



**Leading the
way in *all-electric*
tube manipulation**

UNISON
INTELLIGENT TUBE TECHNOLOGY

Tube Bending • Laser Cutting • Automation & Control • Global Service • Software & Support



Leading the way in **all-electric** tube manipulation

Around the globe, across all manner of industries, Unison is the byword for all-electric tube and pipe manipulation.

Our story began in 1973 when, as TJP Electronics Ltd, we provided control systems expertise to a number of UK-based tube bending machinery firms.

Believing there was a better, more precise way of bending tube than by hydraulic operation, in the late 1980s we set out to create an all-electric tube bending machine. Prototypes were built, a patent was taken out, and the servo systems of the day were pushed to their limits.

But it was all well worth it. Because, in 1994, we unveiled the world's first all-electric 3-axis tube bender. A new era in tube manipulation had arrived. And the rest, as they say, is history.

Today, Unison Ltd is the UK's leading manufacturer of tube bending machines. We have facilities in the UK and USA. We build the world's largest range of ultra-precise, all-electric tube and pipe bending technologies for diameters ranging from 4 mm to 275 mm - and in single-stack, multi-stack and right/left versions.

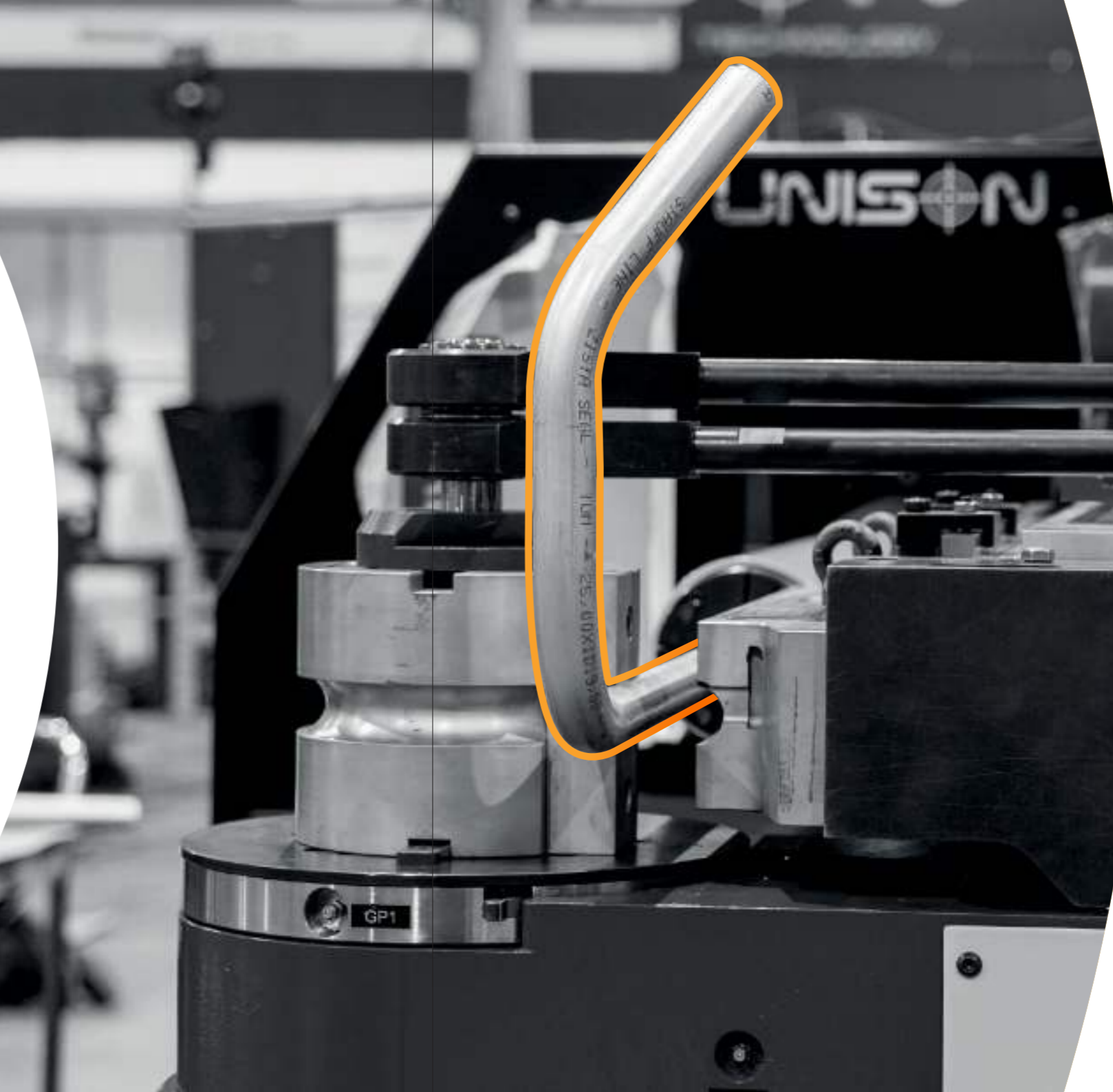
We recently launched a range of hybrid, dual-stack machines for organisations that typically carry out repetitive tube bending operations. And we've established Nukon Lasers UK to bring accessible, high-quality European fibre laser machines to the UK and Ireland.

Our Unibend CNC control is widely regarded as the most user-friendly control system for tube bending machines. While our tube bending simulation software and tube bending application app help simplify the most complex of tube manipulation challenges.

