




ATO SPARQ

U L T R A S O N I C L A B S I Z E M E T A L P O W D E R A T O M I Z E R

EFFICIENT AND SCALABLE
AI POWERED PRODUCTION



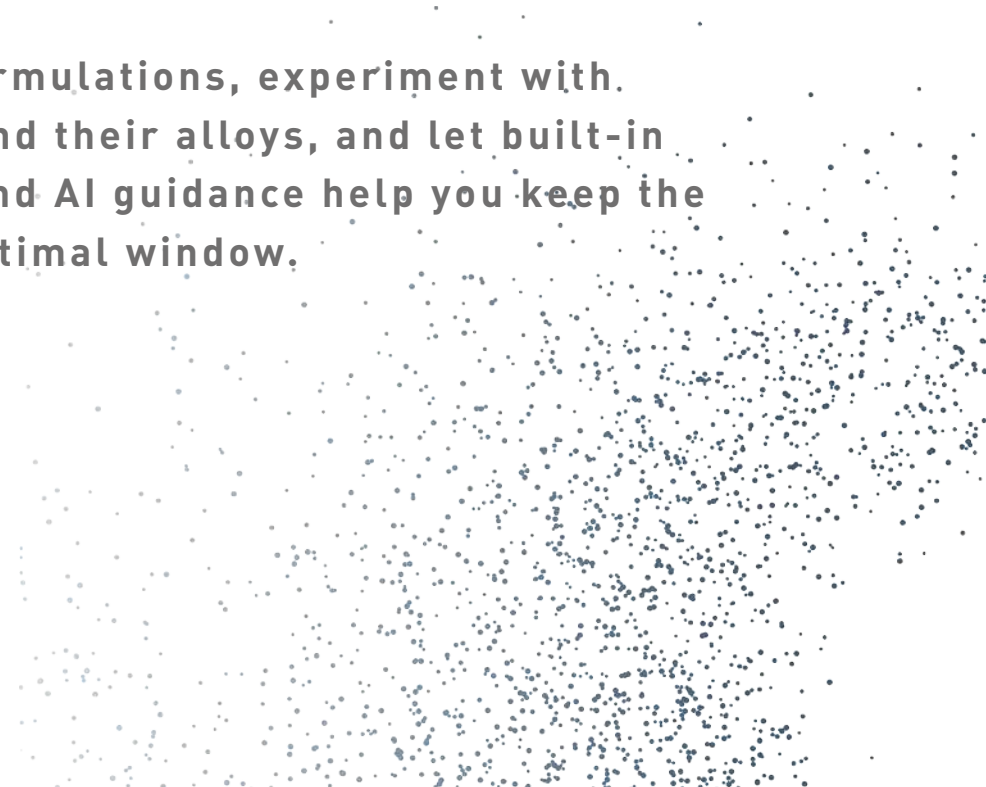
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G O B E Y O N D T H E S T A T E O F T H E A R T

ATO Sparq enables you to make metal powder yourself by optimizing the production of both reactive and non-reactive powders on a smaller, self-sufficient scale – now with AI-ready control.

Innovate alloy formulations, experiment with various metals and their alloys, and let built-in image analysis and AI guidance help you keep the process in the optimal window.



ADVANCED POWDER METALLURGY SOLUTION

Open a new chapter in your research and development with ATO Sparq.
Design your alloy and quickly produce spherical metal powder with high flowability,
perfect for your Additive Manufacturing and powder metallurgy needs
– with the machine actively “watching” and tuning the process.



ATO SPARQ

ATO Sparq throughput reaches several hundred grams of metal powder per hour with a particle size from 20 to 120 μm .

Additionally, depending on selected ultrasonic ATO Frequency System module, it's possible to produce a specific Particle Size Distribution tailored to user needs.

KEY FEATURES

- AI-ready atomization control
- Highest powder quality
- Compact lab-scale design
- Wide alloy compatibility
- Modular, expandable system
- TIG + Plasma melting
- Quick material change
- Large powder container with fill monitoring
- High safety and stability
- Cost-efficient and scalable

ADVANCED SOFTWARE

The quality of the software is a strong factor for the user's experience. We know this, so we've given ATO Sparq an intelligent, AI-ready control system that's adaptable and easy to use

Users manage the process through a dual touchscreen and precise controls, while AI assists in maintaining optimal atomization conditions. The interface allows quick adjustment of ultrasonic and melting parameters and enables remote monitoring and control of the entire process.



