

 **HAMPSON AEROSPACE**

TRANSFORMING **AEROSPACE**

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A Professional Solution

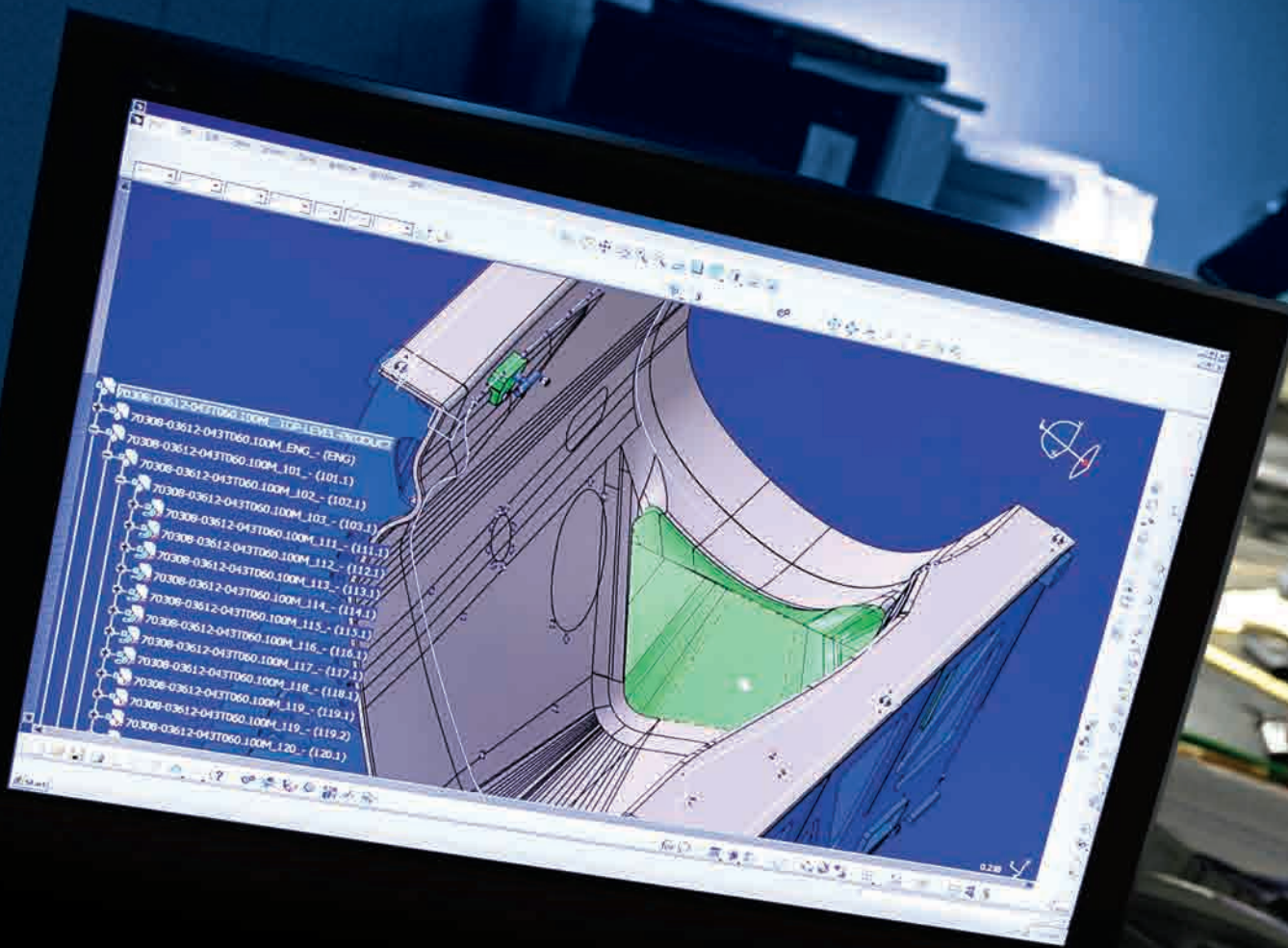
Hampson Aerospace offers a true value proposition for customers seeking professionally-managed supply chain solutions, leveraging latest available technologies with the deep resources of a truly global organisation.

