

Burners  Flares  Thermal Equipment  Fans

SULPHUR RECOVERY

- Acid Gas Burners
- Tail Gas Incinerators
- Acid Gas Flares

OPTIMAL COMBUSTION SOLUTIONS

About Greens Combustion

Looking for a competitive SRU provider you can trust to be reliable, flexible and affordable?

In a crowded market with a number of established suppliers, Greens Combustion has made a virtue of flexibility and heritage, combining competitive costs and smart solutions with first class environmental and technical credentials.

Our approach to the market is to focus not just on selling a product, but on providing a complete solution, with an expertise and end-user focus that means we can truly optimise that solution.

We're a UK limited company and a subsidiary of Airoil Flaregas Pvt. Ltd, which has supplied burners, flares and thermal equipment to the global petrochemical, refinery and fertiliser markets for over 30 years.

Our range of products includes thermal equipment for the SRU and sulphuric acid industries, with a partnership-based model and a service difference we think you'll notice. Our products and services include complete packaged systems, full project management for conceptual and detailed design, supply of incinerator and reaction furnace vessels, waste heat recovery systems, stacks, flares, fans and instrumentation skids. We have our own range of burners for tail gas incineration and Claus reaction furnaces, including high intensity burners and low NOx burners.

“ Our mission is to provide contractors, licensors and end users with the level of engineering knowledge associated with large conglomerates, combined with the one-to-one relationships often missing in today's markets”.

Richard Withnall
Managing Director

The Greens Combustion team of specialist engineers has extensive expertise with thermal equipment and low emissions combustion systems. Parent company Airoil Flaregas has a wide-ranging installed base including many thousands of Burners and Flares.

With our own 12,000m² manufacturing site in India and our ability to work to international codes, specifications and quality standards, Greens Combustion combines engineering expertise with competitive costs and an established background.

Our experience has taught us that few sites need exactly the same combustion solutions. That's why the team at Greens Combustion designs and supplies complete systems either to Contractors' specifications or by developing solutions directly with end users. Skilled at teasing out the "hidden" needs within client requirements, we develop smart solutions with end users by performing design studies based on a detailed capture schedule. These skills are invaluable when it comes to upgrade retrofitting and spare parts servicing within existing operating plants.



A name you can rely on, Greens Combustion combines sound environmental and safety credentials with first-class design, manufacture and after care to provide a fully-rounded service.

SRU PRODUCTS & SERVICES – competitive on price, trusted on build

- Burners for Claus reaction furnaces, fired inline heaters, tail gas incinerators
- Acid Gas flares
- Complete SRU furnaces and incinerators
- Packages complete with refractory, valve & instrument skids, Waste Heat Boilers, stacks, fans etc.

OTHER COMBUSTION PRODUCTS – optimal solutions for a wide range of applications

- Fired Heater Burners
- Reformer and Cracker Burners
- Boiler Burners
- Flares - Ground, Staged, Elevated, Demountable, Smokeless
- Process Combustors
- Direct Fired Pressurised Air Heaters
- Incinerators - Waste Liquid, Vent Gas, CO, Acid Gas, Chemical Waste

AFTERMARKET SERVICES YOU CAN RELY ON

- Component parts for current and heritage equipment
- Upgrades & optimisation
- Surveys and Troubleshooting
- Training

OUR MANUFACTURING FACILITIES

Indian Workshops

- 3 workshops, crane covered totalling 12,075m²
- 9-acre plot
- Accreditations - ISO 9001-2008, ISO 14001-2004, OHSAS 18001-2007, ASME 'U, 'PP' Stamps & Indian Boiler Reg.
- International quality and refinery project specifications

Worldwide Supply Chain

- Global fabrication and specialist equipment suppliers

“ We put exceptional effort into capturing a brief, often travelling to client sites to hold requirements workshops. The process depends on what's best for them”.

Simon Kretzschmar
Sales and Applications Manager



Our Thermal Oxidisers

Greens Combustion Thermal Oxidisers are designed with a focus on achieving the best emission standards considering the individual waste streams.

The purpose of Thermal Oxidisers is to make safe the polluting or harmful components left over at the back end of a process. In short, they provide incineration with carefully designed air and temperature control. Many tail gases are very inert while others contain larger percentages of components that need careful combustion design to guarantee stable safe operation and effective destruction.

Typical tail gases contain CO₂, N₂, or H₂O which require good mixing to destroy trace contaminants while maintaining a stable flame without excessive support fuel. Other wastes could contain larger quantities of CO, sulphur compounds, NH₃, H₂, hydrocarbons and BTEX (as gas or liquid) that need careful design to minimise fuel consumption to achieve emission limits through higher temperatures.

