

Reliable Connections

Riveting | Joining | Roller Forming



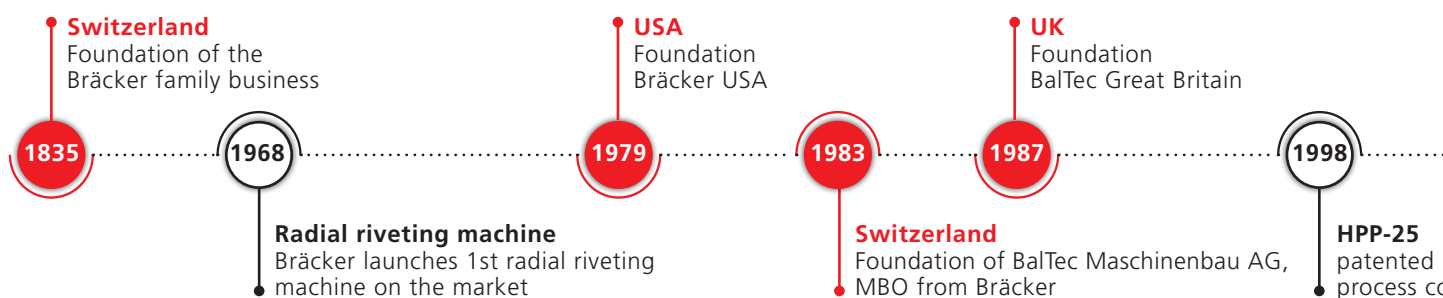
Worldwide Presence

Direct operations & representatives

BalTec is represented worldwide with its own companies and plant locations – Switzerland, USA, Germany, France, United Kingdom, Brazil, China, Spain, Italy, and Mexico – and 40 distribution partners. Due to our diversified worldwide sales and support distribution network, we can offer local professional service to you.

History BalTec

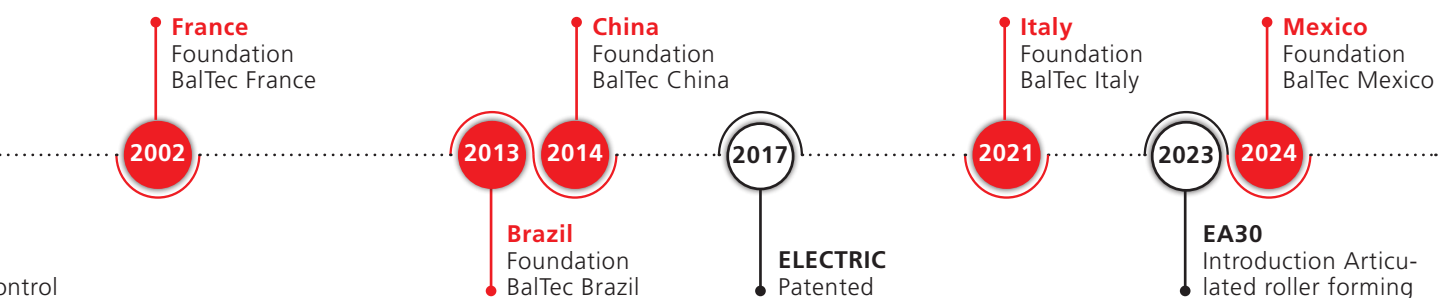
Technical innovations





Our worldwide competence and technology centers

- | | | | | |
|---------------|----------|------------------|------------|---------------|
| ▪ Switzerland | ▪ UK | ▪ Netherlands | ▪ Poland | ▪ South Korea |
| ▪ Germany | ▪ France | ▪ Sweden | ▪ Japan | ▪ Turkey |
| ▪ USA | ▪ Brazil | ▪ Italy | ▪ Thailand | |
| ▪ Mexico | ▪ China | ▪ Czech Republic | ▪ India | |



Application Examples

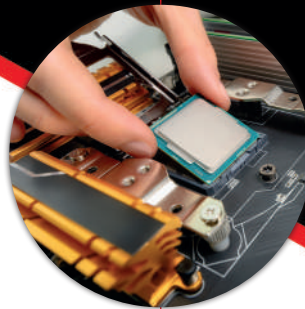
Automotive



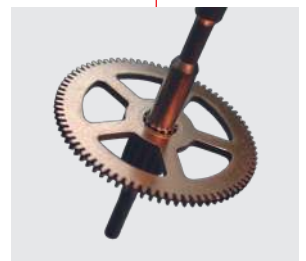
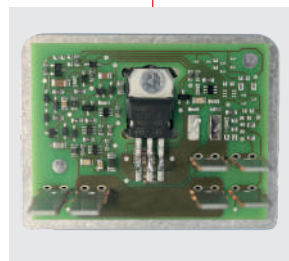
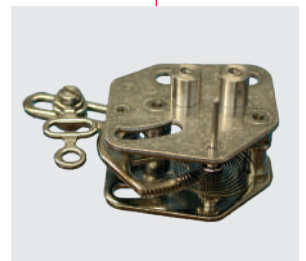
Hardware industry



