smart
architectural aluminium

Working with Specifiers

toward a Sustainable Built Environment

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Became a BSI registered company in 1992 and is the first aluminium systems company in the UK to attain **5 BSI standards**

Smart is working towards generating its power requirements from **renewable energy sources**

Smart's aim is to have a production operation that is **Carbon Neutral**

Smart is **a member of BREEAM**, an accredited environmental rating scheme for buildings, where aluminium windows achieve the highest ratings

Over 40 years, Smart Architectural Aluminium has grown to become the UK's leading supplier of aluminium systems, building a reputation for both the quality of its products and for its innovation, design and technical expertise.

The Company

Based near Bristol, our 60,000m², purpose-built premises house state-of-the-art extrusion, finishing, warehousing and distribution facilities and our fleet of lorries makes daily deliveries to a UK network of fabricators and installers. Employing over 400 people, we have an annual turnover in excess of £80 million.

We are fully committed to working towards a greener, more sustainable environment, ensuring every aspect of our activities, from the procurement of raw materials to the delivery of finished goods, is conducted in accordance with sound environmental practices and in line with both UK and EU environmental regulations and legislation.

We aim to promote a fuller understanding of environmental issues among our staff, customers, suppliers and stakeholders, recognising our responsibilities to the delivery of long term, sustainable benefits. Our common goal is to ensure we continually improve the environmental impact of our global activities.

Above – Our 60,000m² purpose-built premises house our extrusion, finishing, warehousing and distribution facilities. We are also seeking planning permission to install two wind turbines, part of our drive towards energy self-sufficiency.

Front & Back Cover – Our systems were specified for this sensitive redevelopment project, which included the regeneration of an iconic Grade II listed building, as well as the construction of a new building. Providing all the thermal, energy and performance benefits of modern aluminium systems, our products helped create elegant and sustainable waterfront homes on the once derelict site.

BES 668681 FM21582 EMS554307 OHS571955 ENMS634370

Maximizing Quality, Minimising Impact

Smart Architectural Aluminium is leading the way with the greenest manufacturing operation of its kind in the country.

Minimising environmental impact remains at the heart of our development, with environmental principles central to our operations.

We regularly re-evaluate our working practices, ensuring we continually work to minimise the impact of our activities on the environment.

Environmental Policies

From our relocation to a green field site in 2005, and three subsequent major site expansions (in 2011, 2015 and 2017), we have always considered our potential impact on the local environment. At every stage of our expansion programme, we undertook extensive reviews to assess all aspects of the works, including the impact on local wildlife and its habitat, the safe capture of waste materials and the effect our additional activities would have on the local community.

Environmental considerations have remained central to our planning, and in 2011 we achieved ISO 14001:2004 Environmental Management Systems certification, to help formalise our processes and procedures.

As an ISO 14001 company, we regularly re-evaluate our working practices, ensuring we continually work to minimise the impact of our activities on the environment. As a result, we continue to invest in efficient machinery, effective environmental management systems and waste capture and recycling systems, as well as the use of sustainable power generation.

Responsible Sourcing - BES 6001

With public authorities, specifiers and architects all increasingly focusing on sustainable development, we felt it important to demonstrate our commitment to responsible sourcing and sustainable construction and in 2017, we achieved the BES 6001 standard for responsible sourcing. BES 6001 was established by the Building Research Establishment (BRE), to enable manufacturers to ensure, and then prove, that their products are made with responsibly-sourced constituent materials. The standard provides an approach based on governance, supply chain and community interaction, with a focus on environmental performance improvements.

In achieving the BRE's standard, we recognise that how and from whom we buy our raw materials has a significant impact on the broader environment. By purchasing from reputable suppliers who adopt responsible practices, we hope to stimulate demand for socially- and environmentally-preferable products.

Energy Use and Management - ISO 50001

Energy management is a crucial element of our operations and in 2015 we achieved ISO 50001:2011 certification. This standard makes it easier for organisations to integrate energy management into their quality and environmental management systems on a continuous improvement basis.

Since 2015 we have put in place a number of projects and plans to reduce our electricity and diesel consumption, improving our energy performance with respect to our overall output.

Achieving Carbon Neutrality

Our aim is for our production operation to be carbon neutral, a target we plan to achieve through a combination of continued investment in efficient machinery, effective environmental management systems, waste capture and recycling and the use of sustainable power generation.

As part of this goal, we are committed to generating our power requirements from renewable natural resources.

Aluminium is the **second most used metal in the world** after steel.

