

ACTIVA SERIES ROOF TOP Air Conditioners 100/175



Installation manual

Ref.: N-40428_EN 0915





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Installation manual



1.1 Safety instructions

1.1 Safety instructions

This document contains the necessary information for the safe and efficient transportation, assembly and installation of the air conditioning unit. This guarantees the condition of the unit and its operating safety.

Only an authorised company may assemble the air conditioning unit.

Only authorised companies with the appropriate technical resources and suitably trained personnel may install the air conditioning unit.

The specialists responsible for installing the air conditioning unit must make sure they have all of the information and knowledge required to correctly install, test and deliver the unit. Johnson Controls Inc. shall not be considered responsible for any damage caused by installation of the unit that is no consistent with that described in this document or others specifically provided with the unit.

During regular equipment installation, the fitter must pay special attention to certain situations in order to prevent injuries or damage to the unit.

Situations that could jeopardise the safety of the fitter or that of others nearby or that could put the unit itself at risk are clearly indicated in this manual.

A series of special symbols are used to clearly identify these situations.

Pay careful attention to these symbols and to the messages following them, as your safety and the safety of others depends on it.

1.2 Icons used in this document



- The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.
- Not taking these instructions into account could lead to serious, very serious or even fatal injuries to you and others in the proximities of the unit.

Information can also be found on safe procedures during unit handling. This will help reduce the risk of accidents.



- The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.
- Not taking these instructions into account could lead to minor injuries to you and others in the proximities of the unit.
- Not taking these instructions into account could lead to unit damage.

Information can also be found on safe procedures during unit handling. This will help reduce the risk of accidents.



- The text following this symbol contains information or instructions that may be of use or that is worthy of a more thorough explanation.
- Instructions regarding inspections to be made on unit parts or systems may also be included.



Instructions for storage, transport and handling of the unit 1.3

1.3 Instructions for storage, transport and handling of the unit

Delivery inspection

The unit should be carefully inspected for visible damage or abnormalities as soon as it is received.

Any abnormalities or damage to the unit should be communicated to both the transportation and insurance company in writing.

Storage instructions

The unit should be stored in a place suitable to the purpose (warehouse or similar), protected from the weather, water, humidity and dust.

Cover the unit with a canvas of a suitable size.

The unit should be appropriately protected from knocks and dust, ensuring the protective parts it was supplied with remain in place. Where these are not in place, establish the necessary protections and/or barriers to keep vehicles or fork-lift trucks away.

Transport and handling of the unit

The units should only be handled by personnel from the company responsible for their installation.

Transport of the unit should be in such a manner that no damage is caused by faulty or inadequate mooring to the bed or body of the vehicle.

Where necessary, protect all of the edges of the unit against knocks and scratches and moor it to the bed or body of the vehicle using suitable textile belts or slings to keep it perfectly still.

ATTENTION

Do not use forklifts for operations of loading and unloading the unit.

Loading and unloading the unit from a truck or trailer should be on flat, solid ground using an crane with sufficient capacity.

1.3.1 Disposal of packaging

The packaging is recyclable. Dispose of it in the appropriate place or take it to an appropriate collection centre. Respect the regulations in force for this type of waste in the country where the unit is being installed.

Packaging remains must be correctly disposed of. Improper disposal of packaging generates environmental problems that affect human life.

1.3.2 Hoisting points

The points designed for hoisting the unit are located on the beams on its base -arrows-.



Do not use forklifts for operations of loading and unloading the unit.

Install 5/8" shackles -A- on the points designed for hoisting.

- Models AR 100/125: 4 hoisting points, 2 on each side.
- Models AR 150/175: 6 hoisting points, 3 on each side.



1.3 Instructions for storage, transport and handling of the unit



Before hoisting the unit, check that the cables or slings are firmly hooked to these points and make sure the crane and the cables or slings are capable of lifting the weight.

See the weight in the technical data table or on the rating plate.

Do not forget to count the weight of the options installed in the unit.

Place spacers -1- at the top of the unit to prevent the cables or slings from touching it.

Attach guide ropes so that the unit does not rotate freely.

The cables or slings should be long enough to form an angle of over 45° to the horizontal plane. Hoist the unit keeping it in a horizontal position.



DANGER There should not be onlookers within a radius of 10 m of the unit when it is being hoisted. 100/125 150/175



1.3.3 Centre of gravity

Models	A	В
100 / 125	1185	1760
150 / 175	1160	2380

All measurements in mm.

- 1. End of the outdoor coils
- 2. Approximate centre of gravity



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1.4 Technical data

1.4 Technical data

1.4.1 Technical and physical data for ARC (only cooling) and ARG (only cooling + gas heating)

Models		ARC/ARG	045	060	075	090
	Net cooling capacity	kW	45.1	61	71.5	84
Cooling capacity (1)	Rated absorbed power in cool mode	kW	16	23	30	36
Heating (ARC)Optional electric heater, heating capaci- ty (400 V) (2)kW12-25-37-50				-37-50		
	Heat capacity at 100% power (standard)	(LHV) Total kW		8	5	
		Net (2) kW		7	6	
	Heat capacity at 100% power, high ca-	Total kW		10	00	
	pacity (optional)	Net (2) kW		g	0	
Gas Heating (ARG)	100% gas consumption (2ND-H natural gas, G20 at 20 mbar and 15 $^{\circ}\mathrm{C}$) (standard)	m ³ /h		8	.6	
	100% gas consumption (2ND-H natural gas, G20 at 20 mbar and 15°C) high capacity (optional)	m ³ /h		9	.8	
	Stages	No.			2	
	Rated/start-up current	A	2x12/95	2x15/118	2x20/140	2x25/198
Compressors	Type and quantity		S	SCROLL, 1 (TAN	DEM 50% + 50%	%)
	Degree of protection			IP	21	1
Coolant (R-410A)		kg	10.5	18.2	20.5	29
Power supply		V/ph/Hz		400/3	+N/50	r
	Rated air flow	m³/h	8500	11500	13500	16000
	Maximum static pressure with rated flow (standard)	Pa	182	270	240	368
	Maximum static pressure with rated flow (optional HPD drive)	Pa	368	430	>500	>500
Indoor fan (3)	Maximum flow rate	m³/h	10000	13500	16000	18000
	Minimum flow rate	m³/h	7000	9500	11500	13000
	IP55 motor (standard)	kW	3	4	5.5	7.5
	Rated current	А	5.5	5.7	7.6	11.7
	IP55 Motor (HPD optional)	kW	4	5.5	7.5	11
	Rated current	А	5.7	7.6	11.7	14/17.4
	Number of elements	No.	2	3	3	4
Indoor coil (evaporator)	Distance between fins	mm	1.81	1.81	1.81	1.81
	Front surface	m ²	1.44	1.58	1.95	1.06 (x 2)
Air filtors (C4)	Quantity per unit	No.		6		6
All fillers (G4)	Dimensions	mm	470x	550x48	565x5	94x48
	Diameter/number	mm	800/1	800/2	800/2	800/2
Outdoorfon	Total rated flow	m³/h	15000	23000	27000	27000
Outdoor ian	Motor (IP54)	kW	1.9	1.9	1.9	1.9
	Rated current	А	3.5	2x3.5	2x3.5	2x3.5
	Number of elements	No.	2	3	2	3
Outdoor coil (condens-	Distance between fins	mm	1.81	1.81	1.81	1.81
	Front area	m ²	2.27	2.49	2.31 (x2)	2.31 (x2)
	Height	mm	1	316	13	67
Net dimensions (4)	Length	mm	3	180	34	95
	Width	mm	2	337	23	37
Net weight (basic unit	ARC	kg	900	945	1118	1142
without accessories) (4)	ARG	kg	1010	1055	1228	1252



Technical data 1.4

Models		ARC/ARG	045	060	075	090
	Total rated power	kW	16	23	30	36
	Total rated current	А	32	42	54	70
Electrical features of	Total maximum power	kW	23	31	38	45
the unit	Total maximum current	A	42	56	70	83
	Circuit breaker (K curve) (5)	A	50	63	80	100
	Minimum cable section (6)	mm ²	10	16	25	35

Data in accordance with Eurovent conditions, summer: indoor 27 °C DBT / 19 °C WBT - outdoor DBT 35 °C. (DBT Dry-bulb temperature; WBT Wet-bulb temperature).
 Add the inside motor consumption to find the total calorific capacity.

(3) See Indoor fan, see on page 24.

(4) Consider the additional weight of options and accessories. To do so, see Weight options and accessories, see on page 9.

LHV: Lower heating value.

(5) and (6) Circuit breaker with K curve, according to DIN, VDE 0660-104. Cable section for the power supply line based on copper conductors, 105 °C. The indicated circuit breaker and the section of power supply cables are guidelines. They should be adjusted based on the requirements of each installation, distance between units, fall in planned voltage and on the application of the current regulations with respect to the country where the unit is being installed.



1.4.2 ARH technical and physical data (heat pump)

ARH/ARD models				100	125	150	175
	Net cooling capaci	ity	kW	108	122	149	169
Cooling capacity (1)	Rated absorbed p	ower	kW	34	41	59	64
	Net EER			3.46	3.21	3.13	2.91
	Net heating capac	ity	kW	105	118	147	167
	Rated absorbed p	ower	kW	33	37	53	61
Heat capacity (1)	Net COP			3.48	3.44	3.20	2.96
	Optional heating e (400 V) (ARH) (2)	lement heating capacity	kW	37	7 - 50	37 - 5	60 - 60
Circuits			No.		2		
	Rated/start-up cur	rent	A	4 x 13 / 111	4 x 15 / 118	4 x 20 / 140	4 x 24 / 198
Compressors	Type and quantity	(per circuit)			Scroll x 2 (1	Tandem)	
	Degree of protection	on			IP2	1	
Coolant (R-410A)	Load (per circuit)		kg	20	20	25.5	26
Power supply			V/ph/Hz		400 / 3	3 / 50	
	Rated air flow		m³/h	19000	21000	27000	30000
	Maximum static	Standard	Pa	355	360	380	570
	rated flow rate	HPD	Pa	560	560	580	570
Indoor fan (3)	Maximum flow rate		m³/h	22000	25000	32000	35000
	Minimum flow rate		m³/h	16000	18000	22000	25000
	Motor (IP55) Maximum power / Quantity		kW	5.5 / 1		4/2	5.5 / 2
	Maximum current		A	12.5		9.5 x 2	12.5 x 2
	Number of elements		No.	4		•	
Indoor coil (evaporator)	Distance between	fins	mm	1.81		1.	81
	Front surface		m ²	3.5		5.2	
Air filtors (G4)	Quantity per unit		No.	6			
All lillers (04)	Dimensions		mm	823 x 730 x 48		823 x 8	80 x 48
	Diameter/number		mm	800 / 1		800 / 2	
Outdoor fan	Total rated flow		m³/h	18000		36000	
(data per circuit)	Motor (IP54)		kW	1.9		1.9 (x 2)	
	Rated current		A	3.3		3.3 (x 2)	
	Number of elemen	ts	No.	3 (x 2)		3 (x 2)	
(Data for each circuit)	Distance between	fins	mm	2.11		2.11	
	Front area		m ²	1.86 (x 2)		2.62 (x 2)	
	Height		mm		1862 + 2	280 fan	
Net dimensions (4)	Length		mm	4	036	50	085
	Width		mm	2	250	22	250
Net weight (basic unit without accessories) (4)			kg	1765	1772	2135	2150
	Total rated power		kW	34	41	59	64
	Total rated current		A	65	75	110	125
Electrical features of the unit	Total maximum po	wer	kW	49	57	74	85
	Total maximum cu	rrent	А	88	101	137	157
	Circuit breaker (K	curve) (5)	A	100	125	160	200
	Minimum cable se	ction (6)	mm ²	3 x 35	3 x 50	3 x 50	3 x 70

(1) Data in accordance with Eurovent conditions, summer: indoor 27 °C TS / 19 °C WB - outdoor TS 35 °C. Winter: Indoor TS 20 °C, outdoor TS 7 °C / TH 6 °C (TS Dry-bulb thermometer; TH Wetbulb thermometer), with vertical ducts, rated air flow and pressure.

Net EER = Net cooling capacity / Total absorbed power (according to Eurovent).

Net COP = Net heating capacity / Total absorbed power (according to Eurovent).

(2) Add the inside motor consumption to find the total calorific capacity.

(3) See Indoor fan, see on page 24

(4) Consider the additional weight of options and accessories. To do so, see *Weight options and accessories, see on page 9*.

