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X 4650 - X 6450

Packaged air conditioners vertical units

- Air cooled models (AC)
- Water cooled models (WC)
- Refrigerant R407C
- Capacities from 38.9 to 55.0 kW

Airwell Residential

Version: July, 2015

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Introduction

Within the context of the HCFC fluid replacement, these units have been optimized to operate with the R-407C refrigerant which contains no chlorine and has no effect on the ozone layer.

PRESENTATION

The **X 4650** and **X 6450** packaged air conditioners are presented:

→ Single packaged for the **WATER** cooled models (**WC**).

→ With a separate outdoor condensing unit for the **AIR** cooled models (**AC**).

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 east 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:

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

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

→ Wasted water; its consumption being reduced to a minimum by a pressostatic valve (**XWC** on wasted water).

→ Recycled water; supplied by a cooling tower or an outdoor heat exchanger (**XWC** on recycled water).

→ Outside air; with the possibility of operating at very low temperatures (down to –10°C with the “ALL SEASONS” option on the **AC** models).

MAIN FEATURES

→ Cabinet with reduced floor dimensions,

→ tandard ventilation: With motor and drive by adjustable pulley/belt.

→ “High ventilation” equipment available as option providing a higher external static pressure.

→ 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 filters, mounted on a metal frame with stiffening netting.

→ Electrical, hydraulic and refrigerant connections on right or left.

→ Cooling by wasted water with pressure controlled valve or by recycled water without valve.

→ Three control possibilities:

- Integrated type as standard with 2 stages and neutral zone,
- Integrated type, as an accessory, with 4 stages and a neutral zone,
- Remote type, as an accessory, with 4 stages and a neutral zone.

→ Two heating possibilities: integrated electrical heating or hot water heating coil.

→ Two possibilities of refrigerant pipes (**AC** models) up to 25 m maximum with factory precharged pipes (accessory) or with pipes brazed and charged on site (set of female valves supplied as an accessory for pipes up to 45 m).

DESCRIPTION

Bodywork:

→ Panels and side faces made of profiled sheet steel covered with enamel finish, baked in a high temperature oven.

→ Intake grilles made of profiled material

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).

Refrigerant circuit:

→ **All models**

Double refrigerant circuit, each including:

- Hermetic type compressor fitted with thermal and electrical protections, linked to a factory sealed and brazed refrigerant circuit.
- Pressure switches and high and low pressure tapping points.
- Evaporator composed of copper tubes with aluminium fins and anti-corrosion protected condensate tray.
- Liquid receiver.
- Thermostatic expansion valve with pressure balancing.
- Sight glass, solenoid valve and filter-drier on liquid line.

→ **WC model**

- Coaxial condenser with counter flow circulation, equipped with finned copped tube in a steel cover.
- Pressostatic valve on the water inlet for reducing water consumption to a minimum (wasted water model).
- On request, the unit is supplied without a pressostatic valve but with an additional manometer pressure tapping point for independent control of the water flow (recycled water model).

→ **AC model**

- Shut off valves on indoor unit and outdoor condensing unit (CONA) for refrigerant pipes.
- Outdoor condensing unit with coils composed of copper tubes and aluminium fins.

Ventilation/Filters:

- Fan equipped with two belt drive, centrifugal wheels with double inlets.
- Standard fan motor (VS) 3-phase type, mounted on sliding rails.
- Specific “High Speed Ventilation” (FV) motor available as optional.
- Fan-motor 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. Two efficiency classes are available.
- CONA with single phase 230 V fan motors.
- Propeller fan of CONA with direct drive and low speed of rotation.

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 electric 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, thermal relay 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.
- Compressor crankcase heater as standard according to the models.
- Protection of the CONA fan motor with internal thermostat.
- Mains power supply 400V/3N~/50 Hz as standard. An option 400V/3~/50 Hz and 230V/3N~/50 Hz.
- Terminal block for single phase 230V power supply to the control circuit with a 400V/230V transformer (not supplied) if the neutral wire is not available.

Control/Regulation:

- Fascia strip grouping the controls (Main “ON/OFF” switch with control light – Heating “ON/OFF” and Cooling “ON/OFF”) and the regulation (2-stage thermostat as standard), as well as 3 fault lights (fan/compressor 1/compressor 2).
- Automatic Cool/Heat 4-step thermostat, integrated type (accessory) or remote type (accessory).
- Anti-short cycle time delay on compressor(s).
- Location available in the electrical compartment to house Staëfa-Klimo type regulation modules (not pre-wired - not supplied).
- ”ALL SEASONS” system (option) controlling the condensing pressure; allowing cooling on the AC models down to –10 °C outdoor temperature.

AFTER SALES SERVICE/MAINTENANCE

CAUTION:

Procedures for working on the refrigerant 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.

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TECHNICAL DATA

Models		X 4650		X 6450
Sizes		**AC**	**WC**	**AC**
REFRIGERANT R-407C				
Charge	g			
COOLING CAPACITY (1)				
Nominal cooling capacity	W	38900	45700	55000
Nominal cooling capacity	BTU/HR	137000	157200	189200
AIR FLOW				
Nominal treated air	m³/h	9000	9000	12000
Mini./maxi. treated air	m³/h	7200/10800	7200/10800	9500/14500
Nominal fresh air (with accessory)	m³/h	1300	1300	1650
AVAILABLE STATIC PRESSURE (2)				
Standard equipment	daPa	0/23	0/23	0/29
High ventilation equipment	daPa	7/48	7/48	0/48
POWER INPUT VENTILATION				
Mini./Maxi. standard equipment.	W	1600/2400	1600/2400	3100/4600
Mini./Maxi. high ventilation equipment	W	3700/4500	3700/4500	4700/5800
SOUND PRESSURE INDOOR UNIT (3)				
Normal speed	dBA	61	60	69
POWER SUPPLY				
Nominal voltage		400V/3N~/50 Hz		
Voltage range	V	360/440		
Total power input (1)	W	16950	13900	24000
CIRCUIT D'EAU (1)				
Wasted water - Flow	m³/h	-	2,8	-
Wasted water - Pressure drop	kPa	-	18	-
Recycled water - Flow	m³/h	-	8,3	-
Recycled water - Pressure drop	kPa	-	56	-
OUTDOOR CONDENSING UNIT (CONA)				
Type		CONA 74	-	CONA 104
Number		2	-	2
Air flow	m³/h	8550	-	14000
Power input	W	611	-	1222
Sound pressure	dB(A)	56	-	56
PACKING				
Indoor unit - WxDxH net	mm	1715x790x1970	1715x790x1970	1980x790x1970
Indoor unit - WxDxH packed	mm	1915x890x2220	1915x890x2220	2180x890x2220
Indoor unit - Weight net/packed	kg	525/595	565/635	600/680
Discharge plenum - WxDxH net	mm	1715x790x400	1715x790x400	1980x790x400
Discharge plenum - WxDxH packed	mm	2030x475x840	2030x475x840	2080x475x840
Discharge plenum - Weight net/packed	kg	31/38	31/38	35/42
Outdoor condensing unit (CONA) - WxDxH net	mm	1141x885x840	-	1546x885x840
Outdoor condensing unit (CONA) - WxDxH packed	mm	1160x950x1000	-	1565x950x1000
Outdoor condensing unit (CONA) - Weight net/packed	kg	93/115	-	130/160
OPTIONS				
"High Ventilation" equipment		•	•	•
Power supply 400V/3~/50 Hz		•	•	•
Power supply 230V/3N~/50 Hz (5)		•	•	•
Electrical heating integrated	kW	37,5	37,5	45
Hot water coil (6)	kW	77	77	94
ACCESSORIES				
Front discharge plenum (1 and 3-way)		•	•	•
Rear intake duct connection flange		•	•	•
4-stage thermostat		•	•	•
Remote fault transfer		•	•	•
Set of female pipe valves		•	-	•
Refrigerant pipes (25 m maxi.)		•	-	•

