Installation and maintenance manual
Notice d'installation et de maintenance
Installations und Wartungshandbuch
Manuale di installazione e di manutanzione
Manual de instalacion y de mantenimiento

UCA

WMF 7-9-12

WMZ 7-9-12-18

WNG 7-9-12-14-18-24-30

ALPHA 7-9-12

7S - 9S - 11S - 15S
18S - 24S - 30TS

PXD 9-12-15-18-24-30

DNG 18-24-30

LS 11-15-18-24-30F

KN 24-30

ECF 9-11-15-18-24-30A

English | Français | Deutsch | Italiano | Español

WATER-COOLED CONDENSING UNIT
SPLIT-SYSTEM A CONDENSATION PAR EAU
SPLIT-SYSTEM MIT WASSERGEKÜHLTEM VERFLÜSSIGERAGGREGAT
SISTEMA SPLIT CON CONDENSAZIONE AD ACQUA
EQUIPOS PARTIDOS DE CONDENSACIÓN POR AGUA

R-407C

IOM GCAO 01-EL-3ALL - Part number / Code / code / Codice / Código : **3990244**
Supersedes / Annule et remplace / annulliert und ersezt /
Annulla e sostituisce / anula y sustituye : **IOM GCAO 01-EL-2ALL**

INSTALLATION INSTRUCTION English

NOTICE D'INSTALLATION Français

INSTALLATIONSHANDBUCH Deutsch

ISTRUZIONI INSTALLAZIONE Italiano

INSTRUCCIONES DE INSTALACIÓN Español

English

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POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING TO WORK IN THE ELECTRIC CONTROL BOX

GENERAL RECOMMENDATIONS

Please read the following safety precautions very carefully before installing the unit.

SAFETY DIRECTIONS

Follow the safety rules in forces when you are working on your appliance.

The installation, commissioning and maintenance of these units should be performed by qualified personnel having a good KXLowledge of standards and local regulations, as well as experience of this type of equipment.

The unit should be handled using lifting and handling equipment appropriate to the unit's size and weight.

Any wiring produced on site must comply with the corresponding national electrical regulations.

Make sure that the power supply and its frequency are adapted to the required electric current of operation, taking into account specific conditions of the location and the current required for any other appliance connected with the same circuit.

The unit must be EARTHED to avoid any risks caused by insulation defects.

It is forbidden to start any work on the electrical components if water or high humidity is present on the installation site.

WARNING

Cutoff power supply before starting to work on the appliance.

When making the hydraulic connections, ensure that no impurities are introduced into the pipe work.

The manufacturer declines any responsibility and the warrantly becomes void if these instructions are not respected.

If you meet a problem, please call the Technical Department of your area.

If possible, assemble the compulsory or optional accessories before placing the appliance on its final location. (see instructions provided with each accessory).

In order to become fully familiar with the appliance, we suggest to read also our Technical Instructions.

-The informations contained in these Instructions are subject to modification without advance notice.

INSPECTION AND STORAGE

At the time of receiving the equipment carefully cross check all the elements against the shipping documents in order to ensure that all the crates and boxes have been received. Inspect all the units for any visible or hidden damage.

In the event of shipping damage, write precise details of the damage on the shipper's delivery note and send immediately a registered letter to the shipper within 48 hours, clearly stating the damage caused. Forward a copy of this letter to the manufacturer or their representative.

Never store or transport the unit upside down.

WARRANTY

The appliances are delivered fully assembled, factory tested and ready to operate.

Any modification to the units without the manufacturer's prior approval, shall automatically render the warranty null and void.

The following conditions must be respected in order to maintain the validity of the warranty:

- Commissioning shall be performed by specialised technicians from technical services approved by the manufacturer.
- Maintenance shall be performed by technicians trained for this purpose.
- Only Original Equipment spare parts shall be used.
- All the operations listed in the present manual shall be performed within the prescribed SHEDULE.

THE WARRANTY SHALL BE NULL AND VOID IN THE EVENT OF NON-COMPLIANCE WITH ANY OF THE ABOVE CONDITIONS.

CONTENTS OF PACKAGE

1 **UCA** (outdoor unit)

1 Bag with documents, marking labels.

1 connection kit must be installed on the indoor unit

GCAO11: Ø1/2"-Ø3/8" (gas pipe)

GCAO18: Ø5/8"-Ø1/2" (gas pipe)

Ø3/8"-Ø1/4" (liquid pipe)

1 Guarantee form

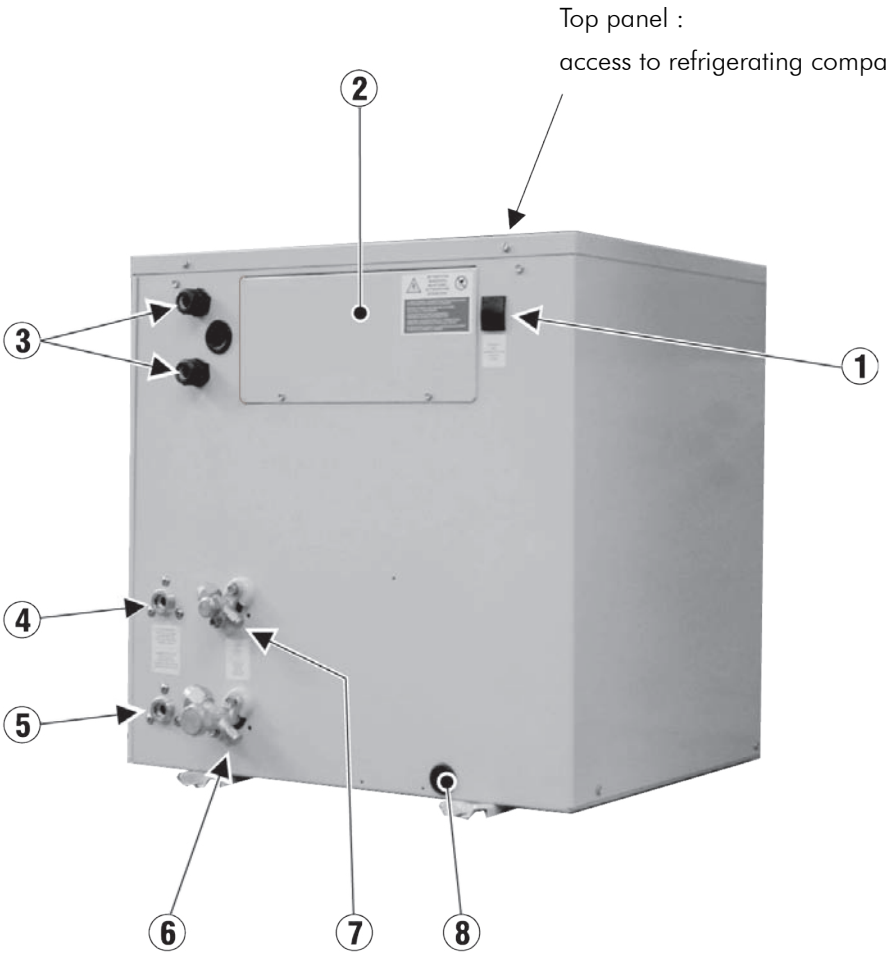
1 Installation manual

GENERAL

The water-cooled condenser units (**UCA**) are intended to be connected to **SPLIT-SYSTEM** (**ST**) air treatment units.

These water-cooled condenser units can also be used with other equipment for specific applications and in accordance with refrigeration engineering best practices.

DESCRIPTION

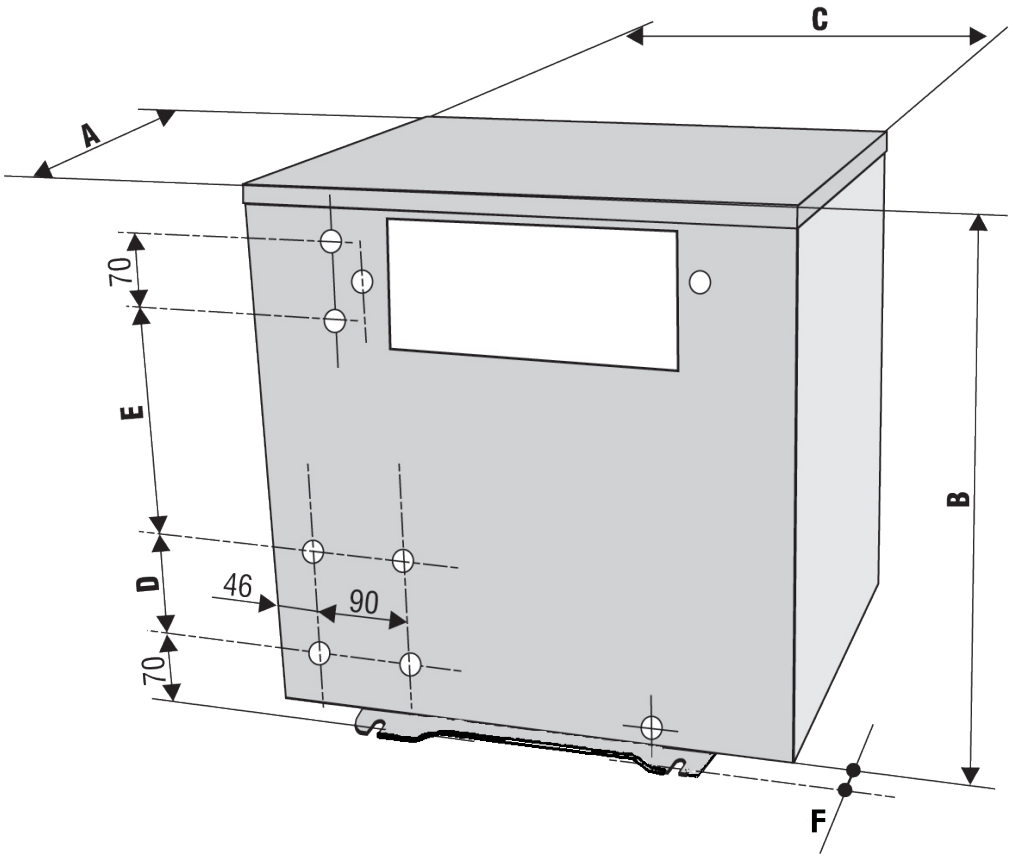


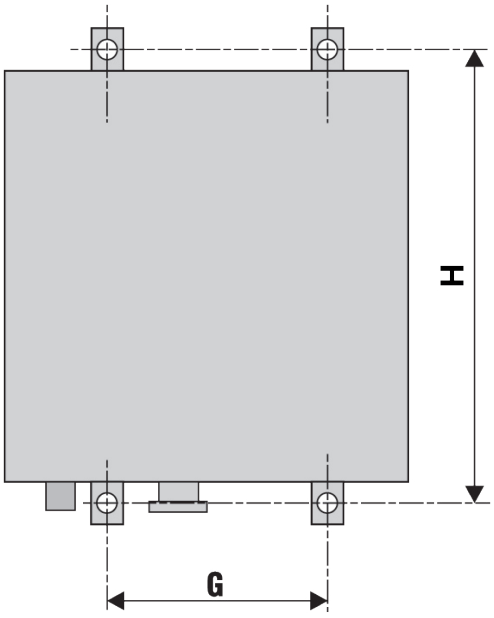
1 High pressure safety Pressostat reset control
2 Access to electrical connections terminal block
3 Passage for electrical cables and coolant pipes
4 Condenser water outlet (*)
5 Condenser water inlet (*)
6 GAS pipe valve
7 LIQUID pipe valve
8 Condenser drain valve

***NOTE** :

A bypass, outside the **GC**, is to be installed if the system is supplied with recycled water.
In case of recycled water application, please take off water regulating valve.

DIMENSIONS





	7 - 9 - 11 15 - 18	24 - 30
A	401	421
B	435	535
C	437	522
D	130	110
E	114	234
F	14	15
G	218	218
H	426	448

WEIGHT

UCA						
7	9	11	15	18	24	30
38 kg	38 kg	31 kg	37 kg	52 kg	62 kg	67 kg

ELECTRIC SPECIFICATIONS

POWER SUPPLY ~230 V - 50 HZ

TYPE OF APPLIANCE		UCA 7	UCA 9	UCA 11	UCA 15	UCA 18	UCA 24
Total starting current	A	**27**	**28**	**28**	**35**	**52**	**76**
COOLING + VENTILATION							
Nominal current	A	**5**	**6.4**	**4.4**	**7**	**10.2**	**15.5**
Maximum current	A	**5.8**	**7.4**	**5.1**	**8**	**15**	**23**
Fuse rating aM*	A	**6**	**10**	**6**	**10**	**16**	**25**
Fuse rating ASE/VDE*	A	**6**	**10**	**6**	**10**	**16**	**25**
Power supply cable	mm^2	**3 G 1.5**	**3 G 1.5**	**3 G 1.5**	**3 G 1.5**	**3 G 1.5**	**3 G 4**
Linking							
Maximum current	A	**5.8**	**7.4**	**5.1**	**1**	**1**	**2**
Cable section	mm^2	**3 G 1.5**	**3 G 1.5**	**3 G 1.5**	**4 G 1.5**	**4 G 1.5**	**4 G 1.5**

POWER SUPPLY 3N ~400 V - 50 HZ

TYPE OF APPLIANCE		UCA 18	UCA 24	UCA 30
Total starting current	A	**25**	**28**	**42**
COOLING + VENTILATION				
Nominal current	A	**4.2**	**6.1**	**7**
Maximum current	A	**6**	**9**	**10.5**
Fuse rating aM*	A	**6**	**10**	**12**
Fuse rating ASE/VDE*	A	**6**	**10**	**16**
Power supply cable	mm^2	**5 G 1.5**	**5 G 1.5**	**5 G 1.5**
Linking				
Maximum current	A	**1**	**2**	**3**
Cable section	mm^2	**4 G 1.5**	**6 G 1.5**	**6 G 1.5**

IMPORTANT

* These datas are given for guidance only. They must be checked aat commissioning according to prevailing standards. They depend on the installation and the cables used.

REFRIGERATION SPECIFICATIONS

Characteristics		UCA 7	UCA 9	UCA 11	UCA 15	UCA 18	UCA 24	UCA 30
GAS pipe	Pipe Ø	3/8"	3/8"	1/2"	1/2"	5/8"	5/8"	5/8"
LIQUID pipe	Pipe Ø	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"
Charge per unit (factory filled for 4m pipe length)	g	335	405	375	465	650	1080	895

The refrigerant fluid charges are provided for information purposes only. When filling the installation with these products (Split) this charge is to be added to optimise their performance.

Therefore, both the installation itself and its environment are critical parameters for its proper operation.

