10 Troubleshooting

10.1 Fault messages

In the event of a fault, a fault code is shown on the display of the indoor unit's control.

- Use the "Fault messages" table (→ installation instructions for the indoor unit, Appendix).

10.2 Other faults

- Use the "Troubleshooting" table (→ installation instructions for the indoor unit, Appendix).

11 Inspection and maintenance

11.1 Preparing for inspection and maintenance

- Only carry out the work if you are competent and have knowledge about the special features and risks of R290 refrigerant.

Danger!

Risk of death caused by fire or explosion if there is a leak in the refrigerant circuit!

The product contains the combustible refrigerant R290. In the event of a leak, escaping refrigerant may mix with air to form a flammable atmosphere. There is a risk of fire and explosion.

- If you are working on the product when it is open, before starting work, use a gas sniffer to ensure that there is no leak.
- In the case of a leak: Close the product's housing, inform the end user, and notify customer service.
- Keep all ignition sources away from the product. In particular, open flames, hot surfaces with temperatures above 370 °C, electrical devices that are not free from electrical sources, static discharges.
- Ensure that the room is sufficiently aerated around the product.
- Use a restriction to ensure that unauthorised personnel cannot enter the protective zone.

- Observe the basic safety rules before carrying out inspection and maintenance work or installing spare parts.
- When working on a flat roof, observe the occupational safety (→ Chapter 5.9) rules.
- Switch off all of the disconnectors to which the product is connected in the building.
- Disconnect the product from the power supply but ensure that the product is still earthed.
- When working on the product, protect all electric components from spraying water.

11.2 Observing the work plan and intervals

- Comply with the specified intervals. Carry out all of the work that is mentioned (Appendix D).

11.3 Procuring spare parts

The original components of the unit were also certified as part of the CE declaration of conformity. Information about available Vaillant genuine spare parts is available by contacting the contact address provided on the reverse of this document.

- If you require spare parts for maintenance or repair work, use only Vaillant genuine spare parts.

11.4 Carrying out maintenance work

11.4.1 Checking the protective zone

- Check whether the defined protective zone is being maintained in the area close around the product. (→ Chapter 4.1)
- Check that no subsequent construction-related changes or installations that violate the protective zone have been implemented.

11.4.2 Cleaning the product

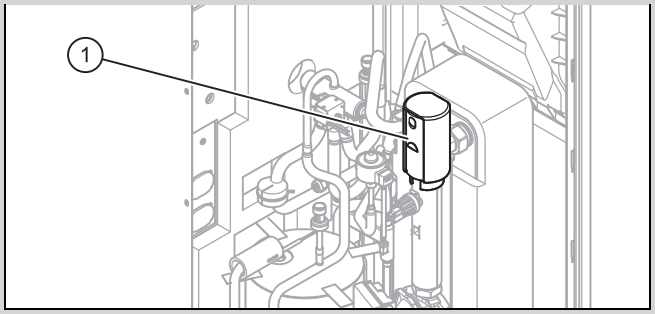
- Only clean the product when all of the casing sections and covers have been installed.
- Do not clean the product with a high-pressure cleaner or a direct jet of water.
- Clean the product using a sponge and hot water with cleaning agent.
- Do not use abrasive cleaners. Do not use solvents. Do not use any cleaning agents that contain chlorine or ammonia.

11.4.3 Removing the casing sections

1. Before removing the casing sections, use a gas sniffer to check whether refrigerant is escaping.
2. Remove the casing sections to the extent required for the subsequent maintenance work.

