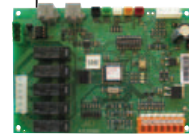# Large ACTIVA Rooftop

ARC-ARG-ARH-ARD
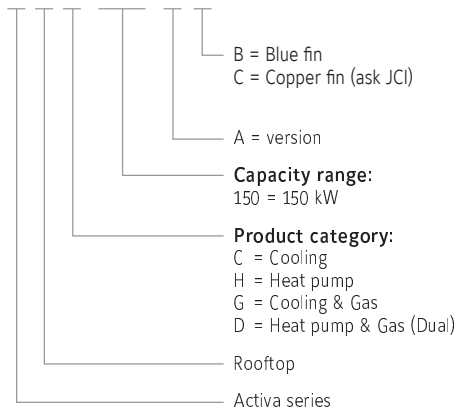A complete range from 105 kW up to 169 kW

YKN2open

Features

- High efficiency EER and COP
- Quiet operation
- All configurations: Cooling only, Cooling + gas, Heating, Heating + Gas
- BMS communication as standard (N2Open protocol)
- Partial loads
- Extended working range (up to 52°C outdoor temperature)
- F6 & F7 filters available as option (G4 standard)
- Energy recovery (ask JCI for availability)

Nomenclature

A R C 150 A B

B = Blue fin
C = Copper fin (ask JCI)

A = version

Capacity range:
150 = 150 kW

Product category:
C = Cooling
H = Heat pump
G = Cooling & Gas
D = Heat pump & Gas (Dual)

Rooftop

Activa series

Large ACTIVA Rooftop
ARC-ARG-ARH-ARD 100 to 175 AB

Technical features

Cooling only models		ARC 100 AB	ARC 125 AB	ARC 150 AB	ARC 175 AB
Net cooling capacities	kW	108.1	121.8	149.3	169.0
Power input	kW	34	41	59	64
EER		3.46	3.21	3.13	2.91
Working range (full load / partial load) *	°C	7°C – 46°C / –10°C – 52°C			
Heat pump models		**ARH 100 AB**	**ARH 125 AB**	**ARH 150 AB**	**ARH 175 AB**
Net cooling capacities	kW	108.1	121.8	149.3	169.0
Power input in cooling	kW	34	41	59	64
EER		3.46	3.21	3.13	2.91
Heating capacities (1)	kW	104.6	118.4	147.0	167.0
Power input in heating	kW	33	37	53	61
COP		3.48	3.44	3.20	2.96
Working range (full load / partial load) *	°C	–10°C – 46°C / –10°C – 52°C			
Cooling only + Gas heating models		**ARG 100 AB**	**ARG 125 AB**	**ARG 150 AB**	**ARG 175 AB**
Net cooling capacities	kW	108.1	121.8	149.3	169.0
Cooling power input	kW	34	41	59	64
Standard Heating capacities (1)	kW	125.0	125.0	170.0	170.0
Natural gas 2ND-H, G20	m³/h	14.1	14.1	19.1	19.1
Working range (full load / partial load) **	°C	–20°C – 46°C / –20°C – 52°C			
Heat pump + Gas heating models		**ARD 100 AB**	**ARD 125 AB**	**ARD 150 AB**	**ARD 175 AB**
Net cooling capacities	kW	108.1	121.8	149.3	169.0
Cooling power input	kW	34	41	59	64
Heating capacities (1)	kW	104.6	118.4	152.0	166.7
Power input in heating	kW	33	37	53	61
Standard Heating capacities (1)	kW	125.0	125.0	170.0	170.0
Natural gas 2ND-H, G20	m³/h	14.1	14.1	19.1	19.1
Working range (full load / partial load) **	°C	–20°C – 46°C / –20°C – 52°C			

Common characteristics					
Power supply		400V / 3 / 50Hz			
Main switch	A	100	125	160	200
Main cable	Nbr. x mm²	3 x 35	3 x 50	3 x 50	3 x 70
Cable to thermostat	Nbr. x mm²	10 x 0,22			
Number of circuits / Compressor type		2 (tandem) / 4 x scroll			
Evaporator fan at nominal airflow	Airflow m³/h	19 000	21 000	27 000	31 000
	Power input kW	3.0	3.3	8.3	9.1
Nett dimensions	Height mm	2 142		2 142	
	Length mm	4 036		5 085	
	Depth mm	2 250		2 250	
Nett weight ARC / ARG	kg	1 737 / 2 080	1 744 / 2 125	2 074 / 2 410	2 090 / 2 450
Nett weight ARH / ARD	kg	1 765 / 2 125	1 772 / 2 170	2 135 / 2 460	2 150 / 2500

