

Fact Sheet

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Radiators for Heat Pumps

Facts at a glance:

Heat Pumps Maximum flow Temperatures

The maximum space-heating flow temperature for heat pumps is generally quoted as 50 – 55°C

Heating distribution

Underfloor systems generally need a flow temperature of around 35°C due to their large heat emitting area, whereas radiators need a higher flow temperature which means that the heat pump will run with a lower efficiency than underfloor.

Radiators

Ideally radiators should be designed to run at the lowest flow temperature as possible and to have even flow throughout the radiator.

Heat pumps work by raising the temperature from an environmental source (usually either the ground or air between 0 and 10°C) to a higher level. The maximum space-heating flow temperature for heat pumps is generally quoted as 50 – 55°C, this being a similar temperature to that required to keep a condensing boiler in condensing mode.



A wet style underfloor heating system in a well-insulated building will need a maximum flow temperature of around 35°C, so the heat pump needs a maximum rise of perhaps 25°C to 35°C. Very few existing buildings have a wet style underfloor system fitted, so if they are to be heated with a heat pump, they need a radiator system sized so that it heats the rooms to design temperatures (typically 18°C throughout, 21°C in the main living area) at the DOT (Design Outdoor Temperature, usually around -1°C). The system design should use the lowest possible water flow temperature, preferably well below 50°C to provide the maximum efficiency from the heat pump. This would generally require the radiators to be oversized when comparing it to radiators for a gas, oil or LPG boiler.



Most normal radiators are connected with their flow and return at the bottom corners, so only the bottom section of the radiator will attain the actual flow temperature. This means that for conventional radiators to heat a building to its design temperatures they need to be over-sized by some margin.

Vogel and Noot Ltd have a range of radiators call the 'T6 Compact', which suit heat pumps particularly well in that they have an even flow throughout the radiator. They also have

the advantage that the plumbing connections are identical, no matter what size of radiator is fitted, so pipes can be installed before the radiators, and they can be swapped out for different sizes with ease.

Full details available from:

www.vogelundnoot.com/index_eng.htm

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