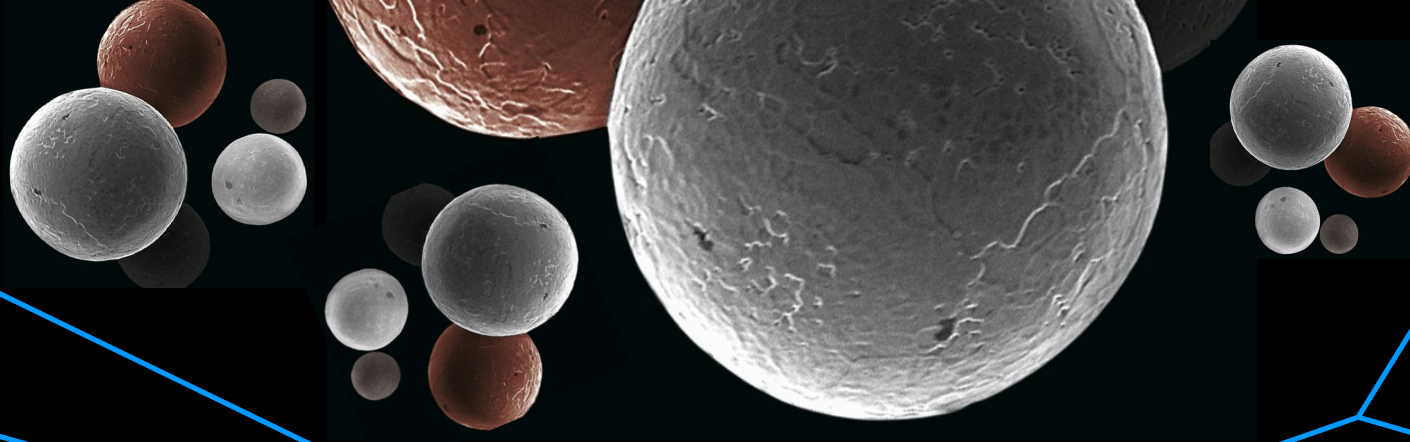


AGENDA

TITANIUM POWDER BY SANDVIK – THE ADDITIVE ADVANTAGE

13:30 - 13:45	SAFETY FIRST AND WELCOME!	Kristian Egeberg
13:45 - 14:10	INTRODUCTION TO SANDVIK – AND TITANIUM AS AN ELEMENT	Mikael Schuisky
→ 14:10 - 14:35	TITANIUM AND NICKEL POWDER PRODUCTION BY SANDVIK	Martin Mueller
14:35 - 15:00	TITANIUM AND NICKEL POWDER BY SANDVIK – THE ADDITIVE ADVANTAGE	Keith Murray
15:00 - 15:20	SWEDISH "FIKA"	All
15:20 - 15:40	AM-PROCESSING OF TITANIUM	Harald Kissel
15:40 - 16:10	BEAMIT – EXPERIENCE FROM AM OF TITANIUM COMPONENTS	Michele Antolotti and Martina Riccio
16:10 - 16:25	TITANIUM COMPONENTS FOR GSD E-BIKES	Zach Krapfl
16:25 - 16:40	LIGHTWEIGHT COROMILL® 390	Matts Westin
16:40 - 16:55	OSSDSIGN – IMPLANTS FOR BONE REGENERATION	Kajsa Björklund
16:55 - 17:10	SWISS CENTER OF MANUF. TECHNOLOGIES FOR MEDICAL	Harald Kissel
17:10 - 17:30	SUMMARY, CONCLUSIONS AND KEY TAKE-AWAYS	Mikael Schuisky & All
18:00	DINNER @ BRUKSMÄSSEN	All