Greens Combustion designs and provides burners for incinerators within pre-existing supplied packages, but we also offer Thermal Oxidiser process design, and design and supply of complete systems.

To get the optimum solution, we believe that burners should be considered as part of the whole process, together with waste inlet locations, air staging, available plot space, heat recovery or operation availability, orientation, natural or forced draught and so on. Burners are a key component of the incineration system and Greens Combustion have our own in-house range, optimised for incinerator applications including low NOx and high intensity, multi-fuel, forced or natural draught, stage air or staged fuel.

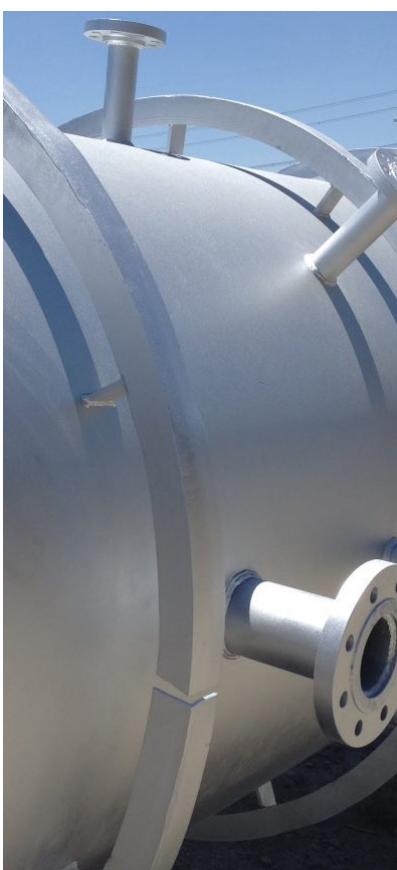
The SRU main Claus furnace is a specialist combustion application. The acid gas must be introduced into the combustor with good mixing energy with a controlled Claus stoichiometric oxygen ratio to give the desired combustion products and H₂S/SO₂ ratio. The Greens Combustion High Intensity burner is excellent for this application.

“Greens Combustion has a relentless customer focus. To me, that means being able to design and build specialist solutions for all applications and needs.”

Christopher Sandell
Manager, Thermal Equipment, SRU

Combustion systems are expected to work for long periods as an essential part of a continuous production process, so unexpected downtime can result in unacceptable emissions, increased flaring or even a plant shutdown. That is why we give careful consideration to having well-designed robust equipment, ensuring ease of operation and reliability are key components of our products.

Our systems can include downstream heat recovery boilers, gas cleaning including wet and dry scrubbers, packed beds, bag house and electrostatic precipitators as well as SCR and SNCR for NOx reduction, especially where waste streams contain nitrogenous, metallic or salt-laden wastes. The Greens Combustion burner range includes natural draught register burners, forced draught staged air burners and high intensity burners, ensuring the best selection for each application.



Greens Combustion Customers

- ✓ ArcelorMittal
- ✓ BD Energy Systems
- ✓ Bharat Petroleum
- ✓ BIH
- ✓ Cairn
- ✓ CEPSA
- ✓ Eni Group
- ✓ FEI
- ✓ Foster Wheeler
- ✓ Grupa Azoty
- ✓ Huntsman
- ✓ Indian Oil
- ✓ KAFCO
- ✓ LyondellBasell
- ✓ MOL
- ✓ Neste Jacobs
- ✓ Neste Oil
- ✓ Numaligarh Refinery Limited
- ✓ OMIFCO
- ✓ Pertamina
- ✓ Petronas
- ✓ PetroRabigh
- ✓ Preem
- ✓ Pulawy
- ✓ RJM International
- ✓ Saipem
- ✓ Saras
- ✓ Saudi Electricity Company
- ✓ Shell
- ✓ Spic
- ✓ Technicas Reunidas
- ✓ Technip
- ✓ Total
- ✓ UnitBirwelco
- ✓ Vinythai
- ✓ Yara

Why you should choose Greens Combustion

If you want the best optimised solution and a well-executed project at a very competitive price, Greens Combustion is the partner for you.

- Named, personal contact for your enquiry and projects.
- A design centre for burners and Thermal Oxidisers, with expertise in design and manufacture, troubleshooting and site surveys.
- Strong range of in-house burners and thermal equipment for SRU, refinery, petrochemical and fertiliser industries.
- Low cost fabrication works in India working to international standards, providing affordable quality.
- A commitment to research is at the forefront of our operations, with a new state of the art 5,000m² combustion test rig under construction.
- Established international supply chain.
- Agile, with rapid deployment, high service credentials and bespoke manufacture.
- Expert team with over 250 years of combustion experience.
- Broad combustion expertise, from front-end engineering studies to operating plant improvements.
- Superb aftermarket and onsite services includes optimising furnaces, maintenance training, health checks, turnaround advice and supply of component parts.
- We can supply spares and services for both Greens Combustion and other products.

