

AIR SYSTEMS

ACTIVA Rooftop

ARC-ARG-ARH-ARD 45 to 90 A



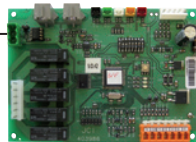
ACTIVA Rooftop

ARC-ARG-ARH-ARD

A complete range from 45.1 kW up to 84 kW



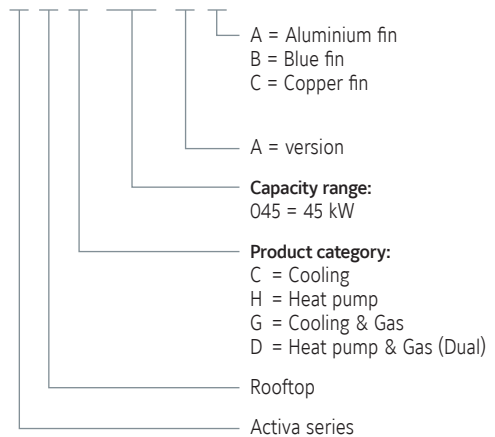
YKN2open



Features

- High efficiency EER and COP
- Low noise level
- All configurations: Cooling only, Cooling + gas, Heating, Heating + Gas
- New board with BMS connection (N2open protocole as standard)
- Energy recovery (enthalpy wheel)
- EC Return fan
- External HP & LP access
- Filters G4, F6 & F7 available
- Tandem configuration (up to 52°C outdoor temperature)

A R C 045 A A Nomenclature



ACTIVA Rooftop

ARC-ARG-ARH-ARD 45 to 90 A



Technical features

Cooling only models		ARC 045 A	ARC 060 A	ARC 075 A	ARC 090 A	
Net cooling capacities	kW	45.1	61.0	71.5	84.0	
Power input	kW	16.0	23.0	30.0	36.0	
EER		2.96	2.91	2.67	2.60	
Working range (full load / partial load)	°C	7°C ~ 46°C / -10°C ~ 52°C				
Heat pump models		ARH 045 A	ARH 060 A	ARH 075 A	ARH 090 A	
Net cooling capacities	kW	47.6	61.9	71.4	83.4	
Power input in cooling	kW	17.0	20.0	28.0	36.0	
EER		3.00	3.06	2.67	2.60	
Heating capacities (1)	kW	45.2	58.0	71.7	86.5	
Power input in heating	kW	16.0	19.0	27.0	33.0	
COP		2.80	2.96	2.81	2.60	
Working range (full load / partial load)	°C	-10°C ~ 46°C / -10°C ~ 52°C				
Cooling only + Gas heating models		ARG 045 A	ARG 060 A	ARG 075	ARG 090 A	
Net cooling capacities	kW	45.1	61.0	71.5	84.0	
Cooling power input	kW	16.0	23.0	30.0	36.0	
Standard Heating capacities (1)	kW	76.0	76.0	76.0	76.0	
Natural gas 2ND-H, G20	m³/h	8.60	8.60	8.60	8.60	
High Heating capacities (1)	kW	90.0	90.0	90.0	90.0	
Natural gas 2ND-H, G20	m³/h	9.80	9.80	9.80	9.80	
Working range (full load / partial load)	°C	-15°C ~ 46°C / -15°C ~ 52°C				
Heat pump + Gas heating models		ARD 045 A	ARD 060 A	ARD 075	ARD 090 A	
Net cooling capacities	kW	47.6	61.9	71.4	83.4	
Cooling power input	kW	17.0	20.0	28.0	36.0	
Heating capacities (1)	kW	45.2	58.0	71.7	86.5	
Power input in heating	m³/h	16.0	19.0	27.0	33.0	
Standard Heating capacities (1)	kW	76.0	76.0	76.0	76.0	
Natural gas 2ND-H, G20	m³/h	8.60	8.60	8.60	8.60	
High Heating capacities (1)	kW	90.0	90.0	90.0	90.0	
Natural gas 2ND-H, G20	m³/h	9.80	9.80	9.80	9.80	
Working range (full load / partial load)	°C	-15°C ~ 46°C / -15°C ~ 52°C				
Common characteristics						
Power supply	400V/3 + N/ 50Hz					
Main switch	A	50	63	80	80	
Main cable	Nbr. x mm²	5 x 10	5 x 16	5 x 25	5 x 25	
Cable to thermostat	Nbr. x mm²	10 x 0,22				
Number of circuits / Compressor type	2 x scroll					
Evaporator fan at nominal airflow	Airflow	m³/h	8 500	11 500	13 500	16 000
	Power input	kW	3	4	5,5	7,5
	Height	mm	1 316	1 316	1 367	1 367
Nett dimensions	Length	mm	3 180	3 180	3 495	3 495
	Depth	mm	2 337	2 337	2 337	2 337
Nett weight ARC / ARG	kg	900 / 1 010	945 / 1 055	1 118 / 1 228	1 142 / 1 252	
Nett weight ARH / ARD	kg	930 / 1 040	985 / 1 095	1 145 / 1 255	1 220 / 1 330	

