

**Data Book**

T\_CRCC\_0522\_EN

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# CRCC

**16-75 kW**

Air conditioners for IT Cooling for chilled water feeding.



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

- In-row / enclosure installation
- For high density rack and blade server
- Variable air flow and water flow
- Plug fans with EC electric motor

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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**



Modelli 0020, 0025, 0035, 0036, 0038



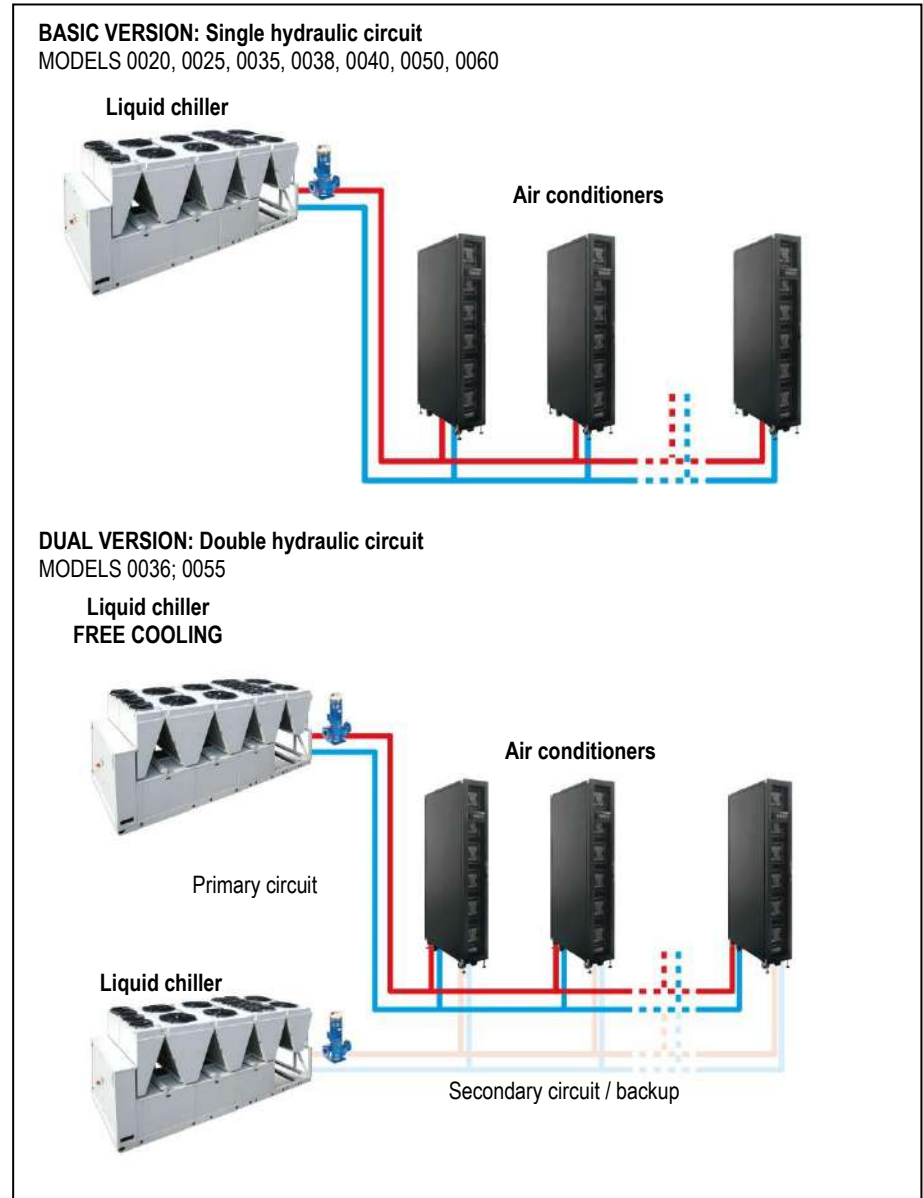
Modelli 0040, 0050, 0055, 0060

**Air Conditioners for IT Cooling** for chilled water feeding.

- Plug fans with EC electric motor.
- Single hydraulic circuit, BASIC version.
- Double hydraulic circuit, DUAL version.

This series, for in-row, in-rack installation, is offered in 9 models available in the following version:

- IN ROW "I" air flow: Frontal or side air delivery, back side air suction  
Cooling capacity: 16 ÷ 58 kW
- ENCLOSURE "E" air flow: Side air delivery, side air suction  
Cooling capacity: 20 ÷ 75 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 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 particularly suitable for installation in Data Center with hot spot for high density racks and blade server cooling. It is able to cope the high density of the thermal load in a small space, **up to and over 40kW/m<sup>2</sup> per rack**.

For installation are not required underfloor plenum, ducts or false ceilings; the installation foresees the direct insertion within the rows of racks to cool.

This allows to contrast the localized heat sources (hot spot) tailoring the installation to the actual situation of the plant. Another big advantage is the modularity and scalability of the system, characteristics that allow for quick adjustment and economic development of plant layout, according to the changing needs of the infrastructure.

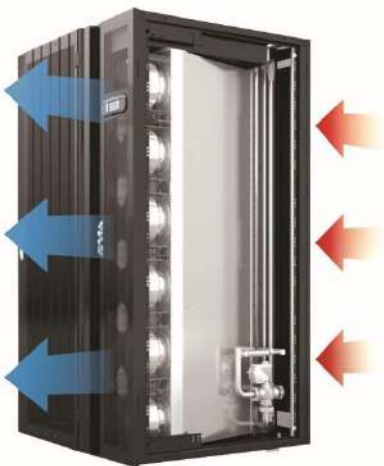
**IN ROW COOLING SYSTEM FOR ROWS OF RACKS (hot/cold aisles)**

Units are placed in the rows of racks that are arranged so as to obtain alternate cold and hot aisles.

Electronic equipment contained in racks independently provide to aspire the necessary air for cooling.

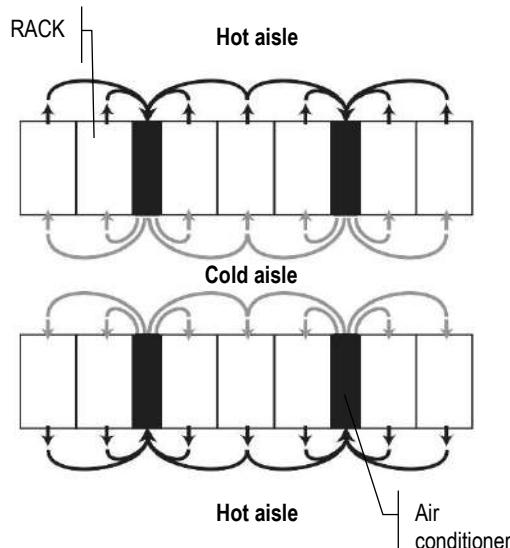
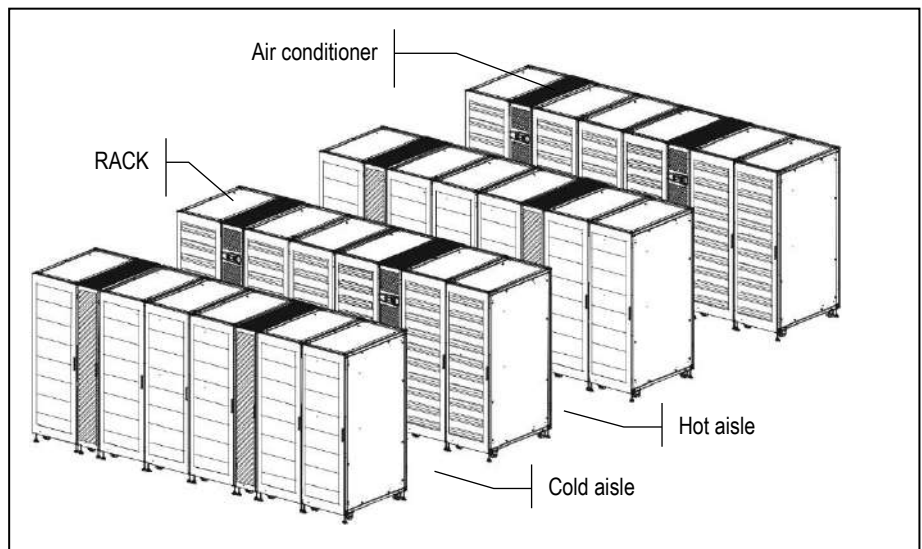
- In the hot aisle rack expels the hot air used to cool the electronic components while the air conditioner draws the hot air to be cooled.
- In the cold aisle the air conditioner blows the filtered and cooled air while the rack draws cold air to cool the electronic components.

**PLANT TYPE**



**"I" VERSION - IN ROW VERSION – FRONTAL AIR DELIVERY**

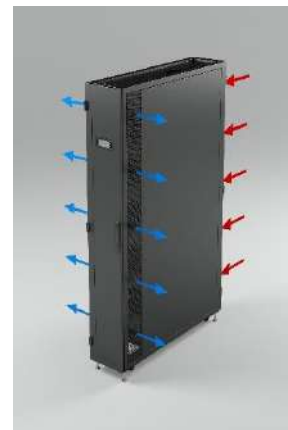
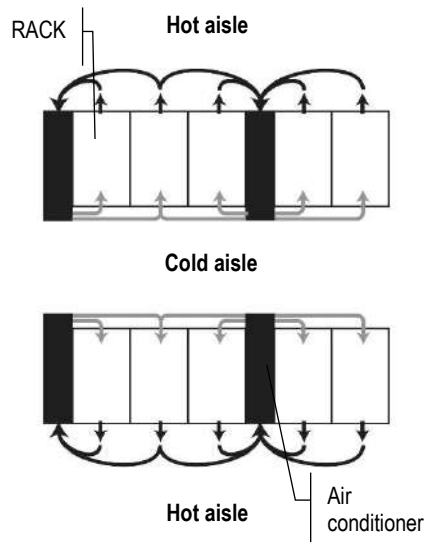
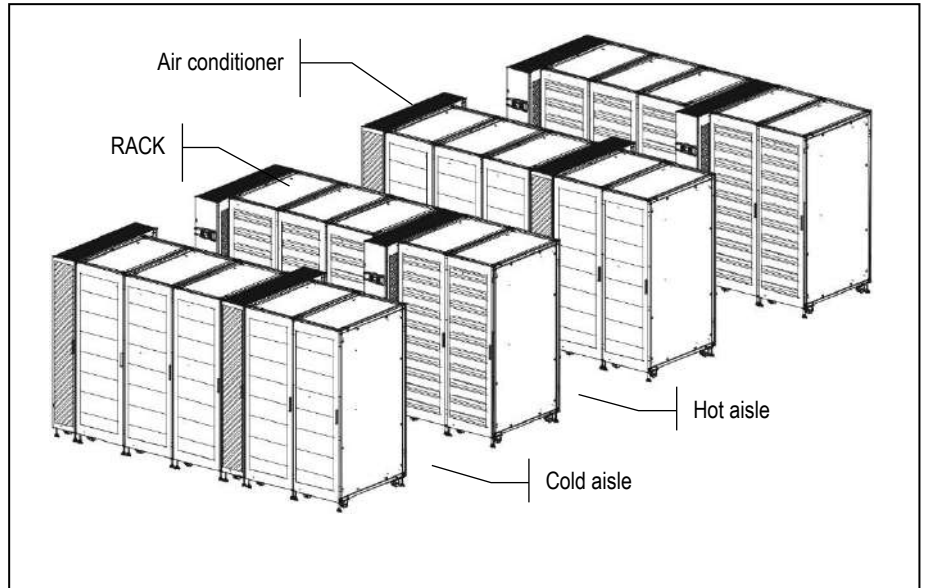
Frontal air delivery. Rear air suction.



Frontal air delivery  
Rear air suction

**"I" VERSION - INROW VERSION WITH SIDE AIR DELIVERY**

In the version with side outlet, the air is delivered directly to the front of the racks, reducing the risk of mixing between cold and hot air, and ensuring correct air distribution even when the rack cooler is installed at the start of the row.



Right + Left air delivery.  
Rear air suction.



Left air delivery.  
Rear air suction.



Right air delivery.  
Rear air suction.

**"E" VERSION - ENCLOSURE COOLING SYSTEM FOR DIRECT COOLING OF THE RACKS**

The rows of racks are arranged so as to insert an air conditioner between two racks.

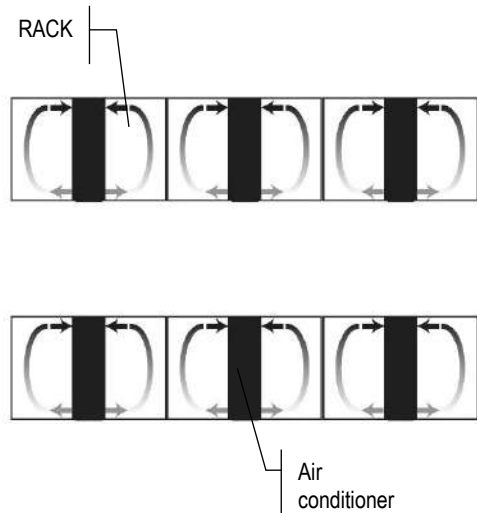
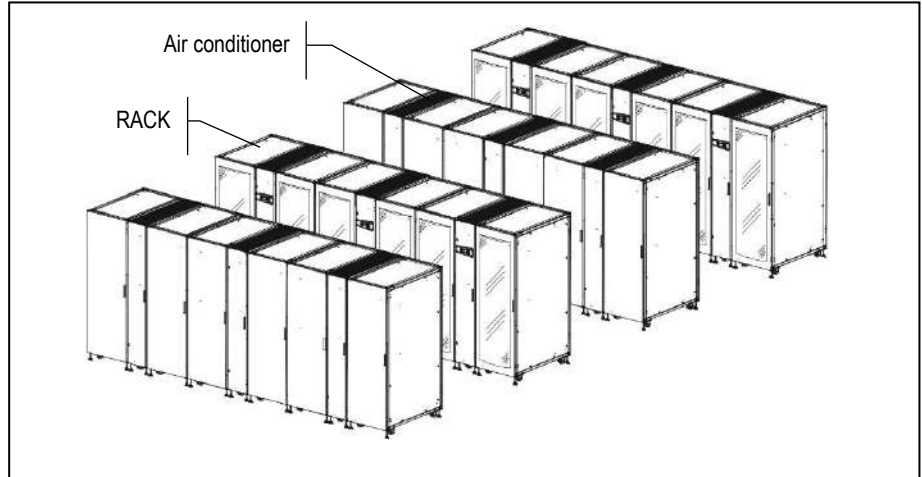
The racks are equipped with tight door for the containment of cooling air.

The air conditioner blows filtered and cooled air in the frontal side of the rack where the electronic equipment draws the cooled air.

Thanks to the "closed" cooling system the electronic equipment contained in racks do not require fans for air circulation.

In the back side of the rack, the hot air is drawn by the air conditioner that will repeat the cooling cycle.

**ENCLOSURE VERSION**



Right + left air outlet  
Right + left air intake.



Left air outlet.  
Left air intake.



Right air outlet.  
Right air intake.



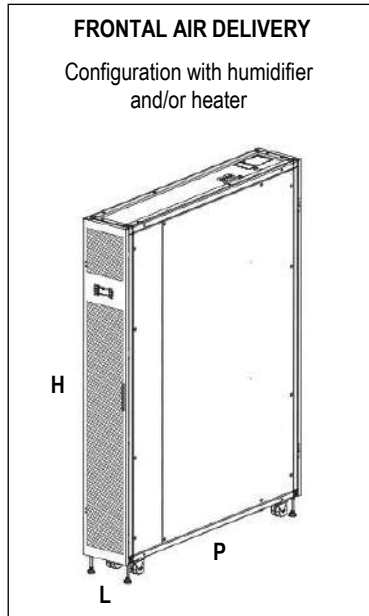
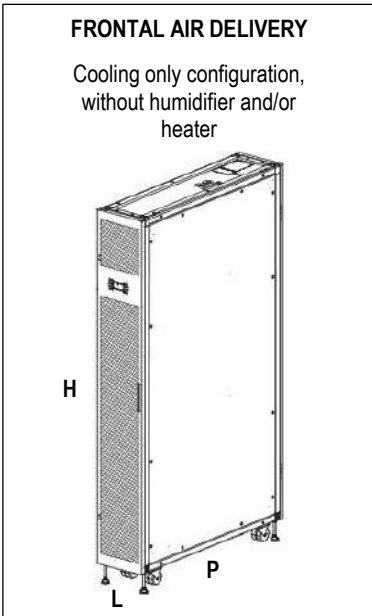
## CONFIGURATIONS

The desired configuration must be selected during the order phase.

