

## PRESS RELEASE

Fuel cells – Presentation of the GAMMA 1.0 Heating Unit with improved stack operation from Ballard Power Systems

### **A final boost on the home stretch before entering the market: BAXI INNOTECH is in great shape at the ISH**

The GAMMA 1.0 Fuel Cell Heating Unit, in its final stage of development at Baxi Innotech, is now appearing in a completely new form: it is smaller, more compact and more efficient. Additionally, in the newly developed Baxi product design, the course is now set for a technically mature, branded unit for home use in the near future.

#### **Frankfurt, 11<sup>th</sup> March 2009.**

At today's Baxi Innotech press conference at the ISH Trade Fair, the new, mini power package that generates energy and heat at the same time is being unveiled before the international specialist press and invited guests. In terms of its technology and appearance, the GAMMA 1.0 already meets many of the demands of an energy-efficient and environmentally friendly product of the future. This very year the first pilot production run is being set up and the fuel cell stack, the heart of the heating unit, is now significantly more efficient. The recently completed agreement between Baxi Innotech and Ballard Power Systems, the largest fuel cell manufacturer in the world, means that Ballard's FCgen 1030 stack will be deployed exclusively in the GAMMA 1.0 in the Callux Practice Test in preparation for the market launch in Germany.

#### **Almost there: an ideal coverage of home energy requirements with the 1.0 kW class**

The changeover from the 1.5 to the 1.0 kW<sub>el</sub> performance class is a new development in our product strategy. The production ratio of electricity to heat is further improved – and the unit has longer running times. This intelligent decision was based on findings from more than 45 field tests. Additionally, the more appropriate settings of the unit in the summer months lead to better operation times throughout the year. Also, with significantly more operation periods at nominal load level, a greater level of efficiency is achieved.

There is another piece of good news for the specialist trade, too. The GAMMA 1.0 power package now has some surprisingly agreeable transport and installation features. Measuring just 60 x 60 cm with a height of less than 160 cm, it is one of the smallest units of its kind that are currently known.

#### **Easy to use to its best advantage – with better energy management**

With an operation temperature of 70°C, the low-temperature polymer electrolyte membrane (PEM) fuel cell is still the favourite when it comes to combined heat and power (CHP) in single-family houses. This factor already enables the GAMMA 1.0 to cover more than its basic load; and single family households will be able to generate around two thirds of their hot water and heating requirement, as well as almost three quarters of their electricity, directly from the CHP process. The GAMMA 1.0 reaches its full performance capability by means of

an integrated calorific boiler; connection to a separate heat storage unit; and the integration of an energy manager – a refined regulatory system for sophisticated heat requirements.

This all-in-one solution is provided with a convenient, centrally operated and comprehensive home energy management programme. Performance values concerning energy consumption, energy efficiency and savings in CO<sub>2</sub> emissions are transmitted to a visual display in the living area. This will in turn raise awareness about how we are managing our resources and have a positive influence on individual consumer behaviour.

### **A partnership that generates performance – the fuel cell stack moves up another gear**

In their search for best-in-class partners, strict demands on quality were decisive factors for both Ballard Power Systems and Baxi Innotech. Their objective was to pursue further development of the stack to meet European requirements, using the know-how of both parties. "This cooperation will be setting a new trend", Guido Gummert, Managing Director of Baxi Innotech, confirmed, "it will set a new benchmark for the performance of all other fuel cell technologies and system manufacturers." The experience Ballard has gained in the Japanese heating equipment market has contributed to the development of their FCgen 1030 Stack, set up for an intended operation time of around 20,000 hours. Its next generation will be taking regional operation and user behaviour into account to enable both partners to be best prepared for the market for fuel cell heating technology well in time.

With the tangible cost reductions that will result from larger production runs, this cooperation is a springboard into a new market for Ballard – and there is an opportunity for both partners to position themselves well in advance. John Sheridan, President and CEO of Ballard, stated that "We are very happy to be working with Baxi, as an experienced system integrator and heating equipment manufacturer known throughout Europe". The contract agreement does not just set out the deployment of the subsequent stack for Baxi Innotech. An option has also been agreed with the company for its series production to be carried out in Germany.

### **Seeing the Market Transformation as an opportunity – the BAXI Group is backing pioneer spirit as their recipe for success**

All in all, the technically mature GAMMA 1.0 design plan – together with the "Dachs" mini cogeneration unit already introduced and the second development project, Stirling's "Ecogen" wall-hanging heating unit – will soon constitute the third pillar in an innovative product range from the Baxi Group, based wholly on combined heat and power generation (CHP). Of these the GAMMA 1.0 is indisputably considered to be the most efficient form of energy generation and deployment for home use. On this point Martyn Coffey, CEO of the Baxi Group, points out in his speech that, "We see combined heat and power generation, the simultaneous generation of electricity and heat, as the most efficient solution for responsibly confronting changes in climate and energy policy." He went on to say that "this will have a tangible influence on our product development policy – as the progression away from classical boilers to complete system-oriented management strategies emerges. On the way there, we are encouraging every

one who is involved in partnership with us to join us in being the first to successfully shape the micro CHP market and establish it in the long term."

### **Callux – Clear steps to the market launch**

The Callux Project in September 2008 set the market introduction of stationary fuel cell technology for heating equipment on course. In this project the German Federal Government and the industry are together backing an efficient new technology that promises considerable savings in CO<sub>2</sub> output. More than 80 million Euros, half of which come from the industry's own funds and half from state subsidies, flow step-by-step into the development of these projects for the market. As a result energy suppliers and manufacturers will be achieving meaningful results from 800 test units in the field by the end of 2012. In Germany alone, there is a potential requirement for up to 250,000 fuel cell heating units in single family houses that can in future be provided with energy-saving, environmentally-compatible heat and electricity with this technology. Baxi Innotech is already a long way ahead in meeting environmental demands. As Guido Gummert puts it, "The GAMMA 1.0 is the result of six years' intensive cooperation with suppliers, utility companies and the specialist trade and can achieve savings of between 40 and 50 per cent of CO<sub>2</sub> emissions. Our design plan for the fuel cell stack shows significantly higher performance levels that will in future provide 20,000 hours of operation." He goes on to say that, "in this way we will be providing an excellent complement to traditional heating technology – one that is significantly more efficient and more in tune with the environment."

### **PRESS PHOTO 3\_ish2009, caption:**

PP, description: "BI\_PCGumm\_Coffey"

PP, caption: Guido Gummert, Martyn Coffey and Mark Kirby (Ballard), ISH, Unveiling

**Not secret any more:** On ISH 2009, Martyn Coffey, CEO of BAXI Group, and Guido Gummert, Managing Director of BAXI INNOTECH, present their first pilot production run model GAMMA 1.0, the fuel cell heating unit for detached houses. In cooperation with Ballard all partners are heading for a longlasting and strong fuel cell stack for the European market.

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