

Press Release September 2022

2,100° C – Indutherm and Blue Power announce milestone in platinum atomization

Blue Power now launched new high temperature gas atomization systems for platinum and other high melting alloys.

The way there was lengthy and basically a follow-on development that resulted from a research project with different objectives. Indutherm Casting Technology has been part of the German-Canadian research project HiPTSLAM since 2019. Research institutions, producers and end users are represented in this project with a broad know-how across the entire process chain of additive manufacturing, who are jointly researching new tool steel solutions. Indutherm's task was the process optimization in the high-temperature atomization of steel, CoCr etc. The project was carried out in close cooperation with Ross-wag Engineering, wbk (a company of the KIT, Karlsruhe Institute of Technology) and Guhring, all of whom are also members of the HiPTSLAM network. Their research resulted in the further development of the current gas atomizers into HTC versions with direct inductive heating. Together with specially developed materials and geometries for crucibles and other parts, essential process improvements for the atomization of high-performance steels have been achieved so far, especially regarding throughput, powder yield, safety, and cost efficiency.

Starting from this technological level, it now seemed only a small step to mastering the next challenge in high-temperature atomization, the atomization of platinum alloys. Reliably realizing a melting temperature of over 2000°C was still a relatively simple matter. Finding the right components which are crucial for a stable platinum atomization process, was much more difficult.

The gas atomizers of the AUG series now being presented bear the addition HTC+ in their names. Their induction melting system reach a maximum temperature of 2100° C. Oxidation-free processing in the closed-chamber machine by means of degassing, vacuum and protective gas features guarantee maximum purity of the produced powder.



Gas atomizer AUG 3000

The powders made from high-melting special alloys, e.g. based on platinum or chromium, are suitable for a variety of powder applications such as LPBF, LAM, MIM, binder jetting and others. The particle size can be specifically adjusted over a wide particle size range; a high output rate is achieved even in the area of very fine powder <math><20 \mu\text{m}</math> for sinter-based applications.

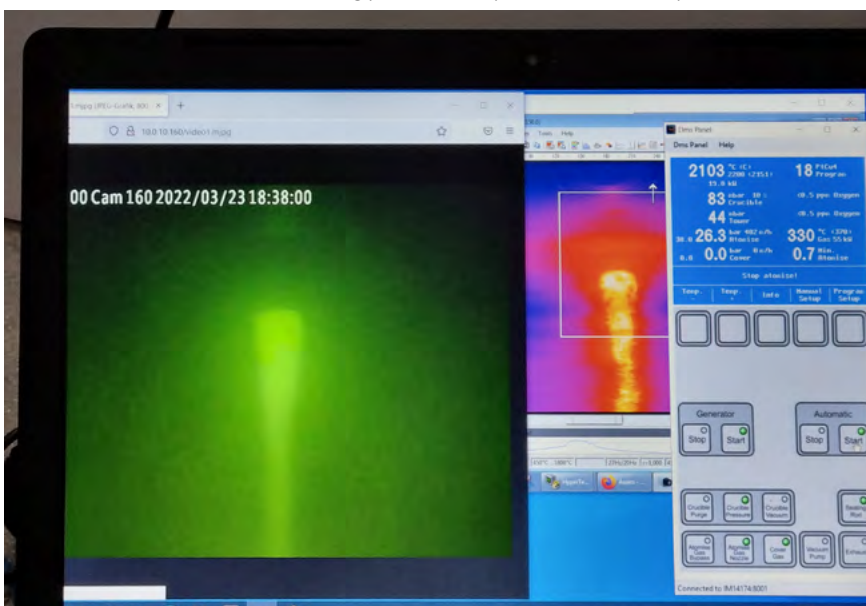


Close coupled atomization on an AUG 1000

An even narrower particle size distribution of course enables the subsequent separation according to particle size either by conventional sieving methods or more precisely - and unavoidably for particle sizes below $25 \mu\text{m}$ - by means of an [air classifier](#), which Blue Power also offers in different versions.

Three different AUG versions are available in the HTC+ specification, offering capacities from \approx max. 6 kg Pt (AUG 500 HTC+) to \approx max. 70 kg Pt (AUG 3000 HTC+).

The final atomization tests with up to 20 kg of 950 PtCu, 950 PtRu, 900 PtRh and with pure platinum showed high process stability and excellent results in terms of particle size distribution, purity and flowability. This opens numerous new application possibilities in the areas of watch and jewelry production, in medical technology, in aerospace and many more. Furthermore, the material loss is a key



Indutherm DMS control panel shows the atomization process

factor especially if it comes to precious metals. With Indutherm's roots in the precious metals market, it almost goes without saying that the machine is designed for easy cleaning. It is equipped with a gas separation system (by treatment in cyclone) and a filtration system.

The new high-temperature atomizers are met with great interest from the field of materials research, as they also have the best prerequisites for the atomization of metal-ceramic compounds, intermetallic compounds, or High Entropy alloys.



The Indutherm / Blue Power team will be available to discuss further possible applications at WorldPM 2022 as well as at Formnext 2022.

www.bluepower-casting.com

Contact:
Mr. Jan Hofmann
Brettener Str. 32
75045 Walzbachtal · Germany
Phone +49 7203 9218-0
E-mail: info@bluepower-casting.com



BLUE POWER

EQUIPMENT & EXPERTISE FOR YOUR

METAL POWDER

PRODUCTION

Gas Atomization Unit AUG 3000


Ultrasonic Atomizer AUS 500 powered by AMAZEMET

DIFFERENT ATOMIZATION AND SEPARATION TECHNOLOGIES TO MEET YOUR NEEDS:



- **GAS OR ULTRASONIC ATOMIZATION FOR SPHERICAL POWDERS WITHOUT ANY SATELLITES**
Ideal for LPBF, MIM and other Additive Manufacturing applications with the need for high quality powders with high purity, sphericity and wide range of reproducible particle size distribution.
- **WATER ATOMIZATION FOR MORE IRREGULAR POWDERS**
Ideal for recycling/refining process, press & sinter process and others.
- **MAXIMUM PURITY BY OXIDATION-FREE PROCESSING**
in the closed-chamber machine by means of de-gassing, vacuum and protective gas features
- **FOR A WIDE RANGE OF METALS AND FOR SMALL TO MEDIUM AMOUNTS**
Temp. max. up to 2100° C. Also versions for high-reactive metals as Al or Mg available!
- **AIR CLASSIFIER AC SERIES FOR PRECISE SEPARATION OF METAL POWDERS**
into fine and coarse powder fractions especially in the range < 25 µm, where conventional sieving operations fail.
- **ALL UNITS DESIGNED FOR EASY HANDLING AND CLEANING, QUICK ALLOY CHANGE WITH MINIMUM CROSS CONTAMINATION**

SEE YOU AT
WorldPM 2022
FORMNEXT 2022


BLUE POWER
CASTING AND POWDER
PRODUCTION SYSTEMS

www.bluepower-casting.com

POWDER ATOMIZATION PLANTS · AIR CLASSIFIERS · VACUUM PRESSURE CASTING SYSTEMS
CONTINUOUS CASTING SYSTEMS · MELTING MACHINES · GRANULATION SYSTEMS

75045 Walzbachtal · Germany · Phone +49 7203 9218-0 · E-mail: info@bluepower-casting.com