

# Solving processing challenges



# Atritor Alchemy – solving processing challenges is in our DNA

**We solve materials processing challenges to provide high value products for our clients.**

We use the knowledge gained over 90 years to deliver bespoke drying and milling solutions for industry. We design processes that take raw materials and manufacturing bi-products turning them into value-added products.

*We have data on 1000s of tests on over 500 categories of material to provide bespoke solutions.*

MANUFACTURING  
SINCE **1920**

# Processing hidden value

**The scope of industries we work with is vast. No two projects or solutions are the same and we love the challenges this presents.**

We have a data base of over five hundred categories of material and thousands of test results. Accumulated over seventy five years, they provide detailed insight into the characteristics and performance of materials.

We help process specialists and innovators to find solutions for new applications, to valorise overlooked materials and upgrade existing processes.

*Whatever your process challenge, we have the technical expertise to help. Please contact us.*

**500+**  
MATERIAL CATEGORIES  
**1000s**  
TEST RESULTS

## Applications

DRYING

DEAGGLOMERATION

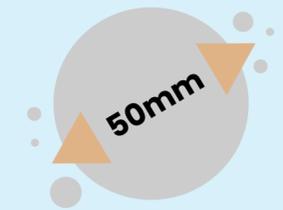
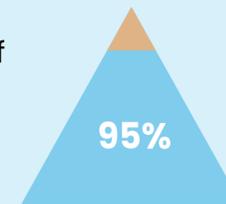
FINE MILLING

CLASSIFYING

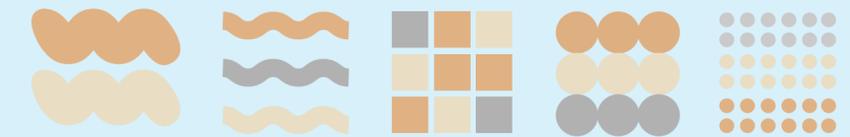
SURFACE MODIFICATION

## Feed Materials

Up to 95% moisture and particle sizes of up to 50mm.



Sludges, slurries, filter cakes, precipitates, powders, fibres, flakes, granules and recycled material.



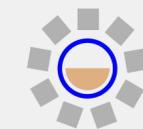
## Who we can help



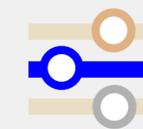
**R&D  
Managers**



**Process  
Engineers**



**Technical  
Managers**



**Production  
Managers**



**Innovators**

## Sectors

### Chemicals

Alginates, Hydritalcite, Hydrocalcite, Iron Oxides, Magnesium Hydroxide, Methyl Cellulose, Pigments, Silica Gel, Stearates, Titanium Dioxide, Zeolite.

### Food

Casein, Gluten, Insects, Plant Material, Protein, Pulses, Seaweed, Side Streams of Organic Production, Starch, Wheat Flour.

### Minerals

Clays, Coal, Fly Ash, Ground Calcium Carbonate (GCC), Gypsum Limestone, Hard Minerals, Kaolin, Phosphates, Precipitated Calcium Carbonate (PCC), Talc.

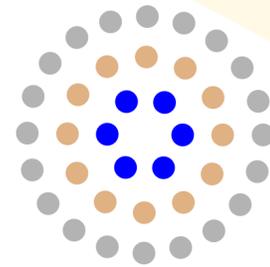


**These are some of the materials we've worked with, to list them all would be impractical, there are 1000s.** If you don't see your material here, then contact us - it's highly likely we have test results to call on.

# Tailored solutions...

**We have the technical expertise to process materials using single or multi-stage operations to ensure products meet your exact specifications.**

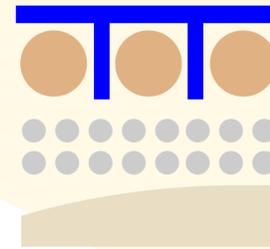
**“We thrive on process challenges!”**



## Drying

Our drying technologies can reduce feeds from 95% moisture to less than 0.1%. Our plants provide evaporative rates up to 7,000 kg / hr.

Designing a drying process requires recognition of the characteristics of a material, in particular how it may be adversely affected by heat.