ATO SPARQ - ADDITIONAL CAPABILITIES

ATO Sparq comes with a vacuum pump, which quickly creates the right environment with very low oxygen levels. This ensures the materials are of the highest chemical purity. Thanks to its tight-sealing chamber, it can make powders of reactive metals and their mixtures, like titanium and aluminum, and monitor the process via two independent camera views. The upgraded industrial computer, ambient lighting and tray under the process chamber improve ergonomics and visibility, while built-in diagnostics watch the condition of consumables and notify the operator when maintenance is needed.



DEDICATED MODULES OF FEEDING SYSTEMS

ATO Sparq boosts productivity by offering flexible configurations. Users can choose from several feeding system modules, each designed for specific input materials: Additionally, custom feeders can be provided upon request.



**WIRE
FEEDING SYSTEM**



**SINGLE ROD
FEEDING SYSTEM**



**MULTI ROD
FEEDING SYSTEM**



**REVOLVER ROD
FEEDING SYSTEM**

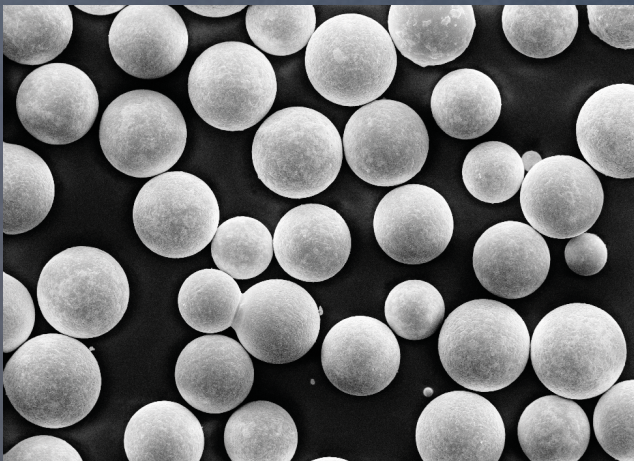


**CUSTOM
FEEDING SYSTEM**

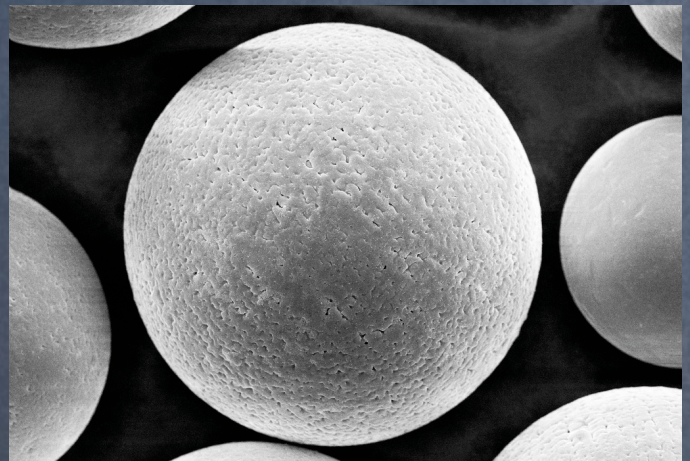
MAKE METAL POWDER IN YOUR LABORATORY

ATO Sparq has been designed by industry-oriented researchers aiming to overcome traditional atomization limitations and bring AI into the heart of the process. ATO Sparq has a compact form, making it possible for comfortable usage even in a limited space, now enriched with ambient interior lighting and an ergonomic tray under the process chamber.

Along with its innovative technology, integrated AI tools and no requirements for sophisticated infrastructure, it ensures exceptionally low operating costs, high stability and a quick return on investment.



Unsieved, raw ATO Sparq powder, note the uniform size and spherical shape of the particles