11.4.4 Closing the purging valve

Condition: Only during the first service

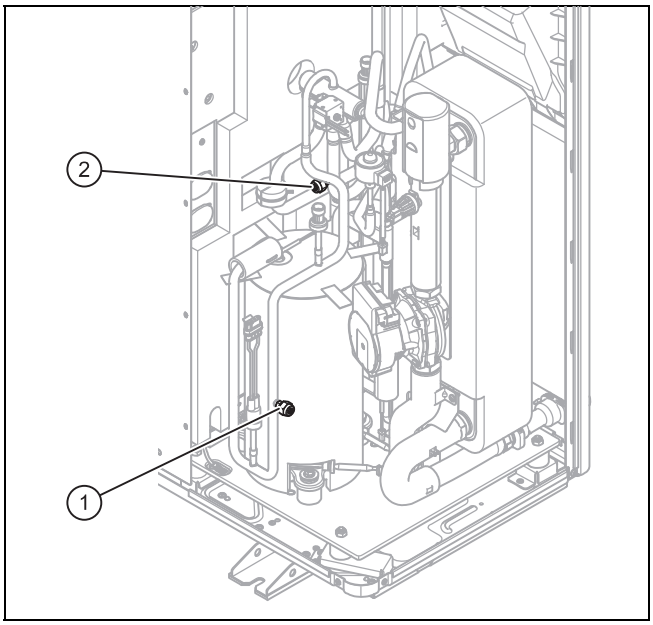


- Close the purging valve **(1)**.

11.4.5 Checking the evaporator, fan and condensate discharge

1. Clean the gaps between the fins using a soft brush. In doing so, avoid fins being bent.
2. Remove any dirt and depositions.
3. If required, straighten out any bent fins using a fin comb.
4. Turn the fan by hand.
5. Check that the fan runs freely.
6. Remove the dirt that has accumulated on the condensate tray or in the condensate discharge pipe.
7. Check that the water can drain freely. Poor approx. 1 l water into the condensate tray.
8. Ensure that the heating wire is inserted into the condensate discharge tundish.

11.4.6 Checking the refrigerant circuit



1. Check whether the components and pipelines are free from dirt and corrosion.
2. Check that the covering caps **(1)** and **(2)** on the maintenance connections are positioned securely.

11.4.7 Checking the refrigerant circuit for tightness

1. Check whether the components in the refrigerant circuit and the refrigerant pipes are free from damage, corrosion and oil leaks.
2. Check the refrigerant circuit for leak-tightness using a gas sniffer. In doing so, check all of the components and pipelines.
3. Document the result of the leak-tightness test in the service book.

11.4.8 Checking the electrical connections and electrical wires

1. On the connection box, check whether the seal is undamaged.
2. In the connection box, check that the electrical wire are seated firmly in the plugs or terminals.
3. Check the earthing in the connection box.
4. Check whether the power supply cable is damaged. If it needs to be replaced, ensure that it is only replaced by Vaillant or customer service or a similarly qualified person in order to prevent hazards.
5. In the unit, check that the electrical wire are seated firmly in the plugs or terminals.
6. In the unit, check whether the electrical wires are free from damage.

11.4.9 Checking the small damping feet for wear

1. Check whether the damping feet are significantly compressed.
2. Check whether the damping feet have significant cracks.
3. Check whether there is substantial corrosion on the screwed connection for the damping feet.
4. If required, procure and install new damping feet.

11.5 Completing inspection and maintenance

- ► Installing the casing sections.
- ► Switch on the power supply and the product.
- ► Start up the product.
- ► Carry out an operational test and a safety test.

12 Repair and service

12.1 Preparing repair and service work on the refrigerant circuit

Only carry out work if you have specific expert refrigeration knowledge and are competent at handling R290 refrigerant.

Danger!

Risk of death caused by fire or explosion if there is a leak in the refrigerant circuit!

The product contains the combustible refrigerant R290. In the event of a leak, escaping refrigerant may mix with air to form a flammable atmosphere. There is a risk of fire and explosion.

- ► If you are working on the product when it is open, before starting work, use a gas sniffer to ensure that there is no leak.
- ► In the case of a leak: Close the product's housing, inform the end user, and notify customer service.
- ► Keep all ignition sources away from the product. In particular, open flames, hot surfaces with temperatures above 370 °C, electrical devices that are not free from electrical sources, static discharges.
- ► Ensure that the room is sufficiently aerated around the product.
- ► Use a restriction to ensure that unauthorised personnel cannot enter the protective zone.

