

Driving wind energy forward. Cutting-Edge Solutions for Worldwide Wind Tower and Monopile Manufacturing wind.keyplant.com

Turning the world around.

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Turning the world around.

Since 2002

We empower the world's foremost manufacturers in the renewables industry to maximise their production throughput, and enhance quality.

Specialising in the design, manufacturing, and delivery of hard automation solutions for both onshore and offshore wind tower, as well as monopile foundation manufacturing, we are your trusted automated ally in your pursuit of market dominance through revolutionary 'monopoly production' solutions that redefine efficiency and quality standards.

Leveraging our extensive expertise, knowledge, and capabilities, we are dedicated to delivering innovative solutions tailored to meet the diverse needs of our valued customers. As a global leader and the United Kingdom's exclusive major manufacturer of hard automation systems for the wind energy sector, we extend our comprehensive range of solutions and services to customers around the world, ensuring unparalleled support and excellence in every aspect.









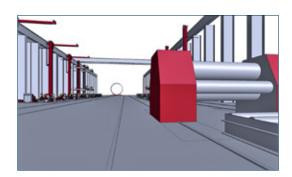
Situated in the picturesque town of Leek, Staffordshire, UK, our headquarters and manufacturing facility sprawl across a 6-acre site, boasting over 100,000 square feet of state-of-the-art in-house factory capabilities.

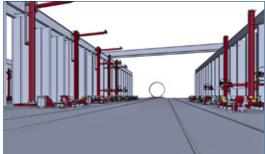
With rigorous oversight spanning every production phase, from plate delivery to on-site installation and commissioning, we maintain unparalleled standards of quality and precision. This comprehensive control, bolstered by the expertise of our dedicated team, enables us to conceptualise and fabricate highly advanced heavy engineering machinery entirely within our own facility.

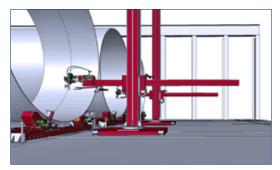
Factory Layouts

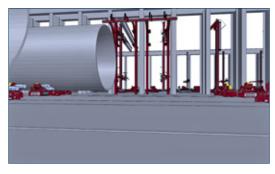
Enhance your operations and boost efficiency with our cutting-edge factory layouts designed specifically for wind tower and monopile production. Our expertise lies in creating layouts that not only maximise throughput but also significantly reduce lead times, providing you with a competitive edge in the market.

Our optimised factory layouts are meticulously designed to elevate your production capabilities. Whether you're planning a brownfield or greenfield investment, we offer comprehensive solutions tailored to meet your specific needs.









Unlock Reliable Decision-Making

Our factory layouts offer a solid decision-making foundation. Through rigorous calculations and analyses, we provide essential information for confident choices.

Experience Optimised Performance

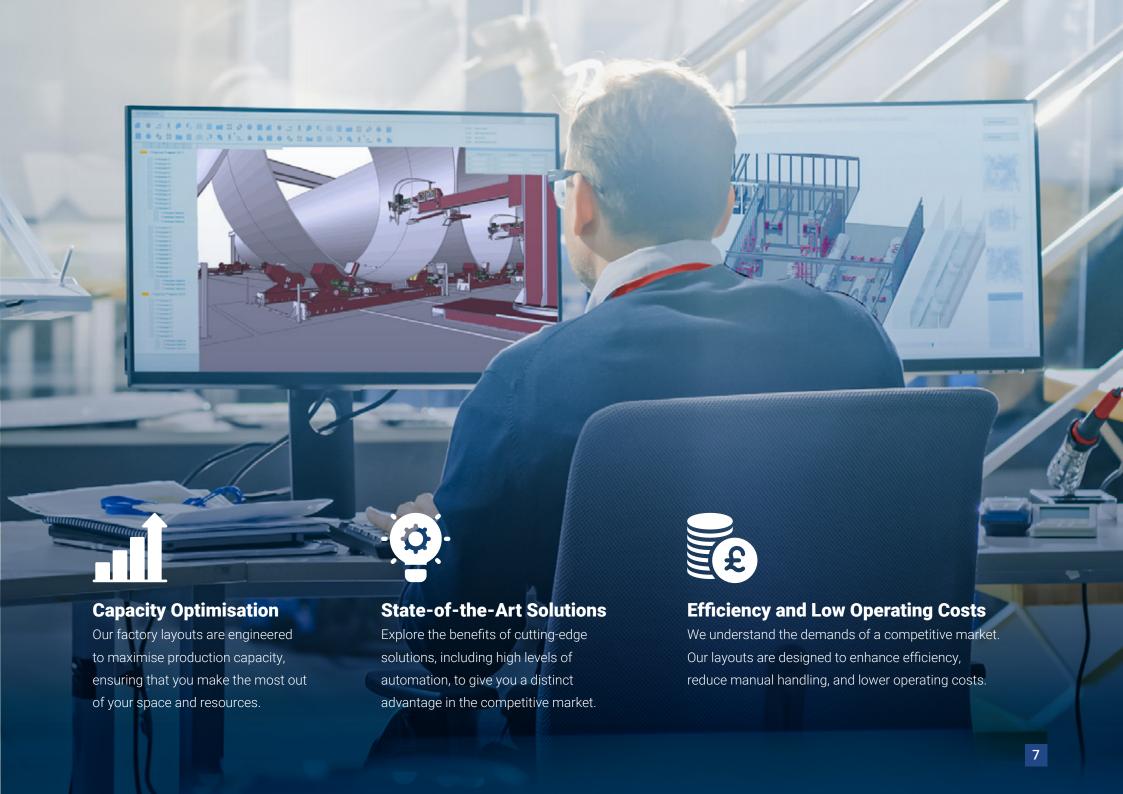
Enjoy streamlined production, enhanced efficiency, and lower costs with our factory layouts, ensuring your business stays competitive.

