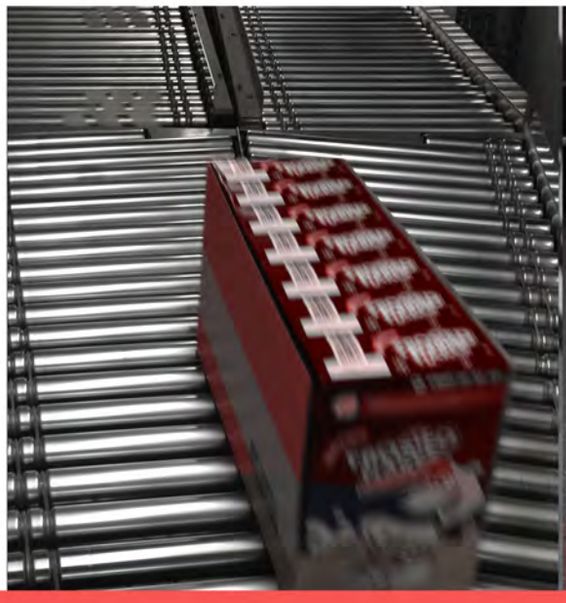
ESP

SPECIALISTS IN CONVEYOR SOLUTIONS

COMMITTED TO EXCELLENCE
IN CONVEYOR SOLUTIONS

CUSTOM SOLUTIONS RANGING FROM INDIVIDUAL COMPONENTS TO FULL TRANSPORTATION SYSTEMS



ESP Conveyor Systems

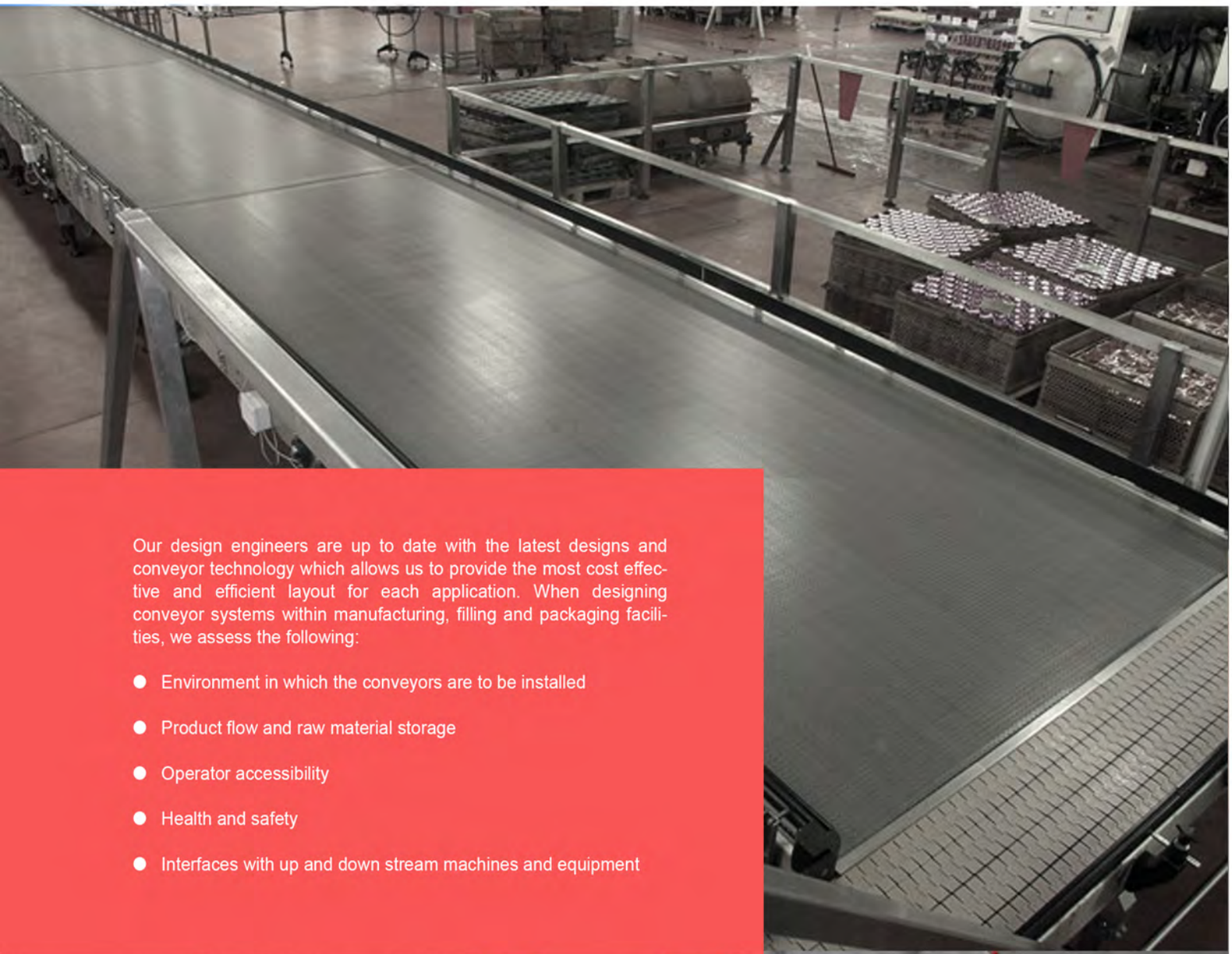
Specialists in Conveying Solutions

The Engineering Systems & Projects Ltd (ESP) team has many years experience in the design, manufacture and installation of conveying systems. This experience produces cost effective working solutions for the conveying problems associated with the modern day container and it's associated packaging line.

A wide range of container and package handling equipment is available, either as single items or as part of a complete installation. All of our conveyors are manufactured to the highest standards and are:

