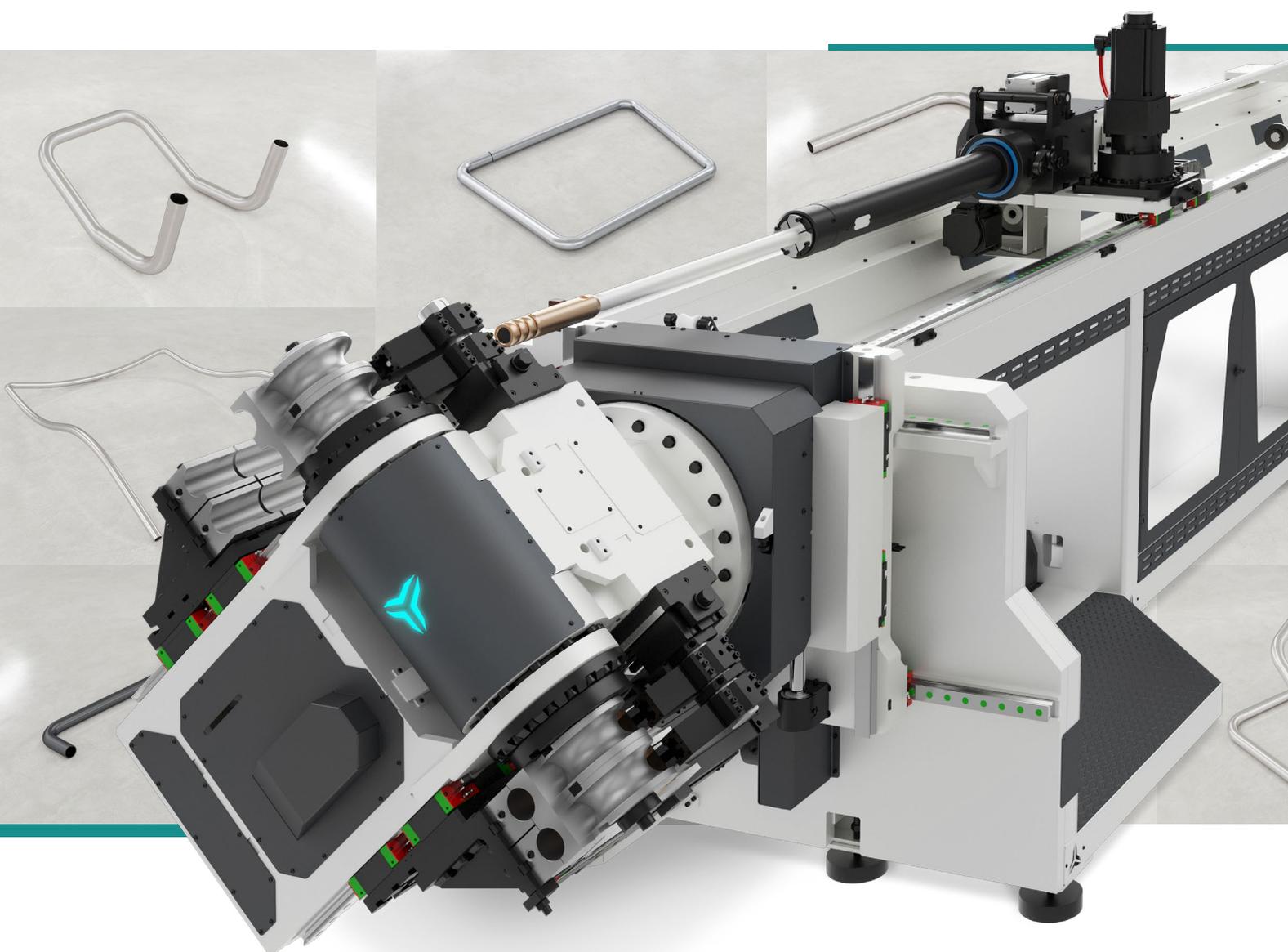


VLB GROUP

NORTHAMERICA



GENERAL CATALOGUE
TUBE BENDERS



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COMMITMENT



after-sales and technical support.
Customers for life!

People are, in fact, the most crucial factor in a company. The working group that supports VLB incorporates highly specialized professionals. All of them have proven experience in machine tools, particularly in pipe and tube bending and sheet processing.

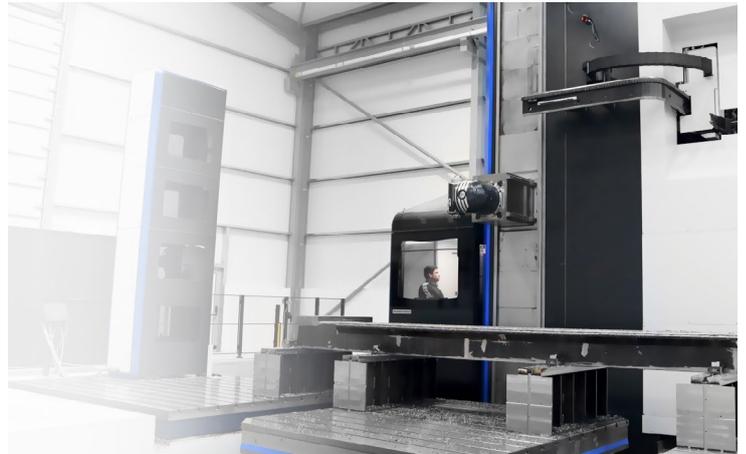
Dedication is the backbone of the VLB brand. The collective mindset of all team members is crystal clear; the development and production of innovative and highly effective solutions for pipe and sheet processing. We want to serve the market with the highest quality equipment and technology and superior service on

STATE-OF-THE-ART-MANUFACTURING

We strive not only for excellence in human resources but also in the ultra-modern production facilities that cover an area of more than 10,000 m².

The machinery consists entirely of CNC equipment from the world's leading manufacturers. Focus on efficiency; our machines are placed strategically in an exclusive production hall with a surface area of 3,000 m².

The programming is centralized in a specialized CAM department, from which dozens of specialized technicians monitor production.



SERVICES

- | TECHNICAL FEASIBILITY STUDIES
- | TOOL ENGINEERING AND PRODUCTION
- | CUSTOMER TRAINING
- | REMOTE ASSISTANCE
- | SPARE PARTS AND CONSUMABLES

TOP LEVEL ENGINEERING

Although VLB is a recent brand in the market, our team has dozens of years of accumulated experience in metalworking machinery, especially in tube and plate forming.

The search for excellence is in the company's DNA. We have scouted and incorporated experienced professionals in all aspects of the process: research and development, the manufacturing process, software development, automation, and so on.

