

Airwell

PACKAGED AIR CONDITIONERS

VERTICAL UNITS

X 4650

- air cooled (AR)
- water cooled (AO)

X 6450

- air cooled (AR)

R-407C



CONTENTS

INTRODUCTION	3
TECHNICAL DATA	5
COOLING PERFORMANCES – Model X 4650 AR	6
COOLING PERFORMANCES – Model X 6450 AR	7
COOLING PERFORMANCES – Wasted water Model X 4650 AO	8
COOLING PERFORMANCES – Recycled water Model X 4650 AO	9
AERAULIC CHARACTERISTICS – Models AR/AO	10
HYDRAULIC CHARACTERISTICS – Models AO - Condenser supply	11
HEATING PERFORMANCE – Hot water coil	12
ELECTRICAL HEATER / HOT WATER COIL (Accessories)	13
FILTER	
CONTROLS AND REGULATION – Control panel	14
DESCRIPTION OF THE AIR TREATMENT UNIT	15
DIMENSIONS • INSTALLATION – Air treatment unit	16
DIMENSIONS • INSTALLATION	17
– Outdoor condensing unit - Type UC 73A	
– Outdoor condensing unit - Type UC 103A	
REFRIGERATION PIPEWORK – Model AR	18
ELECTRICAL CONNECTIONS – Main power supply	19
ELECTRICAL SPECIFICATIONS – Main power supply	20

PRODUCT CODE NUMBERS

This manual covers the following basic products.
(For units fitted with options; please refer to the maker's plate) :

Models	VOLTAGE NON INTERCHANGEABLE		PRODUCT CODE NUMBERS			
			Indoor unit		Outdoor unit	
	3N ~ 400 V - 50 Hz	3N ~ 230 V - 50 Hz*	X 4650	X 6450	X 4650	X 6450
AR with air cooled separated condenser	•	•	7XU022080	7XU022081	7XU031027 (UC73A)	7XU031028 (UC103A)
AO wated water	•	•	7XU012031	–	–	–
AO recycled water	•	•		–	–	–

* Installation regulated in France

The information contained in these instructions are subject to modification without prior 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 packaged air conditioners are presented :

- With a separate outdoor condensing unit for the **AIR** cooled models (**AR**).
- single packaged for the **WATER** cooled models (**AO**).

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),
- Hot water coil,
- A 4-stage thermostat to be integrated,
- A 4-stage remote control thermostat,
- A double-deflection discharge plenum,
- 90% gravimetric air filters.

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 :
Basic with drive motor and transmission by ajustable pulley/belt.
- "High ventilation equipment available as option providing a greater available pressure.
- Vertical blowing with plenum (accessory).
- Two air intake possibilities :
On the front with grilles or on the rear with ducts, with the rear air intake (accessory).
- Heat lagged filters M1, regenerable, mounted on metal frame : 2 efficiency.
- Electrical, hydraulic and refrigerant connections on right or left.
- Cooling by wasted water with pressure controlled valve or by recycled water without valve.

- Possibility of running in cooling mode down to an outdoor temperature of -10°C for the **AR** models with the "ALL SEASONS" accessory.
- There are two possibilities of regulation :
 - basic integrated with 2 stages and neutral zone,
 - for integration as an accessory with 4 stages and a neutral zone,
 - at a distance, as an accessory, with 4 stages and a neutral zone.
- Two control possibilities (accessory):
Integrated electrical heating coils or hot water heating coils.
- 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

- Double refrigerating circuit, each including :
- 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 copped 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 / AO Model**

- Reserve liquid receiver.
- Thermostatic pressure reducer with pressure balancing.
- Liquid indicator and valve on liquid line.

- **AR Model**

- Male valves with cap on cabinet and outdoor condensing units (UC) for refrigerating connections.
- Outdoor condensing unit (UC) with copper pipe heating coils and AI-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.
- Ventilation coil for UC with direct drive and low speed of rotation.

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.
- Basic casing resistors on all 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 strip 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.
- Anti-short cycle time delay on compressor(s).
- Location available in the electrical compartment to house Staëfa-Klima type regulation modules (not pre-wired, not supplied).
- “ALL SEASONS” system (accessory).

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.

The design and manufacturer are french meaning that spare parts availability is fast and easy.

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

Models			X 4650		X 6450				
			AR	AO	AR				
NOMINAL COOLING CAPACITY (1)			W BTU/HR	38900 137000	45700 157200	55000 189200			
FLOW	TREATED AIR	Nominal Mini./maxi.	m ³ /h m ³ /h	9000 7200/10800		12000 9500/14500			
	FRESH AIR	Nominal (with jet accessory)		1300		1650			
STATIC PRESSURE AVAILABLE (2)			Standard equipment High ventilation equipment	daPa daPa	0/23 7/48	0/29 0/48			
POWER INPUT VENTILATION			Standard equipment Mini./Maxi. High Ventilation equipment Mini./Maxi.	W W	1600/2400 3700/4500	3100/4600 4700/5800			
SOUND PRESSURE INDOOR UNIT (3)			Normal speed	dBa	61	60	69		
ELECTRIC POWER SUPPLY			Nominal voltage Voltage range Total power input (1)	V W	3N~400 V - 50 Hz 360/440		16950	13900	24000
WATER CIRCUIT (1)			Wasted water	Flow	m ³ /h		2,8		
				Head loss	kPa		18		
			Recycled water	Flow	m ³ /h		8,3		
				Head loss	kPa		56		
OUTDOOR CONDENSING UNIT (UC)			Type Number Air flow unit Power input unit Sound pressure unit		UC 73A 2 7000 580 56		UC 103A 2 10000 590 56		
COLISAGES	INDOOR UNIT		W x D x H net	mm	1715 x 790 x 1970		1980 x 790 x 1970		
			W x D x H packed	mm	1915 x 890 x 2220		2180 x 890 x 2220		
			Weight net packed	kg	525/595	565/635	600/680		
	DISCHARGE PLENUM		W x D x H net	mm	1715 x 790 x 400		1980 x 790 x 400		
			W x D x H packed	mm	2030 x 475 x 840		2080 x 475 x 840		
			Weight net packed	kg	31/38		35/42		
	OUTDOOR CONDENSING (UC)		W x D x H net	mm	1141 x 885 x 831		1546 x 885 x 893		
			W x D x H packed	mm	1160 x 950 x 1000		1565 x 950 x 1000		
			Weight net packed	kg	93/115		130/160		
OPTIONS			"High Ventilation" equipment Power supply 3~230 V - 50 Hz (5)		• •	• •			
ACCESSORIES			Electrical heating integrated/duct Hot water coil Front discharge plenum (1 and 3-way) Rear intake duct outlet 4-stage thermostat Remote fault transfer "All seasons" system Set of female pipe valves Refrigerating connections (max. 25M)	kW (6) kW	37,5 77	45 94	• • • • • • • • •		

- (1) International standard ISO 51-51 conditions
Type A : 27°C/19 wet bulb. - Outside air 35°C/24°C wet bulb.
Wasted water : inlet +15°C - Recycled water inlet/outlet : 29/35°C.
- (2) Nominal air flow nominal pressures } at nominal voltage without accessories.
Minimum air flow maximum pressures }
- (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 4650 AR