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.
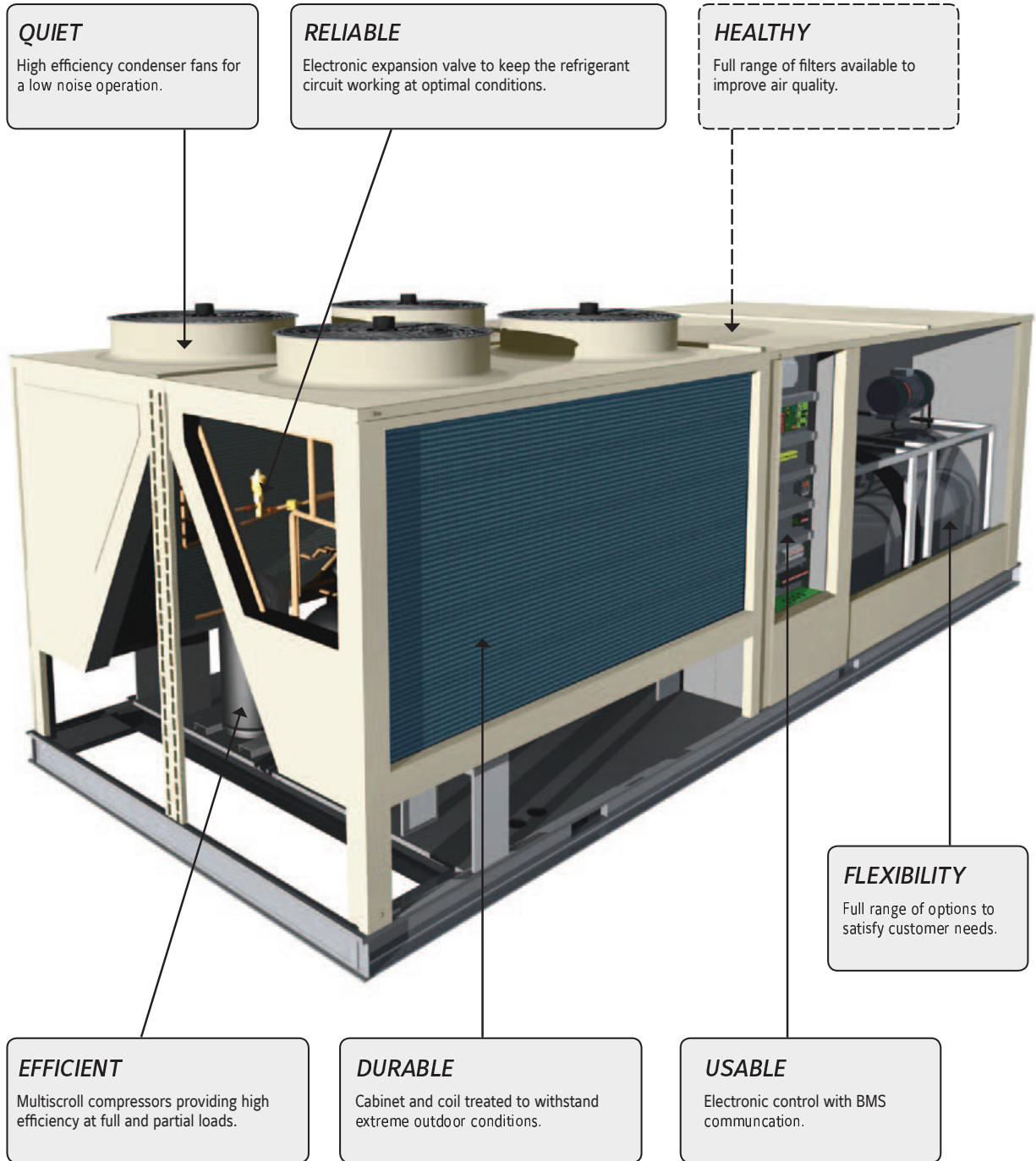** With Premium kit (full load / partial load): –10°C ~ 50°C / –10°C ~ 52°C*
** With Premium kit (full load / partial load): –20°C ~ 50°C / –20°C ~ 52°C
Red color indicates preliminary data.

Codes

Cooling only models	ARC 100 AB	ARC 125 AB	ARC 150 AB	ARC 175 AB
	S661852400	S661852420	S661852450	S661852480
Heat pump models	**ARH 100 AB**	**ARH 125 AB**	**ARH 150 AB**	**ARH 175 AB**
	S661852403	S661852423	S661852453	S661852483
Cooling only + Gas heating models	**ARG 100 AB**	**ARG 125 AB**	**ARG 150 AB**	**ARG 175 AB**
	S661852401	S661852421	S661852451	S661852481
Heat pump + Gas heating models	**ARD 100 AB**	**ARD 125 AB**	**ARD 150 AB**	**ARD 175 AB**
	S661852402	S661852422	S661852452	S661852482
Thermostat				
to be ordered separately	DPC-1			

Large Activa rooftop details

QUIET

High efficiency condenser fans for a low noise operation.

RELIABLE

Electronic expansion valve to keep the refrigerant circuit working at optimal conditions.