REFRIGERANT CHARGE ADJUSTMENT

A charge adjustment may be required depending on the pipe connection lengths and the type of air treatment unit. (Refer to table below and page 11 for calculating the amount of the charge to be introduced in the system).

Qualified personnel, following refrigeration engineering best practices, must perform this operation. The additional charge is introduced via the outdoor unit FLARE connector (large connector) service valve.

All interventions on the refrigerating circuits must be performed in accordance with the recommendations of CEGOMAF GT-1-001 (Recommendations on refrigerant fluid dispersal in the atmosphere).

INDOOR UNIT R407C

	UCA 7			UCA 9					UCA 11						UCA 15			
	WMF 7	WMZ 7	WNG 7	WMF 9	WMZ 9	WNG 9	PXD 9	ECF 9	WMF 12	WMZ 12	WNG 12	SX12	ECF 11	LS 11	WNG 14	PXD 15	ECF 15	LS 15
LOST WATER	0g	0g	10g	25g	35g	0g	45g	45g	25g	0g	125g	150g	20g	85g	40g	100g	105g	150g
RECYCLED WATER	40g	40g	50g	145g	160g	115g	170g	170g	75g	45g	185g	215g	70g	145g	130g	210g	205g	255g
Max. pipe length (m)	10			16					25									

PIPE CONNECTION LENGTHS					
1 m					
2 m					
3 m					
4 m					
5 m	5g				
6 m	10g				
7 m	15g				
8 m	20g				
9 m	61g				
10 m		70g			
11 m		79g			
12 m		88g			
13 m		97g			
14 m		106g			
15 m		115g			
16 m			124g		
17 m			133g		
18 m			142g		
19 m			151g		
20 m			160g		
21 m			169g		
22 m			178g		
23 m			187g		
24 m			196g		
25 m			205g		

	UCA 18				UCA 24			UCA 30		
	WMZ 18	PXD 18	ECF 18	LS 18	PXD 24	ECF 24	LS 24	PXD 30	ECF 30	LS 30
LOST WATER	45g	105g	40g	135g	140g	140g	285g	320g	50g	370g
RECYCLED WATER	150g	220g	145g	255g	240g	240g	430g	575g	245g	635g
Max. pipe length (m)	25									

PIPE CONNECTION LENGTHS	
1 m	-48g
2 m	-32g
3 m	-16g
4 m	
5 m	16g
6 m	32g
7 m	48g
8 m	64g
9 m	80g
10 m	96g
11 m	112g
12 m	128g
13 m	144g
14 m	160g
15 m	176g
16 m	192g
17 m	208g
18 m	224g
19 m	240g
20 m	256g
21 m	272g
22 m	288g
23 m	304g
24 m	320g
25 m	336g

INDOOR UNIT R410A COMPATIBLE R407C

	UCA 7		UCA 9				UCA 11				UCA 15		
	WNG 7	ALPHA 7	WNG 9	ALPHA 9	PXD 9	ECFN 9	WNG 12	ALPHA 11	PXD 12	ECFN 11	WNG 14	PXD 15	ECFN 15
LOST WATER	10g	0g	0g	25g	60g	55g	75g	45g	80g	70g	0g	0g	55g
RECYCLED WATER	50g	40g	115g	150g	185g	235g	130g	100g	135g	125g	85g	80g	145g
Max. pipe length (m)	10		16				25						

PIPE CONNECTION LENGTHS	
1 m	
2 m	
3 m	
4 m	
5 m	5g
6 m	10g
7 m	15g
8 m	20g
9 m	61g
10 m	70g
11 m	79g
12 m	88g
13 m	97g
14 m	106g
15 m	115g
16 m	124g
17 m	133g
18 m	142g
19 m	151g
20 m	160g
21 m	169g
22 m	178g
23 m	187g
24 m	196g
25 m	205g

	UCA 18				UCA 24				UCA 30			
	WNG 18	PXD 18	ECFN 18	DNG 18	WNG 24	PXD 24	KN 24	DNG 24	WNG 30	PXD 30	KN 30	DNG 30
LOST WATER	20g	15g	0g	230g	0g	125g	40g	260g	170g	280g	0g	440g
RECYCLED WATER	120g	165g	130g	400g	130g	210g	130g	390g	300g	550g	225g	720g
Max. pipe length (m)	25											

PIPE CONNECTION LENGTHS	
1 m	-48g
2 m	-32g
3 m	-16g
4 m	
5 m	16g
6 m	32g
7 m	48g
8 m	64g
9 m	80g
10 m	96g
11 m	112g
12 m	128g
13 m	144g
14 m	160g
15 m	176g
16 m	192g
17 m	208g
18 m	224g
19 m	240g
20 m	256g
21 m	272g
22 m	288g
23 m	304g
24 m	320g
25 m	336g

INSTALLATION

INSTALLING THE INDOOR UNITS (ST)

For installation of the indoor units, refer to the installation guide supplied with the indoor units :

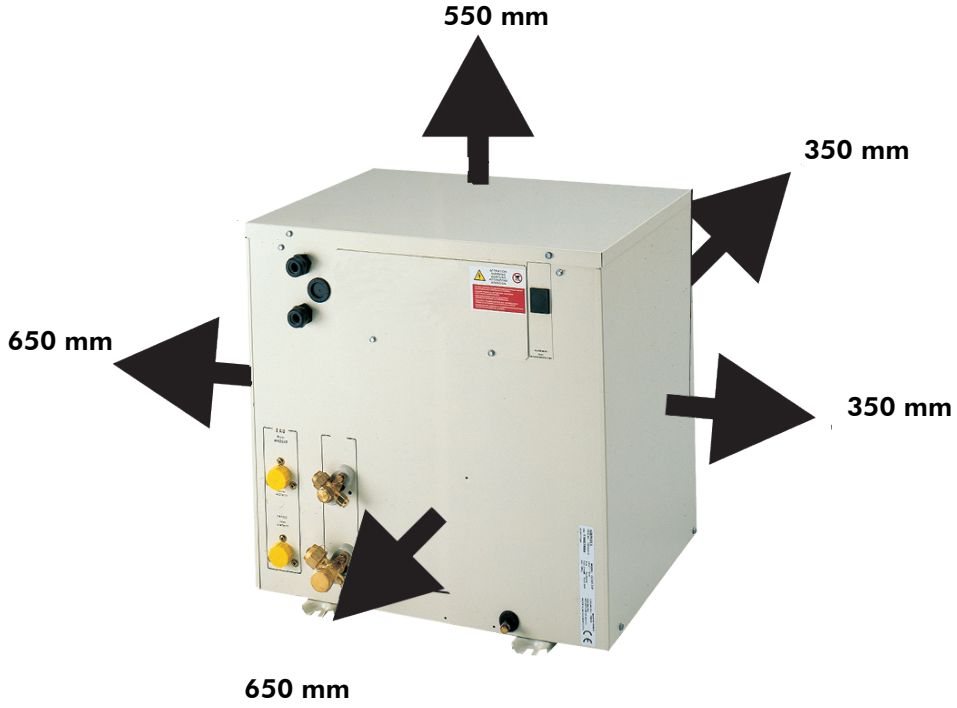
- **WMF** **7 / 9 / 12**
- **WMZ** **7 / 9 / 12 / 18**
- **WNG** **7 / 9 / 12 / 14 / 18 / 24 / 30**
- **ALPHA** **7 / 9 / 12**
- **PXD** **9 / 12 / 15 / 18 / 24 / 30**
- **ECF** **9 / 11 / 15 / 18 / 24 / 30**
- **KN** **24 / 30**
- **LS** **11 / 15 / 18 / 24 / 30**
- **DNG** **18 / 24 / 30**

The indoor unit can be installed either above or below the unit.

The unit is not designed to withstand weights or stresses from adjacent equipment, pipe work or constructions. Any foreign weight or stress on the unit structure could lead to a malfunction or a collapse with dangerous consequences for personnel and property. In such an event, the warranty shall be null and void.

It is recommended that the **GC** be placed as near as possible to its final installation location.

CLEARANCE

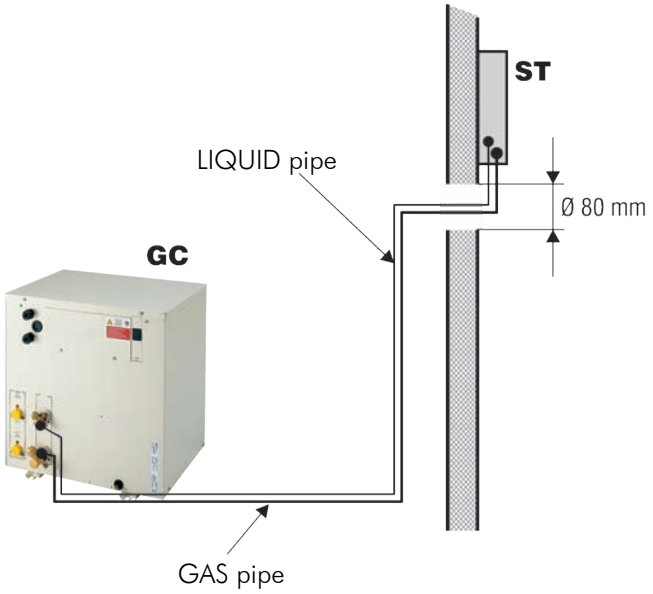


ATTACHMENT TO THE GROUND

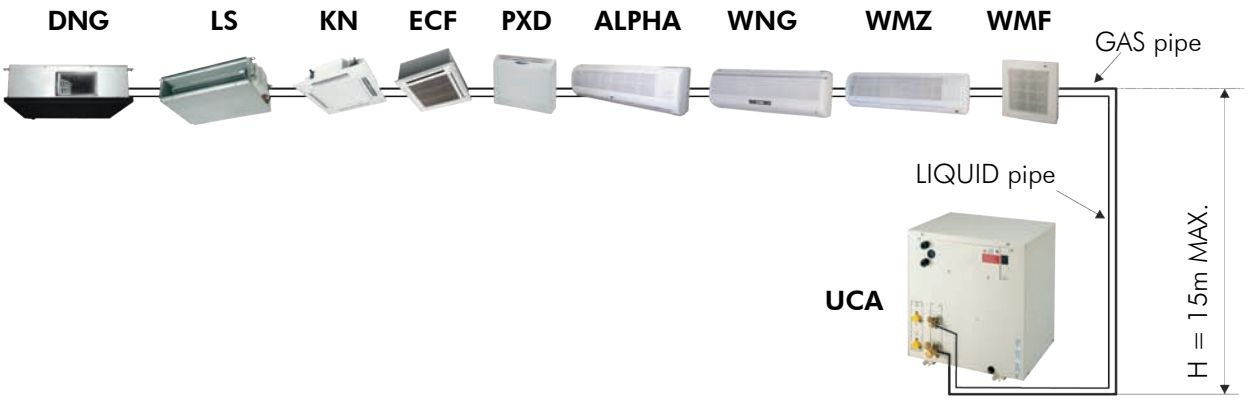
The **GC** is designed for bolting to the floor via 4 holes ∅ 10 mm.

REFRIGERANT CONNECTIONS

Drill an Ø 80 mm hole in the wall for passing the connections between the outdoor (**GC**) unit and the indoor unit.

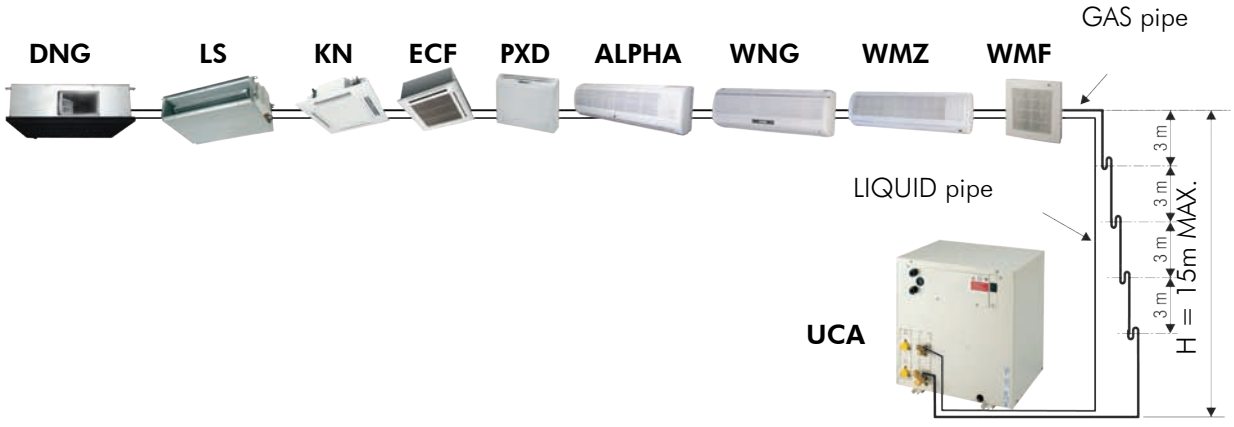


CONNECTIONS UNDER 8 METRES



CONNECTIONS OVER 8 METRES

In the case of the vertical inlet pipe length being over 8 m, it is **IMPERATIVE** to install a siphon every 3 metres when the Condenser Unit is installed above the Air Treatment Unit.