Electrical & Electronics



Fine mechanics & Watches



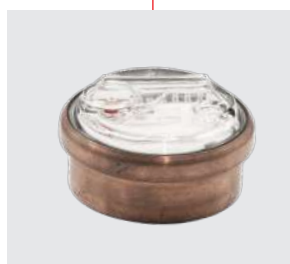
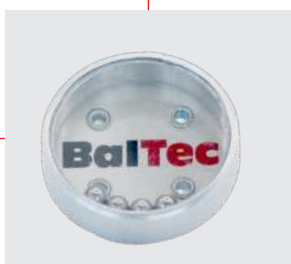
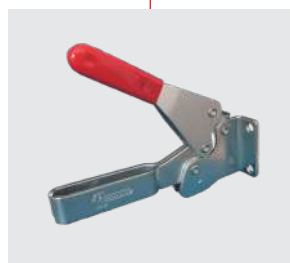
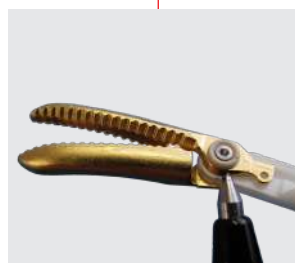
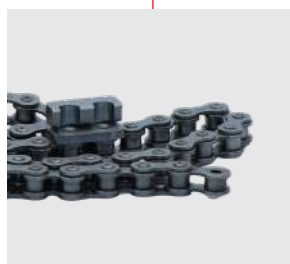
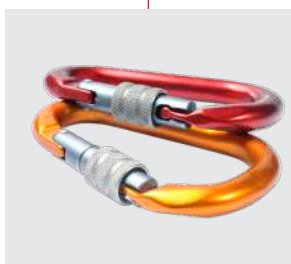
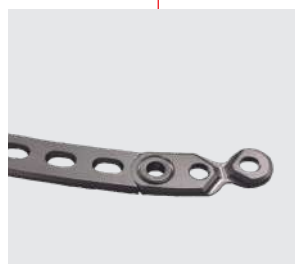
Simply Perfectly Joined

Medical device
industry

Consumable goods
& Leisure

Home & Gardening

General industry




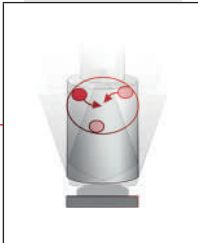








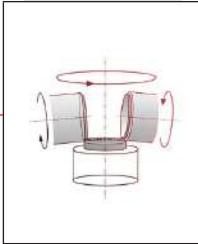


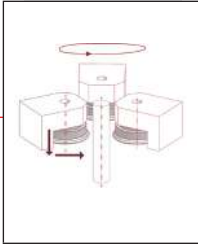

Forming Processes

Radial, Orbital, Roller forming

Generally: The application determines the process.

However, in most cases where high-quality joints are a requirement, the radial riveting technology is the appropriate procedure due to the low cycle time, the little force needed, and the high-quality results obtained.



	Properties	Flow of force	Process module
	Radial <ul style="list-style-type: none"> Movement: Rosette motion Gentle shaping Low force required No tool rotation, therefore less friction Long life of the process module 		
	Tangential <ul style="list-style-type: none"> Movement: Circular motion No tool rotation, therefore less friction Durable process module Short cycle time for simple applications 		
	Orbital <ul style="list-style-type: none"> Movement: Circular motion Rotating orbital head & tool Short cycle time for simpler applications 		
	Roller forming <ul style="list-style-type: none"> Movement: Circular motion Axial movement Rotation Roller forming inwards or outwards Roller forming with protrusion (interfering contours) by roller forming head alignment (HPPi) 		
	Articulated roller forming <ul style="list-style-type: none"> Movement: Circular / Linear Axial, Rotation & radial movement Roller forming inwards Roller forming with protrusion (interfering contours, e.g. plugs) by roller forming head alignment and/or radial movement 		

Process Monitoring

Precision & Reliability

Whether in the automotive, electronics, consumer goods, hardware or medical technology industries – the control and monitoring of forming processes is fundamental to every successful industrial production.