HEALTHY

Full range of filters available to improve air quality.

FLEXIBILITY

Full range of options to satisfy customer needs.

EFFICIENT

Multiscroll compressors providing high efficiency at full and partial loads.

DURABLE

Cabinet and coil treated to withstand extreme outdoor conditions.

USABLE

Electronic control with BMS communcation.

Accessories & options

Accessories & options

	Code	Cooling only				Heat pump				Cooling + gas heating				Heat pump + gas heating			
		100	125	150	175	100	125	150	175	100	125	150	175	100	125	150	175
Thermostat DPC-1	S603786044	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Dry bulb triple input economizer or motorized air damper with rain hood	S611751011	O	O			O	O			O	O			O	O		
	S611751511			O	O			O	O			O	O			O	O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Power Exhaust	S611751021	A	A			A	A			A	A			A	A		
	S611751521			A	A			A	A			A	A			A	A
Barometric relief damper	S611751031	A	A			A	A			A	A			A	A		
	S611751531			A	A			A	A			A	A			A	A
Fresh air damper	S613751021	A	A			A	A			A	A			A	A		
	S613751521			A	A			A	A			A	A			A	A
High speed drive	S611751091	O	O			O	O			O	O			O	O		
	S611751591			O	O			O	O			O	O			O	O
Side duct supply	S611751061	O	O			O	O			O	O			O	O		
	S611751561			O	O			O	O			O	O			O	O
Soft start indoor fan 5.5 kW	S606744690	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
11.5 kW	S606744691	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Premium Kit (LAK included) *	S611751071	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Fixed roof curb	S611751081	A	A			A	A			A	A			A	A		
	S611751581			A	A			A	A			A	A			A	A
Adjustable roof curb	S611751082	A	A			A	A			A	A			A	A		
	S611751582			A	A			A	A			A	A			A	A
Dirty filter switch	S613990085	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Smoke detector	S613995382	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Fire detection thermostat	S613903003	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Hot water coil	S611751051	O	O			O	O										
	S611751551			O	O			O	O								
Electric heaters 37 kW	S611751037	O	O	O	O	O	O	O	O								
50 kW	S611751050	O	O	O	O	O	O	O	O								
60 kW	S611751060	O	O	O	O	O	O	O	O								
Filter kit F6	S611751046	O	O			O	O			O	O			O	O		
	S611751546			O	O			O	O			O	O			O	O
Filter kit F7	S611751047	O	O			O	O			O	O			O	O		
	S611751547			O	O			O	O			O	O			O	O
Grill condenser coil protection	S611751041	O	O			O	O			O	O			O	O		
	S611751541			O	O			O	O			O	O			O	O
Antivibration mounting kit 100/125	S613751011	O	O			O	O			O	O			O	O		
Antivibration mounting kit 150/175	S613751511			O	O			O	O			O	O			O	O
Energy recovery	Contact us	A	A			A	A			A	A			A	A		
	Contact us			A	A			A	A			A	A			A	A
Filter kit F6 heat recovery	Contact us	O	O			O	O			O	O			O	O		
	Contact us			O	O			O	O			O	O			O	O
Filter kit F7 heat recovery	Contact us	O	O			O	O			O	O			O	O		
	Contact us			O	O			O	O			O	O			O	O
Alarm relay board	S606791243	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O	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.
* Features: increased efficiency by 0.15, extended max outdoor temperature up to +50°C at full load, Low ambient kit.

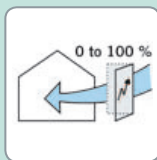# Rooftop & Large Rooftop accessories & options

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 YKN2Open 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 remains 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.
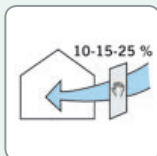Please consult technical guide for more information.

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.
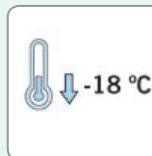
Dirty filter switch

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.
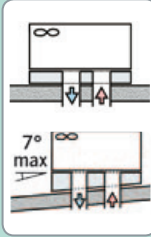
Fire detection thermostat

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.
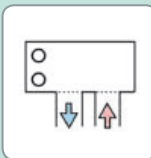
Fixed and adjustable roof curbs

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%).
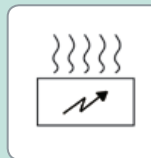
Hot water coil with control

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.
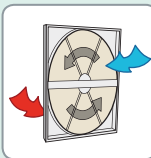
Kit conversion propane

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.
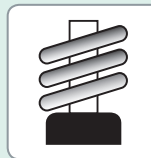
High heat gas

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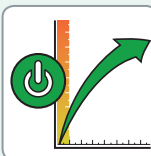
Energy recovery

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.
(Not available for models ARx 100-175).

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).
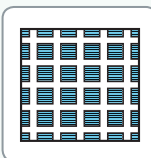
Indoor fan soft start

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.
(Only available in models ARx 45-90).

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.