Blue Power
Gas Atomizer AU 12000

FOR METAL POWDER PRODUCTION
IN SMALL TO MEDIUM BATCHES

THE BLUE POWER ATOMIZER

Developed for any flexible powder production with minimum cross contamination and low cycle time

e.g. for development of new, innovative and specialty alloy powders not available on the market

…for high value e.g. precious metal powder applications

where only small batch sizes are usually required and where any metal loss must be avoided

...for Additive Manufacturing, MIM and further applications

with the need for high quality powders with high purity, sphericity and reproducible size distribution (inert gas atomisation)

...for numerous applications in the most diversity

thanks to large particle size range, high powder yield and particularly high process stability.

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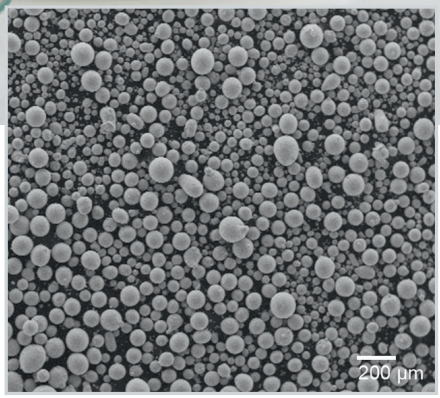
Casting Systems



Ag-based solder alloy powder with an average particle size of ~60 µm

The Powder Atomization Plants Blue Power AU series

For fast and economic production of small to medium batches of metal powder

The Blue Power gas atomization plants have been particularly designed for the flexible and economic production of small to medium metal powder batches. Traditional large-scale production plants cannot provide this economic advantage as frequently changing alloys in production require high cleaning efforts to avoid cross contamination. Particularly in R&D or precious metal powder applications small amounts of various kinds of powder are frequently required, often also new types of alloy powder not available on the market.

A wide spectrum of alloys

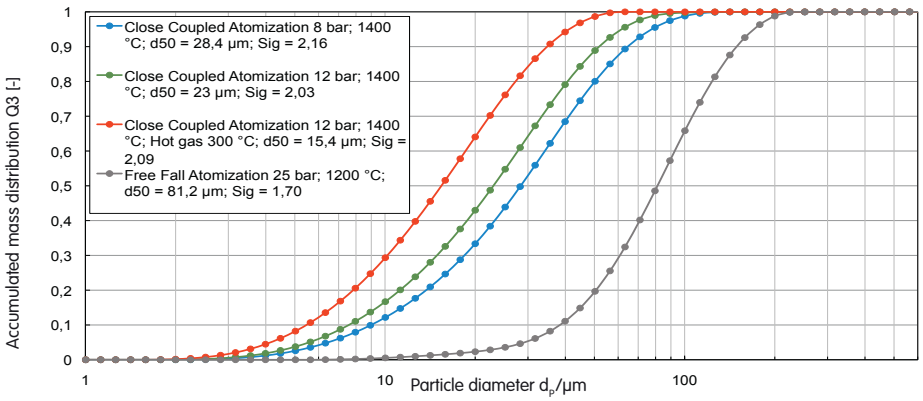
The BluePower Atomizer is generally suitable for gas atomisation of a wide spectrum of alloys; such as for example those based on Cu, Au, Ag, Sn or Zn (standard versions) as well as Fe, Co, Ni, Pd or Pt (high temperature versions **HT**, **HTC** and **HTC+**). The inductive heating takes place in graphite crucibles (up to 1.600° C) or in ceramic crucibles: **HT** up to 1750 °C, **HTC** up to 1850 °C, **HTC+** up to 2000 °C. The crucible volumes reach from ~1,5 l to ~25 l. For the production of reactive materials like Al or Mg, please ask us for our solutions.

Please don't hesitate to ask us for our Water Atomizer Systems!

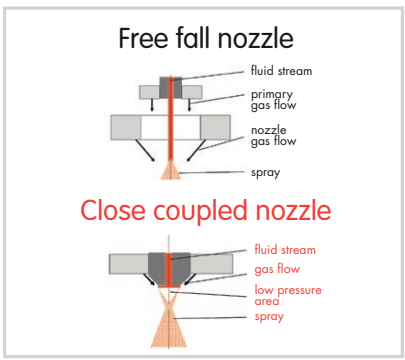
Powder characteristics and particle sizes for every request

To obtain specific metal powder characteristics and particle sizes, the AU machines work with different easy-to-change nozzle systems: free fall and close coupled atomisation nozzles. Optionally an anti-satellite system is available.

