

DATATECH PFW

70÷260 kW



General

Datatech PFW represents the ultimate expression of power and efficiency reached in air conditioning units for large computer rooms. The maximization of the heat exchange surface, the separated fan section housed under the raised floor and the advanced control logic make Datatech PFW the ideal solution for various data center layouts.

Quick facts

- ▶ High sensible cooling per square meter of footprint
- ▶ Exceptionally high efficiency of EC motor driven plastic impeller radial fans
- ▶ Wide range of cooling capacities
- ▶ Configurable, Precise and Flexible control of fan speed and chilled water valve.
- ▶ Dual-Coil and Dual Power Supply options for redundancy applications
- ▶ Exhaustive list of options (electrical heaters, humidifier, condensate pump, BMS interface cards..)
- ▶ Easy installation of 2 prewired sections

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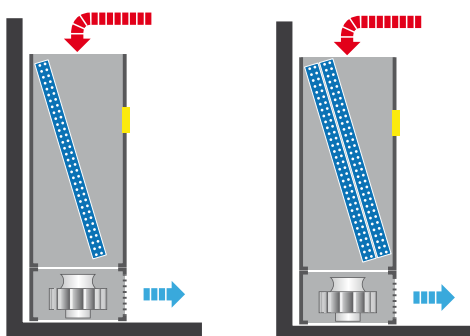
CONFIGURATIONS

DATATECH	PFW	70	(DW)
1	2	3	4

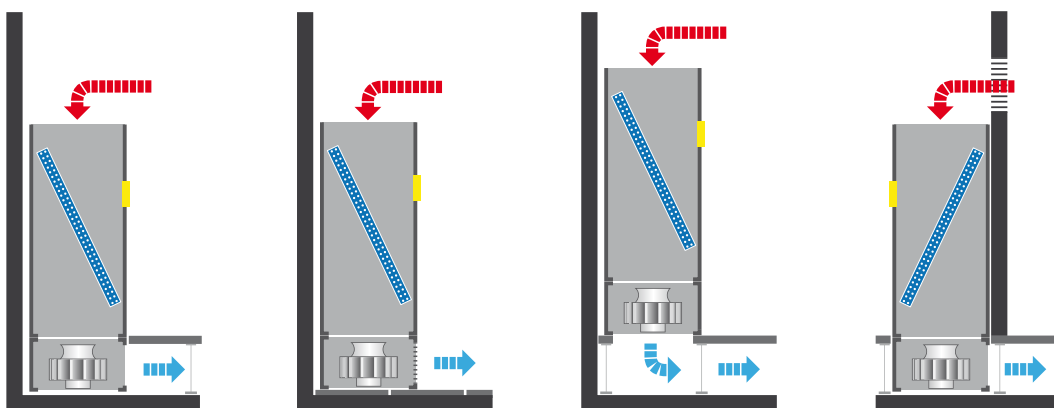
1. Series
2. Type of unit: PFW= chilled water computer room air conditioner, with separate fan section.
3. Total cooling capacity of single coil version at nominal conditions
4. (Optional) layout: DW = dual cooling coil

UNIT VERSION

UPPER SECTION



FANS SECTION



DATATECH PFW

APPLICATION

Datatech PFW are chilled water air conditioners specifically designed for use in data centers of medium to large size, with high sensible heat loads and large volumes of air. The various options for the fan section allow installation of Datatech PFW both in contexts in which there is a raised floor, directly into the room to be conditioned or in a separate technical corridor, or even with outlet directly into the room without raised floor.

The DW layout (double chilled water coil) requires the presence of a double chilled water network, namely main and backup or emergency (such as "Tier III" according to Uptime Institute TM), or two parallel networks and simultaneously active (type "Tier IV" according to Uptime Institute TM).

The electronic control and temperature sensors and/or flow/air pressure (options) allow to control the heat load both in room air conditioning applications (temperature control on air inlet), or in containment applications (control on delivery air temperature or static pressure).

STRUCTURE

Datatech PFW units are structurally divided into two sections:

- cooling and air treatment
- ventilation.

The cooling section is made by a self-supporting structure of hot-dip galvanized steel; along the whole perimeter "double skin" panels are present with internal 30 kg/m³ glass wool insulation density and 20 mm thickness. This solution is classified as A1 according to EN13501 standard - fire reaction classes. The outer panels and the portions of the structure visible from the outside are painted with oven-baked epoxy powder colour RAL7016, with textured surface finish.

All main components are accessible from the front of the unit, for easy maintenance or replacement. All front panels are secured by $\square$ turn locks; one of the panels is hinged (door panel) and allows access to the electrical panel.

The fan section is made of galvanized steel frame, oven-baked epoxy powder RAL7016 painted and houses the fans and electric reheat heaters (if present). The underfloor installation version provides a safety protection grid and a support for the raised floor; versions for installation above the floor are provided with "double skin" panels with the same characteristics of the air handling section, with at most a grid for horizontal air discharge or a flange for duct connection.

The two sections are always shipped separately, to be connected mechanically and electrically on the installation site. The electrical connection is made via quick connectors.

A gasket is supplied to be interposed between the two sections.

FANS

The units are equipped with backward curved radial fans, directly connected to the electronically commuted (EC) electric motor. The fan impeller is made of composite material with 3D profile. The motor speed is electronically controlled with

continuous adjustment by the microprocessor installed on the unit, so as to realize different control strategies (constant flow, constant pressure, as a function of the thermal load, etc.).

The fans are equipped with lack of air flow sensor and thermal protection.

FILTERS

The units are equipped with pleated air filters, with filtration class G4 according to EN779, high filtering surface and low pressure drop. The filters are mounted inside the air handling section, on a galvanized steel frame and are disposable type (non-regenerable). Upon request filters with F5, F6 or F7 class are available, of the same size and at the same way mounted inside the fan section, instead of the standard G4.

CHILLED WATER COILS

Datatech PFW units are equipped with heat exchangers made with copper pipes and aluminium fins with hydrophilic surface treatment to ensure maximum heat exchange efficiency and improve drainage of any condensate. The particular profile of the fin also allows for high face speed of the air on the coil without entrainment of drops.

Upon request a high efficiency coil is available for projects with higher water inlet temperature, in order to maximize the free-cooling operation of the chillers that serve the Data Center.

With DW layout units are equipped with a cooling coil featuring a double hydraulic circuit, each circuit sized to ensure the nominal cooling capacity of the unit.

All units are equipped with a condensate collection tray made of corrosion-resistant material, positioned underneath the cooling coil, with the discharge pipe and siphon provided by factory.

HYDRAULIC CIRCUIT

The hydraulic circuit is made with copper pipes and fittings made of galvanized steel. All units are equipped with ball valves, two or three-way, with a modulating actuator. Water connections are female threaded type.

ELECTRICAL PANEL

The electrical panel is positioned inside the unit, equipped with door locked by mains switch to cut power to the unit before accessing the internal components. The electrical panel always includes for all units:

- Mains switch
- Circuit-breakers for power and auxiliary circuits
- Contactors for power loads
- Microprocessor control card
- Terminal strip with labelling of all cables.

Power supply is 400V/3ph/50Hz; the presence of the neutral conductor may be required depending on the configuration of some accessories.

MICROPROCESSOR CONTROL

The microprocessor control is comprised of a I/O unit to which the controlled and safety devices are connected, and an external semi-graphic user display. The microprocessor can manage the room temperature and, depending on the additional options/ accessories, the humidity as well. The ventilation can be controlled in modulation depending on the temperature of the return air, or optionally being flow/pressure controlled.

The control operates a chain of alarms on two levels of severity, plus the ability to remote up to 5 individual alarm signals (option alarm card).

It is also included a clock card for alarm log (100 alarms with FIFO logic) and a memory for the historicizing of the measured parameters (temperature and humidity if available).

Serial communication cards are optionally available for connection to external supervisory systems and/or communication in local "Datalink" network between units for group/team management.

DW LAYOUT

The DW layout features a double hydraulic circuit and double chilled water valve, for those applications where there are two independent networks of chilled water for safety/redundancy. The two hydraulic circuits can be operated in parallel, cascade, or in alternative (in this case the switching control has to be provided by the plant); optionally with the "lack of water flow" alarm the switching between the two circuits is automatic.

TESTING

All units are factory-tested:

- Tightness of the hydraulic circuit and cooling coils
- Functionality of the microprocessor control and the components of the electrical panel
- Operation and direction of rotation of the fans
- Operation and safety of electrical heaters when present.

PACKING AND SHIPMENT

The units are always shipped in two separate sections - air treatment and fans. The air treatment section is anchored to a pallet, and provided with polyethylene foam protections on the corners; as a further protection an extensible film is wrapped around the unit.

The fan section is anchored to a pallet and packed in the same manner as the air handling section.

Packing in wooden crate is available upon request for shipping by sea.

ACCESSORIES AND OPTIONS

- Aeraulic accessories:
 - Automatic control of air flow
 - Automatic control of delivery air pressure
 - Clogged filters alarm
 - High efficiency filters F5, F6 and F7
 - Suction plenum
 - Closed fan section for installation above the floor (down-flow air discharge) or with horizontal (grille or flange) air discharge
 - Motorised non-return air damper
 - Support frame for fan section
- Hydraulic accessories:
 - High efficiency coil
 - Lack of water flow alarm
 - Two-way (primary) chilled water valve
 - Two-way secondary chilled water valve (only for DW layout)
 - Immersed electrodes humidifier
 - Position of the hydraulic connections other than standard
- Electrical accessories:
 - Electric heaters
 - Modulating control for heaters
 - Double power supply with automatic changeover
 - Power loss alarm
 - "Datalink" local network
 - Operating potential free contacts
 - Serial Communications Cards for BMS
 - Alarm management card
 - Humidity sensor
 - Delivery air temperature sensor
 - Set point change by remote signal
 - Dynamic water set point temperature - CWDS
 - Remote user terminal
 - Graphical display
 - Special power supply
- Other accessories:
 - Water, fire and smoke detectors
 - Water leakage containment pan
- Packings:
 - Wooden crate
 - Plywood crate for aeraulic modules (plenums/dampers/frames)

TECHNICAL DATA - DATATECH PFW

Unit size			70	90	120	150	200	260
"Power" Mode								
Total cooling capacity	(1)	kW	69,5	89,4	118,6	150,7	198,2	263,2
Sensible cooling capacity		kW	55,8	72,3	95,9	118,8	158,5	208,0
SHR			0,80	0,81	0,81	0,79	0,80	0,79
NSEER	(4)		28,11	22,76	23,54	28,12	26,92	27,51
Air flow		m³/h	13000	17000	22500	27000	37000	47700
Power input	(4)	kW	1,92	3,04	3,91	4,08	5,68	7,30
Maximum available pressure	(5)	Pa	190	355	260	145	210	235
Total hydraulic pressure drop		kPa	77	85	73	124	120	157
"Energy Saving" Mode								
Total cooling capacity	(2)	kW	48,70	63,60	90,50	105,00	151,00	187,00
Sensible cooling capacity		kW	48,70	63,60	90,50	104,00	151,00	186,00
SHR			1,00	1,00	1,00	0,99	1,00	0,99
NSEER	(4)		55,63	44,43	40,14	44,22	44,76	41,47
Air flow		m³/h	9500	12500	18000	21500	30000	39000
Power input	(4)	kW	0,86	1,40	2,20	2,30	3,30	4,38
Maximum available pressure	(5)	Pa	510	715	575	425	440	445
Total hydraulic pressure drop		kPa	39	44	43	51	72	82
"Hot Aisle" Mode								
Total cooling capacity	(3)	kW	51,20	66,90	91,80	115,00	154,00	200,00
Sensible cooling capacity		kW	51,20	66,90	91,80	115,00	154,00	200,00
SHR			1,00	1,00	1,00	1,00	1,00	1,00
NSEER	(4)		39,96	32,45	30,66	34,94	34,00	34,71
Air flow		m³/h	11.000	14.500	20.000	24.500	33.500	43.000
Power input	(4)	kW	1,25	2,00	2,90	3,20	4,40	5,60
Maximum available pressure	(5)	Pa	510	715	575	425	440	445
Total hydraulic pressure drop		kPa	42	47	72	101	72	90
High efficiency cooling coil								
Total cooling capacity	(1) (9)	kW	67,30	88,40	125,70	150,00	199,90	263,70
Sensible cooling capacity		kW	48,90	64,30	92,00	109,60	148,30	194,80
SHR			0,73	0,73	0,73	0,73	0,74	0,74
NSEER	(4)		40,19	38,91	35,27	34,86	30,83	30,55
Air flow		m³/h	9.500	12.500	18.000	21.500	30.000	39.000
Power input	(4)	kW	1,19	1,61	2,54	3,06	4,66	6,18
Maximum available pressure	(5)	Pa	415	490	395	325	320	325
Total hydraulic pressure drop		kPa	87	107	104	107	148	220
Fans								
Number		n°	1	2	2	2	3	4
Maximum allowable airflow		m³/h	13.700	18.300	24.200	27.800	39.700	51.600
Power input at maximum airflow	(4)	kW	2,20	3,70	4,70	4,40	6,80	8,90
Maximum available static pressure at maximum airflow	(5)	Pa	105	220	105	95	105	120
Hydraulic circuit								
Connections			G1" 1/2	G1" 1/2	G2"	G2"	G2" 1/2	G2" 1/2
Electric heating (CH-HH version)								
Standard capacity		kW	9	9	18	18	27	36
Enhanced capacity		kW	13	13	26	26	39	54
Operation stages		n°	1	2	2	2	3	3
Humidifier (HH version)								
Maximum steam production		kg/h	8,0	8,0	15,0	15,0	15,0	15,0
Sound pressure levels								
Sound pressure levels	(7)	dB(A)	57	59	60	59	62	62
Sound power level	(6)	dB(A)	77	79	80	80	83	84
Sound power level	(8)	dB(A)	83	89	87	87	87	87
Dimensions and weight of basic unit								
Cabinet Naming			S	S-M	M	M-L	XL	XXL
Length		mm	1.100	1.350	1.750	2.150	2.650	3.300
Depth		mm	890	890	890	890	890	890
Air handling section Height		mm	1.990	1.990	1.990	1.990	1.990	1.990
Fan section Height		mm	700	700	700	700	700	700
Net weight		kg	550	650	820	920	1.100	1.300