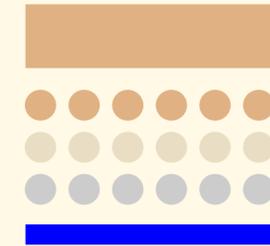
## Fine Milling

Our range of equipment can mill a wide range of materials to a mean particle size as low as 20 microns.

The Cell Mill is ideal for super fine milling of food and chemical products.

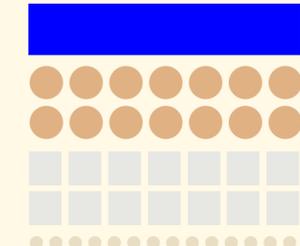
The Dryer-Pulveriser is used for minerals and coarser materials that tend to be harder and more abrasive.

The Microniser is particularly suitable for small capacity applications.



## Deagglomeration

Dispersion of wet ground filter cakes and slurries using drying and turbulence to disperse it to its natural state.



## Classifying

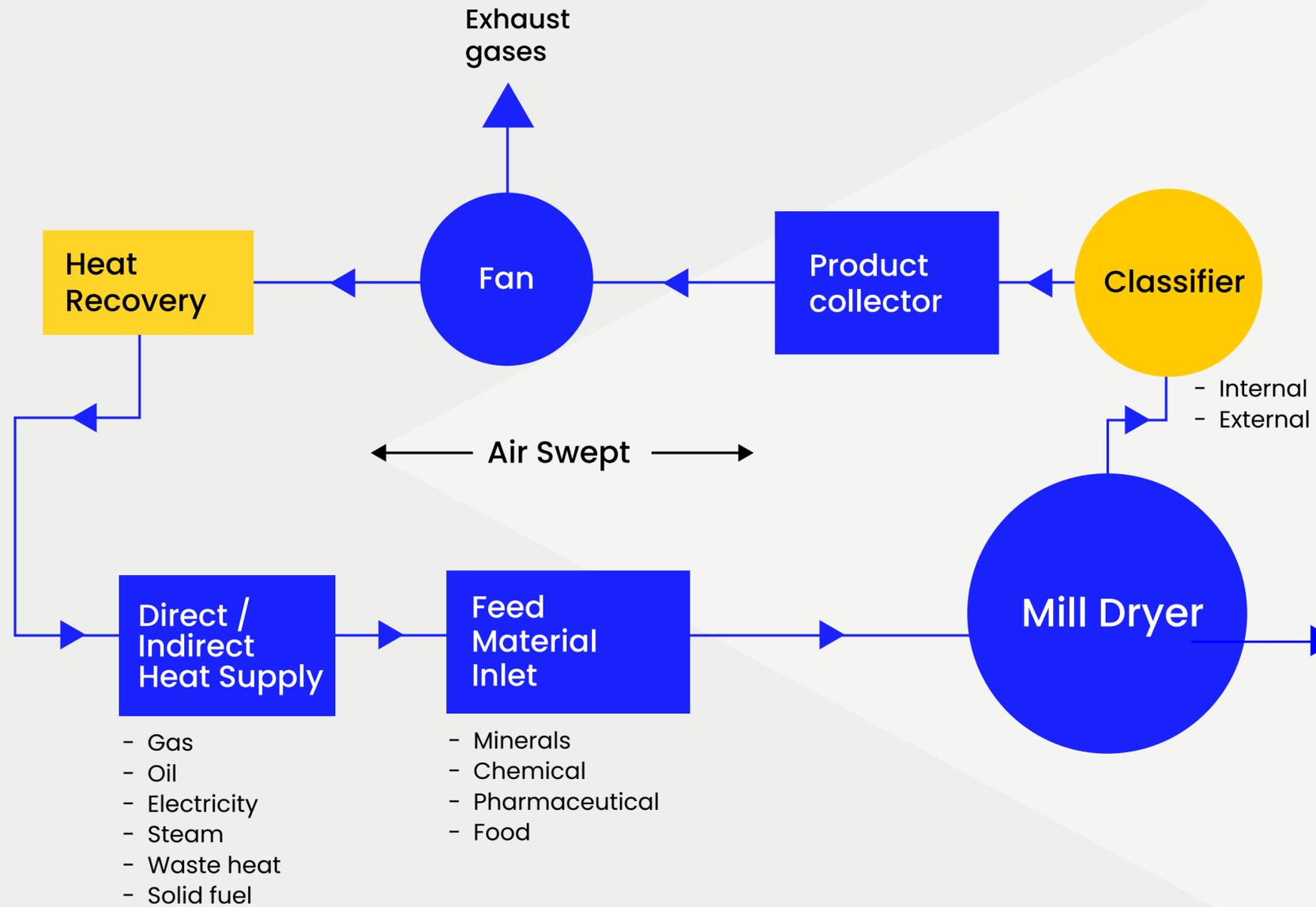
For applications where a tightly controlled particle size distribution or top-size is required, or when there is a need to remove impurities. A classifier can be an integral part of a mill, operate in-line with a mill or function as a separate circuit.