In addition to the constant dialogue with our customers, we actively cooperate with universities and scientific institutes to develop new solutions.

This mentality enables us always to stay one step ahead in responding to current needs and especially to be prepared for the challenges within the current industrial environment.



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TUBE BENDERS - EB-CNC SERIES

The **EB-CNC** series electric VLB bending machines go equipped with the latest **Electric Motion** technology.

With **up to 9 fully electric drive axis**, pipes with a **6 to 150 mm** diameter can be bent.

When equipped with a **Booster system**, it is possible to achieve radii up to 1D with reduced marks in the inner bend.

The drives on all axes are optimized to **reduce energy consumption** and **increase speed**, making these machines ideal for **high-volume production batches** that require **high consistency**.

Weld detectors, punching and cutting systems, or integration into production systems with loading and unloading facilities are options available for the EB series.

VLB 3D software prepares these machines for **INDUSTRY 4.0**

EB43CNC

100% Electric bender
Multiple fixed and variable radii
Compact design



| More information



EB53CNC

100% Electric bender
Multiple fixed and variable radii
Compact design



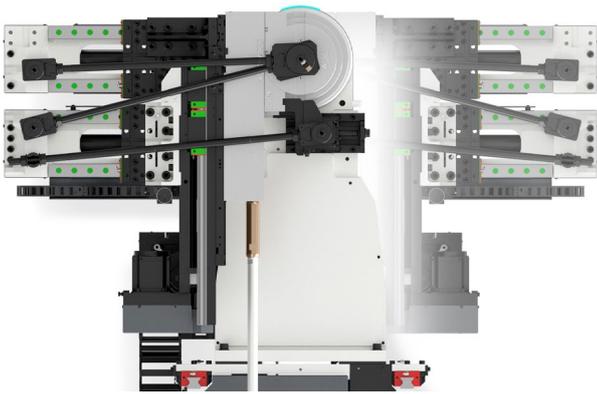
Low profile positioning cart



Rapid tool change

EB63CNC

100% Electric bender
Multiple fixed and variable radii
Compact design



Right or Left turn bending

The EB models full electric bending machine can be changed manually to the **right and left** depending on the customer's need or a specific order.

The **vertical and horizontal movements** contribute to the wide range of motion of the bending head. **This feature is especially important to facilitate integration with automatic loading and unloading systems.**

VLB 3D SOFTWARE

VLB bending machines are at the **forefront of automation and control**; an experienced IT team develops the **VLB 3D software**.

This department is in direct contact with the technical department and end-users. For example, we continuously implement improvements and innovations for both bending performance and ease of use.

Programming is very **intuitive and easy file import and export with all major CAD design software.**

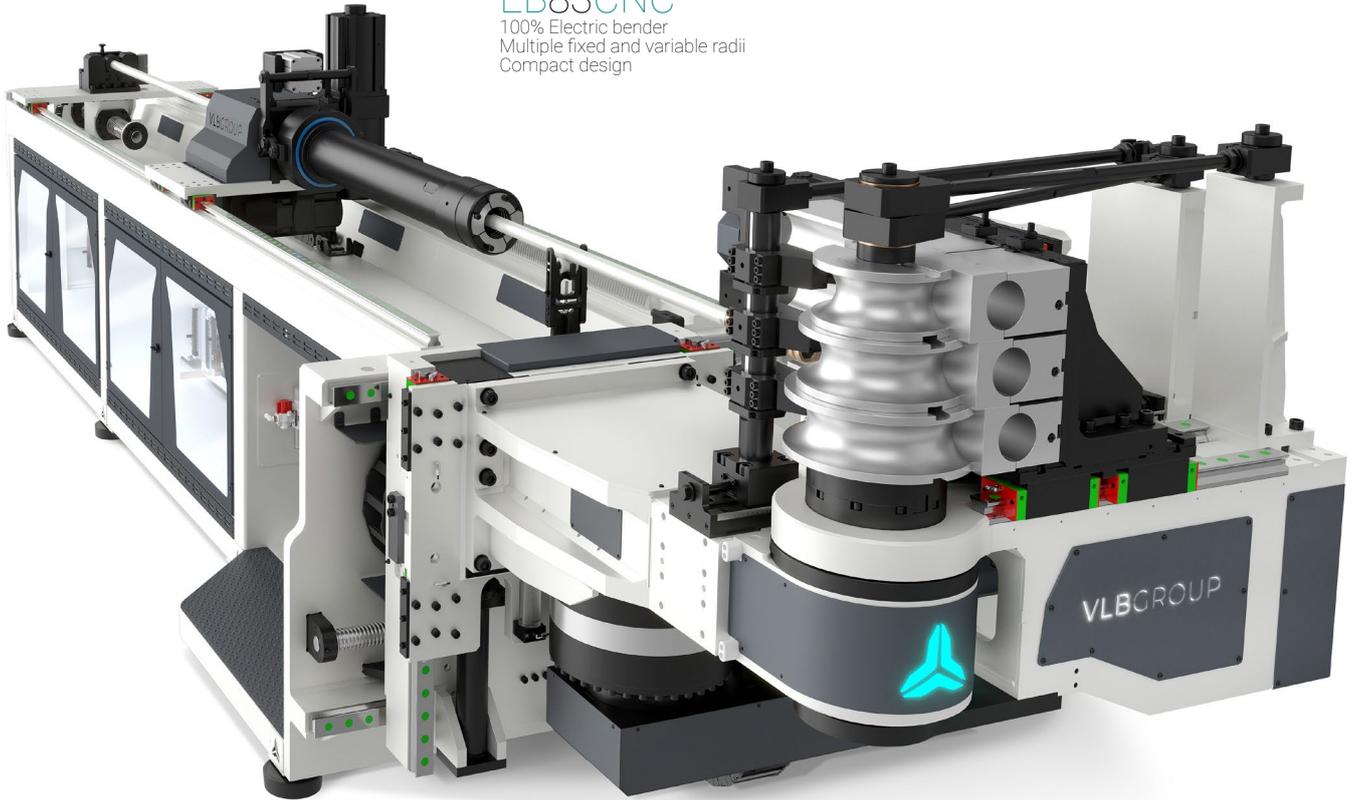


Main features of the EB series

- **100% electric drive** of all nine axes.
- Bending of **multiple fixed** and **variable radii** in the same cycle.
- **Quick change of bending tool**, without having to readjust.
- **High production speed** and **low power consumption**.
- Axis movements are controlled by servo motors with **absolute encoder** feedback.
- Simplified **synchronization** and **optimization** of bending cycles.
- **Compact and ergonomic design** guarantees operating comfort.
- **Low maintenance costs** with preventive intervention warnings.
- Sensors that monitor the elastic behavior of the material compensate for the bending cycle and provide more **precision** and **less material waste**.
- **Bend left or right**, with shorter change time.
- Powerful and intuitive **VLB 3D software** with anti-collision simulation.
- Easily program or **import files from the cloud or the network**.

