



Space Air Solutions Ltd, Guildford based subsidiary of the well known Daikin Distributor, Space Airconditioning plc, specialises in the Daikin Altherma range of heat pumps.

For the last 50 years Daikin has been the leading innovator in the heat pump industry. Because of this focus on innovation Daikin was the first to deliver Total Climate Control that respects the environment, is highly efficient and cost effective.

The constantly expanding Daikin heat pump range includes the award winning breakthrough development - the Daikin Altherma Flex. Initially developed to cover large-scale commercial applications where space heating and hot water production are a priority. This air to water heat pump system, which is designed to replace the conventional fossil fuel central heating system, while reducing carbon emissions and lowering energy bills, incorporates cascade technology which enables larger volumes of hot water to be produced efficiently.

### **The first centralised air source heat pump**

Leaving water temperatures from 25° to 80°C make the system suitable for all types of heat emitters (radiators, underfloor heating, fan coil units, heat pump convectors) as well as hot water production. Typical applications include hotels, fitness centres, spa facilities, hospitals, libraries and schools, applications where typically there is a higher than average demand for continuous hot water. However the Flex system is equally suited to larger homes and in particular, apartment buildings or collective housing. The 'Flex' is the first centralised air source, air to water, heat pump system to allow independent control and billing of heating and domestic hot water within each individual dwelling that it supplies. One outdoor unit can supply up to 10

separate dwellings and multiple outdoor units can be installed for larger applications.

### **Higher leaving water temperatures thanks to the cascade principle**

Two refrigeration cycles are a principle feature of the Flex system, one being R410A and the other R134a – in a cascade configuration to heat the water circuit. The purpose of a cascade system is to attain or work with pressures and temperatures, which cannot be achieved by using only one refrigerant cycle. The aim is to get the best characteristics out of the two active cycles.

The highly efficient and reliable outdoor units (between 23 and 45kW capacity), are based on the market leading Daikin VRV technology, these units absorb heat energy from the ambient air and elevate the temperature and pressure level of the first refrigerant cycle (R-410A), while the indoor unit ramps this heat energy to even higher levels via the second refrigerant cycle (R-134a), resulting in water temperatures up to 80°C using only renewable heat and heat pump technology, without the need for any supplementary electric heaters.

### **Flexible application**

The system can be connected to Daikin hot water or thermal storage tanks as well as to (existing) 3rd party tanks. Daikin solar heating systems can also be integrated for even greater efficiency. The high leaving water temperatures of Daikin Altherma Flex Type also make it well suited to upgrading existing heating systems, allowing the retention of installed high temperature radiators.

The modular construction of Daikin Altherma Flex, combined with several capacity classes (6,9,11,14 and 16kW) of indoor units, allows precise configuration for specific needs and optimum system efficiency. The Flex system indoor and outdoor units are compact and lightweight, for quick, flexible installation.

### **Low running costs**

The Daikin Altherma Flex from Space Air is today's answer to current and future issues of increasing energy costs and the unacceptably high environmental impact associated with conventional fossil fuel, combustion based heating systems. With the Daikin Altherma Flex system 2/3 of the generated heat comes from the ambient air, which is recognized as a renewable energy source that is free of charge!

The Flex system's cascade technology, in combination with inverter control of the compressors and weather dependant temperature control, results in extremely efficient operation with remarkable COPs up to 3.5. Running costs can be up to 36% less than comparable oil or gas installations, with up to 35% less primary energy use and up to 71% less CO2 emissions.

Contact Space Air Solutions for more information on Daikin Altherma Flex systems for commercial or residential applications, and the entire Daikin Altherma range of energy efficient heat pump solutions. Or visit [www.spaceairsolutions.co.uk](http://www.spaceairsolutions.co.uk)