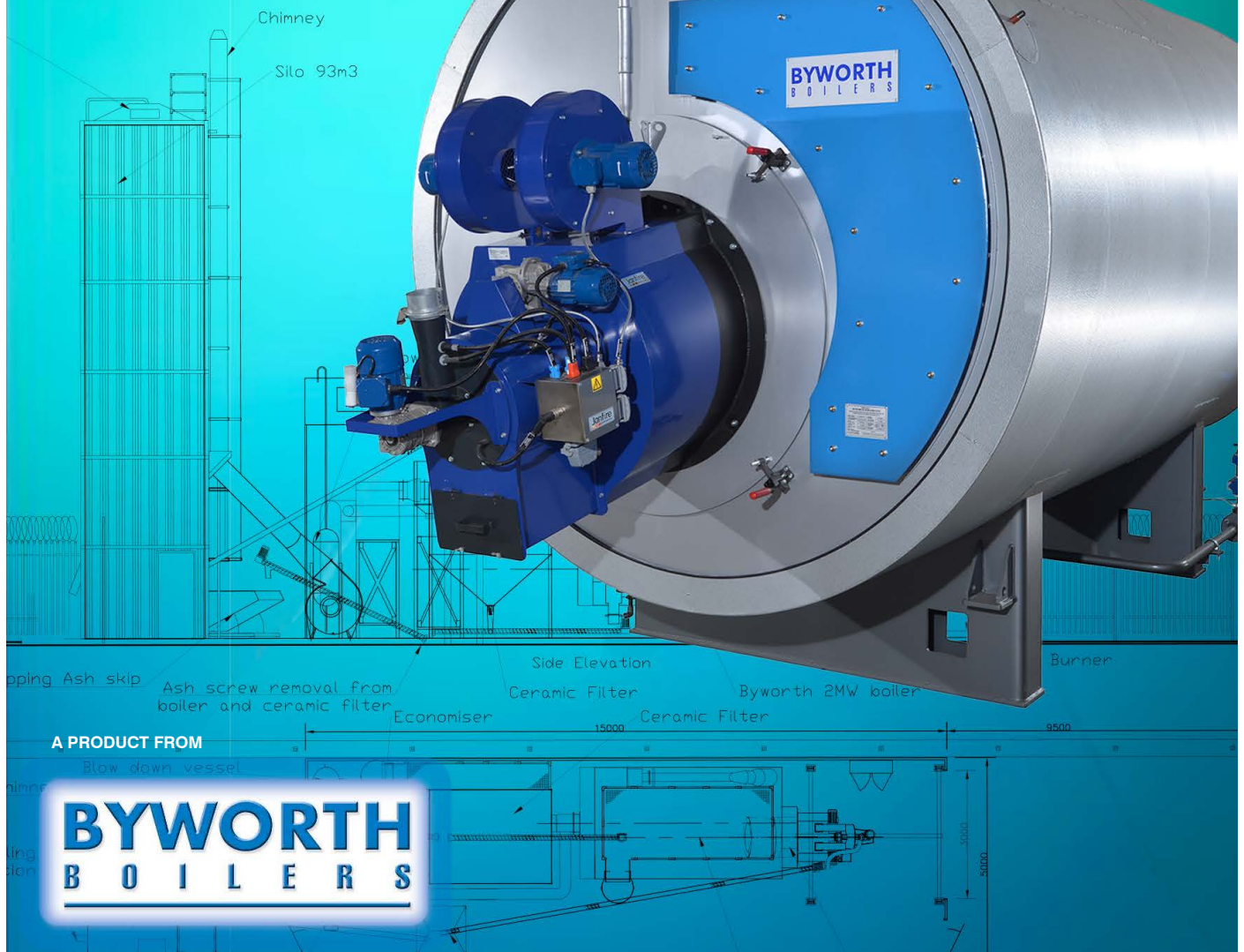


# BIOMASS BOILERS FOR STEAM & HOT WATER





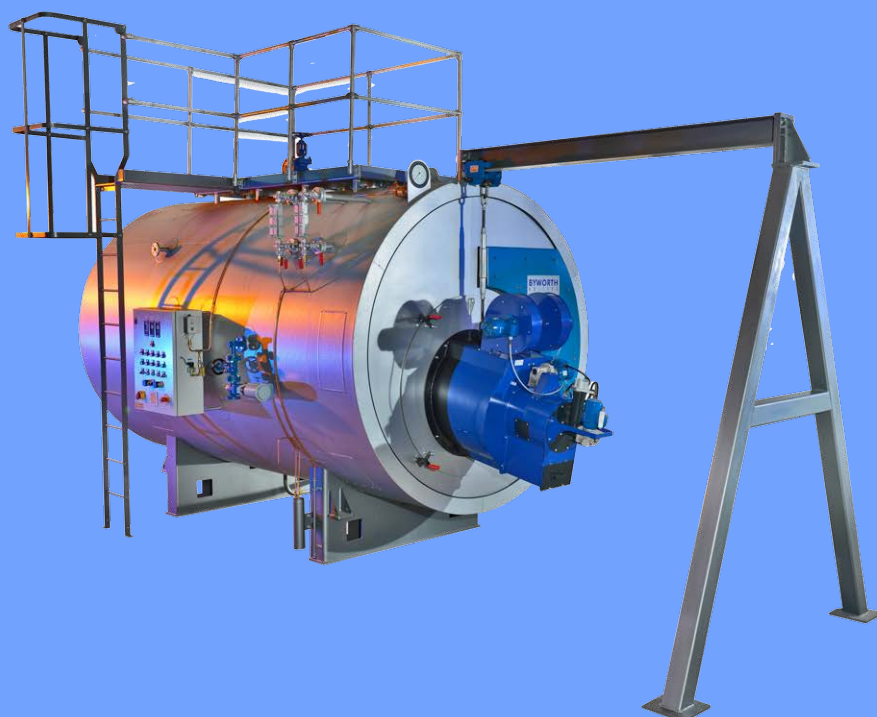
## PACKAGED STEAM & HOT WATER BOILERS

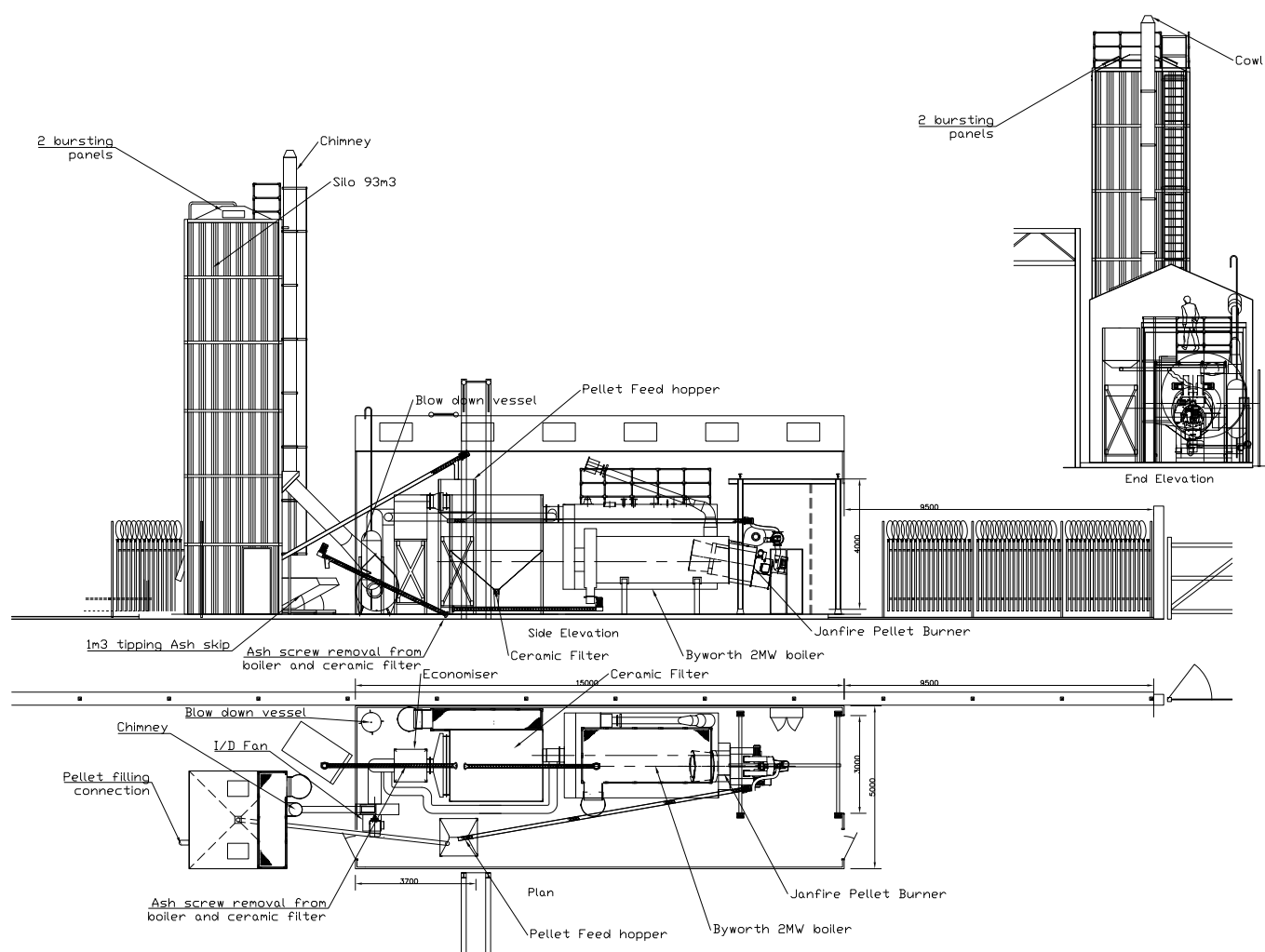
The latest incarnation of Byworth's biomass boiler brings over 4 decades of British boiler-making experience together with Janfire's 30 years of Swedish burner excellence.

Expanding on Byworth's well-proven, robust Yorkshireman 3 pass steam boiler design, and the Dalesman hot water boiler we combine energy efficiency and ease of use with Janfire's innovative rapid-turndown, low emission, burner technology.

The well proven boiler and burner design is fully automated with automatic ignition and ash removal giving an unprecedented performance and ease of maintenance.

The fully integrated control system allows for prolonged periods of safe, unattended operation.





