Airwell

PACKAGED AIR CONDITIONERS

VERTICAL UNITS

X 2450

X 3250

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

R-407C

Technical Manual **00TX04**

CONTENTS

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 2450 R-407C	X 3250 R-407C	X 2450 R-407C	X 3250 R-407C
AR	with air cooled separated condenser	•	•	7XU022078	7XU022079	7XU031027 (**UC73A**)	7XU031028 (**UC103A**)
AO	wated water	•	•	7XU012029	7XU012030	–	–

* 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 **X 2450** and **X 3250** 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),
- 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 duct or 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 ratings, 83 ou 90% gravimetric.
- 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.
- Two heating possibilities (accessories) :
  – basic built-in
  (see 14, "CONTROLS AND REGULATION",
  – to be built-in as an accessory with 4 stages and a neutral zone,
  – with remote control, 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**
  Simple 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.
  – Copper tube evaporator with aluminium fins and anti-corrosion protected condensate tray.

- **AR / AO Model**
  – Reserve liquid receiver.
  – Thermostatic pressure reducer with pressure balancing.
  – Liquid indicator and valve on liquid line.

- **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 Model**
  - 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.
- 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 2450		X 3250	
				AR	AO	AR	AO
REFRIGERANT R-407C			g	7600	5220	9800	6615
NOMINAL COOLING CAPACITY (1)			W BTU/HR	19800 67600	23000 78500	29000 99000	32400 110550
FLOW	TREATED AIR	Nominal Mini./maxi.	m³/h m³/h	4500 3600/5400		5800 4600/7000	
	FRESH AIR	Nominal (with jet accessory)	m³/h	420		500	
STATIC PRESSURE AVAILABLE (2)		Standard equipment High ventilation equipment	daPa daPa	0/20 4/40		0/25 4/40	
POWER INPUT VENTILATION		Standard equipment Mini./Maxi. High Ventilation equipment Mini/Maxi.	W W	500/1100 800/1800		700/1800 1100/2200	
SOUND PRESSURE INDOOR UNIT (3)		Normal speed	dBA	59	58	65	64
ELECTRIC POWER SUPPLY		Nominal voltage Voltage range	V	3N~400 V - 50 Hz 360/440			
		Total power input (1)	W	8900	7100	12630	9800
WATER CIRCUIT (1)		Wasted water – Flow	m³/h		1		1,7
		Wasted water – Head loss	kPa		42		40
OUTDOOR CONDENSING UNIT (UC)		Type Number Air flow unit Power input unit Sound pressure unit	 m³/h W dBa	**UC 73A** 1 7000 580 56		**UC 103A** 1 10000 590 56	
COLISAGES	INDOOR UNIT	W x D x H net W x D x H packed Weight net packed	mm mm kg	1300 x 600 x 1840 1600 x 670 x 2080 265/310	305/350	1530 x 600 x 1840 1730 x 700 x 2060 350/400	380/430
	DISCHARGE PLENUM	W x D x H net W x D x H packed Weight net packed	mm mm kg	1300 x 600 x 350 1600 x 670 x 445 20/25		1530 x 600 x 350 1600 x 670 x 445 21/26	
	OUTDOOR CONDENSING (UC)	W x D x H net W x D x H packed Weight net packed	mm mm kg	1141 x 885 x 831 1160 x 950 x 1000 93/115		1546 x 885 x 893 1565 x 950 x 1000 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	kW (6) kW	18 38,5 • • • •		22,5 50 • • • •	
		"All seasons" system Set of fermale pipe valves Refrigerating connections (max. 25M)		• • •	– – –	• • •	– – –

(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) Pressure in air flow range at nominal voltage, without accessories.
(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 2450 AR

AIR FLOW : 4.500 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	**20469**	**19726**	**18984**	**18241**	**17499**	**16757**	**16014**
		PA	W	**6563**	**6961**	**7358**	**7756**	**8154**	**8551**	**8949**
	21	PS	W	12061	12323	12586	12848	13110	13373	13635
	23			13610	13968	14265	14563	14860	15158	15455
	25			15281	15613	15945	16278	16610	16757	16014
	27			19922	19726	18984	18242	17499	16757	16014
	29			20469	19726	18984	18242	17499	16757	16014
	31			20469	19726	18984	18242	17499	16757	16014
17		PT	W	**21733**	**20961**	**20189**	**19417**	**18645**	**17872**	**17100**
		PA	W	**6611**	**7017**	**7423**	**7829**	**8235**	**8641**	**9047**
	21	PS	W	11450	11699	11948	12197	12446	12695	12944
	23			13165	13452	13738	14024	14310	14596	14883
	25			14881	15204	15528	15851	16175	16498	16822
	27			16596	16957	17318	17678	18645	17872	17100
	29			20750	20750	20189	19417	18645	17872	17100
	31			21578	20961	20189	19417	18645	17872	17100
19		PT	W	**23008**	**22206**	**21404**	**20602**	**19800**	**18998**	**18196**
		PA	W	**6696**	**7115**	**7533**	**7952**	**8370**	**8789**	**9207**
	21	PS	W	8979	9174	9370	9565	9760	9955	10150
	23			10801	11036	11270	11505	11740	11975	12210
	25			12622	12897	13171	13446	13720	13994	14269
	27			14444	14758	15072	15386	**15700**	16014	16328
	29			16266	16619	16973	17326	17680	18034	18196
	31			18087	18480	21380	20602	19800	18998	18196
21		PT	W	**24363**	**23522**	**22680**	**21839**	**20997**	**20156**	**19314**
		PA	W	**6994**	**7425**	**7856**	**8287**	**8718**	**9149**	**9580**
	23	PS	W	8081	8257	8432	8608	8784	8959	9135
	25			10013	10230	10448	10666	10883	11101	11319
	27			11945	12204	12464	12724	12983	13243	13503
	29			13876	14178	14480	14781	15083	15385	15686
	31			15808	16152	16495	16839	17183	17526	17870
	33			17740	18125	18511	18897	19282	19668	20228
23		PT	W	**25729**	**24848**	**23967**	**23086**	**22205**	**21324**	**20443**
		PA	W	**7346**	**7789**	**8233**	**8676**	**9120**	**9564**	**10007**
	25	PS	W	7022	7175	7327	7480	7632	7785	7938
	27			9065	9262	9459	9656	9853	10050	10247
	29			11108	11349	11591	11832	12073	12315	12556
	31			13150	13436	13722	14008	14294	14580	14866
	33			15193	15524	15854	16184	16514	16845	17175

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 = 530 W.

WORKING RANGE

INDOOR TEMPERATURE		°C	Thi	13	MINIMUM TEMPERATURE
			Tsi	17	
OUTDOOR TEMPERATURE	Basic equ.	°C	Tse	+19	
	with TTS*	°C	Tse	–10	

