

Liberty Speciality Steels



Specialists within a global industry

Liberty Speciality **Steels**

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Liberty Speciality Steels is experienced in manufacturing highly engineered steels, with capabilities ranging from liquid steel production right through to high-value precision engineered components.

We are focused on offering a wide range of product from carbon, free-cutting and stainless steels along with high alloys internationally for demanding sectors such as Aerospace, Oil & Gas, Industrial Engineering, Automotive and Engineering Bar. Our products are available as: ingots, blooms, billets, bars, coils, slabs, narrow strip and complex components. Bars can be supplied in rolled, drawn, peeled or heat-treated condition to service each customers' specific requirements.

This fully integrated production capability includes electric arc steelmaking, vacuum induction melting, ESR/VAR remelting, mill processing capabilities and machining along with dedicated service centres located across the globe.

At Liberty Speciality Steels, we see ourselves as steeped in steelmaking heritage with our headquarters based in the Sheffield city region and our business dating back to 1849.

For maximum market focus, Liberty Speciality Steels is split into four business units:

Rotherham Steel and Bar



Includes primary and secondary EAF steelmaking, vacuum degassing, ingot casting, continuous casting, bar and coil rolling, and bar processing & inspection.

High Value Manufacturing



Offering VIM steelmaking, VAR and ESR re-melting, primary rolling, finishing, stockholding and machined components.

Engineering Bar



Offering bright drawing, bar turning, cut pieces and heat treatment including stress relieving (or similar) for automotive forging.

Narrow Strip



With capabilities in hot rolling, hire rolling, annealing and finishing.

About Liberty

International metals and industrials group



Liberty House is a worldwide industrial group, specialising in commodities trading, metals recycling and manufacturing, as well as the production of value-added engineering products from steel, aluminium and other metals.

Headquartered in London, our business also has strategic global hubs located in Dubai, Singapore, Hong Kong, Sydney, Paris, New York and an extended network of operations covering more than 30 countries. We employ over 15,000 people internationally and serve customers ranging from the metal making, processing and distribution industries, through to the automotive, aerospace, construction, oil and gas, power generation, general engineering, motorsport and yellow goods.

Our Speciality Steels business is a part of Liberty's international steel manufacturing capability which includes long products (industrial wire, rod, rail, billets, blooms, ingots, structurals, merchant, engineering and speciality bar and coil, de-bar, pipes and tubes), flat products (slabs, plate, hot rolled coil and narrow strip) as well as fabricated steel products, reinforcement mesh and pre-stressed concrete strand. These are manufactured in a variety of grades and finishes to comply with national and international quality certified standards and meet stringent customer specifications.

Liberty is part of the global US\$15 billion GFG Alliance, which also covers renewable energy generation, infrastructure, shipping, mining, property and financial services. Our product and service offering is divided into 5 groups:

- Commodities includes a range of ferrous and non-ferrous metals, raw materials and related services;
- Steel focused on an integrated steel proposition stretching from liquid steel to downstream products;
- Aluminium currently covers primary aluminium available as slab, saw and ingot;
- Engineering provides a comprehensive offering of engineered products and services, produced from steel, aluminium and other metals;
- **Recycling** has a global metals recycling capability covering both ferrous and non-ferrous metals.

COMMODITIES



GREENSTEEL

ENS

A new vision for the steel industry

which supports progressive and sustainable the growing mountain of scrap steel, using electric arc furnaces powered by renewable energy. Raw materials and resources are secured locally to make world-class products that sell both nationally and globally. High grade engineered steel and alloys from the process feed engineering operations that make advanced components for demanding sectors motorsport, off-highway and defence.

GREENSTEEL provides a more flexible and customer focused solution while also reducing carbon footprint of manufacture, shortening the supply chain, retaining and upgrading skills, stimulating new technologies and engendering a sustainable and globally competitive metal manufacturing sector. Liberty is actively pursuing GREENSTEEL in the UK, Australia and the USA whilst it is also developing plans for implementing the strategy in other geographical markets.

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Aerospace

Engineered for the highest performance

We have an outstanding reputation for supplying high-integrity alloys to major commercial and military aerospace programmes worldwide, using tailored supply chain solutions.

