

| ENG |

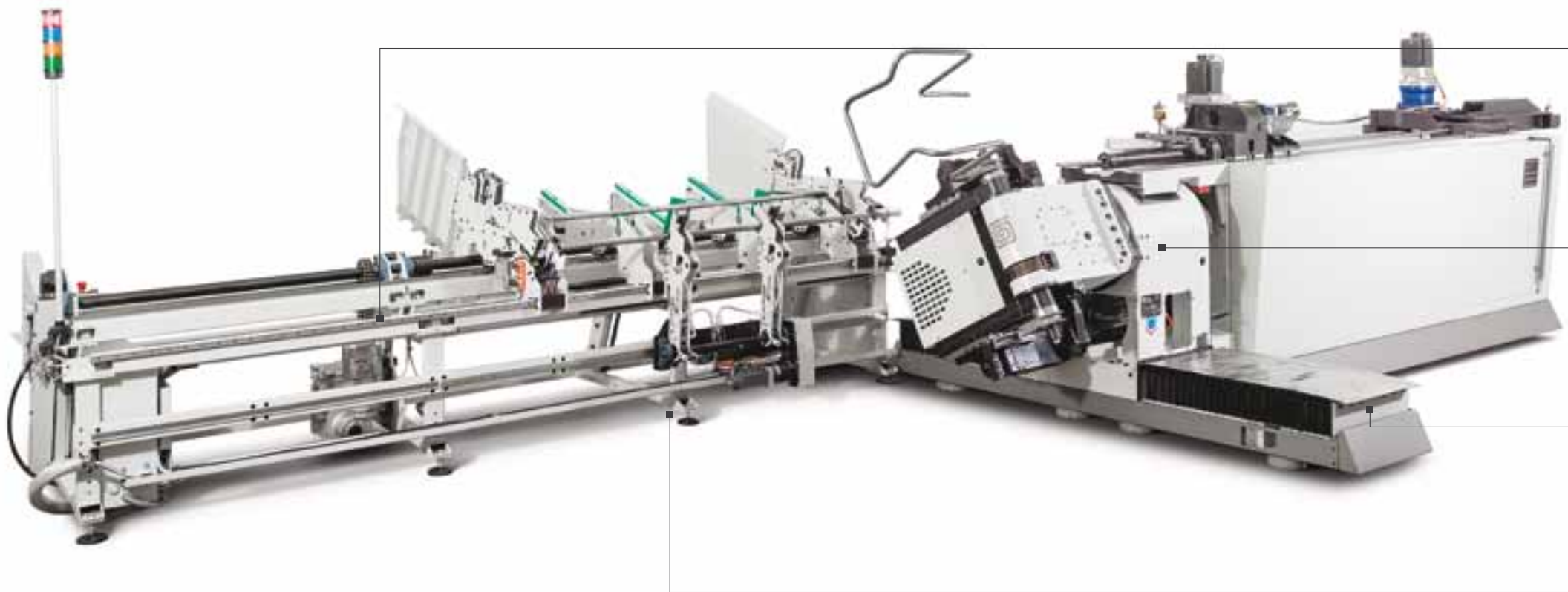
BENDING E-TURN



BLM GROUP

E-TURN

Right and left-hand bending in automatic cycle.



Since its conception the **E-TURN** has defined and led the way in all-electric right and left-hand bending. Integrated to the **E-TURN** is automatic loading of the tube and unloading of the finished component, this can be placed on the left or right-hand side of the **E-TURN** for added flexibility and better use of factory space.

The precise controllability of its 15 axes movements is ensured by the inherent accuracy of the all-electric drives, providing consistently: highly accurate, perfect quality bends, zero scrap.

Unloading of the finished component is automatically managed by the **E-TURN**'s programming software **VGP3D**, and the head rotation of 180° allows the component to be unloaded in the position desired.

Tube in most materials and section type such as: round, square, rectangular, flat sided oval, elliptical, can be automatically loaded, bent, and unloaded on the **E-TURN**.



The precise control and positioning of all the electric axes guarantee the ideal working parameters can be reproduced exactly, right-first-time and every-time, taking away operator reliance and intervention, guaranteeing consistent productivity, accuracy, and repeatability. Changeover times are dramatically reduced and machine-setting deskilled as all the critical settings for the machine and tooling are managed automatically by the CNC including: clamps, pressure die, mandrel position/retraction, centre line radius etc.

