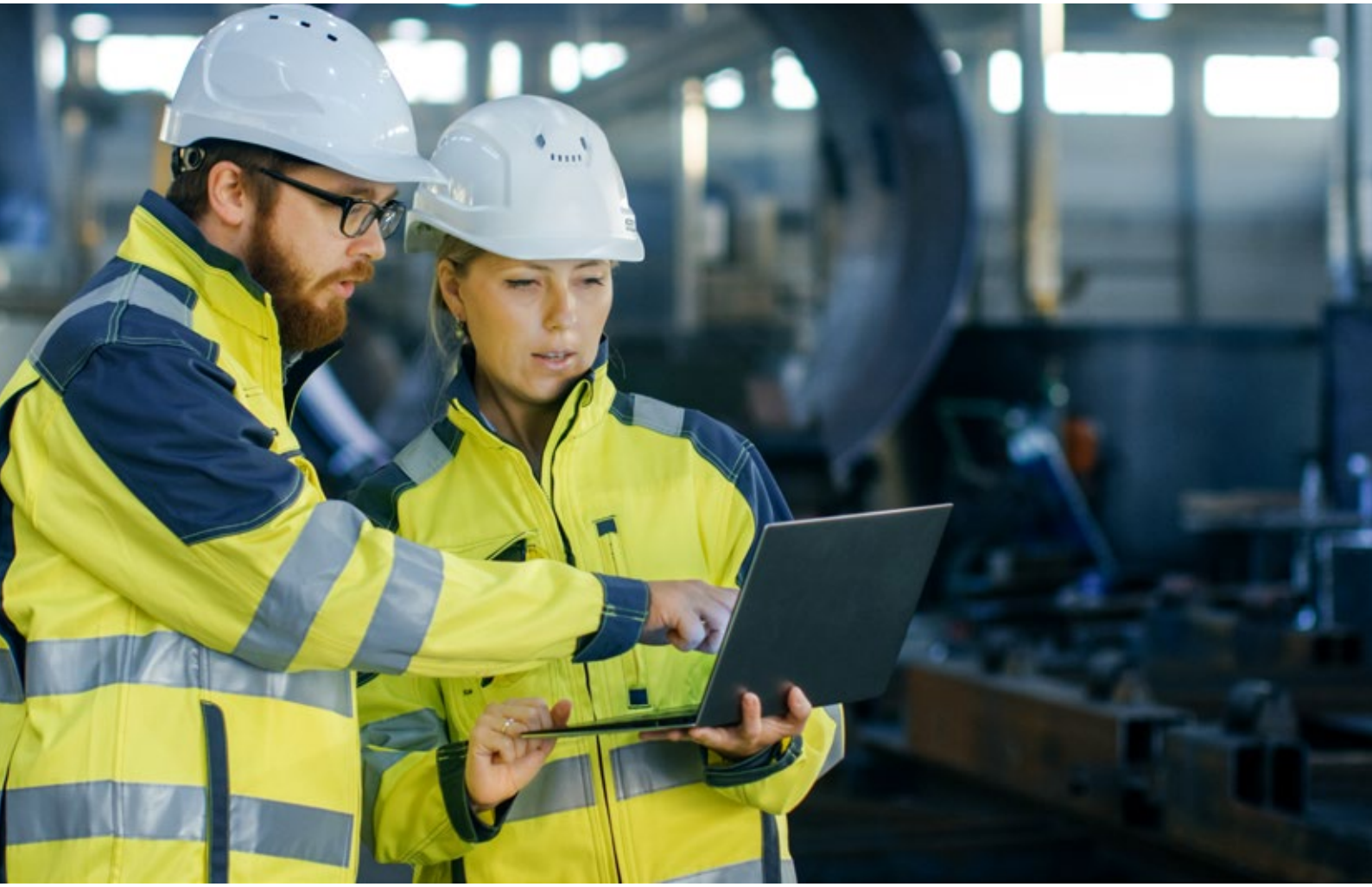


# Smart Solutions for Industrial Heat Treating

## Actionable intelligence for your furnace

# Life is good

**when everything goes according to plan in your furnace. But we all know how challenging it can be to keep operations running smoothly in these harsh conditions. Whether you are supplying products for automotive, aerospace, machinery, or any other industry, when problems flare up in heat treating they can negatively impact**

Quality Costs Safety Scrap
Sales Environment Reliability
Compliance Unplanned Down Time

# You Need

a system that monitors your furnace atmosphere and other key operational parameters like furnace loading, temperatures and flow rates to help you navigate these potential trouble spots. A solution of secure and accurate sensors that are easy to install and use are critical. Having both a live view and archive of your data including guidelines for your ideal operations will give you the power to act quickly and provide you with the information needed for troubleshooting and optimisation. A customised solution that integrates easily with your existing process control and monitoring systems will avoid unnecessary complexity and costs.

# The Key

to a powerful solution is actionable intelligence. Many companies collect operational measurements but fail to take action based on the interpretations of the data. The technology is important, but more importantly, you need technology backed by a partner who has the knowledge and experience to help your operation succeed.

