



AQUAREA



Introducing the NEW Panasonic Aquarea L Generation with R290

The NEW Panasonic Aquarea L Generation uses R290 refrigerant and a hydraulic split design

The refrigerant will remain in the outdoor unit and should not require intervention. In the unlikely case that the refrigerant should need to be handled, this document provides guidance on key points of consideration for the Service Engineer.



Model	R290 (kg)
WH-WDG05LE5	0.96
WH-WDG07LE5	0.96
WH-WDG09LE5	1.0

Key Information about R290 refrigerant:

- GWP = 3
- Class (ISO 817) = A3 "Higher Flammability".
- LFL = 0.038 kg/m³.
- Properties and Appearance:
 - Colourless.
 - Odourless.
 - Exists in vapour form at normal atmospheric pressure.
 - Denser than air.

Competency:

All personnel involved in installation works should be appropriately competent for the tasks they will perform.

This includes:



Knowledge of and adherence to local and national, regulations and standards (e.g., EN 378).



Understand the associated risks and hazards (e.g., flammability).



The ability to create a safe working environment.



The ability to employ safe working practice.

Storage and Transport:

ADR Regulation: 'European Agreement concerning the International Carriage of Dangerous Goods by Road.'

This regulation sets out rules that allow for the safe transportation of goods. Dangerous goods are classified and have a 'UN number' assigned by the consignor. Control measures and limitations can then be applied.

In the case of the Aquarea L Generation, UN number 3358 and Transport Category 2 is applicable. This is the same UN number and Transport Category as the Panasonic R32 products. Therefore, the control measures for transportation by road remain unchanged.

If the total vehicle load remains below '1000 points', systems remain below the ADR threshold. Therefore, the minimum safety requirements would apply:

- General training for driver (ADR 1.3.2). A record should be kept (ADR 1.3.3).
- Carry one 2 kg dry powder fire extinguisher or equivalent (ADR 8.1.4.2).
- Stow the dangerous goods properly (ADR 7.5.7).

For more information, please refer to the latest edition of ADR Regulations.

Storage is subject to each local fire brigades' assessment and should be checked individually. Although it is expected that storage measures remain unchanged; for R290 systems, it is the same as for R32 systems.



Important

- **It is the responsibility of the installer/service engineer to ensure that they adhere to local and national regulations.**
- **Work should only be carried out in accordance with the manufacturer's recommendation. For the Aquarea range, please refer to the Installation and Service Manuals.**

Protective Workwear, Equipment and Tools:

Protective workwear requirements are the same as with existing R32 products.

However special care should be taken to avoid the occurrence of electrostatic discharge, when handling refrigerant.

General personal protective clothing requirements:

- Appropriate workwear (protective clothing and shoes).
- Eye protection or face shield.
- Protective Gloves.

For handling refrigerant, the following protective equipment should be used:

- Fire extinguisher (2 kg dry powder or CO₂).
- Leak Monitor & Leak Detector (suitable for R290).
- Warning signs.
- Barriers.

Tools and Equipment used for handling R290 refrigerant must be suitable for flammable refrigerants (Class A3).

	Equipment	Difference vs. R32
	Manifold Gauge & Torr Gauge	Must measure and Display R290
	Leak Monitor & Leak Detector	Must detect R290
	Vacuum Pump	Must be suitable for class A3 refrigerants
	Recovery Machine	Must be suitable for class A3 refrigerants

Requirements and recommendations, by task:

Depending on the specific activity being performed (e.g. Installation, PCB replacement, refrigerant recovery), the minimum requirements and recommendations will vary. The table below provides guidance on what is considered 'required', 'not required' and 'best practice'.

	Installation & Routine Maintenance	Electrical Repair	Refrigerant Handling
Example activity:	<ul style="list-style-type: none"> Installing Aquarea L Series Periodical check 	Replacing a PCB	<ul style="list-style-type: none"> Recovering refrigerant. Replacing a heat exchanger
Knowledge of regulations and safety of R290:	Required	Required	Required
Personal protective equipment (as appropriate):	Required	Required	Required
Use of leak monitor:	Best practice	Best practice	Required
Flammable refrigerant handling competency:	Not required	Not required	Required
Protective zone required:	Not required	Not required	Required
Special tools and equipment: (Suitable for R290 / A3 refrigerants)	<ul style="list-style-type: none"> Leak Monitor (best practice) 	<ul style="list-style-type: none"> Leak Monitor 	<ul style="list-style-type: none"> Leak monitor Leak detector Manifold gauge & Torr gauge Vacuum pump Recovery machine

Safe Working Zone:

For engineers handling R290, Panasonic recommends the application of a 'safe working zone'. This should be a controlled area, with a 2 m radius around the Outdoor unit, where there are no sources of ignition and therefore refrigerant handling can be performed with a reduced risk:

- Before beginning, inform people about the nature of the works due to commence.
- Mark area as a temporary flammable zone, using signage and barriers.
- Power supplies within the zone should be disconnected and isolated during works.
- All tools and equipment used must be suitable for use with flammable refrigerants. They may only be connected to power supplies which are outside of the zone.
- Ensure a 2 kg dry powder or CO₂ fire extinguisher is present.
- Check R290 refrigerant is not detected near the unit before works commence. Leave the monitor in operation at the base of the unit. Perform a final check on the system once works are complete. The monitor should be capable of providing an audio and visual alarm.