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

(1) Add indoor fan motor consumption to know total heating capacity.

Codes

Cooling only models	ARC 045 A	ARC 060 A	ARC 075 A	ARC 090 A
	S661752440	S661752460	S661752470	S661752490
Heat pump models	ARH 045 A	ARH 060 A	ARH 075 A	ARH 090 A
	S661752443	S661752463	S661752473	S661752493
Cooling only + Gas heating models	ARG 045 A	ARG 060 A	ARG 075 A	ARG 090 A
	S661752441	S661752461	S661752471	S661752491
Heat pump + Gas heating models	ARD 045 A	ARD 060 A	ARD 075 A	ARD 090 A
	S661752442	S661752462	S661752472	S661752492
Thermostat				
to be ordered separately	DPC-1			



Manufacturer reserves the rights to change specifications without prior notice.

Activa rooftop details & features



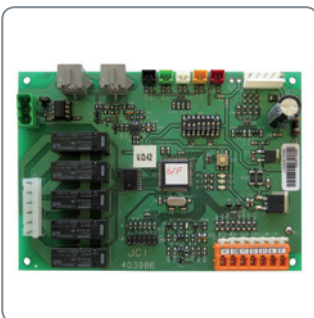
Condenser fan

New condenser fans with high technology blades and outdoor bell that reduce the turbulences in the air and therefore increase the efficiency and improve the noise level performance.



Tandem scroll compressors

Tandem compressors configuration allows the unit to operate at partial load (only with one compressor) with higher efficiency and increases the working range up to +52°C ambient temperature.