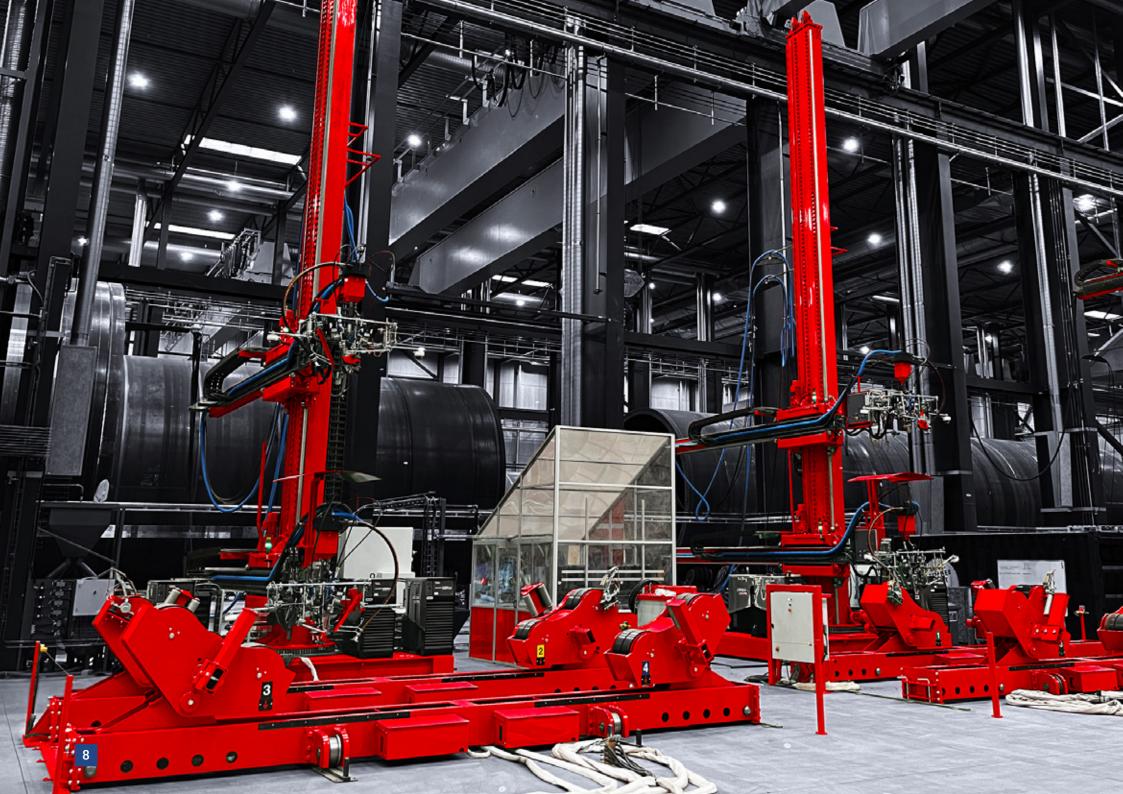
Tailor-Made Solutions

Address unique challenges with personalised solutions tailored to your needs, fostering adaptability in your industry.

Facilitate Constructive Dialogues

Engage in insightful discussions through scenariodriven approaches, ensuring alignment with your business goals.





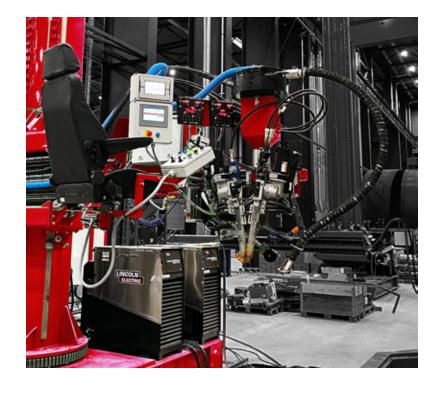
Welding Systems

Maximise your wind tower and monopile foundation manufacturing with our **cutting-edge column and boom welding manipulators** and **multi-seam welding stations**. At Key Plant Automation, we redefine industry standards by providing innovative solutions that enhance deposition rates, productivity, and arc-on time. With years of experience in the industry, we bring unparalleled expertise and knowledge to every project. Our team is dedicated to delivering solutions that meet and exceed your unique manufacturing requirements.

Our Solutions

- Long Seam Column and Boom
- Flange-to-Can Column and Boom
- Super Extra Heavy Duty Column and Boom
- Telescopic Column and Boom
- · Multi-Seam Welding Station
- Big Bag and Buffer System

Our manipulators are engineered to redefine automated welding processes. From inner and outer welds to circumferential and longitudinal applications, Key Plant Automation's Column and Boom systems deliver unmatched precision.



Increased Deposition Rates

Boost your welding efficiency and achieve higher deposition rates with our advanced welding systems. Experience faster weld speeds, reduced downtime, and ultimately, increased productivity.

Enhanced Productivity

Our systems are engineered to maximise productivity, allowing you to meet tight deadlines and scale your operations. Benefit from optimised processes that streamline your workflow and enhance overall efficiency.

Extended Arc-On Time

Minimise downtime and maximise your arc-on time with our reliable welding manipulators and seam welding systems. Our technology ensures consistent performance, reducing the need for frequent interruptions.