Meeting the highest performance demands worldwide

Aerospace is a high-value and technically demanding industry in which the supply chains are global, requiring stringent approvals and participation in long term supply agreements. We take pride in satisfying individual country and global OEM requirements via specialist manufacturing facilities for the production of Vacuum Induction Melting (VIM) alloys alongside Vacuum Arc Remelted (VAR) and Electro-Slag Re-melted (ESR) steel, combined with our unique integrated mill and service centre offering.

Supporting global supply chains

Our products, manufactured in the UK, are used in the production of engine components, landing gear, controls, aircraft structure and helicopter rotor components. All can be delivered globally as ingot, bar, slabs, cut pieces or complex components to meet our customers' supply chain requirements.



Customer Approvals

Airbus, Avio, BAE Systems, Bell Helicopters, Boeing, Bombardier, Collins Aerospace, IHI, Israel Aerospace Industries, Leonardo, Liebherr, Lockheed Martin, Mettis Aerospace, NAVSEA, Pratt & Whitney, Rolls Royce, Safran, Schaeffler, Siemens, SKF, Spirit Aerosystems, Thyssenkrupp, Triumph, Voestalpine BÖHLER, Wyman Gordon

Accreditations AS 9100 AS 9120 ISO 14001 ISO 17025 (Laboratories) TÜV NADCAP: • Heat Treatment

- NDT
- Material Testing

IL & GAS | LIBERTY SPECIALITY STEELS

Oil & Gas

Engineered for extreme environments

Exploration and extraction activities bring with them unique challenges that require advanced steels with strength, toughness and resistance to corrosion. We supply the oil and gas sector customers with high-performance alloys, specifically designed to withstand harsh and corrosive environments characterised by big pressure changes and wide temperature fluctuations.

Total reliability for on-shore and off-shore applications

Our diverse steel portfolio ranges from alloys to corrosion-resistant stainless steels. These products enable our customers to improve reliability and durability whilst extending component operating life. Our steels are ideal for both off-shore and land based extraction activities which require highstrength steel drill string components or specialised completion tools used in hydraulic fracturing.

Optimising and building efficiencies

By using a combination of our own internal capabilities and building external partnerships with renowned stakeholders in the supply chain, we can deliver our steels with a wide range of mechanical properties to support our customer's needs. We can also provide value added services such as cutting, turning, boring, honing, machining through our dedicated Oil & Gas Service Centre along with the manufacture of complex components via our Advanced Machining Centre. 8

Customer Approvals DNV Mooring Chain, Howco, PWA, Schlumberger, US Bolt

Accreditations ISO 9100 ISO 9120 ISO 9001 ISO 14001 TÜV NORSOK M650 NACE Super13Cr 95ksi

Industrial Engineering

Engineered for efficiency

We have been supplying the industrial engineering market for many years with products and processes approved by major manufacturers across the world. We understand the technical challenges facing this market and can ensure that our steels meet the demanding requirements for cleanness, high-strength and wear-resistance in challenging environments.

Unparalleled range of applications

Our products are manufactured into gears, shafts, bearings and many other components for the most cost effective and environmentally efficient transmission of power. These component can be found in mining equipment, machine tools, power generation, paper mills, material conveying, heavy manufacturing and many other specialised applications.

Applying expertise across the supply chain

Our dedicated specialists can offer technical support and expertise to our customers across the supply chain by working closely with partners to develop and improve materials and processes to deliver optimised performance. 8

Customer Approvals Caterpillar, Schaeffler, SKF, Timken

Accreditations ISO 9100 ISO 9120 ISO 9001 ISO 14001 TÜV



Motorsport

Engineered for excellence

The motorsport industry is a key sector which naturally fits our products and services due to its rigorous, demanding and competitive nature.

Steels that deliver performance

Our comprehensive in-house steelmaking, rolling and finishing facilities mean we can offer a wide range of steels such as; Single Air Melt, Vacuum Induction Melt plus VAR and ESR double or triple melted steels – all available as heat-treated, bright or black bar.

Modelled on aerospace excellence

Our motorsport services and processes have been modelled on our aerospace operations to guarantee performance and quality. Our steel can be found in the following applications: Bearings, Camshafts, Conrods, Crankshafts, Differentials, Driveshafts and Gears.