INDOOR TEMPERATURE	°C	Thi	19	22	MAXIMUM TEMPERATURE
		Tsi	30	32	
OUTDOOR TEMPERATURE	°C	Tse	50	47	

* with accessory "All seasons" system

COOLING PERFORMANCES
Model X 3250 AR

AIR FLOW : 5.800 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	**29981**	**28893**	**27806**	**26718**	**25631**	**24543**	**23456**
		PA	W	**9214**	**9772**	**10330**	**10888**	**11446**	**12005**	**12563**
	21	PS	W	17332	17709	18085	18462	18839	19216	19592
	23			19690	20118	20546	20974	21402	21830	22258
	25			22048	22527	23006	23486	23965	24543	23456
	27			29180	28893	27806	26718	25631	24543	23456
	29			29981	28893	27806	26718	25631	24543	23456
	31			29981	28893	27806	26718	25631	24543	23456
17		PT	W	**31832**	**30701**	**29570**	**28439**	**27308**	**26177**	**25046**
		PA	W	**9281**	**9851**	**10421**	**10991**	**11561**	**12131**	**12701**
	21	PS	W	16382	16738	17094	17450	17806	18162	18519
	23			18894	19305	19716	20126	20537	20948	21359
	25			21406	21872	22337	22803	23268	23733	24199
	27			23919	24439	24959	25479	27308	26177	25046
	29			30392	30392	29570	28439	27308	26177	25046
	31			31604	30701	29570	28439	27308	26177	25046
19		PT	W	**33698**	**32524**	**31349**	**30175**	**29000**	**27826**	**26651**
		PA	W	**9400**	**9988**	**10575**	**11163**	**11750**	**12338**	**12925**
	21	PS	W	12751	13028	13306	13583	13860	14137	14414
	23			15419	15754	16090	16425	16760	17095	17430
	25			18087	18480	18874	19267	19660	20053	20446
	27			20755	21206	21658	22109	**22560**	23011	23462
	29			23423	23932	24442	24951	25460	25969	26478
	31			26091	26658	27226	30175	29000	27826	26651
21		PT	W	**35684**	**34451**	**33219**	**31986**	**30754**	**29521**	**28289**
		PA	W	**9818**	**10424**	**11029**	**11634**	**12239**	**12844**	**13449**
	23	PS	W	11425	11673	11921	12170	12418	12667	12915
	25			14254	14564	14874	15184	15494	15803	16113
	27			17083	17455	17826	18197	18569	18940	19312
	29			19913	20346	20778	21211	21644	22077	22510
	31			22742	23236	23731	24225	24720	25214	25708
	33			25571	26127	26683	27239	27795	28351	28907
23		PT	W	**37684**	**36394**	**35103**	**33813**	**32522**	**31232**	**29941**
		PA	W	**10312**	**10935**	**11557**	**12180**	**12803**	**13426**	**14048**
	25	PS	W	9864	10078	10293	10507	10721	10936	11150
	27			12856	13135	13415	13694	13974	14253	14533
	29			15848	16192	16537	16881	17226	17570	17915
	31			18840	19249	19659	20068	20478	20888	21297
	33			21832	22306	22781	23256	23730	24205	24679

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 = 875 W.

WORKING RANGE

INDOOR TEMPERATURE		°C	Thi	13	**MINIMUM TEMPERATURE**
			Tsi	17	
OUTDOOR TEMPERATURE	Basic equ.	°C	Tse	+19	
	with TTS*	°C	Tse	–10	

INDOOR TEMPERATURE	°C	Thi	19	22	**MAXIMUM TEMPERATURE**
		Tsi	30	32	
OUTDOOR TEMPERATURE	°C	Tse	50	47	

* with accessory "All seasons" system

COOLING PERFORMANCES
Wasted water Model X 2450 AO

NOMINAL AIR FLOW Qn : 4.500 m³/h

Air temperature at evaporator inlet (°C)					Wasted water supply				
BH	**BS**				**Water temperature**	**°C**	**10**	**15**	**20**
15		PT	W	20285	Water consumption	l/h	769	901	1188
		PA	W	60246	Water pressure	kPa	13	18	31
	21	PS	W	13493					
	23			15522					
	25			17550					
	27			20285					
	29			20285					
	31			20285					
17		PT	W	21636	Water consumption	l/h	811	950	1252
		PA	W	6092	Water pressure	kPa	14	20	35
	21	PS	W	12417					
	23			14581					
	25			16745					
	27			18908					
	29			21636					
	31			21636					
19		PT	W	**23000**	Water consumption	l/h	854	**1000**	1319
		PA	W	**6200**	Water pressure	kPa	16	**22**	38
	21	PS	W	9240					
	23			11540					
	25			13840					
	27			**16140**					
	29			18440					
	31			20740					
21		PT	W	24412	Water consumption	l/h	903	1058	1395
		PA	W	6467	Water pressure	kPa	18	25	43
	23	PS	W	8045					
	25			10486					
	27			12927					
	29			15368					
	31			17810					
	33			20251					
23		PT	W	25837	Water consumption	l/h	954	1117	1473
		PA	W	6774	Water pressure	kPa	20	27	48
	25	PS	W	6649					
	27			9233					
	29			11816					
	31			14400					
	33			16984					

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 = 860 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 3250 AO

NOMINAL AIR FLOW Qn : 5.800 m³/h

Air temperature at evaporator inlet (°C)					Wasted water supply				
BH	**BS**				**Water temperature**	**°C**	**10**	**15**	**20**
15		PT	W	28598	Water consumption	l/h	1074	1257	1658
		PA	W	8113	Water pressure	kPa	14	19	33
	21	PS	W	18141					
	23			21001					
	25			23861					
	27			26721					
	29			28598					
	31			28598					
17		PT	W	30493	Water consumption	l/h	1132	1326	1748
		PA	W	8218	Water pressure	kPa	16	21	37
	21	PS	W	16491					
	23			19540					
	25			22589					
	27			25639					
	29			28688					
	31			30493					
19		PT	W	**32400**	Water consumption	l/h	1452	**1700**	2242
		PA	W	**8370**	Water pressure	kPa	26	**35**	61
	21	PS	W	11980					
	23			15220					
	25			18460					
	27			**21700**					
	29			24940					
	31			28180					
21		PT	W	34348	Water consumption	l/h	1259	1474	1944
		PA	W	8706	Water pressure	kPa	19	26	46
	23	PS	W	10259					
	25			13694					
	27			17129					
	29			20564					
	31			23999					
	33			27433					
23		PT	W	36306	Water consumption	l/h	1328	1555	2050
		PA	W	9090	Water pressure	kPa	21	29	51
	25	PS	W	8265					
	27			11895					
	29			15526					
	31			19157					
	33			22787					

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 = 1430 W
Qn = Nominal air flow

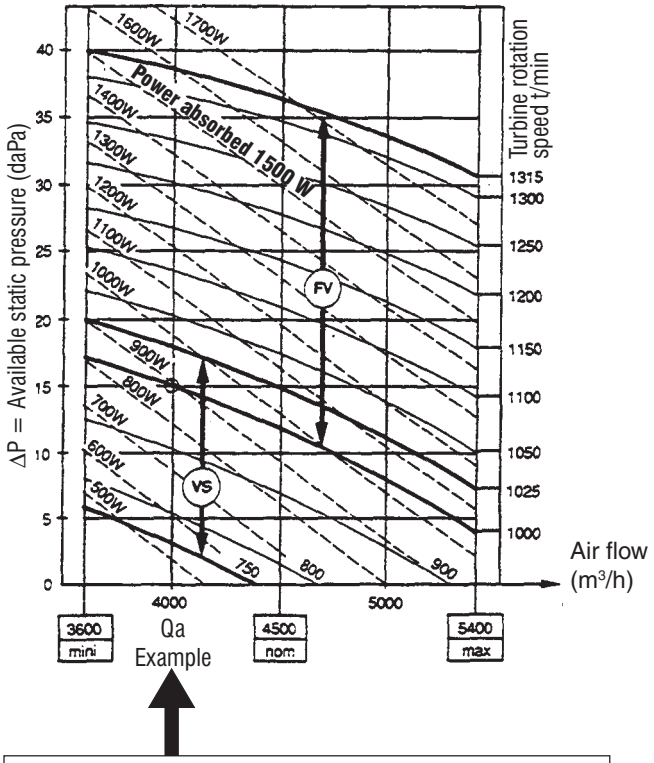
Air output correction Qn					
	0,8xQn	**0,9xQn**	**Qn**	**1,1xQn**	**1,2xQn**
Total cooling capacity	0,940	0,970	1,000	1,020	1,040
Sensitive cooling capacity	0,890	0,950	1,000	1,050	1,100
Power absorbed	0,970	0,985	1,000	1,005	1,010

