

Indoor units: **Wall-mounted: UME 20/25/35/50 – Ductable: UGE 25/35/50 –  
Consoles: UCE 25/35/50 – UCARE cassettes 25/35/55**

Outdoor units: **MUSE 40-2/MUSE 50-2/MUSE 60-3/MUSE 80-3/MUSE 100-  
4/MUSE 120-5**



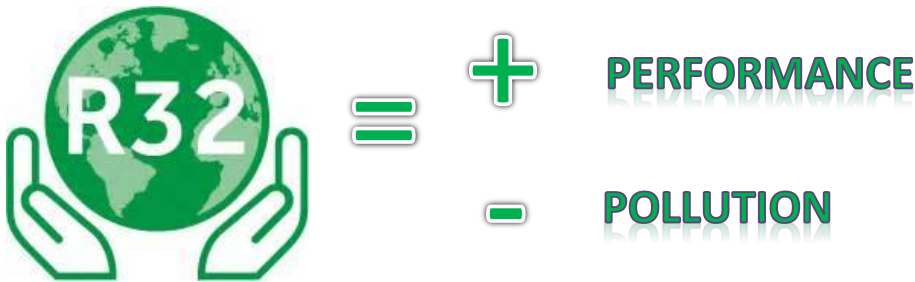
## Installation and service manual

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## What is R32?

R32 = Difluoromethane (Category A2L slightly flammable)



R32 is the main alternative to F-gas. This fluid is interesting in that its GWP (Global Warming Potential) is just 675 T CO2 eq.

- It has no effect on the ozone layer.
- 5 to 10 % better performing than R410A.
- Less fluid required for identical power output (20 to 30 % less fluid compared to R410A).
- A completely pure fluid which is easier to recycle.
- A GWP of just 675 T CO2 eq.

R32 only has a flammability risk if the three conditions below are met:

### **Refrigerant leak + oxygen + combustion source**

If the concentration level in the room remains below the lower flammable limit as per EN378 :2017.

Consequently, the installer must ensure the minimum surface areas and volumes in relation to the charge

- Flammable limit by volume:  
**1 m<sup>3</sup> = max. 0.307 kg of R32**
- By volume, the toxicity risk indicates:  
**1 m<sup>3</sup> = max. 0.300 kg of R32**

The sparks generated by the relays or switches on household appliances and static electricity do not produce enough energy to ignite R32.

It is not recommended to start up an air conditioner containing R32 near to a flame.

**Auto combustion is only possible from 648 °C, and there is no risk of explosion.**

Implications for the installer:

- Establishments open to the general public require only fluids in flammability class 1. R32 therefore cannot currently be used in establishments open to the general public (article CH35).
- Traditional dudgeon connections can be used with R32 to connect the indoor unit to the outdoor unit.
- R32 requires different tools to those for traditional R410 installations
  - A pressure gauge with a dedicated R32 scale.
  - An R32 fluid recovery station.
  - An R32 fluid recovery vessel.
  - A leak detector.
- Leak test: The equipment holder has a leak test performed by an operator with a qualification certificate.

- Operators and holders take all necessary measures to perform periodic leak tests, the frequency of which is determined not by the charge expressed in kg but in tonnes CO2 equivalent (T CO2 eq), and therefore by the type of fluid used. The thresholds used are now:

Equipment capacity	Test frequency without detector	Test frequency with detector
<b>Between 5 and 50 tonnes CO2 equivalent</b>	Every year	Every 2 years

	MAx. charge threshold (kg) for a test	GWP of the fluid for 1 kg in T CO2 eq
R32	7.4	675
R-134a	3.5	1430
R-407C	2.8	1770
R-410A	2.4	2088

#### Reducing the amount of HFC fluids available on the market

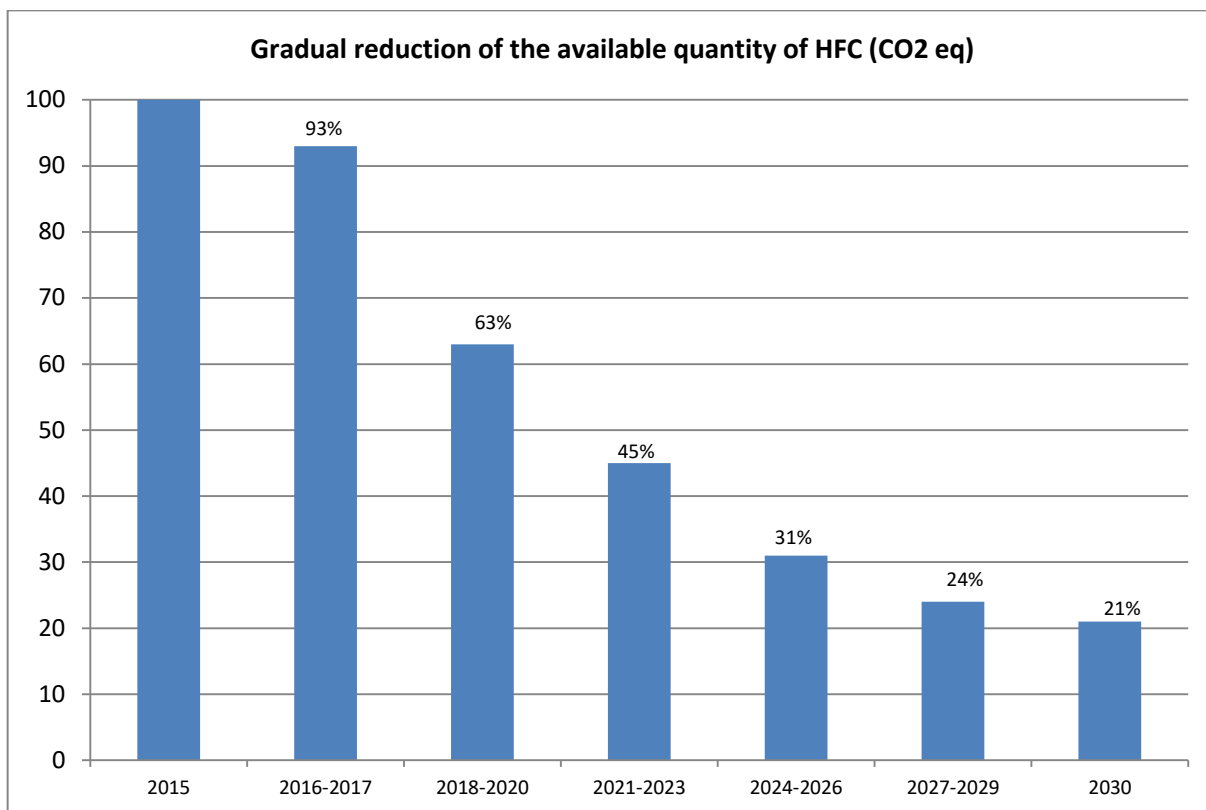
- European regulation 517/2014 governing "F-gas" refrigerant fluids is intended to reduce refrigerant fluids with a high GWP. The GWP is an indicator that reveals a fluid's impact on global warming. This indicator is expressed in CO2 equivalent. The higher the GWP, the greater the effect on global warming. GWP of the main fluids on the market:

Fluid	GWP (for 1 kg of fluid)
R32	675
R-134A	1430
R-407C	1770
R-410A	2088

Example: in global warming terms, 1 kg of R410 is equivalent to 2088 kg of CO2

#### The regulatory context in detail:

- F-gas has caused a gradual reduction in the amount of HFC fluids placed on the market. This gradual reduction began in 2016, with a 7 % drop compared to 2015 (base year). In 2018, the figure is 37 %, which will have an even bigger impact on the HVAC market. Fluids with a high GWP will be the first to be affected (R410A, R407C), hence the urgent need for alternative solutions with fluids that cause less global warming.



The fluids are classified in three flammability groups (EN 378):

- Group 1: non-flammable.
- Group 2: low flammability (fluid concentration > 3.5 % of the room volume).
- Group 3: high flammability (fluid concentration < 3.5 % of the room volume).

Fluid	Flammability class
R410A	1
R134A	1
R407C	1
R32	2
R600a	3
R290	3

Acronym for the indicator:

**GWP:** Global Warming Potential.

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The indicator measures a fluid's impact on global warming.

The GWP values are based on EU regulation no. 517/2014 and the IPCC report.

## Warning

The air conditioner uses **R32**, which is a flammable refrigerant fluid.

- The volume of the room for use or storage must be smaller than **the flammability limit**.
- Do not attempt to accelerate defrosting (e.g. with a thermal stripper).
- Do not look for leaks with a metal-halide lamp.
- The air conditioner must not be placed near to an ignition source (e.g. naked flame, gas appliance, electric heater, etc.)
- Caution: **R32** is odourless.
- The method used to store the air conditioner must be able to prevent damage (paper, cardboard).
- Carry out a safety check before carrying out maintenance or repairs on air conditioners using R32 refrigerant to avoid the risk of incidents.
- Please read the instructions carefully before installing, using or maintaining the air conditioner.

Symbol	Note	Explanation
	Warning	This symbol shows that the appliance uses a flammable refrigerant. If the refrigerant is in contact with an external ignition source, there is a risk of fire.
	Caution	This symbol shows that the user manual should be read carefully.
	Caution	This symbol shows that the equipment must be handled by a technician following the installation manual.
	Caution	This symbol shows that the information is available in the user or installation manual

# Safety instructions

## Danger

This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they are correctly supervised or if they have been given instruction on using the appliance in complete safety and understand the hazards involved. Children must not play with the appliance. Cleaning and user maintenance should not be carried out by children without adult supervision.

## Danger

In the event of a refrigerant fluid leakage:

Switch off the appliance.

Open the windows.

Do not use a naked flame, do not smoke, do not operate electrical contacts.

Avoid contact with the refrigerant fluid (risk of frost burn).

Locate the probable leak and have it sealed immediately by a qualified technician.

## Danger of electrocution

Before carrying out any work, switch off the air conditioner's power supply.

## Caution

The air conditioner must be installed by a qualified professional in accordance with prevailing local and national regulations.

## Warning

Do not touch the refrigerant connection pipes with your bare hands while the air conditioner is running. Danger of burn or frost injury.

## Caution

Only genuine spare parts may be used.

## Warning

Only qualified professionals are permitted to work on the air conditioner.

## Important

Insulate the pipes to reduce heat losses to a minimum.

## Caution

The system must satisfy each point in the technical and normative rules (DTU, EN and others, etc.) that govern works and interventions in individual homes, blocks of flats or other buildings.

## Caution

The air conditioner must be grounded.

Earthing must comply with the prevailing installation standards.

Earth the appliance before making any electrical connections.

Refer to the section entitled Recommended Cable Cross-sections in the installation and service manual for the type and rating of the protection equipment.

## Caution

To avoid risks associated with accidental resetting of the thermal circuit breaker, this appliance must not be powered through an external switch, such as a timer, or be connected to a circuit which is regularly switched on and off by the electricity provider.

## Important

This manual is also available on our website

## Note

Keep the air conditioner accessible at all times.

**Important**

Never remove or cover the labels and data plates affixed to appliances.

Labels and data plates must be legible throughout the entire lifetime of the appliance. Immediately replace damaged or illegible instructions and warning stickers.

**Important**

Remove the casing only to perform maintenance and repair work. Put the casing back in place after maintenance and repair work.

**Important**

Keep this document close to the place where the appliance is installed.

**Caution**

Do not make any modifications to the air conditioner without the written consent of the manufacturer.

**Warning**

In accordance with the NFC C15-100 electrical safety standard, only qualified professionals are permitted access to the inside of the appliance.

**Warning**

Ensure correct earthing.

Install the heat pump on a solid, stable structure able to support its weight.

Do not install the air conditioner in a location with an atmosphere which is very high in salt.

Do not install the air conditioner in a location that could become covered with snow.

**Warning**

Refrigerant fluid

Only use R32 refrigerant fluid to fill the system.

Use tools and pipe components especially designed for use with R32 refrigerant fluid.

Use copper pipes deoxidised with phosphorus to carry the refrigerant fluid.

Use beading to guarantee the tightness of the connections.

Store the refrigerant connection pipes away from dust and humidity (risk of damage to the compressor).

Cover both ends of the pipes until the beading process.

Do not use a load cylinder.



## Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various applicable directives. Products are delivered with the CE marking and all the necessary documents. Quality is always our primary focus, and we constantly strive to improve our products. We therefore reserve the right to change the specifications mentioned in this document.

As the manufacturer, we cannot be held liable in the following cases:

Failure to observe the installation instructions for the appliance.

Failure to observe the appliance instructions.

Overdue or inadequate maintenance of the appliance.

## Installer's liability

The installer is liable for the installation and initial commissioning of the appliance. The installer must follow the instructions below:

Read and follow the instructions given in the manuals provided with the appliance.

Install the appliance in compliance with the applicable legislation and standards.

Perform initial commissioning and all necessary checks.

Explain the installation to the user.

If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order.

Hand over all manuals to the user.

## R32 refrigerant fluid

Emergency number: INRS/ORFILA poison control centre +330145425959

Effects harmful to health:

The vapours are heavier than air and may lead to asphyxia owing to reduced oxygen levels.


Liquefied gas: contact with the liquid may cause serious frost burn and eye injuries.

Flammability risk as per the concentration in air.

R32 (difluoromethane CH<sub>2</sub>F<sub>2</sub>) is a methane molecule that has 2 chlorine atoms in place of 2 hydrogen atoms.

Because it is used PURE and not mixed with other substances, R32 also has the advantage of not breaking down in the refrigerant circuit, which can cause a loss of efficiency.

Name	Proportion	CE number	CAS number
Difluoromethane R32	100%	200-839-4	75-10-5

First aid	<p>If inhaled:</p> <ul style="list-style-type: none"> <li>-Remove the subject from the contaminated area and to fresh air.</li> <li>-In case of sickness: contact a doctor.</li> </ul> <p>In case of skin contact:</p> <ul style="list-style-type: none"> <li>-Treat frost burn like an ordinary burn. Rinse with plenty of warm water, do not remove clothing (risk of sticking to the skin).</li> <li>-If burns occur, contact a doctor immediately.</li> </ul> <p>In case of contact with the eyes:</p> <ul style="list-style-type: none"> <li>-Rinse with water immediately, holding the eyelids apart (at least 15 minutes).</li> <li>-Consult an ophthalmologist immediately.</li> </ul>
Fire prevention measures	<ul style="list-style-type: none"> <li>-Suitable extinguishing agents: all extinguishing agents can be used.</li> <li>-Unsuitable extinguishing agents: none known. In the event of fire nearby, use the appropriate extinguishing agents.</li> <li>-Pressure elevation: in the presence of air, a flammable mixture may form under certain temperature and pressure conditions.</li> <li>-Effect of heat: release of toxic and corrosive vapours.</li> <li>-Special intervention methods: cool the volumes exposed to heat with water spray.</li> <li>-firefighter protection: <ul style="list-style-type: none"> <li>-Full self-contained breathing apparatus.</li> <li>-Full body protection.</li> </ul> </li> </ul>
In case of accidental dispersal	<p>Individual precautions:</p> <ul style="list-style-type: none"> <li>-Avoid contact with eyes and skin.</li> <li>-Do not intervene without suitable protective equipment.</li> <li>-Do not breathe vapour.</li> <li>-Evacuate the danger zone.</li> <li>-Stop the leak.</li> <li>-Eliminate all ignition sources.</li> <li>-Mechanically ventilate the spillage zone.</li> </ul> <p>Cleaning/decontamination: allow any residual product to evaporate.</p> <p>In case of eye contact: rinse with water immediately, holding the eyelids apart (at least 15 minutes).</p> <p>Consult an ophthalmologist immediately.</p>
Handling	<ul style="list-style-type: none"> <li>-Technical measures: ventilation</li> <li>-Precautions to be taken</li> <li>-No smoking.</li> <li>-Prevent the build-up of electrostatic charges.</li> <li>-Work in a well ventilated place.</li> </ul>
Personal protection	<ul style="list-style-type: none"> <li>-Respiratory protection: <ul style="list-style-type: none"> <li>-If ventilation is insufficient: AX type cartridge mask.</li> <li>-In confined spaces: self-contained breathing apparatus.</li> </ul> </li> <li>-Hand protection: protective gloves in leather or nitrile rubber.</li> <li>-Skin protection: clothing made mostly of cotton.</li> <li>-Industrial hygiene: do not drink, eat or smoke in the workplace.</li> </ul>
Disposal recommendations	<p style="text-align: center;"> Important</p> <p style="text-align: center;">Disposal must comply with applicable local and national regulations.</p> <ul style="list-style-type: none"> <li>-Product waste: consult the manufacturer or the supplier for information on recovery or recycling.</li> <li>-Soiled packaging: reuse after decontamination. Destroy in authorised installations.</li> </ul>
Regulations	<ul style="list-style-type: none"> <li>-Regulation (EU) no. 517/2014 of the European Parliament and of the Council of 16th April 2014 on fluorinated greenhouse gases and repealing regulation (EC) no. 842/2006.</li> <li>-Installations Classified for Environmental Protection (ICPE) France no. 1185.</li> </ul>

**Standards and regulations:**

- 2014/35/UE - Low Voltage Directive
- 2014/30/UE - Electromagnetic Compatibility Directive
- 2009/125/CE - ErP Directive
- 2017/1369 - Energy Labelling Regulation
- 2012/206 - Ecodesign Regulation
- 2011/626 - Energy Labelling Regulation
- 2011/65/UE - RoHS2 Hazardous Substances Directive







## Technical data


- **Conditions for use.**

Operating temperature range; the air conditioner switches off outside of this value.

