

Field tests with Stirling heater and gas heat pump

Innovative Buderus appliances on the way to series production

Stirling heater
Gas heat pump
ISH 2009

Bosch Thermotechnology is continuing its efforts to develop innovative energy systems: the Buderus brand is now starting field tests with Stirling heaters and its second-generation gas heat pumps.

Up to 70 Stirling heaters will be used in the German field test by Buderus starting in 2009. The compact central heating systems with integrated stratified charge accumulator comprise a Stirling engine and an additional gas condensing boiler. Thanks to combined heat and power generation, the appliances do not only heat living quarters and produce hot water, but also cover the basic demand for electricity in single and two-family homes. A gas burner generates a temperature-dependent pressure wave in a hermetically sealed housing, setting a piston in motion in the housing. The piston movement is converted into electricity by a generator, thus generating electric power for the price of natural gas. Electricity costs can be cut considerably in this way. The appliance supplies roughly half of the household's electricity requirements. In this local system of generating energy with the aid of Stirling technology, the waste heat from power generation is used almost completely to heat the building, achieving an overall efficiency of up to 95 percent. CO₂ emissions are consequently also correspondingly low. Series production of the Stirling heater is scheduled to start in 2011.

Second-generation gas heat pump

In collaboration with "Initiative Gaswärmepumpe IGWP", the association of leading energy supply companies and heating system manufacturers in Germany, Buderus is now testing the second generation of gas heat pumps in the field. The appliances output 10 kilowatts of heat energy by combining natural gas and ambient heat. The new preproduction models achieve standard efficiency values which are 25 to 30 percent higher than those of gas condensing boilers. Compared with these boilers, which are already highly economical and energy-efficient, the new gas heat pumps reduce CO₂ emissions by more than a quarter. The gas heat pump operates with natural gas so that ambient energy from the atmosphere or soil can be used to heat rooms and produce hot water. The various circuits inside the heat pump start up automatically when heat is supplied. There is no need for an additional gas condensing boiler, as the gas heat pump takes over its function of modulating operation, heating the domestic water and covering the peak heat load. The appliances use low-maintenance technology and are ideally suitable for use in both older and newer buildings. The gas heat pump will presumably be introduced in the market in late 2011.



Caption:

Efficient local production of heat and power: the Stirling heater from Buderus in field tests.

Source: Buderus



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In collaboration with "Initiative Gaswärmepumpe IGWP", Buderus is now testing the second generation of gas heat pumps in the field. The appliances will presumably be introduced in the market in 2011.

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