- Air inlet 24 °C 50% r.h. water inlet/outlet 7/12°C
 - Air inlet 28 °C 40% r.h. water inlet/outlet 10/15°C
 - Air inlet 35 °C 27% r.h. water inlet/outlet 18/23°C
 - G4 filters with 20Pa external static pressure
 - G4 filters.
 - Sound Power level "Case Breakout"; air discharge under the raised floor and ducted air intake
 - Sound pressure level at 2 m in free field calculated from the sound power level according to ISO3744, at nominal airflow
 - Sound power level emitted to the outlet of the fan section, at nominal airflow
 - Performances at different conditions can be obtained from the selection software
- Gross cooling capacities indicated. For net cooling capacities, subtract fan power input.
All data referred to open fan section, installed under the raised floor

ELECTRICAL DATA - DATATECH PFW

Unit size			70	90	120	150	200	260
Fan maximum power input		kW	2,75	5,40	5,80	5,50	8,25	11,00
Standard electrical heaters maximum power input		kW	9,00	9,00	18,00	18,00	27,00	36,00
Enhanced electrical heaters maximum power input		kW	13,00	13,00	26,00	26,00	39,00	54,00
Humidifier maximum power requirement		kW	6,0	6,0	11,3	11,3	11,3	11,3
Maximum fan absorbed current	(1)	A	4,3	8,4	8,9	8,6	12,9	17,2
Standard electrical heaters maximum absorbed current	(1)	A	13,0	13,0	26,0	26,0	39,0	52,0
Enhanced electrical heaters maximum absorbed current	(1)	A	18,8	18,8	37,5	37,5	56,3	77,9
Humidifier maximum absorbed current	(1)	A	8,7	8,7	16,2	16,2	16,2	16,2
Power supply		V/ph/Hz			400/3~/50	±5%		

1. Current at maximum permissible operating conditions. Please refer to wiring diagram for suggested cable size.

TECHNICAL DATA - DATATECH PFW DW

Unit size			70	90	120	150	200	260
Total cooling capacity	(1)	kW	43,9	59,7	87,6	107,0	147,0	188,0
Sensible cooling capacity	(1)	kW	39,7	52,4	76,2	91,0	127,0	159,0
SHR			0,9	0,9	0,9	0,9	0,9	0,8
NSEER	(1) (4)		21,1	18,8	18,4	22,3	20,2	21,1
Fans								
Number		n°	1	2	2	2	3	4
Nominal air capacity		m³/h	11.340	14.580	21.060	24.300	34.830	42.930
Power input	(4)	kW	1,8	2,6	3,9	3,9	6,0	7,2
Maximum available pressure	(5)	Pa	245	460	280	200	200	255
Hydraulic circuit								
Total pressure drop		kPa	45	60	83	95	122	140
Connections			1"1/4	1"1/2	1"1/2	2"	2"	2" 1/2
Electric heating (CH-HH version)								
Standard capacity		kW	9,0	9,0	18,0	18,0	27,0	36,0
Enhanced capacity		kW	13,0	13,0	26,0	26,0	39,0	54,0
Operation stages		n°	1	2	2	2	3	3
Humidifier (HH version)								
Maximum steam production		kg/h	8	8	15	15	15	15
Sound pressure levels								
Sound pressure levels	(7)	dB(A)	53,1	54,9	58,0	56,2	60,2	59,7
Sound power level	(6)	dB(A)	73,6	75,4	78,5	77,2	81,2	81,2
Sound power level	(8)	dB(A)	79,7	85,4	85,5	84,4	85,0	85,0
Dimensions and weight of basic unit								
Cabinet size			S	S-M	M	M-L	XL	XXL
Length		mm	1100	1350	1750	2150	2650	3300
Depth		mm	890	890	890	890	890	890
Air handling section Height		mm	1990	1990	1990	1990	1990	1990
Fan section Height		mm	700	700	700	700	700	700
Net weight		kg	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

1. Air inlet 24 °C 50% r.h. water inlet/outlet 7/12°C

4. G4 filters with 20Pa external static pressure

5. G4 filters.

6. Sound Power level "Case Breakout"; air discharge under the raised floor and ducted air intake

7. Sound pressure level at 2 m in free field calculated from the sound power level according to ISO3744, at nominal airflow

8. Sound power level emitted to the outlet of the fan section, at nominal airflow

Gross cooling capacities indicated. For net cooling capacities, subtract fan power input.

All data referred to open fan section, installed under the raised floor

ELECTRICAL DATA - DATATECH PFW DW

Unit size			70	90	120	150	200	260
Fan maximum power input		kW	2,8	5,4	5,8	5,5	8,3	11,0
Standard electrical heaters maximum power input		kW	9,0	9,0	18,0	18,0	27,0	36,0
Enhanced electrical heaters maximum power input		kW	13,0	13,0	26,0	26,0	39,0	54,0
Humidifier maximum power requirement		kW	6,0	6,0	11,3	11,3	11,3	11,3
Maximum fan absorbed current	(1)	A	4,3	8,4	8,9	8,6	12,9	17,2
Standard electrical heaters maximum absorbed current	(1)	A	13,0	13,0	26,0	26,0	39,0	52,0
Enhanced electrical heaters maximum absorbed current	(1)	A	18,8	18,8	37,5	37,5	56,3	77,9
Humidifier maximum absorbed current	(1)	A	8,7	8,7	16,2	16,2	16,2	16,2
Power supply		V/ph/Hz			400/3~/50	±5%		

1. Current at maximum permissible operating conditions. Please refer to wiring diagram for suggested cable size.

OPERATING LIMITS - DATATECH PFW

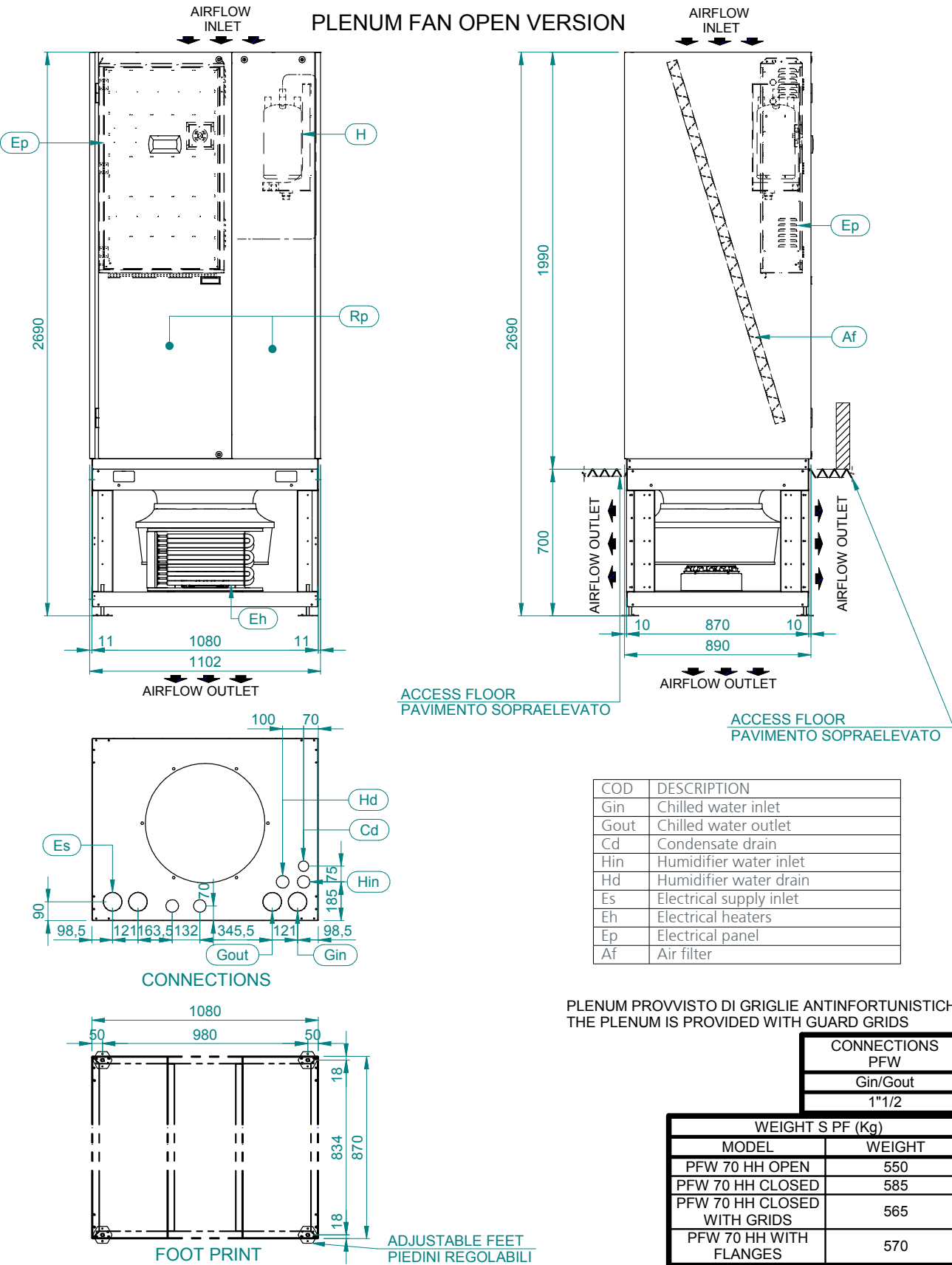
	T° inlet air	RH % inlet	Dew point inlet air	T° inlet water
Max	40°C	60%	15°C	
Min	16°C	12%		0°C

Stricter limits combinations in a psychrometric diagram applies.

DIMENSIONAL DIAGRAMS

DATATECH PFW 70

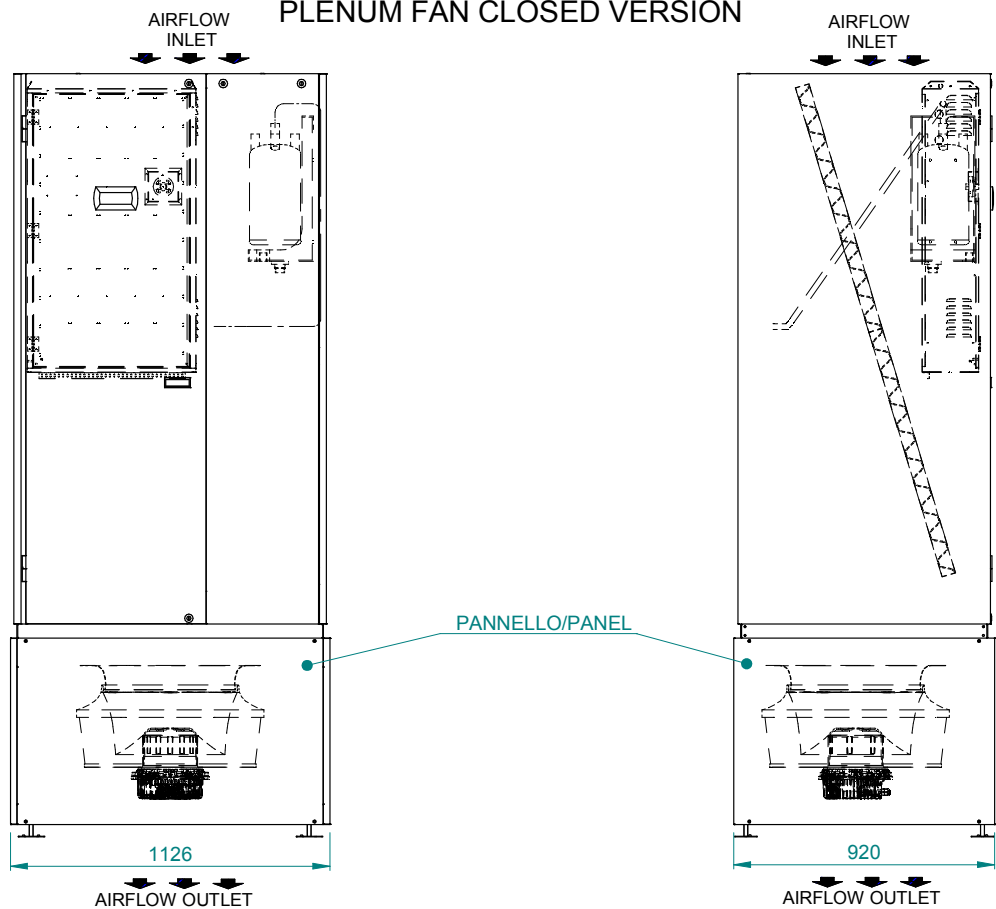
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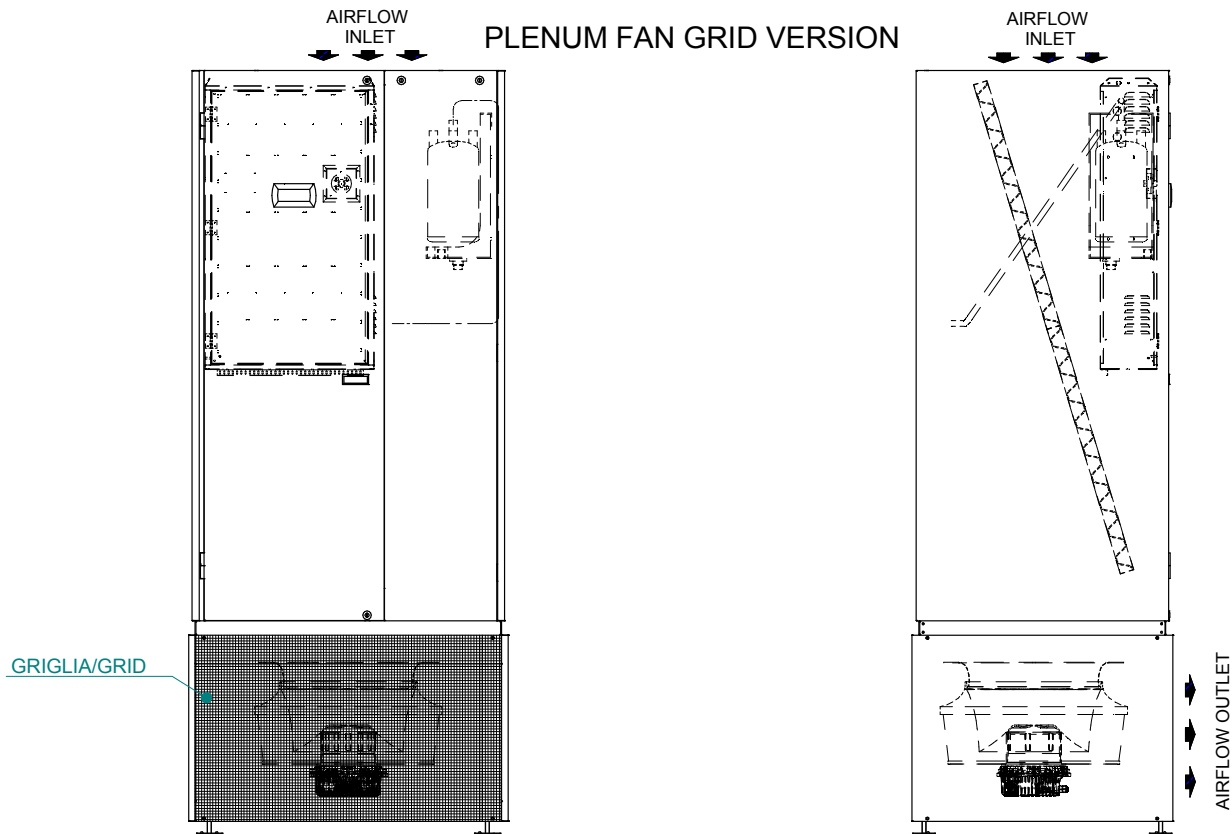
DIMENSIONAL DIAGRAMS
DATATECH PFW 70