AIR FLOW : 9.000 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	40215	38757	37298	35839	34380	32922	31463
		PA	W	13143	13939	14735	15531	16327	17123	17919
	21	PS	W	23278	23784	24290	24796	25302	25808	26314
	23			26441	27016	27591	28165	28740	29315	29890
	25			29604	30248	30891	31535	32178	32922	31463
	27			39141	38757	37298	35839	34380	32922	31463
	29			40215	38757	37298	35839	34380	32922	31463
	31			40215	38757	37298	35839	34380	32922	31463
17		PT	W	42698	41181	39664	38147	36630	35113	33596
		PA	W	13239	14051	14864	15677	16490	17303	18116
	21	PS	W	22009	22487	22966	23444	23922	24401	24879
	23			25379	25930	26482	27034	27585	28137	28689
	25			28749	29374	29998	30623	31248	31873	32498
	27			32119	32817	33515	34213	36630	35113	33596
	29			40767	40767	39664	38147	36630	35113	33596
	31			42393	41181	39664	38147	36630	35113	33596
19		PT	W	45202	43626	42051	40475	38900	37325	35749
		PA	W	13408	14246	15084	15922	16760	17598	18436
	21	PS	W	17140	17512	17885	18257	18630	19003	19375
	23			20718	21169	21619	22070	22520	22970	23421
	25			24297	24825	25354	25882	26410	26938	27466
	27			27876	28482	29088	29694	30300	30906	31512
	29			31455	32139	32822	33506	34190	34874	35558
	31			35034	35795	36557	40475	38900	37325	35749
21		PT	W	47865	46212	44559	42905	41252	39599	37946
		PA	W	14005	14868	15731	16594	17457	18321	19184
	23	PS	W	15361	15695	16029	16363	16697	17031	17365
	25			19156	19573	19989	20406	20822	21239	21655
	27			22952	23451	23950	24448	24947	25446	25945
	29			26747	27328	27910	28491	29073	29654	30236
	31			30542	31206	31870	32534	33198	33862	34526
	33			34337	35084	35830	36577	37323	38070	38816
23		PT	W	50549	48818	47087	45356	43625	41894	40163
		PA	W	14709	15597	16485	17373	18262	19150	20038
	25	PS	W	13268	13557	13845	14133	14422	14710	14999
	27			17282	17657	18033	18409	18784	19160	19536
	29			21295	21758	22221	22684	23147	23610	24073
	31			25309	25859	26409	26959	27509	28060	28610
33			29322	29959	30597	31234	31872	32509	33147	

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 = 1576 W.

WORKING RANGE

INDOOR TEMPERATURE	°C	Thi	13	}	MINIMUM TEMPERATURE
		Tsi	17		
OUTDOOR TEMPERATURE	°C	Tse	+10		

INDOOR TEMPERATURE	°C	Thi	22	}	MAXIMUM TEMPERATURE
		Tsi	32		
OUTDOOR TEMPERATURE	°C	Twe	+30		

COOLING PERFORMANCES

Model X 6450 AR

AIR FLOW : 12.000 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	57997	55893	53789	51686	49582	47478	45374
		PA	W	20192	21415	22638	23862	25085	26308	27531
	21	PS	W	36377	37168	37958	38749	39540	40331	41122
	23			40938	41828	42718	43608	44498	45388	45374
	25			45500	46489	53542	51686	49582	47478	45374
	27			56448	55893	53789	51686	49582	47478	45374
	29			57997	55893	53789	51686	49582	47478	45374
	31			57997	55893	53789	51686	49582	47478	45374
17		PT	W	61578	59390	57202	55014	52826	50638	48450
		PA	W	20340	21589	22838	24086	25335	26584	27833
	21	PS	W	35002	35763	36524	37285	38046	38807	39568
	23			39862	40729	41596	42462	43329	44195	45062
	25			44722	45695	46667	47639	48611	49584	47932
	27			49582	56448	55887	54989	52826	50638	48450
	29			58793	58793	57202	55014	52826	50638	48450
	31			61138	59390	57202	55014	52826	50638	48450
19		PT	W	65188	62916	60644	58372	56100	53828	51556
		PA	W	20600	21888	23175	24463	25750	27038	28325
	21	PS	W	28078	28689	29299	29910	30520	31130	31741
	23			33240	33962	34685	35407	36130	36853	37575
	25			38401	39236	40070	40905	41740	42575	43410
	27			43562	44509	45456	46403	47350	48297	49244
	29			48723	49782	50842	51901	52960	53828	51556
	31			61138	61138	60577	58372	56100	53828	51556
21		PT	W	69029	66645	64261	61876	59492	57108	54724
		PA	W	21517	22843	24169	25495	26822	28148	29474
	23	PS	W	25606	26163	26720	27276	27833	28390	28946
	25			31080	31755	32431	33107	33782	34458	35133
	27			36553	37348	38142	38937	39731	40526	41321
	29			42026	42940	43853	44767	45681	46594	47508
	31			47499	48532	49565	50597	51630	52662	53695
	33			52973	54124	55276	56427	60790	59219	57312
23		PT	W	72900	70403	67907	65410	62914	60417	57921
		PA	W	22598	23963	25328	26693	28057	29422	30787
	25	PS	W	22669	23162	23655	24148	24641	25134	25626
	27			28458	29076	29695	30313	30932	31551	32169
	29			34246	34990	35735	36479	37223	37968	38712
	31			40034	40904	41774	42645	43515	44385	45255
			45822	46818	47814	48810	49806	50802	51798	

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 = 3130 W.

WORKING RANGE

INDOOR TEMPERATURE	°C	Thi	13	} MINIMUM TEMPERATURE
		Tsi	17	
OUTDOOR TEMPERATURE	°C	Tse	+10	

INDOOR TEMPERATURE	°C	Thi	22	} MAXIMUM TEMPERATURE
		Tsi	32	
OUTDOOR TEMPERATURE	°C	Twe	+30	

COOLING PERFORMANCES

Wasted water • Model X 4650 AO

NOMINAL AIR FLOW Qn : 9.000 m³/h

Air temperature at evaporator inlet (°C)					Wasted water supply				
BH	BS				Water temperature	°C	10	15	20
15		PT	W	39775	Water consumption	l/h	2240	2623	3459
		PA	W	12736	Water pressure	kPa	11	15	26
	21	PS	W	27172					
	23			31150					
	25			35127					
	27			39775					
	29			39775					
	31			39775					
17		PT	W	42374	Water consumption	l/h	2356	2759	3638
		PA	W	12851	Water pressure	kPa	12	16	28
	21	PS	W	25252					
	23			29489					
	25			33727					
	27			37964					
	29			42374					
	31			42374					
19		PT	W	45000	Water consumption	l/h	2477	2900	3824
		PA	W	13050	Water pressure	kPa	13	18	31
	21	PS	W	19060					
	23			23560					
	25			28060					
	27			32560					
	29			37060					
	31			41560					
21		PT	W	47738	Water consumption	l/h	2616	3063	4040
		PA	W	13580	Water pressure	kPa	15	20	35
	23	PS	W	16764					
	25			21538					
	27			26312					
	29			31086					
	31			35860					
	33			40633					
23		PT	W	50504	Water consumption	l/h	2760	3232	4262
		PA	W	14193	Water pressure	kPa	16	22	39
	25	PS	W	14080					
	27			19131					
	29			24181					
	31			29231					
	33			34282					

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 = 1450 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 • Model X 4650 AO

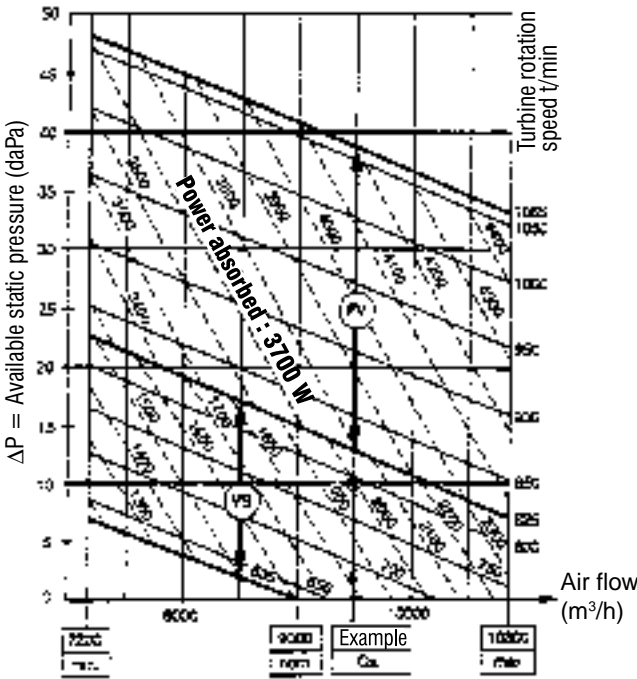
Air temperature at evaporator inlet (°C)				Recycled water supply			
						X 4650	
BH	BS			Inlet water temperature	°C	29	
				Water pressure	kPa	50	
		X 4650		Water consumption	l/h	8000	
15		PT	W	39775	Outlet water temperature	°C	35
		PA	W	12736			
	21	PS	W	27172			
	23			31150			
	25			35127			
	27			39775			
	29			39775			
	31			39775			
17		PT	W	42374	Outlet water temperature	°C	35
		PA	W	12851			
	21	PS	W	25252			
	23			29489			
	25			33727			
	27			37964			
	29			42374			
	31			42374			
19		PT	W	45000	Outlet water temperature	°C	35
		PA	W	13050			
	21	PS	W	19060			
	23			23560			
	25			28060			
	27			32560			
	29			37060			
	31			41560			
21		PT	W	47738	Outlet water temperature	°C	36
		PA	W	13580			
	23	PS	W	16764			
	25			21538			
	27			26312			
	29			31086			
	31			35860			
	33			40633			
23		PT	W	50504	Outlet water temperature	°C	36
		PA	W	14193			
	25	PS	W	14080			
	27			19131			
	29			24181			
	31			29231			
33			34282				