(1) International standard ISO 51.51 conditions
Type A: 27°C/19°C wet bulb - Outside air: 35°C/24°C wet bulb
Wasted water: inlet + 15°C - Recycled water inlet/outlet: 30°C/35°C
(2) Nominal pressure with nominal air flow with nominal voltage without accessory.
Maximum pressure with minimum air flow with nominal voltage without accessory.
(3) Total sound pressure dB(A) (4m) under nominal conditions in a room of 1000m³ (reverberation 0.83s).
(4) Total sound pressure dB(A) (4m) under nominal conditions in free field on reflecting surface.
(5) Voltage range: mini = 198V - maxi = 242V (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 - **XAC 4650 MODEL -**
Air Flow 9000 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	64509	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: Sensible cooling capacity (W)
Power absorbed by the indoor fan = 1576 W

WORKING RANGE - MINIMUM TEMPERATURE

Indoor temperature		°C	Thi	13
			Tsi	17
Outdoor temperature	**Without TTS**	°C	Tse	+19
	With TTS*	°C	Tse	-10

***** With “All seasons kit” option
Thi: Wet bulb indoor temperature
Tsi: Dry bulb indoor temperature
Tse: Dry bulb outdoor temperature

WORKING RANGE - MAXIMUM TEMPERATURE

Indoor temperature	°C	Thi	22
		Tsi	32
Outdoor temperature	°C	Tse	47

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COOLING PERFORMANCES - **XAC 6450 MODEL**
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
	33			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: Sensible cooling capacity (W)
Power absorbed by the indoor fan = 3130 W

WORKING RANGE - MINIMUM TEMPERATURE

Indoor temperature		°C	Thi	13
			Tsi	17
Outdoor temperature	**Without TTS**	°C	Tse	+19
	With TTS*	°C	Tse	-10

WORKING RANGE - MAXIMUM TEMPERATURE

Indoor temperature	°C	Thi	22
		Tsi	32
Outdoor temperature	°C	Tse	47

* With “All seasons kit” option
Thi: Wet bulb indoor temperature
Tsi: Dry bulb indoor temperature
Tse: Dry bulb outdoor temperature

COOLING PERFORMANCES - **WASTED WATER**
XWC 4650 MODEL

Air temperature at evaporator inlet (°C)					Waste water supply		
							X 4650
BH	BS			X 4650	Inlet water temperature	°C	15
15		PT	W	39775	Water consumption	l/h	2623
		PA	W	12736			
	21	PS	W	27172			
	23			31150			
	25			35127			
	27			39775			
	29			39775			
	31			39775			
17		PT	W	42374	Water consumption	l/h	2759
		PA	W	12851			
	21	PS	W	25252			
	23			29489			
	25			33727			
	27			37964			
	29			42374			
	31			42374			
19		PT	W	45000	Water consumption	l/h	2900
		PA	W	13050			
	21	PS	W	19060			
	23			23560			
	25			28060			
	27			32560			
	29			37060			
	31			41560			
21		PT	W	47738	Water consumption	l/h	3063
		PA	W	13580			
	23	PS	W	16764			
	25			21538			
	27			26312			
	29			31086			
	31			35860			
	33			40633			
23		PT	W	50504	Water consumption	l/h	3232
		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: Sensible cooling capacity (W)

WORKING RANGE

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

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COOLING PERFORMANCES - **RECYCLED WATER**
XWC 4650 MODEL - Nominal Air Flow Qn 9000 m³/h

Air temperature at evaporator inlet (°C)					Recycled water supply		
							X 4650
					Inlet water temperature	°C	29
					Water pressure	kPa	50
BH	BS			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	35
		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: Sensible cooling capacity (W)
Power absorbed by the indoor fan = 1450 W.

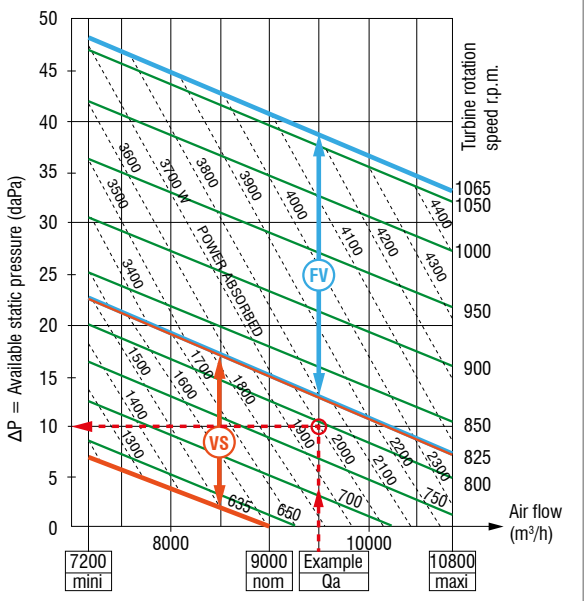
WORKING RANGE

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

AIR FLOW DATA - **AC & WC MODELS**

Front and rear air intake with clean air filter

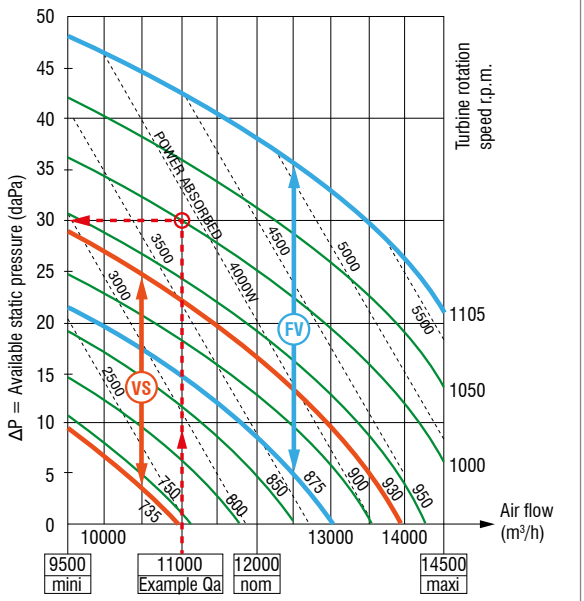
X 4650 model



EXAMPLE X 4650 MODEL

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

X 6450 model



EXAMPLE X 6450 MODEL

Qa = 11000 m³/h
High Ventilation (FV) as optional
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	
		Min.	Max.	Min.	Max.
Fan rotation speed (r.p.m.)		635	825	825	1065
Available static pressure (daPa) without accessory	Nominal flow 9000 m³/h	0	15	16	41
	Minimal flow 7200 m³/h	7	23	24	48