100% of our waste aluminium is recycled into new aluminium billets

Recycling aluminium uses only **5% of the energy required** to make primary aluminium

Smart has planning permission for **two wind turbines** which could potentially generate **more than 15%** of our extrusion energy needs

Extrusion Presses

With three extrusion presses, we are the UK's most modern and efficient manufacturer of aluminium profiles, with an annual extrusion capacity in excess of 30,000 tonnes.

Above – A double mitre cut saw for cutting to length based on customer requirements.

Left – An extruded profile is clamped in place in preparation for being machined.

We have earned an enviable reputation for the manufacture of aluminium extrusions to the highest quality and standard.

Environmental Policies

We operate one 8" 2,200 tonne, one 8" 2,500 tonne extrusion press and in 2016, we commissioned a new 6" 1,500 tonne extrusion press, giving us an annual total production capacity of 30,000 tonnes.

Our extrusion presses utilise state of the art manufacturing software to minimise production waste, whilst maximising the efficient use of aluminium billets. 100% of waste aluminium from the extrusion process is captured and recycled into aluminium billets ready for production.

- Reducing Energy Consumption – we have invested in the most modern extrusion presses that recycle the heat generated in the aging furnace to pre-heat extrusion dies. This significantly reduces the equipments' power requirement.
- Recycled Aluminium Billet – up to 30% of the aluminium used in our profiles is extruded from recycled aluminium billets.

Reducing Energy Consumption heat generated in the aging furnace is used to pre-heat extrusion dies. This significantly reduces the power requirements of the equipment.

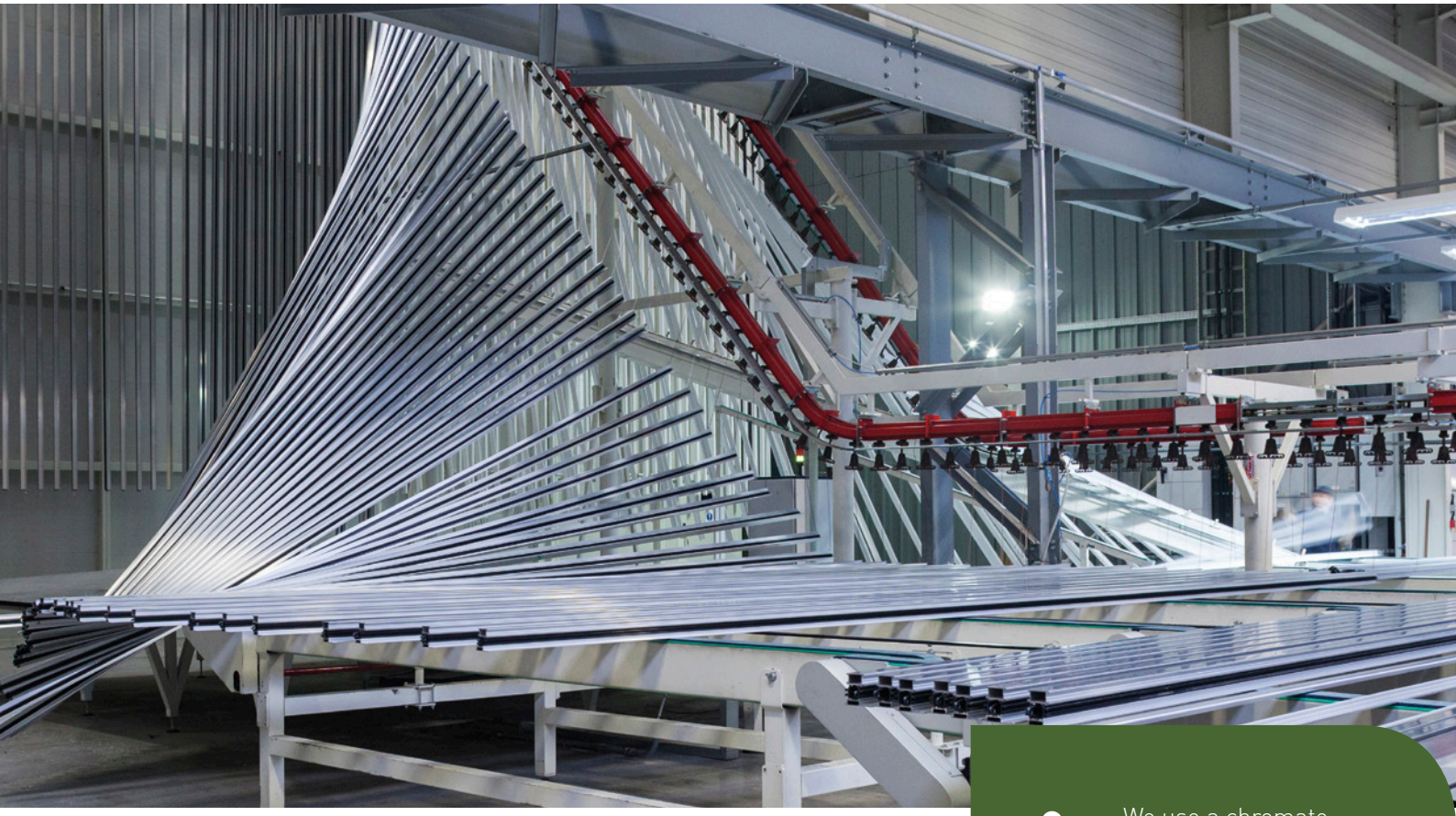
Up to 30% of the aluminium used in our profiles is extruded from recycled aluminium billets.