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PLENUM FAN CLOSED VERSION



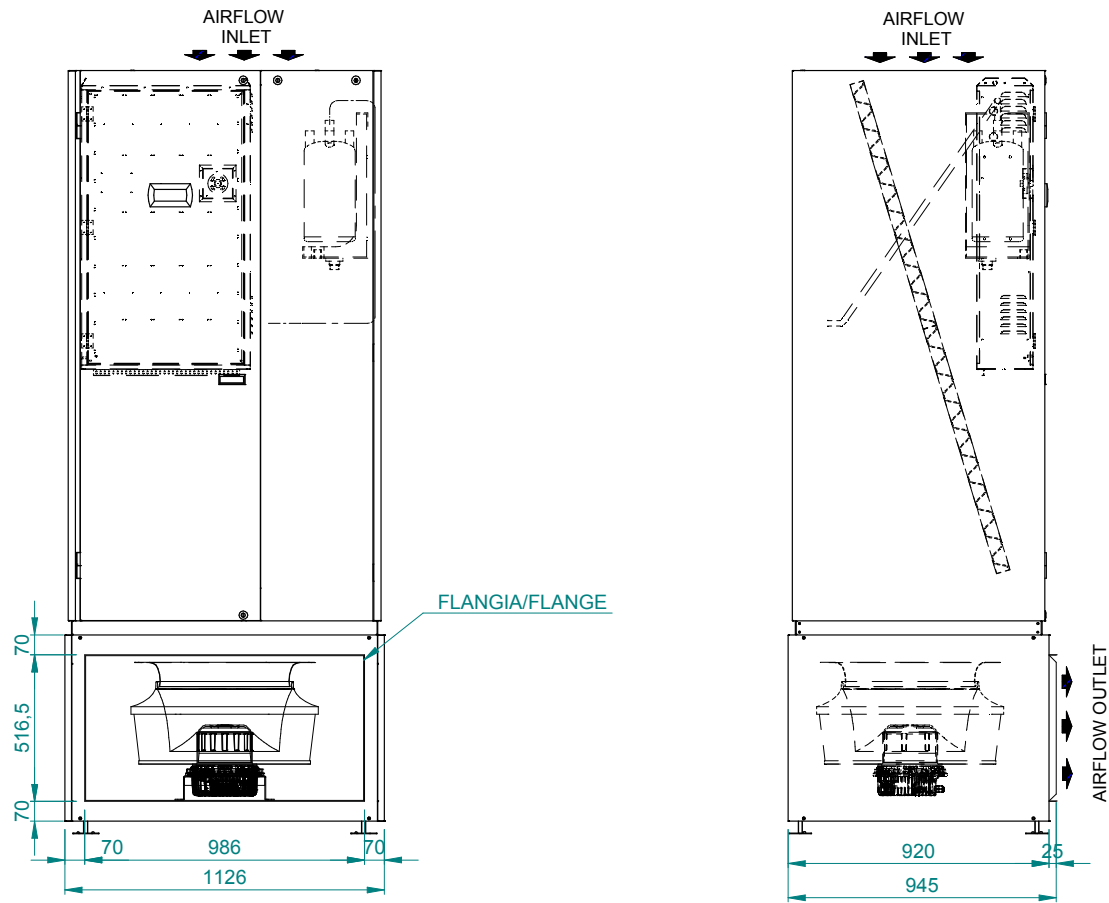
PLENUM FAN GRID VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 70

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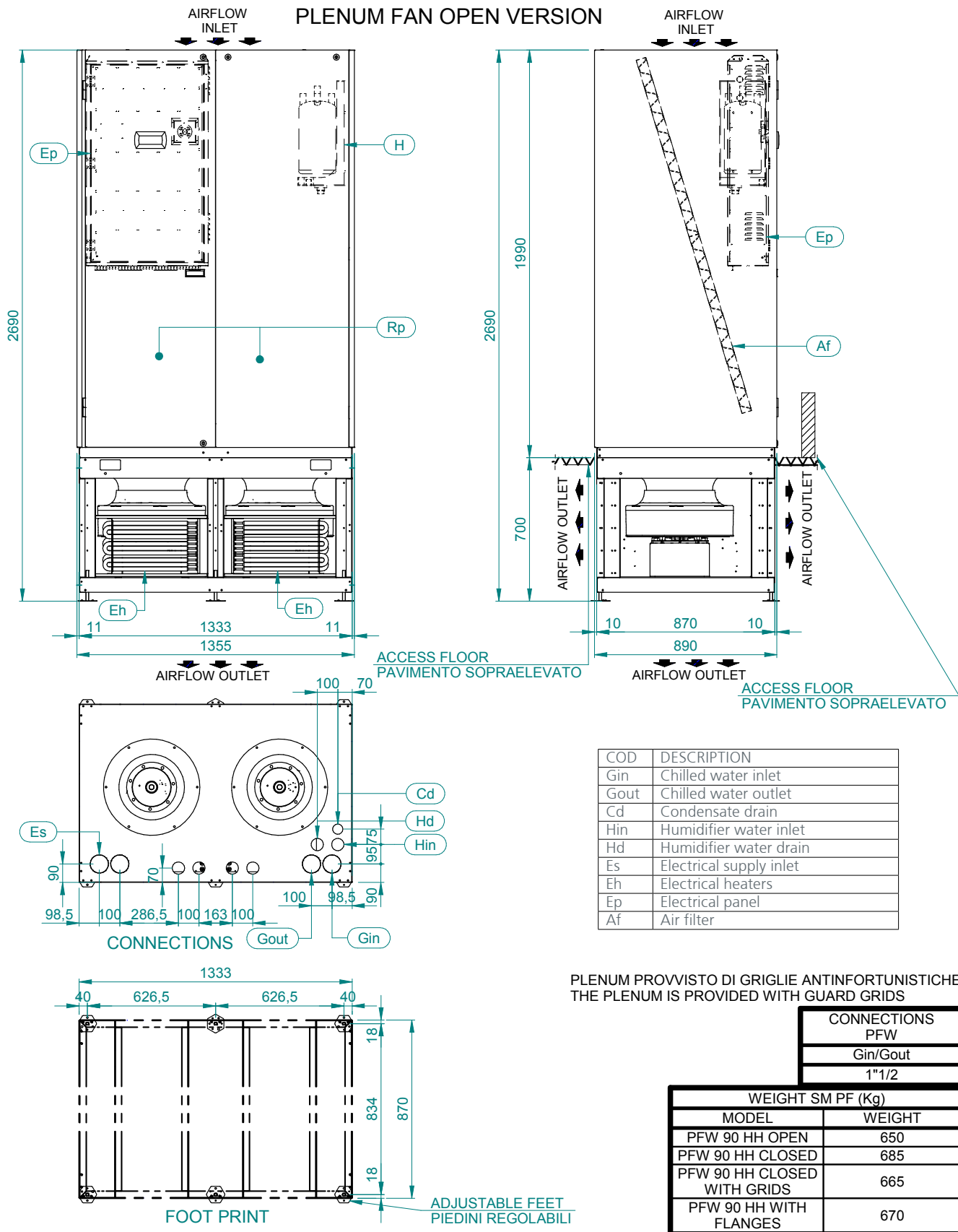
PLENUM FAN FLANGES VERSION



DIMENSIONAL DIAGRAMS

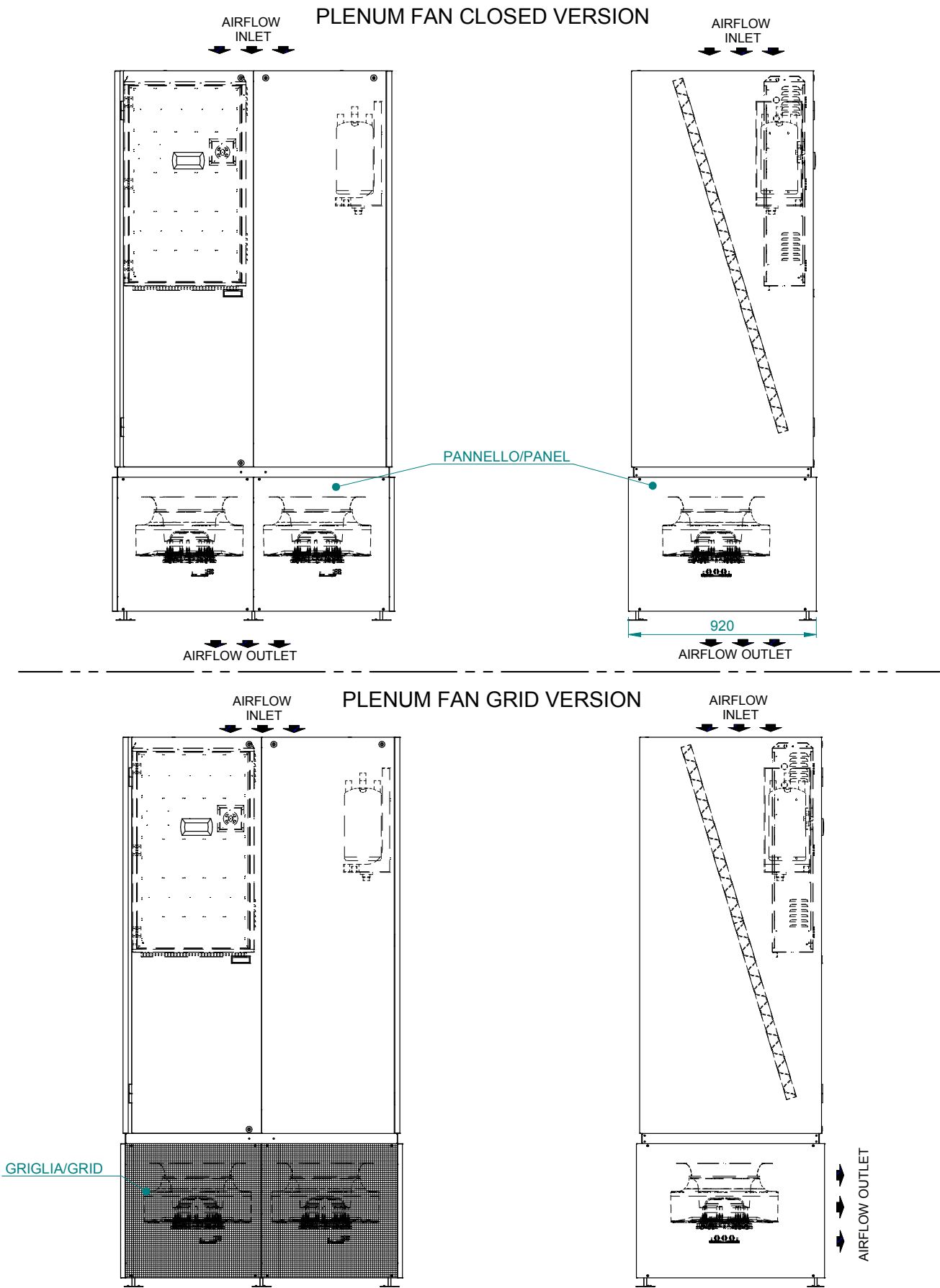
DATATECH PFW 90

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DIMENSIONAL DIAGRAMS
DATATECH PFW 90

