



Department for  
Energy Security  
& Net Zero

# Smart Systems Extrusion Industrial Heat Recovery Support Case Study

Industrial Heat Recovery Support (IHRS)  
Programme

March 2023

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## Context

*Established over 40 years ago, Smart Systems is the UK's leading supplier of architectural aluminium systems, with a reputation for quality, innovation and technical expertise. Recently, they spotted a potential energy-saving opportunity in their manufacturing process and decided to approach IHRS for advice..*

## How IHRS has supported the project

All our aluminium systems are manufactured from start to finish in our purpose-built plant in the South West of England. A key part of the manufacturing process involves extruding profiles from aluminium billets. This is done by cutting them into logs and heating them to temperatures of up to 450 °C. After extrusion, the aluminium profiles are aged on racks in large, heated chambers. We wanted to see if it was possible to recycle waste heat from the log ovens for use elsewhere in the plant – heating the ageing chambers, office space etc.

Through the IHRS programme, we were able to secure the capital we needed to begin our preliminary investigations. We were ably supported by their expert delivery team every step of the way, helping us to pinpoint potential areas for heat recovery and re-use..

## Benefits and added value

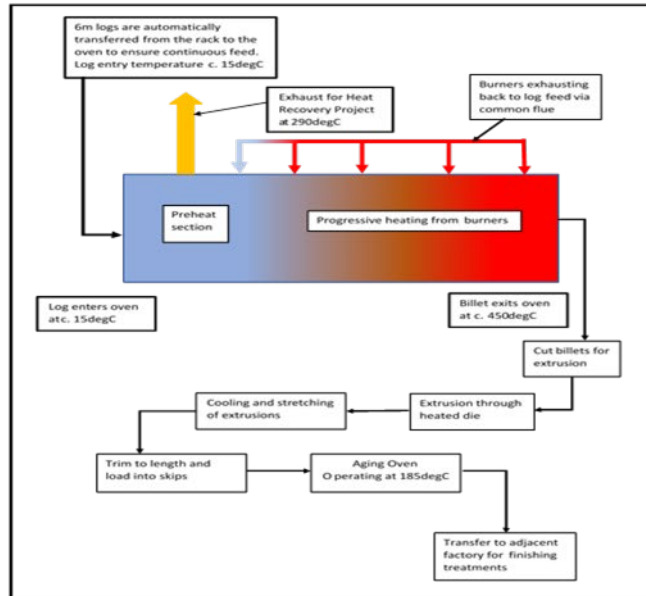
Thanks to IHRS, we were able to confirm that recovering and reusing waste heat from the log ovens was a viable option. However, the quantity of heat exiting via the exhaust flues was lower than expected, which posed some challenges going forward. With guidance from IHRS, we sought additional data and engaged with key people within the business to help us validate the project. We also carried out a heat loss assessment to aid the decision-making process and focus our resources on the most efficient end uses.

## Lessons learned

While certain issues still need to be resolved before heat recovery options are progressed, factors such as escalating energy prices and the impact of COP26 have underscored the need to improve efficiencies within the business. After working with IHRS, we are more committed than ever to cutting emissions and reducing our carbon footprint.

*“This project has shown that challenging industry assumptions, seeking transferrable technologies and exploring technical solutions can provide investment opportunities that would otherwise be dismissed. IHRS has made an important contribution to enabling this project at a time when decarbonising industry and optimising energy use is a national and global imperative. Smart Systems is proud to be an industry leader and we look forward to implementing Phase 2 across our downstream operations.”*

*(Tony Ward, Hub Maintenance Manager, Smart Systems)*



Picture on the left shows one of the log ovens, where aluminium is heated up to 450°C  
Picture on the right shows a Flow Diagram of the process.



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