Sample of recent projects for incineration and thermal equipment

- Regenerative Thermal Oxidiser, China
- CO Incinerator Burners and Valve Trains for Vietnam
- Direct-fired Air Heater for Korea
- SRU Incinerator Burners for CIS countries with ECA certificates
- Bitumen Vent Gas Incinerator package for Middle East
- Process Off Gas Incinerator upgrade for India
- Liquid Waste Incinerator Burner for China
- Process Off Gas Incinerator Burners for Pakistan (3 units)

Meet the Greens Combustion Sulphur team

The core team at Greens Combustion have worked together since the late 1980s. With a wide range of experience in burners and related technology, each has established himself as a specialist within his field.



Chris Sandell

Chemical Engineer and Manager,
Thermal Equipment, SRU

Experience: Project Engineer, Proposals Engineer, Sales, Project Manager, Product Group Management

After graduating with a BEng (Hons), Chris started his career as a projects engineer with Hamworthy Combustion, developing and delivering burners for steam methane reformers and fired heaters. He moved into the design and proposals team focusing on complete Thermal Oxidiser Systems, ultimately being responsible for international front end design and proposals.

Before joining Greens Combustion, Chris was lead Project Manager at John Zink Hamworthy, responsible for the design and delivery of their mega boiler offshore modules supplied to the FPSO market.

Chris has a diverse knowledge of Thermal Equipment packages incorporating all aspects of design, and he brings this depth of knowledge and experience of international standards to the team at Greens Combustion, to provide cost effective emission-led solutions to the global market.



Simon Kretzschmar

Chemical Engineer and Sales and Applications Manager, Flares

Experience: Project Negotiation, Combustion Equipment Design, Fluid Flow, Combustion Dynamics, Process Heater Optimisation

After graduating with an MSc in Chemical Engineering, Simon joined Hamworthy Combustion where he became involved in design and proposals for burner technology for refinery and petrochemical installations. With a talent for helping clients to resolve challenges, he soon became responsible for a number of key regions.

Following the acquisition of Hamworthy by John Zink, Simon became involved with a wider product range including flares and thermal equipment as well as process burners.

At Greens Combustion, Simon is responsible for a wide range of flare systems for the international market as well as Greens Combustion waste gas management systems, interfacing with the Thermal Equipment Division to offer a broader spectrum of optimum solutions.



Nigel Webley

Chartered Engineer and Director of Flares, Thermal Oxidiser and Combustion Systems

Experience: Research and Development, Project Management, Engineering & Technical Support Management

Nigel is a graduate chemical engineer, a chartered member of the Energy Institute and has a Diploma in Management Studies. He has more than 30 years' experience in combustion and project management of large-scale clinical waste and chemical waste incineration systems. A specialist in combustion systems, he has been responsible for their design and application at operating companies and combustion equipment suppliers including Hotwork, Robert Jenkins Systems, John Zink and latterly at Hamworthy Combustion where he held the position of Group Technical Director for 5 years.

With the advent of CFD, successful modelling requires the application of practical knowledge, something Nigel can draw upon to develop and engineer cost effective, reliable and safe combustion systems for new and existing customers across the industry.



Richard Withnall

Mechanical Engineer and Managing Director/Board Member

Experience: Research and Development, Project Management, Sales and Business Development, Management.

Richard is a mechanical engineer with over 25 years' experience in the industry. Early in his career, he focused on burners for the Oil & Gas and Petrochemical industries whilst working as a Research & Development engineer with Airoil Flaregas. He later moved to Hamworthy before establishing Greens Combustion in June 2012.

Specialising in international sales and management as well as market and product development, he has a strong focus on ensuring long term customer satisfaction and repeat customer business. Richard has widespread knowledge of the global industry and it is his mission to bring a new brand of technology to the market, drawing on the extensive and proven experience of the Greens Combustion team in this industry sector.

Contact us

We'd be delighted to hear from you – speak to the friendly Greens Combustion team to learn more about how we can help deliver optimal combustion solutions, tailored to your needs.

 www.greenscombustion.com

 csandell@greenscombustion.com

 +44 (0)1202 607579

 +44 (0)7392 081353



GREENS COMBUSTION LIMITED
Part of Airoil Flaregas Pvt Ltd.

Unit A31, Arena Business Park
Holyrood Close, Poole
Dorset, BH17 7FJ
United Kingdom

www.greenscombustion.com
+44 (0)1202 607563
info@greenscombustion.com