- ► Switch off all of the disconnectors to which the product is connected in the building.
- ► Disconnect the product from the power supply but ensure that the product is still earthed.

- ► Restrict the working area and put up warning signs.
- ► Wear suitable personal protective equipment and bring a fire extinguisher with you.
- ► Use only safe units and tools that are permitted for R290 refrigerant.
- ► Monitor the atmosphere in the working area using a suitable gas detector that is positioned close to the floor.
- ► Remove all ignition sources, e.g. tools that are not spark-free. Take protective measures to prevent static discharges.
- ► Remove the top casing, the front casing and the right-hand side casing.

12.2 Removing refrigerant from the product

Danger!

Risk of death caused by fire or explosion when removing the refrigerant!

The product contains the combustible refrigerant R290. The refrigerant may mix with air to form a flammable atmosphere. There is a risk of fire and explosion.

- ► Only carry out the work if you are competent at handling R290 refrigerant.
- ► Wear suitable personal protective equipment and bring a fire extinguisher with you.
- ► Only use tools and units that are permitted for R290 refrigerant and are in proper working condition.
- ► Ensure that no air gets into the refrigerant circuit, into refrigerant-carrying tools or units, or into the refrigerant cylinder.
- ► Note that the refrigerant R290 must never be introduced into the sewage system.
- ► Do not use the compressor to pump the refrigerant into the outdoor unit (no pump-down).

Caution.

Risk of material damage when removing the refrigerant.

When removing the refrigerant, there is a risk of material damage caused by freezing.

- ► If no system separation is present, remove the heating water from the condenser (heat exchanger) before the refrigerant is removed from the product.

1. Procure the tools and units that are required for removing the refrigerant:
   - Extraction station
   - Vacuum pump
   - Recycling cylinder for refrigerant
   - Manometer bridge
2. Only use tools and units that are permitted for R290 refrigerant.
3. Use only recycling cylinders that are approved for R290 refrigerant, have been labelled appropriately, and are equipped with a pressure relief and isolation valve.
4. Only use hoses, couplings and valves that are leak-tight and in proper working condition. Check the tightness using a suitable gas sniffer.
5. Drain the recycling cylinder.
6. Extract the refrigerant. Take into account the maximum fill quantity of the recycling cylinder, and monitor the fill quantity using calibrated scales.
7. Ensure that no air gets into the refrigerant circuit, into refrigerant-carrying tools or units, or into the recycling cylinder.
8. Connect the manometer bridge to both the high-pressure side and the low-pressure sides of the refrigerant circuit and make sure that the expansion valve is open in order to ensure that the refrigerant circuit is completely drained.

12.3 Removing components of the refrigerant circuit

- ► Flush the refrigerant circuit with nitrogen.
- ► Drain the refrigerant circuit.
- ► Repeat the process of rinsing with nitrogen and draining until there is no longer any refrigerant in the refrigerant circuit.
- ► If you want to remove the compressor in which the compressor oil is located, use sufficient negative pressure to drain it for long enough to guarantee that there is no longer any combustible refrigerant in the compressor oil.
- ► Establish the atmospheric pressure.
- ► Use a pipe cutter to open the refrigerant circuit. Do not use soldering equipment or sparking or chipping tools.
- ► Remove the component.
- ► Note that removed components could continue to release refrigerant for a long time due to outgassing from the compressor oil contained in the components. This applies in particular for the compressor. Only store and transport these components in well-aerated locations.

12.4 Installing components of the refrigerant circuit

- ► Install the component correctly. To do this, use only soldering processes.
- ► Carry out a pressure test of the refrigerant circuit using nitrogen.

12.5 Filling the product with refrigerant

Danger!

Risk of death caused by fire or explosion when filling with refrigerant!

