CYGNET texkimp

all about the fibre

A leading global provider of fibre handling and converting technology

cygnet-texkimp.com

cygnet-texkimp.com

Experts in the Handling and Processing of Advanced Fibres

Cygnet Texkimp is an export-led British manufacturer which designs and builds technologies to process technical fibres for worldwide markets including aerospace, automotive, wind energy, sporting goods and industrial.

Founded in 1974 to manufacture creels for the traditional textile industry, we have built our knowledge to become experts in the handling and processing of advanced fibres in the markets that we service today. During this time, we have built a strong reputation for quality, service and technical expertise, and a network of long-standing customers and valued suppliers.

Combining engineering excellence with fresh, innovative thinking and a rigorous programme of R&D, we are committed to continual improvement and work in partnership with world-leading scientists and academics to develop state-of-the-art manufacturing equipment for the production of composite parts of the present and future.

> **More than 95% of our sales are made up of international export to over 45 countries and 100% of our machines are manufactured in the United Kingdom.**

Designed for Performance

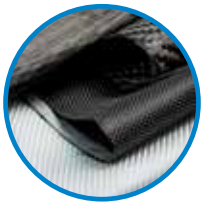
Cygnet Texkimp's state-of-the-art handling and processing machinery covers a wide range of downstream technologies including:

- Creels
- Laminators
- Coaters
- Slitters
- Prepreg Machines
- Filament Winding
- Automation and Handling
- Recycling Solutions

Products and Services

Aerospace & Space

Automotive



Composites

Construction & Geotextiles

Defence

Energy

Industrial

Medical

Textiles

Transport

Corporate Social Responsibility (CSR)

Cygnet Texkimp is committed to providing a safe and rewarding workplace, operating ethically, supporting our local communities and engaging with our stakeholders. We recognise the need to protect the environment and ensure the health and safety of our people. Our Recycling Solutions product range has been designed to help global businesses reduce their carbon footprint.

We work with the local community to promote careers within STEM (science, technology, engineering and mathematics) by attending career fairs and hosting work experience and student placements. Cygnet Texkimp has also worked with The University of Manchester when developing the filament winder product range.

Cygnet Texkimp is also passionate about supporting charities. This includes holding events such as cake sales, Christmas jumper day and fundraising events.

Investment In Our People

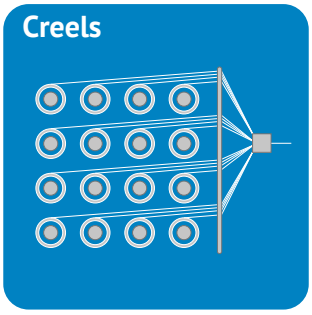
Cygnet Texkimp employs around 100 people, with representatives covering the globe. We are dedicated in creating an environment for employees to thrive and develop. Therefore, we offer flexible working hours and promote a positive work life balance.

Cygnet Texkimp also invests in the training of our employees. This includes investing and mentoring apprentices across multiple departments including, Finance, Engineering and Production.

> **Striving to create engineering excellence and innovation in the handling and processing of fibres and advanced materials.**

Products and Services

Cygnet Texkimp offers a range of fibre handling and converting products which can improve efficiency and consistency.



Creels

As the world's largest independent manufacturer and supplier of fibre unwinding creels, Cygnet Texkimp has been designing and selling creels since inception. The company now supplies several types of creels to suit a wide range of applications and industry sectors, from traditional textiles to aerospace-grade composites.

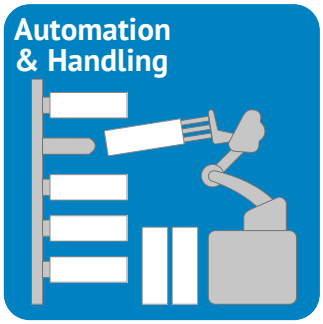
Creel solutions include:

- **Tyre Cord Creels** - used for unwinding of tyre cord from random or precision cross-wound packages into weaving processes or single cord treatment lines.
- **Poly Tape Creels** - a unique patented design for the high speed unwinding of yarns, extruded tapes and monofilaments into beamers, dipping lines and other downstream process machinery.
- **Composite and Flatline Creels** - used to unwind carbon fibre, aramid, glass and other high-performance multi-filament fibres under constant tension.
- **Driven Unwind Creels** - used in applications where precision tension control is required including high speed and dynamic processes.
- **Over End Creels** - ideal for applications where induced twist in the yarn is acceptable or desirable, and where continuous running or block loading are required.
- **Precursor/VHD Creels** - designed to unwind multi-filament, precision-wound packages of Polyacrylonitrile (PAN) into a carbon fibre oxidation and carbonisation process.

cygnet-texkimp.com

cygnet-texkimp.com

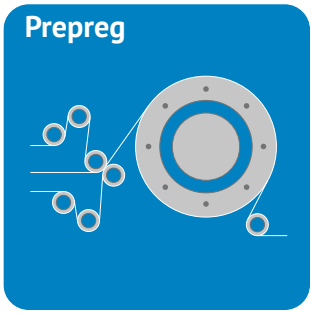
Automation and Handling



Cygnet Texkimp has developed a range of state-of-the-art automation and handling solutions to work alongside its fibre processing and converting technologies. These are designed to help customers manipulate bobbins of fibre on and off machinery, plug labour gaps and reduce associated costs, maintain fibre quality and improve product traceability. In addition, these solutions satisfy ergonomic requirements whilst increasing health and safety standards.

Our portfolio of customised automation and handling technologies not only improve process efficiency but also enhance the quality of the fibre, tape or yarn by reducing physical handling, improving traceability and in-process checking.

- **Automated Guided Vehicle (AGV)** - programmed to carry out a series of activities around a factory, guided by sensors. Cygnet Texkimp's AGV systems are commonly used to transport packages of fibre around a plant and control the inventory of large creel systems.
- **Creel Loading Systems** - commonly used to lift and load large, heavy or high volumes of packages of fibre on and off a creel in a factory setting. They are an ideal option for loading and unloading multi-level creels.
- **Winder Tending Systems** - robotic systems used to automatically load fibre unwinds or unload winders, which can communicate with the winders to determine when loading or unloading is required.
- **Packaging and Palletising Systems** - fully automated systems that use robotics to manage packages of fibre off a production line and prepare them for shipping or storing without the need for human intervention.
- **Lift Assist & Lifter Loaders** - an aid to picking and placing large and/or heavy objects over a defined distance.



Prepreg

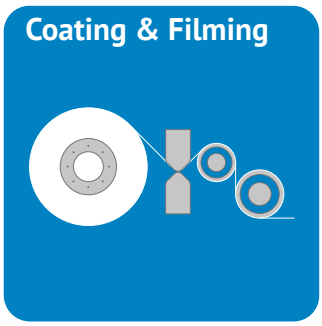
Cygnet Texkimp is one of the largest suppliers of thermoset prepreg production lines to the global aerospace sector. We also make high-performance thermoplastic prepreg viable for mainstream automotive, aerospace and industrial markets with the first commercially available, high-volume, direct-melt thermoplastic processing lines in the world.

Cygnet Texkimp is continually developing its prepreg capability and solutions for the many industries who want to improve performance by harnessing the full potential of composite technology whilst increasing rate of production.

- **Thermoset** – thermoset prepreg machines are used to create a continuous sheet of thermoset composite material that can be moulded into parts or slit into tapes for tape laying and filament winding. They are commonly used to achieve high fibre areal weight whilst increasing useability, throughput and consistency.
- **Thermoplastic Prepreg** - designed to manufacture thermoplastic tapes in large volumes for markets such as automotive and construction. Cygnet Texkimp's Direct Melt Impregnation Thermoplastic Line is a next generation manufacturing line, with market leading accuracy. Capable of using standard polymers, from polypropylene to PEEK, to create high-grade thermoplastic prepregs on an industrial scale.

Coating and Filming

Cygnet Texkimp manufactures some of the most advanced coating and filming systems in the market. These machines are designed for both the composite prepreg market and the more diverse wide web converting industries. Our technologies deliver the most uniform, thin and repeatable coat weights achievable and so help manufacturers to deliver the highest quality finished products.