Ventilation equipment		Standard Ventilation (VS) Motor 3,7 kW		High Ventilation (FV) Motor 5,5 kW	
		Min.	Max.	Min.	Max.
Fan rotation speed (r.p.m.)		735	930	875	1105
Available static pressure (daPa) without accessory	Nominal flow 12000 m³/h	0	17	8	36
	Minimal flow 9500 m³/h	9	29	22	48

Accessories pressure drop (Qn=9000 m³/h)		
Integrated electric heating	daPa	1
Hot water heating coil	daPa	8
Discharge plenum	daPa	4
Filters 90%	daPa	2

Accessories pressure drop (Qn=12000 m³/h)		
Integrated electric heating	daPa	1
Hot water heating coil	daPa	9
Discharge plenum	daPa	5
Filters 90%	daPa	3

Qn airflow correction	0,8xQn	0,9xQn	Qn	1,1xQn	1,2xQn
Total cooling capacity	0,940	0,970	1,000	1,020	1,040
Sensible cooling capacity	0,890	0,950	1,000	1,050	1,100
Power absorbed	0,970	0,990	1,000	1,010	1,010

Qa: Treated air flow
Qn: Nominal air flow

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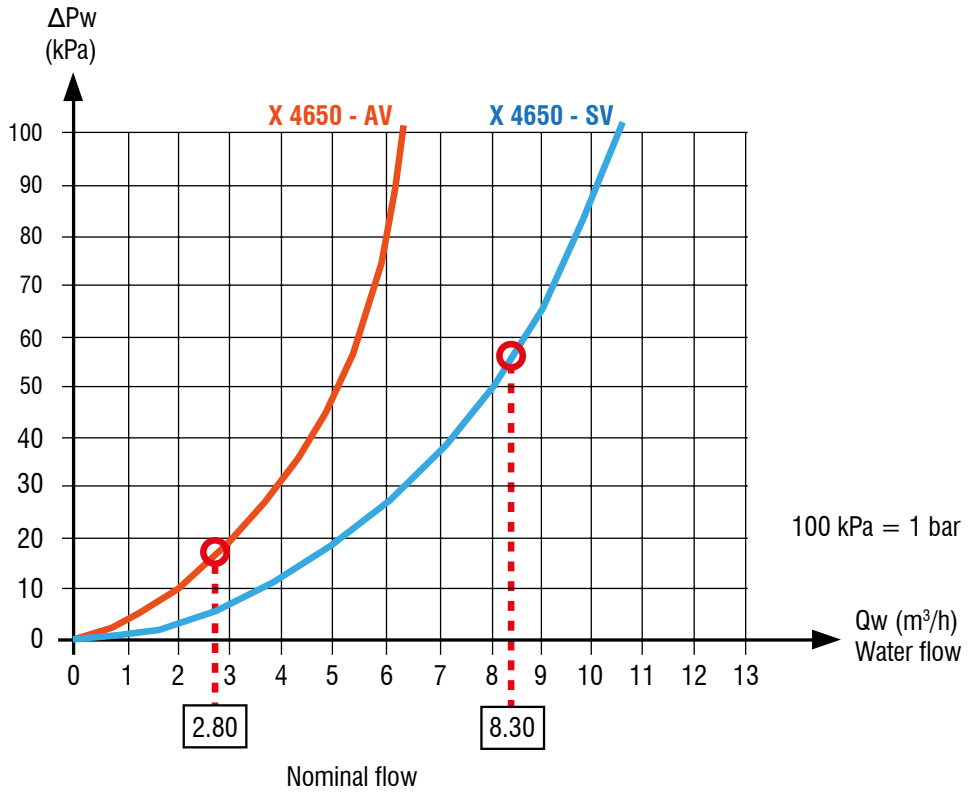
HYDRAULIC CHARACTERISTICS - **WC MODEL**
CONDENSER SUPPLY

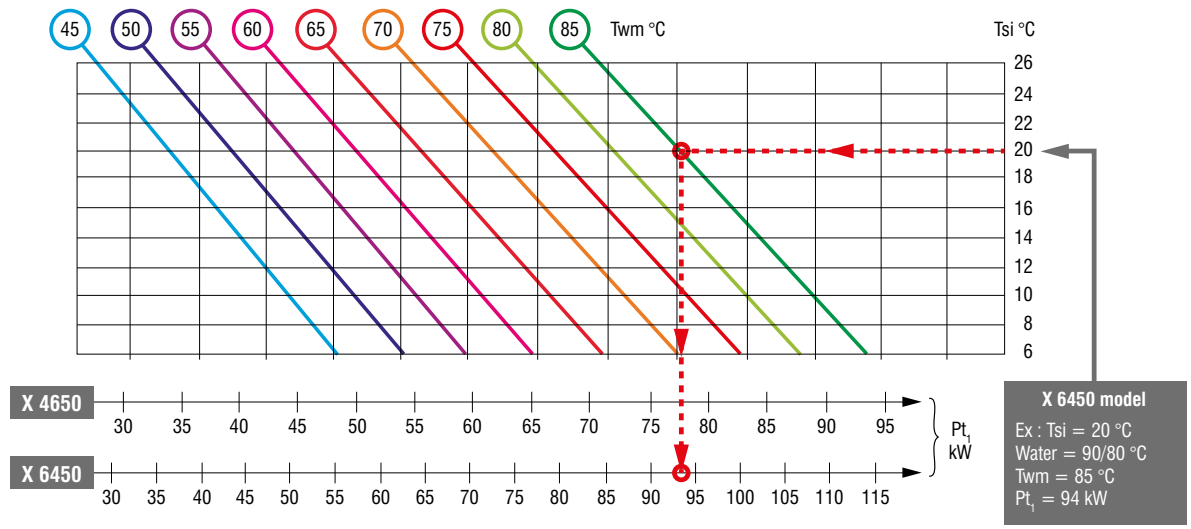
Water pressure drop with pressostatic valve (AV) and without pressostatic valve (SV)



AV = WITH valve (for wasted water)
SV = WITHOUT valve (for recycled water)

Water supply		Wasted water	
Models		**X 4650**	**X 6450**
WATER PRESSURE			
Minimum	kPa	50	-
Maximum	kPa	1000	1000
HYDRAULIC CONNECTIONS (LEFT OR RIGHT)			
Ø Inlet/Outlet	mm	Female nut - F Ø 26x34 (1")	Male connection - M Ø 33x42 (1"1/4)
CONDENSATE DRAIN			
Flexible pipe	Ø (mm)	26/32	
SAFETY DRAIN			
Bottom of unit	Ø (mm)	7/8" - 22 mm external	