Fine-tuning of the particle size distribution a.o. is obtained by variation of gas pressure, gas temperature (up to 450°C) and metal mass flow:



Particle size distributions of gas atomized $CuSn_6$ powders



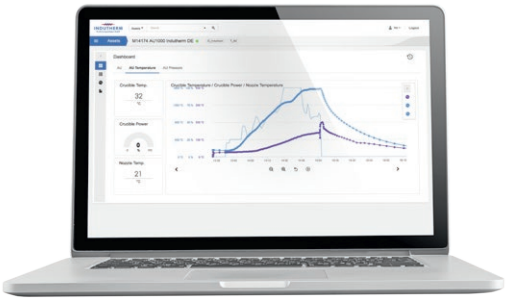
Water-cooled parts like spray tower and cyclone can support a fast cooling of the atomized material, optionally in combination with a passivation feature, to avoid agglomerations especially of soft and high purity materials like Cu, Ag, Au and/or in case of very fine powders (diam. ~< 20 µm).

Polished stainless steel surfaces prevent powder adhesions in spray chamber, cyclone and collector – all parts are easy to clean without any residues.

Melting chamber and nozzle plate can be lifted and swiveled to the side independently. Turnable nozzle plate.

Optimum accessibility, short training period, easy-to-clean concept

The user-oriented and modular structure of the systems ensures optimum accessibility for all work as well as for inspection and maintenance. This construction principle also ensures short installation and training periods. Polished stainless steel surfaces prevent powder adhesions in spray chamber, cyclone and collector – all parts are easy to clean without any residues. This way the risk of metal loss and cross-contamination is reduced to minimum.



Quality and process management

More safety, more control, higher productivity: The remote control functions allow the operator to watch and control the process conveniently from the office or any other location in safe distance. An integrated camera system provides live pictures of the process. Visualization tools and interfaces to the machine ensure data management.

Oxidation-free processing

The AU machines offer the possibility of oxidation-free processing in the closed-chamber machine by means of de-gassing, vacuum and protective gas features. Oxygen sensor values below 0.5 ppm can be achieved reproducibly.

Dynamic Differential Pressure system for constant metal mass flow

The DDP system is ensuring a constant and controllable metal mass flow, and therewith a constant gas-to-metal ratio, independent from the melt level in the crucible.

Four different versions

	AU 1000	AU 3000	AU 12000	AU 25000
crucible volume in l *	1,5 - 1,7	3,4 - 3,9	12,0 - 14,0	25,0
volume in kg bronze**	9	22	80	160
volume in kg steel ** (HTC)	8	22	90	on request
single cycle time	1.5-2 h	3-4 h	4-5 h	5-6 h
generator kw	20	30	40-60	40-60+

* *Liquid metal up to top level of the crucible – other volumes on request.*

** *Average capacities. Quantity may be increased by optimizing metal load using feeding systems.*

Blue Power AU Atomizers: Your solution for the flexible production of metal powders with high purity, sphericity and reproducible size distribution

BLUE POWER
Casting Systems

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NOW AVAILABLE ALSO WITH
CLEAN INERT GAS
MODULE

FOR EASY AND RELIABLE
SEPARATION OF METAL POWDERS

THE BLUE POWER AIR CLASSIFIER AC 1000 / AC 1000 G

Designed for the precise separation of metal powders into fine and coarse powder fractions

especially also in the range < 25 µm, where conventional sieving operations fail

…for processing of small to medium size powder batches

in each production with the need for frequent change of alloys or desired particle sizes, especially also for precious and other specialty metals.

…for research, development and small to medium-scale production

throughput up to 75 kg/h bronze or steel

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Particular advantages of the Blue Power Air Classifier AC 1000 / AC 1000 G

- Very sharp separation
- High process stability
- Wide classifying range, e.g. separation of steel or bronze from ~4 to ~200 µm.
- Throughput up to 75 kg/h bronze/steel (separation at 10 µm), adjustable through the material feed via the vibrating channel
- Short training period, easy and reliable handling
- Optimum accessibility for inspection and maintenance, low cleaning efforts
- Minimum metal loss and cross contamination
- NEW: Remote Control Function available
- The Air Classifier can be upgraded with several options like gates for powder supply and conveying of powder, special filter systems and interfaces to connect to your powder receivers.

The Blue Power Air Classifier AC 1000 G

The "G" version enables the classification process under a protective gas atmosphere. We particularly recommend the AC 1000 G for the separation of metals or alloys where uptake of oxygen, moisture or contaminations from the room air must be avoided.

An oxygen measuring system controls the process according to the set values. For example, a defined target O_2 value can be programmed for the process start.