- **Forward and Reverse Roll** - high-precision coating technology designed to achieve uniform resin distribution and extremely low coat weights of 5gsm or less for the aerospace-quality prepreg market. The technology features precision-ground ceramic or chrome-plated coating rolls, with integrated resin mixing and delivery systems.
- **Blade / Knife Over Roll and Comma Roll** - Blade and Roll coating technologies offer a relatively low-cost way of applying high-viscosity coatings with medium to high coat weights. These machines are most commonly used to process uneven surfaces including textiles and woven fabrics.
- **Powder Scatter** - most commonly used to apply and fuse a thermoplastic powder to a fabric substrate – typically glass or carbon. The design of this machine draws on Cygnet Texkimp's expertise in process control, web and fibre handling to deliver extremely accurate and uniform dispersion of the thermoplastic, which is critical in manufacturing the highest quality product.
- **Slot Die** - technology offers an accurate method of coating a substrate with resin. Various substrates can be coated with this process, from papers and films to UD carbon and glass. The system features high precision resin application die, coupled with a resin feed system to achieve the desired application. As the die and feed system is fully enclosed, this method of coating also prevents exposure of the resin to atmosphere when at an elevated temperature.

Recycling Solutions

The recovery and reuse of fibre from composite materials (CFRP) is an area of major growth and importance as the composites industry develops new ways to reduce waste and improve environmental and process efficiency. Cygnet Texkimp offers a number of solutions to meet your company requirements.

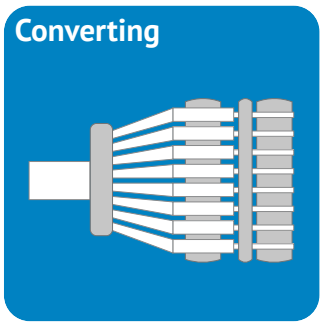
- **Waste Recycling** - Cygnet Texkimp's waste recycling uses superheated steam to gently remove a range of polymers from filters and related production equipment, allowing for raw material waste to be reused in the manufacturing process. Using a combination of superheated steam pressure swings or compression/decompression cycles, frozen polymer is removed from contaminated components and assemblies. The process takes place in a controlled environment contained within a custom designed pressure vessel.
- **Chopping** - Cygnet Texkimp's considerable expertise in carbon fibre handling and processing enables us to offer independent guidance on recycling methodologies, including pyrolysis and solvolysis, and related process technologies including shredding, chopping, milling, pelletising, bagging, handling and palletising.