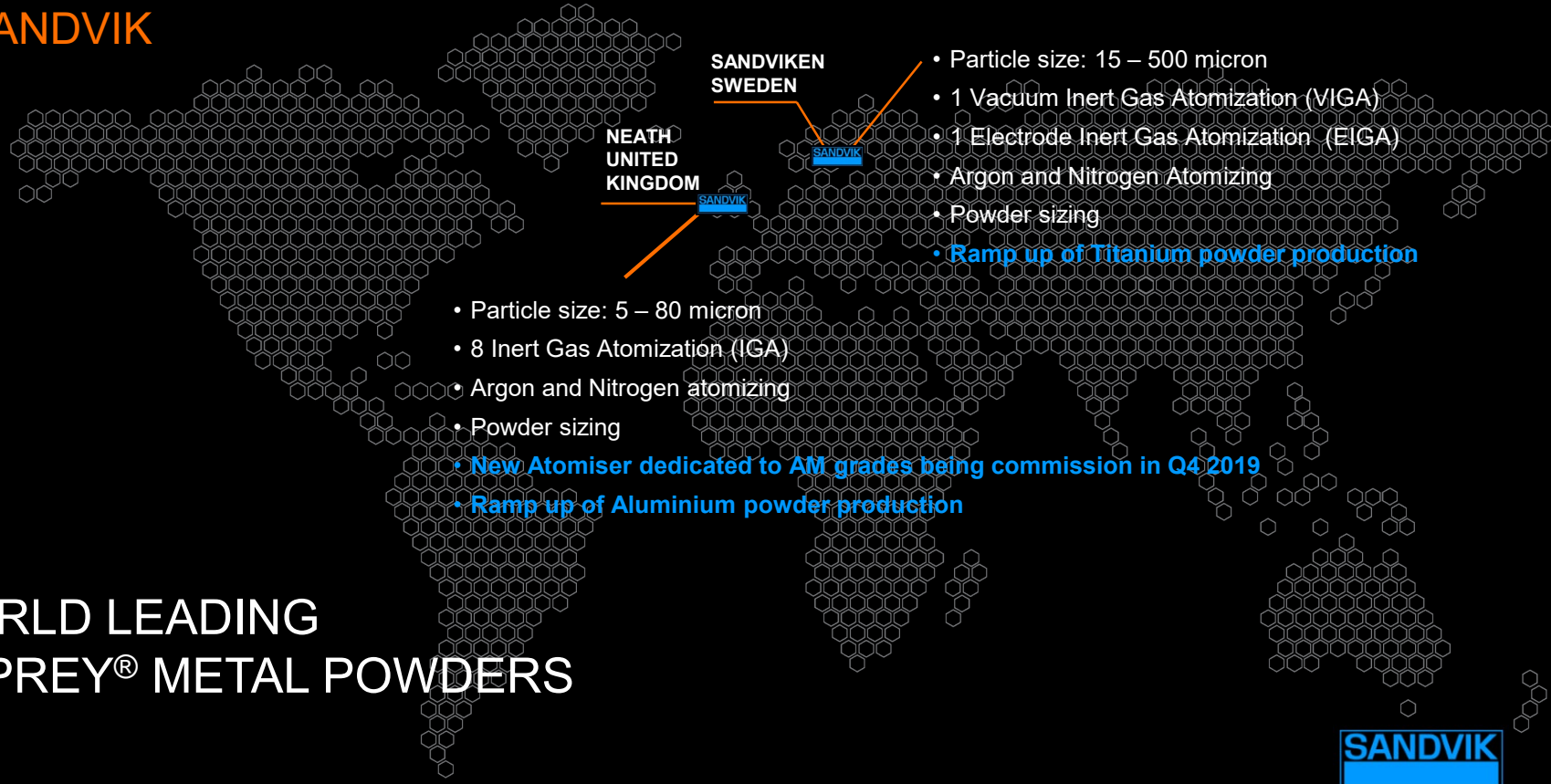




ADDITIVE BY SANDVIK

PRODUCTION OF NICKEL-BASED SUPERALLOY- AND TITANIUM POWDERS

GAS ATOMIZED POWDER MANUFACTURING BY SANDVIK

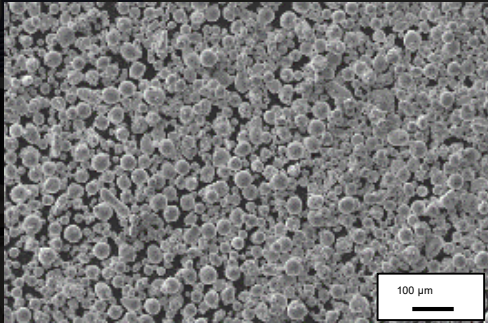


WORLD LEADING
OSPREY® METAL POWDERS

POWDER DEVELOPMENT

ACCESS OUR EXPERTISE

- World-leading R&D and metallurgical know-how.
- Northern Europe's largest R&D Centre for advanced steels, powder-based- and special alloys.
- In-house powder R&D with the possibility to develop powder to almost any customer requirement.