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

AERAULIC CHARACTERISTICS
Models AR/AO

FRONT OR REAR AIR INTAKE WITH STANDARD AIR FILTERS

X 2450



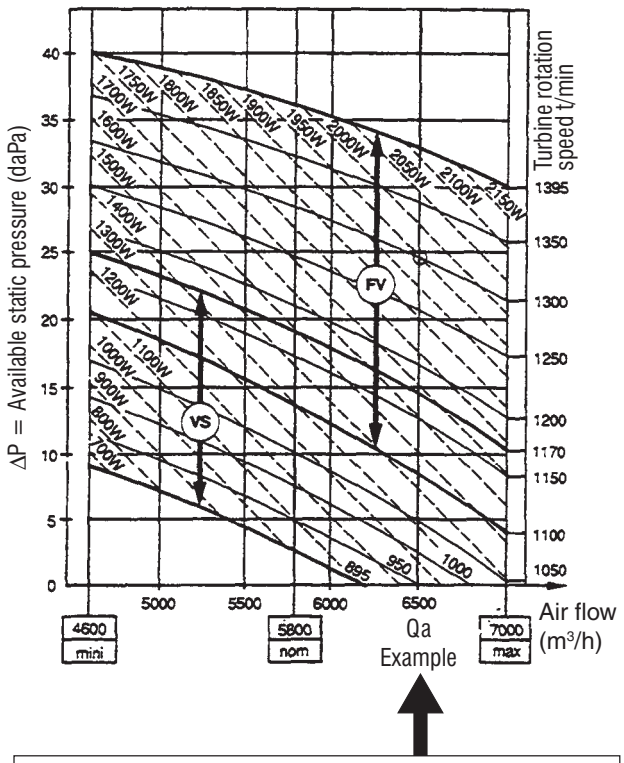
Example : **Model X 2450**
Qa = 4000 m³/h
Standard Ventilation (VS)
Available static pressure : 15 daPa
Fan rotation speed : 1000 r.p.m.
Power absorbed : 890 W

VENTILATION EQUIPMENT		Standard ventilation (VS) Motor 1,1 kW		High Ventilation (FV) Motor 1,5 kW	
Rotation speed turbine r.p.m.		Mini	Maxi	Mini	Maxi
		750	1025	1000	1315
Available static pressure daPa without accessory	Nominal flow 4500 m³/h	0	15	12	37
	Minimum flow 3600 m³/h	6	20	17	40

Pressure drops of accessories (Qn = 4500 m³/h)		X 2450
Integrated electric heating	daPa	2
Hot water heating coil	daPa	2
Blowing plenum	daPa	2
Filters 90 %	daPa	2

Qa = Treated air flow
Qn = Nominal air flow

X 3250



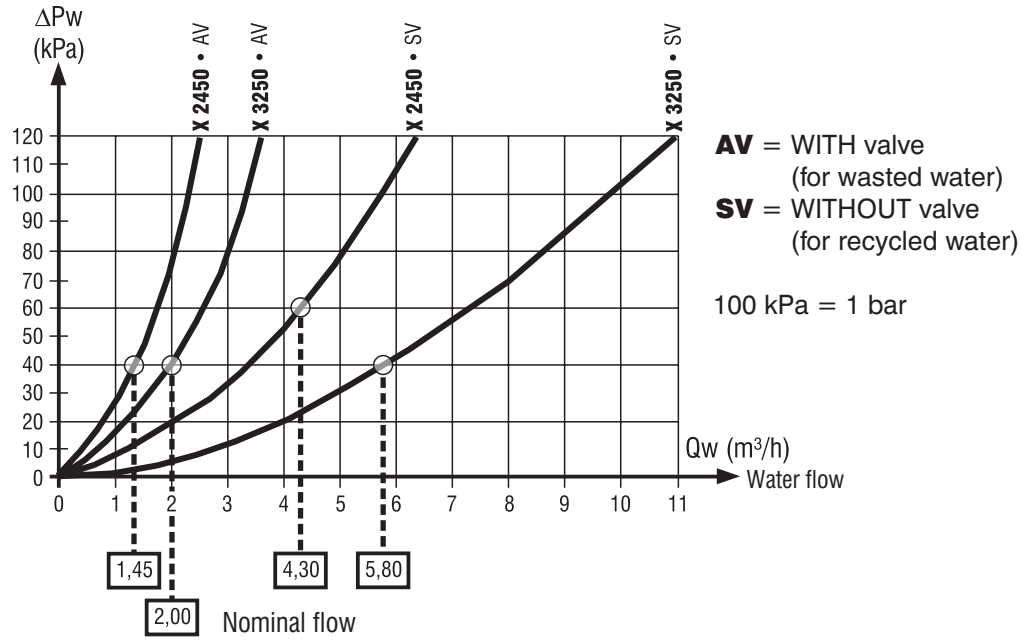
Example : **Modèle X 3250**
Qa = 6500 m³/h
High Ventilation (FV) in option
Available static pressure : 25 daPa
Fan rotation speed : 1300 r.p.m.
Power absorbed : 1950 W

VENTILATION EQUIPMENT		Standard ventilation (VS) Motor 1,1 kW		High Ventilation (FV) Motor 1,85 kW	
Rotation speed turbine r.p.m.		Mini	Maxi	Mini	Maxi
		895	1170	1100	1395
Available static pressure daPa without accessory	Nominal flow 5800 m³/h	3	19	13	36
	Minimum flow 4600 m³/h	9	25	20	40

Pressure drops of accessories (Qn = 5800 m³/h)		X 3250
Integrated electric heating	daPa	1
Hot water heating coil	daPa	3
Blowing plenum	daPa	3
Filters 90 %	daPa	2

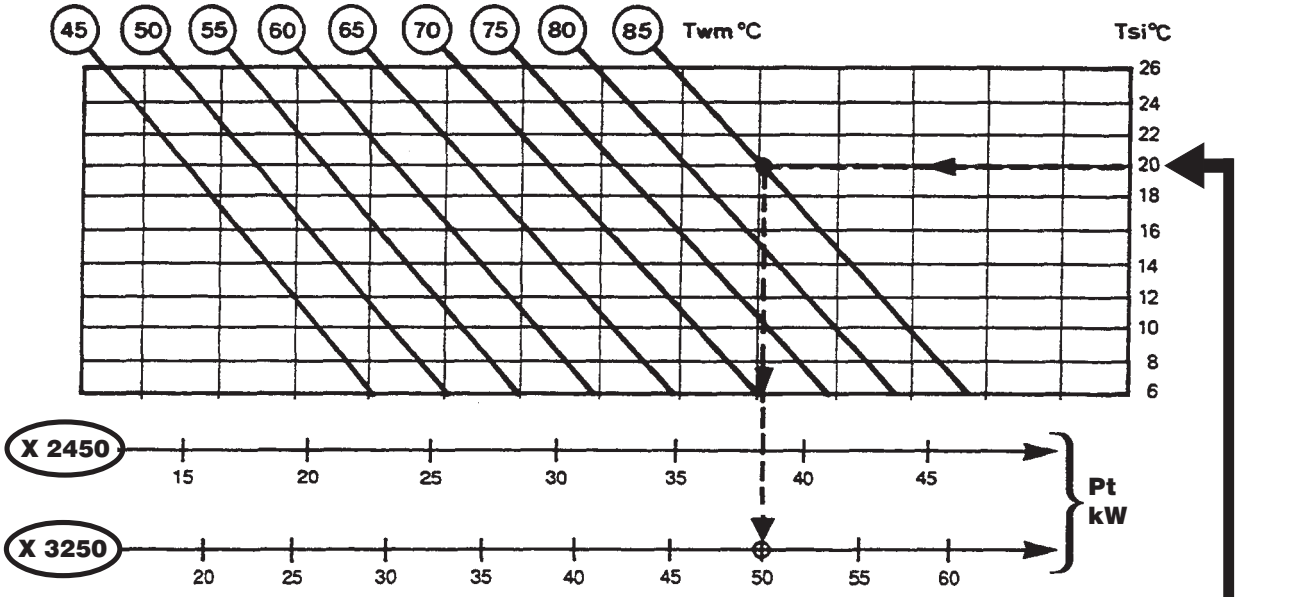
HYDRAULIC CHARACTERISTICS
Model AO – Condenser supply