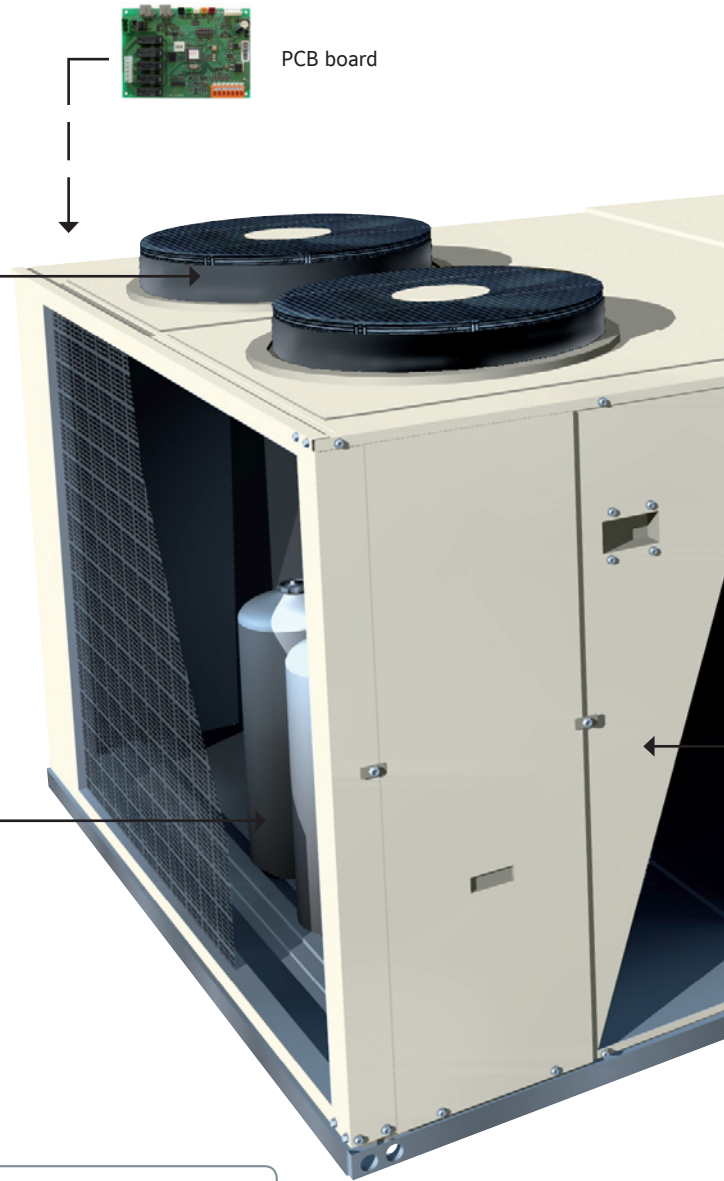
PCB board

The new control board keeps same features and benefits as YKlon V3 (see pg. 129) and adds new logical to control the tandem circuit, the new options (heat recovery, return fan) and the possibility to communicate with BMS system as standard (N2Open).