Long-Seam Column and Boom

Our Long-Seam C&B welding system stands out as a welding technique tailored for welding the long seam on individual cans. Operating in conjunction with a set of rotators, this method accommodates larger diameters, and additional wheels on the side provide stability during the welding process. The strategic placement of the operator by the welding head ensures continuous inspection and slag removal, contributing to the overall quality of the weld. This method offers a systematic approach, allowing one can to be welded at a time, streamlining the process.



Flange-to-Can Column and Boom

Traditionally, attaching and welding the round seam between the flange and can has been a challenging and time-consuming task on the growing line, especially when securing the flange to the initial or concluding can in a tower section. Addressing this challenge, the Flange To Can C&B welding system emerges as an optimal solution. Collaborating seamlessly with a tilt-table and a tack-table, the FTC welding system streamlines the entire welding process. (The FTC can be used without a tack-table and tilt-table, but it is not recommended). By concurrently welding both inside and outside, it significantly minimises welding time, ensuring meticulous precision and strict adherence to tolerances. The incorporation of cameras empowers operators to supervise the process from the ground, fostering improved working conditions. This innovative system plays a crucial role in boosting efficiency and overcoming the inherent difficulties associated with welding flanges.

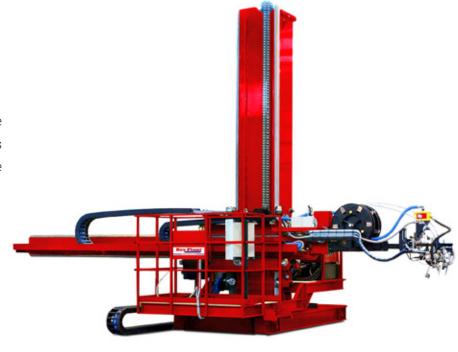


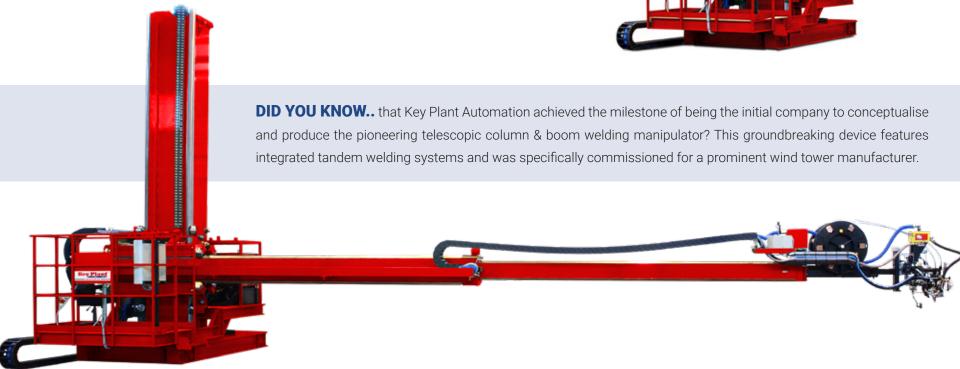
Super Extra Heavy Duty Column and Boom

Specifically designed for welding the outside round seam on large section pieces, the SEHD C&B method finds its application in joining sections for floating foundations. The operator is strategically placed by the weld head, facilitating seamless control during the welding process. Equipped with an elevator for easy access to the weld head, this method ensures optimal working conditions. Alternatively, the SEHD C&B welding system can be adapted to utilise cameras, allowing operators to oversee the welding process from ground level. This flexibility makes SEHD C&B a versatile and efficient choice for various welding applications.

Telescopic Column and Boom

Utilising a telescopic column and boom welding system offers the advantage of space conservation on the opposite side of the column. The telescopic boom retracts and fits neatly inside the main boom arm, eliminating the need for an equivalent amount of space behind the column as in front of it.





Focus on Operator Ergonomics

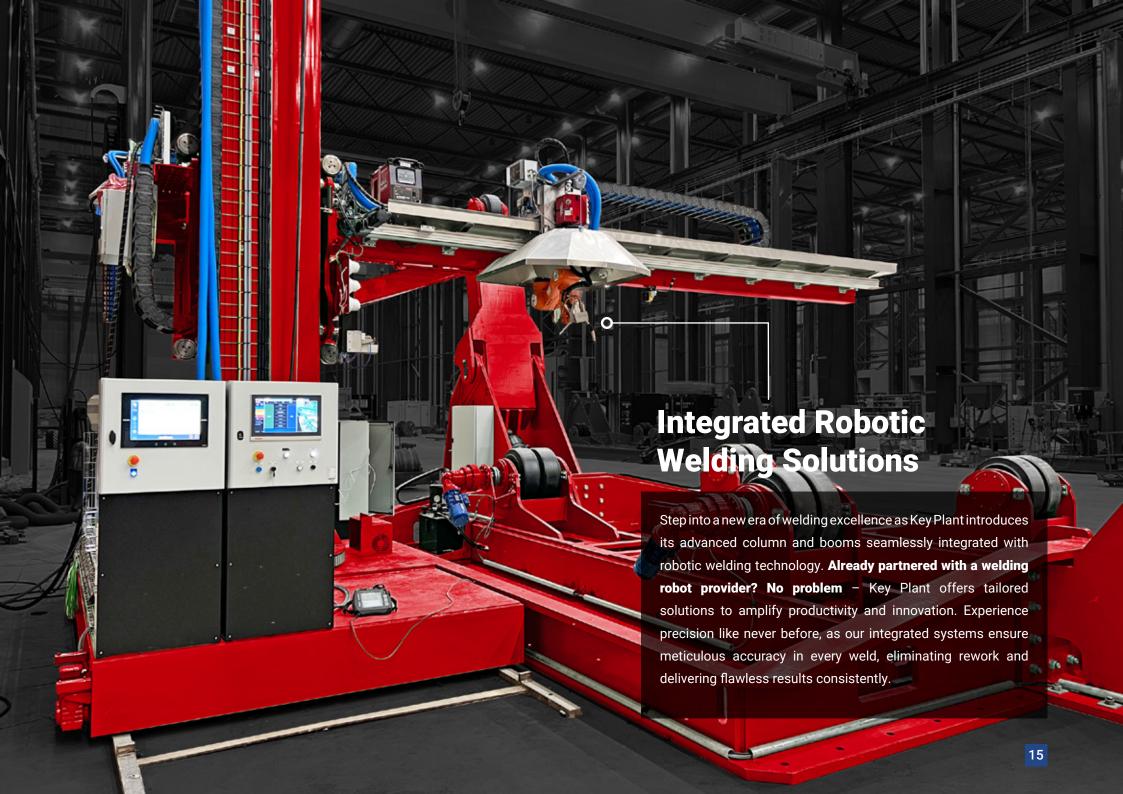
Efficiency starts with the operator, and Key Plant Automation places operator ergonomics at the forefront of design. Our Column and Boom systems feature top-of-the-class operator chairs, ensuring comfort during extended operation hours. All controls are strategically placed within easy reach, optimising work-flow and reducing operator fatigue.