We export to more than 20 countries globally, and to sectors as wide-ranging as motorsport, marine, oil & gas, aerospace and architecture.

All in all, it's been an incredible journey to date. One made possible by having exceptionally talented people on our team and amazing customers who, every day, put their trust in our uncompromising technologies.

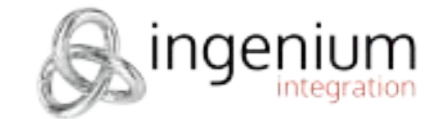
Here's to the next 50 years of intelligent tube bending- and fibre laser cutting!



The Unison family of companies:



Unison Ltd *The inventors of all-electric tube manipulation*
www.unisonltd.com



Ingenium Integration *Creators of machine tool automation systems that improve profitability and efficiency*
www.ingeniumintegration.com



Nukon Lasers UK *The official UK and Ireland distributors for Nukon's European-built fibre laser machines*
www.nukonlasers.co.uk

We are proud members of:



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Rewriting the rules: 50 years of intelligent tube technology

Who could possibly imagine that a business which started out as a control systems specialist in 1973 would go on to reinvent the process of tube manipulation? Well, that's exactly what happened when we launched the world's first all-electric tube bending machine in 1994.

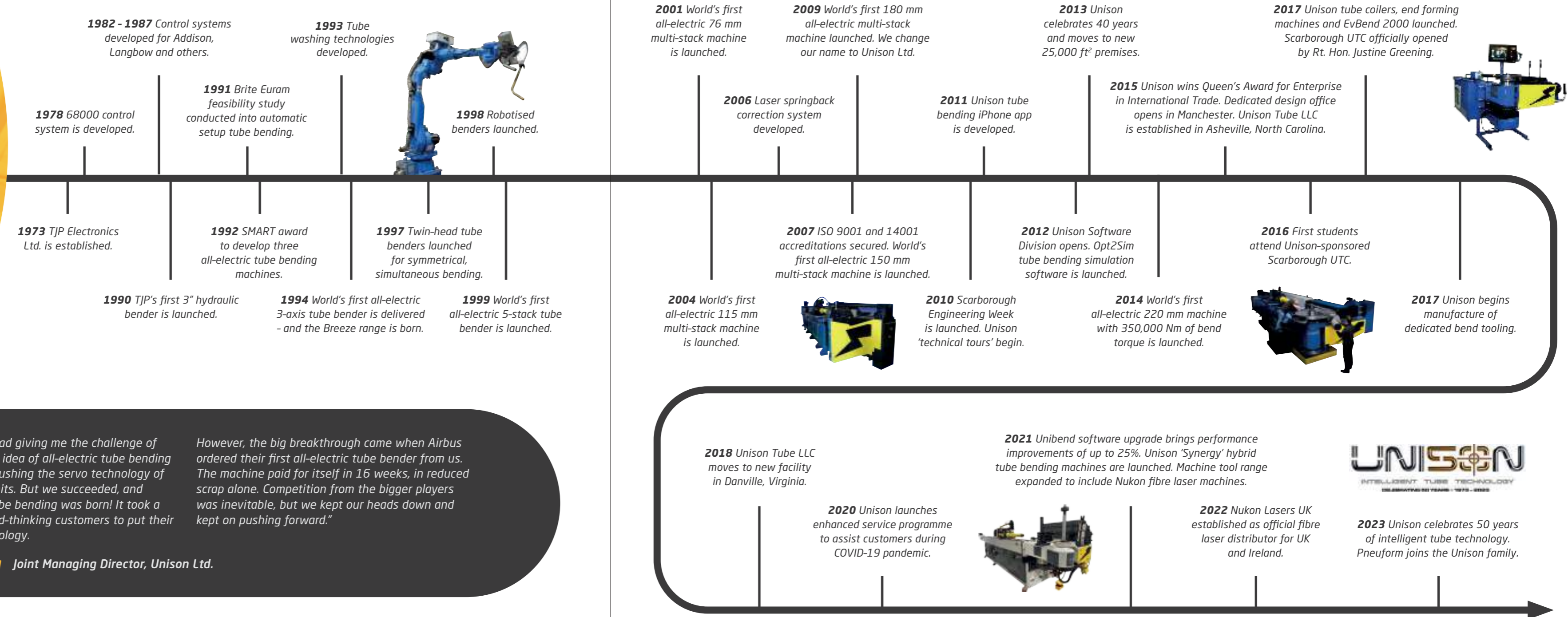
Ultra-precise, all-electric tube manipulation had arrived. More world-firsts followed and, almost regardless of application, manufacturers and subcontractors finally had an alternative to using the noisy, messy hydraulic tube bending machines of the day, where accuracy and repeatability were often impacted by oil temperature.



"I remember my dad giving me the challenge of bringing his crazy idea of all-electric tube bending to life. We were pushing the servo technology of the day to the limits. But we succeeded, and right-first-time tube bending was born! It took a number of forward-thinking customers to put their faith in our technology.

Alan Pickering Joint Managing Director, Unison Ltd.

However, the big breakthrough came when Airbus ordered their first all-electric tube bender from us. The machine paid for itself in 16 weeks, in reduced scrap alone. Competition from the bigger players was inevitable, but we kept our heads down and kept on pushing forward."



Unison Breeze

Ultra-precise, *all-electric*
tube and pipe manipulation



A world first, and still the world's best*

It may be almost 30 years since the first British-built, all-electric Unison Breeze tube bending machine was launched in 1994. But we haven't rested on our laurels. Far from it. Year in, year out, we continually innovate to ensure that every new Unison Breeze machine continues to set the standard.