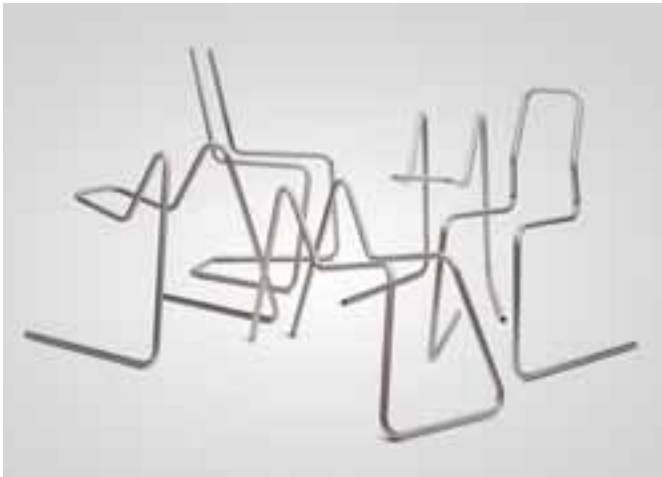


Pre-laser cut tubes, with holes and slots along the tube length and shaped end-cuts, can be precisely located and orientated to the correct position prior to bending.

E-TURN
4 machine models available, up to 52mm in diameter
- All-electric - Multi-stack + Multi-radius - Right and left-hand bending in automatic cycle - Integrated loading & unloading

E-TURN

Opportunities of E-TURN flexibility & precision



Right and left-hand bending in automatic cycle

The E-TURN is capable of fixed and variable radius bending in right and left-hand automatic cycle.



Electric axes

The inherent precision and control of all the axes positioning provides consistently, highly accurate, repeatable, perfect quality bends; even on bends with 1D, or less, centre line radius.

Maximum bending capacity of E-TURN 32	Ø 30 x 2 mm
Maximum bending capacity of E-TURN 35	Ø 35 x 2 mm
Maximum bending capacity of E-TURN 40	Ø 40 x 2 mm
Maximum bending capacity of E-TURN 52	Ø 50.8 x 1.5 mm

APPLICATION AREAS

Because of the E-TURN's flexibility, accuracy and speed it is primarily used in the furniture industry, automotive, job shop, motorcycles and hydraulic pipes for construction machinery.

Just by simply inputting the XYZ coordinated of a chair design the frame can be produced within seconds.



Once programmed the highly refined VGP3D visual programming software exploits the huge benefits of electric bending technology and also completely deskills the tube bending process by automatically selecting the correct machine and bending parameters to optimise cycle time and bend quality.

MECHANICAL TRANSMISSIONS

All of the transmissions, including the bend head, incorporate a direct gearbox drive which eliminates backlash and with the absence of a chain drive delivers the highest accuracy, repeatability and reliability.

E-TURN

Technical features

Functions of self-calibration: true simultaneous axes movement with automatic adjustment of: the clamp die, pressure die, follower slide position, the modulation of distance setting and torque during the bending cycle.

Tube support: new digital axis allows for automatic adjustment and movement in relationship to the tube diameter, and is automatically synchronised when bending square and rectangle tube (only on E-TURN 35-40-52).

Low running costs & maintenance: inexpensive to run and maintain; the much reduced power consumption of the all-electric technology offers massive savings, typically 80% compared to conventional hydraulic machines. The use of the latest Siemens drive technology with simplified cabling and components requires zero maintenance and increased reliability.

Environmentally friendly: extremely low noise levels, no hydraulic oils, no oils leaks, and no hydraulic filter replacement make the E-TURN 'green and clean'.

Included as standard is **on-line teleservice**, via the internet, for remote fault diagnosis and repair.



E-TURN

Right-First-Time

1ST PART CORRECT!

The certainty of ‘first-piece-right’, without wasting time tweaking the program or requiring operator tube bending expertise, is a huge advantage for every new batch set-up. Greatly reduced tooling set-up times, with little or no scrap is a major advantage for smaller batch sizes.