		INDOOR UNIT	OUTDOOR UNIT
<b>COOLING MODE</b>	MAX.		52 °C
	MIN.	15 °C	-10 °C
<b>HEATING MODE</b>	MAX.	30 °C	24 °C
	MIN.		-15 °C

- **The various models available**

	UME 20	EH970	7722443
	UME 25	EH868	7692774
	UME 35	EH869	7692775
	UME 50	EH870	7692776
	UCE 25	EH933	7720013
	UCE 35	EH934	7720014
	UCE 50	EH935	7720015
	UGE 25	EH936	770016
	UGE 35	EH937	7720017
	UGE 50	EH938	7720018
	UCARE 25	EH929	7720009
	UCARE 35	EH931	7720011
	UCARE 50	EH932	7720012

	MUSE 40-2	EH971	7722650
	MUSE 50-2	EH874	7692781
	MUSE 60-3	EH926	7720006
	MUSE 80-3	EH875	7692782
	MUSE 100-4	EH927	7720007
	MUSE 120-5	EH928	7720008

- Estimation of cooling capacities for comfort air conditioning\*

Customer:

Date:

Address:

Studied by:

Post code:

Tel.:

	Parameters		x	Coefficient	=	Watt
<b>Floor (1)</b>						
Insulated	m <sup>2</sup>	x		6	=	
Uninsulated	m <sup>2</sup>	x		15	=	
Not to be taken into account for areas which are directly on the floor or above a cellar						
<b>Ceiling (1)</b>						
Insulated	m <sup>2</sup>	x		4	=	
Uninsulated	m <sup>2</sup>	x		10	=	
Below a roof, multiply the coefficient by 2						
<b>External walls</b>						
Sunlit, insulated	m <sup>2</sup>	x		8	=	
Sunlit, uninsulated	m <sup>2</sup>	x		20	=	
Not sunlit, insulated	m <sup>2</sup>	x		6	=	
Not sunlit, uninsulated	m <sup>2</sup>	x		10	=	
<b>Internal partitions (1)</b>						
	m <sup>2</sup>	x		15	=	
<b>Windows</b>						
In the shade	m <sup>2</sup>	x		45	=	
Sunlit:						
__ Without awnings	m <sup>2</sup>	x		160	=	
__ With awnings	m <sup>2</sup>	x		80	=	
<b>Number of occupants</b>						
	no.	x		150	=	
<b>Heat gain (2)</b>						
Electrical appliances, lights, motors	Watt	x		1	=	
Others	Watt	x		1	=	
<b>Air renewal</b>						
	m <sup>3</sup> /h	x		4	=	
Total cooling balance						

(1) Do not take into account if the partitions are in contact with an air-conditioned location.

(2) Only take into account the effective outputs at the hottest times of day

\* **Note:** This balance corresponds to approximately 5 to 6 °C cooling compared to the outdoor temperature. For a higher value, it is recommended to create a detailed balance.

- Technical specifications for the indoor unit**

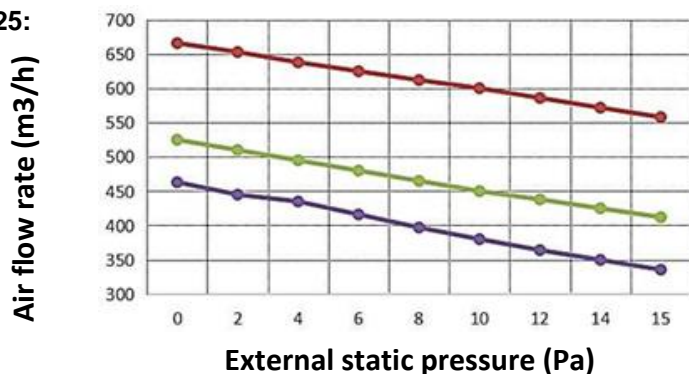
**Wall-mounted:**

		UME 20	UME 25	UME 35	UME 50
<b>Output in cooling mode (min./max.)</b>	kW	2.20 (1.13-2.70)	2.55 (1.00~3.30)	3.60 (1.20~3.80)	5.30 (1.90~5.50)
<b>Output in heating mode (min./max.)</b>	kW	2.35 (0.98-2.50)	2.65 (1.10~3.30)	3.70 (1.00~3.80)	5.40 (1.40~5.60)
<b>Electrical power consumption in cooling mode at nominal output</b>	kW	0.4	0.4	0.4	0.63
<b>Electrical power consumption in heating mode at nominal output</b>	kW	0.4	0.4	0.4	0.63
<b>Air flow rate (HS/MS/LS) (indoor unit)</b>	m <sup>3</sup> /h	650/450/395	650/450/395	650/450/395	1000/860/688
<b>Min./max. acoustic pressure of indoor unit</b>	dB(A)	20/40	20/41	20/42	20/48
<b>Acoustic output of indoor unit</b>	dB(A)	51	53	53	58
<b>Dimensions (L - D - H)</b>	mm	800/198/300	800/198/300	800/198/300	970/235/315
<b>Indoor unit weight</b>	kg	9	9	9	12.5
<b>Refrigerant connections (Fluid - Gas)</b>	"	(1/4-3/8)	(1/4-3/8)	(1/4-3/8)	(1/4-1/2)
<b>Voltage/Frequency values</b>	V/Hz	220-240/50	220-240/50	220-240/50	220-240/50

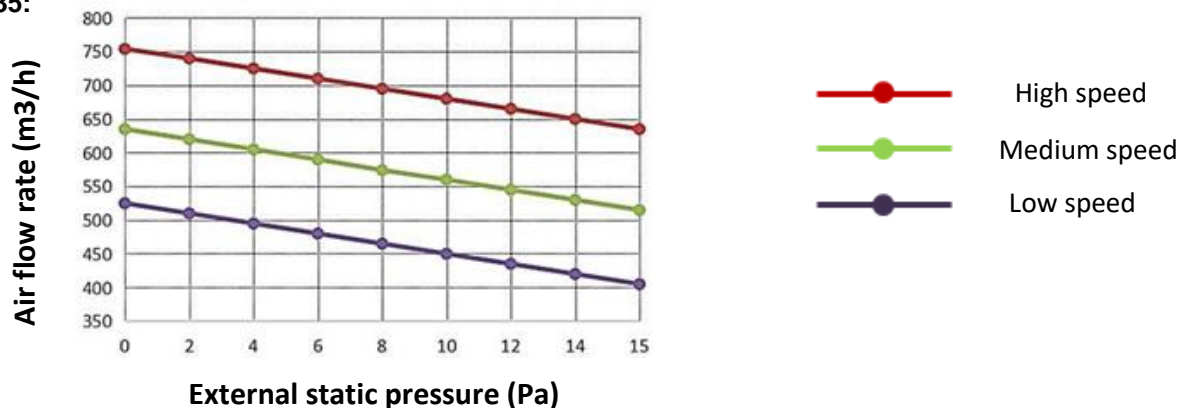
Ductable:

		UGE 25	UGE 35	UGE 50
Output in cooling mode (min./max.)	kW	2.60 (1.50-3.55)	3.60 (1.71-3.85)	5.10 (2.50-5.80)
Output in heating mode (min./max.)	kW	2.90 (1.70-3.65)	4.00 (1.90-3.92)	5.80 (2.84-6.40)
Electrical power consumption in cooling mode at nominal output	W	55	55	75
Electrical power consumption in heating mode at nominal output	W	55	55	75
Air flow rate (HS/MS/LS) (indoor unit)	m3/h	600/450/380	680/560/450	860/660/600
Available air pressure	Pa	10	10	10
Min./max. acoustic pressure of indoor unit	dB(A)	28/35	31/38	36/42
Acoustic output of indoor unit	dB(A)	53	53	55
Indoor unit weight	kg	18.5	18.5	24
Dimensions (L - D - H)	mm	700x470x200	700x470x200	1000x470x200
Refrigerant connections (Fluid - Gas)	"	(1/4-1/2)	(1/4-1/2)	(1/4-1/2)
Voltage/Frequency values	V/Hz	220-240/50	220-240/50	220-240/50

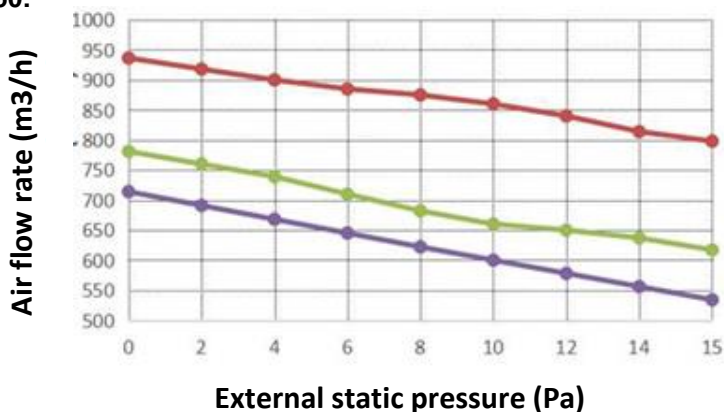
UGE 25:



UGE 35:



UGE 50:



Console:

		UCE 25	UCE 35	UCE 50
Output in cooling mode (min./max.)	kW	2.80 (1.50-3.55)	3.60 (1.70-3.70)	5.3 (2.50-5.6)
Output in heating mode (min./max.)	kW	3.00 (1.60-3.81)	3.9 (2.03-4.42)	5.8 (3.03-7.03)
Electrical power consumption in cooling mode at nominal output	W	80	80	80
Electrical power consumption in heating mode at nominal output	W	80	80	80
Air flow rate (HS/MS/LS) (indoor unit)	m <sup>3</sup> /h	750/600/500	750/600/500	850/700/600
Min./max. acoustic pressure of indoor unit	dB(A)	30/39	30/39	40/45
Acoustic output of indoor unit	dB(A)	55	55	59
Indoor unit weight	kg	26	26	26
Dimensions (L - D - H)	mm	929x660x205	929x660x205	929x660x205
Refrigerant connections (Fluid - Gas)	"	(1/4-1/2)	(1/4-1/2)	(1/4-1/2)
Voltage/Frequency values	V/Hz	220-240/50	220-240/50	220-240/50

Cassette:

		UCARE 25	UCARE 35	UCARE 50
Output in cooling mode (min./max.)	kW	2.80 (1.50-3.55)	3.60 (1.70-3.70)	5.0 (2.50-5.6)
Output in heating mode (min./max.)	kW	3.00 (1.60-3.81)	3.9 (2.03-4.42)	5.6 (3.03-7.03)
Electrical power consumption in cooling mode at nominal output	W	70	70	70
Electrical power consumption in heating mode at nominal output	W	70	70	70
Air flow rate (HS/MS/LS) (indoor unit)	m <sup>3</sup> /h	700/600/530	700/600/530	700/600/530
Min./max. acoustic pressure of indoor unit	dB(A)	35/45	35/45	35/45
Acoustic output of indoor unit	dB(A)	56	56	56
Indoor unit weight	kg	18	18	18
Indoor unit front panel weight	kg	2.2	2.2	2.2
Refrigerant connections (Fluid - Gas)	"	(1/4-1/2)	(1/4-1/2)	(1/4-1/2)
Voltage/Frequency values	V/Hz	220-240/50	220-240/50	220-240/50

Technical specifications for the outdoor unit

		MUSE 40-2	MUSE 50-2	MUSE 60-3
Output in cooling mode (min./max.)	kW	4.1 (1.8-4.51)	5.3 (2.0-5.83)	6.2 (2.2-6.71)
Output in heating mode (min./max.)	kW	4.8 (2.05-5.28)	5.6 (2.21-6.16)	6.6(2.39-7.26)
Electrical power consumption in cooling mode at nominal output	kW	1.24	1.75	1.92
Electrical power consumption in heating mode at nominal output	kW	1.15	1.54	1.78
Max. air flow (outdoor unit)	m <sup>3</sup> /h	2300	2300	3100
SEER		6.2	7.1	6.5
Energy class in cooling mode		A++	A++	A++
SCOP		4.1	4.1	4.4
Energy class in heating mode		A+	A+	A+
Min./max. acoustic pressure of outdoor unit	dB(A)	54	55	56
Acoustic output of outdoor unit	dB(A)	61	62	65
Outdoor unit weight	kg	34	36	44
Refrigerant connections (Fluid - Gas)	"	1/4-3/8	1/4-3/8	1/4-3/8
Max. total length between indoor and outdoor units	m	40	40	60
Max. length between indoor and outdoor units	m	25	25	30
Max. height difference between the indoor unit and the outdoor unit	m	15	15	15
Max. height difference between all indoor units and the outdoor unit	m	10	10	10
Pre-charged length	m	15	15	22.5
Additional charge of R32 refrigerant fluid	g/m	20	20	20
Nominal charge of R32 refrigerant fluid	kg	1.07	1.1	1.25
Voltage/Frequency values	V/Hz	220-240/50	220-240/50	220-240/50
Nominal current in cooling mode	A	5.4	7.6	8.3
Maximum current	A	10	11	13
Power cable cross-section	mm <sup>2</sup>	3G1.5	3G1.5	3G1.5
Circuit breaker		C16A	C16A	C16A
Cross-section of cable connecting the indoor and outdoor units	mm <sup>2</sup>	4G1.5	4G1.5	4G1.5



		MUSE 80-3	MUSE 100-4	MUSE 120-5
Output in cooling mode (min./max.)	kW	7.9 (2.3~8.69)	10.5 (2.5-11.00)	12.00 (2.77-12.7)
Output in heating mode (min./max.)	kW	8.2 (2.45~9.02)	11.00 (2.67-11.20)	13.00 (2.96-12.80)
Electrical power consumption in cooling mode at nominal output	kW	2.46	3.92	4.32
Electrical power consumption in heating mode at nominal output	kW	2.27	3.04	3.75
Max. air flow (outdoor unit)	m <sup>3</sup> /h	3100	4000	4200
SEER		6.3	6.1	6.1
Energy class in cooling mode		A++	A++	A++
SCOP		4	4	4
Energy class in heating mode		A+	A+	A+
Min./max. acoustic pressure of outdoor unit	dB(A)	58	61	61
Acoustic output of outdoor unit	dB(A)	65	68	68
Outdoor unit weight	kg	46	74	75
Refrigerant connections (Fluid - Gas)	"	1/4-3/8	1/4-3/8	1/4-3/8
Max. total length between indoor units and the outdoor unit	m	60	80	80
Max. length between indoor and outdoor units	m	30	35	35
Max. height difference between the indoor unit and the outdoor unit	m	15	15	15
Max. height difference between all indoor units and the outdoor unit	m	10	10	10
Pre-charged length	m	22.5	30	37.5
Additional charge of R32 refrigerant fluid	g/m	20	20	20
Nominal charge of R32 refrigerant fluid	kg	1.2	2.3	2.3
Voltage/Frequency values	V/Hz	220-240/50	220-240/50	220-240/50
Nominal current in cooling mode	A	10.7	18.7	20.6
Maximum current	A	16	22.5	24.5
Power cable cross-section	mm <sup>2</sup>	3G2.5	3G4.0	3G4.0
Circuit breaker		C20A	C25A	C25A
Cross-section of cable connecting the indoor and outdoor units	mm <sup>2</sup>	4G1.5	4G1.5	4G1.5

# Possible combinations of indoor and outdoor units

## MUSE 40-2 combinations

Cooling mode	Outdoor unit	Indoor unit	Cooling capacity in kW	
			Room A	Room B
	MUSE 40-2		20	2.05
		25	2.55	—
		35	3.60	—
		20 + 20	2.05	2.05
		20 + 25	1.83	2.27
		25 + 25	2.05	2.05

Heating mode	Outdoor unit	Indoor unit	Cooling capacity in kW	
			Room A	Room B
	MUSE 40-2		20	2.15
		25	2.65	—
		35	3.7	—
		20 + 20	2.4	2.4
		20 + 25	2.15	2.65
		25 + 25	2.4	2.4

## MUSE 50-2 combinations

Cooling mode	Outdoor unit	Indoor unit	Cooling capacity in kW	
			Room A	Room B
	MUSE50-2		20	2.05
		25	2.55	—
		35	3.60	—
		50	5.30	—
		20 + 20	2.05	2.05
		20 + 25	2.05	2.55
		25 + 25	2.55	2.55
		25 + 35	2.20	3.10
		25 + 50	1.72	3.58
	35 + 35	2.65	2.65	

Heating mode	Outdoor unit	Indoor unit	Cooling capacity in kW	
			Room A	Room B
	MUSE50-2		20	2.15
		25	2.65	—
		35	3.70	—
		50	5.40	—
		20 + 20	2.15	2.15
		20 + 25	2.15	2.65
		25 + 25	2.65	2.65
		25 + 35	2.34	3.26
		25 + 50	1.84	3.76
	35 + 35	2.80	2.80	

## MUSE 60-3 combinations

	Outdoor unit	Indoor unit	Cooling capacity in kW		
			Room A	Room B	Room C
Cooling mode	MUSE 60-3	20	2.05	—	—
		25	2.55	—	—
		35	3.60	—	—
		50	5.30	—	—
		20 + 20	2.05	2.05	—
		20 + 25	2.05	2.55	—
		20 + 35	2.05	3.60	—
		20 + 50	1.62	4.19	—
		25 + 25	2.55	2.55	—
		25 + 35	2.55	3.60	—
		25 + 50	2.01	4.19	—
		35 + 35	3.10	3.10	—
		35 + 50	2.51	3.69	—
		20 + 20 + 20	2.05	2.05	2.05
		20 + 20 + 25	1.91	1.91	2.55
		20 + 20 + 35	1.65	1.65	2.90
		20 + 20 + 50	1.35	1.35	3.50
		20 + 25 + 25	1.78	2.21	2.21
		25 + 25 + 25	2.07	2.07	2.07

	Outdoor unit	Indoor unit	Cooling capacity in kW		
			Room A	Room B	Room C
Heating mode	MUSE 60-3	20	2.15	—	—
		25	2.65	—	—
		35	3.70	—	—
		50	5.40	—	—
		20 + 20	2.15	2.15	—
		20 + 25	2.15	2.65	—
		20 + 35	2.15	3.70	—
		20 + 50	1.76	4.43	—
		25 + 25	2.65	2.65	—
		25 + 35	2.65	3.70	—
		25 + 50	2.17	4.43	—
		35 + 35	3.30	3.30	—
		35 + 50	2.68	3.92	—
		20 + 20 + 20	2.15	2.15	2.15
		20 + 20 + 25	2.04	2.04	2.55
		20 + 20 + 35	1.77	1.77	3.05
		20 + 20 + 50	1.46	1.46	3.67
		20 + 25 + 25	1.90	2.35	2.35
		25 + 25 + 25	2.20	2.20	2.20

## MUSE 80-3 combinations

	Outdoor unit	Indoor unit	Cooling capacity in kW		
			Room A	Room B	Room C
Cooling mode	MUSE 80-3	20	2.05	—	—
		25	2.55	—	—
		35	3.60	—	—
		50	5.30	—	—
		20 + 20	2.05	2.05	—
		20 + 25	2.05	2.55	—
		20 + 35	1.95	3.35	—
		20 + 50	1.82	4.68	—
		25 + 25	2.55	2.55	—
		25 + 35	2.55	3.60	—
		35 + 35	3.60	3.60	—
		35 + 50	3.20	4.70	—
		20 + 20 + 20	2.05	2.05	2.05
		20 + 20 + 25	2.05	2.05	2.55
		20 + 20 + 35	2.05	2.05	3.60
		20 + 20 + 50	1.72	1.72	4.45
		20 + 25 + 25	2.05	2.55	2.55
		20 + 25 + 35	1.98	2.46	3.47
		20 + 35 + 35	1.75	3.07	3.07
		25 + 25 + 25	2.55	2.55	2.55
		25 + 25 + 35	2.32	2.32	3.27
		25 + 35 + 35	2.07	2.92	2.92
35 + 35 + 35	2.63	2.63	2.63		

