R410A refrigerant
Flexible configurations, suitable for renovation projects
Quiet operation
Plug fan with motor EC HEE (option)

Cooling capacity: 93 to 281 kW
Heating capacity: 99 to 293 kW

Cooling only | Cooling and heating | Heat recovery | Air filtration | Free cooling | Dehumidification | Motor

DESCRIPTION

SPACE PF Roof Top units are compact, horizontal and autonomous air-to-air packaged units, designed for outdoor installation.

They are equipped with centrifugal and propeller fans, air coils, hermetic scroll compressors and an electronic microprocessor control, with components optimised to run with R410A refrigerant.

These units are designed for air conditioning large commercial or industrial premises. They can be quickly installed and function reliably. The broad range of options means that most operating requirements can be met.

Each unit is tested and trialled in the factory.

SERIES

SPACE RPF series

Compact, horizontal air-to-air roof top refrigeration units.

SPACE IPF series

Compact, horizontal, reversible air-to-air roof top heat pumps.

RANGE

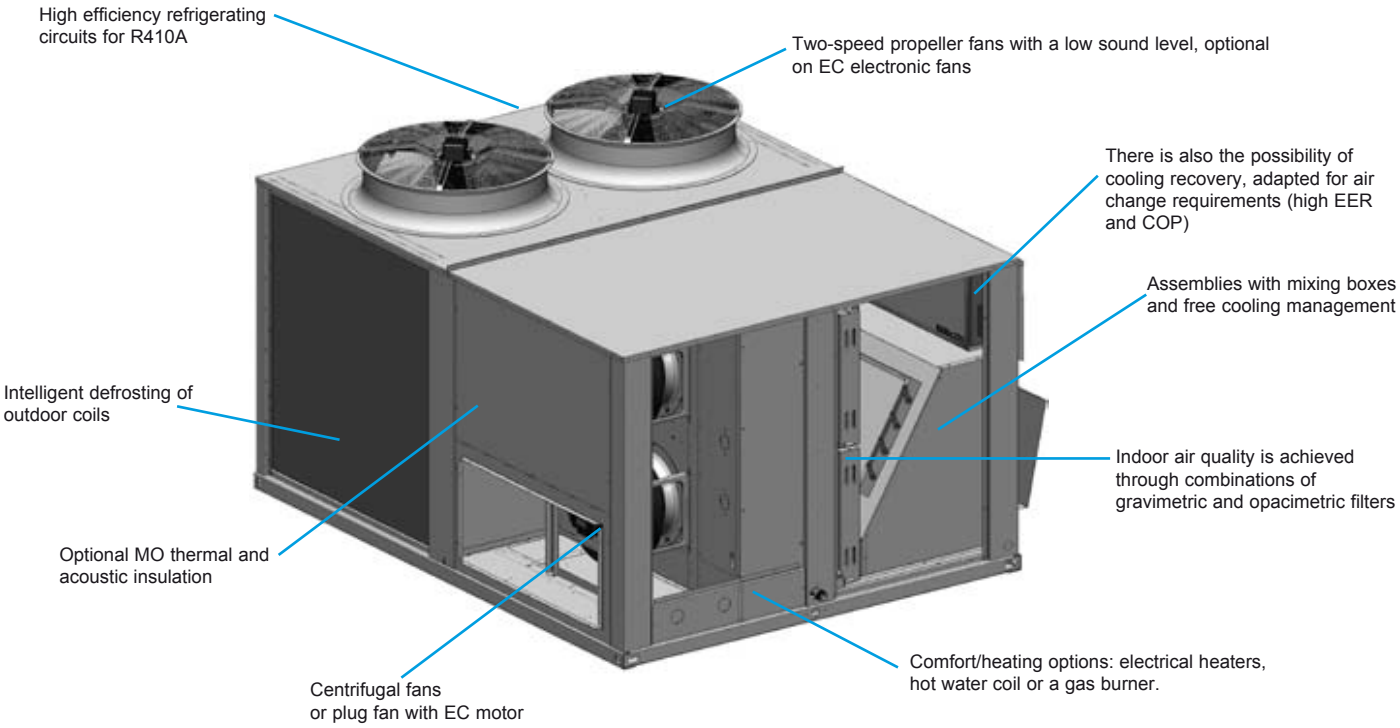
- RPF-IPF series: 2 refrigerating circuits, 2 compressors: 6 models: 415 / 420 / 480 / 485 / 540 / 600
- RPF-IPF series: 2 refrigerating circuits, 4 compressors, 2 models: 650 / 720
- RPF-IPF series: 4 refrigerating circuits, 4 compressors, 4 models: 840 / 960 / 1100 / 1200.

OPERATING LIMITS

Air intake conditions		Cooling mode	Heating mode
Indoor coil	Minimum	14°C WB	10°C
	Maximum	22°C WB	27°C
Outdoor coil	Minimum	12°C ①	-12°C WB ②
	Maximum	48°C	15°C WB

① With condensation pressure monitoring activated, operation down to -10°C.
② If the outdoor temperature is periodically less than 5°C WB, it is recommended that an auxiliary heater is installed.

SPACE PF 415 - 1200



UNIT COMPONENTS

Casing

- Casing made of galvanised sheet steel panels with polyester paint in RAL 7035 white, for optimum protection to increase service life. Thermal insulation (9 mm thick), with M1 fire classification as standard.
- Free-standing frame and access panels for the electrical cabinet, compressors, fans, etc.

Outdoor circuit

- Two-speed propeller fans with direct coupling to the motor, self-regulating to reduce noise levels and consumption. Class F sealed motor, IP54 with internal heat protection. Dynamically-balanced propellers and external protective grille.
- Coil comprising copper tubing and aluminium blades.

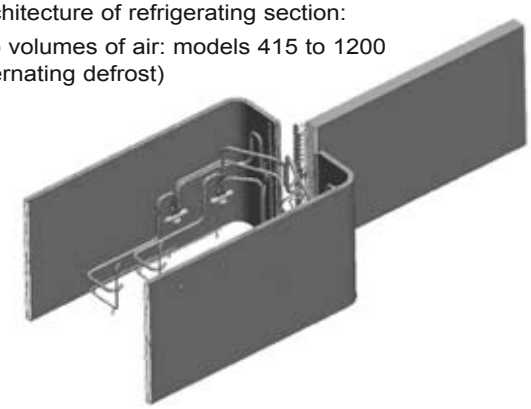
Indoor circuit

- Centrifugal belt- and pulley-driven fan. Electric motor with tensioner, class F, IP55 and internal heat protection. One, two or three dual-inlet impellers, with forward-curved blades on the wheel. Maintenance-free, lubricated ball socket.
- Reusable air filters, mounted on a frame.
- Coil comprising copper tubing and aluminium blades.
- Condensate drain pan.
- Thermostatic expansion valve with external equaliser.

Refrigerating circuit

- Hermetic scroll compressor(s), with acoustic insulation, fixed on anti-vibration mounts. Direction of rotation and phase balance control.
- Crankcase heater.
- Four-way reversal valve(s) (heat pump units).
- Acid-resistant dryer filter(s).
- Architecture of refrigerating section:

• Two volumes of air: models 415 to 1200 (alternating defrost)



Protections

- High and low pressure switches.
- Control of the compressor discharge temperature.
- Check valve integrated into the compressor discharge.
- Main door switch.
- Thermal-magnetic protection for the compressor and fan motor supply line.
- Automatic control circuit switch.

Electrical cabinet

- Complete electrical cabinet, fully wired. Insulated vertical unit cover to prevent condensation. IP55 protection.
- Mechanical ventilation managed from the electrical cabinet to control the temperature and protect the components.
- Transformer for power supply without neutral.
- Main earth connection.
- Compressor and fan motor switches.

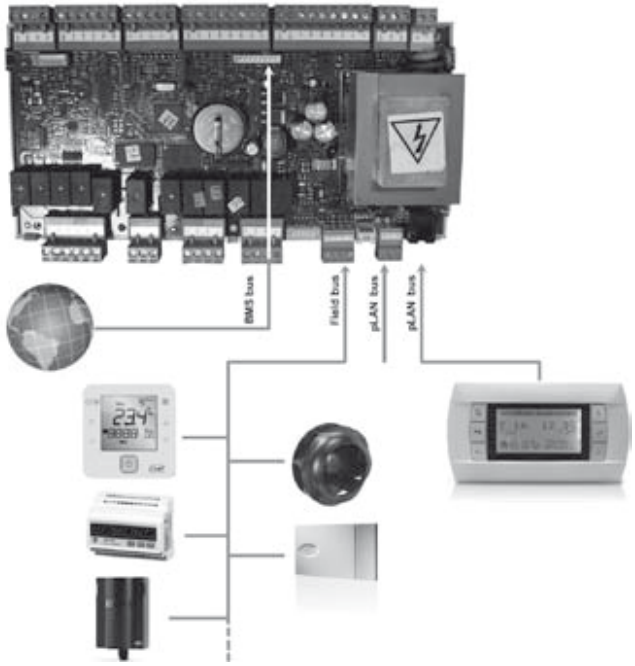
CIATrtc electronic control

The CIATrtc control consists of a µPC MEDIUM control board, a pGD1 terminal (room control console), for maintenance and system start-up, and sensors.

The control board uses an RS485 field-bus to manage additional components.

A communication card (optional) can be used to connect the control board to a centralised management system (CMS).

It also manages a local connection between units on a pLAN (µPC MEDIUM Local Area Network), enabling data and information to be exchanged between the units, up to a maximum of 15 units.



Main functions:

- Selection of the operating mode: COOLING/HEATING.
- Selection of the setpoint.
- Continuous monitoring of operating parameters.
- Display of values measured by the sensors.
- Compressor time delays.
- Defrost management (on heat pump units).
- All-season operation using evaporation and condensation pressure monitoring as standard.
- Control of the supply air temperature.
- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly time schedule.
- Fire protection.
- Diagnostic of faults and general alarms.

Optional functions:

This control is used to manage additional components, such as:

- EC electronic outdoor fans with variable speed control.
- EC supply air and return air plug fans with CAV or VAV control.
- External air damper for renewing the fresh air, based on the mixing air temperature (constant) or the air quality sensor (variable).
- Mixing box for thermal, enthalpic or thermo-enthalpic free cooling.
- Refrigerating recovery circuit for renewing the air.
- On/off rotary heat exchanger.
- Auxiliary electric heater: two stages with on/off control, or one stage with proportional control.
- Auxiliary hot water coil with 3-way valve with proportional control.
- Gas burner with proportional control.
- Humidifier with proportional on/off control.
- Air flow rate controller (for centrifugal fans).
- Filter fouling level detector.
- Smoke detection unit.
- Refrigerant leak detector.
- Air quality sensor for measuring CO_2 and volatile organic compounds (VOCs).
- Electrical energy meter.

pGD1 standard local maintenance terminal (local control console):

The terminal installed in the box is used to:

- Carry out initial programming of the unit for system start-up.
- Modify the operating parameters.
- Select the operating mode.
- Adjust the setpoints.
- Display controlled variables and sensor values.
- Display alarms on the screen.