EB83CNC

100% Electric bender
Multiple fixed and variable radii
Compact design



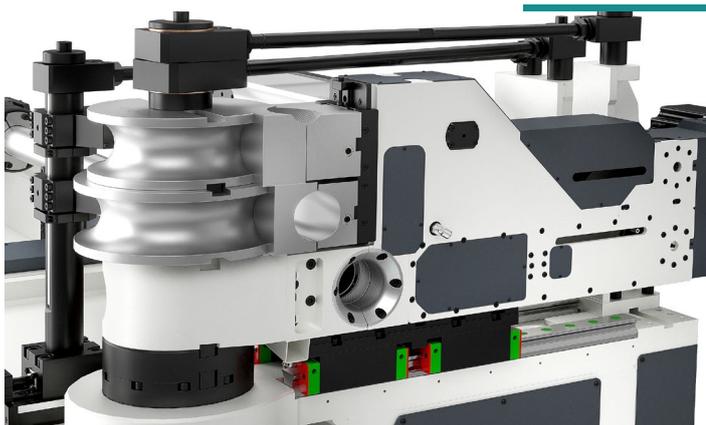
More information



Loading and unloading systems

Aware of the needs of modern industry, our bending machines' development has a clear goal, **productivity!** Designed and **prepared for the highest production level (24/7)**. Mechanically, they only contain **high-quality** and **low-maintenance components**.

They can effortlessly integrate with **automatic loading and unloading systems** such as **tube storages, robots, or manipulators** in terms of software and hardware.



Tube cutting system

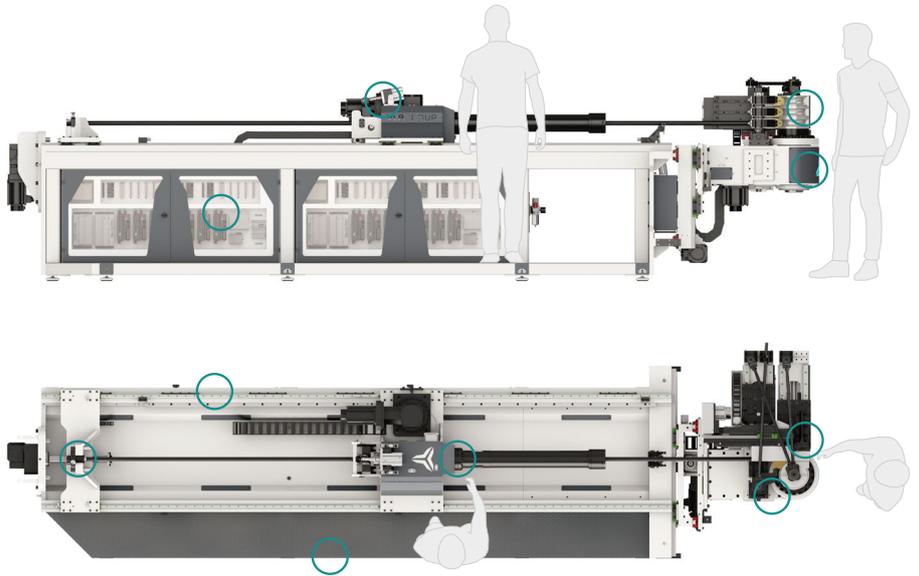
Production optimization is an increasingly important topic. To save time, material, and electricity consumption and increase our machines' productivity, we have developed an **effective servo-controlled cutting system without material deformation**.

It is a cutting system with a knife integrated into the bending head, which allows cutting in a **continuous automatic bending cycle**. This system prevents material waste, and post-processing is often not necessary.