SUSTAINABILITY

ENVIRONMENTAL ADVANTAGES



- All melting and heating is done by **electric powered furnaces**
- **Waste material is re-melted** either in our own process or in the steel mill
- All internal transportation is done by **electrical vehicles**
- The heat recovery in the building **reduces the energy consumption by 50-60%**
- All cooling systems are **closed loops**



RAW MATERIALS INTERNALLY SOURCED

ALLOYING ELEMENTS AND SCRAP FROM OUR STEEL MILLS

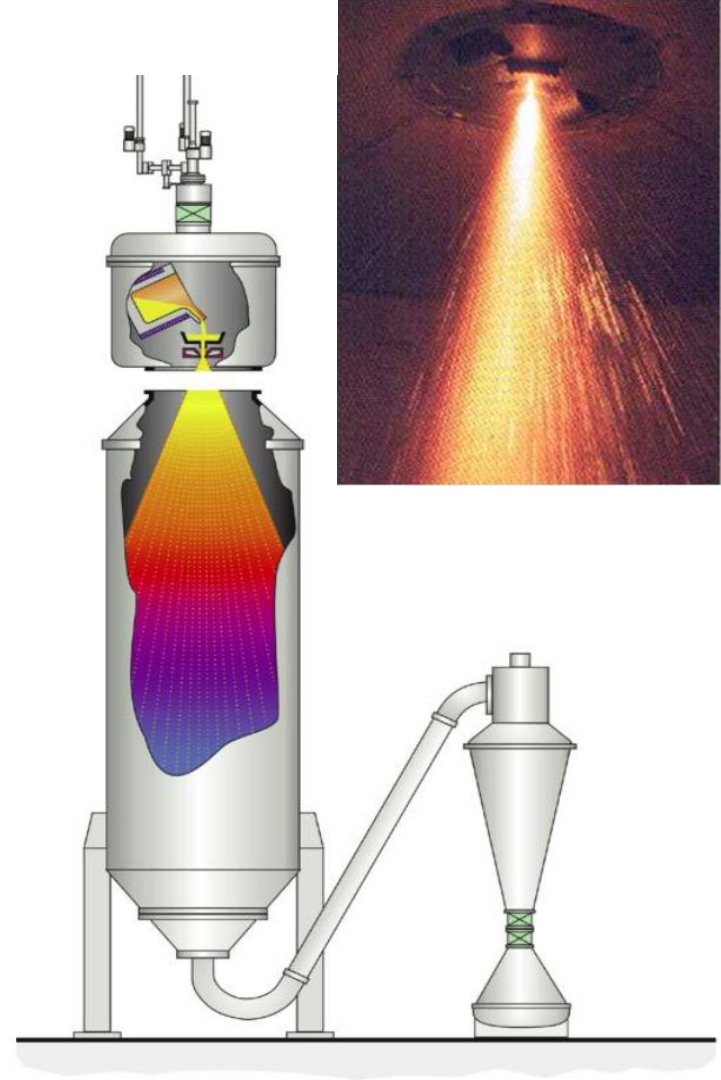
We are sourcing alloying elements and scrap from the steel mills in Sandviken and Hallstahammar, Sweden.



NICKEL-BASED SUPERALLOYS

VIGA

- Melting under vacuum
- Possibility to have N or Ar in furnace chamber
- Atomizing gas N or Ar



MATERIALS BY SANDVIK

TITANIUM & ZIRCONIUM

Integrated manufacturing of Titanium and Zirconium products for the following application areas:

SOURCING OF RAW MATERIALS (SPONGE & ALLOYS)

INGOT PRODUCTION CAPABILITY
3 VAR FURNACES & AUXILLIARY EQUIPMENT

FORGING & ROLLING CAPABILITY
BAR PRODUCTION CAPABILITY

TUBE PRODUCTION CAPABILITY
SEAMLESS TUBING

OUR PRODUCT OFFER INCLUDES

- INGOTS
- BARS & BILLETS
- TUBES

For more information, please get in touch with Sandvik:
inger.fjallstrom@sandvik.com
<https://www.materials.sandvik/en/materials-center/>