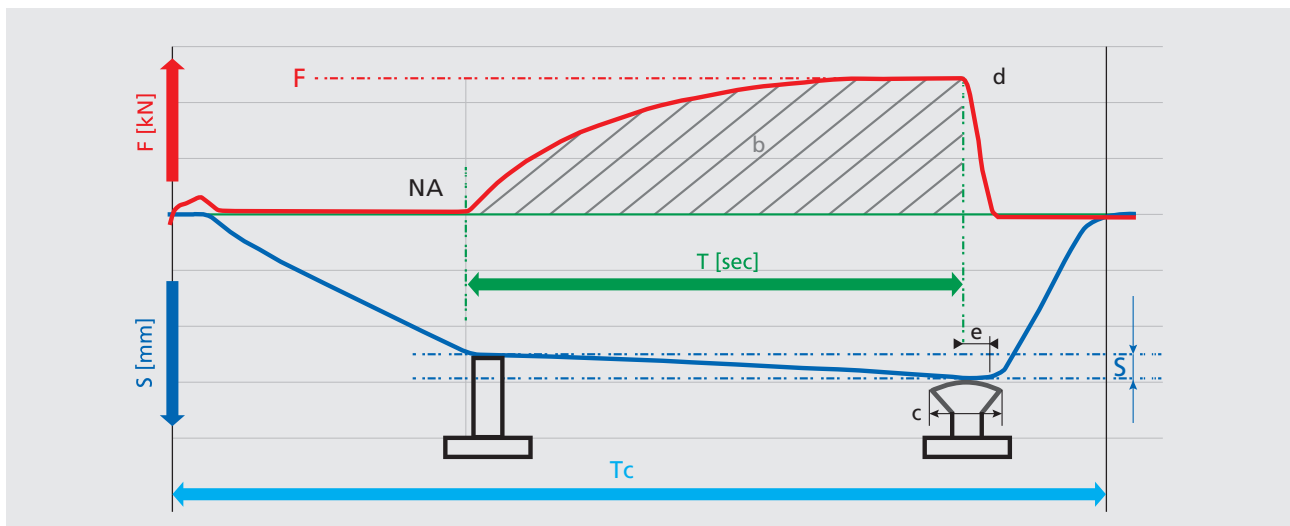
For over 25 years, BalTec has been offering the patented process control, which was especially developed for radial riveting and is now applied in all BalTec joining processes.

The basis of the process control lies in monitoring force-stroke curves over time using state-of-the-art sensor technology.

Your benefit – the competitive advantage:

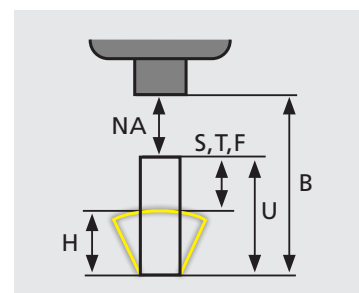
- Compliance and verification of predefined quality characteristics
- Proof of quality through complete documentation of the process
- Freely selectable control variables
- Reduction of rejects and rework costs
- Reduced process times thanks to dynamic workpiece recognition (NA)
- Important for proof of process capability and product liability

Process diagram (STF = Stroke | Time | Force)



