

# Leading innovation for cleaner energy



## Where performance matters

Founded in the field of mechanical cleaning and tube inspection, we offer practical solutions and expert consultancy in one combined service.

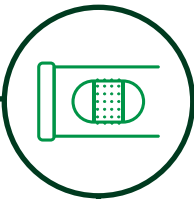


**Cokebusters**





# Combined Service



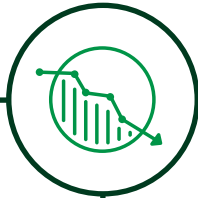
**Mechanical Cleaning**

Fouling disrupts flow and causes corrosion. Cokebusters' patented scraper pigs, Double Pumping Unit and skilled operators ensure effective cleaning and maintenance.



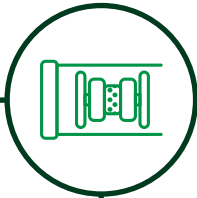
**Water Filtration**

We developed a patented filtration machine that filters contaminated water from mechanical cleaning down to 1µm, making it suitable for reuse or eco-friendly disposal.



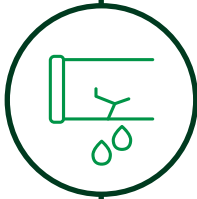
**Cleanliness Verification**

Cokebusters' smart pig provides accurate inspection and quantification of fouling, improving safety and efficiency over error-prone methods.



**Tube Inspection**

The Cokebusters smart pig is a single-bodied ultrasonic inspection tool that quickly delivers data and detailed 3D reports for complex tubing systems.



**Pipe Integrity**

We provide detailed integrity assessments and expert analysis to manage risks and ensure safety and environmental protection.



**Asset Assurance**

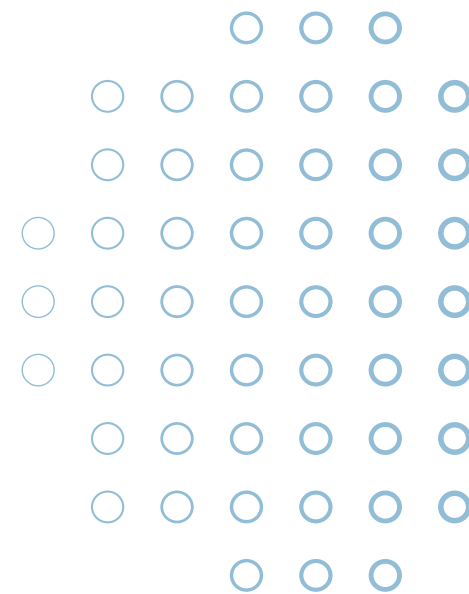
We provide independent integrity assurance through data analysis, ensuring asset competence and compliance during ownership changes.

We set the standard in mechanical cleaning and inspection for the global energy sector.

Our patented unique services allow us to deliver efficient, reliable solutions through unmatched expertise, cutting-edge technology and pioneering innovations which enable us to inspect the unpiggable.



# The Cokebusters Ethos



## Innovate

At Cokebusters, we design and build our own specialist equipment, constantly innovating and improving the tools used to meet our clients' needs. By internalising manufacturing, we reduce supply chain dependency, providing greater flexibility and control over production.

## Design, Build & Test

The process involves designing, building and testing a Double Pumping Unit, integrating a filtration unit for water purity. Mechanical pigs clean pipelines, while smart pigs inspect for defects. A test loop simulates real conditions to validate performance.

## Deploy

To ensure quick response to client needs, we have strategically positioned our pumping units across the globe. Our skilled operators, who are directly involved in the build process, are experts in maintaining and troubleshooting the equipment on-site, minimising downtime.

## Develop

Feedback helps us to shape the future design of our equipment, driving us to solve new challenges and innovate further. This continuous improvement enables us to create the technology needed to deliver our world-class service.





# Mechanical Cleaning

Fouling in process tubing can severely impact flow assurance and accelerate corrosion. In heat exchanger systems, it poses a risk of overheating, corrosion and potential rupture.

Cokebusters has developed a comprehensive solution to address these challenges, combining patented scraper pigs, a purpose-built Double Pumping Unit and a team of highly skilled operators to ensure thorough system cleaning and maintenance.

**Minimises Tube Wall Damage**

Our technology is designed to cause the least amount of damage to tube walls.

**Two-Stage Filtration**

This system minimises atmospheric loss and ensures high efficiency, whilst also collecting and containing removed hydrocarbons and inorganic material for responsible disposal.

**Bespoke Designs**

Custom mechanical pig designs are available to meet specific operational needs.

**Test Loops**

These enable operators to receive process training and support time-efficient R&D to address operational challenges.

# Tube Inspection

The Cokebusters smart pig is a unique, single-bodied, untethered bi-directional inspection tool.

Powered by liquid flow, this ultrasonic device is ideal for navigating complex serpentine coil networks in heaters and steam generators, as well as other process tubing systems and pipelines. It delivers near-instant data, which is post-processed to produce detailed reports and navigable 3D image files for comprehensive analysis.