cygnet-texkimp.com

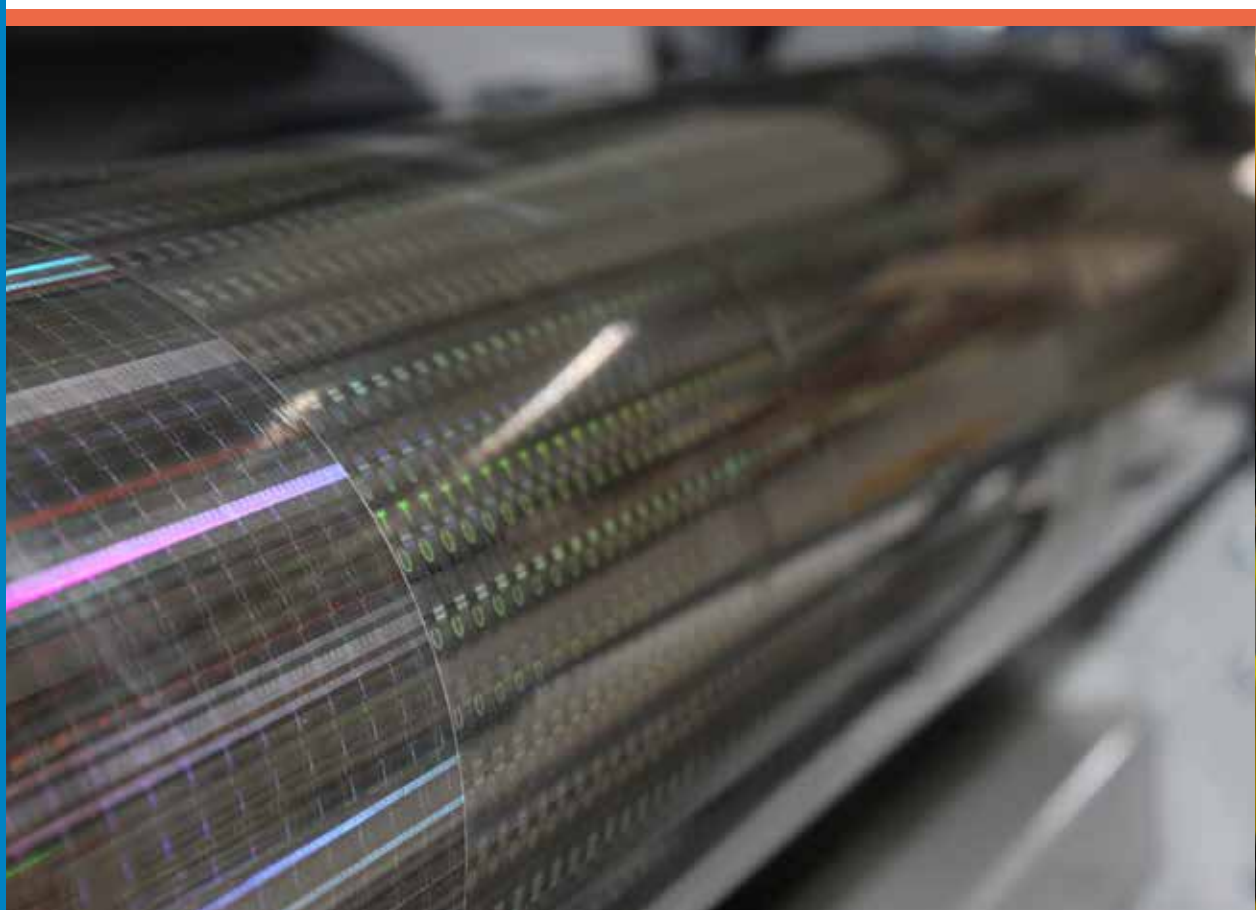
cygnet-texkimp.com

Converting

Converting is a process that changes the form of a continuous sheet of material. Common examples of converting include coating, laminating, embossing, impregnating, slitting, calendering and printing. The continuous sheet is usually fed into the process from a pre-wound reel carried on an unwind and the converted material is then rewound to form a new reel.



