

Airwell

PACKAGED AIR CONDITIONERS

VERTICAL UNITS

X 1100

X 1900

- air cooled (AR)

- water cooled (AO)



SUMMARY

INTRODUCTION	3
TECHNICAL DATA.....	5
COOLING PERFORMANCES – Model X 1100 AR	6
COOLING PERFORMANCES – Model X 1900 AR	7
COOLING PERFORMANCES – Wasted water – Model X 1100 AO	8
COOLING PERFORMANCES – Wasted water – Model X 1900 AO	9
COOLING PERFORMANCES – Recycled water – Models X 1100/X 1900 AO	10
AERAULIC CHARACTERISTICS – Models AR/AO	11
HYDRAULIC CHARACTERISTICS – Models AO - Condenser supply	12
HEATING PERFORMANCE – Hot water coil	13
ELECTRICAL HEATER / HOT WATER COIL (Accessories)	14
FILTER	
CONTROLS AND REGULATION – Control panel	15
DESCRIPTION OF THE AIR TREATMENT UNIT	16
DIMENSIONS • INSTALLATION – Air treatment unit	17
DIMENSIONS • INSTALLATION – Outdoor condensing unit	18
REFRIGERATION PIPEWORK – Model AR	19
ELECTRICAL CONNECTIONS – Main power supply	20
ELECTRICAL SPECIFICATIONS – Main power supply	21

CODE NUMBERS

These instructions are applicable to the following basic appliances
(for appliances with options, refer to identification plate) :

MODELS	VOLTAGE NOT INTERCHANGEABLE		CODE NUMBERS			
			Indoor unit		Outdoor unit	
	3N~400V - 50 Hz	3~230V - 50 Hz*	X 1100 R-407C	X 1900 R-407C	UC 33A (X 1100)	UC 53A (X 1900)
AR with air cooled separated condenser	•	•	7XU022082A 7XU022075A	7XU022077A 7XU022083A	7XU031025A	7XU031026A
AO power supply - wasted water - recycled water	•	•	7XU012025A	7XU012028A	–	–

* Installation regulated in France

**The information contained in these instructions are
subject to modification without advance notice.**

INTRODUCTION

" When the HCFC fluids are replaced, these appliance have been optimized to operate with the R-407C coolant which contains no chlorine and has no effect on the ozone layer."

1. DEFINITION

The **X 1100** and **X 1900** packaged air conditioners are presented :

- Single packaged for the **WATER** cooled models (**AO**),
- with a separate outdoor condensing unit for the **AIR** cooled models (**AR**).

The air intake and discharge is provided :

- either directly by air intake grilles and a discharge plenum (accessory),
- or by ducts for intake and/or discharge, to be connected to the connection flanges (accessory).

This well-finished, single packaged unit combines many features such as easy installation, high efficiency, quiet operation and reliability, which make it well suited for air conditioning, dehumidification and air filtering in offices, stores and industrial premises.

These packaged air conditioners can be equipped with the following accessories :

- Electric heater (integrated or in ducts),
- Hot water coil,
- Fresh air intake (lateral or rear),
- Remote control,
- Air discharge plenum with remote control.

They benefit from 30 years experience and are perfectly suited to working with :

- Wasted water; its consumption being reduced to a minimum by a pressure valve (included in the **AO**-wasted water model).
- Recycled water; supplied by a cooling tower or an outdoor heat exchanger.
- Outside air; with the possibility of operating at very low temperatures (down to -10°C with the "ALL SEASONS" option on the **AR** models).

2. MAIN DATA

- Cabinet with reduced floor dimensions,
- Standard ventilation :
Three fan speeds (high/normal/low) which can be pre-selected on the terminal block to adapt to the installations aerodynamic pressure losses.
- Equipment option of "High Speed Ventilation" with a single speed motor.
- Vertical discharge with or without duct, or horizontal discharge with plenum (accessory).
- Two air intake possibilities :
On the front with grilles or on the rear with ducts, with the rear air intake (accessory).
- M1 flame retardant filters, mounted on a metal frame with stiffening netting.
- Integrated unit controls (Control Panel) or remote control (accessory).

- Electrical, water and refrigerant pipe connections on the right or left side.
- Cooling with wasted water with a pressure valve or recycled water without a valve.
- Possibility of running in Cooling mode down to an outdoor temperature of -10°C for the **AR** models with the "ALL SEASONS" accessory.
- Two heating possibilities (accessories) :
Integrated electric coils or hot water heating coils
- Three control possibilities :
Inverting type (standard), automatic thermostat for "heating/cooling" with neutral zone (accessory supplied with integrated electric heating) and air monitoring control (remote control accessory).
- Two refrigerant connection pipe possibilities (**AR** models): up to 25 m maximum with factory pre-charged pipes (accessory) or with pipes brazed and charged on site (set of female valves supplied as an accessory for connections up to 45 m).

3. DESCRIPTION

3.1 Bodywork

- Panels and side faces made of profiled sheet steel covered with enamel finish, baked in a high temperature oven.
- Intake grilles made of modular elements in flameproof, shock resistant polystyrene, classified UL-VO according to UL94.

3.2 Insulation and protection

- Thermal and acoustic insulation of the unit.
- Watertight unit base for the possible collection of condensates or abnormal overflowing (e.g. condensate drain tray clogging).

3.3 Refrigerant circuit

- **All models**
 - Hermetic type compressor fitted with thermal and electrical protections, linked to a factory sealed and brazed cooling circuit.
 - Pressostats and high and low pressure measurement Schrader valves.
 - Liquid circuit protected by a strainer (**AO** model) or by a filter (**AR** model)
 - Copper tube evaporator with aluminium fins and anti-corrosion protected condensate tray.
- **AO Model**
 - Coaxial condenser with counter flow circulation, equipped with finned copper tube in a steel cover.
 - Pressure valve on the water inlet for reducing water consumption to a minimum (wasted water model).
 - On request, the unit is supplied without a pressure valve but with an additional Schrader valve connection for independent control of the water flow (recycled water model).

• **AR Model**

- Reserve liquid receiver.
- Thermostatic pressure reducer with pressure balancing.
- Liquid indicator and valve on liquid line.
- Shut off valves on indoor unit and outdoor condensing unit (UC) for refrigerant pipes.
- Outdoor condensing unit with copper tube and aluminium fins.

3.4 Ventilation / Filters

- Blower equipped with two, direct drive, centrifugal fans with double air intakes.
- Standard 3 speed fan motor (VS) switchable from the electrical terminal box (refer to electrical connections).
- Specific “High Speed Ventilation” (FV) motor available as an optional extra.
- Cooling fan assembly mounted on a sliding chassis with anti-vibration seals for easy maintenance.
- M1 flame retardant re-usable filters, made of synthetic fibres, with a metal frame and protective grille.
- UC single phase, 400 V/230 V dual voltage switchable fan motors (operating on 230 V – 50Hz).
- UC large diameter fan blower with direct drive and low rotational speed (650 r.p.m.)

3.5 Electricity / Safety

Manufactured in large series, these air conditioners undergo numerous controls during fabrication and are systematically tested before delivery. Safety devices effectively protect this equipment :

- Protection of the compressor with fuses, thermal relay and electronic anti- short cycle timer.
- Protection of the integrated heater (accessory) with fuses and dual automatic and manual reset overload protection devices.
- Fuses on the control circuit.
- Protection of the fan motors (VS and FV) by fuses and an internal safety device.
- Low pressure pressostats with automatic reset and high pressure pressostats with manual reset.
- Solenoid shut off valve on the liquid line (**AR** model).
- Crankcase heater as standard on the air cooled models.
- Protection of the UC fan motor with internal thermostat.
- Mains power supply 3 N ~ 400 V – 50 Hz as standard and 3 ~ 230 V – 50 Hz as an option.
- Terminal block for single phase 230 V power supply to the control circuit with a 400 V / 230 V transformer (not supplied) if the neutral wire is not available.

3.6 Control / Regulation

- Fascia grouping the controls (Main “ON/OFF” switch with control light – Heating “ON/OFF” and Cooling “ON/OFF”) and the regulation (inverting thermostat).
- Automatic cooling/heating with neutral zone thermostat supplied with the integrated electric heater accessory.
- Remote control with integrated inverting thermostat with the additional possibility of ventilation control (**VA** or **VB** connection).
- **VA** connection: Continuous ventilation during cooling and heating
- **VB** connection: Ventilation regulated during heating and continuous ventilation during cooling.
- “ALL SEASONS” system (accessory) controlling the condensing pressure; allowing cooling on the **AR** models down to –10° C outdoor temperature.

4. AFTER SALES SERVICE / MAINTENANCE

CAUTION

Procedures for working on the cooling circuit, and the technical characteristics, are different from the R22. Consult the corresponding instructions and follow the recommendations when carrying out any work.

Access to the air filters is from the front after removal of the air intake grille.

All the refrigeration, electrical and ventilation devices are easily accessible from the front of the unit after removal of the front panels.

Every accessory is supplied with fitting instructions (and adjustment instructions, if necessary).

The technical data, installation instructions, maintenance and operation instructions, exploded views and spare parts lists are available on request .

