GROUP

Welcome

BalTec

Our history

1835: M. Bräcker starts family business (textile components)

1968: Bräcker launches radial riveting machine

1979: Incorporation of Bräcker USA

1982: Market introduction of PWS

1983: Incorporation of BalTec Maschinenbau AG, MBO from Bräcker

1987: Incorporation of BalTec UK

1990: Takeover by Mr Fritz Bösch (from 1997 on part of Feintool)

1998: Market introduction of first Process Controller)

2000: Discontinued production of PWS

2002: Incorporation of BalTec France

2010: Market introduction of HPP-25, 4th generation of Process Control

2011: Spin-off from Feintool to Swiss investor group

2013: Incorporation of BalTec do Brasil LTDA

2014: Incorporation of BalTec Machinery Ltd. (Shanghai) P.R. China

2016: 40'000 machines delivered since 1968

2017: Introduction of BalTec ELECTRIC

2018: Incorporation of BalTec Mexico

2021: Incorporation of BalTec Italia S.r.l.

2023: Introduction of BalTec ELECTRIC EA30

We are BalTec

Our core Competence

Designing and manufacturing machines for:

- Radial riveting
- Orbital riveting
- Roller forming
- Articulating Roller forming
- Reliable and ever lasting durable joining technologies

Our worldwide Competence and Technology Centers

- Germany
- France
- Italy
- UK
- China
- Mexico
- USA
- Netherlands
- Poland
- Sweden
- Japan
- S. Korea
- Thailand

Worldwide Presence

White bullets: Representatives
Red bullets : Competence centers
Red pins: Subsidiaries
Largest red pin: Headquarters