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



WATER SUPPLY		WASTED WATER	
MODELS		X 2450	X 3250
NOMINAL WATER FLOW (AIR TO BE TREATED 27 °C - 47 %)	(m³/h)	1,45	2,00
NOMINAL WATER TEMPERATURE	Inlet (°C) Outlet (°C)	15 –	
WATER PRESSURE	Minimum (kPa) Maximum (kPa)	50 1000	
HYDRAULIC CONNECTIONS (Left or right)	Ø Inlet/Outlet (mm)	Female nut F Ø 26 x 34 (1")	
CONDENSATE DISCHARGE Flexible pipe	Ø (mm)	26/32	
SAFETY DISCHARGE Bottom of unit	Ø (mm)	7/8" 22 mm external	

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



K_1 CŒFFICIENT AIR FLOW	
Qa/Qn	K_1
0,80	0,87
0,90	0,95
1	1
1,10	1,06
1,20	1,13

$$Pt = K_1 \times K_2 \times Pt_1$$

Q_2 CŒFFICIENT 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

Protection anti-freeze

Note :
Anti-freeze mandatory in summer and winter

Water flow

$$Qw_{(m^3/h)} = \frac{0,86 \times Pt\ (kW)}{\Delta Tw}$$

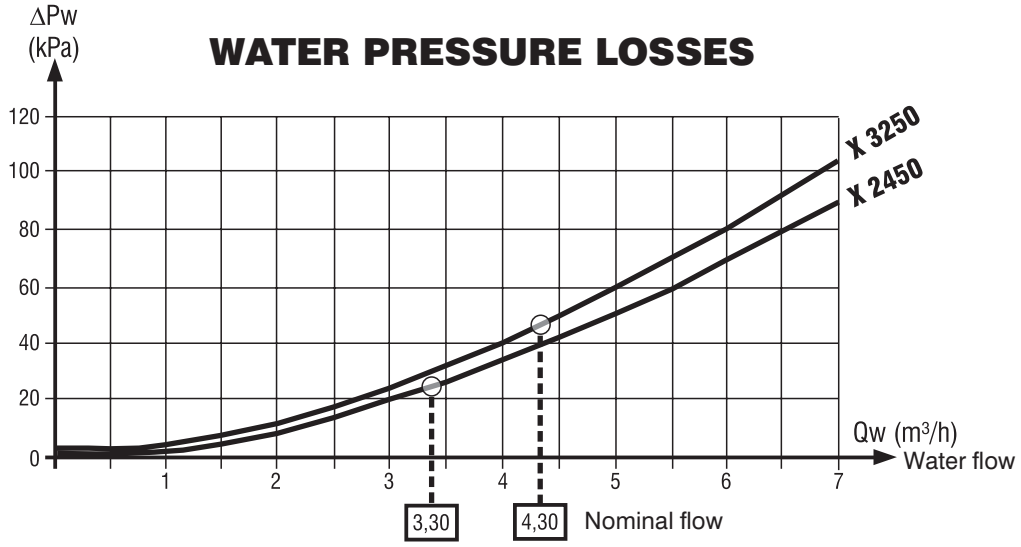
Model X 3250
Ex : Tsi = 20 °C
Water = 90/80 °C
Twm = 85 °C
Pt_1 = 50 W

		X 2450	X 3250
Capacity	l	4	5
Nominal water flow	m³/h	3,3	4,3
Maxi. water pressure	kPa	1000	
Maxi. water inlet temperature	Twe °C	90	
Mini. dry indoor temperature	Tsi °C	+ 6	
Ø Connection	mm	F33 x 42 (1"1/4)	

Note : Anti-freeze to be provided for.

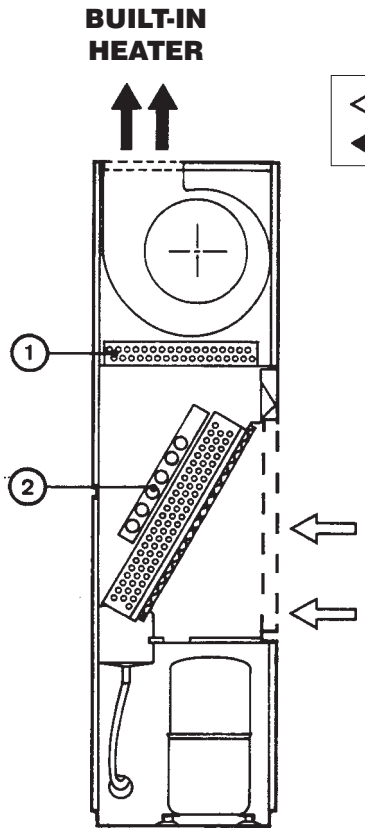
Pt_1 = Total cooling capacity with nominal air flow
Pt = Total cooling capacity
Tsi = Dry indoor temperature
Qa = Treated air flow
Qn = Nominal air flow
Qw = Water flow
Twe = Hot water inlet temperature
Tws = Hot water outlet temperature
ΔTw = Difference in temperature water inlet/outlet
Twm = Hot water average temperature
ΔPw = Hot water pressure drops

WATER PRESSURE LOSSES



ELECTRICAL HEATER / HOT WATER COIL

ACCESSORIES

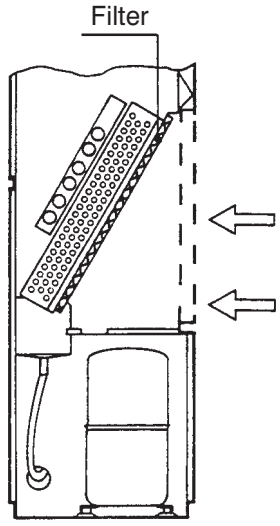


Marks	Models			X 2450	X 3250
①	HOT WATER COIL	Nominal power input	kW	38,5	50
		Nominal water flow	m³/h	3,3	4,3
		Water pressure loss	kPa	24	44
		Ø Connections	mm	F33 x 42 (1"1/4)	
②	ELECTRICAL HEATER	Total power input	kW	9 + 9	13,5 + 9
		Number of stages		2	2
		Number of elements		12	12
		Power input/element	kW	1,5	1,5