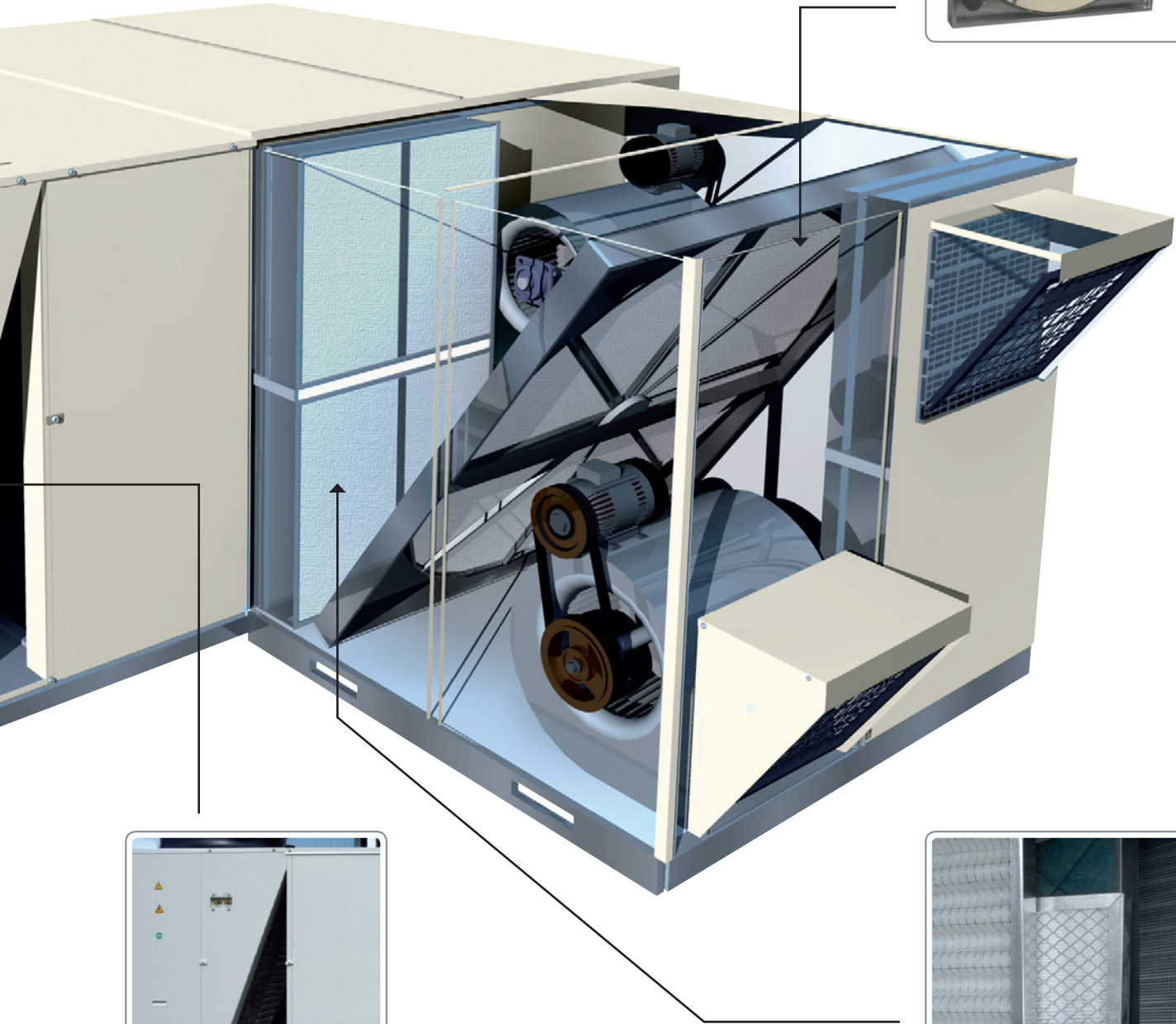
Return fan

Located in a special roof curb underneath the rooftop, it works simultaneously with the indoor fan in order to balance the amount of air supplied to and removed from the space. It is the best suited for systems with high return path static pressures. Also, incorporates EC technology and a differential pressure gauge to easy set up and maintain automatically the working point in the installation.



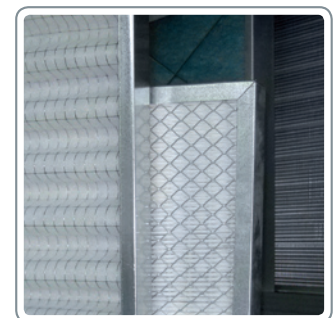
Energy recovery system

It is the preferred solution to solve two conflicting requirements: reduce running costs (increase efficiency) while maintaining the indoor air quality at high levels (through ventilation). An enthalpy rotary wheel retains the energy from the exhaust air and transmits it to the fresh air stream that is being supplied in the conditioned space. The material used is manufactured with the latest technology to increase the energy transmission in both sensible and latent heat. The wheel is split into 6 portions that can be easily removed for cleaning.



V-Coils

Can be made in aluminium, blue fin or in copper (for harsh conditions), increases the heat exchange surface for a given rooftop footprint. The floor pan is sloped for easy condensates drainage.



Filter options

Washable air filters: G4 class filter (gravimetric efficiency above 90%) and M1 fire class, it comes with galvanized sheet metal frame that allows easy cleaning and replacement. Delivered as standard.
Filter kit F6: for Average Opacimetric efficiency (em) $60\% \leq em \leq 80\%$
Filter kit F7: for Average Opacimetric efficiency (em) $80\% \leq em \leq 90\%$
As per EN 779