With precision operation, all-electric architecture, user-friendly programming, rapid tooling changes and uncompromising levels of accuracy and repeatability, our Breeze machines have redefined tube manipulation.

Widely regarded as the ultimate tube bending machines for specialist manufacturers and subcontractors, Unison Breeze models deliver right-first-time repeat tube manipulation, or immediately after producing a single trial part.

Intelligent solutions, such as our rise and fall pressure die, which allows tools of different radii to be used on a part during a production cycle, offer significant operational savings. As does each Breeze machine's low power consumption - a significant factor with today's high energy prices.

Add exceptional power, a major advantage when looking to achieve high-quality thin wall bending, along with robust build quality, and Unison Breeze machines make light work of challenges where other tube benders may struggle.

*In our opinion, and the opinion of Unison customers around the globe.

Unison Breeze At a glance

- *British-built, all-electric CNC tube and pipe bending machines*
- *Models from 4 mm (5/32") to 275 mm (10" pipe)*
- *User-friendly Unibend CNC for right-first-time results, or immediately after bending a trial part*
- *Single-stack, multi-stack, twinhead and pinball machines*
- *Opt2Sim 'design to manufacture' CAD simulation software*
- *Single machines to fully automated robotised work cells*
- *Automatic setup for rapid tooling changes and increased productivity*
- *Exceptional power and robust mechanical design*
- *Unique mechanical and software design for easy manipulation of difficult materials*
- *Laser springback correction for small batch correction and reduced waste*
- *Up to 90% lower power consumption, noise and scrap compared to traditional hydraulic tube bending machines*
- *From the inventors of all-electric tube manipulation*

Discover more:

www.unisonltd.com sales@unisonltd.com

At a glance. Unison Breeze: the world's most extensive range of tube and pipe bending machines

* Bending capacity based on Unison Tube Bending Application App
 ** Standard specification with variants available
 Specifications are correct at time of going to print but subject to change



Size	25 mm L&R	35 mm L&R	16 mm (1")	20 mm	25 mm (1")	30 mm (1.25")	40 mm (1.5")	50 mm (2")	65 mm (2.5")	80 mm (3")	90 mm (3.5")	100 mm (4")	130 mm (5")	150 mm (6")	180 mm (7")	220 mm (8")	273 mm (10")	Pinball 30 mm (1.25")	Pinball 50 mm (2")	Pinball 90 mm (3.5")	
Bend Direction	Right and Left	Right and Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right or Left	Right and Left	Right and Left	Right and Left	
Bending Capacity*	25 x 1.6 mm	35 x 2.4 mm	16 x 1.6 mm	20 x 1.6 mm	25 x 1.6 mm	30 x 2.5 mm	40 x 2.5 mm	50 x 2.0 mm	65 x 1.5 mm	80 x 1.6 mm	90 x 2.0 mm	100 x 2.0 mm	130 x 2.5 mm	150 x 3.0 mm	180 x 3.5 mm	220 x 4.0 mm	273 x 4.0 mm	30 x 1.65 mm	50 x 2.0 mm	90 x 2.0 mm	
Bend Torque	1,000 Nm	2,900 Nm	400 Nm	600 Nm	1,000 Nm	1,600 Nm	3,500 Nm	5,500 Nm	8,000 Nm	14,800 Nm	23,000 Nm	30,000 Nm	47,000 Nm	92,000 Nm	165,000 Nm	360,000 Nm	660,000 Nm	1,500 Nm	5,500 Nm	23,000 Nm	
Servo Controlled Follower	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	180° at 2D CLR	90° at 2.8D CLR	180° at 3D CLR	180° at 3D CLR	180° at 3D CLR	
Collet Capacity	25 mm	35 mm / 38mm	16 mm	20 mm	25 mm	30 mm	40 mm	50 mm	65 mm	80 mm	90 mm	100 mm	130 mm	150 mm	180 mm	220 mm	273 mm	30 mm	50 mm	90 mm	
Axis Speed (Max) Feed	1,200 mm/sec	1,200 mm/sec	1,200 mm/sec	1,200 mm/sec	1,200 mm/sec	450 mm/sec	438 mm/sec	1,200 mm/sec	1,200 mm/sec	1,200 mm/sec	500 mm/sec	500 mm/sec	500 mm/sec	500 mm/sec	500 mm/sec	600 mm/sec	600 mm/sec	600 mm/sec	600 mm/sec	600 mm/sec	500 mm/sec
Bend	260 deg/sec	260 deg/sec	260 deg/sec	260 deg/sec	260 deg/sec	132 deg/sec	132 deg/sec	180 deg/sec	180 deg/sec	140 deg/sec	70 deg/sec	70 deg/sec	50 deg/sec	25 deg/sec	10 deg/sec	8 deg/sec	6 deg/sec	260 deg/sec	180 deg/sec	90 deg/sec	
Rotation	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	90 deg/sec	90 deg/sec	90 deg/sec	100 deg/sec	40 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec	
Max Stacks at Max OD (Std)	N/A	N/A	4	4	4	4	4	4	4	4	3	3	3	2	1	1	1	4	4	3	
Max Bend Radius (Std)	4D	4D	4D	4D	4D	4D	4D	4D	4D	4D	4D	4D	4D	4D	4D	3.7D	3.7D	4D	4D	4D	
Max Bend Angle	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	190°	
Load Height (Std)	1,300mm	1,300 mm	1,220 mm	1,220 mm	1,220 mm	1,220 mm	1,220 mm	1,220 mm	1,160 mm	1,160 mm	1,400 mm	1,400 mm	1,300 mm	1,290 mm	1,275 mm	1,550 mm	1,665 mm	1,250 mm	1,300 mm	1,350 mm	
Max Tube Length (Std)	3,200 mm	3,200 mm	3,200 mm	3,200 mm	3,200 mm	2,600 mm	3,200 mm	3,200 mm	3,200 mm	3,200 mm	3,200 mm	3,200 mm	3,200 mm	3,200 mm	6,000 mm	6,100mm (20ft)	6,100 mm (20ft)	3,200 mm	3,200 mm	3,200 mm	
Max Tube Length (Hitch) (Std)	6,000 mm	6,000 mm	4,400 mm	4,400 mm	4,400 mm	3,800 mm	4,400 mm	4,400 mm	4,750 mm	4,700 mm	5,700 mm	5,700 mm	5,900 mm	5,300 mm	7,900 mm	9,100 mm	9,100 mm	4,400 mm	4,400 mm	5,100 mm	
Multi Radius**	N/A	N/A	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	N/A	N/A	Standard	Standard	Standard	
Repeatability/Accuracy	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°	
Length (Std)	5,700 mm	5,700 mm	5,700 mm	5,700 mm	5,700 mm	5,100 mm	5,700 mm	5,700 mm	6,530 mm	6,530 mm	7,750 mm	7,750 mm	7,840 mm	8,100 mm	10,600 mm	11,600 mm	11,800 mm	5,700 mm	5,700 mm	6,800 mm	
Width (Std)	1,500 mm	1,500 mm	1,450 mm	1,450 mm	1,450 mm	1,450 mm	1,450 mm	1,450 mm	2,050 mm	2,150 mm	2,270 mm	2,270 mm	2,370 mm	2,910 mm	2,900 mm	3,860 mm	4,470 mm	2,342 mm	2,465 mm	3,950 mm	
Weight (Std)	3,000 kg	3,000 kg	2,200kg	2,200kg	2,200 kg	2,200 kg	2 kg	3,000 kg	4,500 kg	6,200 kg	11,000 kg	11,000 kg	13,500 kg	16,000 kg	20,000 kg	47,000 kg	55,000 kg	3,000 kg	4,760 kg	12,000 kg	