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



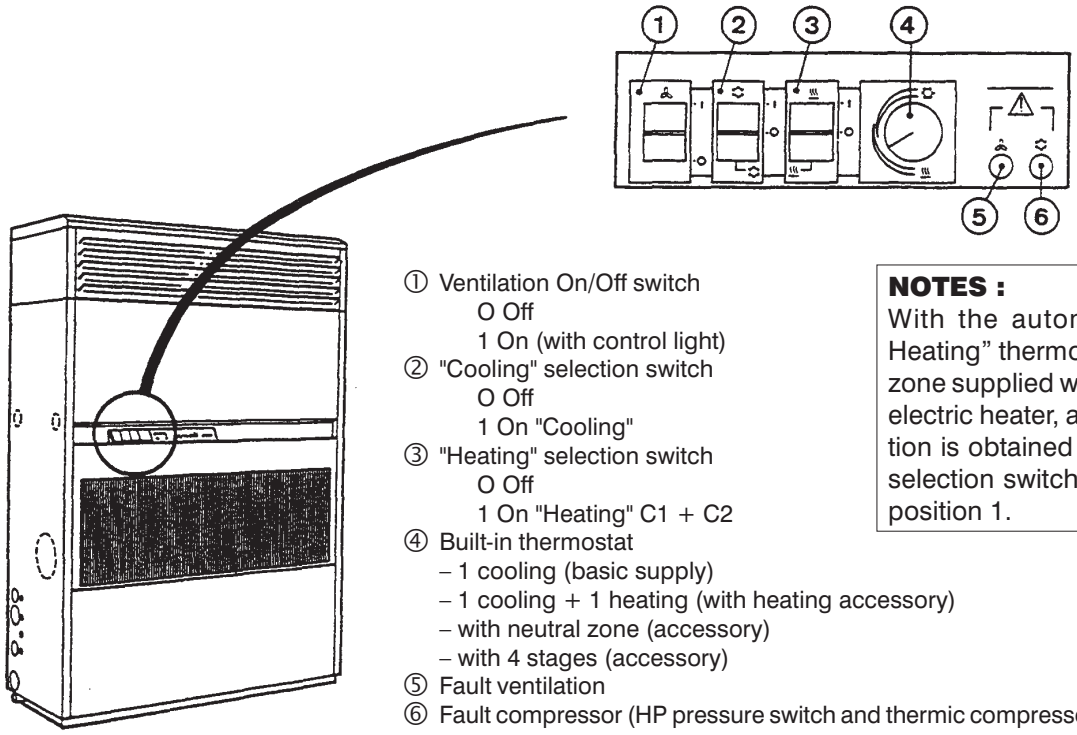
Supply - Name		Basic - AR150		Accessory - AR300	
Models		X 2450	X 3250	X 2450	X 3250
FILTER		Flat with metal frame, mounted on sliding rails			
MATERIAL		Flame retardant synthetic fibres			
NUMBER OF FILTERS		2 - Re-usable			
DIMENSIONS W x D x H	W mm	555	670	555	670
	D mm	15	12	18	18
	H mm	630	525	630	630
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

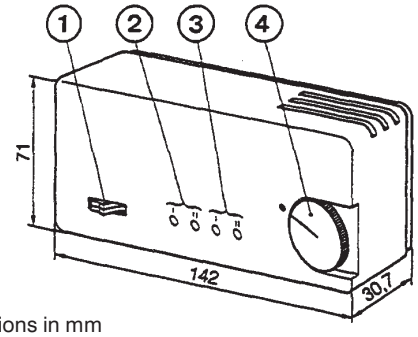
CONTROLS AND REGULATION
Control panel



① Ventilation On/Off switch
O Off
1 On (with control light)
② "Cooling" selection switch
O Off
1 On "Cooling"
③ "Heating" selection switch
O Off
1 On "Heating" C1 + C2
④ Built-in thermostat
– 1 cooling (basic supply)
– 1 cooling + 1 heating (with heating accessory)
– with neutral zone (accessory)
– with 4 stages (accessory)
⑤ Fault ventilation
⑥ Fault compressor (HP pressure switch and thermic compressor).

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

REMOTE CONTROL (accessory)



Dimensions in mm

① ON/OFF Cooling/Heating switch

② Heating signal lamps

③ Cooling signal lamps (1 stage available)

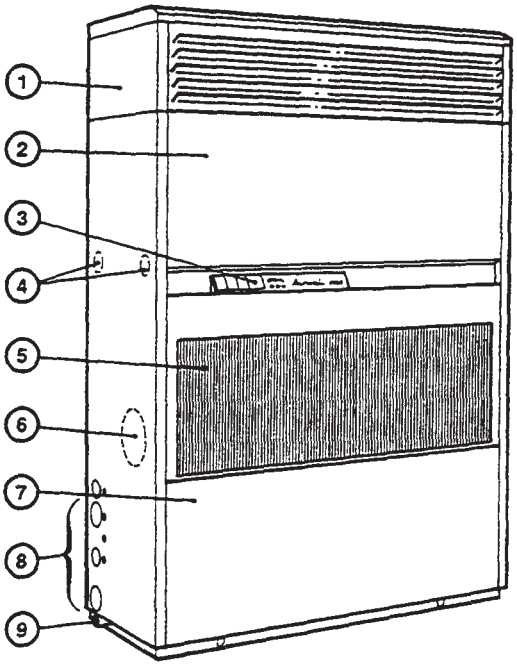
④ Adjustment of reference temperatures
(can be locked on min. and max. positions).

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.

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

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

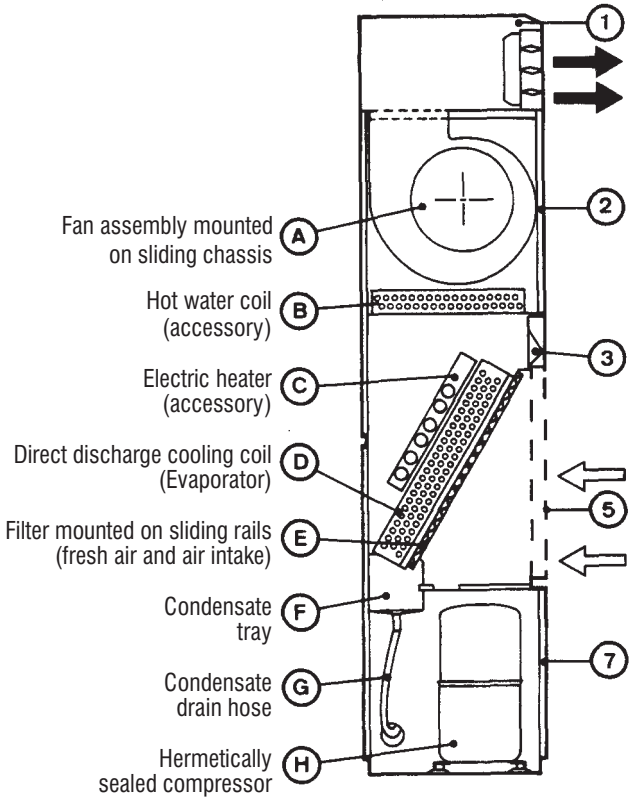
⑥ Connection for fresh air intake (accessory not supplied), on left or right

⑦ Access panel to the electrical and refrigeration compartments

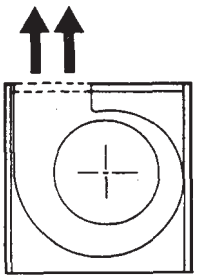
⑧ Connections for electric, hydraulic and refrigerating links (left or right)

⑨ Safety drain pipes from watertight bottom.
Access on left or right side.

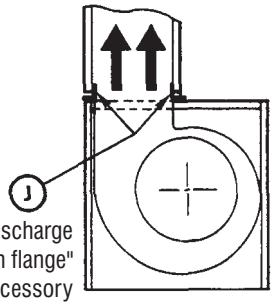
FRONT DISCHARGE
(WITH "Plenum" accessory)



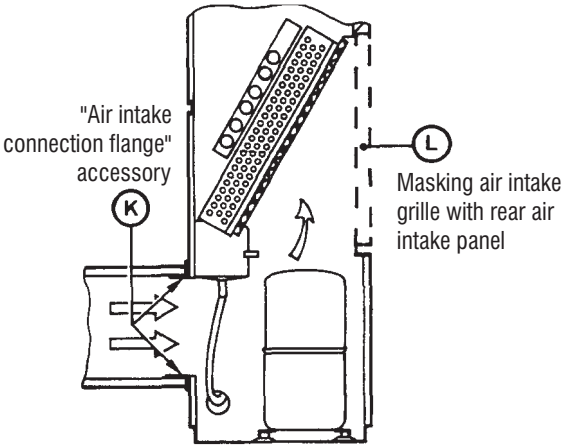
VERTICAL DISCHARGE
(WITHOUT accessory)



DISCHARGE WITH DUCTS
(WITH "Connection flange" accessory)