The terminal can be directly connected and operated up to 50 m away using a phone cable. For greater distances, please consult the options.

Simplified TCO user terminal (local control console) in place of the pGD1 (optional):

The TCO terminal installed in the electrics box is used to:

- Switch the installation on/off.
- Adjust the setpoint.
- Select the HEATING/COOLING operating mode.
- Display the installation's temperatures and humidity, the outdoor temperature, supply air temperature, CO_2 sensor and opening of the external air damper.
- Display alarm codes.

SPACE PF 415 - 1200

Options

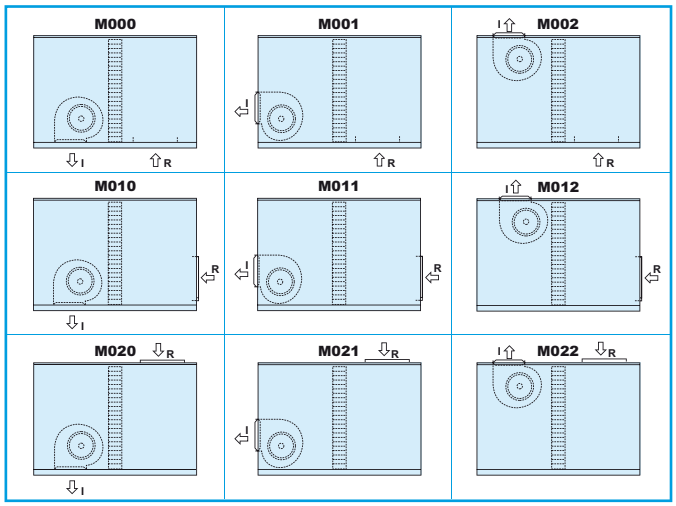
Configuration options

(Depending on the circulation of the indoor air; cross-section view)

Assembly	Key
Mwxy └ Supply air (0: standard, 1: option, 2: option) └ Return air (0: standard, 1: option, 2: option) └ Type of assembly	I = Supply air R = Return air N = Fresh air intake E = Air extraction

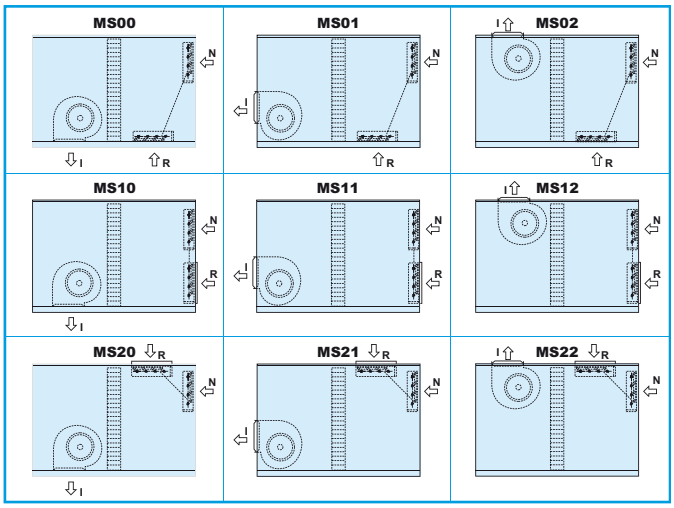
All recirculated air standard assembly

■ **M0 assemblies**: Change in air handling circuit return air position and/or supply air position.

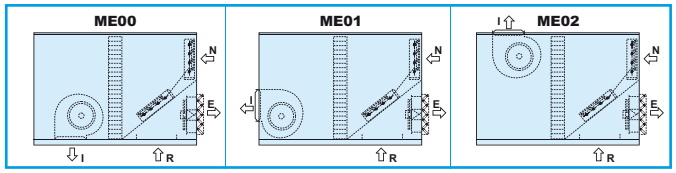


Assemblies with free cooling and mixing box

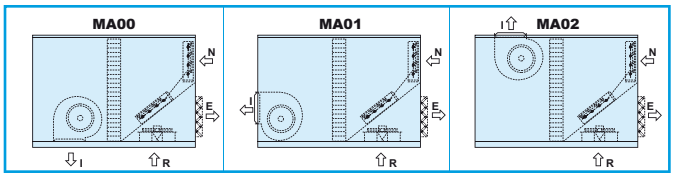
■ **MS assemblies:** External air intake with damper, combined with the return air damper (2-way mixing box).



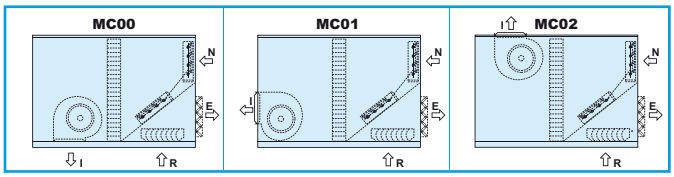
■ **ME assemblies:** Propeller air extraction fan (3-way mixing box).



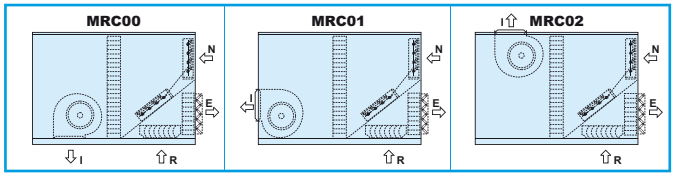
■ **MA assemblies:** Lower return air propeller fan (3-way mixing box).



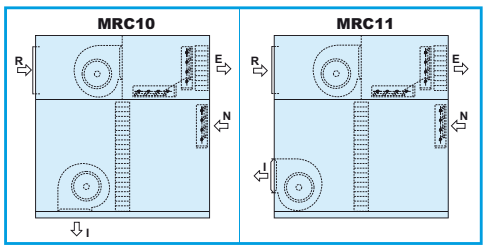
■ **MC0 assemblies:** EC lower return air plug fan (3-way mixing box).



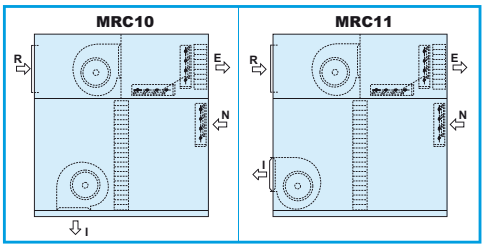
■ **MRC0 assemblies:** EC lower return air plug fan (3-way mixing box) + refrigerating recovery circuit



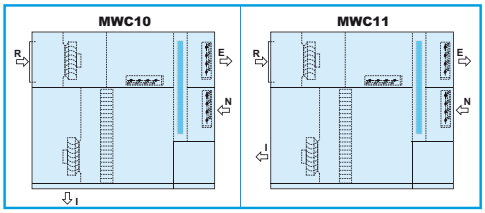
■ **MC1 assemblies:** EC centrifugal return air fan or plug fan in the upper box (3-way mixing box).



■ **MRC1 assemblies:** EC centrifugal return air fan or plug fan in the upper box (three-way mixing box) + refrigerating recovery circuit.



■ **MWC1 assemblies** (models 415 to 960): EC return air plug fan in the upper box (three-way mixing box) + rotary heat exchanger, EC supply air plug fan.



All of the MO, MS, MA, MC and MRC assemblies can be made available with a centrifugal fan or EC plug fan EC or supply air fan.

Options for outdoor environments

Temperature

- Thermal and acoustic insulation (50 mm thick), with Euroclass A2-s1, d0 (MO) fire classification.

Casing losses:

Conditions	Winter	
Indoor	**20ºC**	**50% RH**
Outdoor	**-20ºC**	**94% RH**
9 mm NBR (std)	1790 W	2.0% HC
50 mm mineral wool	437 W	0.4% HC

Conditions	Summer	
Indoor	**27ºC**	**50% RH**
Outdoor	**35ºC**	**40% RH**
9 mm NBR (std)	615 W	1.00% HC
50 mm mineral wool	151 W	0.24% HC

- Electrical heater for protecting the components of the electrical cabinet. Compulsory if the outdoor temperature is below -8ºC WB. For temperatures below -16ºC WB, a reinforced heater will be compulsory.
- Compressor with low temperature protection (additional crankcase heater): compulsory if the outdoor temperature is below -8ºC WB.
- Dampers with spring to ensure automatic closure if there is a power supply failure.
- Electrical heater for antifreeze protection of the mixing box dampers: compulsory if the outdoor temperature is below -12ºC WB.
- Hot water coil circuit with antifreeze protection depending on the water temperature: compulsory if the outdoor temperature is below -20ºC WB (includes one accelerator pump).

Corrosion

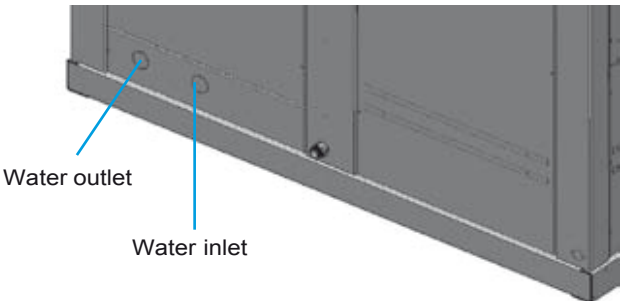
- Coils (outdoor, indoor and/or auxiliary) with copper tubes and copper blades.
- INERA® coils (outdoor, indoor and/or auxiliary) with copper tubes and aluminium alloy blades, exclusive to CIAT, offering high efficiency and exceptional resistance to corrosion.
- Coils (outdoor, indoor and/or auxiliary) with copper tubes and aluminium blades, with polyurethane coating or a coil completely protected by Blygold.
- Stainless steel condensate drain pan for the indoor circuit.

Humidity

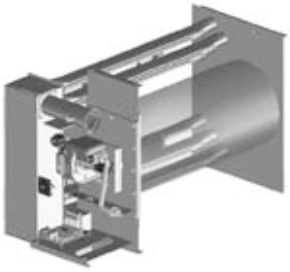
- Droplet eliminator on the indoor air coil (optional on models 415 to 960, and included on models 1100 and 1200). Recommended if high levels of air humidity are expected or when the air flow speed is high.
- Droplet eliminator on the outdoor air intake.
- Tropicalised electrical cabinet.
- Tropicalised fans and motors (please contact us).