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 = 1450 W

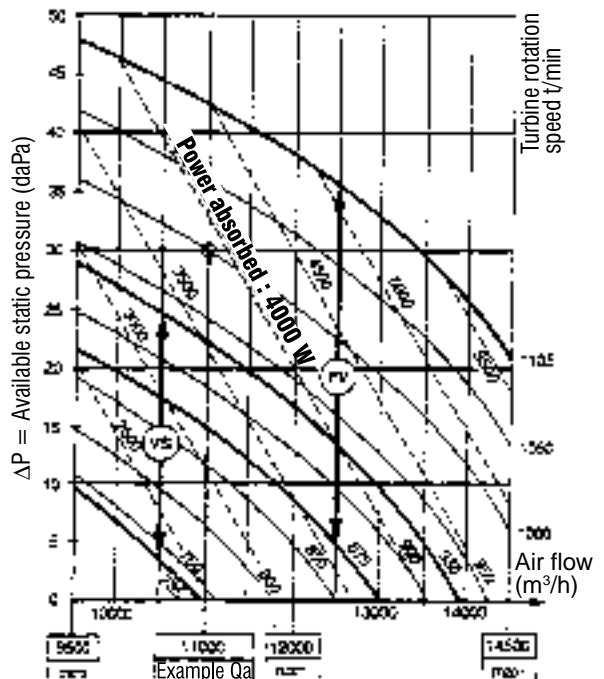
AERUALIC CHARACTERISTICS Models AR/AO

FRONT OR REAR AIR INTAKE WITH STANDARD AIR FILTERS

X 4650



X 6450



Example : **Model X 4650**
 Qa = 9500 m³/h
 Standard Ventilation (VS)
 Available static pressure : 10 daPa
 Fan rotation speed : 790 r.p.m.
 Power absorbed : 2000 W

Example : **Modèle X 6450**
 Qa = 11000 m³/h
 High Ventilation (FV) in option
 Available static pressure : 30 daPa
 Fan rotation speed : 1000 r.p.m.
 Power absorbed : 3800 W

VENTILATION EQUIPMENT		Standard ventilation (VS) Motor 3 kW		High Ventilation (FV) Motor 3,7 kW	
		Mini	Maxi	Mini	Maxi
Rotation speed turbine r.p.m.		635	825	825	1065
Available static pressure daPa without accessory	Nominal flow 9000 m³/h	0	15	16	41
	Minimum flow 7200 m³/h	7	23	24	48

VENTILATION EQUIPMENT		Standard ventilation (VS) Motor 3,7 kW		High Ventilation (FV) Motor 5,5 kW	
		Mini	Maxi	Mini	Maxi
Rotation speed turbine r.p.m.		735	930	875	1105
Available static pressure daPa without accessory	Nominal flow 12000 m³/h	0	17	8	36
	Minimum flow 9500 m³/h	9	29	22	48

Pressure drops of accessories (Qn = 9000 m³/h)		X 4650
Integrated electric heating	daPa	1
Hot water heating coil	daPa	8
Blowing plenum	daPa	4
Filters 90 %	daPa	2

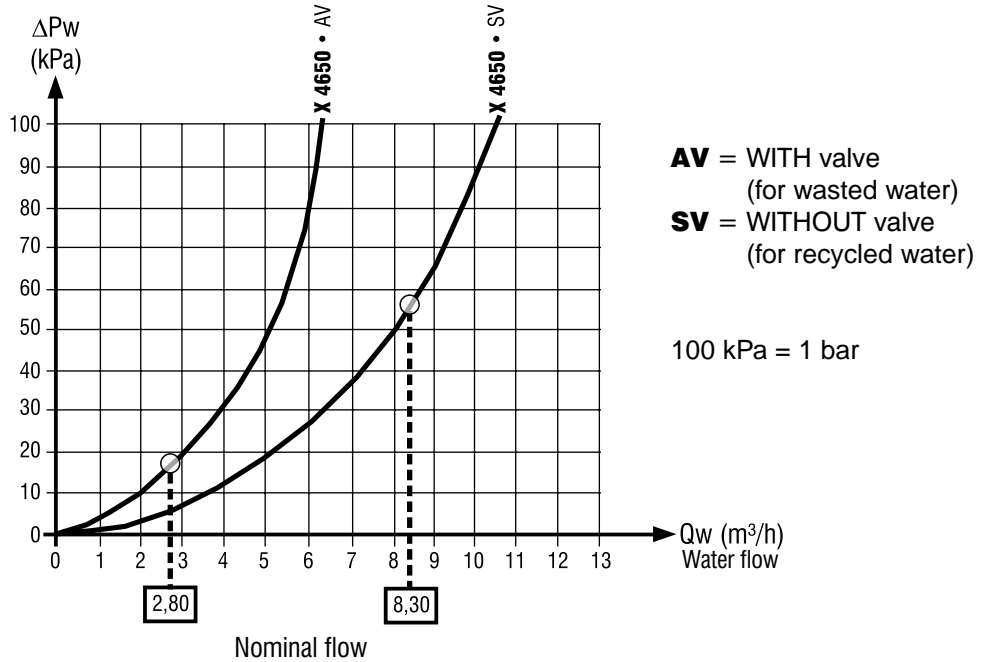
Pressure drops of accessories (Qn = 12000 m³/h)		X 6450
Integrated electric heating	daPa	1
Hot water heating coil	daPa	9
Blowing plenum	daPa	5
Filters 90 %	daPa	3

Qa = Treated air flow
 Qn = Nominal air flow

HYDRAULIC CHARACTERISTICS

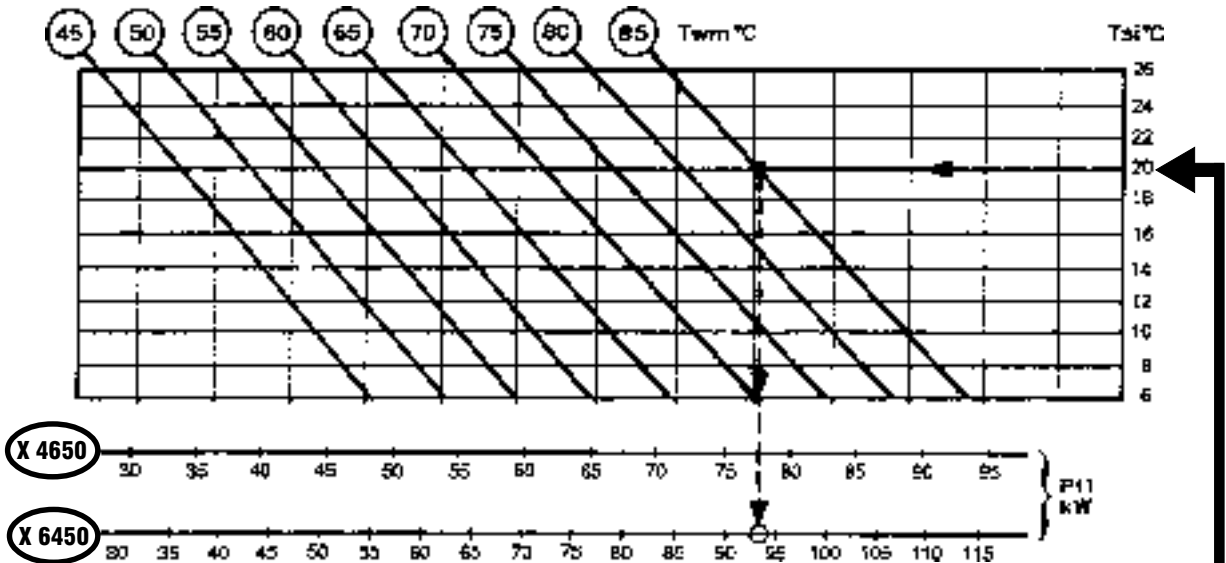
Model AO – Condenser supply

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



WATER SUPPLY		WASTED WATER	RECYCLED WATER
MODELS		X 4650	X 4650
NOMINAL WATER FLOW (AIR TO BE TREATED 27 °C - 47 %)	(m ³ /h)	2,8	8,3
NOMINAL WATER TEMPERATURE	Inlet (°C)	15	26
	Outlet (°C)	–	32
WATER PRESSURE	Minimum (kPa)	50	–
	Maximum (kPa)	1000	1000
HYDRAULIC CONNECTIONS (Left or right)	Ø Inlet/Outlet (mm)	Female nut	Male connection
		F Ø 26 x 34 (1")	M Ø 33 x 42 (1"1/4)
CONDENSATE DISCHARGE Flexible pipe	Ø (mm)	26/32	26/32
SAFETY DISCHARGE Bottom of unit	Ø (mm)	7/8"	7/8"
		22 mm external	22 mm external