Structured into two divisions, (Hampson Aerospace Aerostructures & Composites and Hampson Aerospace Tooling Solutions), our range of manufacturing capabilities, value-added processes and material technologies are some of the best in class. From design, through certification, testing and delivery, Hampson Aerospace strives to delight its partners and customers.

In Aerostructures, we offer a solution for all aero-structural components and assemblies. Manufactured in advanced composite, thermoplastic and metallic materials, from tooling design and manufacture to delivery of either finished components or highly-engineered, fully assembled structures, we have a proven ability to provide high quality, vertically integrated solutions, to the global aerospace supply chain.

We are committed to providing streamlined and effective, single point supply chain solutions, offering our customers - our partners - a professionally-managed source for all their design, tooling, manufacturing and assembly needs.

Professionalism and total commitment to our partners is our mantra, and our mission is to deliver sustainable, real competitive advantage that exceeds expectations, in an environment where being a good supplier is simply no longer enough.



An Integrated Solution

Whether working alone or with external design partners, we offer a cost-effective, single source for every element of manufacture, from concept, design and tooling, through to cost effective production of traditional metallic, thermoplastic and advanced, light-weight carbon composite components and structures.

Our Integration strategy is to drive improved value by leveraging our design, tooling, manufacturing and assembly processes into one, seamlessly-managed offering, wrapping up and linking the best

technology that Hampson Aerospace has to offer. By leveraging our investment in process and technology, and all of our combined global resources, we can provide products and services from simple aircraft build stage kits, through to fully installed and tested assemblies.

With over 100 full time, highly-qualified, engineers proficient in all major design packages, including CATIA, Unigraphics and ProE, we provide both on and off site support, from initial concept through to test and certification. With over 79 years' of



experience in aerospace engineering, we collaborate with our customers when determining their requirements to find ways to remove both non-recurring and recurring cost from the manufacturing process.

A cornerstone in our process is our best-in-class project management. Utilising dedicated and highly experienced project teams we provide our partners with a single point of contact for all their requirements, ensuring communication and decision making is executed with the

utmost efficiency. Our project teams also ensure the leveraging of best practise from across our organisation to provide the most commercially competitive and innovative solution possible.

Delivering total customer satisfaction is our aim and our project teams manage and monitor every element of our commitment, each and every day, to ensure we surpass expectations.

A Global Solution

With 7 locations spanning 3 continents, Hampson Aerospace has the potential to support its customers wherever they are located in the world with the same seamless efficiency and the same high quality standards.

Our team of over 1,200 people has a passion to support your business with the highest level of professionalism, commitment and dedication, whatever your requirements may be.

With our global footprint, we can deliver tooling solutions, components, kits and assemblies of the

highest quality with speed and efficiency to our partners anywhere in the world, seven days a week, twenty-four hours a day.

Our new state-of-the-art facility in Bangalore, India, offers access to low cost manufacturing with capacity that can be scaled to meet your requirements. Whether as an integral element of a more comprehensive international supply chain solution, or simply a cost effective source of locally manufactured content to support regional assembly, our wholly-owned Indian facility is available to provide you with competitive cost advantage.







Tooling

Hampson Aerospace is the largest independent producer of tight toleranced tooling systems and solutions for the defence, commercial aerospace and space/satellite industries in the world.

Tools designed and manufactured by us have, and are continuing to play, a critical role in the design, pre-production and production phases of many of the most important and technically advanced programmes in aerospace today, including the A350, A380, A400M, B787, the F/A-22, and F-35.

Located in California and Michigan, USA with over 400,000 sq ft of manufacturing floor space, we offer unsurpassed capacity for production and finishing. This is supported by highly-skilled, tooling design engineers fully conversant in all major CAD/CAM systems. Our ability to meet any aerospace tooling requirement, no matter how large or how complex, is without equal.

Allied to this, we have one of the largest, most versatile and fastest long-bed machining capabilities, backed up by a full suite of in-house services, including operation of one of the largest dedicated heat treatment ovens in the world. We are proud, as a result, to work with virtually every major airframe manufacturer in the world in support of their tooling requirements.

Our core capability is in the design and manufacture of tooling systems used to fabricate the primary flight-critical structures used in the latest generation of carbon-rich airframes. These systems include large fibre-placement moulds, lay-up moulds, bond tools, drilling fixtures and resin transfer moulds. In addition we provide traditional metal detail tooling and final assembly jigs and fixtures, including highly efficient fully automated solutions for both component production and final airframe assembly.