Comfort/heating options

- Auxiliary hot water coil with a three-way valve. With this option, the unit still includes a basic antifreeze thermostat as a backup.



- Auxiliary electrical heaters. The air flow rate controller differential pressure switch is included with this option. If the unit incorporates an EC supply air plug fan, the air flow is controlled directly through the plug fan.
- Propane or natural gas burner with modulating actuator, except on models 415 and 480. Available for all assembly versions, except upper and lower supply air. A differential pressure switch is included with this option to control the air flow which stops the burner in the event of a fault. It is recommended that the differential pressure switch is used to detect fouled filters.



For units with a gas burner and EC supply air plug fan, the air flow is controlled directly on the plug fan.

Comfort/indoor air quality options

- Rechargeable G4 gravimetric filter.
- Low pressure drop G4 gravimetric filter.
- G4 gravimetric filters + folded F6 to F9 opacimetric filters.
- Low pressure drop G4 filters + low pressure drop folded F7 to F9 opacimetric filters.
- Dual-stage folded opacimetric filters (F+F standard or F+F low pressure drop); please consult us.
- Room air quality sensor, used to measure CO_2 and/or volatile organic compounds (VOCs). Return on investment in under 1 year.

SPACE PF 415 - 1200

Energy saving options

Tandem compressors

- Improves the management of stages, comfort and the unit's energy efficiency under partial loads (models 415 to 600). Tandem models 650 and 720 included as standard. Reduction in defrosting cycles.

EC electronic propeller fans on the outdoor circuit

- Adapt their rotation speed to the installation's requirement, thereby reducing consumption of electricity and the sound level at partial load, and improving the unit's average seasonal efficiency.

Plug fans with EC motor

- Variable speed EC return and/or supply air plug fans (refer to the dimensional drawings with this option).

EXCEEDS ErP 2015

In installations in the tertiary sector, the energy used by fans to transport air forms a high percentage of the annual air conditioning consumption. Using fans which are more efficient has a direct impact on reducing consumption. EC plug fans with direct drive and variable speed offer the following advantages:

- Elimination of friction losses during transmission thanks to the direct drive, with no belts requiring maintenance.
- Greater aeraulic efficiency of the fans (reactive blades with an optimised profile), running at very high operating pressures.
- Greatly increased motor efficiency. Permanent magnet EC motors activated using electronic switching integrated into the motor itself (improvement on the IE3 motor).
- Variable speed to ensure a constant supply air flow rate, independent of the filter fouling level and which is able to adapt to pressure drops in the network.
- Electronic variable speed control with very low consumption compared to a conventional frequency inverter. The motor remains highly efficient at both high and low air flow rates.
- Air flow measured using a calibrated section at the fan intake and a differential pressure sensor enabling the control to process the flow rate reliably and accurately both in CAV and VAV systems.
- The soft start of the fan is adapted for textile ducts and limits the starting current.
- With constant air volume, management of 3 different setpoints for flow rate (hot, cold, neutral).
- With variable air volume and with the tandem option, there is a reduction in air flow at partial load.

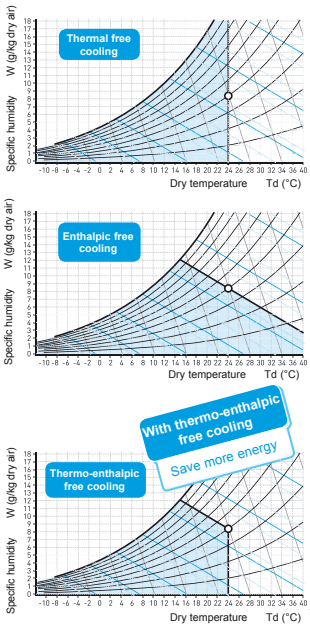
Free cooling management

Running the unit in free cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced.

The percentage of outdoor air can vary between 0% and 100%.

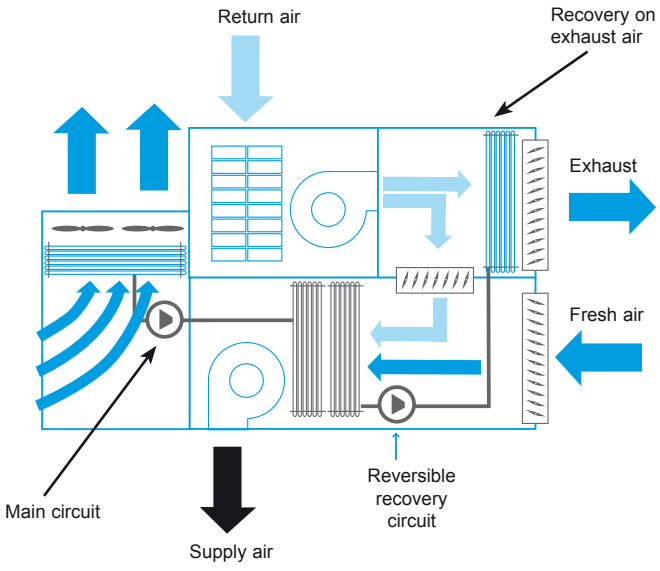
Three options are available for free cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies.
- Thermo-enthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



Active thermodynamic recovery

- A dedicated thermodynamic circuit for recovery, with independent control, adapted for air change requirements to improve the COP and EER of the whole unit.
- Centrifugal fan or EC plug fan (MRC0 or MRC1 assemblies).
- Air circuit composed of coils with copper tubing and aluminium blades.
- Thermostatic expansion valve with external equaliser.
- Hermetic scroll compressor with acoustic insulation, fitted on anti-vibration mounts.
- Crankcase heater.
- Four-way reversal valve (heat pump units).
- Acid-resistant dehumidifier filter.
- Condensate drain pan.



Rotary passive recovery

- Rotary heat exchanger in a module integrated into the machine, with EC return and supply air plug fans (MWC1 assembly). Available on models 415 to 960.
- This heat recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it is discharged outdoors. This option reduces the compressor runtime, ensuring energy savings and benefiting the environment.

Installation options

- High capacity supply air and return air fan available.
- Overpressure control for MC0 and MC1 assemblies.
- Condensate drain pan for the outdoor circuit made from galvanised steel (consult the dimensional drawing). This option is not available on models 415 to 1200 if they are to be transported by sea in a shipping container.

- Protective grille for the outdoor coil.
- Hail guard protective grille for the outdoor coil.
- Quarter-turn compression bolt on the access panels for the filters and/or fans.
- Hinges + quarter-turn compression bolts on the access panels for the filters and/or fans.
- Pre-assembled standardised frames made from galvanised sheet steel with thermal insulation. Adjustable height.
- Adaptation frames for the replacement of existing units (please consult us).
- Rubber anti-vibration mounts.

Safety options

- Soft start for the centrifugal supply air and/or return air fan, increasing the warm-up time, mainly intended for installations with textile ducts. Compulsory with motors of 15 kW and above.
- Differential pressure switch to detect fouled filters.
- Differential pressure switch for checking the air flow.
- Smoke detection unit compliant with the NF S 61-961 standard.
- Refrigerant leak detector with measuring sensor.

Packaging options

- SEI4C seaworthy packaging.
- Skids for transport in a closed container (except for MC1 and MRC1 assemblies).

Service options

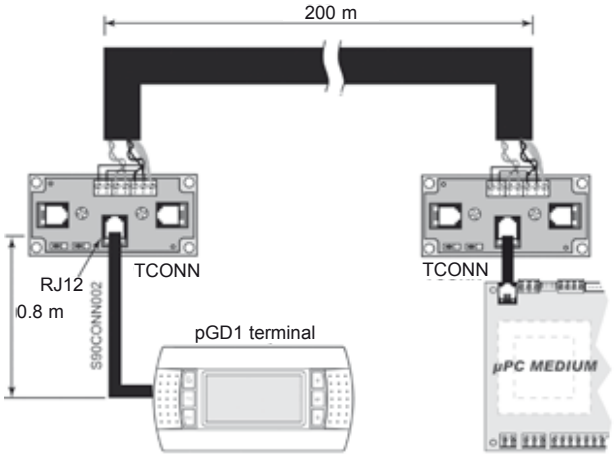
- System start-up and 1-year warranty extension, including parts, labour and movement.
- System start-up and 2-year warranty extension, including parts, labour and movement.

Electrical cabinet options

- Power supply with neutral.
- Marking of the electrical cables.
- Marking of the components in the electrical cabinet.
- Electric energy meter to monitor the installation's electricity consumption.

Control/Communication options

- Local TCO terminal to replace the pGD1 terminal.
- Remote control kit for up to 200 m from the pGD1 terminal (pGD1 terminal + 2 TCONN cards).



- Return and outdoor air relative humidity sensors: required for enthalpic or thermo-enthalpic free cooling.
- Room air temperature sensor: if the unit requires the outdoor air relative humidity sensor (optional), the room sensors cannot be wired to the card (standard), and must instead be connected using a Field-bus.
- Room air enthalpy sensor: required on units with gas burner + enthalpic or thermo-enthalpic free cooling.

Communications

The CIATrtc control allows communication to be established with a centralised management system using a specific CMS card for one of the following communication protocols:

- RS485 serial cards for communication with Carel, ModBus, LonWorks®, BACnetTM MSTP or Konnex protocols.
- The pCO Web Ethernet card for communication using the ModBus TCP/IP, BACnetTM Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP protocols.