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



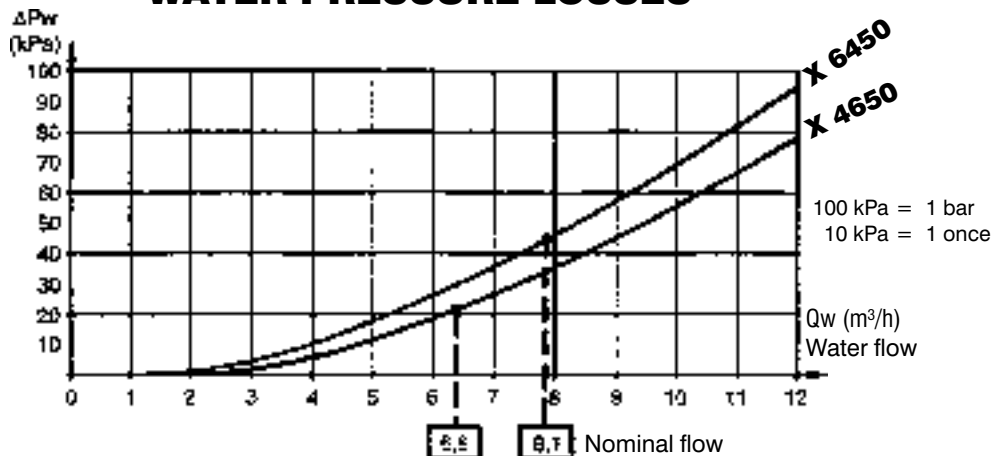
K ₁ COEFFICIENT AIR FLOW		Pt = K ₁ × K ₂ × Pt ₁	Water flow																									
Qa/Qn	K ₁		Qw = 0,86 × Pt (kW)	(m ³ /h)																								
0,80	0,87	<table border="1"> <thead> <tr> <th colspan="8">Q₂ COEFFICIENT ΔTw</th> </tr> <tr> <th>ΔTw °C</th> <th>8</th> <th>10</th> <th>12</th> <th>14</th> <th>16</th> <th>18</th> <th>20</th> </tr> </thead> <tbody> <tr> <th>K₂</th> <td>1,01</td> <td>1</td> <td>0,98</td> <td>0,96</td> <td>0,95</td> <td>0,94</td> <td>0,92</td> </tr> </tbody> </table>			Q ₂ COEFFICIENT ΔTw								ΔTw °C	8	10	12	14	16	18	20	K ₂	1,01	1	0,98	0,96	0,95	0,94	0,92
Q ₂ COEFFICIENT ΔTw																												
ΔTw °C	8	10	12	14	16	18	20																					
K ₂	1,01	1	0,98	0,96	0,95	0,94	0,92																					
0,90	0,95																											
1	1																											
1,10	1,06																											
1,20	1,13																											

Model X 6450
 Ex : Tsi = 20 °C
 Water = 90/80 °C
 Twm = 85 °C
 Pt₁ = 94 kW

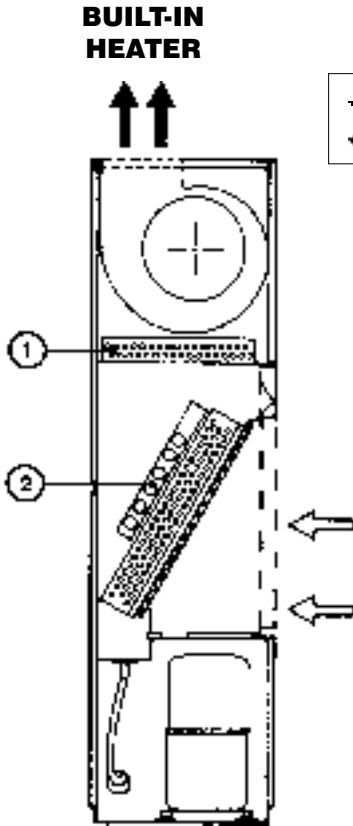
	X 4650	X 6450
Capacity	5	6
Nominal water flow	6,6	8,1
Maxi. water pressure	1000	
Maxi. water inlet temperature	Twe °C 90	
Mini. dry indoor temperature	Tsi °C + 6	
Ø Connection	mm F33 x 42 (1"1/4)	

- 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
- ΔTw = Difference in temperature water inlet/outlet
- Twm = Hot water average temperature
- ΔPw = Hot water pressure drops

WATER PRESSURE LOSSES



ELECTRICAL HEATER / HOT WATER COIL ACCESSORIES

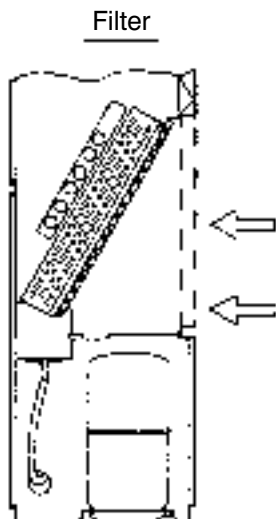


Marks	Models		X 4650	X 6450	
①	HOT WATER COIL	Nominal power input	kW	77	94
		Nominal water flow	m ³ /h	6,6	8,1
		Water pressure loss	kPa	25	49
		Ø Connections	mm	F33 x 42 (1"1/4)	
②	ELECTRICAL HEATER	Total power input	kW	(2x15)+7,5	3 x 15
		Number of stages		2	2
		Number of elements		5	18
		Power input/element	kW	2,5	2,5

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



Supply - Name		Basic - AR150		Accessory - AR300	
Models		X 4650	X 6450	X 4650	X 6450
FILTER		Flat with metal frame, mounted on sliding rails			
MATERIAL		Flame retardant synthetic fibres			
NUMBER OF FILTERS		2 - Re-usable			
DIMENSIONS W x D x H	W mm	740	870	740	870
	D mm	15	15	18	18
	H mm	780	780	780	780
EFFICIENCY (1)	%	83		90	
EUROVENT /CSTB (2) CLASSIFICATION		EU3/M1		EU4/M1	
ACCESS		Air intake grilles (front)			

COMMENT :

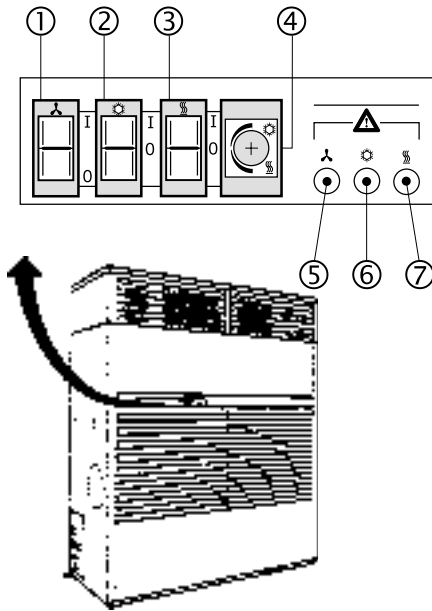
The filters also provides clean air from the fresh air intake (fresh air intake accessory) and the rear air intake.