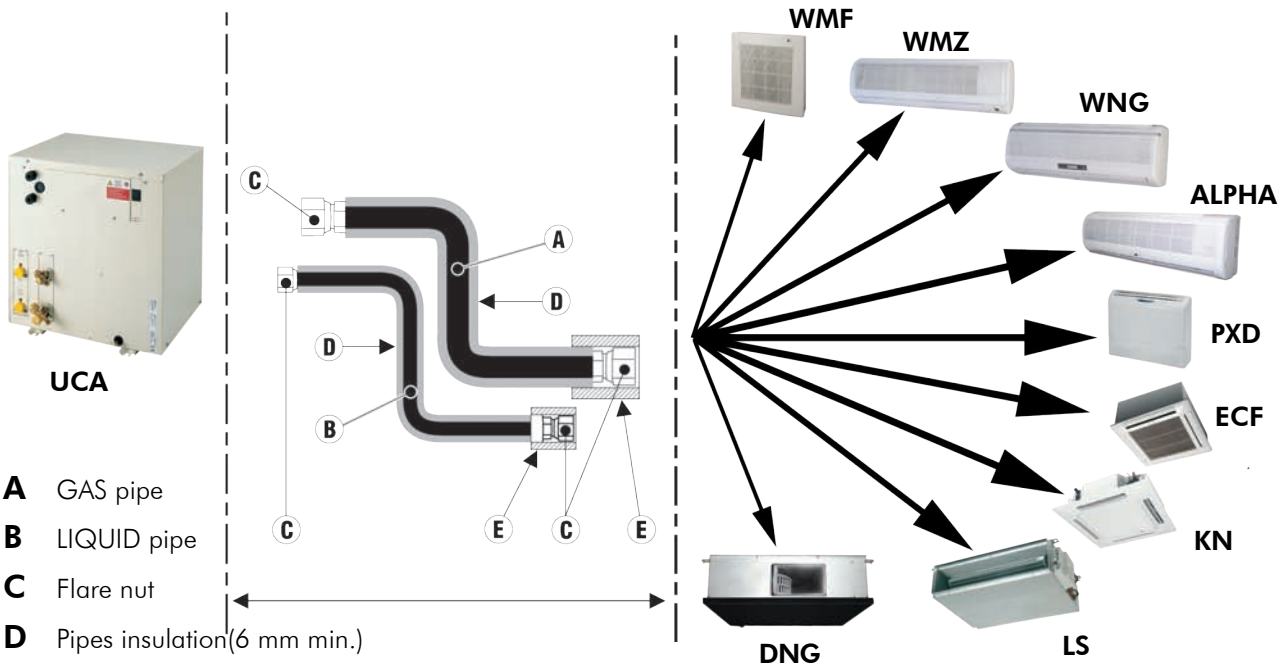


REFRIGERATION CONNECTIONS BETWEEN THE OUTDOOR UNIT AND THE INDOOR UNIT

The indoor units have been designed for refrigeration pipe connections to the outdoor units using FLARE pipes (refrigeration quality copper pipe with FLARE nut end fittings, and insulation along the entire pipe length).

Preparing the pipes :

- Use refrigeration quality copper pipes of an appropriate diameter for each model
- The GAS pipe and the LIQUID pipe must be insulated with insulation material with a thicKXLess of at least 6 mm.
- Place the FLARE nuts on the pipe ends before preparing them with a flaring tool.
- The separately insulated pipes, as well as their connectors, can then be attached to the condensate evacuation pipe and to the electrical cables with a collar clamp.

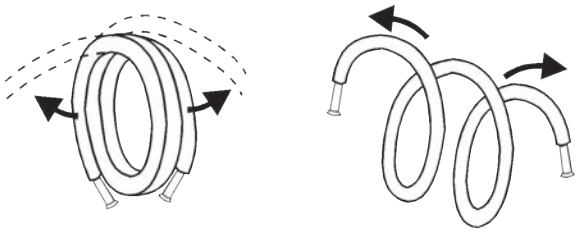


A GAS pipe
B LIQUID pipe
C Flare nut
D Pipes insulation(6 mm min.)
E Insulating sleeve

PIPES TO BE MADE ON SITE

This operation should be performed expertly by qualified professionals (refrigeration engineer) (brazing, vacuum, charge, etc ...).

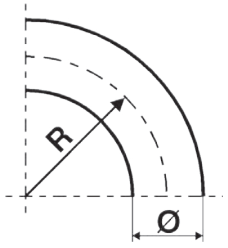
- FLARE connectors are available as **accessories**, in fixed lengths : L = 2.5 - 5 - 8 mm.
- The pipes are supplied in rolls and fitted with FLARE nuts.
- Unroll the pipes carefully, in the opposite direction to the spirals, to avoid bending them.



REFRIGERATION PIPE BENDING

LThe bending radius of the pipes should be equal to or more than 3,5 times de outside diameter of the pipe.

Do not bend the pipes consecutively more than three times and do not make more than 12 bends over the complete length of the link.



VACUUM OF COOLING PIPES AND INDOOR UNIT

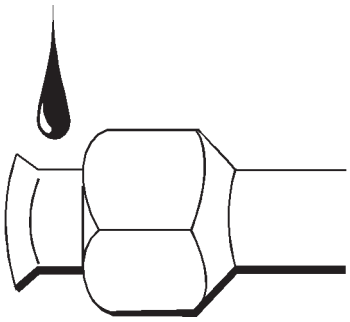
Only the outdoor unit is charged with refrigerant fluid. The indoor unit contains a small quantity of a neutral gas. This the reason it is imperative to vacuum the linking pipes and the indoor unit.

ASSEMBLY

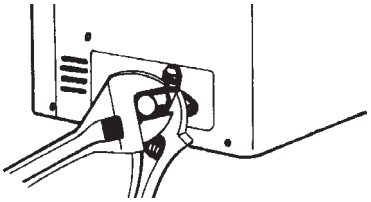
The outdoor unit is equipped with a valve allowing to vacuum the installation (large valve)

1 Connect the connecting pipes to the outdoor unit by FLARE NUTS and to the indoor unit by BRAZING

➢ To obtain the right tightening, cover the surface with cooling oil.



➢ The use of a counter wrench is required to tighten the valves.



➢ The values of the tightening torque are shown in the table below.

PIPE ∅	TIGHTENING TORQUE
1/4""	15-20 Nm
3/8""	30-35 Nm
1/2""	50-54 Nm
5/8""	70-75 Nm
7/8""	90-95 Nm

2 Connect the vacuum pump with the flare coupling of the outdoor unit equipped with a process valve.

3 Start the vacuum pump and check that the needle of the indicator goes down to - 0,1 mPa (-78 cm Hg.The pump should run during at least 15 minutes.

4 Before disconnecting the vacuum pump, check that the vacuum indicator remains in the same position during five minutes.

5 Disconnect the vacuum pump.

6 Remove the cap of the "GAS" and "LIQUID" valves and open them with a hexagonal wrench to free the refrigerant fluid contained in the outdoor unit.

7 If the length of the refrigerant pipes of one line exceeds 4m, add the extra charge indicated in the table of following page. Certain units require an additional charge as per table of COOLING SPECIFICATIONS.

8 Check that the linking pipes are sealed. Use an electronic leak detector or a soapy sponge.

HYDRAULIC CONNECTIONS

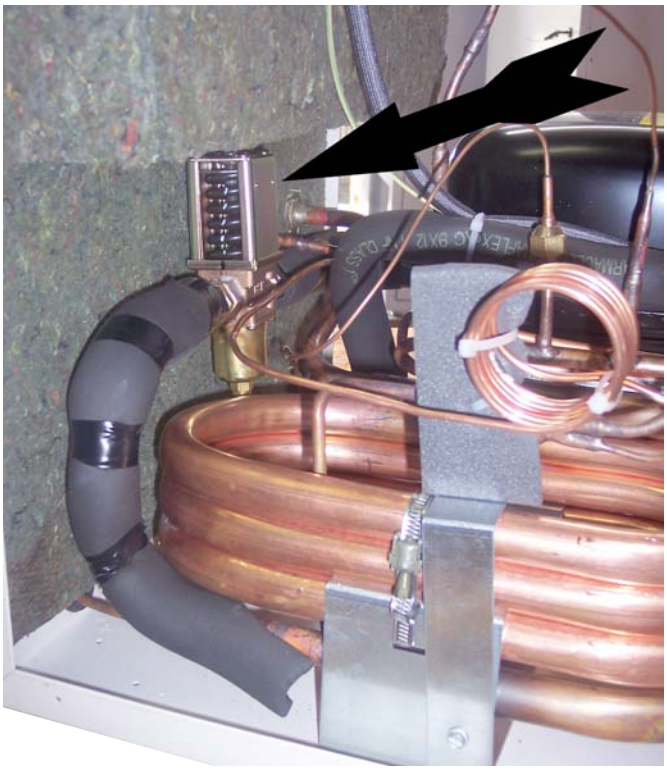
WATER FLOW

		UCA						
		7	9	11	15	18	24	30
LOST WATER +15°C	l/h	70	100	110	150	185	245	300
RECYCLED WATER 26/32°C	l/h	440	540	580	830	1055	1410	1680

PRESSURE DROP ON WATER

		UCA						
		7	9	11	15	18	24	30
LOST WATER +15°C	kPa	2	2	2	1	6	9	5
RECYCLED WATER 26/32°C	kPa	20	26	30	20	56	60	80

In case of recycled water application, please take off water regulating valve.



WIRING DIAGRAM AND LEGEND

SEE APPENDIX

ELECTRICAL CONNECTIONS

WARNING

Before carrying out any work on the equipment, make sure that the electrical power supply is disconnected and that there is no possibility of the unit being started inadvertently.

Non-compliance with the above instructions can lead to injury or death by electrocution.

The electrical installation must be performed by a fully qualified electrician, and in accordance with local electrical standards and the wiring diagram corresponding to the unit model.

Any modification performed without our prior authorisation may result in the unit's warranty being declared null and void.

The power supply cable section must be sufficient to provide the appropriate voltage to the unit's power supply terminals, both at start-up and under full load operating conditions.

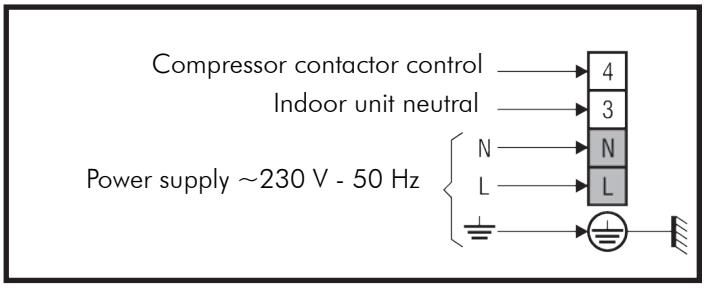
The power supply cable shall be selected in accordance with the following criteria:

1. Power supply cable length.
2. Maximum unit starting current draw – the cables shall supply the appropriate voltage to the unit terminals for starting.
3. Power supply cables' installation mode.
4. Cables' capacity to transport the total system current draw.

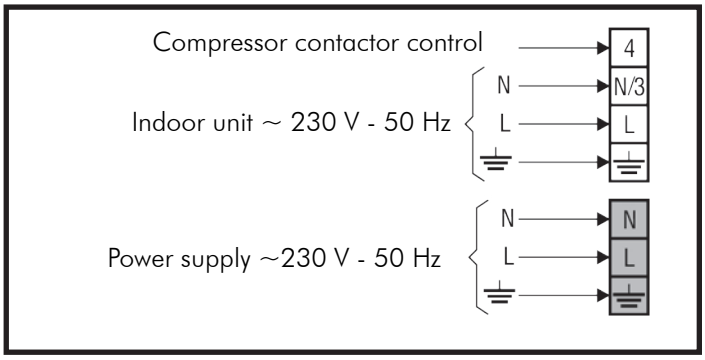
Starting current and total current draw are indicated on the unit's wiring diagram.

In accordance with standards NF C 73-600 and IEC 335, the appliances are designed to be permanently wired to a rigid electrical cable. Do not use connectors or flexible cable for the power input or the interconnections between the outdoor unit and the indoor units.

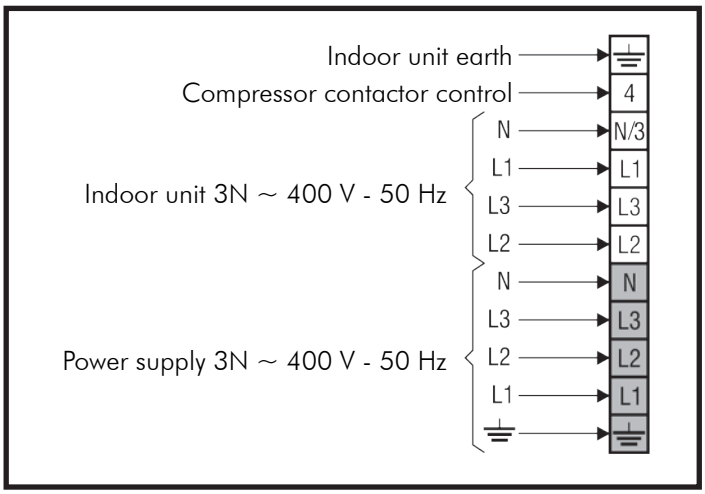
UCA 7 / 9 / 11
~230 V - 50 Hz



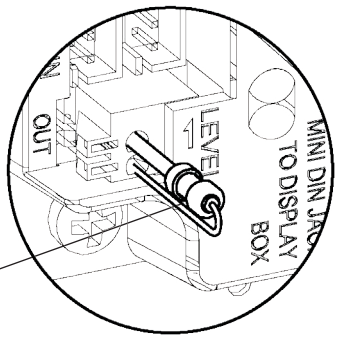
UCA 15 / 18 / 24
~230 V - 50 Hz



UCA 18 / 24 / 30
3N ~400 V - 50 Hz



The water-cooled condenser units (**UCA**) are COOLING ONLY units. Therefore, the sensor wire must be replaced by the 4.7 kÙ resistance on the indoor unit.



SINGLE-PHASE MODELS

SEE APPENDIX

THREE-PHASE MODELS

SEE APPENDIX

COMMISSIONING

PRE-START CHECK LIST

ELECTRICAL CHECK

1. Electrical installation has been carried out according to unit wiring diagram and the Supply Authority Regulations.
2. size fuses or circuit breaker has been installed at the main switchboard.

   The fuses must mandatorily be rated for the motor (aM).
3. Supply voltages as specified on unit wiring diagram.
4. All cables are properly identified and tight connected at the unit.
5. the cables and wires are clear of or protected from pipework and sharp edges.

HYDRAULIC CHECKS

1. Check that the external water circuit components (pumps, user equipment, filters, expansion tank and reservoir if supplied) have been correctly installed in accordance with the manufacturer's recommendations and that the water inlet and outlet connections are correct.
2. Check that the hydraulic circuit is filled correctly and that the fluid flows freely without any signs of leaks or air bubbles. When ethylene glycol anti-freeze is used, check that the concentration level is correct.
3. Adjust the water flow in order to comply with the specifications.
4. Check that the water quality complies with the indicated standards.
5. Check the connections for leaks and provide heat proofing on the drain lines if there is a risk of freezing or condensation.

VISUAL CHECK

1. Clearances around unit including outdoor air entry and discharge openings and service accesses.
2. Unit mounted as specified.
3. For loose or missing bolts or screws.
4. Check the refrigerant lines for leaks using a suitable detector, especially the outdoor unit and indoor unit connecting valves.
5. Check all bulkhead crossings to the outdoors for leaks. Check that there is no direct contact between the connecting pipes and the wall crossed.
6. Check for smooth rotation of turbines and fan blades by hand.

FINAL CHECK

1. All panels and fan guards are in place and secured.
2. Unit clean and free of remainder installation material.

FINAL TASKS

Place the plugs back on the valves and check that they are properly tightened.

If needed, fix the cables and the pipes on the wall with clamping collars.