## Typical Process

**All Atritor plants are air swept and material is conveyed through the system in the air stream.**

Feed material is metered into the inlet air stream, using a variety of variable speed devices depending on material characteristics.

After the process operation the finished product is discharged from the drying milling unit and carried in the air stream to the product collector.



### Cell Mill

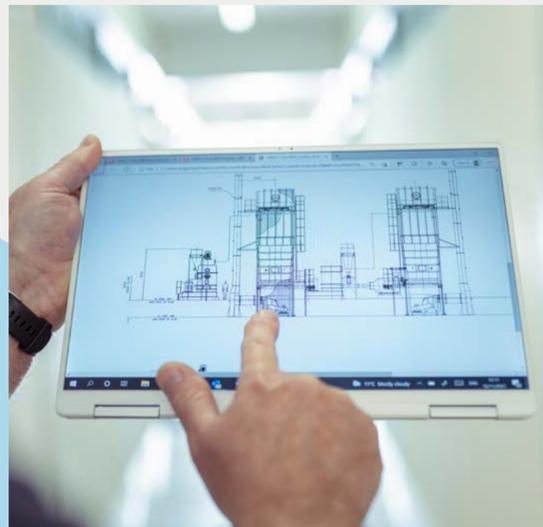
- Simultaneously dries and mills to a super fine powder with tightly controlled particle size distributions
- Capacities range from 50kg/h to 15t/h
- Inlet temperature up to 450°C, outlet temperature to suit final product moisture
- Evaporative rates up to 3,000kg/h
- Slurry injection, classification, coating, surface modification and hygienic options available

### Dryer-Pulveriser

- Simultaneously dries and mills minerals, chemical and filter cakes
- Capacity range 50kg/h to 20t/h
- Inlet temperature up to 550°C, outlet temperature to suit final product moisture
- Evaporative rates up to 4000kg/h

### AST Dryer

- Excellent for producing relatively coarse products at high capacities
- Inlet air temperature up to 600°C, outlet temperature to suit final product moisture
- Suitable for feeds of high residual moisture
- Evaporative rates up to 7000kg/h