A spherical IN718 metal powder particle produced in ATO Sparq

NEXT GENERATION ATOMIZER

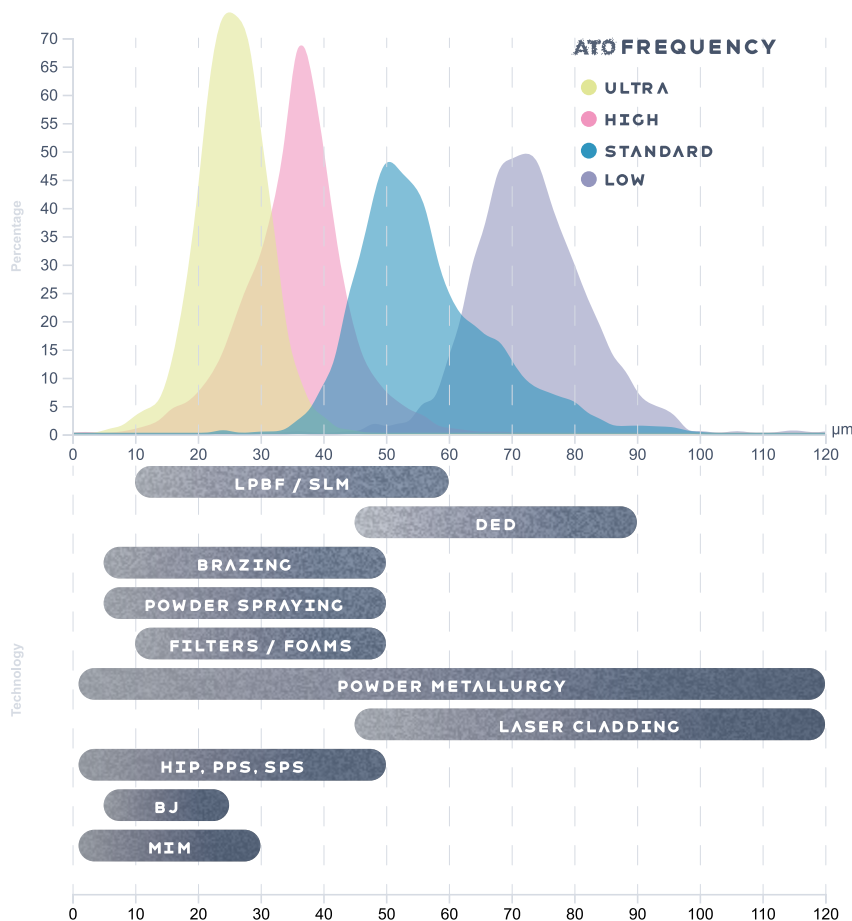
ATO Sparq is a unique, compact machine for metal powder production, using a novel ultrasonic atomization technology combined with live image analysis. This solution allows you to quickly produce metal powders with high flowability and a narrow Particle Size Distribution, while AI-assisted control and dual-point observation help maintain the optimal process window from start to finish.

AFFORDABLE SOLUTION

Compared to other atomization devices, ATO Sparq is more resource-efficient and operates swiftly and economically.

With its compact, modular design and integrated AI control, it can also be linked with multiple atomizers for synchronized, scalable powder production. 3D Lab has made ATO Sparq an advanced yet affordable choice for laboratories, research centers, and growing manufacturing environments.

DIVERSE POWDER APPLICATIONS

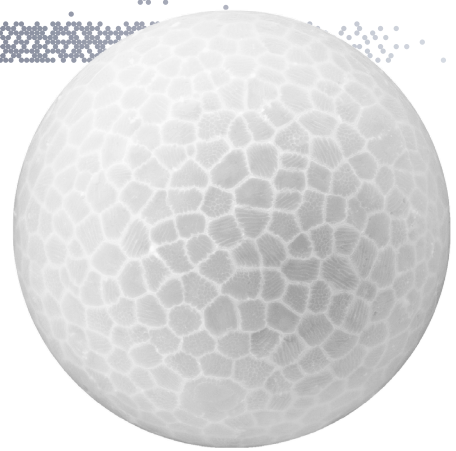


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DISCOVER THE BREAKTHROUGH IN POWDER PRODUCTION

SEE THE UNMATCHED PARTICLE QUALITY

Due to the ordered nature of the ultrasonic atomization process, the output powder has a very narrow particle size distribution that depends on the chosen ultrasound frequency. With ATO Sparq, dual-camera image analysis and AI-assisted automation help you maintain that quality over longer runs.



TAKE YOUR PRODUCTION TO A NEW STAGE

Different melting modules make it possible to overcome the material melting point limitations. ATO Sparq can use even very brittle or soft input material, as various dedicated feeding system modules are available to suit any form of feedstock.

By expanding with Induction Melting System module, users can precisely melt and atomize lower melting point materials with improved control and efficiency.