Unison EvBend

Manually operated, CNC-controlled 3-axis tube bending machines

Yet another Unison innovation, our EvBend range offers CNC-controlled, manually operated 3-axis, mandrel, multi-plane bending at a fraction of the cost of fully automated CNC bending machines.

Designed for low volume, high-accuracy production and prototyping, EvBend machines are widely used across the aerospace, MRO, Formula 1, and oil & gas industries and provide precision bending of tube up to 50 mm in diameter. Axes are operated by hand, but CNC-controlled using encoders and progressive electromagnetic brakes.

The EvBend CNC control features a PC-based 15" touchscreen and is capable of processing up to 1000 bends per component, storing infinite parts and connecting to CAD and most tube measuring systems.

Size	EvBend 1000	EvBend 2000
Bending Capacity*	3 mm - 16mm (22 mm in Copper)	3 mm - 50 mm
Bend Radius (CLR)	Up to 135 mm	Up to 200 mm
Bend Programme Lines	Unlimited	Unlimited
Bend Settings	100	100
Max Tube Length Over Mandrel	Customer specific	Customer specific
Max Bend Arm Movement	190°	190°
Machine Accuracy	+/- 0.1 mm & +/-0.1°	+/- 0.1 mm & +/-0.1°
Screen	LCD 15" touch screen	LCD 15" touch screen
Length	3,658 mm	3,982 mm
Height at Carriage	1,000 mm	1,000 mm
Width at Bend Head	840 mm	1,696 mm
Weight	365 kg	750 kg
Electrical	Single Phase 220 - 240V	3 Phase 380 - 415V



EvBend 2000



Unison Breeze Twinhead

Symmetrical bending made simple

Our Unison Breeze 'Twinhead' all-electric tube benders have been developed for the high-speed manufacture of symmetrical tubular shapes, such as those typically found in automotive, agricultural and furniture applications. Examples include wheelbarrows, shopping trolleys and seat frames for buses and trains.