	Outdoor unit	Indoor unit	Cooling capacity in kW		
			Room A	Room B	Room C
Heating mode	MUSE 80-3	20	2.15	—	—
		25	2.65	—	—
		35	3.70	—	—
		50	5.40	—	—
		20 + 20	2.15	2.15	—
		20 + 25	2.15	2.65	—
		20 + 35	2.25	3.83	—
		20 + 50	2.00	5.08	—
		25 + 25	2.65	2.65	—
		25 + 35	2.65	3.70	—
		35 + 35	3.70	3.70	—
		35 + 50	3.33	4.87	—
		20 + 20 + 20	2.15	2.15	2.15
		20 + 20 + 25	2.15	2.15	2.65
		20 + 20 + 35	2.15	2.15	3.70
		20 + 20 + 50	1.82	1.82	4.56
		20 + 25 + 25	2.15	2.65	2.65
		20 + 25 + 35	2.07	2.56	3.57
		20 + 35 + 35	1.85	3.18	3.18
		25 + 25 + 25	2.55	2.55	2.55

	25 + 25 + 35	2.41	2.41	3.37
	25 + 35 + 35	2.16	3.02	3.02
	36 + 35 + 35	2.73	2.73	2.73

### MUSE 100-4 combinations

	Outdoor unit	Indoor unit	Cooling capacity in kW			
			Room A	Room B	Room C	Room D
Cooling mode	MUSE 100-4	20	2.05	—	—	—
		25	2.55	—	—	—
		35	3.60	—	—	—
		50	5.30	—	—	—
		20 + 20	2.05	2.05	—	—
		20 + 25	2.05	2.55	—	—
		25 + 25	2.55	2.55	—	—
		25 + 35	2.55	3.60	—	—
		25 + 50	2.55	5.30	—	—
		35 + 35	3.60	3.60	—	—
		35 + 50	3.60	5.30	—	—
		50 + 50	5.25	5.25	—	—
		20 + 20 + 20	2.05	2.05	2.05	—
		20 + 20 + 25	2.05	2.05	2.55	—
		20 + 20 + 35	2.15	2.15	3.60	—
		20 + 20 + 50	2.15	2.15	5.40	—
		20 + 25 + 25	2.05	2.55	2.55	—
		20 + 25 + 35	2.63	3.27	4.61	—
		20 + 25 + 50	2.17	2.55	5.30	—
		20 + 35 + 35	2.33	4.09	4.09	—
		20 + 35 + 50	1.97	3.45	5.08	—
		20 + 50 + 50	1.70	4.40	4.40	—
		25 + 25 + 25	2.55	2.55	2.55	—
		25 + 25 + 35	3.08	3.08	4.34	—
		25 + 25 + 50	2.57	2.57	5.35	—
		25 + 35 + 35	2.55	3.60	3.60	—
		25 + 35 + 50	2.34	3.30	4.86	—
		25 + 50 + 50	2.04	4.23	4.23	—
		35 + 35 + 35	3.50	3.50	3.50	—
		35 + 35 + 50	3.02	3.02	4.45	—
		20+20+20+20	2.63	2.63	2.63	2.63
		20+20+20+25	2.47	2.47	2.47	3.08
		20+20+20+35	2.05	2.05	2.05	3.60
		20+20+20+50	1.88	1.88	1.88	4.86
		20+20+25+25	2.05	2.05	2.55	2.91
		20+20+25+35	2.05	2.05	2.55	3.69
		20+20+25+50	1.80	1.80	2.24	4.66
		20+20+35+35	1.90	1.90	3.35	3.35
		20+20+35+50	1.66	1.66	2.91	4.28
		20+25+25+25	2.05	2.55	2.55	2.55
20+25+25+35	2.00	2.49	2.49	3.52		
20+25+25+50	1.73	2.15	2.15	4.47		
20+25+35+35	1.82	2.27	3.20	3.20		
20+25+35+50	1.59	1.98	2.80	4.12		

	20+35+35+35	1.68	2.94	2.94	2.94
	25+25+25+25	2.63	2.63	2.63	2.63
	25+25+25+35	2.38	2.38	2.38	3.36
	25+25+25+50	2.07	2.07	2.07	4.30
	25+25+35+35	2.18	2.18	3.07	3.07
	25+35+35+35	2.01	2.83	2.83	2.83

	Outdoor unit	Indoor unit	Cooling capacity in kW			
			Room A	Room B	Room C	Room D
Heating mode	MUSE 100-4	20	2.15	—	—	—
		25	2.65	—	—	—
		35	3.70	—	—	—
		50	5.40	—	—	—
		20 + 20	2.15	2.15	—	—
		20 + 25	2.15	2.65	—	—
		25 + 25	2.65	2.65	—	—
		25 + 35	2.65	3.70	—	—
		25 + 50	2.65	5.40	—	—
		35 + 35	3.70	3.70	—	—
		35 + 50	3.70	5.40	—	—
		50 + 50	5.50	5.50	—	—
		20 + 20 + 20	2.15	2.15	2.15	—
		20 + 20 + 25	2.15	2.15	2.65	—
		20 + 20 + 35	2.15	2.15	3.60	—
		20 + 20 + 50	2.15	2.15	5.40	—
		20 + 25 + 25	2.05	2.55	2.55	—
		20 + 25 + 35	2.15	2.65	3.70	—
		20 + 25 + 50	2.15	2.65	5.40	—
		20 + 35 + 35	2.15	3.70	3.70	—
		20 + 35 + 50	2.10	3.62	5.28	—
		20 + 50 + 50	1.83	4.59	4.59	—
		25 + 25 + 25	2.55	2.55	2.55	—
		25 + 25 + 35	3.24	3.24	4.52	—
		25 + 25 + 50	2.72	2.72	5.55	—
		25 + 35 + 35	2.90	4.05	4.05	—
		25 + 35 + 50	2.48	3.46	5.06	—
		25 + 50 + 50	2.17	4.42	4.42	—
		35 + 35 + 35	3.67	3.67	3.67	—
		35 + 35 + 50	3.18	3.18	4.64	—
		20+20+20+20	2.75	2.75	2.75	2.75
		20+20+20+25	2.60	2.60	2.60	3.20
		20+20+20+35	2.33	2.33	2.33	4.01
		20+20+20+50	2.00	2.00	2.00	5.01
		20+20+25+25	2.46	2.46	3.04	3.04
		20+20+25+35	2.22	2.22	2.74	3.82
		20+20+25+50	1.91	1.91	2.36	4.81
		20+20+35+35	2.02	2.02	3.48	3.48
		20+20+35+50	1.76	1.76	3.04	4.43
		20+25+25+25	2.34	2.89	2.89	2.89
		20+25+25+35	2.12	2.61	2.61	3.65
		20+25+25+50	1.84	2.27	2.27	4.62
20+25+35+35	1.94	2.39	3.34	3.34		

	20+25+35+50	1.70	2.10	2.93	4.27
	20+35+35+35	1.78	3.07	3.07	3.07
	25+25+25+25	2.75	2.75	2.75	2.75
	25+25+25+35	2.50	2.50	2.50	3.49
	25+25+25+50	2.18	2.18	2.18	4.45
	25+25+35+35	2.30	2.30	3.20	3.20
	25+35+35+35	2.12	2.96	2.96	2.96

**MUSE 120-5 combinations**

	Outdoor unit	Indoor unit	Cooling capacity in kW				
			Room A	Room B	Room C	Room D	Room E
Cooling mode	MUSE 120-5	20	2.05	—	—	—	—
		25	2.55	—	—	—	—
		35	3.60	—	—	—	—
		50	5.30	—	—	—	—
		20 + 20	2.05	2.05	—	—	—
		20 + 25	2.05	2.55	—	—	—
		25 + 25	2.55	2.55	—	—	—
		25 + 35	2.55	3.60	—	—	—
		25 + 50	2.55	5.30	—	—	—
		35 + 35	3.60	3.60	—	—	—
		35 + 50	3.60	5.30	—	—	—
		50 + 50	5.30	5.30	—	—	—
		20 + 20 + 20	2.05	2.05	2.05	—	—
		20 + 20 + 25	2.05	2.05	2.55	—	—
		20 + 20 + 35	2.05	2.05	3.60	—	—
		20 + 20 + 50	2.05	2.05	5.30	—	—
		20 + 25 + 25	2.05	2.55	2.55	—	—
		20 + 25 + 35	2.05	2.55	3.60	—	—
		20 + 25 + 50	2.05	2.55	5.30	—	—
		20 + 35 + 35	2.05	3.60	3.60	—	—
		20 + 35 + 50	2.05	3.60	5.30	—	—
		20 + 50 + 50	1.94	5.03	5.03	—	—
		25 + 25 + 25	2.55	2.55	2.55	—	—
		25 + 25 + 35	2.55	2.55	3.60	—	—
		25 + 25 + 50	2.55	2.55	5.03	—	—
		25 + 35 + 35	2.55	3.60	3.60	—	—
		25 + 35 + 50	2.55	3.60	5.30	—	—
		25 + 50 + 50	2.33	4.84	4.84	—	—
		35 + 35 + 35	3.60	3.60	3.60	—	—
		35 + 35 + 50	3.46	3.46	5.09	—	—
		20+20+20+20	2.05	2.05	2.05	2.05	—
		20+20+20+25	2.05	2.05	2.05	2.55	—
		20+20+20+35	2.05	2.05	2.05	3.60	—
20+20+20+50	2.05	2.05	2.05	5.30	—		
20+20+25+25	2.05	2.05	2.55	2.55	—		
20+20+25+35	2.05	2.05	2.55	3.60	—		
20+20+25+50	2.05	2.05	2.55	5.30	—		
20+20+35+35	2.18	2.18	3.82	3.82	—		
20+20+35+50	1.89	1.89	3.32	4.89	—		
20+25+25+25	2.54	3.15	3.15	3.15	—		

20+25+25+35	2.29	2.85	2.85	4.02	—
20+25+25+50	1.98	2.46	2.46	5.11	—
20+25+35+35	2.08	2.59	3.66	3.66	—
20+25+35+50	1.82	2.27	3.20	4.71	—
20+35+35+35	1.91	3.36	3.36	3.36	—
25+25+25+25	3.00	3.00	3.00	3.00	—
25+25+25+35	2.72	2.72	2.72	3.84	—
25+25+25+50	2.36	2.36	2.36	4.91	—
25+25+35+35	2.49	2.49	3.51	3.51	—
25+35+35+35	2.29	3.24	3.24	3.24	—
20+20+20+20+20	2.40	2.40	2.40	2.40	2.40
20+20+20+20+25	2.05	2.05	2.05	2.05	2.55
20+20+20+20+35	2.05	2.05	2.08	2.08	3.60
20+20+20+20+50	1.82	1.82	2.05	2.05	4.71
20+20+20+25+25	2.19	2.19	2.19	2.72	2.72
20+20+20+25+35	2.00	2.00	2.00	2.49	3.51
20+20+20+25+50	1.76	1.76	1.76	2.19	4.54
20+20+20+35+35	1.84	1.84	1.84	3.24	3.24
20+20+20+35+50	1.63	1.63	1.63	2.87	4.23
20+20+25+25+25	2.09	2.09	2.60	2.60	2.60
20+20+25+25+35	1.92	1.92	2.39	2.39	3.38
20+20+25+25+50	1.70	1.70	2.11	2.11	4.39
20+20+25+35+35	1.78	1.78	2.21	3.12	3.12
20+20+25+35+50	1.58	1.58	1.97	2.78	4.09
20+20+35+35+35	1.65	1.65	2.90	2.90	2.90
20+25+25+25+25	2.01	2.50	2.50	2.50	2.50
20+25+25+25+35	1.85	2.30	2.30	2.30	3.25
20+25+25+25+50	1.64	2.04	2.04	2.04	4.24
20+25+25+35+35	1.71	2.13	2.13	3.01	3.01
20+25+35+35+35	1.60	1.99	2.81	2.81	2.81
25+25+25+25+25	2.40	2.40	2.40	2.40	2.40
25+25+25+25+35	2.22	2.22	2.22	2.22	3.13
25+25+25+25+50	1.97	1.97	1.97	1.97	4.10
25+25+25+35+35	2.06	2.06	2.06	2.91	2.91
25+25+35+35+35	1.92	1.92	2.72	2.72	2.72

	Outdoor unit	Indoor unit	Cooling capacity in kW				
			Room A	Room B	Room C	Room D	Room E
Heating mode	MUSE 120-5	20	2.15	—	—	—	—
		25	2.65	—	—	—	—
		35	3.70	—	—	—	—
		50	5.40	—	—	—	—
		20 + 20	2.15	2.15	—	—	—
		20 + 25	2.15	2.65	—	—	—
		25 + 25	2.65	2.65	—	—	—
		25 + 35	2.65	3.70	—	—	—
		25 + 50	2.65	5.40	—	—	—
		35 + 35	3.70	3.70	—	—	—
		35 + 50	3.70	5.40	—	—	—
		50 + 50	5.40	5.40	—	—	—
		20 + 20 + 20	2.15	2.15	2.15	—	—
		20 + 20 + 25	2.15	2.15	2.65	—	—



20 + 20 + 35	2.15	2.15	3.70	—	—
20 + 20 + 50	2.65	2.65	5.40	—	—
20 + 25 + 25	2.15	2.65	2.65	—	—
20 + 25 + 35	2.15	2.65	3.70	—	—
20 + 25 + 50	2.15	2.55	5.40	—	—
20 + 35 + 35	2.15	3.70	3.70	—	—
20 + 35 + 50	2.15	3.70	5.40	—	—
20 + 50 + 50	2.15	5.40	5.40	—	—
25 + 25 + 25	2.55	2.55	2.55	—	—
25 + 25 + 35	2.65	2.65	3.70	—	—
25 + 25 + 50	2.65	2.65	5.40	—	—
25 + 35 + 35	2.65	3.70	3.70	—	—
25 + 35 + 50	2.65	3.70	5.40	—	—
25 + 50 + 50	2.52	5.24	5.24	—	—
35 + 35 + 35	4.33	4.33	4.33	—	—
35 + 35 + 50	3.74	3.74	5.51	—	—
20+20+20+20	2.15	2.15	2.15	2.15	—
20+20+20+25	2.15	2.15	2.15	2.65	—
20+20+20+35	2.15	2.15	2.15	3.70	—
20+20+20+50	2.15	2.15	2.15	5.40	—
20+20+25+25	2.15	2.15	2.65	2.65	—
20+20+25+35	2.15	2.15	2.65	3.70	—
20+20+25+50	2.15	2.15	2.65	5.40	—
20+20+35+35	2.15	2.15	3.70	3.70	—
20+20+35+50	2.05	2.05	3.60	5.30	—
20+25+25+25	2.15	2.65	3.42	3.42	—
20+25+25+35	2.15	2.65	2.65	3.70	—
20+25+25+50	2.15	2.65	2.65	5.53	—
20+25+35+35	2.15	2.65	3.70	3.70	—
20+25+35+50	1.97	2.65	3.47	5.10	—
20+35+35+35	2.05	3.64	3.64	3.64	—
25+25+25+25	2.65	2.65	2.65	2.65	—
25+25+25+35	2.65	2.65	2.65	4.16	—
25+25+25+50	2.56	2.56	2.56	5.32	—
25+25+35+35	2.65	2.65	3.70	3.70	—
25+35+35+35	2.48	3.51	3.51	3.51	—
20+20+20+20+20	2.15	2.15	2.15	2.15	2.15
20+20+20+20+25	2.15	2.15	2.15	2.15	2.65
20+20+20+20+35	2.15	2.15	2.15	2.15	3.70
20+20+20+20+50	1.97	1.97	1.97	1.97	5.10
20+20+20+25+25	2.15	2.15	2.15	2.65	2.65
20+20+20+25+35	2.15	2.15	2.15	2.65	3.70
20+20+20+25+50	1.90	1.90	1.90	2.37	4.92
20+20+20+35+35	2.00	2.00	2.00	3.51	3.51
20+20+20+35+50	1.77	1.77	1.77	3.11	4.58
20+20+25+25+25	2.27	2.27	2.82	2.82	2.82
20+20+25+25+35	2.08	2.08	2.59	2.59	3.66
20+20+25+25+50	1.84	1.84	2.29	2.29	4.75
20+20+25+35+35	1.92	1.92	2.39	3.38	3.38
20+20+25+35+50	1.71	1.71	2.13	3.01	4.43
20+20+35+35+35	1.79	1.79	3.14	3.14	3.14
20+25+25+25+25	2.18	2.71	2.71	2.71	2.71
20+25+25+25+35	2.00	2.49	2.49	2.49	3.52

	20+25+25+25+50	1.78	2.21	2.21	2.21	4.59
	20+25+25+35+35	1.86	2.31	2.31	3.26	3.26
	20+25+35+35+35	1.73	2.15	3.04	3.04	3.04
	25+25+25+25+25	2.60	2.60	2.60	2.60	2.60
	25+25+25+25+35	2.40	2.40	2.40	2.40	3.39
	25+25+25+25+50	2.14	2.14	2.14	2.14	4.45
	25+25+25+35+35	2.23	2.23	2.23	3.15	3.15
	25+25+35+35+35	2.08	2.08	2.94	2.94	2.94

## Output at the base temperature

These are the tables of multiplication coefficients for multi-splits based on the outdoor temperature and used to calculate the output of indoor units depending on the desired combination:

Cooling capacity multiplication coefficient based on various indoor/outdoor temperatures							
Indoor temperature (°C)		Outdoor temperature (°C)(DB)					
DB	WB	25	30	35	40	45	50
22	15	0.97	0.92	0.87	0.96	0.77	0.75
24	17	1.03	0.98	0.94	0.89	0.84	0.80
27	19	1.10	1.05	1	0.95	0.90	0.86
29	21	1.16	1.11	1.06	1.02	0.96	0.91
32	23	1.22	1.17	1.13	1.08	1.02	0.98

DB = dry bulb = very moist air/WB = wet bulb = very dry air

Cooling capacity calculation:

Cooling capacity = cooling capacity multiplication coefficient × nominal cooling capacity

The nominal cooling capacity can be found in the combination table for the MUSEs

Heating capacity multiplication coefficient based on various indoor/outdoor temperatures				
Outdoor temperature (°C)		Indoor temperature (°C)(DB)		
DB	WB	15	20	25
-15	-16	0.64	0.59	0.55
-10	-12	0.71	0.66	0.62
-7	-8	0.76	0.72	0.67
-1	-2	0.79	0.74	0.70
2	1	0.81	0.76	0.72
7	6	1.04	1	0.96
10	9	1.10	1.06	1.01
15	12	1.16	1.12	1.07