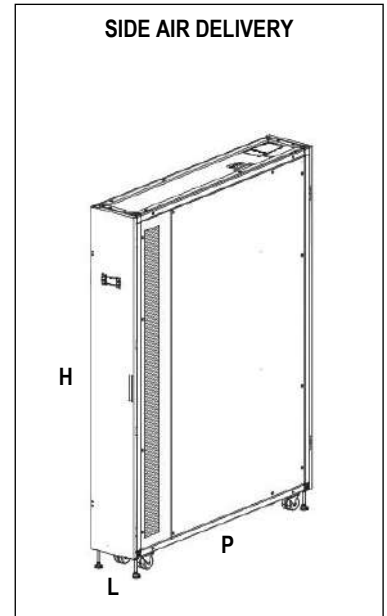
### “I” VERSION

IN ROW COOLING SYSTEM (hot/cold aisle)

FRONTAL air delivery; BACK SIDE air suction



SIDE air delivery; BACK SIDE air suction



DIMENSIONS		
L (mm)	300	600
P (mm)	1000/1200(*)	
H (mm)	2085	

DIMENSIONS		
L (mm)	300	600
P (mm)	1200 (*)	1000/1200(*)
H (mm)	2085	

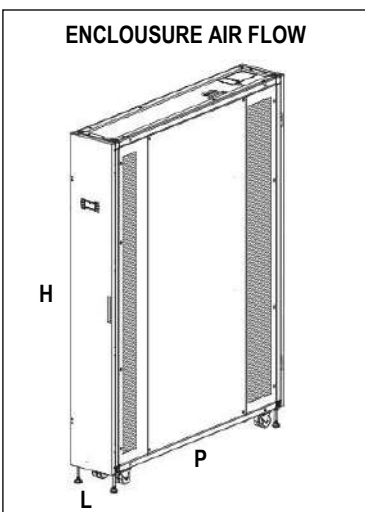
DIMENSIONS		
L (mm)	300	600
P (mm)	1200	
H (mm)	2085	

(\*) Increased frame dimensions for in-row version with frontal air delivery. Optional mandatory for in-row version with frontal air delivery with Humidifier (optional) and/or electric heater (optional) for models 0020, 0025, 0035, 0036, 0038.

### “E” VERSION

ENCLOSURE COOLING SYSTEM - IN RACK (close loop).

SIDE air delivery; SIDE air suction



DIMENSIONS		
L (mm)	300	600
P (mm)	1200	
H (mm)	2085	

PRODUCT FEATURES AND BENEFITS



**EFFICIENCY**

The unit combines the efficiency of a hydronic system for the extraction of heat with the use of last generation EC fans to obtain values of EER more than 100 at partial load conditions. The reduction of the temperature of the exhausted air allows the use of very high temperature chilled water, between 14-20°C, by the unit, that if on the one hand prevents unpleasant phenomena of condensation (SHR = 1) on the other hand allows the use of the free cooling system only on chiller for outdoor installation.

**FLEXIBILITY**

The In-Row and Enclosure versions are both arranged with hydraulics connections and electric supply from top or bottom side, so as to allow a quick and easy installation in any condition, whether or not foreseen the presence of a raised floor.

**IDM - INTEGRATED DYNAMIC MANAGEMENT OF TEMPERATURE**

The units are supplied with a new management algorithm called IDM INTEGRAL DYNAMIC MANAGEMENT able to prevent stratification of temperature within the rack using 4 sensors (2 on the air suction and 2 on the air outlet) integrated and independent that, on the basis of the real load in the single stratified BLADE, work to optimize the ventilation only when required so as to maximize energy benefits. The IDM also provides the optimal management of the outlet treated air temperatures integrating the various resources in a DYNAMIC and INTELLIGENT way to avoid unpleasant condensation and ensuring (SHR = 1).

**REDUNDANCY**

Both the Enclosure and InRow version are developed to ensure maximum RELIABILITY of the system by the total REDUNDANCY of the cooling system guaranteed by the version DUAL COIL with dual power supply (optional), dual cooling coil and double regulation valve completely independent to ensure 100 % backup in the air conditioning system.

This allows to connect the DUAL COIL version from one side to the primary FREECOOLING system (Circuit 1) and on the other to a liquid chiller in total Backup.

**MODULARITY**

The units, with their characteristics of dimensional standardization based on the rack, are ideal for all those Data Centers where SCALABILITY of the system is a strategic factor.

**COMPARTMENT**

Perfect integration with systems that minimize the mixing of air between the hot and cold aisles and that emphasize the efficiency of such systems.

**INTEGRATION**

INTEGRATION with the HYDRONIC products via supervision software.



The series represents the state of the art of the air conditioning of Data Center with hot spots for high density racks and blade server cooling. The modularity of the system together with the adaptive logic of microprocessor control, make it the best solution for racks and the latest generation equipment cooling.

- EER up to 38,5 at nominal conditions.
- High cooling density, **up to and over 40kW/m<sup>2</sup> per rack.**
- Hydraulic circuit optimization.
- New plug fans with EC electric motors and impeller in composite material, which guarantees a reduction of power consumption;
- New fans electric motor that do not require maintenance;
- Improvement of the control software with advanced control logic;
- Single and double hydraulic circuit version;
- Total frontal access and lateral panels fully removable to facilitate the operations of extraordinary maintenance;

## MODEL IDENTIFICATION

<b>CRCC I 0020 BASIC</b>	
<b>CRCC</b>	<b>Series</b>
I	IN-ROW air flow
E	ENCLOSURE air flow
<b>0020</b>	<b>Model</b>
<b>BASIC</b>	Single hydraulic circuit
<b>DUAL</b>	Double hydraulic circuit

## WORKING LIMITS

<b>ROOM AIR CONDITIONS</b>	
Room air temperature: 16°C / 82% U.R. ÷ 55°C / 7% U.R.	
<b>CHILLED WATER TEMPERATURE</b>	
6°C	Minimum chilled water inlet temperature
25°C	Maximum chilled water inlet temperature
ΔT 3°C	Minimum temperature difference between chilled water inlet and outlet
ΔT 10°C	Maximum temperature difference between chilled water inlet and outlet
<b>HYDRAULIC CIRCUIT</b>	
16 Bar	Maximum working pressure of the hydraulic circuit
<b>POWER SUPPLY</b>	
± 10%	Maximum tolerance of the supply voltage (V)
± 2%	Maximum unbalancing of the phases.

## 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.

## MAIN COMPONENTS



### FRAMEWORK

- Framework in galvanized steel sheet externally painted with epoxy powders.
- Panel coated with a double layer of plastic and internally insulated with noise absorption material.
- Access doors. The doors are equipped with handle with security lock.
- Holders for unit height adjusting.
- Colour RAL 9005.
- Air flow:
  - IN ROW cooling system (for rows of racks) "I" VERSION:
    - Air intake from the back side and frontal or side air delivery through honeycomb type grilles.
  - ENCLOSURE cooling system (direct cooling of racks) "E" VERSION:
    - Air intake from side and air delivery from side through honeycomb type grilles.

### FILTER SECTION

Models 0020, 0025, 0035, 0036, 0038:

- Washable air filters with COARSE 40% efficiency (according to ISO EN 16890), with cells in synthetic fibre, supported by a frame with protective metal mesh. The filtering media is flame retardant.

Models 0040, 0050, 0055, 0060:

- Washable air filters with COARSE 60% efficiency (according to ISO EN 16890), with cells in synthetic fibre, supported by a frame with protective metal mesh. The filtering media is flame retardant.

### COOLING SECTION

BASIC Version. Single hydraulic circuits for models 0020, 0025, 0036, 0038, 0040, 0050, 0060

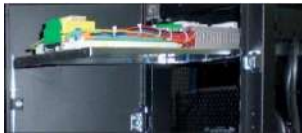
DUAL Version. Double hydraulic circuits for model 0036; 0055

Components for each hydraulic circuit:

- 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.
- 3-way motorized valve for water flow regulation with 3-point control and emergency manual control.
  - Maximum closing pressure  $\Delta P_{max} = 175kPa$  (for models 0020, 0025, 0035, 0036, 0038)
  - Maximum closing pressure  $\Delta P_{max} = 125kPa$  (for models 0040, 0050, 0055, 0060)
- Hydraulic connections arranged for connection from upper and bottom side of the unit.
- Temperature probe on chilled water inlet.
- Condensate tray with connection (internal diameter  $\varnothing 16$ ) for a discharge tube or for a pump for condensate drain (option).

### FANS SECTION

- Centrifugal fans with backward curved blades, single suction and without scroll housings (Plug-fans), directly coupled to 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 0÷10V proportional signal coming from the microprocessor control.
- Fans quick installation system for a fast replacement.
- N+1 dynamic management of EC fans. Allows operation at reduced flowrate to optimise power consumption. Moreover, in the event of a fault on one fan, the other fans are operated at maximum speed to ensure the same cooling performance.
- Nr.2 temperature sensors on air delivery.
- Nr.2 temperature sensors on air intake.
- Current detector for loss of air flow alarm.



**ELECTRICAL PANEL**

Extractable electrical panel in accordance with EN60204-1 norms, complete with:

- Magnetothermic switches for supply fans.
- Terminals for smoke/fire alarm and LAN connection.
- Power supply: 230/1/50 or 400/3+N/50 according to the model (see TECHNICAL DATA)

**CONTROL SYSTEM**

- Microprocessor system with graphic display for control and monitor of operating and alarms status. The system includes:
  - Built-in memory for the storing of the intervened events (up to 100 events recorded);
  - Predisposition for connectivity board housing (RS485, LON, Ethernet. The electronic cards are optional accessories;
  - Non-volatile “Flash” memory for data storage in case of power supply faulty;
  - Menu with protection password;
  - LAN connection (max 10 units).

**OPTIONAL ACCESSORIES**

- B031**..... **Frame dimensions 42U 300 x 1200** for models 0020, 0025, 0035, 0036, 0038. The optional accessory is mandatory for In-Row version with frontal air delivery with Humidifier (optional) and/or Electric heating (optional).
- B033**..... **Frame dimensions 42U 600 x 1200** for models 0040, 0050, 0055, 0060.
- A903**..... **Enclosure version with air supply L + R** for models 0020, 0025, 0035, 0036, 0038.
- A906**..... **InRow version with air supply L + R.** It is mandatory to use a frame with a depth of 1200mm.
- A557**..... **460/3/60 power supply** for models 0040, 0050, 0055, 0060.
- A558**..... **380/3/60 power supply** for models 0040, 0050, 0055, 0060.
- A559**..... **230/1/60 power supply** for models 0020, 0025, 0035, 0036, 0038.
- 383** ..... **Numbered wirings + UK requests;**
- A662**..... **2-way modulating water valve with 3-point control** and emergency manual control.
- A663**..... **3-way modulating water valve with 0-10Vdc control** and emergency manual control.
- A664**..... **2-way modulating water valve with 0-10Vdc control** and emergency manual control.
- A665**..... **3-way modulating water valve with 0-10Vdc control with spring return** and emergency manual control.
- A666**..... **2-way modulating water valve with 0-10Vdc control with spring return** and emergency manual control.
- A431**..... **Electric heater:** Electric heating system.
- A432**..... **Enhanced electric heater:** Enhanced electric heating system.
- A832**..... **DewPoint control with humidity probe:** The optional foresee the combined Temperature / Humidity sensor on in-room air.
- A833**..... **Adaptive Set-point - ADS:** software that optimizes the operation of liquid chillers connected to the indoor air conditioners by control of the effective room thermal load.
- A834**..... **DewPoint control with humidity probe + Adaptive Set-point:** The optional foresee the combined Temperature / Humidity sensor on in-room air.
- A801**..... **Temperature/Humidity sensor only:** Combined room temperature / humidity probe. Only visualization of room humidity.
- A802**..... **Humidifier:** Modulating steam humidifier with immersed electrodes with electronic control. The optional foresee the “Temperature / Humidity sensor on air intake” and control board
- A803**..... **Dehumidification.** The optional foresee the “Temperature / Humidity sensor on air intake”.
- A804**..... **Humidifier + Dehumidification:** Modulating steam humidifier with immersed electrodes with electronic control and dehumidification system. The optional foresee the “Temperature / Humidity sensor on air intake” and control board.
- A381**..... **Standard condensate drain pump.** Installed on the unit. For low temperature water.

- A471 / A473 / A474 ..... **Serial card:**  
 A471 – RS485 serial card;  
 A473 – Ethernet card;  
 A474 – LON card;
- A501..... **Clogged filter sensor.** Differential pressure switch on the air side for clogged filters alarm signal.
- A521..... **Fire detector.**
- A511..... **Smoke detector.**
- A491..... **Water leakage detector.** Under floor water alarm through sensor to be placed on the floor. Supplied in mounting kit.
- A813..... **Indirect Free-Cooling** Indirect FREE COOLING management for DUAL version air conditioners 0036 e 0055
- A842..... **Network analyzer:** multifunction utility for calculating and displaying the machine electrical measurements.
- A850..... **Water flow meter:** measures and displays the volume of fluid transiting the unit.
- A862..... **Shut-off on/off water valve.** The on-off valve shuts off water flow into the unit in the event of a flood alarm.
- A872..... **Double power supply** with automatic change-over. Supplied in mounting kit.
- A882..... **Clamping kits floor:** Floor brackets fixing kit
- 7387062800 ..... **H.T. condensate drain pump kit :** Humidifier and condensate drain pump kit. For high water temperature. Supplied in mounting kit.
- 7387012600 ..... **Remote terminal display.** for wall mounting
- 7387060000 ..... **Flexible pipes kit Ø 1 1/2":** Flexible pipes PN10 kit, length 2 meters, for single hydraulic circuit. The optional avoids vibration transmission and allows small movements of the air conditioner. For models 0040, 0050, 0055, 0060.
- 7387060100 ..... **Flexible pipes kit Ø 1":** Flexible pipes PN10 kit, length 2 meters, for single hydraulic circuit. The optional avoids vibration transmission and allows small movements of the air conditioner. For models 0020, 0025, 0035, 0036, 0038.
- 5587172400 ..... **Anti-mixing frontal/back panel L300mm.** Not compatible with optional "floor brackets fixing kit" for models 0020, 0025, 0035, 0036, 0038.
- 5587172500 ..... **Anti-mixing frontal/back panel L600mm.** Not compatible with optional "floor brackets fixing kit" for models 0040, 0050, 0055, 0060.
- 5587172800 ..... **Anti-mixing side panel W1000mm**
- 5587172900 ..... **Anti-mixing side panel W1200mm**
- 9973 ..... **Wooden cage packing:** Unit packing in wooden cage

**WARNING**

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

**TECHNICAL DATA – “I” BASIC VERSION – In Row Version – Single Hydraulic Circuit**

MODEL		0020	0025	0035	0038	0040	0050	0060
<b>COOLING CAPACITY (1)</b>								
Total	kW	16,1	20,5	24,6	38,5	43,4	46,9	58,2
Sensible	kW	16,1	20,5	24,6	38,5	43,4	46,9	58,2
SHR (2)		1,00	1,00	1,00	1,00	1,00	1,00	1,00
<b>"EC" SUPPLY FANS</b>								
	n.	3	4	5	6	2	2	3
Air flow	m <sup>3</sup> /h	2520	3360	4200	6500	9500	8800	12000
Nominal external static pressure	Pa	0	0	0	0	0	0	0
Fans power input (3)	kW	0,52	0,69	0,86	1,15	2,85	2,17	2,66
<b>COOLING COIL</b>								
Water flow rate (1)	m <sup>3</sup> /h	2,78	3,54	4,24	6,63	7,48	8,08	10,0
dP coil + valve (1)	kPa	13,5	20,9	29,1	93,4	85,3	37,7	56,4
Water volume	l	12	12	12	12	13	18	18
<b>AIR FILTERS</b>								
Efficiency	COARSE	40%	40%	40%	40%	60%	60%	60%
POWER SUPPLY	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	400/3+N/50	400/3+N/50	400/3+N/50
WATER CIRCUIT	n°	1	1	1	1	1	1	1
<b>ENERGY EFFICIENCY INDEX (1)</b>								
EER Energy Efficiency Ratio	kW/kW	31,0	29,7	28,6	33,5	15,2	21,6	21,9
<b>DIMENSIONS</b>								
Width	mm	300	300	300	300	600	600	600
Length with frontal air delivery (4)	mm	1000	1000	1000	1000	1000	1000	1000
Length with side air delivery	mm	1200	1200	1200	1200	1200	1200	1200
Height	mm	2085	2085	2085	2085	2085	2085	2085
NET WEIGHT	kg	190	192	195	195	235	240	247
<b>HYDRAULIC CONNECTIONS</b>								
WATER INLET / OUTLET	F Ø	1"	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"
<b>CONDENSATE DISCHARGE</b>								
Rubber pipe – internal diameter	Ø mm	16	16	16	16	16	16	16

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

1. Gross value. Characteristics referred to entering air at 35°C-27%RH with chilled water temperature 10-15°C - 0% glycol. ESP=0Pa.
2. SHR = Sensible Cooling Capacity / Total Cooling Capacity
3. Corresponding to the nominal external static pressure.
4. Unit in standard configuration, without optional accessories.