Operate the air conditioner in the presence of the user and explain all functions.

Take care

It is not the manufacturer's policy to make recommendations in terms of water treatment (please contact a specialised water treatment company).

However, given the critical nature of this subject, particular care should be taken to ensure that, if treatment is required, it works effectively.

Using untreated or unsuitable water leads to excessive clogging inside the coil tubes (earth and mud deposits, corrosion, etc.) with major consequences on the thermal efficiency of the unit and irreversible damage to the equipment.

The manufacturer and its representative decline all responsability in the event of untreated or incorrectly treated water being used.

IN CASE OF WARRANTY - MATERIAL RETURN PROCEDURE

Material must not be returned without permission of our After Sales Department.

To return the material, contact your nearest sales office and ask for a "return voucher". The return voucher shall be sent with the returned material and shall contain all necessary information concerning the problem encountered.

The return of the part is not an order for replacement. Therefore, a purchase order must be entered through your nearest distributor or regional sales office. The order should include part name, part number, model number and serial number of the unit involved.

Following our personal inspection of the returned part, and if it is determined that the failure is due to faulty material or workmanship, and in warranty, credit will be issued on customer's purchase order. All parts shall be returned to our factory, transportation charges prepaid.

ORDERING SERVICE AND SPARE PARTS ORDER

The part number, the order confirmation and the unit serial number indicated on the name plate must be provided whenever service works or spare parts are ordered.

For any spare part order, indicate the date of unit installation and date of failure. Use the part number provided by our service spare parts, if it not available, provide full description of the part required.

MAINTENANCE

The user is responsible for ensuring that it is in a proper working condition and that technical installation as well as the regular maintenance operations are performed by properly trained technicians and in accordance with the instructions contained in this manual.

REGULAR MAINTENANCE

These units have been designed for minimum maintenance. However, there are operational maintenance requirements that require regular attention to ensure optimum performance.

Maintenance must be performed by appropriately experienced personnel only.

WARNING : Isolate unit from power supply before working on unit.

GENERAL INSPECTION

Carry out a visual inspection of the complete installation in service.

Check the general cleanness of the installation, and check if the condensate evacuations is not blocked, specialy on the indoor coil, before the cooling season.

Check the condition of the condesate tray by pulling it out of the casing.

ELECTRICAL SECTION

Check that the main power supply cable is not damaged or altered in such a way as to affect the insulation

Check that the interconnecting cables between the two units are not damaged or altered, and that they are correctly connected.

The contact surfaces of relays and contactors should be inspected regularly by an electrician and replaced as judged necessary. On these occasions the control box should be blown out with compressed air to remove any accumulation of dust or other contaminants.

Check the earth grounding connection.

INDOOR UNIT

In order for the installation to operate correctly, it is essential to regularly clean the air filter located in the intake of the indoor unit.

When clogged, the filter reduces the air flow through the heat exchanger of the indoor unit, which in turn reduces the efficiency of the installation and inhibits the cooling of the fan motor.

Check the cleanness of the indoor heat exchanger.

CAUTION

BEFORE CARRYING OUT ANY OPERATION ON THE EQUIPMENT, CHECK THAT THE ELECTRICAL POWER SUPPLY IS SWITCHED OFF AND THAT IT CANNOT BE SWITCHED ON INADVERTENTLY.

IT IS RECOMMENDED THAT THE DISCONNECT SWITCH BE PADLOCKED

SERVICING CHECKLIST

CASING

1. Clean the outer panels.
2. Remove the panels.
3. Check that the insulation is not damaged. Repair as required.

CONDENSATE DRAIN PAN

1. Check that the drainage orifices, conduits and syphon are not blocked.
2. Eliminate all accumulated dirt.
3. Check that no traces of rust are present.

REFRIGERATION CIRCUIT

1. Check the presence of gas leaks.
2. Check that the copper tube or the capillary tube do not rub against any metal or vibrate.
3. Check that the compressors do not generate any abnormal noises or vibrations.
4. Check the compressor discharge temperature.

INDOOR COILS

1. Clean the fin surfaces as required.
2. Observe the condition of the fans and motors.
3. Clean or replace the filters.
4. Check the condition of the fan and the fan motor.

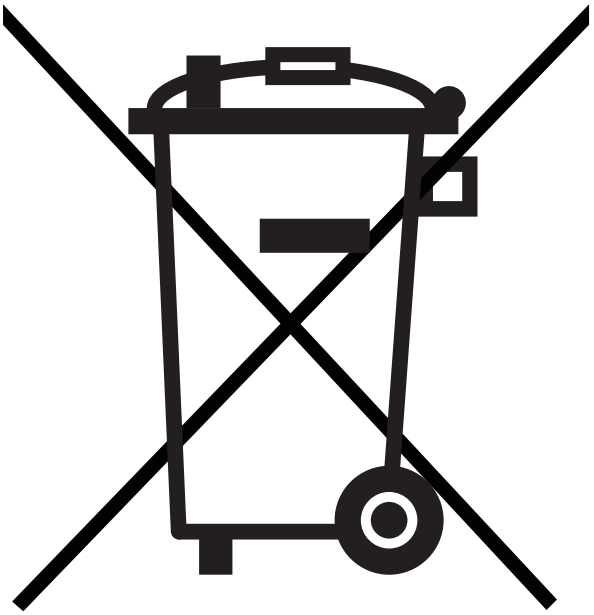
PROTECTION DEVICES

Check the proper operation of the high pressure protection devices.

ELECTRICAL EQUIPMENT

1. Check nominal current draw and the condition of the fuses.
2. Check the tightness of the screw terminals.
3. Perform a visual check of the condition of the contacts.
4. Check the general tightness of all cable connections.

Replace the panels and add any missing screws.



The meaning of the above logo representing a crossed-out wheeled bin is that this air conditioning unit must not be disposed of as unsorted municipal waste but should be collected separately as WEEE (Waste Electrical and Electronic Equipment).

The presence of hazardous substances in electrical and electronic equipment or an improper use of such equipments or of parts thereof as well as the hazards of not separating WEEE from unsorted domestic waste, may affect the environment and human health.

As an End User, you are required to place WEEE in a collection separate from that for unsorted domestic waste. Please contact a point of sale or installer to find out the collection system available at your local community. You may return your old air conditioning unit for free to the point of sale or the installer when purchasing a new one.

As an End User, it is your role to contribute to the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste. This will help preserve your environment.

APPENDIX
ANNEXE
ANLAGE
ALLEGATO
ANEXO

APPENDIX

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ELECTRICAL CONNECTIONS ..... **VII**
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RACCORDEMENTS ÉLECTRIQUES ..... **VII**
MODÈLES MONOPHASÉS VIII
MODÈLES TRIPHASÉS XI

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ELEKTRISCHE ANSCHLÜSSE ..... **VII**
WECHSELSTROMODELLE VIII
DREHSTROMMODELLE XI

ALLEGATO

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ANEXO

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COLLEGAMENTI ELETTRICI ..... **VII**
MODELOS MONOFÁSICOS VIII
MODELOS TRIFÁSICOS XI

WIRING DIAGRAM
SCHEMAS ELECTRIQUES
STROMLAUFPLANS
SCHEMA ELETRICO
ESQUEMA ELECTRICO

TAKE CARE!

These wiring diagrams are correct at the time of publication. Manufacturing changes can lead to modifications. Always refer to the diagram supplied with the product.

ATTENTION

Ces schémas sont corrects au moment de la publication. Les variantes en fabrication peuvent entraîner des modifications. Reportez-vous toujours au schéma livré avec le produit.

ACHTUNG!

Diese Stromlaufplans sind zum Zeitpunkt der Veröffentlichung gültig. In Herstellung befindliche Varianten können Änderungen mit sich bringen. In jedem Fall den mit dem Produkt gelieferten Stromlaufplan hinzuziehen.

ATTENZIONE !

Questi schemi sono corretti al momento della pubblicazione. Le varianti apportate nel corso della fabbricazione possono comportare modifiche. Far sempre riferimento allo schema fornito con il prodotto.

ATENCIÓN !

Esto esquemas son correctos en el momento de la publicación. Pero las variantes en la fabricación pueden ser motivo de modificaciones. Remítase siempre al esquema entregado con el producto.

POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING TO WORK IN THE ELECTRIC CONTROL BOXES!

MISE HORS TENSION OBLIGATOIRE AVANT TOUTE INTERVENTION DANS LES BOITIERS ELECTRIQUES.

VOR JEDEM EINGRIFF AN DEN ANSCHLUßKÄSTEN UNBEDINGT DAS GERÄT ABSCHALTEN!

PRIMA DI OGNI INTERVENTO SULLE CASSETTE ELETTRICHE ESCLUDERE TASSATIVAMENTE L'ALIMENTAZIONE !

PUESTA FUERA DE TNESIÓN OBLIGATORIA ANTES DE CUALQUIER INTERVENCIÓN EN LAS CAJAS ELÉCTRICAS!

GROUPE EXTERIEUR DE CONDENSATION A EAU (GC)

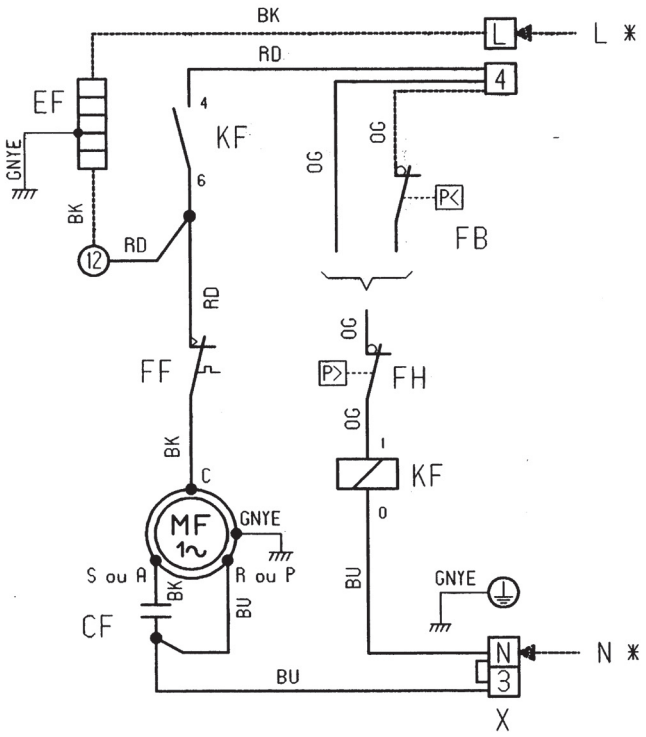
Water cooled outdoor condensing unit (GC)

WASSERGEKÜHLTE AUSSENEINHEIT (GC)

GRUPO EXTERIOR DE CONDENSACION A AGUA (GC)

7	9	11
1 ~	50 Hz	

* VOIR NOTICE TECHNIQUE
* *LOOK AT TECHNICAL DATA*
* SEHEN TECHNISCHE BESCHREIBUNG
* VER INSTRUCCIONES



BK	NOIR	*BLACK*	SCHWARZ	NEGRO
OG	ORANGE	*ORANGE*	ORANGE	NARANJA
GNYE	VERT/JAUNE	*GREEN/YELLOW*	GRÜN/GELB	VERDE/AMARILLO
BN	MARRON	*BROWN*	BRAUN	MARRÓN
WH	BLANC	*WHITE*	WEISS	BLANCO
RD	ROUGE	*RED*	ROT	ROJO
BU	BLEU	*BLUE*	BLAU	AZUL

MF COMPRESSEUR	*MF COMPRESSOR*	MF VERDICHTER	MF COMPRESOR
CF CONDENSATEUR	*CF CAPACITOR*	CF KONDENSATOR	CF CONDENSADOR
FB PRESSOSTAT BP (KIT)	*FB LOW PRESSURE CONTROLLER (KIT)*	FB NIEDERDRUCKPRESSOSTAT (KIT)	FB PRESOSTATO BAJA PRESION (KIT)
FF SECURITE EXTERNE	*FF EXTERNAL PROTECTION*	FF ÄUSSERER WICKLUNGSSCHUTZ	FF SEGURIDAD EXTERNA
EF RESISTANCE DE CARTER (KIT)	*EF CRANKCASE HEATER (KIT)*	EF KURBELWANNENHEIZUNG (KIT)	EF RESISTENCIA DE CÁRTER (KIT)
KF CONTACTEUR	*KF CONTACTOR*	KF SCHÜTZ	KF CONTACTOR
FH PRESSOSTAT HP	*FH HIGH PRESSURE CONTROLLER*	FH HOCHDRUCKPRESSOSTAT	FH PRESOSTATO ALTA PRESION
X BORNIER	*X TERMINAL STRIP*	X KLEMMLEISTE	X BORNERA

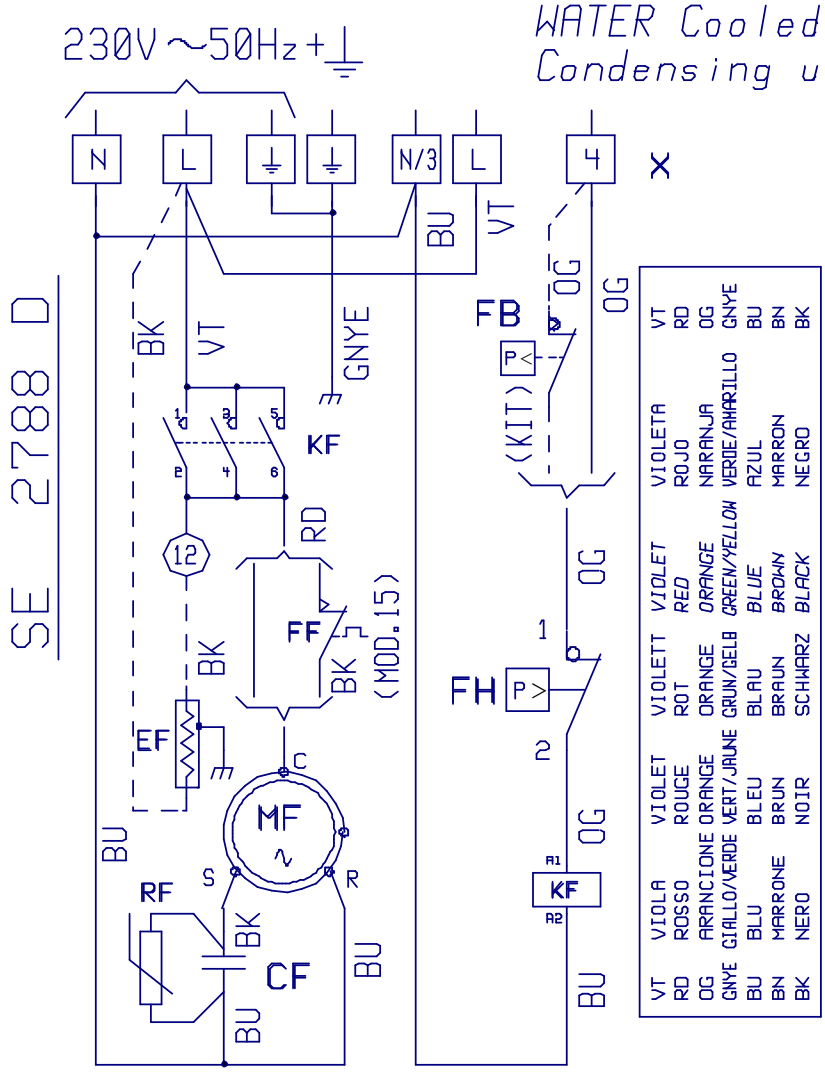
N DE CODE : 398836

SE : 2786

15-18-24-30

GROUPE EXTERIEUR DE CONDENSATION A EAU(GC)

