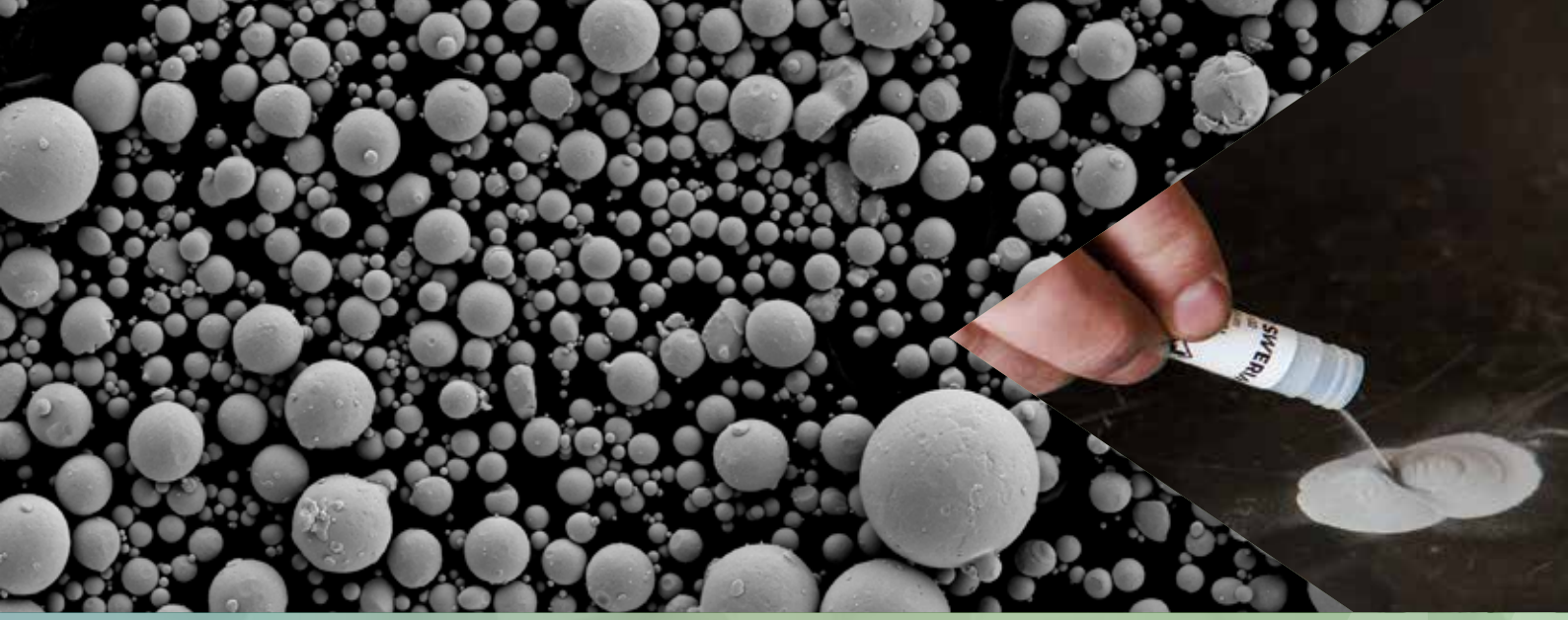


TEST BED

Metal powder gas atomization

The test bed enables development of new alloys for metal powder applications and process development trials. The test bed offers development along the complete value chain, from idea to validation of the final product or process.

Extended offer

Swerim has invested in a modern large-scale R&D atomizer to meet their clients needs in developing novel metal powder, and to facilitate process development experiments and trials. The atomizer is equipped with capabilities in producing powder for additive manufacturing, metal injection molding, surface coating, and hot isostatic pressing. Along with the atomizer, Swerim has invested in novel powder classification equipment to complete the testbed.

THE METALS RESEARCH INSTITUTE SWERIM conducts needs-based industrial research and development concerning metals and their route from raw material to finished product. Our vision is a fossil-free and circular industry. Swerim is active in applied R&D in powder metallurgy and powder processing since the 1950s.

www.swerim.se

SWERIM
We create benefit for industry

Technical data

R&D TEST BED

- Tailored powder for different applications.
- Material and process development.
- In-situ monitoring.
- Inert gas powder classification.
- Characterization of powder properties.
- Powder consolidation with additive manufacturing (AM) technologies and hot isostatic pressing (HIP).
- Evaluation of final material and component properties.
- Confidential contract work and research projects.

ATOMIZER

- Vacuum induction melting – direct or indirect heating.
- 4-12 liter melt per batch.
- Materials: Fe, Ni, Co, Al, Mg-based, etc.
- Gases: Ar, N_2, He, customized compostions etc.
- Max gas flow 650 Nm^3/h.
- Variable gas pressure.
- Heated atomization gas up to to 450°C.
- Closed-couple or free fall nozzle.
- Co-owned with industry – Kanthal.

POWDER SIZE CLASSIFIERS

- Tumbling sieve – air or inert gas.
- Inert gas classification.

POWDER PROPERTIES

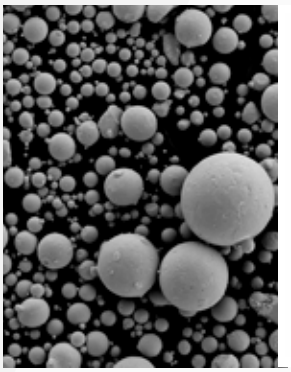
- We measure particle size distribution, morphology, flowability, spreadability, density, moisture, chemistry, microstructure, texture, surface properties, thermal properties etc.

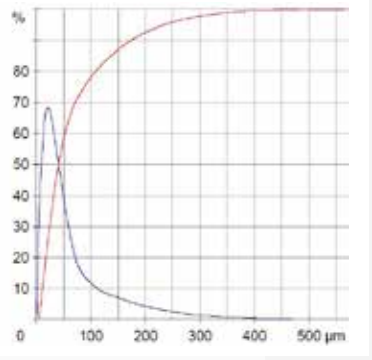
Photo: Anneli Nygårds

ADDITIONAL CAPABILITIES

- Alloy design by Integrated Computational Materials Engineering (ICME).
- Additive manufacturing (Powder bed fusion with electron or laser beam).
- Manufacturing and filling of PM-HIP capsules.
- Hot isostatic pressing (HIP).
- Modification of powder.
- Atomization modelling.
- Metallography (e.g. SEM, TEM and XRD).
- Heat treatment.
- Verification of material properties (mechanical, corrosion, chemical, physical).

Particle size distribution of stainless steel powder made with closed couple set-up





COLLABORATION

The purchase of the new atomizer has been made possible thanks to the collaboration between Swerim and Kanthal. It enables a unique platform for R&D activities in alloy and powder development for the whole of Sweden.

CONTACT

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