

Rapid News.

GET THE LATEST REAL LIFE STORIES FROM THE WORLDWIDE USAGE OF ARCAM DIRECT MANUFACTURING MACHINES

Arcam provides **Free Form Fabrication** machines for **Direct Manufacturing** of metal parts. The technology offers ultimate geometric freedom combined with first class material properties. Arcam is guided by our vision to revolutionize the art of manufacturing.



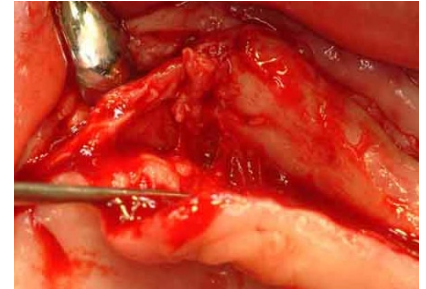
Prototal uses Rapid Manufacturing of Customized Implants for Oral Surgery.



www.arcam.com

Rapid Manufacturing of Customized Implants for Oral Surgery.

The Swedish service bureau Prototal AB have provided a number of customized titanium implants manufactured by the Arcam EBM process. The customers are the Clinic for Oral Surgery in Ryhov, Sweden, and the Department of Parodontology at the Institute of Odontology in Jönköping, Sweden.



Arcam's EBM technology has been very successful and used with excellent results in a number of patient cases for Rapid Manufacturing of temporary as well as permanent implants.

The basis for the fabrication of the implants is data taken directly from a CT scan of the patient. Using the Mimics software from Materialise, the DICOM images from the examination of the patient are converted to a 3D model, which constitutes the platform for what will then become the implant.

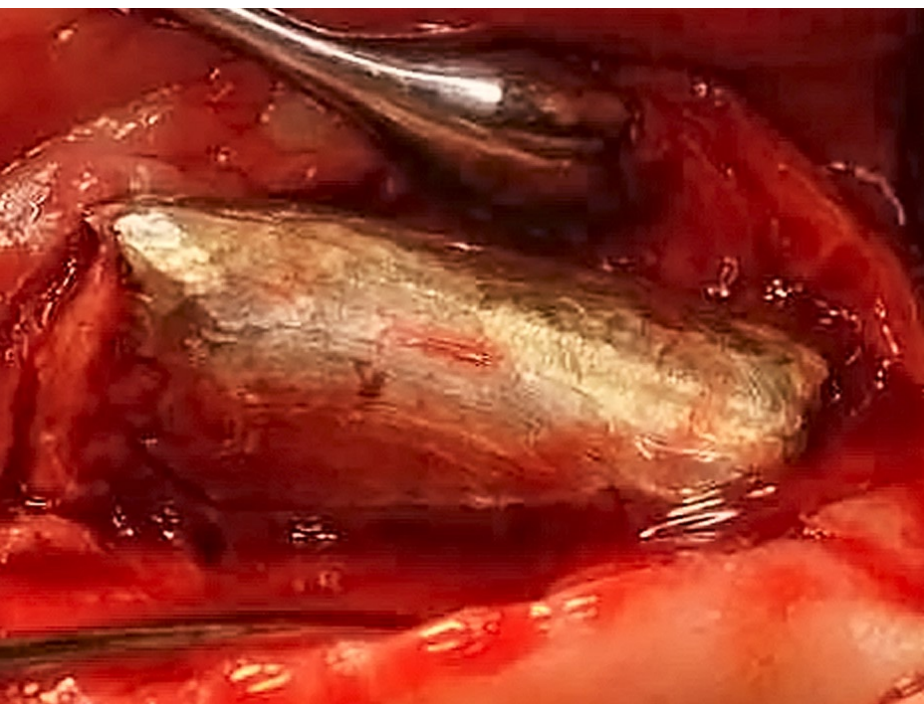
“The Arcam EBM technology has been very successful and used with excellent results in a number of patient cases”