**Operating Range**

Suitable for tubes with internal diameters ranging from 1.5" to 12".

**Inspection Speed**

Optimum speed for inspection tool is between 0.3 – 0.8 m/s.

**Detection Method**

Pulse-Echo ultrasound is used to obtain Internal radius and Wall Thickness measurements.

**Detection Capabilities**

Able to detect, quantify and locate geometric anomalies including Internal and external wall loss, Fretting, ovality, areas of pitting and bulging.

**Preparation Required**

As the inspection tool collects data from the interior of the tube, it is not necessary to remove surrounding components to gain access to the tube surface, such as, insulation, lagging, supports and covers.

**Data Format**

Raw timing measurements and A-Scan data collected, C- Scans generated post analysis to give extensive overview of the tube's condition.



# Water Filtration

Mechanical cleaning often produces large amounts of contaminated water. To address this, we have designed, built and patented a water filtration machine specifically for mechanical cleaning operations.

Our system employs a four-stage filtration process that progressively filters down to 1µm. At this level, the water is clean enough for reuse or for more environmentally friendly disposal.

**Reduced Contaminants**  
Minimises the amount of contaminated waste water that needs disposal.

**Supports Recycling**  
Decreases the need for a continuous water supply by enabling water reuse.

**Versatile Use**  
The filtered water can be utilised for other water filtration projects, enhancing overall efficiency.



# Cleanliness Verification

Many current verification methods are qualitative, prone to human error and often involve exaggerated claims.

With the deployment of Cokebusters' smart pig, it is now possible to directly inspect the interior of process tubing and accurately verify cleaning effectiveness. The data collected allows for precise location and quantification of residual fouling. Armed with this information, operators can deliver a safer and more efficient service.

**Eliminates Judgement**  
Moves away from subjective assessments.

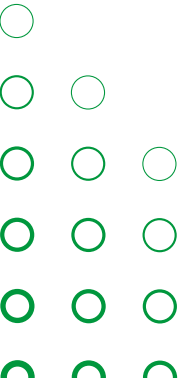
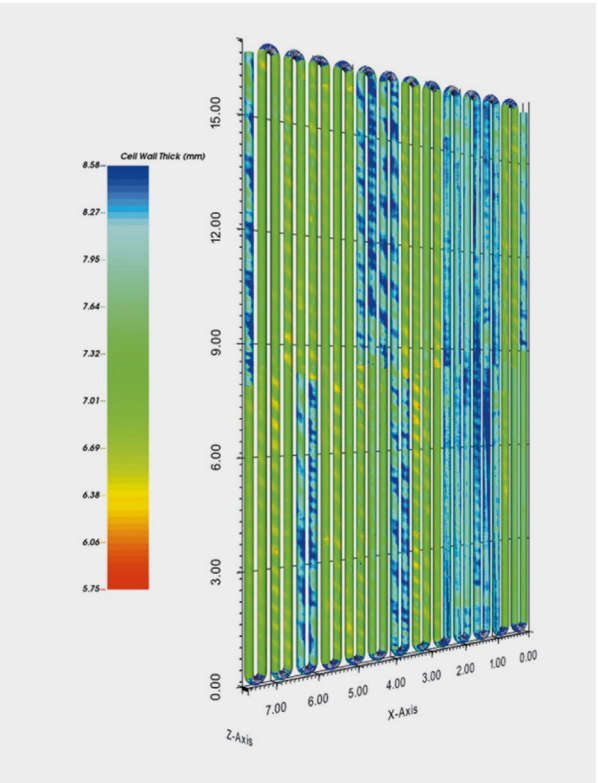
**Accurate Assessment**  
Measures fouling thickness precisely.