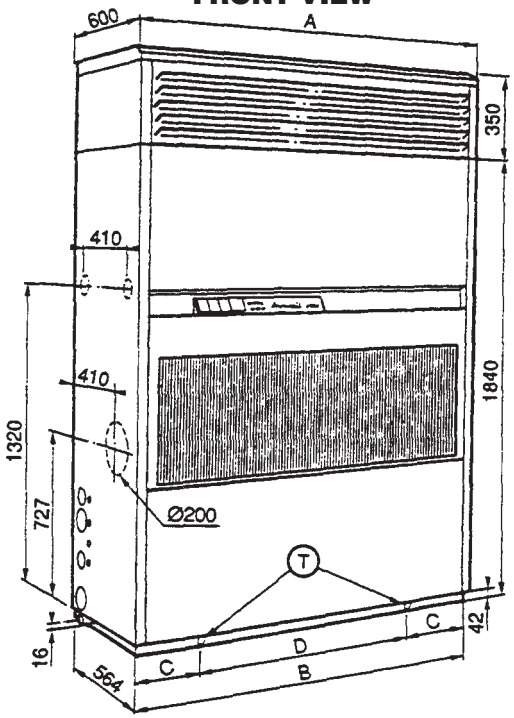
REAR AIR INTAKE
(WITH "Air intake connection flange" accessory)



DIMENSIONS • INSTALLATION
Air treatment unit

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

FRONT VIEW

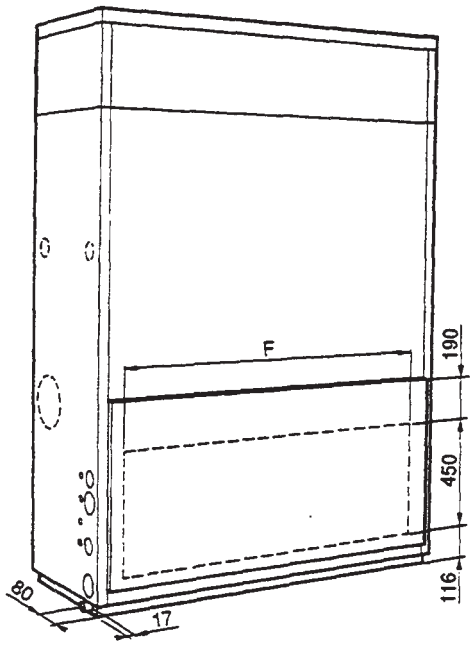


	Models	
	X 2450	X 3250
A	1300	1530
B	1264	1494
C	132	247
D	1000	1000
F	810	1040
G	136	136
H	269	335
K	170	256

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

Dimensions in mm

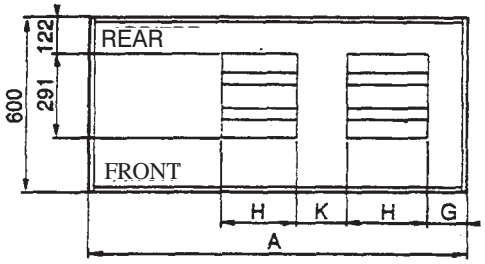
REAR VIEW



CLEARANCES TO BE PROVIDED (mm)

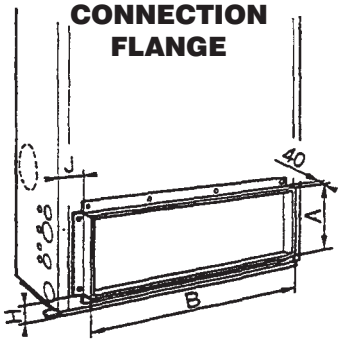
FRONT		LATERAL	
DISCHARGE		SIDE	
Vertical	Plenum	Connecti.	Oppos.
650	1000	650	–

TOP VIEW (without plenum)



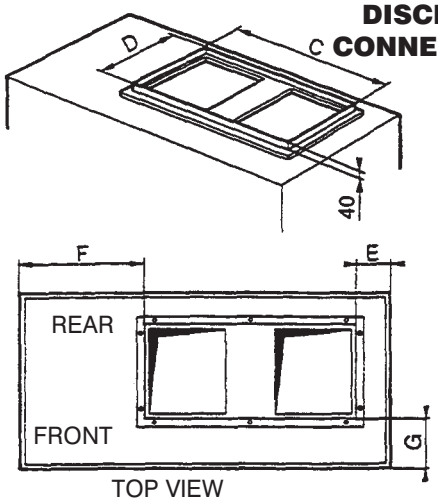
ACCESSORIES
(External dimensions)

AIR INTAKE DUCT CONNECTION FLANGE

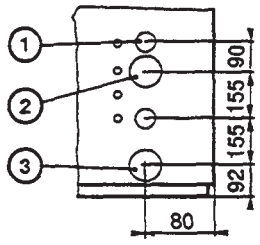


REAR VIEW

DISCHARGE DUCT CONNECTION FLANGE



TOP VIEW



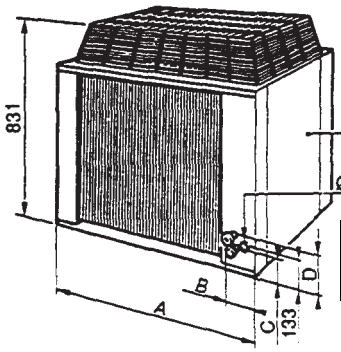
① Water outlet
② Condensats draining
③ Water inlet

Models	A	B	C	D	E	F	G	H	J
X 2450	452	812	738	321	121	441	170	115	244
X 3250		1042	956			453			

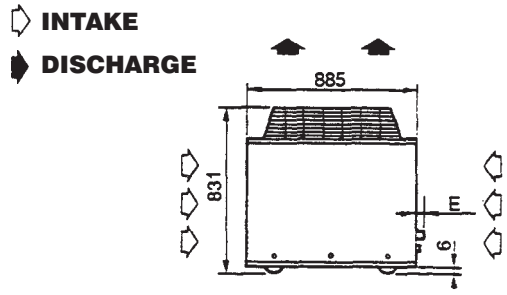
DIMENSIONS • INSTALLATION

Outdoor condensing unit - Type UC 73A / X 2450
Model AR

Dimensions in mm



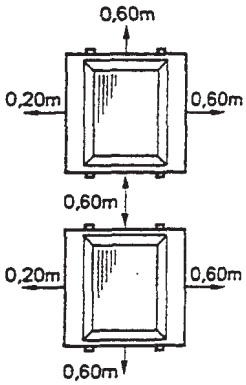
UC	A	B	C	D	E
UC 73A	1141	71	83	183	30



X 2450	1 x UC 73A

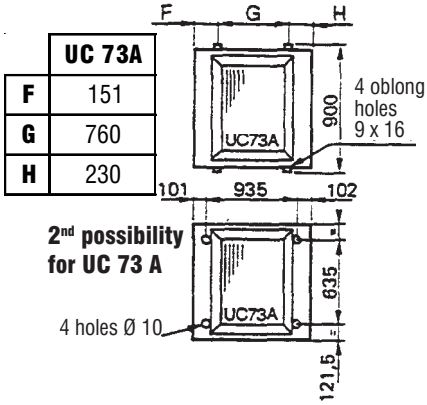
CLEARANCES TO BE PROVIDED

Top : 2,50 m



FLOOR MOUNTING AND FIXING

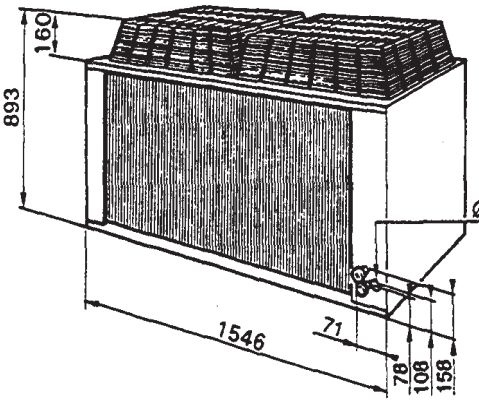
	UC 73A
F	151
G	760
H	230



	UC 73A
Air flow m³/h	7000
Rotational speed ventilation r.p.m	775
Sound pressure at 10 m (1) dBA	48