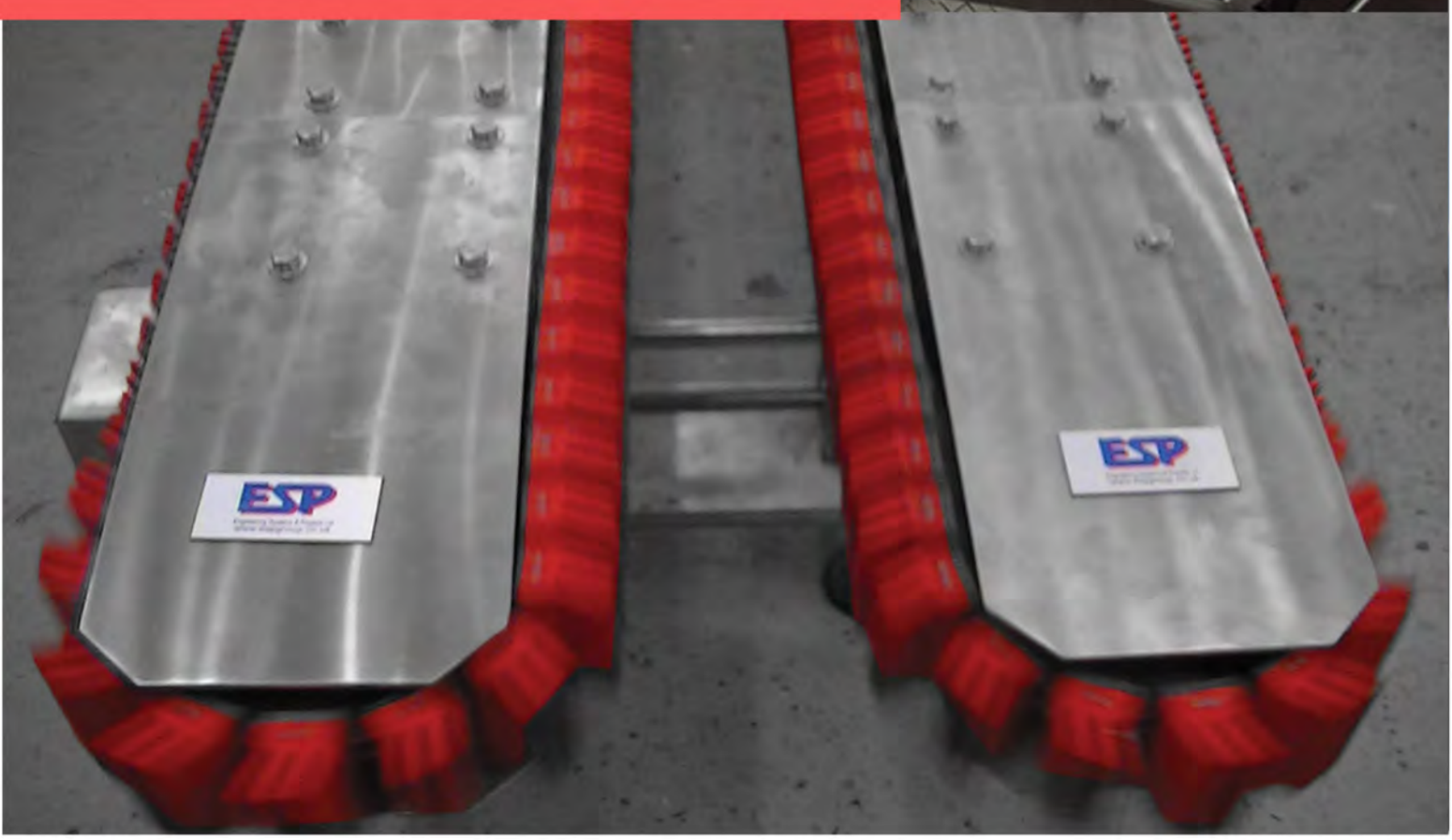
- Fully CE Marked Systems
- Manufactured in 304 grade stainless steel or mild steel painted construction
- Multiple widths, from small glass bottles through to full pallet conveyors
- Precision engineered using the highest quality materials suitable for the environment

Extensive use of industry standard Computer Aided Design tools (such as AutoCAD and SolidWorks 3D Modelling) reduce the time taken for design and enables detailed drawings and layouts to be produced quickly and efficiently.



Our design engineers are up to date with the latest designs and conveyor technology which allows us to provide the most cost effective and efficient layout for each application. When designing conveyor systems within manufacturing, filling and packaging facilities, we assess the following:

- Environment in which the conveyors are to be installed
- Product flow and raw material storage
- Operator accessibility
- Health and safety
- Interfaces with up and down stream machines and equipment



Endless Belt Conveyor Systems

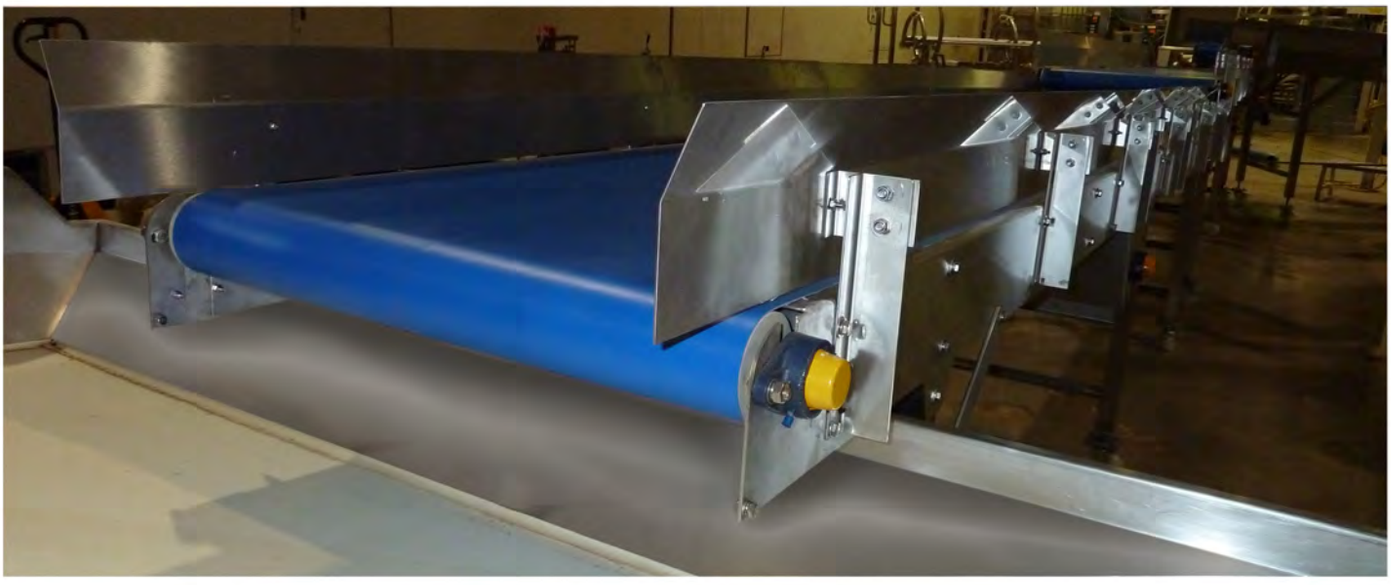
ESP design and manufacture a complete range of endless belt conveyor systems. Supplied as a fixed or standalone unit, reversible drive system for bidirectional conveyors, elevating / declining systems for conveying product between two floors (for example - a mezzanine) or bespoke belt conveyor solutions which are to be integrated into a much larger conveyor system.

The belt conveyor systems design can be a light duty end drum drive with 'end tensioning', or a heavier duty mid drive with 'integrated mid tensioner'. Belt widths can vary from 100mm to 2000mm plus, with speeds from approximately 2m per minute up to 120m per minute.

Dependent on use, products and industry standards, all designs are constructed from mild steel and painted to a standard RAL colour of your choice. Conveyors are also available in 304 or 316 grade stainless steel.

