

**Atomising
Systems
Limited**

The Total Atomisation Solution



POWDER

CONSULTANCY

CONTRACT R&D PROJECTS

FEASIBILITY STUDIES

ENGINEERING PACKAGES

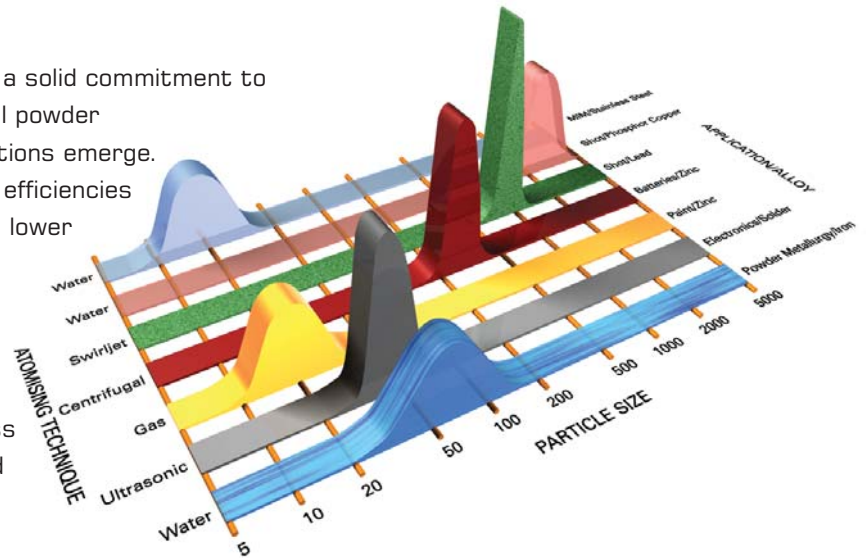
TURNKEY SYSTEMS

Atomising Systems

Atomising Systems Ltd. (ASL) of Sheffield is the world's leading supplier of atomising technology and equipment. Established in 1992 the company founders have over 40 years experience in atomising technology and innovation. More than 140 atomisers have been delivered to over 35 countries.

ASL is based on innovation and a solid commitment to R+D. The demands of the global powder industry evolve and new applications emerge. ASL's constant push for higher efficiencies results in greener systems and lower carbon footprints.

ASL offers cost effective solutions, either through in-house R+D or working with our clients to produce a process and therefore a powder tailored to their application.



The highly competitive world market demands continuous improvements. ASL's international customers already benefit from our services through:

Consultancy

Contract R+D projects

Feasibility studies

Engineering packages

Turnkey systems



Contact us! We can help your company too

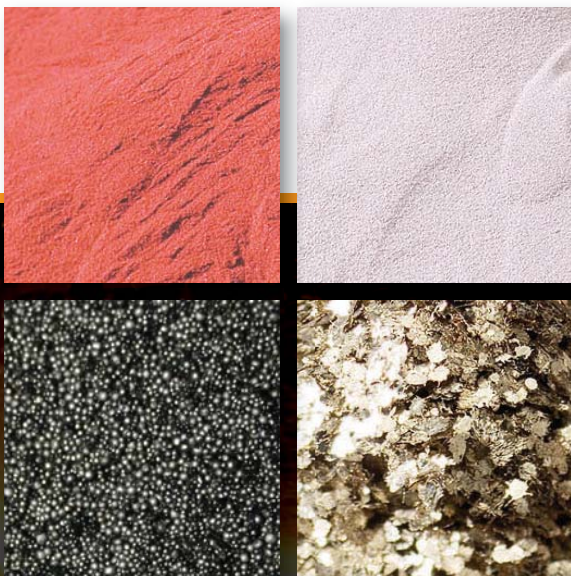
ASL Powder Production

ASL's powder customers vary from those requiring large volumes to those needing only test batches or test production campaigns.

Our production facility is large enough to serve your needs yet still flexible enough to produce special powders with unique chemistries or particle sizes.

Our powder production equipment consists of:

- Gas atomisers
- Water atomisers
- Centrifugal atomisers
- Ultrasonic atomisers



ASL produces powders with batch sizes up to 25 tonnes:

Cu alloys with Sn, Ni and P content. Gas atomised for brazing applications.

Ni alloys With Cr, Cu and P content, or NiBSi and similar alloys. Gas atomised for brazing applications.

Cu, Sn and Ag alloys for diamond tool, brazing and dental applications. Gas and water atomised.

Sn powders and Sn alloys with Cu, Bi, Ag, Sb, In, Pb and others. Mostly used for solders and produced on ultrasonic and centrifugal atomisers.

Let us know your special powder requirements

Technologies

Gas Atomisation

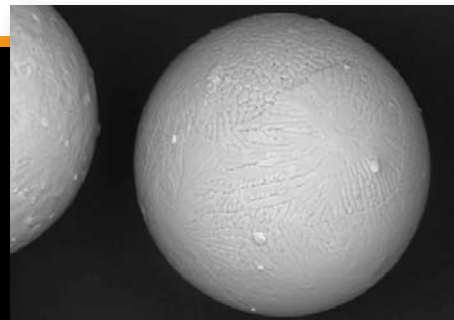
Gas Atomisation offers the benefits of low oxygen, highly spherical powder.

The throughput potential from a single melt stream is lower than with water atomising, but the applications are generally more demanding or specialised.

If the gas atomiser is specified with ASL's HOT GAS ANTI-SATELLITE system then the powder will be significantly freer of satellites and can be made even finer or more cost effective.

Whichever way you look at it, the ASL hot gas Anti-satellite can benefit your powder production.