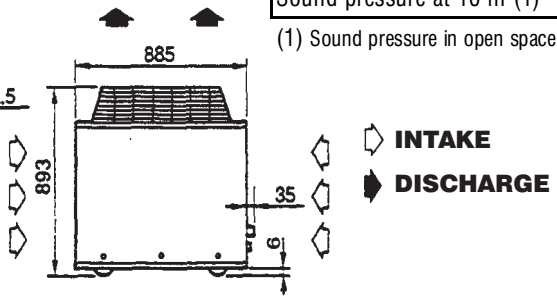
(1) Sound pressure in open space on reflecting surface

Outdoor condensing unit - Type UC 103A /X 3250
Model AR



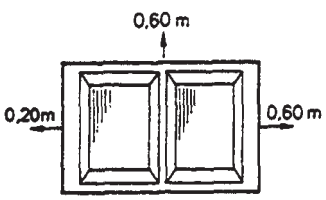
	UC 103A
Air flow m³/h	10000
Rotational speed ventilation r.p.m	640
Sound pressure at 10 m (1) dBA	48

(1) Sound pressure in open space on reflecting surface

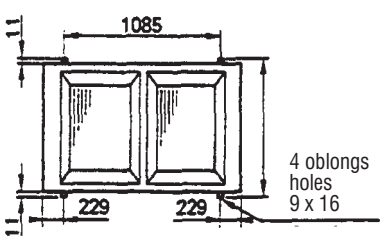


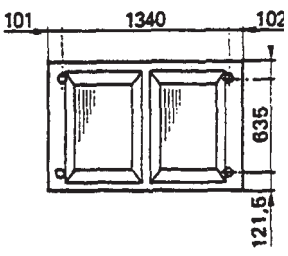
CLEARANCES TO BE PROVIDED

Top : 2,50 m



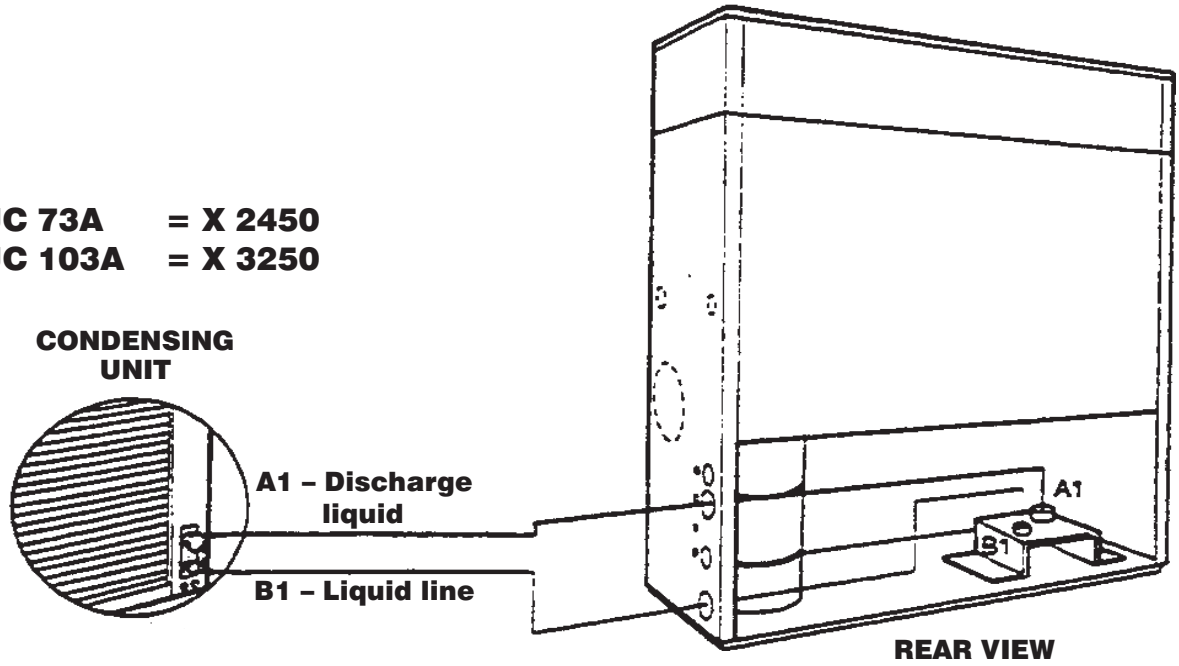
FLOOR MOUNTING AND FIXING
2 possibilities



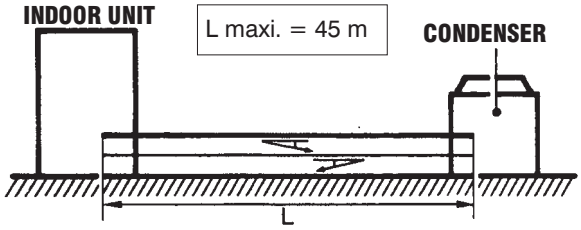


REFRIGERATION PIPEWORK
Model AR

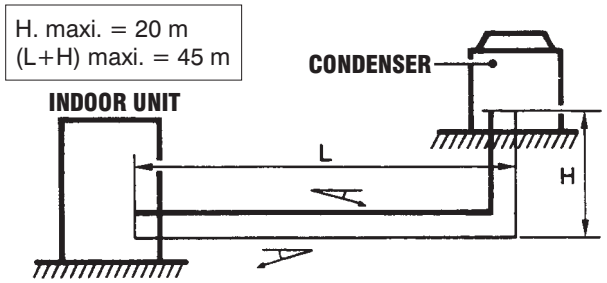
UC 73A = X 2450
UC 103A = X 3250



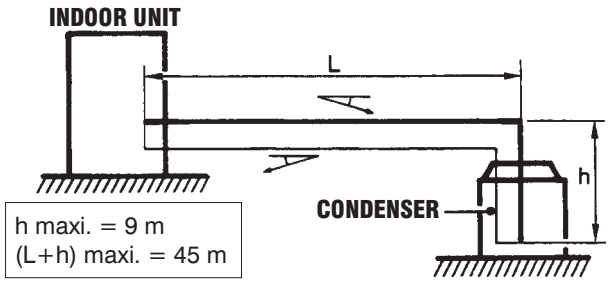
CONDENSER AT THE SAME LEVEL AS THE INDOOR UNIT

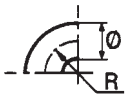


CONDENSER HIGHER THAN THE INDOOR UNIT



CONDENSER LOWER THAN THE INDOOR UNIT





Bending of refrigeration pipes : R ≥ Ø 3,5

Minimum slope downwards : 1 cm/m

Discharge Line

Liquid Line

REFRIGERANT CHARGE in R-407C

			X 2450	X 3250
Air treatment Model **AR**		g	600	1670
Condensing units				
UC 73A		g	7000	-
UC 103A		g	-	8130
Precharged linking pipes (maxi. length 25 m)				
• Discharge line		Ø	5/8"	3/4"
		charge	Precharge	Precharge
• Liquid line		Ø	1/2"	5/8"
	charge	g/m*	110	183
Model **AO** (indoor unit)			5220	6615

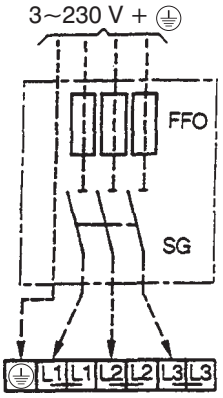
* per m above 2 m

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.