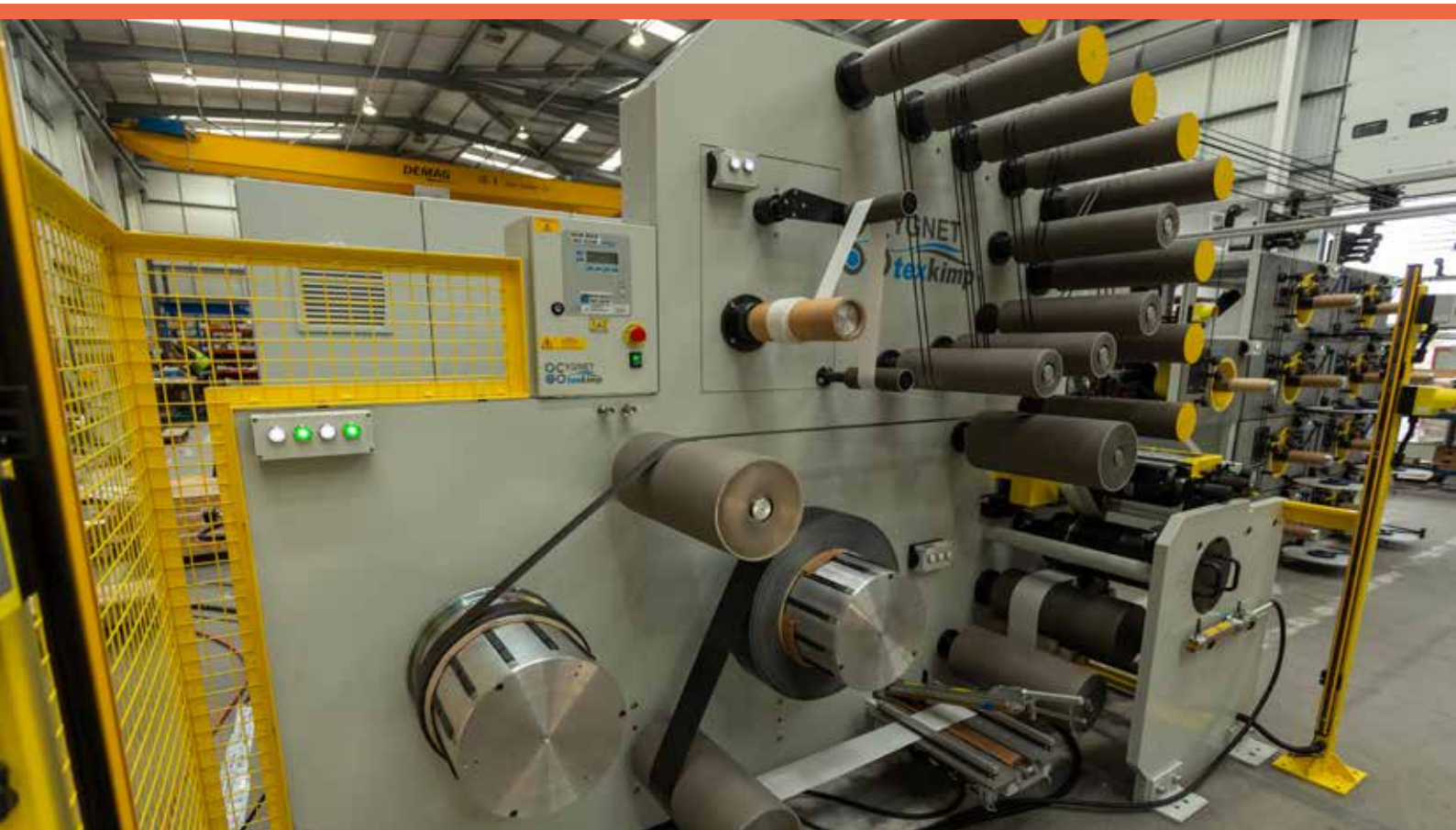
- **Laminating** - bonding two or more continuous sheets of material and can be combined with in-line coating technology to apply adhesive.
- **Embossing** - used to process a range of materials, from thin films and foils with a thickness of just 10 microns up to 2mm stainless steel sheets.
- **Spreaders** - unwinding a continuous length of a multi filament fibre – typically glass, carbon or aramid – from a creel and spreading the fibre evenly to form a full sheet comprised of individual tows.
- **Tow Preg** - designed to apply a resin or polymer to a fibre, uniformly and with a predetermined ratio, to create an impregnated filament bundle suitable for a range of downstream processes.



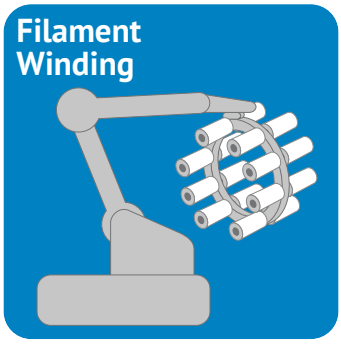
Slitting

Cygnet Texkimp offers several slitting and winding solutions to address a variety of market needs. Our portfolio of standard and bespoke machines ranges from edge trim winders to full-scale, narrow width slitting and spooling lines. As a fibre handling specialist, we understand materials and techniques to produce the ideal solution for each application.

- **Prepreg Tape Slitting (AFP/ATL)** - designed specifically for use in the composites industry, typically to slit and spool thermoset UD prepregs. This machine has been developed to make carbon fibre prepreg tape more accessible to a wider cross-section of the market by enabling prepreg manufacturers to integrate the slitting process into their in-house operations, and therefore reducing cost and increasing production rates.
- **Slitting Spooler** - high speed slitting and rewinding machines suitable for a variety of materials including plastics, films, foils, foams, adhesives and non-adhesives. With various slitting options available, including shear, crush and razor slitting, this extremely versatile machine can be supplied as a stand-alone unwind slitter to be integrated into an existing process, or as a complete line, with optional winding techniques including duplex centre winding, centre surface winding or multi-head traverse winding.