HEATING PERFORMANCE HOT WATER COIL
OPTION OF AC/WC MODELS



Pt = K1xK2xPt1

K1 COEFFICIENT AIR FLOW

Qa/Qn	K1
0.80	0.87
0.90	0.95
1	1
1.1	1.06
1.2	1.13

K2 COEFFICIENT ΔTW

ΔTw °K	8	10	12	14	16	18	20
K2	1.01	1	0.98	0.96	0.95	0.94	0.92

WATER FLOW

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

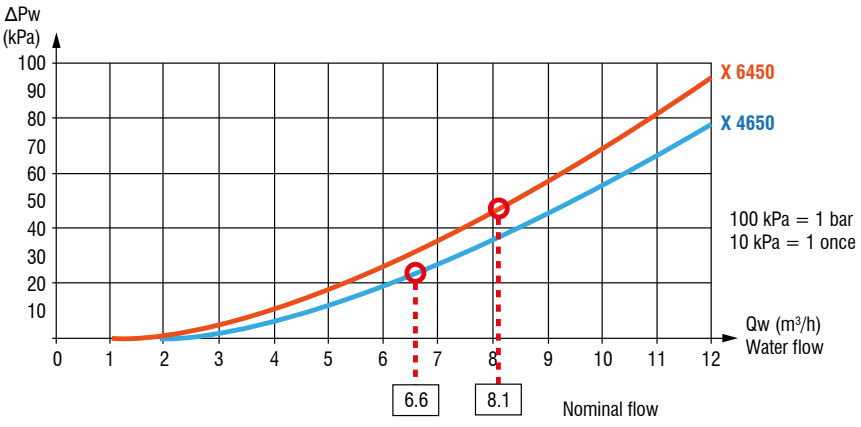
ANTI-FREEZE PROTECTION

Nota: Anti-freeze mandatory in summer and winter

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

Models		X 4650	X 6450
Water content	l	5	6
Nominal water flow	m³/h	6.6	8.1
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	F33x42 (1"1/4)	

Water pressure drops



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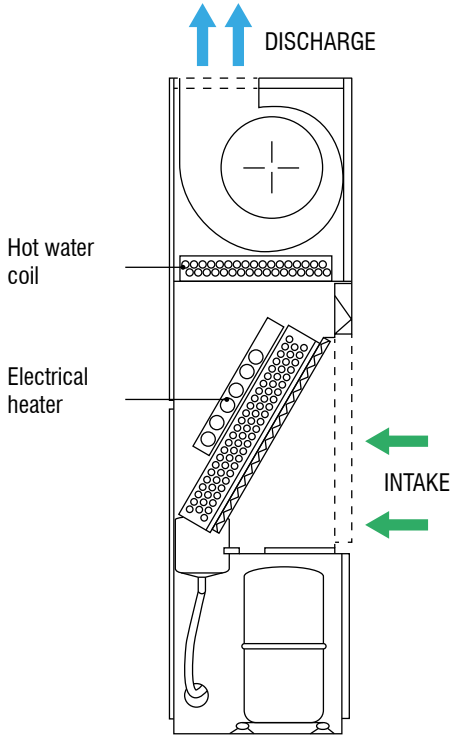
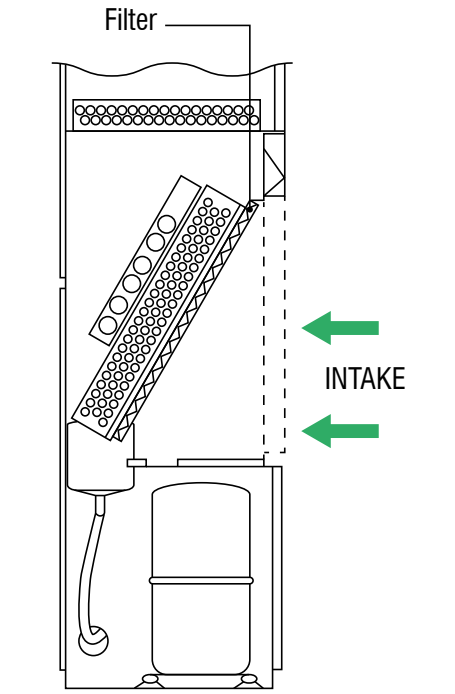
ELECTRICAL HEATER/HOT WATER COIL **OPTIONS**



Models		X 4650	X 6450
HOT WATER COIL			
Nominal power input	kW	77	94
Nominal water flow	m³/h	6.6	8.1
Water pressure drop	kPa	25	49
Ø connections	mm	F33x42 (1"1/4)	
ELECTRICAL HEATER			
Total power input	kW	(2x15) + 7.5	3x15
Number of stages		2	2
Number of stages		5	18
Power input/element	kW	2.5	2.5

Notes:
The electrical heater and the hot water coil can not be fitted together. Provide a separate control for the hot water coil and an antifreeze protection in summer and winter.
The integrated electric heater is equipped with 2 temperature limit controls (manual/automatic resets).

Filter



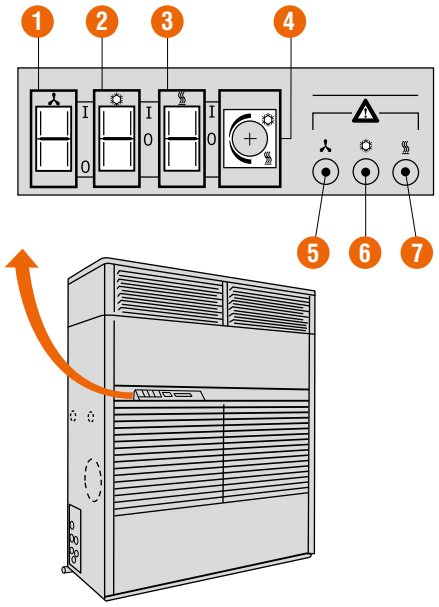
fourniture - appelation			Basic AC150		Accessory - AC300	
models			X 4650	X 6450	X 4650	X 6450
Filter type			Flat with metal frame			
Media type			Flame retardant synthetic fibres			
Number of filters			2 - Re-usable			
Dimensions	W	mm	740	870	740	870
	D		15	15	18	18
	H		780	780	780	780
Efficiency (1)		%	83	83	90	90
Eurovent/CSTB classification (2)			EU3/M1	EU3/M1	EU4/M1	EU4/M1
Access			Air intake grilles (front)			

(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

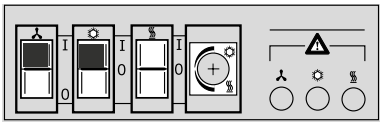
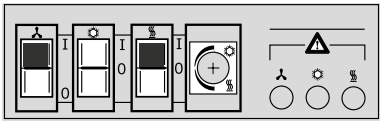
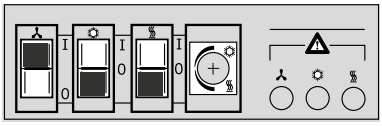
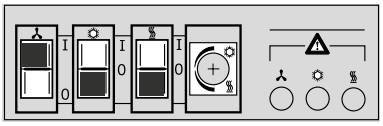
Notes:
The filters also provide clean air from the fresh air intake (fresh air intake accessory) and the rear air intake.