Direct Operations…

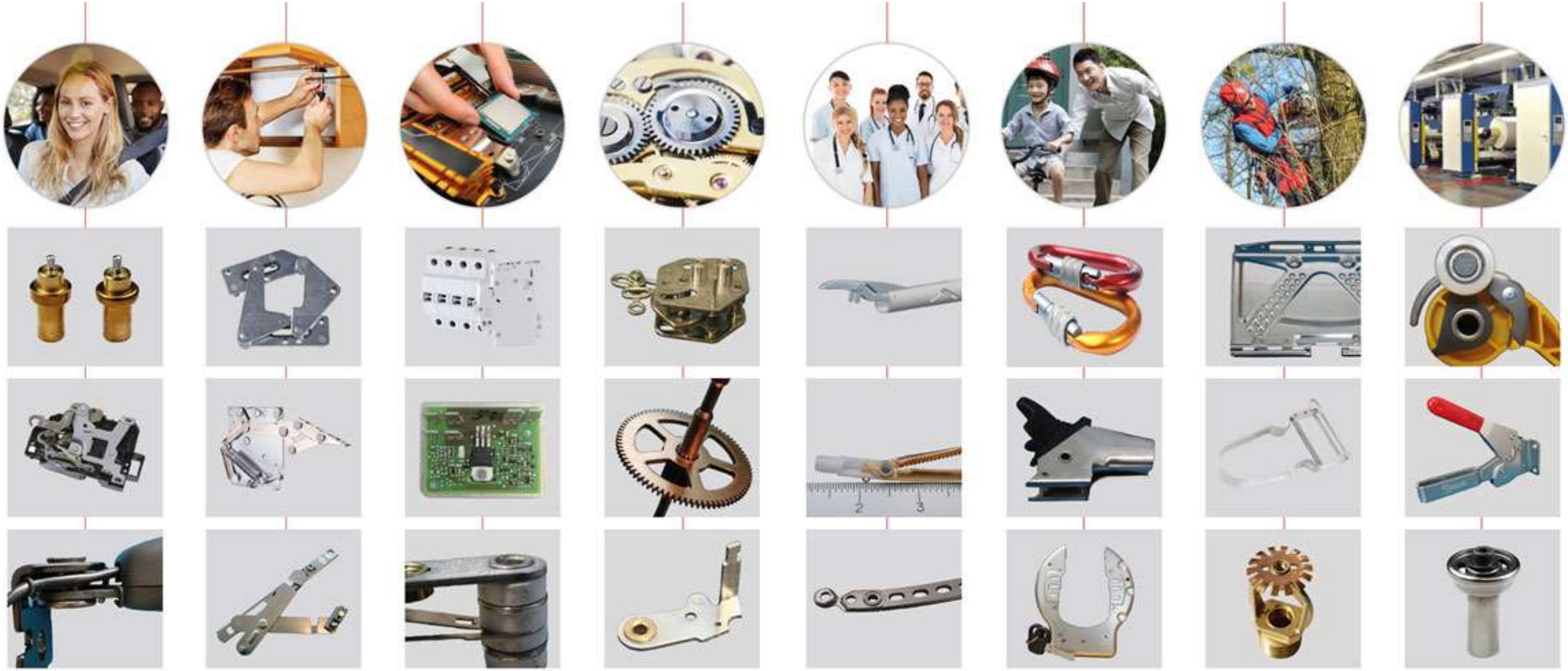
…& Many Representatives

BalTec Group · Switzerland · USA · Germany · Great Britain · France · Brazil · China · Mexico · Italy

Application Examples – Simply Perfectly Joined

BalTec

Automotive	Hardware industry	Electrical & Electronics	Fine mechanics & Watches	Medical device industry	Consumable goods & Leisure	Home & Gardening	General industry



Processes

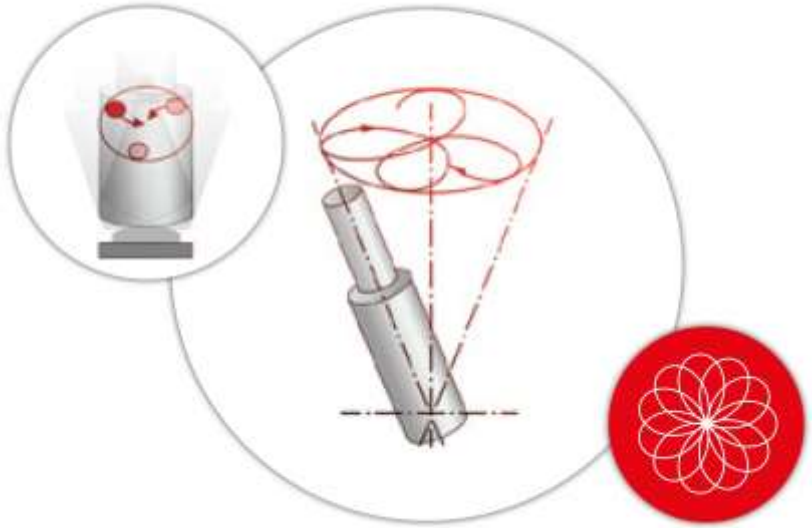
Basically:

The application determines the process

Selection criteria are:

- Material – Practically all plastically deformable ones
- Material form – round or unshapely, full or annular rivet
- One or several points per cycle
- Diameter (for tubular material)
- Material hardness
- Wall thickness
- Desired result of deformation (pure simple forming, solidly joined, swivable movable, marking, coining)
- Further criteria

Radial



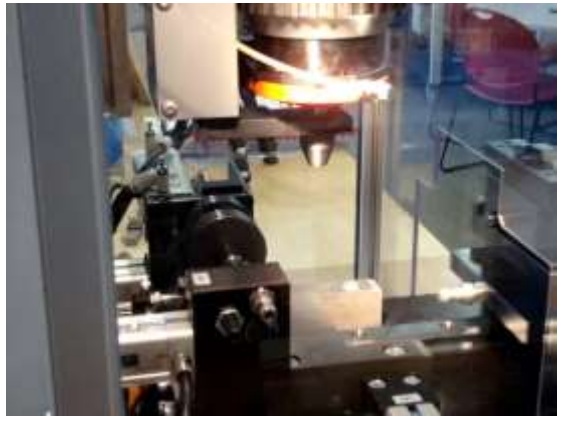
Process:

- Forming tool describes rose petal path
- Flowing and gentle deformation with least possible force
- Rivet deformation in 3 directions:
  - Radially outwards
  - Radially inwards
  - Overlapping also tangential