SPACE PF 415 - 1200

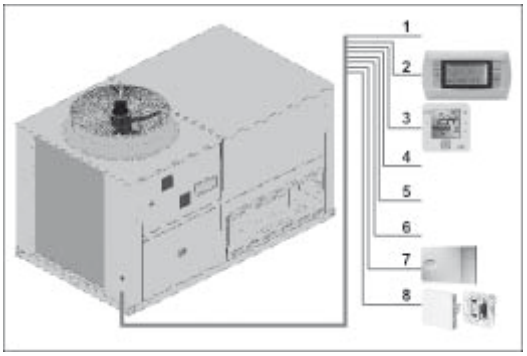
TECHNICAL CHARACTERISTICS

SPACE PF			415	420	480	485	540	600	650	720	840	960	1100	1200
Refrigeration capacities	Cooling capacity ① (kW)		92.0	104.4	108.0	112.6	126.2	137.5	152.1	168.7	199.9	218.9	257.5	280.8
	Power input ③ (kW)		33.8	30.3	38.0	34.5	39.6	45.4	48.2	55.6	66.1	75.6	88.2	99.9
	Energy efficiency rating (EER)		2.7	3.4	2.8	3.3	3.2	3.0	3.2	3.0	3.0	2.9	2.9	2.8
Heating capacities	Heating capacity ② (kW)		98.9	105.1	107.6	114.6	128.7	140.2	158.9	177.1	207.7	230.1	267.6	293.1
	Power input ③ (kW)		28.5	28.3	32.1	32.4	35.5	38.6	43.8	50.0	60.0	67.0	81.9	91.1
	COP		3.5	3.7	3.4	3.5	3.6	3.6	3.6	3.5	3.5	3.4	3.3	3.2
Outdoor circuit fan	Nominal air flow rate (m³/h)		30 000	42 000	30 000	42 000	42 000	42 000	55 000	56 000	75 000	75 000	112 500	112 500
	Available static pressure (mmWC)		4											
	Type		Propeller											
	Number		2				2		4				6	
	Diameter (mm)		2 x 800				2 x 800		2 x 630 + 2 x 800		4 x 800		6 x 800	
	Power (kW)		2 x 2.0 / 1.3				2 x 2.0 / 1.3		2 x 0.7 / 0.4 + 2 x 2.0 / 1.3		4 x 2.0 / 1.3		6 x 2.0 / 1.3	
	Speed (rpm)		895 / 685				895 / 705		875 / 650 895 / 685		895 / 685		895 / 685	
Indoor circuit supply air fan	Nominal air flow rate (m³/h)		18 000	18 000	18 200	18 200	20 400	24 000	27 500	30 000	33 000	37 000	42 000	46 000
	Available static pressure (mmWC)		12.5	12.5	15.0	15.0	15.0	15.0	17.5	17.5	17.5	17.5	17.5	17.5
	Air flow range	min (m³/h)	14 400	14 400	14 560	14 560	16 320	19 200	22 000	24 000	26 400	29 600	33 600	33 600
		max (m³/h)	21 600	21 600	21 600	21 840	24 480	28 800	33 000	36 000	37 000	40 000	46 200	50 600
	Type		Centrifugal											
	Number/Number of impellers		2 / 2								3 / 3		1 / 3	
	Motor output (kW)		2 x 2.2	2 x 1.5	2 x 2.2	2 x 1.5	2 x 2.2	2 x 3	2 x 4	2 x 4	3 x 3	3 x 3	18.5	22
	Power input (kW)		2.72	2.04	2.94	2.18	2.88	4.06	5.15	6.21	5.87	7.49	13.47	16.62
	Speed (rpm)		688	535	717	554	597	639	654	677	677	714	873	916
Compressor	Type		Scroll											
	Number of compressors		2						4					
	Number of stages		2						4					
	Number of circuits		2								4			
	Oil type		Copeland 3MAF (32 cST), Danfoss POE 160SZ, ICI Emkarate RL 32 CF, Mobil EAL Arctic 22CC											
	Oil volume (l)		2 x 6.2	2 x 6.2	2 x 6.2	2 x 6.2	2 x 6.2	2 x 6.2	4 x 3.3	4 x 6.2	4 x 6.2	4 x 6.2	4 x 6.2	4 x 6.2
Electrical specifications	Network voltage		400 V / 3 ph / 50 Hz (±10%)											
	Supply		3 wires + earth											
Maximum input current	Compressor(s) (A)		70.3	70.3	79.6	79.6	91.1	102.6	100.4	122.0	140.6	159.2	182.2	205.2
	Outdoor fan(s) (A)		8.6	8.6	8.6	8.6	8.6	8.6	11.2	11.2	17.2	17.2	25.8	25.8
	Indoor fan (A)		10.0	7.1	10.0	7.1	10.0	13.8	18.0	18.0	20.7	20.7	37.0	42.0
	Control (A)		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	Total (A)		90.7	87.8	100.0	97.1	111.5	126.8	131.4	153.0	180.3	198.9	246.8	274.8
Refrigerant	Type		R410A											
	Global Warming Potential (GWP) ④		2 088											
	Charge (kg)		30.0	30.0	30.0	30.0	34.0	35.0	35.0	41.0	44.0	46.0	57.0	58.0
	Environmental impact (tCO_2eq)		75.2	68.1	76.2	68.9	71.0	73.1	73.1	85.6	91.9	96.0	119.0	121.1
Dimensions	Length (mm)		3 326	4 816	3 326	4 816	4 816	4 816	4 816	4 816	4 816	4 816	6 316	6 316
	Width (mm)		2 205	2 205	2 205	2 205	2 205	2 205	2 205	2 205	2 205	2 205	2 205	2 205
	Height (mm)		2 095	1 795	2 095	1 795	1 795	1 795	2 095	2 095	2 095	2 095	2 095	2 095
Weight	(kg)		1 541	1 788	1 581	1 830	1 879	1 937	2 093	2 152	2 277	2 374	3 022	3 135
Condensate draining diameter			1 1/4" connection											

① Cooling capacity calculated in accordance with the UNE-EN-14511-2011 standard, for indoor temperature conditions of 27ºC, 19ºC WB, and an outdoor temperature of 35ºC.
② Heating capacity calculated in accordance with the UNE-EN-14511-2011 standard, for indoor temperature conditions of 20ºC, and an outdoor temperature of 6ºC WB.
③ Total input power of the compressors and fan motor assemblies under rated conditions, calculated in accordance with the UNE-EN-14511-2011 standard.
④ Global warming potential of one kilogram of a fluorinated greenhouse gas relative to one kilogram of carbon dioxide over a period of 100 years.

ELECTRICAL CONNECTION

No.	SPACE PF		415 to 1200
1	Main power supply	400 3 ph (±10%)	3 + E
2	pGD1 local maintenance terminal connection ①		Standard 6-wire phone cable (RJ12 connector)
3	TCO user terminal connection for remote control (optional) ②		2 wires for the 230 V power supply + 1 shielded cable for AGW20 / 22 type communication (1 twisted pair + continuity wire + mesh)
4	Remote on/off (option)		2 wires
5	General fault signal (option)		2 wires
6	NTC room sensor (standard)		2 wires
7	RS485 room sensor (option)		5 wires
8	Air quality sensor (option)		3 wires



① In this case, the TCO terminal can be installed on the electrical cabinet.
② It is necessary for the terminal to use the same power supply source as the control board.

CHARACTERISTICS FOR TANDEM COMPRESSORS (OPTION)

SPACE PF		415	420	480	485	540	600
Number of compressors		4					
Number of stages		4					
Number of circuits		2					
Oil volume	(l)	4 x 3.3	4 x 3.3	4 x 3.3	4 x 3.3	4 x 3.3	4 x 3.3
Maximum input current	(A)	74.0	74.0	80.4	80.4	92.0	96.2
Additional weight	(kg)	57.0	57.0	40.0	40.0	3.0	-34.0

OPTIONS FOR THE OUTDOOR CIRCUIT

EC propeller fan with variable speed control

SPACE PF		415	420	480	485	540	600	650	720	840	960	1100	1200
Nominal air flow rate	(m^3/h)	42 000	42 000	42 000	42 000	42 000	42 000	55 000	56 000	75 000	75 000	112 500	112 500
Maximum avail. static pressure	(mmWC)	12,5											
Quantity x Diameter	(mm)	2 x 800						2 x 630 + 2 x 800		4 x 800		6 x 800	
Capacity	(kW)	2 x 2.2						2 x 0.9 + 2 x 2.2		4 x 2.2		6 x 2.2	
Maximum speed	(rpm)	980						1 000 / 980		980		980	
Maximum input current	(A)	6.8						10.8		13.6		20.4	

OPTIONS FOR THE INDOOR CIRCUIT

Propeller extraction fan (ME assembly)

SPACE PF		415	420	480	485	540	600	650	720	840	960	1100	1200
Nominal air flow rate	(m^3/h)	9 000	9 000	9 100	9 100	10 200	12 000	13 750	15 000	16 500	18 500	21 000	23 000
Number		2						3				4	
Diameter	(mm)	450											
Supply voltage		230 V/1 ph/50 Hz											
Capacity	(kW)	2 x 0.48						3 x 0.48				4 x 0.48	
Speed	(rpm)	1 350											
Maximum input current	(A)	4.2						6.3				8.4	

Return air propeller fan (MA assembly)

SPACE PF		415	420	480	485	540	600	650	720	840	960	1100	1200
Maximum air flow rate	(m^3/h)	18 000	18 000	18 200	18 200	20 400	24 000	27 500	30 000	30 000	30 000	37 500	37 500
Number		3	4	3	4							5	
Diameter	(mm)	500											
Supply voltage		230 V/1 ph/50 Hz											
Capacity	(kW)	3 x 0.64	4 x 0.64	3 x 0.64	4 x 0.64							5 x 0.64	
Speed	(rpm)	1 270											
Maximum input current	(A)	9.0	12.0	9.0	12.0							15.0	

SPACE PF 415 - 1200

EC supply air plug fan with variable speed control

SPACE PF			415	420	480	485	540	600	650	720	840	960	1100	1200
Rated air flow rate		(m^3/h)	18 000	18 000	18 200	18 200	20 400	24 000	27 500	30 000	33 000	37 000	42 000	46 000
Rated available static pressure		(mmWC)	12.5	12.5	15.0	15.0	15.0	15.0	17.5	17.5	17.5	17.5	17.5	17.5
Standard pressure	Rated power input	(kW)	2.22	2.22	2.46	2.43	3.12	3.72	4.49	5.34	6.03	7.57	10.08	12.44
	Maximum available static pressure	(mmWC)	83.2	83.5	82.2	82.5	73.4	77.5	72.7	63.5	69.2	57.0	89.3	69.6
	Number		3					4			5		4	
	Diameter	(mm)	500					500			500		500	
	Capacity	(kW)	3 x 2.68					4 x 2.68			5 x 2.68		4 x 5.5	
	Speed	(rpm)	3 x 1 700					4 x 1 700			5 x 1 700		4 x 2 200	
	Maximum input current	(A)	12.5					16.7			20.9		33.6	
	Additional weight	(kg)	104.6	80.6	104.6	80.6	67.6	96.2	119.8	111.8	113.4	113.4	-24.2	-24.2
High pressure (option)	Rated power input	(kW)	--				2.92	4.00	4.08	4.81	5.45	6.78	8.95	10.75
	Maximum available static pressure	(mmWC)	--				139.9	127.9	118.7	107.2	123.2	108.3	116.0	102.4
	Number		--				3		3		4		5	
	Diameter	(mm)	--				500		560		560		500	
	Capacity	(kW)	--				3 x 5.5		3 x 4.7		4 x 4.7		5 x 5.5	
	Speed	(rpm)	--				3 x 2 200		3 x 1 750		4 x 1 750		5 x 2 200	
	Maximum input current	(A)	--				25.2		21.9		29.2		42.0	
	Additional weight	(kg)	237.2	213.2	237.2	213.2	200.2	200.2	161.4	153.4	178.4	178.4	16.2	16.2