Filament Winding



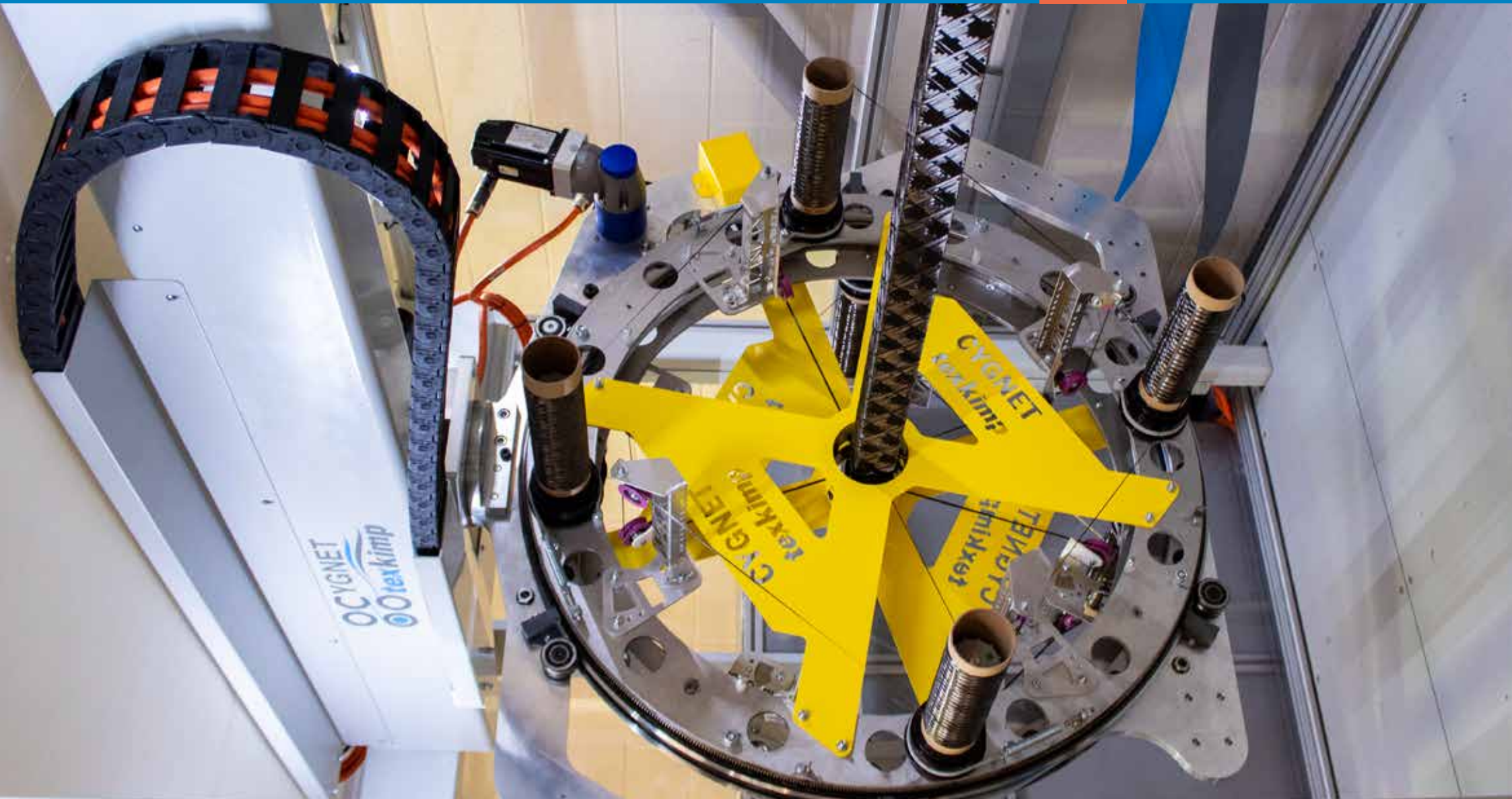
Cygnet Texkimp has combined decades of expertise in fibre handling and process control to develop a range of filament winding machines used in the manufacture of strong, lightweight composite parts for global markets including automotive, aerospace and wind energy.