CONTROLS AND REGULATION

Control panel



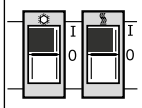
1	Ventilation On/Off switch
	0 Off
	1 On (with control light)
2	Sélecteur froid
	0 Off
	1 Automatic cooling only operation (1) - F1 + F2 Automatic cooling/heating operation (2)
3	"Heating" selection switch
	0 Off
	1 Automatic heating only operation (1) - C1 + C2 Automatic heating/ cooling operation (2)
4	thermostat supplied as standard:
	Built-in 2-stage
	reversing switch for cooling or heating control
5	Fault ventilation
6	Fault compressor 1 (HP pressure switch, compressor overheat)
7	Fault compressor 2 (HP pressure switch, compressor overheat)

MANUAL HEATING/COOLING OPERATION WITH BASIC THERMOSTAT	
	**COOLING** (F1 + F2) - Mandatory position
	**HEATING** (C1 + C2) (3) - Mandatory position
AUTOMATIC COOLING/HEATING OPERATION WITH BASIC THERMOSTAT	
	**COOLING/HEATING** - Mandatory position Automatic regulation is on one Cooling stage (F2) and one Heating stage (C2) (3)
Note: When the unit is equipped with an electrical heater, to optimize the unit performance, it is prefereable to use a 4-stage thermostat or any other controls that suit the user.	
AUTOMATIC OPERATION WITH A 4-STAGE THERMOSTAT	
	**COOLING/HEATING** - Mandatory position 2 **COOLING** stages (F1 + F2) 2 **HEATING** stages (C1 + C2) (3)

Symbols

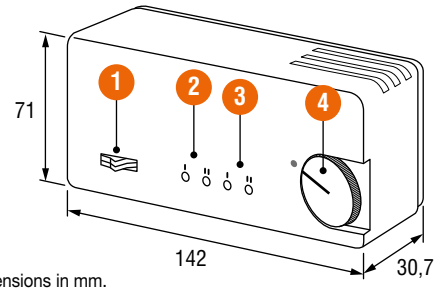
Pressed

Important :
Reversing switch in fan ON POSITION



IMPORTANT : Never press simultaneously on the switch position.

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 setpoint temperatures (can be locked on min. and max. positions)

(1)vAutomatic basic thermostat
(2) Equipment with automatic cooling/heating 4-stage thermostat and electrical heater (accessories upon request).
(3) The entire electrical power for this stage is reached after a four minute time delay.

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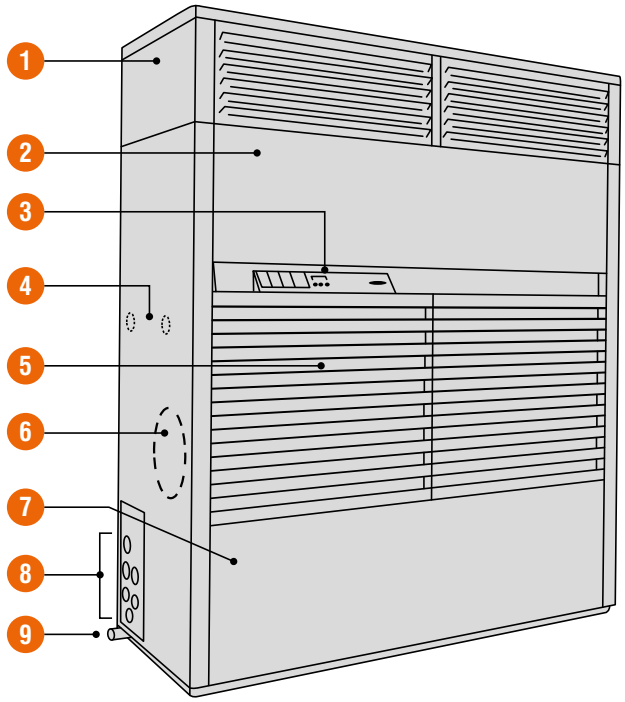
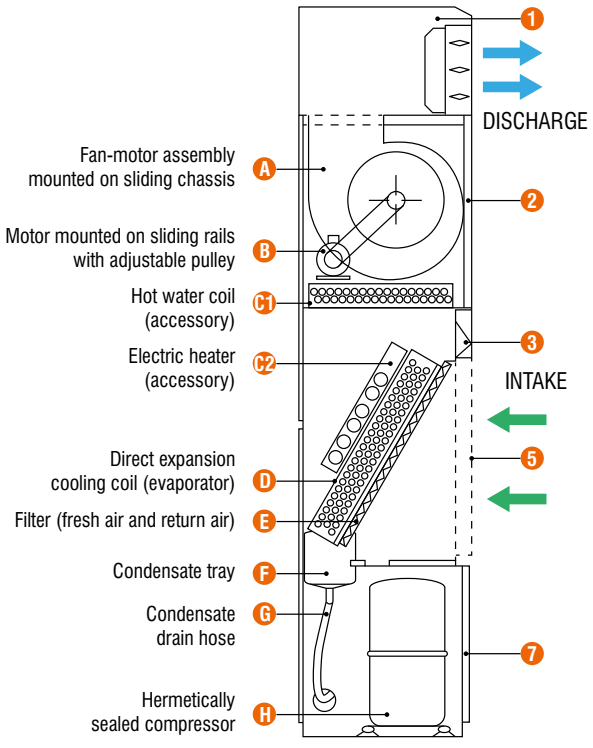
DESCRIPTION OF INDOOR UNIT

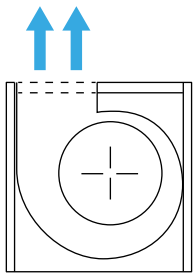


1	Discharge plenum (accessory) with double deflection.
2	Access panel to the fan-motor removable base and the hot water coils (accessory) or to the electric heater (accessory).
3	Control panel for regulation and display.
4	Hydraulic connections of hot water coils. Access to right or left hand side.
5	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	Electric, hydraulic and refrigerant connections (left or right).
9	Safety drain pipes from watertight bottom. Access on left or right side.

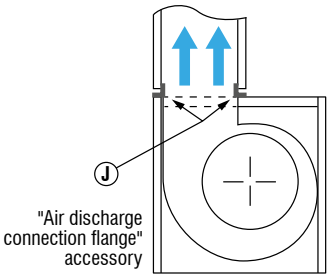
FRONT DISCHARGE (with "Plenum" accessory)



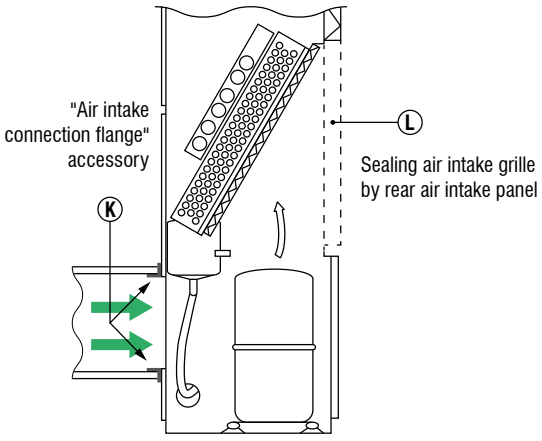
VERTICAL DISCHARGE (without accessory)



DISCHARGE WITH DUCTS (with "Connection flange" accessory)



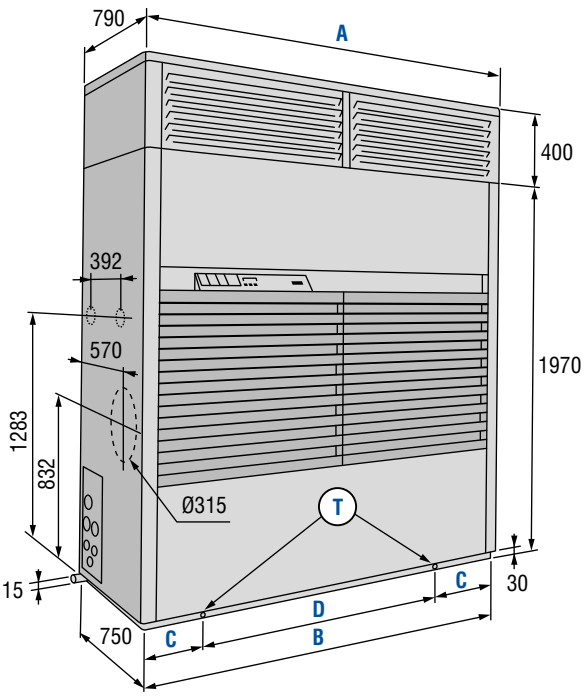
REAR AIR INTAKE (with "Air intake connection flange" accessory)