**Scientifically Informed Decisions**  
Provides data-driven insights for end users.

**Enhanced Efficiency**  
Optimises cleaning processes for maximum effectiveness and speed.

**Precise Location**  
Accurately identifies and locates fouling with precise axial and circumferential positioning.

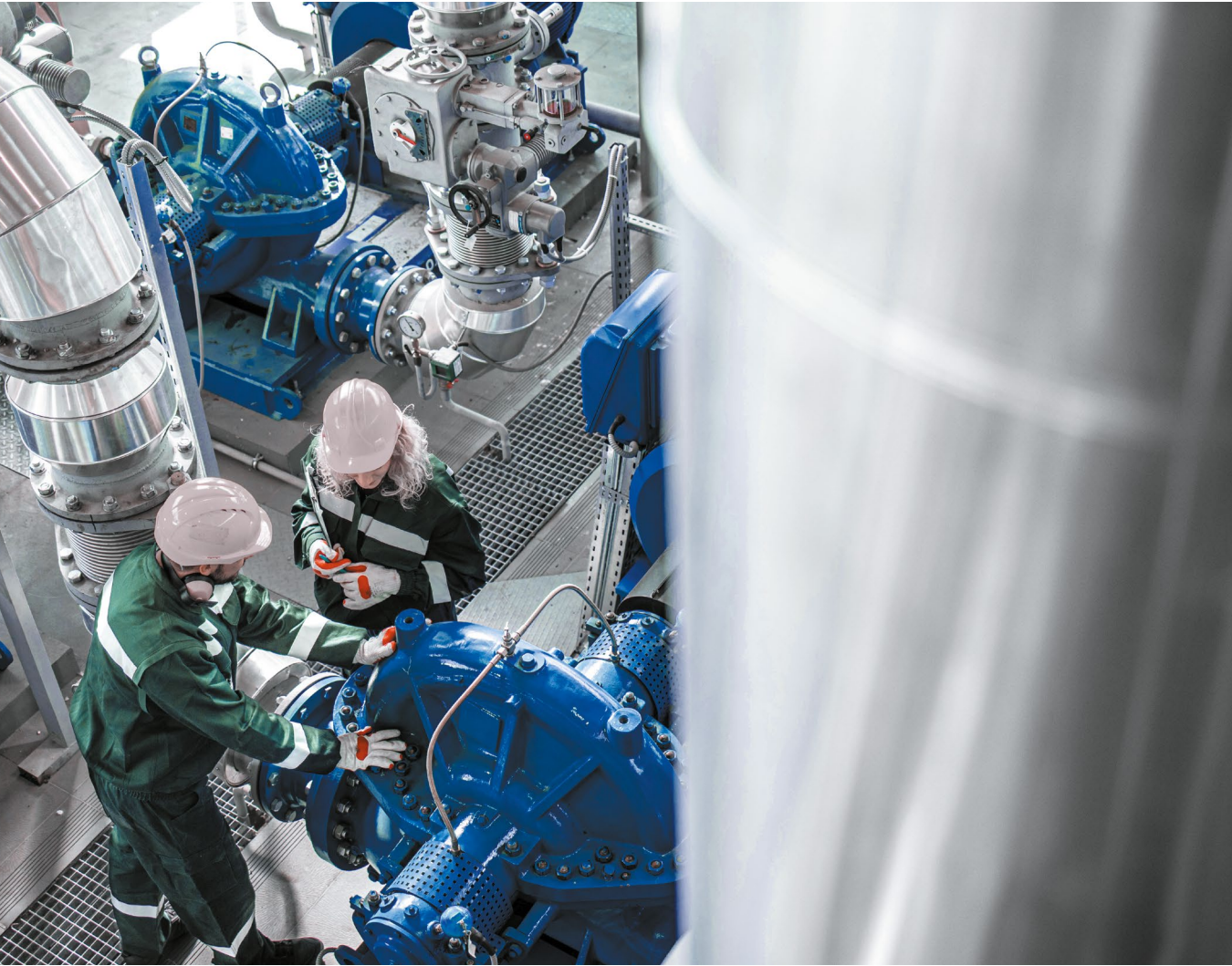
**Time Saving**  
Inspection Technicians can inform decoking operators where to find any contamination.





# Pipe Integrity

Ensuring the integrity of the operating envelope is crucial for preventing process safety events and environmental releases. Integrity threats include corrosion, erosion, mechanical damage and operational excursions.



To enhance understanding of operational integrity, we offer detailed calculative assessments, such as Level 1 and 2 fitness-for-service and remaining life evaluations, in line with API 579 / ASME FFS-1 standards. Additionally, Cokebusters provides expertise in Level 3 analysis, corrosion risk management and risk-based decision-making.

# Asset Assurance

Operators, shareholders, insurers and regulators increasingly demand confidence in the competence, compliance and sustainability of asset portfolios.

At Cokebusters we are uniquely positioned to collect and analyse inspection data, offering a pathway to independent integrity assurance. Asset ownership changes present an opportunity to independently assess equipment competence.

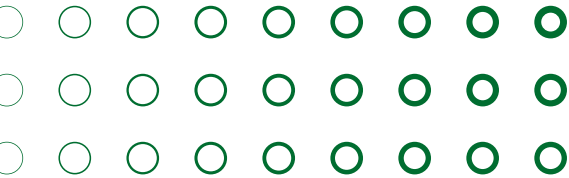


Additionally, many businesses face challenges with 'unpiggable' stock due to factors such as:

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|--|--|
| <b>Diameter Limitations</b><br>Pipes outside the inspectable diameter range.         | <b>In-Line Diameter Changes</b><br>Variations in pipe diameter that hinder inspection.   |
| <b>Accessibility Issues</b><br>Difficulties in reaching or inspecting certain areas. | <b>Short-Length Economics</b><br>Cost-effectiveness of inspecting short-length segments. |
| <b>Complex Geometries</b><br>Intricate pipe shapes that complicate inspection.       |  |

Our single-bodied design overcomes these obstacles, making previously uninspectable inventory accessible.

This capability allows for thorough assurance and management of such portfolios.







Where  
performance  
matters

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