(5) and (6) Circuit breaker with K curve, according to DIN, VDE 0660-104. Section of cables for the power supply line based on copper conductors, 105 °C. The circuit breaker and the section of power supply cables indicated are for guidance. They should be adjusted based on the requirements of each installation, distance between units, fall in planned voltage and on the application of the current regulations with respect to the country where the unit is being installed.

Technical data 1.4

1.4.3 Unit sound pressure data

Octave band sound spectrum dB(A), outdoor

Models	100	125	150	175
125 Hz	87.3	90.1	89.7	93.2
250 Hz	85.4	86.6	87.8	89.7
500 Hz	84.5	84.2	86.9	87.3
1000 Hz	84.9	84	87.3	87.1
2000 Hz	79.7	79	82.1	82.1
4000 Hz	73.4	75.5	75.8	78.6
8000 Hz	68.4	73.2	70.8	76.3
Sound power level dB (A)	88.4	88.5	90.8	91.6
Sound pressure level at 5 m dB (A)	63.7	63.8	66.1	66.9
Sound pressure level at 10 m dB (A)	57.6	57.7	60	60.8

Octave band sound spectrum dB(A), indoor

Models	100	125	150	175
125 Hz	89.8	94.4	96.9	98
250 Hz	77.5	83.2	85.7	86.8
500 Hz	75.7	76.9	79.4	80.5
1000 Hz	75.6	76.4	78.9	80.0
2000 Hz	75	75.7	78.2	79.3
4000 Hz	73.8	76.4	78.9	80
8000 Hz	70.3	74.5	77	78.1
Sound power level dB (A)	83.3	84.2	86.7	87.8

1.4.4 Weight options and accessories

Models		100	125	150	175
Economiser	kg	88	88	100	100
Exhaust fan (axial)	kg	75	75	106	106
Roofcurb mounting base (fixed / adjustable)	kg	152	152 / 248		/ 302
Electric Heater	kg	35	35	38	38
Hot water coil	kg	61	61	77	77
Fixed outdoor air intake	kg	39	39	43	43
Barometric damper	kg	28	28	36	36
Conner fin esil	indoor	105		160	
	outdoor	144		204	
Side air supply	22		29		
HPD	10 (7.5 kW)	/ 43 (11 kW)	40		





1.5 ARC / ARH units with auxiliary heating element

1.5 ARC / ARH units with auxiliary heating element

The power supply to the heater must be independent to the general power supply to the unit and must be fitted with its own circuit breaker in accordance with the table:

400	Power		Heating eleme	nt		Minimum cable cross-section (mm ²) (2)	
Model	supply V/Ph/Hz	Power (kW)	Stages (No.)	Current (A)	Curve) (1)		
100	400/2/50	37	2	54	63	16	
100	400/3/50	50	2	72	80	25	
405	400/2/50	37	2	54	63	16	
125	400/3/50	50	2	72	80	25	
	400/3/50	37	2	54	63	16	
150		50	2	72	80	25	
		60	2	87	100	35	
		37	2	54	63	16	
175	400/3/50	50	2	72	80	25	
		60	2	87	100	35	

(1) K Curve (DIN, VDE 0660-104).

(2) Based on copper conductors 105 °C.

1.6 Limits of use

Model						125	150	175
Voltage limits Min./Max V					360/440			
APC		Temperature of air inlet in ind		WB °C Min./Max.	15/23	15/23	15/23	15/23
		remperature of air miet in mo		DB °C Min/Max	20/32	20/32	20/32	20/32
		Outdoor temperature (without tion control)	condensa-	TS °C Min.	10	10	7	7
	Maximum outdoor tempera- ture (1) At full load At partial load		At full load	TS °C	46	46	46	46
			TS °C	52	52	52	52	
		Temperature of air inlet in indoor coil Outdoor temperature (without condensa- tion control)		WB °C Min./Max.	15/23	15/23	15/23	14/23
	Summer cycle			DB °C Min/Max	20/32	20/32	20/32	20/32
				TS °C Min.	10	10	7	7
ARH		Maximum outdoor tempera-	At full load	TS °C	46	46	46	46
		ture (1)	At partial load	TS °C	52	52	52	52
	Winter	Temperature of air inlet in ind	oor coil	DB °C Min/Max	10/25	10/25	10/25	10/25
	cycle	Outdoor temperature		DB °C Min/Max	-10/20	-10/20	-10/20	-10/20

1. Direct sunlight on the unit should be prevented when temperatures are higher than 43 °C. If placed under some kind of protective cover, the cover should not interfere with the flow of outdoor ventilation.

2. The gas heating units (ARG/ARD) are only appropriate for use with gas. In LPG (Liquefied Petroleum Gas, propane) installations, it must be ensured that in no case should gasoline in liquid form reach the gas group.

DB: Dry-bulb Thermometer; TH: Wet-bulb thermometer.





1.7 Measurements, clearances and accesses

1.7.1 Dimensions of the duct connections

Models 100 / 175, side ducts (horizontal)

Models 100 / 125





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1.7 Measurements, clearances and accesses

Models 150 / 175



Floor plan without the top panel

- S1 Lateral supply
- R1 Lateral return



Models 100 / 175, lower ducts (vertical)

Models 100 / 125



Measurements, clearances and accesses



Models 150 / 175



INOTE Floor plan without the top panel

- S2 Bottom supply
- R2 Lower return



1.7.2 Connections for supply and return ducts

Units are shipped with the connection return duct openings covered.

For applications with downward discharge ducts

1. Access the return compartment is achieved by removing access panel -B2-.

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i <sub>NOTE</sub>
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For supply duct -S1-, it is not necessary to remove an access cover or panel.

- Remove and discard the lower cover of duct -R2-(return). In order to do this, loosen the three bolts
 -D- that fix the cover to the base.
- **3.** After removing the lower cover, reattach the side panel, ensuring that the seal is hermetic.



For applications with sideways discharge ducts

For supply duct -S2-, it is not necessary to remove an access cover or panel.

- 1. Access the return compartment via the access panel -B2- and loosen the bolts -E- from the inside.
- 2. Remove and dispose of the side cover -A2-.
- **3.** After removing the side cover, reattach the access panel, ensuring that the seal is hermetic.





1.7 Measurements, clearances and accesses

1.7.3 General measurements and accesses

Minimum clearance above the unit

The unit is designed to be installed outdoors.

In ground level installations, the building eaves must not be at a vertical distance of less than 3000 mm from the top of the unit.

Models 100 / 125





Measurements, clearances and accesses 1.7

Models 150 / 175



- A1. Access to indoor fan
- A2. Access to electrical box
- A3. Access to return/economiser/filters
- A4. Access to heating/supply options
- A5. Access to cooling circuit
- C1. Supply side cover
- C2. Return side cover / air exhaust options
- C3. Outdoor air inlet cover, optional
- 1. Drain connection \varnothing 41 x 35 Long
- 2. Main switch
- 3. Side inlet for power (PG48) and control (PG21) cables
- 4. Instructions for minimum free space around the unit
- 5. Base inlet for power (PG48) and control (PG21) cables

1.8 ARC Output

1.8.1 ARC - 100 cooling capacities

Return	air								Outdoo	or coil ai	r temperat	ure (TS)							
				2	7 °C					3	5 °C					4	6 °C		
Flow rate	wв			5	Sensible	power k\	N				Sensible p	ower kV	'			;	Sensible	power k	w
m³/h	°C	PT kW	PC kW	TS ir	nlet temp	. in indoc	or coil	PT kW	PC kW	TSI	nlet temp.	in indoo	r coil	PT kW	PC kW	TS i	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	122	25.4	_	42	58	74	116	27.8	_	40	56	72	105	30.7	-	36	52	68
(Mini-	19	111	24.6	55	66	82	98	105	26.7	53	63	79	95	94	28.8	49	60	75	91
16000	17	105	24	70	76	93	105	96	26.4	65	74	89	96	86	28.6	59	69	85	86
	15	94	23.8	76	86	94	94	90	25.9	74	84	90	90	81	28.3	70	81	81	81
	23	126	25.7	_	44	62	81	119	28.2	—	41	60	79	108	31.2	-	38	56	75
(Rated)	19	114	24.9	59	71	90	108	108	27.1	56	69	87	106	97	29.3	52	65	83	97
19000	17	108	24.4	77	85	103	108	99	26.8	71	81	99	99	89	29	64	77	89	89
	15	97	24.1	83	95	97	97	93	26.3	81	93	93	93	83	28.7	77	83	83	83
	23	129	26.1	—	49	66	87	123	28.6	—	42	64	85	111	31.6		39	60	82
(Maxi-	19	117	25.3	62	76	97	117	111	27.5	59	74	99	111	99	29.7	56	70	91	91
22,000	17	110	24.8	84	92	110	110	102	27.2	77	88	102	102	91	29.4	69	83	91	91
	15	99	24.5	90	99	99	99	95	26.7	88	95	95	95	85	29.2	84	85	85	85



* Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor

WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.8.2 ARC - 125 cooling capacities

Return	air								Outdoo	r coil air	temperat	ure (TS)							
				2	7 °C					3	5 °C					4	6 °C		
Flow rate	wв			;	Sensible	power k\	N				Sensible	power kV	v			;	Sensible	power k	N
m³/h	°C	PT kW	PC kW	TS i	nlet temp	. in indoc	or coil	PT kW	PC kW	TS I	nlet temp	. in indoc	or coil	PT kW	PC kW	TS i	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	138	30.8	_	48	66	83	131	33.7	_	45	63	81	118	37.3	—	41	59	76
(Mini-	19	126	29.8	63	74	92	110	118	32.4	60	71	89	107	107	35	55	67	85	102
18000	17	118	29.2	80	87	105	118	109	32.1	73	83	100	109	97	34.7	66	78	96	97
	15	107	28.8	85	97	107	107	102	31.4	83	94	102	102	91	34.3	78	90	91	91
	23	143	31.2	-	49	70	90	135	34.1	-	47	67	88	122	37.7	_	43	63	83
(Rated)	19	129	30.2	66	80	100	120	122	32.8	63	77	97	117	110	35.4	59	72	93	110
21000	17	122	29.5	87	94	115	122	112	32.5	79	90	110	112	100	35.1	72	85	100	100
	15	110	29.2	93	106	110	110	105	31.8	90	103	105	105	94	34.8	86	94	94	94
	23	146	31.6		51	75	99	138	34.6		48	72	96	125	38.3	—	44	68	92
(Maxi-	19	133	30.6	70	86	110	133	125	33.3	67	83	107	125	113	36	63	79	103	103
25000	17	125	30	97	103	125	125	115	33	87	99	115	115	103	35.6	78	94	103	103
	15	113	29.6	102	113	113	113	108	32.3	99	108	108	108	96	35.3	94	96	96	96

Data in accordance with Eurovent Rooftop program certification conditions



ARC Output 1.8



						·	- C.												
Return	air								Outdoo	r coil air	temperati	ure (TS)							
				2	7°C					38	5 °C					4	6 °C		
Flow rate	wв			:	Sensible	power k\	N			;	Sensible	power kV	v			5	Sensible	power k	N
m³/h	°C	PT kW	PC kW	TS i	nlet temp	. in indoc	or coil	PT kW	PC kW	TS i	nlet temp	. in indoo	r coil	PT kW	PC kW	TS ir	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	168	35.2		58	80	101	159	38.6	—	55	77	98	143	42.7	-	50	72	93
(Mini-	19	152	34.1	76	91	112	134	143	37.1	73	87	109	131	129	40.1	67	82	104	125
22000	17	143	33.4	95	106	128	143	132	36.7	88	101	123	132	117	39.7	81	95	117	117
	15	129	33	104	118	129	129	123	36	101	116	123	123	110	39.3	96	110	110	110
	23	174	35.9		60	87	113	165	39.3		57	84	110	149	43.5	Ι	52	79	105
(Rated)	19	158	34.8	82	99	126	152	149	37.8	78	96	122	149	134	40.8	73	91	117	134
27000	17	149	34	107	118	145	149	137	37.4	99	113	137	137	122	40.4	90	107	122	122
	15	134	33.6	116	134	134	134	128	36.7	113	128	128	128	115	40.1	108	115	115	115
	23	178	36.4	Ι	62	93	124	169	39.8		59	90	121	152	44		54	85	116
(Maxi-	19	162	35.2	87	107	138	162	153	38.3	83	104	135	153	137	41.4	78	99	130	137
32000	17	153	34.5	119	130	153	153	140	37.9	108	124	140	140	125	41	98	119	125	125
	15	137	34.1	128	137	137	137	131	37.2	124	131	131	131	117	40.6	117	117	117	117

