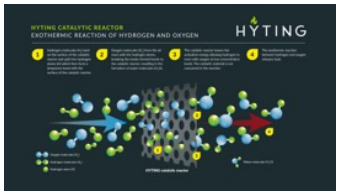
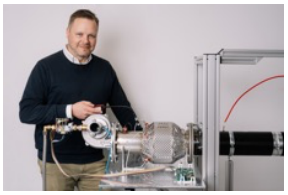
Technology company HYTING unlocks potential for hydrogen to decarbonise heating worldwide

- HYTING is a heating technology company formed in 2021 with the aim of delivering carbon-free heating with hydrogen using a unique catalytic system (patents-pending)
- Decarbonising heating is a globally recognised challenge: HYTING can help to accelerate the transition from legacy gas-/ oil-burning systems to cleaner, more sustainable heating technology
- HYTING has simplified the use of hydrogen by using flameless oxidation for an affordable, zero emissions, and highly energy-efficient forced-air heating system
- Inherently safe molecular reaction turns a mixture of hydrogen and oxygen from air into heat – the only by-product is water
- Unlike hydrogen combustion processes there are no CO_2, NOx, or particulate emissions
- Modular, scalable design is suitable for industrial, commercial, and residential applications, and with outputs ranging from 10-300 kW
- Ideal as a standalone solution, or matched to a heat pump to provide additional power when required, or as a back-up heat source
- Easily retrofitted into established buildings utilising existing air ducts, simplifying system integration and reducing installation costs
- Prototypes being tested now, with the first customer trials planned by the end of 2024
- Widespread adoption will help to boost global demand for green hydrogen and drive down costs, making it an attractive, sustainable energy source worldwide
- For further information please visit hyting.com
- 

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16 May 2024 Wiesbaden, Germany – Decarbonising heating is a globally recognised challenge, and one which must be quickly overcome if the ambitious target of net-zero is to be achieved by 2050.

Newly formed technology company HYTING has developed a safe, highly efficient, carbon-free forced-air heating system (patents-pending) that uses a unique catalytic process to turn hydrogen and oxygen from air into heat. Unlike systems that rely on hydrogen combustion to generate heat, HYTING's technology does not produce any CO_2, NOx, or particulate emissions – the only by-product is water.

The process is also inherently safe, as it does not use flammable concentrations of hydrogen at any operating point. The hydrogen is supplied at the same low pressures typical of natural gas supplies – around 1.5bar – so costly and energy-intensive compression and storage is not used. And unlike other technologies which rely on hydrogen, such as fuel cells, HYTING's heating system works on commonly available hydrogen sources: high-purity grades are not necessary.

HYTING's technology is as robust and cost-effective as it is innovative because it uses many proven, existing components from the heating and automotive industries. It's also modular and highly scalable in design, with outputs of 10-300 kW, enabling it to be configured for a wide range of different heating applications, including industrial, commercial, and residential buildings – both new-builds and retrofits, agricultural greenhouses, portable heating units, and heating systems for commercial vehicles (e.g. buses, coaches and heavy-duty trucks). It's even suitable for pizza ovens. Prototypes are currently undergoing testing, with the first customer trials expected in Germany by the end of this year.

Tim Hannig, Founder, HYTING, said: *"Just as hydrogen is recognised as an ideal means to decarbonise hard-to-abate transport sectors such as aviation, shipping, and trucks, we also see hydrogen's potential to contribute to the decarbonization of the building sector. We're preparing our technology for the first customer trials, with the ambition to quickly scale to volume production within the next two years. We want to play our part in accelerating the transition from fossil fuels towards a more sustainable future by placing our zero-emissions heating systems at the heart of the clean hydrogen economy."*

Heating is responsible for a significant proportion of the world's carbon emissions, accounting for 15 per cent of CO_2 emissions[1], with natural gas used to heat 42 per cent of homes[2]. Gas- and oil-fired heating is slowly being phased out in favour of air- and ground-source heat pumps, but although they are a promising alternative they are not efficient at very low ambient temperatures, or periods of high demand.

HYTING's technology can work alongside heat pumps to form a hybrid and completely CO_2-free heating system that can overcome these shortcomings and ensure effective heating under all conditions. This also optimises installation and running costs because the heat pump can be sized at the power rating where it is most energy-efficient, with the HYTING technology supplementing total heating output on cold days and taking care of peak loads. The scalability and flexibility engineered into the technology from day one also means that it can function as a back-up heating source, if needed, or as a standalone system.

Achieving net zero by 2050 is challenging, but achievable. Hydrogen heating systems can make a contribution to that now, using existing sources of hydrogen, with the added incentive that the cost of hydrogen relative to natural gas is predicted to fall over the next three decades. The global energy requirements for heating can also help to spur the development and expansion of the hydrogen economy, since green hydrogen is an ideal method of storing excess energy produced by renewables including solar, wind and hydro power. Converting this hydrogen directly into heat for heating requriements is more efficient and simpler than reconversion coupled with electrical heating. The green hydrogen market has enormous potential, with predictions of a value of US$642 billion in 2030, rising to US$1.4 trillion in 2050[3].

Whilest there are significant challenges to adoption of hydrogen worldwide, one near-term measure to kick start the market would be building on existing infrastructure, such as the millions of kilometres of natural gas pipelines that already exist and which would become otherwise redundant in future. Using clean hydrogen to replace just 5 per cent of the volume of the world's natural gas supplies would significantly boost demand for clean hydrogen and drive down costs[4], making it an even more attractive, sustainable source of heating worldwide.

[1] World Economic Forum
[2] International Energy Agency report: Heating
[3] Research from Deloitte: Green Hydrogen: Energizing the path to net zero
[4] International Energy Agency report: The Future of Hydrogen

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About HYTING:
HYTING is a heating technology company founded in 2021 with the aim to deliver carbon-free heating fuelled by hydrogen: no CO_2, NOx, or particulates. It has developed a forced-air heating system (patents-pending) that utilises a molecular, exothermic catalytic reaction to turn a mixture of hydrogen and oxygen from the air into heat – the only by-product is water. This flameless oxidation process is at the heart of safe, affordable, zero emissions, and highly energy-efficient heating systems.

Decarbonising heating is a globally recognised challenge, and HYTING's technology can help to accelerate the transition from carbon-fuelled heating technologies to cleaner, more sustainable heating systems, and enabling net zero emissions by 2050.

HYTING's system will initially be used in commercial and industrial applications with heat outputs from 10-300 kW per unit. The company is scaling quickly from prototype to series production, with the first customer trials beginning by the end of 2024. HYTING is based in Wiesbaden, Germany, and is run by a leadership team with decades of experience in the engineering sector.

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