## COMPLETE PACKAGED SOLUTIONS

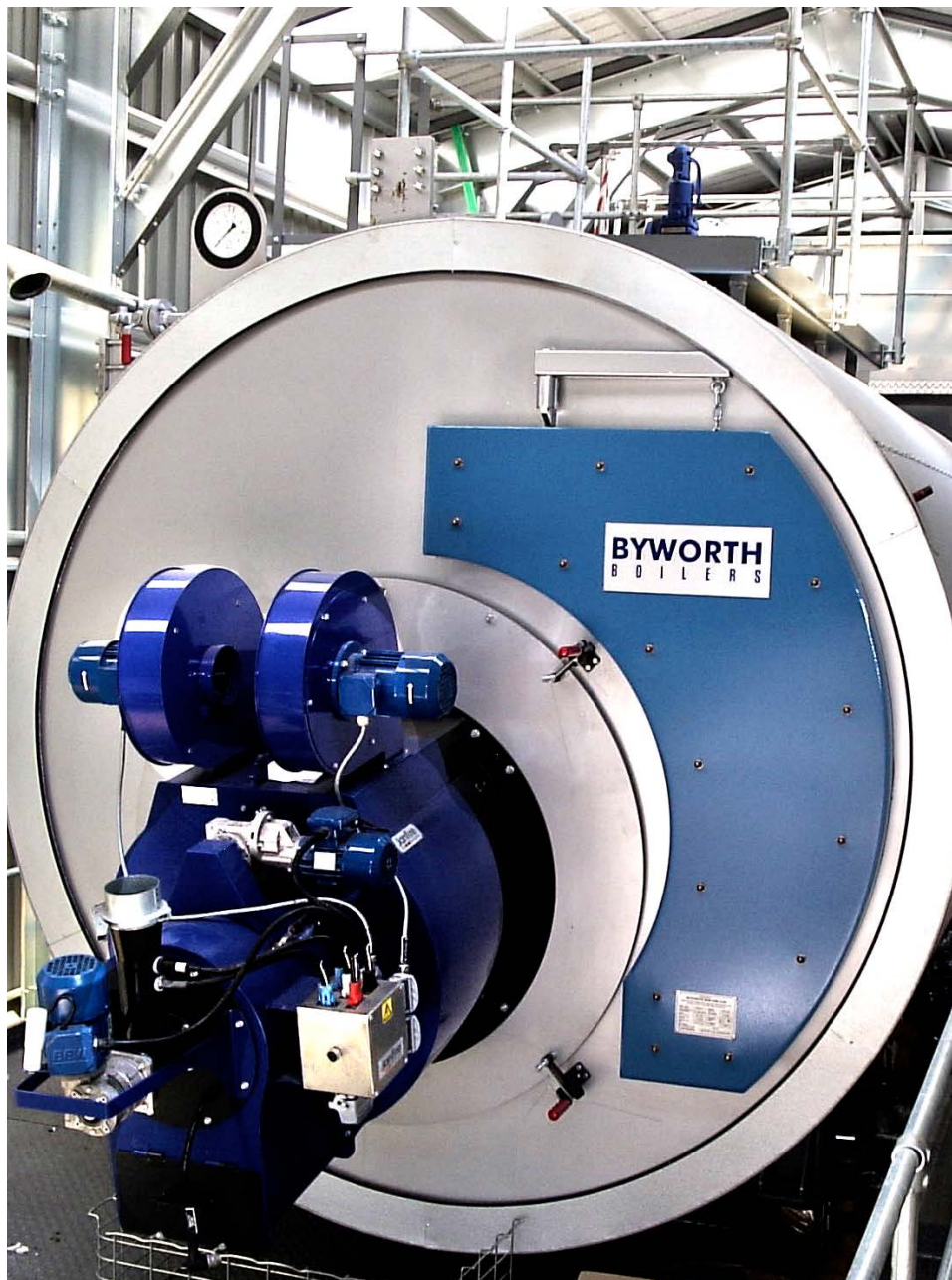
Byworth's experienced project team are able to offer a complete turnkey package from initial concept through planning to final realisation onsite including all necessary environmental and RHI approvals.

- Storage silo
- Fuel handling
- Ash Removal
- Ceramic filter for flue gas clean-up
- Chimney and flue gas ducting
- Internal and external pipework
- Electrical works
- Feed water economiser
- Feed water treatment plant
- Water softener plant
- Energy metering
- Fire and CO alarms
- Multi boiler installations
- Full planning permission and design service
- On-going care options available
- Select from one of our pre-planned designs or opt for an entirely bespoke service



## THE BOILER

- Low, medium or high temperature hot water
- Or high quality, dry steam
- Quick access for cleaning and inspection
- Fully automated in line with BG01
- Reliable, robust long life span
- Generous shell and furnace sizes
- Automated ash removal
- Low NO<sub>x</sub>
- High density shell insulation
- Access ladder and platform as standard
- Outputs of up to 2.5 MW in a single boiler
- Larger outputs available using a multi boiler cascade
- Feed water economiser offers 4% improvement of overall boiler efficiencies of > 90% net to BS845.



Heating makes up a large % of operational costs for plant...

The most expensive forms of heating...

Electric  
LPG  
Oil



2013 £/kwh

13.5  
9.2  
6.3

Did you know...

