ZEB® + Ducted Hot Air Unit

Use Cases and Installation Consideration

v1.0

Why pair a ZEB + Ducted Hot Air Unit?

Homes with an existing ducted air system who do not wish to convert to a wet central heating system can benefit from the advantages of a ZEB, by installing a hot air interface unit. This unit will use hot water supplied by the ZEB and exchange the heat to the air circuit which is then distributed through the ducted air system by a fan.

When could you install a ZEB with a Ducted Hot Air Unit?

A ZEB + Ducted Hot Air Unit can be considered when:

- The home uses a ducted hot air system for space heating
- There is space to install both the ZEB and Ducted Hot Air Unit
- Power supply to the house can support a ZEB installation
- Heat demand is within the capacity of the ZEB (12,000 kWh/yr, 15kW peak)
- Ducted Hot Air Unit sizing is matched to the ZEB output
    - E.g. Johnson & Starley Aquair S-20

What are the limitations of pairing a ZEB + Ducted Hot Air Unit?

The ZEB has a peak electrical consumption of 9kW, so the mains supply must be able to support the power consumption of the ZEB.

The ZEB has a peak output power of 15kW, so the peak demand on the system should not exceed the total power output of the ZEB - including scenarios of heating a space from cold.

There must be space available to install both the ZEB and the ducted hot air interface unit.

Consideration / Requirements

The thermostat can be connected to the ZEB + Ducted Hot Air Unit in either of two ways:

1. Connected directly to the Ducted Hot Air Unit, with a relayed signal for the call for heat to the ZEB; or
2. Connected to the ZEB, with the Ducted Hot Air Unit connected as a zone within the heating system

The advantage of option 2 is that when paired with the following OpenTherm thermostats, the ZEB can modulate the flow temperature based on the heating demand requirement to provide a more comfortable and consistent heating experience:

- Resideo evohome (with OpenTherm bridge)
- Resideo T4M
- Resideo T6R
- tado° v1 (RU01)
- tado° v3+ Wired
- tado° X
- EPH Ember CP4i (with RF1A receiver)
- Google Nest Thermostat E (with HeatLink) - *Discontinued*
- Google Nest Learning Thermostat, 3rd Generation (T3028GB) (with HeatLink) - *Discontinued*

Installation Schematic

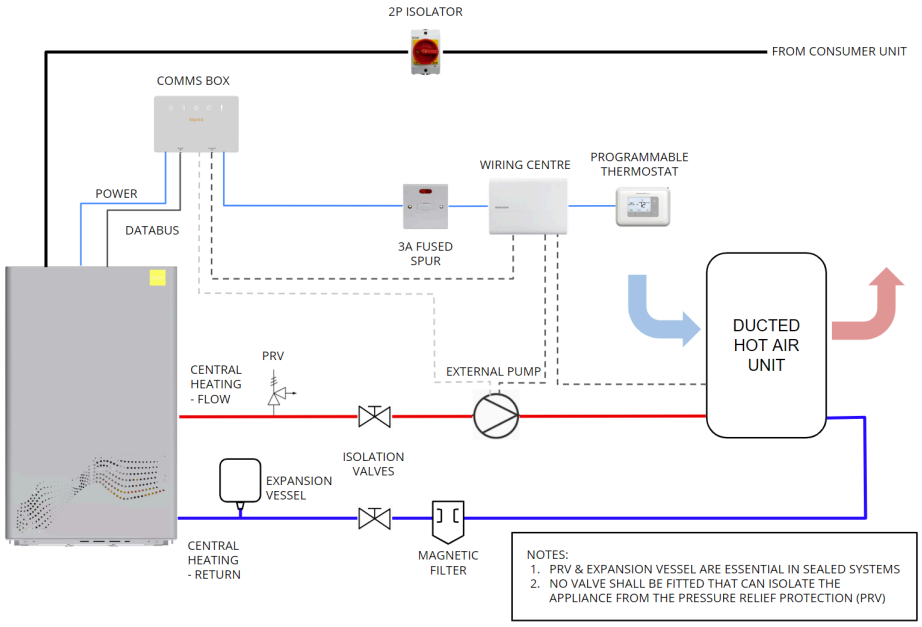

Figure 1: Recommended installation with thermostat connected directly to ZEB (option 2); and hot air unit controlled directly as zone, without system bypass valve

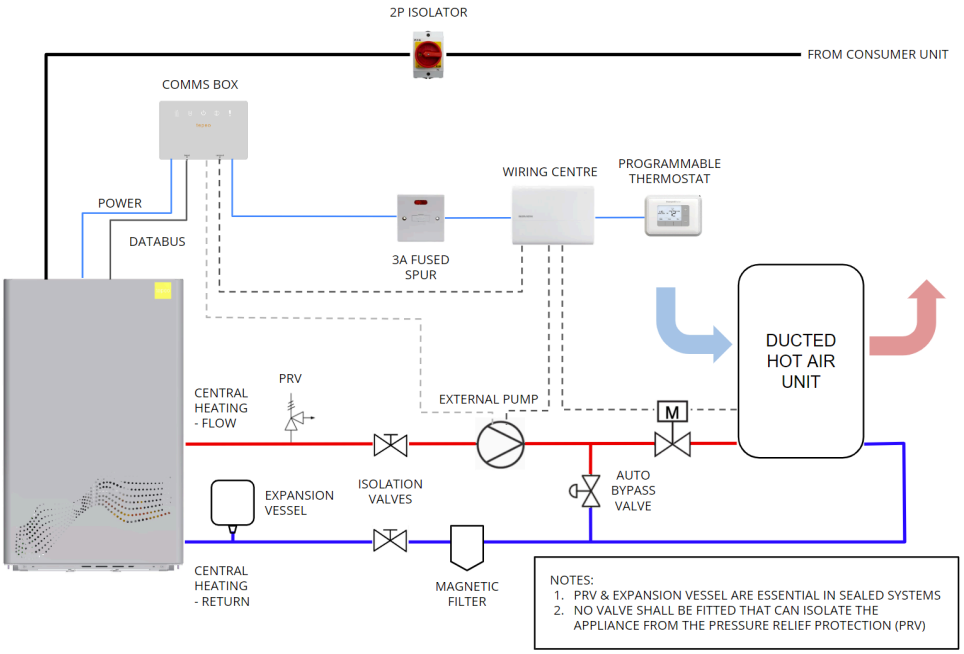

Figure 2: Recommended installation with thermostat connected directly to ZEB (option 2); and hot air unit controlled via zone valve, with system bypass valve

Guidance for Plumbing / Electrical Wiring

For best results, it is recommended to use an OpenTherm thermostat and connect the call for heat to the ZEB volt-free contacts. The Ducted Hot Air Unit should then be configured as a zone within the heating system.

Controls

If using an OpenTherm thermostat, the flow temperature should be controlled by the thermostat depending on the heating requirement, and the heating system should self-regulate.

When using a standard thermostat, the flow temperature of the ZEB should be set high enough to deliver the required amount of heat; however a lower temperature will help prevent the heating system cycling on and off.

NB minimum flow temperatures apply if the system includes an indirect hot water cylinder.

The ZEB flow temperature should be set to a minimum of 45°C in order to activate the fan on the Ducted Hot Air Unit.

Hot Water Implications

Hot water should be provided as per a standard ZEB installation.