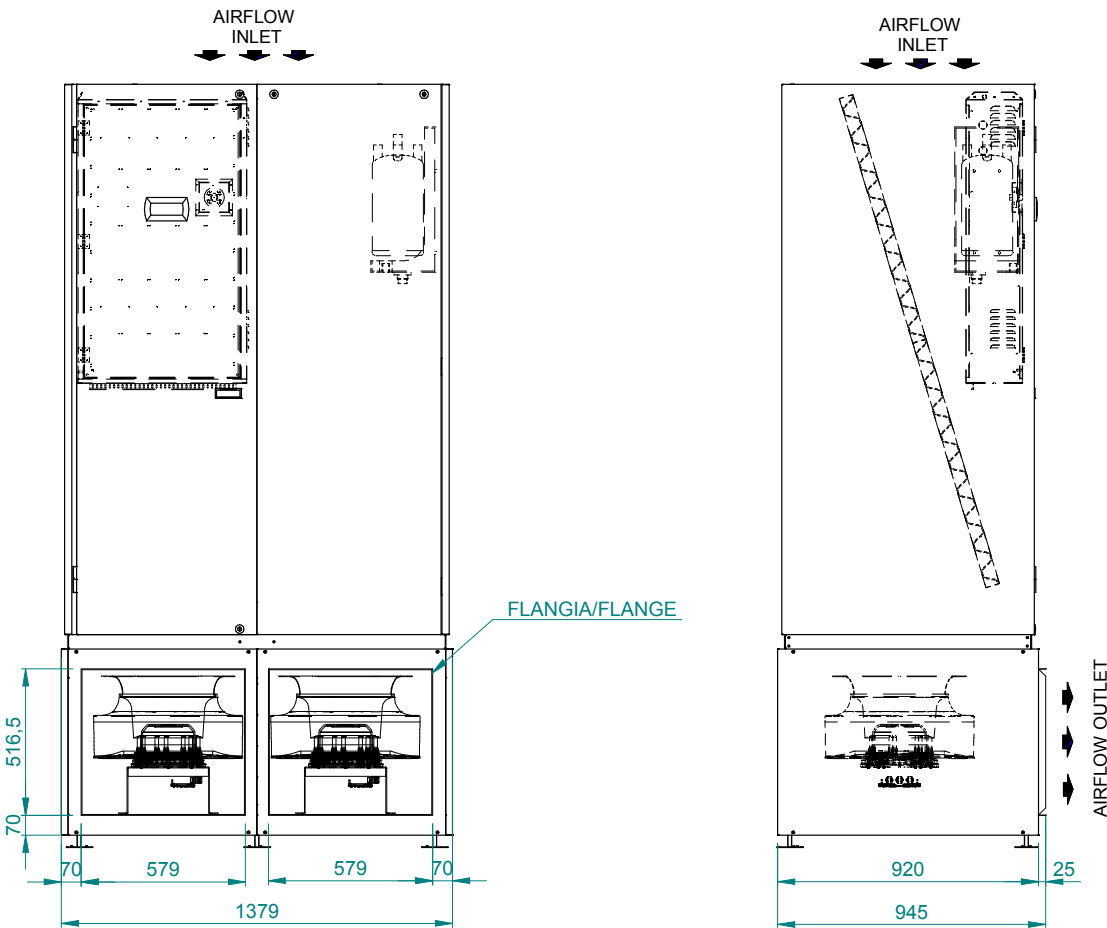
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DIMENSIONAL DIAGRAMS
DATATECH PFW 90

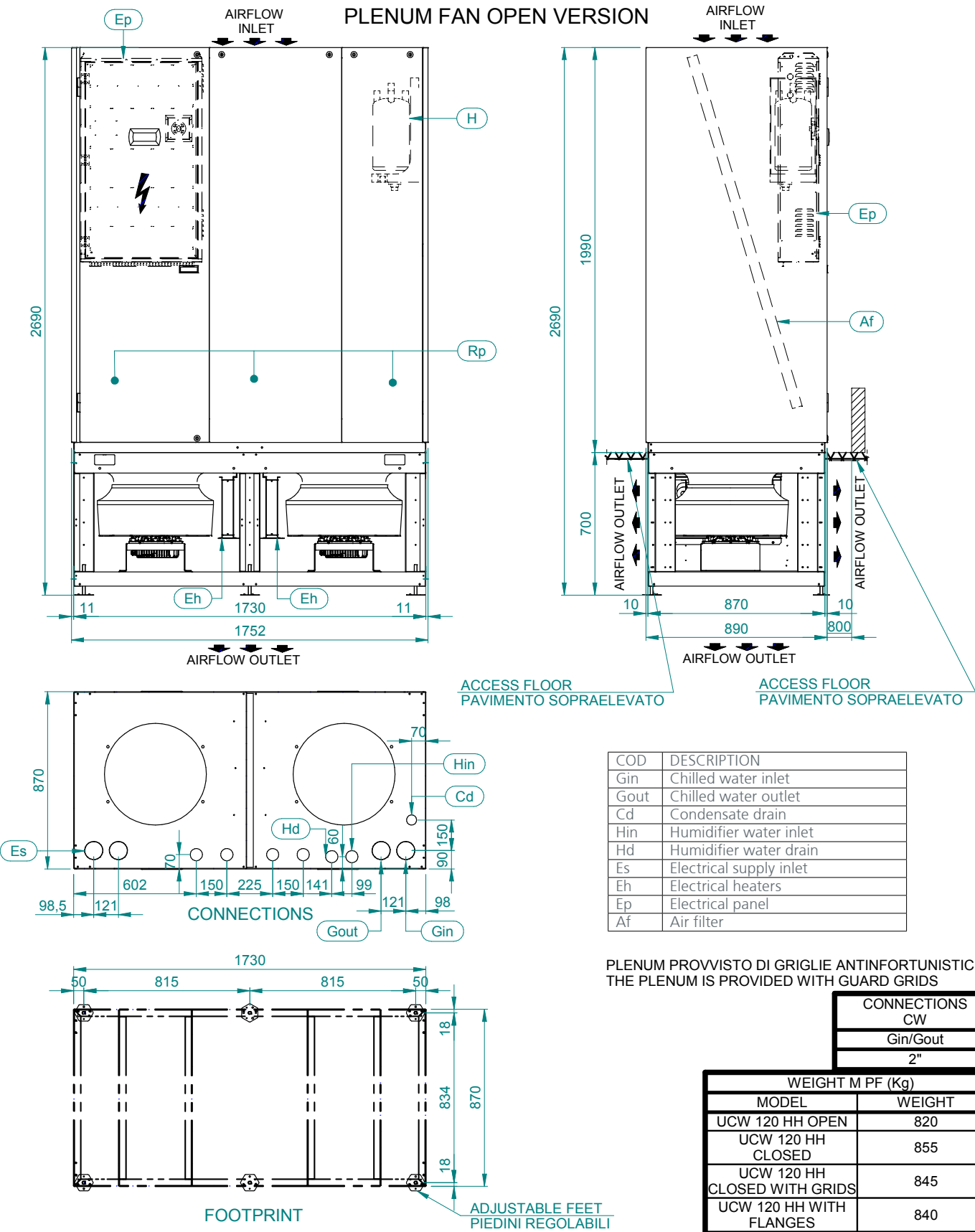
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PLENUM FAN FLANGES VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 120

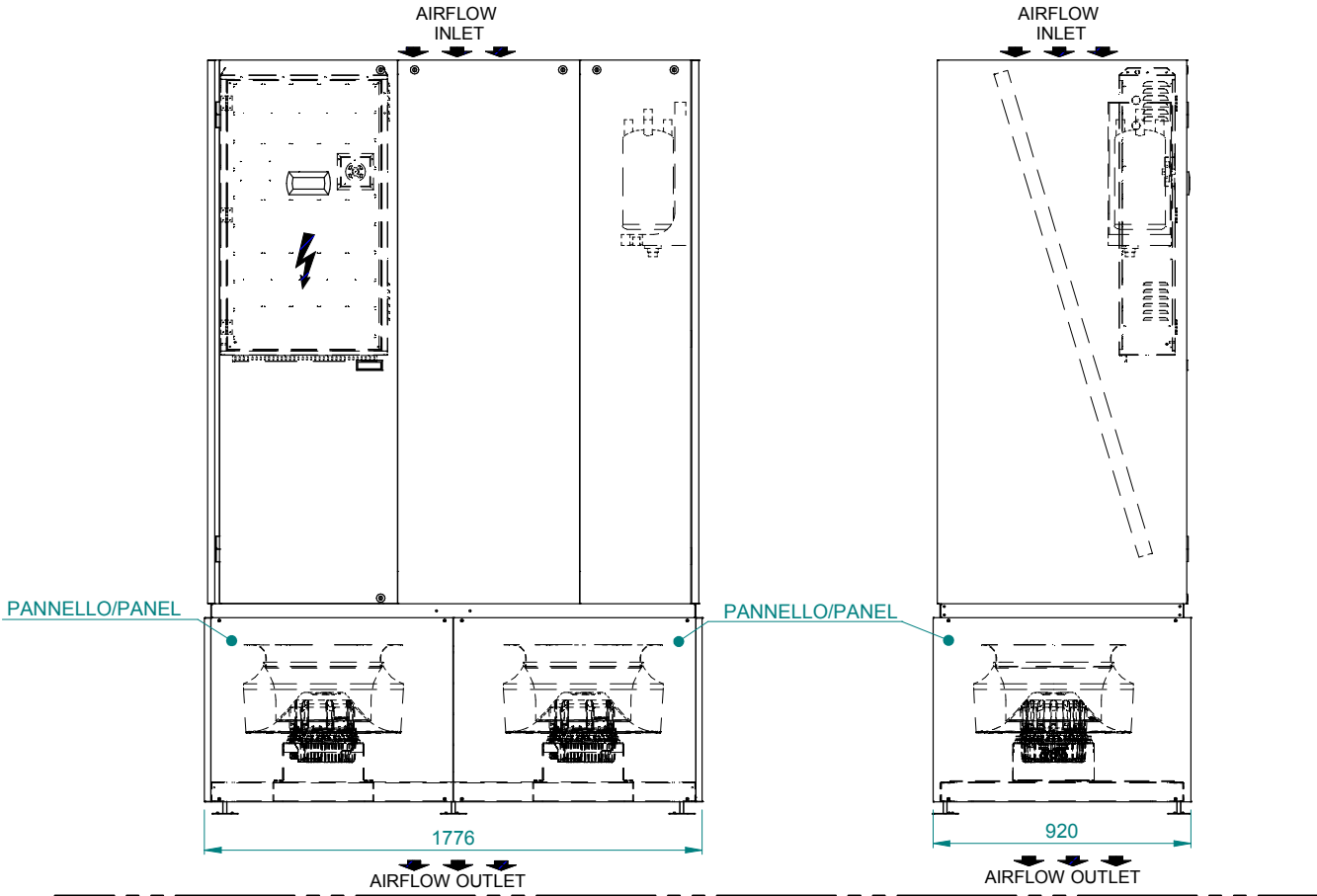
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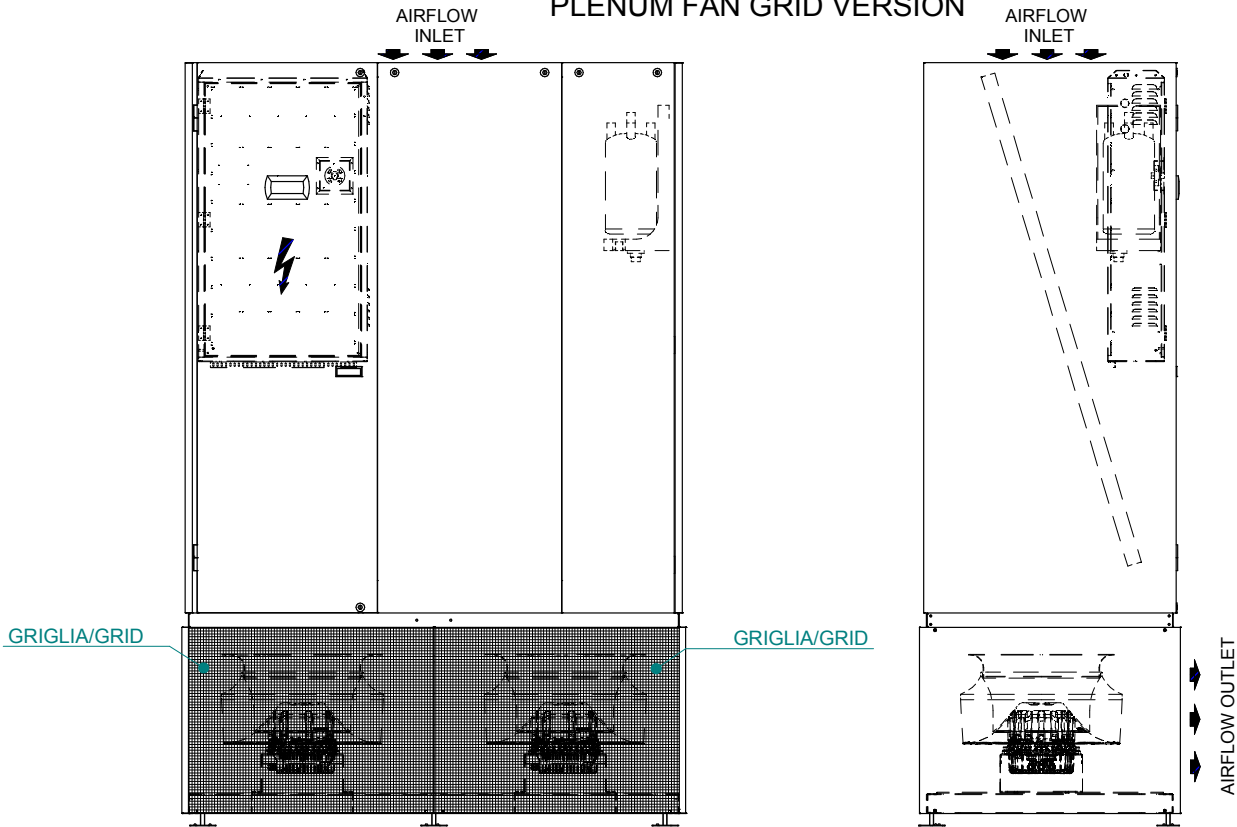
DIMENSIONAL DIAGRAMS
DATATECH PFW 120