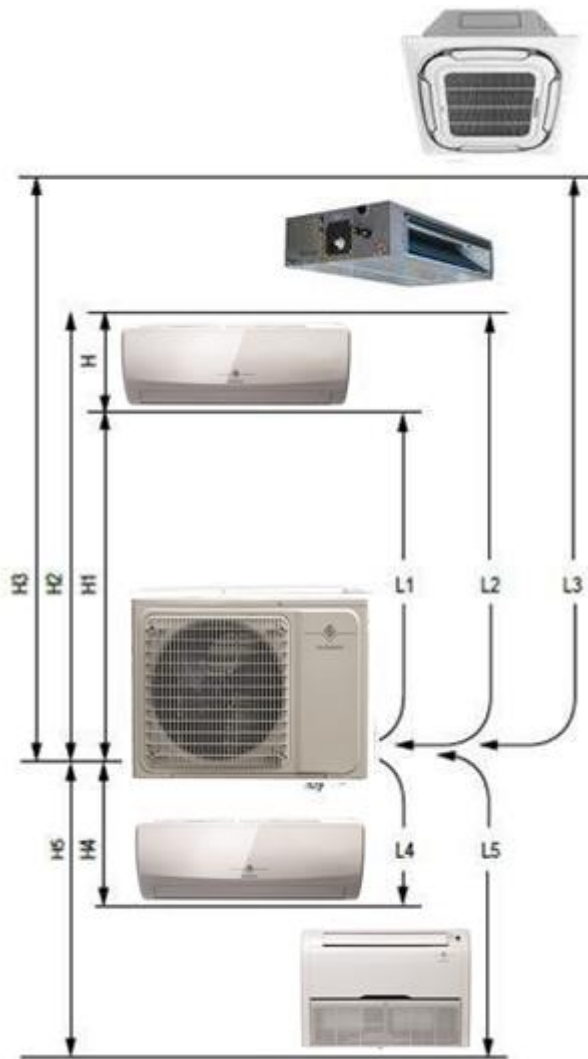
DB = dry bulb = very moist air/WB = wet bulb = very dry air

Heating capacity calculation:

Heating capacity = heating capacity multiplication coefficient × nominal heating capacity

The nominal heating capacity can be found in the combination table for the MUSEs

## Length and height difference



		MUSE 40-2	MUSE 50-2	MUSE 60-3	MUSE 80-3	MUSE 100-4	MUSE 125-5
Max. length between indoor and outdoor units	L1, L2, L3, L4, L5 (m)	25	25	30	30	35	35
Max. total length between indoor and outdoor units	L1+L2+L3+L4+L5 (m)	40	40	60	60	80	80
Max. height difference between indoor and outdoor units	H1, H2, H3, H4, H5 (m)	15	15	15	15	15	15
Max. height difference between all indoor units and the outdoor unit	H (m)	10	10	10	10	10	10
Pre-charged length	D (m)	15	15	22.5	22.5	30	37.5

Length of the refrigerant connection	≤ P (m)	No additional load
	> D (m)	An additional load is requested: 20 g/m x (length of the refrigerant connection (m) - P)

## Installation of the outdoor unit

Ensure that the outdoor unit is securely fixed and that it can withstand strong wind (e.g. storm, hurricane).

- Install the appliance according to the information contained in the table below.
- For installation in a marine environment (near the sea or ocean), pay attention to the risks of salt-related damage to the metal parts of the machine.
- Check that the location chosen for installation of the outdoor unit does not cause noise pollution (e.g. neighbours, bedrooms)

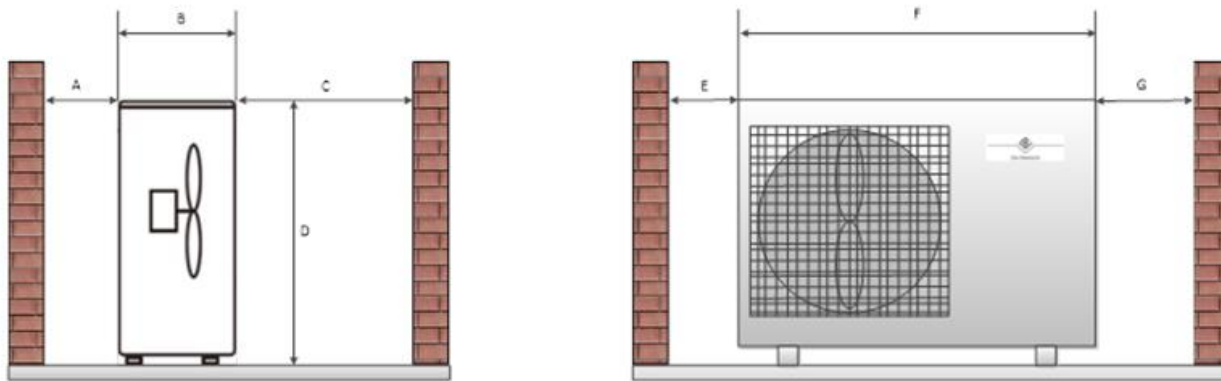
The support must be able to bear the weight of the machine. Adopt all the necessary measures to prevent the appliance vibrating.

- If you decide to protect the outdoor unit from the rain and direct sunlight, ensure that you do not block the heat radiation from the compressor.
- Ensure that there is sufficient distance between the outdoor unit and nearby obstacles to ensure correct installation and proper maintenance and servicing - Protect the appliance from sources of heat and/or flammable gases.
- The support is secured and can bear the weight and dimensions of the outdoor unit. - The machine must normally be installed on a flat surface.

For the refrigerant connections, use copper piping specially designed for cooling applications (polished inner surface, dehydrated and plugged). The thickness of the refrigerant connection insulation must be appropriate, according to the location and the installation requirements.

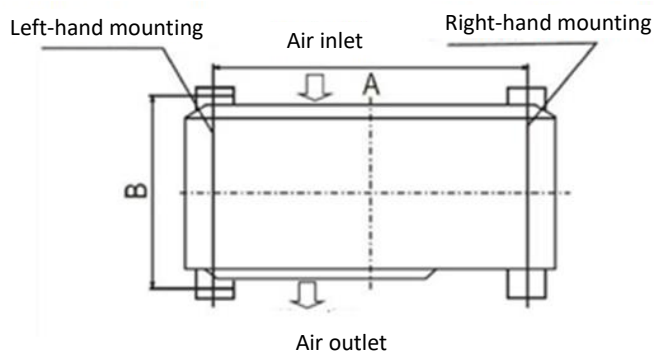
Do not use blue sealant paste on the refrigerant connections: this will void the product warranty.

**Outdoor unit dimensions and minimum distances to be respected on installation:**



		A	B	C	D	E	F	G
MUSE 40-2	mm	100	315	2000	545	300	800	500
MUSE 50-2	mm	100	315	2000	545	300	800	500
MUSE 60-3	mm	100	328	2000	655	300	834	500
MUSE 80-3	mm	100	328	2000	655	300	834	500
MUSE 100-4	mm	100	395	2000	805	300	985	500
MUSE 120-5	mm	100	395	2000	805	300	985	500

**Dimensions for mounting feet on outdoor units:**



MODEL	A (mm)	B (mm)
MUSE 40-2	545	315
MUSE 50-2	545	315
MUSE 60-3	540	335
MUSE80-3	540	335
MUSE100-4	675	410
MUSE125-5	675	410

**Installation of the indoor unit**

- Take into account the air distribution of the indoor unit in the building or room to be air-conditioned and select a suitable location to obtain a uniform air temperature.
- Ensure that there are no sources of heat and/or fumes near the indoor unit
- Choose the correct location for installing the indoor units, taking into account the noise levels of each product (e.g. bedroom)
- Do not install the appliance near doors and/or windows.

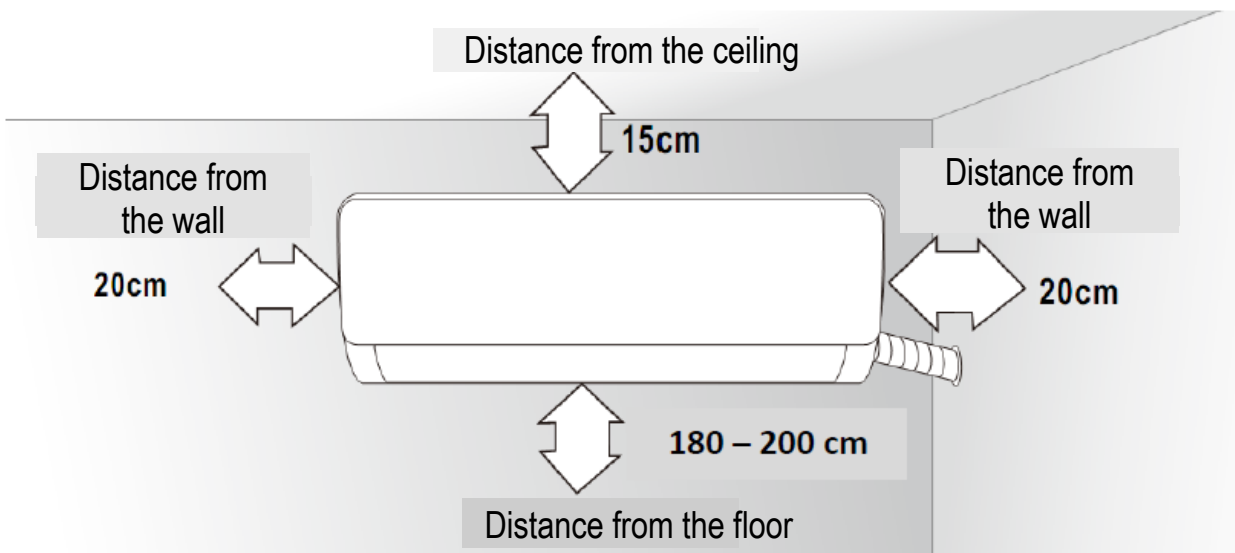
**Wall-mounted indoor units (UME)**

**Dimensions of wall-mounted indoor units:**

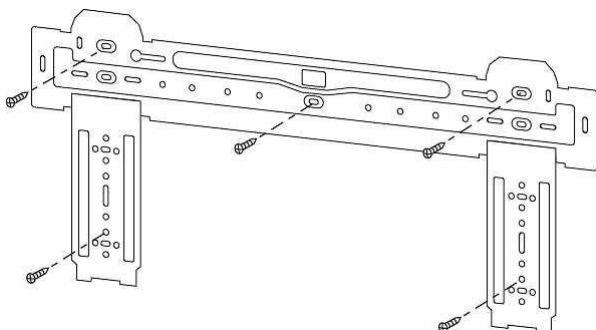


	Width (mm)	Height (mm)	Depth (mm)
UME20	800	300	198
UME25	800	300	198
UME35	800	300	198
UME50	970	314	235

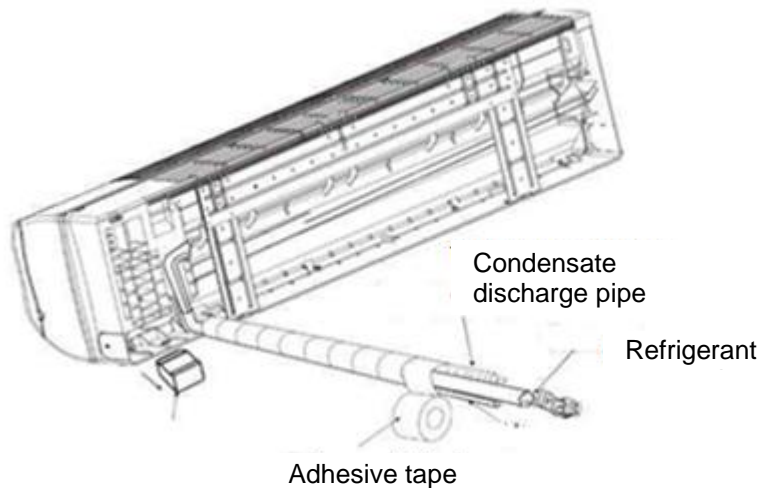
**Ensure that you respect the following requirements for installation:**



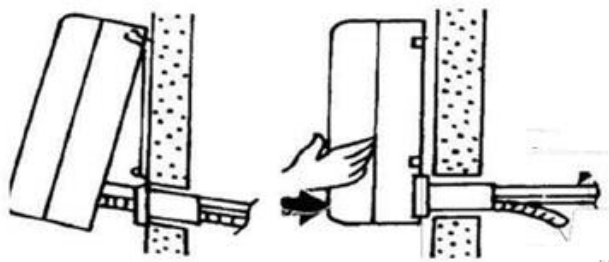
**Installation of the wall-mounted indoor unit:**



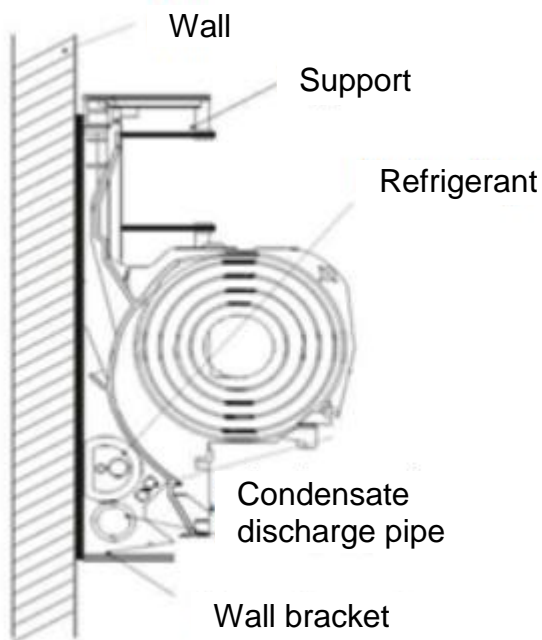
- Once you have checked that the wall is solid and able to bear the weight of the indoor unit, you can begin to drill holes in the wall.
- Secure the support to the wall using suitable cross-headed screwdrivers.
- Use a spirit level to ensure that the support is horizontal. If it is not level, condensate could leak from the air-conditioner when it operates in cooling mode.



- Attach the indoor unit to the support using the upper tabs. Ensure that the indoor unit is properly centred.



- Place the indoor unit on the mounting plate and push it until the hooks are firmly fixed in the guides and you hear them "click".

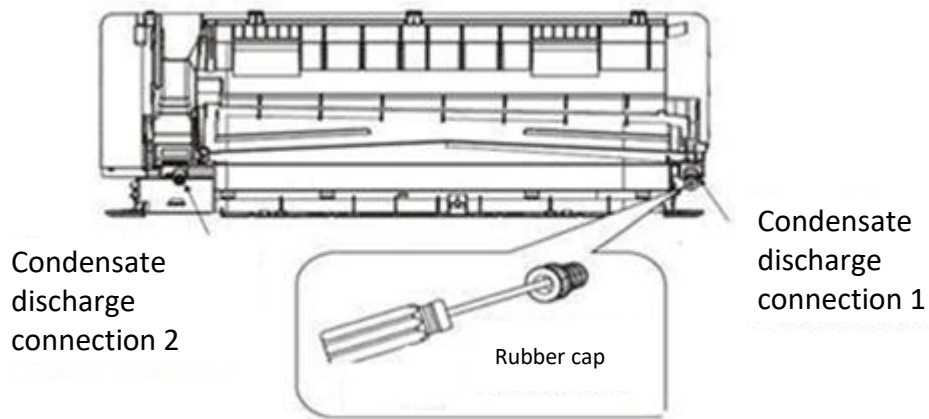


- It is also possible to install the indoor units using the existing perforation on the side.
- Please note that it is perfectly possible to make the electrical, condensate and refrigerant connections on both sides of the unit.

### **Condensate discharge:**

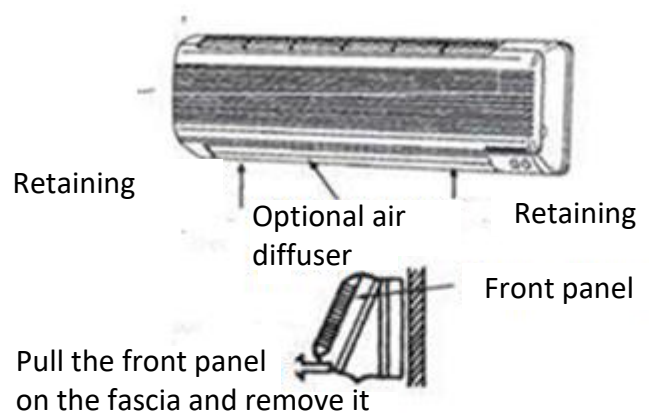
- Remember that the condensate drains due to gravity.
- Connect the condensate discharge pipe to the heat-insulated plastic pipe on the right-hand side of the indoor unit (rear view).
- Ensure that the condensate discharge pipe comes out of the indoor unit sloping downwards. The highest point of the outlet connections must not go past the position of the tank.
- The drain pipe can be connected to plug 1 or 2 ready for condensate discharge.
- If you need to change the drain pipe to the opposite side, remove the rubber cap and use a screwdriver to secure it on the side which is not being used.





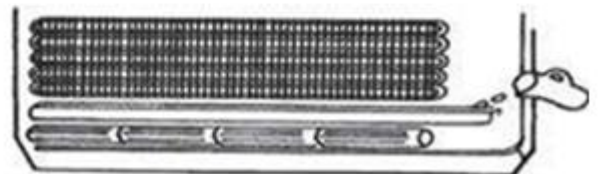
Remove the front panel of the appliance by following the instructions below:

- Open the front blade of the indoor unit (pivot it downwards)
- As shown in the figures below, remove the two protections on the front panel, then remove the two retaining screws.
- Pull the panel towards you to remove it.



Checking the water drainage

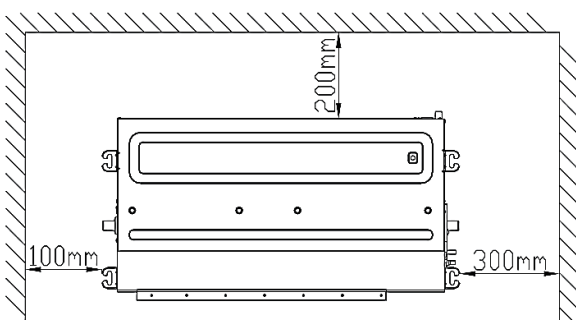
- Place a container under the condensate discharge
- Check that the condensate discharge runs through the appropriate hole.