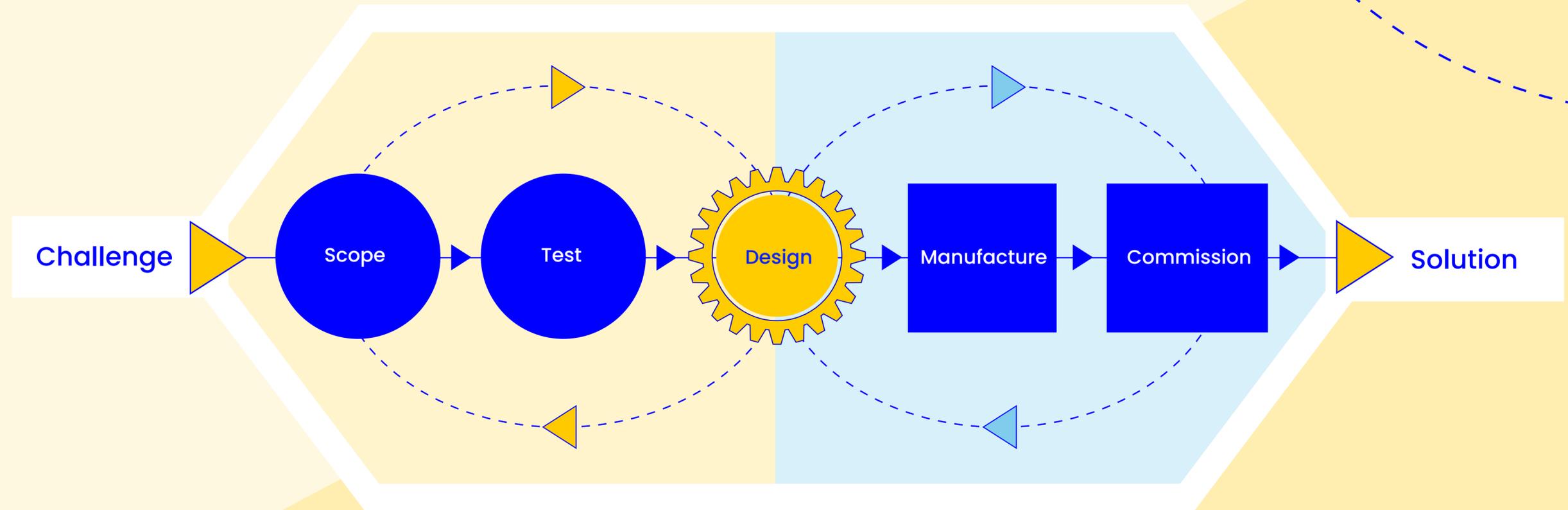


# You get out more than you put in

**We collaborate with our clients to achieve an effective and efficient solution for their specific application.**

Our solutions are bespoke and are built on a thorough understanding of our clients needs and the nuances of their material and their industry.

Many of the people we work with are innovators looking to find applications for materials that would otherwise be discarded or sold as low value commodities. We enjoy the challenge of working on these research and development projects that feed into a sustainable circular economy.



## Our core process

- Consult with clients to understand requirements

- Pilot Plant testing and proving facility

- Plant design, using the latest 3D software

- Manufacturing and supply of complete systems including controls

- Installation, commissioning assistance and training services

## Consult

**Our project teams work with our clients to identify their requirements and understand their particular industry and application. From the first meeting we focus on the commercial viability of a process solution.**

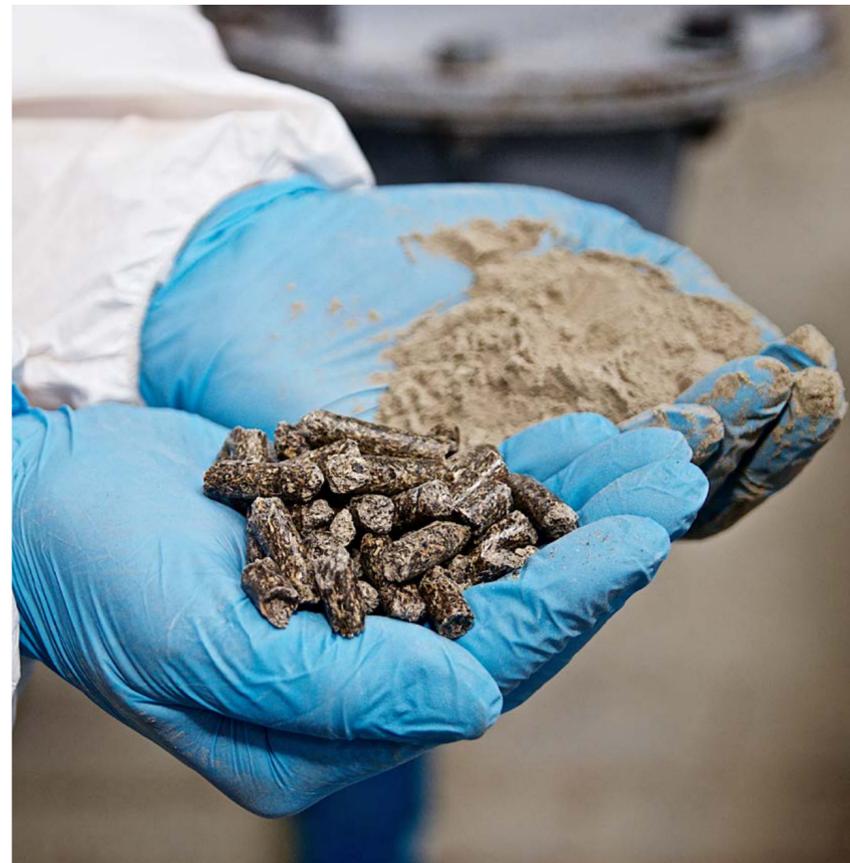
We understand that our clients need to create value, so we use our knowledge to produce an initial feasibility study. We include the estimated capital and operational costs involved.

