

Freemelt granted patent for ProHeat™

- New method for preheating powder opens unique opportunities

Nasdaq First North-listed Freemelt - a high-tech growth company whose unique solution creates new conditions for rapid growth in 3D printing - has been granted a patent in Sweden for ProHeat™. The patent relates to a method for robust preheating of powders that allows for 3D printing of materials that have previously been considered inaccessible.

ProHeat™ enables 3D printing at elevated temperature in a simpler and more controlled way, which provides improved material properties in the manufactured parts. In this invention, the high power of the electron beam is used in Freemelt's 3D printers for indirect heating of the powder bed. This eliminates the charging effects that have hampered the development of new materials for 3D printing.

"This invention is undoubtedly groundbreaking, and therefore we have already developed the technology to the point where we offer it in connection with system deliveries to new customers or via upgrade to established users of Freemelt's machines. We are proud of the innovation that expands the potential for electron beam-based 3D printing to new classes of materials that were previously impossible to print," says Ulric Ljungblad, CEO and co-founder of Freemelt.

"ProHeat™ will accelerate the development of new materials as time-consuming optimization of preheating parameters is no longer needed. The invention makes it possible to heat and sinter the powder bed in a gentle and uniform manner, without exposing it to electric charge. This makes it easier and more efficient to build parts of fine powder and of powder with low electrical conductivity," says Ulf Ackelid, inventor, senior scientist and co-founder of Freemelt.

The patent has been granted in Sweden and the application is also being processed in a number of other countries. Patent protection for the invention extends until April 17, 2040 in all jurisdictions where the patent is granted.

Link to the patent

[SE2050445.A1.pdf \(prv.se\)](#)

Regarding ProHeat™

ProHeat™ is based on heating with electromagnetic radiation from a heating device over the powder bed. The radiation sinters each powder layer without risk of powder charging and so-called smoke. ProHeat™ offers a number of advantages over existing preheating solutions:

- Fast and efficient heating, which preserves all the unique benefits of 3D printing at high temperatures
- Preheating of the powder bed without interaction with electrons, which eliminates charging of the powder regardless of the size and conductivity of the powder grains
- Better vacuum quality in the process chamber, which maintains optimal conditions for the electron beam
- No consumption of expensive inert gas
- Uniform sintering of the powder bed results in smoother melting with fewer defects

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About Us

Freemelt is a high-tech company whose ground-breaking solution creates new opportunities for rapid growth in 3D printing, also known as additive manufacturing. The company's protected technology enables cost-effective printing to a consistent and high quality. By choosing an open-source solution, the conditions are created for strong growth and expansion towards manufacturing markets.

Freemelt was founded in 2017, is listed on Nasdaq First North Growth Markets, has 34 employees, head office in Gothenburg and a manufacturing unit in Linköping. Read more at www.freemelt.com.

Attachments

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