### **Ductable indoor units (UGE):**

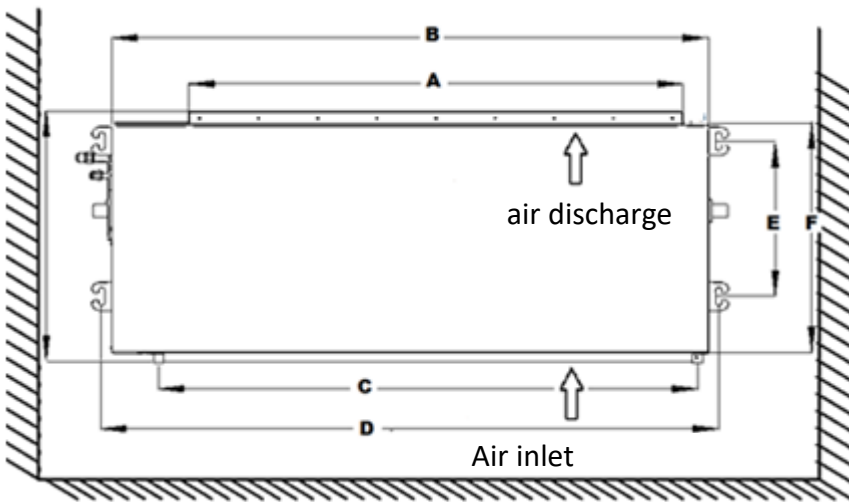
#### **Installation requirements:**

Ensure that you respect the following installation requirements during installation.

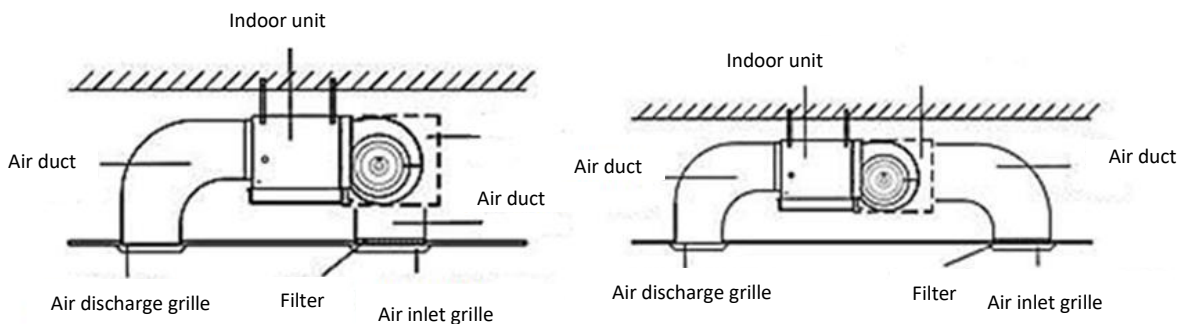


**Location of fittings:**

Model	A	B	C	D	E	F
<b>UGE 25/35</b>	532	700	684	734	383	470
<b>UGE 50</b>	832	1000	977	1048	383	470

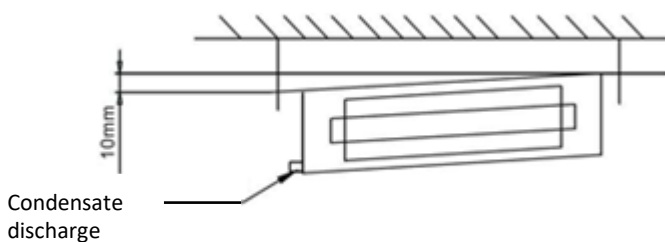


**Installation examples:**



**Condensate discharge:** The condensate lift pump is built into UGE indoor units

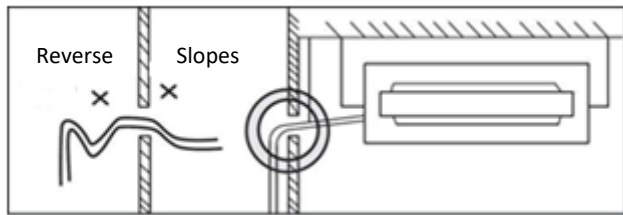
- 1) As shown in the illustration below, the condensate discharge outlet on the indoor unit must be connected to a drain to facilitate condensate discharge



2. The condensate pipe must be sloping downwards (1/50-1/100). If the drain pipe is installed with reverse slopes, this will cause water leaks or backflow.

3. To connect the discharge pipe, do not apply excessive force on the drain connection of the indoor unit.

4. There is a drain hole on either side of the indoor unit; the drain hole which is not being used must be closed.



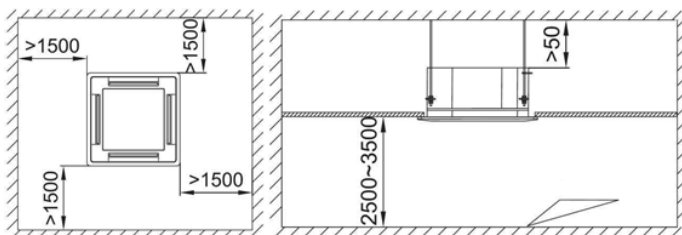
5. The appliance is equipped with a condensate lift pump which can pump up to 1200 mm.

The condensate discharge pipe must be fitted with a jacket made from heat-insulating material (rubber insulation thicker than 8 mm) to prevent the formation of condensation or water droplets.

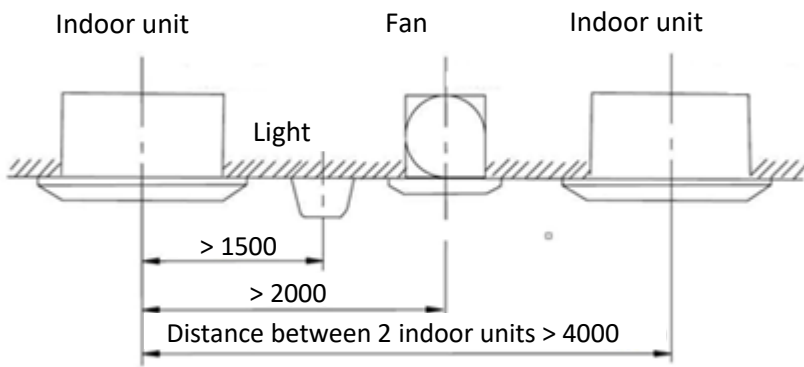
### Indoor unit cassettes (UCARE):

#### Installation requirements:

Ensure that you respect the following installation requirements during installation.

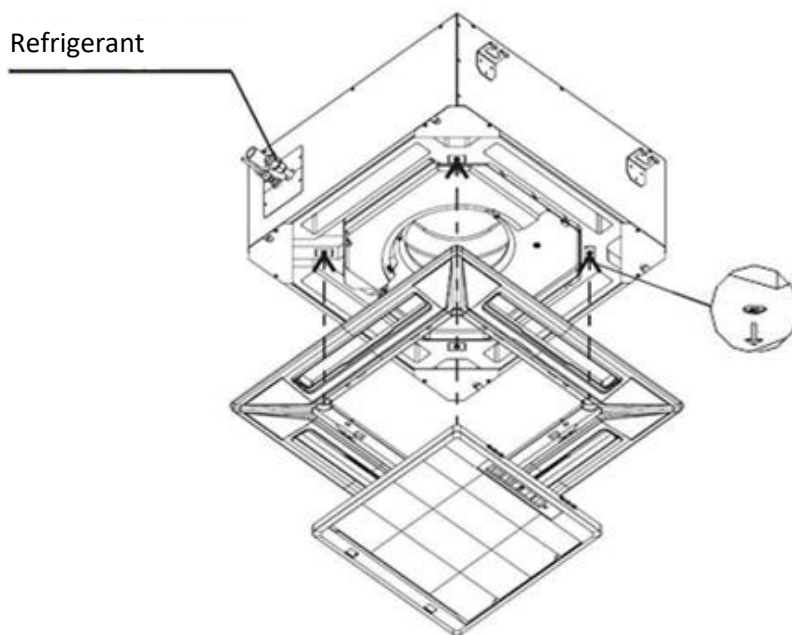


The distance between obstacles and the indoor unit is shown in the drawing below:



**!** Ensure that the installation configuration is able to withstand four times the weight of the indoor unit. It must not increase the noise level or vibrations.

**Installation of the indoor unit and grille:**

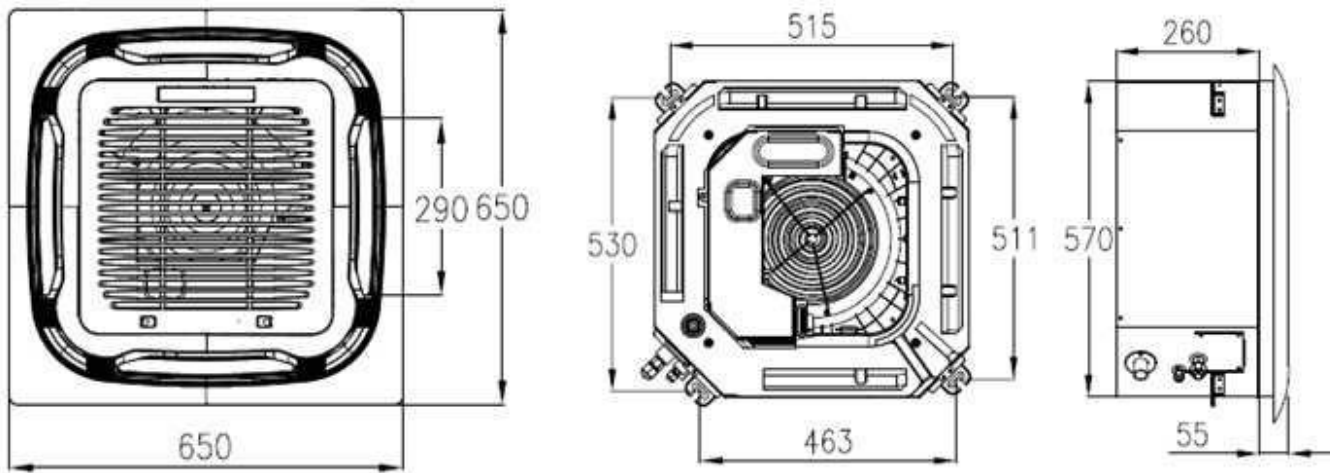


The grille comprises four clips which are fixed onto the appliance's support. The grille must be positioned using these components.

The grille is then secured in place using four bolts which are accessed via the grille's four corner panels.

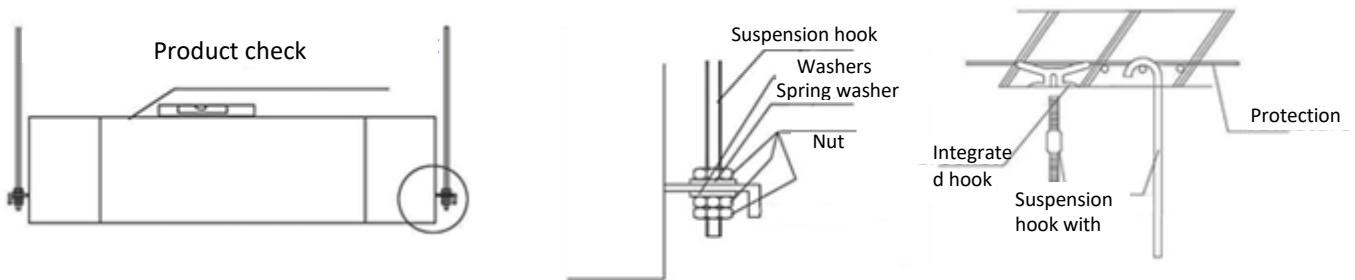
The four connecting bolts are located inside the grille's access panel.

**Location of fittings:**



**These products must be secured onto a structure made from wood or reinforced concrete. This structure must be firm and sturdy enough to withstand a weight of over 200 kg and able to withstand vibrations over long periods.**

**The cassette must be suspended as shown in the diagram below:**



**Adjust the relative position of the hook**

**Adjust the position of the suspension hooks so that the appliance is level in all directions. After installation, use a spirit level to ensure that the indoor unit is positioned horizontally; if the unit is not level this could lead to water/air leaks, etc.**

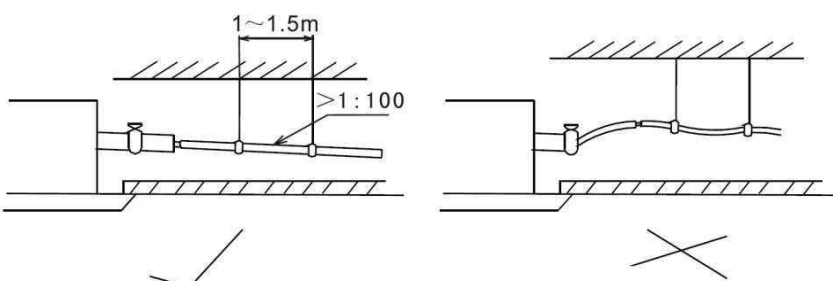
**Tighten the bolts and ensure that the four hooks are properly tightened using the washers and nuts to secure the indoor unit to the ceiling.**

**Once the appliance has been installed, ensure that it is securely fixed for safety reasons and that it does not move from side to side.**

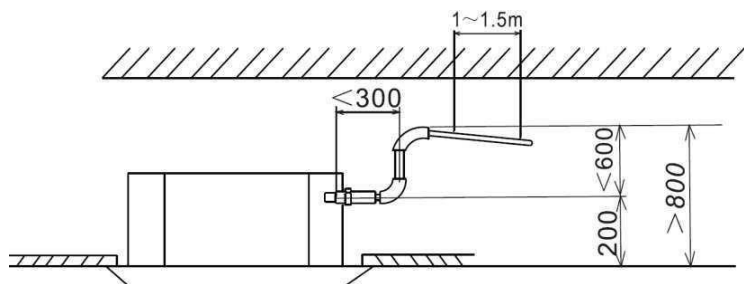
**Ensure that the centre of the indoor unit is aligned with the centre of the opening in the ceiling.**

**Condensate discharge:** The condensate lift pump is built into UCARE indoor units

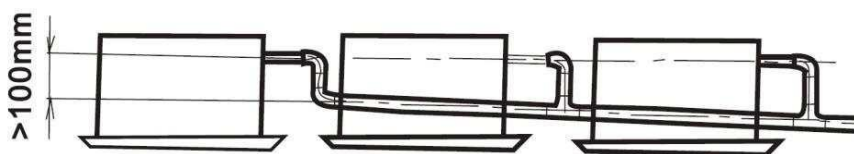
- 1. The drain pipe must be corrected insulated to prevent the formation of condensation. It must be installed on a downward slope (1/100-150).**



2. The unit is equipped with a lift pump which can pump up to 700 mm. However, when the pump is off, the water remaining in the pipe will be drained out and risks overflowing the condensate collector box, causing a water leak.



3. When condensate is discharged from several units using a common discharge pipe, this common discharge pipe must be installed approx. 100 mm below the condensate discharge outlet of each indoor unit, as shown in the diagram below.



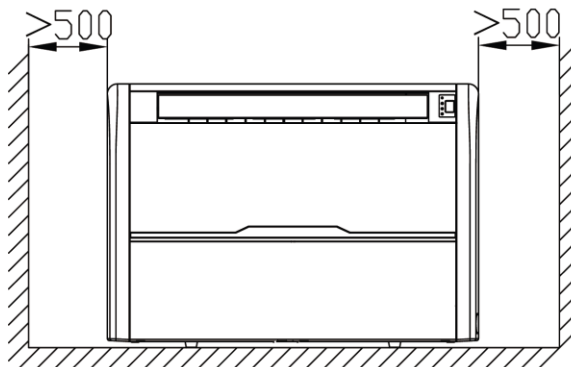
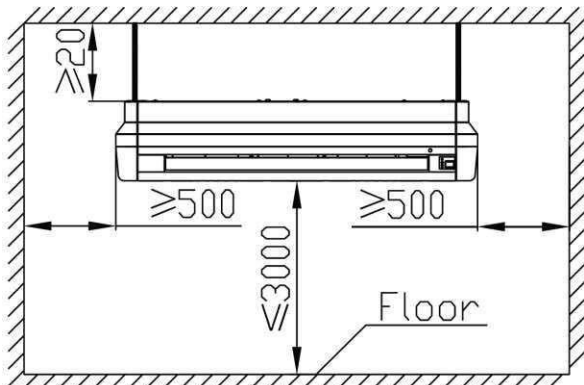
## Console indoor units (UCE):

### Installation requirements:

Ensure that you respect the following installation requirements during installation.