TECHNICAL DATA

Réfrigérant				R-407C				
Models				X 1100		X 1900		
				AR	AO	AR	AO	
NOMINAL COOLING CAPACITY (1)				W	9700	11700	16200	18000
				BTU	33400	39900	55300	61400
FLOW	TREATED AIR	Nominal	m³/h	2000	2000	3200	3200	
		Mini./maxi.	m³/h	1500/2500	1500/2500	2500/3800	2500/3800	
	FRESH AIR	Nominal (with accessory)		180	180	285	285	
AVAILABLE STATIC PRESSURE (2) NOMINAL/MAXI.	Standard Ventilation	<ul style="list-style-type: none"> High speed Normal speed Reduced speed 	daPa	14/20	14/20	15/30	15/30	
			daPa	0/13	0/13	0/21	0/21	
			daPa	0/4	0/4	0/4	0/4	
		High Ventilation (optional)	daPa	20/25	20/25	25/35	25/35	
POWER INPUT VENTILATION	Standard Ventilation	<ul style="list-style-type: none"> High speed Normal speed Reduced speed 	W	510	510	580	580	
			W	450	450	500	500	
			W	260	260	380	380	
		High Ventilation (optional)	W	570	570	980	980	
SOUND PRESSURE INDOOR UNIT (3)	High speed		dBA	59	58	62	61	
	Normal speed		dBA	53	52	56	55	
	Reduced speed		dBA	50	49	52	51	
POWER SUPPLY	Nominal voltage			3 N ~ 400 V - 50 Hz		3 N ~ 400 V - 50 Hz		
	Voltage range		V	360/440		360/440		
	Total power input (1)		W	4550	3800	7260	5800	
WATER CIRCUIT (1)	Wasted water	Flow	m³/h		0,7		0,95	
		Pressure drop	kPa		22		30	
	Recycled water	Flow	m³/h		2,1		3,05	
		Pressure drop	kPa		50		65	
OUTDOOR CONDENSING UNIT (UC)	Model			UC 33 A		UC 53 A		
	Quantity			1		1		
	Air flow	m³/h		3700		5000		
	Power input	W		160		295		
	Sound pressure	dBa		48		53		
PACKING	INDOOR UNIT	Width x Depth x Height net	mm	890 x 430 x 1540		1000 x 500 x 1735		
		Width x Depth x Height packed	mm	940 x 495 x 1690		1050 x 565 x 1890		
		Weight net/packed	kg	136/145	151/160	182/195	199/212	
	DISCHARGE PLENUM	Width x Depth x Height net	mm	890 x 430 x 220		1000 x 500 x 260		
		Width x Depth x Height packed	mm	1020 x 550 x 340		1120 x 620 x 380		
		Weight net/packed	kg	10/12		13/15		
	OUTDOOR CONDENSING UNIT (UC)	Width x Depth x Height net	mm	885x825x831		885x825x831		
		Width x Depth x Height packed	mm	940x850x980		940x850x980		
		Weight net/packed	kg	59/69		68/78		
OPTIONS	Equipment "High Ventilation"			•	•	•	•	
	Power supply 3~230V-50 Hz (5)			•	•	•	•	
ACCESSORIES	Electrical heater	kW	9	9	12	12		
	Hot water coil	(6) kW	15,5	15,5	29,7	29,7		
	Front discharge plenum		•	•	•	•		
	Fresh air intake		•	•	•	•		
	Discharge duct connection flange		•	•	•	•		
	Intake duct connection flange		•	•	•	•		
	Remote control		•	•	•	•		
	Crankcase heater		standard	-	standard	standard		
	"All seasons" system		•	-	•	-		
	Female pipe fittings set		•	-	•	-		
	Refrigerant pipes (25 m maxi)		•	-	•	-		

- (1) International standard ISO 51.51 conditions
Type A : 27°C/19 wet bulb. - Outside air 35°C/24°C wet bulb.
Washed water : inlet +15°C - Recycled water inlet/outlet : 29/35°C.
- (2) Nominal pressure with nominal air flow } with nominal voltage without accessory
Maximum pressure with minimum air flow }
- (3) Total sound pressure in dBA (4m) under nominal conditions in a room of 1000 m³ (reverberation 0.83 sec)
- (4) Total sound pressure in dBA (4m) under nominal conditions in open space on reflecting surface.
- (5) Voltage range minimum 198V maximum 242 V (the other electrical values are not changed)
- (6) Hot water coil 90/80°C - Treated air 20°C - 50% with nominal air flow.

COOLING PERFORMANCES

Model X 1100 AR

AIR FLOW : 2000 m³/h

Air temperature at evaporator inlet (°C)				Air temperature at condenser inlet (°C)						
BH	BS			15	20	25	30	35	40	45
15		PT	W	10028	9664	9300	8937	8573	8209	7845
		PA	W	3215	3410	3605	3799	3994	4189	4384
	21	PS	W	6192	6327	6461	6596	6731	6865	7000
	23			6981	7133	7284	7436	7588	7740	7845
	25			7770	7938	8107	8937	8573	8209	7845
	27			9760	9664	9300	8937	8573	8209	7845
	29			10028	9664	9300	8937	8573	8209	7845
	31			10028	9664	9300	8937	8573	8209	7845
17		PT	W	10647	10269	9891	9512	9134	8756	8377
		PA	W	3239	3437	3636	3835	4034	4233	4432
	21	PS	W	5939	6068	6197	6326	6455	6584	6713
	23			6779	6926	7074	7221	7368	7516	7663
	25			7619	7785	7951	8116	8282	8447	8377
	27			8460	8643	9663	9508	9134	8756	8377
	29			10166	10166	9891	9512	9134	8756	8377
	31			10571	10269	9891	9512	9134	8756	8377
19		PT	W	11271	10879	10486	10093	9700	9307	8914
		PA	W	3280	3485	3690	3895	4100	4305	4510
	21	PS	W	4738	4841	4944	5047	5150	5253	5356
	23			5630	5753	5875	5998	6120	6242	6365
	25			6523	6665	6806	6948	7090	7232	7374
	27			7415	7576	7738	7899	8060	8221	8382
	29			8308	8488	8669	8849	9030	9211	8914
	31			9200	10571	10474	10093	9700	9307	8914
21		PT	W	11936	11523	11111	10699	10287	9874	9462
		PA	W	3426	3637	3848	4059	4271	4482	4693
	23	PS	W	4307	4401	4495	4588	4682	4776	4869
	25			5254	5368	5482	5596	5711	5825	5939
	27			6200	6335	6470	6604	6739	6874	7009
	29			7146	7302	7457	7612	7768	7923	8079
	31			8093	8269	8445	8621	8797	8972	9148
	33			9039	9236	9432	9629	10511	10239	9910
23		PT	W	12605	12173	11741	11310	10878	10446	10015
		PA	W	3598	3815	4033	4250	4467	4685	4902
	25	PS	W	3797	3879	3962	4044	4127	4209	4292
	27			4797	4902	5006	5110	5215	5319	5423
	29			5798	5924	6050	6176	6302	6429	6555
	31			6799	6947	7095	7242	7390	7538	7686
	33			7800	7969	8139	8309	8478	8648	8817

BS = Dry bulb temperature (°C)
 BH = Wet bulb temperature (°C)
 PT = Total cooling capacity (W)
 PA = Power absorbed by the compressor (W)
 (without fan motor)
 PS = Sensitive cooling capacity (W)
 Power absorbed by the indoor fan = 450 W.

WORKING RANGE

INDOOR TEMPERATURE	°C	Thi	13	}	MINIMUM TEMPERATURE	INDOOR TEMPERATURE	°C	Thi	19	22	}	MAXIMUM TEMPERATURE	
		Tsi	17					Tsi	30	32			
OUTDOOR TEMPERATURE	Basic equ.	°C	Tse			+19	OUTDOOR TEMPERATURE	°C	Tse	50			47
	with TTS*	°C	Tse			-10							

* with accessory "All seasons" system

COOLING PERFORMANCES

Model X 1900 AR

AIR FLOW : 3200 m³/h

Air temperature at evaporator inlet (°C)				Air temperature at condenser inlet (°C)						
BH	BS			15	20	25	30	35	40	45
15	PT	W		16748	16140	15533	14925	14318	13710	13103
	PA	W		5301	5622	5943	6264	6585	6906	7228
	21	PS	W	10448	10675	10903	11130	11357	11584	11811
	23			11765	12021	12277	12533	12789	13044	13103
	25			13083	13367	15461	14925	14318	13710	13103
	27			16300	16140	15533	14925	14318	13710	13103
	29			16748	16140	15533	14925	14318	13710	13103
	31			16748	16140	15533	14925	14318	13710	13103
17	PT	W		17782	17150	16518	15886	15255	14623	13991
	PA	W		5340	5668	5995	6323	6651	6979	7307
	21	PS	W	10042	10261	10479	10697	10915	11134	11352
	23			11446	11694	11943	12192	12441	12690	12939
	25			12849	13128	13408	13687	13966	14246	13841
	27			14252	16300	16138	15879	15255	14623	13991
	29			16978	16978	16518	15886	15255	14623	13991
	31			17655	17150	16518	15886	15255	14623	13991
19	PT	W		18824	18168	17512	16856	16200	15544	14888
	PA	W		5408	5746	6084	6422	6760	7098	7436
	21	PS	W	8041	8216	8390	8565	8740	8915	9090
	23			9531	9738	9946	10153	10360	10567	10774
	25			11022	11261	11501	11740	11980	12220	12459
	27			12512	12784	13056	13328	13600	13872	14144
	29			14002	14307	14611	14916	15220	15544	14888
	31			17655	17655	17493	16856	16200	15544	14888
21	PT	W		19934	19245	18557	17868	17180	16491	15803
	PA	W		5649	5997	6345	6693	7041	7389	7738
	23	PS	W	7325	7484	7644	7803	7962	8121	8281
	25			8906	9099	9293	9486	9680	9874	10067
	27			10486	10714	10942	11170	11398	11626	11854
	29			12067	12329	12591	12854	13116	13378	13641
	31			13647	13944	14241	14537	14834	15131	15427
	33			15228	15559	15890	16221	17554	17101	16550
23	PT	W		21051	20330	19609	18889	18168	17447	16726
	PA	W		5933	6291	6649	7007	7366	7724	8082
	25	PS	W	6475	6616	6757	6898	7038	7179	7320
	27			8147	8324	8501	8678	8855	9032	9209
	29			9818	10032	10245	10459	10672	10885	11099
	31			11490	11739	11989	12239	12489	12739	12988
	33			13161	13447	13733	14019	14305	14592	14878

BS = Dry bulb temperature (°C)
 BH = Wet bulb temperature (°C)
 PT = Total cooling capacity (W)
 PA = Power absorbed by the compressor (W) (without fan motor)
 PS = Sensitive cooling capacity (W)
 Power absorbed by the indoor fan = 500 W.