Accessories & options

Accessories & options

	Code	Cooling only				Heat pump			
		45	60	75	90	45	60	75	90
Thermostat DPC-1	S603786044	A	A	A	A	A	A	A	A
Dry bulb triple input economizer or motorized air damper with rain hood	S661752301	O	O			O	O		
	S661752311			O	O			O	O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	A	A	A	A	A	A	A	A
Power Exhaust	S661752302	A	A			A	A		
	S661752322			A	A			A	A
Barometric relief damper and rain hood	S613990472	A	A			A	A		
	S613990473			A	A			A	A
Fresh air damper and rain hood (2)	S661752303	A	A			A	A		
	S661752323			A	A			A	A
High speed drive	4 kW	S611990401	O			O			
	5.5 kW	S611990601		O			O		
	7.5 kW	S611990701			O			O	
	9.2 kW	S611990901				O			O
	11 kW	S611990902				O			O
Soft start indoor fan	5.5 kW	S606744690	O	O	O	O	O	O	O
	11.5 kW	S606744691	O	O	O	O	O	O	O
Low ambient kit	S613118301	O	O	O	O	O	O	O	
Side duct flanges	S613991482	A	A			A	A		
	S613991483			A	A			A	A
Fixed roof curb	S613991884	A	A			A	A		
	S613991885			A	A			A	A
Adjustable roof curb	S613992081	A	A			A	A		
	S613992082			A	A			A	A
Filter dirty switch	S613990085	O	O	O	O	O	O	O	O
Smoke detector	S613903003	O	O	O	O	O	O	O	O
Fire detection thermostat	S613995382	O	O	O	O	O	O	O	O
Hot water coil	S611083351	O	O	O	O	O	O	O	O
Electric heaters	12 kW	S611761584	O	O	O	O	O	O	O
	25 kW	S611762284	O	O	O	O	O	O	O
	37 kW	S611763385	O	O	O	O	O	O	O
	50 kW	S611764485	O	O	O	O	O	O	O
Propane conversion Kit	S611801780	A	A	A	A	A	A	A	
High heat gas conversion kit	S611803080	O	O	O	O	O	O	O	
Filter kit F6	S611300401	O	O			O	O		
	S611300701			O				O	
	S611300901				O				O
Filter kit F7	S611300402	O	O			O	O		
	S611300702			O				O	
	S611300902				O				O
Grill condenser coil protection	S661752304	O				O			
	S661752324		O				O		
	S661752314			O	O			O	O
Antivibration mounting kit	S613990411	A	A	A	A	A	A	A	
Return fan indoor duct	S613993042	A	A			A	A		
	S613993072			A	A			A	A
Energy recovery	Q6000 (1)	S611994501	A	A			A	A	
	Q3000 (1)	S611994502	A	A			A	A	
	Q9000 (1)	S611997501			A	A		A	A
	Q4500 (1)	S611997502			A	A		A	A
Filter kit F6 for energy recovery	S611994506	O/A	O/A			O/A	O/A		
	S611997506			O/A	O/A			O/A	O/A
Filter kit F7 for energy recovery	S611994507	O/A	O/A			O/A	O/A		
	S611997507			O/A	O/A			O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O
Blue fin	Contact us	O	O	O	O	O	O	O	O

O=Option (factory fitted). A=Accessory (supplied loose). O/A=If you want this item factory fitted, precise it in the order form.

(1) = Energy recovery accessory include: economizer, rain hood, indoor air quality sensor, enthalpy probe and G4 filters.

(2) Fresh air damper can not be installed if economizer or motorized damper is fitted



Accessories & options

	Code	Cooling + gas heating				Heat pump + gas heating			
		45	60	75	90	45	60	75	90
Thermostat DPC-1	S603786044	A	A	A	A	A	A	A	A
Dry bulb triple input economizer or motorized air damper with rain hood	S661752301	O	O			O	O		
	S661752311			O	O			O	O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	A	A	A	A	A	A	A	A
Power Exhaust	S661752302	A	A			A	A		
	S661752322			A	A			A	A
Barometric relief damper and rain hood	S613990472	A	A			A	A		
	S613990473			A	A			A	A
Fresh air damper and rain hood (2)	S661752303	A	A			A	A		
	S661752323			A	A			A	A
High speed drive	4 kW	S611990401	O			O			
	5.5 kW	S611990601		O			O		
	7.5 kW	S611990701			O			O	
	9.2 kW	S611990901				O			O
	11 kW	S611990902				O			O
Soft start indoor fan	5.5 kW	S606744690	O	O	O	O	O	O	O
	11.5 kW	S606744691	O	O	O	O	O	O	O
Low ambient kit	S613118301	O	O	O	O	O	O	O	
Side duct flanges	S613991482	A	A			A	A		
	S613991483			A	A			A	A
Fixed roof curb	S613991884	A	A			A	A		
	S613991885			A	A			A	A
Adjustable roof curb	S613992081	A	A			A	A		
	S613992082			A	A			A	A
Filter dirty switch	S613990085	O	O	O	O	O	O	O	O
Smoke detector	S613903003	O	O	O	O	O	O	O	O
Fire detection thermostat	S613995382	O	O	O	O	O	O	O	O
Hot water coil	S611083351	O	O	O	O	O	O	O	O
Electric heaters	12 kW	S611761584	O	O	O	O	O	O	O
	25 kW	S611762284	O	O	O	O	O	O	O
	37 kW	S611763385	O	O	O	O	O	O	O
	50 kW	S611764485	O	O	O	O	O	O	O
Propane conversion Kit	S611801780	A	A	A	A	A	A	A	
High heat gas conversion kit	S611803080	O	O	O	O	O	O	O	
Filter kit F6	S611300401	O	O			O	O		
	S611300701			O				O	
	S611300901				O				O
Filter kit F7	S611300402	O	O			O	O		
	S611300702			O				O	
	S611300902				O				O
Grill condenser coil protection	S661752304	O				O			
	S661752324		O				O		
	S661752314			O	O			O	O
Antivibration mounting kit	S613990411	A	A	A	A	A	A	A	
Return fan indoor duct	S613993042	A	A			A	A		
	S613993072			A	A			A	A
Energy recovery	Q6000 (1)	S611994501	A	A			A	A	
	Q3000 (1)	S611994502	A	A			A	A	
	Q9000 (1)	S611997501			A	A			A
	Q4500 (1)	S611997502			A	A			A
Filter kit F6 for energy recovery	S611994506	O/A	O/A			O/A	O/A		
	S611997506			O/A	O/A			O/A	O/A
Filter kit F7 for energy recovery	S611994507	O/A	O/A			O/A	O/A		
	S611997507			O/A	O/A			O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O
Blue fin	Contact us	O	O	O	O	O	O	O	O