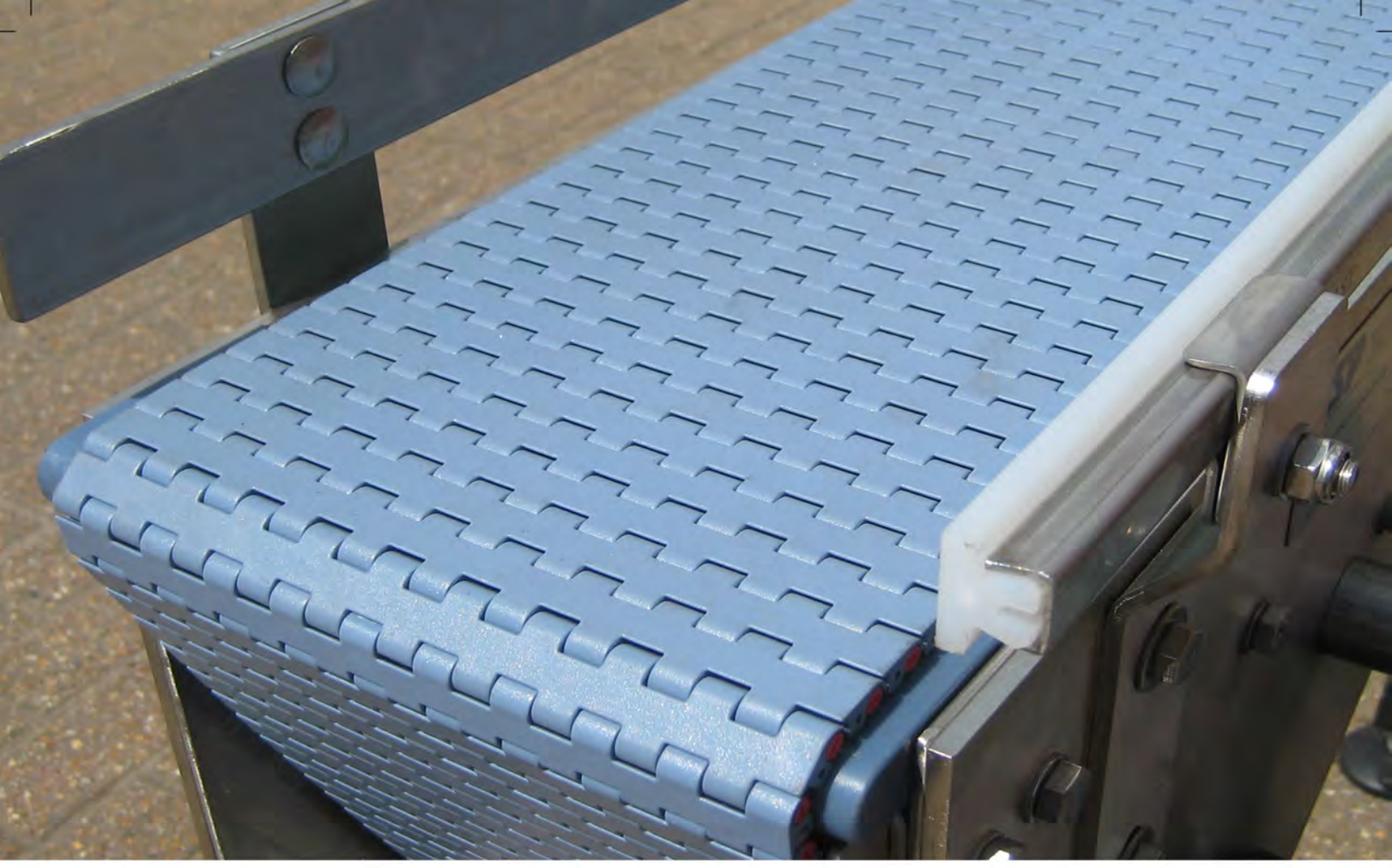
Different belt types include:

- **Flighted Belts** for conveying loose product
- **Grip Faced Belts** for raising, lowering or metering products
- **Sidewall Belts** for containing loose products
- **FDA Approved Belts** for handling food products



ESP have designed, manufactured and installed endless belt conveyor systems within the food, beverage, pharmaceutical and chemical industries for the following applications:

- Transporting fresh produce, packaged products, totes and cartons
- Transporting full / empty cases
- As a Stop Belt to control product flow
- As a Spacing Belt to control product flow
- To incline / decline products



Mat - Top Conveyor Belt Systems

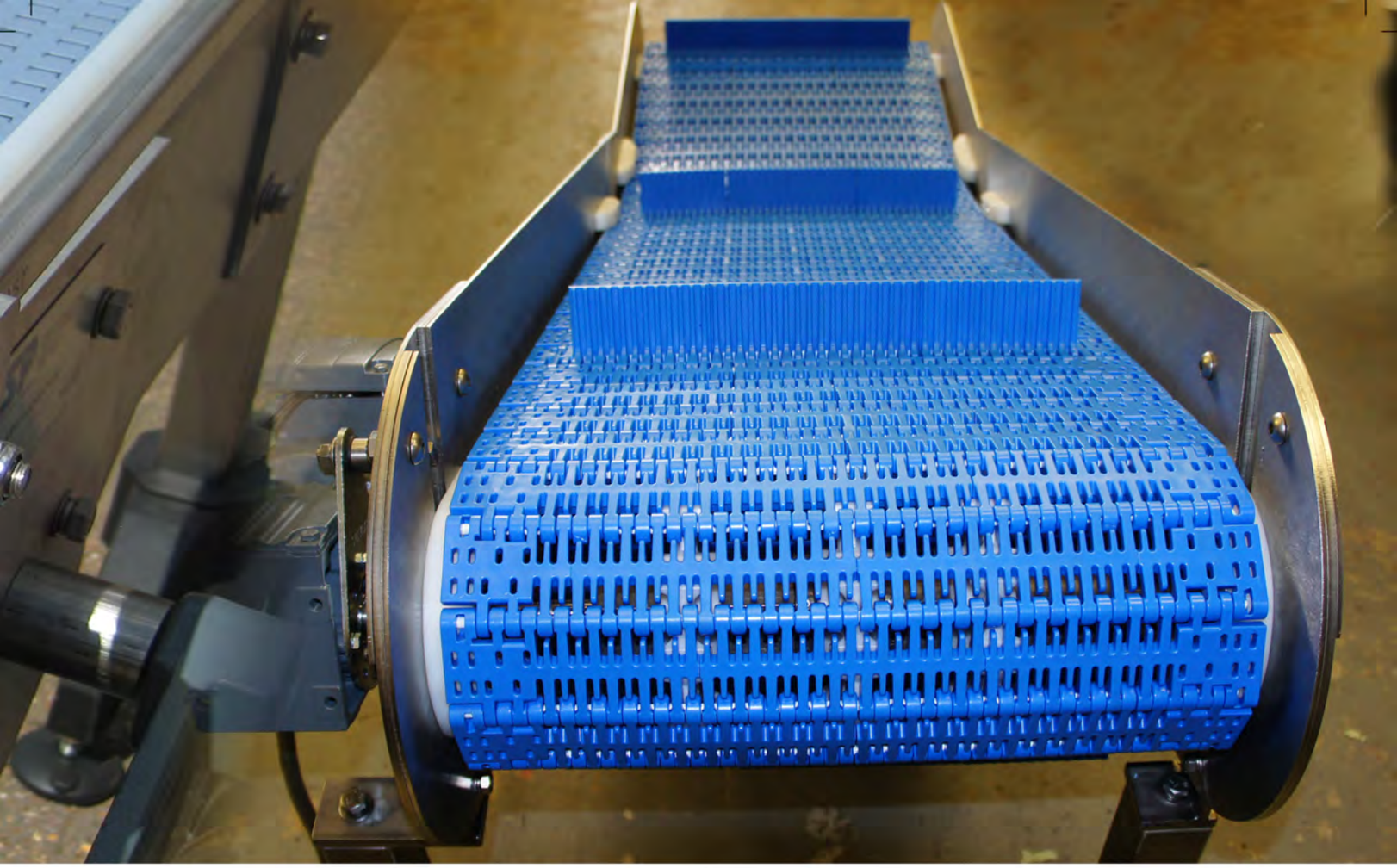
Modular conveyors have been designed to carry various types of modular belts, which are available in different widths and pitches.