Hampson Aerospace also offers virtual collaborative engineering to validate process design for assembly and factory simulation using state-of-the-art software.

With these world-leading capabilities, Hampson Aerospace offers its partners real competitive advantage for all tooling requirements.

Composite & Transparency

Hampson Aerospace has over 60 years of experience in producing highly engineered, light-weight, composites and polymer-based products. From protective visors on the first Apollo moon landing missions through to complex geometry, high temperature composite assemblies used on the next generation of Joint Strike Fighter, our technology is entrusted to some of the most demanding applications in the world.

We fabricate advanced, carbon fibre and thermoplastic components and structures for airframe and engine applications for both prototype and production, using a range of RTM, VARTM, RFI, hand lay-up, vacuum, blow and compression moulding processes. In transparencies, our expertise covers the full range of glass, acrylic and laminated polycarbonate materials with a particular specialism in high performance coated military applications. We have a proud history of providing innovative technical solutions to meet some of the most demanding challenges in evolving aeronautical design, including development of the first ever self-supporting bubble canopy for the highly successful Lockheed Martin F-16 multi-role combat aircraft.

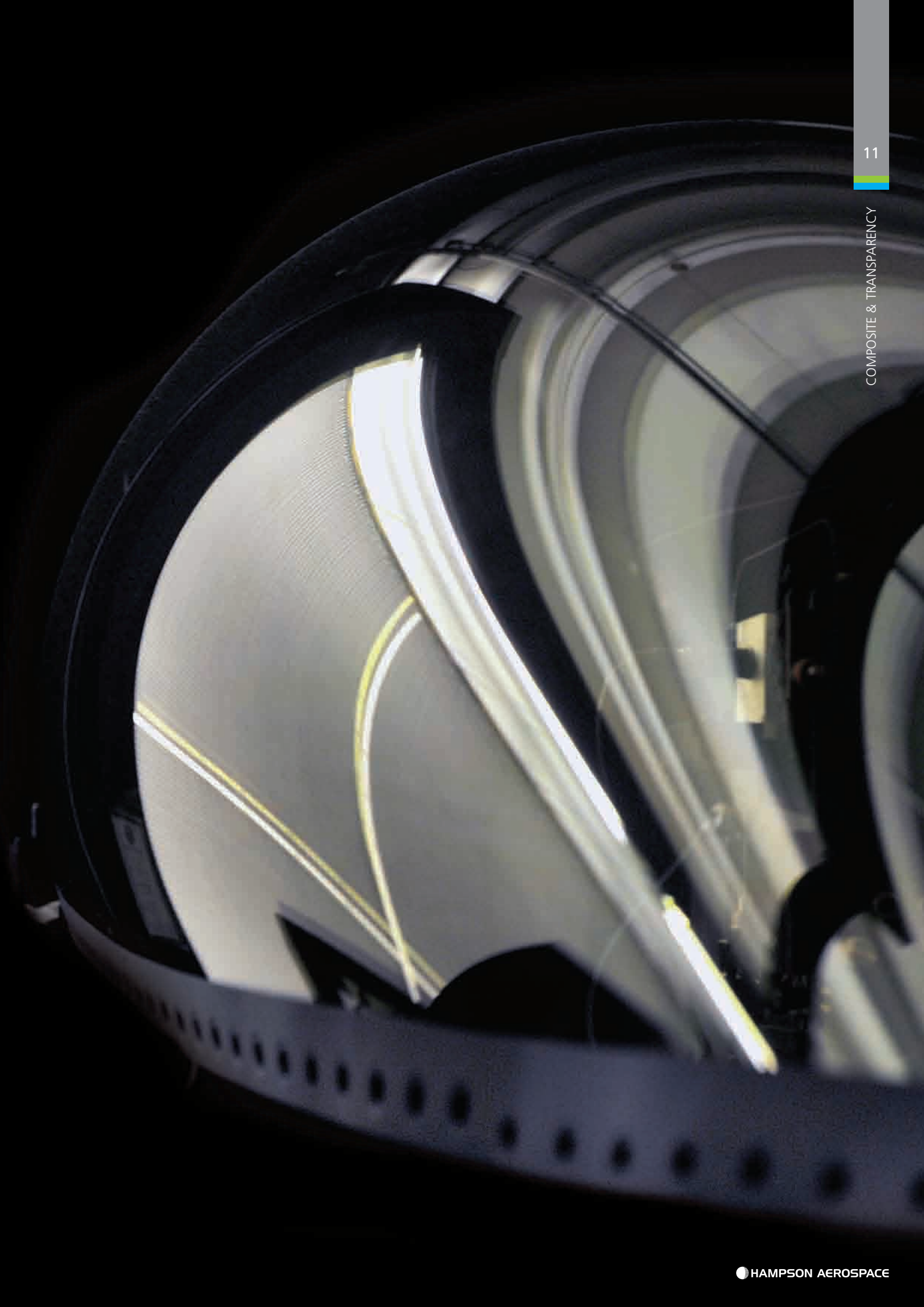
We produce products from a complete range of materials, from basic polymers and plastics through to cutting edge high temperature composite materials, such as bismaleimides, polyimides and