Narrow Strip

Engineered for precision applications

We can provide hot rolled narrow strip which is tailored to meet the specific needs of our customers across a wide range of markets. We can also offer a hire rolling service for a range of ferrous and non-ferrous alloys, special metals and stainless steel grades.

Tailored specifications with a global reach

Our range of high quality strip steel includes stainless, high alloy, high carbon, free-cutting and boron steels. Each of these can be tailor made to suit a variety or end applications such as band saw blades, keys, razors, plough blades and industrial needles which are used in a variety of sectors from general engineering to automotive and agriculture.

Uncompromising expertise

We are able to service a growing global network of customers by using our technical expertise, specialist logistics and precision manufacturing. Our integrated supply chain allows us to react quickly to projects with precision products, short lead times and in small quantities.



Customer Approvals BAE Systems, Safran Landing Systems



Accreditations ISO9001 ISO14001



Automotive

Engineered for challenging standards

We have extensive experience of producing hot rolled and cold finished bar for the demanding worldwide automotive supply chain.

Technical support throughout the supply chain

We work closely with our supply chain partners providing through-process technical support to meet specific customer requirements. This is all underpinned by an integrated supply chain encompassing steel making through to finished bright and black bar, which delivers full traceability and continuity of supply.

Designed for consistency and reliability

Our product is manufactured into key automotive components such as gears, shafts, connecting rods, injector systems, camshafts and crankshafts used in power train and engine applications.



Customer Approvals Autoliv, Citroën, DAF, Delphi, Ford, Peugeot, Renault, Scania, Volvo



Accreditations IATF 16949 BS EN ISO 9001 BS EN ISO 17025 BS EN ISO 14001 ABS TÜV NORD PED BSI

Engineering Bar

Engineered for diverse applications

We have an established and proven track record of supplying high quality hot rolled bar and coil, as well as cold finished bar into a diverse range of markets.

High quality bar and coil tailored for our customers' needs

Our technical liaison team work closely with our customers to develop tailored solutions to meet their requirements. We understand that reliability is key when it comes to the machining and tool industry.

Meeting the demands of our clients

Typical applications for our Engineering Bar steel include hydraulics, yellow goods and general machining – all of which rely on a continued supply of quality material.



Customer Approvals Caterpillar, Delphi, JCB



Accreditations IATF 16949 BS EN ISO 9001 BS EN ISO 17025 BS EN ISO 14001 ABS TÜV NORD PED BSI



Advanced Machining Centre

Engineered from concept to complex component

Our Advanced Machining Centre has been established as a key value added service which can provide a solution to OEM and Tier 1 customers. The state of the art facility offers a full spectrum of support; from initial technical discussions of clients requirements followed on with the use of an approved manufacturing process which is tailored to specific customer needs.

Working in partnership on projects

We pride ourselves in working hand-in-hand with our customers to deliver technically perfect components to serve sectors as diverse as aerospace, automotive, oil & gas, yellow goods, construction, industrial machinery and general engineering.

Capabilities to suit every need

Our wide range of capabilities include:

- CAD design
- Multi-task machining
- 5-axis milling
- Precision grinding

- Secondary finishing
- Inspection
- Packing

All of which is done across a wide range of high-tech machinery manned by extremely skilled operatives to ensure we meet our customers' requirements.



Accreditations ISO 9001 AS 9100 REV D

Service Centres

Engineered for client support

We have a number of dedicated service centres in Europe and Asia which offer a range of value added services such as stocking, sawing, stamping, pre-delivery inspection and packaging to support our customers specific product requirements.

Our service centre teams work hand-in-hand with the commercial teams at our main production sites to ensure that each and every customer is looked after from start to finish.

From these centres we can offer cut pieces to cater for a wide range of requirements for a variety of customers. Our dedicated teams can give technical advice to ensure the right product is delivered for the correct application.



Customer Approvals Aerospace Service Centres: Airbus, BAE Systems, Bell Helicopter Textron, Boeing, Collins Aerospace, Dowty Propellers, Leonardo, Liebherr Aerospace, Moog Aircraft Group, NTN-SNR, Pratt & Whitney, Rolls-Royce, Ratier-Figeac, Safran Group, Sauter Bachmann, Triumph Aerospace Systems, UTC Group

Oil & Gas Service Centres: Baker Hughes, Halliburton, NOV, Weatherford, Weir

Accreditations ISO 14001 TÜV BS EN AS 9120 ISO 9001 BS EN ISO 17025 (Testing) NORSOK M650

Sustainability

Sustainability drives everything we do

This isn't just about addressing the challenges of today but also about the quality of life for future generations. Through our GREENSTEEL strategy we aim to balance economic prosperity and social equality with looking after planet Earth.