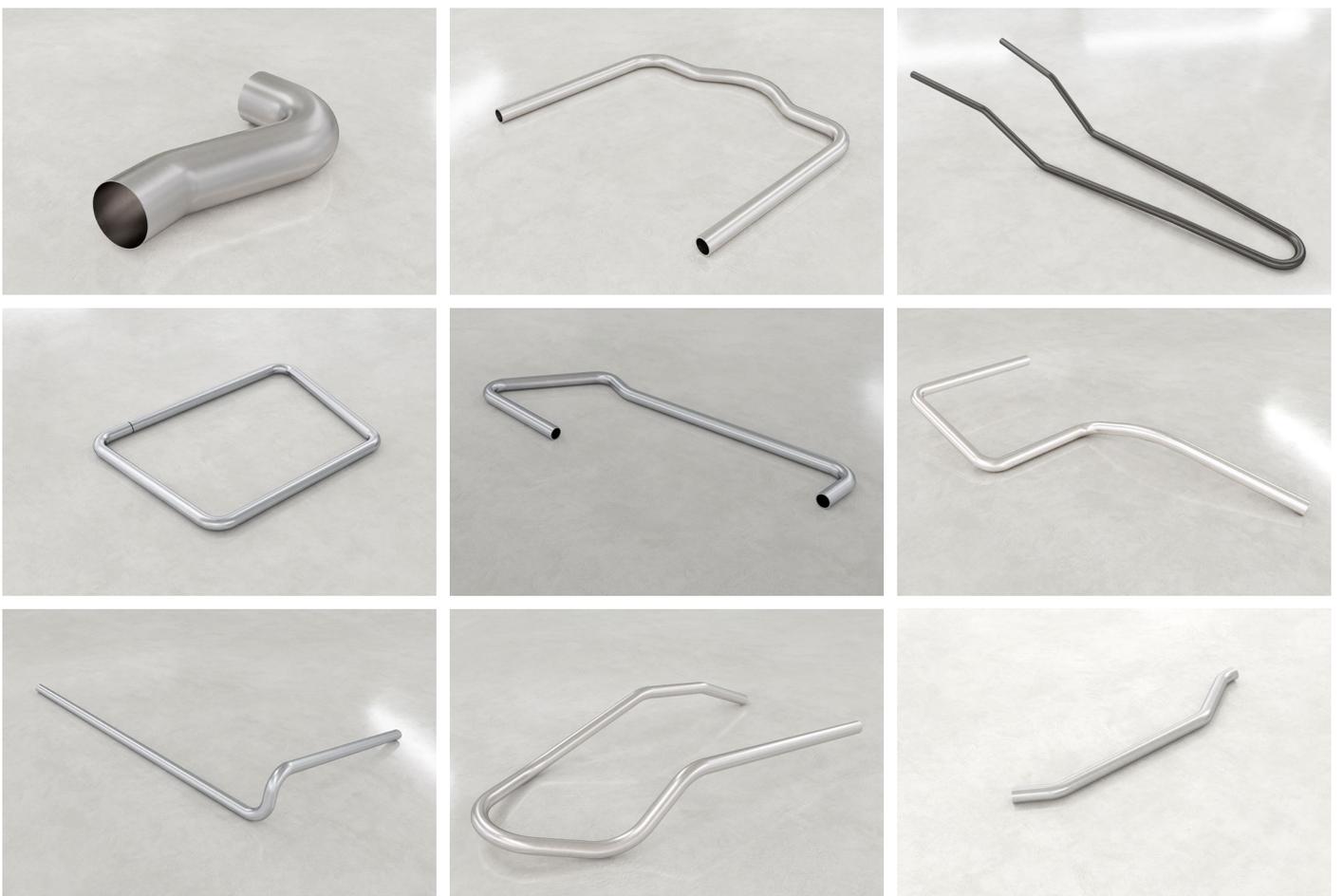
Evolutionary design

Our bending machines are the result of **decades of experience** in the world of bending. The user experience of thousands of customers worldwide has resulted in unique **application-oriented solutions** for these machines.

We facilitate human-machine “communication” using visual status indicators and warning messages. We improve **operating comfort**, preventative maintenance, corrective actions, and increase the safety of the operator and equipment.



The characteristics of VLB's fully electric bending machines make these machines ideal for industries that prefer speed, efficiency, high productivity, and repeatability. Sectors such as the **automotive industry, furniture industry, aerospace, HVAC**, or companies require rapid tool changes.



Technical features	EB43CNC	EB53CNC	EB63CNC	EB83CNC	EB100CNC	EB130CNC	EB150CNC
Maximum capacity (45kg/mm2)	Ø43x2mm	Ø53x2mm	Ø63x2mm	Ø83x2mm	Ø100x2mm	Ø130x2mm	Ø150x2mm
Controlled axes	9	9	9	9	10	10	10
X axis precision	+/- 0.05mm						
Y axis precision	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°
Z axis precision	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°	+/- 0.05°
Maximum bending radius	230mm	230mm	290mm	290mm	370mm	400mm	400mm

BENDING MACHINES - EB-RH CNC SERIES

VLB's **fully electric EB-RH series bending machines**, with rotating heads, contain the most advanced Electric Motion technology on the market with **11 fully electric drive axis**. The bending head moves **360° on a radial axis** and **horizontal** and **vertical axes**. This system offers complete freedom of movement and allows **complex parts** in an automatic bending cycle.

This range of machines can bend pipes and profiles from **6 to 53 mm** with even radii up to 1D with minimal marking when equipped with the booster system.

The cycle speed and low energy consumption make these machines ideal for production with a **high volume** and **high consistency**. Because the level of automation is so advanced, they are easy to integrate into automatic production lines or combine with automatic loading and unloading elements.

INDUSTRY 4.0 machines, thanks to the advanced **VLB 3D software**.

EB43RH-CNC
100% Electric bending machine
Rotating head
Fixed and variable multi-radius
Compact design

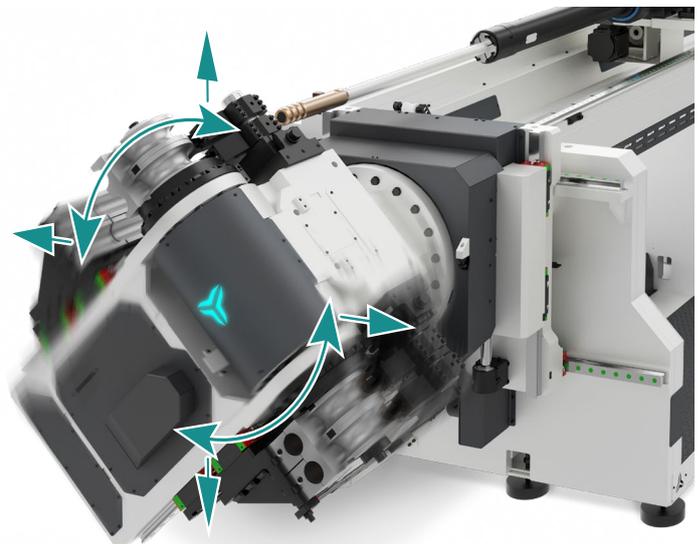


| More information

Freedom of movement ...

The EB-RH series bending head drive system provides **complete freedom of movement**. The 360° rotation, combined with the vertical and horizontal axes, allows a quick positioning to produce **very complex bending work**.

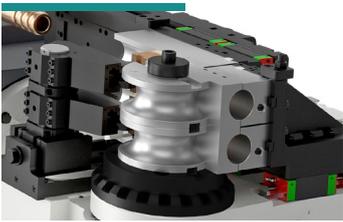
The solution chosen by VLB for the rotation is exceptionally compact and maintenance-free. It is **structurally robust yet lightweight and with low inertia**, allowing for **high bending speeds** and **rapid tool selection adjustments**. This **unique design** dramatically **reduces the cycle time of complex bending workpieces**.





EB53RH-CNC

100% Electric bending machine
Rotating head
Fixed and variable multi-radius
Compact design



Rapid tool change



VLB 3D SOFTWARE

VLB bending machines are at the **forefront of automation and control**; an experienced IT team develops the **VLB 3D software**.

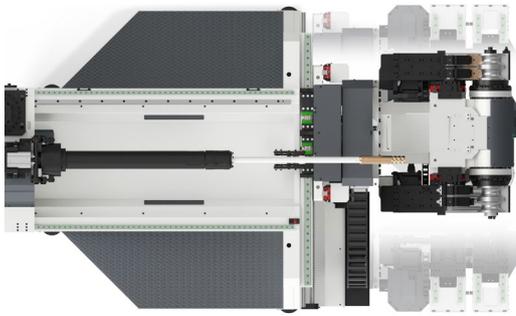
This department is in direct contact with the technical department and end-users. For example, we continuously implement improvements and innovations for both bending performance and ease of use.

Programming is very **intuitive** and **easy file import and export with all major CAD design software**.