The price of diesel rose from 7p to 70p in a decade & Heating oil prices jumped 24% from 2010 -2011 (DECC)

Byworth's biomass boilers burn...  
**WOOD PELLETS**  
...to generate heat

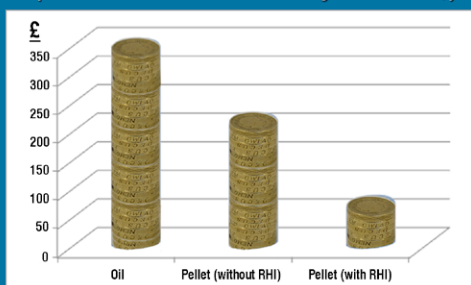
Wood pellet benefits:

- Require substantially less storage space & fewer deliveries than wood chip
- Uniform standard wood pellets are consistent in terms of particle size and moisture, allowing boilers and feed systems to be set to an optimum level and therefore increase efficiency
- Pellets will produce less ash than wood chips

Biomass boilers:

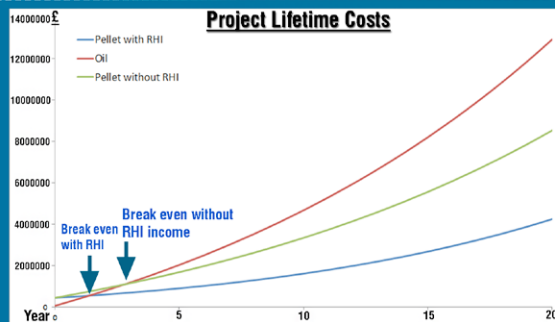
- Provide a reliable income through the Renewable Heat Incentive
- Protect against rising fossil fuel costs
- Are carbon neutral
- Save money
- Remove the threat of theft of heating oil

A representative 995kW installation consuming 500K litres of oil/year:



**Summary:** Your operational savings against heating oil would be **£130,000** per annum - a 3.5 year payback

Project Lifetime Costs

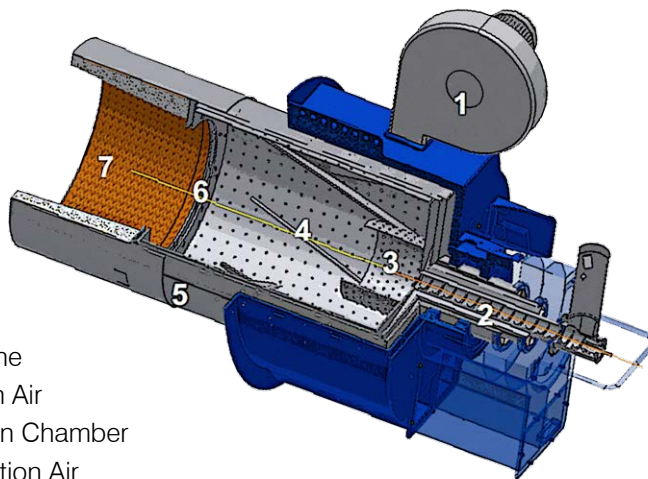


The RHI income for this installation would be approximately **£144,000** per annum



#### SYSTEM JET MODULAR DESIGN:

1. Combustion Air Fan
2. Internal Feed Auger
3. Pre Combustion Zone
4. Primary Combustion Air
5. Rotating Combustion Chamber
6. Secondary Combustion Air
7. Final Combustion Zone