**TECHNICAL DATA – “I” DUAL VERSION – In Row Version – Double Hydraulic Circuit**

MODEL		0036	0055
<b>COOLING CAPACITY (1)</b>			
Total	kW	21,0	47,1
Sensible	kW	21,0	47,1
SHR (2)		1,00	1,00
<b>"EC" SUPPLY FANS</b>			
	n.	5	3
Air flow	m <sup>3</sup> /h	4200	10500
Nominal external static pressure	Pa	0	0
Fans power input (3)	kW	0,86	2,66
<b>COOLING COIL</b>			
Water flow rate (1)	m <sup>3</sup> /h	3,61	8,12
dP coil + valve (1)	kPa	55,2	60,7
Water volume	l	6+6	12+12
<b>AIR FILTERS</b>			
Efficiency	COARSE	40%	60%
<b>POWER SUPPLY</b>			
	V/Ph/Hz	230/1/50	400/3+N/50
<b>WATER CIRCUIT</b>			
	n°	2	2
<b>ENERGY EFFICIENCY INDEX (1)</b>			
EER Energy Efficiency Ratio	kW/kW	24,4	17,7
<b>DIMENSIONS</b>			
Width	mm	300	600
Length with frontal air delivery (4)	mm	1000	1000
Length with side air delivery	mm	1200	1200
Height	mm	2085	2085
<b>NET WEIGHT</b>			
	kg	205	255
<b>HYDRAULIC CONNECTIONS</b>			
WATER INLET / OUTLET	F Ø	1"	1 1/2"
<b>CONDENSATE DISCHARGE</b>			
Rubber pipe – internal diameter	Ø mm	16	16

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

1. Gross value. Characteristics referred to entering air at 35°C-27%RH with chilled water temperature 10-15°C - 0% glycol. ESP=0Pa.
2. SHR = Sensible Cooling Capacity / Total Cooling Capacity
3. Corresponding to the nominal external static pressure.
4. Unit in standard configuration, without optional accessories.



**TECHNICAL DATA – “E” BASIC VERSION – Enclosure Version – Single Hydraulic Circuit**

MODEL		0020	0025	0035	0038	0040	0050	0060
<b>COOLING CAPACITY (1)</b>								
Total	kW	20,4	26,1	31,2	48,8	55,7	60,0	74,7
Sensible	kW	20,4	26,1	31,2	48,8	55,7	60,0	74,7
SHR (2)		1,00	1,00	1,00	1,00	1,00	1,00	1,00
<b>"EC" SUPPLY FANS</b>								
	n.	3	4	5	6	2	2	3
Air flow	m <sup>3</sup> /h	2520	3360	4200	6500	9500	8800	12000
Nominal external static pressure	Pa	0	0	0	0	0	0	0
Fans power input (3)	kW	0,53	0,69	0,87	1,15	2,87	2,18	2,68
<b>COOLING COIL</b>								
Water flow rate (1)	m <sup>3</sup> /h	2,94	3,75	4,49	7,02	8,01	8,62	10,7
dP coil + valve (1)	kPa	14,3	22,5	31,5	101	94,4	41,5	62,5
Water volume	l	12	12	12	12	13	18	18
<b>AIR FILTERS</b>								
Efficiency	COARSE	40%	40%	40%	40%	60%	60%	60%
POWER SUPPLY	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	400/3+N/50	400/3+N/50	400/3+N/50
WATER CIRCUIT	n°	1	1	1	1	1	1	1
<b>ENERGY EFFICIENCY INDEX (1)</b>								
EER Energy Efficiency Ratio	kW/kW	38,5	37,8	35,9	42,4	19,4	27,5	27,9
<b>DIMENSIONS</b>								
Width	mm	300	300	300	300	600	600	600
Length	mm	1200	1200	1200	1200	1200	1200	1200
Height	mm	2085	2085	2085	2085	2085	2085	2085
NET WEIGHT	kg	200	202	205	205	260	265	272
<b>HYDRAULIC CONNECTIONS</b>								
WATER INLET / OUTLET	F Ø	1"	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"
<b>CONDENSATE DISCHARGE</b>								
Rubber pipe – internal diameter	Ø mm	16	16	16	16	16	16	16

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

1. Gross value. Characteristics referred to entering air at 46°C-16%RH with chilled water temperature 14-20°C - 0% glycol. ESP=0Pa.
2. SHR = Sensible Cooling Capacity / Total Cooling Capacity
3. Corresponding to the nominal external static pressure.

**TECHNICAL DATA – “E” DUAL VERSION – Enclosure Version – Double Hydraulic Circuit**

MODEL		0036	0055
<b>COOLING CAPACITY (1)</b>			
Total	kW	26,8	60,7
Sensible	kW	26,8	60,7
SHR (2)		1,00	1,00
<b>"EC" SUPPLY FANS</b>			
	n.	5	3
Air flow	m <sup>3</sup> /h	4200	10500
Nominal external static pressure	Pa	0	0
Fans power input (3)	kW	0,87	2,67
<b>COOLING COIL</b>			
Water flow rate (1)	m <sup>3</sup> /h	3,85	8,72
dP coil + valve (1)	kPa	60,4	69,0
Water volume	l	6+6	12+12
<b>AIR FILTERS</b>			
Efficiency	COARSE	40%	60%
POWER SUPPLY	V/Ph/Hz	230/1/50	400/3+N/50
WATER CIRCUIT	n°	2	2
<b>ENERGY EFFICIENCY INDEX (1)</b>			
EER Energy Efficiency Ratio	kW/kW	30,8	22,7
<b>DIMENSIONS</b>			
Width	mm	300	600
Length	mm	1200	1200
Height	mm	2085	2085
NET WEIGHT	kg	215	280
<b>HYDRAULIC CONNECTIONS</b>			
WATER INLET / OUTLET	F Ø	1"	1 1/2"
<b>CONDENSATE DISCHARGE</b>			
Rubber pipe – internal diameter	Ø mm	16	16

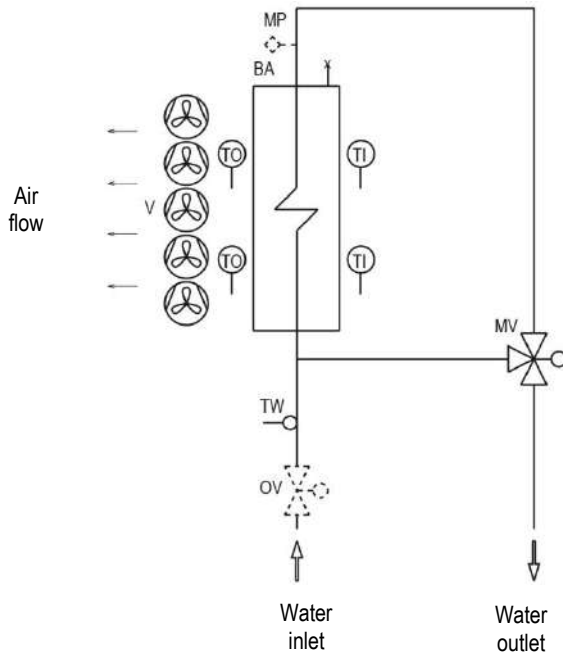
**THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD**

1. Gross value. Characteristics referred to entering air at 46°C-16%RH with chilled water temperature 14-20°C - 0% glycol. ESP=0Pa.
2. SHR = Sensible Cooling Capacity / Total Cooling Capacity
3. Corresponding to the nominal external static pressure.

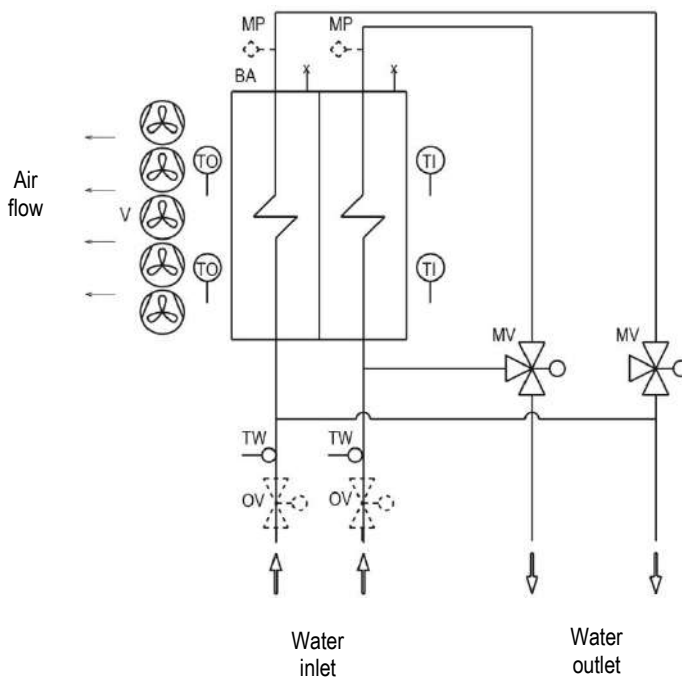
**HYDRAULIC CIRCUIT**

Below hydraulic diagrams for version with single or double hydraulic circuit. The diagrams refer to the standard configuration, without optional.

**SINGLE HYDRAULIC CIRCUIT – BASIC VERSION**  
**Models 0020, 0025, 0035, 0038, 0040, 0050, 0060**



**DOUBLE HYDRAULIC CIRCUIT – DUAL VERSION**  
**Models 0036, 0055**



**LEGENDA**

- |    |                               |    |                              |
|----|-------------------------------|----|------------------------------|
| MV | 3-way modulating valve        | MP | Water flow meter (optional)  |
| OV | 2-way on/off valve (optional) | TI | Air intake temperature probe |
| BA | Heat exchanger                | TO | Air outlet temperature probe |
| TW | Water temperature probe       | V  | Fans                         |

## 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.

### BASIC VERSION – Single hydraulic circuit

MODEL		0020	0025	0035	0038	0040	0050	0060
<b>SOUND LEVEL ISO 3744 (1)</b>								
Sound pressure	dB(A)	68	69	70	66	72	68	66
Sound power	dB(A)	84	85	86	82	88	84	82

### DUAL VERSION – Double hydraulic circuit

MODEL		0036	0055
<b>SOUND LEVEL ISO 3744 (1)</b>			
Sound pressure	dB(A)	70	66
Sound power	dB(A)	86	82

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

## ELECTRICAL DATA

### BASIC VERSION - Single Hydraulic Circuit

MODEL		0020	0025	0035	0038	0040	0050	0060
POWER SUPPLY		230/1/50	230/1/50	230/1/50	230/1/50	400/3+N/50	400/3+N/50	400/3+N/50
<b>STANDARD UNIT</b>								
Max power input (FLI)	kW	0,51	0,68	0,85	1,02	2,64	2,64	3,96
Max current input (FLA)	A	4,35	5,80	7,25	8,70	4,20	4,20	6,30
Power input (OI)	kW	0,53	0,69	0,86	1,15	2,85	2,17	2,66

### DUAL VERSION - Double Hydraulic Circuit

MODEL		0036	0055
POWER SUPPLY		230/1/50	400/3+N/50
<b>STANDARD UNIT</b>			
Max power input (FLI)	kW	0,85	3,96
Max current input (FLA)	A	7,25	6,30
Power input (OI)	kW	0,86	2,66

**WARNING:**

The electric data indicated refer only to the standard units, without optional accessories.

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.

**WATER QUALITY OF THE HYDRAULIC CIRCUITS**

The values shown in the table must be guaranteed during the entire life cycle of the machine.

	Description	Symbol	Range
1	Hydrogen Ions	pH	7.5 ÷ 9
2	Presence of calcium (Ca) and magnesium (Mg)	Hardness	4 ÷ 8.5 °D
3	Chlorine ions	Cl <sup>-</sup>	< 150 ppm
4	Iron Ions	Fe <sup>3+</sup>	< 0.5 ppm
5	Manganese Ions	Mn <sup>2+</sup>	< 0.05 ppm
6	Carbon dioxide	CO <sub>2</sub>	< 10 ppm
7	Hydrogen sulphide	H <sub>2</sub> S	< 50 ppb
8	Oxygen	O <sub>2</sub>	< 0.1 ppm
9	Chlorine	Cl <sub>2</sub>	< 0.5 ppm
10	Ammonia	NH <sub>3</sub>	< 0.5 ppm
11	Ratio between carbonates and sulphates	HCO <sub>3</sub> <sup>-</sup> /SO <sub>4</sub> <sup>2-</sup>	> 1
12	Sulphate ions	SO <sub>4</sub> <sup>-</sup>	< 100 ppm
13	Phosphate ions	PO <sub>4</sub> <sup>3-</sup>	< 2.0 ppm

where: 1/1.78°D = 1°Fr with 1°Fr = 10 gr CaCO<sub>3</sub> / m<sup>3</sup>

ppm = parts for millions

ppb = part for billion

Explanatory notes:

- ref.1: A greater concentration of hydrogen ions (pH) than 9 implies a high risk of deposits, whereas a lower pH than 7 implies a high risk of corrosion.
- ref.2: The hardness measures the amount of Ca and Mg carbonate dissolved in the water with a temperature lower than 100°C (temporary hardness). A high hardness implies a high risk of deposits.
- ref.3: The concentration of chloride ions with higher values than those indicated causes corrosion.
- ref. 4 - 5 - 8: The presence of iron and manganese ions and oxygen leads to corrosion.
- ref.6 - 7: Carbon dioxide and hydrogen sulphide are impurities that promote corrosion.
- ref.9: Usually in water from the waterworks it is a value of between 0.2 and 0.3 ppm. High values cause corrosion.
- ref.10: The presence of ammonia reinforces the oxidising power of oxygen
- ref.11: Below the value shown in the table, there is a risk of corrosion due to the trigger of galvanic currents between copper and other less noble metals.
- ref.12: The presence of sulphates ions triggers corrosion phenomenon.
- ref.13: The presence of phosphates ions triggers corrosion phenomenon.

It is necessary to carry out periodic checks, with withdrawals at different points of the hydraulic system. During the first year of operation, checks are recommended every 4 months which can be reduced every 6 months starting from the second year of operation.

**WARNING:**

Values of the parameters outside the indicated ranges can lead to the formation of deposits and limescale and/or favour corrosive phenomena within the plant. For operating fluids other than water (mixtures of ethylene and propylene glycol) it is recommended to use specific inhibitors, designed to offer thermal stability within the operating temperature range and protection against corrosion. It is necessary that, in the presence of dirty and / or aggressive waters, an intermediate heat exchanger is installed upstream of the heat exchangers.

**ANTIFREEZE MIXTURES**

In plants that are not adequately protected by heating cables, protect the hydraulic circuit with an anti-freeze mixture when the ambient air temperature can drop below 5°C.

Minimum ambient air temperature	°C	5	0	-5	-10	-15	-20	-25	-30
ETHYLENE GLYCOL (suggested % in weight)	%	0	12	20	30	35	40	45	50

Minimum ambient air temperature	°C	5	2	-3	-9	-13	-17	-23	-29
PROPYLENE GLYCOL (suggested % in weight)	%	0	10	20	30	35	40	45	50

The values are indicative and may significantly vary depending on the glycol manufacturer. Refer to your glycol supplier for detail.