Optimising Efficiency

Choose Key Plant Automation for a future-focused approach to wind tower and monopile production. Our Column and Booms, and multi-seam stations set the standard for excellence, combining cutting-edge technology, customisation, and ergonomic design to elevate your operations. Experience the difference with Key Plant Automation – where innovation meets efficiency.



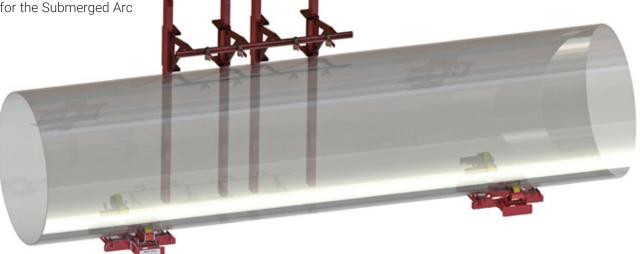


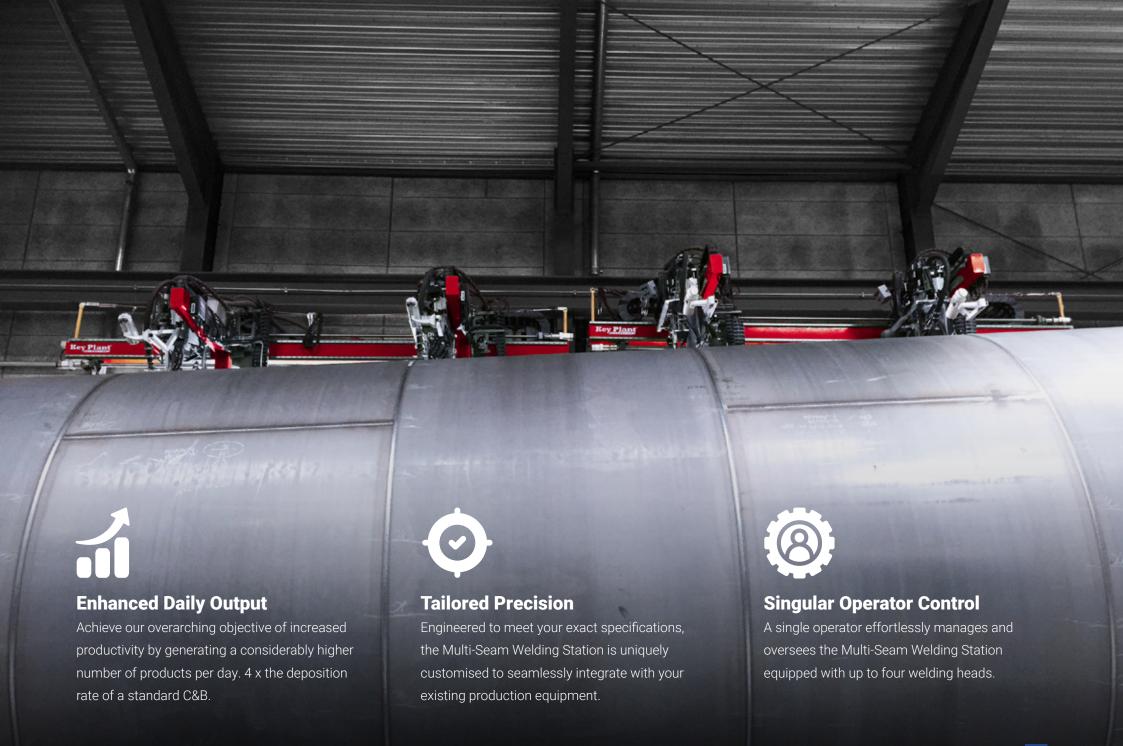
Multi-Seam Welding Station

Introducing an unparalleled and optimised Multi-Seam Welding Station designed for welding the outside round seam on fully tack welded sections using SAW welding. This cutting-edge station redefines standards by offering exceptional productivity, uptime, and utility rates in the manufacturing of onshore/offshore wind towers and monopiles. The innovative cutting-edge automated solution boasts up to 4 welding heads in a single station, setting it apart as an unmatched technology.