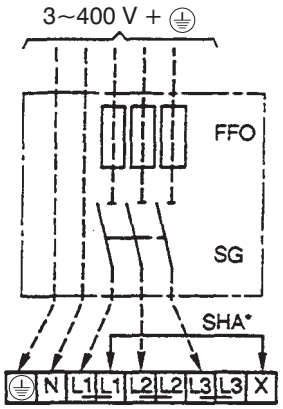
ELECTRICAL CONNECTIONS

Main power supply

POWER SUPPLY
3 ~ 230 V + Earth
(regulated in France)

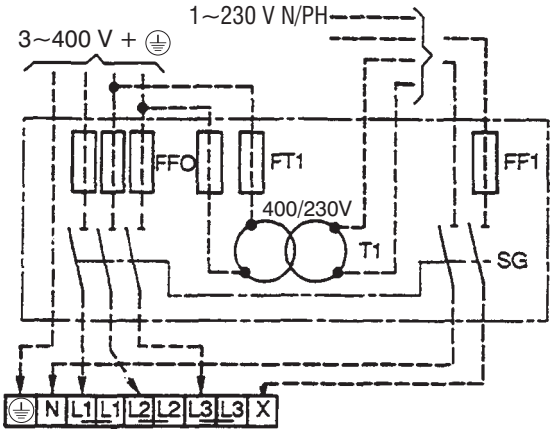


POWER SUPPLY
3 ~ 400 V + Earth
(with neutral)



* Shunt supplied factory mounted

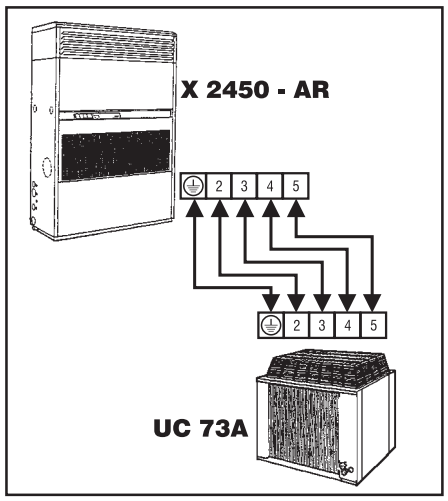
POWER SUPPLY
3 ~ 400 V + Earth (without neutral)

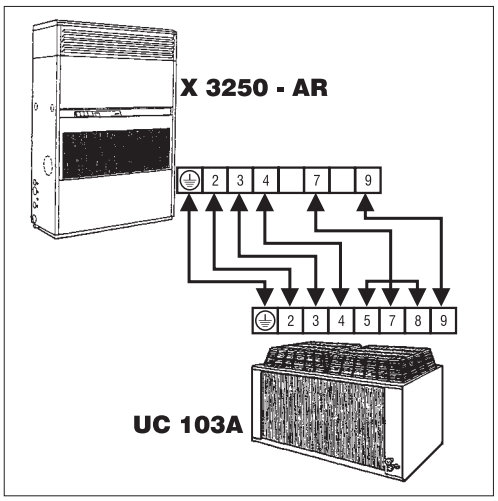


The shunt SHA must be suppressed of the terminals L1 and X

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

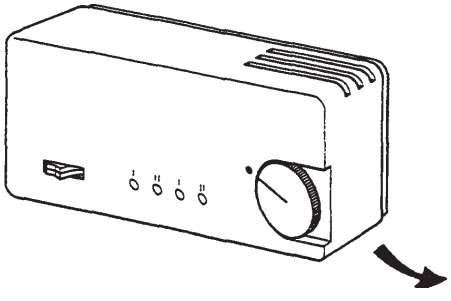
INTERCONNECTIONS WITH OUTDOOR (Models AR)

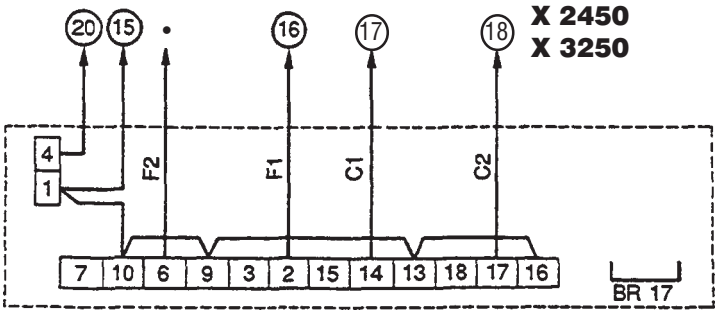




NOTE : Motors UC 73A and UC 103A are coupled of single phase 400/230 V.coupling.
They are supplied ex-factory coupled for single phase 400 V.
To are to be coupled on site at the power supply voltage of the cabinet, that is single phase 230 V for a three phase 230 V cabinet.

INTERCONNECTIONS WITH REMOTE AMBIENT THERMOSTAT (Accessory)





* Cooling regulation stage F2 N° 2 available for mono-compressor models (X 2450 / X 3250).

F = Cooling stage - C = Heating stage - 1/2 =1/2 stage

ELECTRICAL SPECIFICATIONS

Main power supply

Unit type		Model X 2450				Model X 3250			
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	8,2/8,9	7,1/7,8	8,2/8,9	7,1/7,8	11,7/12,5	9,8/10,6	11,7/12,5	9,8/10,6
- Nominal intensity	A	26/29	22/25	16/18	13/15	35/39	30/33	21/24	17/19
- Maximum intensity	A	37/40	32/35	23/25	19/21	53/55	46/48	32/34	26/28
- Starting intensity	A	145/154	124/133	83/86	71/74	200/220	176/196	117/128	96/107
- Motor fuse rating	A	40	32/40	25	20/25	63	50	32/40	32
- Cable size	mm^2	10	6/10	4	2,5/4	16	10	6/10	6
• Electrical heating + Ventilation (VS/FV)									
- Nominal power input	kW	18,7/19,3	18,7/19,3	18,7/19,3	18,7/19,3	23,4/24,3	23,4/24,3	23,4/24,3	23,4/24,3
- Nominal intensity	A	50/53	50/53	29/31	29/31	63/74	63/74	36/43	36/43
- Maximum intensity	A	59/62	59/62	33/35	33/35	74/76	74/76	43/45	43/45
- Starting intensity	A	145/154	124/133	83/86	71/74	200/220	176/196	117/128	96/107
- Motor fuse rating	A	63	63	40	40	80	80	50	50
- Cable size	mm^2	16	16	10	10	25	25	10	10
• Deshumidification + Ventilation (VS/FV)									
- Nominal power input	kW	26,2/26,9	25,1/25,8	26,2/26,9	25,1/25,8	34,2/35,0	32,3/33,1	34.2/35,0	32,3/33,1
- Nominal intensity	A	73/77	70/73	43/45	40/42	94/98	89/92	55/58	52/54
- Maximum intensity	A	91/94	86/89	53/55	49/51	120/122	113/115	71/73	65/67
- Starting intensity	A	199/208	178/187	113/116	101/104	267/287	243/263	156/167	135/146
- Motor fuse rating	A	100	100	63	50/63	125	125	80	80
- Cable size	mm^2	35	35	16	10/16	50	50	25	25

* VS : Standard Ventilation - FV : High Ventilation.

INTERCONNECTIONS WITH OUTDOOR UNIT • Model AR

Unit type		Model X 2450		Model X 3250	
Power supply		3~230 V*- 50 Hz	3N~ 400 V- 50 Hz	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 2450	Model X 3250
• 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 2450	100	100
	X 3250		

Airwell

A.C.E
1 bis,Avenue du 8 Mai 1945, Saint-Quentin-en-Yvelines,78284 GUYANCOURT Cedex, Tél.: 01 39 44 78 00, Fax: 01 39 44 11 55