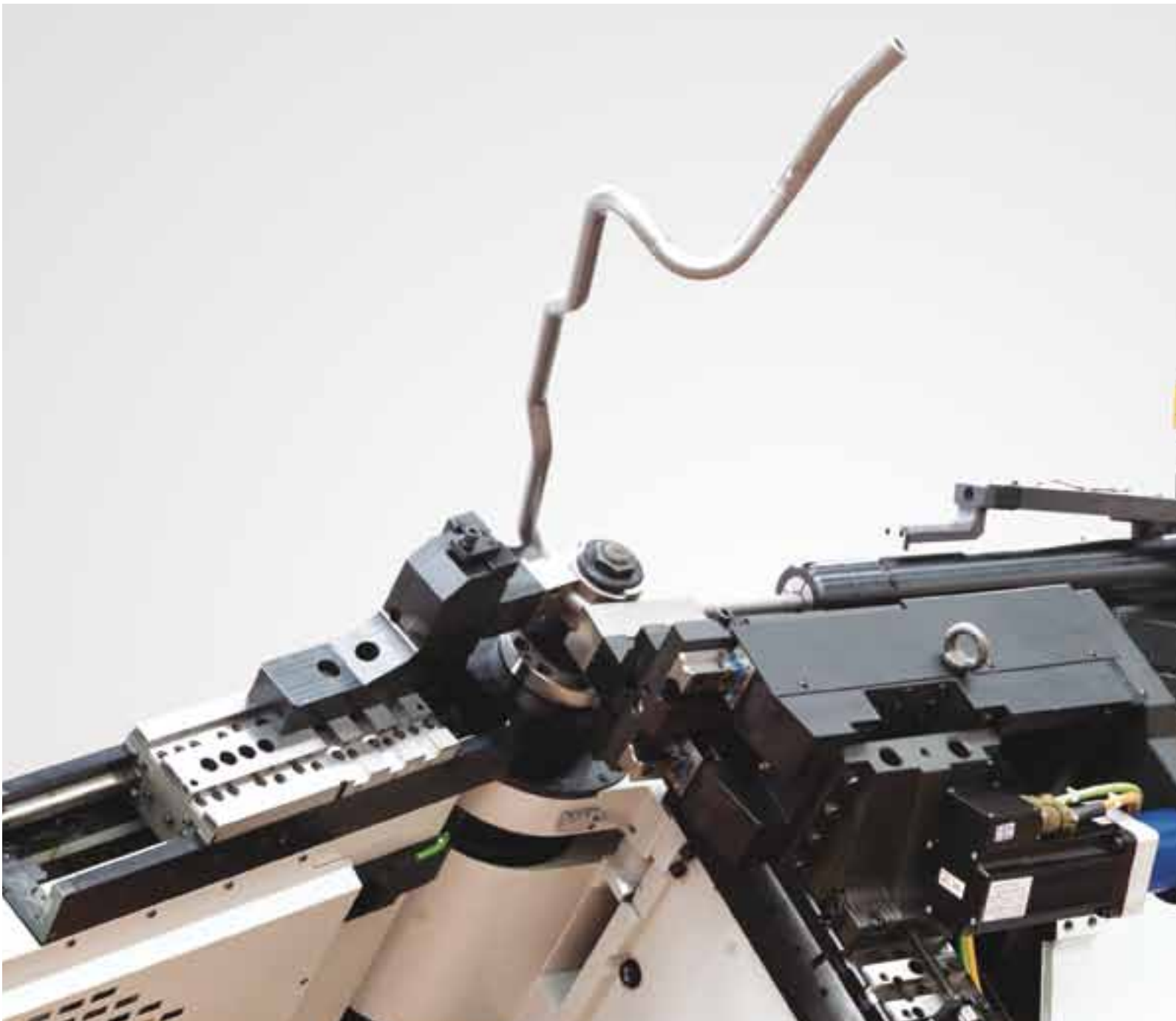
Utilising this technology on the E-TURN can save several thousand Euros per year in material savings alone.



Our sophisticated software can calculate automatically the precise corrections to bend the part perfectly in whatever material is designated; hitherto, this could only have been performed by a highly skilled operator and even then with wasted time and material for the set-up.

EASE OF USE

Thanks to powerful software developed by BLM, B-TOOLS & B-RIGHT, parts will be right-first-time, every time.

