

ADDITIVE MANUFACTURING

**Fast and precise
production in a
powder bed**



The PB EBM 30S manufactures small, highly detailed metal components in a powder bed using an electron beam melting (EBM) process specially developed by pro-beam. Thanks to the good resolution and high speed of the electron beam, this process ensures the fast, high-quality production of metal components. In addition, the unique **spot strategy (RainTec)** enables a controlled and customized heat distribution. Thereby, component size and geometry play a minor role.

The EBM system offers the highest possible chamber utilization without significant non-productive times and thus maximized productivity. This is made possible by the parallelization of processes thanks to the **BuildUnit**.

In addition the machine operates with an open system, that allows the access to all parameters and their individual coordination. This transparency guarantees flexibility and makes it possible to develop own manufacturing processes that can be executed reproducibly.

With its integrated, company-owned ELO (Electron Optical Monitoring) system, the PB EBM 30S provides an in-situ monitoring. It regularly generates high-contrast rich images during the construction process, which can be used for quality control. It is also possible to create a so-called digital twin of the workpiece. The ELO data can also provide valuable information in the development of a construction process.

EBM advantages at a glance

- Maximum productivity
- Higher process stability and better quality
- ELO quality control by pro-beam
- Open system for full transparency
- Large variety of metals, incl. reactive metals
- Reproducibility
- Inert environment due to vacuum
- Digital controlled process

Technical data

PROCESS SPECIFICATIONS

Manufacturing method	EBM (Electron Beam Melting)
----------------------	-----------------------------

Electron beam output / Max. beam power	Up to 150 kV / 15 kW
--	----------------------

Max. build sizes	160 x 160 x 400 mm 300 x 300 x 400 mm
------------------	--

Process pressure	< 10 ⁻⁴ mbar
------------------	-------------------------

Evacuating time	None
-----------------	------

Process gas (for charging prevention)	Not required
---------------------------------------	--------------

QUALITY

Beam quality	Automatic Beam Alignment
--------------	--------------------------

In-situ quality control	ELO system
-------------------------	------------

MACHINE

Dimensions	6,4 x 3,5 x 3,3 m
------------	-------------------

BuildUnit (mobile)	Available for different build sizes
--------------------	-------------------------------------

Control system	Based on CNC (Siemens Sinumerik One)
----------------	--------------------------------------

Optional: software interface	E.g. Materialise Magics
------------------------------	-------------------------

MATERIAL

Metals	Inconel, copper, steel, refractory metals etc; Ti6Al4V and titanium aluminide proven
--------	--

Subject to change without notice. All the information listed is a general description and performance features which do not always apply in the form shown in the specific application or may change as a result of further development of the products. Illustrations may contain options, special equipment or accessories that are not part of the scope of supply and services. The performance descriptions agreed in the contract are binding.

More information at pro-beam.com