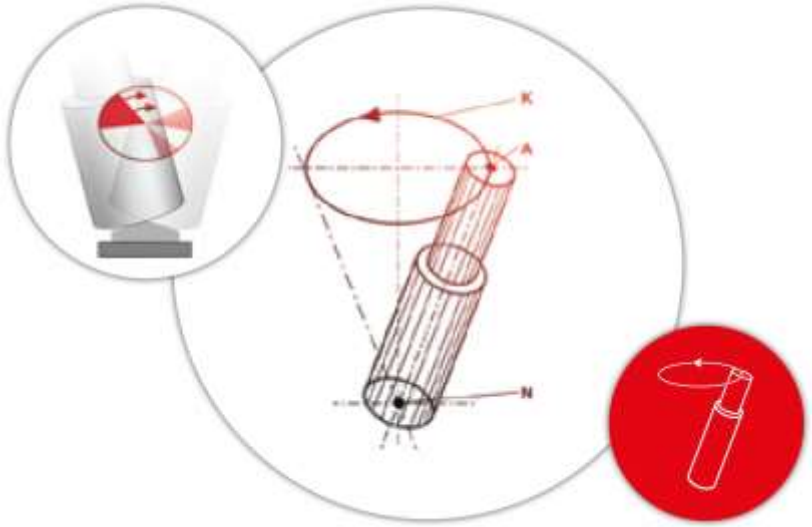
Advantages:

- Excellent surface structure of the closing heads
- Optimal cost-effectiveness over the entire lifetime (TCO)
- Minimal friction between tool and workpiece
- Low stress on the components
- Long lifetime of machines and tools
- Simple workpiece holding thanks to minimal lateral forces

Radial



Orbital



Process:

- The center axis of the riveting peen operates in rotating path. The peen tip which contacts the rivet, signifies the pivot point, whereby the peen follows a cirucal motion
- This motion creates a pie-like contact area on the rivet
- The deformation flows around the rivet

Advantages:

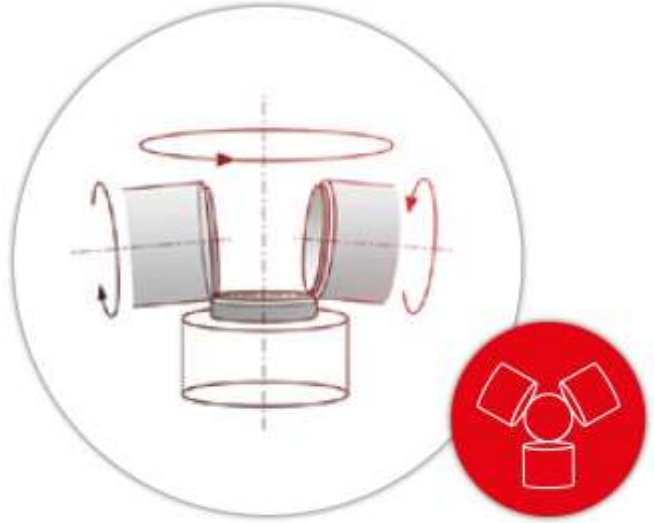
- Suitable for forming pieces with larger diameters and annular forms
- Requires good workpiece holding, which absorbs lateral forces

Disadvantages:

- Less gentle than radial forming
- Hardening on the formed workpiece is clearly visible

Orbital

Roller Forming



Process:

- Forming is achieved by profile rollers, which are mounted on a rotating spindle and roll on the formable part

Advantages:

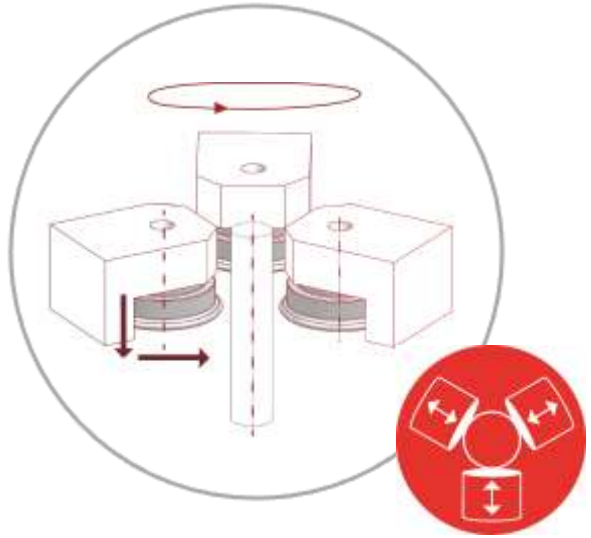
- Allows forming of tight angles
- Good sealing properties of the formed workpiece
- Minimal axial force – minimal compression of the workpiece
- Especially suitable for larger diameters of thin wall applications
- Roller forming head is manufactured specific to the application
- Design, number of rolls and rotational speed per the application
- Forming in axial or radial direction possible