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(1) = Energy recovery accessory include: economizer, rain hood, indoor air quality sensor, enthalpy probe and G4 filters.

(2) Fresh air damper can not be installed if economizer or motorized damper is fitted

Accessories & options



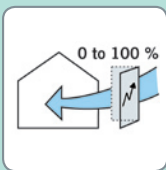
Triple input economizer

This system utilizes 3 probes: Return Air, Outdoor Air and Supply Air. The Outdoor Air damper and the Return Air dampers are mechanically interconnected in order to provide the same airflow at the coil inlet, with a single damper motor. The PCB compares sensor values and modulates the dampers providing maximum efficiency of the economiser system (free cooling) and comfort (Supply Air > 12°C). Combined with the air quality sensor, your payback will be ensured within few months. The rain hood is painted to match the basic unit and aluminium mesh pre-filter prevents water penetration.



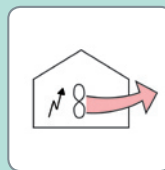
Indoor air quality

This sensor measures concentrations of pollutant gases, such as tobacco smoke, human body odours, kitchen odours, carbon monoxide, etc... It automatically overrides the economizer when pollutant levels rise above preset limits. A shorting plug will set the algorithm to acceptable, good or very good air quality. This VOC sensor (Volatile Organic Compounds) sends an ON/OFF signal to the control PCB. The YKlon will then adjust the fresh air damper, optimising indoor air quality and minimising the energy consumption.



Motorised outdoor air damper

Equipped with the same dampers as the economizer, the Return Air probe is not used. Outdoor air damper opens to pre-set position whenever the indoor fan is operating (selected from the thermostat, the indoor fan can be activated with the compressor or to operate continuously) and will drive fully closed when the indoor fan shuts down. The rain hood is painted to match the basic unit and aluminium mesh pre-filter prevents water penetration.



Power Exhaust

Used to mechanically relieve internal air pressure from the Return Air section and ensure efficient fresh air introduction on units equipped with triple input economiser or motorised air damper. The power exhaust fan motor works when enough Outdoor Air is blowing into the room and if Outdoor Air temperature is acceptable (12°C < t° < 30°C).



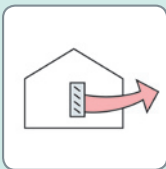
Enthalpy sensors

To control the economizer in humid areas, or when indoor air humidity needs to remain dry, you should select enthalpy regulation. Enthalpy sensors will be used with the triple input economizer.



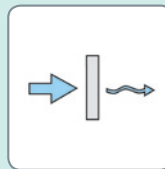
High speed drive

The high speed drive will increase the supply fan performance for applications requiring greater air flow and/or static pressure. Please consult technical guide for more information.