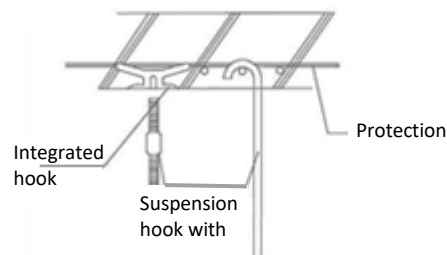
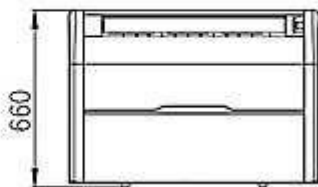
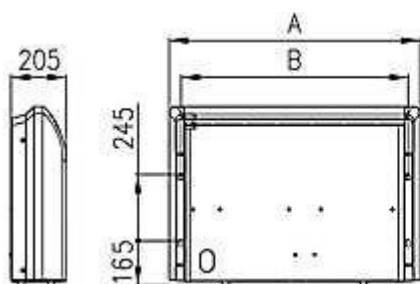
#### Ceiling installation

#### Installation on the ground



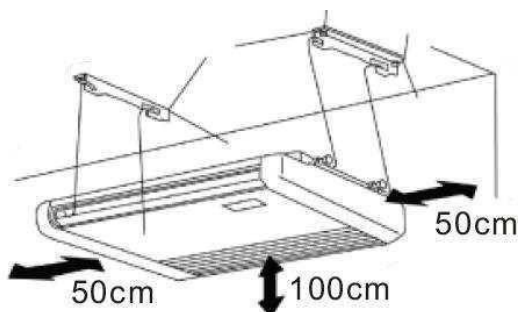
#### Location of fittings:

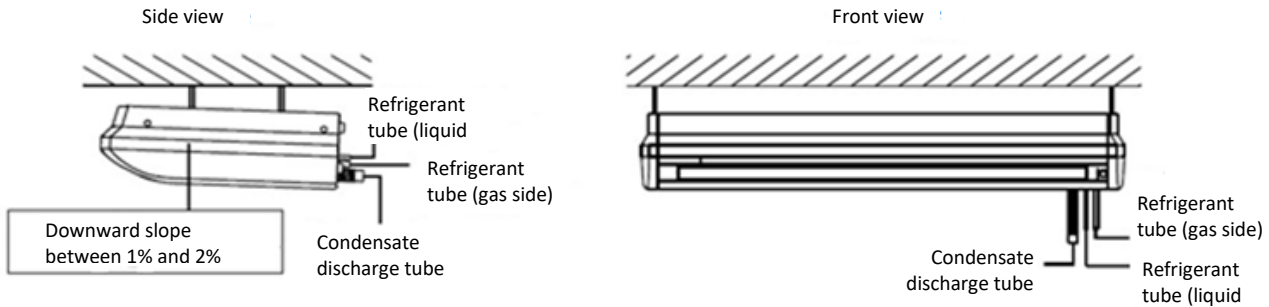
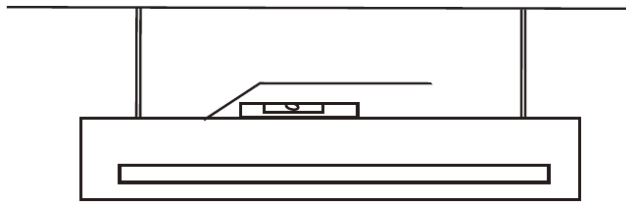
Model	A	B
UCE (25/35/50)	929	840



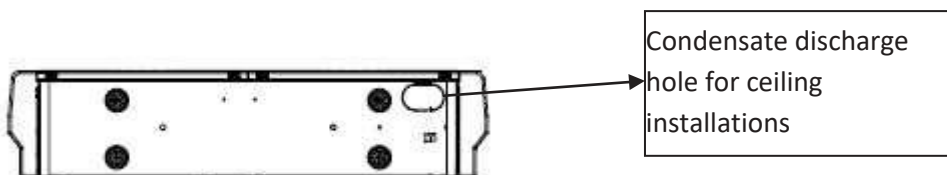
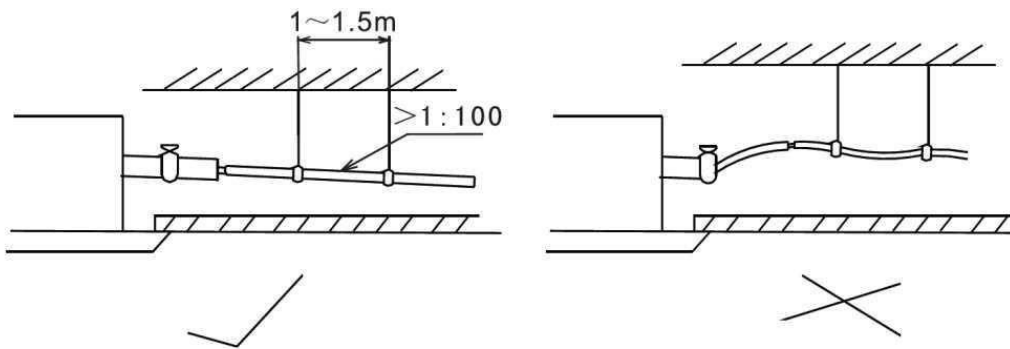
#### Ceiling installation:

- This mounting system must be strong and sturdy enough to withstand a weight of over 200 kg and to be able to withstand vibrations over long periods.
- The indoor unit must be mounted as detailed below:
  - Adjust the positions of the suspension hooks to ensure that the indoor unit is level in all directions. Use a spirit level to check this, to avoid the risk of water leaks occurring.
  - Tighten the nuts and ensure that the mounting hooks are properly secured to the ceiling.
  - Once the appliance has been installed, ensure that it is securely fixed for safety reasons and that it does not move from side to side.
- Only use the lower discharge hole to discharge condensate in ceiling installations





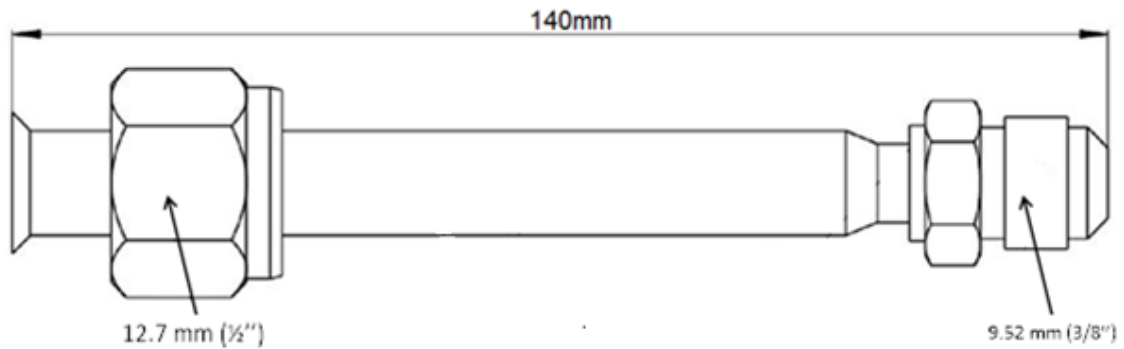
1. The drain pipe must be corrected insulated to prevent the formation of condensation.
2. The pipes must be installed with a downward slope (1/100-150) to enable water discharge. The pipe must not rise at any point.
3. Only use the lower hole for condensate discharge. Using one of the other holes may prevent the condensate from being drained properly
4. To ensure that the condensate is evacuated properly, it must be discharged towards the bottom of the unit once installation is complete. Make sure that the front panel is higher, otherwise a leak could occur via the air outlet.





## Refrigeration connections

**12.7 mm (1/2") x 9.52 mm (3/8") adapter used to connect the indoor unit with a 1/2" connection to the outdoor unit with a 3/8" connection. The adapter is located in the polystyrene shim on the outdoor unit and is installed in the indoor unit.**



### MUSE OUTDOOR MODULES

The polystyrene shim on the outdoor unit includes a 12.7 mm (1/2") x 9.52 mm (3/8") adapter that can be used to connect an indoor unit with a 1/2" connection (largest pipe - gas refrigerant line) to the outdoor unit with a 3/8" connection. The delivery details are shown in the table below.

MULTI-SPLIT OUTDOOR UNITS	REFRIGERANT CONNECTIONS ON MUSE	ADAPTER
MUSE 40-2	2 x 1/4" - 3/8"	—
MUSE 50-2	2 x 1/4" - 3/8"	—
MUSE 60-3	3 x 1/4" - 3/8"	1 supplied
MUSE 80-3	3 x 1/4" - 3/8"	1 supplied
MUSE 100-4	4 x 1/4" - 3/8"	2 supplied
MUSE 120-5	5 x 1/4" - 3/8"	3 supplied

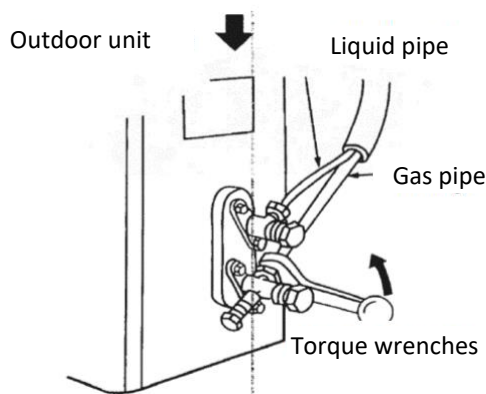
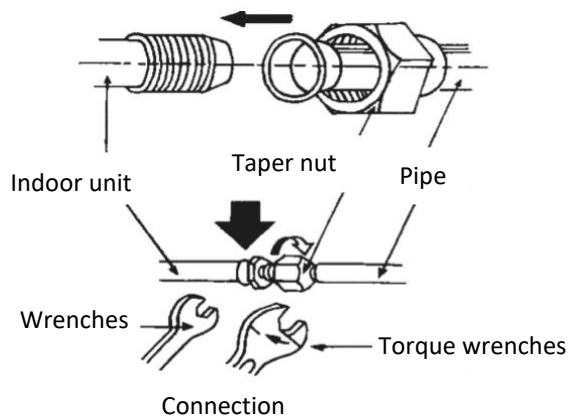
### INDOOR UNITS

Console, ductable and cassette indoor units are supplied with a 1/2" - 3/8" adapter. Wall-mounted units do not require an adapter. The polystyrene shim on the outdoor unit includes a 12.7 mm (1/2") x 9.52 mm (3/8") adapter that can be used to connect an indoor unit with a 1/2" connection (largest pipe - gas refrigerant line) to the outdoor unit with a 3/8" connection.

MULTI-SPLIT INDOOR UNITS	REFRIGERANT CONNECTIONS	ADAPTER
<b>WALL-MOUNTED</b>		
UME 20/35/35	1/4" - 3/8"	—
UME 50	1/4" - 1/2"	*
<b>CONSOLES</b>		
UCE 25/35/50	1/4" - 1/2"	1 supplied
<b>DUCTABLE</b>		
UGE 25/35/50	1/4" - 1/2"	1 supplied
<b>CASSETTES</b>		
UCARE 25/35/50	1/4" - 1/2"	1 supplied

\* Adapter available with the MUSE outdoor unit

- Refrigerant connection



Torque load		
External diameter of the pipe (mm/inch)	External diameter of the cone fitting (mm)	Torque load (N.m)
Ø 6.35 – 1/4	17	14 - 18
Ø 9.52 – 3/8	22	34 - 42
Ø 12.7 – 1/2	26	49 - 61
Ø 15.88 – 5/8	29	69 - 82

- Leak test

- Check that the valve on the outdoor unit closes.
- Connect the pressure gauge and the nitrogen canister to the Schrader type valve, then gradually pressurise the refrigerant connection pipes and the indoor module to 35 bar, in 5 bar increments.
- Check the leak-tightness of all the connections using a leak detector aerosol. If leaks occur, repeat the steps in order and check the leak-tightness again.
- Release the pressure and discharge the nitrogen.

- Creating a vacuum

- Check that the stop valve is closed.
- Connect the vacuum gauge and the vacuum pump to the valve's service connector.
- Create the vacuum in the indoor module and the refrigerant connection pipes.
- Check the pressure against the recommendation table below:

Outdoor temperature	°C	>20	10	0	-10
Absolute pressure target	Pa	1000	600	250	200
	bar	0.01	0.006	0.0025	0.002
Vacuum creation time once the target pressure has been reached	hour	1	1	2	3

- Close the valve between the vacuum gauge/vacuum pump and the stop valve.
- Open the valves immediately after switching off the vacuum pump.

## Electrical diagram

Only qualified professionals may carry out electrical connections, always with the power off.

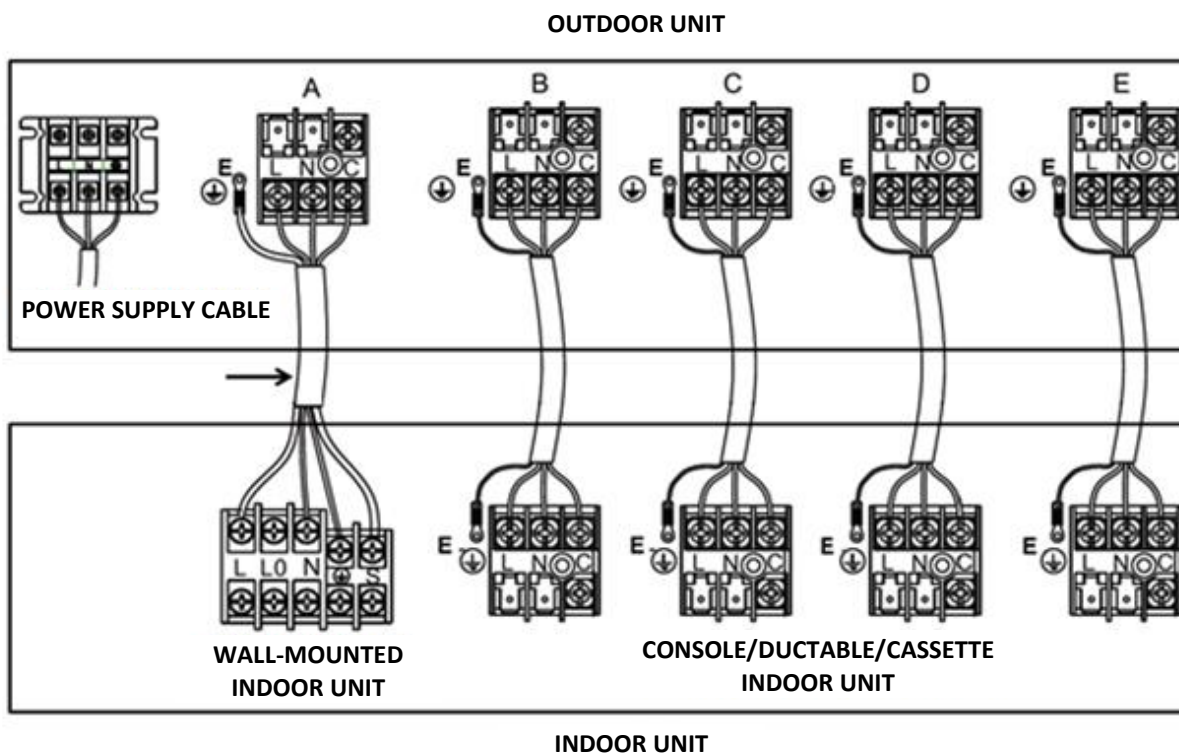
Earth the appliance before making any electrical connections in accordance with standard NFC 15-100 and current norms.

The appliance must be supplied by a special line protected upstream by an omnipolar circuit breaker switch

The cable cross-sections are given as a guide only. The installer is responsible for checking that these comply with current norms.

		MUSE 40-2	MUSE 50-2	MUSE 60-3	MUSE 80-3	MUSE 100-4	MUSE 120-5
Voltage/Frequency values	V/Hz	220-240/50	220-240/50	220-240/50	220-240/50	220-240/50	220-240/50
Nominal current in cooling mode	A	5.4	7.6	8.3	10.7	18.7	20.6
Maximum current	A	10	11	13	16	22.5	24.5
Power cable cross-section	mm <sup>2</sup>	3G1.5	3G1.5	3G1.5	3G2.5	3G4.0	3G4.0
Circuit breaker		C16A	C16A	C16A	C20A	C25A	C25A
Cross-section of cable connecting the indoor and outdoor units	mm <sup>2</sup>	4G1.5	4G1.5	4G1.5	4G1.5	4G1.5	4G1.5

Connect the main supply to the outdoor unit and make the connection as shown in the diagram below:



The connection cable on indoor units must be connected to the corresponding terminal block. If not, this will cause the unit to malfunction or may even damage the equipment.

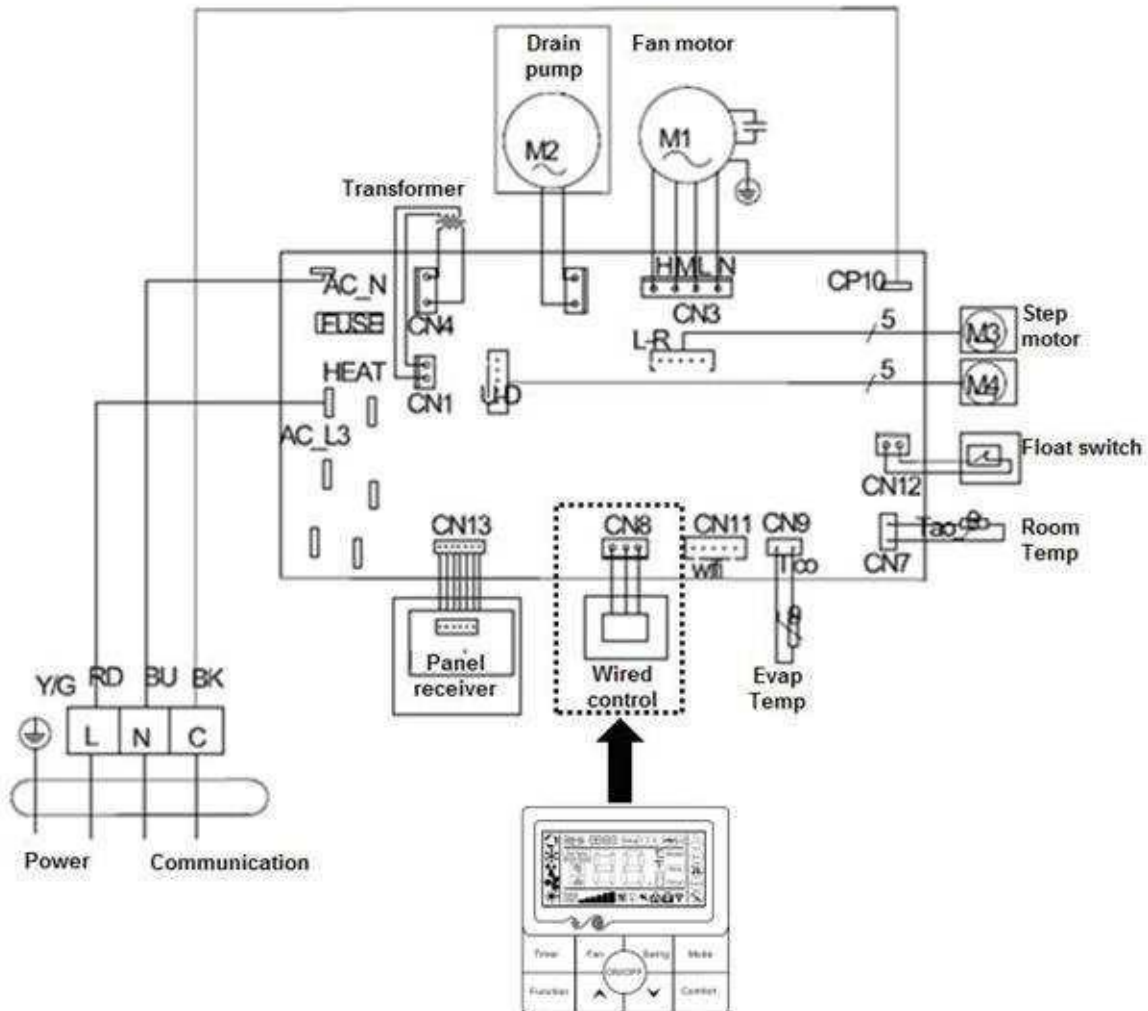
- The diagram above is just one example of 5x1 outdoor units connected. Wall-mounted, ceiling-mounted/consoles, cassettes and ductable units can be connected to any terminal on the outdoor unit.

- Ensure that the earth wire is connected correctly, to avoid the risk of certain electrical components malfunctioning and to avoid causing a shock or a fire.