Experience unparalleled productivity, maximum uptime, and optimal utility rates with our Multi-Seam Welding Station, enhancing the efficiency of manufacturing onshore/offshore towers and monopiles. This innovative, state-of-the-art solution boasts up to four welding heads within a single station, promising a cutting-edge and streamlined approach to your welding operations.

Discover the tailored excellence of our Multi-Seam Welding Station, meticulously manufactured to align with your unique specifications and seamlessly integrate with your current production setup. Elevate your welding process with our automated and optimised solution, designed specifically for the Submerged Arc Welding (SAW) technique.

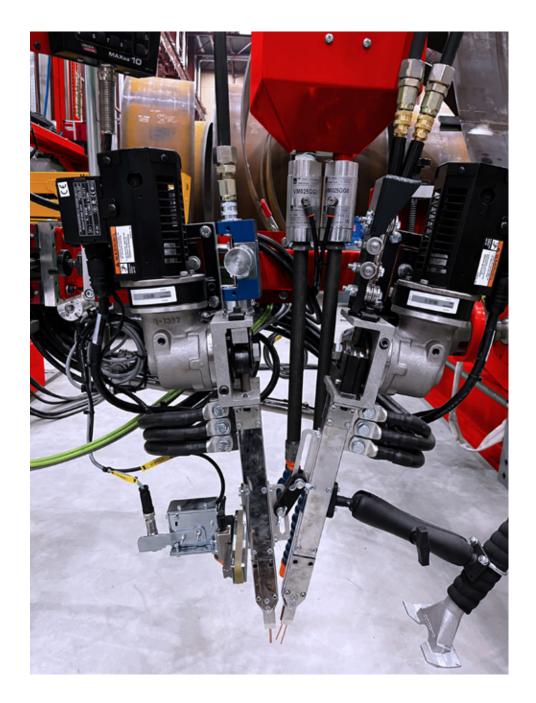




Tailored Welding head Solutions for Unmatched Performance

Tailor your welding experience with our customisable weldheads for Column & Booms and Multi-Seam Stations, offering a range of configurations to meet your specific needs. From x-groove and v-groove to narrow gap and various combinations like single-single or single-twin, we empower you with flexibility.

Our weldheads go beyond standard customisation by allowing individual adjustments based on your preferences. Whether it's the type of flux recovery system, automation level on flux supply, contact nozzles, cameras, weld controls, or other specifications, we ensure that each weldhead configuration is precisely tuned to your unique requirements. Experience welding on your terms with our highly adaptable and personalised solutions.



Big Bag and Buffer System

Explore the KP 1000kg Big Bag & Buffer System, a cutting-edge solution meticulously engineered to address the unique requirements of the welding industry, specifically tailored for SAW (Submerged Arc Welding) applications.

Our innovative system presents a dependable, streamlined, and economically viable approach to flux handling, fostering enhanced productivity and safeguarding the integrity of your welding processes. Embrace innovation with confidence as the KP 1000kg Big Bag & Buffer System takes center stage, promising to elevate your welding experience by delivering reliability, efficiency, and cost-effectiveness.

Key Features

Flexible Configuration: This system can be tailored to suit the needs of your operation, accommodating one SAW system or up to four SAW systems, making it highly adaptable for various welding set-ups.

Choice of Pressure Tanks: Customers have the option to choose new pressure tanks provided by Key Plant Automation or integrate the system with their existing tanks, adding a layer of flexibility to meet your specific requirements.

Moisture Protection: The fully enclosed design of the big bag system ensures that moisture does not come into contact with the flux, preserving the quality and effectiveness of the welding process.

Industry Approval: Trusted and approved by major wind turbine manufacturers worldwide, attesting to its reliability and performance in critical applications.







Fit-Up Systems

Key Plant Fit-Up and Growing Line Systems are designed to **boost welding and fabrication throughput for large-diameter cylindrical vessels**. Our innovative linear precision functionality guarantees a seamless, accurate, and swift alignment, levelling, and fitting up of the cans. These systems effortlessly adapt to accommodate diverse vessel sizes, minimising handling requirements and maximising operator safety.

Our Solutions

- Growing Lines
- Longitudinal Seam Welding Fit-Up System
- · Flange to Can Fit-Up System
- One-on-One

Achieve precision in your manufacturing through individual motorised adjustments for each axis (X, Y, Z) under load. Seamlessly join workpiece sections with meticulous precision – a fundamental principle embedded in our design philosophy.



Maximise Efficiency

Revolutionising production with a **proven track record of achieving over 60% optimisation**, our growing line fit-up systems redefine the possibilities in tubular manufacturing. Bid farewell to inefficiencies and usher in a new era of heightened productivity.

Perfect Welds Every Time

Discover the transformative capabilities of our fit-up systems, delivering high-quality and consistent welding results. Ensure superior craftsmanship and drastically reduce rework projects, saving both time and valuable resources.

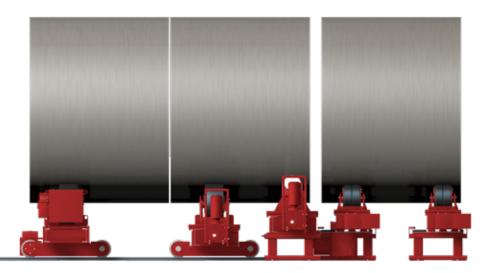
Elevate Safety Standards

Our growing line fit-up systems empower you with complete control, bolstering safety protocols throughout the entire journey of the vessel/workpieces from inception to completion. Your peace of mind is the cornerstone of our design philosophy.

