Towards a Decarbonised Energy System with Heat Pumps

Project Green HP is Based on a Multi-Level Research Approach

The building sector is one of the main consumers of energy in Europe. This fact has prompted the EU-funded development of a heating system for use in urban areas that can interact with future smart energy infrastructures. Carbon dioxide (CO₂) levels emitted from European cities must be dramatically reduced to meet current EU 2030 goals or targets outlined in several EU directives. One key solution for turning high-populated cities into sustainable living areas is by renovating and retrofitting buildings with low emission heating systems. Heat-pump technologies can cover the energy demands of residential and commercial applications as well as industrial processes without a loss of comfort or quality. They offer a real opportunity to close the gap between the current ambition level and the climate and energy targets of the EU and the world.

The EU-funded project «Next generation heat pump for retrofitting buildings» (Green HP) is addressing these challenges by developing an advanced heating system with minimum environmental impact using air/water heat pump technology that is both economically and environmentally viable. Due to limited space in cities, heat pumps should be integrated into existing buildings and must be compatible with pre-existing heating systems. In addition, installation and running costs must be sufficient to make the changeover to heat pumps in urban areas economically attractive.

The Green HP project is designed to be retrofitted into multi-family or commercial buildings with a living area of around 600 m². It is based on a variable capacity air/water heat pump and is capable of supplying up to 30 kW of heat for space heating and domestic hot water. Air/water heat pumps are cheaper than ground-coupled heat pumps as they are much easier to install.

Moreover, researchers are developing the concept for integrated operation with a photovoltaic and solar thermal system and investigating the use of propane as an alternative refrigerant.

They will demonstrate how an air/water heat pump unit can interact with large energy systems, such as a smart grid environment in particular. In addition, the use and storage of energy will be rationalised.

The research undertaken in this three-year project is based on a comprehensive multi-level research approach ranging from innovative heat pump components to advanced system integration concepts.

£300 million for Heat Networks

The UK's Government's Spending Review announced £300 million in funding to support 200 heat networks across the country, opening the door to £2 billion of infrastructure investments in UK cities. In reaction to the announced funding, ADE Director Tim Rotheray said: «The money for heat network infrastructure represents a milestone in the development of a long-term strategic framework. There are currently 180 potential heat network investments in cities and towns across the country, with a potential investment value of £2 billion, 15 of those networks are ready for investment now.»

GEA Heat Exchangers Becomes Kelvion

Standalone Presence of a Well-known Team in Heat Exchanger Market

Something's happening in the international heat exchanger business: another new standalone company has been created out of the former heat exchanger division of the GEA Group AG. Due to a change of ownership, the company is now ready to take on the competition around the world under the name Kelvion. The other segments of the heat exchanger division will operate under different names and market presence, like Dencon-Happl (former Air Treatment) whilst the Power Cooling Solutions business was renamed before the end of 2015.

The new company name pays homage to Lord Kelvin, a pioneer of thermodynamics. The name Kelvion is new, but we continue as global experts in heat exchange with plate heat exchangers, finned-tube heat exchangers, shell-and-tube heat exchangers, modular cooling towers and refrigeration heat exchangers, said Michael Andersen, Interim CEO of Kelvion and continues: «We are connecting the best of two worlds: in Kelvion, a long tradition and the solid expertise of our employees meets the flexibility of a medium-sized company. Kelvion addresses a customer group that demands reliability.»