WORKING RANGE

INDOOR TEMPERATURE	°C	Thi	13	MINIMUM TEMPERATURE	°C	Thi	19	22	MAXIMUM TEMPERATURE	
		Tsi	17			Tsi	30	32		
OUTDOOR TEMPERATURE	Basic equ.	°C	Tse		+19	°C	Tse	50		47
	with TTS*	°C	Tse		-10					

* with accessory "All seasons" system

COOLING PERFORMANCES

Wasted water • Model X 1100 AO

NOMINAL AIR FLOW Qn : 2000 m³/h

Air temperature at evaporator inlet (°C)					Wasted water supply				
BH	BS				Water temperature	°C	10	15	20
15		PT	W	10372	Water consumption	l/h	541	633	835
		PA	W	3246	Water pressure	kPa	13	18	31
	21	PS	W	7063					
	23			8100					
	25			9138					
	27			10372					
	29			10372					
	31			10372					
17		PT	W	11031	Water consumption	l/h	569	666	878
		PA	W	3290	Water pressure	kPa	15	20	35
	21	PS	W	6625					
	23			7728					
	25			8831					
	27			9935					
	29			11031					
	31			11031					
19		PT	W	11700	Water consumption	l/h	598	700	923
		PA	W	3350	Water pressure	kPa	16	22	38
	21	PS	W	4990					
	23			6160					
	25			7330					
	27			8500					
	29			9670					
	31			10840					
21		PT	W	12411	Water consumption	l/h	631	739	974
		PA	W	3475	Water pressure	kPa	18	25	43
	23	PS	W	4373					
	25			5614					
	27			6855					
	29			8097					
	31			9338					
	33			10579					
23		PT	W	13133	Water consumption	l/h	665	779	1027
		PA	W	3616	Water pressure	kPa	20	27	47
	25	PS	W	3654					
	27			4967					
	29			6280					
	31			7594					
33			8907						

BS = Dry bulb temperature (°C)
 BH = Wet bulb temperature (°C)
 PT = Total cooling capacity (W)
 PA = Power absorbed by the compressor (W) (without fan motor)
 PS = Sensitive cooling capacity (W)
 Power absorbed by the indoor fan = 450 W
 Qn = Nominal air flow

Air output correction Qn					
	0,8xQn	0,9xQn	Qn	1,1xQn	1,2xQn
Total cooling capacity	0,940	0,970	1,000	1,020	1,040
Sensitive cooling capacity	0,890	0,950	1,000	1,050	1,100
Power absorbed	0,970	0,985	1,000	1,005	1,010

Working range	Mini. temperature	Maxi. temperature
	Air temperature at evaporator inlet	
BH (°C)	15	23
BS (°C)	21	32
Water temperature (°C)	10	34

COOLING PERFORMANCES

Wasted water • Model X 1900 AO

NOMINAL AIR FLOW Qn : 3200 m³/h

Air temperature at evaporator inlet (°C)				Waste water supply					
BH	BS			Water temperature	°C	10	15	20	
15		PT	W	15910	Water consumption	l/h	735	861	1135
		PA	W	5205	Water pressure	kPa	18	25	43
	21	PS	W	10994					
	23			12585					
	25			14176					
	27			15910					
	29			15910					
	31			15910					
17		PT	W	16950	Water consumption	l/h	772	905	1193
		PA	W	5235	Water pressure	kPa	20	27	47
	21	PS	W	10274					
	23			11969					
	25			13664					
	27			15359					
	29			16950					
	31			16950					
19		PT	W	18000	Water consumption	l/h	811	950	1253
		PA	W	5300	Water pressure	kPa	22	30	52
	21	PS	W	7800					
	23			9600					
	25			11400					
	27			13200					
	29			15000					
	31			16800					
21		PT	W	19086	Water consumption	l/h	856	1003	1322
		PA	W	5508	Water pressure	kPa	24	33	58
	23	PS	W	6881					
	25			8790					
	27			10698					
	29			12607					
	31			14516					
	33			16424					
23		PT	W	20182	Water consumption	l/h	903	1057	1394
		PA	W	5751	Water pressure	kPa	27	37	65
	25	PS	W	5807					
	27			7825					
	29			9843					
	31			11861					
	33			13879					

BS = Dry bulb temperature (°C)
 BH = Wet bulb temperature (°C)
 PT = Total cooling capacity (W)
 PA = Power absorbed by the compressor (W) (without fan motor)
 PS = Sensitive cooling capacity (W)
 Power absorbed by the indoor fan = 500 W
 Qn = Nominal air flow

Air output correction Qn					
	0,8xQn	0,9xQn	Qn	1,1xQn	1,2xQn
Total cooling capacity	0,940	0,970	1,000	1,020	1,040
Sensitive cooling capacity	0,890	0,950	1,000	1,050	1,100
Power absorbed	0,970	0,985	1,000	1,005	1,010

Working range	Mini. temperature	Maxi. temperature
	Air temperature at evaporator inlet	
BH (°C)	15	23
BS (°C)	21	32
Water temperature (°C)	10	34

COOLING PERFORMANCES

Recycled water • Models X 1100 /X 1900 AO

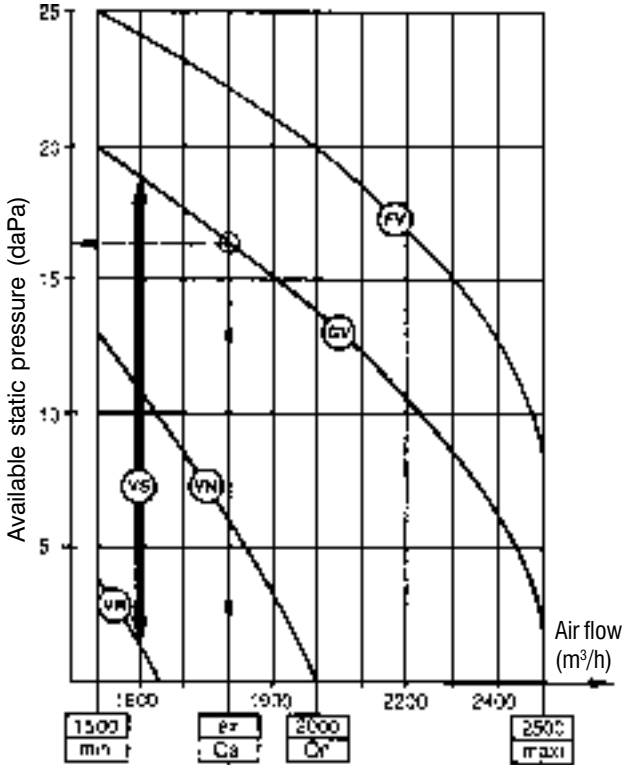
Air temperature at evaporator inlet (°C)						Recycled water supply			
								X1100	X1900
		Inlet water temperature		°C	29	29			
		Water pressure		kPa	50	65			
BH	BS			X1100	X1900	Water consumption	l/h	2100	3050
15		PT	W	10372	15910	Outlet water temperature	°C	35	35
		PA	W	3246	5205				
	21	PS	W	7063	10994				
	23			8100	12585				
	25			9138	14176				
	27			10372	15910				
	29			10372	15910				
	31			10372	15910				
17		PT	W	11031	16950	Outlet water temperature	°C	35	35
		PA	W	3290	5235				
	21	PS	W	6625	10274				
	23			7728	11969				
	25			8831	13664				
	27			9935	15359				
	29			11031	16950				
	31			11031	16950				
19		PT	W	11700	18000	Outlet water temperature	°C	35	35
		PA	W	3350	5300				
	21	PS	W	4990	7800				
	23			6160	9600				
	25			7330	11400				
	27			8500	13200				
	29			9670	15000				
	31			10840	16800				
21		PT	W	12411	19086	Outlet water temperature	°C	35	36
		PA	W	3475	5508				
	23	PS	W	4373	6881				
	25			5614	8790				
	27			6855	10698				
	29			8097	12607				
	31			9338	14516				
	33			10579	16424				
23		PT	W	13133	20182	Outlet water temperature	°C	36	36
		PA	W	3616	5751				
	25	PS	W	3654	5807				
	27			4967	7825				
	29			6280	9843				
	31			7594	11861				
33			8907	13879					

BS = Dry bulb temperature (°C)
 BH = Wet bulb temperature (°C)
 PT = Total cooling capacity (W)
 PA = Power absorbed by the compressor (W) (without fan motor)
 PS = Sensitive cooling capacity (W)
 Power absorbed by the indoor fan = 500 W

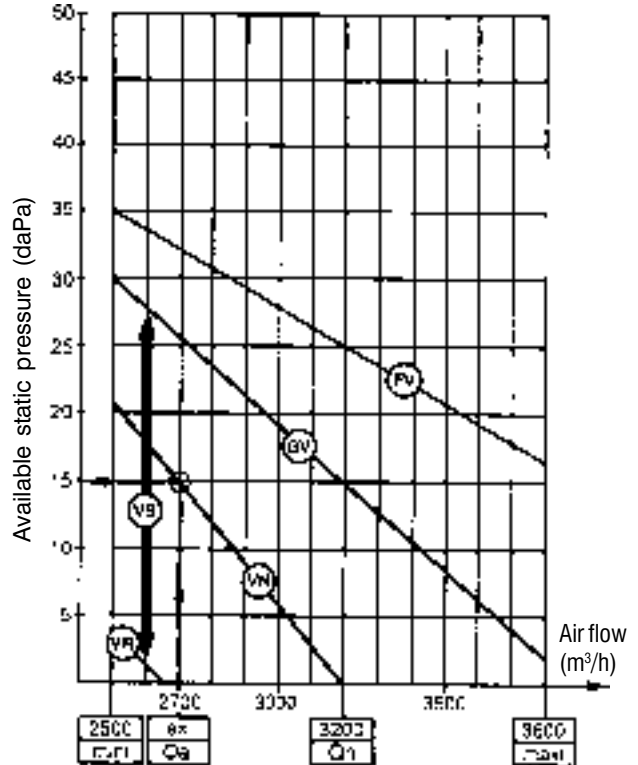
AERAILIC CHARACTERISTICS Models AR/AO

FRONT AND REAR AIR INTAKE WITH CLEAN AIR FILTER

Model X 1100



Model X 1900



Example :
Model X 1100 - $Q_a = 1800 \text{ m}^3/\text{h}$
 Standard ventilation (VS) with high rotation speed (GV)
 Available static pressure : 17 daPa
 Fan rotation speed : 1000 R.P.M.
 Power input : 510 W

Exemple :
Model X 1900 - $Q_a = 2700 \text{ m}^3/\text{h}$
 Standard ventilation (VS) with normal rotation speed (GV)
 Available static pressure : 15 daPa
 Fan rotation speed : 800 R.P.M.
 Power input : 480 W

VENTILATION EQUIPMENT	"Standard ventilation" (VS) Motor 0,3 kW			"High ventilation" (FV) Motor 0,43 kW
	GV High	VN Normal	VR Red.	FV High
Rotational speed motor /propeller R.P.M.	1000	850	670	1360
Available pressure (daPa)	nominal	14	0	0
	maximal	20	13	4
Power input (W)	510	405	260	570