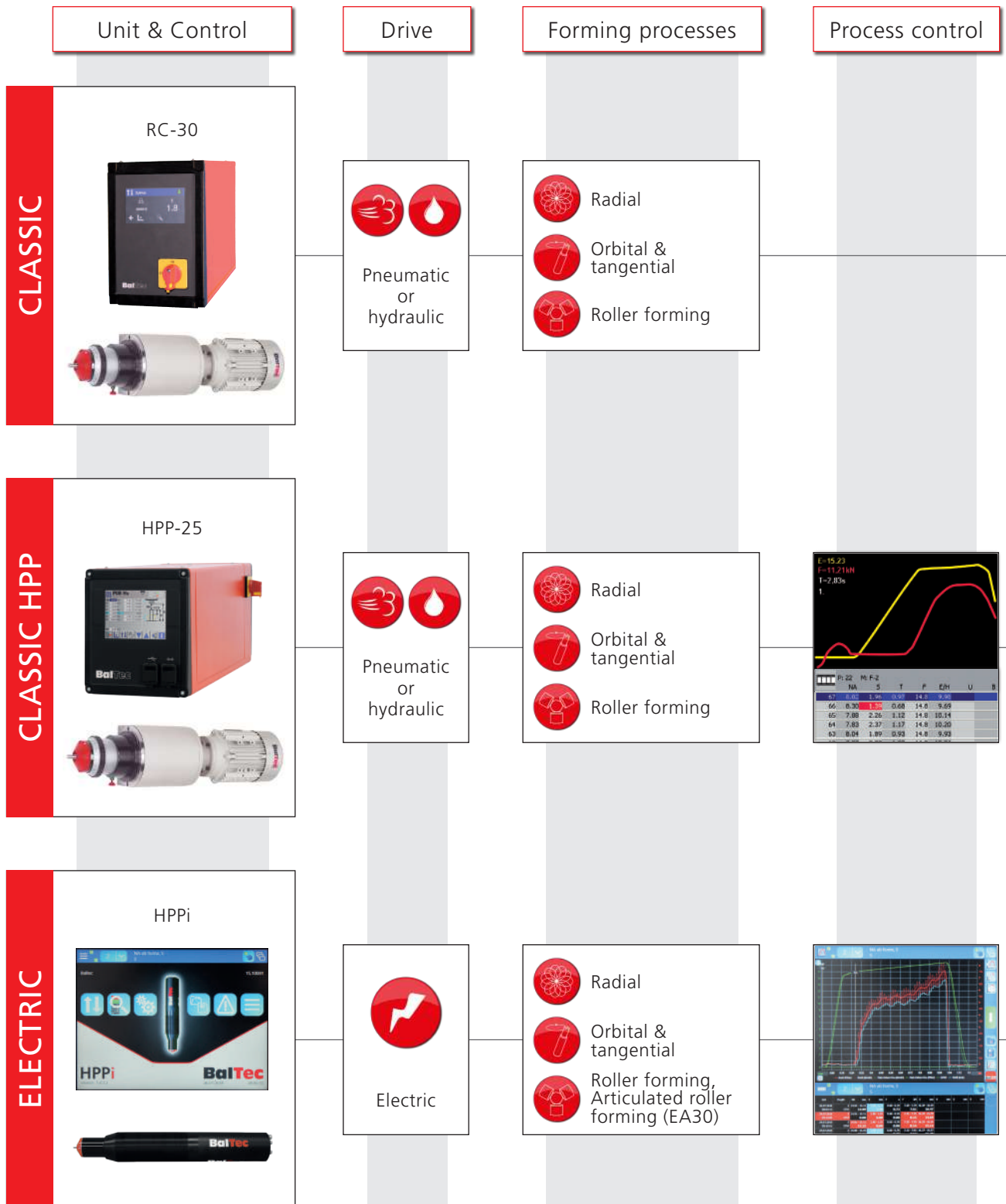
Legend

B: Base	U: Protrusion
F: Force	NA: Rivet start detection
H: Rivet head height	b: Forming of the workpiece
S: Stroke	c: Dimensions achieved within specification
T: Forming time	d: End of forming process
Tc: Complete cycle	e: Spindle overrun



Product Families

CLASSIC, CLASSIC-HPP, ELECTRIC

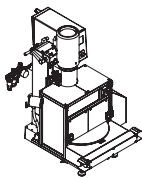


For Every Application The Perfect Machine

thanks to flexible and modular configurations

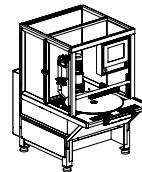
Designs

Manual Workstation



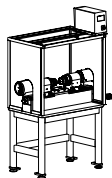
RNR

Bench top / workstation: Electric rotary indexing table with 6 or 4 stations, safety enclosure



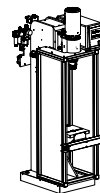
RNC RT & TR

Work cells: Coordinate riveting machine with rotary indexing table or for belt transfer system



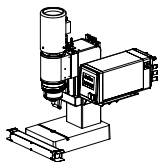
RND

Bench top model / working station: Two units assembled on supporting table



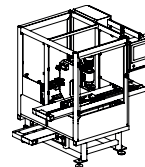
RNS

Pedestal riveting machine: Riveting machine with adjustable working table. Available with safety enclosure



RN

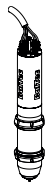
Bench top riveting machine: Unit with column incl. crank mechanism and table



Custom specific work cells

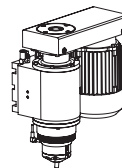
Complete systems with workpiece holders and control

Integration into Automation



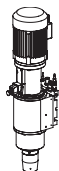
Ex U

EELECTRIC unit: Power module including cables and threaded rings for installation



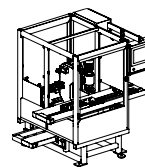
RNE lateral

Unit with lateral mounted motor to reduce height of construction



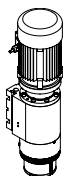
ENE

Orbital riveting unit: Ideal for integration – in any desired position – or as combination with various machines



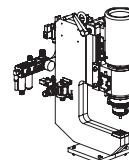
Custom specific work cells

Complete systems with workpiece holders and control



RNE

Radial riveting unit: Ideal for integration – in any desired position – or as combination with various machines



RNE C-Stand

Unit with C-stand incl. height adjustment with crank mechanism; ideal for system integration

Proven Quality

in daily use for decades.



