

# Additive manufacturing Next generation industrial valves



Ramén Valves are one of the first valve manufacturers in the world to offer control valves in titanium grade 5 using additive manufacturing (AM). Short lead times, green technology and the speed of design are a few of the many benefits with AM technology.





## Ramén Ball Sector valve in titanium

The Ramén Ball Sector Valve in titanium with a PTFE stuffing box is designed and used to increase tightness to atmosphere with corrosive media. When throttling chemicals where the media is corrosive and higher grade of alloys are needed the Ramén Ball Sector Valve in titanium is used. Another reason for using titanium valves is to decrease the weight of the components used in a specific process.

## In cooperation with AIM Sweden

The valve parts are printed by AIM Sweden, a company located in Östersund in the northern parts of Sweden. AIM have a long experience in manufacturing orthopaedic implants and components for the aircraft industry.



Valve parts under construction



# The technolgy - This is how EBM works

The method used by AIM Sweden is called EBM (Electron Beam Melting). EBM is the process of producing parts by successive melting of layers of material rather than removing material. Each layer is melted to the exact geometry defined by a 3D computer model. The process provides a solid material whose properties is better than casted material and comparable to forged material.

- High power (3.000 W)
  Allows for high melting capacity
  High productivity
- No moving parts in the EB-gun Extremely fast & accurate beam control
- Vacuum process
  Clean & controlled environment
- Hot process (650°C for titanium) No residual stresses No heat treatment (of titanium)

# What are the benfits?

## Short lead times

Using AM allows us to deliver a Ramén Ball Sector valve within 4 weeks from getting the order, regardless of dimension and other characteristics. This can be compared to the more traditional methods where the lead time is up to a couple of months.

## Green technology

Additive manufacturing technology builds the product in layers, reducing material waste and consumption. The waste generated in the process is reused in manufacturing and does not loose any of its properties.

#### • Speed of design and flexibility

AM allows quick design changes without compromising pricing and the short lead times. AM is also very cost efficient for manufacturing smaller batches.



Ramén KS titanium