We are committed to the design of more sustainable products that contribute to solutions that are lighter, last longer and use fewer resources to produce. Our steel is used in creating the world's most sustainable buildings and transport infrastructure, and supporting the performance of the most efficient vehicles on the road.

Steel is a uniquely sustainable material because it is not consumed, but is used again and again without any loss of quality or strength. Our GREENSTEEL vision involves not only recycling and upcycling steel but also using renewable energy sources wherever possible, to further reduce impact on our planet.

We operate in a way that is safe for our people and respectful to the environment and behave responsibly and with care towards the communities surrounding and impacted by our operations.

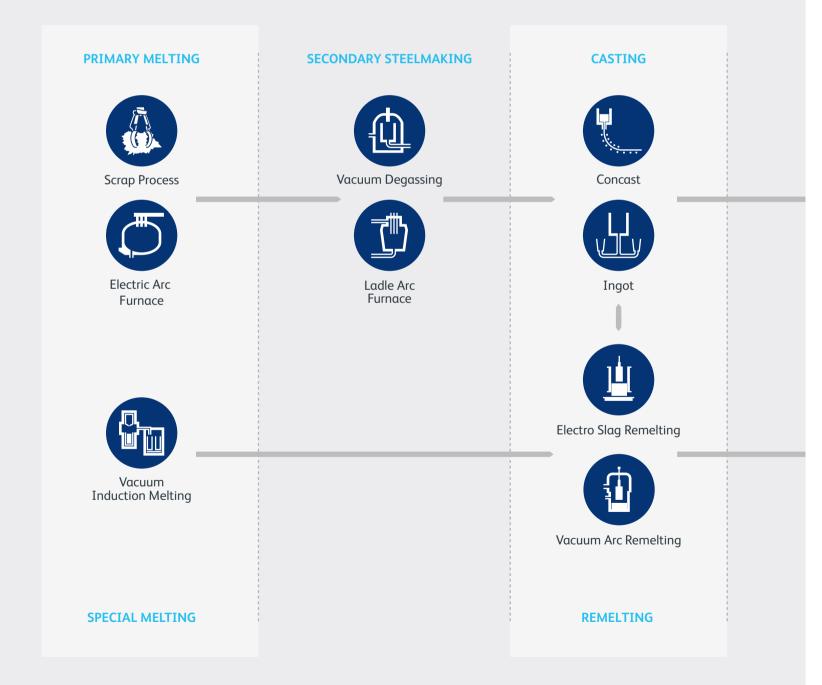
Balancing economic prosperity, environmental responsibility and societal benefit, Liberty aims to address the bigger global challenges primarily through its advanced steel products and efficient production processes.

Moreover, as a good corporate citizen, the company invests in research and development for technologies to produce steel that has less impact on the environment and processes that are more resource efficient.