ÉQUIPEMENT DE VENTILATION	"Ventilation Standard" (VS) Moteur 0,43 kW			"Forte Ventilation" (FV) Moteur 1 kW
	GV Grande	VN Normale	VR Réduite	FV Forte
Vitesse de rotation moteur/turbine (t/min)	900	800	670	1265
Pression disponible (daPa)	nominale	15	0	0
	maximale	30	21	4
Puissance électrique absorbée (W)	580	480	380	980

Accessory pressure loss ($Q_n = 2000 \text{ m}^3/\text{h}$)	
Hot water coil	daPa 1
Discharge plenum	daPa 2

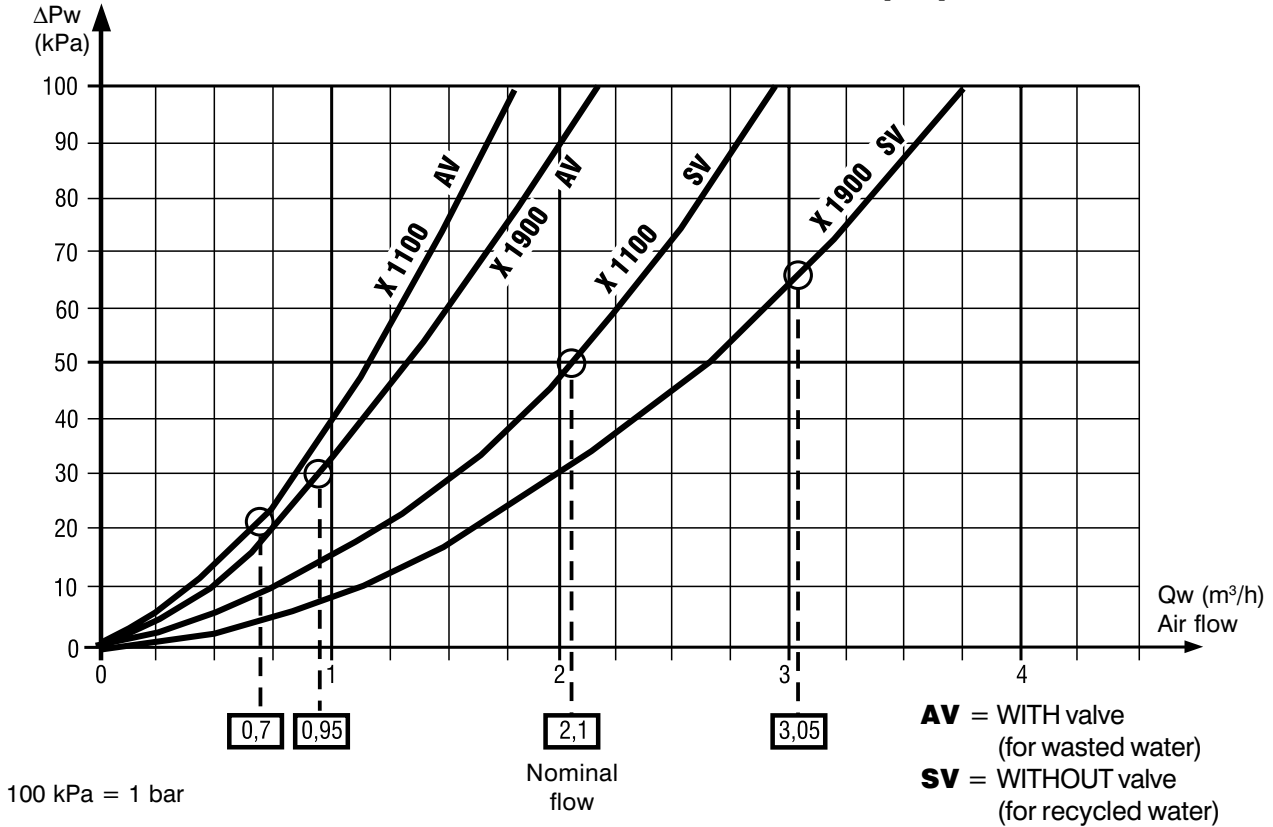
Accessory pressure low ($Q_n = 3200 \text{ m}^3/\text{h}$)	
Hot water coil	daPa 1
Discharge plenum	daPa 2

Q_a = Treated air flow
 Q_n = Nominal air flow

HYDRAULIC CHARACTERISTICS

Model AO - Condenser supply

**HYDRAULIC PRESSURE LOSS
WITH PRESSOSTAT VALVE (AV)
WITHOUT PRESSOSTAT VALVE (SV)**



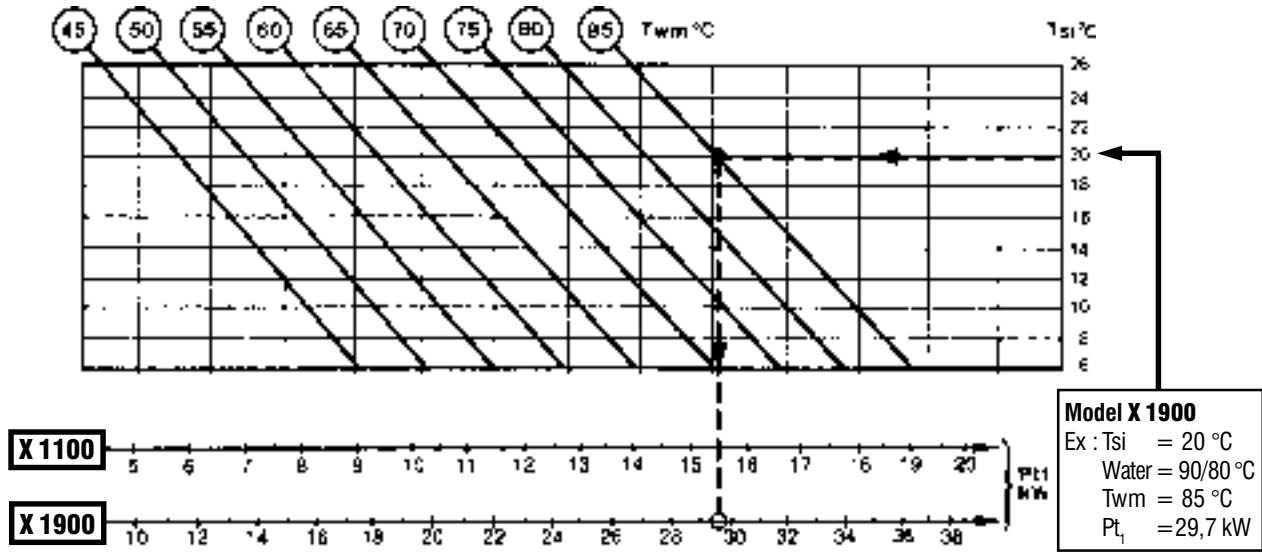
WATER SUPPLY		WASTED WATER		RECYCLED WATER	
MODELS		X 1100	X 1900	X 1100	X 1900
NOMINAL WATER FLOW (Air to be treated 27°C – 47%)	(m³/h)	0,70	0,95	2,1	3,05
Nominal water temperature	Inlet (°C)	15		26	
	Outlet (°C)	-		32	
WATER PRESSURE	Minimum (kPa)	50		-	
	Maximum (kPa)	1000		1000	
Connection on hoses length = 1 m	Ø Inlet/Outlet (mm)	Female nut		Female nut	
		F 20 x 27	F 20 x 27	F 20 x 27	F 26 x 34

HYDRAULIC CONNECTIONS

Condensate water outlets • Models AO – AR

MODELS	X 1100/X 1900	
CONDENSATE WATER DRAINING HOSE	mm	Ø 20 x 25
BOTTOM TRAY OUTLET (for hose Ø 20 x 25 mm)		Ø 7/8" (Ø 22 mm out.)

HEATING PERFORMANCE HOT WATER COIL Models AR/AO (Accessory)



K ₁ COEFFICIENT AIR FLOW	
Qa/Qn	K ₁
0,80	0,87
0,90	0,95
1	1
1,1	1,06
1,2	1,13

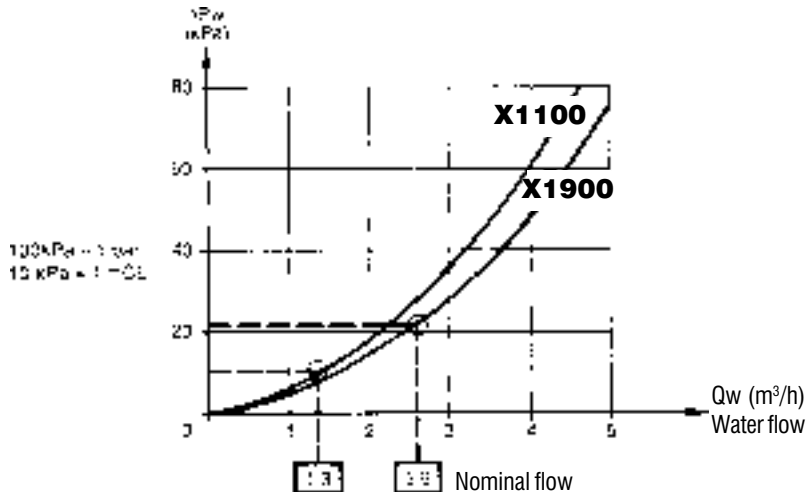
$Pt = K_1 \times K_2 \times Pt_1$
WATER FLOW
 $Q_w (m^3/h) = \frac{0,86 \times Pt (kW)}{\Delta T_w}$