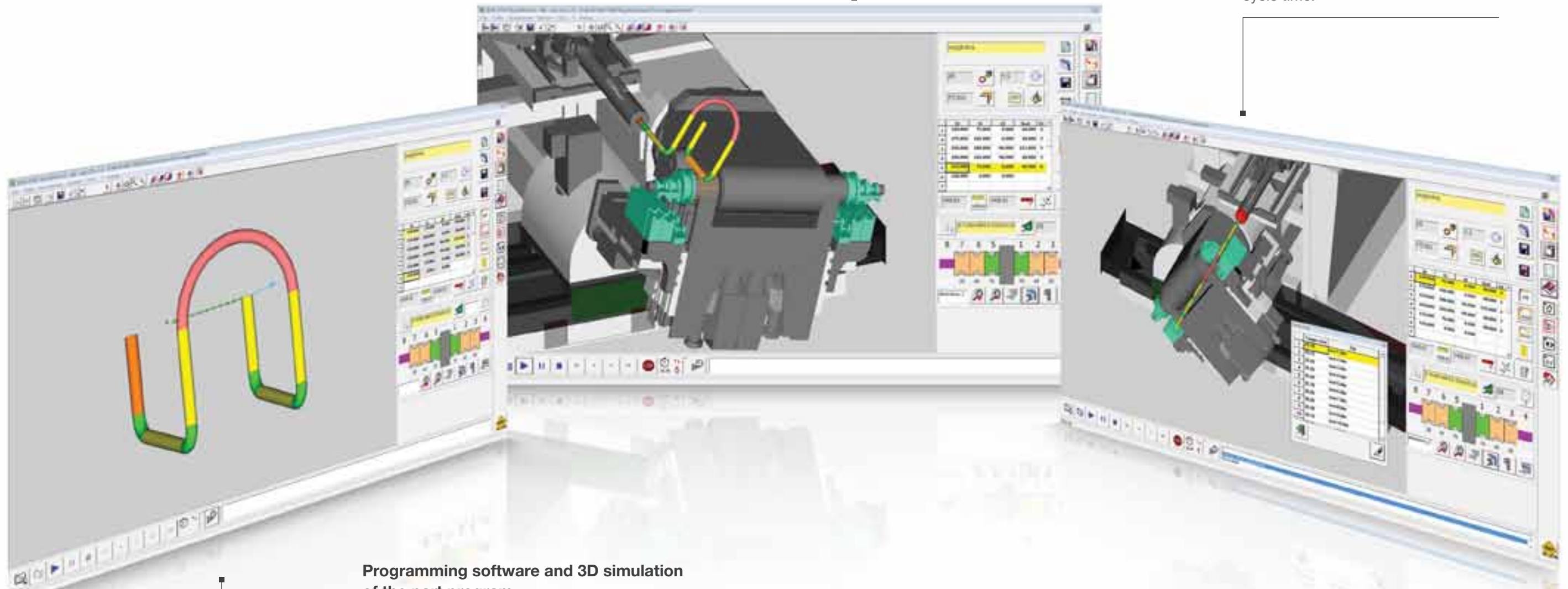


SOFTWARE

VGP3D, the difference

Simulation of component,
display of possible collisions
and their avoidance.

Calculation of the feasible part
programs with corresponding
cycle time.



Programming

Programming software and 3D simulation of the part program

By simply inputting the component bend coordinates, the complete bending program is graphically simulated.

Component feasibility can be checked without physically testing on the machine and/or making prototype tooling.

Real-time component simulation, production costs and component pricing can be estimated more precisely.

The fastest working cycle is automatically generated by the VGP delivering the optimum cycle time.

Any likely collision risks are highlighted and the most efficient avoidance route selected automatically.

Knowing an exact cycle time ensures responses to new customer enquiries are made easier, quicker and more accurately.

Programming 'Wizard' available for simple part programmes.



E-TURN

No-limits-bending

BENEFITS

The E-TURN has been developed to fully satisfy the growing market demands for precise, high quality bending of complex multi-shaped tubular components, in all metal types, in small or large production batches.

- Zero clamp marks
- Ovalisation less than 1%
- Wall thickness reduction less than 20%



All-in-one tube technology



BLM GROUP machines are designed to interface easily with each other

Import 3D tube models for bending and laser cutting

Automatically generate part programs for each of the technologies: laser cutting and tube bending.

Calculate the combined requirements of for laser cutting and bending.