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PLENUM FAN CLOSED VERSION



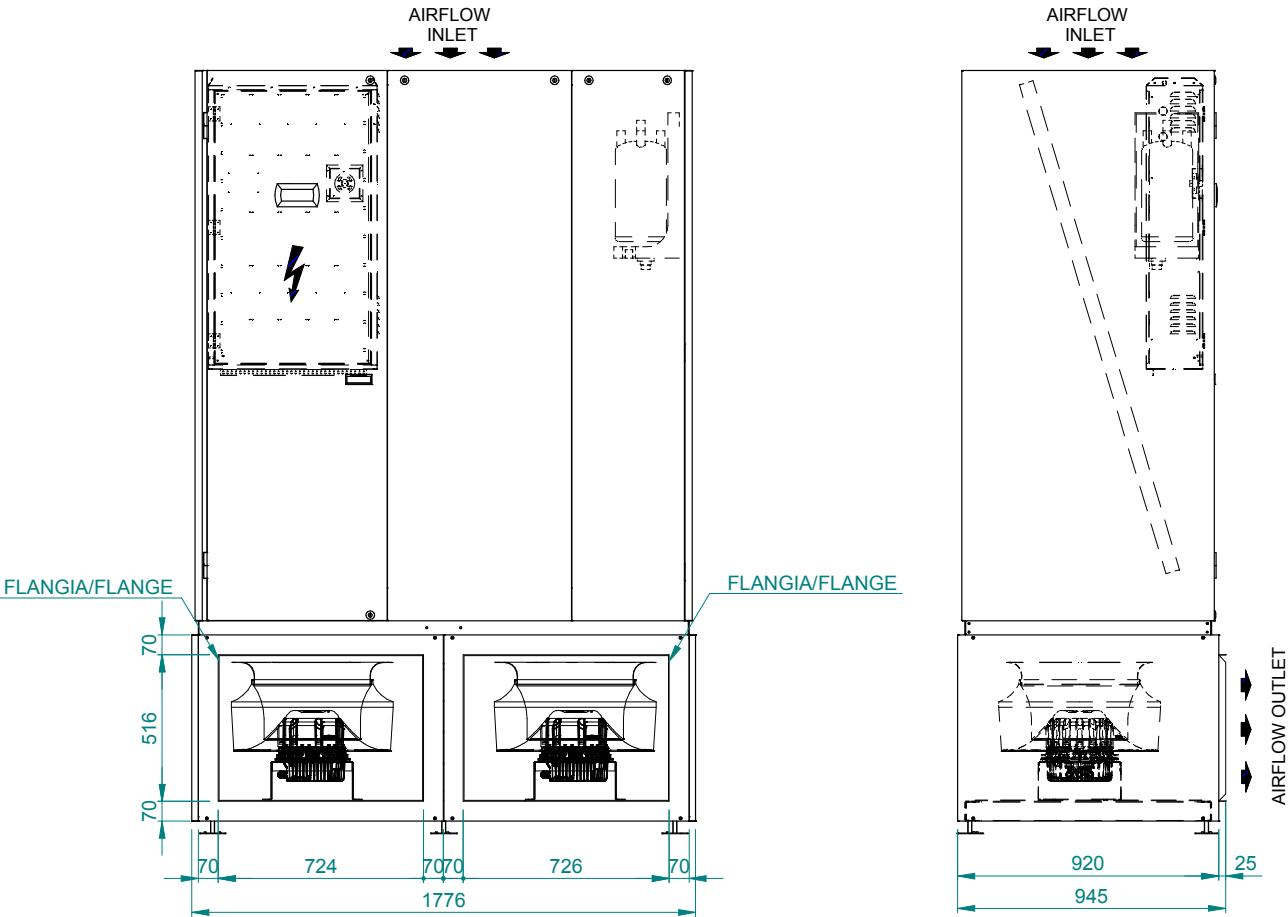
PLENUM FAN GRID VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 120

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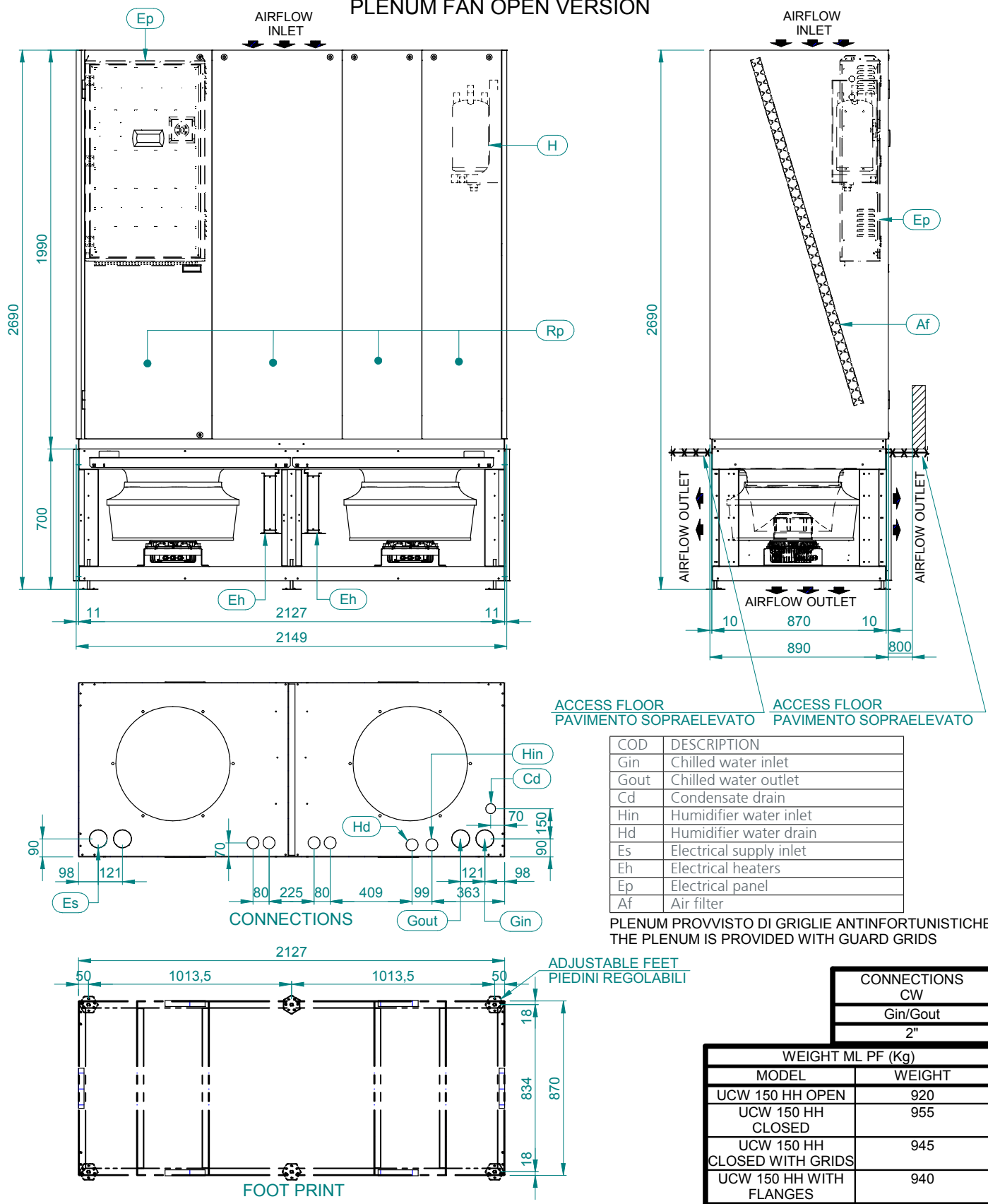
PLENUM FAN FLANGES VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 150

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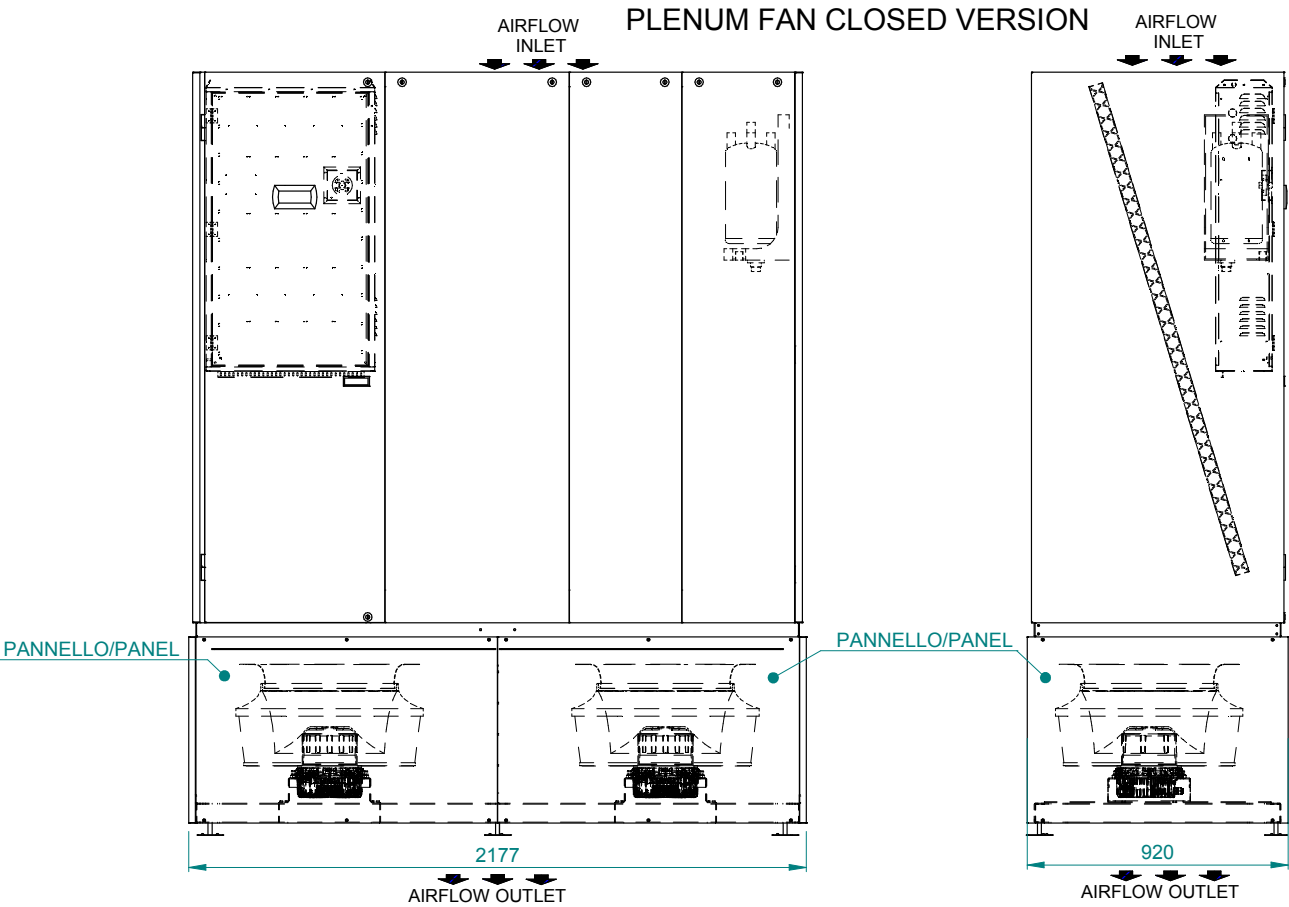
PLENUM FAN OPEN VERSION