We offer standard and bespoke filament winding technologies, including very high tension, high speed and high volume machines, and fully automated systems with robotic loading and unloading capability. Secure R&D trials of these technologies are also available.

Cygnet Texkimp has a range of winding machines available from 2 to 6 axis, suitable for Wet Winding, TowPreg or both. With the option of standard or bespoke filament winding heads capable of high tension winding with loadcell monitoring, high speed, multiple tows, etc. We have several wet-out systems depending on the application from a simple dip tank to accurate resin mixing systems applying resin directly to the fibre before placement.

- **Filament Winding** – combines a conventional filament winding approach with robotics to make the process more flexible in terms of the size and shape of the structure that it can manufacture.
- **Multi Axis Winding** - high-speed winding machine capable of winding technical fibres including carbon, aramid and glass quickly and accurately into strong and lightweight composite parts for automotive, aerospace, rail, sailing, construction and wind energy.
- **3D Winder** - robotic filament winding machine designed to produce complex, non-linear – or curved – parts in varying cross sections with a high degree of precision and low crimp.
- **Robotic Filament Winding** - combining our knowledge of Robotics with the benefits of our Filament Winding technologies to provide the most flexible winding system available. Suitable for complex shapes, this machine provides infinite possibilities for fibre placement.

cygnet-texkimp.com



cygnet-texkimp.com

Spares, Services and Maintenance

Cygnet Texkimp's strategy is to partner with our customers to:

- Supply a planned maintenance and emergency support package.
- Manage operational costs and drive ongoing customer benefits.
- Provide advice and consultation on recommended spares packages and preventative maintenance.

To achieve this, our team of in-house service and maintenance engineers provide:

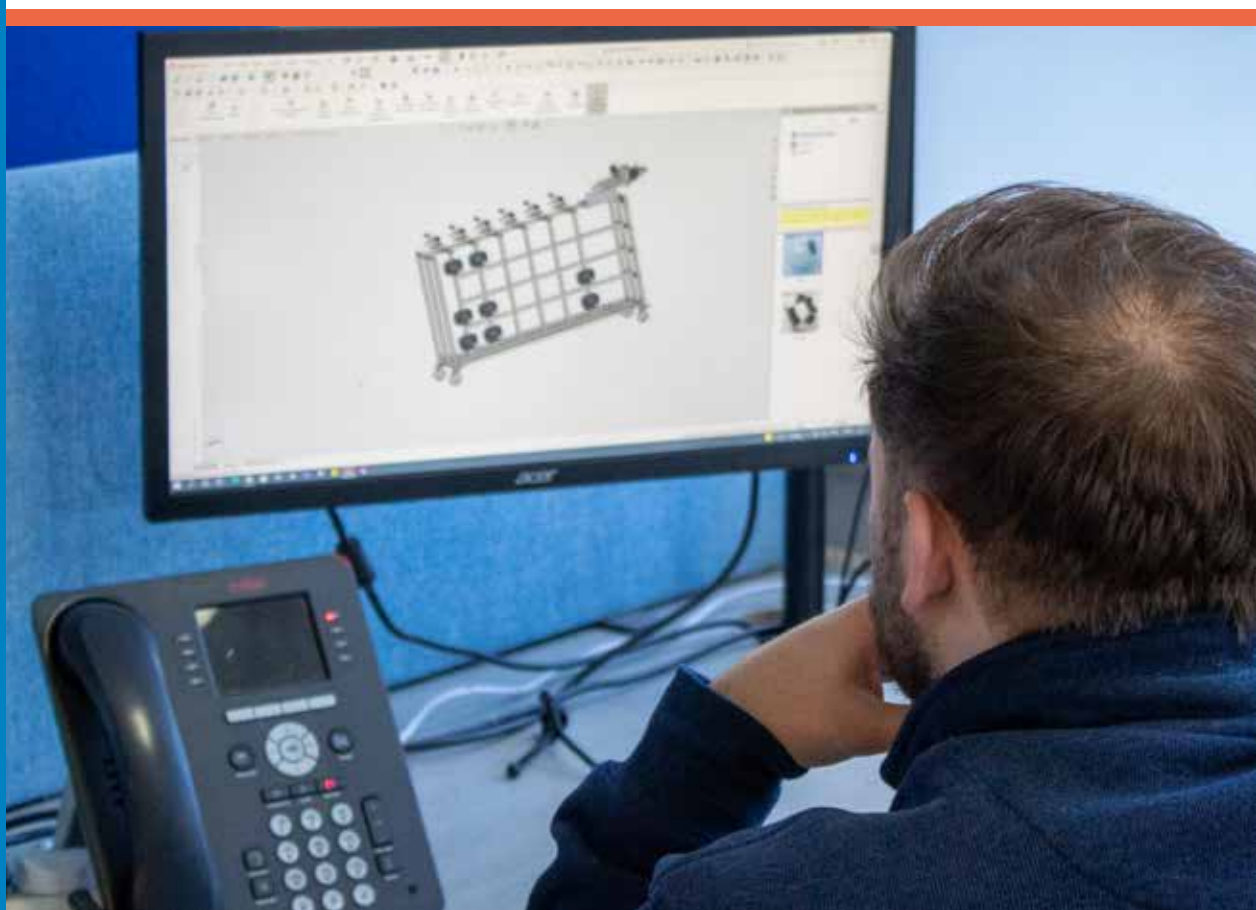
- Commissioning
- Installation
- Planned maintenance
- Service contracts
- Reactive repairs
- Operator training
- Improved output and upgrades and PCL upgrades