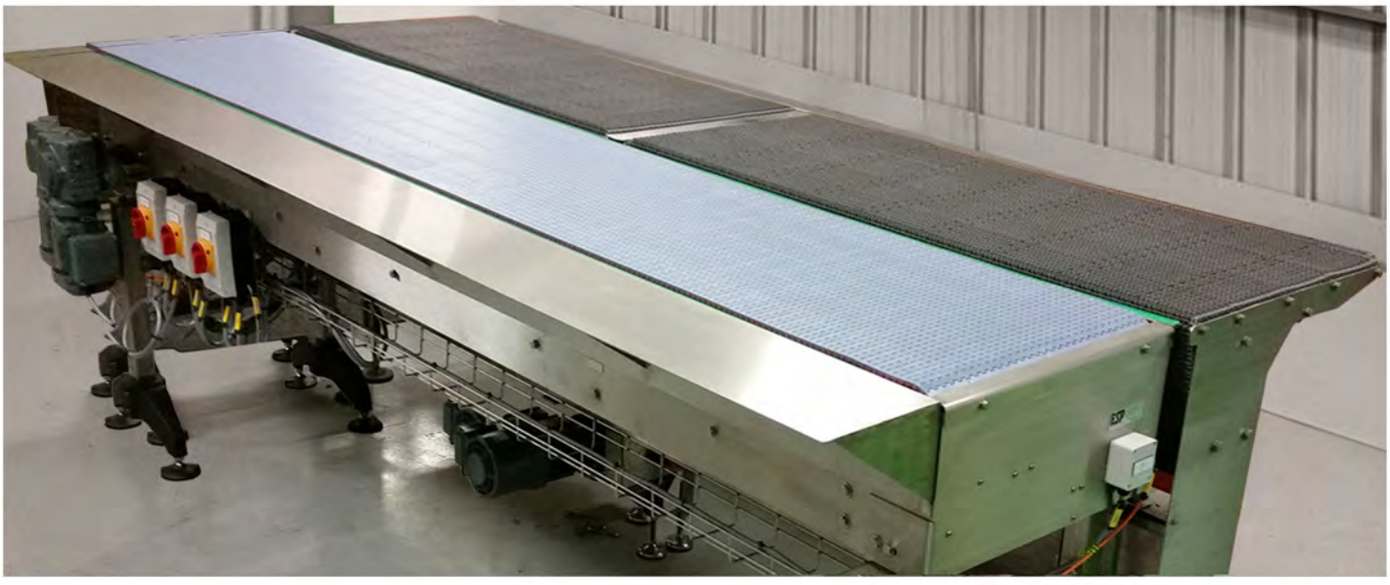
Mat-Top belts are available in either straight running or side flexing, together with different surfaces for applications such as:

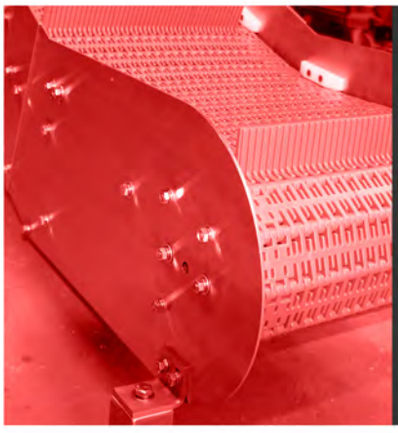
- **Open top**
- **Flush grid**
- **Rubber top**
- **Accumulating rollers**
- **Flighted**

Mat-Top conveyor belts can be designed with small end transfers, removing the use of dead plates at interface points thus allowing product to flow more freely. The belts can also be fitted with small rollers which allows accumulation of product with low back pressure, therefore avoiding products being crushed.

Mat-Top belts can be manufactured from different types of material such as Polypropylene, Low Friction Acetal and Polyamide Composite depending on the application.