- Do not reverse the polarity.

## CONNECTION TO THE WIRED REMOTE CONTROL FOR CASSETTES

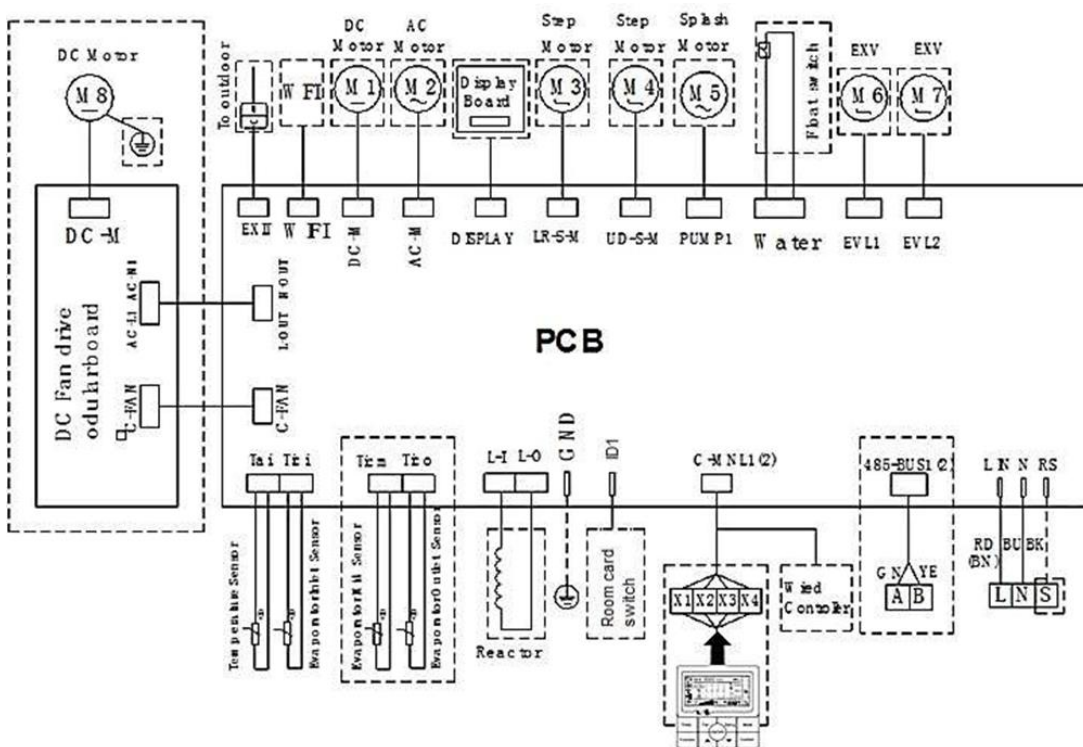
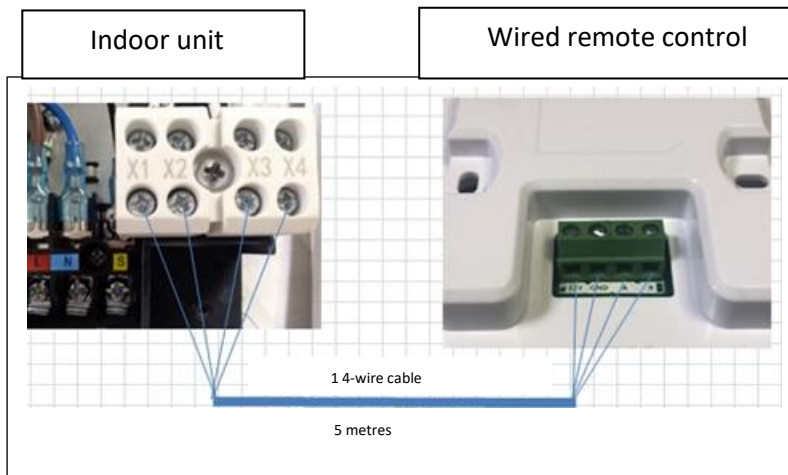
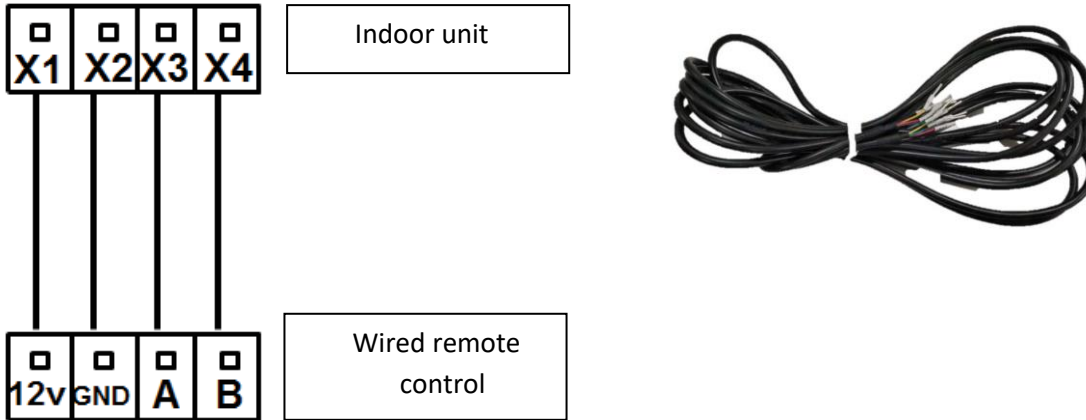
- Connect the white connector to the "CN8" connector on the indoor unit's PCB, as shown in the diagram below:



## CONNECTION TO THE WIRED REMOTE CONTROL FOR CONSOLES AND DUCTABLE UNITS

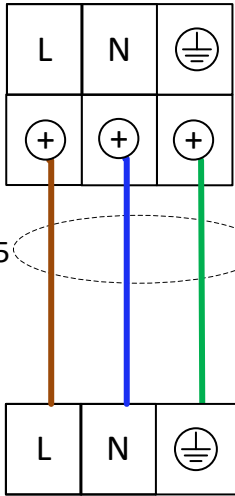
For ductable units, the wired control is supplied as standard

- Connect the wired remote control, using the cable provided, to terminal block X1, X2, X3, X4 on the indoor unit. Follow the colour code and ensure that the connection terminals on the wired remote control are correctly connected to the terminal blocks on the indoor unit as follows:



MUSE 50-2 outdoor unit

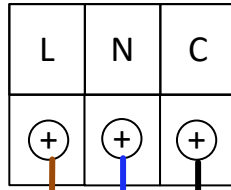
Power supply to the MUSE outdoor unit



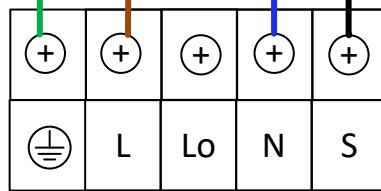
3G1.5

Electric panel power supply

Unit A

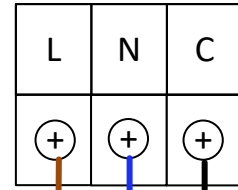


4G1.5

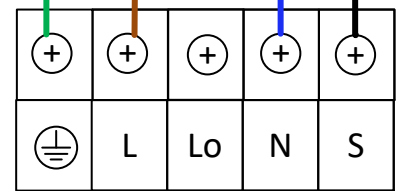


UME indoor unit

Unit B

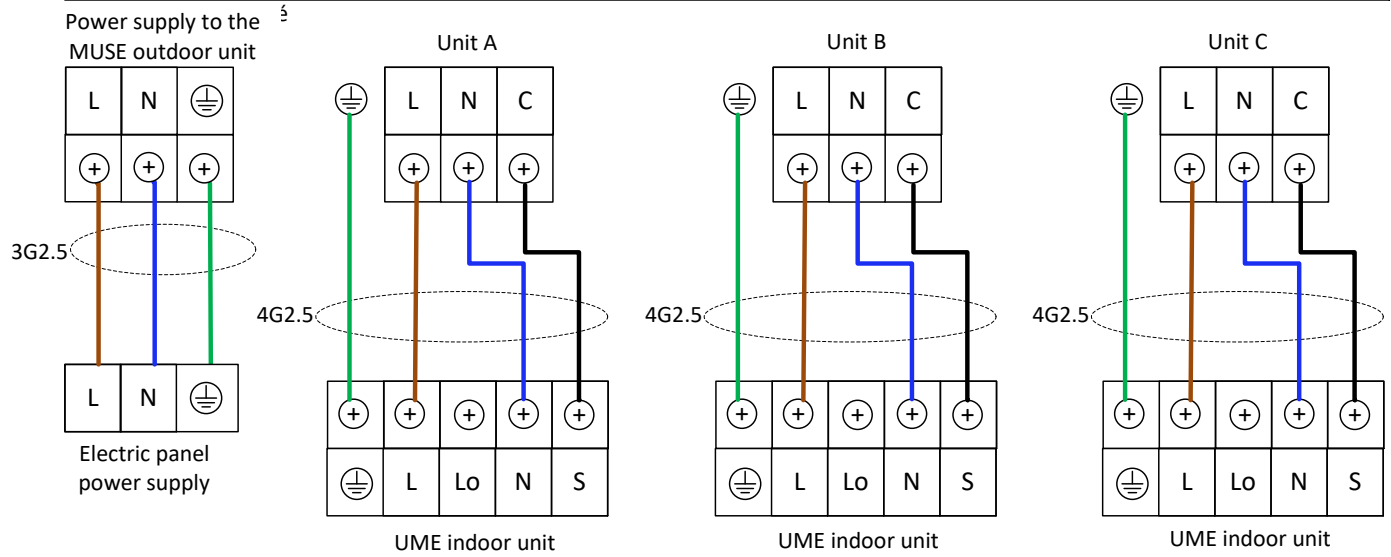


4G1.5



UME indoor unit

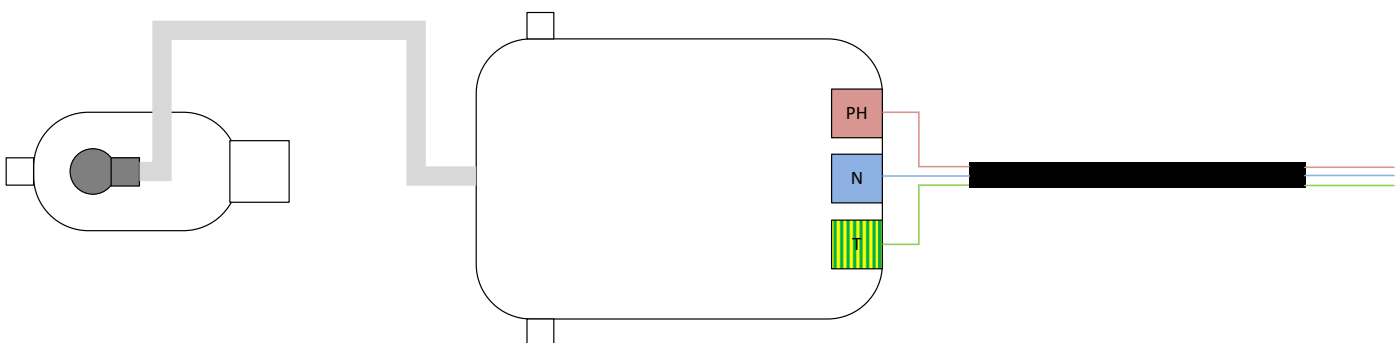




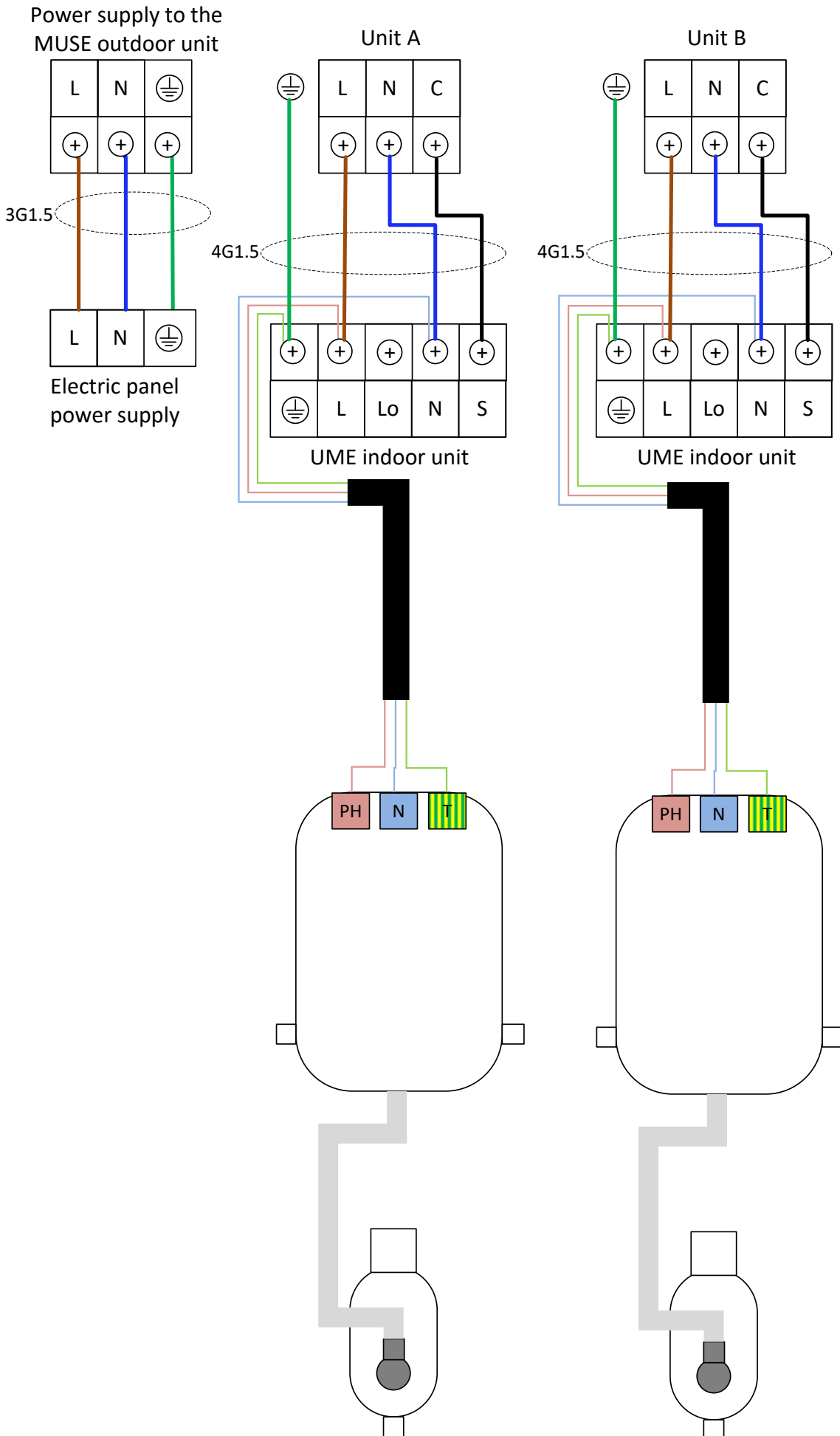
Example of wiring wall-mounted units or consoles with a lift pump

It is possible to connect a condensate lift pump to our indoor units (see diagram below).

Diagram of a mini lift pump

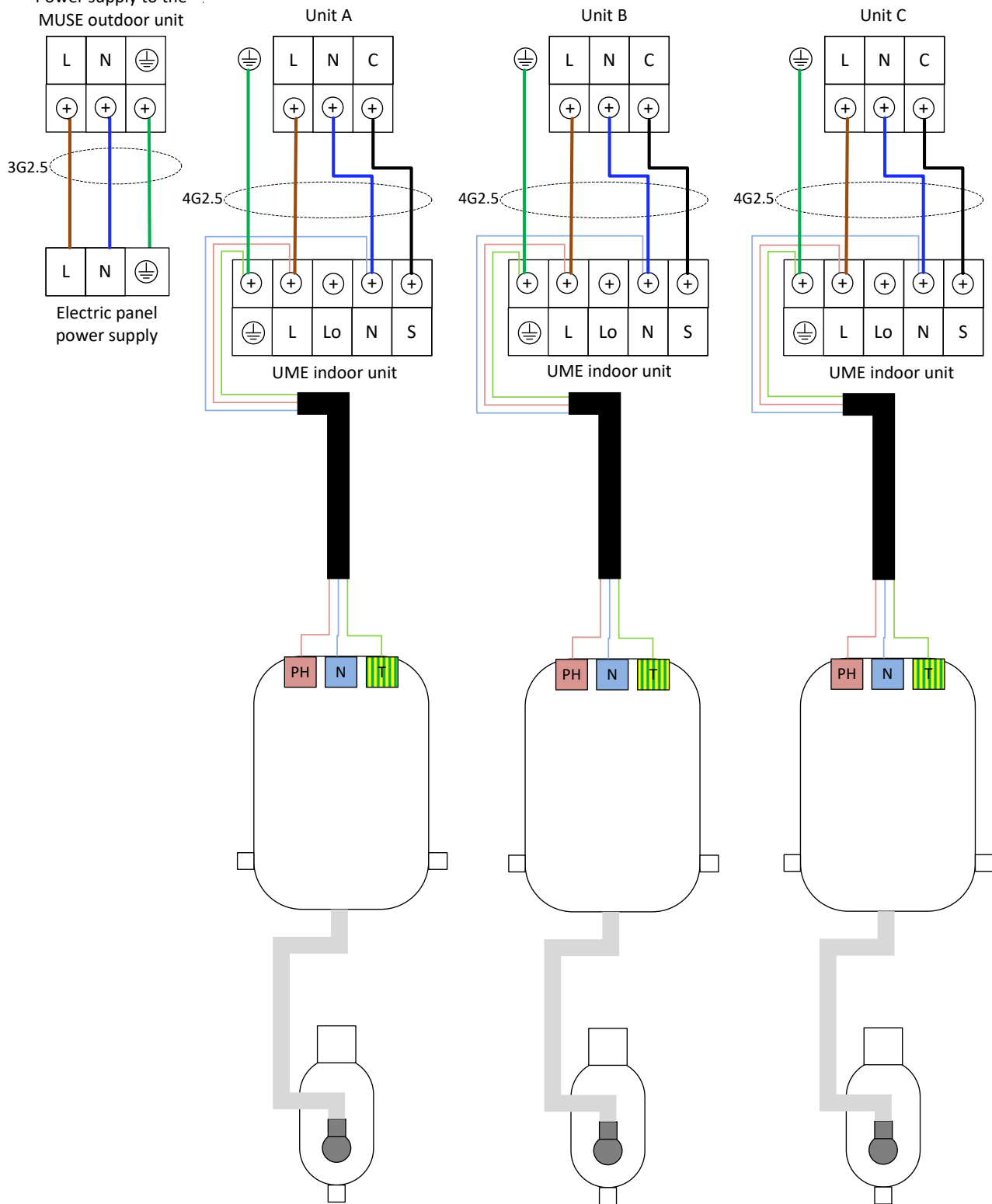


MUSE 50-2 outdoor unit





Power supply to the :  
MUSE outdoor unit



## Troubleshooting

Do not have the air conditioner repaired by an unqualified person, as there are risks associated with the electrics and R32 refrigerant fluid. Always contact a professional.