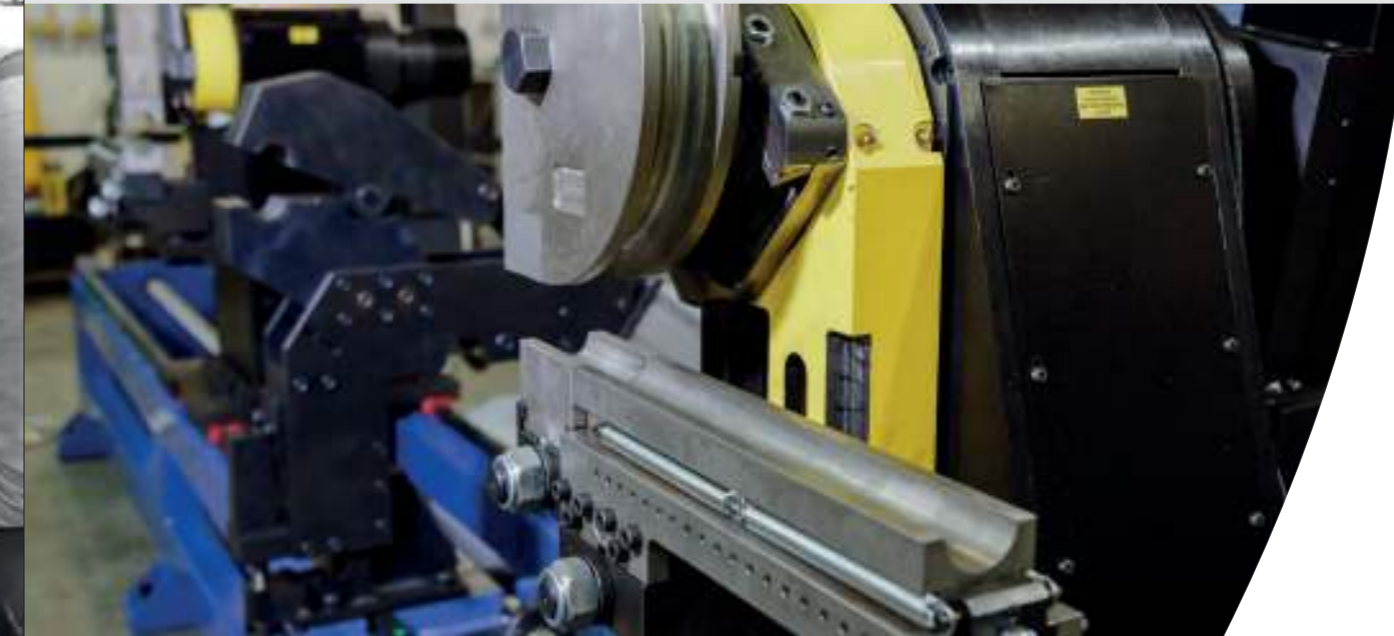
Choose from a 5-axis model with optional weld-seam detection, end forming, tube marking and barcode batch reading capability, or an 11-axis multi-stack, multi-radius model for more complex shapes, with a wider range of options that include flattening and punching units. Both versions can also operate as simple U-bend machines.

A 2-axis U-bender work cell is also available for the production of ladder rungs. Options include automatic loader, tube separator, tube centralizer/measurer, servo-electric 'pick and place' system and ejection chute.

Discover more:
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Size	Twinhead (1.5")
Bend Direction	Right and Left
Bending Capacity*	38 x 1.5 mm
Bend Torque	1,750 mm
Servo Controlled Follower	N/A
Collet Capacity	38 mm
Axis Speed (Max) Feed	2000 mm/sec
Bend	180 deg/sec
Rotation	90 deg/sec
Max Stacks at Max OD (Std)	1 per head
Max Bend Radius (Std)	3D
Max Bend Angle	190°
Load Height (Std)	N/A
Max Tube Length (Std)	N/A
Max Tube Length (Hitch) (Std)	6,000 mm
Multi Radius**	N/A
Repeatability/Accuracy	Feed: 0.05/0.1 mm Bend: 0.05/0.1 Rotation: 0.05/0.1°
Length (Std)	6,500 mm
Width (Std)	1,600 mm
Weight (Std)	2,800 kg



Unison Synergy

Hybrid, dual-stack
tube bending machines



An evolution, to create a revolution

If you aspire to Unison quality but carry out repetitive tube bending operations that don't typically require the rapid setup time and all-electric operation of a Unison Breeze machine, it's time to discover Unison Synergy.

Developed to make Unison quality and reliability accessible to even more companies involved in tube manipulation, Synergy machines combine precise electric control with our near-silent advanced hydraulic operation.

Available in 50 mm and 80 mm (maximum tube diameter) versions, Synergy models feature the latest Unibend Lite control system, and dual-stack capability. Offering considerable power and rigid mechanical design, they are available with a choice of industry-leading motors and drives.

Choosing Synergy means benefiting from exceptional levels of control, with functionality and user-friendly features closely matching those enjoyed by users of Unison Breeze machines.

Unison Synergy tube benders may be more accessibly priced than Breeze models, but that's not at the expense of quality. Plus they are backed by our legendary high levels of service and aftersales support.

Unison Synergy Technical Specifications

Size	Synergy 50 mm	Synergy 80 mm
Bending Torque	5,000 Nm	25,000 Nm
Bending Capacity	50.8 x 2.55 mm	80 x 2 mm
Y Axis (DBB)	1000 mm/sec	1000 mm/sec
B Axis (POB)	200 deg/sec	200 deg/sec
C Axis (Bend)	90 deg/sec	45 deg/sec
Max Bend Radius	170 mm	280 mm
Max Bend Angle	180°	180°
Max Tube Length	4.0 m (6.0 m)	4.0 m (6.0 m)
Max Tube Length (Collet Cap of 38.1mm)	5.5 m (7.5 m)	5.5 m (7.5 m)
Repeatability/Accuracy	Feed: 0.1 mm Bend: 0.1° Rotation: 0.1°	Feed: 0.1 mm Bend: 0.1° Rotation: 0.1°
Length	6.5 m (8.5 m)	6.9 m (8.9 m)
Width	1.2 m	1.4 m
Load Height	1.1 m	1.3 m
Power Supply	380/400V for 50/60Hz	380/400V for 50/60Hz

Discover more:
www.unisonltd.com
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Unison Synergy At a glance

- Hybrid, dual-stack tube bending machines
- 50 mm or 80 mm collet capacity
- Exceptional power and rigid mechanical design
- User-friendly Unibend Lite touchscreen control system
- Choice of industry-leading motors and drives
- 3D component simulation and measuring machine interfaces
- Renowned Unison quality and reliability
- Designed for repetitive tube manipulation tasks
- Servo-driven bend arm, carriage, plane of bend, powered follower and carriage side shift
- Unison machine ownership - at a highly accessible price

Gain the cutting edge

Nukon fibre lasers from Nukon Lasers UK

Precision tube bending and fibre laser cutting go hand in hand. It's for that reason we've established Nukon Lasers UK as the official UK and Ireland distributor for Nukon's high quality and highly accessible European-made fibre laser cutting systems.