Main features of the EB-RH series

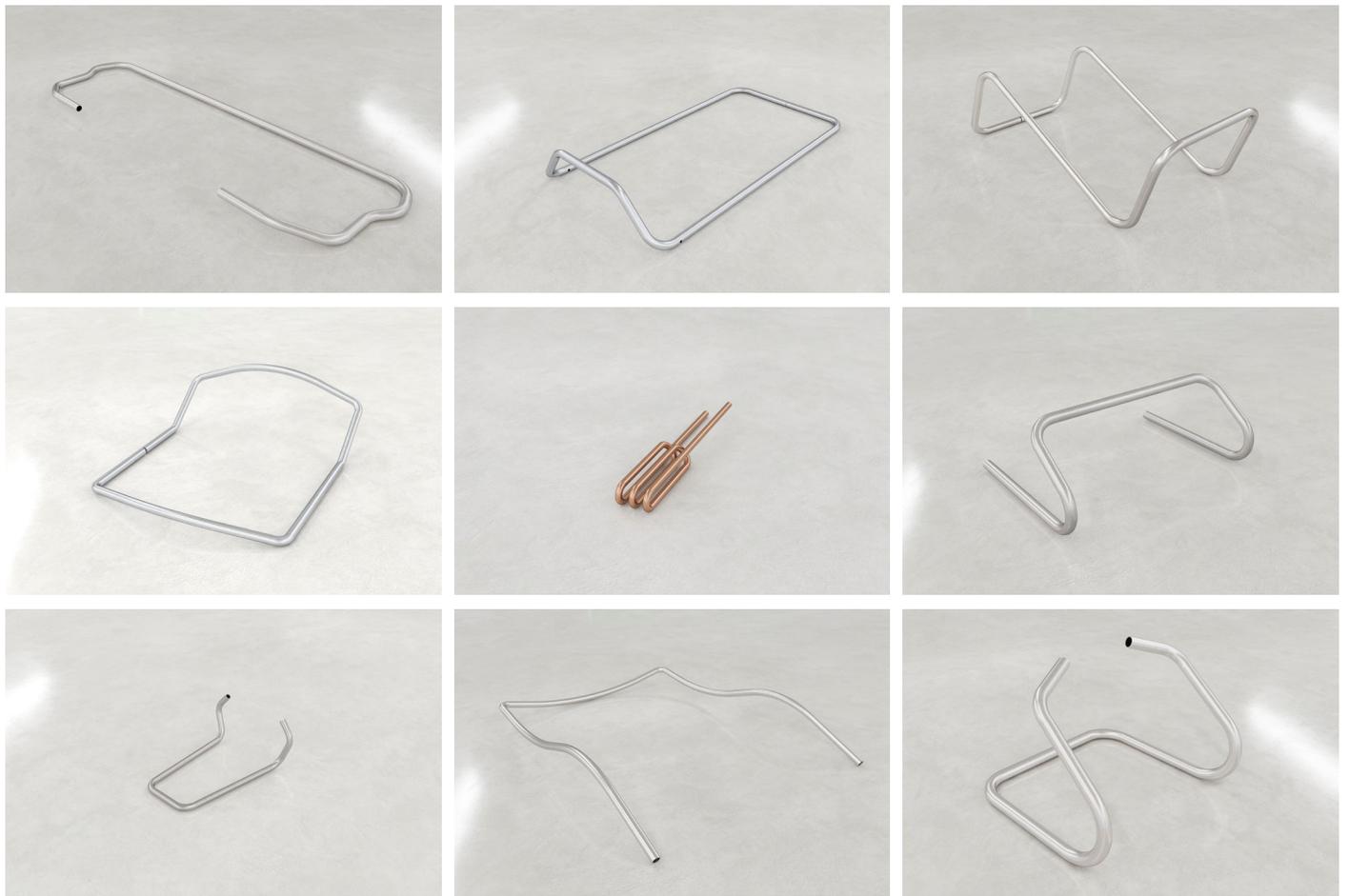
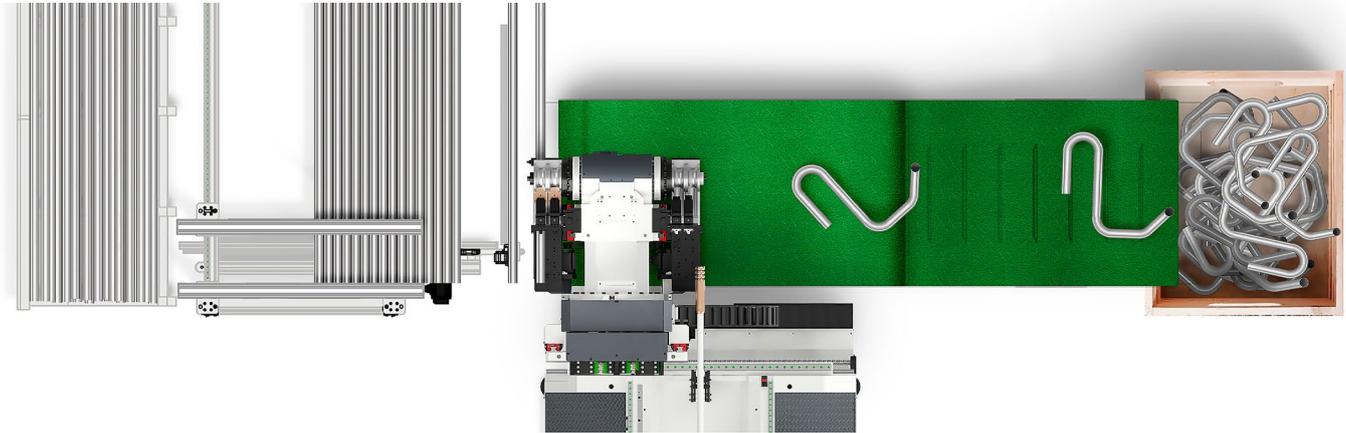
- **100% electric drive of all eleven axes.**
- Bending head with **360 ° radial axis and horizontal and vertical linear axis.**
- Bending **clockwise and counter-clockwise in automatic cycle.**
- Bending of **multiple fixed and variable radii** in the same cycle.
- **Quick tool change** without having to readjust.
- **High production speed and low power consumption.**
- Axis movements are controlled by servo motors with **absolute encoder** feedback.
- **Simplified synchronization and optimization** of bending cycles.
- Compact and ergonomic design for optimal operating comfort and maintenance.
- Sensors compensate for **material bending back** and provide greater precision and less waste during the bending cycle.
- Powerful and intuitive **VLB 3D software with anti-collision simulation.**
- **Easily program or import files** from the **cloud** or the **network**.



Easy integration

The 360° rotation system, together with the vertical and horizontal movements, contributes to the **wide range of movement of the bending head** and, if necessary, deflecting the head so that the positioning carriage advances beyond its normal limits.

This feature is particularly important to facilitate integration with automatic loading and unloading systems.