CLASSIC

- Modular pneumatic and hydraulic machine types.
- Integration into various working environments and existing systems.
- Available in standard or customized specific versions.
- Robust performance for demanding tasks.
- Simple, time-based control.



Multiple riveting head MRX

The MRX multiple riveting head allows simultaneous forming of points within a specific center-to-center dimensional range. The machine-generated force is distributed proportionally among all riveting tools.





Roller forming

Tangential /
Orbital

Radial

RC-30 Control

Time-based control

Forming is managed by the RC-30 control unit, which controls the forming process based on time. As a modular control system, it is suitable for use with pneumatic and hydraulic machines. This also enables the control of a sliding and rotary indexing table.



Setup opera-
ting mode



Cycle opera-
ting mode



Info



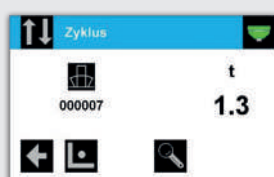
Setup



Diagnosis



Setup operating mode



Cycle operating mode



Info



Diagnosis

Proven Technology

with integrated process control.



CLASSIC HPP

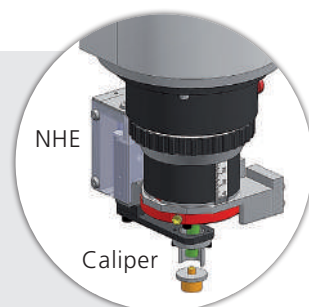
Your benefits compared to the CLASSIC-line

- Unique rivet start detection without loss of speed.
- Modular pneumatic and hydraulic machine variants with displacement and force sensors.
- Visualization of process data and force/displacement process curves.
- Standard and customized specific versions.
- Simple operation with 6 control variables and 40 modes for quick adjustments.



Rivet base detection unit

The NHE is used to check the component presence and position as well as the rivet protrusion before riveting. The aim is to prevent components with tolerance errors or missing components from being processed.





Roller forming

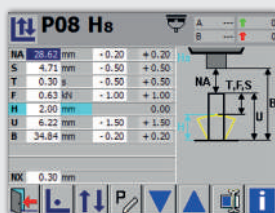
Tangential /
Orbital

Radial

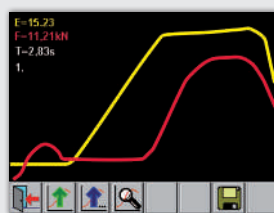
HPP Control

With process control

- Patented and fastest workpiece detection. The start of the forming process is detected without loss of speed and without prior scanning.
- For all pneumatic and hydraulic machines with displacement and force sensors.
- Visualization of process data and force/displacement process curves.
- A PC tool (Windows) is also available as an option. Communication to and from a superordinate control system takes place via predefined digital I/O.