1.8.3 ARC - 150 cooling capacities

* Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor

WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.8.4 ARC - 175 cooling capacities

Return	air								Outdoo	r coil air	tempera	ture (TS)	1						
				2	7 °C					3	5 °C					4	6 °C		
Flow rate	14/15			;	Sensible	power k\	N			;	Sensible	power k	N				Sensible	power k	N
m ³ /h	°C	PT kW	PC kW		TS inle in inde	et temp. oor coil		PT kW	PC kW		TS inle in inde	et temp. oor coil		PT KW	PC kW		TS inle in inde	et temp. oor coil	
				22	24	27	30			22	24	27	30			22	24	27	30
	23	191	43.3	—	66	90	115	181	47.4	_	62	87	112	163	52.4	_	57	81	106
(Mini-	19	173	42	86	103	127	152	163	45.6	83	99	123	148	147	49.2	76	93	117	142
25000	17	163	41	109	121	145	163	150	45.1	101	115	139	150	134	48.8	92	108	132	134
	15	147	40.6	118	134	147	147	140	44.2	115	131	140	140	126	48.3	108	124	126	126
	23	198	44.1	—	68	97	127	187	48.3	—	65	94	123	169	53.4	_	59	88	118
(Rated)	19	179	42.7	92	112	141	170	169	46.4	88	108	137	166	152	50.1	82	102	131	152
30000	17	169	41.8	122	133	162	169	155	45.9	111	127	155	155	139	49.6	101	120	139	139
	15	152	41.3	130	150	152	152	145	45	127	145	145	145	130	49.2	120	130	130	130
	23	202	44.7	—	70	104	138	192	48.9		67	101	134	173	54.1		61	95	129
(Maxi-	19	183	43.2	97	120	154	183	173	47	93	116	150	173	156	50.8	87	110	144	156
35000	17	173	42.3	134	144	173	173	159	46.5	121	138	159	159	142	50.3	109	131	142	142
	15	156	41.8	142	156	156	156	148	45.6	138	148	148	148	133	49.8	132	133	133	133



Data in accordance with Eurovent Rooftop program certification conditions

1.9 ARH Output

1.9.1 ARH - 100 cooling capacities

Return	air								Outdoo	r coil air	temperatu	ire (TS)							
				2	7 °C					3	5 °C					4	6 °C		
Flow rate	wв			5	Sensible	power k\	N				Sensible p	ower kV	/			5	Sensible	power k	w
m³/h	°C	PT kW	PC kW	TS i	nlet temp	. in indoc	or coil	PT kW	PC kW	TSI	nlet temp.	in indoo	r coil	PT kW	PC kW	TS ir	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	122	25.4	_	42	58	74	116	27.8	_	40	56	72	105	30.7		36	52	68
(Mini-	19	111	24.6	55	66	82	98	105	26.7	53	63	79	95	94	28.8	49	60	75	91
16000	17	105	24	70	76	93	105	96	26.4	65	74	89	96	86	28.6	59	69	85	86
	15	94	23.8	76	86	94	94	90	25.9	74	84	90	90	81	28.3	70	81	81	81
	23	126	25.7	_	44	62	81	119	28.2	—	41	60	79	108	31.2	_	38	56	75
(Rated)	19	114	24.9	59	71	90	108	108	27.1	56	69	87	106	97	29.3	52	65	83	97
19000	17	108	24.4	77	85	103	108	99	26.8	71	81	99	99	89	29	64	77	89	89
	15	97	24.1	83	95	97	97	93	26.3	81	93	93	93	83	28.7	77	83	83	83
	23	129	26.1	—	49	66	87	123	28.6	—	42	64	85	111	31.6		39	60	82
(Maxi-	19	117	25.3	62	76	97	117	111	27.5	59	74	99	111	99	29.7	56	70	91	91
22,000	17	110	24.8	84	92	110	110	102	27.2	77	88	102	102	91	29.4	69	83	91	91
	15	99	24.5	90	99	99	99	95	26.7	88	95	95	95	85	29.2	84	85	85	85



* Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor

WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.9.2 ARH - 125 cooling capacities

Return	air								Outdoo	r coil air	temperati	ure (TS)							
				2	7 °C					3	5°C					4	6 °C		
Flow rate	wв			;	Sensible	power k\	N				Sensible	power kV	v			:	Sensible	power k	N
m³/h	°C	PT kW	PC kW	TS i	nlet temp	. in indoc	or coil	PT kW	PC kW	TS I	nlet temp	. in indoc	or coil	PT kW	PC kW	TS i	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	138	30.8	—	48	66	83	131	33.7		45	63	81	118	37.3	_	41	59	76
(Mini-	19	126	29.8	63	74	92	110	118	32.4	60	71	89	107	107	35	55	67	85	102
18000	17	118	29.2	80	87	105	118	109	32.1	73	83	100	109	97	34.7	66	78	96	97
	15	107	28.8	85	97	107	107	102	31.4	83	94	102	102	91	34.3	78	90	91	91
	23	143	31.2	—	49	70	90	135	34.1		47	67	88	122	37.7	—	43	63	83
(Rated)	19	129	30.2	66	80	100	120	122	32.8	63	77	97	117	110	35.4	59	72	93	110
21000	17	122	29.5	87	94	115	122	112	32.5	79	90	110	112	100	35.1	72	85	100	100
	15	110	29.2	93	106	110	110	105	31.8	90	103	105	105	94	34.8	86	94	94	94
	23	146	31.6	—	51	75	99	138	34.6		48	72	96	125	38.3	—	44	68	92
(Maxi-	19	133	30.6	70	86	110	133	125	33.3	67	83	107	125	113	36	63	79	103	103
25000	17	125	30	97	103	125	125	115	33	87	99	115	115	103	35.6	78	94	103	103
	15	113	29.6	102	113	113	113	108	32.3	99	108	108	108	96	35.3	94	96	96	96

Data in accordance with Eurovent Rooftop program certification conditions



ARH Output 1.9



						0	- C.												
Return	air								Outdoo	r coil air	temperati	ure (TS)							
				2	7°C					38	5°C					4	6 °C		
Flow rate	wв			:	Sensible	power k\	N			:	Sensible	power kV	v			5	Sensible	power k	N
m³/h	°C	PT kW	PC kW	TS i	nlet temp	. in indoc	or coil	PT kW	PC kW	TS I	nlet temp	. in indoc	r coil	PT kW	PC kW	TS ir	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	168	35.2		58	80	101	159	38.6		55	77	98	143	42.7	Ι	50	72	93
(Mini-	19	152	34.1	76	91	112	134	143	37.1	73	87	109	131	129	40.1	67	82	104	125
22000	17	143	33.4	95	106	128	143	132	36.7	88	101	123	132	117	39.7	81	95	117	117
	15	129	33	104	118	129	129	123	36	101	116	123	123	110	39.3	96	110	110	110
	23	174	35.9		60	87	113	165	39.3	-	57	84	110	149	43.5	—	52	79	105
(Rated)	19	158	34.8	82	99	126	152	149	37.8	78	96	122	149	134	40.8	73	91	117	134
27000	17	149	34	107	118	145	149	137	37.4	99	113	137	137	122	40.4	90	107	122	122
	15	134	33.6	116	134	134	134	128	36.7	113	128	128	128	115	40.1	108	115	115	115
	23	178	36.4		62	93	124	169	39.8	-	59	90	121	152	44	—	54	85	116
(Maxi-	19	162	35.2	87	107	138	162	153	38.3	83	104	135	153	137	41.4	78	99	130	137
32000	17	153	34.5	119	130	153	153	140	37.9	108	124	140	140	125	41	98	119	125	125
	15	137	34.1	128	137	137	137	131	37.2	124	131	131	131	117	40.6	117	117	117	117

1.9.3 ARH - 150 cooling capacities

* Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.9.4 ARH - 175 cooling capacities

Return	air								Outdoo	r coil air	tempera	ture (TS)							
				2	7 °C					3	5 °C					4	6 °C		
Flow rate	wв			5	Sensible	power kV	v			:	Sensible	power k\	N				Sensible	power k\	N
m³/h	°C	PT kW	PC kW	TS ii	nlet temp	. in indoc	or coil	PT kW	PC kW	TS i	nlet temp	. in indo	or coil	PT kW	PC kW	TS ii	nlet temp	. in indo	or coil
				22	24	27	30			22	24	27	30			22	24	27	30
	23	191	43.3	_	66	90	115	181	47.4	-	62	87	112	163	52.4	—	57	81	106
(Mini-	19	173	42	86	103	127	152	163	45.6	83	99	123	148	147	49.2	76	93	117	142
25000	17	163	41	109	121	145	163	150	45.1	101	115	139	150	134	48.8	92	108	132	134
	15	147	40.6	118	134	147	147	140	44.2	115	131	140	140	126	48.3	108	124	126	126
	23	198	44.1	—	68	97	127	187	48.3		65	94	123	169	53.4	—	59	88	118
(Rated)	19	179	42.7	92	112	141	170	169	46.4	88	108	137	166	152	50.1	82	102	131	152
30000	17	169	41.8	122	133	162	169	155	45.9	111	127	155	155	139	49.6	101	120	139	139
	15	152	41.3	130	150	152	152	145	45	127	145	145	145	130	49.2	120	130	130	130
	23	202	44.7	—	70	104	138	192	48.9		67	101	134	173	54.1	—	61	95	129
(Maxi-	19	183	43.2	97	120	154	183	173	47	93	116	150	173	156	50.8	87	110	144	156
35000	17	173	42.3	134	144	173	173	159	46.5	121	138	159	159	142	50.3	109	131	142	142
	15	156	41.8	142	156	156	156	148	45.6	138	148	148	148	133	49.8	132	133	133	133

* Data in accordance with Eurovent Rooftop program certification conditions



1.9 **ARH Output**

=	Return							Outdo	oor air ten	nperature	TS °C						
FIOW Fate	air TS	ì	10		5		0		5		7	1	0	1	5	2	20
111-7/1	°C	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC
	14	72	20.1	81	20.9	92	21.9	103	22.3	108	23.4	116	24.2	130	26.0	145	26.9
	17	71	21.8	80	22.7	91	23.7	102	24.2	107	25.3	115	26.2	129	28.1	143	29.1
(Minimum) 16000	20	70	22.3	79	23.2	89	24.2	101	24.7	106	25.9	113	26.8	127	28.7	142	29.8
	23	69	23.8	78	24.8	88	25.9	100	26.5	104	27.7	112	28.7	125	30.8	140	31.9
	25	69	24.5	77	25.5	88	26.6	99	27.2	104	28.5	111	29.5	125	31.6	139	32.8
	14	72	19.6	82	20.4	93	21.3	105	21.7	110	22.8	117	23.6	132	25.2	147	26.2
	17	72	21.2	81	22.1	92	23.0	103	23.5	108	24.6	116	25.5	130	27.3	145	28.3
(Rated) 19000	20	71	21.7	80	22.6	91	23.6	102	24.1	107	25.2	115	26.1	129	28.0	143	29.0
	23	70	23.2	79	24.1	89	25.2	101	25.8	106	27.0	113	27.9	127	29.9	142	31.0
	25	69	23.8	78	24.8	89	25.9	100	26.5	105	27.7	113	28.7	126	30.8	141	31.9
	14	73	18.9	83	19.7	94	20.6	105	21.0	111	22.0	119	22.8	133	24.4	148	25.3
(Maxi-	17	72	20.4	81	21.3	92	22.2	104	22.7	109	23.8	117	24.6	131	26.4	146	27.3
mum)	20	71	21.0	81	21.8	91	22.8	103	23.3	108	24.4	116	25.2	130	27.0	145	28.0
22,000	23	70	22.4	80	23.3	90	24.4	102	24.9	107	26.1	114	27.0	128	28.9	143	30.0
	25	70	23.1	79	24.0	90	25.1	101	25.6	106	26.8	114	27.7	127	29.7	142	30.8

1.9.5 ARH - 100 thermodynamic heating capacities

Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor

WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.9.6 ARH - 125 thermodynamic heating capacities