Just like Unison, Nukon are committed to building superb quality machines that exceed customer expectations. In the Nukon fibre laser range you'll find 2D, 3D and laser tube cutting machines, as well as loading and unloading solutions. High-spec standard features include: nLIGHT fibre lasers, Beckhoff controls and Lantek Expert software - one of the most advanced CAD/CAM nesting software packages on the market today.

At a glance

- 2D, 3D and tube fibre laser cutting machines from Europe
- Accessible high power and high performance - up to 20kW
- American-made nLIGHT fibre lasers with optional adaptive beam optimisation
- Beckhoff controls and Lantek Expert CAD/CAM nesting software
- Single machines to fully automated work cells
- 5-axis machines for the most challenging of applications

NUKON UK

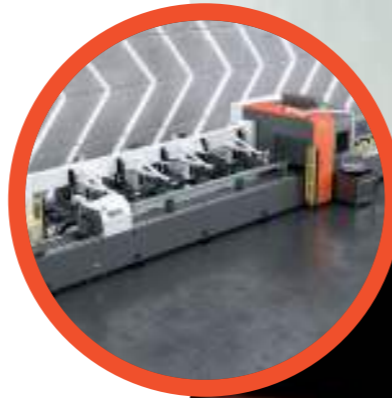
Nukon's range of 2D fibre laser machines includes models designed for first-time laser users and businesses adding value to in-house manufactured products, as well as high-performance machines for demanding flat-bed laser metal cutting requirements in subcontract environments. Nukon's fibre laser tube cutting machines are renowned across a wide range of industries and include pipe and profile cutting models, and the exceptional Vento Flex - a top-spec machine equipped to cut tubes, pipes, profiles and flat metal sheet.

If all that isn't enough to tempt you, purchasing a fibre laser machine from Nukon Lasers UK also means receiving the same uncompromising standards of service and support that are enjoyed by owners of Unison tube bending machines.

- Pipe, profile and flat metal sheet cutting solutions
- Fully automated loading and unloading technologies
- Exceptional value and build quality
- Energy efficient - incredibly low running costs
- Machine tool training, service and support packages available

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Unison precision tooling

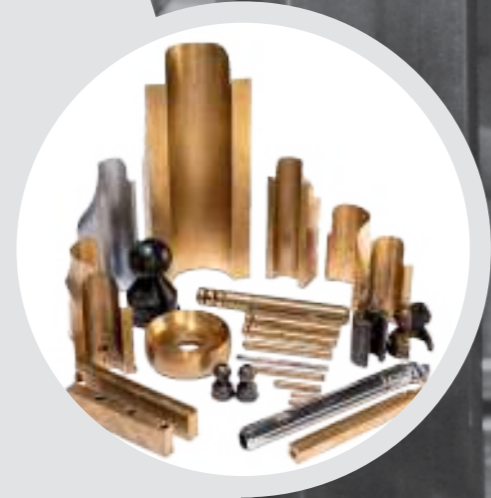
- precisely what good tooling should be

It's often said that choosing quality tooling is just as important as selecting a quality tube bending machine. At Unison, we wholly agree. That's why we never compromise on quality, and always take the time to create the precise tooling solutions our customers need.

Our expert tooling team has the technical knowledge and experience to create tooling for the most challenging of tube bending applications - regardless of whether that's precision bending the exotic alloys used in aerospace or manufacturing high-volume components for the automotive sector.

Choosing Unison tooling means de-risking your processes, as we'll ensure that every tool fits perfectly and makes parts accurately, without marks, slips, scuffs or scrapes. We keep considerable levels of tooling and consumables in stock and offer long-term tooling agreements complete with pre-agreed stock holdings. We can also customise tool mounts, making it simple and straightforward to use new tooling with existing equipment.

With innovations such as quick-change collets and mandrels, and bar-coded tooling for automatic setup, we also save you time and money - and remove the risk of error during changeovers. We can even provide reinforced 3D printed carbon fibre tooling for your prototypes.



Ancillary solutions to help shape your success

Coiling machines

Fully programmable in speed, profile and pitch, our all-electric CNC Breeze coilers produce precise helical and pancake coils that are widely used in heat exchangers.

Tube washing machines

Used to ensure a spotless tube finish, Unison tube washing machines can be found in a wide range of industries, particularly oil & gas.

Sawing solutions

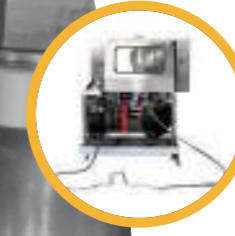
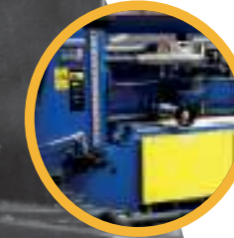
Our fully automatic rising saws feature a proven design for the most demanding tube-sawing applications. Standard features include hydraulic clamp, variable blade speed and dynamic cutting feed.