The values consider a precautionary difference of 5°C between the minimum ambient air temperature and the freezing temperature of the mixture.

In the hydraulic circuit do not send fluids other than water or mixtures with ethylene / propylene glycol.

If other products are provided, in addition to mixtures of water and ethylene or propylene glycol, contact the Manufacturer to check the compatibility with the machine components.

**MICROPROCESSOR CONTROL SYSTEM**



The microprocessor control system is equipped with 6 keys terminal and back lighted graphic display on which all information in different languages or easily identifiable symbols are displayed. The system 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 100 events.

**KEYBOARD FUNCTIONS**

	ALARM	Alarm, Back - red light active – alarm presence, push to deactivate and have alarm description. If more than one alarm(s) occurred, the others can be scrolled by Key UP / DOWN
	PRG	Menu list, scrolled by key UP/DOWN: Use the ENTER key to execute the mode.
	ESC	Home. Used to come back to the previous menu level or to the main screen.
	UP DOWN	Used to change the pages and values of sets. When display is in main screen (HOME), pressing one of them (UP/DOWN) will display the synoptic of the main controls.
	ENTER	Moving the cursor on adjustable Program(s) fields, press the key to confirm the changes, press the key to get out of the fields.

**CONNECTIVITY**

Through the optional serial port, the microprocessor control enables communication with the modern buildings BMS systems with the following protocols:

- RS485 serial card;
- LON Works serial card;
- Ethernet serial card;

**PASSWORD**

- Level 1: On request of the End User. Allowing to reach and modify USER parameters.
- Level 2: Asks to Service: Allowing to reach and modify MAINTENANCE parameters.
- Level 3: Asks to Service: Allowing to reach and modify MANUFACTURER parameters.

**LAN NETWORK**

The LAN is part of the control software and it is possible to connect 10 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**

Unit #	1	2	3	4	5	6	7	8	9	10	Remote Terminal
Terminal address	11	12	13	14	15	16	17	18	19	20	32
Mother board address	1	2	3	4	5	6	7	8	9	10	-

**OPTIONAL ACCESSORIES: B031 – FRAME 42U 300x1200**

Optional for INROW version.  
 Frontal air delivery.  
 Frame 1200 mm depth for models 0020, 0025, 0035, 0036, 0038.  
 Mandatory for units equipped with Humidifier and / or Electric Heaters accessories.  
**The configuration must be selected when ordering.**

**OPTIONAL ACCESSORIES: B033 – FRAME 42U 600x1200**

Optional for INROW version.  
 Frontal air delivery.  
 Frame 1200 mm depth for models 0040, 0050, 0055, 0060.  
**The configuration must be selected when ordering.**

**OPTIONAL ACCESSORIES: A903 – ENCLOSURE VERSION AIR DELIVERY RIGHT + LEFT**

Optional for ENCLOSURE version.  
 Air delivery on Right and Left.  
 Frame 1000/1200 mm depth for models 0020, 0025, 0035, 0036, 0038.

**OPTIONAL ACCESSORIES: A906 – INROW VERSION AIR DELIVERY RIGHT + LEFT**

Optional for INROW version.  
 Air delivery on Right and Left.  
 Frame 1000/1200 mm depth for models 0020, 0025, 0035, 0036, 0038, 0040, 0050, 0055, 0060.

**OPTIONAL ACCESSORIES: A557 – POWER SUPPLY 460/3/60**

For models 0040, 0050, 0055, 0060.

**BASIC VERSION - Single Hydraulic Circuit**

MODEL	0040	0050	0060
POWER SUPPLY	460/3/60	460/3/60	460/3/60
STANDARD UNIT			
Max power input (FLI)	kW 2,64	2,64	3,96
Max current input (FLA)	A 4,20	4,20	6,30

**DUAL VERSION - Double Hydraulic Circuit**

MODEL	0055
POWER SUPPLY	460/3/60
STANDARD UNIT	
Max power input (FLI)	kW 3,96
Max current input (FLA)	A 6,30

**WARNING:**

The electric data indicated refer only to the standard units, without optional accessories

**OPTIONAL ACCESSORIES: A558 – POWER SUPPLY 380/3/60**

For models 0040, 0050, 0055, 0060.

**BASIC VERSION - Single Hydraulic Circuit**

MODEL		0040	0050	0060
POWER SUPPLY		380/3/60	380/3/60	380/3/60
STANDARD UNIT				
Max power input (FLI)	kW	2,64	2,64	3,96
Max current input (FLA)	A	4,20	4,20	6,30

**DUAL VERSION - Double Hydraulic Circuit**

MODEL		0055
POWER SUPPLY		380/3/60
STANDARD UNIT		
Max power input (FLI)	kW	3,96
Max current input (FLA)	A	6,30

**WARNING:**

The electric data indicated refer only to the standard units, without optional accessories

**OPTIONAL ACCESSORIES: A554 – POWER SUPPLY 230/3/60**

For models 0040, 0050, 0055, 0060.

**BASIC VERSION – Single Hydraulic Circuit**

MODEL		0040	0050	0060
POWER SUPPLY		230/3/60	230/3/60	230/3/60
STANDARD UNIT				
Max power input (FLI)	kW	2,00	2,00	3,00
Max current input (FLA)	A	5,80	5,80	8,70

**DUAL VERSION – Double Hydraulic Circuit**

MODEL		0055
POWER SUPPLY		230/3/60
STANDARD UNIT		
Max power input (FLI)	kW	3,00
Max current input (FLA)	A	8,70

**WARNING:**

The electric data indicated refer only to the standard units, without optional accessories

**OPTIONAL ACCESSORIES: A559 – POWER SUPPLY 230/1/60**

For models 0020, 0025, 0035, 0036, 0038.

**BASIC VERSION – Single Hydraulic Circuit**

MODEL		0020	0025	0035	0038
POWER SUPPLY		230/1/60	230/1/60	230/1/60	230/1/60
STANDARD UNIT					
Max power input (FLI)	kW	0,51	0,68	0,85	2,50
Max current input (FLA)	A	4,35	5,80	7,25	11,0

**DUAL VERSION – Double Hydraulic Circuit**

MODEL		0036
POWER SUPPLY		230/1/60
STANDARD UNIT		
Max power input (FLI)	kW	0,85
Max current input (FLA)	A	7,25

**WARNING:**

The electric data indicated refer only to the standard units, without optional accessories



**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: A662 / A663 / A664 / A665 / A666 – 2-WAY OR 3-WAY MOTORIZED VALVE**



- 2-way motorized valve for water-flow control:
  - Maximum closing pressure (Close off)  $\Delta P_s = 175\text{kPa}$  for models 0020, 0025, 0035, 0036, 0038
  - Maximum closing pressure (Close off)  $\Delta P_s = 125\text{kPa}$  for models 0040, 0050, 0055, 0060
    - A662: with 3-point control and emergency manual control;
    - A664: with 0-10VDC control and emergency manual control;
    - A666: with 0-10VDC control, spring return and emergency manual control;
- 3-way motorized valve for water-flow control:
  - Maximum closing pressure  $\Delta P_{max} = 175\text{kPa}$  for models 0020, 0025, 0035, 0036, 0038
  - Maximum closing pressure  $\Delta P_{max} = 125\text{kPa}$  for models 0040, 0050, 0055, 0060
    - A663: with 0-10VDC control and emergency manual control;
    - A665: with 0-10VDC control, spring return and emergency manual control;

The rotative actuator is controlled by a signal from the microprocessor controller. The actuator is equipped with an emergency button for manual operation and is maintenance-free.

**OPTIONAL ACCESSORIES: A431 – ELECTRIC HEATERS**



Tubular electric heater with steel fins. The optional is installed downstream the main cooling coil. Electric heaters have a three-stage control. The optional accessory requires increased frame L 1200mm (optional) for in-row version with frontal air delivery, model 0020, 0025, 0035, 0036, 0038.

Components:

- Tubular electric heater with steel fins.
- Electrical control
- Safety thermostat.

MODEL		0020	0025	0035	0036	0038	0040	0050	0055	0060
POWER SUPPLY		230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
THERMAL CAPACITY	<b>kW</b>	<b>2,4</b>	<b>2,4</b>	<b>3,6</b>	<b>3,6</b>	<b>3,6</b>	<b>5,4</b>	<b>5,4</b>	<b>7,2</b>	<b>7,2</b>
Absorbed current (OA)	A	10,4	10,4	15,7	15,7	15,7	7,79	7,79	10,4	10,4
Capacity steps	n	3	3	3	3	3	3	3	3	3

Optional accessory modifies the weight of the standard unit.

**OPTIONAL ACCESSORIES: A432 – ENHANCED ELECTRIC HEATERS**

The components are the same as for the standard accessory. The optional accessory requires increased frame L 1200mm (optional) for in-row version with frontal air delivery, model 0020, 0025, 0035, 0036, 0038.

MODEL		0020	0025	0035	0036	0038	0040	0050	0055	0060
POWER SUPPLY		230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
THERMAL CAPACITY	<b>kW</b>	<b>3,6</b>	<b>3,6</b>	<b>4,8</b>	<b>4,8</b>	<b>4,8</b>	<b>7,2</b>	<b>7,2</b>	<b>10,8</b>	<b>10,8</b>
Absorbed current (OA)	A	15,7	15,7	20,9	20,9	20,9	10,4	10,4	15,6	15,6
Capacity steps	n	3	3	3	3	3	3	3	3	3

Optional accessory modifies the weight of the standard unit.

**OPTIONAL ACCESSORIES: A832 – DEW-POINT CONTROL WITH HUMIDITY PROBE**

Software function DEW POINT CONTROL prevent formation of condensate on the heat exchanger. If the water temperature approaches the dew point, three possible actions can be taken:

- Closure of the Modulating valve;
- Closure of the on-off valve (option);
- Modification of the set point of the outdoor chiller (requires ADAPTIVE SET-POINT, option).

**OPTIONAL ACCESSORIES: A833 – ADAPTIVE SET-POINT**



**ADAPTIVE SET-POINT**

An advanced algorithm that instantaneously detects the real thermal load of the indoor units and then conveys this information to the outdoor chillers, strongly increasing their operation.

- Dynamic variation of the chillers set point and water flow.
- Increasing of the free cooling mode.
- Adoption of the active redundancy system to better exploit stand-by chillers.

**DATA CENTER MANAGER (Optional accessory)**

DATA CENTER MANAGER is a centralized management system that ensures a smart communication between indoor chilled water units and the outdoor chillers.

The device manages the outdoor units according to the inlet and outlet temperature registered by the probes and by request of the indoor unit.

**OPTIONAL ACCESSORIES: A834 – DEW POINT CONTROL WITH HUMID. PROBE + ADAPTIVE SET-POINT**

Combination of the two accessories A832+A833.

**OPTIONAL ACCESSORIES: A801 – HUMIDITY SENSOR ONLY**

Temperature and humidity probe. Display only the ambient humidity value.

**OPTIONAL ACCESSORIES: A802 – HUMIDIFIER**



Modulating steam humidifier with immersed electrodes fitted with safety and running accessories.

The accessory is factory installed and requires water filling connection.

The optional accessory requires increased frame L 1200mm (optional) for in-row version with frontal air delivery, model 0020, 0025, 0035, 0036, 0038.

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.**

FEED WATER LIMIT VALUES			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	$\sigma_{R, 20^\circ C}$	$\mu S/cm$	350	1250	75	350
Total dissolved solids	TDS	mg/l	(1)	(1)	(1)	(1)
Dry residue at 180°C	R <sub>180</sub>	mg/l	(1)	(1)	(1)	(1)
Total hardness	TH	mg/l CaCO <sub>3</sub>	100 (2)	400	50 (2)	160
Temporary hardness		mg/l CaCO <sub>3</sub>	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 <sub>2</sub>	0	20	0	20
Residual chlorine		mg/l Cl <sup>-</sup>	0	0,2	0	0,2

FEED WATER LIMIT VALUES		Normal water		Water with low salt content	
Calcium sulphate	mg/l CaSO <sub>4</sub>	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:  $TDS \cong 0,93 * \sigma_{R, 20\text{ }^\circ\text{C}}$ ;  $R_{180} \cong 0,65 * \sigma_R$
- (2) Not lower than 200% of the chloride content in mg/l di Cl<sup>-</sup>
- (3) Not lower than 300% of the chloride content in mg/l di Cl<sup>-</sup>

CYLINDER CONDUCTIVITY Function	LOW CONDUCTIVITY CILINDER		MEDIUM CONDUCTIVITY CILINDER		HIGH CONDUCTIVITY CILINDER	
	Min	Max	Min	Max	Min	Max
Specific conductivity at 20°C ( $\sigma_R, 20^\circ\text{C}$ )	75	350	350	750	750	1250

#### WARNING:

- No relation can be demonstrated between water hardness and 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		0020	0025	0035	0036	0038
POWER SUPPLY		230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
STEAM PRODUCTION	kg/h	3	3	3	3	3
Power input	kW	2,25	2,25	2,25	2,25	2,25
Max absorbed current (FLA)	A	9,8	9,8	9,8	9,8	9,8
Water content	l	3,9	3,9	3,9	3,9	3,9
<b>HYDRAULIC CONNECTION</b>						
WATER INLET - ISO 228/1 – G M (1)	Ø	3/4"	3/4"	3/4"	3/4"	3/4"
WATER OUTLET - internal diameter	Ø mm	32	32	32	32	32

MODEL		0040	0050	0055	0060
POWER SUPPLY		400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
STEAM PRODUCTION	kg/h	3	3	3	3
Power input	kW	2,25	2,25	2,25	2,25
Max absorbed current (FLA)	A	3,2	3,2	3,2	3,2
Water content	l	3,9	3,9	3,9	3,9
<b>HYDRAULIC CONNECTION</b>					
WATER INLET - ISO 228/1 – G M (1)	Ø	3/4"	3/4"	3/4"	3/4"
WATER OUTLET - internal 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 ONLY (SENSOR INCLUDED)

The system controls the ambient humidity value allowing dehumidification.

Component:

- T / rH probe on air return.

**OPTIONAL ACCESSORIES: A804 – HUMIDIFIER & DEHUMIDIFICATION**

Combination of the two accessories A802+A833  
 The system controls the ambient humidity value allowing humidification and dehumidification.

**OPTIONAL ACCESSORIES: A381 – STANDARD DRAIN PUMP**



Optional accessory installed within the unit.  
 A plastic case contains the pump motor, the thermal protection with automatic reset, the float with the trigger threshold and alarm threshold overflow and hydraulic and electric connection.  
 The condensate discharge pump operation is fully automatic.

**TECHNICAL SPECIFICATION**

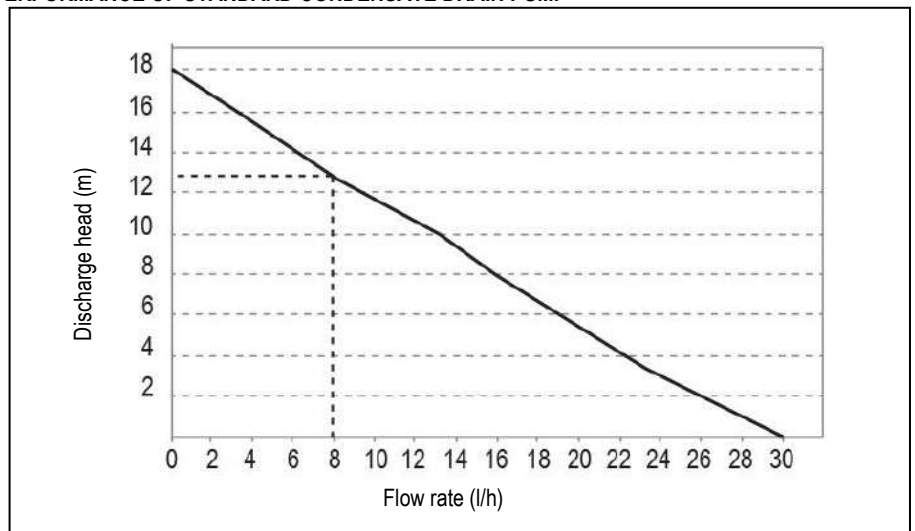
Maximum flowrate	30 l/h
Maximum suction height	4 m
Maximum discharge height	13 m (flow rate 8 l/h)
Maximum pressure	18 m (flow rate 0 l/h)

**TABLE OF EFFECTIVE FLOW RATES (l/h)**

Total pipe length with 6mm ID pipe (C)

Suction (A)	Discharge (B)	5 m	10 m	20 m	30m
0 m	0 m	30	27	26	25
	2 m	26	24	23	22
	4 m	22	21	20	19
	6 m	-	18	17	16
	8 m	-	15	14	13
	10 m	-	12	11	10
	12 m	-	-	8	7
1 m	0 m	24	23	22	21
	2 m	20	19	18	17
	4 m	17	16	15	14
	6 m	-	13	12	11
	8 m	-	10	9	8
2 m	0 m	21	20	19	18
	2 m	17	16	15	14
	4 m	14	13	12	11
	6 m	-	10	9	8
	8 m	-	7	6	5
3 m	0 m	18	17	16	15
	2 m	15	14	13	12
	4 m	-	10	9	8
	6 m	-	6	5	4

**PERFORMANCE OF STANDARD CONDENSATE DRAIN PUMP**



**OPTIONAL ACCESSORIES: A471 – SERIAL CARD RS485**



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

**OPTIONAL ACCESSORIES: A473 - CARD ETHERNET**



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 FILTER 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: A521 – FIRE DETECTOR**



The heat detector has been designed to identify temperatures at which fires may start. When the temperature exceeds the set threshold the relay is activated to signal an alarm.