DIMENSIONS (in mm) - INSTALLATION

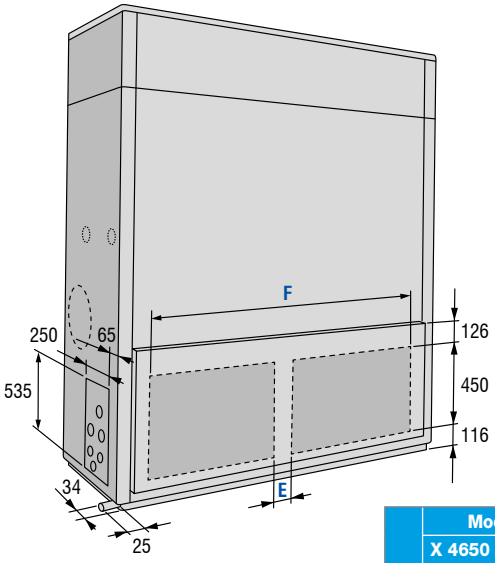
Indoor unit

FRONT VIEW



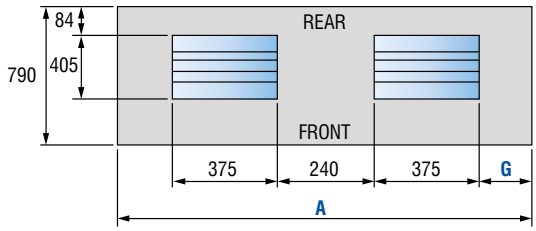
T Tapped holes M8 to fasten on the floor (at front and rear)

REAR VIEW



	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

TOP VIEW (without plenum)



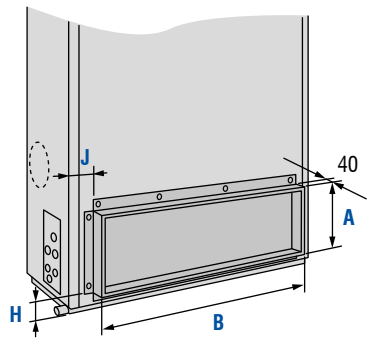
CLEARANCES (mm)

FRONT		SIDE	
Discharge		Side	
Vertical	Plenum	Connected	Opposite
650	1000	650	-

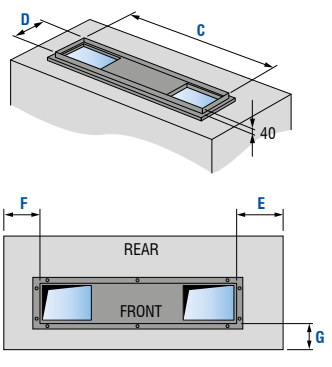
Models	A	B	C	D	E	F	G	H	J
X 4650	452	1432	1020	435	516	179	286	116	135
X 6450	452	1702	1020	435	565	395	286	116	140

ACCESSORIES (external dimensions)

Air intake dconat connection flange (rear view)

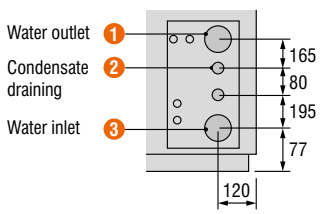


Air discharge duct connection flange (top view)

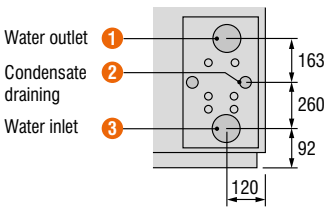


Hydraulic connections

X 4650



X 6450



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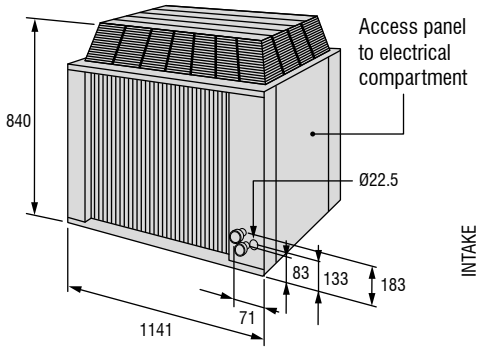
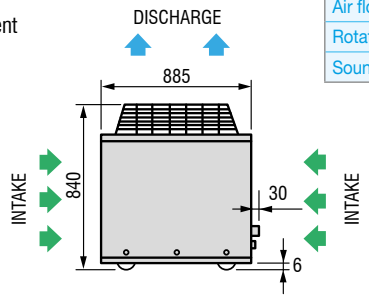
DIMENSIONS (in mm) - INSTALLATION

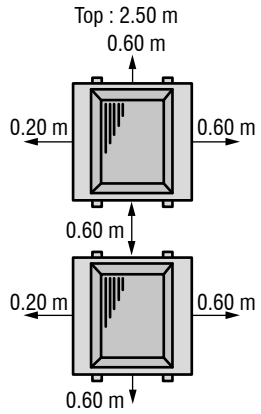
Outdoor condensing unit - Type CONA 74/X 4650 - AC model



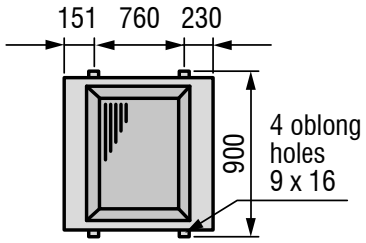


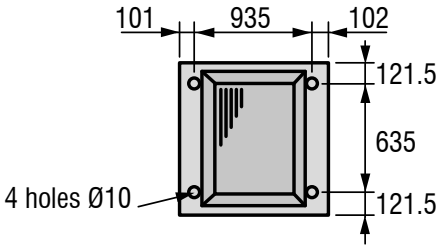
Model		CONA 74
Air flow	m³/h	8550
Rotational speed ventilation	tr/min	870
Sound pressure at 10 m (1)	dBA	48

CLEARANCES TO BE PROVIDED

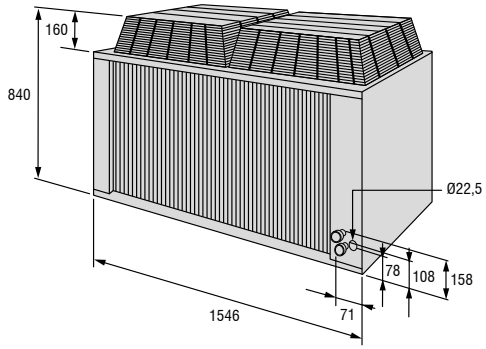


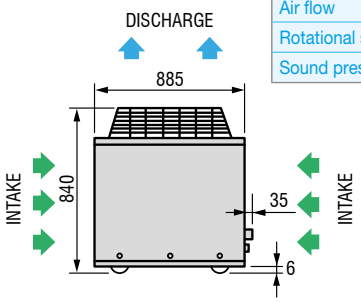
FLOOR MOUNTING AND FIXING - 2 POSSIBILITIES