(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

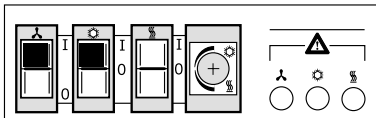
CONTROLS AND REGULATION

Control panel

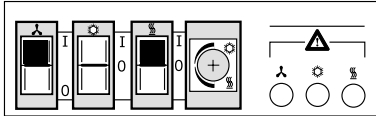


- ① Ventilation On/Off switch
 - O Off
 - I On (with control light)
- ② "Cooling" selection switch
 - O Off
 - 1 Automatic operation only (1) - F1 + F2
 - Automatic cooling/heating operation (2)
- ③ "Heating" selection switch
 - O Off
 - 1 Automatic heating alone (1) C1 + C2
 - Automatic heating (2) /cooling
- ④ Built-in thermostat
 - switch for cooling or heating control
- ⑤ Fault ventilation
- ⑥ Fault compressor 1 } HP Pressure switch compressor thermal control
- ⑦ Fault compressor 2 }

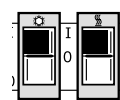
Manual hot/cold operation with basic thermostat



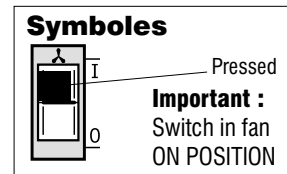
- COOLING (F1 + F2)
(mandatory position)



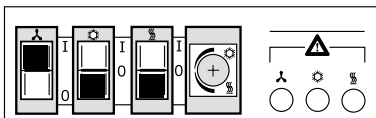
- HEATING (C1 + C2) (3)
(mandatory position)



IMPORTANT :
Never press simultaneously on the position codem.



Automatic cooling/heating operation with basic thermostat

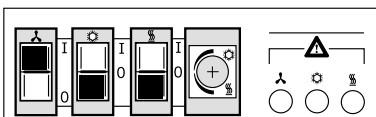


- COOLING/HEATING
(mandatory position)

Automatic regulation is on one cold stage (F2) and one hot stage (C2) (3).

Note : When the unit features an electrical heater, to optimize equipment performance, it is preferable to use the four-stage thermostat or any other means of regulation available to the user.

Automatic operation with a four-stage thermostat

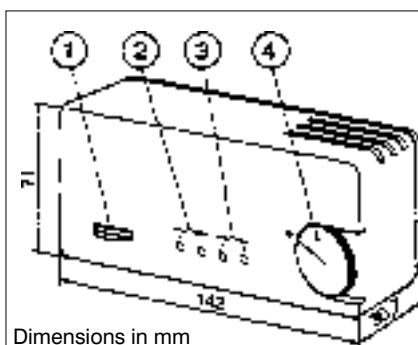


- COOLING/HEATING
(mandatory position)

2 COOLING stages (F1 + F2)
2 HEATING stages (C1 + C2) (3)

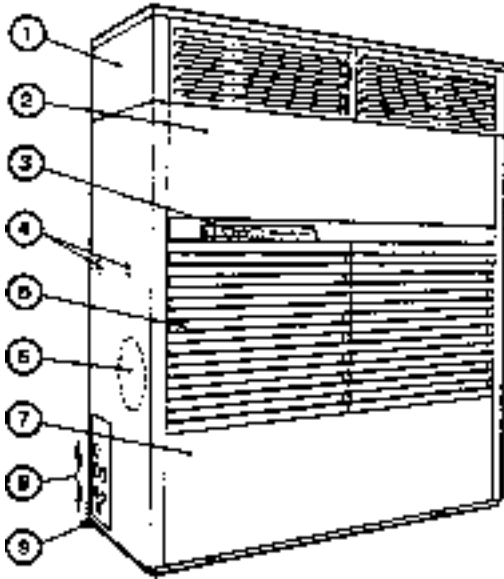
- (1) Automatic basic thermostat
- (2) Equipment with automatic cooling/heating thermostat - four stages and electrical heater (accessories to order)
- (3) The entire electrical power for this stage is reached after a four minute time delay.

REMOTE CONTROL (accessory)



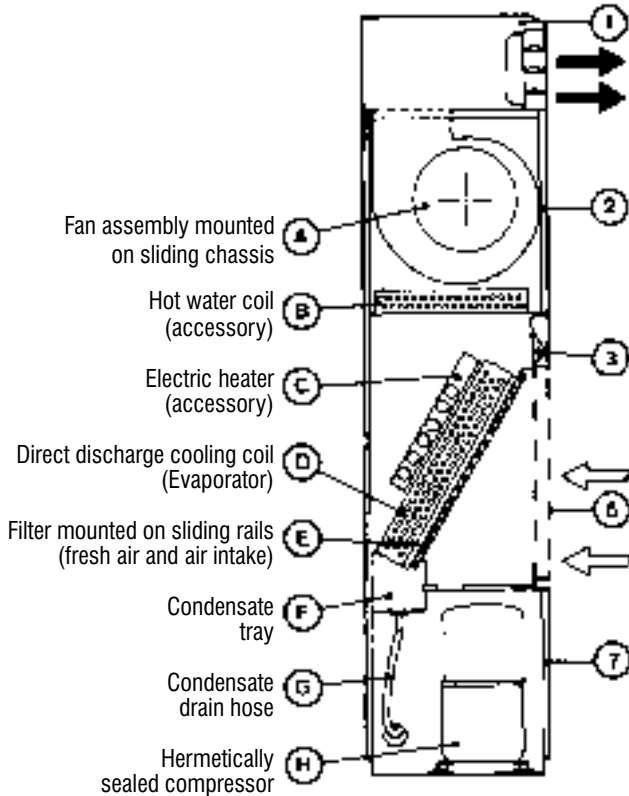
- ① ON/OFF Cooling/Heating switch
- ② Heating signal lamps
- ③ Cooling signal lamps
- ④ Adjustment of reference temperatures
(can be locked on min. and max. positions).

DESCRIPTION OF THE AIR TREATMENT UNIT

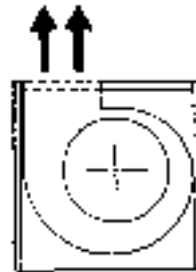


- ① Discharge plenum (accessory) with double deflection
- ② Access panel to the air-cooled motor fan unit and the hot water coils (accessory) or to the electric heater (accessory)
- ③ Control panel for regulation and display
- ④ Hydraulic connections of hot water coils. Access to right or left hand side.
- ⑤ Air intake grille
- ⑥ Connection for fresh air intake (accessory not supplied), on left or right
- ⑦ Access panel to the electrical and refrigeration compartments
- ⑧ Connections for electric, hydraulic and refrigerating links (left or right)
- ⑨ Safety drain pipes from watertight bottom. Access on left or right side.

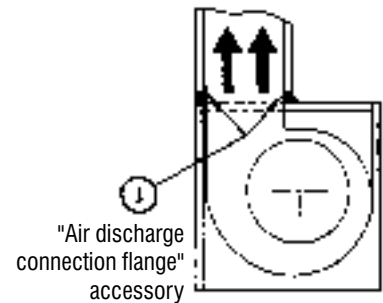
FRONT DISCHARGE (WITH "Plenum" accessory)



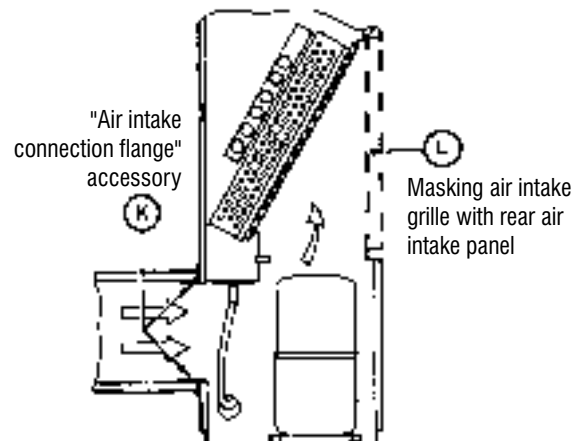
VERTICAL DISCHARGE (WITHOUT accessory)



DISCHARGE WITH DUCTS (WITH "Connection flange" accessory)