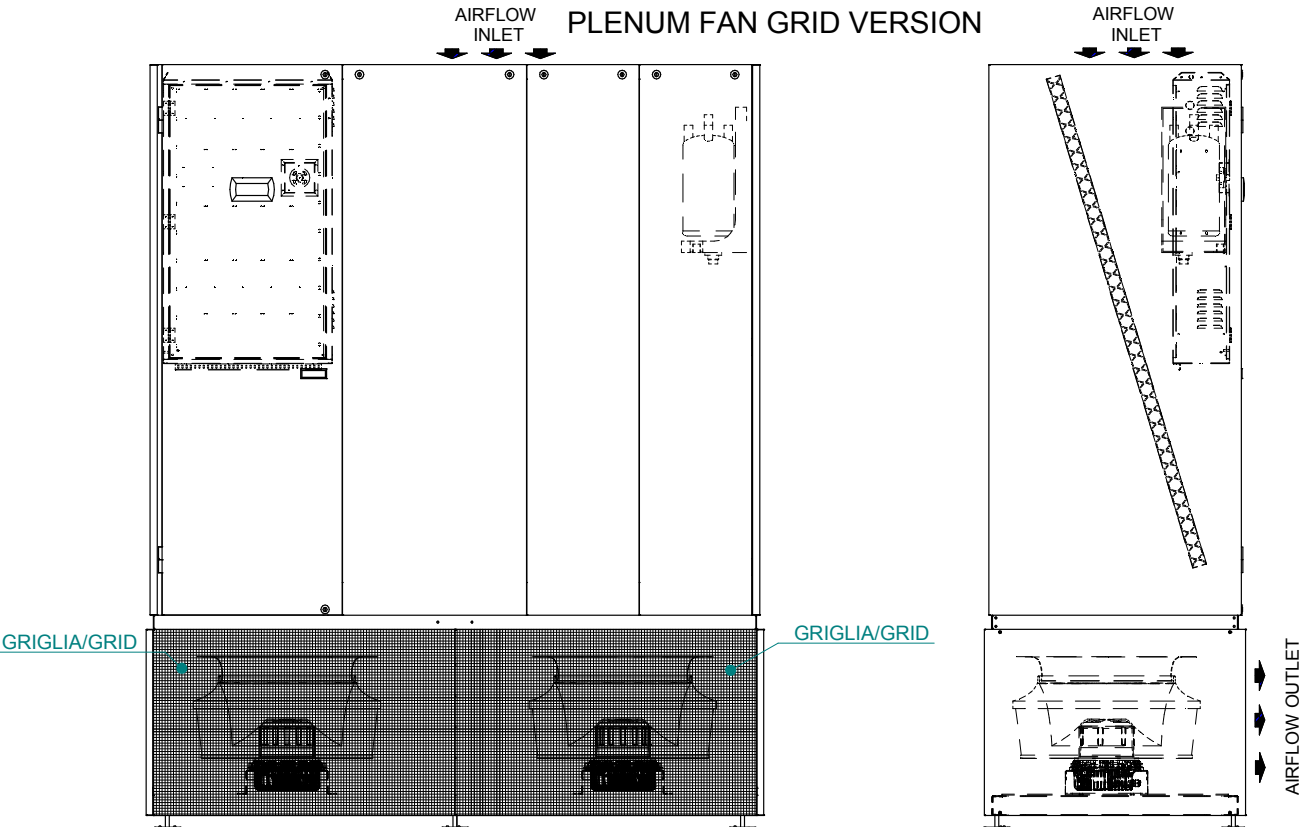
DIMENSIONAL DIAGRAMS
DATATECH PFW 150

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PLENUM FAN CLOSED VERSION



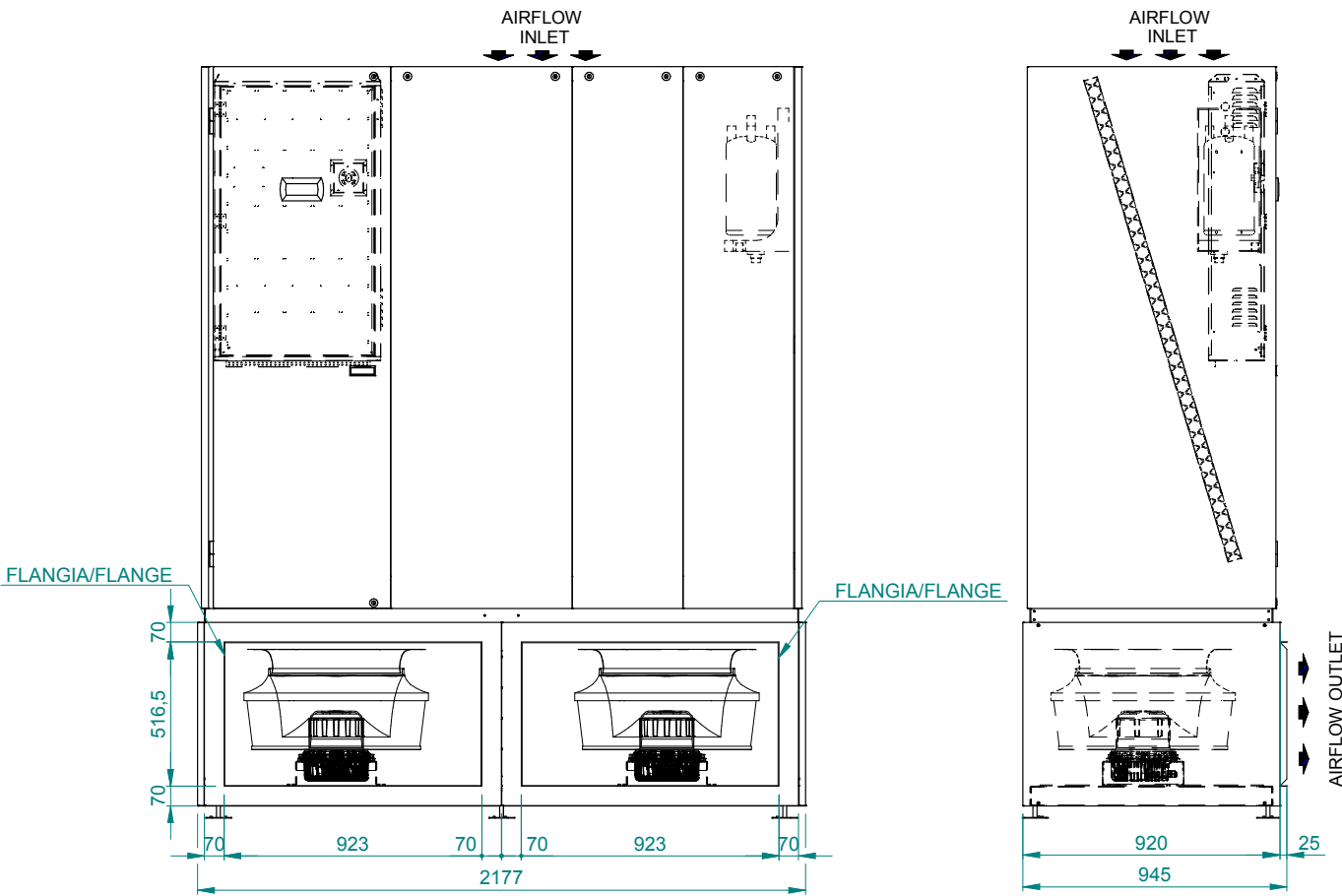
PLENUM FAN GRID VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 150

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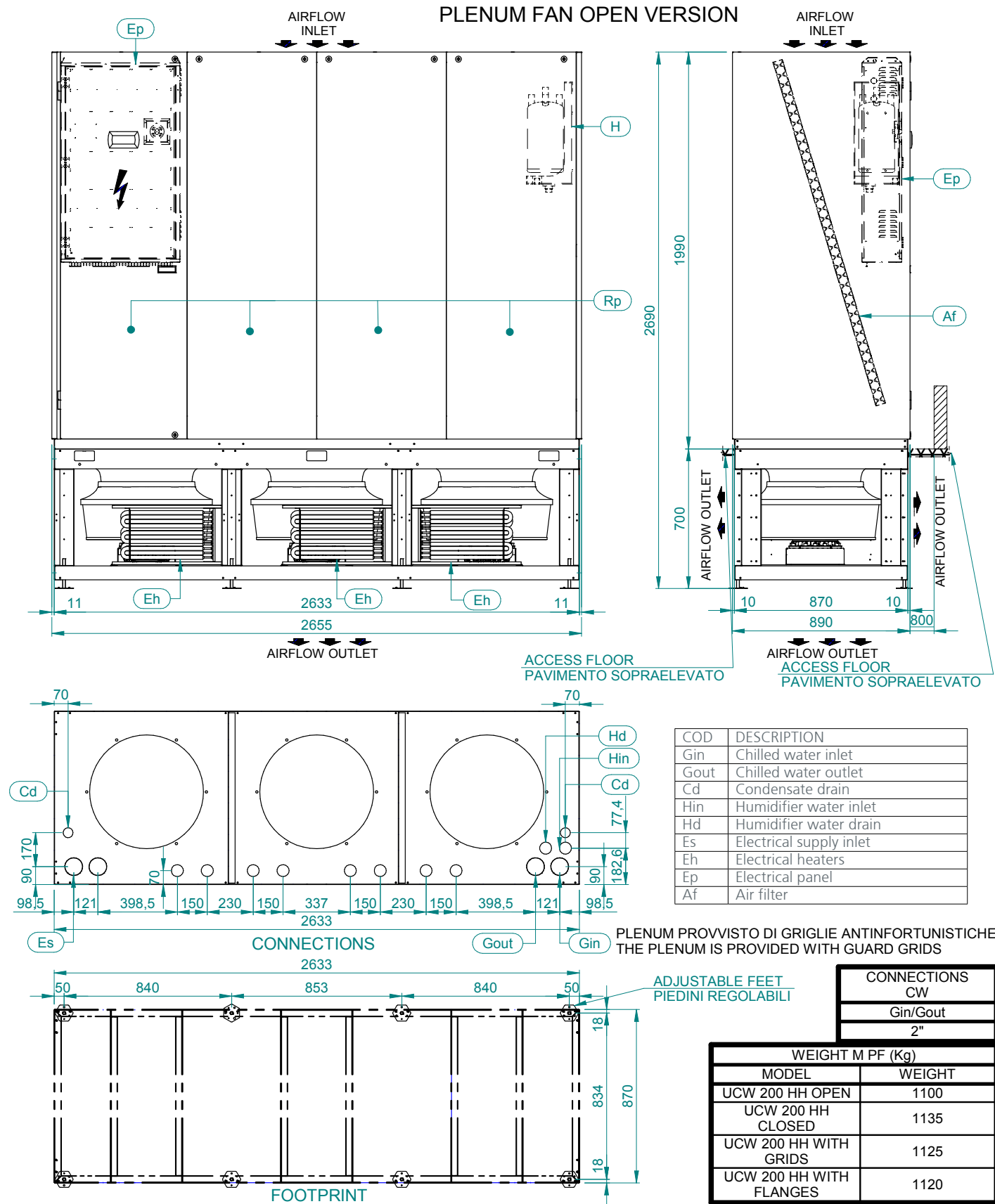
PLENUM FAN FLANGES VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 200

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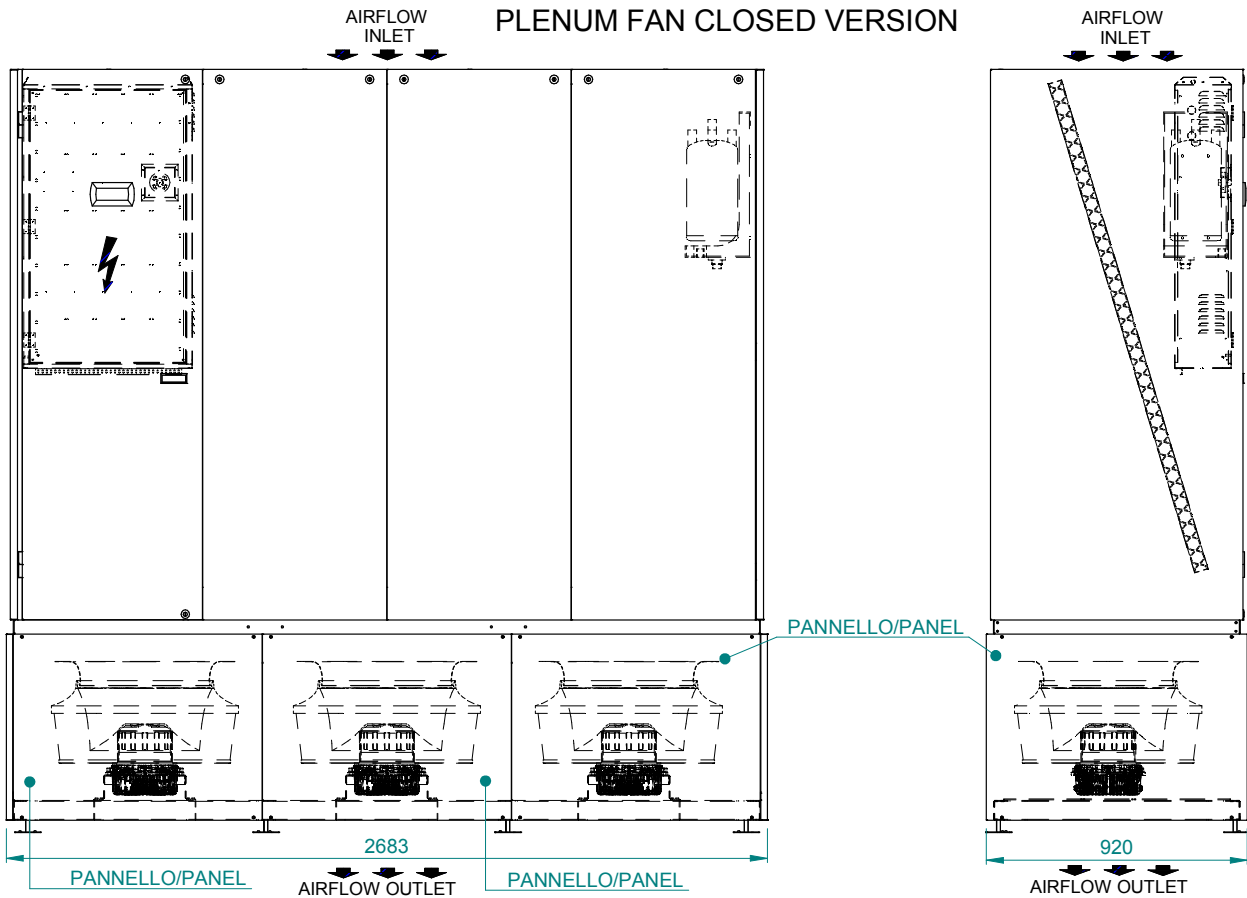
PLENUM FAN OPEN VERSION