Process data



Process curves



Logger



Diagnosis

Innovative Servo Technology

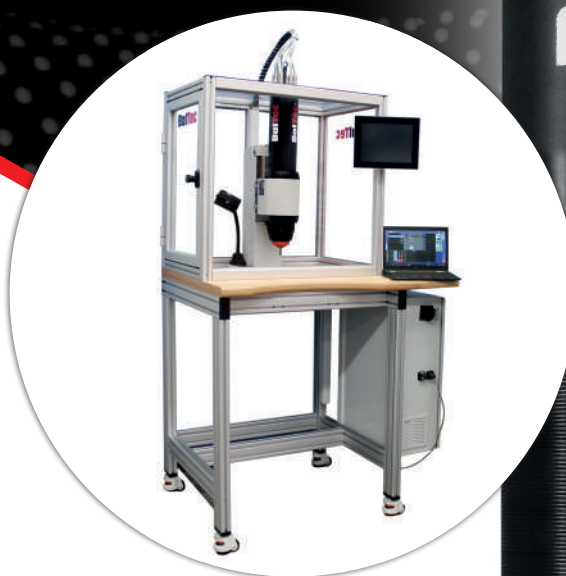
Speed, precision, flexibility



ELECTRIC

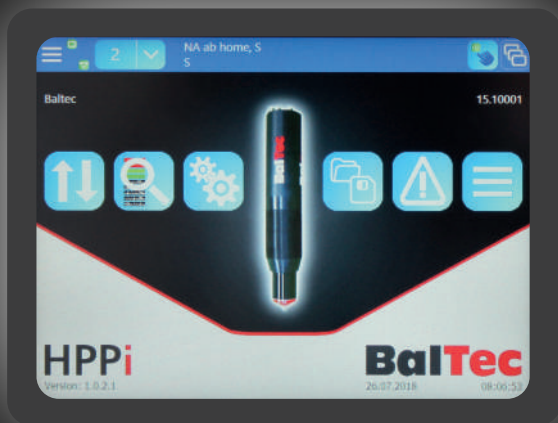
Your benefit compared to pneumatic machines

- Increase process efficiency by up to 100% by cutting process time in half.
- Reduction in energy consumption of up to 60%.
- Unique adaptability, high investment protection thanks to interchangeable process modules and wide force range.
- Direct influence on flow behavior by controlling all relevant process parameters. Cracking can be significantly reduced in brittle materials.
- Integrated force and path sensors allow cold forming processes with the highest precision.
- Compact, slim design simplifies integration into work cells and systems with safety standard PLe/SIL 3.



1 machine, 4 processes
thanks to interchangeable process modules





Roller forming

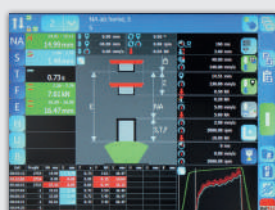
Tangential /
Orbital

Radial

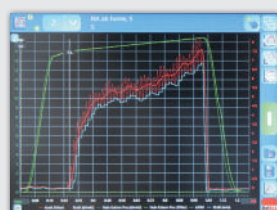
HPPI Control

With process control

- The Windows-compatible HPPI software was developed for the ELECTRIC.
- It serves as an HMI portal for safe, efficient and productive use of the ELECTRIC machine.
- Predefined motion profiles enable flexible programming and parameterization of forming and riveting processes.
- The Plug & Run basic package includes power unit, servo amplifier, PLC with integrated safety and "HPPI" software.
- It achieves high machine capabilities (CpM) with a globally unique rivet base detection system.
- The software offers a clear and structured visualization and graphic display that supports process data management.
- Open communication channels to a superordinate control system comply with the latest OPC/UA standards.