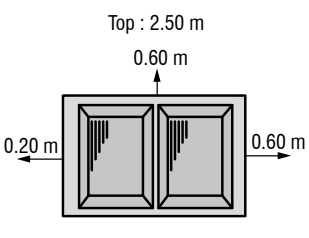
Outdoor condensing unit - Type CONA 104/X 6450 - AC model



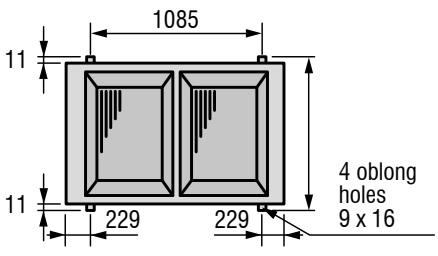


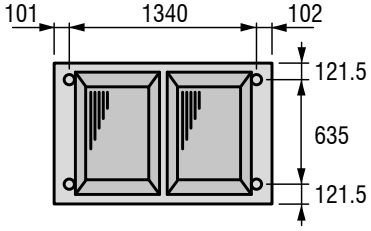
Model		CONA 104
Air flow	m³/h	14000
Rotational speed ventilation	tr/min	870
Sound pressure at 10 m (1)	dBA	48

CLEARANCES TO BE PROVIDED



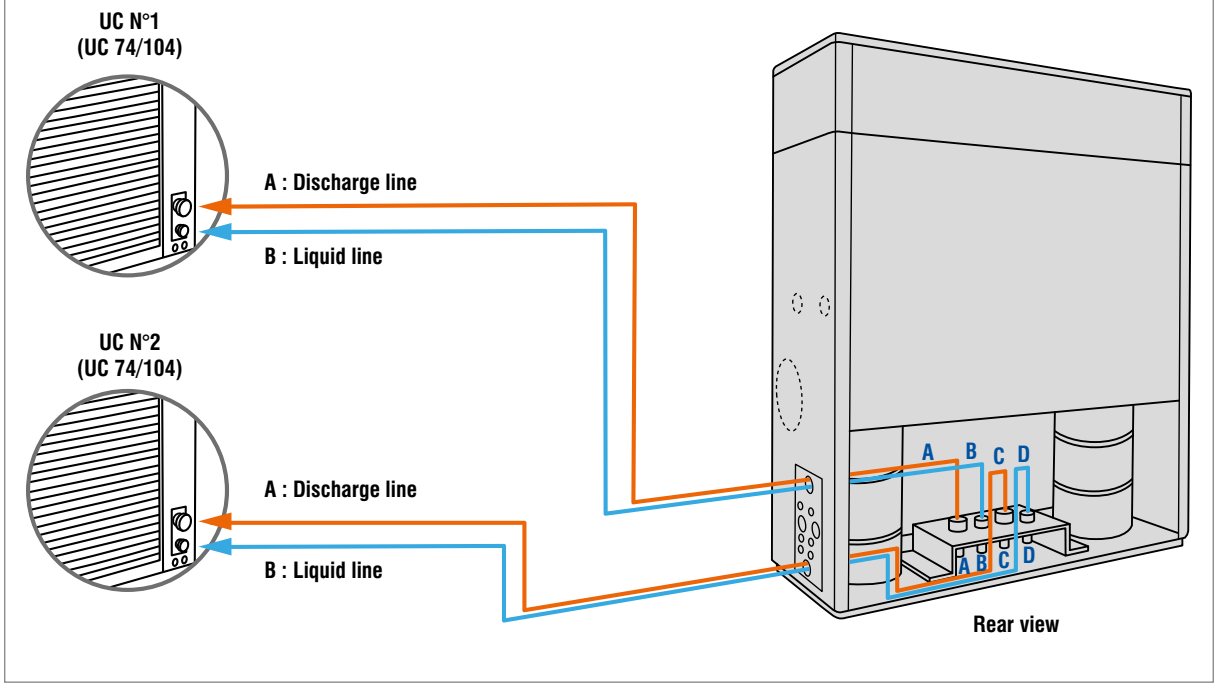
FLOOR MOUNTING AND FIXING - 2 POSSIBILITIES

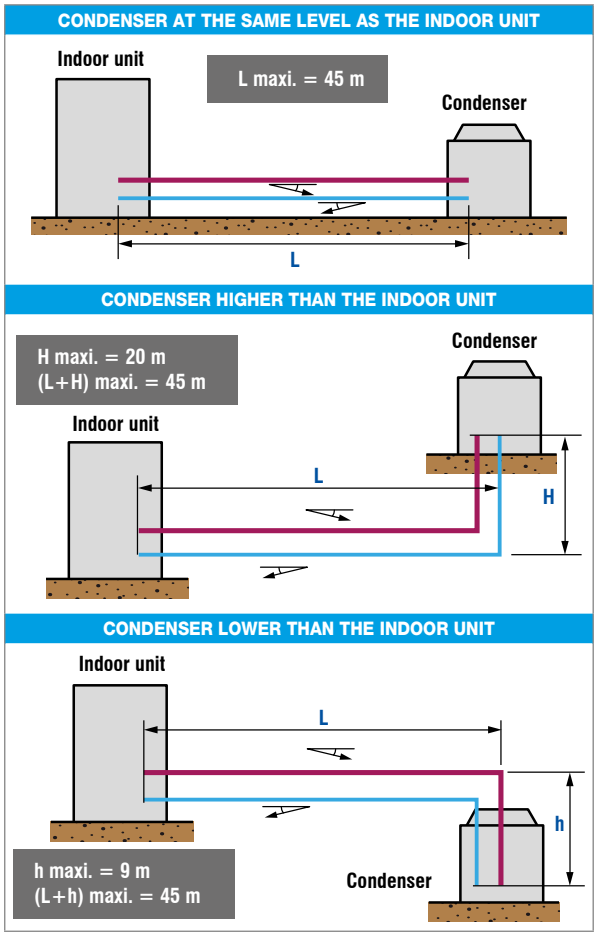


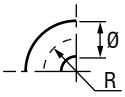


(1) Sound pressure in free field on reflecting surface

REFRIGERANT CONNECTIONS - **AC MODELS**







Bending of refrigeration pipes: R ≥ Ø 3.5

Minimum slope downwards: 1 cm/m

Discharge line

Liquid line

Refrigerant charge R407c		X 4650	X 6450
AIR TREATMENT			
Model AC	g	600 x 2	1670 x 2
CONDENSING UNITS			
Type CONA 74	g	7000 x 2	-
Type CONA 104	g	-	8130 x 2
PRECHARGED REFRIGERANT PIPES (maxi. length 25 m)			
Discharge line	Ø	5/8"	3/4"
	charge	Precharged	
Liquid line	Ø	1/2"	5/8"
	charge (g/m*)	110	182
MODEL WC (INDOOR UNIT)			
Charge	g	5220 x 2	6615 x 2

(*) From 2 meters of refrigerant pipe

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.