# Air Products Smart Technologies

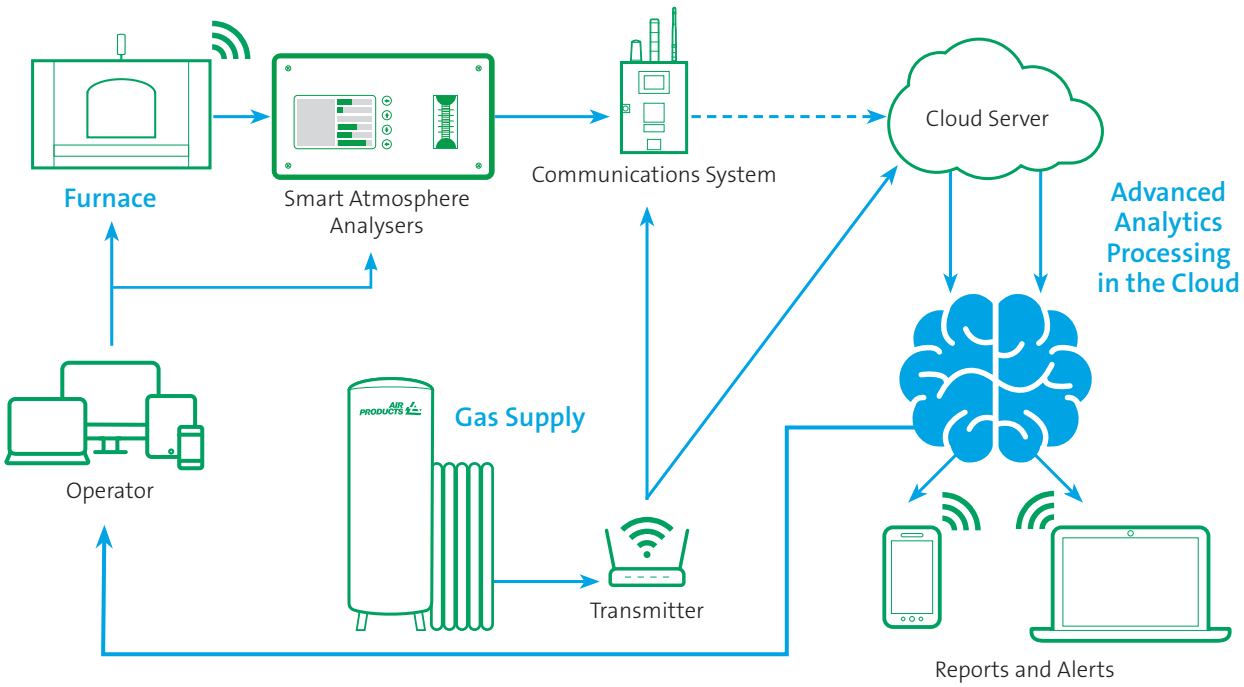
are backed by decades of experience and understanding of heat treating operations. As a world class supplier of industrial gases, our experts have deep knowledge of furnace atmospheres.

Air Products Smart Monitoring is a robust suite of capabilities that can be customised to your exact needs. The system can include:

- Simple, reliable sensors to monitor the atmosphere, including the following:
  - Gas Density Sensor for $H_2$ composition
  - Dew Point Sensor for $H_2O$ (moisture level)
  - Oxygen Zirconia Probe for oxidation / reduction potential
  - CO, $CO_2$, $CH_4$ sensors for Carbon Potential
  - $O_2$-Sensor for non reactive inert atmospheres
- Tank Monitoring to track your storage tank levels to help you remotely manage your industrial gas supply, detect abnormal gas usage, and monitor vaporized gas temperatures
- Logging of core furnace data such as temperatures and belt speeds
- Encrypted data communication to Air Products Smart View Portal, a secure cloud server
- Standard or customised daily reports e-mailed directly to you
- Data input that can be evaluated and thermodynamic calculations that can be carried out in the cloud
- Alarming that can be local (visual/audible alarm) and remote (email or text message) based on measured and calculated parameters

AIR PRODUCTS

## Smart Technology



Talk to Air Products about a Smart Monitoring program. Gain access to the data you need, powered by a partner with industry-leading knowledge.

## Ask us about:

- Heat treating furnace atmosphere control and troubleshooting
- Self-monitoring analysis and reporting technology
- Automated daily email service
- Online data access through Air Products Smart View
- Custom reporting and on-site / remote Air Products technical support
- Process data integration
- Interactive process data dashboard

**For more information, please contact us at:**

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airproducts.co.uk

**Air Products Ireland Ltd.**
T 1800 99 50 29
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# Success Story

An annealing shop that treats steel in a roller hearth furnace was able to realize significant savings by partnering with Air Products. Prior to implementing Air Products Smart Technology, they set the hydrogen / nitrogen atmosphere ratio as a constant. With dew point and hydrogen concentration monitoring, the system was set up to calculate their hydrogen to water ratio. This ratio determines whether the annealing atmosphere is oxidizing or reducing to the steel at different furnace temperatures. Setting the hydrogen/ nitrogen atmosphere flow based on that monitored ratio allowed them to maintain a reducing or neutral atmosphere at lower hydrogen concentrations. This resulted in a ~30% savings in atmosphere hydrogen costs while maintaining product quality.

**~30% Savings**

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GENERATING A CLEANER FUTURE
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