ProHeat – new innovation from Freemelt

ProHeat is a game changer enabling industrially reliable and productive processing with Electron Beam Powder Bed Fusion. ProHeat also opens up a wider range of processable materials.

Mölndal, Sweden, 29th September 2020: Freemelt AB today announces *ProHeat*[1], a new innovation for preheating the powder bed in 3D printers based on Electron Beam Powder Bed Fusion (E-PBF). *ProHeat* is presently under development and will be implemented in future versions of 3D printing systems from Freemelt. *ProHeat* is further presented by Freemelt at the ongoing EBAM 2020 virtual conference at www.ebam.fau.de and on Freemelt's web site at www.freemelt.com.

"We are very optimistic about this innovation" says Ulric Ljungblad, CEO at Freemelt. "*ProHeat* is an enabler for robust, efficient processing and expands the potential of E-PBF to new classes of materials that are difficult or even impossible to process in E-PBF systems as of today."

Ulf Ackelid, Senior Scientist at Freemelt, explains: "*ProHeat* 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 much easier and more efficient to build parts from fine powders and from powders of poor conductivity. *ProHeat* will speed up development of new E-PBF materials since it eliminates the time-consuming optimization of preheating parameters."

ProHeat is based on heating by electromagnetic radiation from a heating device positioned over the powder bed. The radiation sinters every powder layer smoothly, with zero risk of powder charging and so-called smoke events. *ProHeat* provides a number of benefits over existing E-PBF preheating solutions:

- Fast and efficient heating, preserving all unique advantages of a hot and stress-relieved AM process
- Preheating without interaction with electrons – eliminating charging of the powder
- Highest vacuum purity and optimum beam quality maintained at all times
- Zero consumption of costly, high-purity inert gas (helium or argon)
- Uniform sintering of the powder bed results in smoother melting and less spatter

Freemelt is a developer and manufacturer of 3D printing technology using electron beam as the energy source. The company was founded in 2017 by an experienced team with a long background in the 3D printing industry. Freemelt was recently recognized as a "top-33 startup in Sweden 2020" by national trade media and among "5 top additive manufacturing startups impacting Industry 4.0" by StartUs Insights. Learn more at www.freemelt.com.

[1] Patent pending