Process data



Process curves



Logger



Diagnosis

High Precision

in every axis

Roller forming

CLASSIC HPP & ELECTRIC

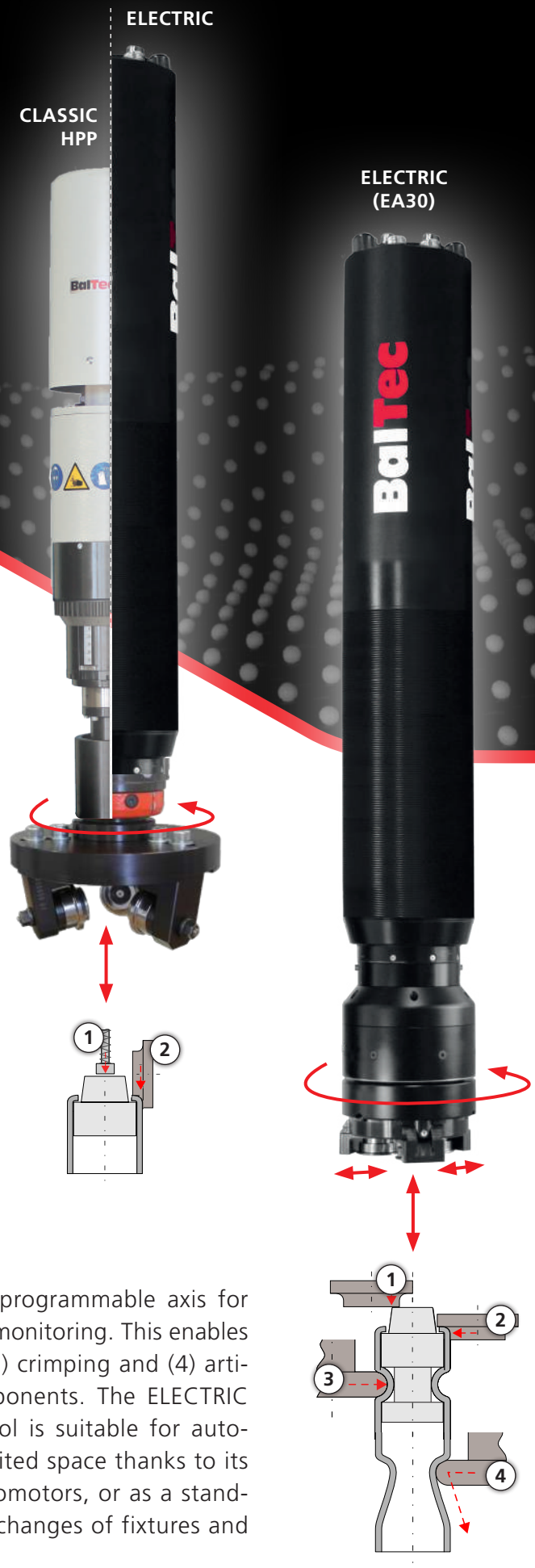
Roller forming

2D forming using profile rollers is carried out via two programmable axes: (1) a vertical and (2) a rotary movement. This means that even thin-walled parts can be formed. The CLASSIC HPP and the ELECTRIC are suitable for this process.



Articulating roller forming

Articulating roller forming includes an additional programmable axis for radial infeed of the profile rollers, including process monitoring. This enables (1) joining, (2) roller forming, (3) crimping and (4) articulating roller forming of components. The ELECTRIC (EA30) with HPPi process control is suitable for automated production lines with limited space thanks to its slim design and integrated servomotors, or as a stand-alone workstation for frequent changes of fixtures and programs.

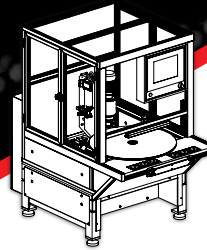


Perfect Integration

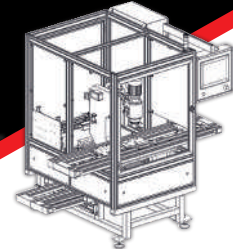
into any production line



Rotary indexing table



Linear transfer



Workstations

Coordinate riveting machines

The linear transfer offers a wide range of applications for customer-specific conveyor belts, workpiece carriers and large riveting areas. Depending on the required force, four different riveting units can be used. The optional proportional valve technology enables the automatic processing of rivets of different sizes and materials in the same workpiece, which significantly increases the efficiency and versatility of production processes.

The rotary indexing table offers a flexible and efficient solution for various production requirements. Equipped with 2 to 6 stations, it enables individual feeding and removal operations.