WATER Cooled outdoor Condensing unit (GC)



MF VERDICHTER
KF SCHUTZ
CF KONDENSATOR
FH HOCHDRUCKPRESSOSTAT
FB NIEDERDRUCKPRESSOSTAT
X KLEMMLEISTE
FF AUSSERER WICKLUNGSSCHUTZ
RF ANLAUFWIEDERSTAND (MOD18/24) KIT FUR MOD.30
EF KURBELWANNENHEITZUNG KIT FUR MOD.15

MF COMPRESSORE
KF TELERUTTORE
CF CONDENSATORE
FH PRESOS. DI ALTA PRESS.
FB PRESOS. DI BASSA PRES.
X MORSETTIERA
FF SICUREZZA ESTERNA
RF RISCALDATORE ELETTRICO (MOD18/24) KIT SUI MOD.30
EF ELETTRORISCALDATTORE DEL CARTE KIT SUI MOD.15

MF COMPRESSEUR
KF CONTACTEUR
CF CONDENSATEUR
FH PRESSOS. HAUTE PRES.
FB PRESSOS. BASSE PRES.
X BORNIER LIAISON
FF SECURITE EXTERNE
RF RESISTANCE DE DEMARRAGE (MOD18/24) KIT SUR MOD.30
EF RESISTANCE DE CARTER KIT SUR MOD.15

MF COMPRESSOR
KF CONTACTOR
CF CAPACITOR
FH HIGH PRES. PRESSOSTAT
FB LOW PRES.PRESSOSTAT
X TERMINAL STRIP
FF EXTERNAL SAFETY
RF STARTING RESISTOR (MOD18/24) KIT ON MOD.30
EF CRANCKASE HEATER KIT ON MOD.15

MF COMPRESOR
KF CONTACTOR
CF CONDENSADOR
FH PRESOS. ALTA PRES.
FB PRESOS. BAJA PRES.
X BORNERA
FF SECURIDAD EXTERNA
RF RESISTANCIA DE ARRANQUE (MOD18/24) KIT CON MOD.30
EF RESISTANCIA DE CARTER KIT CON MOD.15

N DE CODE: 398838

GROUPE EXTERIEUR DE CONDENSATION A EAU (GC)

Water cooled outdoor condensing unit (GC)

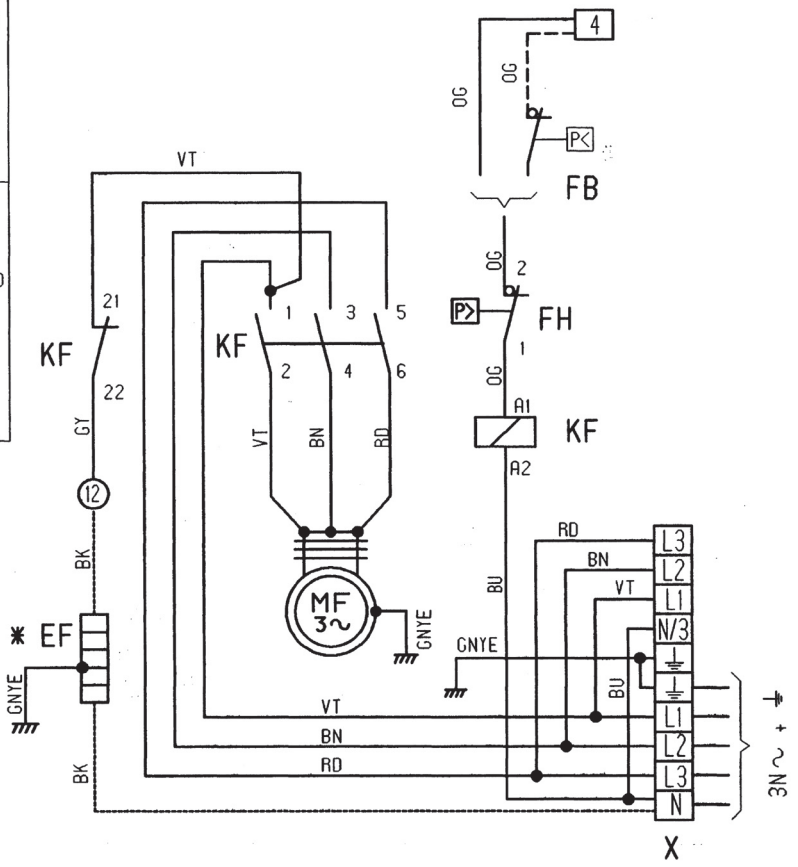
WASSERGEKÜHLTE AUSSENEINHEIT (GC)

GRUPO EXTERIOR DE CONDENSACION A AGUA (GC)

18-24-30	
3 ~	50 Hz

GN	VERT	*GREEN*
BK	NOIR	*BLACK*
OG	ORANGE	*ORANGE*
GNYE	VERT/JAUNE	*GREEN/YELLOW*
BN	MARRON	*BROWN*
WH	BLANC	*WHITE*
RD	ROUGE	*RED*
BU	BLEU	*BLUE*
GY	GRIS	*GREY*
VT	VIOLET	*VIOLET*

GN	GRÜN	VERDE
BK	SCHWARZ	NEGRO
OG	ORANGE	NARANJA
GNYE	GRÜN/GELB	VERDE/AMARILLO
BN	BRAUN	MARRÓN
WH	WEISS	BLANCO
RD	ROT	ROJO
BL	BLAU	AZUL
GY	GRAU	GRIS
VT	VIOLETT	VIOLETA



MF COMPRESSEUR
* EF RESISTANCE DE CARTER
KIT SUR MODELE 18/24
KF CONTACTEUR
FH PRESSOSTAT HP
FB PRESSOSTAT BP (KIT)
X BORNIER

MF COMPRESSOR
** EF CRANKCASE HEATER*
KIT FOR MODEL 18/24
KF CONTACTOR
FH HIGH PRESSURE CONTROLLER
FB LOW PRESSURE CONTROLLER (KIT)
X TERMINAL STRIP

MF VERDICHTER
* EF KURBELWANNENHEIZUNG
KIT FUR MODELL 18/24
KF SCHÜTZ
FH HOCHDRUCKPRESSOSTAT
FB NIEDERDRUCKPRESSOSTAT (KIT)
X KLEMMLEISTE

MF COMPRESOR
* EF RESISTENCIA DE CÁRTER
KIT CON MODELO 18/24
KF CONTACTOR
FH PRESOSTATO ALTA PRESION
FB PRESOSTATO BAJA PRESION (KIT)
X BORNERA

N DE CODE : 398839

SE : 2789 A

ELECTRICAL CONNECTIONS
RACCORDEMENTS ÉLECTRIQUES
ELEKTRISCHE ANSCHLÜSSE
CONEXIONES ELÉCTRICAS
COLLEGAMENTI ELETTRICI

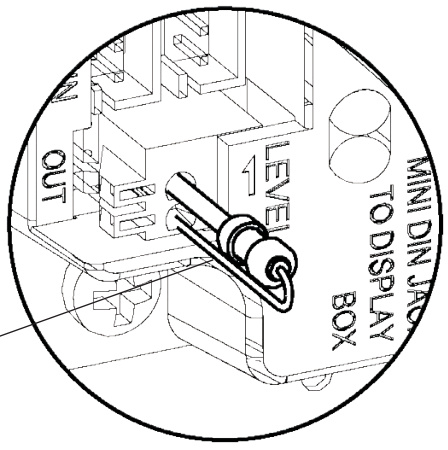
The water-cooled condenser units (**UCA**) are COOLING ONLY units. Therefore, the sensor wire must be replaced by the 4.7 kÙ resistance on the indoor unit.

Le Groupe de Condensation à eau (**UCA**) sont des appareils FROID SEUL, il est donc indispensable de remplacer le fil de sonde par la résistance de 4,7 kΩ sur l'unité intérieure.

Bei der wassergekühlten Verflüssigereinheit (**UCA**) handelt es sich um Standardgeräte (NUR KÜHLUNG); daher muss der Messfühlerdraht durch den Widerstand 4,7 kΩ an der Inneneinheit ersetzt werden.

Il Gruppo di Condensazione ad acqua (**UCA**) è un apparecchio SOLO RAFFREDDAMENTO. Occorre pertanto sostituire il filo di sonda con la resistenza da 4,7 kΩ montata sull'unità interna.

La Unidad Condensadora de agua (**UCA**) es un aparato SÓLO FRÍO. Por tanto, es indispensable cambiar el hilo de sonda por la resistencia de 4,7 kΩ en la unidad interior.



