



EXTERNAL

/// RAPID NEWS

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SUBJECT:
IMPORTANT remark to Daikin Altherma installations – domestic hot water circuit components

Dear Madam, Dear Sir,

By this Rapid News we'd like to highlight and stress the importance of pressure relieving devices within the Domestic Hot Water (DHW) circuits connected to Daikin Altherma units.

Recently, several cases of unit damage have occurred due to the lack of pressure relieving devices (pressure relief valve / expansion vessel) within the DHW circuits or their improper operation. When cold water gets heated up inside a DHW tank by any heat source (such as the Daikin Altherma, solar heating, other sources), the water volume expands. If the water has nowhere to expand to (no pressure relief valve; no expansion vessel; reverse flow into the cold water supply blocked by a non-return valve or pressure regulating valve), the pressure in the DHW circuit can rise quickly to levels exceeding the design pressure of many components in the DHW circuit, including the Daikin Altherma unit.

We'd like to remind you that the requirement of pressure relieving devices is stated in Daikin Altherma documentation, most notably in Installer Reference Guides. Nonetheless with this Rapid News, we'd like to especially highlight this information.

Minimum of what is necessary

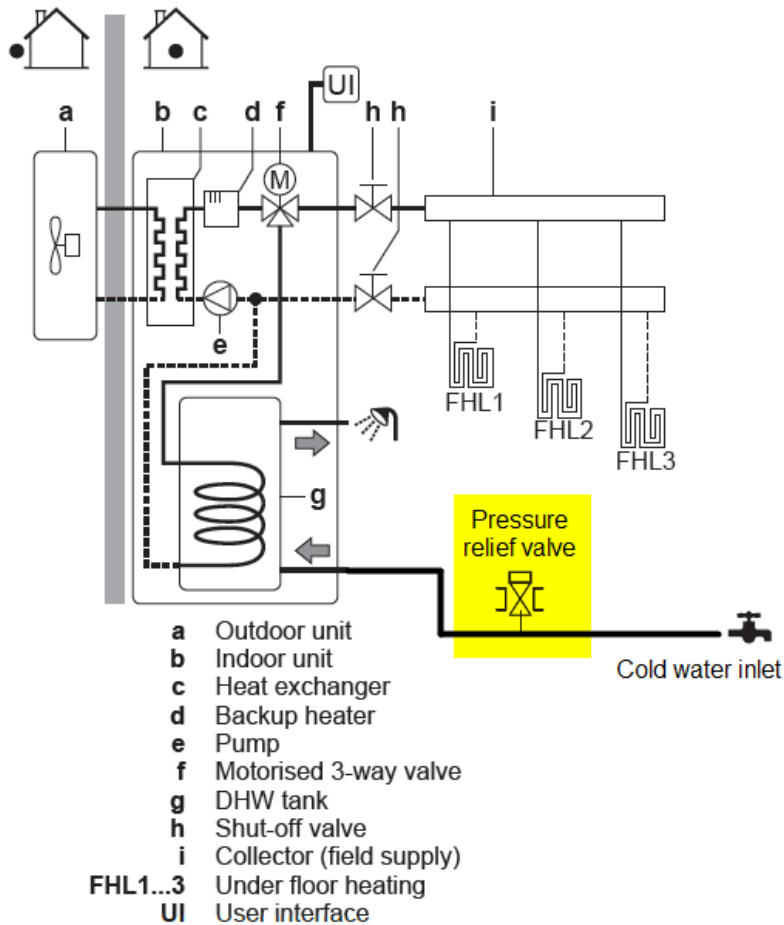
As a minimum, **a pressure relief valve with an opening pressure of maximum 10 bar must be installed in the DHW circuit** connected to the unit, noting the following:

- For operation reliability reasons, relief valves must generally be **installed on the cold water inlet** side of the DHW circuit to avoid operation with hot water
- For operation reliability reasons, relief valves must generally be **installed in an upward direction** to avoid dirt and sediment accumulation inside the valve
- There must not be any closed valve or flow restricting device between the unit and the relief valve - e.g. if shut-off valves have been installed at the unit's DHW inlet and outlet, they must never be closed except for service & maintenance purposes when the unit is turned off
- **The correct operation of the relief valve must be regularly confirmed.** Sediments and limescale can cause improper operation – failure of the relief valve to open at required overpressure or failure to close after pressure decrease

Please note that the installation of such a relief valve is mandated by legislation in many countries! Also, legislation or rules of water supply companies often require the installation of non-return valves preventing back-flow into the cold water supply, causing that expanding water cannot expand into the cold water line.