K ₂ COEFFICIENT ΔT _w									
ΔT _w °K	4	6	8	10	12	14	16	18	20
K ₂	1,05	1,03	1,01	1	0,98	0,96	0,95	0,94	0,92

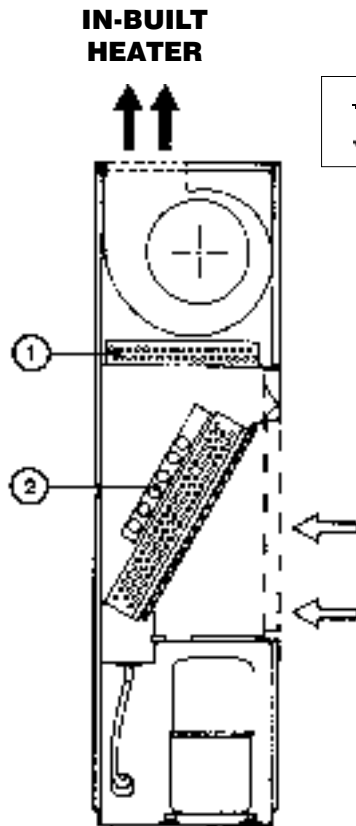
- Pt₁ = Total cooling capacity with nominal air flow
- Pt = Total cooling capacity
- Tsi = Dry indoor temperature
- Qa = Treated air flow
- Qn = Nominal air flow
- Qw = Water flow
- Twe = Hot water inlet temperature
- Tws = Hot water outlet temperature
- ΔT_w = Difference in temperature water inlet/outlet
- Twm = Hot water average temperature
- ΔPw = Hot water pressure drops

	X 1100	X 1900
Capacity	2	3
Nominal water flow	m ³ /h 1,3	2,6
Maxi. water pressure	kPa 1000	1000
Maxi. water inlet temperature (Twe)	°C 90	90
Mini. dry indoor temperature (Tsi)	°C + 6	+ 6
Ø Connection	mm M 26 x 34	M 26 x 34

WATER PRESSURE LOSSES



ELECTRICAL HEATER / HOT WATER COIL ACCESSORIES

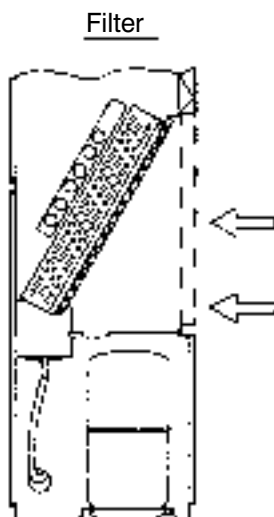


Marks	Models		X 1100	X 1900	
①	HOT WATER COIL	Nominal power input	kW	15,5	29,7
		Nominal water flow	m³/h	1,3	2,6
		Water pressure loss	kPa	10	22
		Ø Connections	mm	M 26 x 34	
②	ELECTRICAL HEATER	Total power input	kW	9	12
		Number of stages		1	1
		Number of elements		3	3
		Power input/element	kW	3	4

NOTES :

- The electrical heater and the hot water coil can not both be fitted.
- Provide for a separate regulation for the hot water coil.
- The integrated electric heater is supplied with an automatic cooling/heating thermostat with neutral zone and is equipped with 2 temperature limit controls (manual/automatic).

FILTER



Models		X 1100	X 1900
FILTER		Flat with metal frame, mounted on sliding rails	
MATERIAL		Flame retardant synthetic fibres	
NUMBER OF FILTERS		1 - Re-usable	
DIMENSIONS W x D x H	mm	740 x 12 x 525	790 x 12 x 615
EFFICIENCY (1)	%	83,8	
EUROVENT /CSTB (2) CLASSIFICATION		EU3/M1	
ACCESS		Air intake grilles (front)	

COMMENT :

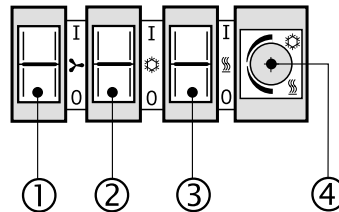
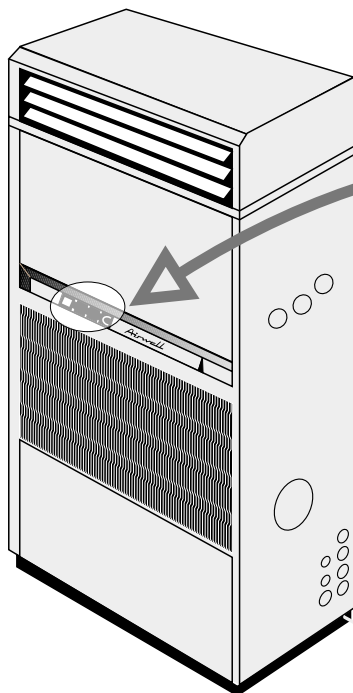
The filters also provide clean air from the fresh air intake (fresh air intake accessory) and the rear air intake.

(1) Test report 603 325/3 dated 05.05.76 issued by the L.N.E. (PARIS)

(2) Test report 82.18176 dated 12.05.82

CONTROLS AND REGULATION

Control panel



- ① Ventilation On/Off switch
0 Off
1 On (with control light)
- ② "Cooling" selection switch
0 Off
1 On "Cooling"
- ③ "Heating" selection switch
0 Off
1 On "Heating"
- ④ Ambient thermostat type :
- inverting thermostat (included)
- with neutral zone (accessory)

NOTES :

With the automatic "Cooling/Heating" thermostat with neutral zone supplied with the integrated electric heater, auto-matic operation is obtained by placing the 2 selection switches ② and ③ on position 1.

REMOTE CONTROL (accessory)

VENTILATION OPERATION

There are two possibilities :

1) CONTINUOUS FAN OPERATION FOR HEATING AND COOLING (VA) :

Fan operation is continuous in both HEATING and COOLING modes. Terminal A of the REMOTE CONTROL unit must be connected to the terminal 7 on the air conditioner (VA wiring).

2) ON/OFF FAN OPERATION IN HEATING MODE AND CONTINUOUS OPERATION IN COOLING MODE (VB)

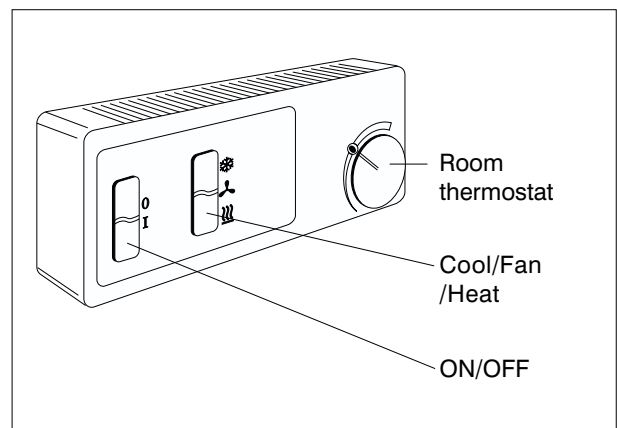
Fan operation is regulated in HEATING mode but continuous in COOLING mode. Terminal B of the remote control unit must be connected to terminal 7 on the air conditioner (VB wiring).

OPERATION WITHOUT ELECTRIC HEATING

Terminal 8 of the remote control unit must not be connected.
Shunt SHC* must be placed across terminals 13 and 14 of the air conditioner.

OPERATION WITH ELECTRIC HEATING

Terminal 8 of the remote control unit must be connected to terminal 12 of the air conditioner. Shunt SHC* must be removed and replaced by heating safety devices FC5* and FC8* wired in series across terminals 13 and 14 of the air conditioner.



HEATING CONTROL

IN-BUILT ELECTRICAL HEATER

This accessory is supplied with an automatic "Cooling/Heating" thermostat with neutral zone which replaces the ambient thermostat ④ supplied with the unit.

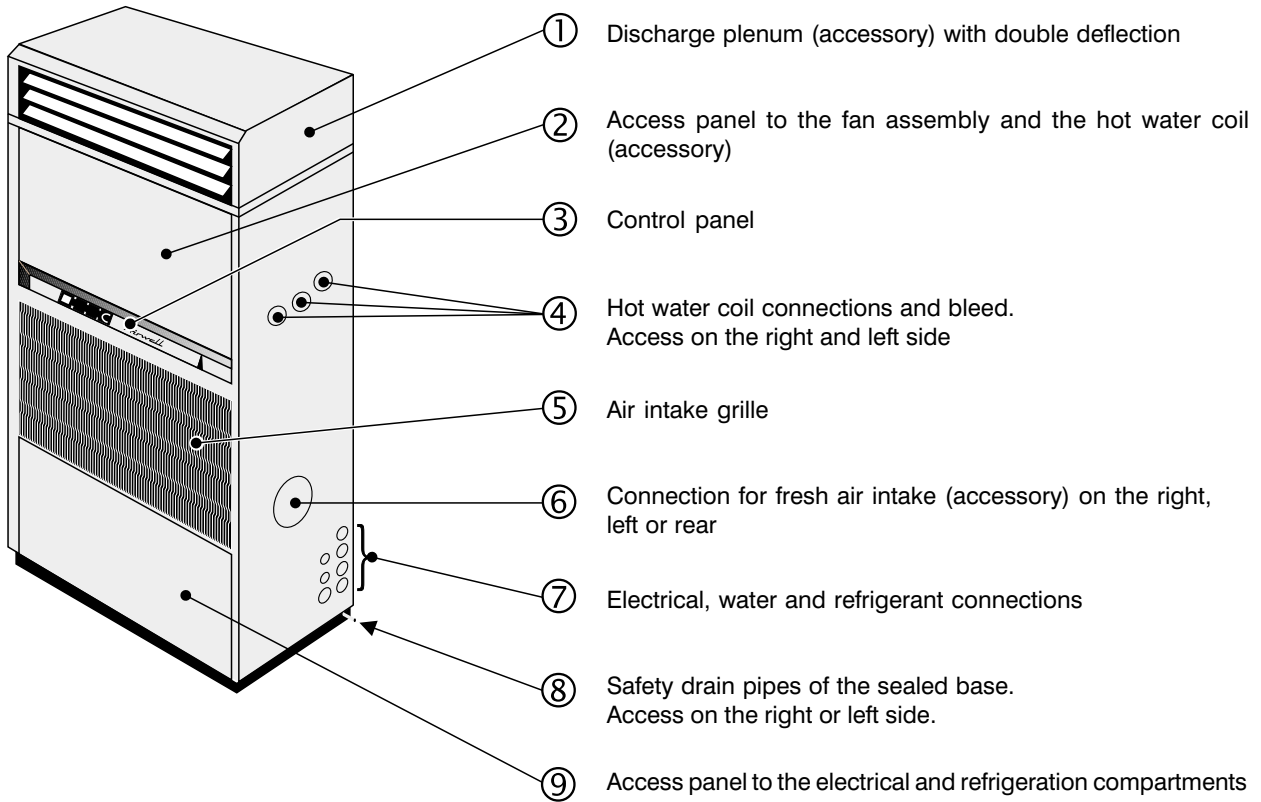
In the case of a remote control (accessory) the inverting thermostat pilots the cooling or the heating according to the position of the "Cooling/Heating" reversing switch (item ③).