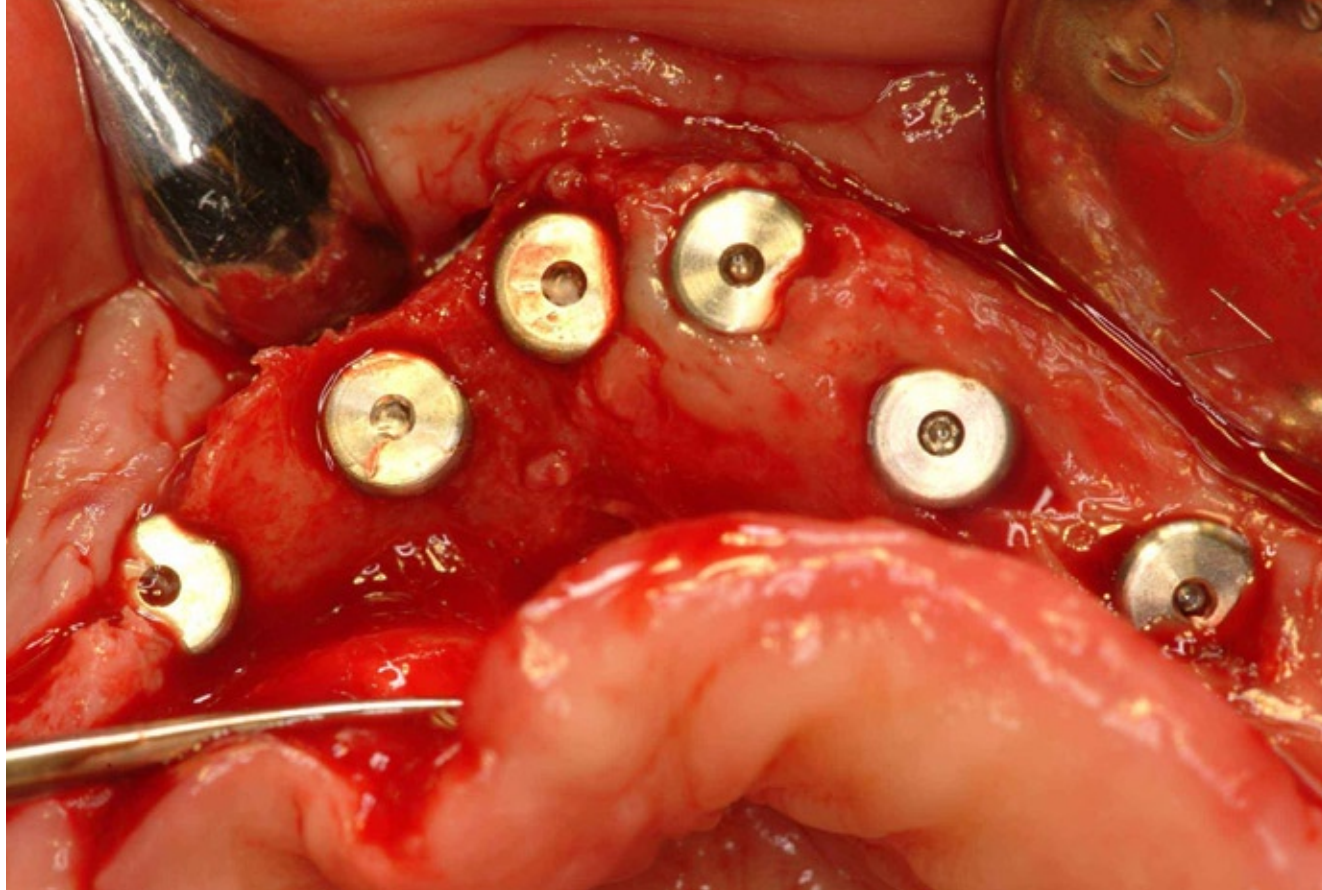
The engineering of the implant have been done in two different ways:

The primary alternative is to design the implant directly in the computer using the 3D model from the CT scan, and then design the implant with 3D CAD. Another way that has also been used is to add material

to an already manufactured physical 3D model. With this manual procedure cold acrylic or model material is used to shape the desired appearance. The physical model is then scanned in order to get CAD data that can be processed in the computer before the implant is produced.

The implants have been manufactured in titanium in just a few hours in Arcam EBM S12 machines. The implants have been built to net-shape requiring only manual polish and sterilisation before surgery. In some cases lead time from CT Scan to surgery has been less than a week.





The ARCAM EBM S12 machines are based on Electron Beam Melting (EBM). During the EBM process the electron beam melts metal powder layer-by-layer to build the implant. The vacuum environment in the EBM machine maintains the chemical composition of the material and provides an excellent environment for building parts in reactive materials such as titanium alloys. The high power of the Electron Beam ensures a high rate of deposit and an even temperature distribution within the part. The results is full melting of the metal powder and high strength properties of the material.

For more information, contact:

Ulf Lindhe, Arcam AB, +46 31 7103200
Henrik Lundell, Prototal AB, + 46 36 387242

For patient-related information:

L. Peter Nilsson D.D.S., Ph.D., Clinic for Oral Surgery, Ryhov, Sweden.

Christer Slotte, D.D.S., Ph.D., Dept. of Parodontology, Institute of Odontology, Jönköping, Sweden. +46 36 387242

ARCAM EBM MACHINE TECHNICAL DATA

Build envelope	200 x 200 x 200 mm (W x D x H)
Build speed	Up to 60 cm ³ /hr
Layer thickness	0.05–0.20 mm
Vacuum pressure	<5 x 10 ⁻⁴ mBar
Electron Beam power	Up to 4000 W
Electron Beam accuracy	±0.05 mm
Electron Beam scan speed	~1000 m/s
Electrical connection:	3 x 400 V, 32 A
Certification	CE





Arcam AB | Kroksläotts Fabriker 30, SE 431 37 Mölndal, Sweden | Phone: +46 31 710 32 00 | Fax: +46 31 710 32 01 | info@arcam.com | www.arcam.com

Arcam provides **Free Form Fabrication** machines for **Direct Manufacturing** of metal parts. The technology offers ultimate geometric freedom combined with first class material properties. Arcam is guided by our vision to revolutionize the art of manufacturing. Use Arcam to manufacture your future.