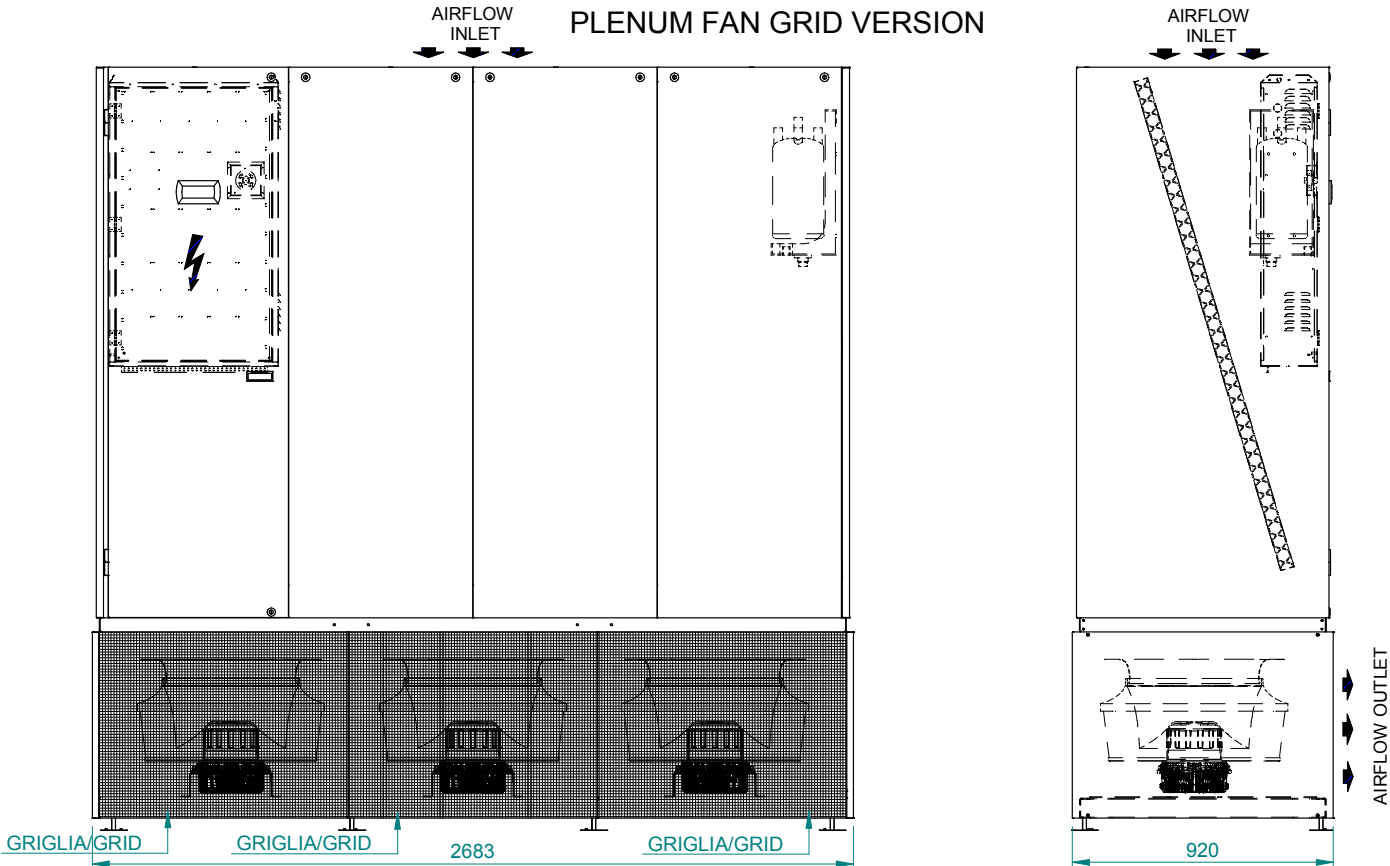
DIMENSIONAL DIAGRAMS
DATATECH PFW 200

A4F925-A

PLENUM FAN CLOSED VERSION



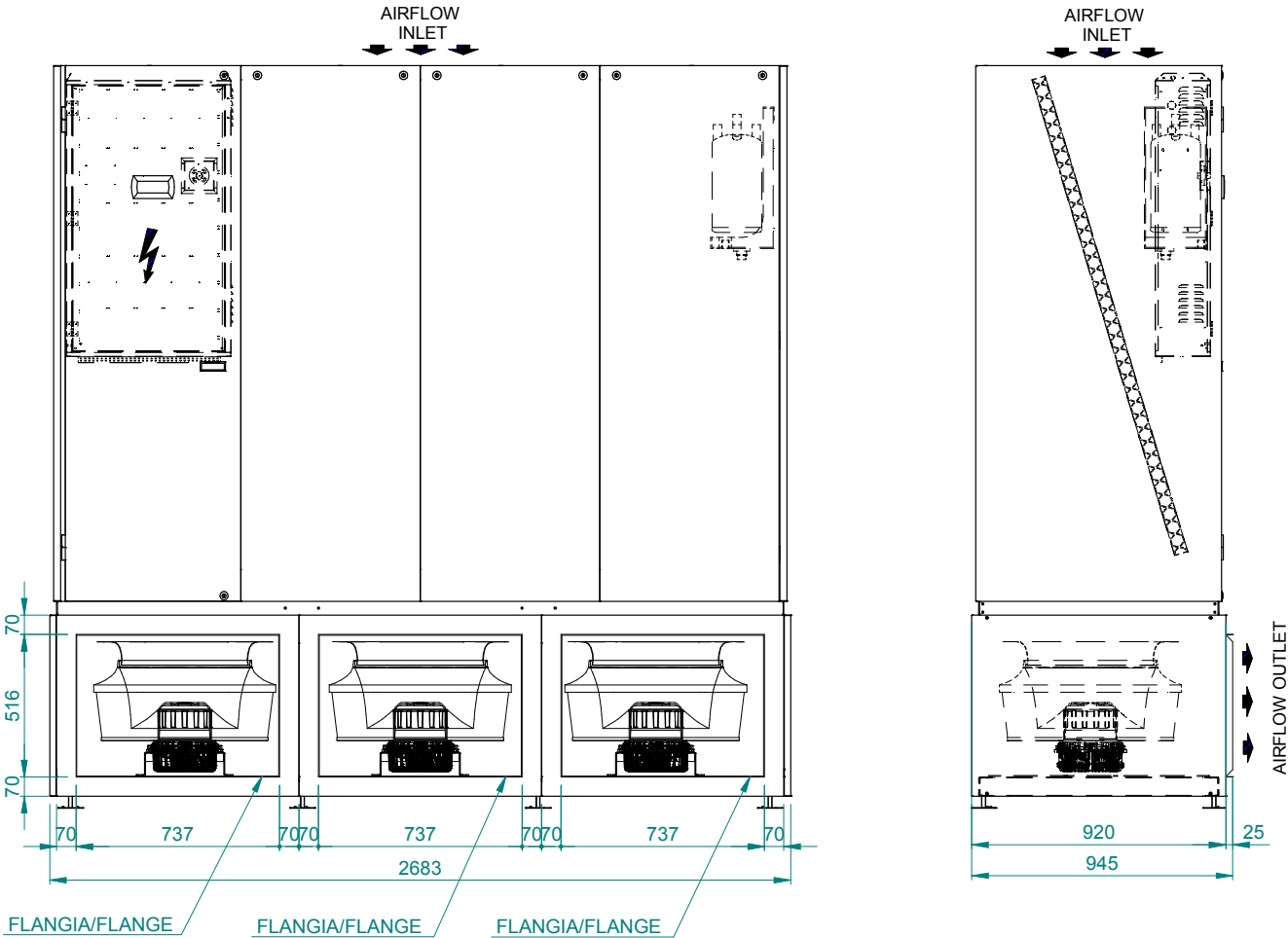
PLENUM FAN GRID VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 200

A4F925-A

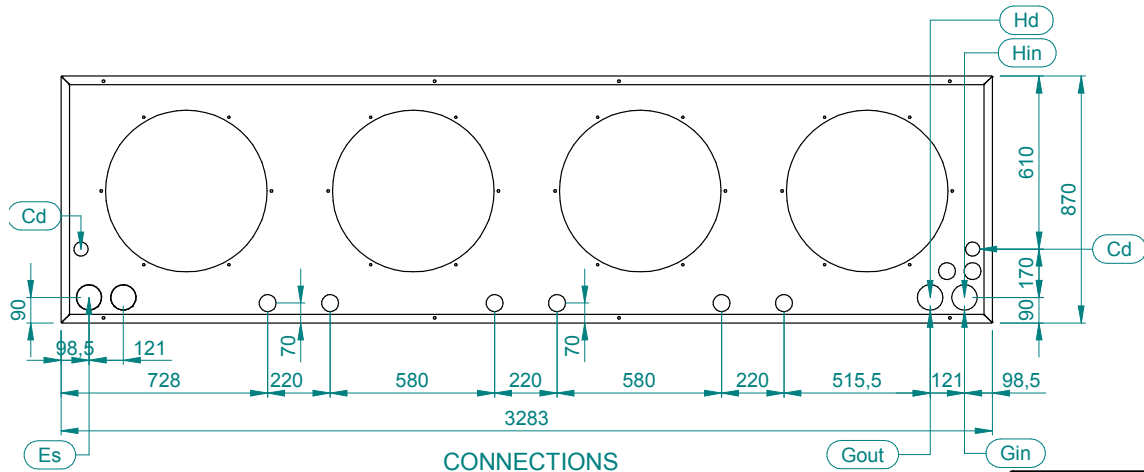
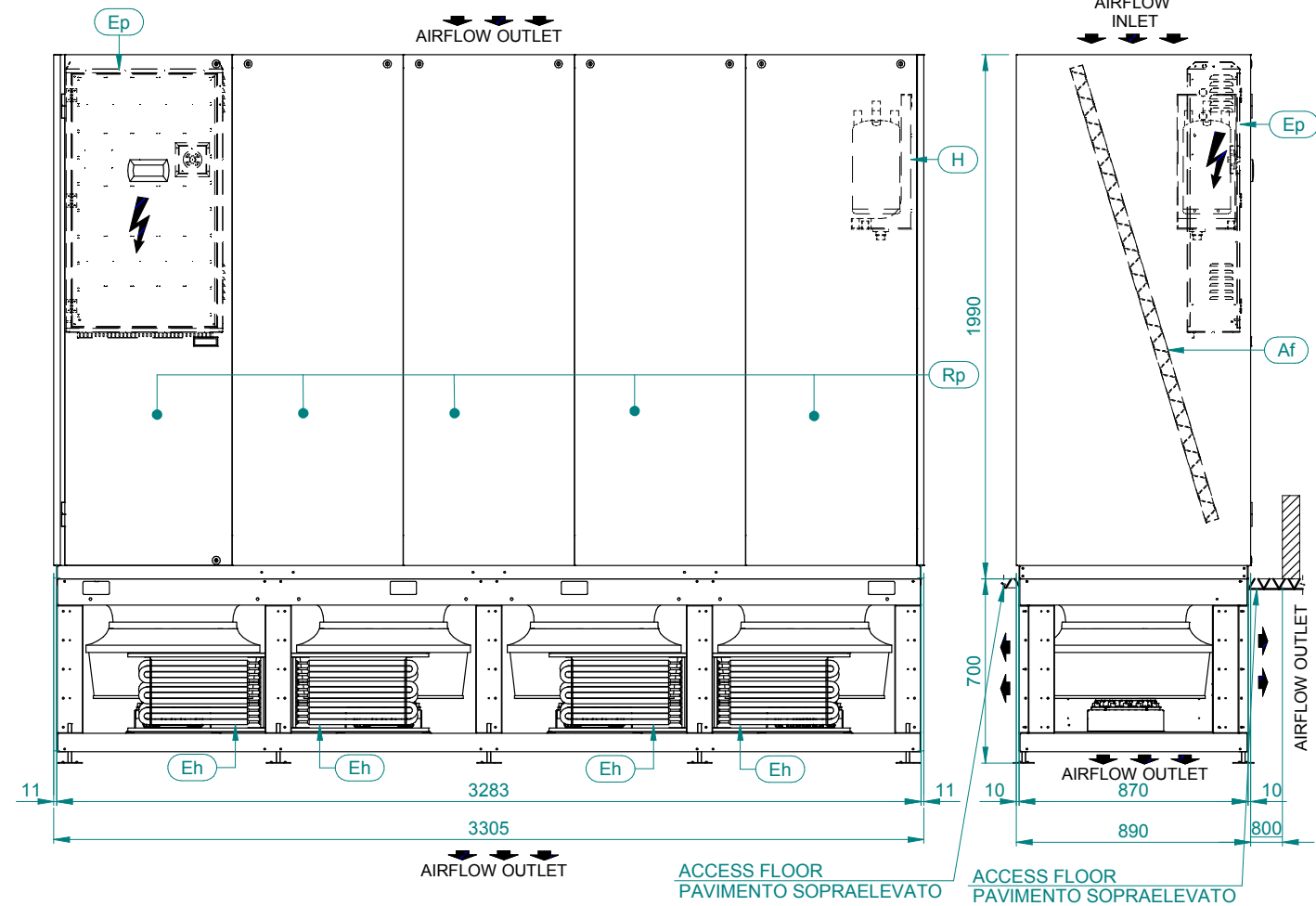
PLENUM FAN FLANGES VERSION



DIMENSIONAL DIAGRAMS
DATATECH PFW 260

A4E618-B

PLENUM FAN OPEN VERSION



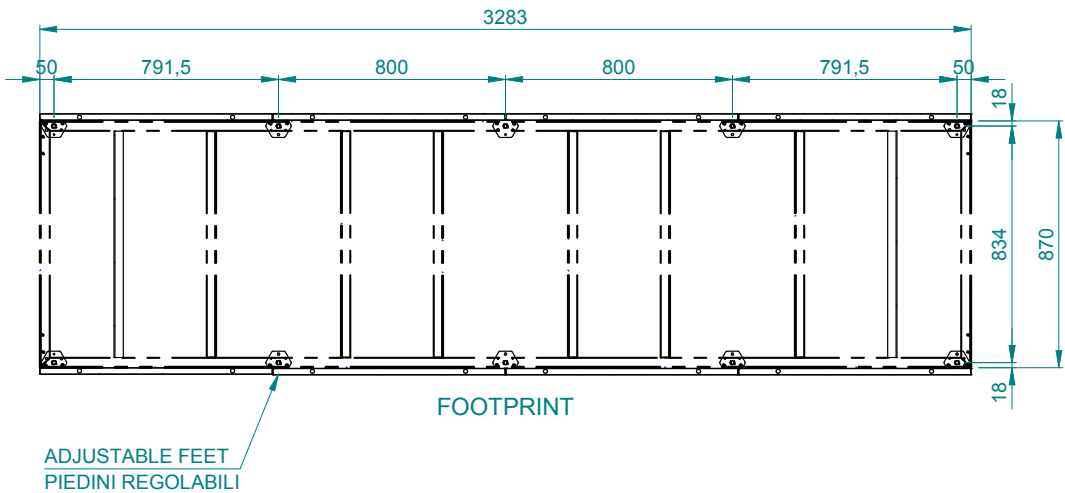
COD	DESCRIPTION
Gin	Chilled water inlet
Gout	Chilled water outlet
Cd	Condensate drain
Hin	Humidifier water inlet
Hd	Humidifier water drain
Es	Electrical supply inlet
Eh	Electrical heaters
Ep	Electrical panel
Af	Air filter