Technical features:

Operating voltage	20 Vdc (-15%, +10%)
Average power consumption (normal condition)	40 $\mu$ A @ 20Vdc
Average power consumption (alarm condition)	23 mA @ 20Vdc
Static alarm threshold	58°C $\pm$ 5%
Three colours LED	Red steady: alarm condition Green slow blinking (2s): normal condition Green flash and yellow sequence: fault condition
Minimum reset time	300mS
Operating temperature	-10° $\div$ 50°C $\pm$ 2°C
Relative humidity	93% $\pm$ 2%, non-condensing
Storage/shipping temperature	-30 $\div$ 70°C
Dimensions	Diameter $\Phi$ 90 x 40mm height
Weight	70g
Enclosure material	ABS V0

**OPTIONAL ACCESSORIES: A511 – SMOKE DETECTOR**



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).  
 Technical features:

Light source	GaAlAs infrared emitting diode
Operating voltage	20 Vdc (-15%, +10%)
Average power consumption (normal condition)	65 $\mu$ A @ 20Vdc
Average power consumption (alarm condition)	23 mA @ 20Vdc
Three colours LED	Red steady: alarm condition Green slow blinking (2s): normal condition Yellow blinking (2s) normal condition, it needs maintenance. Green flash and yellow sequence: fault condition
Minimum reset time	300mS
Operating temperature	-10° ÷ 55°C ± 2°C
Relative humidity	93% ± 2%, non-condensing
Storage/shipping temperature	-30 ÷ 70°C
Dimensions	Diameter $\Phi$ 90 x 31mm height
Weight	70g
Enclosure material	ABS V0

**OPTIONAL ACCESSORIES: A491 – FLOOD SENSOR**



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: A813 – FREE COOLING MANAGEMENT**

Preparation of the machine and the electrical panel for the indirect free-cooling system – version DUAL 0036 and 0055

**OPTIONAL ACCESSORIES: A842 – NETWORK ANALYZER**



The accessory is available for both the indoor unit and the outdoor condensing unit.  
 The accessory includes:

- A network transducer;
- One current transformer for each power phase cable.

The system allows the continuous detection of electrical consumptions, split into current, voltage and power. The values are made available to the microprocessor of the unit through an RS485 serial line cable connection, as indicated in the wiring diagram on board of the machine.

**On internal units models 20,25,35,26,38, the component is supplied in a 300x220x120mm box to be mounted externally to the unit**

The displayed variables are:

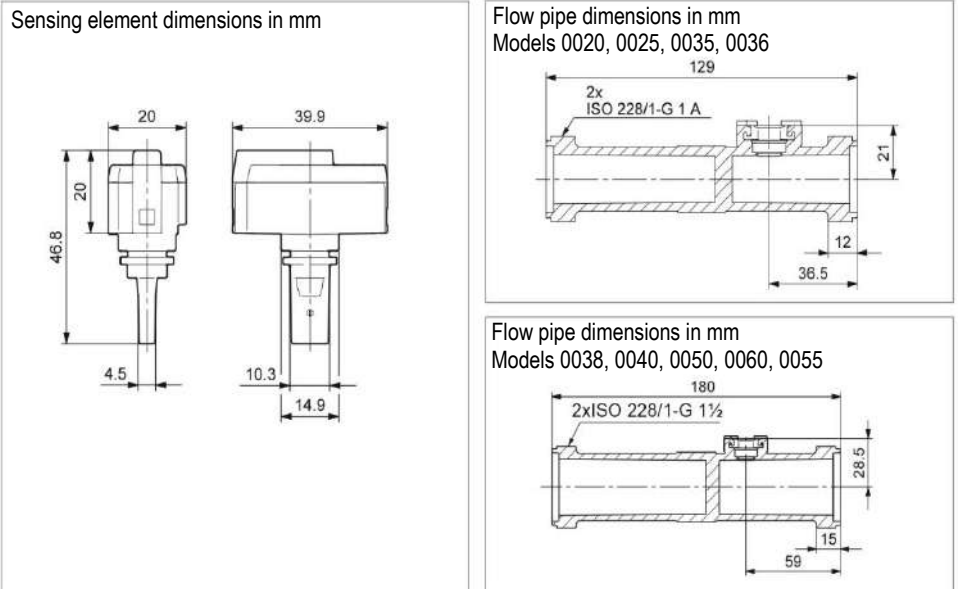
- Phase to phase voltage, only for three-phase units;
- Phase voltage (phase-neutral);
- Phase current;
- Neutral current only for three-phase units;
- Active phase power, only for three-phase units;
- Total active power;
- Active energy;
- Hour counts

OPTIONAL ACCESSORIES: A852 – WATER FLOW METER



The flow meter directly measures and displays the volume of fluid transiting the unit, simplifying unit configuration during commissioning, as well as displaying the cooling capacity delivered if combined with the modulating water valve kit.

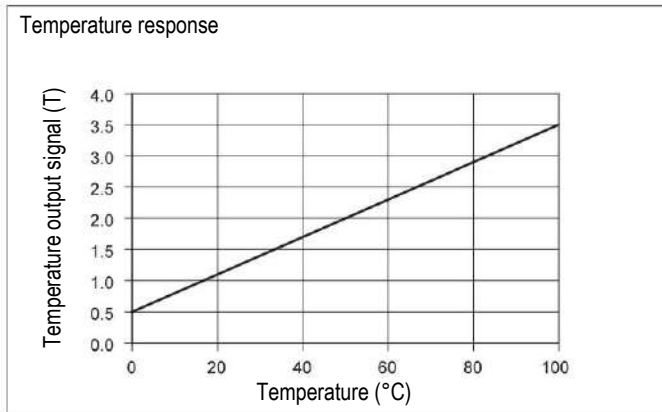
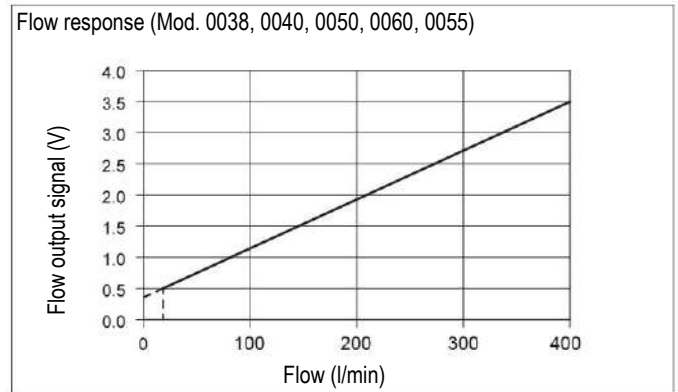
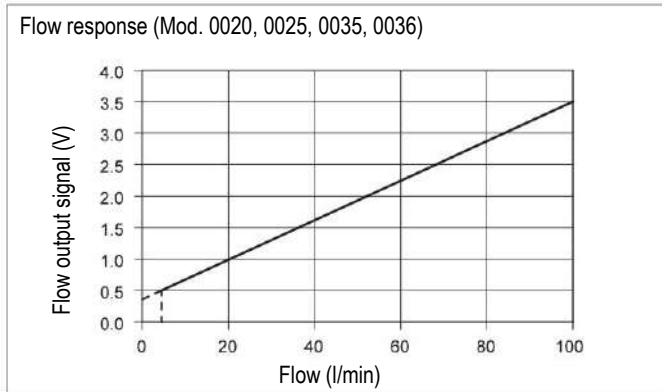
The vortex flow meter exploits the sequence of vortices produced by the fluid that comes into contact perpendicularly with a bluff body. The frequency of such vortices is proportional to the flow rate of the fluid. A special detector converts this frequency into an electrical signal for determining the fluid flow-rate.



TECHNICAL DATA

Flow	Mod. 0020, 0025, 0035, 0036	Mod. 0038, 0040, 0050, 0060, 0055
Measuring range	5 to 100 l/min	20 to 400 l/min
Accuracy ( $\pm 1\sigma$ ), 0 to 100°C	$\pm 1.5\%$ FS	$\pm 1.5\%$ FS
Resolution	0.5 l/min	2.0 l/min
Temperature	0 to 100 °C	
Measuring range	0 to 100 °C	
Accuracy ( $\pm 1\sigma$ ), 25 to 80°C	$\pm 1$ °C	
Accuracy ( $\pm 1\sigma$ ), 0 to 100°C	$\pm 2$ °C	
Resolution	0.5 °C	
Media and environment	The sensor is compatible with liquids (kinematic viscosity $\leq 2$ mm <sup>2</sup> /s)	
Media types	The sensor is compatible with liquids (kinematic viscosity $\leq 2$ mm <sup>2</sup> /s)	
Media temperature (operation)	0 to 100°C	
Media temperature (peak)	-25 to 120°C, non-freezing	
Ambient air temp. (operation)	-25 to 60°C	
Ambient air temp. (peak)	-55 to 90°C	
Humidity	0 – 95% (relative), non-condensing	
System burst pressure	> 16 bar	

## Sensor output signals



## OPTIONAL ACCESSORIES: A862 – SHUT OFF WATER VALVE



The on-off valve shuts off water flow into the unit in the event of a flood alarm.  
Components:

- Valve body
  - Maximum closing pressure (Close off)  $\Delta P_s = 500\text{kPa}$
- 24 VAC electric servo control
- Nr.2 x 3-piece joint

## OPTIONAL ACCESSORIES: A872 – DUAL POWER SUPPLY WITH AUTOMATIC TRANSFER SWITCH



The accessory is available for both the indoor unit and the outdoor condensing unit.

The system consists of two timers, relays and contactors. In case of main line power failure, the system switches to the secondary line.

When the main line is reconnected, the system returns to its initial state.

During the switch, the power supply is interrupted for 5 seconds.

The system is installed inside the cabinet or externally in a separate box, depending on the size of the unit and the presence of accessories: electric heater and/or proportional steam humidifier.

**The sizes of the external kit box are as follows: 300x220x120mm.**



ATS INSTALLATION

Frame	Power Supply	Base unit	Presence of humidifier accessories and/or heaters
20	230/1/50	internal	external kit
25	230/1/50	internal	external kit
35	230/1/50	internal	external kit
36	230/1/50	internal	external kit
38	230/1/50	internal	external kit
40	400/3+N/50	internal	internal
50	400/3+N/50	internal	internal
55	400/3+N/50	internal	internal
60	400/3+N/50	internal	internal

OPTIONAL ACCESSORIES: A882 – FLOOR BRACKETS FIXING KIT

Not compatible with 5587172400 / 5587172500 – Anti-mixing Frontal / Back panels Kit for fixing the machine to the floor.

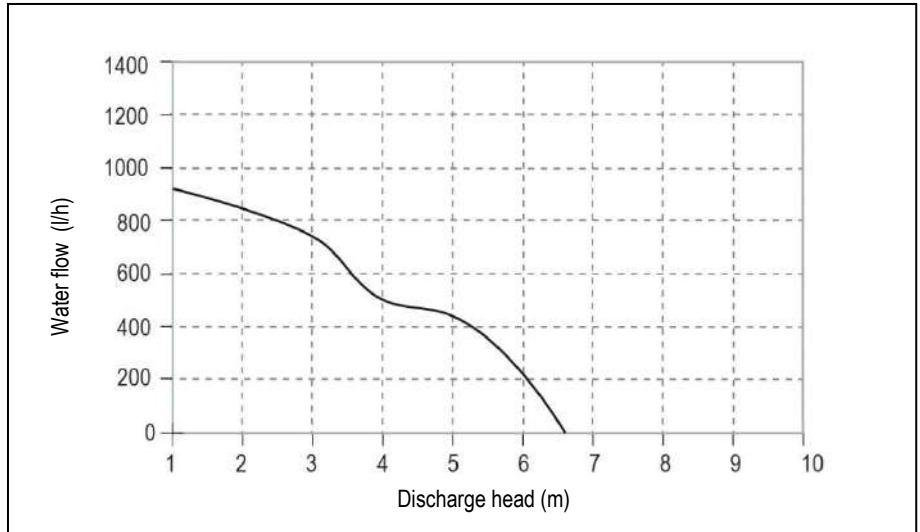
OPTIONAL ACCESSORIES: 7387062800 – HIGH TEMPERATURE CONDENSATE DRAIN PUMP



Optional accessory supplied in mounting kit to be installed outside of the unit. These pumps are designed to collect the hot water produced by the humidifier drain cycles, as well as the condensate produced. These pumps has mechanical features capable to resist to the high temperatures of the water exiting the steam cylinder. The pump body is made from Cyclopy, a heat-resistant material, the pre-wired safety float is a low voltage switch used to stop the drain cycle in the unlikely event where the pump malfunctions.

TECHNICAL SPECIFICATIONS	
Tank capacity	4 liters
Recommended maximum head	6 m
Maximum water flow-rate	900 l/h with zero head
Rated power	0.6 A, 230 VAC
Power cable	(2 m long)
Safety switch	max 4 A
Power supply voltage	220/240 VAC
Current draw	0.7 A
Power consumption	175 W
Dimensions	
Height	205 mm
Width	300 mm
Depth	150 mm
Weight	3.6 kg
Electrical connections	
Brown	Line
Blue	Neutral
Green/yellow	Earth
2 x black	Safety switch

**PERFORMANCE OF HUMIDIFIER AND CONDENSATE DRAIN PUMP KIT**



**OPTIONAL ACCESSORIES: 7387012600 – DISPLAY**

Remote terminal prepared for wall installation - supplied in assembly kit.

**OPTIONAL ACCESSORIES: 7387060000 – FLEXIBLE PIPES KIT Ø 1 1/2"**

Flexible hydraulic pipes for machines with single hydraulic circuit  
Lenght 2m; diameter 1 1/2".

**OPTIONAL ACCESSORIES: 7387060100 – FLEXIBLE PIPES KIT Ø 1"**

Flexible hydraulic pipes for machines with single hydraulic circuit  
Lenght 2m; diameter 1".

**OPTIONAL ACCESSORIES: 5587172400 / 5587172500 – ANTI-MIXING PANELS**



Optional accessory supplied in mounting kit.  
Not compatible with optional "A882 floor brackets fixing kit".  
Anti-mixing panels in galvanized steel sheet externally painted with epoxy powders. Colour RAL 9005.  
They close the lower part of the unit hiding the holders for height adjusting.  
The optional is useful to avoid the by-pass between cold-aisle and hot-aisle below the air conditioners and the server racks.

- 5587172400: Anti-mixing frontal/back panel L 300mm for models 0020, 0025, 0035, 0036, 0038.
- 5587172500: Anti-mixing frontal/back panel L 600mm for models 0040, 0050, 0055, 0060.

## OPTIONAL ACCESSORIES: 5587172800 / 5587172900 – ANTI-MIXING PANELS



Optional accessory supplied in mounting kit.