HOT WATER HEATING

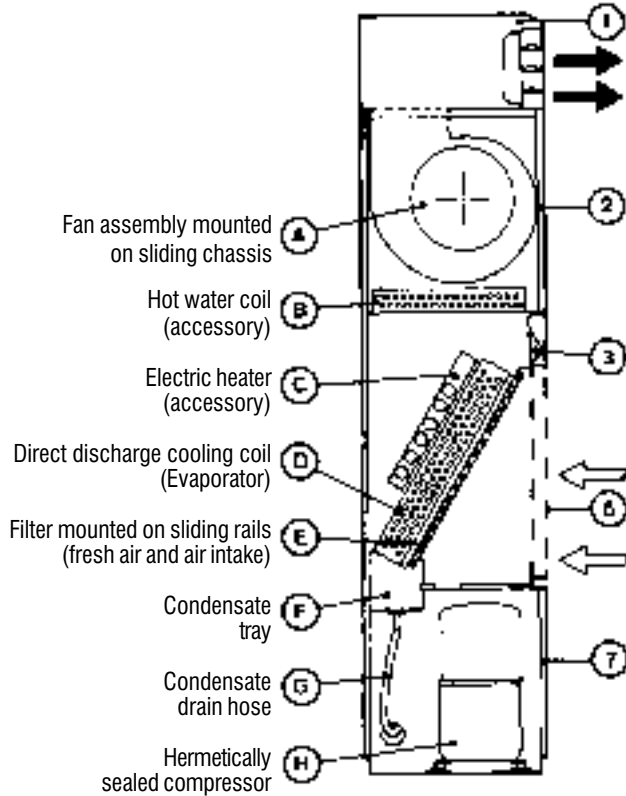
This accessory must be equipped with an anti-freeze safety device and a regulation system (not supplied) compatible with the installation.

(*). Reference on electrical diagram.

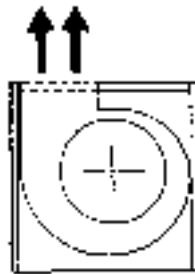
DESCRIPTION OF THE AIR TREATMENT UNIT



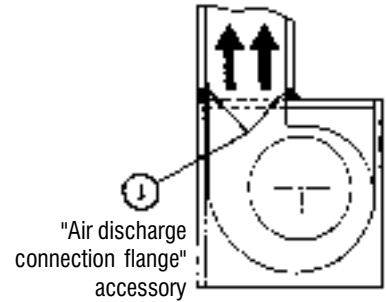
FRONT DISCHARGE
(WITH "Plenum" accessory)



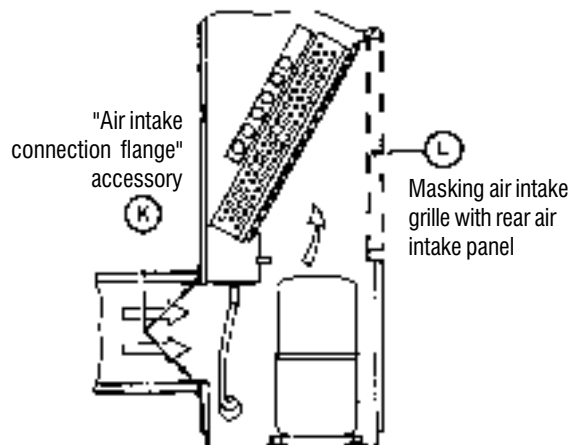
VERTICAL DISCHARGE
(WITHOUT accessory)



DISCHARGE WITH DUCTS
(WITH "Connection flange" accessory)



REAR AIR INTAKE
(WITH "Air intake connection flange" accessory)

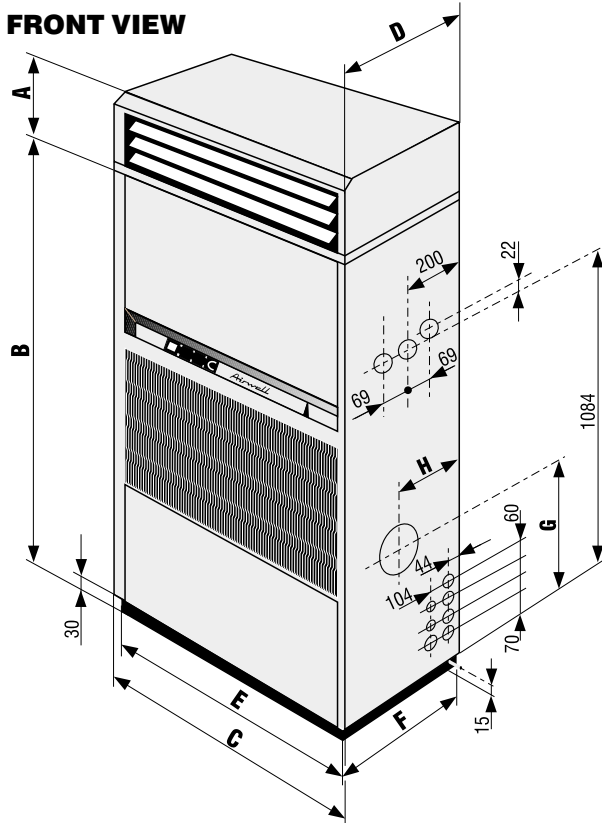


DIMENSIONS • INSTALLATION

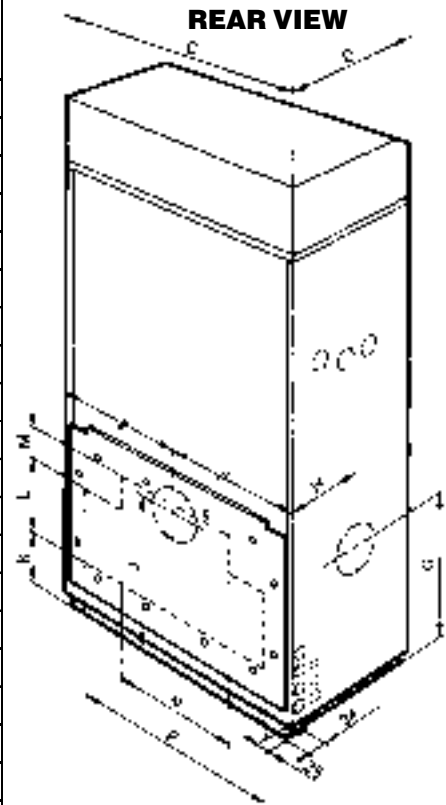
Air treatment unit

Dimensions in mm

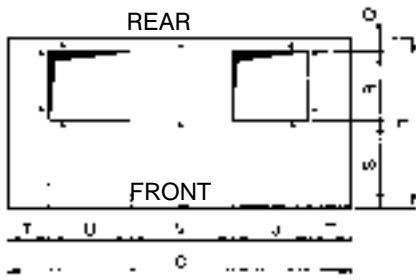
See exact mounting specifications in the installation instructions supplied with the material.



	Models	
	X 1100	X 1900
A	220	260
B	1540	1735
C	890	1000
D	430	500
E	834	944
F	404	474
G	515	580
H	220	260
J	471	542
K	168	180
L	210	270
M	140	155
N	410	460
P	750	860
Q	22	32
R	182	295
S	226	173
T	105	192
U	208	273
V	264	271



TOP VIEW (without plenum)



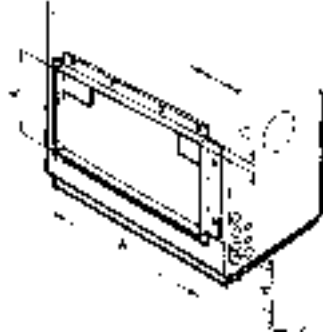
CLEARANCES(mm)

FRONT		REAR		LATERAL	
DISCHARGE		INTAKE		SIDE	
Vertical	Plenum	Front	Rear	Conn.	Oppos.
650	1200	-	650	650	-

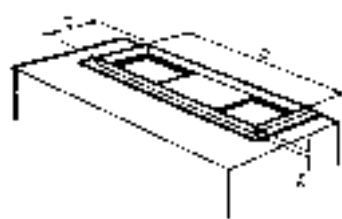
ACCESSORIES

(External dimensions)

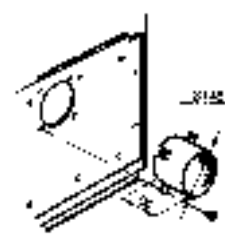
AIR INTAKE DUCT CONNECTION FLANGE



AIR DISCHARGE DUCT CONNECTION FLANGE

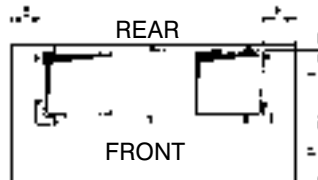


FRESH AIR INTAKE



REAR VIEW

Models	A	B	C	D	E	F	G	H	J
X 1100	350	750	682	184	104	21	225	168	70
X 1900	425	860	819	297	90,5	31	172	180	70

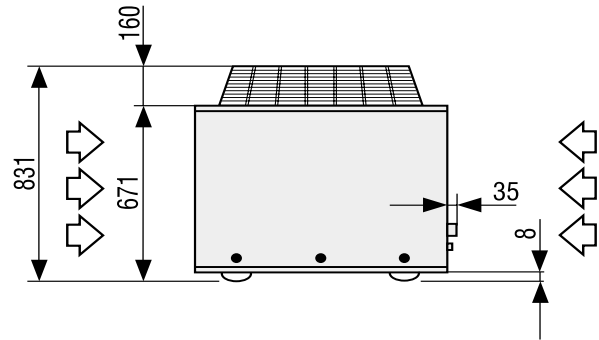
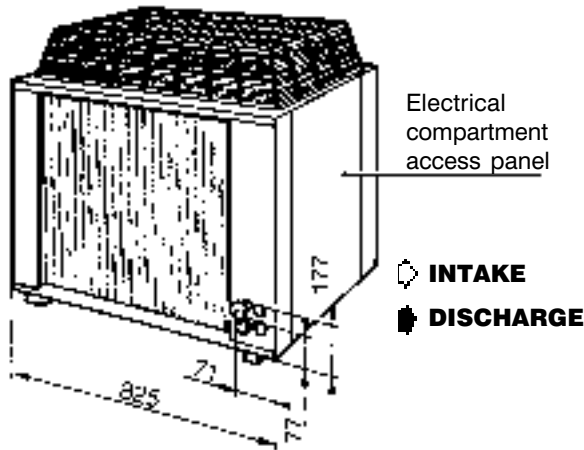