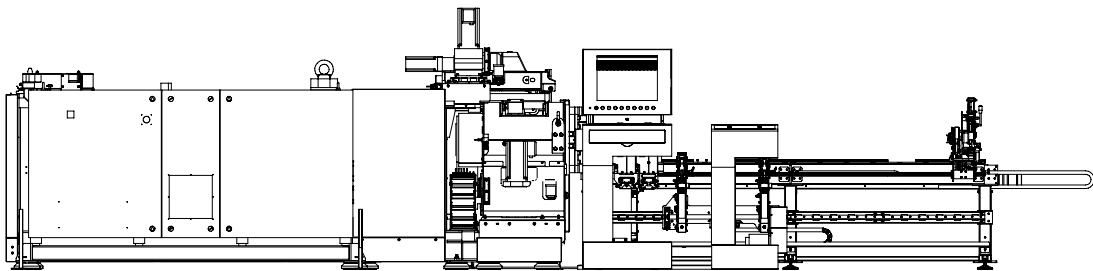
Correct and compensate automatically the laser cut features against the final bent shape to ensure the actual finished part is in compliance with the initial theoretic geometric data.

ALL-IN-ONE

Tube bending and laser cutting are technologies that are, ever-increasingly, being embraced in modern-day tubular fabrication, as they significantly: reduce manufacturing cost, increase productivity, guarantee quality, add to the process value-chain from tube to finished product. BLM GROUP's unique market position allows us to manage these technologies with integral common software and controls. Our unrivalled expertise in these technologies enables us to resolve inherent problems arising from each individually or from both when they are integrated.



	E-TURN 32	E-TURN 35	E-TURN 40	E-TURN 52
Max tube O.D. capacity	Ø 30 x 2 mm	Ø 35 x 2 mm	Ø 40 x 2 mm	Ø 50.8 x 1.5 mm
Controlled axes	nr. 12-13	nr. 14-15	nr. 14-15	nr. 14-15
X axis accuracy	± 0,05 mm			
Y axis accuracy	± 0,05°			
Z axis accuracy	± 0,05°			
X axis speed (brushless motor)	1450 mm/sec with booster 1000 kg	2000 mm/sec with booster 1000 kg 1000 mm/sec with booster 2000 kg		
Max bending radius (increasable on demand)	150 mm	165 mm	165 mm	165 mm
Min bending radius (increasable on demand)	25 mm	25 mm	25 mm	35 mm
Machine bed length (increasable on demand)				
- from tool post to collet	2030 mm	1840 mm	1840 mm	1840 mm
- from tool post to mandrel retraction	3640 mm			
Max bore through carriage	52 mm			
Automatic mandrel lubrication	mineral oil (vegetal and grease in option)			
Nr of mandrel rods	3 (10-16-24 mm)	3 (10-16-24 mm)	3 (10-16-24 mm)	3 (10-16-24 mm)
Max installed power	22 kW	25 kW	25 kW	25 kW
Max absorbed power (dry cycle)	2.5 kW	4 kW	4 kW	5 kW
Noise level	65 dB(A)			
Machine weight with CNC	3600 Kg	4300 Kg	4300 Kg	5000 Kg
Machine dimensions	4380 x 1700 x 1600 mm		4511 x 2720 x 1840 mm	



CNC: SIEMENS SIMOTION for management of the interpolation of the continuous movement, trajectory management axis motion with respect to the precise correspondence VGP 3D simulation.

Operator Interface: Graphical Programming interactive 3D model machine. SIEMENS SIMATIC Industrial PC PANEL PC677C with INTEL Core i7-610E processor, 4GB RAM, 32 GB solid state hard drive for storing programs and tooling. Operating System Windows 7 Ultimate. Connections: 2xEthernet, 5xUSB, 1xRS232. Touch screen operator panel (colour TFT display 19 "). Machine control panel SIEMENS MCP483.

Teleservice standard (requires connection of the machine to the Internet).

Digital drives: SIEMENS SINAMICS DRIVE-digital interface CLiQ integrated to all system components, including motors and transducers. Brushless electric motors with position feedback absolute encoders.

Standard: booster/variable radius 1,000 kg, mandrel anticipation, teleservice, collision prevention, automatic discharge of the component.

Options: electric pressure dies, variable radius accessories, booster/ radius bending up to 2,000 kg (E-TURN 35-40-52 only), wiper die holders, bed length extension, weld seam & hole detection, in-line tube punching.

☞ Features, weights, dimensions, capacities and performances of the machines are not binding and may be subject to change without notice. Pictures are for demonstration purpose only.

TUBE BENDING

endforming
lasertube cutting system
sawing, deburring and washing
cutting & end machining
combined sheet and tube laser cutting
handling
3d measuring
manufacturing cell
non touch measuring systems
process control software



BLM GROUP

BLM

BLM S.P.A.

via selvaregina, 30
22063 cantù (co), Italy
tel. +39 031 7070200
fax +39 031 715911
email: export@blm.it
www.blmgroup.com