



Generate energy with ease

Plug & play 100 kW SOFC system

Visionary, smart, and climate-friendly – power supplies will have to be all that to respond to climate change and meet rising demand for electricity. The Bosch decentralized fuel cell system is one such solution. The solid oxide fuel cell, or SOFC for short, pairs a highly efficient means of generating electrical power and heat with a significant reduction in carbon emissions. Set off into a greener future with this innovative technology.

Your benefits:

Climate-friendly:

Getting real with green energy

Even when operating with natural gas, less CO₂ is produced – with close to zero nitrogen oxides or particulates in the exhaust gas. When operating with pure green hydrogen, CO₂ emissions drop to zero.

Efficient:

The front-runner in the efficiency stakes

This system generates electricity at efficiencies of approx. 60 percent – and even up to 90 percent when the generated heat is put to productive use.

Decentralized:

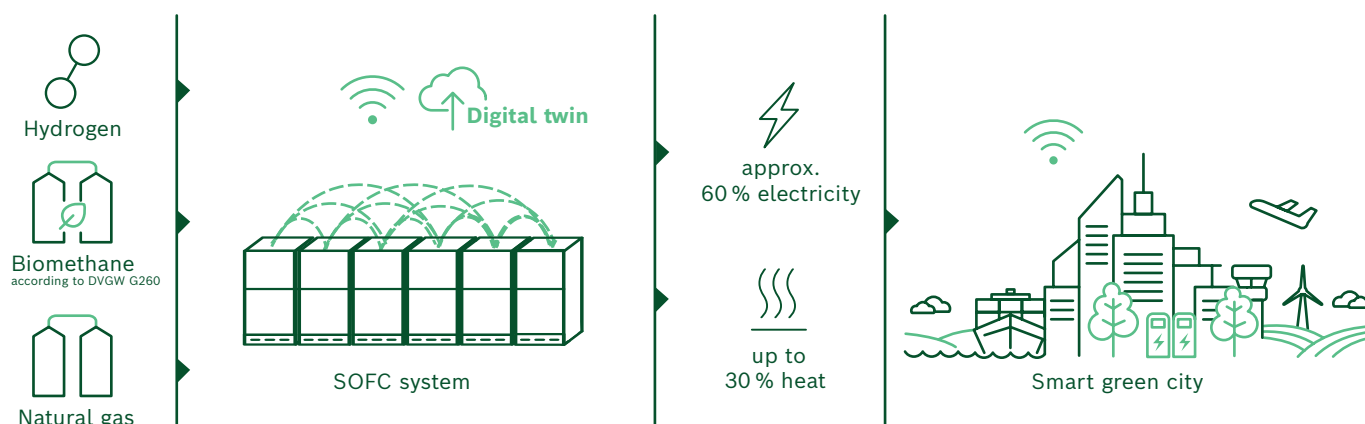
An independent, local source of energy

The SOFC system readily installs at any location with a gas supply and internet connectivity. Due to the on-site power generation, this local system is not subject to any transmission losses in the grid.

Connected & scalable:

Sized to fit your needs

Several plug-&-play SOFC systems with an output of 100 kW each can be combined to scale a solution up to the megawatt range. Using a digital twin, the overall system can be maintained on a predictive basis and continuously optimized.



Our SOFC solution

The smallest component part in a solid oxide fuel cell (SOFC) system is the cell itself. Several hundred cells are combined to form what is known as a fuel cell stack. This is where electrical power and heat are generated on an extremely efficient basis. A hotbox will contain several stacks. This hotbox is combined with an air and gas supply system, an electronic control unit, and an exhaust air system to form an individual SOFC unit – the heart of the system.

Prefabricated, modular, and scalable

Bosch SOFC systems feature a modular design and are prefabricated. To keep the planning and installation effort to a minimum, we combine several of these SOFC units and all relevant auxiliary systems such as heat exchangers, desulfurization units, edge controllers, and grid modules to create a plug-&-play system with an output of 100 kW. That is sufficient to cover the average annual power consumption of residents in an entire residential area or meet the power supply needs of a comparable edge data center. Depending on requirements and power consumption, it will be possible to use several of these systems together to create a decentralized power supply system in the megawatt range. This means that, in a whole range of different application scenarios, you can select a solution that is ideal for your setup and can be easily scaled to match your changing needs.