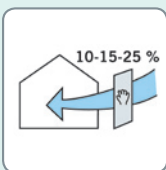
Barometric relief damper

This accessory can be used to relieve internal air pressure on units equipped with triple input economiser or motorised air damper but no power exhaust. When the rooftop is working in free cooling or introducing fresh air, the damper opens to relieve over pressure from the return air section. This accessory is comprised of a rain hood, a protective grille and a fully assembled damper.



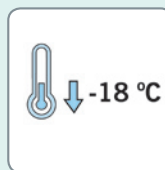
Dirty filter switch

Ensures that clean air is being supplied, advises when maintenance is required to prevent excessive depression and ensures water integrity of the AHU. These are the main advantages of filter dirty switch. Connected with the DPC-1 thermostat, the filter icon will appear on the thermostat screen when a filter change is required.



Fresh air damper and rain hood

The most cost effective method with a complete rain hood and a fixed damper that can be adjusted to provide approximately 10, 15 or 25% of fresh air.



Low ambient control

All our rooftops are designed to work in cooling mode down to 7°C ambient temperatures. Although this working range suits most applications, the units can operate correctly down to -18°C with optional low ambient control.



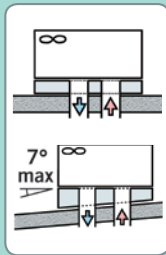
Fire detection thermostat

This fire detection thermostat is protecting the AHU but must not be used to ensure a full building protection against fire danger. The standard AHU is protected as standard with a Supply Air probe that shuts the unit down (lockout) when temperature exceeds 80°C. The electro-mechanical fire detection thermostat is used to fulfil specific local requirement. A manual reset is necessary.



Smoke detector

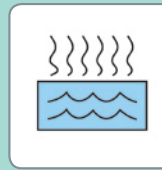
The smoke detector is protecting the AHU but must not be used to ensure a full building protection against smoke danger. If smoke is detected the AHU is shutdown (lockout). A manual reset is necessary.



Fixed and adjustable roof curbs

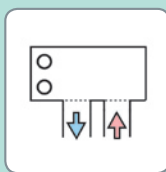
Ideal for down-flow applications, it is a great help for installation allowing duct connections, electrical connection and weatherproofing between the roofcurb and the roof of the building. Shipped in kit form, it also gives sufficient height for condensate trap operation.

The adjustable roof curbs have the same benefits as the fixed roof curb, it allows the rooftop to be levelled on a roof with up to 7° slope (4%).



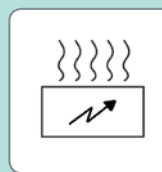
Hot water coil with control

The hot water coil and his control are always fitted, wired and factory tested. Located in the supply air section, side or bottom duct connection is possible without any modification. Complete with an anti-frost thermostat, the PCB will activate the modulated valve (24V supply, 0 – 10V modulating signal) in order to get the best comfort. A jumper will allow using hot water coil as 1st heating stage.



Side duct flanges

Fitted as standard on units 90, 120 and 150, this accessory is composed of easy to install sheet metal panels to allow ductwork connections on the side of the AHU for horizontal return air and/or supply air.



Electric heaters

Available on cooling only and Heat pump units, the electric heater is protected with two overheats per element. When the overheat operates, there is a lock out of the faulty electric heater stage and the PCB starts automatically another heat stage.



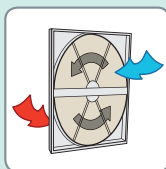
Kit conversion propane

This kit comprises replacement burner, pilot injectors and all necessary instructions for converting the natural gas burner to propane gas. The nominal pressure of the propane gas should be 37 mbar.



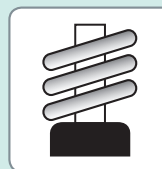
High heat gas

This kit comprises replacement burner injectors and all necessary instructions to provide high heat capacity for gas rooftop.



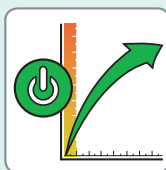
Energy recovery

Attached to the return air box of the rooftop, a rotary enthalpy wheel retrieves the energy of the exhausted air and transmits it to the fresh air intake. A special material used in the wheel allows that latent heat as well as sensible heat are transmitted.