WITH ATO IN YOUR LAB YOU WILL CHANGE THE WAY OF METAL POWDER PRODUCTION

PROCESS CHAMBER

stainless steel process chamber cooled with water-jacket

MATERIAL FEEDER

select feedstock form with ATO feeders*

SONOTRODE

the very heart of the machine, build with patented technology and state-of-the-art nanoalloys, it provides unique process flexibility

FILTERS

designed to remove small powder particles and excessive fumes

ATO POWDER CONTAINER

compatible with ATO accesories, keeps argon shield

RECIRCULATION PUMP

maintains the circulation of the argon atmosphere

FRONT COVER

ensures view and protect eyes

TIG / PLASMA TORCH

welding arc is formed by a electrode and is maintained in a shielding gas covering

ULTRASONIC TRANSDUCER

the "vibration engine" brings energy necessary for eject the particles from molten metal

CONTROL PANEL

user-friendly software, touchscreen, precise knobs

WELDING SOURCE

robust power supply guarantees stable process while efficient inverter minimize energy loss



SCAN QR



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S P E C I F I C A T I O N



GENERAL INFORMATION	ATO Sparq
process	metal powder production
technology	ultrasonic atomization
melting method	TIG / Plasma* / Induction* (as module)
sonotrode type	half-wave nanoalloy sonotrode - patented
inert gas flushing method	vacuum pump
cooling method	liquide
processable materials	non-reactive & reactive alloys (e.g. Ti, Al, Zr-based alloys, intermetallics and refractory metals)
powder quality	high flowability, spherical particles shape, narrow PSD, low oxygen content
PSD (particle size distribution)	20-120 um (depends on ultrasonic frequencies)
powder collecting system	cyclone
protective atmosphere preparation time	<15 min
input material	wire, rods, scrap, irregular
certification	CE

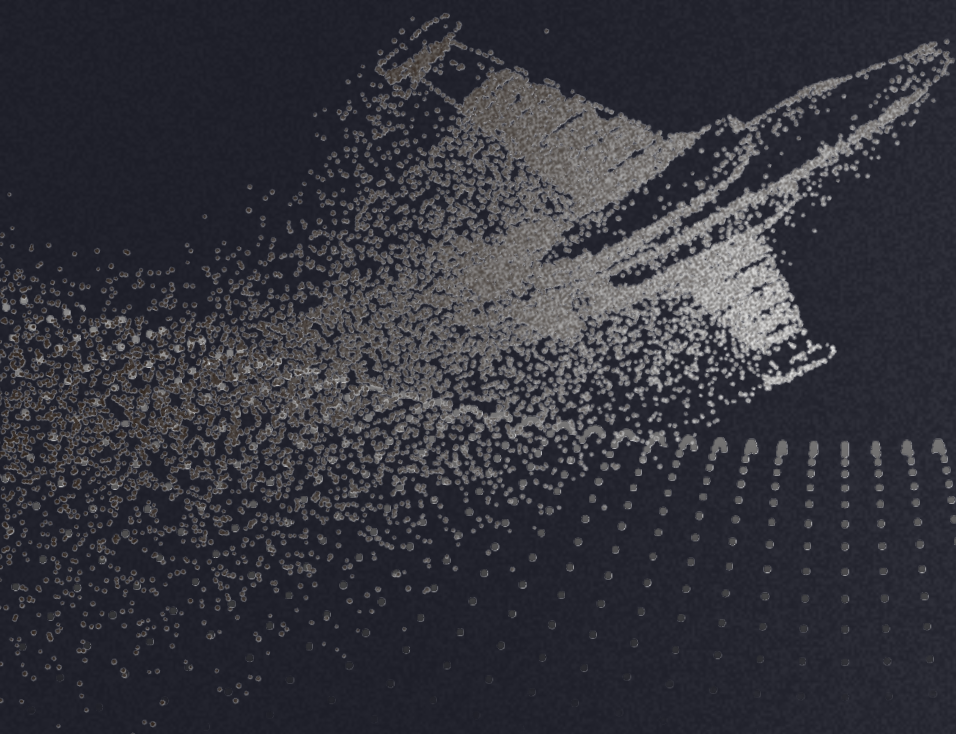
PARAMETERS

ultrasonic frequency	20 / 35 / 52 / 72 kHz (upgradable)
O2 level	< 10 ppm
system throughput	up to 0.3 l/h
size (HxWxD)	1997 x 813 x 1626[mm]

REQUIREMENTS

inert gas	argon
cooling	liquide & compressed air
power supply	400V, 10 kVA / 3 phase
cleaning unit	ultrasonic cleaner (ATO Clean)
powder recycling system	sieving unit (ATO Sieve)

ATO SPARQ

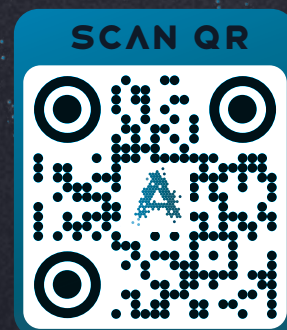


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