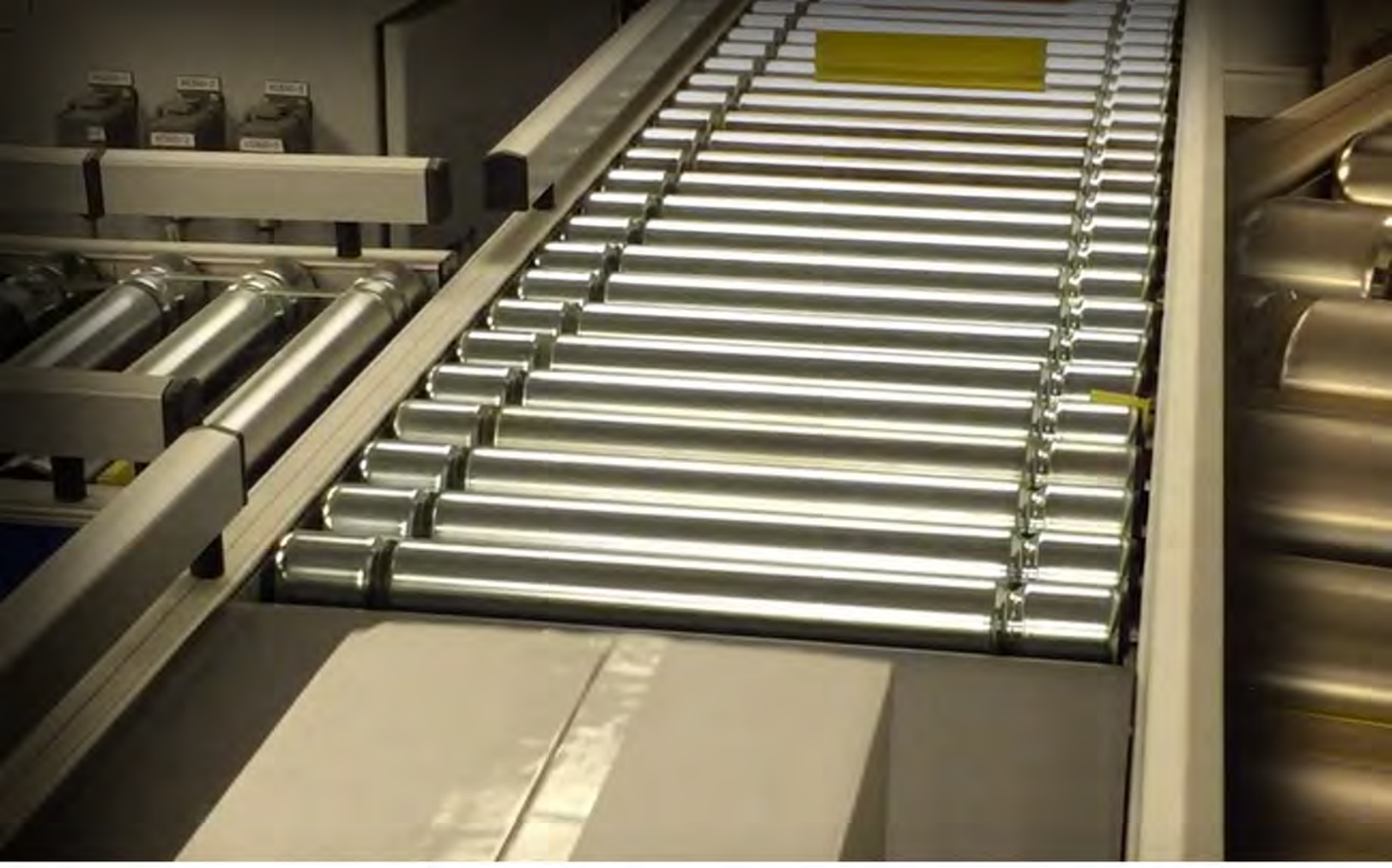






ESP have designed, manufactured and installed mat-top conveyor systems within the food, beverage, pharmaceutical and chemical industries for the following applications:

- Transporting empty glass bottles, glass jars, cans, cardboard trays
- Transporting full glass / plastic bottles, jars, cans, trayed products, boxes
- Transporting shrink-wrapped products
- Transporting loose products such as raw meats and vegetables



Roller Path Conveyor Systems

ESP design and manufacture a vast range of powered roller path conveyors which come in various widths and roller sizes. We recommend the type of conveyor based on it's application and the products being handled. The following drive types are available:

Powered Lineshaft are the most common conveyor used for handling light to medium weight cardboard boxes, where accumulation isn't always required. One of the unique advantages of lineshaft conveyors is the number of ancillary modules which can be driven from one motor by means of couplings and universal joints.

Belt Under Rollers have the versatility of transporting or accumulating with the option of modifying from one to the other. They are ideal for conveying medium weight loads (up to 50Kg) over long distances of up to 30m from one drive at high speeds (up to 107m per minute). Accumulation logic is in-built within the factory-fitted wired up sensors, giving minimal controls interfacing on site and the benefit of reduced installation costs and low maintenance.

Motorised Rollers can be used to cause zero line pressure, back filling accumulation or simple transport. The more complex the configuration of conveyors, the fewer drives required compared to conventional equipment.

ESP have designed, manufactured and installed roller path and pallet conveyor systems within the food, beverage, pharmaceutical and chemical industries for the following applications:

- Feeding products to an assembly / packing station
- Sortation systems
- Transporting totes, cases and cartons
- Transporting trayed products

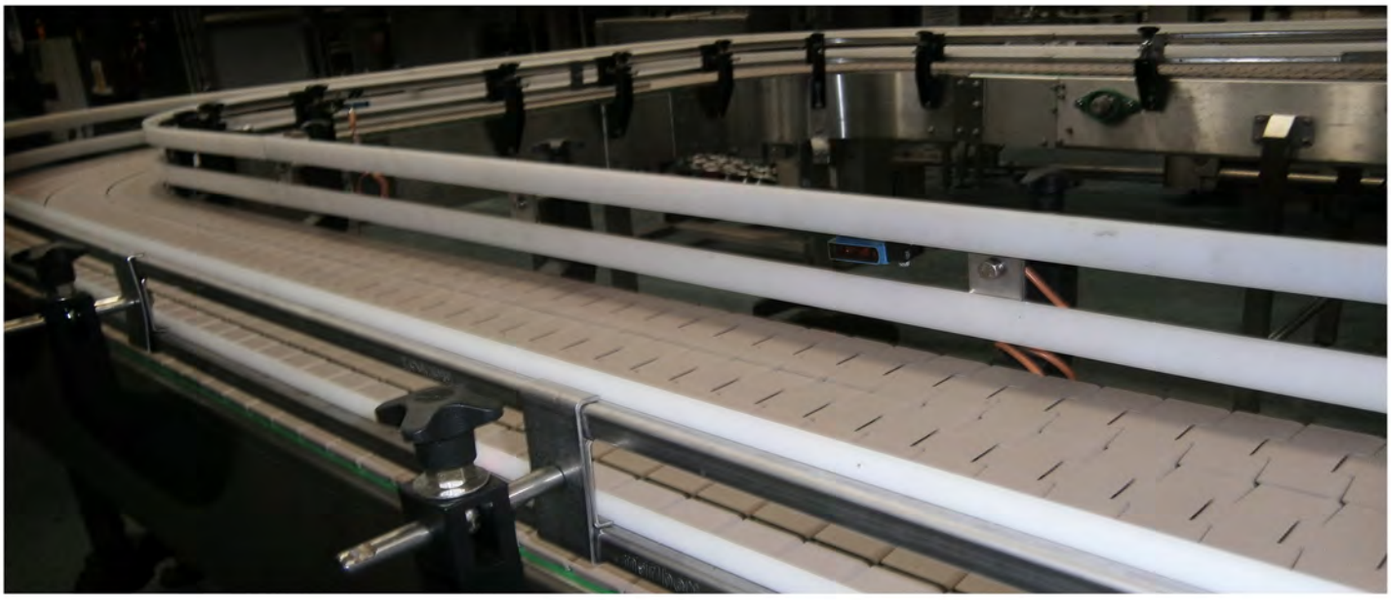
Slat Band Conveyor Systems

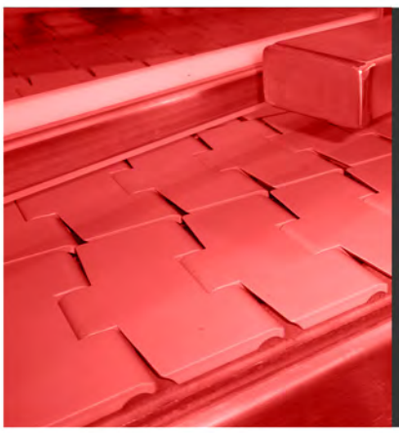
Slat band conveyors, often referred to as plastic chain conveyors, are available with either plastic or hygienic stainless steel chain and are often used for handling small packs and / or when rapid speed and accuracy is essential.