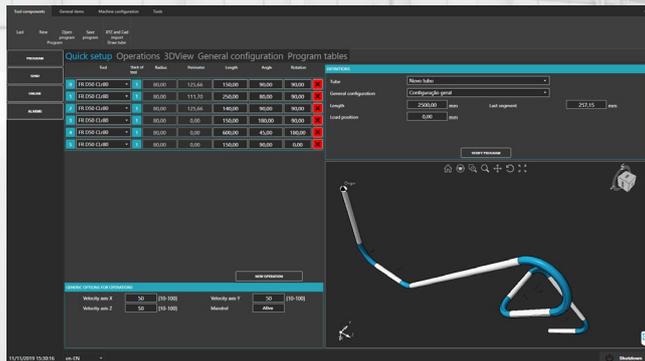
The characteristics of VLB's fully electric bending machines make these machines ideal for industries that prefer **speed, efficiency, high productivity** and **repeatability**. Sectors such as the **automotive industry, furniture industry, aerospace, HVAC** or companies that require **rapid tool changes**.

Technical features	EB43RH-CNC	EB53RH-CNC
Maximum capacity (45kg/mm2)	Ø43x2mm	Ø53x2mm
Controlled axles	10	10
X axis precision	+/- 0.05mm	+/- 0.05mm
Y axis precision	+/- 0.05°	+/- 0.05°
Z axis precision	+/- 0.05°	+/- 0.05°
Maximum bending radius	250mm	275mm

VLB 3D SOFTWARE

VLB bending machines are at the forefront of automation and control; the VLB 3D software is developed by an experienced IT team. This department is in direct contact with the technical department and end users. For example, we continuously implement improvements and innovations for both bending performance and ease of use.

Programming is very intuitive and file import and export can be performed directly with all major CAD design software.



VLB 3D Software

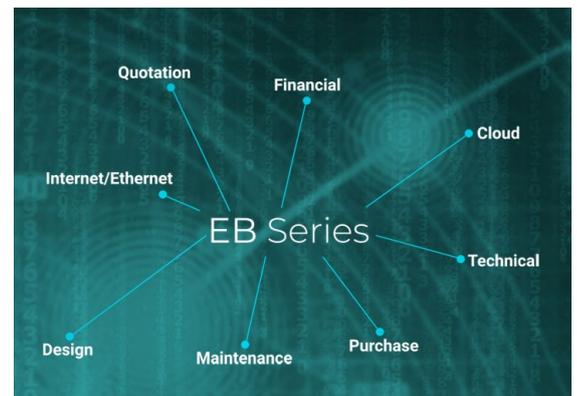
- Direct 3D graphics programming in XYZ, LRA and import of CAD files, with problem analysis and correction suggestions.
- Collision simulation.
- Cycle time simulation.
- Automatic correction of elasticity and calibration of the bending workpiece with calculation of the actual required length.
- Offline installation and connectivity with peripherals.
- Connectivity with measuring arms in combination with automatic correction.
- Feasibility analysis, modification and export of the file for use in the design department.
- Remote online help

The VLB 3D software is developed in-house by a dedicated IT department, which is in direct contact with the technical service department and all users. The data collected helps us to evolve and find answers to constant challenges. Each new update can be installed on existing machines.

INDUSTRY 4.0

All actions are monitored in real time; production time, tool change time, energy consumption etc. This information (or other information that the customer means is relevant) is automatically collected and stored for analysis and optimisation by the operator, a specific (design) department or ERP software.

With the resulting information, the customer can, for example, optimise material management, planned maintenance work, budgeting, feasibility checks or the purchase of raw materials.



The EB series is at the forefront of automation and control. The VLB 3D software is developed by an experienced IT team that works daily on improvements and innovations in terms of machine performance as well as ease of use.

- Intel Core i5-6500 quad core 3.2 Ghz
- 8 Gb of DDR4 RAM
- Integrated graphics card Intel HD graphics HD510 / 530
- 64 GB Msata HD
- 2 Ethernet ports + RS-232 serial port + 8 USB ports
- Windows® 10 IOT Enterprise 2016 PC system

With the capacity to store over 1,000,000 programs of up to 30 bending programs each.

BENDING MACHINES - ECO-NC SERIES

The bending machines of the **ECO-NC** series are **easy to operate, robustly constructed** and **achieve excellent bending results**.

Entering a new bending program is very intuitive with the help of an **industrial touch controller** and the accurate and user-friendly VLB 2D software. **The NC program precisely controls the bend angle (Y-axis) and rotation (Z-axis)**. The distance between the bends (X-axis) is configured using easily adjustable and very precise mechanical stops.

The essential movements - **bending angle** and **rotation of the pipe** - are **fully electric to ensure exact repeatability**. The supporting bending movements are driven by a **powerful hydraulic group**. All movements are electronically controlled. These properties make these machines very **versatile and suitable for high-quality bending work**, in small and medium size series.



ECO92NC2
Semi-automatic bending machine
Fixed radius
Compact design



More information



Low profile positioning cart



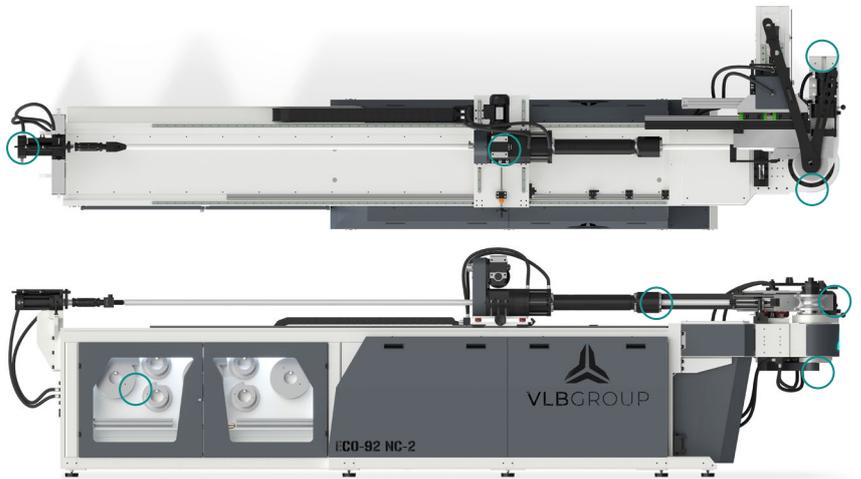
Powerful hydraulic system

Most important features

- **Simple, durable** and with **excellent bending results**.
- **Very intuitive programming** of bending angle and rotation with industrial touch controller.
- Drive of **bending** and **rotation** of the tube **electrically**.
- **Hydraulic drive** auxiliary movements.
- **Quick change of bending tool**, with easy adjustment possibility.
- **Revolutionary clamping system**, with a **compact bending head**.
- **Powerful** and **low maintenance bending machine** with reduced bending head increases the possibilities of **complex bending work**.
- **Integrated tool cabinet** with interior lighting.
- **Compact and ergonomic design**, takes up little production space and **improves operating** and **maintenance comfort**.

