Grade 2 Titanium
General characteristics
The high strength, low weight ratio and outstanding corrosion resistance inherent to titanium and its alloys has led to a wide and diversified range of successful applications which demand high levels of reliable performance in surgery and medicine as well as in aerospace, automotive, chemical plant, power generation, oil and gas extraction, sports, and other major industries.

In the majority of these and other engineering applications titanium has replaced heavier, less serviceable or less cost-effective materials. Designing with titanium taking all factors into account has resulted in reliable, economic and more durable systems and components, which in many situations have substantially exceeded performance and service life expectations.

Titanium is available in different grades, unalloyed or alloyed.

Special characteristics
Unalloyed Commercially Pure (CP) Titanium is available in four different grades, 1, 2, 3 and 4, which are used based on the corrosion resistance, ductility and strength requirements of the specific application. Grade 1 has the highest formability, while Grade 4 has the highest strength and moderate formability.

CP Titanium users utilize its excellent corrosion resistance, formability and weldable characteristics in many critical applications.

Titanium Grade 2 is stronger than Grade 1 and equally corrosion-resistant against most applications.

Titanium Grade 2 has numerous applications in the medical industry. Biocompatibility of Titanium Grade 2 is excellent, especially when direct contact with tissue or bone is required.

Applications
Titanium Grade 2 is typically used for:
- Orthopaedic applications, such as implants and prosthesis
- Airframe and aircraft engine parts
- Marine chemical parts
- Condenser tubing
- Heat exchangers

Powder specification
The Arcam Titanium Grade 2 powder has a particle size between 45 and 100 microns. This limit on the minimum particle size ensures safe handling of the powder.

Please refer to the Arcam MSDS (Material Safety Data Sheet) for more information about the handling and safety of the Arcam Titanium Grade 2.
Microstructure

Titanium Grade 2 parts manufactured in the EBM process have a microstructure consisting of fine α-grains, thanks to the rapid cooling of the melt pool.

The build chamber is kept at an elevated temperature throughout the entire build, and the material thus comes out of the EBM process in a naturally aged condition.