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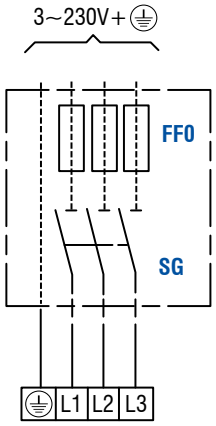
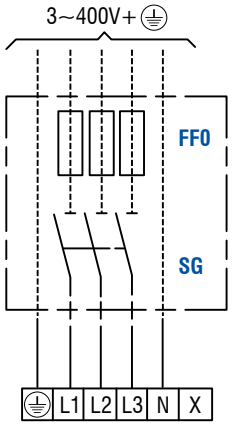
ELECTRICAL CONNECTIONS - MAIN POWER SUPPLY

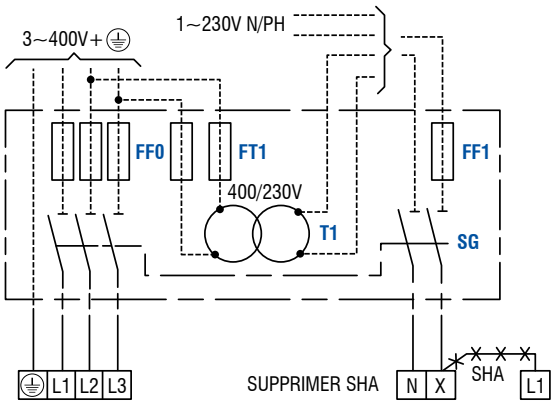
POWER SUPPLY 3~ 230 V + EARTH (regulated in France)



POWER SUPPLY 3 N~ 400 V + EARTH (with neutral)



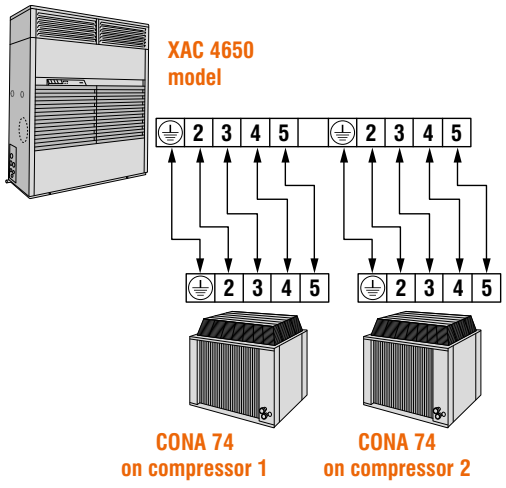
POWER SUPPLY 3~ 400 V + EARTH (without neutral)



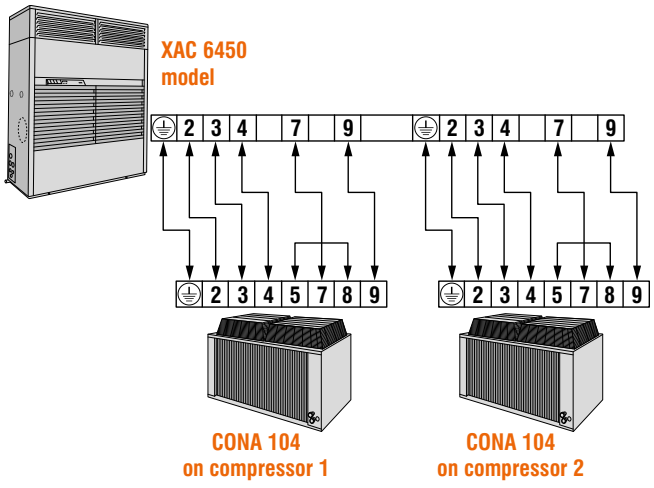
SG: General selector mandatory.
FF0 - FF1 - FT1: Fuse type aM.
T1: Transformer 400/230 V.

to be supplied by installer
(comply with local regulations)

ELECTRICAL CONNECTIONS OF X 4650 WITH OUTDOOR CONDENSING UNIT CONA 74

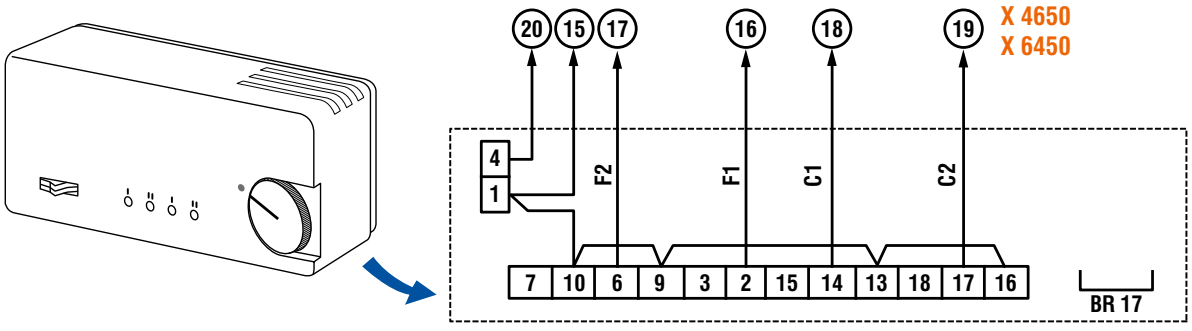


ELECTRICAL CONNECTIONS OF X 6450 WITH OUTDOOR CONDENSING UNIT CONA 104



Note: Motors CONA 74 and CONA 104 are connected in single phase 230 V only.
They have to be connected on site at the power supply voltage of the indoor unit, that is single phase 230 V for a three phase 230 V indoor unit.
⚠ For all replacement of a CONA/X unit alone, connected on site in single phase 400 V, a new wiring of the CONA/X unit is mandatory.

INTERCONNECTIONS WITH REMOTE AMBIENT THERMOSTAT (ACCESSORY)



ELECTRICAL SPECIFICATIONS - MAIN POWER SUPPLY

		4650		6450	
		230V/3~N	400V/3~N	230V/3~N	400V/3~N
NOMINAL POWER INPUT (VS/FV)					
Cooling mode XAC	kW	TBD	15/16	TBD	22.2/23.7
Cooling mode XWC on wasted water	kW	TBD	13.5/14.5		
Cooling mode XWC on recycled water	kW	TBD	12.4/13.4		
Electrical heating mode	kW	TBD	40.6/41.6	TBD	45.0
COOL-ONLY UNIT (VS/FV)					
Maximum intensity	A	TBD	36/39	TBD	48/50
Starting intensity	A	TBD	122/125	TBD	146/149
Fuse rating	A aM	TBD	40	TBD	50/63
COOL-ONLY UNIT WITH ELECTRICAL HEATING (VS/FV)					
Maximum intensity	A	TBD	72/75	TBD	88/91
Starting intensity	A	TBD	122/125	TBD	146/149
Fuse rating	A aM	TBD	80	TBD	100

VS: Standard ventilation - FV: High ventilation.
Note: 1 condensing unit and 2x15 kW heating are considered for dehumidification operation.

Interconnections with outdoor unit - AC models

Sizes		**X 4650**	**X 6450**
Outdoor unit		**CONA 74**	**CONA 104**
Power supply		~230V-50Hz	~230V-50Hz
Nominal power input	W	611	1222
Maximum intensity	A	3.1	6.2
Starting intensity	A	5.5	11

Interconnections with remote control - Transformer

INTERCONNECTION WITH REMOTE CONTROL			
Sizes		**X 4650**	**X 6450**
COOLING + VENTILATION (VS/FV)			
Nominal intensity	A	1	1
Maximum intensity	A	2	2
Starting intensity	A	4	4
Cable size	mm²	1	1

TRANSFORMER (not supplied) For power supply 3~400V+earth, without neutral			
Models		**WC**	**AC**
Nominal power single phase transformer 400 V/230 V in VA	X 4650	250	250
	X 6450	-	250

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