Disadvantages:

- Initial costs for forming workpiece are higher compared with radial or orbital

Roller Forming

Articulating Roller Forming



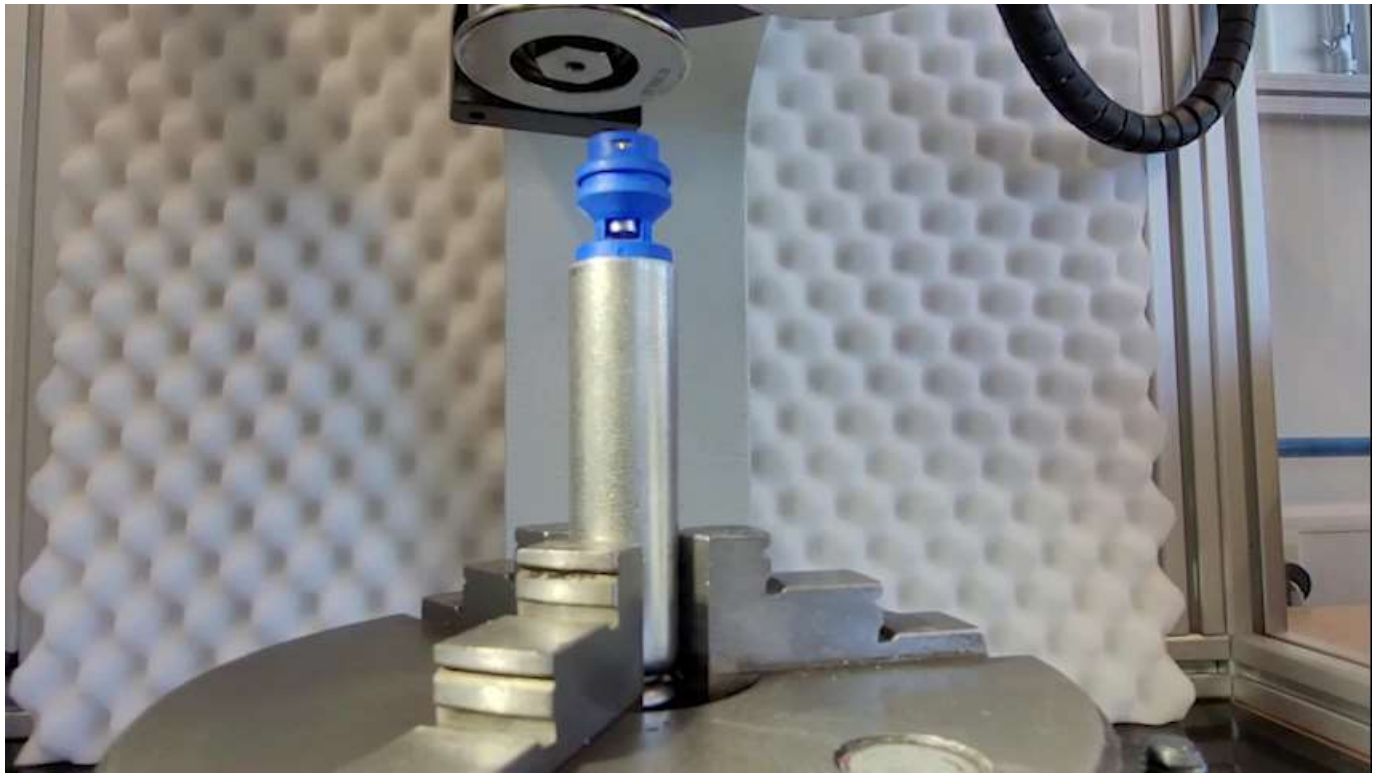
Process:

- Fully servo-driven process control, workpieces are formed with **three axis**, one in vertical motion, one in a rotary motion, and one in an articulating (radial) motion of the rollers.