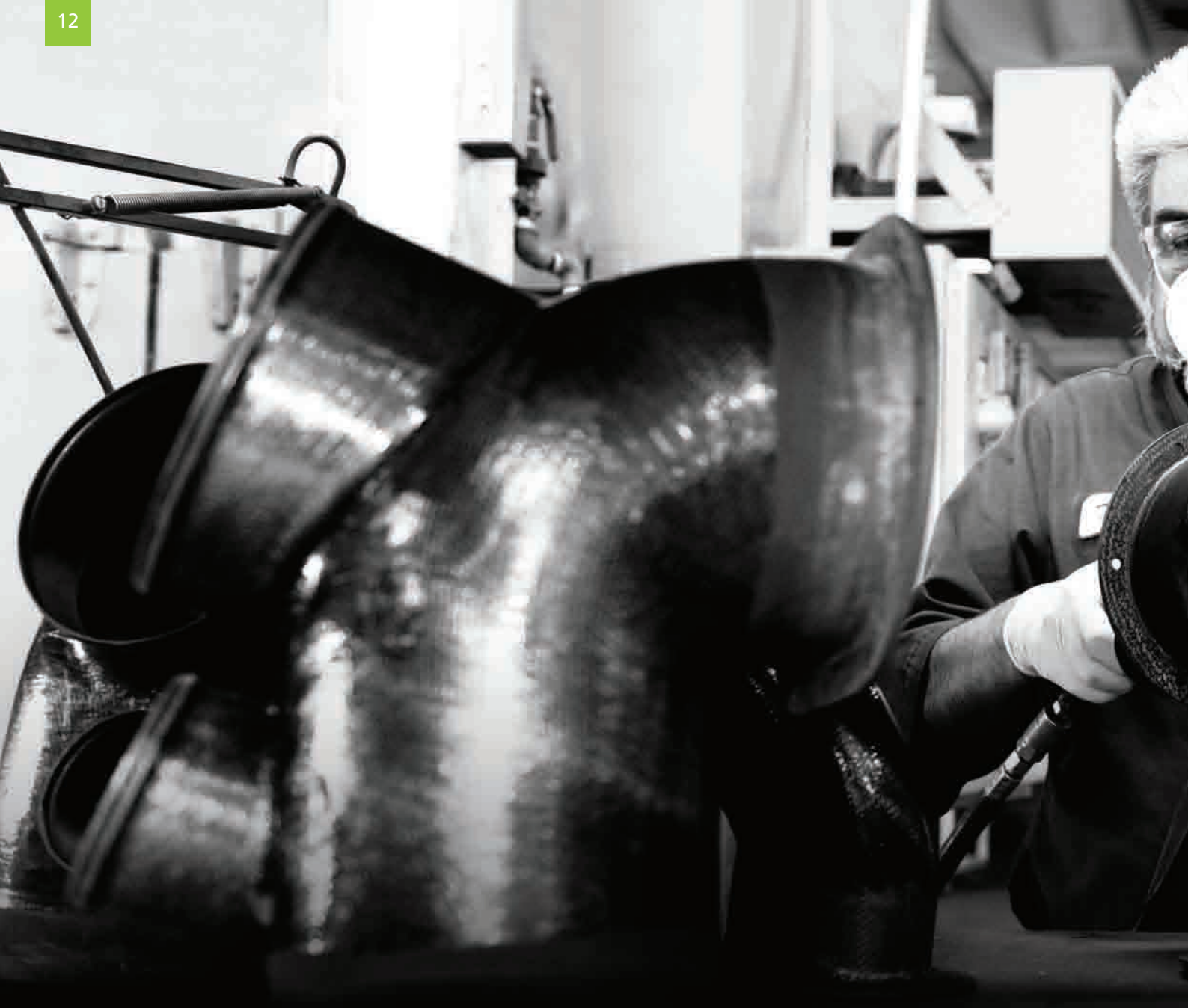
high temperature thermoplastics giving extraordinary strength with minimal weight and designed for use in the most arduous operating environments.