The decentralized Bosch SOFC system meets all the requirements associated with the power supply of the future. There is no need to wait for a hydrogen infrastructure to be established – any company or organization that wishes to use a fuel cell system in the future can do so now. The SOFC system can be connected to pre-existing gas networks, meaning it is ready for immediate use. As a result, it is playing a crucial role in the energy transition and is a key pillar alongside photovoltaics and wind power.

Your diverse applications

Our Bosch SOFC system is the right choice whenever you need to generate power and heat on a sustainable, highly efficient basis and also independently of a power grid. It thus provides a futureproof solution that offers maximum reliability.



Buildings & urban quarters

In the future, the SOFC system will supply residential and office buildings within a district with decentralized, future-proof, and sustainable electricity and heat on site.



Industry

The fuel cell system reduces a site's carbon footprint in the long term and provides a reliable, economical and highly efficient electricity and heat supply.



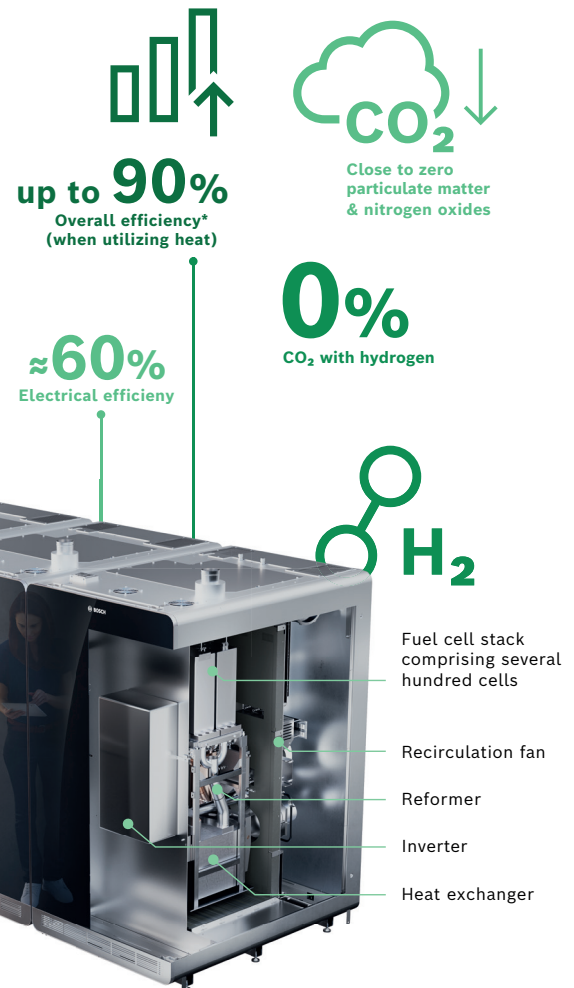
Data centers

The SOFC system is a decentralized and grid-independent energy source. Thanks to its modular design, it can be scaled flexibly and can satisfy the power and air conditioning demands of a growing contingent of data centers.



Wide range of applications

The fuel cell system can supply various further uses cases. For example, as part of a decentralized energy grid, in conjunction with other energy generating systems, it provides electricity and heat.



Technical data*

Bosch solid oxide fuel cell system

| | | |
|-----------------------|------|----------|
| Electrical power | kWel | 100 |
| Thermal power | kWth | up to 50 |
| Electrical efficiency | % | ≈ 60 |
| Overall efficiency | % | up to 90 |

* Beginning of life

Join us in shaping the future of energy supply!

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BOSCH
Invented for life

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More information: www.bosch-hydrogen-energy.com/about-us/motivation/

The Bosch SOFC system is currently in the pilot phase. All technical specifications given are development objectives and refer to the beginning of life.