Major Benefits:

- Form multiple profiles in one machine cycle, one setup
- 3D forming, articulating roller forming, axial roller forming and crimping
- Increases throughput due to less part handling
- HPPi PC Software offers full process traceability meeting industry 4.0
- Servo-controlled forming with high precision and reduced reject rates.
- Compact form factor which can easily be integrated in fully automated production lines.
- Direct, inline force monitoring in axial and radial direction

Articulating Roller Forming



Product Families – ELECTRIC, CLASSIC-HPP, CLASSIC

ELECTRIC

CLASSIC-HPP

CLASSIC

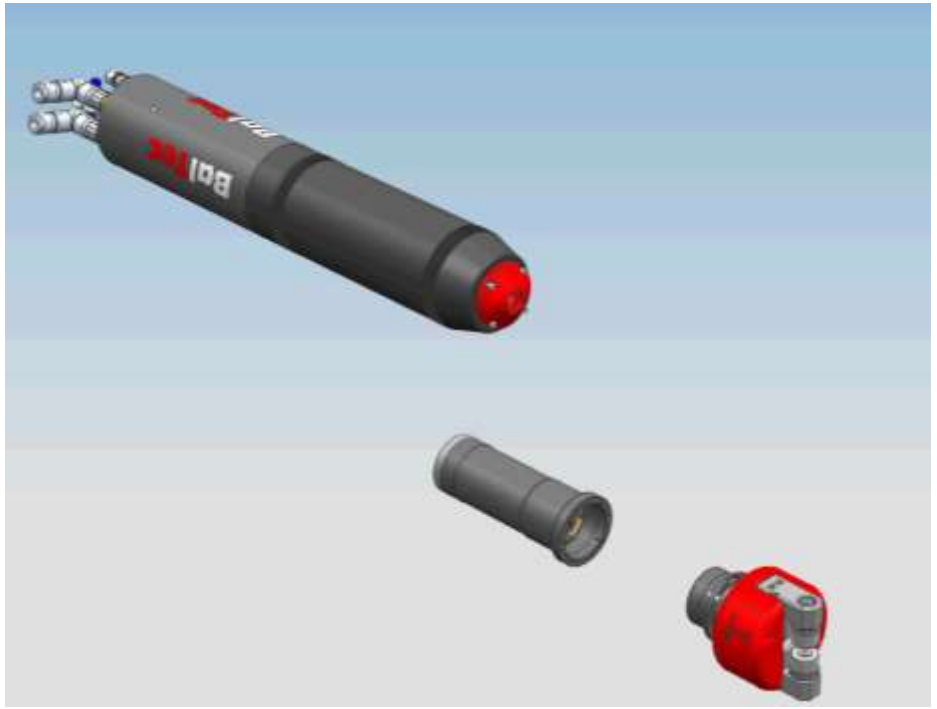
ELECTRIC – Speed, Precision, Flexibility

- Increased productivity & reduces maintenance costs
- More compact design allows tighter positioning in assembly lines
- Greatly reduces operational costs compared to conventional systems
- Protected investment, as this machine is easily adaptable to new products and can meet a greater range of production requirements
- Immediate product fault and error detection by means of integrated 100% quality monitoring and traceability

Force	Linear Speed	Stroke	Rotational Speed
3 – 50 kN	0.05 – 180 mm/Sec	5 – 200 mm	0 – 3000 min

ELECTRIC – Speed, Precision, Flexibility

Principle concept of ELECTRIC – inline servo driven



Flexibility with different process heads – easy process changeover

CLASSIC-HPP – Expandable, Process-Controlled, Industry 4.0

- Ideal for integration into automated cells, with rotary tables, transfere lines and c-frames in any position
- Riveting / forming force is generated pneumatically or hydraulically
- Short cycle time based on efficient operation
- Pressure and distance measurement sensors with optional adjustable spindle speed control
- Process Control HPP-25 available
- Robust design and easy operation
- Excellent price / performance ratio

