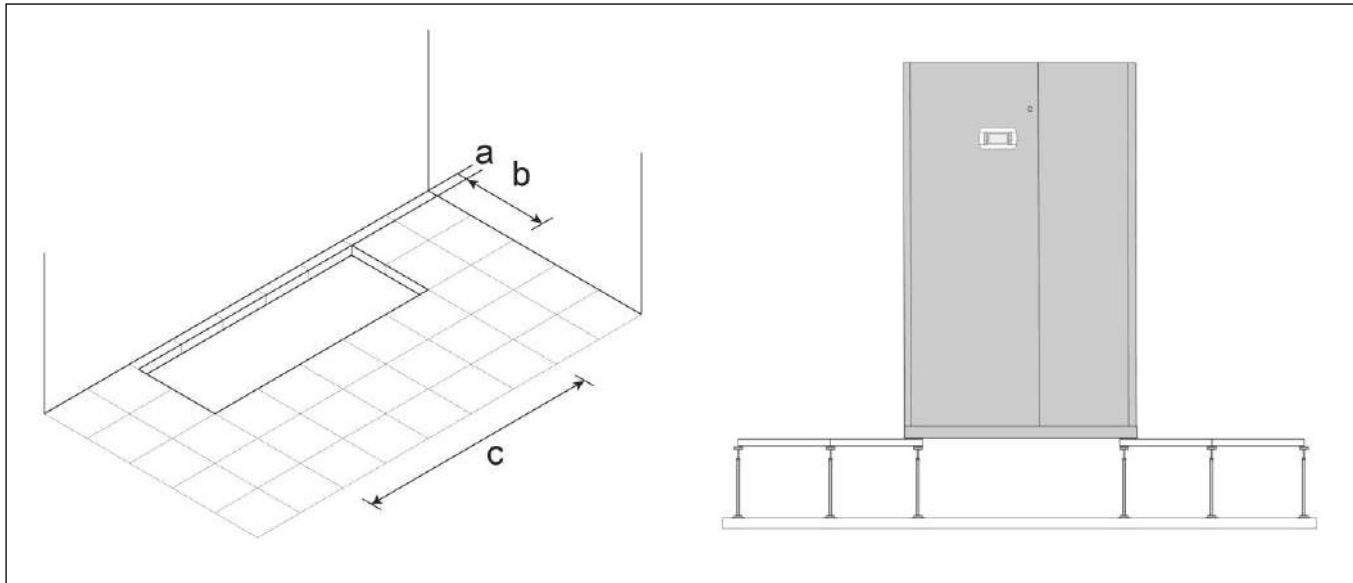
PLANT VIEW Dimensions in mm



Front unit SIDE

HOLE IN THE RAISED FLOOR FOR DOWNFLOW VERSION

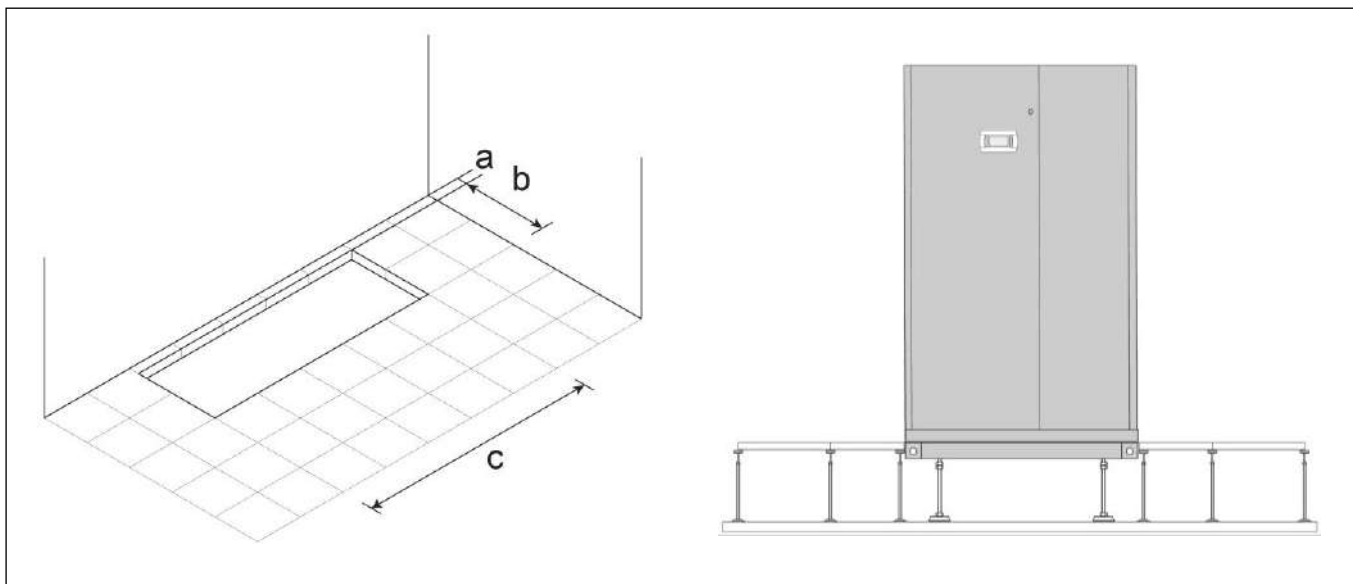
HOLE IN THE RAISED FLOOR WITHOUT FLOOR STAND



Foresee a hole in the floor with the following dimensions:

MODEL		12	18
a	mm	80	80
b	mm	175	175
c	mm	930	930

HOLE IN THE RAISED FLOOR WITH FLOOR STAND (OPTION)



Foresee a hole in the floor with the following dimensions:

MODEL		12	18
a	mm	50	50
b	mm	505	505
c	mm	1020	1020

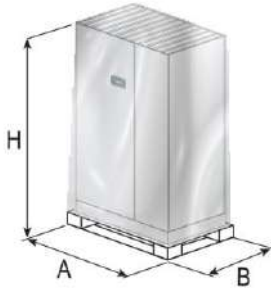
SHIPMENT: PACKING DIMENSIONS

Values referred to basic machine. The presence of some accessories increases the weight of machine.

The machines are shipped on pallet and covered with shrink wrap.
On request packing on pallet covered with shrink wrap and wooden cage.

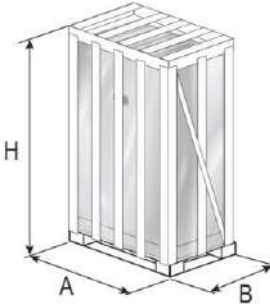
Plenums and support frames are shipped with other packing.

STANDARD PACKING DIMENSIONS



Model	A (mm)	B (mm)	H (mm)
12	1060	560	2250
18	1060	560	2250

OPTIONAL ACCESSORY 9973: WOODEN CAGE PACKING DIMENSIONS



Model	A (mm)	B (mm)	H (mm)
12	1090	590	2265
18	1090	590	2265

SHIPMENT: SHIPPING WEIGHT

STANDARD PACKING

Model	12	18
Weight	kg 267	267

OPTIONAL 9973: WOODEN CAGE PACKING

Model	12	18
Weight	kg 307	307



for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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