Note also that the safety valve already integrated in Daikin Altherma units is only for the space heating circuit and does not protect the DHW circuit – **the relief valve for the DHW circuit must be field supplied!**

System layout – Integrated DHW tank



Note: the above layout is a modified and simplified diagram for the Daikin Altherma LT floor-standing (integrated) unit, however, the requirement of the pressure relief valve is applicable for all DHW circuits connected to any Daikin product.

Furthermore, to prevent waste of water, it is recommended to also install an expansion vessel in the DHW circuit. This will prevent water expulsion through the relief valve every time the DHW tank heats up while there's no DHW consumption.

Risks in case no relief valve is installed

In case no relief valve nor any other pressure relieving device is installed and in case the domestic hot water cannot reverse-flow into the cold water supply, pressures in the DHW circuit can reach and even exceed 20 bar, which far exceeds design and safety limits of various components in the DHW circuit.

Possible damage to Daikin units:

		
<p>DHW tank deformation</p>	<p>DHW tank deformation causing deformation of outer casing</p>	<p>DHW tank rupture and water leak</p>

Examples of information in Daikin Altherma documentation

R410 Altherma LT integrated unit – EHVH/X-CB – Installer Reference Guide



NOTICE

- A drain device and pressure relief device should be installed on the cold water inlet connection of the domestic hot water cylinder.
- To avoid back siphonage, it is recommended to install a non-return valve on the water inlet of the domestic hot water tank in accordance with the applicable legislation.
- It is recommended to install a pressure reducing valve on the cold water inlet in accordance with the applicable legislation.
- An expansion vessel should be installed on the cold water inlet in accordance with the applicable legislation.
- It is recommended to install the pressure relief valve on a higher position than the top of the domestic hot water tank. Heating of the domestic hot water tank causes water to expand and without pressure relief valve the water pressure inside the tank can rise above the tank design pressure. Also the field installation (piping, tapping points, etc.) connected to the tank is subjected to this high pressure. To prevent this, a pressure relieve valve needs to be installed. The overpressure prevention depends on the correct operation of the field installed pressure relief valve. If this is NOT working correctly, overpressure will deform the tank and water leakage may occur. To confirm good operation, regular maintenance is required.

R32 Altherma LT integrated unit – EHVH/X-D

Installer Reference Guide	Installation Manual
<p>NOTICE</p> <p>A pressure relief valve (field supply) with an opening pressure of maximum 10 bar must be installed on the domestic cold water inlet connection in accordance with the applicable legislation.</p> <hr/> <p>NOTICE</p> <ul style="list-style-type: none"> A drain device and pressure relief device must be installed on the cold water inlet connection of the domestic hot water cylinder. To avoid back siphonage, it is recommended to install a non-return valve on the water inlet of the domestic hot water tank in accordance with the applicable legislation. It is recommended to install a pressure reducing valve on the cold water inlet in accordance with the applicable legislation. An expansion vessel should be installed on the cold water inlet in accordance with the applicable legislation. It is recommended to install the pressure relief valve on a higher position than the top of the domestic hot water tank. Heating of the domestic hot water tank causes water to expand and without pressure relief valve the water pressure inside the tank can rise above the tank design pressure. Also the field installation (piping, tapping points, etc.) connected to the tank is subjected to this high pressure. To prevent this, a pressure relieve valve needs to be installed. The overpressure prevention depends on the correct operation of the field installed pressure relief valve. If this is NOT working correctly, overpressure will deform the tank and water leakage may occur. To confirm good operation, regular maintenance is required. 	<p>NOTICE</p> <p>A pressure relief valve (field supply) with an opening pressure of maximum 10 bar must be installed on the domestic cold water inlet connection in accordance with the applicable legislation.</p>

The above examples are not exhaustive and the same requirements apply for all DHW circuits connected to any Daikin unit.

In case of questions please do not hesitate to contact your Daikin representative.

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