4,7 KΩ resistance

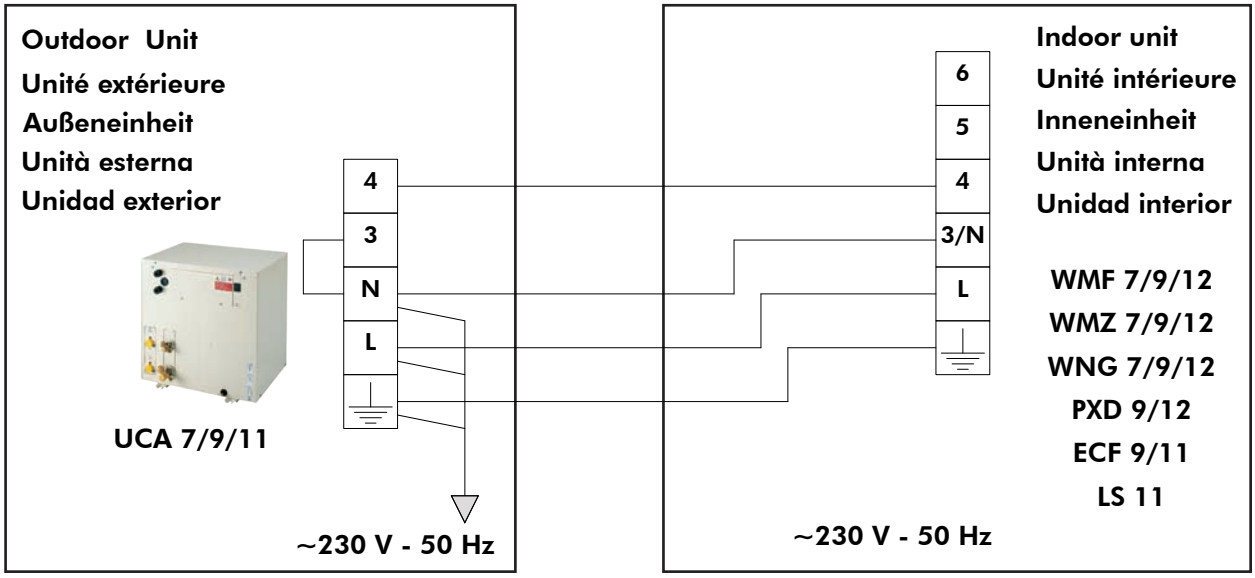
Résistance 4,7KΩ

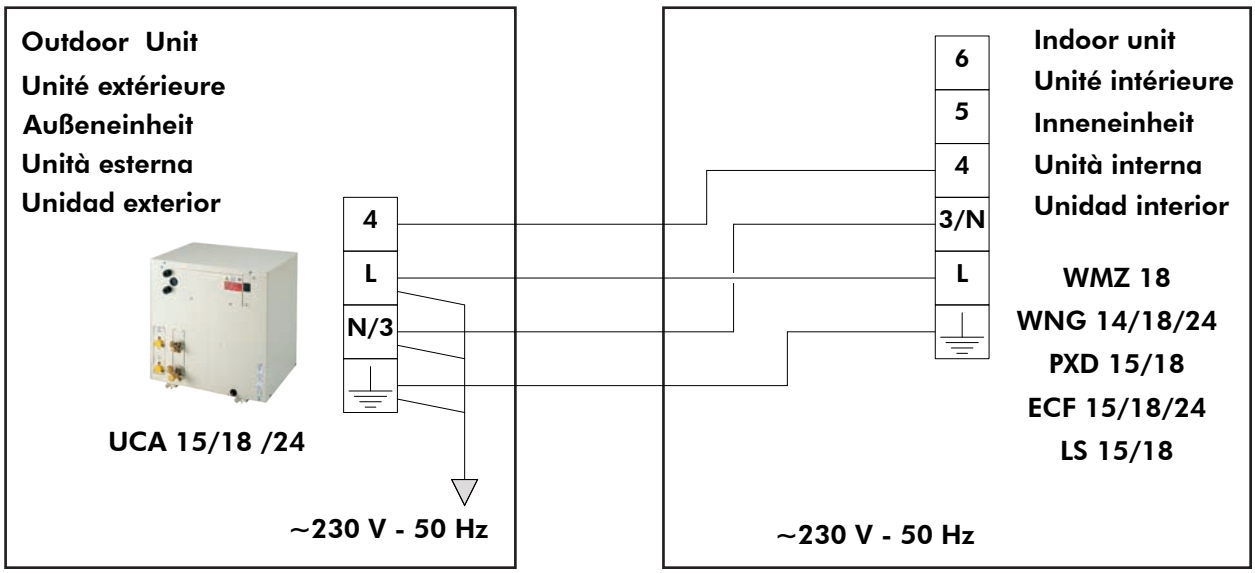
Widerstand 4,7KΩ

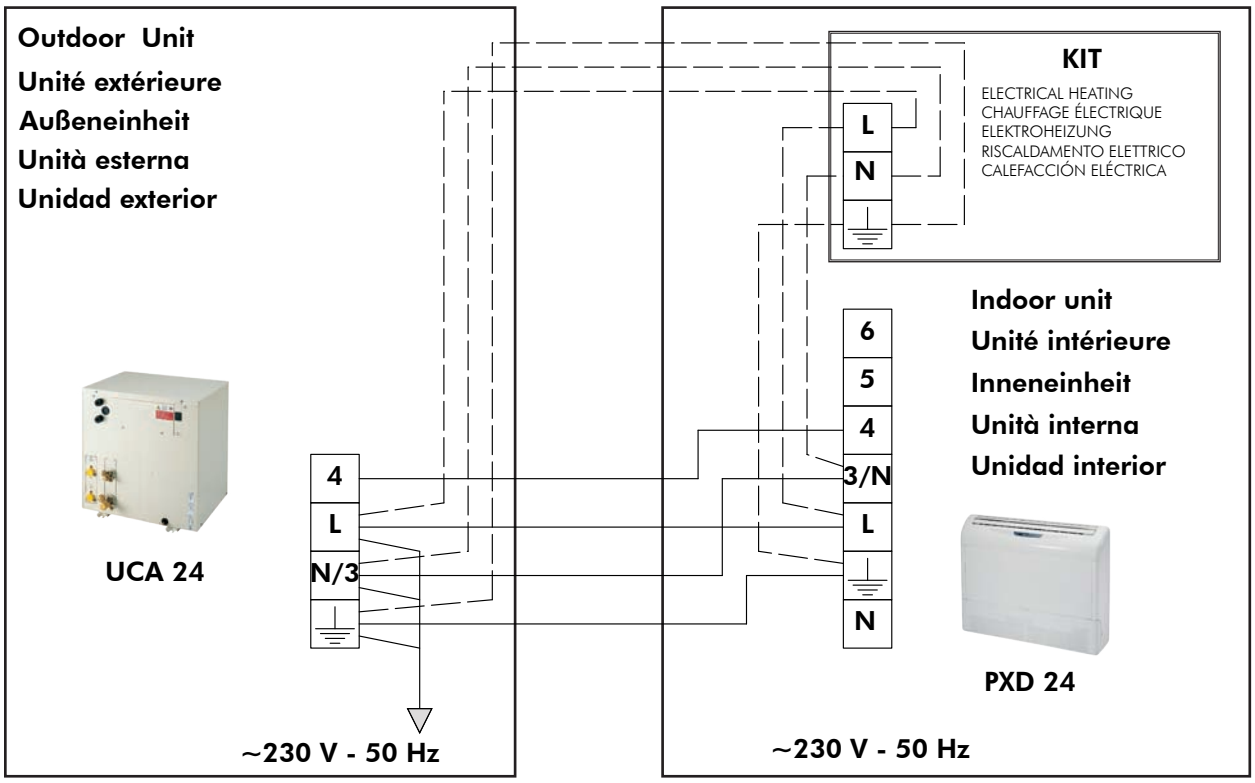
Résistanza 4,7KΩ

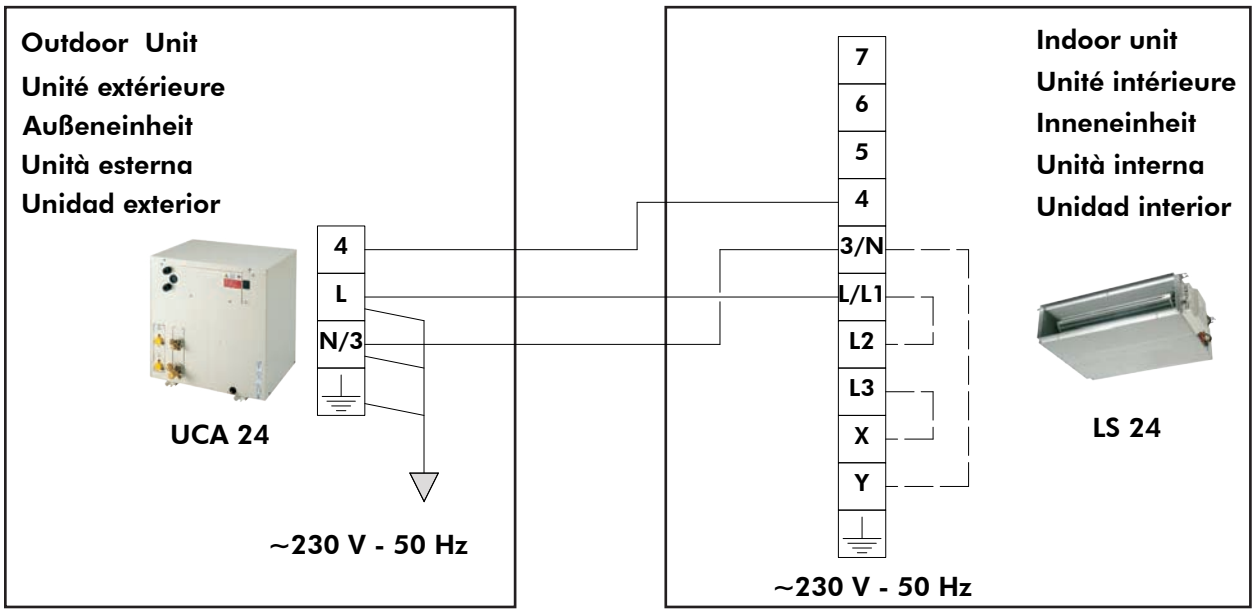
Résistancia 4,7KΩ

SINGLE-PHASE MODELS
MODÈLES MONOPHASÉS
WECHSELSTROMODELLE
MODELLI MONOFASE
MODELOS MONOFÁSICOS









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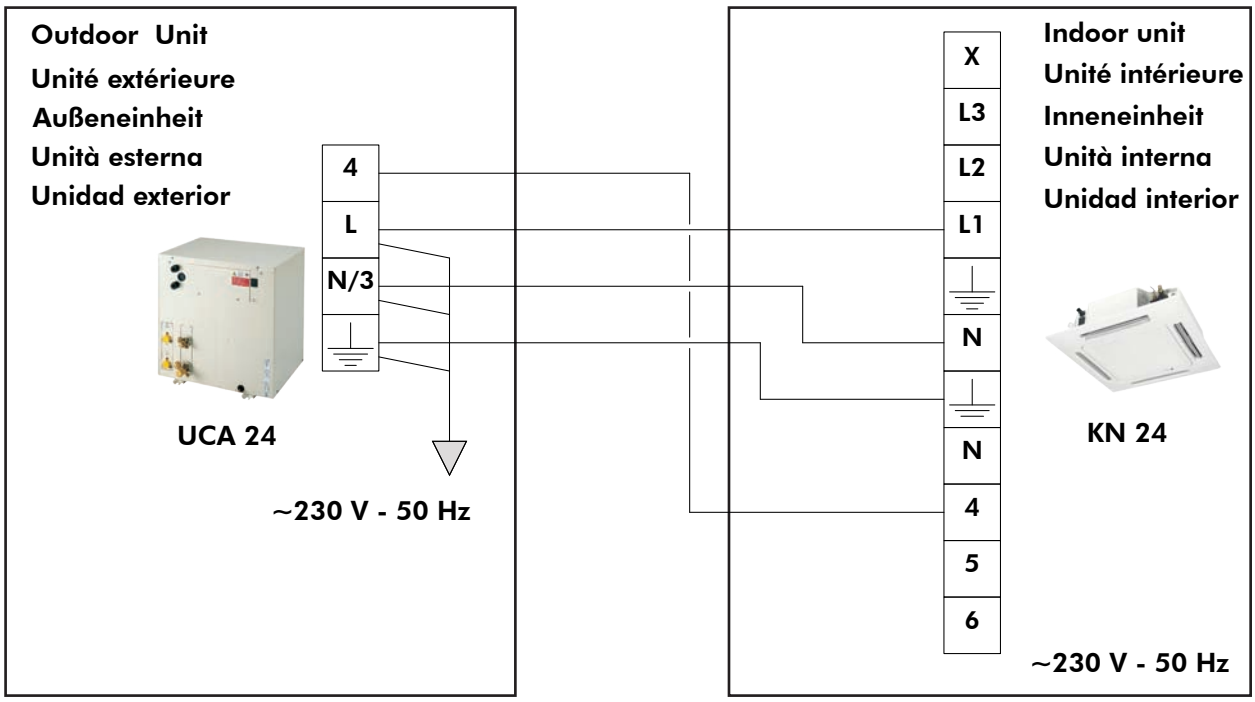
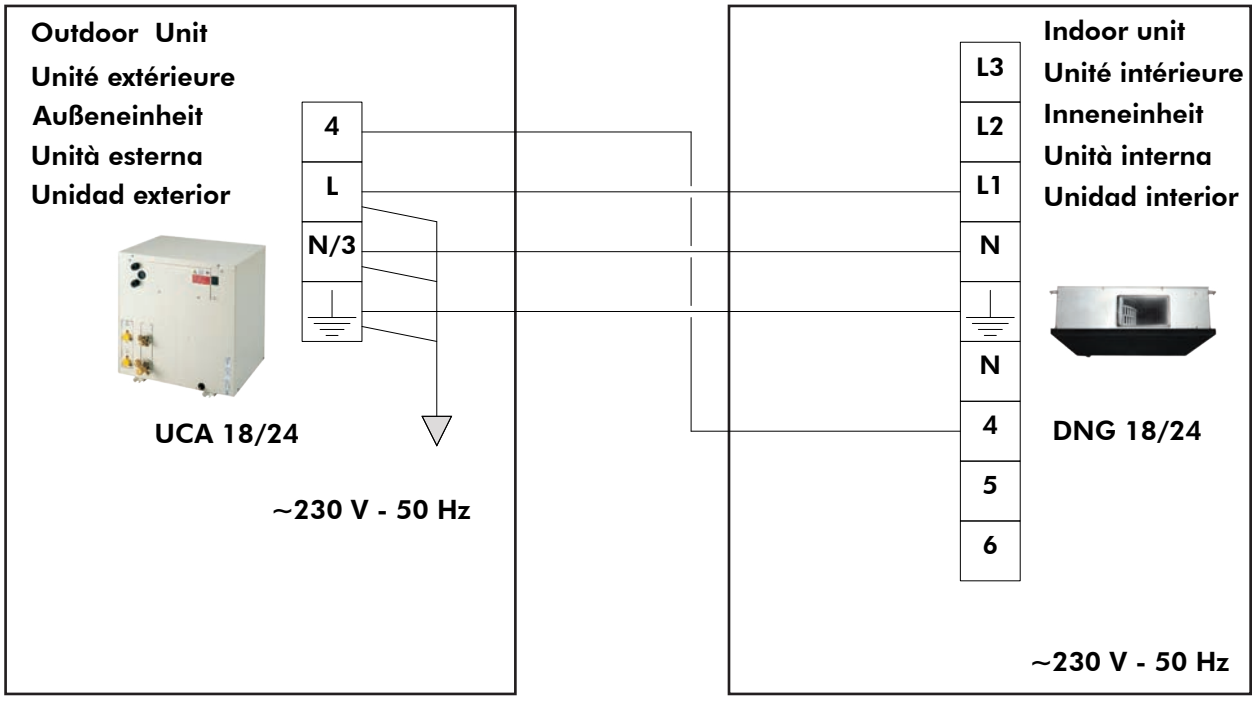
Additional wiring to be connected for indoor unit **WITH** ELECTRICAL HEATING

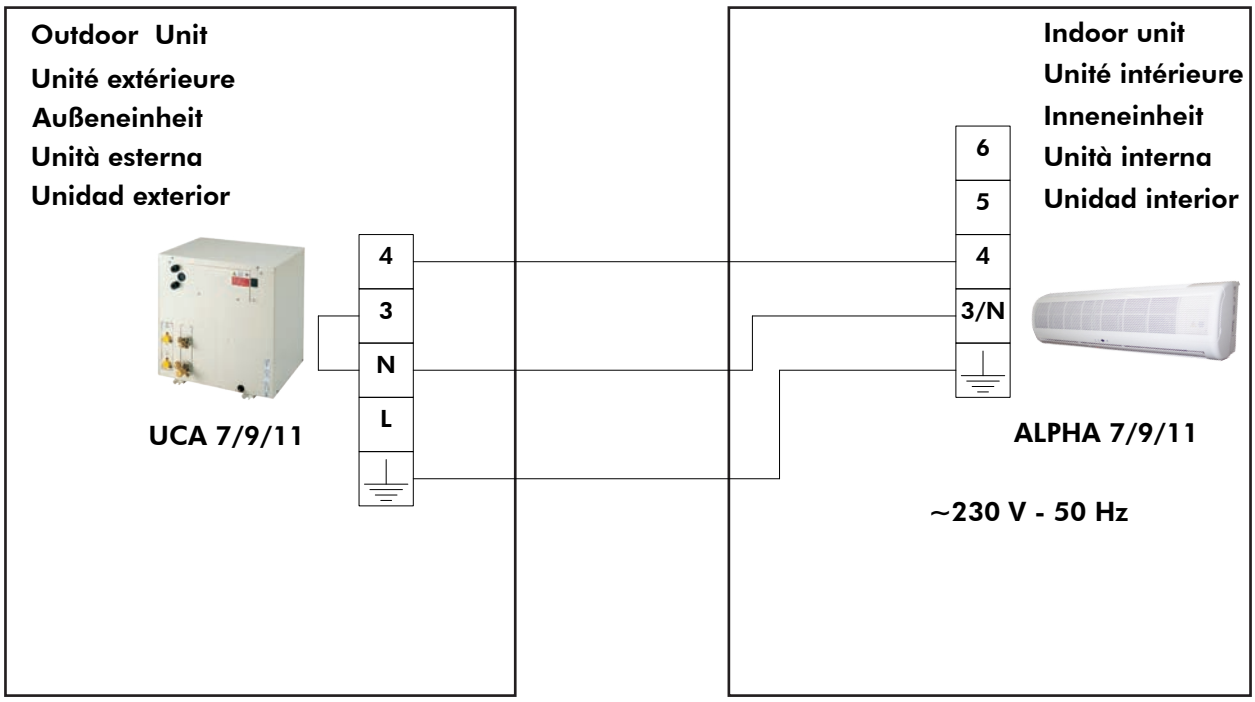
Câblage supplémentaire à réaliser dans le cas de l'unité intérieure **AVEC** CHAUFFAGE ÉLECTRIQUE

Zusätzliche Verdrahtung bei Inneneinheit **MIT** ELEKTROHEIZUNG herzustellen.