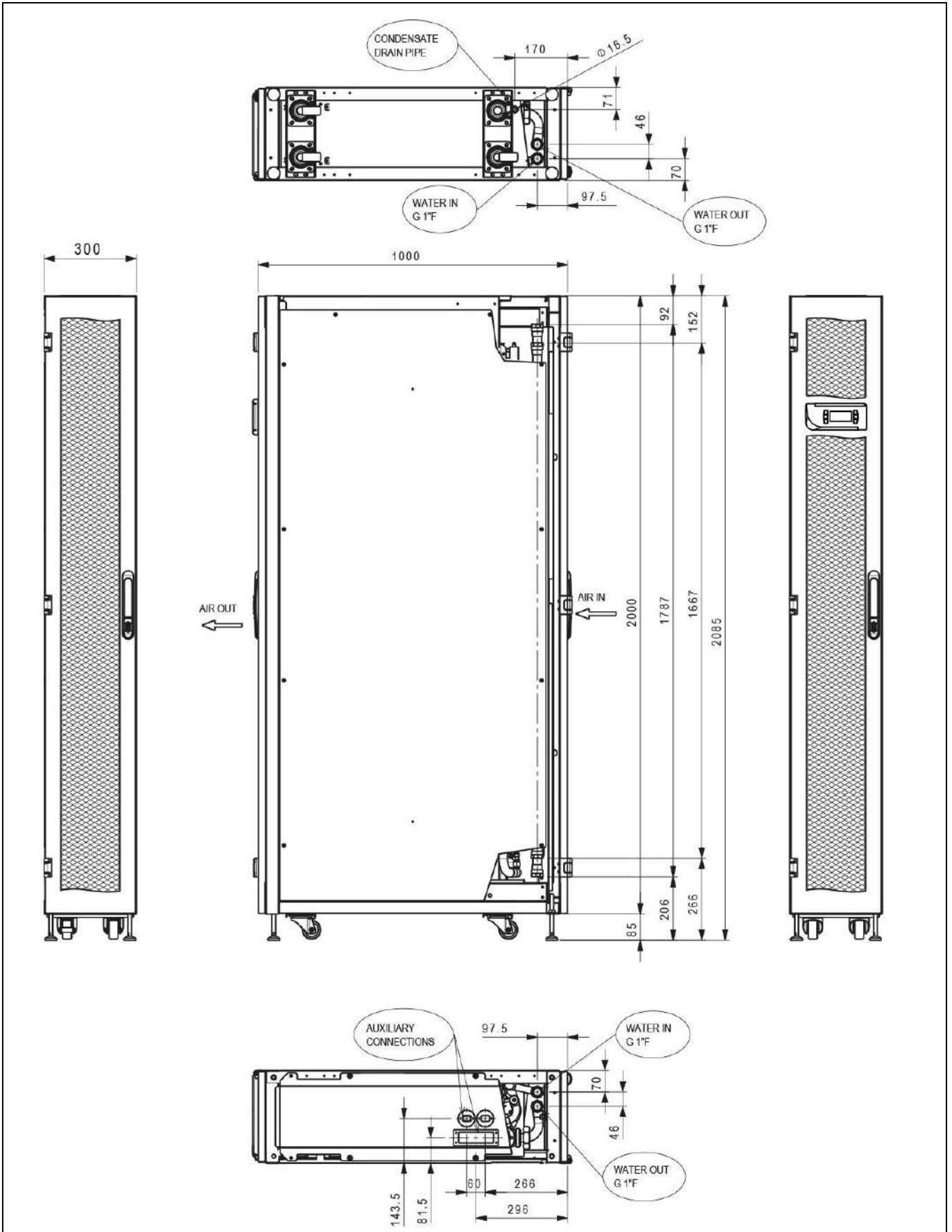
Anti-mixing panels in galvanized steel sheet externally painted with epoxy powders. Colour RAL 9005. They close the lower part of the unit hiding the holders for height adjusting.

The optional is useful to avoid the by-pass between cold-aisle and hot-aisle below the air conditioners and the server racks.

- 5587172800: Anti-mixing side panel L 1000mm
- 5587172900: Anti-mixing side panel L 1200mm

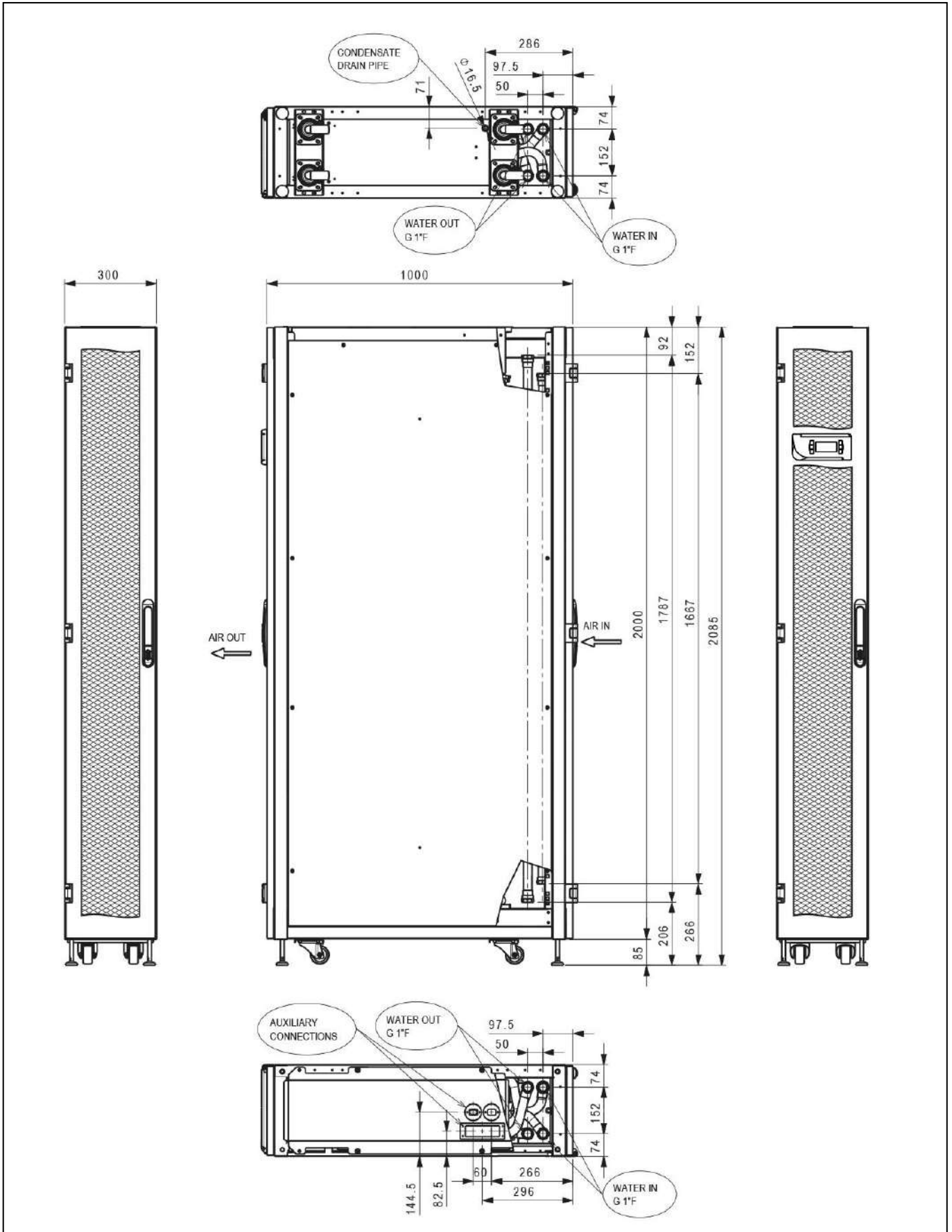
**MACHINE DRAWINGS**

Dimensions in mm – In-Row “I” Version – 0020, 0025, 0035, 0038 (300 x 1000 x 42U FRAME)



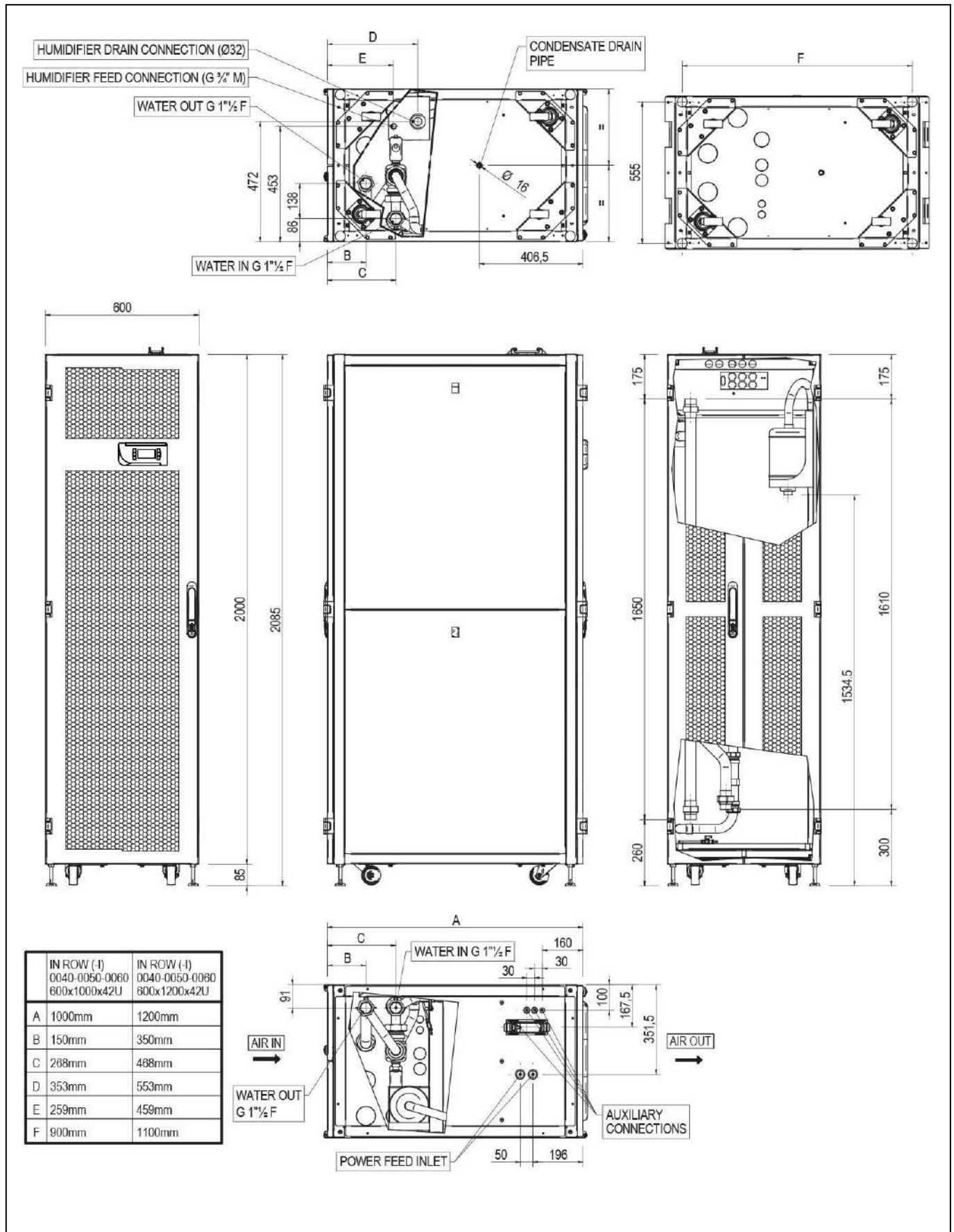
MACHINE DRAWINGS

Dimensions in mm – In-Row “I” Version – 0036 (300 x 1000 x 42U FRAME)



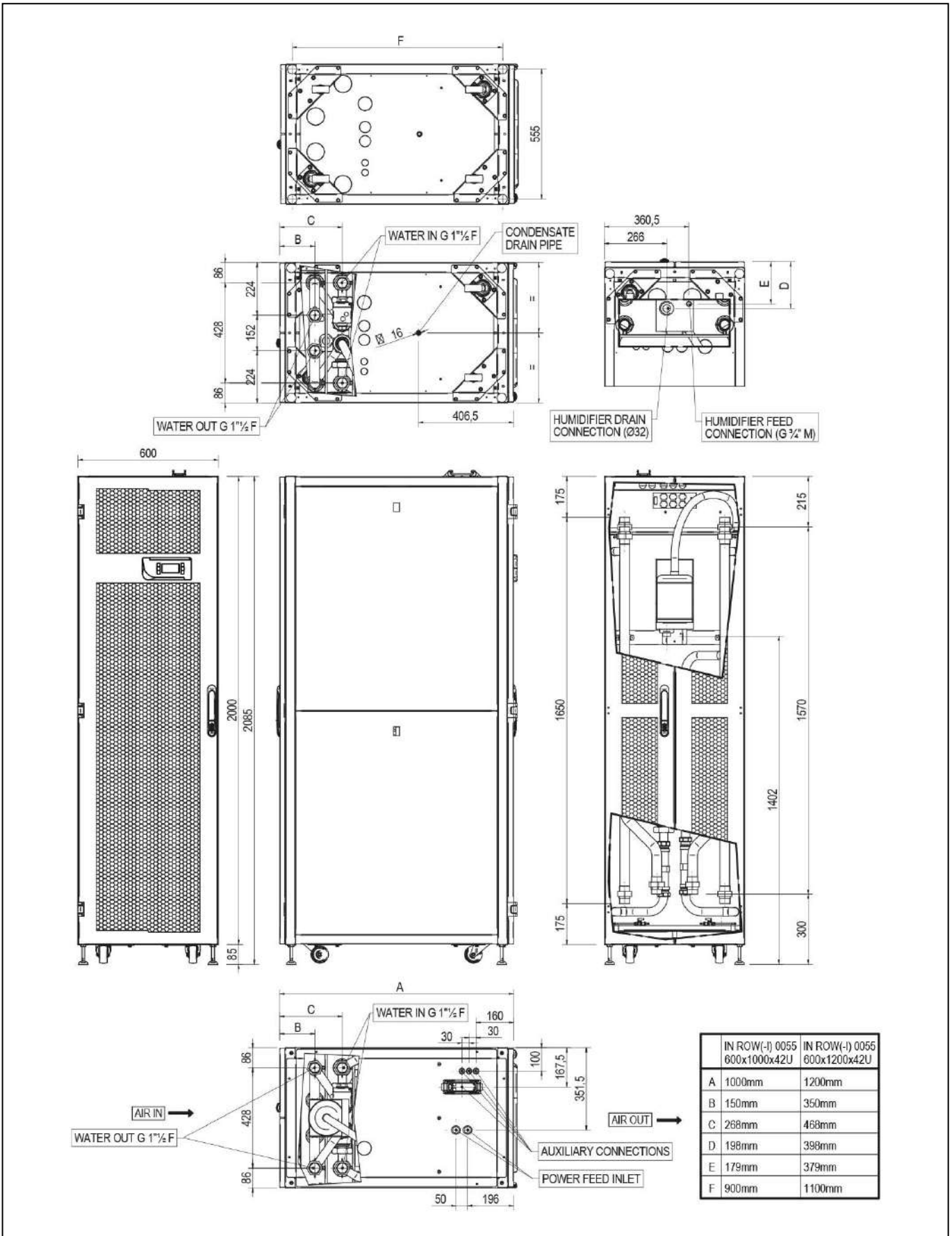
## MACHINE DRAWINGS

Dimensions in mm – In-Row “I” Version – 0040, 0060 (600 x 1000/1200 x 42U FRAME)