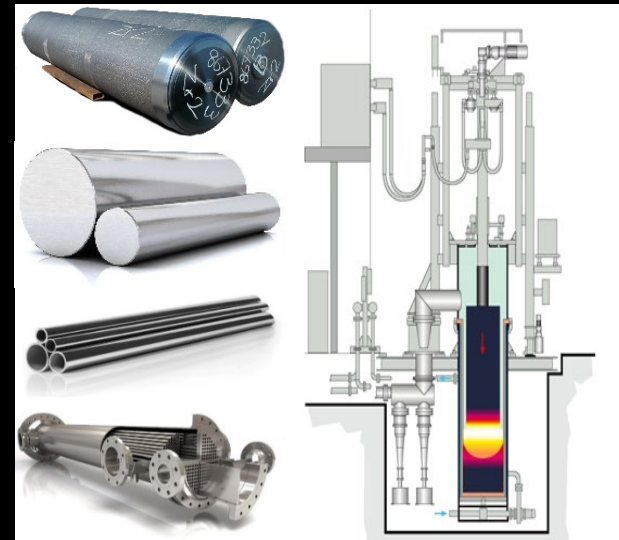
NUCLEAR

INDUSTRIAL

COMMERCIAL

AEROSPACE

MEDICAL

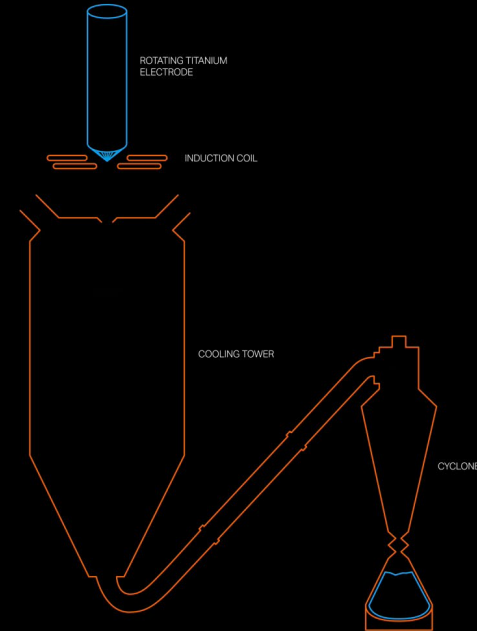


SANDVIK

TITANIUM POWDERS

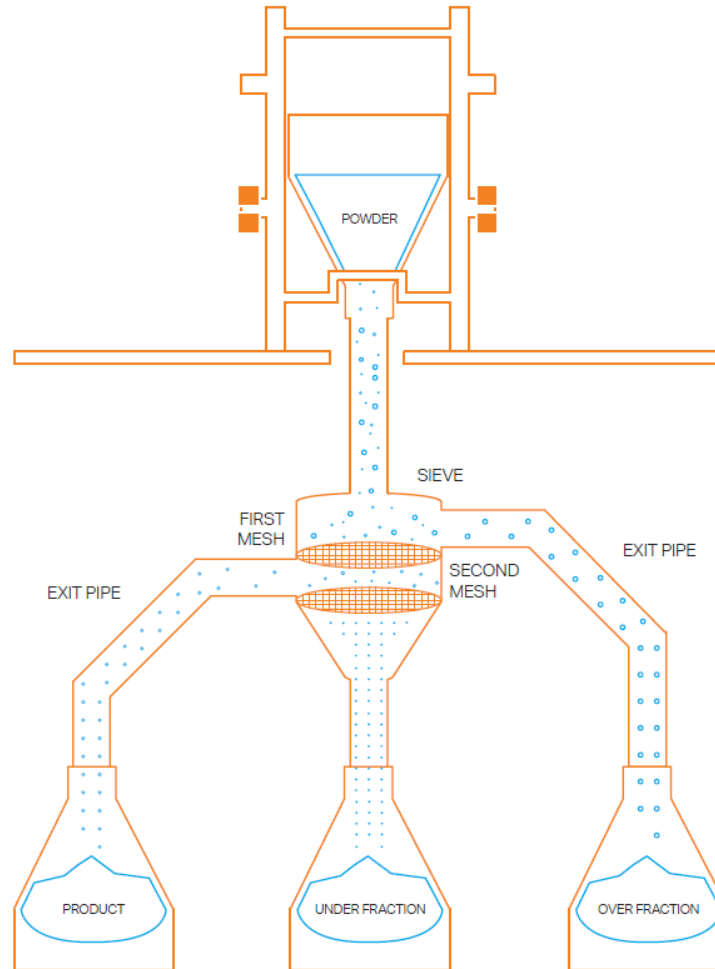
EIGA

- Melting in Argon
- Argon in furnace chamber
- Atomizing gas Argon



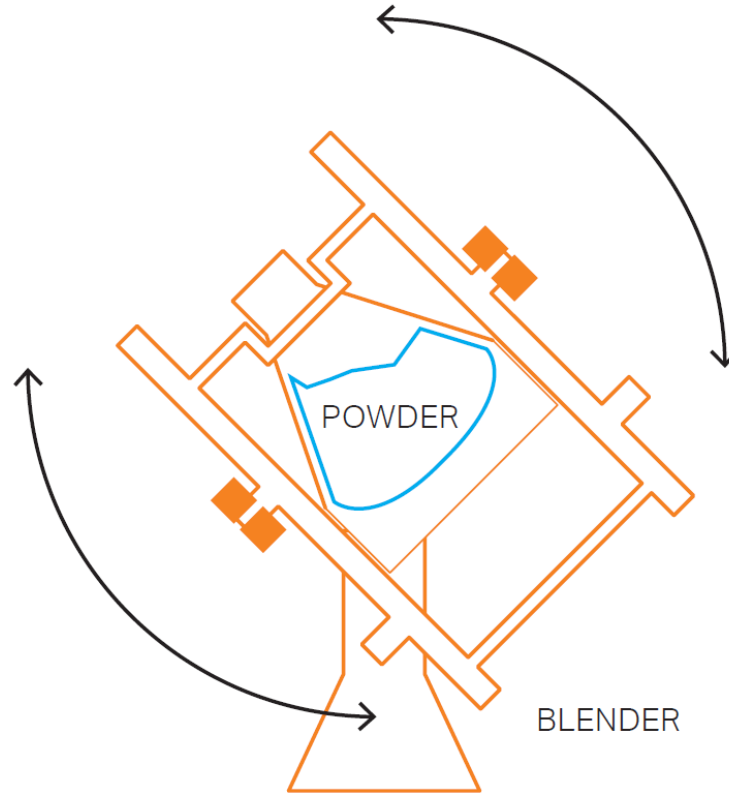
SIEVING

- The powder is sieved under inert atmosphere into different fractions