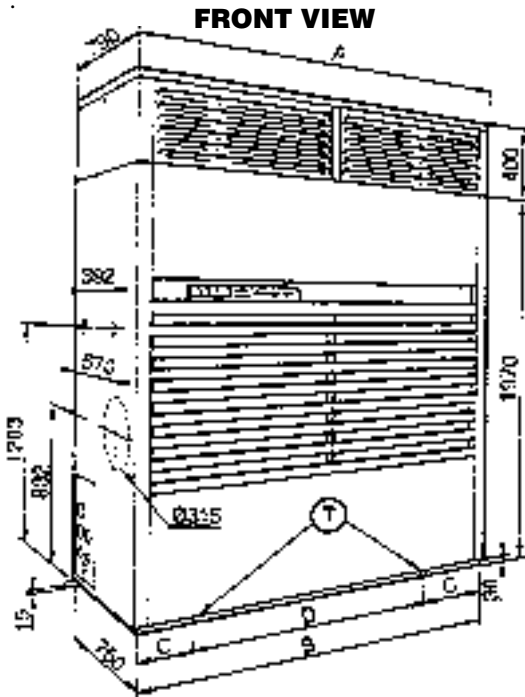
REAR AIR INTAKE (WITH "Air intake connection flange" accessory)



DIMENSIONS • INSTALLATION

Air treatment unit

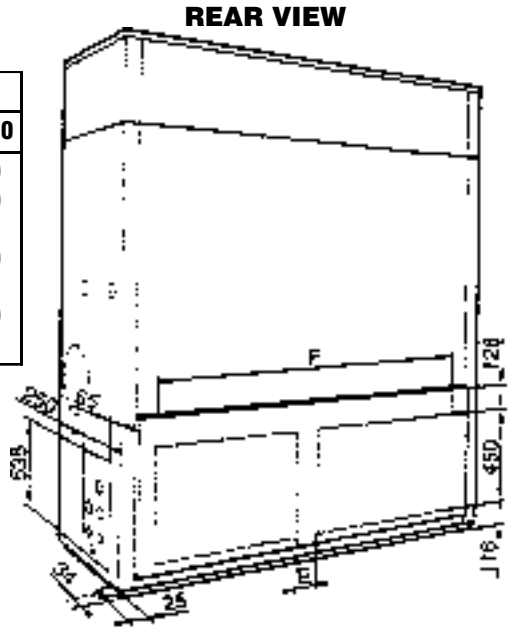
See exact mounting specifications in the installation instructions supplied with the equipment.



	Models	
	X 4650	X 6450
A	1715	1980
B	1665	1930
C	200	250
D	1265	1430
E	355	360
F	1445	1700
G	530	580

Ⓣ : Tapped holes M8 to fasten on the floor (at front and rear)

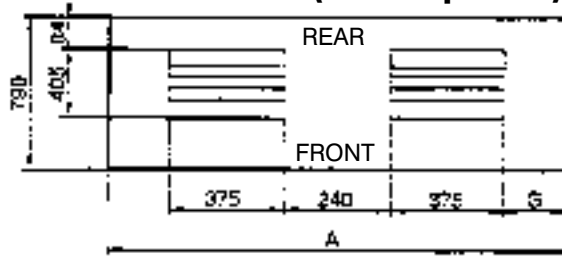
Dimensions in mm



CLEARANCES TO BE PROVIDED (mm)

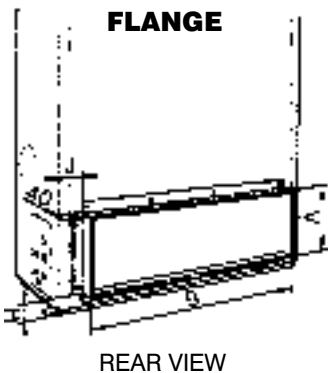
FRONT		LATERAL	
DISCHARGE		SIDE	
Vertical	Plenum	Connecti.	Oppos.
650	1000	650	-

TOP VIEW (without plenum)



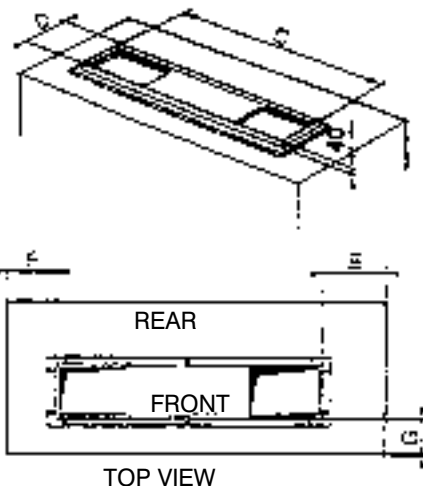
ACCESSORIES (External dimensions)

AIR INTAKE DUCT CONNECTION FLANGE



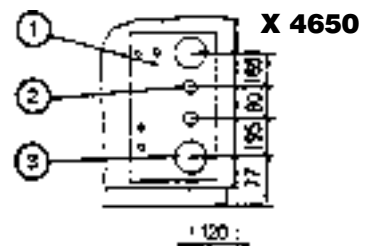
REAR VIEW

DISCHARGE DUCT CONNECTION FLANGE

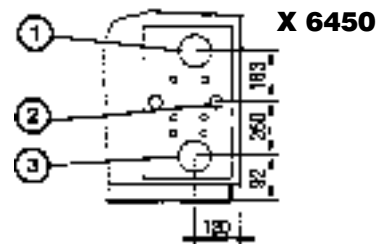


TOP VIEW

HYDRAULIC CONNECTIONS



X 4650



X 6450

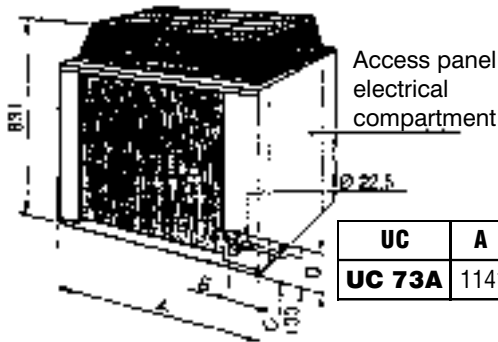
- ① Water outlet
- ② Condensats draining
- ③ Water inlet

Models	A	B	C	D	E	F	G	H	J
X 4650	452	1432	1020	435	516	179	286	116	135
X 6450		1702			565	395			140

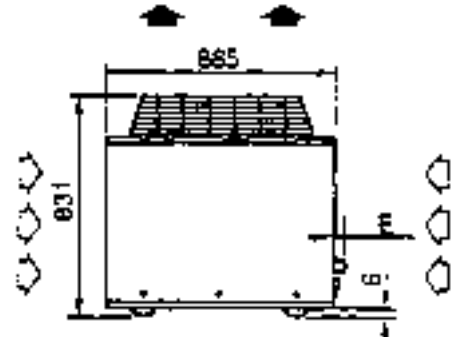
DIMENSIONS • INSTALLATION

Outdoor condensing unit - Type UC 73A / X 4650 Model AR

Dimensions in mm

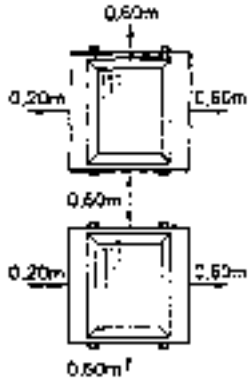


UC	A	B	C	D	E
UC 73A	1141	71	83	183	30

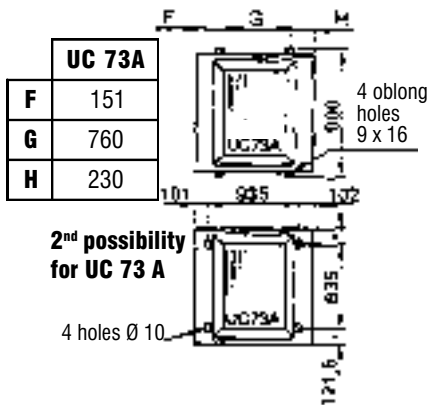


CLEARANCES TO BE PROVIDED

Top : 2,50 m



FLOOR MOUNTING AND FIXING

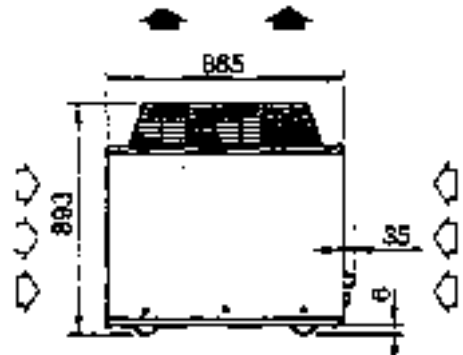
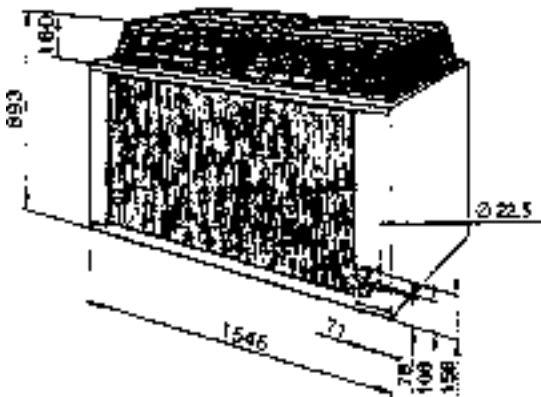