100% of waste aluminium from the extrusion process is captured and recycled.

Being naturally corrosion resistant and requiring only minimal routine maintenance, our profiles retain their aesthetic appeal over the lifetime of the material.

Powder Coat Paint Lines

Our two, vertical and one horizontal powder coating paint lines are the most advanced of their kind in the UK.



Above – The conveyor is feeding in to one of our two vertical powder coat paint lines..

Right – Our vertical powder booth is able to powder coat in RAL, standard and non-standard finishes.

Our modern finishing plant incorporates a number of environmental features, including rain water capture, filtration and recycling processes.

With a combined production capacity of 800m² per hour. We are able to offer a range of standard and non-standard finishes including RAL and metallic fishes, in addition to our own Naturals, Sensations, Cotswold and Alchemy ranges.

- Our rainwater capture system holds 220,000 gallons of rainwater which is filtered for cleaning prior to use in the pre-treatment process.
- Our pre-treatment process is alkaline-based and 100% chromate free.
- We continually recycle and reuse the ionized water used in the pre-treatment process.
- Following use, the water is filtered again before being released into the environment - at this stage, it is cleaner than mains drinking water.
- Using advanced technology, we capture 98% of excess powder sprayed in the powder both; this is then reused in the coating process.

FREE

We use a chromate free pre-treatment prior to painting, **achieving Qualicoat standards** on our aluminium coating

98% of excess paint powder is captured using our advanced recycling system. It is then reused in the coating process

220,000 gallons of rain water can be held at any one time. It is filtered and then used in the pre-treatment process

State-of-the-art Equipment

With a wide range of in-house machining and finishing options, we are able to provide a complete service, from design right through to delivery.

We offer a full range of finishing options, including Polyamide thermal breaks. Extrusions can be wrapped and packaged to our customers' precise specifications.

Above – A double mitre cut saw for cutting to length based on customer requirements.

Left – An extruded profile is clamped in place in preparation for being machined.

Finishing

From our own, purpose-built facility in the UK, we offer a complete machining and finishing service, enabling us to control the complete manufacturing process, from design to distribution. With this end-to-end capability, we take responsibility for the whole process, ensuring complete and consistent quality control throughout to ensure the finished product is delivered on time and to specification.

With three CNC automatic saws, we are able to provide a fast and efficient cutting service, accurately cutting to any length from 6mm and above. The installation of a FOM double-mitre saw, also allows us to cut 45° and compound angles.

Our two four-axis machining centres enable us to provide a range of machining services for any cut length over 100mm – including drilling, tapping, slotting and routing. We also have a de-burring facility for smaller parts.

In line with our commitment to sustainable manufacture, our finishing plant incorporates a number of environmental features. For example, a rain water capture system can hold up to 900,000 litres of collected rain water which is filtered for cleaning prior to use in the pre-treatment process - the alkaline-based pre-treatment process is 100% chromate free.

Finishing Equipment

- 1 x Elumatec SBZ140 four-axis machining centre (7.7m bed)
- 1 x FOM four-axis machining centre with integral saw blade (7.0m bed)
- 1 x FOM double-mitre saw
- 4 x CNC automatic saws

Waste Capture

As an ISO 14001 company, we take the recycling and reduction of waste material very seriously.

It is our policy to undertake a regular review process to monitor and identify possible sources of waste material and then where possible, to put in place systems to capture and recycle this waste.

We seek to minimize the amount of material used, whilst retaining the strength and durability of the finished products.

Capturing and Recycling Waste

As an ISO 14001 company, we take the recycling and reduction of waste material very seriously. It is our policy to undertake a regular review process to monitor and identify possible sources of waste material and then put into place systems to capture and recycle this waste where possible.