	Botum							Outdo	or air ten	nperature	TS ℃						
Flow rate	air TS	ľ	10	-	-5		0		5		7	1	0	1	5	2	:0
m•/n	°C	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	РТ	PC	PT	PC
	14	79	23.6	89	24.6	101	25.7	114	26.2	119	27.5	128	28.4	143	30.5	159	31.6
	17	78	25.6	88	26.6	100	27.8	112	28.4	118	29.7	126	30.8	141	33.0	158	34.2
(Minimum) 18000	20	77	26.1	87	27.2	98	28.4	111	29.0	116	30.4	125	31.5	140	33.7	156	35.0
10000	23	76	28.0	86	29.1	97	30.4	109	31.1	115	32.5	123	33.7	138	36.1	154	37.4
	25	75	28.8	85	29.9	96	31.3	109	31.9	114	33.4	122	34.6	137	37.1	153	38.5
	14	80	22.8	90	23.8	102	24.8	115	25.4	121	26.5	130	27.5	145	29.5	162	30.5
	17	79	24.7	89	25.7	101	26.9	114	27.5	119	28.8	128	29.8	144	31.9	160	33.1
(Rated) 21000	20	78	25.3	88	26.3	100	27.5	113	28.1	118	29.4	126	30.4	142	32.6	158	33.8
21000	23	77	27.1	87	28.2	99	29.4	111	30.0	116	31.5	125	32.6	140	34.9	156	36.2
	25	77	27.8	86	28.9	98	30.2	110	30.9	116	32.3	124	33.5	139	35.9	155	37.2
	14	81	22.3	91	23.2	103	24.2	116	24.7	122	25.9	131	26.8	147	28.7	164	29.8
(Maxi-	17	80	24.0	90	25.0	102	26.1	115	26.7	120	27.9	129	28.9	145	31.0	161	32.1
mum)	20	79	24.7	89	25.7	101	26.8	114	27.4	119	28.7	128	29.7	143	31.8	160	33.0
25000	23	78	26.4	88	27.5	100	28.7	112	29.3	118	30.7	126	31.7	141	34.0	158	35.3
	25	77	27.1	87	28.2	99	29.5	112	30.1	117	31.5	125	32.6	141	35.0	157	36.3

* Data in accordance with Eurovent Rooftop program certification conditions



ARH Output 1.9

	Peturn							Outde	oor air ter	nperature	TS °C						
Flow rate	air TS	-	10		-5		0		5		7		10		15	2	20
myn	°C	РТ	PC	РТ	PC	РТ	PC	РТ	PC	РТ	PC	РТ	PC	РТ	PC	РТ	PC
	14	98	28.9	111	30.1	125	31.4	141	32.1	148	33.6	159	34.8	178	37.3	199	38.7
	17	97	31.3	109	32.6	124	34.0	140	34.8	147	36.4	157	37.7	176	40.4	196	41.9
(Minimum) 22000	20	96	32.0	108	33.3	122	34.8	138	35.5	145	37.2	155	38.5	174	41.3	194	42.8
22000	23	94	34.3	107	35.6	121	37.2	136	38.0	143	39.8	153	41.2	172	44.2	192	45.8
	25	94	35.2	106	36.6	120	38.3	136	39.1	142	40.9	152	42.4	171	45.4	190	47.1
	14	99	28.0	112	29.1	127	30.4	144	31.0	151	32.5	161	33.6	181	36.1	202	37.4
	17	98	30.3	111	31.5	126	32.9	142	33.6	149	35.2	159	36.4	179	39.1	199	40.5
(Rated) 27000	20	97	31.0	110	32.2	124	33.7	140	34.4	147	36.0	158	37.3	177	39.9	197	41.4
2,000	23	96	33.1	108	34.5	123	36.0	138	36.8	145	38.5	156	39.9	174	42.7	194	44.3
	25	95	34.1	108	35.4	122	37.0	138	37.8	144	39.6	155	41.0	173	43.9	193	45.5
	14	100	27.3	114	28.4	129	29.6	145	30.3	152	31.7	163	32.8	183	35.2	204	36.4
(Moxi	17	99	29.4	112	30.6	127	32.0	143	32.7	150	34.2	161	35.4	180	38.0	201	39.4
mum)	20	98	30.2	111	31.4	126	32.8	142	33.5	148	35.1	159	36.3	178	38.9	199	40.4
32000	23	97	32.3	109	33.6	124	35.1	140	35.9	147	37.6	157	38.9	176	41.7	196	43.2
	25	96	33.2	109	34.6	123	36.1	139	36.9	146	38.6	156	40.0	175	42.8	195	44.4

1.9.7 ARH - 150 thermodynamic heating capacities



* Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor

WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.9.8 ARH - 175 thermodynamic heating capacities

	Poturn							Outdo	oor air ten	nperature	TS ℃						
Flow rate	air TS	-	10		5		0		5		7	1	10	1	15	2	20
myn	°C	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT	PC
	14	112	34.2	126	35.6	143	37.2	161	38.0	169	39.8	181	41.2	203	44.2	226	45.8
	17	110	37.1	125	38.6	141	40.3	159	41.2	167	43.1	179	44.6	201	47.8	224	49.6
(Minimum) 25000	20	109	37.9	123	39.5	139	41.2	157	42.1	165	44.1	177	45.6	198	48.9	221	50.7
20000	23	108	40.6	122	42.2	138	44.1	155	45.0	163	47.2	174	48.8	196	52.3	218	54.2
	25	107	41.7	121	43.4	137	45.3	154	46.3	162	48.5	173	50.2	194	53.8	217	55.8
	14	113	33.2	128	34.6	145	36.1	163	36.9	171	38.6	183	40.0	206	42.9	229	44.4
	17	112	36.0	126	37.5	143	39.1	161	40.0	169	41.9	181	43.3	203	46.4	226	48.1
(Rated) 30000	20	110	36.8	125	38.3	141	40.0	159	40.9	167	42.8	179	44.3	201	47.5	224	49.2
	23	109	39.4	123	41.0	139	42.8	157	43.7	165	45.8	177	47.4	198	50.8	221	52.7
	25	108	40.5	122	42.1	139	44.0	156	45.0	164	47.1	176	48.7	197	52.2	220	54.1
	14	114	32.2	129	33.6	146	35.1	165	35.8	173	37.5	185	38.8	207	41.6	231	43.1
(Maxi-	17	112	34.8	127	36.2	144	37.8	162	38.7	170	40.5	182	41.9	205	44.9	228	46.5
mum)	20	111	35.7	126	37.2	143	38.8	161	39.6	169	41.5	181	43.0	203	46.1	226	47.7
35000	23	110	38.2	124	39.8	141	41.5	159	42.4	166	44.4	178	46.0	200	49.3	223	51.1
	25	109	39.3	123	40.9	140	42.7	158	43.6	165	45.7	177	47.3	199	50.7	222	52.5

* Data in accordance with Eurovent Rooftop program certification conditions

PT: Total Power; PC: Power absorbed by the compressor

WB: Wet-bulb temperature; TS: Dry bulb temperature.

1.10 Indoor fan



1.10 Indoor fan

Centrifugal fan with forward-curved blades.

- Models 100/125: A twin-turbine fan with a shared shaft driven by one motor.
- Models 150/175: Two independent fans, each with their own motor.

In both cases, BX type pulley and belt transmission. The motor pulley has a diameter that is adjustable at $\frac{1}{2}$ turn intervals.

Motor with IP55 protection rating, Class F insulation and IE3 efficiency class (IEC 60034–30–1).

1.10.1 Features table

		Motor —		Mote	Motor pulley		Fan pulley		Belt			
Model	Fan kit			(adjustable)		(fixed)		Standard		Lateral supply		
		kW	Casing	Туре	Axis diameter	Туре	Axis diameter	Туре	Quanti- ty	Туре	Quantity	
	Standard	5.5	132	PV2-160	38	SPB2-250	30	BX-69	2	BX-73	2	
100/125 HP HF	HPD-7.5	7.5	132	PV2-200	38	SPB2-250	30	BX-71	2	BX-79	2	
	HPD-11	11	160	PV2-200	42	SPB2-250	30	BX-75	2	BX-79	2	
150	Standard	4 (x2)	112	PV1-160	28	SPB-250	35	BX-73	2	BX-79	2	
150	HPD-5.5 (150)	5.5 (x2)	132	PV1-185	38	SPB-250	35	BX-79	2	BX-82	2	
475	Standard	5.5 (x2)	132	PV1-185	38	SPB-250	35	BX-79	2	BX-82	2	
175 -	HPD-7.5 (150/175)	7.5 (x2)	132	PV1-185	38	SPB-250	35	BX-79	2	BX-82	2	

1.10.2 Indoor fan output tables

For units with 0% outdoor air and 100% return air, dry indoor coil, and standard G4 filters.



Before consulting the tables, add secure drops to the pressure required for the installation due to:

 Accessories included in the unit, when appropriate. See Pressure drop of options/accessories, see on page 29

The unit motor pulleys come adjusted to an opening of four turns. See *Regular maintenance tasks performed by specialised personnel, see on page 39* for the belt adjustment and tightening procedure.



- Before commissioning the installation, and after balancing the air distribution in the building, the supply air flow should be checked.
- With clean filters the indoor fan should not exceed a vacuum of 200 Pa in suction.

		Motor pulley opening adjustment (no. of turns)							
Flow rate	rpm	900	860	820	785	745	705	665	
[m3/h]		0	1	2	3	4	5	6	
16000	SPA	360	325	295	265	240	205	175	
16000	kW	3.8	3.5	3.2	3	2.7	2.4	2.2	
47000	SPA	360	325	295	265	235	200	170	
17000	kW	4.1	3.8	3.5	3.2	2.9	2.6	2.4	
(SPA	360	325	295	265	230	195	160	
18000	kW	4.3	4	3.7	3.4	3.2	2.8	2.6	
19000	SPA	355	325	290	260	225	185	150	
(RATED)	kW	4.7	4.3	4	3.6	3.4	3.1	2.8	
20000	SPA	355	325	290	255	215	175	140	
20000	kW	5.0	4.6	4.2	3.9	3.6	3.3	3.0	
24000	SPA	350	320	275	240	200	160	120	
21000	kW	5.3	4.9	4.5	4.2	3.9	3.5	3.2	
22000	SPA	350	300	260	225	180	140		
22000	kW	5.5	5.1	4.8	4.5	4.1	3.8		

ARC / ARH-100, standard drive, 5.5 kw

SPA	Static pressure available
	5.5 kW
	Do not adjust the motor pulley in this range

ARC / ARH-100, HPD optional drive, 7.5 kW / 11 kW

		Motor pulley opening adjustment (no. of turns)									
Flow rate	rpm	1110	1070	1035	995	960	920	880			
[m3/h]		0	1	2	3	4	5	6			
40000	SPA					425	385	350			
16000	kW					4.4	4.1	3.7			
47000	SPA			495	455	425	385	350			
17000	kW			5.4	5.0	4.7	4.3	4.0			
40000	SPA	560	525	495	455	425	385	350			
18000	kW	6.6	6.1	5.7	5.3	5	4.6	4.2			
19000	SPA	560	525	490	455	425	385	350			
(RATED)	kW	7	6.5	6.1	5.6	5.3	4.8	4.5			
20000	SPA	560	525	490	455	425	380	345			
20000	kW	7.4	6.9	6.4	6.0	5.6	5.2	4.8			
24000	SPA	560	520	480	450	420	380	340			
21000	kW	7.8	7.2	6.8	6.3	5.9	5.5	5.1			
22000	SPA	560	520	480	450	415	375	325			
22000	kW	8.1	7.6	7.2	6.7	6.3	5.9	5.4			

SPA	Static pressure available
	Optional HPD 7.5 kW
	Optional HPD 11 kW
	Do not adjust the motor pulley in this range

1 Installation manual

BY JOHNSON CONTROLS

1.10 Indoor fan

ARC / ARH-125, standard drive, 5.5 kW

		Motor pulley opening adjustment (no. of turns)							
Flow rate	rpm	900	860	820	785	745	705	665	
[m3/h]		0	1	2	3	4	5	6	
19000	SPA	360	325	295	265	230	195	160	
18000	kW	4.3	4.0	3.7	3.4	3.2	2.8	2.6	
10000	SPA	360	325	295	260	225	185	150	
19000	kW	4.7	4.3	4.0	3.6	3.4	3.1	2.8	
20000	SPA	360	325	290	255	215	175	140	
20000	kW	5.0	4.6	4.2	3.9	3.6	3.3	3.0	
21000	SPA	360	320	275	240	200	160	120	
(RATED)	kW	5.3	4.9	4.5	4.2	3.9	3.5	3.2	
22000	SPA	350	300	260	225	180	140		
22000	kW	5.5	5.1	4.8	4.5	4.1	3.8		
22000	SPA			245	205	160	120		
23000	kW			5.1	4.8	4.4	4.1		
25000	SPA				170	125			
23000	kW				5.4	5.0			