- INTAKE
- DISCHARGE

		UC 73A
Air flow	m ³ /h	7000
Rotational speed ventilation	r.p.m	775
Sound pressure at 10 m (1)	dB(A)	48

(1) Sound pressure in open space on reflecting surface

Outdoor condensing unit - Type UC 103A / X 6450 Model AR



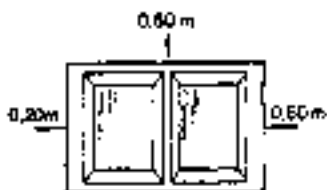
- INTAKE
- DISCHARGE

		UC 103A
Air flow	m ³ /h	10000
Rotational speed ventilation	r.p.m	640
Sound pressure at 10 m (1)	dB(A)	48

(1) Sound pressure in open space on reflecting surface

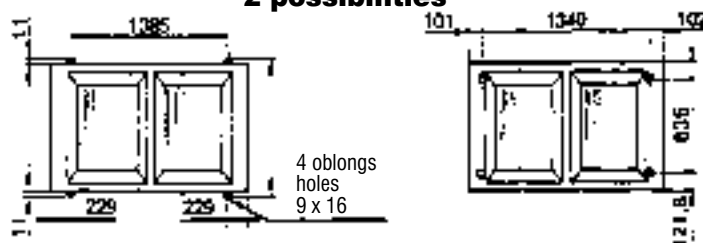
CLEARANCES TO BE PROVIDED

Top : 2,50 m

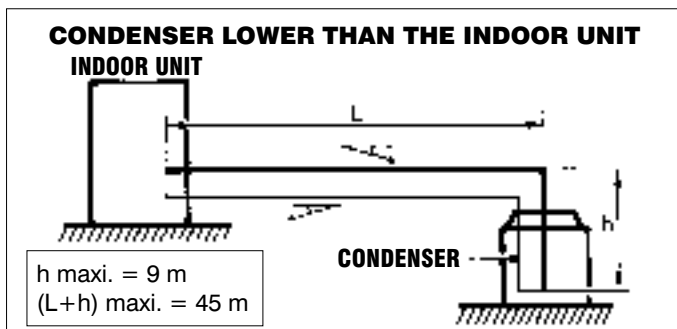
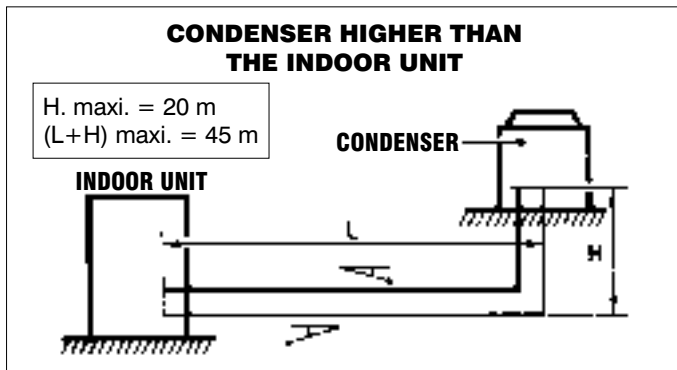
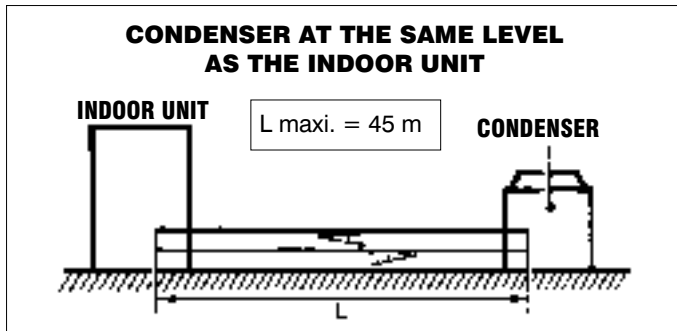
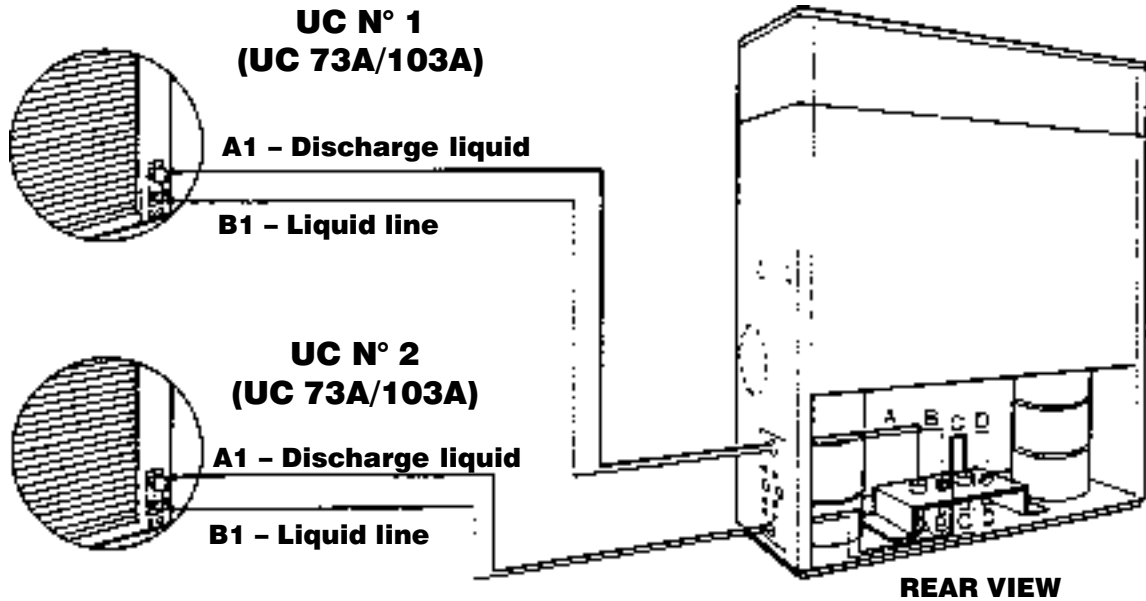


FLOOR MOUNTING AND FIXING

2 possibilities



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 4650	X 6450
Air treatment Model AR	g 600 x 2	2170 x 2
Condensing units UC 73A x 2	g 7000 x 2	-
UC 103A x 2	g -	8130 x 2
Precharged linking pipes (maxi. length 25 m)		
• Discharge line	\varnothing 5/8"	3/4"
charge	Precharge	Precharge
• Liquid line	\varnothing 1/2"	5/8"
charge	g/m* 110	183

Model AO (indoor unit)	5560 x 2	6315 x 2
------------------------	----------	----------