Tailored Fit-Up Systems for Wind Tower Precision

Our advanced fit-up systems are designed to streamline the assembly of growing sections, incorporating tack welding processes to facilitate subsequent multi-seam welding. The integration of the versatile multi-seam welding station and column & boom welding manipulators' offers flexibility in the welding process.

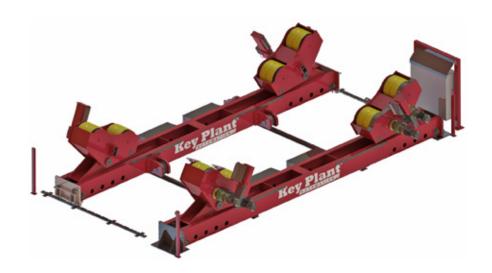
When utilising the multi-seam welding station, sections are welded further down the production line. Benefiting from the precision of a column & boom welding manipulator for both internal and external welding. The column and booms traversing capability enables welding on one line while tack welding occurs on another growing line, optimising production efficiency.





The fit-up system is engineered with movable wheels to manipulate each can, ensuring plate offset adjustments for seamless integration around the entire circumference during tack welding. Customisable with a range of add-ons, including conventional rotators, SAR rotators, additional wheels for precise can positioning, and options for hydraulic or electrical movement of the rotators, the fit-up system is adaptable to various setups.

Furthermore, the fit-up system can be equipped with a lifting unit for growing sections, reducing reliance on cranes. Longitudinal rollers are also available to facilitate section growth with minimal dependence on overhead cranes. This comprehensive system ensures optimal efficiency and adaptability in diverse manufacturing environments.



Longitudinal Seam Welding Fit-Up System

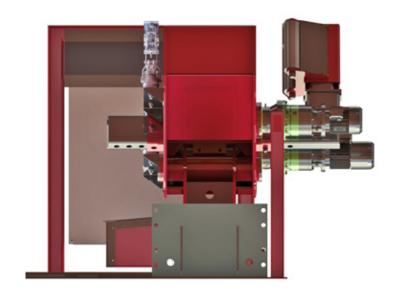
Our fit-up system, designed for longitudinal seam welding, offers versatility with options for both typical conventional rotators and the alternative SAR configuration, catering to customer preferences.

Ensuring stable welding of the outer long seam, the system can be customised with support rollers on the can's side or a top support that supports the top of the can internally. The top support is equipped with rotating wheels, allowing seamless rotation even as it stabilises the can during the welding process. This design provides a reliable and adaptable solution for longitudinal seam welding applications.

Flange to Can Welding Fit-Up System

Rotators specifically designed for the Flange-to-Can Column and Boom welding system ensure precision when welding flanges. In certain scenarios, this versatile system can also be employed for welding the initial few cans. The FTC rotators are typically self-aligning, featuring counter rolls that prevent the can from rolling off the wheels. Standard with a short stroke system for adapting to the can's diameter, these rotators contribute to a more compact overall design.

Equipped with four gear motors, the rotators offer optimal and stable rotation during the welding process. Employing the FTC system for attaching and welding flanges enhances the efficiency of each growing line, enabling the production of a greater number of full sections.



One-on-One

The "one-on-one" approach is implemented to optimise time efficiency on the growing line by pairing two cans together in a one-on-one setup.









Rotators and Turning Rolls

Our commitment shines through in the meticulous design, manufacturing, and supply of an extensive array of welding rotators and turning rolls, **boasting capacities that reach an impressive 2000 tonnes and beyond**. Our straightforward objective is to enhance your production efficiency while minimising handling and idle time. Key Plant Automation presents a diverse selection of sturdy and dependable rotator equipment.

Our Solutions

- Conventional Rotators (CR)
- Self Aligning Rotators (SAR)
- Anti-Drift Rotators (ADR)

- Special Purpose Rotators
- ATEX Rotator Options

Choose between conventional or self-aligning options, both offering unrivalled reliability and simple maintenance. Every Key Plant Automation rotator is equipped with Direct Drive on each axle, ensuring rotation stability for consistent and high-quality welding. Experience consistently high-quality welding results, translating to fewer repairs and service calls.



Exceptional Continuity

Experience exceptional uptime as our robust, straightforward, and meticulously engineered rotators ensures unparallelled durability.

Built to Last. Made to Perform.

Trust in solid reliability and an extended service life, providing you with a durable solution that stands the test of time

Direct Drive on Each Axle

Our rotators feature Direct Drive technology, ensuring stable rotation. This not only enhances the quality of your work but also translates to fewer repairs and service calls.

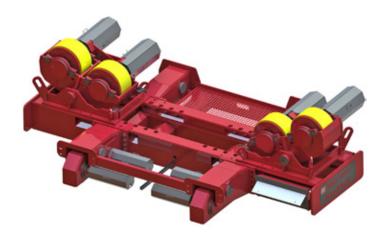


Conventional Rotators (CR)

Experience the durability of Key Plant's heavy-duty, enduring conventional welding rotators and turning rolls, meticulously engineered to withstand the most challenging and robust workload environments.

Conventional rotators find widespread application throughout the production of wind towers/sections, primarily utilised for welding internals, long seam welding, surface treatment, and the installation of internal equipment prior to shipping. Known for their simplicity, solidity, and ease of use, conventional rotators boast low service requirements and exceptionally high uptime, making them a reliable choice for various manufacturing processes.