SPA	Static pressure available
	5.5 kW
	Do not adjust the motor pulley in this range

ARC / ARH-125, HPD optional drive, 7.5 kW / 11 kW

		Motor pulley opening adjustment (no. of turns)							
Flow rate	rpm	1110	1070	1035	995	960	920	880	
[m3/h]		0	1	2	3	4	5	6	
18000	SPA	560	525	495	455	425	385	350	
18000	kW	6.6	6.1	5.7	5.3	5.0	4.6	4.2	
10000	SPA	560	525	495	455	425	385	350	
19000	kW	7.0	6.5	6.1	5.6	5.3	4.8	4.5	
	SPA	560	530	495	460	425	385	350	
20000	kW	7.4	6.9	6.4	6.0	5.6	5.2	4.8	
21000	SPA	560	530	490	455	420	380	340	
(RATED)	kW	7.8	7.2	6.8	6.3	5.9	5.5	5.1	
22000	SPA	560	530	490	455	415	375	325	
22000	kW	8.1	7.6	7.2	6.7	6.3	5.9	5.4	
22000	SPA	560	525	490	445	405	355	310	
23000	kW	8.6	8.0	7.6	7.1	6.6	6.2	5.7	
25000	SPA		515	470	420	380	330	280	
23000	kW		8.9	8.4	7.8	7.4	6.9	6.4	

SPA	Static pressure available
	Optional HPD 7.5 kW
	Optional HPD 11 kW
	Do not adjust the motor pulley in this range



Indoor fan 1.10

		Motor pulley opening adjustment (no. of turns)									
Flow rate	rpm	790	760	730	705	680	650	625			
[m3/h]		0	1	2	3	4	5	6			
22000	SPA	405	375	345	320	290	260	235			
22000	kW	5.6	5.2	4.9	4.6	4.2	4.0	3.9			
00000	SPA	400	370	340	310	280	250	230			
23000	kW	5.9	5.5	5.2	4.8	4.5	4.2	4.0			
0.4000	SPA	395	365	335	305	275	245	220			
24000	kW	6.1	5.7	5.4	5.0	4.7	4.4	4.2			
05000	SPA	390	360	330	300	270	235	205			
25000	kW	6.4	6.0	5.7	5.4	5.1	4.7	4.4			
00000	SPA	385	355	325	295	265	230	200			
26000	kW	6.6	6.2	5.9	5.6	5.3	4.9	4.6			
27000	SPA	380	345	315	285	250	220	190			
(RATED)	kW	7.0	6.5	6.2	5.9	5.6	5.2	4.7			
00000	SPA	375	340	305	275	240	205	175			
28000	kW	7.3	6.9	6.5	6.2	5.7	5.5	5.1			
00000	SPA	370	320	290	260	225	190	160			
29000	kW	7.7	7.2	6.8	6.5	6.0	5.7	5.4			
20000	SPA		310	280	245	210	170				
30000	kW		7.7	7.2	6.8	6.4	6.1				
0.4000	SPA		305	265	230	200	160				
31000	kW		7.9	7.4	7.0	6.6	6.2				
22000	SPA			260	225	195	155				
32000	kW			7.7	7.3	7.0	6.5				

ARC / ARH-150, standard drive, 4 kW (x2)

SPA	Static pressure available
	4 kW
	Do not adjust the motor pulley in this range

1 Installation manual

BY JOHNSON CONTROLS

1.10 Indoor fan

ARC / ARH-150, HPD o	optional drive, 5.5 kW (x2) / 7.5 kW (x2)	

		Motor pulley opening adjustment (no. of turns)											
Flow rate	rpm	9 40	905	870	845	820	790	765					
[m3/h]		0	1	2	3	4	5	6					
22000	SPA			505	475	440	405	390					
22000	kW			6.7	6.3	5.9	5.6	5.3					
22000	SPA	590	545	500	470	435	400	385					
23000	kW	8.1	7.4	6.9	6.5	6.2	5.9	5.6					
24000	SPA	590	545	500	470	430	395	380					
24000	kW SPA kW SPA	8.4	7.8	7.3	6.8	6.4	6.1	5.8					
25000	SPA	585	540	495	465	430	390	375					
25000	kW	8.8	8.2	7.6	7.2	6.8	6.4	6.0					
26000	SPA	585	540	495	460	425	385	370					
20000	kW	9.2	8.5	7.9	7.5	7.1	6.6	6.3					
27000	SPA	580	535	485	450	420	380	360					
(RATED)	kW	9.5	8.9	8.2	7.8	7.3	7.0	6.6					
28000	SPA	580	530	480	445	415	375	350					
28000	kW	10.0	9.3	8.6	8.2	7.7	7.3	7.0					
20000	SPA	575	525	475	440	410	370	335					
29000	kW	10.3	9.7	9.0	8.6	8.2	7.7	7.2					
20000	SPA	570	520	470	435	400	360	320					
30000	kW	10.8	10.2	9.4	9.0	8.5	8.2	7.7					
21000	SPA	565	515	460	425	390	350	315					
31000	kW	11.2	10.5	9.8	9.4	8.9	8.4	8.0					
22000	SPA	560	510	455	420	380	345	310					
32000	kW	11.7	11.0	10.3	9.8	9.3	8.7	8.4					

SPA	Static pressure available
	5.5 kW
	Optional HPD 7.5 kW
	Do not adjust the motor pulley in this range



Pressure drop of options/accessories 1.11

<u></u>	<u>.,</u>	<u>i u unitoj o </u>										
		Motor pulley opening adjustment (no. of turns)										
Flow rate	rpm	940	905	870	845	820	790	765				
[m3/h]		0	1	2	3	4	5	6				
25000	SPA	585	540	495	465	430	390	375				
25000	kW	8.8	8.2	7.6	7.2	6.8	6.4	6.0				
26000	SPA	585	540	495	460	425	385	370				
20000	kW	9.2	8.5	7.9	7.5	7.1	6.6	6.3				
27000	SPA	580	535	485	450	420	380	360				
27000	kW	9.5	8.9	8.2	7.8	7.3	7.0	6.6				
	SPA	580	530	480	445	415	375	350				
28000	kW	10.0	9.3	8.6	8.2	7.7	7.3	7.0				
29000	SPA	575	525	475	440	410	370	335				
	kW	10.3	9.7	9.0	8.6	8.2	7.7	7.2				
30000 (RATED)	SPA	570	520	470	435	400	360	320				
	kW	10.8	10.2	9.4	9.0	8.5	8.2	7.7				
	SPA	565	515	460	425	390	350	315				
31000	kW	11.2	10.5	9.8	9.4	8.9	8.4	8.0				
32000	SPA	560	510	455	420	380	345	310				
	kW	11.7	11.0	10.3	9.8	9.3	8.7	8.4				
33000	SPA	555	505	450	415	375	335	295				
	kW	12.1	11.4	10.0	10.2	9.7	9.2	8.6				
	SPA	550	495	440	405	365	320	285				
34000	kW	12.7	11.9	11.1	10.7	10.1	9.4	9.1				
25000	SPA	540	485	430	390	350	305	270				
30000	kW	13.2	12.4	11.6	11.1	10.6	10.0	9.6				

ARC / ARH-175, standard drive, 5.5 kW (x2) / and optional 7.5 kW (x2)

SPA	Static pressure available					
	5.5 kW					
	Optional HPD 7.5 kW					

1.11 Pressure drop of options/accessories

Model		m ³ /h (x1000)	Pressure drop (Pa)											
			100 / 125						150 / 175					
			16	18	19	21	22	25	22	25	27	30	32	35
	Economiser/Motorised damper		11	13	15	18	20	24	11	17	20	24	28	33
Option or ac- cessory	Heating element	37 - 50 kW	10	12	13	14	15	16	10	12	13	14	15	16
	kW	60 kW	-	-	-	-	-	-	11	13	14	15	17	19
	Water coil		10	12	13	14	16	20	12	14	16	18	21	24
	Air filters F6		44	50	53	56	58	63	42	47	50	55	58	62
	Air filters F7		62	67	70	74	77	80	56	65	70	73	76	80



1.12 Instructions for installation and connection of the unit

1.12.1 Characteristics of the location

The location of the unit must be studied to ensure a completely satisfactory installation. To do so, the environmental conditions of the area where the unit is to be installed must be taken into account.

Furthermore, the normal weather conditions should be instrumental in determining the best position of the unit and the hoods, screens or covers required to ensure its correct working order.

If possible, in warm zones like the southern Europe, the unit should be located on the north or east side of the building or property.

The location chosen for the unit must provide the condenser with an unlimited air supply.

As well as the technical data given in this document and any others that are applicable, please bear in mind that the unit has been designed for outdoors installation only.

Where the unit is to be installed at ground level, refer to section *Specifications for the foundation or anchoring of the unit, see on page 31*.

Where the unit is to be installed on the roof of a building or property, make sure that the roof structure can support the weight of the unit plus that of any optional equipment and/or accessories to be fitted. The unit must be installed on a specific mounting base or on a frame of appropriate steel angles. There are optional mounting bases available (RoofCurb).

Regardless, keep the level tolerance at maximum 10 mm all along the length and width of the unit.

If the unit is to be installed on a base or on a special angle frame that is not the standard RoofCurb, gaskets should be applied to all surfaces that are touching the bottom of the unit. Leave passages free for the evacuation, towards the outdoors, of rainwater or condensation in the base of the compressor section, next to the outdoor battery.

Special instructions for locations where there is regular snowfall or with ambient temperatures of close to 0 °C or less

In areas where there is regular or sporadic snow, the unit should be elevated above the ground or roof where it is installed. The height should be enough to prevent the unit, the condenser and evaporator air inlets and the access to the unit panels from becoming blocked by accumulated snow.

Protection against ice

In areas where the temperature can drop below 0 °C, there must be some kind of additional protection to prevent the water in the condensate drain pipe from freezing.

Use a wire heating element in the drain trap as well as in the drain, where applicable.

In heat pumps, also use wire heating elements in the outdoor coil support tray to prevent any ice from accumulating.

Special instruction for locations with high ambient temperatures

In areas where the ambient temperature is over 43 °C, the unit must not be located in direct sunlight and, therefore a specific cover will be required.

The installation of a special sunshade over the unit must not affect the air flow required by the unit to work correctly. Check the minimum clearance required *General measurements and accesses, see on page 16.*

1.12.2 Characteristics of the facility where the unit will be installed

The air duct installation where the unit is to be installed must be formed by a closed return duct system. The additional installation of economisers or outdoor air intakes is not excluded.

To reduce operating noise, the supply and return air duct connections on the unit must be made using flexible joints.



The supply and return air duct systems must be designed for the air flow requirements of the installation. The ducts should not be sized based on the supply and return air connection sizes of the unit.

Duct covers

Units are shipped with side and lower duct openings covered. See section *Dimensions of the duct connections, see on page 11* and *Connections for supply and return ducts, see on page 15*.

1.12.3 Specifications for the foundation or anchoring of the unit

Where the unit is to be installed at ground level, the characteristics of the ground it will sit on must be taken into account.

Characteristics, such as acceptable surface firmness, must be suitable for the foundation the unit requires.

The unit should be placed on a level concrete slab at least 100 mm thick.

The length and width of the slab must be at least 150 mm more than the base rails on the unit.

CAUTION

Do not attach the unit to the foundations of the building.

1.12.4 Installation on shock absorbers

The beams on the base of the unit have drill holes in order to mount shock absorber supports, distributed according to the figure.

The optional kit is supplied with the shock absorbers and the necessary bolts for mounting, for the installation of the unit in its location.



1.12 Instructions for installation and connection of the unit

The support points have been studied in order to achieve an equal distribution of weight in each shock absorber. With this weight distribution and type of shock absorber a 91% insulation level is achieved, according to the measurements taken in vibration testing.

• Models 100 / 125: 8 shock absorbers



- A Base rail dimensions
- B Condenser and compressor side


Instructions for installation and connection of the unit 1.12

Models 150 / 175: 10 shock absorbers



A Base rail dimensions

B Condenser and compressor side

	A	Approximate weight on each support point [kg] (units without options or accessories)			
Model	100	125	150	175	
ARC	217	218	207	209	
ARH	221	222	213	215	
ARG	247	248	231	233	
ARD	251	262	237	239	

1.12.5 Characteristics of utility provider connections

In general, the different connections required by the unit are made following the shortest route possible. Under no circumstances may any local or national regulations be contravened when performing the preparatory work for service connections.