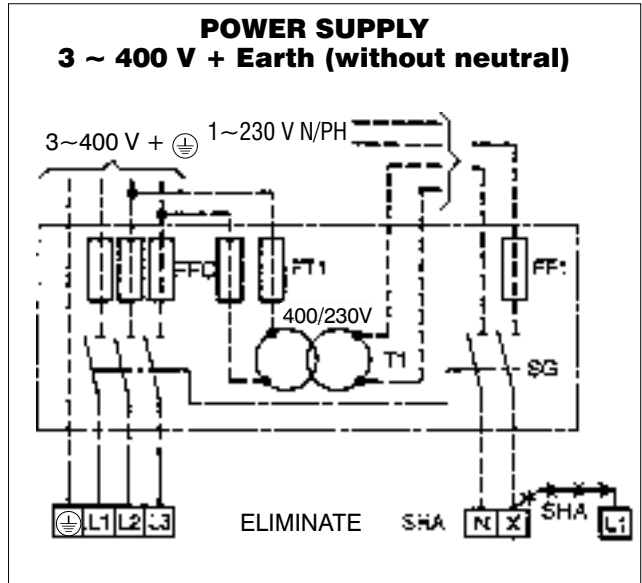
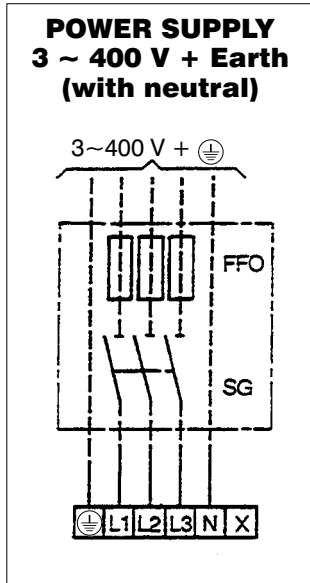
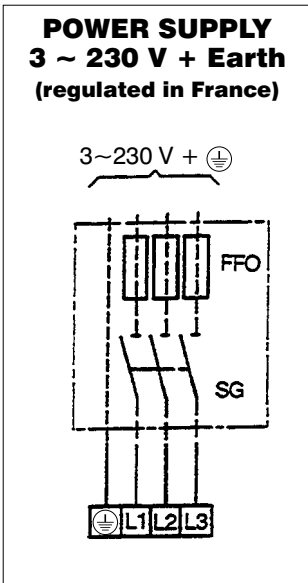
* per m above 2 m

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.

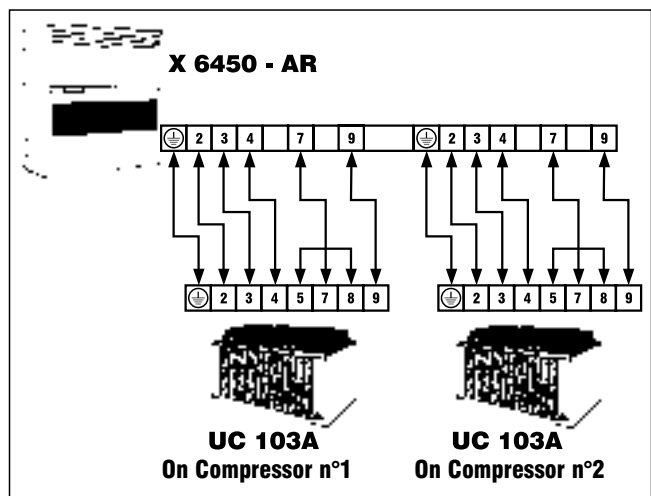
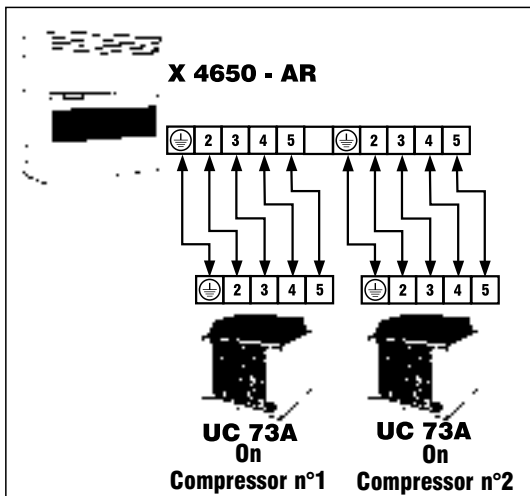
ELECTRICAL CONNECTIONS

Main power supply



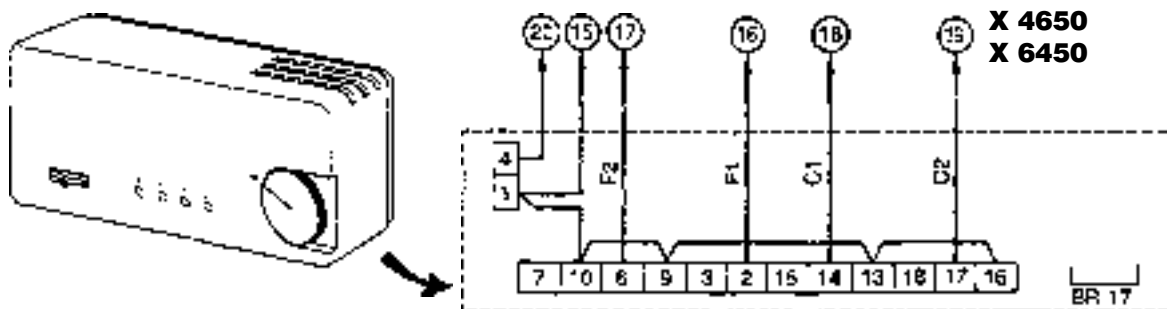
SG : GENERAL SELECTOR MANDATORY } to be supplied by installer
 FF0 - FF1 - FT1 : FUSE TYPE aM } (comply with local regulations)
 T1 : TRASFORMER 400/230 V

INTERCONNECTIONS WITH OUTDOOR (Models AR)



NOTE : Motors **UC 73A** and **UC 103A** are coupled of single phase 400/230 V.coupling.
 They are supplied ex-factory coupled for single phase 400 V.
 To are to be coupled on site at the power supply voltage of the cabinet, that is single phase 230 V for a three phase 230 V units.

INTERCONNECTIONS WITH REMOTE AMBIENT THERMOSTAT (Accessory)



ELECTRICAL SPECIFICATIONS

Main power supply

Unit type	Model X 4650				Model X 6450		
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	AR	
• Cooling + Ventilation(VS/FV)*							
- Nominal power input	kW	17/19	13,9/16	17/19	13,9/16	24/25,6	24/25,6
- Nominal intensity	A	54/62	47/55	32/37	27/32	75/82	44/46
- Maximum intensity	A	76/85	67/76	43/48	39/44	105/113	60/65
- Starting intensity	A	176/203	146/173	100/115	84/99	244/268	139/154
- Motor fuse rating	A	80/100	80	50	40/50	125	63/80
- Cable size	mm ²	25/35	25	10	10	50	16/25
• Electrical heating + Ventilation (VS/FV)							
- Nominal power input	kW	39,4/41,5	39,4/41,5	39,4/41,5	39,4/41,5	48,4/50	48,4/50
- Nominal intensity	A	108/116	108/116	61/66	61/66	132/139	75/79
- Maximum intensity	A	128/137	128/137	73/78	73/78	155/158	89/94
- Starting intensity	A	176/203	146/173	100/115	84/99	244/268	139/154
- Motor fuse rating	A	160	160	80	80	160	100
- Cable size	mm ²	70	70	25	25	70	35
• Deshumidification + Ventilation (VS/FV)							
- Nominal power input	kW	39,4/41,5	37,9/40	39,4/41,5	37,9/40	43,7/45,3	43,7/45,3
- Nominal intensity	A	110/118	107/115	62/68	61/66	124/131	70/74
- Maximum intensity	A	135/144	130/139	77/82	74/79	152/160	87/92
- Starting intensity	A	242/269	219/246	137/152	125/140	302/326	172/187
- Motor fuse rating	A	160	160	80/100	80	160	100
- Cable size	mm ²	70	70	25/35	25	70	35

* VS : Standard Ventilation - FV : High Ventilation.

Note : 1 Cooling unit and 2 x 15 kW heating are considered in terms of dehumidification

INTERCONNECTIONS WITH OUTDOOR UNIT • Model AR

Unit type	Model X 4650		Model X 6450		
Power supply	3~230 V* - 50 Hz		3N~ 400 V - 50 Hz		
• Unit power	Model	UC 73A	UC 73A	UC 103A	UC 103A
Outdoor unit	Coupling	~ 230 V - 50 Hz	~ 230 V - 50 Hz	~ 230 V - 50 Hz	~ 230 V - 50 Hz
- Nominal power input	kW	580	580	590	590
- Nominal intensity	A	3	1,7	3,2	1,8
- Maximum intensity	A	3,2	1,8	4	2
- Starting intensity	A	5	3	6	3
- Cable size	mm ²	1,5	1,5	1,5	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 (accessory)		
Unit type	Model X 4650	Model X 6450
• Cooling + ventilation (VS/FV)		
- Nominal intensity	A	1
- Maximum intensity	A	2
- Starting intensity	A	3
- Cable size	mm ²	1

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	X 4650 250	250
	X 6450 -	

Airwell