PLENUM PROVISTO DI GRIGLIE ANTINFORTUNISTICHE
THE PLENUM IS PROVIDED WITH GUARD GRIDS

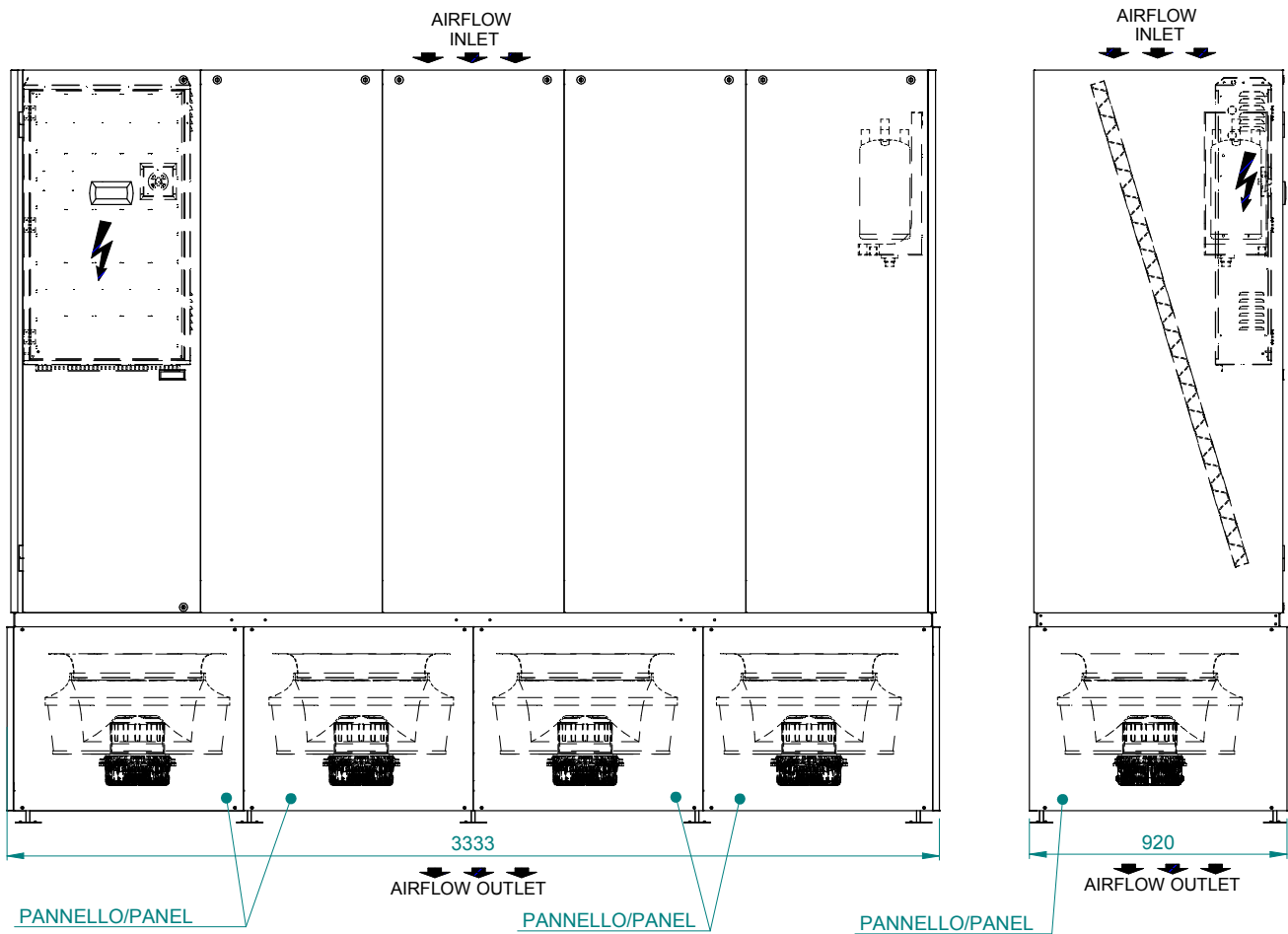
CONNECTIONS PFW	
Gin/Gout	
2"	
WEIGHT M PF (Kg)	
MODEL	WEIGHT
PFW 260 HH OPEN	1300
PFW 260 HH CLOSED	1335
PFW 260 HH WITH GRIDS	1325
PFW 260 HH WITH FLANGES	1320

DIMENSIONAL DIAGRAMS
DATATECH PFW 260

A4E618-B



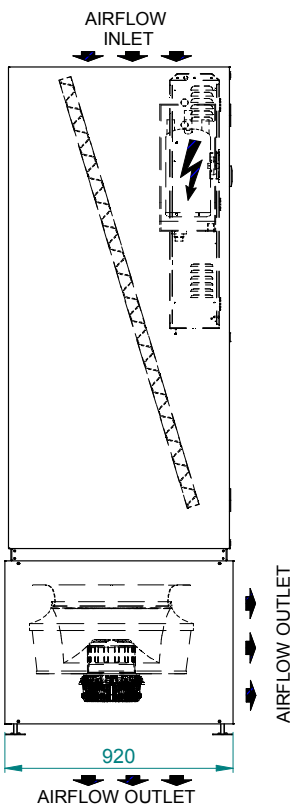
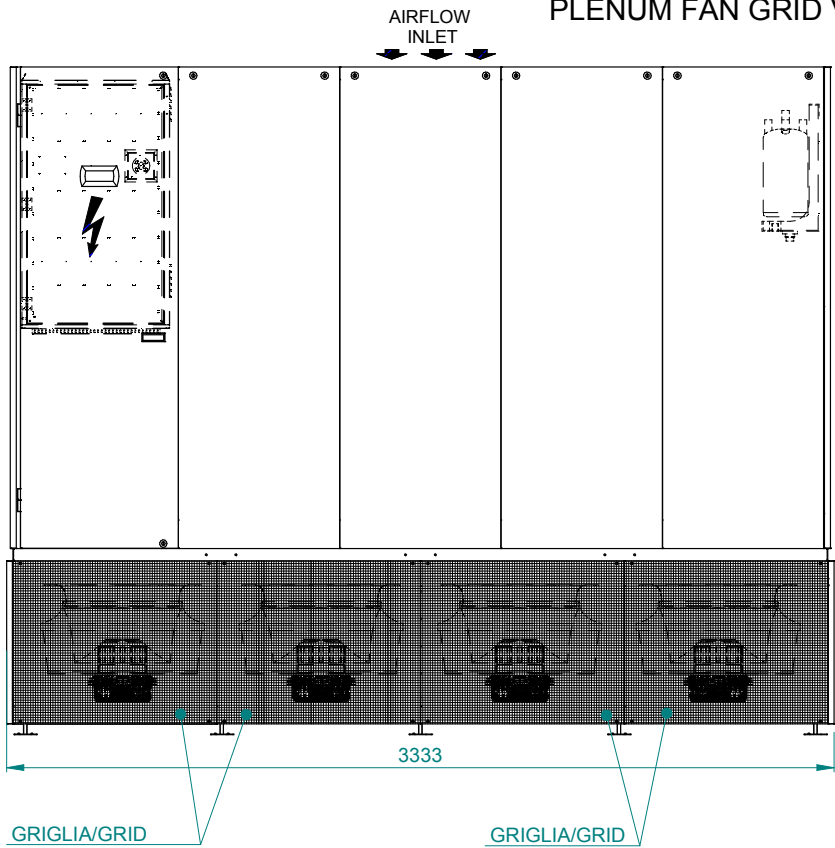
PLENUM FAN CLOSED VERSION



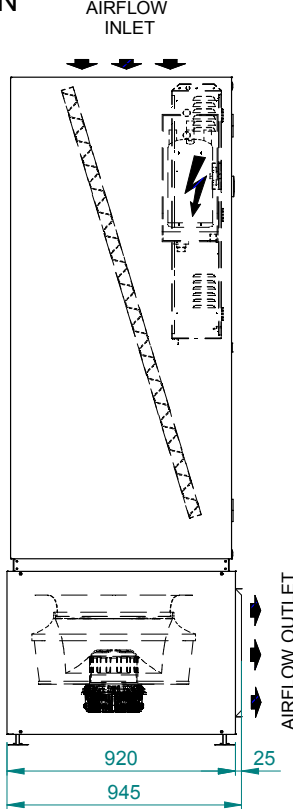
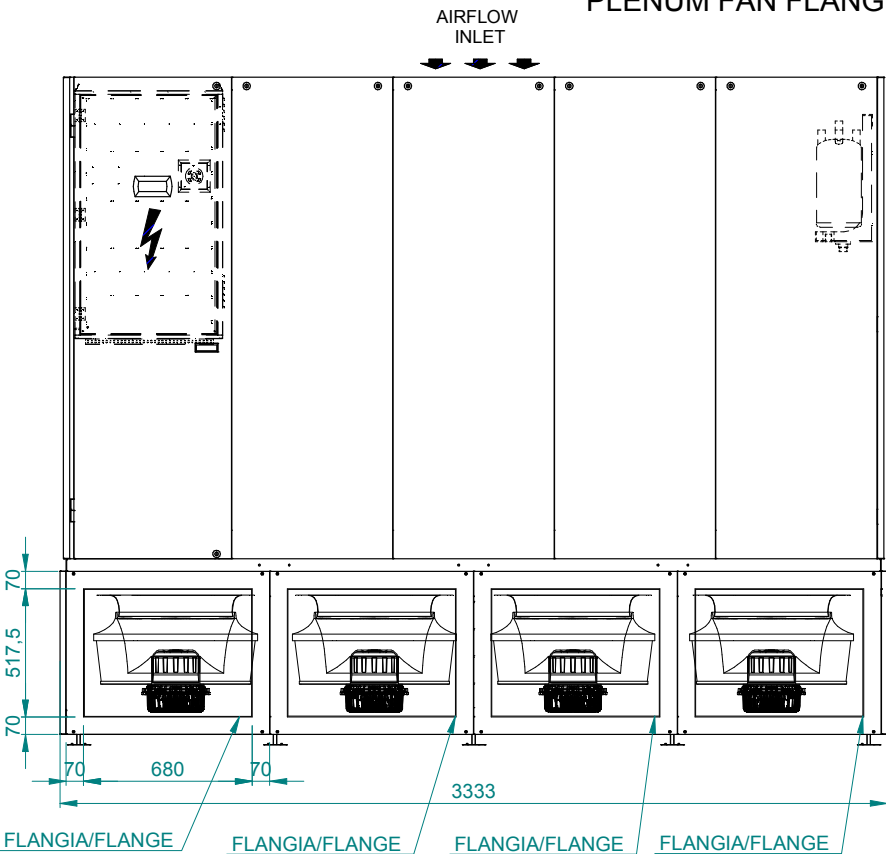
DIMENSIONAL DIAGRAMS
DATATECH PFW 260

A4E618-B

PLENUM FAN GRID VERSION



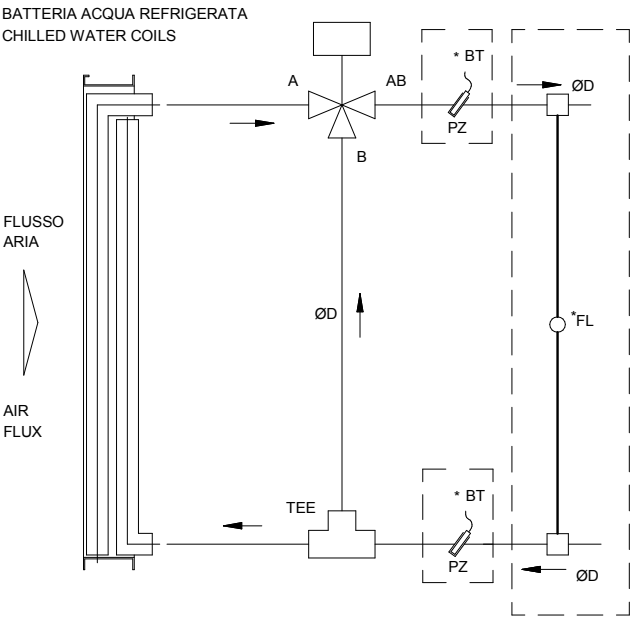
PLENUM FAN FLANGES VERSION



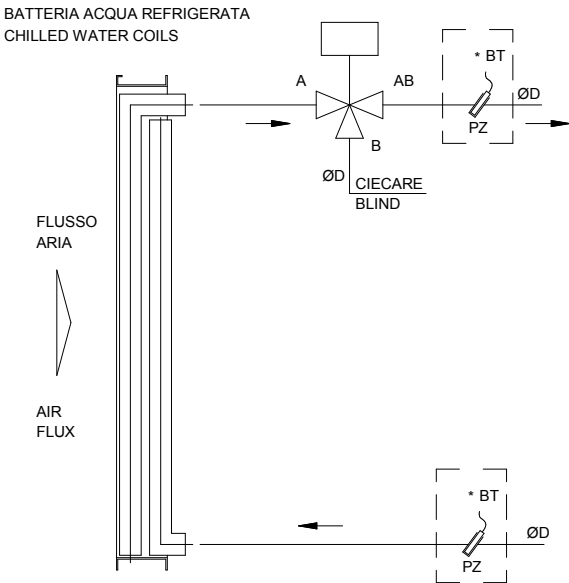
HYDRAULIC CIRCUIT DIAGRAM
DATATECH PFW

A4G112-A

SCHEMA CON RICHIESTA VALVOLA A TRE VIE
THREE WAYS VALVE DIAGRAM



SCHEMA CON RICHIESTA VALVOLA A DUE VIE
TWO WAYS VALVE DIAGRAM



	70	90	120	150	200	260
D	42	54	70	70	70	80
CONNESSIONI/CONNECTIONS	1"1/2F	2"F	2"1/2F	2"1/2F	2"1/2F	3"F

* OPZIONE/OPTIONAL
FL - FLUSSOSTATO(PRESSOSTATO DIFFERENZIALE) - FLOW SWITCH(DIFFERENTIAL PRESSURE SWITCH)
BT - Sonda TEMPERATURA / TEMPERATURE PROBE