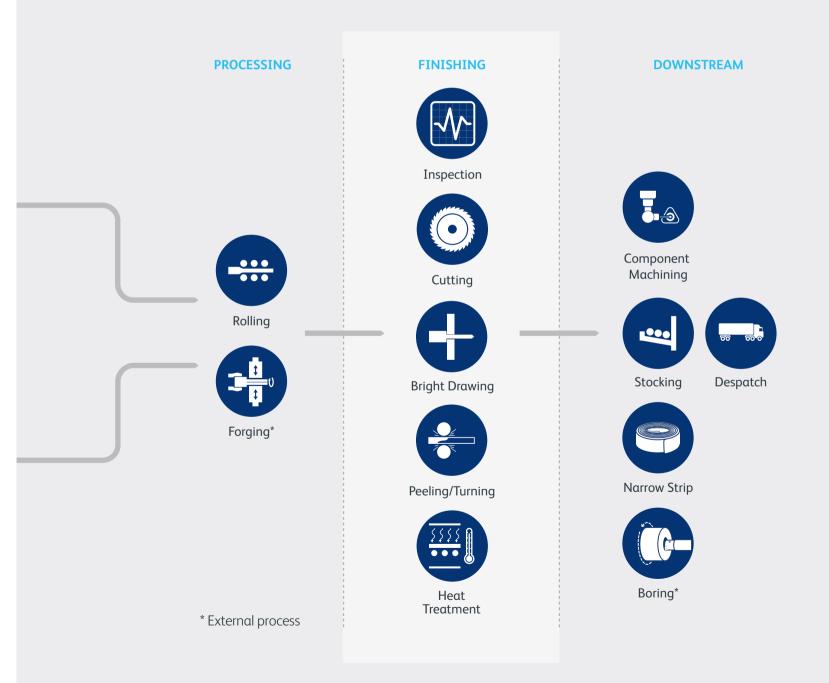
Process flow

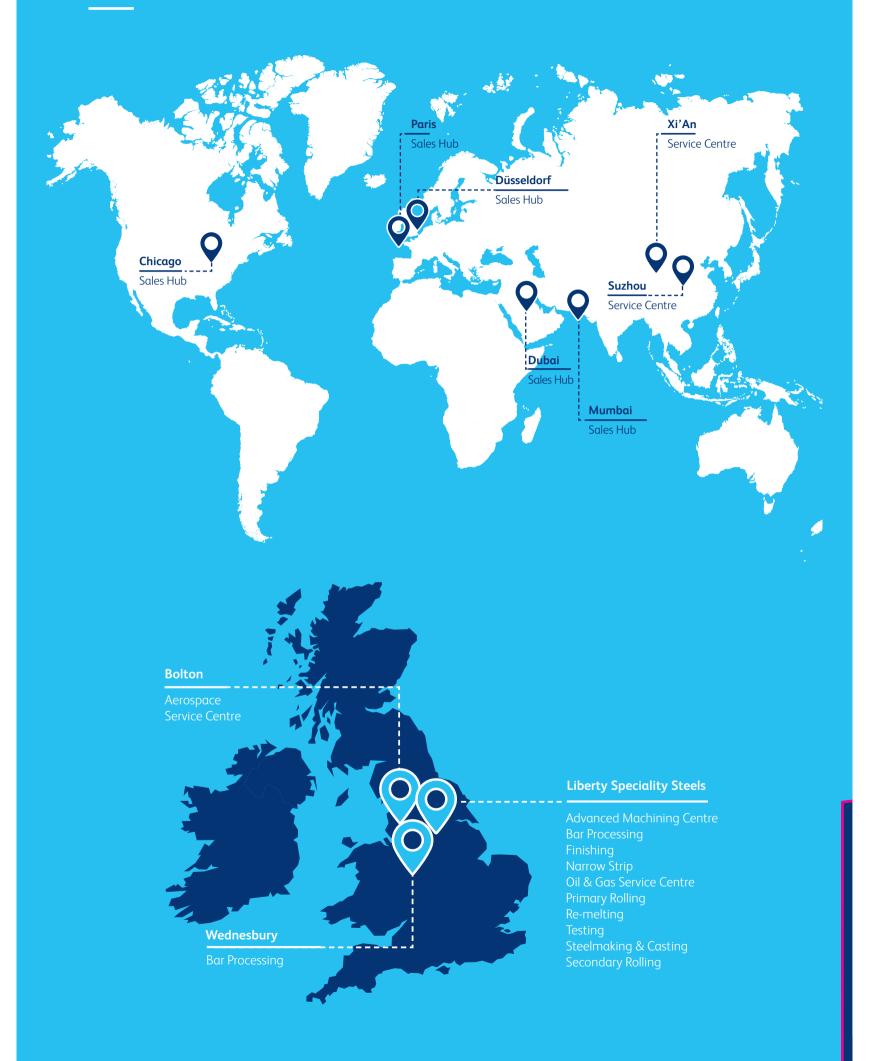
Our integrated production facilities along with in-house finishing and testing capabilities help us meet the specific requirements of our customers' supply chain.



As a producer of high-quality speciality steels, we are continually investing in our facilities to improve our product range and service offering.

The recent investment in Vacuum Induction Melting (VIM) expands our offering to include the highest grades of steel alloys.







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