With over 250,000 sq ft of production capacity and multiple clean room and state-of-the-art, high temperature autoclave facilities, we offer our partners cost effective manufacturing solutions for non-metallic components and structures and transparencies for both high and low volume demand. In addition, we employ specialist processes such as canopy thin film and organic coatings that can be formulated for general applications such as heater films, for environmental protection, also for military application such as electrostatic discharge and low observability. We also specialise in transparent anti-ballistic protection for aircraft as well as ground vehicles.

Our product range is as wide and varied as our technical capabilities; from fuselage components such as canopies and windows to interior and exterior composite fuselage panels, ducting, wing skins, engine nacelles, exhaust flaps, engine stators, nozzles, rocket cones and many others.

With these leading capabilities, Hampson Aerospace offers its partners a total solution for all non-metallic component and structure needs.





Aero Engine

We specialise in difficult-to-manufacture, performance-critical gas-turbine components produced from a wide range of composite materials, from intake, through to compression, combustion and exhaust stages of the engine.

We specialise in the manufacture of light-weight, non-metallic components used in the latest high performance engines. These are made from some of the most complex and difficult-to-work-with polymer composites, such as fibre-reinforced

bismaleimides, polyimides or high temperature thermoplastics. These typically include engine exhaust components, ducts and air intake stator vanes. New material and resin technologies are the subject of our continuous R&D programme in conjunction with some of the major gas turbine engine manufacturers.





Aerostructures

Hampson Aerospace has one of the largest and most comprehensively equipped aerospace metal forming facilities in the European supply chain. We offer a full array of horizontally integrated sheet detail, forming, machining, treatment, test and assembly processes. The breadth of our manufacturing capability enables us to offer an almost limitless range of fabricated metallic, composite and hybrid assemblies, sub-assemblies, detailed components, kits and packages to our global partners wherever they are located.

These include major airframe structures, sub-structures, assemblies and detail parts including wing leading and trailing edges, winglets, empennages, bulkhead doors, fuselage sections, cockpit and undercarriage doors and a full range of flying control surfaces.

With a 60 year history as a full service supplier, our core competencies range from highly-engineered, fully-integrated assemblies through to sheet metal pressing and heavy fabrication, including some of the largest stretch-forming and chemical milling facilities in the world. These capabilities have been further extended in recent years with substantial investment in dedicated high-speed 5-axis machining, robotic 6-axis routing and the latest fluid forming technology capable of pressing detailed parts to final form in a matter of seconds.

Through collaborative working practices during the design phase or change programmes, we have a wealth of experience in removing cost and optimising processes; from dedicated, concurrent value-engineering teams to integrating low-cost manufacturing solutions, and deploying innovative, latest generation manufacturing techniques that reduce cycle times whilst assuring quality and capability. These processes, coupled with our proven global kitting ability and expertise in international logistics management, offer a world-class service.

India Sourcing



Supporting our strategy of innovative and cost effective manufacturing and assembly, Hampson Aerospace has established wholly-owned, state-of-the-art facilities in Bangalore, India. This new facility offers a reliable route to low cost manufacturing and a true opportunity for partners to achieve their cost reduction objectives without exposing themselves to the significant risks implicit in relying on untested and often unstable “low cost” suppliers.

Our established, Kaizen-trained management and manufacturing teams have successfully implemented lean techniques and processes across all current activities, as well as developing the know-how to manage in-and-out-bound logistics in a reliable, efficient and cost-effective way.

With immediately available and fully scalable capacity, our 14 acre site is being developed to offer a range of aerospace manufacturing capabilities.