Force	Rivet Shank Ø max.	Stroke	Pressure (pneumatically / hydraulically)
0.5 – 100 kN	30 mm	2 – 90 mm	2 – 145 bar

CLASSIC – Proven, Reliable, Time Controlled, Flexible

- Ideal for integration into automated cells, with rotary tables, transfere lines and c-frames in any position
- Riveting / forming force is generated pneumatically or hydraulically
- Short cycle time based on efficient operation
- Optionally with adjustable spindle speed control
- Time Based Control RC-30 optionally available
- Robust design and easy operation
- Excellent price / performance ratio

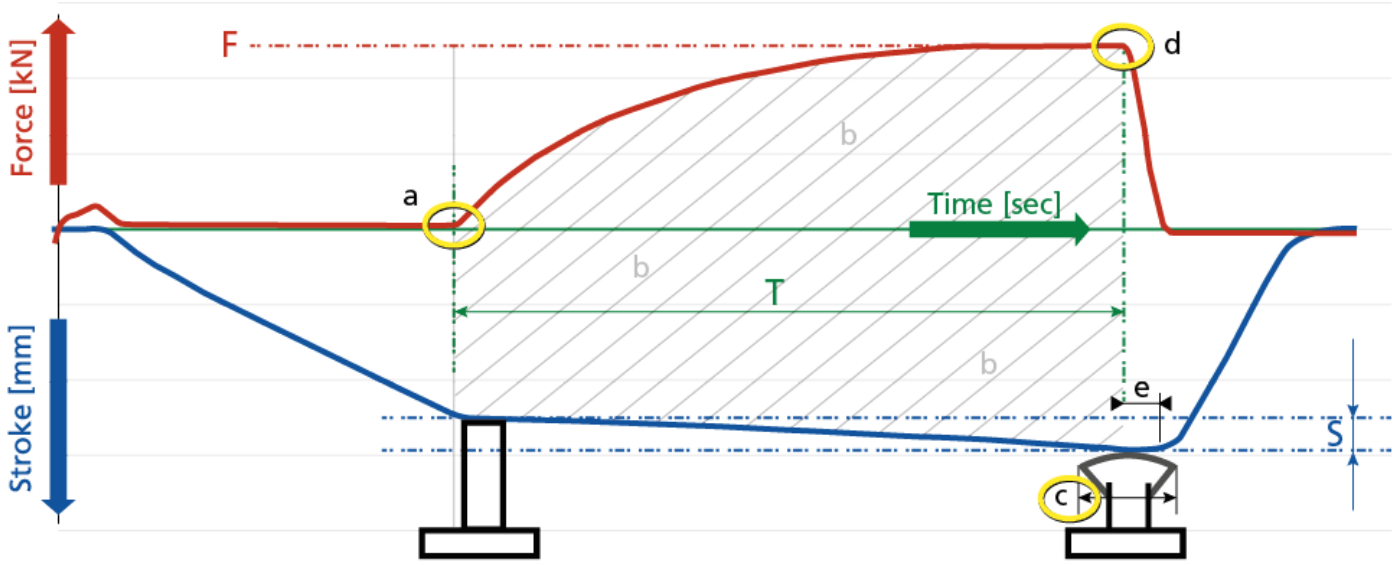
Force	Rivet Shank Ø max.	Stroke	Pressure (pneumatically / hydraulically)
0.5 – 100 kN	30 mm	2 – 90 mm	2 – 145 bar

Precision & Reliability

Basis of the process control is the monitoring of the force-stroke curves over the time track 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
- Reduction of rejects and rework costs
- Reduced process times thanks to dynamic workpiece recognition (NA)
- Important for proof of process capability and product liability



a – Rivet contact point | **b** – Workpiece

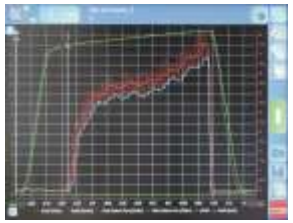
c – Achieved dimensions within specification

d – End of forming process | **e** – Response time lag

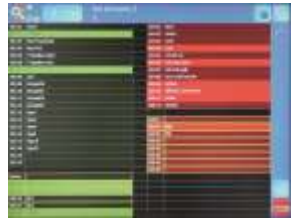
ELECTRIC – Process Control HPPi

- Windows 10 compliant
- Software serves as an HMI (Human Machine Interface) portal for the safe, efficient and productive use of the ELECTRIC machine
- EMC-secured
- Meets the highest safety standards in mechanical engineering; the latest standards in context of Industry 4.0
- Predefined motion profiles allow flexible programming and parameterization of application-specific profiles for forming and riveting processes to achieve high machine capabilities (CpM)
- Containing world's unique rivet start detection
- Visualization / graphical presentation is clear and organized structured and supports process data management