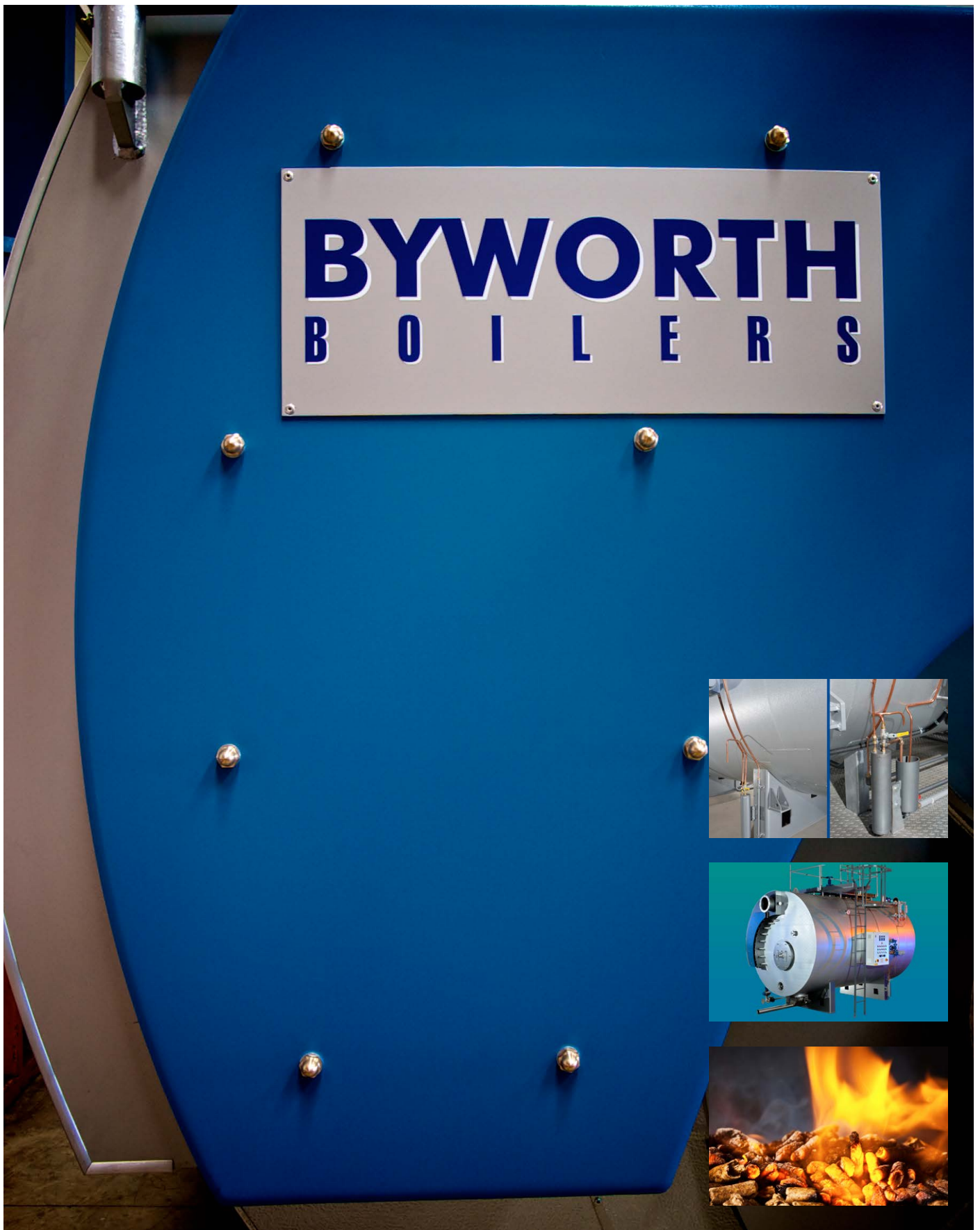
#### THE BURNER

Janfire have been manufacturing pellet burners since 1983.

Janfire's pellet burners offer exceptionally low emissions, and high efficiency in one compact solution with unrivalled reliability.

- Exclusive patented technology
- High turndown (up to 25:1)
- Low thermal inertia
- Rapid turndown eliminates the need for fossil fuel fired supporting boilers in many applications
- Completely sealed for dust-free operation
- Variable speed drive throughout
- Quick and easy maintenance
- Suitable for ENplus Class A pellets





Parkwood Boiler Works, Parkwood Street,  
Keighley, West Yorkshire, BD21 4NW

+44 1535 665225

[www.byworth.co.uk](http://www.byworth.co.uk)

[sales@byworth.co.uk](mailto:sales@byworth.co.uk)