All our support services are tailored to each individual customer's needs, based upon their equipment, on-site resource, production requirements and budget.

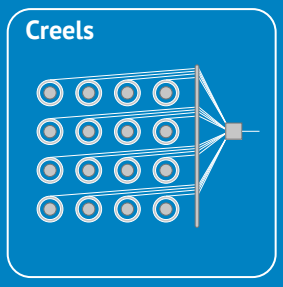
After-Sales Support

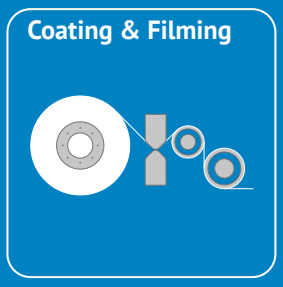
Cygnet Texkimp's after-sales team is committed to delivering the highest levels of support both inside and outside of warranty, whether it is for service, maintenance, spare parts or equipment upgrades.

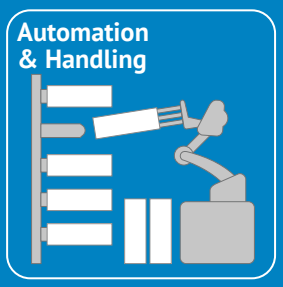
The high level of reliability and build quality of Cygnet Texkimp products means that there are many of our early pieces of equipment still operating within demanding environments. We are able to support both new and early equipment with spares and service support.

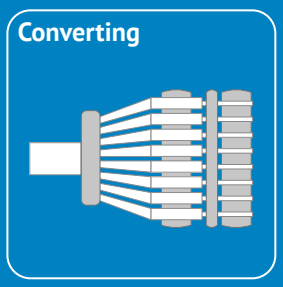


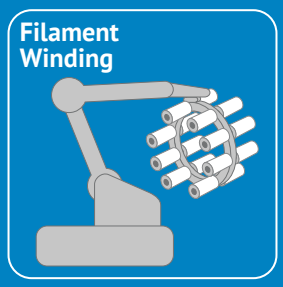

CAUTION
ALIGN











Cygnet Texkimp Limited
Swan House,
Kimpton Drive off Wincham Lane,
Wincham, Northwich,
Cheshire, CW9 6GG,
United Kingdom

Tel: +44 (0)1606 338 748
Email: info@cygnet-texkimp.com

Find out more at
www.cygnet-texkimp.com