Providing low noise safe conveying of products as well as being extremely strong and of robust construction, these conveyors offer long lasting reliable performance. They can be supplied in mild steel frames or stainless steel where food or pharmaceutical clean room standard is required, with fixed or variable speed drives, with or without side guides and can be designed with an adjustable height facility and grip-top inserts for inclines.

The slat band conveyors can transfer product around tight radius bends using a single drive and can be supplied in various widths. Due to the low friction, sprocket drive and smooth surface of slat band conveyors, they are ideally suited for use in the labelling and packaging industries. The addition of wheels on the top surface form Low Back Pressure (LBP) chain, which dramatically reduces pressure when accumulating a larger number of products.

They are ideal for accumulation applications such as in food and beverages, pharmaceutical, processing and packaging industries, but can equally transport heavy duty products.





ESP have designed, manufactured and installed slat band conveyor systems within the food, beverage, pharmaceutical, and chemical industries for the following applications:

- Transporting empty glass bottles, glass jars, cans
- Transporting full glass / plastic bottles, glass jars, cans

Slat Band is ideally suited for handling products in mass or single line, supplying filling, labelling and packing machines.

Vacuum Conveyors

Many filling and packaging companies are using both plastic and glass containers so the requirement to handle both can often present challenges. ESP have developed a vacuum conveyor which draws air through a bespoke slat chain giving the containers more stability as they are transported. The conveyor body is formed to create an air tunnel with vacuum generators fitted at various intervals along the length of the conveyor. Container accumulation is created by removing air from each section of conveyor once it is full.

Side Grip Conveyors

The ESP side grip conveying system is used to overcome differences in height within product lines. The gripper technology permits space-saving vertical transport allowing bottles, glasses, tins, cartons, bundles etc. to be transported to a different height safely and efficiently.

Our unique feed-on and feed-off system ensures containers are positively picked up, then placed back onto the infeed and outfeed conveyors with maximum stability.

Accumulation Conveyor Systems

In most cases, an accumulation conveyor system is vital to a complete transportation system, whether it is belted or roller, minimum or zero pressure, fixed zone or a dynamic system.

Accumulation conveyors can be used in a conveyor system when trying to buffer product prior to sortation, when merging product together or at the end of the line where an operator will unload.

Knowing the right type of accumulation conveyor to use will play a large part in how efficiently your conveyor system handles product. Whether accumulating food trays or handling difficult product shapes, we can help find the best solution to fit your needs.

ESP specialise in developing accumulation conveyor systems and buffering devices offering the benefit of efficiency to your manufacturing operations. So whether your requirement needs single, multi-lane, mass or non-contact, our accumulation conveyors will handle your delicate products with care utilising low line pressure.

Dependent on the application, we offer various types of accumulation conveyors such as:

- **Roller** conveyors
- **Low Back** pressure systems
- **Mat-Top** conveyors
- **Slat Band** conveyors

ESP have designed, manufactured and installed accumulation conveyor systems within the food, beverage, pharmaceutical and chemical industries for the following applications:

- Transporting empty glass bottles, glass jars and cans
- Transporting full glass / plastic bottles, glass jars and cans
- Accumulation systems are normally situated prior to filling, labelling and packing machines as well as on the outfeed of pasteurisers / coolers

Pressureless Conveyor Systems

ESP's pressureless combiners incorporate multiple belts, various chain speeds and can be made from any specified material you require. They can be used to move products from a mass flow capacity down to a single file or lane without using pressure. We typically see this configuration when moving round or cylindrical products, especially where there may be a stability issue.

ESP will design the most efficient and cost-effective combiner based on your line speed requirements and container dimensions. Utilising the ESP control system developed specifically for pressureless combining, the correct inlining population is maintained while providing downstream equipment with a steady product supply.

This design can be incorporated using high-speed plastic belts, mat-top chain conveyors or even in table top scenarios.

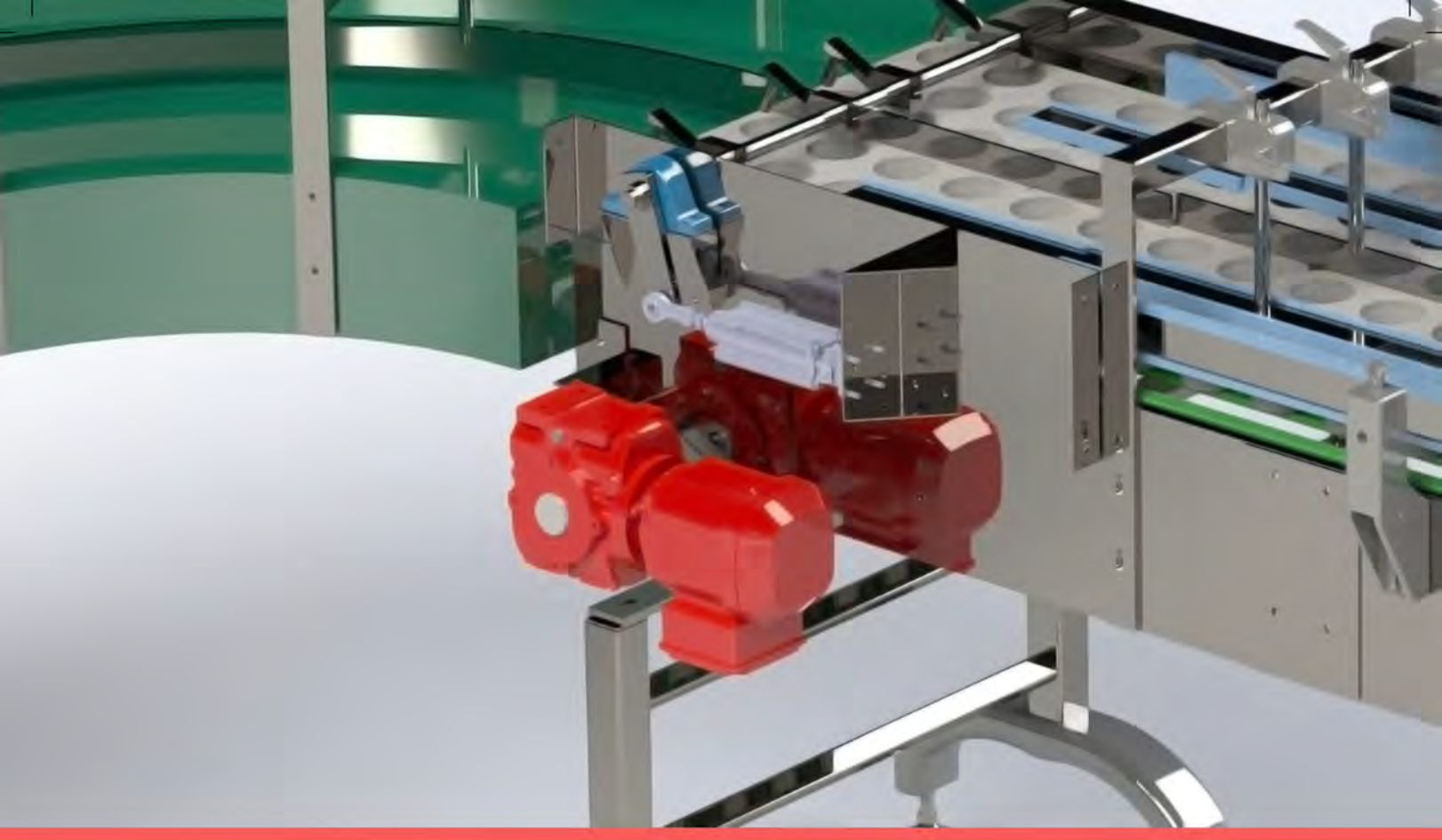
Benefits for using pressureless combining systems:

- Zero back pressure
- Prevents scratching, denting and breakage of the container
- Very little rail adjustment is needed with product changeover
- Removes fallen containers from the line
- Low noise

ESP have designed, manufactured and installed pressureless conveyor systems within the food, beverage, pharmaceutical and chemical industries for the following applications:

- Reducing mass flow of containers down to a single line with zero pressure

Other pressureless systems include low back pressure chains which are used to accumulate packaged products prior to packaging machines.



CONVEYOR DESIGN SERVICES

IN-HOUSE BESPOKE CONVEYOR DESIGNS

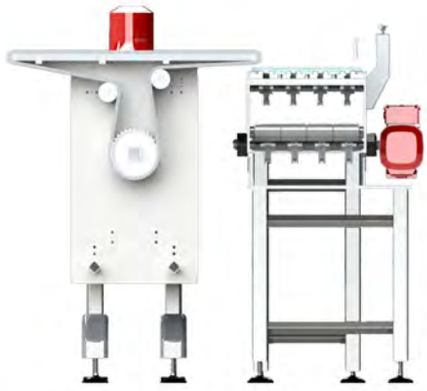
ESP utilise the most up-to-date 2D and 3D modelling packages when designing conveyor systems. Mechanical designs are predominantly created in SolidWorks 3D and can give you a clear representation of what the conveyor will look like prior to manufacture.

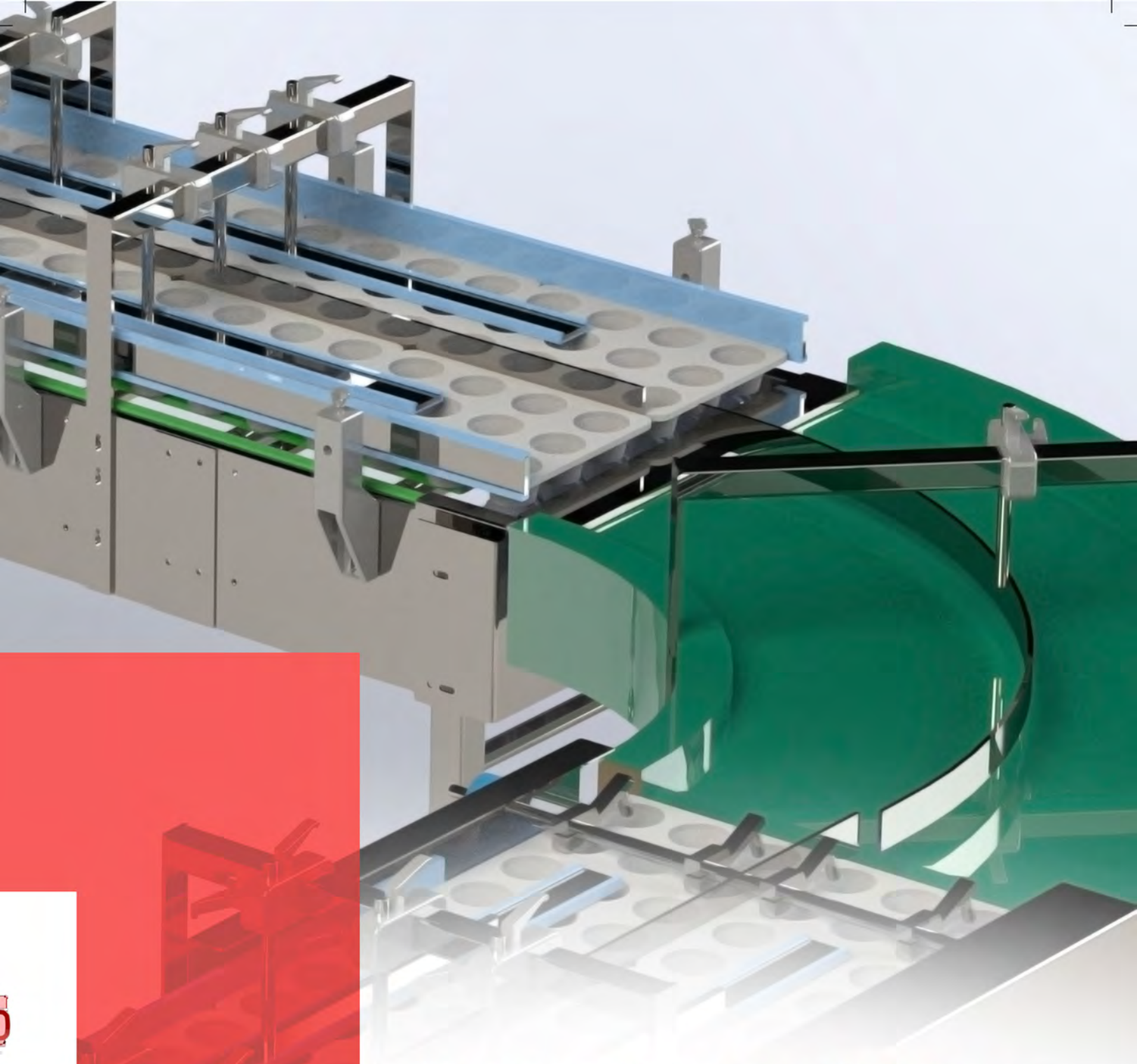
We can also provide design drawings using the latest version of AutoCAD for compatibility with other systems.