This transparent way of working means that we share a common goal with our clients from the outset – to create value and efficiency.

# Consult & Test

**“From the first meeting we focus on the commercial viability.”**





## Pilot plant

**We have an industrial scale Pilot Plant in the UK to prove process requirements at scale. It is supported by a well equipped laboratory with a range of techniques for analysis.**

The Pilot Plant can process from 1kg to 2 tonnes per hour to determine particle size, density, moisture, utilities demand and scale up rates.

This provides our engineers with the data to design a bespoke solution.

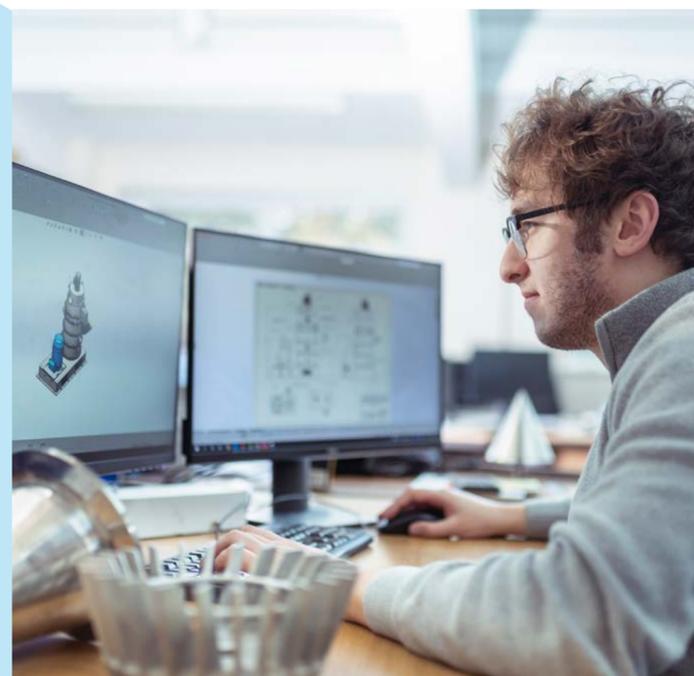
WE CAN TEST FROM

**1** kg/h  
TO  
**2** t/h

# Process Design

**Our in-house dedicated design team produce bespoke full plant designs, using the latest 3D and 2D software systems.**

For every project we design and specify a full process package.