Centrifugal return air fan (MC1 assembly)

SPACE PF		415	420	480	485	540	600	650	720	840	960	1100	1200
Rated air flow rate	(m^3/h)	18 000	18 000	18 200	18 200	20 400	24 000	27 500	30 000	33 000	37 000	42 000	46 000
Available static pressure	(mmWC)	12.5	12.5	15.0	15.0	15.0	15.0	17.5	17.5	17.5	17.5	17.5	17.5
Rated power input	(kW)	2.50	1.76	2.56	1.80	2.28	3.22	4.32	5.25	4.10	5.14	10.05	13.05
Number/Number of impellers		2 / 2								3 / 3		1 / 3	
Capacity	(kW)	2 x 1.5	2 x 1.1	2 x 2.2	2 x 1.1	2 x 1.5	2 x 2.2	2 x 3	2 x 4	3 x 2.2	3 x 2.2	15	18.5
Speed	(rpm)	634	488	673	489	509	546	577	600	536	554	709	770
Maximum input current	(A)	7.2	5.4	10.0	5.4	7.2	10.0	13.8	18.0	15.0	15.0	29.0	37.0

EC lower return air plug fan with variable speed control (MC0 assembly)

SPACE PF		415	420	480	485	540	600	650	720	840	960	1100	1200
Rated air flow rate	(m^3/h)	18 000	18 000	18 200	18 200	20 400	24 000	27 500	30 000	33 000	34 600	42 000	46 000
Rated available static pressure	(mmWC)	12.5	12.5	15.0	15.0	15.0	15.0	17.5	17.5	17.5	17.5	17.5	17.5
Rated power input	(kW)	2.64	2.64	2.86	2.86	2.43	3.29	4.59	4.15	4.96	6.23	7.60	9.28
Maximum available static pressure	(mmWC)	52.1	52.1	50.1	50.1	83.0	68.3	48.8	74.8	64.5	47.3	109.3	93.2
Quantity x Diameter	(mm)	2 x 500				3 x 500			4 x 500			4 x 500	
Capacity	(kW)	2 x 2.68				3 x 2.68			4 x 2.68			4 x 5.5	
Speed	(rpm)	3 x 1 700				3 x 1 700			4 x 1 700			4 x 2 200	
Maximum input current	(A)	8.4				12.5			16.7			33.6	
Additional weight with MC1	(kg)	16.9	15.6	16.9	15.6	34.2	26.8	15.2	43.8	-2.3	-2.3	-96.1	-96.1

MWC1 rotary heat exchanger

MWC1 assembly, available for models 415 to 960.

This heat recovery unit is used to transfer the heat and humidity from the air-conditioned room's return air to the fresh air used for ventilation, before it is discharged outdoors.

The return air circulates in half of the heat recovery unit and the ventilation air circulates in the other half, in the opposite direction. As the rotor rotates, very fine channels of air which form the matrix come into contact with the fresh air and the return air in turn, thereby transferring heat and humidity from one circuit to the other.

The efficiency of the recovery depends on the following factors:

- Wheel diameters:
  - 1,500 mm: all models
  - 1,800 mm: all models except 415 and 480.
  - 2,000 mm: all models except 415 and 480.
- Materials:
  - Aluminium: sensible heat recovery.
  - Aluminium with epoxy coating: sensible heat recovery in aggressive environments.
  - Hybrid wheel: enthalpic recovery.
  - Aluminium with silicone gel coating: enthalpic recovery with increased efficiency on recovery of latent heat.
- Channel cross sections:

The wheel is formed of two aluminium panels, one smooth and one fluted. The fluted panel can be provided in one of four different configurations:

- 1.5 mm cross section: the large surface area ensures a high level of efficiency.

There is a greater pressure drop due to the narrower channels.

- 1.7 mm cross section: high efficiency.
- 2.0 mm cross section: the most commonly-used cross section due to its high efficiency and moderate pressure drops.
- 2.5 mm cross section: low pressure drop. Designed for high air speeds with low pressure drops.

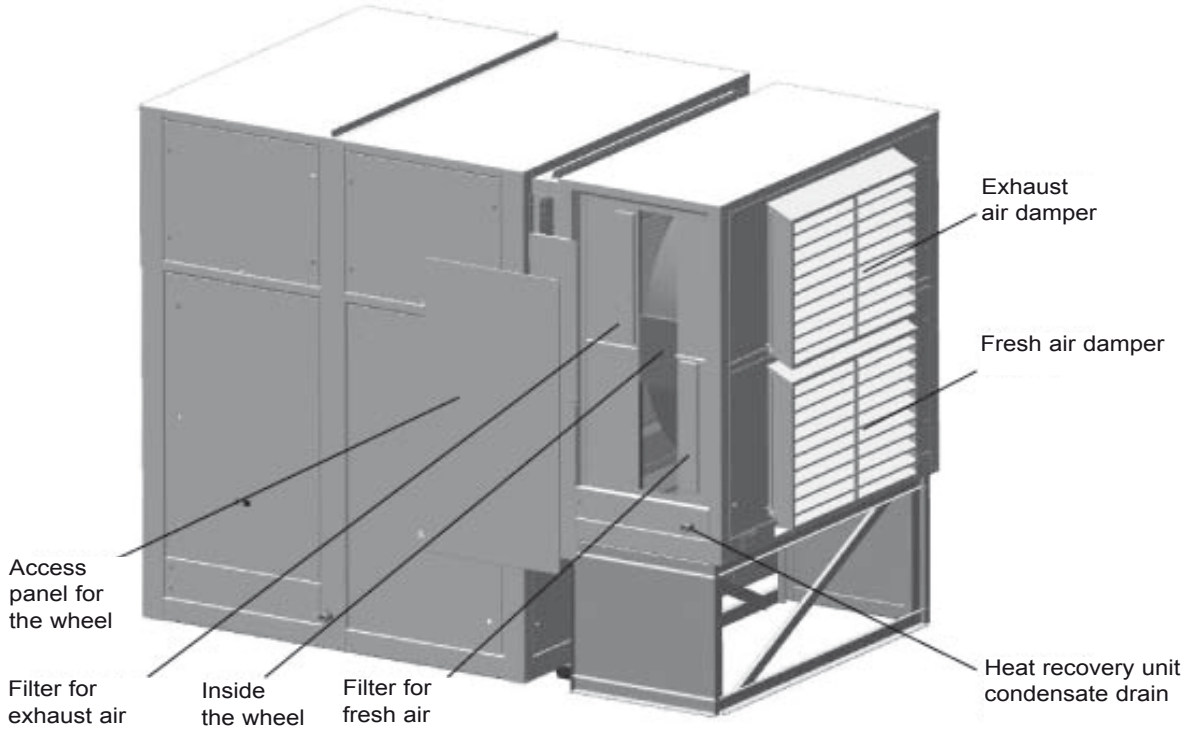
The rotary heat exchanger is fitted into a module integrated into the machine.

This module can also be equipped with:

- Filters on the fresh air intake and on the exhaust air outlet: washable (default option), G4 or G4 with low pressure drop (optional).
- Defrost options which protect the wheel against freezing:
  - Bypass: compulsory if the outdoor temperature is below -3ºC, if the module incorporates the filter on the fresh air intake. This option increase the module's dimensions.
  - Speed regulator on the wheel: compulsory with outlet temperatures on both sides of the wheel of below 1ºC or an average temperature in the wheel of below 3ºC.

With the MWC1 assembly, the supply air fans and return air fans are EC plug fans. Consult the selection tables for these fans.

Important: the calculations for selecting the rotary heat exchanger according to the factors described previously must be carried out using our selection software.

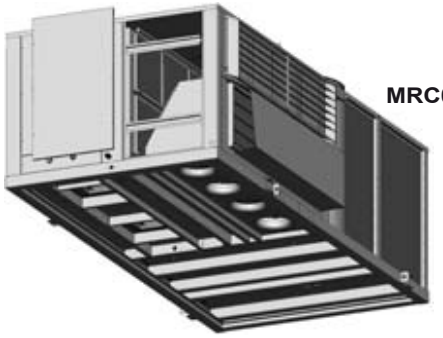


SPACE PF 415 - 1200

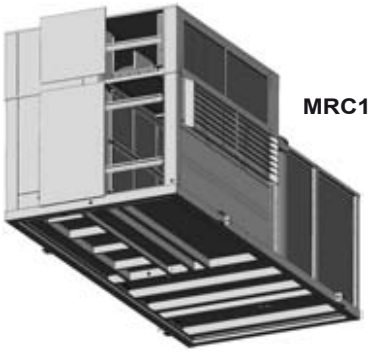
MRC refrigerating recovery circuit

SPACE PF			415	420	480	485	540	600	650	720	840	960	1100	1200
Nominal flow rate		(m^3/h)	18 000	18 000	18 200	18 200	20 400	24 000	27 500	30 000	33 000	37 000	42 000	46 000
Centrifugal fan (MRC1 assembly)	Available static pressure at the return	(mmWC)	12.5	12.5	15.0	15.0	15.0	15.0	17.5	17.5	17.5	17.5	1.75	17.5
Plug fan (MRC0 / MRC1 assemblies)	Maximum available static pressure at the return	(mmWC)	45.3	49.1	43.1	47.0	77.8	63.6	40.7	68.2	56.8	38.3	88.8 (*)	79.8 (*)
	Additional weight (MRC1)	(kg)	16.9	15.6	16.9	15.6	34.2	26.8	15.2	43.8	-2.3	-2.3	--	--
Characteristics of the recovery compressor	Type		Scroll											
	No. compressors / circuits		1 / 1											
	Oil type		Copeland 3MAF (32 cST), Danfoss POE 160SZ, ICI Emkarate RL 32 CF, Mobil EAL Arctic 22CC											
	Oil volume	(l)	3.0				3.3		4		6.2		6.2	
	Maximum input current	(A)	15.3				20.1		25.1		30.5		39.8	
R410A refrigerant load		(kg)	8.0				8.1	8.2	7.6	7.7	7.1	7.1	8.2	8.2

(*) Not available on models 1100 and 1200 with MRC1 assembly.