The traversing feature can be powered by either a gear motor or manually, providing versatility in adapting to your specific operational needs.



Self Aligning Rotators (SAR)

Self-aligning rotators (SAR) are predominantly employed in round seam welding applications due to their ability to provide highly stable rotation when equipped with a bogie solution on each side and direct drive on four wheels. Particularly noteworthy is the SAR's superiority when navigating long seams, as the combination of direct drive eliminates the welding phenomenon known as "bikini weld." This issue arises when surface speed fluctuates while crossing a long seam, resulting in wider welds when decelerating and thinner welds when accelerating. By utilising SAR with direct drive, this inconsistency is eradicated, ensuring a consistent weld width across the entire seam.

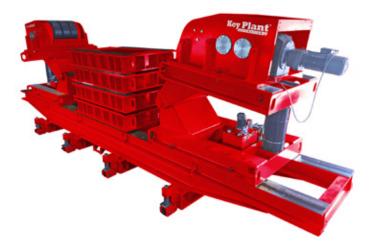
The construction of our rotators introduces enhanced flexibility, significantly reducing the load on the tower section, resulting in a lowered risk of dents in tower sections. What sets us apart is our commitment to customisation—our wheels come in varying diameters, sizes, and designs, meticulously tailored to the specific load requirements of the rotators.



Anti-Drift Rotators (ADR)

Anti-drift rotators are specifically engineered to prevent sections from drifting during rotation. Drifting can result from various physical factors inherent in the section, as well as misalignment of the rotators, posing challenges during the process. These rotators feature wheels that dynamically adapt to the direction of drift. Automatically adjusting against the drift, these wheels compel the section to move in the opposite direction until reaching the preset position. Throughout the rotation, anti-drift rotators effectively maintain the section in the desired position, ensuring precise and stable operation.

Traversing options for turning rolls are essential in wind tower and monopile segment production, offering versatile movement crucial for assembly and transportation across various production stages. Running smoothly on wheels along installed rails, these rolls efficiently transfer heavy components along the manufacturing line. Available in both motorised and unmotorised versions, they cater to diverse production needs, providing flexibility and control over the assembly process.



Special Purpose Rotators

At Key Plant Automation, we specialise in manufacturing special purpose rotators for a wide range of applications. Whether it's delicate components or massive structures weighing over 2000 tonnes, we have the expertise to deliver tailored solutions. Our special purpose welding rotators are trusted by leading companies worldwide, thanks to our precision engineering and commitment to excellence.



SURFACE TREATMENT

ATEX Rotators and Turning Rolls

We specialise in the design and manufacturing of ATEX-certified rotators and turning rolls tailored for the surface treatment of onshore and offshore wind towers. Our ATEX rotators play a pivotal role in the intricate processes of wind tower and monopile surface treatment, including sandblasting, metallisation, and painting.

The ATEX Rotator option is designed for applications in surface treatment facilities where compliance with ATEX standards is required by customers or local authorities. These rotators are tailored to meet the specific demands of ATEX zones, ensuring safe operation in potentially hazardous environments. Additionally, they can be equipped with features aimed at facilitating easy cleaning before transitioning from the blasting area to the metalizing and/or painting area. This focus on cleanliness helps maintain the finished painted surface in optimal condition, ensuring a smooth and pristine finish.











Internal Transport and Handling

We understand the critical importance of seamless internal transport and handling within your production facility. That's why we offer cutting-edge solutions designed to elevate your uptime and optimise production across every stage of your wind tower and monopile operations.

Our Solutions

- · Tilting Unit System
- Transfer Systems
- Turntables

[Photo] Commissioned for a major wind tower manufacturer, this stationary tilting table was designed specifically for the wind tower and flange assembly phase. With the capacity to handle diameters ranging from 5m to 10m and lengths up to 5m, this powerhouse can support an impressive safe working load of 125 tonnes.



Enhanced Safety

Our internal transport and handling solutions provide a much safer alternative to traditional forklift transport methods. By minimising risks associated with manual handling and heavy machinery, we prioritise the safety of your workforce and assets.

Efficiency and Savings

Eliminate unnecessary expenses on forklift and crane capacity. Our innovative solutions optimise internal transport, saving costs and boosting operational efficiency. Maximise productivity while maintaining safety and quality with streamlined workflows.

Remote Control Convenience

Experience unparalleled convenience with our internal transport solutions' easy and intuitive remote control functionality. Effortlessly manoeuvre materials and products throughout your facility with precision and ease, all from the comfort of a remote control interface.

Tilting Unit System

Your solution for effortlessly tilting flanges, cans, and flanges tack-welded to one or more cans. Tack welding flanges onto the first or last can along the production line can pose challenges. The varying geometries and deformations often result in cans being more oval-shaped than the flanges, making alignment a time-consuming task.

By tilting the flange onto a tack table and then tilting a can on top, alignment becomes a breeze. This process reduces deformation, simplifying alignment and enabling the use of different tools to achieve a perfect fit between the flange and can. While commonly paired with the flange-to-can setup, the Tilting Unit is versatile and can be utilised independently of the FTC system. Whether the flange is fully welded within the FTC system or directly on the growing line, the Tilting Unit streamlines the process.

Available in various sizes and configurations tailored to your specific setup.

Transfer Systems

These units are designed to effortlessly move cans and flanges from one location to another, particularly in areas with limited crane coverage or when navigating between buildings without the need for forklifts.

Transfer Units can be installed flush with the ground, making them easily accessible even in areas with restricted height clearance. They offer versatility with various add-ons available. Choose from a V-shape frame for stable transport



of cans, or opt for units fitted with rotators or fit-ups, streamlining the transition from rolling or long seam processes to the welding phase on the growing line.