For further information on this subject, always keep the current regulations for the country where the unit is being installed at hand.



1.12 Instructions for installation and connection of the unit



- Before the connection work, possible losses of flow, temperature and voltage drops, etc. that might
 affect the distances between planned connection points and the unit must be taken into account.
- As a result, each connection must be sized accordingly.



1.12.6 Connection and preparation of the various connections

Electricity. Power and control

POWER LINE

Power must be supplied to the unit through a specific power supply line with an exclusive power control and differential breaker, installed in line with national and local regulations.



For further information on this subject, always keep the current regulations for the country where the unit is being installed at hand.

Make sure that the electricity supply line has enough capacity to power the unit. Its length, the cable diameter and their protection (cover or jacket) should be appropriate for the unit.

Use a multimeter to check that the supply voltage stays within the accepted limits, *Technical and physical data for ARC (only cooling) and ARG (only cooling + gas heating), see on page 6*, or *ARH technical and physical data (heat pump), see on page 8*.

To install the power cable, loosen the closures **-1-** by 1/4 turn and remove the electrical board panel.



Bringing the power and control cables through the side of the unit. Remove the lower panel -4-

The side panel of the electrical box has PG48 packing glands **-5-** for the power cable and PG21 packing glands **-6-** for the control cable.

Pass the cables through them and to the inside of the electrical box for steps **-7-** and **-8-**.

Once the cables have been passed, seal the packing glands with silicone in order to ensure they are air tight.

Reattach the panels that were removed, ensuring that they are hermetically sealed.





1.12 Instructions for installation and connection of the unit

Bringing the power and control cables directly from the Roofcurb Remove the lower panel -4-.

The unit base beneath the electrical box has PG48 packing glands **-5-** (for the power cable) and PG21 packing glands **-6-** (for the control cable).

Pass the cables through them and to the inside of the electrical box for steps **-7-** and **-8-**.

Once the cables have been passed, seal the packing glands with silicone in order to ensure they are air tight.

Reattach the panels that were removed, ensuring that they are hermetically sealed.

CONTROL LINE

Connect the cable to the terminals indicated and firmly tighten the securing bolts. Also consult the Wiring Diagrams.



The complete wiring diagram for the unit is attached to the inside of the electrical panel.







Indoor coil condensate drain

ATTENTION

The installation of pipes should be adjusted to local regulations.

Install a condensate drain line from the unit connection to a nearby drain.



Apply a moderate amount of sealing paste to the threads of the male part of the joint.

The drain line must have a siphon in order to facilitate proper drainage.

If it is not a siphon made of flexible material, it is recommended that it has a stopper **-1-** for its drainage and cleaning.



i) _{NOTE}

The condensate drain pipe should be at a minimum gradient of 2% (2 cm of drop for each metre in length).

Protection against ice

In areas where the temperature can reach 0 °C or less, there should be some kind of additional protection to prevent the water contained in the condensate drain pipe from freezing.

An heating element (wire heater) should be installed in the drain trap and in the condensate drain pipe.



1.13 Instructions for starting up the unit

For units with heat pumps, heating elements must also be installed in the outdoor coil support tray to prevent possible ice accumulation.

1.13 Instructions for starting up the unit

1.13.1 Electrical checks

🗥 danger

- All side panels of the unit must be fitted, closed and secured with their corresponding locks before turning the general switch on the unit.
- The unit has a remote control, which means that the fan turbine may start unexpectedly.

Loose connection terminals produce overheating of cables and terminals. The unit will work incorrectly and there is a risk of fire.

Check that the cables are firmly secured to their connection terminals.

CAUTION

Do not turn on the general switch on the unit or start the unit until all installation work has been completed.

Initial connection of the unit

The general switch on the unit **-Q3-** must be turned on once all of the planned accessories are installed and before starting the unit.

Press the "Test" button for two seconds so that the unit recognises the installed accessories. When the recognition process is complete, the red pilot light switches off.



Rotating direction of the Scroll compressors

The scroll compressors and the fans only operate correctly if they rotate in the correct direction. All of the motors and compressors in the unit are connected so that they rotate correctly.

If the compressors are not connected correctly and are rotating in the wrong direction:

- The compressor will not compress.
- Operating noise will be abnormal.
- Electricity consumption (A) will be low.
- They overheat.

1.14 Unblocking the unit safely in case of breakdown

- All side panels except for that of the electrical box, must be fitted, closed and secured with their corresponding locks before turning the general switch on the unit.
- The unit has a remote control, which means that the fan turbine may start unexpectedly.

To unlock the unit, see "Restarting the HVAC unit in case of fault" in the User Manual.



Regular maintenance tasks performed by specialised personnel 1.15

Where the thermostat screen continues to display the indicator **-1**- and any fault code or if the HVAC unit does not start, contact a Johnson Controls Inc. Authorised Technical Assistance Service.



1.15 Regular maintenance tasks performed by specialised personnel

Like any other machine, the unit requires regular maintenance, as the wear to which some of its parts are subjected can affect its mechanical reliability, electrical consumption and working life.

In order to keep the unit in similar working order to when it was installed and commissioned, a series of maintenance tasks must be performed every so often.

Furthermore, all maintenance and servicing tasks required by local and national regulations must be carried out.

Only a Johnson Controls Inc. Authorised Technical Assistance Service with the appropriate technical resources and suitably trained personnel may perform the unit maintenance tasks.



Johnson Controls Inc. shall not be considered responsible for any damage caused by inappropriate use or maintenance of the unit that is in any way inconsistent with that described in this document or others specifically provided with the platform.

1.15.1 Planned Maintenance Schedule

The following table shows the recommended frequency for regular maintenance tasks. Depending on the environmental and working conditions where the unit is installed, maintenance tasks may be carried out more or less frequently. The units must undergo all planned maintenance, without exception.

The person responsible for the building or property where the unit is installed must ensure that these inspections are performed at the appropriate time. Likewise, this person should keep and maintain a log book reflecting both planned and unplanned work by the Johnson Controls Inc. Authorised Technical Assistance Service.



1.15 Regular maintenance tasks performed by specialised personnel

Took		Frequency					
TASK	1 month	2 months	6 months	Annual			
Indoor fan, see on page 40			Х				
Air filters, see on page 41	Х						
Indoor coil, see on page 41		Х					
Condensate tray and drain trap, see on page 42		Х					
Outdoor coil, see on page 42		Х					
Coolant circuit, see on page 42			Х				
<i>Electrical and mechanical operation, see on page 42</i>			Х				
<i>Integrity of the unit structure and components, see on page 42</i>				х			

1.15.2 Maintenance tasks performed by specialised personnel

Anger 🔨

- The unit has a remote control, which means that the fan turbine may start unexpectedly.
- Disconnect the general switch on the unit before removing any of its side panels.

Indoor fan

All AR - 100 / 175 units include single-speed motors with belt transmission for the indoor fan.

In the unit start-up, the variable diameter motor pulley can be adjusted in order to obtain the supply air flow desired.

Adjusting the motor pulley and tightening the belt

Check the condition of the belts and make sure they are tightened correctly.

Where necessary, replace them with belts of the same type and measurement as the original ones.

- **1.** Adjusting the pulley opening:
 - a. Loosen the belts, by loosening tensor bolt -1-.
 - b. Loosen the set bolts -2- to release the mobile rim -3-.

ATTENTION

Both channels must have the same separation (the same quantity of opening turns).

- **c.** Turn both mobile rims, on the thread of the pulley fixed core, in the relevant direction in order to increase or decrease the pulley opening.
- **d.** Fix the set bolts to the end, making sure they meet their housing in the cube of the pulley fixed core.
- **2.** Belt tightening:
 - a. Tighten the belts, by tightening tensor bolt -1-.
 - **b.** Measure the tightness of the belts. If you do not have a tension meter, use the following practical method:
 - Apply a 5 kg force to the middle point of the branch, and perpendicular to it.
 - With this force, the belt must move between 12 and 14 mm.
- **3.** It is recommended to check the tension of the belts twice during the first 24 hours of operations.



Regular maintenance tasks performed by specialised personnel 1.15



DP Pulley diameter

Air filters

The air filters should be replaced by new ones of the same type and size, as required.

Slide the unit filters out on their guides to replace them.

Indoor coil

Visually inspect the indoor coil when performing air filter maintenance.

The complete surface of the fins must be kept clean. If they need to be cleaned, use a soft brush or a vacuum cleaner, taking special care not to damage the fins.

A DANGER

Never use a water hose to clean the indoor coil compartment.

Condensate tray and drain trap

Loosen the four bolts **-1-** and extract away from the tray **-2-**.

Remove all dirt and residue accumulated in the condensate tray.

Check that neither the condensation outlet nor the drain trap is blocked.

Check that the condensate (water) has been correctly released to the outside.

Fill the drain trap with water if required (prime it).

Ensure that the four bolts are sealed hermetically -1-.



Outdoor coil

The complete surface of the fins must be kept clean. If they need to be cleaned, use a soft brush or a vacuum cleaner, taking special care not to damage the fins.

Given that they are exposed to the outdoors, the fins can accumulate a lot of dirt and grime. To clean the fins more thoroughly, use water with a neutral detergent (e.g. washing-up liquid). Clean from the inside out and from top to bottom.

Coolant circuit

Before the start of each season when the unit is in use, a thorough check of the coolant circuit must be made, including operating pressures, controls and temperature rises, etc.

Electrical and mechanical operation

Before the start of each season when the unit is in use, check the consumption (in amps) of all motors, the condition of the electrical connections and the correct working order of the safety and protection systems.

The motor bearings for both the indoor and outdoor fans are permanently lubricated and do not need additional lubricant during maintenance.

If the unit has an economiser, motorised damper, outdoor air intake or barometric relief damper (accessory):

Check that the air dampers and their drive motors work correctly.

Check the condition of the aluminium mesh filters in the outdoor air inlet protection. Clean or replace them when necessary.

If the unit has an exhaust fan (accessory):

Check the condition of the fan and the operating control.

Integrity of the unit structure and components

Check the correct condition of the unit structure and outdoor components for knocks, dents, scratched paint or rust. Check that bolts are properly secured and the condition of leak-proof rubber seals and panel locks and make sure they close properly.

Hot water coil (accessory)

Before the start of each season of operation, check the level of water in the system, that air has been purged from the coils, and the operation of control components.

Depending on the climate where the unit is installed, the mix of antifreeze and water must be checked.

2

Options and accessories



An "OPTION" (O) includes those factory-fitted and supplied installed in the unit and ready for use.

An "ACCESSORY" (A) is defined as those that are fully or partially fitted on site.

ATTENTION

The ECONOMISER is considered an "OPTION", despite the fact that the rain protection must be installed on site for transportation reasons.

Name	Option	Accessory
DPC-1 thermostat		A
Economiser, modulating, temperature control	0	
Enthalpy probes for economiser	0	
Air quality probe (IAQ)	0	
Barometric damper		A
Exhaust fan		A
Fixed outdoor air damper		A
High pressure fan drive	0	
Lateral supply	0	
Low temperature control (Low Ambient)	0	
Air filters F6	0	
Air filters F7	0	
Dirty filter pressure switch	0	
Smoke detector	0	
Fire detection thermostat	0	
Hot water coil	0	
Heating element	0	
Outdoor coil protection	0	
Anti-vibration kit		A
Copper fin coils	0	
Fixed Roofcurb		A
Adjustable Roofcurb		A



2.1 DPC-1 Programmable digital thermostat with communication

Interior appearance of the thermostat

I NOTE

With the lid lifted, showing the central panel

The lid is only lifted to access the controls.



1	HVAC mode	11	Battery flat
2	Comfort (day)	12	Keys blocked
3	Economy (night)	13	Dirty filters
4	Unoccupied	14	Outdoor temperature
5	Heat	15	Warning or incident
6	Cold	16	Time profile
7	Timer activated	17	Day of the week
8	Temperature setting	18	Hour
9	Room temperature	19	Fan
10	Relative humidity		



2.1 DPC-1 Programmable digital thermostat with communication

2.1.1 HVAC modes

The different HVAC modes can be selected by pressing the MODE key -A- successively.

Off

The HVAC system is switched off in this mode. The screen displays **OFF-7**.



Cold

The screen displays COOL-4-.

- Icon -8- flashes if there is demand.
- Icon -8- remains static if not.



Heat

The screen displays HEAT-5-.