Evolutionary design

Our bending machines are the result of **decades of experience in the world of bending**. The user experience of thousands of customers worldwide have resulted in unique application-oriented solutions for these machines. **We facilitate human-machine "communication"**, using visual status indicators and warning messages.

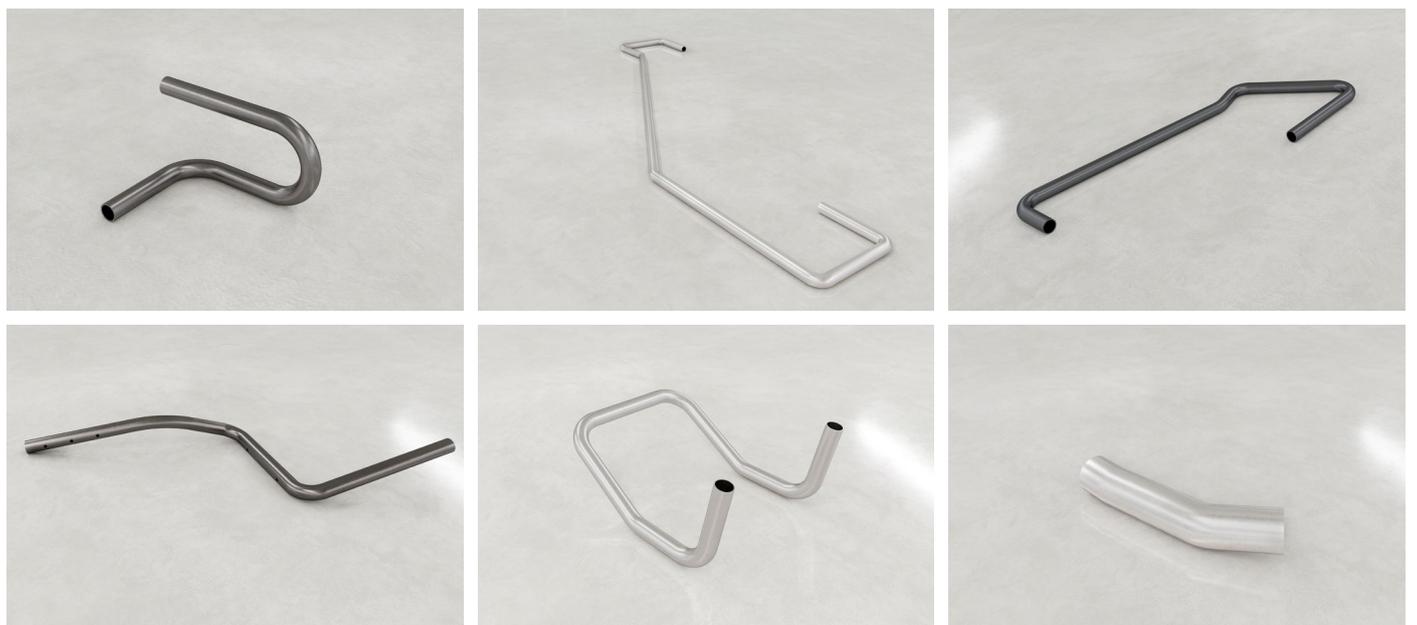


ECO92NC1

Semi-automatic bending machine
Fixed radius
Compact design



More information



The ECO series of semi-automatic fixed radius bending machines are very versatile, powerful and easy to program and operate. They are intended for sectors that choose versatility and bending quality in terms of speed and productivity. Sectors such as **urban furniture, agriculture, prototyping, chemical industry and ship repair**.

Technical features	ECO63NC	ECO92NC
Maximum capacity (45kg/mm ²)	Ø63x3mm	Ø92x4mm
Controlled axles (NC1 - NC2)	1 - 2	1 - 2
Y axis precision	+/- 0.1°	+/- 0.1°
Z axis precision- NC2	+/- 0.05°	+/- 0.05°
Maximum bending radius	180mm	255mm
Standard working length	3000mm	3000mm

BENDING MACHINES - ML SERIES

The VLB mandrel bending machines are developed and produced to the highest standards and equipped with the highest quality components. They are safe and easy to operate and easy to program with a touchscreen. The NC controller makes it possible to manually program and bend up to 10 bends. These machines are easy to move because they are standard equipped with transport wheels. The ML bending machine can also be moved with a crane using lifting eyes.



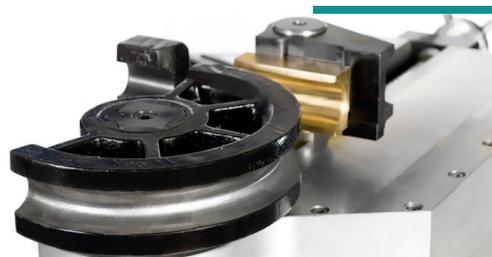
ML76NC
 100% Electric bending machine
 Fixed radius without mandrel
 Movable with built-in wheels
 Compact design



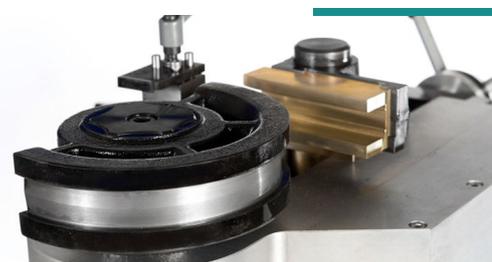
Touch screen



More information



Rapid tool change



Fit for bending various profiles

Main features of the ML series

- Efficient bending of **round, rectangular, oval pipes**, etc.
- **100% electric** drive of the bending axis.
- High resolution **touch screen** and **easy to program**.
- **10 consecutive turns per program**, with a total of 10 programs.
- **Manual fastening** of the tube and **quick tool change**.
- **Variable bending speed**, with **spring-back correction**.
- **Overload protection** at too high a speed.

Technical features	ML50NC	ML76NC
Maximum capacity (45kg/mm2)	Ø50x3 mm	Ø76x3mm
	35x35x3 mm	50x50x3 mm
Maximum bending radius	240 mm	360 mm
Maximum bending angle	190°	190°
Installed power	4.0HP	7.5HP

TECHNICAL FEASIBILITY STUDIES



We put our knowledge at the service of our customers.

Today's industry is facing unique requests and needs on a daily basis for which conventional techniques are not always a solution. Whether it is a new product, shape, material or the need to optimise an existing process.

At VLB we make all our knowledge and expertise available to our clients. After determining the specific needs together with the client, our R&D department uses all its know-how to propose the right solution that meets the requirements.