End forming

Unison all-electric end forming machines feature fully automatic setup for simple and straightforward tube end expansion, reduction, beading, flaring, crimping and swaging.

Pneufarm wire and small diameter tube bending machines

Unison's Pneufarm wire and small diameter tube bending machines have become the industry standard with many manufacturers of beer coolers, drink dispensers and HVAC equipment, as well as with makers of small diameter automotive parts. Available in both 2-axis and 3-axis versions, they cater for outside tube diameters ranging from 3 mm to 11 mm in stainless steel, and 3 mm to 15 mm in copper.



Innovation, automation and integration

Machine tool automation solutions, to improve productivity, efficiency and quality

The automation arm of the Unison family, Ingenium Integration creates the solutions that help manufacturers improve productivity, efficiency and quality.

Working in highly regulated sectors, such as aerospace, automotive, food & beverage, nuclear, shipbuilding and oil & gas, Ingenium Integration streamlines production to enable leaner manufacturing.

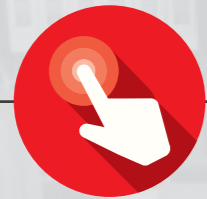
Depending on customer requirement, Ingenium Integration's fully automated work cells can include tube bending solutions from Unison Ltd, fibre laser cutting technologies from Nukon Lasers UK, sophisticated jigs and fixtures, remote handling, robotised cells with transfer systems, tooling verification with remote diagnostics, and automated flowlines.

Always looking to future-proof technologies and deliver cost-efficiency, Ingenium Integration works closely with customers to integrate the very latest advancements into its solutions. Ingenium Integration can supply outputs to enable the collation of all data received from the manufacturing process to improve efficiency, productivity, quality and error prediction - optimising production.

From robotic cells to integrated production lines, Ingenium Integration ensures customers receive cost savings and the best solution to provide the highest level of automation. As customers demand leaner, more efficient solutions to their production challenges, Ingenium Integration responds by developing automated systems through innovation.



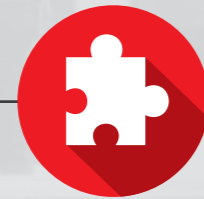
DESIGN



SIMULATION



MANUFACTURE



INTEGRATION



COMMISSIONING



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Design

Ingenium Integration has the design capabilities to scheme, simulate, assemble and inspect a vast range of solutions. Examples include fixtures of single-sided or matched mould tooling, lifting and handling rigs, robotic automation, manufacturing process flow lines, inspection and verification cells.

Simulation

As soon as the most appropriate solution has been established, an initial agreement to model, simulate and animate the solution is entered into. This typically includes accessing the process for safety, collision detection and ergonomic issues, and to establish real-time process savings.

Manufacture

With the simulation stage complete, Ingenium Integration will produce detailed tooling drawings and manage the complete manufacture and sourcing of all hardware and software. This is achieved using internal capacity, or through a network of trusted suppliers.

Integration

Before integration takes place, Ingenium Integration's programmers and engineers will work in partnership to investigate, assess and solve any potential issues. This ensures all necessary procedures are completed efficiently at the commissioning stage.

Commissioning

Commissioning is only carried out by Ingenium Integration's experienced fitters, all of whom are compliant with worldwide health & safety regulations. This ensures full control and accountability is kept within the Ingenium framework. Projects have recently been completed in the UK, USA, Angola, Brazil, South Africa and the Czech Republic.

Industry leading software, to put you in complete control

Opt2Sim - advanced tube simulation software

Developed for 'Design to Manufacture' production strategies, our Opt2Sim tube bending simulation software suite uses machine and component data to provide a precise, virtual insight into the tube bending process - before a single trial part is bent.

Opt2Sim gives users the ability to drag and drop STEP files into the software program and extract tube data instantly. Parts can also be drawn by simply entering XYZ or YBC coordinates and viewed in 3D. Bend data is quickly converted into printable reports and individual tube data can also be extracted.

Products within the Opt2Sim suite include an option where CAD modelling and control engine are used to not only provide accurate simulation, but also enhanced collision detection. Opt2Sim can also be specified with advanced Artificial Intelligence (AI) to help find a solution to even the most complex tube geometry.

Opt2Sim WPS (Work Processing System) allows multiple users to batch process multiple parts at once. While Opt2Sim Tube Scan provides rapid scanning of physical tube geometry and extraction of tube data, and incorporates 'Compare to Master' and intuitive functions should corrections be required.