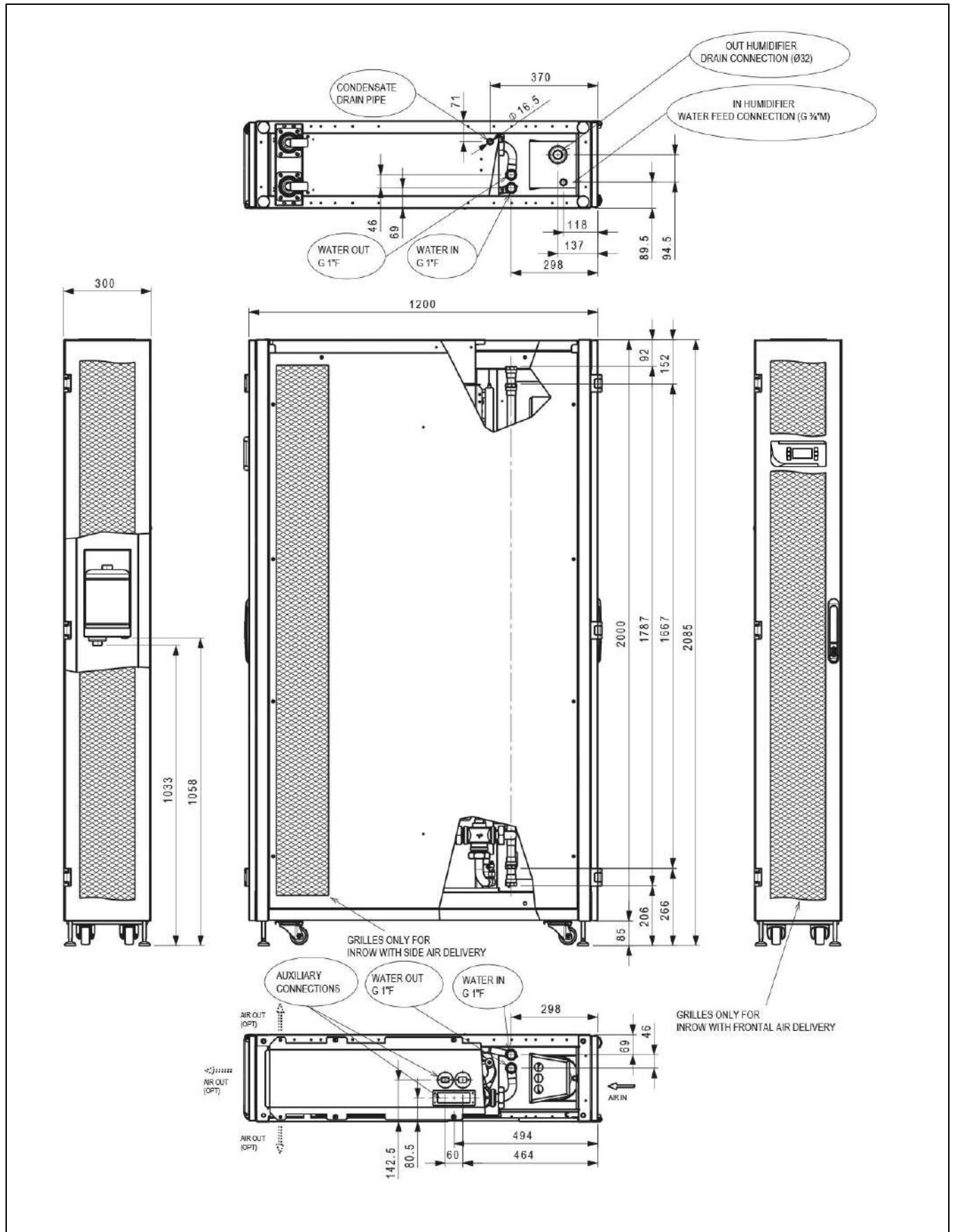
MACHINE DRAWINGS

Dimensions in mm – In-Row “I” Version – 0055 (600 x 1000/1200 x 42U FRAME)



MACHINE DRAWINGS

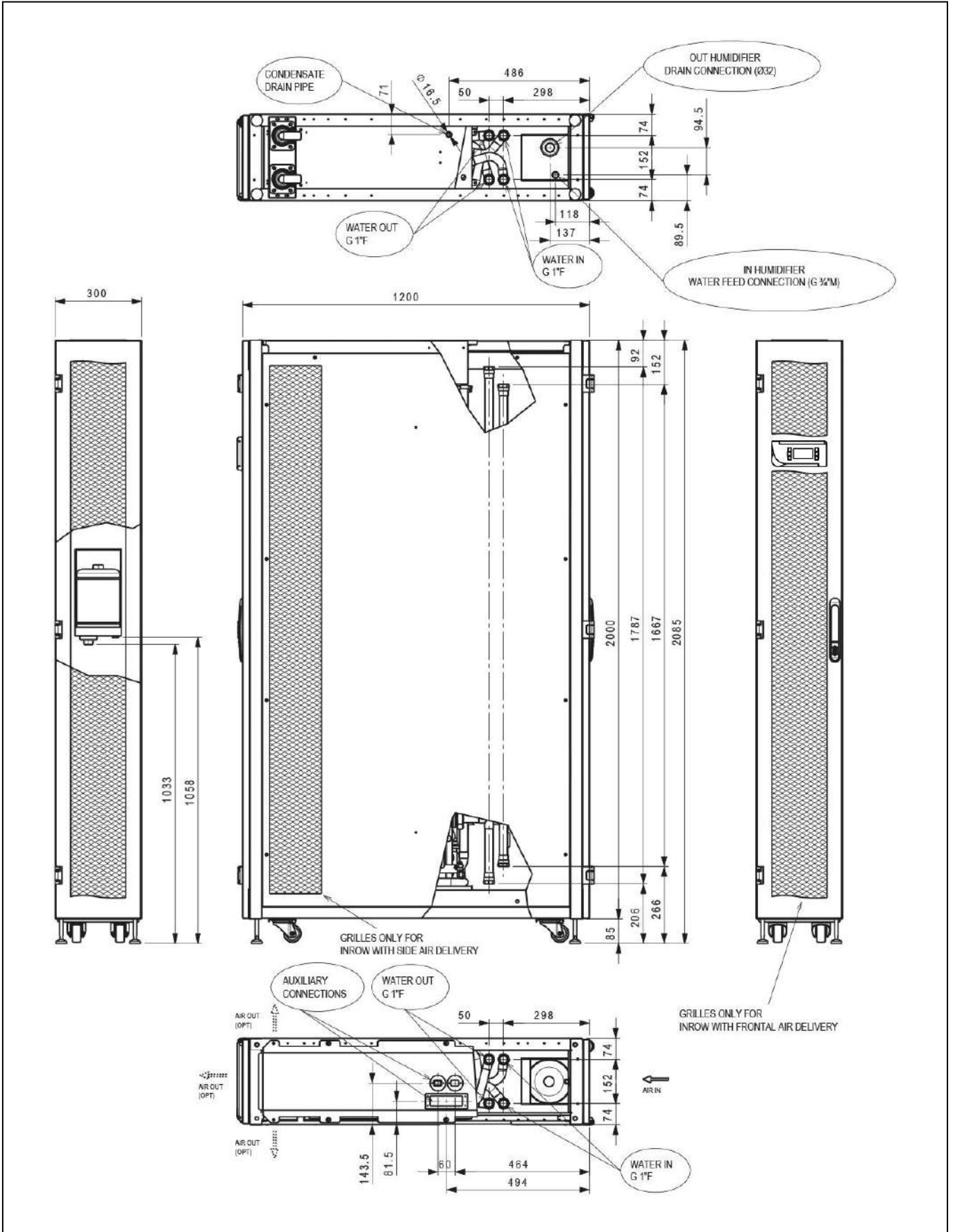
Dimensions in mm – In-Row “I” Version – 0020, 0025, 0035, 0038 (300 x 1200 x 42U FRAME)





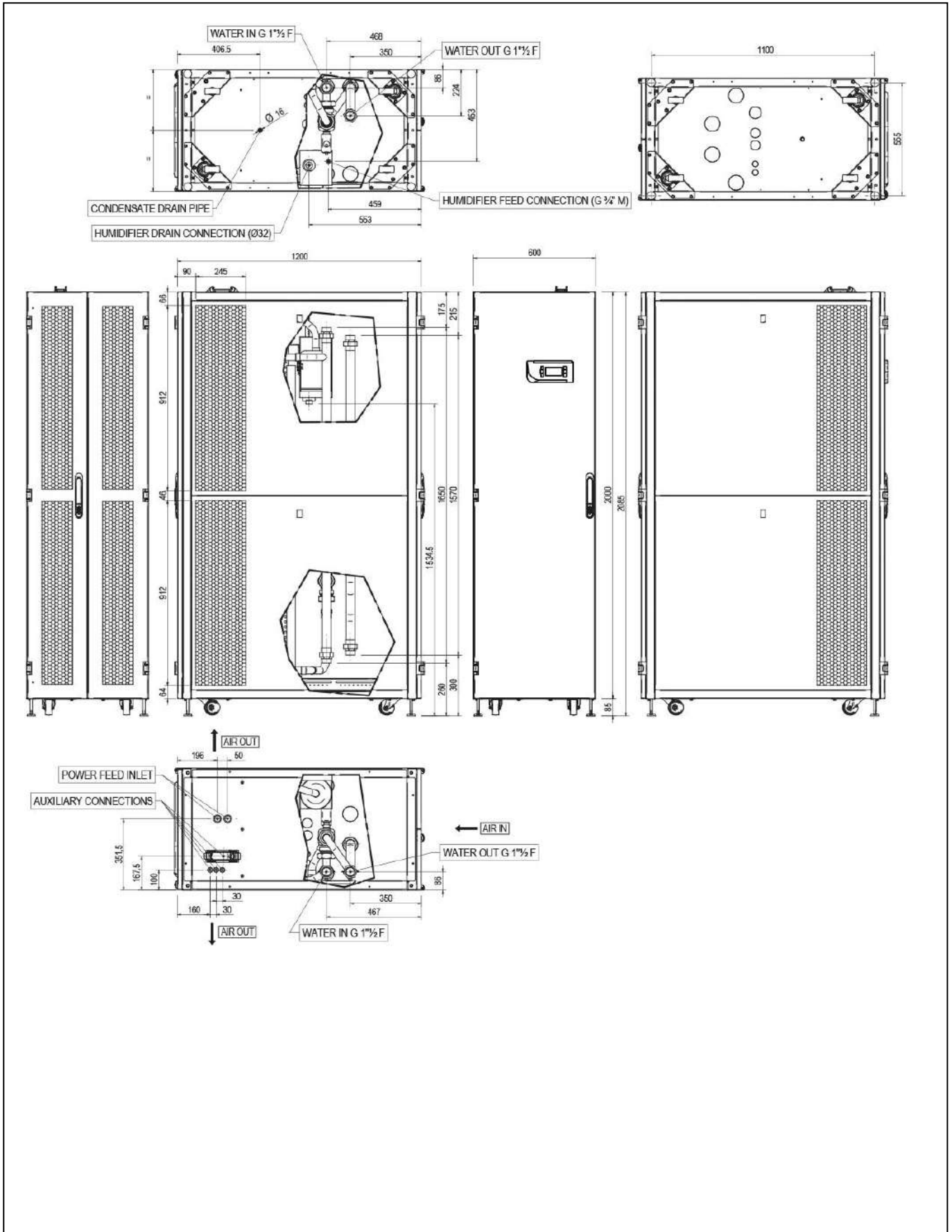
**MACHINE DRAWINGS**

Dimensions in mm – In-Row “I” Version – 0036 (300 x 1200 x 42U FRAME)



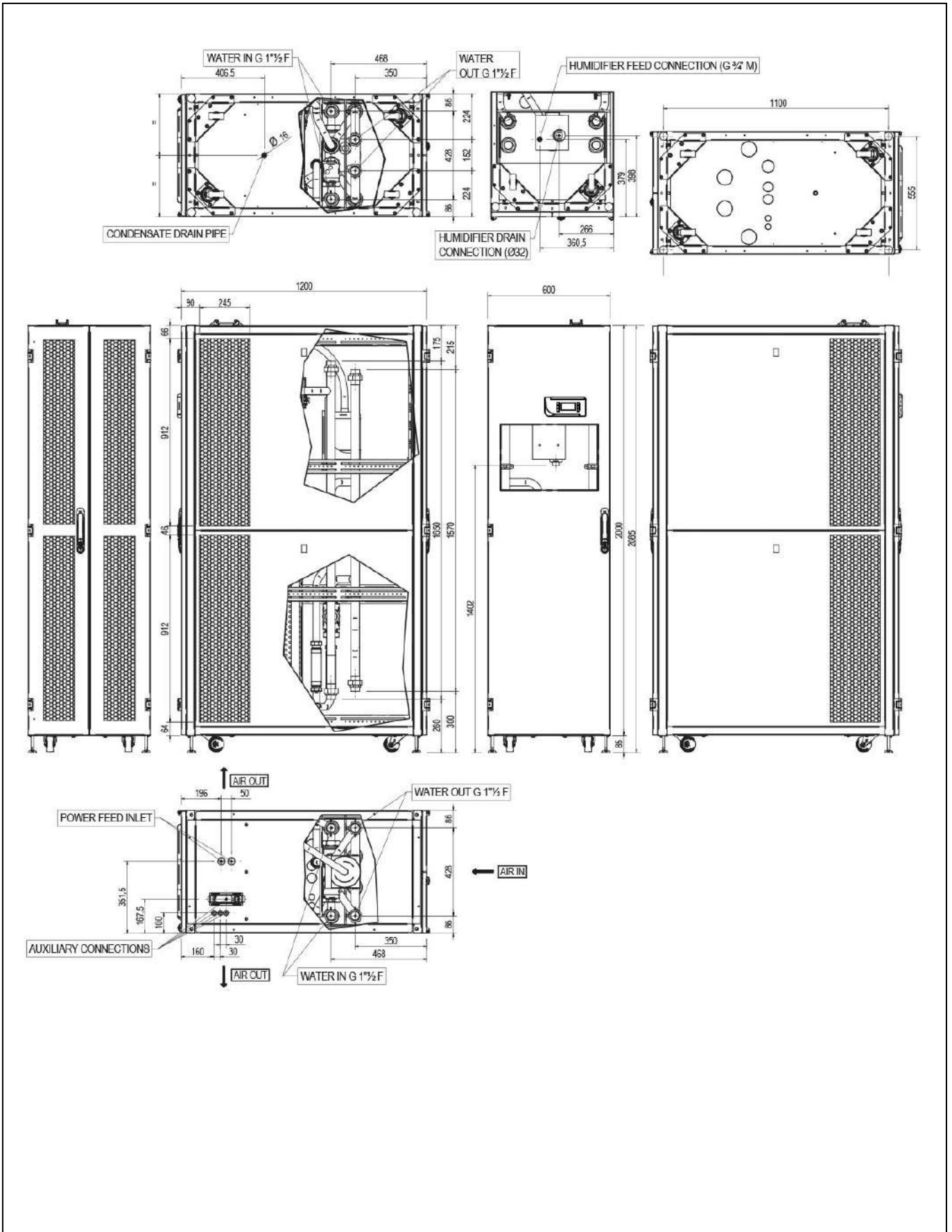
MACHINE DRAWINGS

Dimensions in mm – In-Row “I” Version – 0040, 0060 (600 x 1200 x 42U FRAME)



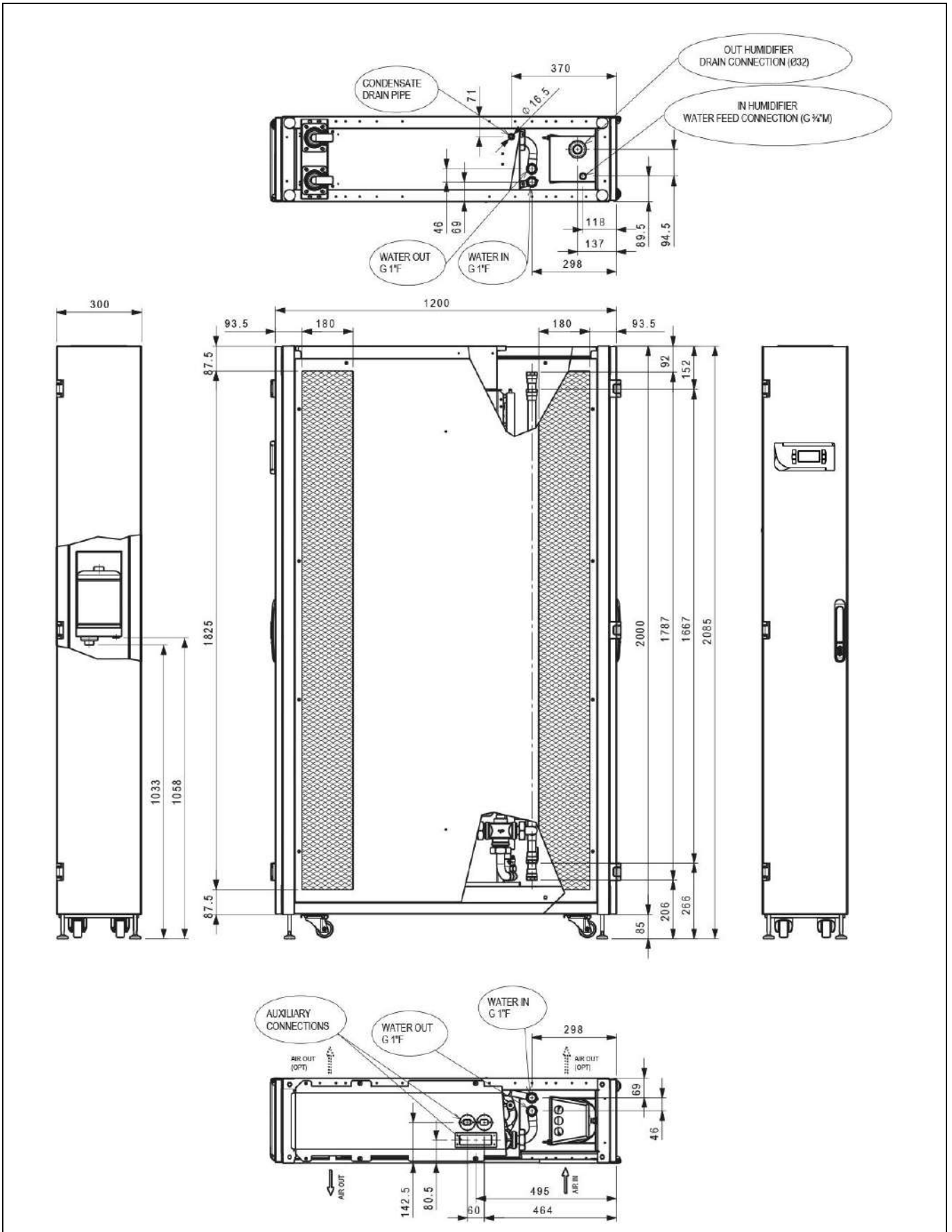
**MACHINE DRAWINGS**

Dimensions in mm – In-Row “I” Version – 0055 (600 x 1200 x 42U FRAME)