BLENDING

- The powder is blended to be homogenized before packing

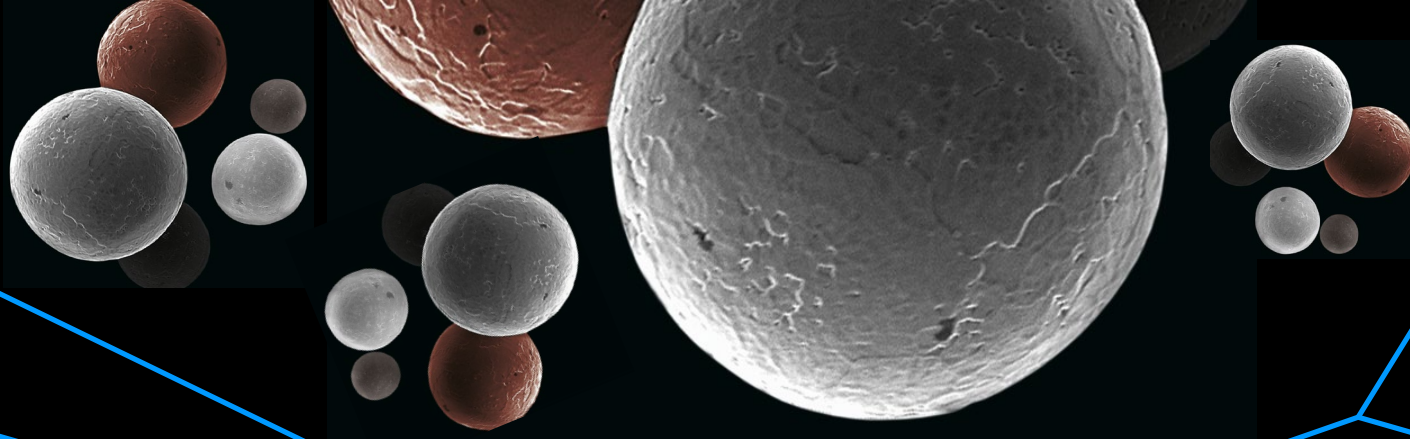


PACKING

STANDARD PACKING FOR VIGA POWDERS

- 3.6L Curtec Drum
- 10 kg Superalloy or 6kg Titanium Powder per drum
- Security Tag
- Packed under inert gas
- Material Safety Data Sheet (MSDS) provided





THANK YOU!

FOR FURTHER INFORMATION: [ADDITIVE.SANDVIK](https://additive.sandvik.com)