- The sides of icon -9- flash if there is demand.
- The sides of icon -9- remain static if not.





Auto

The screen displays **AUTO-3-**. The heating and the cooling functions of the system are enabled.

- Icons -8- and -9- flash if there is demand.
- Icons -8- and -9- remain static if not.



Programmed

The screen displays **PROG-2-** and **AUTO-3-**. Programmed mode involves the aforementioned **AUTO** mode, but also includes the time profile **-10-**.

This option is not displayed if micro-switch pin 2 is OFF (see the micro-switch configuration).



Emergency heat

The screen displays HEAT-5- and EMERG-6-.

- Icon -9- flashes if the unit is running.
- Icon -9- remains static without the sides if not.





2.1 DPC-1 Programmable digital thermostat with communication

Ventilation only

This is accessed in **OFF-7-** mode and button **-B-** is pressed to select the fan speed.

This means that the HVAC system is stopped and only the fan is running.



2.1.2 Button functions



HVAC mode button -A-

By pressing this button (in *Normal mode*) the current HVAC mode will be modified (**OFF**, **COOL**, **HEAT**, **AUTO**, **AUTO PROG**, **EMERG HEAT**).

Fan button -B-

By pressing this button it will enter *Adjustment mode*, which lasts for 5 seconds. In this mode, the fan flashes and the configured speed is displayed, together with whether it is in *Auto* or *Fixed* mode.

Outside temperature button -C-

By pressing this button (in *Normal mode*) the outdoor temperature is displayed for 5 seconds.



Programming button -D-

By pressing this button (in *Normal mode*) it will enter *Programming mode*, which enables the selection of one of the following options:

- -2- Programming of the set temperatures for heat and cold in *Occupied*, *Comfort* or *Day* status.
- -3- Programming of the set temperatures for heat and cold in *Standby*, *Economy* or *Night* status.
- -4- Programming of the set temperatures for heat and cold in *Unoccupied* status.
- -7- Setting of the clock (day of the week, hours and minutes).
- -16- Programming of the time profiles. A time profile only permits *Comfort* and *Economy* (Day and Night) status.
- -19- Fan programming.

Occupancy status button -E-

By pressing this button (in *Normal mode*) the current occupancy or comfort (Day / Night) status changes and the set temperature is displayed next to the flashing icon **-8-**. If you press the button again whilst still in *Adjustment mode*, it will switch from one status to another in a sequential and cyclical manner.

If button **-E-** remains pressed down for more than one second, it switches to *Unoccupied mode*. If no other action is taken in this mode, the unoccupied status will remain indefinitely.

If button **-D-** is pressed, the setting disappears and the no. 0 is displayed in its place to indicate the number of days for which the unoccupied status must last. Buttons **-F-** and **-G-** increase or decrease the days during which the status is to be unoccupied (with a maximum of 99 days). Icon **-7-** is displayed.

More -F- and less -G- buttons.

By pressing one of the two buttons (in *Normal mode*) it will switch to *Adjustment mode*, displaying the current temperature setting, which is indicated by the flashing icon **-8-**.

If it remains pressed down for more than one second or it is released and then pressed again whilst still in *Adjustment mode*, the temperature setting will be increased by 0.5 °C or 1 °F.

If the two button are pressed at the same time, it switches from °C to °F and vice versa.

2.2 Economiser, modulating, temperature control

This consists of one damper located on the unit return and another located on the outdoor air inlet.

The control compares the outdoor air and return air temperature values and sets the opening of both dampers proportionally using the 0 - 10 V modulating actuator with return spring.

To guarantee a good comfort level, the supply temperature is limited to 12 °C.

The dampers are factory-set for a minimum volume of outdoor air of approximately 10%.

The outdoor air damper has rain protection that is supplied dismantled, ready for installation on the outdoor air inlet opening on the side of the unit.

Where necessary, enthalpy probe control options can be added to the economiser (see section *Enthalpy probes, see on page 50*) as well as an exhaust system for excess air when the design of the installation requires as such (see sections *Barometric excess pressure damper, see on page 50* and *Exhaust fan, see on page 51*).



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2.3 Enthalpy probes

The economiser can be adapted to work as a motorised outdoor air damper and the minimum and maximum outdoor air volume values can be set according to installation requirements (bearing in mind the unit operating limits).



Model	L
100 / 125	1805
150 / 175	2255

2.3 Enthalpy probes

In areas where the level of humidity is important, where a more precise control of the economiser to suit requirements is needed.

2.4 Indoor air quality probe

This option requires the economiser for it to work properly. The probe measures the degree of pollution due to the level of room occupancy, tobacco, kitchen smoke, carbon monoxide, etc.

When the pre-set limits are exceeded, the control acts on the economiser, adjusting the outdoor air damper regardless of the cooling operation of the unit.

Three air quality levels can be selected on the probe (the default level is normal).

2.5 Barometric excess pressure damper

This relieves excess air pressure inside the building that may be generated through use of the economiser or the motorised damper. It is the cheapest and most suitable extraction system for installation where the air return is duct-free and planned air exhaust is a maximum of 25% of the total supply air flow.

It is formed by an excess pressure damper and rain protection with a built-in bird protection grille.





When the outdoor air inlet opens and the return air flow is closed proportionally, the pressure inside the building increases. When the pressure is greater than atmospheric pressure, the damper is opened to release any excess pressure directly outdoors.

Where the return duct connection to the unit is at the bottom, the barometric damper assembly and rain protection are installed on the side of the unit.

Where the return duct connection to the unit is on the side, the barometric damper assembly and rain protection are installed as close to the unit as possible, directly on the front of the return duct.

The barometric damper is supplied fitted to the side panel of the unit. The rain protection is supplied dismantled, to be installed on site.



- A Rainhood Economiser
- B Rainhood Barometric damper or exhaust fan

Model	L
100 / 125	1805
150 / 175	2255

2.6 Exhaust fan

This is the most suitable extraction system for installations using an economiser or motorised damper, where the air return is ducted and planned air exhaust is above 25% of the total supply air flow. The system is formed by an axial fan assembly (two units in models 100 / 125 and three units in models 150 / 175), an excess pressure damper and the same rain protection as in the barometric damper. To consult the dimensions, see section *Barometric excess pressure damper, see on page 50*.





2.7 Fixed outdoor air damper

Up to approximately 30% of outdoor air inlet opening, operating as a barometric damper. The fans are enabled at this point and the air is discharged directly outdoors.

Where the return duct connection to the unit is at the bottom, the fans, the barometric damper assembly and rain protection are installed on the side of the unit.

If the return duct connection to the unit is on the side, the fans, the barometric damper assembly and rain protection are installed as close to the unit as possible, directly on the front of the return duct. The fans and the barometric damper are supplied fitted to the unit's side panel.

The ran protection is supplied dismantled for on-site installation. A cable is supplied for connection of the fan to the electric box.

2.7 Fixed outdoor air damper

It has a damper located at the outdoor air inlet, including the same rain protection and aluminium mesh filter as in the case of the economiser.

To consult the dimensions, see section Economiser, modulating, temperature control, see on page 49

The damper has a manual opening device and mechanical securing to ensure its position once the suitable outdoor air percentage is achieved in the installation, taking into account the unit's operation limits.

The damper is supplied fitted to the unit's side panel. The ran protection is supplied dismantled for onsite installation.

2.8 Low temperature control (low ambient)

This option is included in the "Premium Kit".

Rooftop units are designed to work in cold mode to a minimum outdoor temperature of 7 $^{\circ}$ C o 10 $^{\circ}$ C. With this option, they can operate correctly to a minimum outdoor temperature of -18 $^{\circ}$ C.

2.9 Air filters F6 and F7

These are high-performance air filters (according to Standard EN-779). The unit is fitted with guides for their installation behind the standard filters G4, in line with the requirements of the strictest regulations on indoor air quality in buildings.

They have a galvanised steel frame and minipleat type filter media.

2.10 Dirty filter pressure switches

These provide a dry contact when the air filters are blocked to indicate that maintenance or replacement is required. The filter icon is indicated on the display connected to the thermostat DPC-1.

2.11 Smoke detector

The detector is fitted in the return air area of the unit. If particles of smoke are detected, the unit stops and switches to "lock out" mode, in which case it must be manually reset before it can be restarted.

ATTENTION

The smoke detector is fitted to protect the unit. It must not be used as a protection system for the building or other facilities. Its use is subject to compliance with local regulations involving unit installation (relating to ventilation systems, fire prevention, etc.).

Depending on the regulations involving the unit, this option may require the use of an economiser or motorised damper.



2.12 Fire detection thermostat

As standard, the unit is fitted with an air supply probe that stops at 80 °C and switches it to "lock out" mode, in which case where the control must be manually reset.

Using this option, a set temperature probe and manual reset are located in the unit supply area. If the selected temperature is reached in this area, the unit stops and switches to "lock out" mode, in which case where the probe and control must be manually reset before it can be restarted.



The fire detection thermostat is fitted to protect the unit. It must not be used as a protection system for the building or other facilities. Its use is subject to compliance with local regulations involving unit installation (relating to ventilation systems, fire prevention, etc.).

Depending on the regulations involving the unit, this option may require the use of an economiser or motorised damper.

2.13 Hot water coil

This includes all of the hydraulic and control components required for operating, such as the 0-10 V proportional actuator mixer valve and the antifreeze probe.

2.14 Electric heaters

Available for ARC cold-only models and the ARH heat pump at powers of 37, 50 and 60 kW.

The power supply to the heater must be independent to the general power supply to the unit and must be fitted with its own circuit breaker (not supplied). See sections *ARC / ARH units with auxiliary heating element, see on page 10.*

2.15 Outdoor coil protection

50 x 50 electro-welded rod mesh painted the same colour as the unit panels. Easy to remove and fit using for maintenance purposes.

2.16 Anti-vibration kit

This is formed by the shock absorbers and the necessary nuts and bolts for on-site assembly when fitting the unit.

2.17 Copper fin coils

Copper fin coils to give the best corrosion protection for installations in coastal areas, maintaining full efficiency. This is applied to the condensers (outdoor units) and evaporators (indoor units). See section *Weight options and accessories, see on page 9* for the increase in weight in relation to standard.

2.18 Roofcurb mounting base, fixed type

For installation on flat and levelled building roofs.

Structure made of galvanised sheet steel supplied in kit form for on-site assembly and installation.

Allows for installation of the ducts directly from inside the building following fitting of the rooftop unit and provides a seal connection between it and the building roof.

The roofcurb assembly consists of a closed frame that fits below the base of the unit to provide a sealed connection.



2.19 Roofcurb mounting base, adjustable type

The roofcurb must be attached to the supporting structure of the building roof. To do so, use the nuts and bolts supplied or use welding.

To prevent humidity or condensation from filtering into the building, all of the outer perimeter must be insulated and sealed with an extension of the same material used for the roofing finish.



Model	Α	В	С	D	Е	F
100 / 0125	3235	2085	1542	784	701	535
150 / 175	4285	2535	1990	784	816	420

2.19 Roofcurb mounting base, adjustable type

For installing on sloping building roofs at gradients of up to 5° (9%) with the unit lengthways up to 7° (12%) and widthways (models 100 / 125) or 10° (18%) (models 150 / 175).



With similar characteristics as the fixed type, but with the advantage of being able to adjust the level of the support surface for the unit to overcome the gradient of the roof.

Model	Α	В	С	D	Е	F	G	Н
100 / 125	3239	2085	1542	784	701	535	480	365
150 / 175	4289	2535	1990	784	816	420	580	465

3

Unit installation data



3.1 List of tests for unit start-up

Please complete the following forms to register the full details of the installation and the start-up inspection.

Complete the blank fields or mark the appropriate box, as applicable.