TOP VIEW

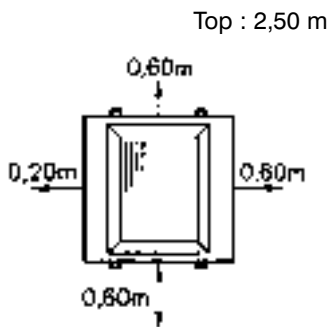
DIMENSIONS • INSTALLATION

Outdoor condensing unit - Type UC 33A/UC 53A Model AR

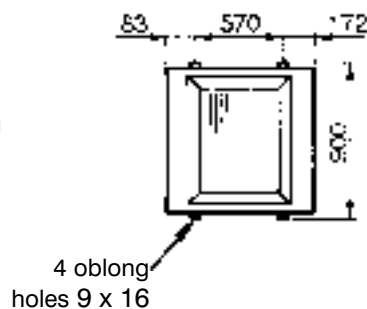
Dimensions in mm



CLEARANCES



FLOOR MOUNTING AND FIXING



		UC 33A	UC 53A
Air flow	m ³ /h	3700	5000
Rotational speed ventilation	R.P.M.	650	630
Sound pressure at 10 m (1)	dBA	40	45
Power input	W	160	295
Motor interch. 230/400 V		•	•
Power supply		~ 230 V - 50 Hz	

(1) Sound pressure in open space on reflecting surface

"ALL SEASONS" SYSTEM (Accessory - Model AR)

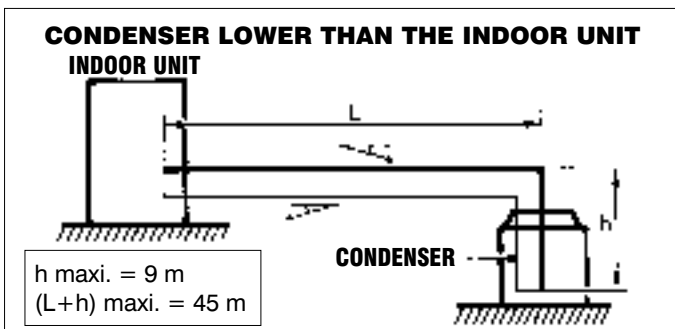
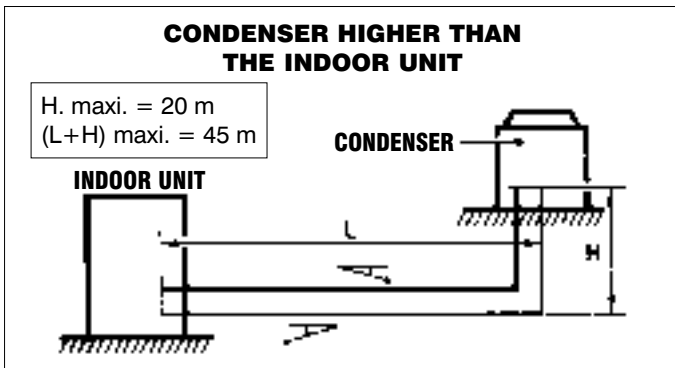
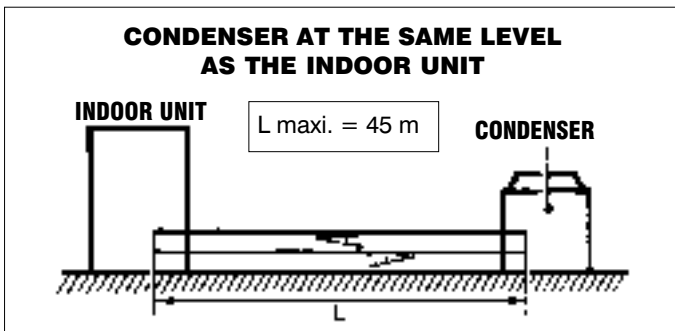
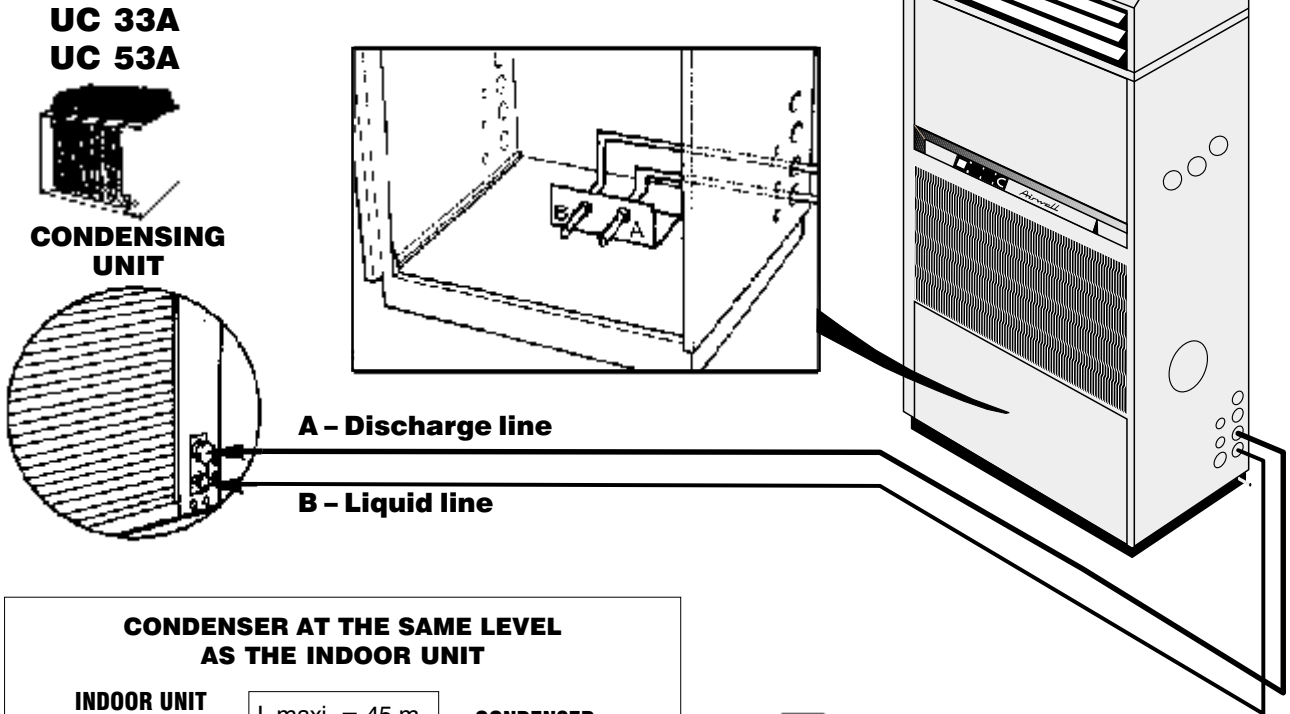
The "ALL SEASONS" permits running the air cooled units in "Cooling" position with low outdoor temperatures down to -10°C for air conditioning of rooms with high internal heat gains.

It comprises :

- 1 pressure controller "Low speed/off" (ref : EA 21*)
- 1 pressure controller "Low/high speed" (ref : EA 22*)
- 1 drop resistor (ref : RH*)
- 1 low pressure timer (ref : EB 21*)

* References on wiring diagram.

REFRIGERATION PIPEWORK Model AR



- Bending of refrigeration pipes : $R \geq \varnothing 3,5$
- Minimum slope downwards : 1 cm/m
- Discharge Line
- Liquid Line

REFRIGERANT CHARGE in R-407C

	X 1100	X 1900
Air treatment Model AR	g 1013	1704
Condensing units UC 33A	g 3237	-
UC 53A	g -	3796
Precharged linking pipes (maxi. length 25 m)		
• Discharge line	\varnothing charge	1/2" precharge
• Liquid line	\varnothing charge	3/8" precharge
	charge g/m*	55