A Business Commitment

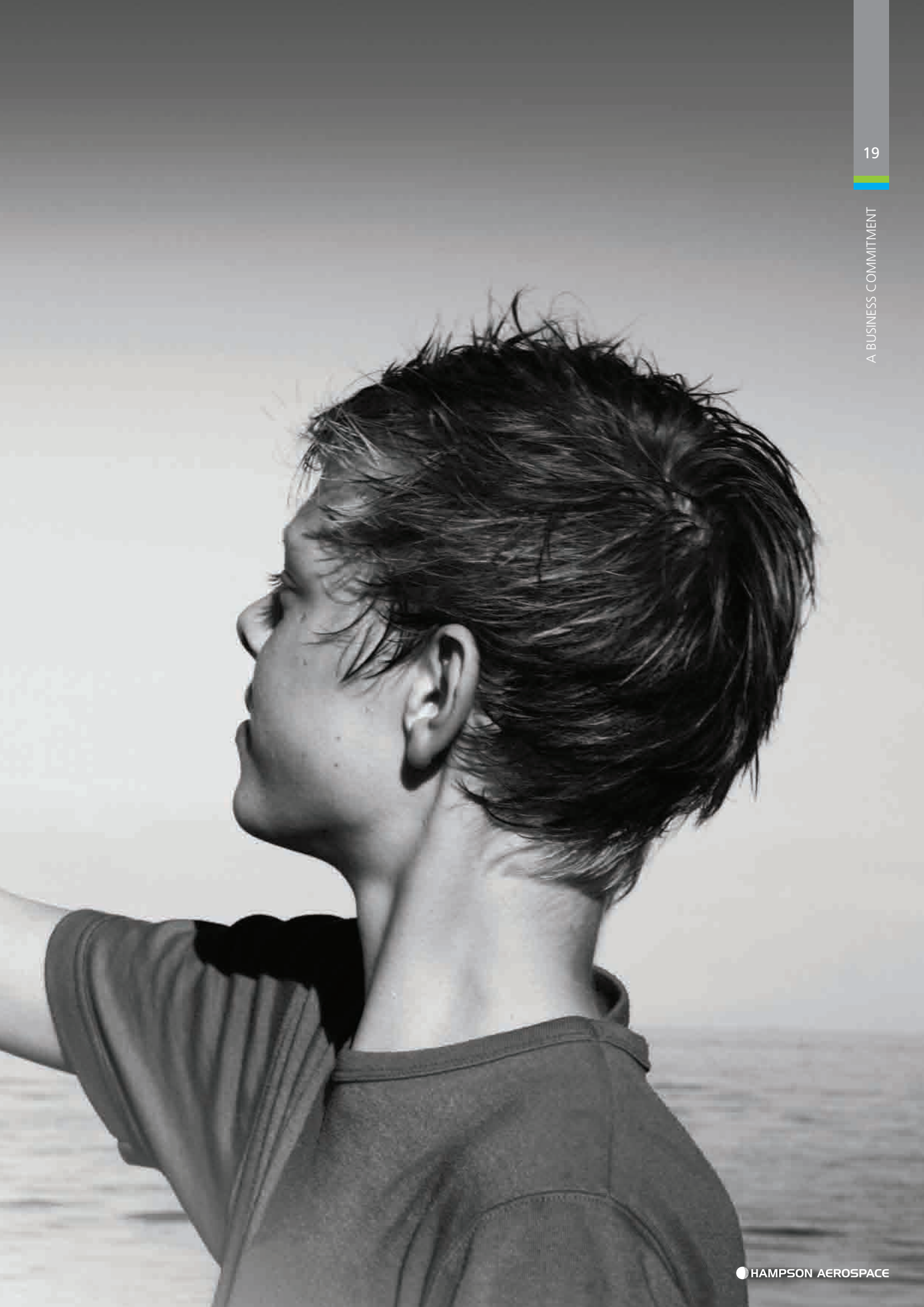
Hampson Aerospace is committed to delivering a value proposition that helps our partners compete more effectively in their chosen market sectors. We have structured our business to provide a professional solution that gives access to all our technical capabilities and expertise.

The diverse capabilities of our many specialist companies can create truly synergistic solutions based on long-term, collaborative partnerships, delivering products and services that are both innovative and integrated.

We continue to invest in research and development of advanced new materials and manufacturing techniques to ensure ever-increasing levels of performance, lighter-weight and improved cost competitiveness for the benefit of our valued partners.

Hampson Aerospace is a trusted and integral partner to the global aerospace and space markets, offering best-in-class levels of quality and delivery and an absolute commitment to supporting you.

“Securing all our futures”





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