Antivibration mounting kit

It is composed by a set of stainless steel springs, to be assembled underneath the rooftop in a specific position. Their installation avoids the potential vibration transmission of the equipment to the building and reduces therefore the noise level (compressors have their own shock absorbers delivered as standard).



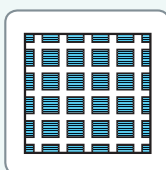
Indoor fan soft start

Compact control unit with a motor with AC semiconductors, designed for soft starting and stopping of three-phase motors for centrifugal fans. The starting time, the stopping time and the initial torque are adjusted by mean of independent potentiometers.



Return fan

Used to overcome high return path pressure drops, works in series with the indoor fan to maintain the air pressure of the conditioned space within acceptable levels.



Grill condenser protection

Metallic frame painted with oven-baked polymerized paint (800h salt spray resistance) to protect the fins of the coils from external damages.



Air filters

G4, F6 and F7 filters are available to purify the air in the room. M1 fire class and manufactured in sheet metal frame, they are easy to install and clean.

Design Details



Cabinet features

- Built to last, all cabinet with heavy gauge galvanized steel and powder paint backed on oven.
- Copper-copper coils or blue fin delivered upon request.
- Side or bottom duct connections to be realized on site. No additional parts needed.
- Excellent water-tightness even with high internal negative pressure.
- External slopes to remove rain water.
- Only 4 solid points to crane.



Copper-copper coil



Blue fin



Designed to service

- Quick and easy access to all components.
- Doors equipped with hinges and ¼ turn lock.
- Service valves.
- Inspection window for sight glass.
- Internal drain pan slope to remove drain water.
- YKtool for comissioning, monitoring and controlling unit parameters.



Electrical features

- YKlon V3 regulation and control.
- Vertical hermetic scroll compressor, with compressor module and crankcase heater.
- Smooth start indoor fan.
- Phase detector.
- Main power switch.
- Numbered wires in cable trunking.
- Motor protection.



Quality and ELT

Design, built and tested under ISO9001 quality system certification, we are constantly listening to customer comments. For this reason, our End of Line Test ELT strives to be as close as possible to the commissioning you carry out on site.

Control System



Features and benefits Thermostat DPC-1

- Day (normal), night (economy) and unoccupied (stand by).
- Lockout code on screen gives direct diagnostics.
- ON/OFF or programmable from dip switch setting.
- Day or night programmable state avoids wide internal temperature variation.
- 3 preset and 3 programmable profiles.
- Temperature override.
- Select the control sensor you want to use (integrated in the thermostat, return air in duct or room sensor).
- Turbo, normal or economy logic from dip switch setting.
- From -3°C to +3°C sensor offset.
- Average temperature with room or duct sensors.

Thermostats with integrated sensors

Thermostat models	DPC-1	DPC-1R
Code	S603786044	S603786045
Roomtop RTC and RTH	X	0
Rooftop All models	X (1)	0
Split system VAC and VAH	X	0
VCH	X	0

Main features			
Strategy	Turbo, normal or economy		
Auto restart after power failure	•		•
Number of cool stages	2	1	2
Number of heat stages	2	1	2
Auxiliary Heat	•		•
Automatic Heat/Cool change over	•		•
Continuous or auto indoor fan	•		•
Manual setback (Day/Night key)	Day, night and unoccupied		
Override possibility	•		•
Compressor anti short cycle	•		•
°C Range cooling / heating	10 to 32°C / 9 to 32°C		
Programmable, 7-day	•		•
Lockout codes	•		•
Outdoor air temperature	•		with YKlon
Sensor selection	•		•

X : Delivered as standard with the unit. X (1) : Standard but has to be ordered separately.
 O : Optional. • : Function available.



DS-1



AS-1



RS-1

Duct sensor	Ambiance sensor*	Room sensor
DS-1	AS-1	RS-1
S603786047	S603786049	S603786042

* To control up to 4 temperature sensors.
 To be fitted with DPC-1 version 2.0 or superior.



YKtool

The Yktool is the perfect tool to use on a regular basis for commissioning and service on site. For commissioning, it will override the thermostat and start the cooling or heating stages. Being a plug and play device, you will have direct access to all sensors and status of each components and accessories installed (lockout & incidents, temperatures, defrost test...).