Process data


Process curves

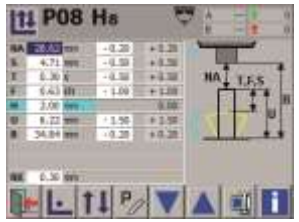

Logger


Diagnosis

CLASSIC-HPP – Process Control HPP-25

- Patented and fastest detection of the workpiece
- Beginning of the forming process is registered without loss of speed and previous scanning
- Compatible with all pneumatic and hydraulic machines equipped with position and force sensors
- Simple operation with 6 different control sizes
- More than 40 predefined modes allow direct, fast and flexible adaptation to new production needs
- Visualization of process data and force/stroke process curves
- Optionally PC tool (Windows 10) is available

- Transmission of process data via UDP – IP/Ethernet interface available as standard.
  Optional alternative: Interface to Siemens PLC (S7-300 | S7-400 | S7-1200 | S7-1500)



Process data

Process curves

Logger

Diagnosis

CLASSIC – Time Based Control RC-30

- Forming process is controlled by time setting
- The control is modular
- Is compatible with:
  - Pneumatic and hydraulic riveting machine
  - Rivet base detection device
  - Rotary indexing table
  - Sliding table

Setup operating mode

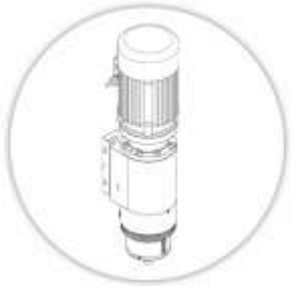
Cycle operating mode

Info

Diagnosis

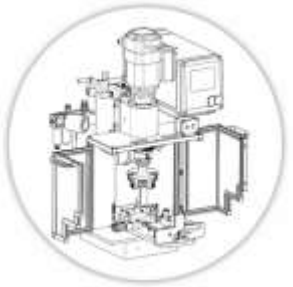
The Perfect Machine for every Application