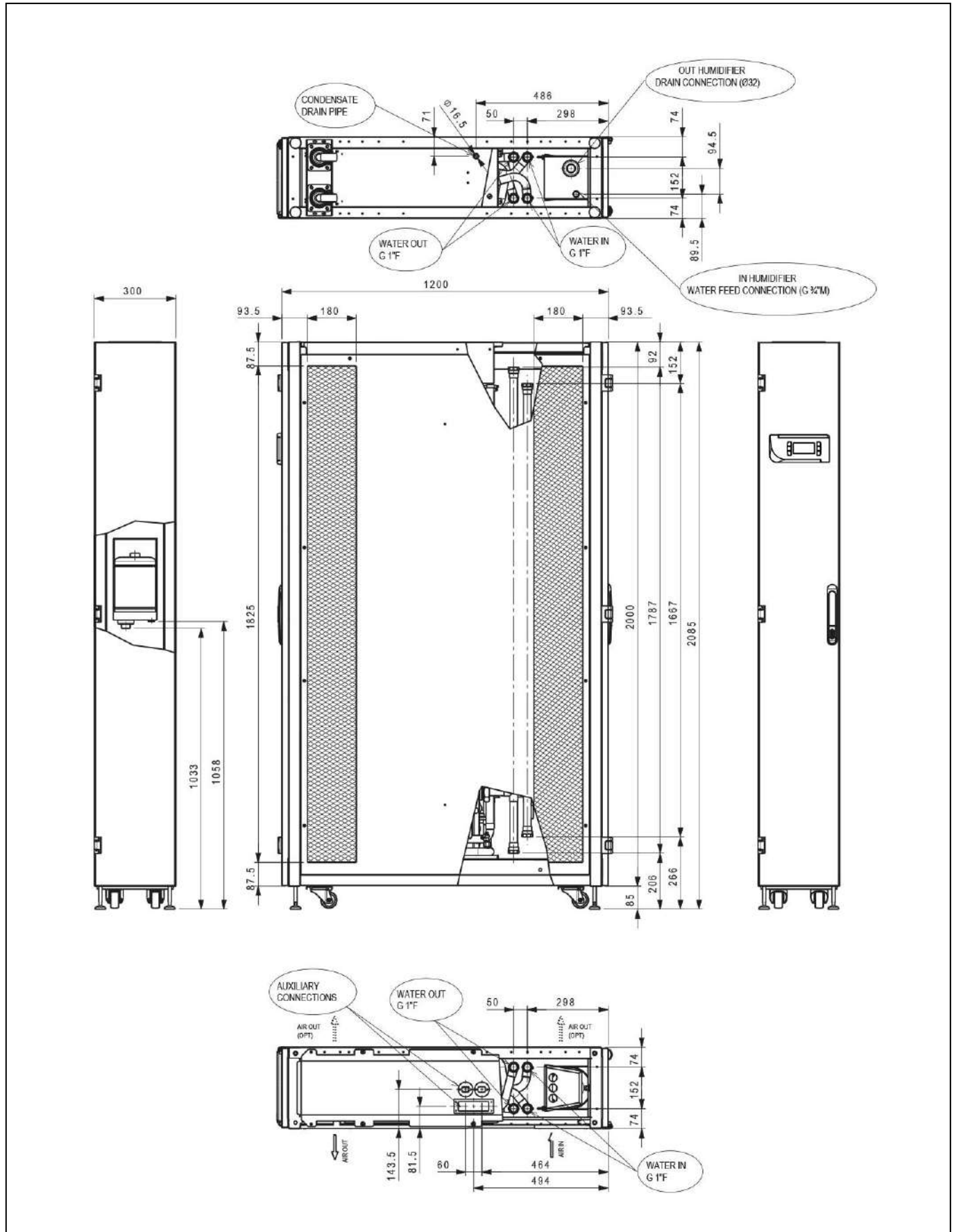


**MACHINE DRAWINGS**

Dimensions in mm – Enclosure “E” Version – 0020, 0025, 0035, 0038 (300 x 1200 x 42U FRAME)

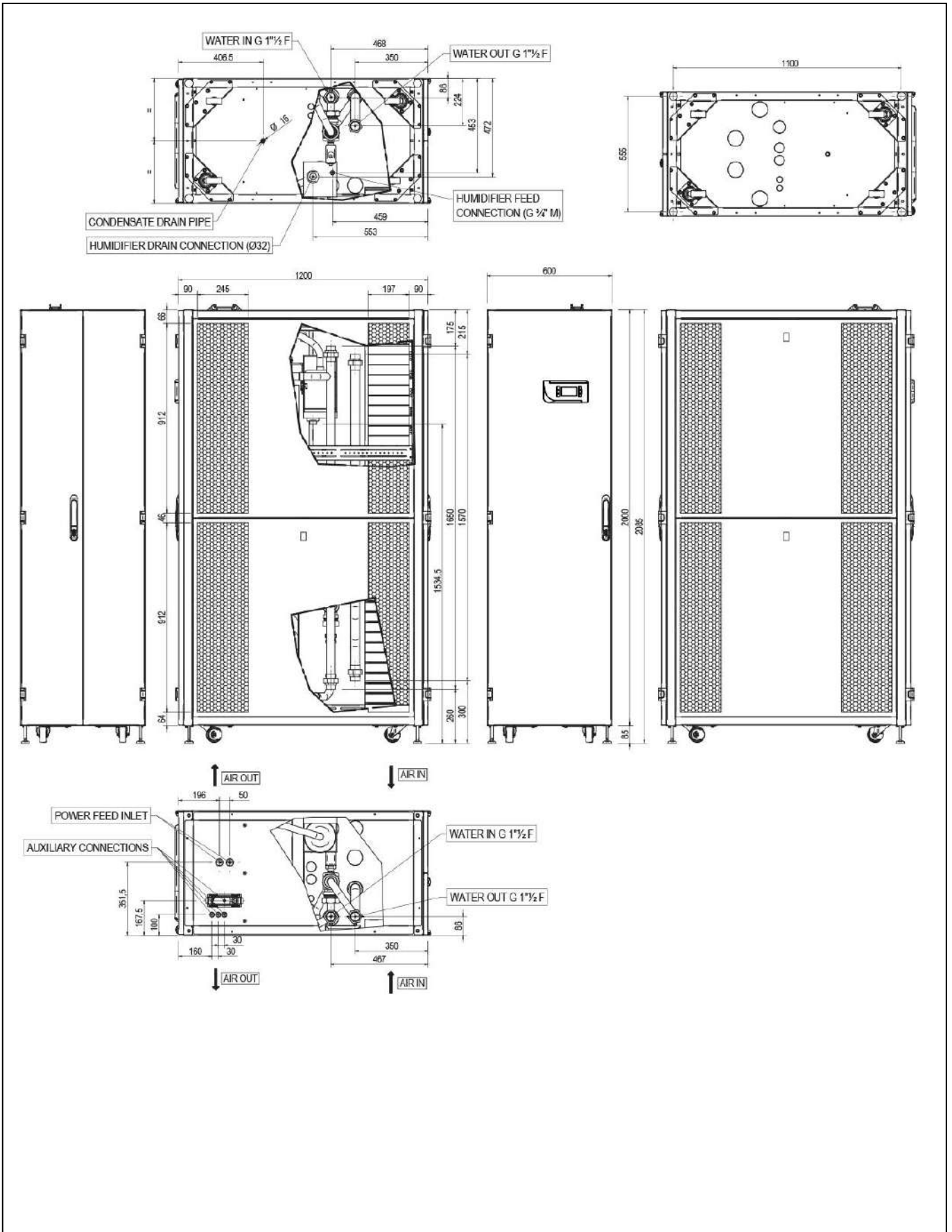


MACHINE DRAWINGS  
 Dimensions in mm – Enclosure “E” Version – 0036 (300 x 1200 x 42U FRAME)



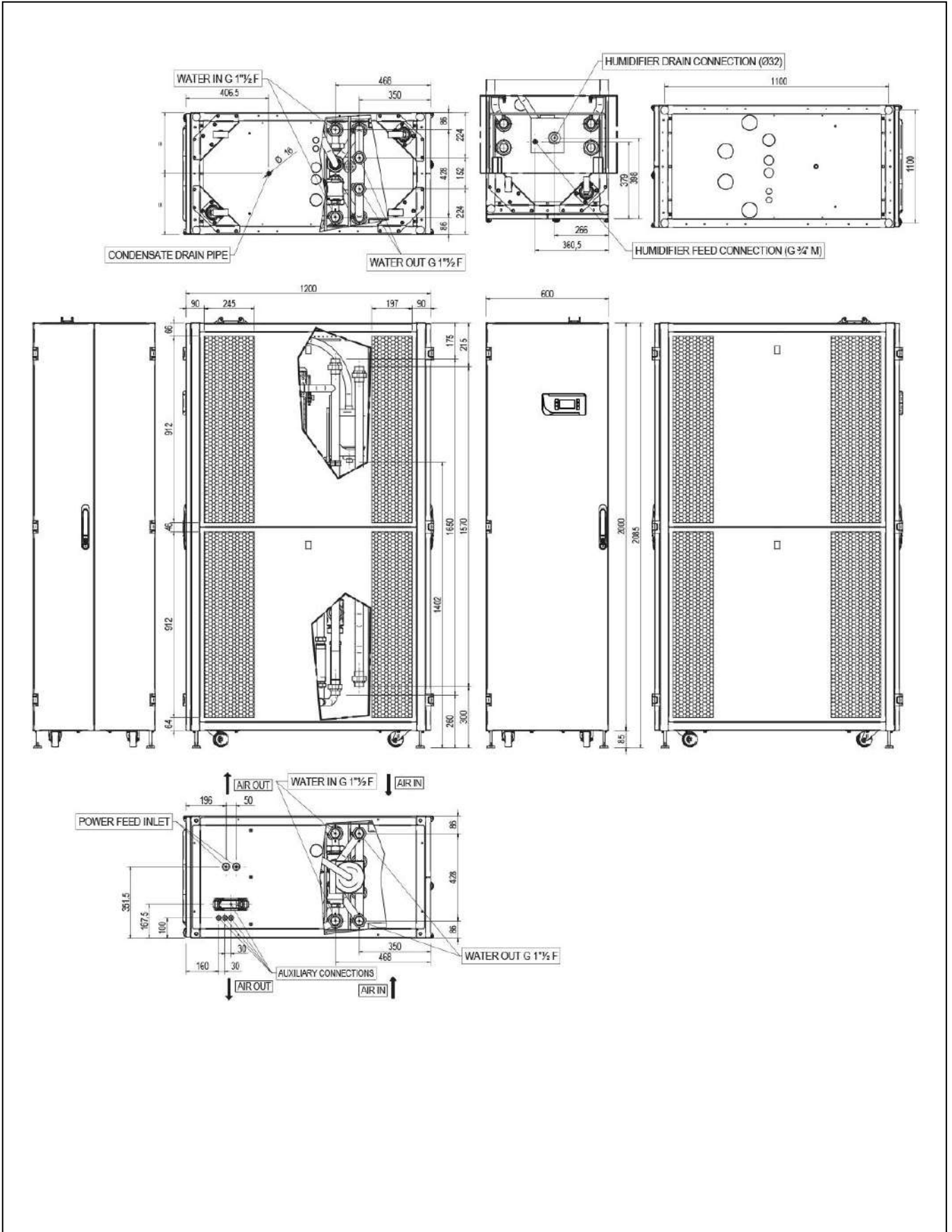
**MACHINE DRAWINGS**

Dimensions in mm – Enclosure “E” Version – 0040, 0060 (600 x 1200 x 42U FRAME)



MACHINE DRAWINGS

Dimensions in mm – Enclosure “E” Version – 0055 (600 x 1200 x 42U FRAME)



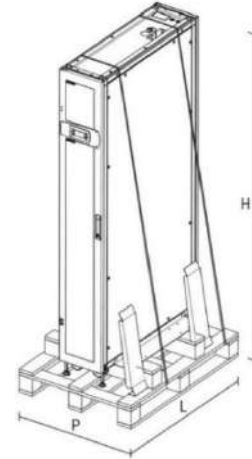
## SHIPMENT: PACKING DIMENSIONS

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.

### STANDARD PACKING

#### FRAME X 1000 X 42U

CRCC-I		0020	0025	0035	0036	0038	0040	0050	0060	0055
L	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100
H	mm	2248	2248	2248	2248	2248	2248	2248	2248	2248
P	mm	800	800	800	800	800	800	800	800	800
Weight	Kg	205	207,5	210	220	220	250	255	262	270
Net weight	Kg	190	192,5	195	205	205	235	240	247	255



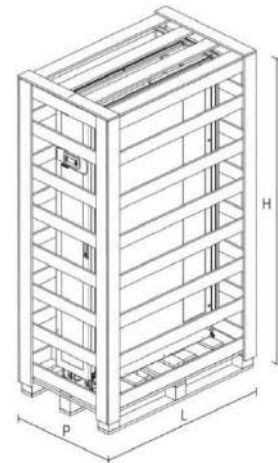
#### FRAME X 1200 X 42U

CRCC-I / CRCC-E		0020	0025	0035	0036	0038	0040	0050	0060	0055
L	mm	1300	1300	1300	1300	1300	1300	1300	1300	1300
H	mm	2248	2248	2248	2248	2248	2248	2248	2248	2248
P	mm	800	800	800	800	800	800	800	800	800
Weight	Kg	215	218	220	230	230	275	280	287	295
Net weight	Kg	200	202,5	205	215	215	260	265	272	280

### WOODEN CAGE PACKING (OPTIONAL)

#### FRAME X 1000 X 42U

CRCC-I		0020	0025	0035	0036	0038	0040	0050	0060	0055
L	mm	1130	1130	1130	1130	1130	1130	1130	1130	1130
H	mm	2320	2320	2320	2320	2320	2320	2320	2320	2320
P	mm	830	830	830	830	830	830	830	830	830
Weight	Kg	250	253	255	265	265	295	300	307	315
Net weight	Kg	190	192,5	195	205	205	235	240	247	255



#### FRAME X 1200 X 42U

CRCC-I / CRCC-E		0020	0025	0035	0036	0038	0040	0050	0060	0055
L	mm	1330	1330	1330	1330	1330	1330	1330	1330	1330
H	mm	2320	2320	2320	2320	2320	2320	2320	2320	2320
P	mm	830	830	830	830	830	830	830	830	830
Weight	Kg	260	263	265	275	275	320	325	332	340
Net weight	Kg	200	202,5	205	215	215	260	265	272	280











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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