Cablaggio supplementare da eseguirsi in caso di unità interna **CON** RISCALDAMENTO ELETTRICO
Cableado suplementario en caso de unidad interior **CON** CALEFACCIÓN ELÉCTRICA


Outdoor Unit
Unité extérieure
Außeneinheit
Unità esterna
Unidad exterior
4
L
N/3
UCA 24
~230 V - 50 Hz
X
L3
L2
L1
N
N
4
5
6
Indoor unit
Unité intérieure
Inneneinheit
Unità interna
Unidad interior
KN 24
~230 V - 50 Hz


Outdoor Unit
Unité extérieure
Außeneinheit
Unità esterna
Unidad exterior
4
L
N/3
UCA 18/24
~230 V - 50 Hz
L3
L2
L1
N
N
4
5
6
Indoor unit
Unité intérieure
Inneneinheit
Unità interna
Unidad interior
DNG 18/24
~230 V - 50 Hz



POWER SUPPLY BY THE INDOOR UNIT

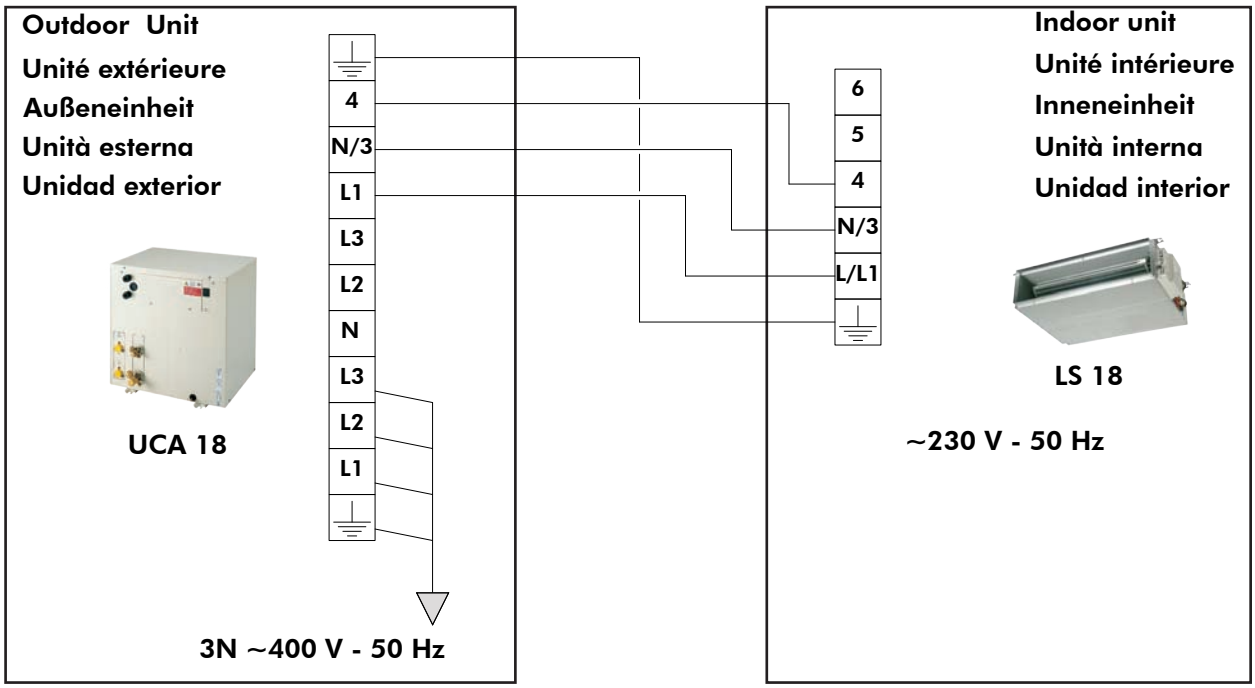
ALIMENTATION ELECTRIQUE PAR L'UNITE INTERIEURE

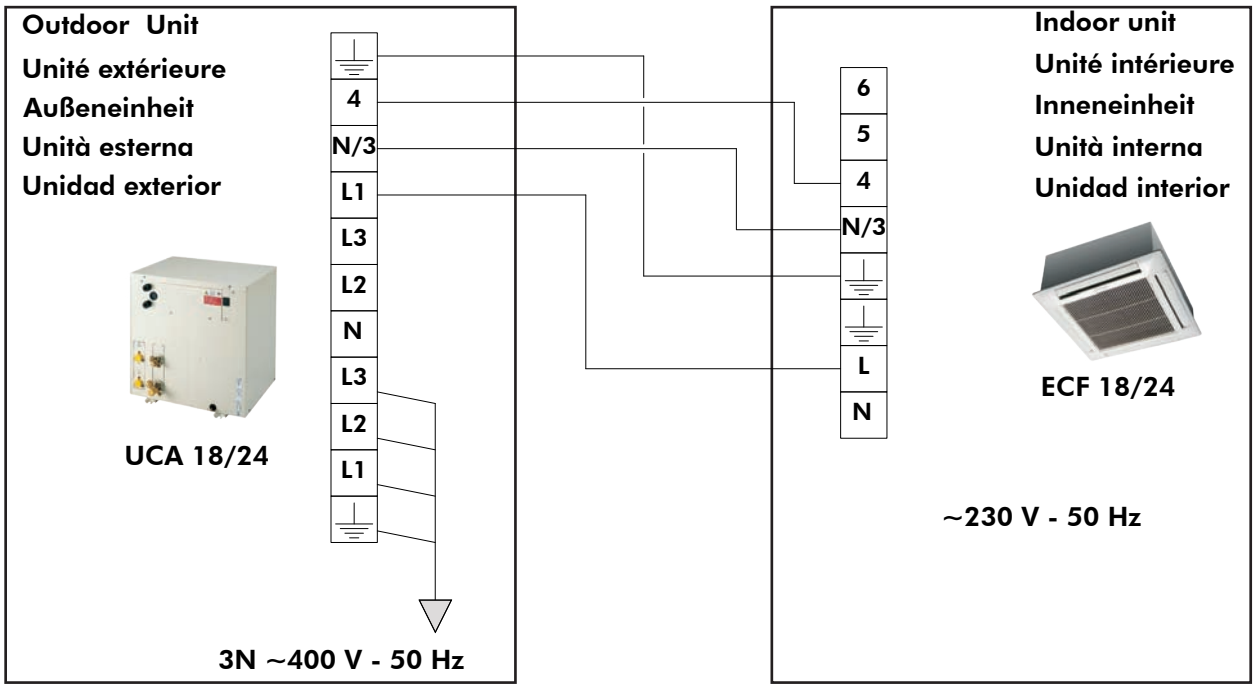
VERSORGUNG MIT STROM DURCH DIE INNERE EINHEIT

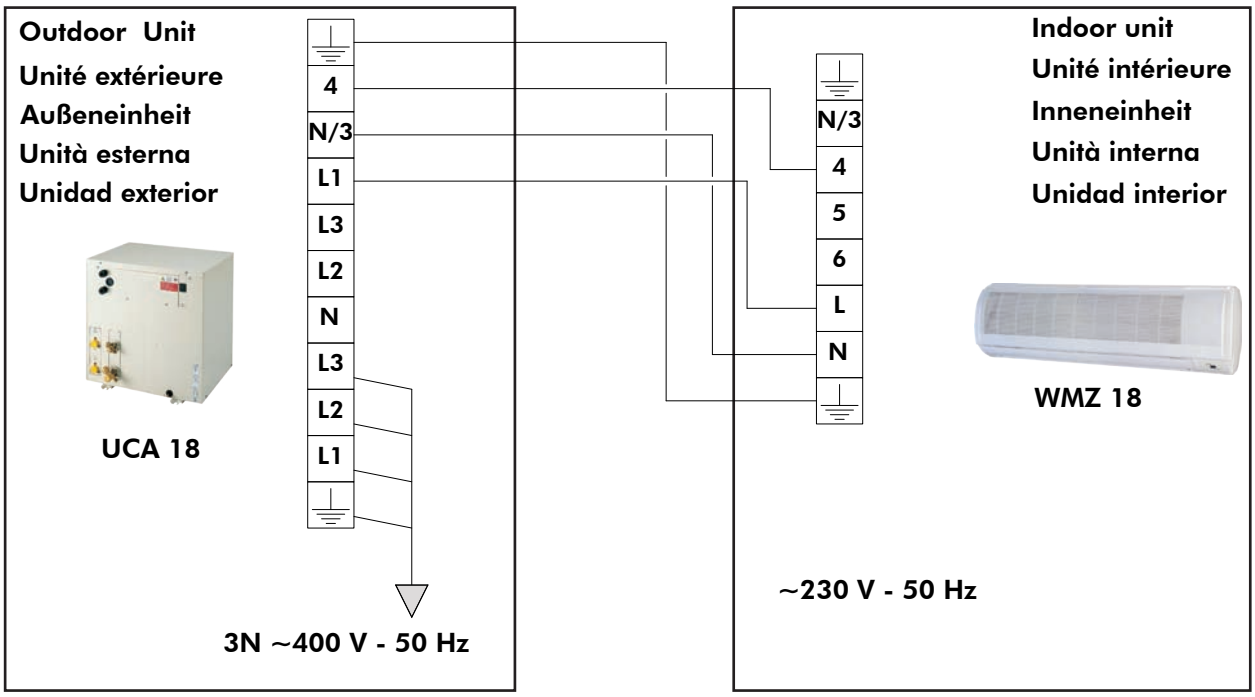
GRUPPO DI ALIMENTAZIONE DALL'UNITÀ DELL'INTERNO

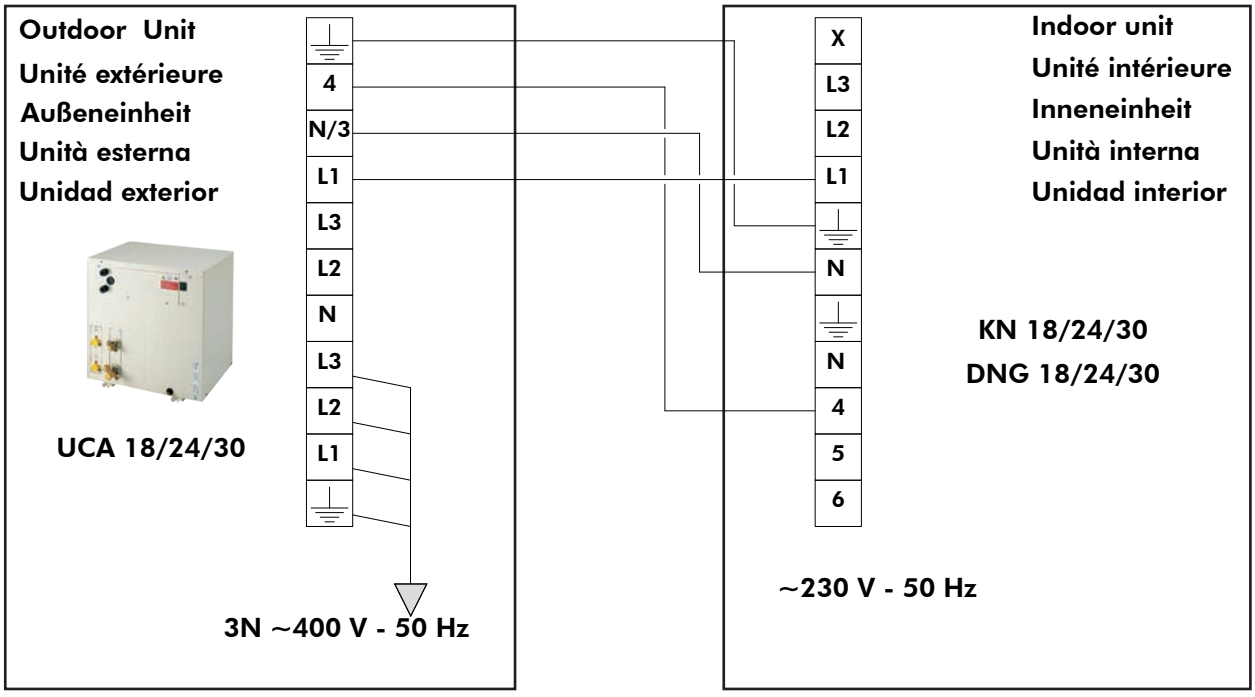
FUENTE DE ALIMENTACIÓN POR LA UNIDAD DE INTERIOR

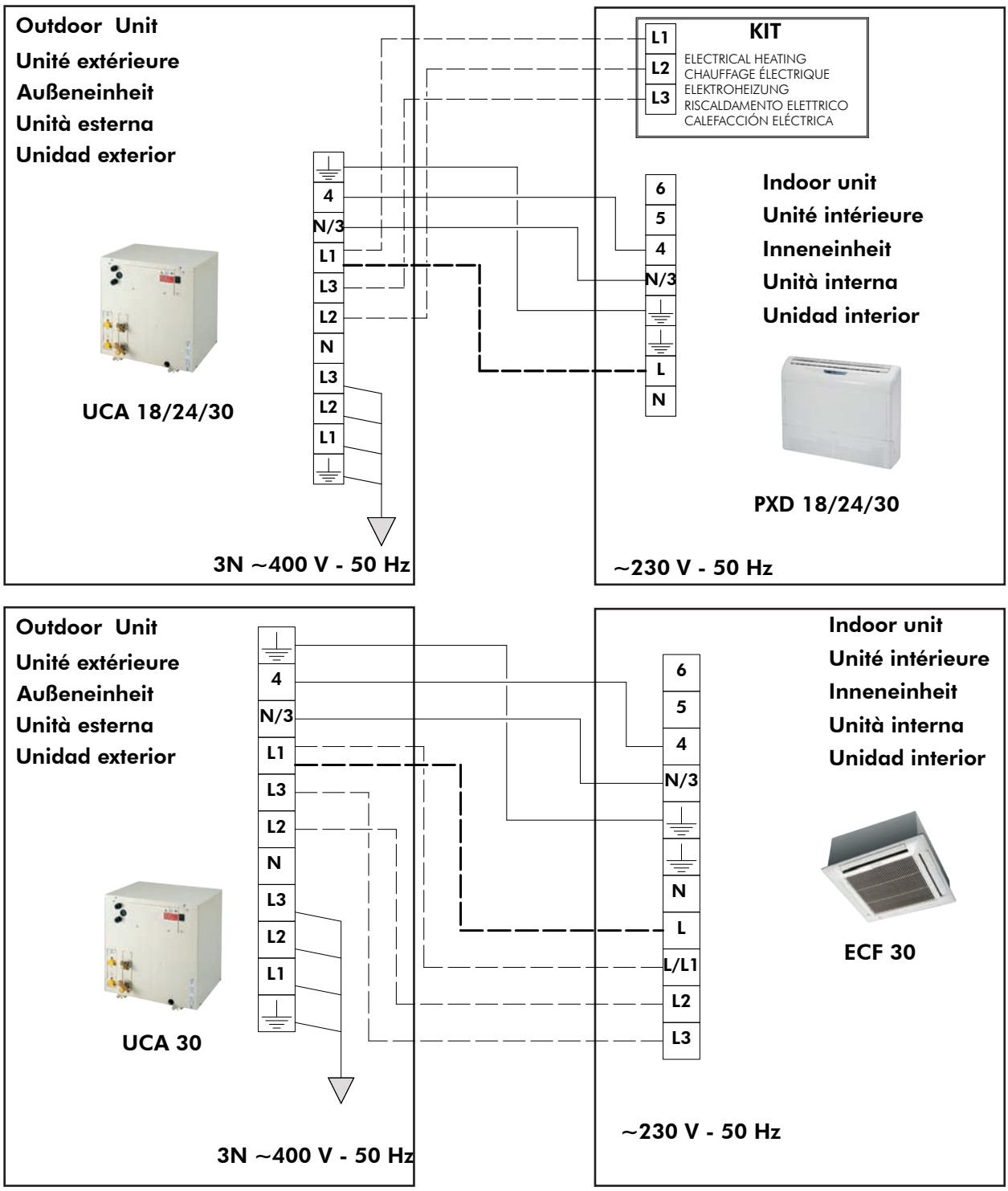
THREE-PHASE MODELS
MODÈLES TRIPHASÉS
DREHSTROMMODELLE
MODELLI TRIFASE
MODELOS TRIFÁSICOS