Error code	Problem
L1	Overcurrent protection fault
L3	Compressor supply fault (phase loss)
L4	Inverter protection module fault
E1	Room temperature sensor fault
E2	Fault on the refrigerant sensor in the OU
E3	Fault on the refrigerant sensor in the IU
E4	IU fan fault (motor PG)
E5 (5E)	Communication error between IU and OU
E8	Communication error between the display and the PCB on the indoor unit
F0	OU fan fault (motor DC)
F1	Inverter PCB fault (IPM)
F2	OU protection PCB fault (PFC)
F3	Compressor fault
F4	Discharge sensor fault
F5	Compressor overcurrent fault
F6	Outside air sensor fault
F7	High or low voltage fault
F8	Communication fault
F9	OU EEPROM fault
H1	Condensate discharge fault
H2	Communication error between the wired remote control and the PCB on the indoor unit
H5	Low discharge temperature sensor fault
H6	Low pressure sensor fault
H7	Low pressure fault
H8	4-way valve fault
FA	Inlet sensor fault
P2	High pressure sensor fault
P4	Electrical overload in cooling mode
P5	Electrical overload in heating mode
P6	IU overheating protection in heating mode
P7	IU frost protection in cooling mode
P8	OU overcurrent protection

## WiFi module

Using and installing the WiFi option on wall-mounted units

- **Step 1**

For UME 25/35 units, the WiFi module is installed on a detachable panel of the indoor unit.



- For UME 50/70 units, the WiFi module is installed inside the filter support block.



- **Step 2**


For Android mobiles: Download the "SMART CLIM" app.



For IOS mobiles: Download the "SMART CLIM" app.

- **Step 3**

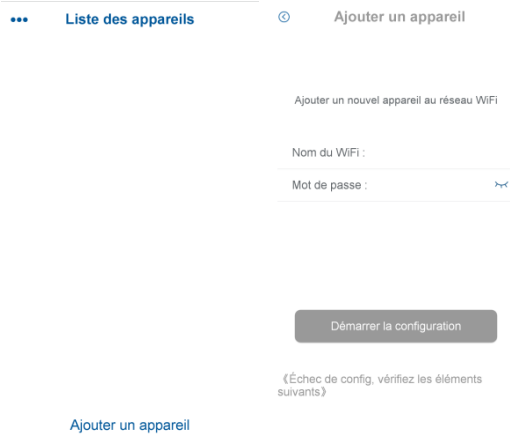
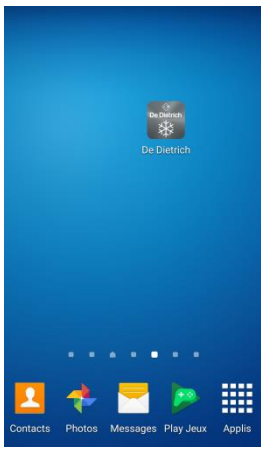
At initial WiFi connection or when the box is replaced  
The WiFi must be reset:

Press the  button 8 times when the board beeps twice,  
the system is validated.



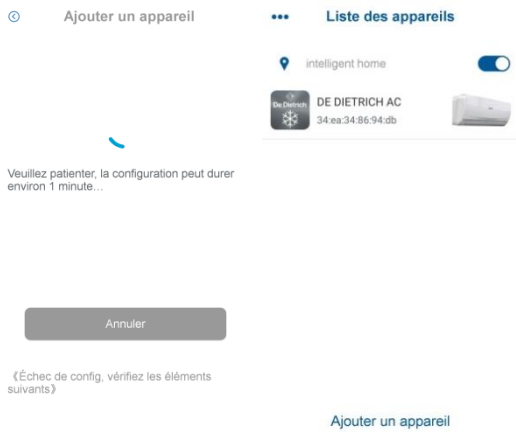
- **Step 4**

Open the "DeDietrich" app → "Add appliance" on your mobile → Enter the WiFi name and password (BOX)



• **Step 5**

Once configuration is complete, the air conditioner will appear in the app



• **Step 6**

Press "appliance" to access WiFi control



## Work at height

- To avoid the risks of working at height, follow the procedure below in the order indicated:

- Wherever possible, organise work, processes and equipment so as to avoid working at height (e.g. levelling mechanism, telescopic equipment, etc.)
- If the risk remains, note that the law requires temporary work at height to be carried out from an **operating surface designed to prevent falls from height**.
- Where work cannot be carried out from an operating surface, equipment will be selected so as to guarantee safe working conditions.
- **The means of access is the responsibility of the installer or the maintenance company, which should take all necessary measures to enable technicians to work safely and in accordance with the labour code.**

# Acoustic integration of air conditioners

## Definitions:

The acoustic performance of the following outdoor units:

- Acoustic performance  $L_w$  expressed in dBA:  
It characterises the noise emission capacity of the source independently of its environment. It allows the appliances to be compared.
- Sound pressure  $L_p$  expressed in dBA:  
This is the value perceived by the human ear, and depends on parameters such as the distance from the source, the size and the type of walls in the building. The regulations are based on this value

## Noise nuisance:

Regulations concerning neighbourhood noise can be found in the decree of 31/08/2006 and in standard NF S 31-010. Noise nuisance is defined by the emergence, which is the difference between the sound pressure level measured when the appliance is switched off and the level measured when the appliance is operating in the same location.

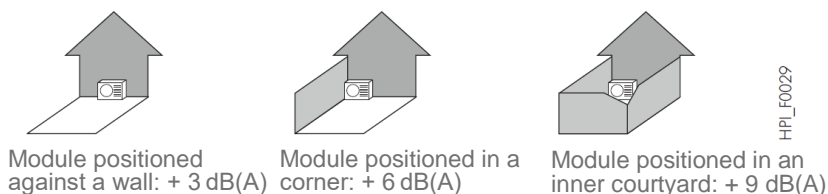
The maximum authorised difference is:

- Day (7 am - 10 pm): 5 dB(A)
- Night (10 pm - 7 am): 3 dB(A)

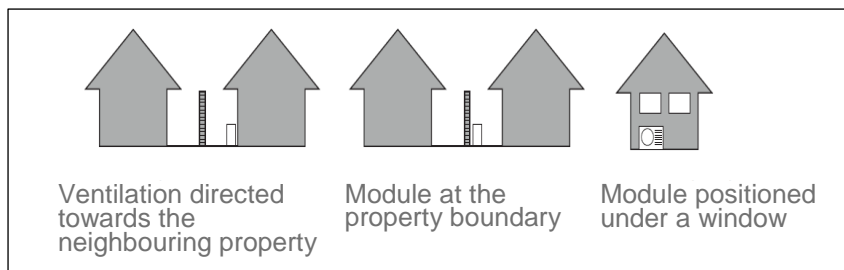
## Recommendations for acoustic integration of the outdoor module:

Do not place it close to where people sleep.

Avoid placing it close to a terrace, and do not install the module opposite a wall. The increase in the noise level due to the installation configuration is shown in the diagrams below:



The layouts shown below are forbidden:



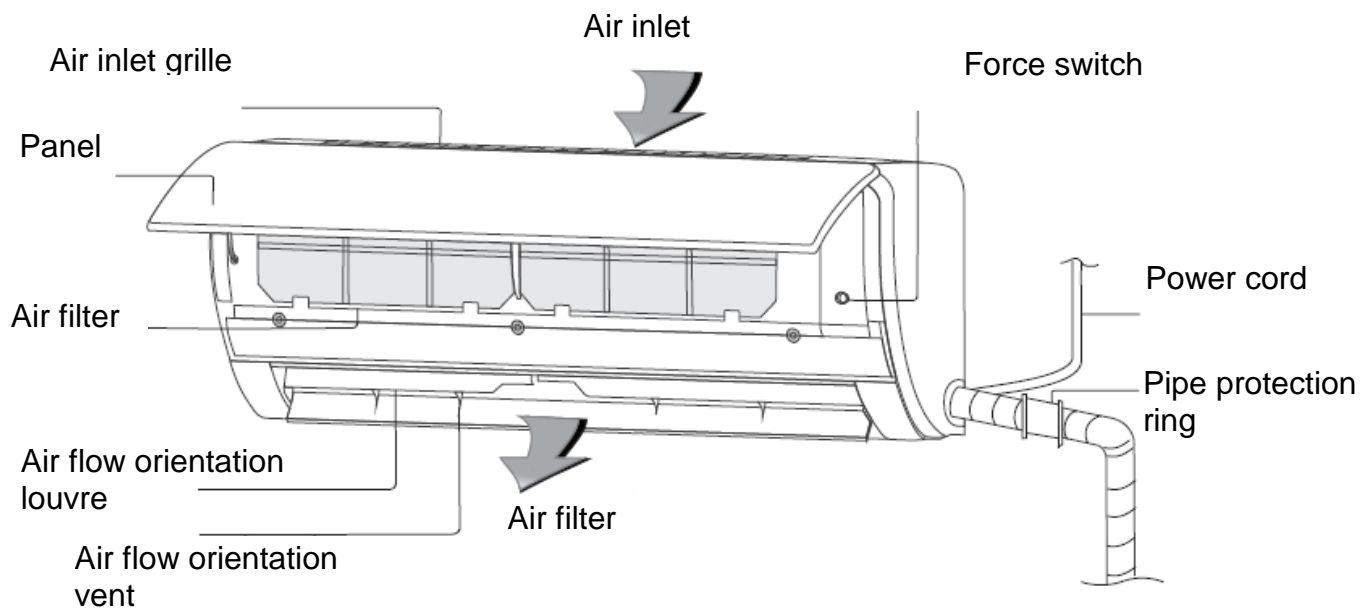
To limit noise nuisance and the transmission of vibrations, we recommend:

- Installing the outdoor module on a metal frame or an inertia base. This base must weigh at least twice as much as the module, and it must be separate from the building. In all cases, anti-vibration mounts must be installed to reduce the transmission of vibrations.
- The use of suitable sleeves for routing refrigerant connections through walls.
- The use of flexible, anti-vibration materials for mountings.
- The installation on refrigerant connections of vibration damping devices such as loops, bends or elbows.

It is also recommended to install an acoustic attenuation device, for example:

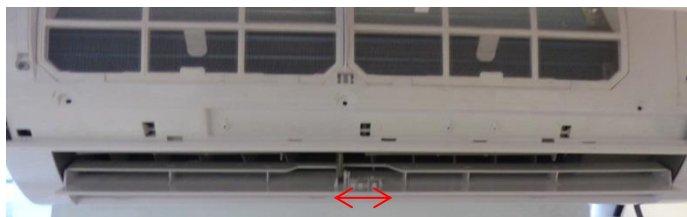
- Sound-absorbent wall material to be installed on the wall behind the module.
- A sound barrier: the surface of the barrier must be a sound barrier: the surface of the barrier must be positioned as close as possible to it, while allowing air to circulate freely. The barrier must be made from a suitable material such as acoustic bricks, concrete blocks covered with absorbent material. It is also possible to use natural barriers, such as banks of earth.

## Maintenance of Wall-mounted indoor units



Removing the filter block for better access to the electrical and refrigerant connections.

A: remove the shutter by sliding the clip



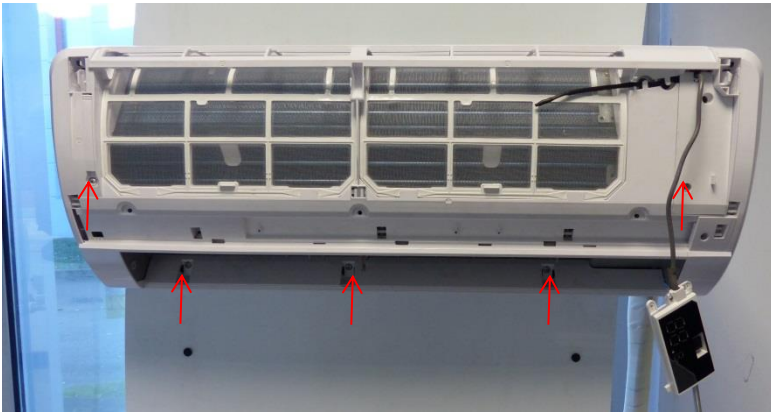
B: Remove the panel and the display



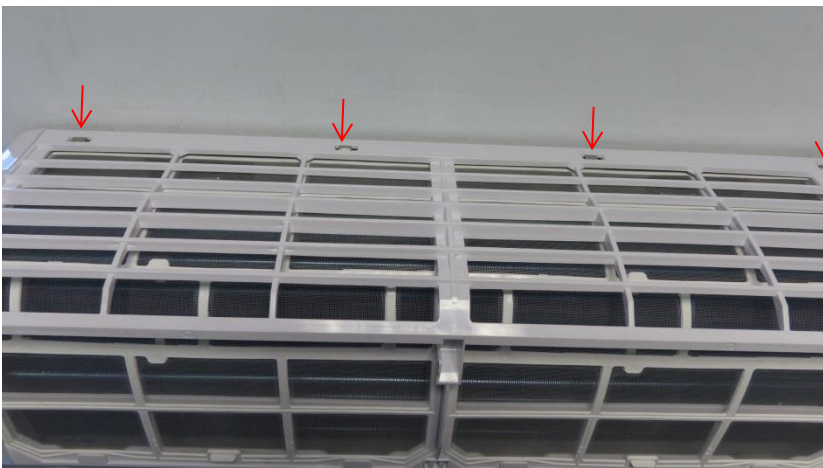
C: Remove the covers to access the Phillips-head screws



D: Remove the four Phillips-head screws



E: Detach the four lugs located above the filter block

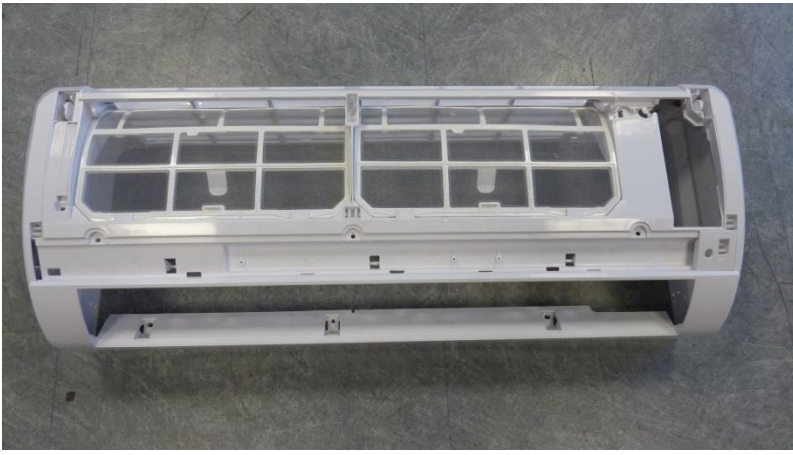


F: Unit without filter block

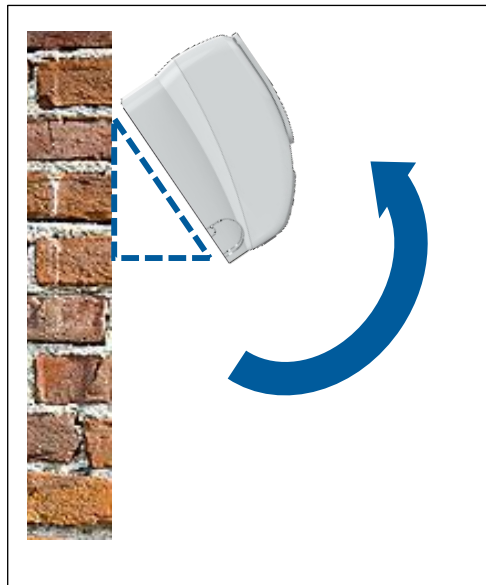


G: Filter block:





H: For better access to electrical and refrigerant connections and condensate discharge. The unit can be moved 10 cm away from the wall.



**Notes: Schematic diagram**

- Notes for cooling/heating.

In cooling mode, with high relative humidity (80%), droplets of condensation may form at the air outlet of the indoor unit.

In heating mode, the indoor unit fan starts up when the coil is warm to avoid blowing cool air.

During defrosting, the air conditioner will stop heating for approximately 5-12 minutes.

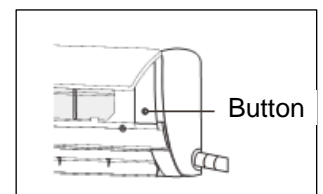
During defrosting, steam may be emitted from the outdoor unit. This is caused by defrosting, and is not a fault.

- Emergency mode.

If the remote control is broken or the batteries are weak, press the button

If the indoor unit is OFF, the unit will switch to auto mode when the button is pressed.

If the indoor unit is ON, the unit will switch to OFF mode when the button is pressed.



- Air direction.

Up/down switching is motorised

Right/left switching is motorised too

- Cleaning.

To prepare for cleaning, switch off the power and wait 5 minutes before carrying out any work to avoid the risk of electric shock.

Do not rinse using large amounts of water

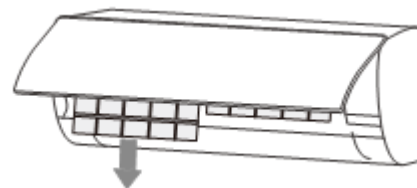
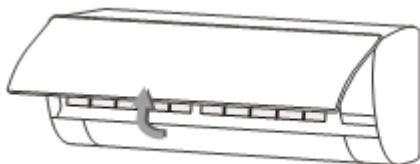
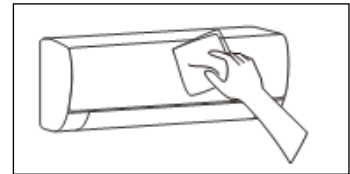
Do not use petrol, diesel or detergent type products to clean.

Clean the filters regularly

Clean the unit using water at a temperature below 40 °C

- Cleaning the filters

Open the panel and engage the stay



Remove the filters and vacuum clean them or wash with water at a temperature below 45° C



Refit the filters



BDR THERMEA France

57 rue de la gare

F-67580 Mertzwiller

**Better performance**

**Less pollution**

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