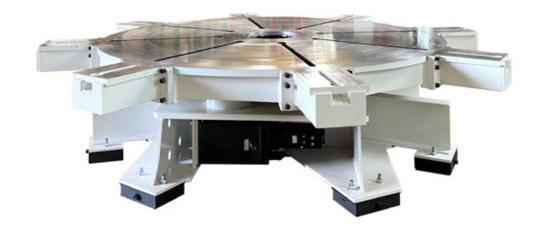
For optimal space utilisation and efficiency, Transfer Units can be integrated with tilting tables, reducing handling time and maximising productivity in the production area. With Tilting Transfer Units, internal transport and handling becomes a seamless operation, enhancing workflow and minimising downtime.

Floor Turntables

We offer a comprehensive line of horizontal flatbed welding floor turntables, meticulously manufactured to meet the demands of wind tower manufacturing. Ranging from 100kg to an impressive 500 tonnes, our turntables are designed to deliver unparalleled precision regardless of the size or intricacy of your workpieces.

Our rotation solutions are not limited to welding alone. From grinding to flame cutting, painting to assembly, and even X-ray processes requiring absolute precision, our high-precision turntables maximise workpiece positioning for optimal outcomes.

Select from our diverse range of welding floor turntable models tailored to your specific requirements





Custom Solutions

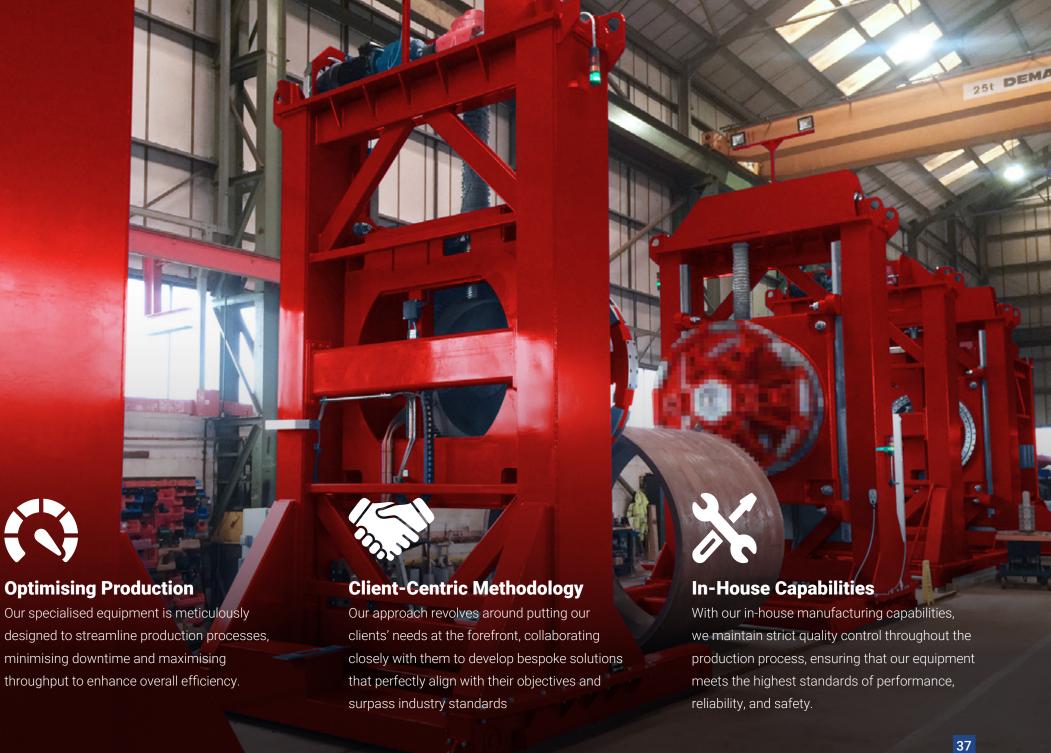
At Key Plant Automation, we specialise in providing custom solutions for wind tower and monopile manufacturing. As your trusted partner, we offer cutting-edge special purpose machines and comprehensive project work solutions to enhance your manufacturing process and drive productivity to new heights.

From concept to completion, we offer turnkey solutions that encompass every aspect of your project. Whether you require custom-built systems or special purpose machinery, we are the manufacturer you can rely on. Our innovative solutions revolutionise your production capabilities, ensuring unmatched efficiency and quality.





We offer a diverse selection of specialised equipment designed to optimise your manufacturing processes. From seam welders and column & booms to floor turntables and headstock systems, we provide comprehensive solutions to meet your specific needs. Our cutting-edge equipment is engineered for efficiency, precision, and reliability, ensuring seamless integration into your production line. With our expertise and commitment to innovation, we empower you to achieve unparalleled productivity and quality in your operations.



Pioneering Productivity, Precision, and Performance

Our engineering solutions are designed to elevate your productivity to new heights. As the world's first and only company to achieve the UL Factory Automation accreditation, we deliver unmatched results in highly specific markets. Backed by our in-house design and manufacturing capabilities, our special purpose machines and custom-built systems consistently maximise throughput, enhance efficiency, and prioritise safety.

Global Presence, Commitment to Innovation

With a global presence and a commitment to innovation, we lead the way in automation excellence. Our expertise spans various domains, including weld automation, material handling, and precision engineering, catering to blue-chip companies across the globe. Partner with us to achieve unprecedented production levels and excellent return on investment.









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