ESP implements our conveyor control systems utilising industry standard components and controllers which can be maintained by any competent third party.

Use of our Graphic Operator Control Panels (GOCP) gives both the operator and maintenance engineer full access to fault diagnosis. The GOCP also provides the operator with easy to read instructions for all conveyor controls, making the conveyor system more user friendly.

Whilst we are able to deliver with excellence against a fully specified brief, ESP excels in developing tailored solutions to match our clients exact requirements.





Conveyor Servicing Solutions

We can offer a range of service contracts to suit the individual needs of your business. Depending on your production requirements our service team can offer the following:

- A planned maintenance contract
- An agreed spare holding contract
- Regular site inspections and reporting structures

Our in-depth service knowledge enables us to advise what would be best for your individual situation based on equipment reliability, lead time and spares availability etc.

ine & Machine Integration Systems

Since 1995, ESP have been integrating equipment into new and existing production lines as well as installing complete production lines.

With in-house design, mechanical, electrical, control and project engineers we can guide you through the entire project from initial concepts through to design, manufacture, installation and commissioning.

Our control engineers can interface with all types of machines and PLC systems, ensuring that all the equipment operates at its optimum level.

ESP also have extensive experience in the supply of conveying systems combined with end of line palletisers, working closely with many different suppliers including ABB and KUKA.

We believe that to integrate equipment successfully, there must be an open and close working relationship between all parties. Our mechanical, electrical and control project teams work very closely with all of our customer counterparts in order to ensure systems are completed to the highest standards.

ESP have extensive experience in designing production line layouts and are able to help you integrate new equipment into your existing line to achieve its full potential from a mechanical, electrical and control perspective.

ESP have carried out many projects within the food, beverage, pharmaceutical and chemical industries where we have mechanically and electrically integrated process and packaging machinery into existing and new production lines throughout the UK.

Conveyor Software Development

Within any process there is a strict requirement for control, especially when integrating conveyor systems within current processes. ESP has a wealth of experience in the implementation of all sizes of system, from a basic PLC system to network SCADA systems, right through to distributed batch control systems, all fully compliant to SP88 / SP95.

With the ever-popular supply chain model, it has also become increasingly important to provide associated data management and analysis tools linked to systems at the enterprise level. ESP has a proven track record in delivering such projects.

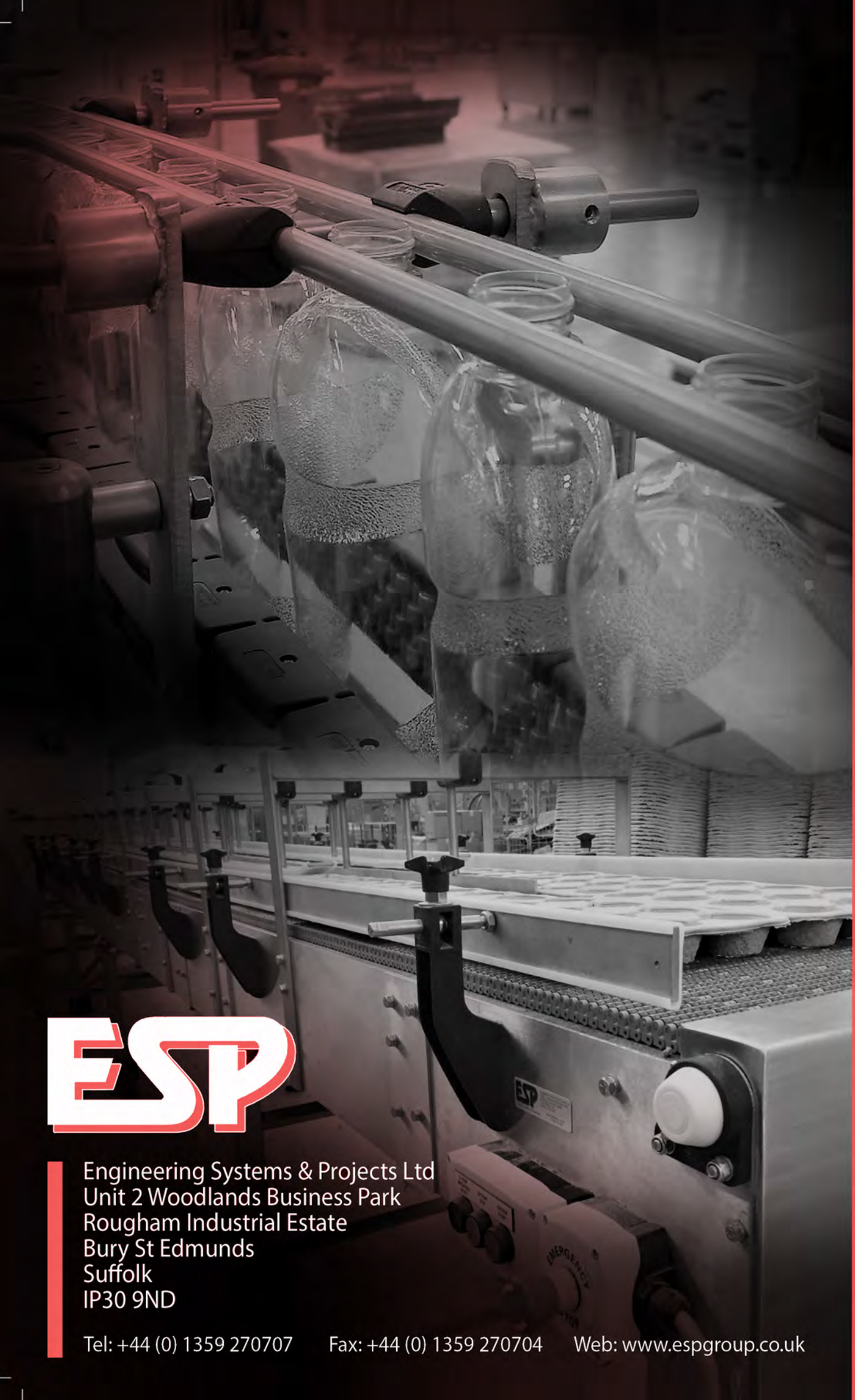
ESP provide turnkey automation solutions developing expertise and techniques for automation and the upgrade of existing facilities with minimum disruption to production. This enables our clients to maintain a competitive advantage without paying the penalty of major production outages.

Speciality areas include:

- Batch manufacturing
- Line integration
- Product transfer / pigging
- Database systems

ESP have many years experience in modulating production lines to gain maximum efficiency out of each machine, keeping lines running to their full capabilities.

Modern production lines need to have maximum flexibility when it comes to container handling, therefore line control is becoming more important to ensure changeover is less strenuous.



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