We operate a comprehensive waste capture and recycling policy for the following materials used in production and packaging:

- Aluminium
- Cardboard
- Polythene
- Paper
- Plastics
- Batteries
- Fluorescent Tubes
- PVCu

Resource Use

Through the design of our systems and their related profiles, we seek to minimise the amount of material used, whilst retaining the strength and durability of the finished products. To that end we provide software tools to our customers, enabling them to: assess minimum profile criteria based on wind load/specification; reduce wastage by optimising cutting of material during fabrication and offer bespoke, project-specific designs to meet specific performance requirements.

We also recognise that our products have an impact on resource-use at the end of their lives, and as such have taken measures to allow repairs, maintenance and upgradability through glazing and hardware to be carried out. Once our products reach the end of their life, they have a typical recycle rate of 95% and, as aluminium is widely recycled and contains no hazardous material, it requires no dedicated retrieval scheme.

Transportation

It's important to transport goods in accordance with sound environmental practices.

Our fleet of lorries makes daily deliveries to a UK network of fabricators and installers.

Our approach to transportation contributes to our reputation as a ISO 50001 company.

Transport Impacts

We operate our own fleet of delivery vehicles, which is supplemented by efficient national haulage companies to reduce vehicle movements to and from our site.

In 2015, using expanded capacity provided by national hauliers, we implemented a network of hubs around the UK, enabling our vehicles to pick up material without having to return to Yatton, reducing empty runs. In order to mitigate all the potential impacts of our transport activities (spillage and pollution, emissions, addition to congestion, noise etc.), we continue to invest in our fleet and by leasing and upgrading our vehicles regularly, we can meet current Euro V emission requirements. We also ensure each vehicle is maintained by the manufacturer in line with their recommendations, to reduce the risk of spills and leaks. Furthermore, we have installed 360 degree external camera systems on all our vehicles, giving drivers greater vision when operating in tight spaces, as well as the ability to assess their driving style.

Reducing our diesel consumption by having reduced vehicle movement

Contributing to our **Carbon Neutrality** target by using our own efficient transport fleet

Network of vehicle hubs equates to **shorter distances driven to locations** and a reliable delivery of goods

Reduced road haulage by up to 500,000 miles per year from vehicles not returning to Yatton

With infinite recyclability, up to **75% of the world's aluminium** ever produced is still in productive use

Mining Bauxite Ore

An average of 80% of the land mined for bauxite is returned to its native ecosystem. Topsoil from the mining site is stored so it can be replaced during the rehabilitation process.

Primary Smelting

The structure of aluminium distinguishes it from other materials, since it is not affected by melting processes.

Primary Billet

Over 50% of the western world's primary aluminium is produced from electricity generated by hydro electric power.

Manufacture

Over 40 years, Smart Architectural Aluminium has grown to become the UK's leading supplier of aluminium systems, building a reputation for both the quality of its products and for its innovation, design and technical expertise.

Secondary Billet

The incentive for recycling aluminium is energy savings, which amount to 95% compared to the production of primary aluminium.

Aluminium 'Cradle to Cradle' Lifecycle Process

Product Installation

The durability of aluminium makes it a material of choice for the building sector.

Recycle

Over 60% of aluminium used is recycled.

Aluminium

How our aluminium's 'cradle to cradle' lifecycle is leading the way in eco-friendly production.

At the end of their life, aluminium products can be recycled again and again without any loss of quality

Aluminium has great 'formability' characteristics making the most complex shapes achievable.

The 'Cradle to Cradle ' Lifecycle

Aluminium extrusions are hugely versatile, lightweight (about one third the weight of steel), high strength, modern materials which retain their properties over a long life. Being naturally corrosion resistant and requiring only minimal routine maintenance, they also retain their aesthetic appeal over the lifetime of the material.

At the end of their life, aluminium products can be recycled again and again without any loss of quality and, as the re-melting of aluminium requires little energy, 95% of the energy required for primary aluminium production is saved through recycling.

To ensure that we consistently deliver aluminium extrusions to the highest quality standards, we only source our aluminium billet from three of the world's leading suppliers, Emirates Aluminium, Dubai Aluminium and Hydro Aluminium. Sourcing from these responsible and highly reputable companies guarantees continuity of quality and performance for every one of our extruded aluminium profiles.

Bauxite ore has the property of infinite recyclability meaning that up to 75% of the world's aluminium ever produced is still in productive use, having been through countless loops of its 'cradle to cradle' lifecycle.

Given that it only takes 5% of the original energy used to create primary aluminium, recycled aluminium is a true eco-friendly material that can be made available not just once but indefinitely for future generations.

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