The product contains the combustible refrigerant R290. The refrigerant may mix with air to form a flammable atmosphere. There is a risk of fire and explosion.

- ► Only carry out the work if you are competent at handling R290 refrigerant.
- ► Wear suitable personal protective equipment and bring a fire extinguisher with you.
- ► Only use tools and units that are permitted for R290 refrigerant and are in proper working condition.

► Ensure that no air gets into the refrigerant circuit, into refrigerant-carrying tools or units, or into the refrigerant cylinder.

Caution.

Risk of material damage when using the incorrect refrigerant or contaminated refrigerant.

The product may be damaged if it is filled with the incorrect refrigerant or contaminated refrigerant.

► Use only R290 refrigerant that has not been used before and is specified as such, and the purity of which is at least 99.5%.

1. Procure the tools and units that are required for filling with refrigerant:
   – Vacuum pump
   – Refrigerant cylinder
   – Scales
2. Only use tools and units that are permitted for R290 refrigerant. Only use refrigerant cylinders that are labelled accordingly.
3. Only use hoses, couplings and valves that are leak-tight and in proper working condition. Check the tightness using a suitable gas sniffer.
4. Only use hoses that are as short as possible in order to minimise the refrigerant volume that they can hold.
5. Flush the refrigerant circuit with nitrogen.
6. Drain the refrigerant circuit.
7. Fill the refrigerant circuit with R290 refrigerant. The required fill quantity is specified on the product's data plate. Ensure in particular that the refrigerant circuit is not overfilled.
8. Check the refrigerant circuit for leak-tightness using a gas sniffer. In doing so, check all of the components and pipelines.

12.6 Completing repair and service work

► Installing the casing sections.
► Switch on the power supply and the product.
► Start up the product. Temporarily activate the heating mode.
► Check the product for leak-tightness using a gas sniffer.

13 Decommissioning

13.1 Temporarily decommissioning the product

1. Switch off all of the disconnectors to which the product is connected in the building.
2. Disconnect the product from the power supply.
3. If there is a risk of frost damage, drain the heating water from the product.

13.2 Permanently decommissioning the product

Danger!

Risk of death caused by fire or explosion when transporting units that contain refrigerant!

The product contains the combustible refrigerant R290. When transporting units without their original packaging, the refrigerant circuit may be damaged and refrigerant may be released. When mixing with air, a combustible atmosphere may form. There is a risk of fire and explosion.

► Ensure that the refrigerant is correctly removed from the product transport.

1. Switch off all of the disconnectors to which the product is connected in the building.
2. Disconnect the product from the power supply but ensure that the product is still earthed.
3. Drain the heating water from the product.
4. Remove the top casing, the front casing and the right-hand side casing.
5. Remove the refrigerant from the product. (→ Chapter 12.2)
6. Note that refrigerant will continue to escape even after the refrigerant circuit is completely drained due to outgassing from the compressor oil.
7. Install the right-hand side casing, the front casing and the top casing.
8. Label the product using a sticker that is visible from the outside. Note down on the sticker that the product has been decommissioned and that the refrigerant has been completely removed. Sign the sticker and specify the date.
9. Recycle the removed refrigerant in accordance with the regulations. Note that the refrigerant must be cleaned and checked before it is used again.
10. Dispose of or recycle the product and its components in accordance with the regulations.

14 Recycling and disposal

14.1 Disposing of the packaging

- ▶ Dispose of the packaging correctly.
- ▶ Observe all relevant regulations.

14.2 Disposing of the refrigerant

Danger!

Risk of death caused by fire or explosion when transporting refrigerant!

If R290 refrigerant is released during transport, a flammable atmosphere may form when it mixes with air. There is a risk of fire and explosion.

- ▶ Ensure that the refrigerant is transported correctly.

- ▶ Ensure that the refrigerant is disposed of by a qualified competent person.

15 Customer service

15.1 Customer service

You can find contact details for our customer service in the Country specifics.