TOOL ENGINEERING AND PRODUCTION

Expect a good machine the secret to good quality material deformation (e.g. bending, stamping and folding) and constant results is certainly the tooling. Its design, the quality of the used materials, the machining and the applied heat treatment.

The vast experience of our engineering department, the quality of our production resources and the professionalism of the programmers and operators, ensure the highest quality of the tooling manufactured by VLB.



SPARE PARTS AND CONSUMABLES



All our machines are fully developed, produced and assembled in our factories in Famalicão in Portugal.

The manufacturing process has been fully digitised and controlled to guarantee and certify the traceability of all machine components.

Our warehouse, with an area of 800m², has permanent stock of all components used in the machines. For example, we are able to ship an order within 24 hours after receipt of an order that has been identified by coding. We work daily with the best international transport companies to achieve one.

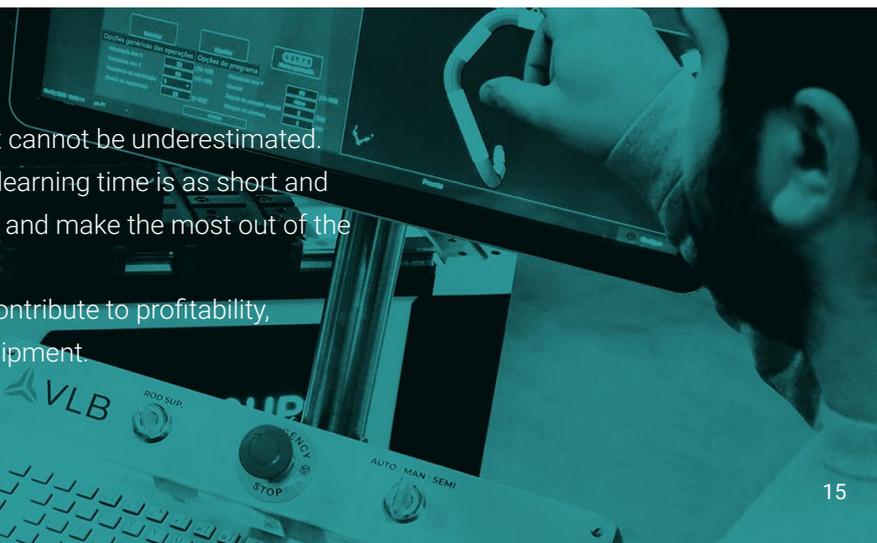
CUSTOMER TRAINING

Customer oriented training has a positive impact that cannot be underestimated.

VLB training plans are designed in such way that the learning time is as short and efficient as possible. Let the client develop autonomy and make the most out of the equipment.

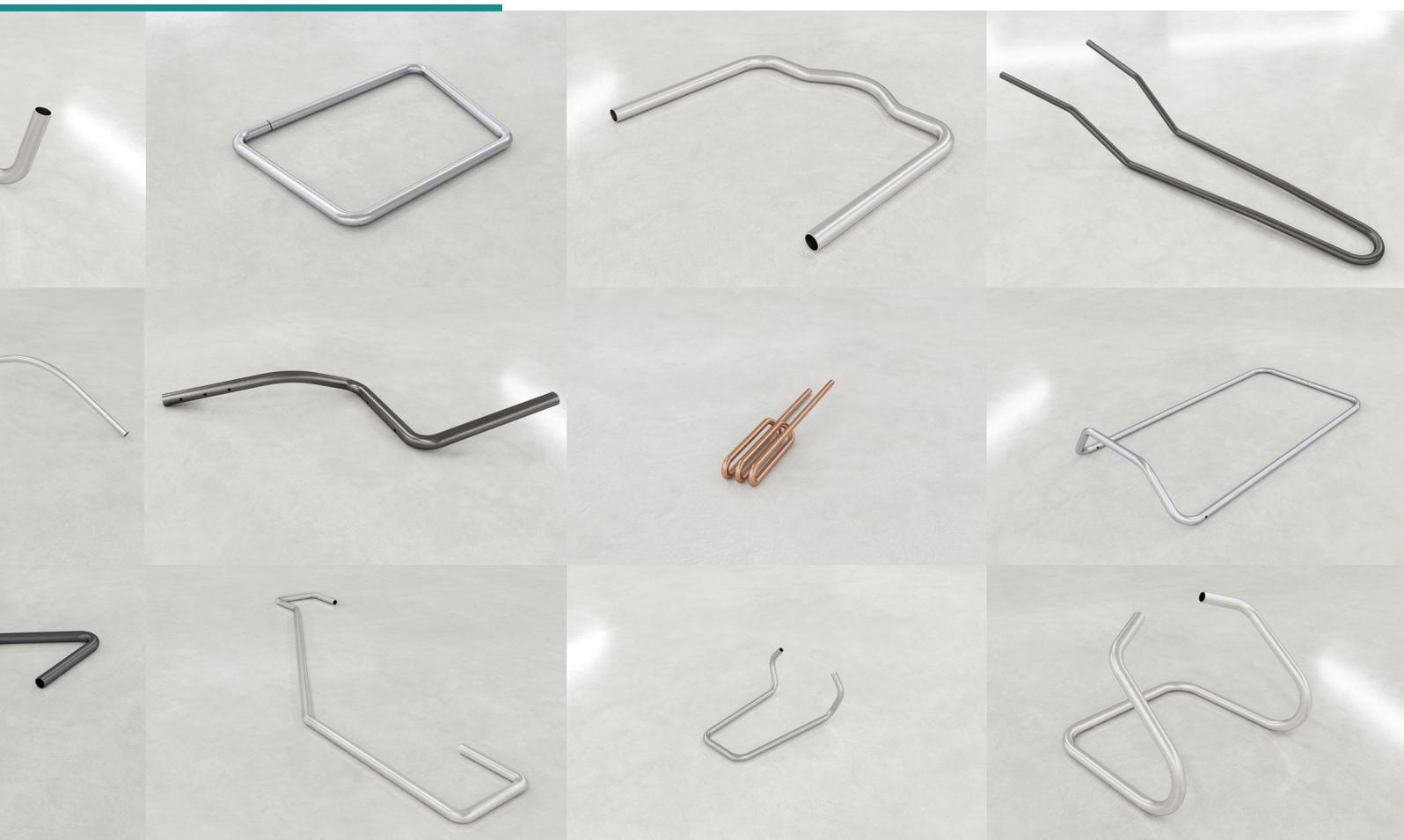
Knowledge transfer is meant to increase efficiency, contribute to profitability, reduce downtime and extend the life of tools and equipment.

Training can be carried out at the VLB or at the client.





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