MRC00 assembly



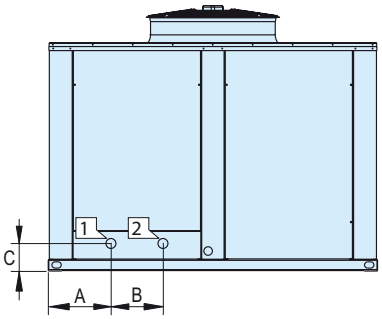
MRC11 assembly

Auxiliary hot water coil

SPACE PF			415	420	480	485	540	600	650	720	840	960	1100	1200
Air pressure drop		(mmWC)	2.7	2.1	2.7	2.1	2.5	3.3	2.9	3.4	4.0	4.8	4.5	5.3
Water 80/60°C and air intake 20°C	Heating capacity	(kW)	146.3	181.2	147.3	182.5	196.0	216.3	255.0	268.7	284.3	303.8	326.7	352.4
	Water flow rate	(m^3/h)	6.5	8.0	6.5	8.1	8.7	9.2	11.3	11.9	12.6	13.5	14.4	15.6
	Water pressure drop	(mWC)	1.7	2.0	1.8	2.0	1.9	2.3	3.1	3.4	3.8	4.4	2.1	2.4
Water 90/70°C and air intake 20°C	Heating capacity	(kW)	179.8	223.1	181.1	224.7	241.5	266.9	314.5	331.6	351.0	375.3	403.3	436.6
	Water flow rate	(m^3/h)	8.0	9.9	8.0	10.0	10.7	11.9	14.0	14.7	15.6	16.7	17.9	19.3
	Water pressure drop	(mWC)	2.6	2.4	2.6	2.5	2.8	3.5	3.9	4.3	4.8	5.5	3.2	3.7
Weight (empty)		(kg)	43.0	66.9	43.0	66.9	66.9	66.9	82.3	82.3	82.3	82.3	82.3	82.3

Note: with a droplet eliminator on the indoor air coil, it is not possible to fit a hot water coil.
This option still includes a built-in antifreeze thermostat to protect the coil.

Position of the auxiliary hot water coil hydraulic connections (option)



SPACE PF	A (mm)	B (mm)	C (mm)	Ø of hydraulic connections: I/O
415 / 420 / 480 / 485 / 540 / 600	302	250	222	2”
650 / 720 / 840 / 960	302	250	222	2”
1100 / 1200	302	250	222	2 1/2”

KEY	
1	Water outlet
2	Water inlet

Note: the inlet/outlet connections for the coil are located within the unit. The connection can be made at the base of the unit, using the flexible sleeves, or via the lateral panel. The diagram above shows the location of the pre-punched holes located on the lateral panel.

For connections via the base, consult the plans for the pre-assembled frames.

Auxiliary heater

With this option, an air flow rate controller must be selected if the unit does not incorporate a supply air plug fan. However, if the unit incorporates a supply air plug fan, it is not possible to select the air flow rate controller option, since the fan itself will perform this action.

2-stage auxiliary electric heaters for assembly and connection within the unit.

SPACE PF		Total power (kW)	12	18	27	36	45	54	72	90
		Stage power (kW)	6 + 6	9 + 9	9 + 18	18 + 18	18 + 27	27 + 27	36 + 36	45 + 45
Current (A) (400 V/3-ph/50 Hz)	Centrifugal supply air fan	415 / 420 / 480 / 485	not available		39.0	52.0	65.0	78.0	not available	
		540	not available		39.0	52.0	65.0	78.0	104.0	not avail.
		600	not available			52.0	65.0	78.0	104.0	not avail.
		650 / 720	not available				65.0	78.0	104.0	not avail.
		840 / 960 / 1100 / 1200	not available				65.0	78.0	104.0	130.0
	Supply air plug fan	415 / 480	not available		39.0	52.0	65.0	not available		
		420 / 485 / 540	not available		39.0	not available				
		600	not available			52.0	65.0	not available		
		650 / 720	not available				65.0	78.0	not available	
		840 / 960 / 1100 / 1200	not available				65.0	78.0	not available	
Module weight (kg)			10.7	14.6	19.4	24.1	28.9	33.6	48.3	57.7

Droplet eliminator on the indoor air coil

It is recommended that a droplet eliminator is installed on the indoor coil from the following air flow rates:

SPACE PF	415	420	480	485	540	600	650	720	840	960	1100	1200
Air flow rate (m^3/h)	27 700	30 090	27 700	30 090	30 090	30 090	37 030	37 030	37 030	37 030	included as standard	

Note: under operating conditions with a high level of dehumidification in the indoor coil (for example on installations close to the seafront), it may be necessary to install an eliminator even if the flow rate is less than that given above.

With a hot water coil, it is not possible to fit the droplet eliminator.

Gas burner

Propane or natural gas burner with 0-10 V proportional action.

Condensation boiler, with pre-mixing and modulation technology, used to achieve efficiency levels of 105% of the net calorific value (NCV).

The electronic control manages its connection in heating mode, via an ON/OFF signal.

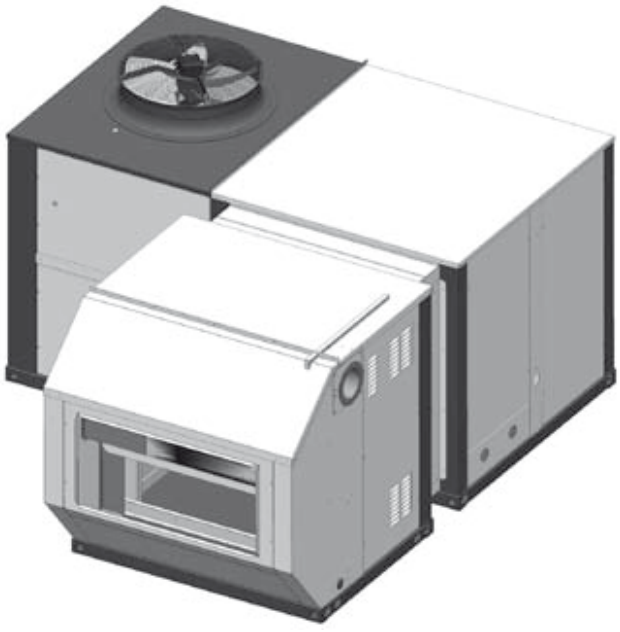
- On cooling-only units, the control activates the burner in the same way as a backup electrical heater stage.
- On heat pump units, it is possible to select three different operating modes:

- As backup for the compressors, as a backup electrical heater stage.
- In place of the compressors.
- In place of the compressors beyond a selected outdoor temperature.

Power control is carried out by the burner's own control, according to the signal received from the CIATrtc control (0-10 V).

Important: with a gas burner, a differential pressure switch for controlling the air flow is included. If the unit incorporates an EC supply air plug fan, the air flow is controlled directly through the plug fan.

It is also recommended to have fouled filter detection and antifreeze protection options for the components of the electrical cabinet of the outdoor temperature are low (compulsory if the outdoor temperature is below -8ºC WB).



Available on all the models, except 415 and 480.
Not available on assemblies with upper supply air.

SPACE PF 415 - 1200

Burner models: technical characteristics		PCH-35		PCH-43		PCH-54		PCH-72		PCH-92		PCH-150		PCH-200	
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
CE type approval	(PIN)	0694BM3433													
Rated heat capacity	(kW)	11.3	38.8	14.8	47.5	15.5	58.0	22.0	78.0	30.0	98.0	44.0	155.0	53.0	215.0
Rated heating capacity	(kW)	11.7	36.5	15.5	44.8	16.3	54.0	23.1	73.2	31.5	93.4	46.3	145.0	55.7	197.0
Efficiency	(%)	103.5	94.1	105.0	94.3	105.0	93.1	105.0	93.8	105.0	95.3	105.2	93.5	105.1	91.6
Air flow	(m^3/h)	2 100	6 700	2 600	8 200	3 100	10 100	4 200	13 700	5 400	17 200	8 500	27 700	11 500	37 600
Motor power	(kW)	0.07		0.07		0.09		2 x 0.09		2 x 0.07		0.4		0.4	
Maximum applicable pressure	(mmWC)	120													
Discharge/Intake pipe diameter	(mm)	80/80		80/80		80/80		100/100		100/100		130/130		130/130	
Operating pressure at smoke outlet (flue connection)	(mmWC)	8		12		12		12		12		10		14	
Methane (G20) supply pressure	(mmWC)	200													
G20 consumption (15ºC 10.13 mWC)	(m^3/h)	1.20	4.11	1.57	5.03	1.64	6.14	2.33	8.25	3.18	10.37	4.66	16.40	5.61	22.75
Methane (G25) supply pressure	(mmWC)	250													
G25 consumption (15ºC 10.13 mWC)	(m^3/h)	1.39	4.77	1.82	5.84	1.91	7.13	2.71	9.59	3.69	12.05	5.41	19.07	6.52	26.45
Butane (G30) supply pressure	(mmWC)	300 - 500													
G30 consumption (15ºC 10.13 mWC)	(kg/h)	0.73	2.50	0.95	3.06	1.00	3.73	1.42	5.02	1.93	6.31	2.83	9.97	3.41	13.84
Propane (G31) supply pressure	(mmWC)	300 - 370 - 500													
G31 consumption (15ºC 10.13 mWC)	(kg/h)	0.72	2.46	0.94	3.01	0.98	3.68	1.40	4.95	1.90	6.21	2.79	9.83	3.36	13.63
Supply voltage		230 V/1 ph/50 Hz													
Protection rating (IP)		IP4xD													
Room temperature limit	(ºC)	-15ºC to +60ºC													

Note: Maximum air flow rate calculated for a ΔT = 15ºC and minimum air flow rate for a ΔT = 50ºC

The following table indicates the pressure drop (mmWC) at the burners available for each model:

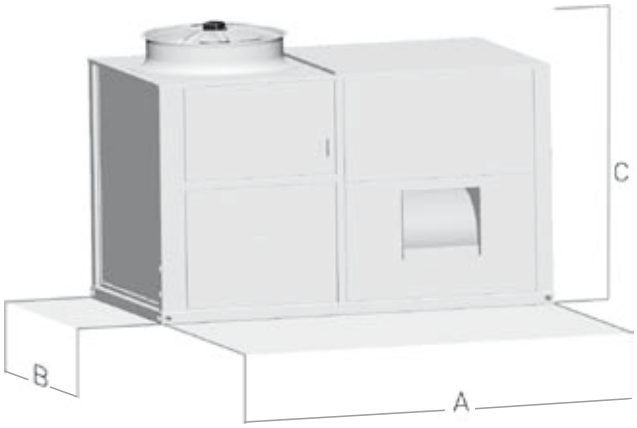
SPACE PF	Nominal air flow rate (m^3/h)	Pressure drop (mmWC)						
		PCH-35	PCH-43	PCH-54	PCH-72	PCH-92	PCH-150	PCH-200
420	18 000	--	--	28.1	13.1	10.0	5.6	--
485	18 200	--	--	28.6	13.3	10.2	5.7	--
540	20 400	--	--	33.5	15.5	11.9	6.7	--
600	24 000	--	--	--	--	14.8	8.4	--
650	27 500	--	--	--	--	17.8	10.2	10.2
720	30 000	--	--	--	--	20.1	11.5	11.5
840	33 000	--	--	--	--	22.9	13.2	13.2
960	37 000	--	--	--	--	26.9	15.5	15.5
1100	42 000	--	--	--	--	--	18.6	18.6
1200	46 000	--	--	--	--	--	21.2	21.2

The following table indicates the type of gas to use in the burner according to destination country:

Country	Category	Gas	Pressure (mmWC)	Gas	Pressure (mmWC)
Austria	II2H3B/P	G20	200	G30/G31	500
Belgium < 70 kW	I2E(S)B; I3P	G20/G25	200/250	G31	370
Belgium > 70 kW	I2E(R)B; I3P	G20/G25	200/250	G31	370
Switzerland	II2HH3B/P	G20	200	G30/G31	500
Germany	II2ELL3B/P	G20	200	G30/G31	500
Denmark, Finland, Greece, Sweden	II2H3B/P	G20	200	G30/G31	300
Spain, UK, Ireland, Portugal	II2H3P	G20	200	G31	370
Italy	II2H3B/P	G20	200	G30/G31	300
Russia	II2H3B/P	G20	200	--	--
France	II23SI3P	G20/G25	200/250	G31	370
Luxembourg	II2E3P	G20/G25	200	G31	370/500
Netherlands	II2L3B/P	G25	250	G30/G31	300
Norway	II2H3B/P	G20	200	G30/G31	300
Hungary	II2HS3B/P	G20/G25.1	250	G30/G31	300
Czech Republic	II2H3B/P	G20	200	G30/G31	300
Cyprus, Malta	I3B/P	--	--	G30/G31	300
Estonia, Lithuania, Latvia	II2H3B/P	G20	200	G30/G31	300
Iceland	I3P	--	--	G31	370
Slovakia	II2H3B/P	G20	200	G30/G31	300
Slovenia	II2H3B/P	G20	200	G30/G31	300
Bulgaria, Romania, Turkey	II2H3B7P	G20	200	G30/G31	300
Poland	II2E3B/P	G20/GZ350	200/130	G30/G31	360

DIMENSIONS

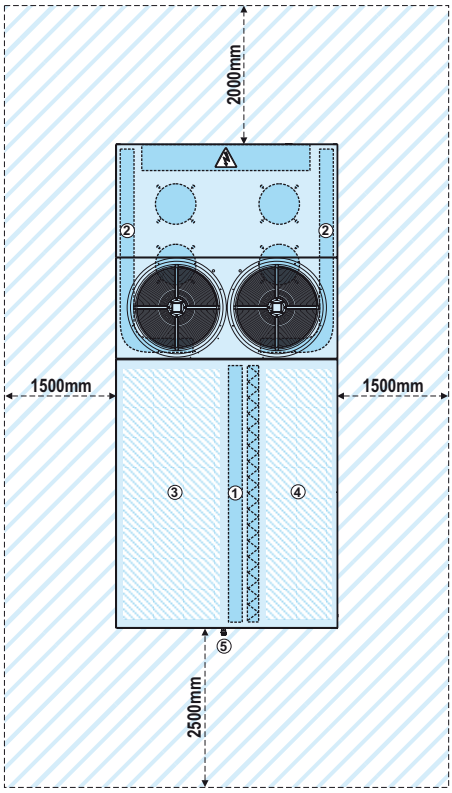
- MO assembly external dimension
- Weight of MO assembly without options
- For all detailed dimensional drawings, please consult us.



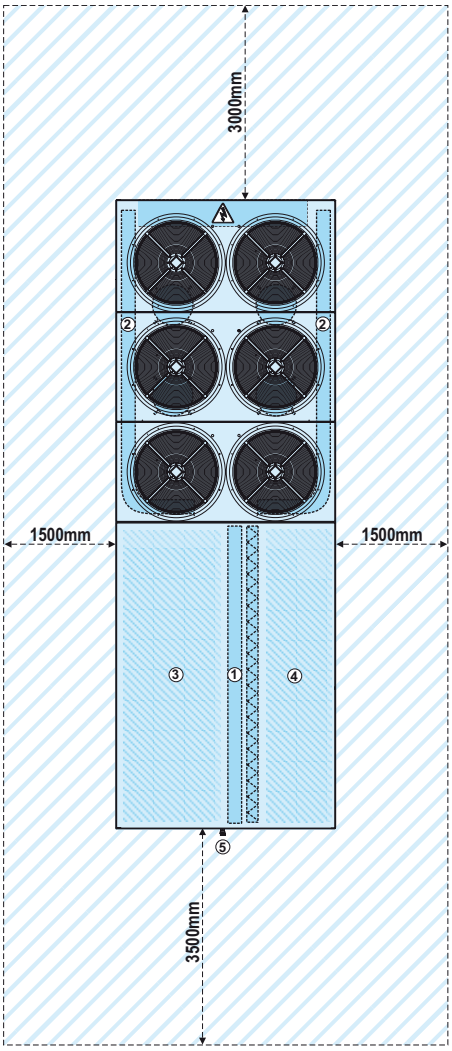
Models	Dimension (mm)			Weight
	A	B	C	(kg)
RPF / IPF 415 U	3 326	2 205	2 095	1 541
RPF / IPF 420 U	4 816	2 205	1 795	1 788
RPF / IPF 480 U	3 326	2 205	2 095	1 581
RPF / IPF 485 U	4 816	2 205	1 795	1 830
RPF / IPF 540 U	4 816	2 205	1 795	1 879
RPF / IPF 600 U	4 816	2 205	1 795	1 937
RPF / IPF 650 U	4 816	2 205	2 095	2 093
RPF / IPF 720 U	4 816	2 205	2 095	2 152
RPF / IPF 840 U	4 816	2 205	2 095	2 277
RPF / IPF 960 U	4 816	2 205	2 095	2 374
RPF / IPF 1100 U	6 316	2 205	2 095	3 022
RPF / IPF 1200 U	6 316	2 205	2 095	3 135

MINIMUM SPACE REQUIRED FOR SYSTEM START-UP AND MAINTENANCE

SPACE PF - 415, 420, 480, 485, 540, 600, 650, 720, 840 and 960



SPACE PF - 1100 and 1200

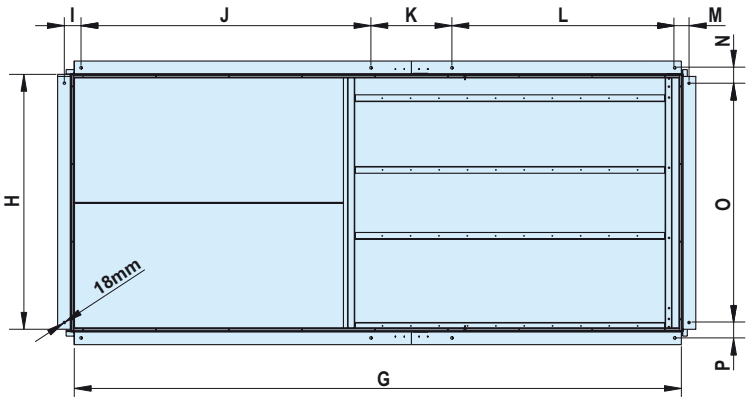


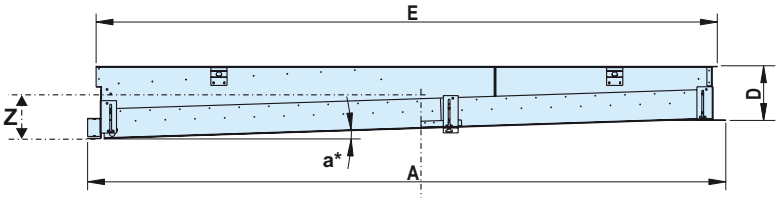
KEY

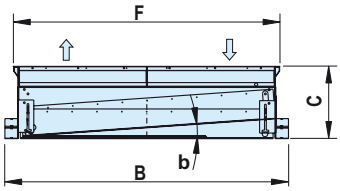
1. Indoor coil
2. Outdoor coil
3. Supply air
4. Return air
5. Condensate drain

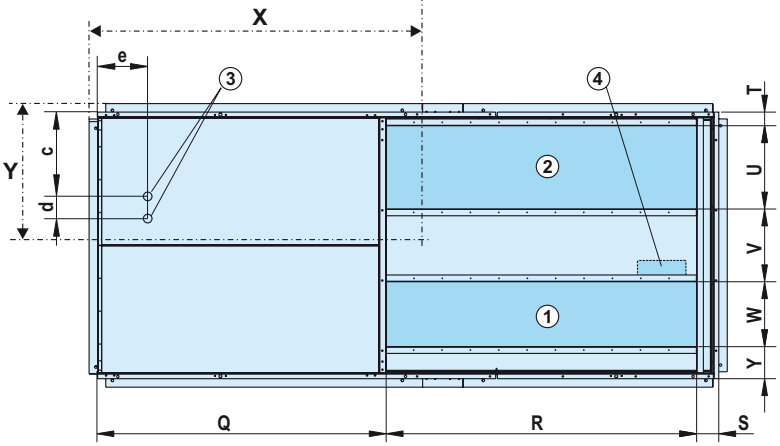
SPACE PF 415 - 1200

Frames for SPACE PF 415, 420, 480, 485, 540, 600, 650, 720, 840, 960, 1100 and 1200, (dimensions in mm)









KEY	
①	For assembly of the SPACE PF with lower supply air (Mwx0) 1)
②	For assembly of the SPACE PF with lower return air (Mw0y) 1)
③	Routing for the power supply (Ø 64 mm)
④	Routing area for the optional hot water coil hydraulic connections

* To benefit from maximum seal tightness,
it is not recommended that the angle 'a' is set up on the opposite side.

