



A FURTHER MILE- STONE IN ENERGY EFFICIENCY

Bachmann automates the latest generation of CHP units

With the launch of its 'avus 500 plus' combined heat and power unit, 2G energy has set a new milestone in energy efficiency – and with an electrical output of 550 kW and an efficiency of 42.6% has impressively emphasized its technological leadership. The avus series is once more controlled by the Bachmann M1 automation system.



◀ **Compact performance:** 'avus 500 plus' with an electrical output of 550 kW and an overall efficiency of over 85 %.

Over the course of the energy transition, combined heat and power units (CHP units) are increasingly gaining in importance in smart grid energy systems due to their plannable availability. 2G Energy AG is a company headquartered in Heek, North-Rhine Westphalia, Germany, that has consistently focused on the development and the construction of highly efficient CHP units for natural gas and biogas in the electrical output range between 20 and 2,000 kW. The units of the 'avus' series available in the electrical output range from 500 kW to 2,000 kW achieve through the combined heat and power generation process overall efficiencies of 85% and more. This enables CHP units to take on a noticeably more significant role in the energy mix and a considerably greater contribution to the power supply. Frank Grewe, development manager at 2G Energy, is convinced: "Combined heat and power generation provides an ideal supplement or

even soon the efficient replacement of the large power stations that have dominated the energy supply to date."

Compact high tech

The engines developed by the subsidiary company 2G Drives make an essential contribution to the total energy balance of CHP units. The 'avus 500 plus' uses a water-cooled, turbocharged 12-cylinder gas engine designed for natural gas and biogas applications, but can also be run with synthetic gas containing hydrogen.

Moreover all pumps, heat exchangers and other peripheral units are integrated in such a way that the reduced dimensions make it increasingly easier to install the CHP unit in an existing building infrastructure. "There is an increasing demand in the market for highly compact designs, particularly with high output units," Frank Grewe explains. ▶▶

2G[®]
Kraft-Wärme-Kopplung

With 470 employees worldwide, 2G Energy AG is headquartered in Heek, Germany, and is one of the leading international suppliers of combined heat and power units. The company offers integrated solutions in the growing market for highly efficient combined heat and power generation.

➤ www.2-g.de



» The support from Bachmann is strong. «

*Frank Grewe,
Development manager
at 2G Energy AG*

►► Greater convenience

The integral optimization approach of 2G is not only applied to the engine and the mechanical design but also to the control technology and the software: "Our aim is to design the management of the unit to be as simple and as efficient as possible. This means: More convenience and manageability, intuitive operation and timely diagnostic options." The operation and visualization of the 'avus 500 plus' is implemented with the 10.4" monitor of the Bachmann OT1310 operator terminal. The new OT1300 series combines ultramodern technology, performance and durability with an attractive and slim-line design. The consistent use of industry standard components moreover guarantees long-term availability and thus investment protection.

Perfect modularity

The ability to execute rapid responses and interventions is critical, particularly with the complex processes involved in generating and using biogas. "A service-friendly plant design and the full utilization of all possibilities to reduce stock-keeping are key requirements," Frank Grewe describes one of the challenges and continues, "The modularity of the Bachmann M1 system used matches our requirements perfectly: We can make efficient use of the periphery, and this solution enables the same hardware platform to be used for all engine classes."

Communication capability counts

The control and regulation of the 2G combined heat and power units can be operated according to both the heating demand and the power demand. "As the M1 system comes with the communication modules needed, the connection to a virtual power station can also be implemented directly," the development manager describes an important detail for the future.

The simple and fast networking capability of entire plants via Ethernet and the associated access options are very important during operation. This was not least one of the important factors in the decision to also use the M1 automation system for the new avus 500 plus modules: "For profitable operation, the continuous monitoring of the process and the ability of the operators to access the plant remotely are after all essential," Frank Grewe says.

Maximum efficiency – and optimum benefit

In line with the corporate philosophy, optimum customer benefit was the prime objective in the development of the latest innovation.

As Frank Grewe explains, "The avus 500 plus modules represent a milestone and are an ideal solution to the long-term reduction of energy costs." The Bachmann M1 controller is making its contribution here.