Model A0 (indoor unit)	1260	2850
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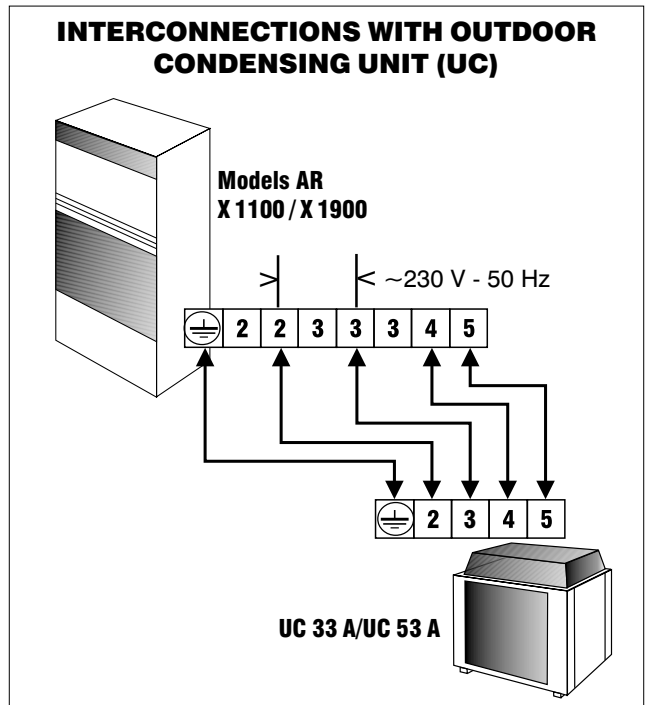
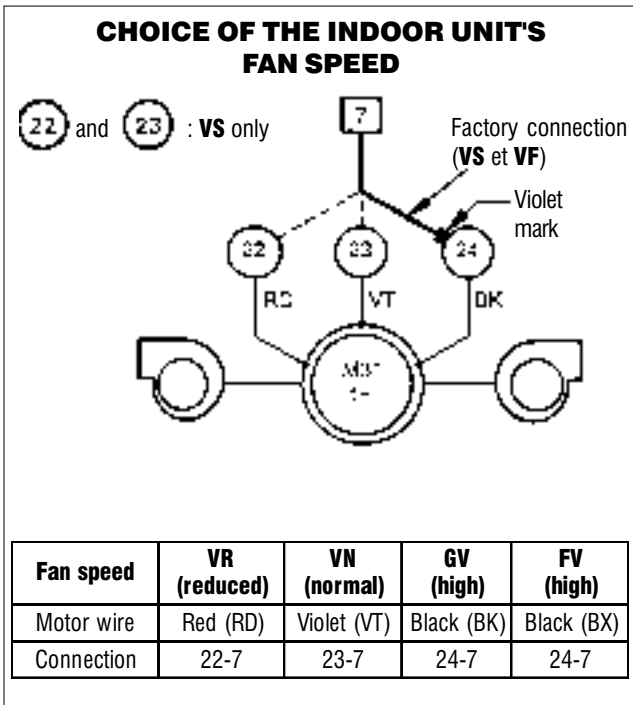
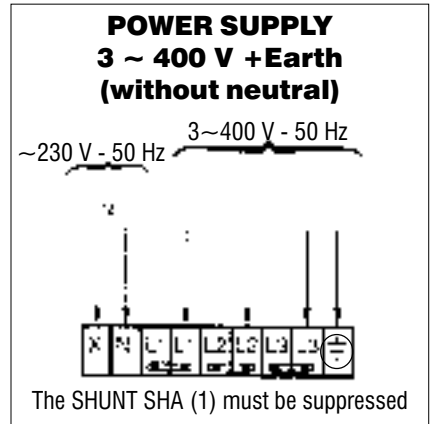
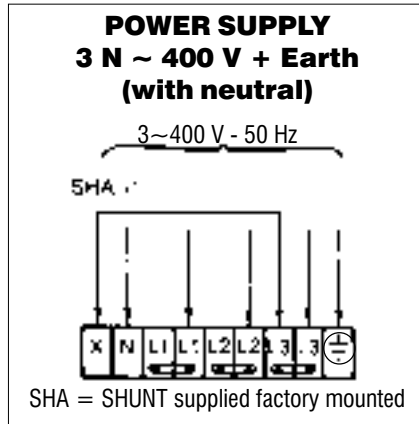
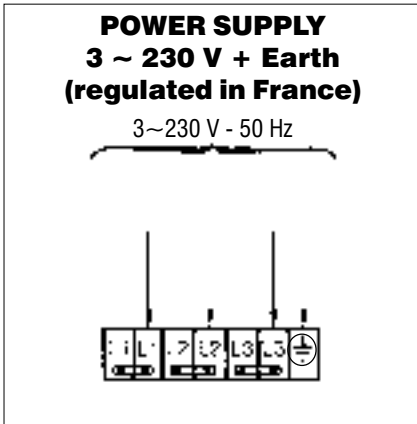
* per m above 2 ml

NOTES :

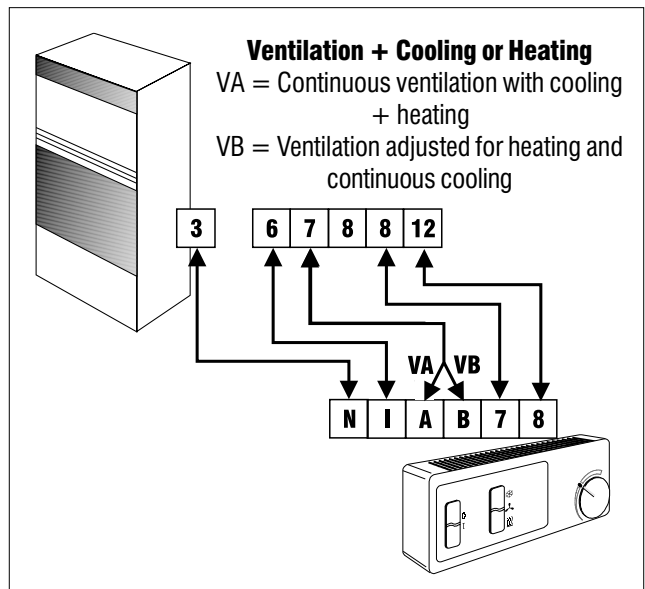
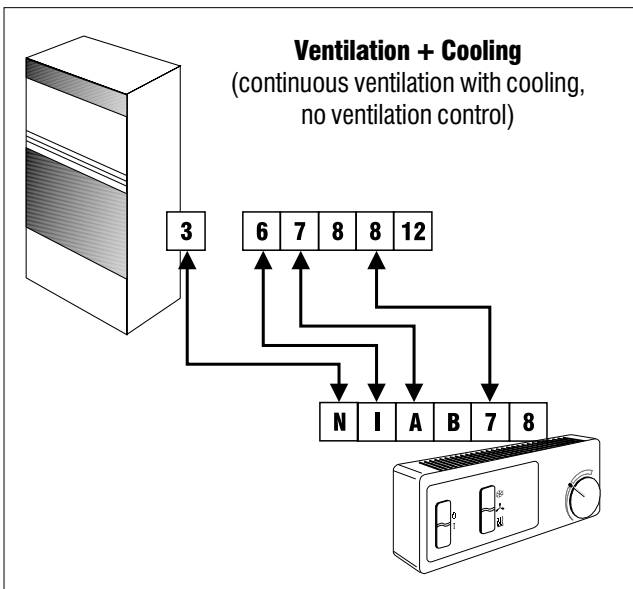
For pipes between 25 and 45 m long (made on the site) the choice of the pipes (diameter) and the installation must be made professionally.

ELECTRICAL CONNECTIONS

Main power supply



INTERCONNECTIONS WITH REMOTE CONTROL



ELECTRICAL SPECIFICATIONS

Main power supply

Unit type	Model X 1100				Model X 1900				
Power supply	3 ~230 V* - 50 Hz		3N ~400 V - 50 Hz		3 ~230 V* - 50 Hz		3N ~400 V - 50 Hz		
Models	AR	AO	AR	AO	AR	AO	AR	AO	
• Cooling + Ventilation(VS/FV)*									
- Nominal power input	kW	4,2/4,4	3,8/4	4,2/4,4	3,8/4	6,7/7,2	5,5/6	6,7/7,2	5,5/6
- Nominal intensity	A	14,8/15,5	12,1/12,8	9,7/10,4	7,8/8,5	21,6/23,9	17,8/20,1	14,1/16,4	11,2/13,5
- Maximum intensity	A	22/23	18/19	13/14	11/12	33/36	28/31	21/24	17/20
- Starting intensity	A	60/61	58/59	38/39	37/38	106/110	103/107	60/64	57/61
- Motor fuse rating	A	25	20	16	12	40	32	25	20
- Cable size	mm ²	4 x 2,5	4 x 2,5	5 x 1,5	5 x 1,5	4 x 6	4 x 4	5 x 2,5	5 x 2,5
• Electrical heating + Ventilation (VS/FV)									
- Nominal power input	kW	9,4/9,6	9,4/9,6	9,4/9,6	9,4/9,6	12,5/13	12,5/13	12,5/13	12,5/13
- Nominal intensity	A	25,5/26,2	25,5/26,2	15,5/16,2	15,5/16,2	33,7/34,2	33,7/34,2	20,4/20,9	20,4/20,9
- Maximum intensity	A	30/31	30/31	19/20	19/20	40/43	40/43	24/27	24/27
- Starting intensity	A	60/61	58/59	38/39	37/38	106/110	103/107	60/64	57/61
- Motor fuse rating	A	32	32	20	20	40/45	40/45	25/32	25/32
- Cable size	mm ²	4 x 4	4 x 4	5 x 2,5	5 x 2,5	4 x 10	4 x 10	5 x 4	5 x 4
• Cooling+ Ventilation (VS/FV) + Electrical heating									
- Nominal power input	kW	13,2/13,4	12,8/13	13,2/13,4	12,8/13	18,7/19,2	17,5/18	18,7/19,2	17,5/18
- Nominal intensity	A	38,4/39,1	35,7/36,4	23,3/24	21,4/22,1	53,1/55,4	49,3/51,6	32,3/34,6	29,4/31,7
- Maximum intensity	A	49/50	45/46	29/30	27/28	70/73	64/67	42/45	38/41
- Starting intensity	A	87/88	85/86	54/55	53/54	142/145	140/143	81/84	78/81
- Motor fuse rating	A	50	45	32	32	80	80	45	40/45
- Cable size	mm ²	4 x 10	4 x 6	5 x 4	5 x 4	4 x 16	4 x 16	5 x 10	5 x 10

* VS : Standard ventilation - PV : High ventilation

INTERCONNECTIONS WITH OUTDOOR UNIT • Model AR

Unit type	Model X 1100		Model X 1900	
Power supply	3 ~ 230 V* - 50 Hz	3N ~ 400 V - 50 Hz	3 ~ 230 V* - 50 Hz	3N ~ 400 V - 50 Hz
• Outdoor unit	~ 230 V - 50 Hz	~ 230 V - 50 Hz	~ 230 V - 50 Hz	~ 230 V - 50 Hz
- Nominal power input	kW	160	295	295
- Nominal intensity	A	0,9	1,6	1,6
- Maximum intensity	A	1	2	2
- Starting intensity	A	1,5	3	3
- Cable size	mm ²	5 x 1,5	5 x 1,5	5 x 1,5

* THREE PHASE 230 V : Installation regulated in France.

** **IMPORTANT** : These values are for information only, they should be checked and selected to comply with local and/or national codes and regulations. They are also subject to the type of installation and to the type of cables.

INTERCONNECTIONS WITH REMOTE CONTROL • TRANSFORMER

INTERCONNECTION WITH REMOTE CONTROL		
Unit type	Model X 1100	Model X 1900
• Cooling+ventilation (VS/FV)		
- Nominal intensity	A	2,1/2,8
- Maximum intensity	A	3/4
- Starting intensity	A	4/5
- Cable size	mm ²	4 x 1,5
• Heating+ventilation (VS/FV)		
- Nominal intensity	A	2,1/2,8
- Maximum intensity	A	3/4
- Starting intensity	A	4/5
- Cable size	mm ²	5 x 1,5

TRANSFORMER (Not supplied) for power supply 3~400 V + Earth, without neutral			
Models		AO	AR
Nominal power input single phase transformer 400 V / 230 V in VA	VS	630	1000
	FV	X 1100	1000
	X 1900	1600	1600

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