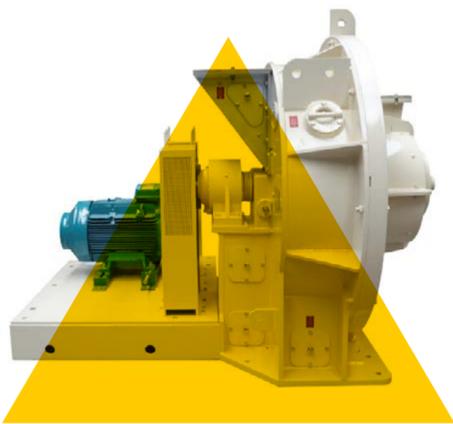


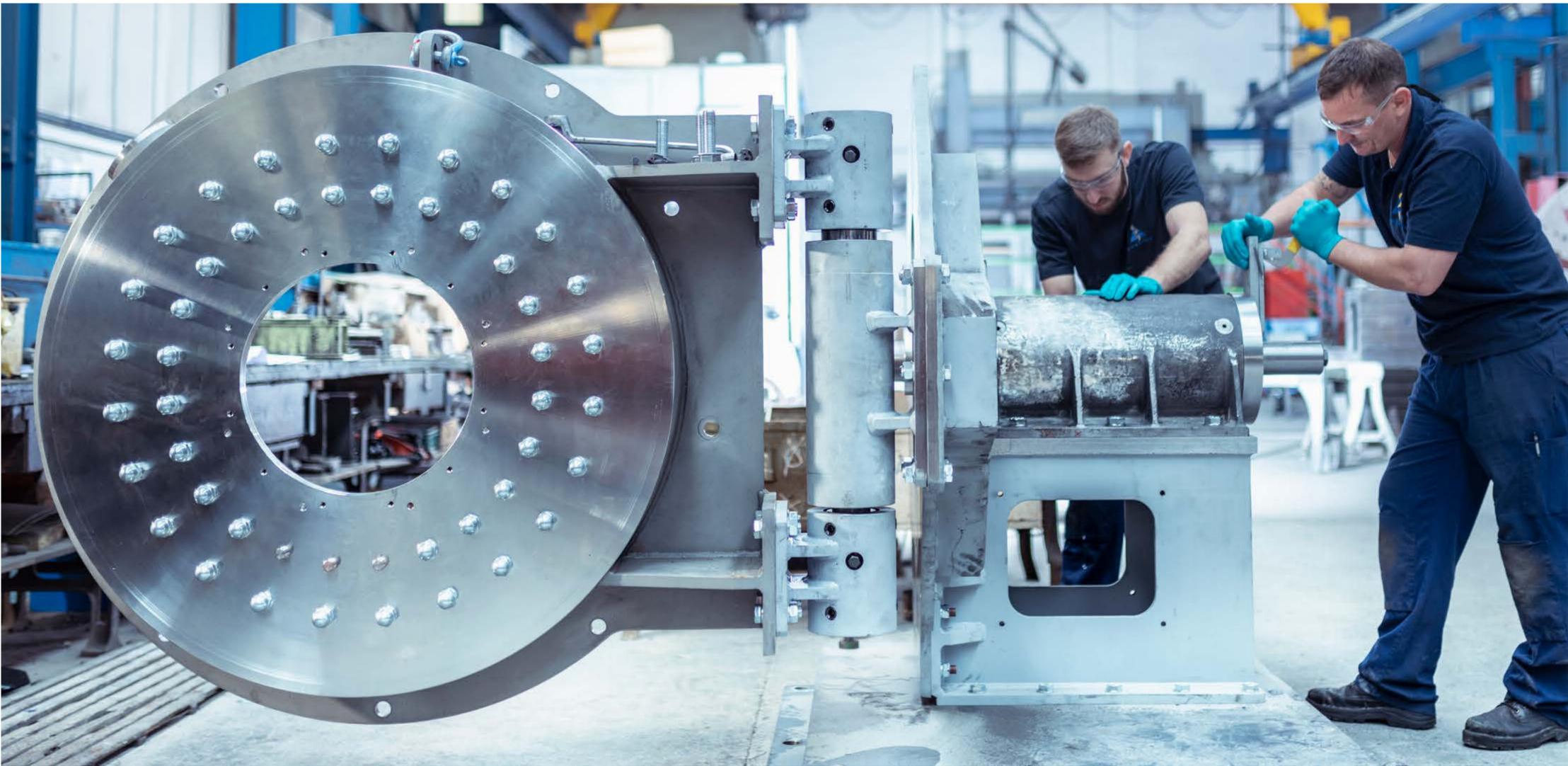
**We have manufacturing facilities including an alloyed iron foundry, machine shop and assembly operation, giving us complete control of the production process and our stock of spare parts.**

The construction of our equipment allows each unit to be purpose built for its specified duty, whilst retaining the principles of operation and use of common spare parts.

Equipment can be manufactured in carbon steel, stainless steel or specially coated steel as required for the application.

# Manufacturing





**Installation and  
commissioning  
support and  
flexible supply of  
spare parts.**

**We pride ourselves on providing  
a complete solution for  
customers including operator  
training, installation and  
commissioning assistance by  
experienced engineers.**



**6** SUPPORTING  
CUSTOMERS  
ACROSS ALL  
**Continents**





## What material challenge can we solve for you?

We use the knowledge gained over 90 years to deliver bespoke drying and milling solutions for industry. We design processes that take raw materials and manufacturing bi-products making them into value-added products.

[atritor.com](http://atritor.com)

[sales@atritor.com](mailto:sales@atritor.com)

+44(0) 247 666 266

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