SPACE PF frame	Weight (kg)	Centre of gravity (mm)			Maximum slope	
		X	Y	Z	a	b
415 and 480	290	1 517	940	290	2° (3.5%)	4° (7%)
420 to 960	385	2 507	1 050	228	2° (3.5%)	4° (7%)
1100 to 1200	475	3 222	1 050	228	1° (1.7%)	2° (3.5%)

SPACE PF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	Y	c	d	e
415 and 480	3 238	2 101	536	400	3 112	1 975	3 007	1 873	128	2 146	0	760	103	114	1 773	114	1 248	1 700	164	101	617	539	481	237	818	100	413
420 to 960	4 728	2 101	536	400	4 602	1 975	4 498	1 873	123	2 148	600	1 650	107	114	1 773	114	2 138	2 300	164	101	617	539	481	237	818	100	415
1100 to 1200	6 077	2 101	536	400	5 951	1 975	5 847	1 873	118	2 538	600	2 609	111	114	1 773	114	3 089	2 698	164	101	617	539	481	237	813	100	157

ROOF TOP SPACE RPF - IPF

Available units		90 120	160 180	200 240	320	360	415 480	420 485	540	600	650 720	840 960	1100 1200
RPF cooling-only version		•	•	•	•	•	•	•	•	•	•	•	•
IPF reversible version (Heating/Cooling)		•	•	•	•	•	•	•	•	•	•	•	•
Available assemblies (for supply air positions, see preceding pages)													
MO--: All recirculated air (assemblies without fresh air and without free cooling only)		•	•	•	•	•	•	•	•	•	•	•	•
MS--: 2-way mix with a single supply air fan		•	•	•	•	•	•	•	•	•	•	•	•
ME--: 3-way mix with low pressure propeller extraction fan		•	•	•	•	•	•	•	•	•	•	•	•
MA--: 3-way mix with low pressure lower return air propeller fan		•	•	•	•	•	•	•	•	•	•	•	•
MC0-: 3-way mix with high pressure EC lower return air plug fan		•	•	•	•	•	•	•	•	•	•	•	•
MC1-: 3-way mix with high pressure lateral return air fan		•	•	•	•	•	•	•	•	•	•	•	•
MRC0--: 3-way mix with high pressure EC lower return air fan plug fan + Active heat recovery on the exhaust air (dedicated thermodynamic circuit)		•	•	•	•	•	•	•	•	•	•	•	•
MRC1-: 3-way mix with high pressure lateral return air fan + Active heat recovery on the exhaust air (dedicated thermodynamic circuit)		•	•	•	•	•	•	•	•	•	•	•	•
MWC1-: 3-way mix with high pressure lateral return air fan (return and supply air EC plug fan) + Passive heat recovery on the exhaust air (rotary wheel heat exchanger)							•	•	•	•	•	•	
Available options													
Reinforced M0 thermo-acoustic insulation (50 mm mineral wool) Euroclass A2-s1, d0 (thermal resistance = 1.67 m2K/W)		•	•	•	•	•	•	•	•	•	•	•	•
Aluminium blades with protective polyurethane coating on the indoor coil and/or outdoor coil and/or recovery coil and/or hot water coil.		•	•	•	•	•	•	•	•	•	•	•	•
High resistance INERA aluminium blades on the indoor coil and/or outdoor coil and/or recovery coil and/or hot water coil.		•	•	•	•	•	•	•	•	•	•	•	•
BLYGOLD treatment on the indoor coil and/or outdoor coil and/or recovery coil and/or hot water coil.		•	•	•	•	•	•	•	•	•	•	•	•
Stainless steel condensate drain pan.		•	•	•	•	•	•	•	•	•	•	•	•
Droplet eliminator on the fresh air intake.		•	•	•	•	•	•	•	•	•	•	•	•
Droplet eliminator on the indoor air handling coil (not available with auxiliary hot water coil). Included as standard on models 1100 and 1200.		•	•	•	•	•	•	•	•	•	•	•	•
Tropicalised electrical cabinet (protective varnish).		•	•	•	•	•	•	•	•	•	•	•	•
Crankcase heater for compressors (second additional stage) for protecting at very low outdoor temperatures.		•	•	•	•	•	•	•	•	•	•	•	•
Heater for protecting the components in the electrics box at very low outdoor temperatures.		•	•	•	•	•	•	•	•	•	•	•	•
Hot water coil circuit with frost protection on the water temperature at very low outdoor temperatures (includes one accelerator pump).		•	•	•	•	•	•	•	•	•	•	•	•
Hot water coil with three-way modulating valve and antifreeze thermostat.		•	•	•	•	•	•	•	•	•	•	•	•
2-stage auxiliary electric heater (400 V/3-ph/50 Hz), installed indoors - Air flow control included. Not available on models 90 to 180 with upper supply air. • Not available with EC supply air plug fan	12 KW	•	•										
	18 KW	•	•	•	•	•							
	27 KW		•	•	•	•	•	•	•				
	36 KW			•	•	•	•	•	•	•			
	45 KW					•	•	•	•	•	•	•	•
	54 KW						•	•	•	•	•	•	•
	72 KW								•	•	•	•	•
	90 KW											•	•
Condensing modulating gas burner (propane or natural gas). Efficiency up to 105% of the NCV, Premix Technology, zero CO emissions and NOX<30 ppm. Only available on assemblies with horizontal supply air (MO-1/MA-1/ME-1/MS-1/MC-1/MRC-1/MWC-1)	35 KW	•	•										
	43 KW			•									
	54 KW or 72 KW			•	•	•	•	•	•				
	92 KW							•	•	•	•	•	
	150 KW							•	•	•	•	•	•
	200 KW										•	•	•

SPACE PF 415 - 1200

ROOF TOP SPACE RPF - IPF

Available units	90 120	160 180	200 240	320	360	415 480	420 485	540	600	650 720	840 960	1100 1200
Ambient or return air quality sensor (VOC + CO_2 measurements at 0 to 2000 ppm) (except MO assembly). Significantly lowers energy consumption by adapting the fresh air rate to actual requirements.	•	•	•	•	•	•	•	•	•	•	•	•
Filtration stages available (for F+F filtration, please contact us): G4 / G4+F6 / G4+F7 / G4+F8 / G4+F9	•	•	•	•	•	•	•	•	•	•	•	•
With or without transformer for three-phase power supply with or without neutral	•	•	•	•	•	•	•	•	•	•	•	•
Outdoor circuit condensate drain pan (to be used in installations where water does not drain naturally).	•	•	•	•	•	•	•	•	•	•	•	•
Standard protective grille for the outdoor coil.	•	•	•	•	•	•	•	•	•	•	•	•
Hail guard protective grille for the outdoor coil (finer mesh).	•	•	•	•	•	•	•	•	•	•	•	•
ROOFCURB rooftop frame adjustable to the slope of the roof (versions available with or without gas burner).	•	•	•	•	•	•	•	•	•	•	•	•
Anti-vibrations mount kit	•	•	•	•	•	•	•	•	•	•	•	•
Supply air fan with a plug fan with an EC motor and a constant air flow, with a measurement sensor for the air flow (equipped with soft start and air flow rate control as standard)	•	•	•	•	•	•	•	•	•	•	•	•
Return air plug fan with EC motor and constant air flow with air flow measuring sensor.	•	•	•	•	•	•	•	•	•	•	•	•
Electronic propeller outdoor fan with permanent magnet EC motor (evaporation and condensation pressure control by varying the progressive flow rate)	•	•	•	•	•	•	•	•	•	•	•	•
Tandem compressors on each of the circuits to increase the seasonal efficiency and improve comfort management (included as standard on 650 and 720 / not available on the active recovery circuit)	•	•	•	•	•	•	•	•	•	•		
Electric energy meter (used to manage and optimise the electricity consumption)	•	•	•	•	•	•	•	•	•	•	•	•
Filter fouling level detection (differential pressure switch).	•	•	•	•	•	•	•	•	•	•	•	•
Air flow control for centrifugal fans (differential pressure switch). Function already included in EC plug fans.	•	•	•	•	•	•	•	•	•	•	•	•
Smoke detector compliant with the standard NF S 61-961.	•	•	•	•	•	•	•	•	•	•	•	•
Refrigerant leak detector (in some cases, this enables the number of mandatory visits defined in the F-GAZ standard to be reduced)	•	•	•	•	•	•	•	•	•	•	•	•
Soft start on the centrifugal belt- and pulley-driven indoor fan (for textile ducts or motor >= 15 kW).	•	•	•	•	•	•	•	•	•	•	•	•
Access panels for the fan and filter, equipped with quarter-turn bolts with or without hinges	•	•	•	•	•	•	•	•	•	•	•	•
Roof curb adapters for assembly on existing frames of all makes (please consult us).	Design and price specific to each case											
Options for container transport (pallet/skids/SEI4C packaging)	The solutions depend on the sizes and options											
Options on CIATrtc control (room sensor control/pGD1 local control console on roof top)												
Control with room temperature sensor (cabling < 30 m) with or without thermal free cooling	Choose from one of these five options, depending on the type of free cooling and cabling distance required.	•	•	•	•	•	•	•	•	•	•	•
Control with room temperature sensor (RS485 cabling > 30 m) with or without thermal free cooling		•	•	•	•	•	•	•	•	•	•	•
Control with double room temperature sensor (RS485 cabling > 30 m) with or without thermal free cooling, for control according to the temperature averages		•	•	•	•	•	•	•	•	•	•	•
Control with room temperature + humidity sensor (RS485 cabling > 30 m) for thermo-enthalpic free cooling		•	•	•	•	•	•	•	•	•	•	•
Control with double room temperature + humidity sensor (RS485 cabling > 30 m) with or without thermo-enthalpic free cooling, for control according to the temperature and humidity averages		•	•	•	•	•	•	•	•	•	•	•
TCO local control console to replace the standard pGD1 control console		•	•	•	•	•	•	•	•	•	•	•
200 m remote control kit (pGD display + 2 TCONN cards) which can also be used for maintenance		•	•	•	•	•	•	•	•	•	•	•
MODBUS Protocol RS485 serial communication card		•	•	•	•	•	•	•	•	•	•	•
Bacnet MSTP RS485 communication card		•	•	•	•	•	•	•	•	•	•	•
Bacnet Ethernet communication card or Ethernet PcoWeb card		•	•	•	•	•	•	•	•	•	•	•
LonWorks FTT or Konnex (KNX) serial communication card		•	•	•	•	•	•	•	•	•	•	•
CIAT M2M option for 1 unit or M2M option for a maximum of 3 units (FULL SERENITY France)		•	•	•	•	•	•	•	•	•	•	•