

# data sheet

## Ground-Air Heat Exchanger



fresh air by design

### Product Overview

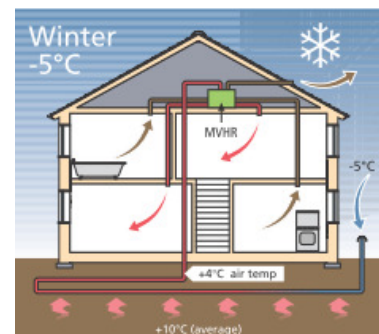
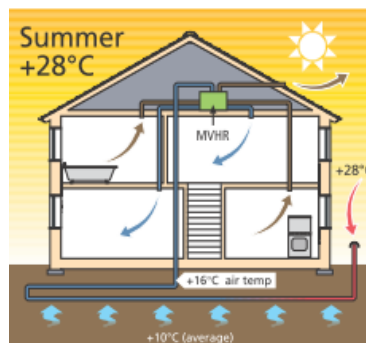
Rehau's Awadukt ground-air heat exchanger exploits the natural temperature of the ground to provide a cost-effective source of renewable energy. The concept of a ground-air heat exchanger relies on the fact that at depths of 1.5 to 2m below the surface the earth's temperature is a constant 8-12°C throughout the year. By drawing air through an underground network of pipes, this air is either pre-heated by the ground in the winter or pre-cooled in the summer (see diagrams below). In combination with an ADM heat recovery ventilation system, this significantly reduces the heating and cooling costs for a building.

It does this by reducing the amount of energy a heat recovery unit requires to heat up the incoming air. Additionally, the constant supply of pre-cooled air into the building in the summer provides a pleasant cooling effect.

The pipe is made of polypropylene and comes complete with a unique integrated antimicrobial layer, made of silver particles. This prevents microbial growth on the inside of the pipe, which would otherwise cause musty smells. The air inlet also has a dust and pollen filter, further benefiting allergy sufferers.



Typical installation



Piping and air inlet.

For a typical domestic application, a single 40m loop of pipe around the house is normally sufficient for the demands. If a loop layout is not possible, a meander layout can be used. The pipes are laid a metre apart in the existing soil and require a gradient of 2° to the condensation discharge, which can build up when the air is cooled in the summer. This is discharged using a submersible pump or plumbed into a waste system.

ADM have bespoke design software in order to calculate the expected outputs of the system, based on UK weather data. This software shows the kilowatt-hours per annum which can be saved in both heating and cooling operation and also the Coefficient of Performance (COP) of that project. A COP of around 50 can be achieved using the Awadukt ground-to-air heat exchanger, which, compared with a COP of between 3-4 for a ground-source heat pump, makes it a very efficient source of renewable energy.

ADM Systems  
Ling Fields, Gargrave Road, Skipton  
North Yorkshire BD23 1UX  
t: 01756 701051  
f: 01756 701076  
e: info@admsystems.co.uk

[www.admsystems.co.uk](http://www.admsystems.co.uk)



fresh air by design