Outdoor Unit
Unité extérieure
Außeneinheit
Unità esterna
Unidad exterior
4
N/3
L1
L3
L2
N
L3
L2
L1
UCA 18
3N ~400 V - 50 Hz
Indoor unit
Unité intérieure
Inneneinheit
Unità interna
Unidad interior
N/3
4
5
6
L
N
WMZ 18
~230 V - 50 Hz


Outdoor Unit
Unité extérieure
Außeneinheit
Unità esterna
Unidad exterior
4
N/3
L1
L3
L2
N
L3
L2
L1
UCA 18/24/30
3N ~400 V - 50 Hz
Indoor unit
Unité intérieure
Inneneinheit
Unità interna
Unidad interior
X
L3
L2
L1
N
N
4
5
6
KN 18/24/30
DNG 18/24/30
~230 V - 50 Hz



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Additional wiring to be connected for indoor unit **WITH** ELECTRICAL HEATING

Câblage supplémentaire à réaliser dans le cas de l'unité intérieure **AVEC** CHAUFFAGE ÉLECTRIQUE

Zusätzliche Verdrahtung bei Inneneinheit **MIT** ELEKTROHEIZUNG herzustellen.

Cablaggio supplementare da eseguirsi in caso di unità interna **CON** RISCALDAMENTO ELETTRICO

Cableado suplementario en caso de unidad interior **CON** CALEFACCIÓN ELÉCTRICA

— — — — — — —

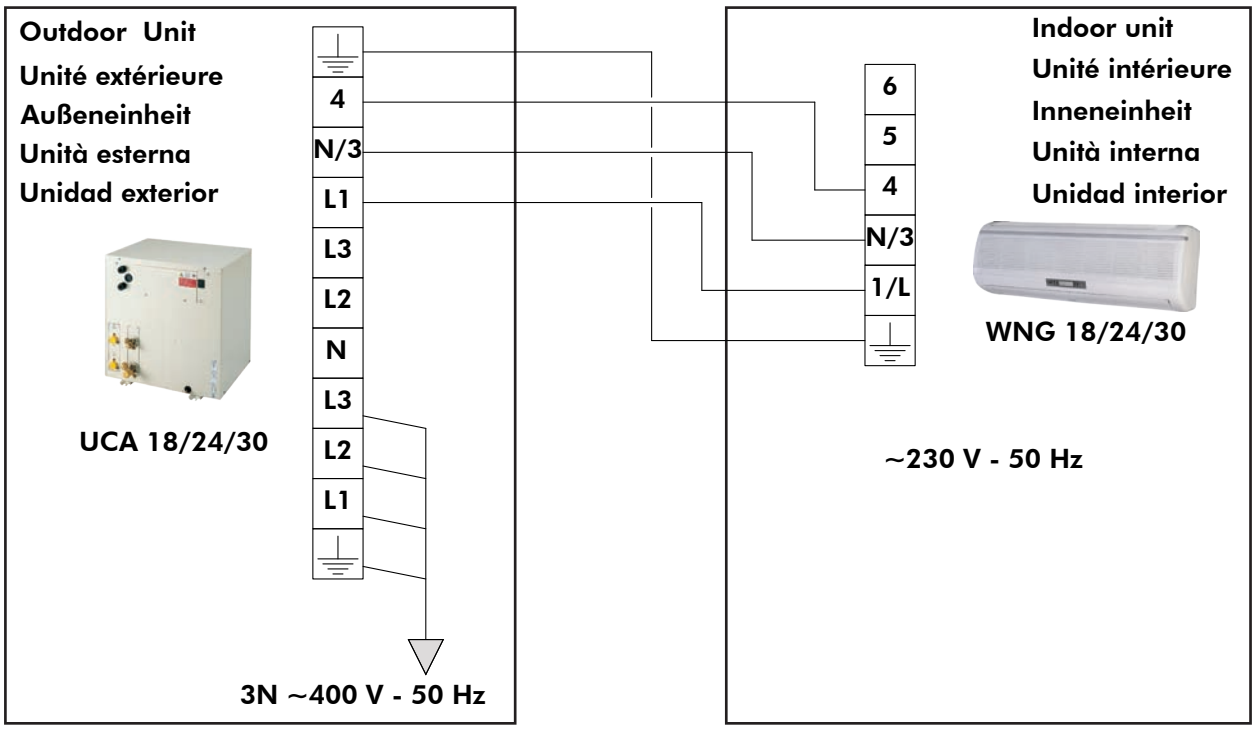
Additional wiring to be connected for indoor unit **WITHOUT** ELECTRICAL HEATING

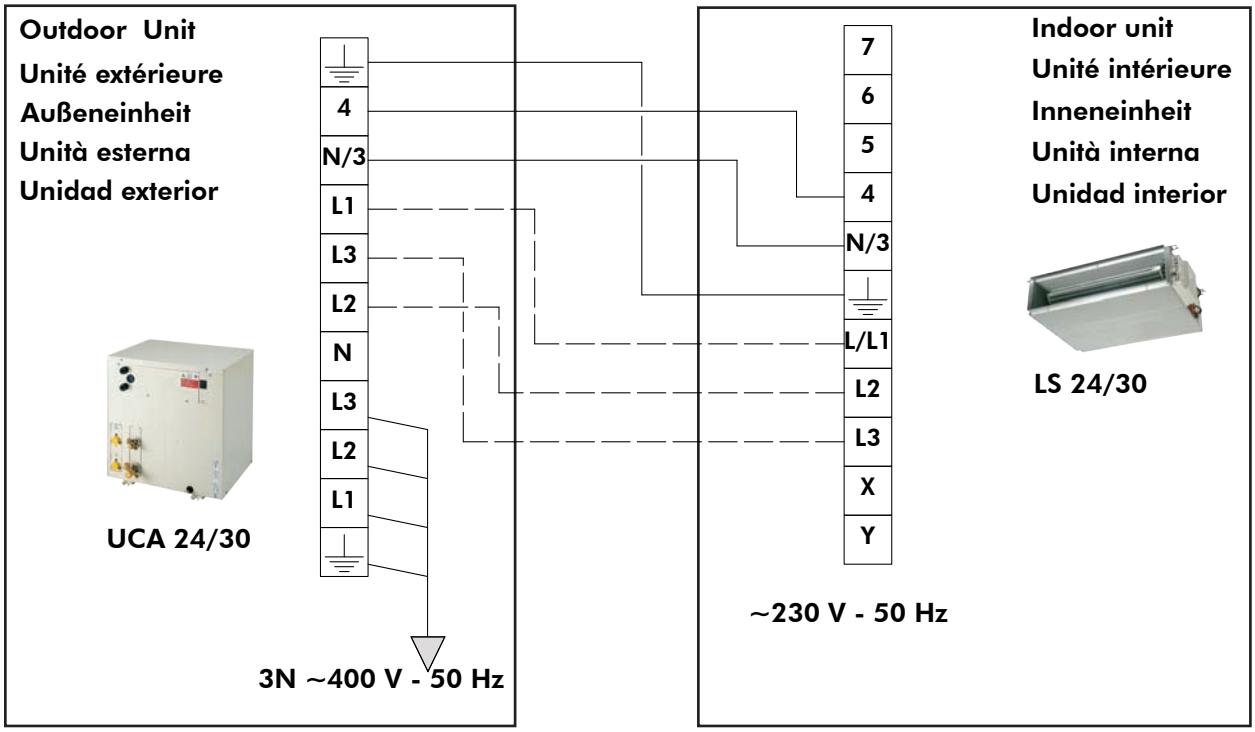
Câblage supplémentaire à réaliser dans le cas de l'unité intérieure **SANS** CHAUFFAGE ÉLECTRIQUE

Zusätzliche Verdrahtung bei Inneneinheit **OHNE** ELEKTROHEIZUNG herzustellen.

Cablaggio supplementare da eseguirsi in caso di unità interna **SENZA** RISCALDAMENTO ELETTRICO

Cableado suplementario en caso de unidad interior **SIN** CALEFACCIÓN ELÉCTRICA





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Additional wiring to be connected for indoor unit **WITH** ELECTRICAL HEATING

Câblage supplémentaire à réaliser dans le cas de l'unité intérieure **AVEC** CHAUFFAGE ÉLECTRIQUE

Zusätzliche Verdrahtung bei Inneneinheit **MIT** ELEKTROHEIZUNG herzustellen.

Cablaggio supplementare da eseguirsi in caso di unità interna **CON** RISCALDAMENTO ELETTRICO

Cableado suplementario en caso de unidad interior **CON** CALEFACCIÓN ELÉCTRICA

EC Compliance declaration

Under our own responsibility, we declare that the product designated in this manual comply with the provisions of the EEC directives listed hereafter and with the national legislation into which these directives have been transposed.

Déclaration CE de conformité

Nous déclarons sous notre responsabilité que les produits désignés dans la présente notice sont conformes aux dispositions des directives CEE énoncées ci- après et aux législations nationales les transposant.

EG-Konformitätserklärung

Wir erklarën in eigener Verantwortung, das die in der vorliegenden Beschreibung angegebenen Produkte den Bestimungen der nachstehend erwähnten EG-Richtlinien und den nationalen Gesetzesvorschriffen entsprechen, in denen diese Richtinien umgesetz sind.

Dichiarazione CE di conformità

Dichiariamo, assurmendone la responsasabilità, che i prodotti descritti nel presente manuale sono conformi alle disposizioni delle direttive CEE di cui sott e alle lagislazionni nazionali che li recepiscono

Declaración CE de conformidad

Declaramos, bajo nuestra responsabilidad, que los productos designados en este manual son conformes a las disposiciones de las directivas CEE enunuciadas a continuacion, asi como a las legislaciones nacionales que las contemplan.

UCA 7S - 9S - 11S - 15S - 18S - 24S - 30TS
REF: 7SP10

MACHINERY DIRECTIVE 98 / 37 / EEC
LOW VOLTAGE DIRECTIVE (DBT) 73 / 23 / CEE AMENDED BY DIRECTIVE 93 / 68 EEC
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 89 / 336 / EEC
PRESSURISE EQUIPMENT DIRECTIVE (DESP) 97 / 23 / EEC
MODULE A CATEGORY I

DIRECTIVE MACHINES 98 / 37 C.E.E.
DIRECTIVE BASSE TENSION (DBT) 73 /23 C.E.E. , AMENDEE PAR DIRECTIVE 93 / 68 C.E.E.
DIRECTIVE COMPATIBILITE ELECTROMAGNETIQUE 89 / 336 / C.E.E.
DIRECTIVE DES EQUIPEMENTS SOUS PRESSION (DESP) 97 / 23 C.E.E.
MODULE A CATEGORIE I

RICHTLINIE MASCHINEN 98 / 37 / EG
RICHTLINIE NIERDERSPANNUNG (DBT) 73 / 23 / EG ABGEÄNDERT DURCH DIE RICHTLINIE 93 / 68 EG
RICHTLINIE ELEKTROMAGNETISHE VERTRÄGLICHKEIT 89 / 336 / EG
RICHTLINIE FÜR AUSRÜSTUNGEN UNTER DRUCK (DESP) 97 / 23 / EG
MODUL A, KATEGORIE I

DIRETTIVA MACHINE 98 / 37 / CEE
DIRETTIVA BASSA TENSIONE (DBT) 73 / 23 / CEE EMENDATA DALLA DIRETTIVA 93 / 68 CEE
DIRETTIVA COMPATIBILITA ELETTROMAGNATICA 89 / 336 / CEE
DIRETTIVA DEGLI IMPIANTI SOTTO PRESSIONE (DESP) 97 / 23 / CEE
MODULO A, CATEGORIA I

DIRECTIVA MAQUIAS 98 / 37 / CEE
DIRECTIVA BAJA TENSION (DBT) 73 / 23 / CEE ENMENDATA POR LA DIRECTIVA 93/ 68 CEE
DIRECTIVA COMPATIBILIDAD ELECTROMAGNETICA 89 / 336 / CEE
DIRECTIVA DE LOS EQUIPOS A PRESION (DESP) 97 / 23 / CEE
MODULO A, CATEGORIA I

And that the following paragraphs of the harmonised standards have been applied.
Et que les paragraphes suivants les normes harmonisées ont été appliqués.
Und dass die folgenden Paragraphen der vereinheitlichten Normen Angewandt wurden.
E che sono stati applicati i seguenti paragraphi delle norme armonnizzate.
Y que se han aplicado los siguientes apartados de las normas armonizadas.

EN 60 204-1
EN 61 000-3-2
EN 60 335-1
EN 378
EN 60 335-2-40

A Tillères Sur Avre
27570 - FRANCE
Le: 12/10/2005
Franck Bailly
Quality Manager
ACE Industrie

ELECTRA

With a concern for a constant improvement, our products can be modified without notice. Photos non contractual.

Dans un souci d'amélioration constante, nos produits peuvent être modifiés sans préavis. Photos non contractuelles.

In dem Bemühen um ständige Verbesserung können unsere Erzeugnisse ohne vorherige Ankündigung werden. Fotos nicht vertraglich binden.

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Con objeto de mejorar constantemente, nuestros productos pueden ser modificados sin previo aviso. Fotos no contractuales.