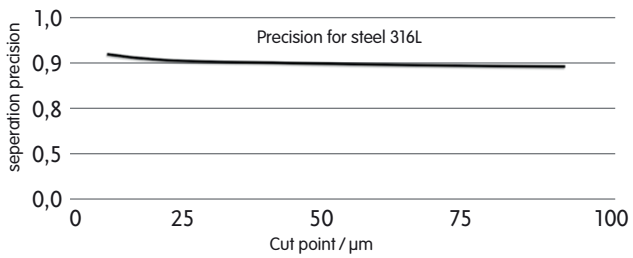
Regarding the classification of reactive metals, please contact us for more information.

The coarse fraction settles down in the first collector (in the background), the fine fraction is forwarded via the cyclone to the second collector.

Industry 4.0 ready · Remote Control · Easy to clean · Atmo Control

Cut point and separation precision

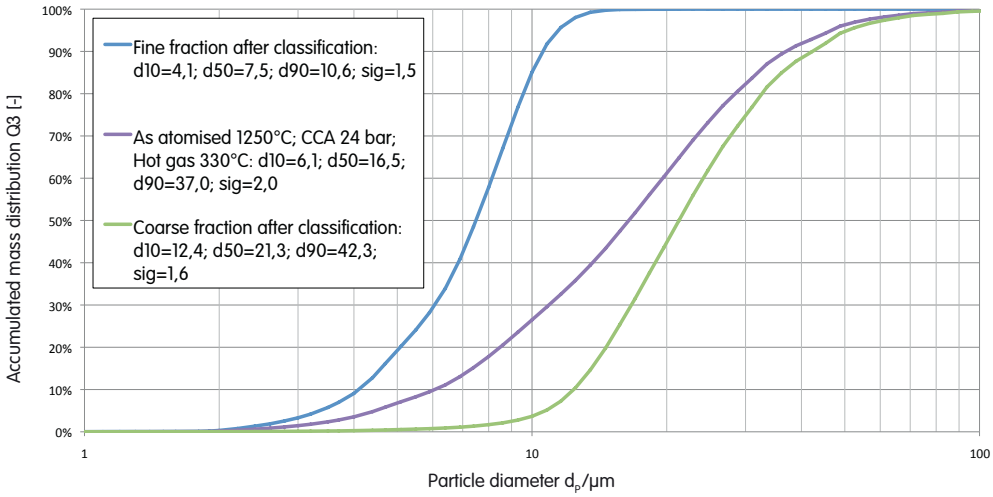
The cut point can be shifted by variations of the classifier wheel speed and the fan settings over a wide range while maintaining a very high separation precision.



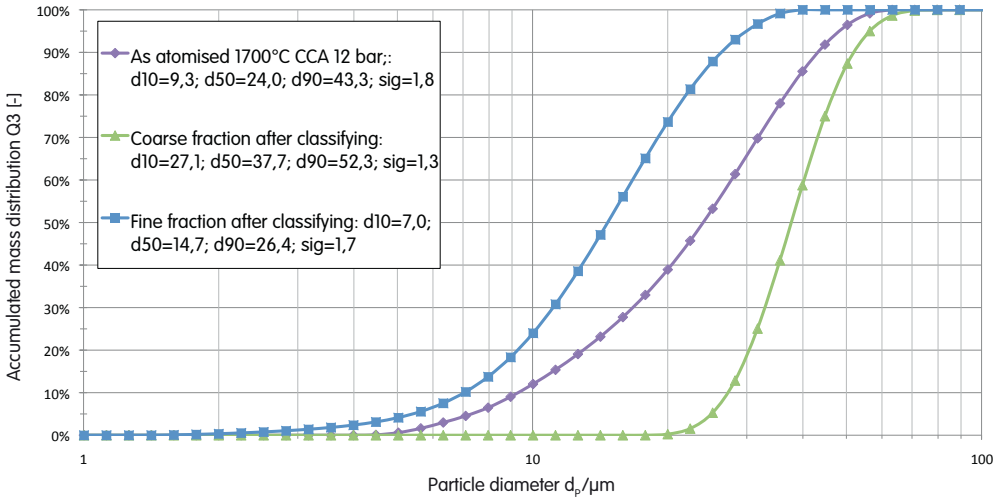
Polished stainless steel surfaces prevent powder adhesions and avoid cross-contamination. All parts are easy to clean without any residues.

For cleaning of the classifier wheel, the turbine unit can be selectively raised by means of an integrated crane with pulley.

The following examples show a cut point at ~10 µm for 18ct gold powder and at ~25 µm for steel powder.



*Particle size distribution of gas atomized **18ct gold powder** separated in coarse and fine powder fractions with the Air Classifier AC 1000.*
Cut point in this example ~10 µm.



*Particle size distribution of gas atomized **steel powder** separated in coarse and fine powder fractions with the Air Classifier AC 1000.*
Cut point in this example ~25 µm.

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