MIM requires fine powders. Hot gas enables this. It allows the gas to metal ratio to be optimised whilst minimising the melt freezing potential. The hot gas provides a higher level of energy and therefore finer powder still. If you are producing MIM powders you should be talking to ASL about Hot Gas.



If you want to produce powders for applications such as thermal spray or brazing, ASL's anti satellite system will ensure the freest flowing powders are produced, whilst Hot Gas will ensure your gas costs are minimised.



Highly efficient atomising technologies

Technologies

Water Atomisation

Water Atomisation has the potential to handle huge throughputs of metal on a single melt stream compared to gas atomisation.

Water atomisation is chosen because it produces irregular shaped particles as well as allowing large processing rates of up to around 1000kg per minute. This irregular shape offers the benefits of a much larger surface area, which when used in refining applications allows a greater surface area for chemical attack. PM (powder metallurgy) parts produced by pressing and sintering rely upon the irregular shapes to produce the compressibility and locking nature that holds the parts in their green shape (a certain strength that allows easier handling and sintering).

Atomising Systems Ltd. produces water atomisers operating on small batches of a few kg all the way through to 1000kg/minute.



Smaller scale water atomisers are used in precious metal applications, including dental amalgam production. Large scale water atomisers can be seen making Fe powder for PM applications or atomising alloys for further refining, such as the FeCoCuS Matte atomiser in Chambishi, Zambia. Atomising Systems Ltd. has supplied systems to suit such client requirements.

Water atomisation normally requires a dewatering and drying process as well. ASL has this covered too as we can offer engineered solutions to optimise the dewatering and drying processes, thus ensuring that you retain your products, profits and help to protect the environment!



Technology that can work for you

Technologies

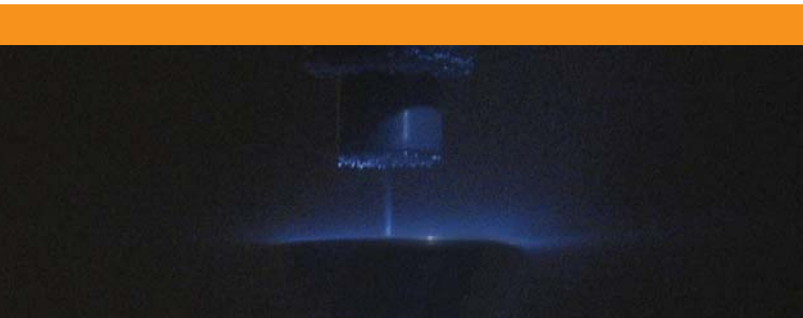
Centrifugal Atomisation

A highly efficient atomising method, centrifugal atomisation enables the production of narrow particle size distributions with low energy costs. It offers enormous cost saving benefits and its limitations are less than you may think.

Used to produce battery grade zinc it allows optimisation of the distribution and maximisation of the yield with a fraction of the energy requirements of a gas atomising plant.

For Type III (+25-45 μm) and Type IV (+20 -38 μm) electronic solder grades, a median particle size of about 30 μm , and a very narrow standard deviation of around 1.3, gives fantastic yields. With on line classification and outputs of 120kg per hour of Type III solder powder the system can deliver up to 60tonnes per month.

We also atomise steels, copper alloys and non metals by the centrifugal method. With throughputs of 500kg/minute and higher levels possible, it certainly is an atomising method to consider.



Ultrasonic Atomisation

A highly efficient atomising method aimed strongly towards electronic grade solder production.

Very spherical low oxygen powder can be produced on the equipment; options allow throughputs up to 100kg/hr, giving Type III yields of 45kg, or Type IV yields of around 30kg/hr.

A very compact and efficient system can be produced. However if the client wants to go to a higher throughput of electronic grade solder powder, they should consider the centrifugal atomising method.

Your atomising requirements are our business

ASL R&D Facility

The comprehensive facility that ASL operates in Sheffield, England allows our customers to assess our technology and take the powders we produce into the market.

Our in house engineering department along with our R+D department gives us the flexibility and adaptability to use our facility for your R+D contract. We work with a number of high profile customers, some from within the PM field, but others from very diverse markets.

Our R+D Department is working on new challenges all the time. If you have a demanding powder requirement we will work with you to make it a reality.

Not just metals

The majority of our clients are producers of metal powders, but we work in non metals too such as salts. If it melts and flows we should have the atomising solution for you.



Processing

Whilst our key expertise lies in powder production we have helped a number of our clients in down stream processes such as dewatering and drying of powder slurry from water atomisers and sieving and classification of solder powders.



We are ready to help you make the next move

Experience

Our client base is global, Many of our clients themselves are global and have local demands and legislations which ASL have met or exceeded.

It's not just simply powder metallurgy that ASL serves. For metals or non-metals and over a diverse range of industries. ASL adds value to your production.



North America

Iron Powder Producers, Special Alloys, R&D Systems, Zinc Atomisers, Gold and Silver units, Electronic Solders

Europe

Silver Powder, Dental Amalgam, Copper and Bronze, R&D Systems, Stainless and High Alloy Steels, Ni & Co Based Thermal Spray Alloys, Brazing Powders

Far East

Stainless Steels, Diamond Tool Alloys, R&D Units, Palladium, Gold and Silver Brazing Powders, Thermal Spray Powders, Electronic Solders, Copper and Alloy Powder

China

Electronic Solders, Gold Refining, Iron Powder Plant, Aluminium Alloys

Latin America

Dental Amalgam Producers, Silver Powder

Africa

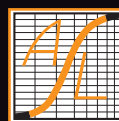
Matte Atomiser, Gold Atomiser, R&D System, Revamp Major Plant

India

Iron Powder Plant

Australia

Revamp Lead Powder Plant



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