Unibend control

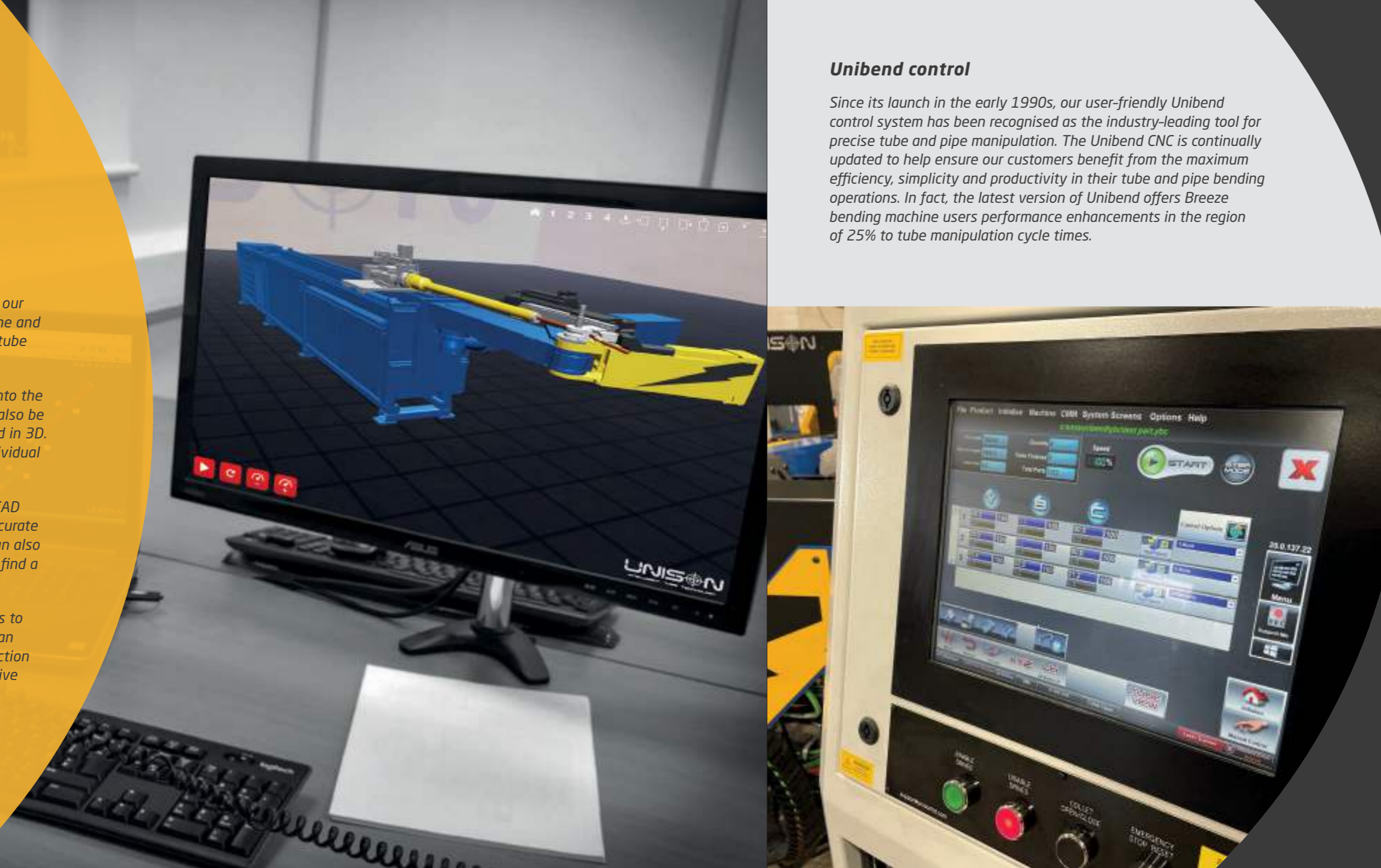
Since its launch in the early 1990s, our user-friendly Unibend control system has been recognised as the industry-leading tool for precise tube and pipe manipulation. The Unibend CNC is continually updated to help ensure our customers benefit from the maximum efficiency, simplicity and productivity in their tube and pipe bending operations. In fact, the latest version of Unibend offers Breeze bending machine users performance enhancements in the region of 25% to tube manipulation cycle times.

Unison tube bending application app

Available for iPhone, android and tablet, as well as desktop operating systems, our free-to-download and use tube bending application app makes it simple and straightforward for operators to establish the required tooling type, mandrel style, size and material, as well as bend torque and machine size for any tube bending application.

As an additional benefit, a clear, simple indication of 'application difficulty' - the difficulty of bending virtually any metal, wall thickness and diameter - is also provided. Where customers are looking to bend new components or start new projects, but do not have the correct tooling or machinery, the app provides a valuable feasibility/viability check, detailing essential data regarding the equipment they will need to use.

Register to use the app at <https://app.unisonltd.com>





Superior service and support **for Unison and Nukon machines**

At Unison, we've always believed in providing the highest levels of service and support. In fact, outstanding service is in our DNA. From getting to know your manufacturing requirements intimately so we can recommend the best Unison or Nukon machine for the job, to completing hassle-free commissioning, delivering first-class operator training and even assisting with product development, we go the extra mile.

And it's a commitment that doesn't end after installation. No matter where you're located, you'll find we're never more than a phone call away - and in the unlikely event you experience a machine problem, our streamlined procedures will ensure a rapid response.

Our team includes experts in all tube bending and fibre laser cutting applications, as well as Unison and Nukon-trained software, electrical and mechanical specialists. Many customers also take advantage of our online support service, allowing an engineer to access their machines remotely and make any necessary alterations. It's a quick and easy way to have an expert working alongside you in real-time to resolve issues and ensure interruptions to production are dealt with swiftly.

- All machines supplied with a 12-month warranty
- Optional five-year extended warranty for additional peace of mind
- Online ticketing system with guaranteed next day response
- Online machine support to resolve production issues
- Annual service contracts and ad-hoc service and repairs
- UK and US-based Unison-trained service personnel
- PPM programmes tailored to individual customer needs
- Discounted OEM spare parts with service-level agreements
- Machine inspection and condition reports
- Control system upgrades and process optimisation
- Servo drive axis and full upgrades



A world of expertise



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Whilst every care has been taken in the production of this brochure, we cannot be held responsible for any errors. As we are committed to continuous improvement, machine specifications are subject to change.

Unison Tube LLC

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