Picture:
Rotary indexing table as a
manual workstation ER03R

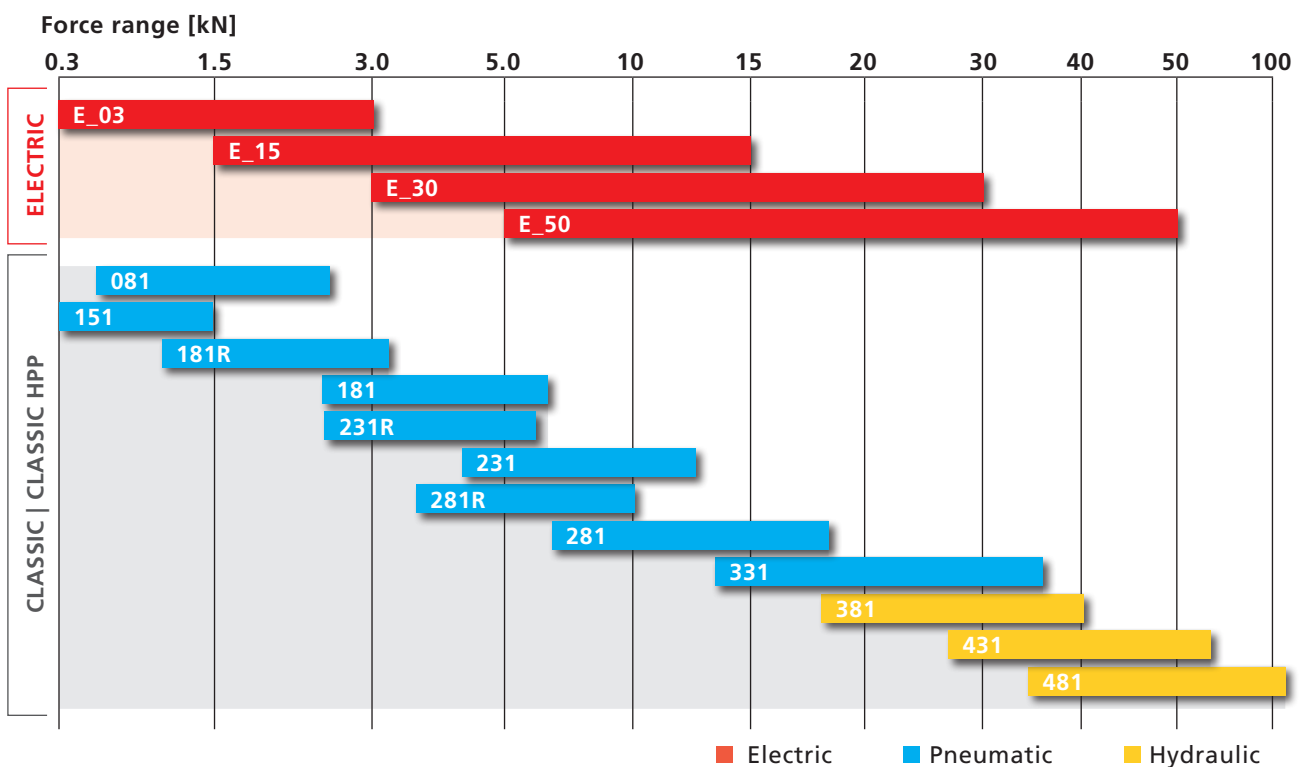


Models

Comparison CLASSIC, CLASSIC-HPP, ELECTRIC

The application determines the process. The most important selection criteria are:

- Material (solid or tubular)
- Material form (round or unshapely)
- Cycle points per workpiece (one point or several points per workpiece)
- Material hardness
- Wall thickness
- Desired result of deformation (pure forming or marking)



Machine data

Overview of all machines (CLASSIC, CLASSIC HPP & ELECTRIC) with features, matching process modules, speed, force, stroke & weight.



Forming tools

Overview of forming tools and standard forming profiles. BalTec also offers customized forming tools and special tool coatings for longer service life or lower friction.

Services

Everything from a single source

BalTec has been offering innovative solutions in forming technology for over 50 years, from simple riveting units to turnkey work cells. Our specialists develop customized applications worldwide.



Analysis & application development

From the analysis to the feasibility study, we take all specified parameters into account and develop new ideas and innovative solutions to achieve the best possible results in the shortest possible cycle time. Our outstanding Swiss quality guarantees maximum precision and long-term efficiency with minimum maintenance costs. With new standards in durability and low life cycle costs (TCO), we are setting a new benchmark in the industry.



After sales, training & rental

BalTec riveting & roller-forming machines are manufactured exclusively in Switzerland. Each machine undergoes a recorded test to ensure the highest standards. BalTec offers free telephone support with remote assistance, as well as training on-site or at one of our technology centers. You also have the option to rent a riveting or roller-forming machine from us.

Forming tools & spare parts

All BalTec forming tools, such as pressure cups and form tool holders, are manufactured to the same high standard at the headquarters or at the BalTec USA branch. Bearings and seal kits, pneumatic control components, electric motors and critical spindle components are available from stock.



Who we are

With its headquarter in Pfäffikon (Zurich), Switzerland, the core competence of BalTec group is in manufacturing machinery for joining technology, focusing on the radial riveting process, orbital riveting, roller forming, and joining. As early as 1968, BalTec (still known as Bräcker) had already produced radial riveting technology, a process well-known in various industries. Today we are the global leader in riveting and cold forming technology. BalTec has direct operations in 7 countries with approximately 70 direct employees, and over 40 sales partners represent BalTec around the globe.

What we offer

We firmly believe that the high level of quality and customer satisfaction provided by BalTec can only be achieved by a strong local presence. Our technology and service centers provide worldwide support to machine builders and process development and testing for end users while defining the most suitable process. BalTec employees or our trained representatives close to your location provide this competent and personal support.

Where do we aim to go

Our position as technology leaders is forward-looking for us. We continuously strive to improve this position and our offerings to provide optimal and sustainable solutions to our customers, particularly in joining technologies. Economical, energy-efficient, reliable, and easy-to-use products, combined with patented process control, enable our customers to achieve cost advantages.

We are BalTec

Our strongest asset? Beyond any doubt, it is our committed and motivated employees, of which many have gained a wealth of experience over many years. Together, we pursue a single goal with absolute dedication: customer satisfaction. Please arrange an appointment and take advantage of our expertise.

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**SWISS MADE**

Joining is our business – worldwide

BalTec