Company performing installation:	
Installing technician:	
Name / project number:	
Location of the unit:	
Address of the unit location:	
Person in charge of the building or property where the unit is installed:	
Installation work start date:	
Unit model number:	
Unit serial number:	
Plate and version:	
Thermostat, model and version:	

Gener	General inspection of the unit				
	Visual appearance				
	Levelling of the unit				
	Check the unit for transport, loading and unloading damage				
	Unit installed with sufficient clearance				
	Check the circuit for the presence of oil (large coolant leaks).				
	Terminals and connections correctly secured in the control panel and accessories				
	Air filters installed				
	Condensate drain pipe and drain trap installed correctly				
	Thermostat and connection cabling installed correctly				
	Air duct installation complete and correct				
	Accessories and planned options installed (if applicable)				

Inspection of the air supply fan

Verification of direction of rotation

Inspection of compressors

Verification that direction of rotation is correct

Start-up data



3.2 Start-up data

Electrical data

	Rating plate	Actual
Power supply		
Control voltage		
Fan consumption (A)		
Consumption of condenser fan 1 (A)		
Consumption of condenser fan 2 (A)	Check specifica-	
Consumption of compressor 1 (A)	tion Manual	
Consumption of compressor 2 (A)		
Consumption of supply fan (A)		
Heating element 1 (Optional)		
Heating element 2 (Optional)		

Cool and heat modes

Coolant circuit					
Mode	Value				
Subcooling (min. 8 K, max. 18 K)		Liquid pressure: bar			
		Liquid temperature: °C			
Superheat (min. 4 K, max. 10 K)		Suction pressure: bar			
		Suction temperature: °C			
Complete liquid line checked in sight glass					
Correct oil level checked in sight glass					

Supply air flow rate values

	m ³ /h
Design	
Measured	

Air temperature

Mode (cool or heat):	Temperature (°C)
Outdoor air:	
Supply air:	
Return air:	
Indoor air mix (if economiser is fitted):	



OPTIONS

Heating mode (hot water coil)

Air temperature				
Capacity: (kW)	Temperature (°C)			
Supply air (at 100 %)				
Return air				

Hydraulic circuit					
Temperature (°C) Pressure (bar)					
Water inlet					
Water outlet					

Others

Outdoor for 1	Type or model		
	Surge protection adjusted		
Outdoor for 2	Type or model		
	Surge protection adjusted		
Indeer for	Type or model		
	Surge protection adjusted		

Notes and observations:		
Installed by:	Name	
	Date and signature	

4

Cooling diagrams



4.1 ARC 100 / 125 cooling diagrams

B1 and B5	Suction temperature sensor	HP1 and HP2	High-pressure switch
B2 and B6	Liquid temperature sensor	LP1 and LP2	Low-pressure switch
B3 and B7	Discharge temperature sensor	M1, M2, M3 and M4	Compressor
B4	Outdoor air temperature sensor	M5	Supply fan (centrifugal)
B8	Supply air temperature sensor	M7 and M9	Outdoor fan
CD1, CD2, CD3 and CD4	Outdoor coil	SG1 and SG2	Liquid sight glass
EEV1 and EEV2	Electronic expansion valve	SP1 and SP2	Pressure transducer
EV	Indoor coil	SV1, SV2, SV3 and SV4	Service valve
F1 and F2	Dehydrator filter	VS	Schrader connection



4.2 ARC 150 / 175 cooling diagrams

4.2 ARC 150 / 175 cooling diagrams





4.3 ARH 100 / 125 cooling diagrams

AC1 and AC2	Suction accumulator	HP1 and HP2	High-pressure switch
B1 and B5	Suction temperature sensor	LP1 and LP2	Low-pressure switch
B2 and B6	Liquid temperature sensor	M1, M2, M3 and M4	Compressor
B3 and B7	Discharge temperature sensor	M5	Supply fan (centrifugal)
B4	Outdoor air temperature sensor	M7 and M9	Outdoor fan
B8	Supply air temperature sensor	RV1 and RV2	4-way change-over valve
CD1, CD2, CD3 and CD4	Outdoor coil	SG1 and SG2	Liquid sight glass
EEV1 and EEV2	Electronic expansion valve	SP1 and SP2	Pressure transducer
EV	Indoor coil	SV1, SV2, SV3 and SV4	Service valve
F1 and F2	Dehydrator filter	VS	Schrader connection



4.4 ARH 150 / 175 cooling diagrams

4.4 ARH 150 / 175 cooling diagrams



AC1 and AC2	Suction accumulator	HP12 and HP22	Low ambient switch
B1 and B5	Suction temperature sensor	LP1 and LP2	Low-pressure switch
B2 and B6	Liquid temperature sensor	M1, M2, M3 and M4	Compressor
B3 and B7	Discharge temperature sensor	M5 and M6	Supply fan (centrifugal)
B4	Outdoor air temperature sensor	M7, M8, M9 and M10	Outdoor fan
B8	Supply air temperature sensor	RV1 and RV2	4-way change-over valve
CD1, CD2, CD3 and CD4	Outdoor coil	SG1 and SG2	Liquid sight glass
EEV1 and EEV2	Electronic expansion valve	SP1 and SP2	Pressure transducer
EV1 and EV2	Indoor coil	SV1, SV2, SV3 and SV4	Service valve
F1 and F2	Dehydrator filter	VS	Schrader connection
HP11 and HP21	High-pressure switch		

5

Wiring diagrams



5.1 Micro switch configuration

5.1 Micro switch configuration

The micro switches are used to establish the following configurations:

ATTENTION

In order to update the new configuration of the micro switches the power supply has to be shut off

MICRO SWITCH CONFIGURATION

Number	Status	Description	
4.40	OFF/OFF	Defrosting time 0'	
	ON/OFF	Defrosting time 30'	
1/2	OFF/ON	Defrosting time 60'	
	ON/ON	Defrosting time 90'	
0	ON	Crossed coils	
3	OFF	Independent coils	
4	ON	Selection of 2 compressors (tandem) - 1 circuit	
	OFF	Selection of 1 compressor - 1 circuit	
	ON	Cold selection	
J	OFF	Heat pump selection	
ON		4-way valve active in heat	
o	OFF	4-way valve active in cold	
7	ON	Receives signal B from thermostat (active in heat)	
/	OFF	Receives signal O from thermostat (active in cold)	
0	ON	Fan enabled during defrost	
õ	OFF	Fan disabled during defrost	



5.2 Fault table

The red LED on the YKNOpen electronic board is responsible for showing the state of faults on the unit: • When the red LED remains off there are no faults in the unit.

• If the red LED does two series of flashes in a constant sequence, there is a fault which must be checked in the following table:

Red LED flashes		Description	
1st Series	2nd Series	Description	
	1	Discharge temperature exceeded	
1, 2 or 3	2	High-pressure switch, outdoor fan thermal switch or com- pressor module thermal switch	
	3	Low-pressure switch	
	4	Indoor fan thermal switch	
	5	Repeated cold start-up or suction temperature <-25°C	
	1	Gas control 1 or heating element 1 fault	
	2	Gas control 2 or heating element 2 fault	
	3	Heating element 3 stage fault	
4	4	Heating element 4 stage fault	
	5	Fault in economiser or hot water coil (outdoor supply probe, water return)	
	6	Smoke or high temperature detection (accessory) or supply temperature > 80 °C	

FAULT TABLE (RED LED)

5.3 Incidents



5.3 Incidents

The green LED on the YKNOpen electronic board is responsible for showing the state of incidents on the unit:

- If the green LED flashes in a constant sequence, there are no incidents in the unit.
- If the green LED does three series of flashes in a constant sequence, there is an incident which must be checked in the following table:



The first series indicates the affected circuit: one flash for the first compressor, two for the second, three for the third and four for miscellaneous incidents. A short pause follows. The second and third series specify the direct cause of the incident.

Green Led flashes		Description		
1st Ser- ies	2nd Series	3rd Series	Туре	Incident
		1		Discharge probe open or short circuited
	1	2	Probes	Liquid probe open or short circuited
1, 2 or 3		3		Suction probe open or short circuited
	0	1	Tomporatura	Repeated defrosting
	Z	2	remperature	The discharge temperature is not recovered
		1		Supply probe open or short circuited
		2		Return probe open or short circuited
	1	3	Probes	Outdoor probe open or short circuited
		4		Water probe open or short circuited
		5		Fault in the enthalpy probes
	2	1	Thermostat	Signal Y1 without signal G
		1	Auxiliary heat	Heating element thermal switch 1
	3	2		Heating element thermal switch 2
		3		Heating element thermal switch 3
		4		Heating element thermal switch 4
		1		The water coil temperature is not recovered
4		2		Outdoor temperature too low
	4	3	Temperature	Water coil performing antifreeze operation
		4	Supply temperature above 55 °C	
		5		Supply temperature < 25 °C with gas
		1		Defrost cycle
		2		There is at least one accessory not found
	F	3	Othera	Air quality demand
	5	4	Others	Dirty filters
		5		Presence sensor is unoccupied
		6		Suction temperature < 0 °C, economiser
	e	1	Energy recovery	Energy recovery wheel motor trip switch
	o	2	system	Energy recovery fan motor trip switch

INCIDENT TABLE (GREEN LED)




5.3.1 Test button

- If the test button is pressed until the green led is activated, certain times are shortened.
- If the test button is pressed until the orange led is activated, any fault that has been detected is reset.
- If the test button is pressed until the red led is activated, the optional accessories and probes connected to the board are identified.

5.4 DPC-1 thermostat

When a fault occurs and there is communication between the unit and the thermostat, the thermostat alternately displays the time and the fault produced according to the unit fault table.

It also displays other incidents related to the thermostat.

Туре	Thermostat numbers		Description			
	9	1	Ambient probe open or short circuited			
	9	2	Internal probe not calibrated			
	9	3	Communication error			
	9	4	Fault with AL terminal connected			
Thermostat	9	5	S5 digital probe not detected			
	9	6	S6 digital probe not detected			
	9	7	S7 digital probe not detected			
	9	8	S8 digital probe not detected			
	9	9	Digital outdoor probe not detected			

MICRO SWITCH CONFIGURATION



5.5 ARC/ARH 100/125 wiring diagrams

5.5 ARC/ARH 100/125 wiring diagrams



Model	Q2 [A]	В	F1 [A]	F2 [A]	F3 [A]	F4 [A]	F5 [A] REG.	F7 [A] REG.	F9 [A] REG.
100	100	3 x 35	20	20	20	20	12.5	5.8	5.8
125	125	3 x 50	25	25	25	25	12.5	5.8	5.8

(*) If the unit has power and the green LED V2 on board A1 is off, check that the sequence of phases L1, L2, L3 is correct.

А	On-site installation. These components are not supplied by the manufacturer	FC	Phase control
В	Cross-section B [mm ²]		



ARC/ARH 100/125 wiring diagrams 5.5



YORK



ARC/ARH 100/125 wiring diagrams



а	White	с	Red
b	Black	d	Green

A	S1 configuration on A1 board (VCH models)	N	High and low pressure switch 2
В	Thermostat	0	Outdoor fan motor trip switch 2
С	Electronic board [A1]	Р	4-way valve 2
D	Compressor 2	а	Black connector
E	YKTOOL connection	b	Green connector
F	RS-485 connection	с	White connector
G	Shielded cable, 10 x 0,22 mm ²	d	Yellow connector
н	Electronic board [A2]	е	Red connector
I	Accessories connection	B1, B5	Suction probe
J	Indoor fan motor trip switch	B2, B6	Liquid probe
к	High and low pressure switch 1	B3, B7	Discharge probe
L	Outdoor fan motor trip switch 1	B4	Outdoor probe
М	4-way valve 1	B8	Supply probe





5.6 ARC/ARH 150/175 wiring diagrams

Model	Q2 [A]	В	F1 [A]	F2 [A]	F3 [A]	F4 [A]	F5 [A] REG.	F6 [A] REG.	F7, F8 [A] REG.	F9, F10 [A] REG.
150	160	3 x 50	32	32	32	32	9.5	9.5	4.2	4.2
175	200	3 x 70	32	32	32	32	12.5	12.5	4.2	4.2

(*) If the unit has power and the green LED V2 on board A1 is off, check that the sequence of phases L1, L2, L3 is correct.

A	On-site installation. These components are not supplied by the manufacturer	FC	Phase control
В	Cross-section B [mm ²]		



5.6 ARC/ARH 150/175 wiring diagrams







Wiring diagrams 5





а	White	с	Red
b	Black	d	Green

A	S1 configuration on A1 board (VCH models)	N	High and low pressure switch 2
В	Thermostat	0	Outdoor fan motor trip switch 2
С	Electronic board [A1]	Р	4-way valve 2
D	Compressor 2	а	Black connector
E	YKTOOL connection	b	Green connector
F	RS-485 connection	с	White connector
G	Shielded cable, 10 x 0,22 mm ²	d	Yellow connector
Н	Electronic board [A2]	е	Red connector
I	Accessories connection	B1, B5	Suction probe
J	Indoor fan motor trip switch	B2, B6	Liquid probe
к	High and low pressure switch 1	B3, B7	Discharge probe
L	Outdoor fan motor trip switch 1	B4	Outdoor probe
М	4-way valve 1	B8	Supply probe