ELECTRIC Unit

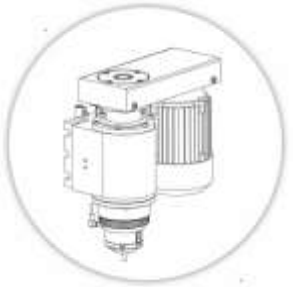


Radial riveting unit

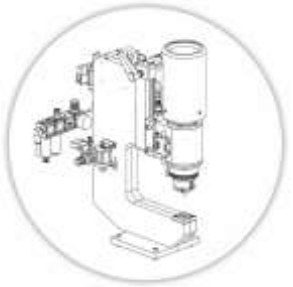
Orbital riveting unit



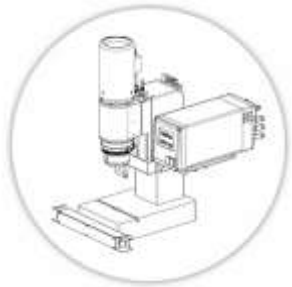
Roller forming unit with sliding table



Unit with lateral mounted motor

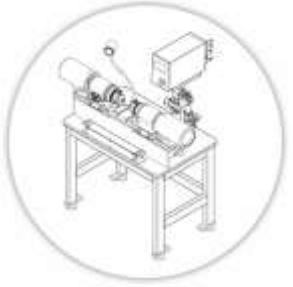


Unit with C frame

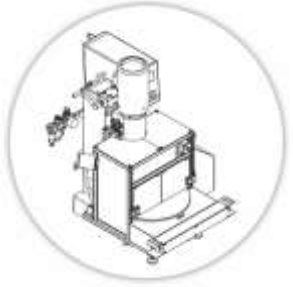


Bench top riveting machine

Pedestal riveting machine

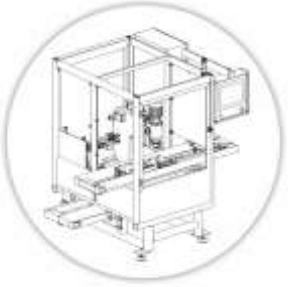


Double riveting machine



Working station with rotary indexing table

XY positioned machine with rotary indexing table



XY positioned machine for belt transfer system

Rivet base detection device NHE

- Depending on the equipment, the NHE checks following before riveting:
  - Presence of components
  - Position of components
  - Rivet protrusion
- Processing components out of tolerance or missing components shall be prevented
- As a result, cost for most pre- or post-inspection stations of parts can be eliminated and saved, since the HPP-25 handles quality monitoring

Machine in home position

Touch probe on work piece and forming begins

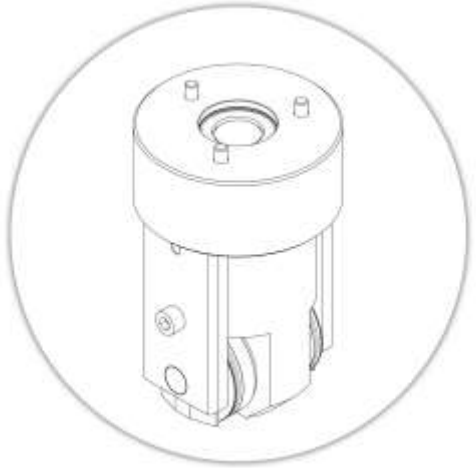
End of forming cycle determined by NHE feedback

Multi rivet head

- Multiple rivet points can be formed within a specific center-to-center dimensional range
- The generated force by the machine is distributed proportionally between all riveting tools

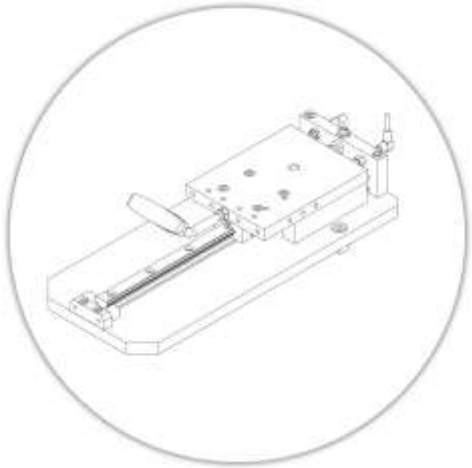
Roller forming head

- Forming is achieved via profile rollers
- Small and delicate diameters up to large ones are formable with only few force



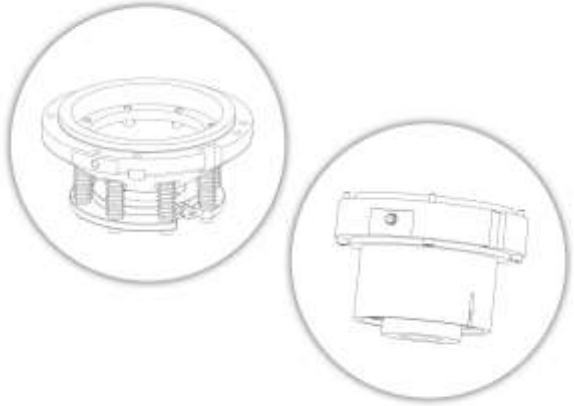
Sliding table

- Workpieces are placed outside of the riveting station, what makes working easier
- Manual or pneumatic



Downholder

- To seat, compress or insert workpieces before riveting or forming
- Large force range is possible, depending on the chosen spring pack



Forming tools & Repair parts

- All BalTec forming tools and spare parts (pressure cup, form tool holder) are manufactured at the head office or in the BalTec USA branch to the same high standard
- Following standard parts are available from stock
  - Bearing and seal kits
  - Pneumatic & electric control components
  - Electric motors
  - Critical spindle components
- BalTec forming tools are known for their long service lives life
- Depending on the application, we also offer special tool coatings for longer service life or lower friction

Repair / Service

- Repair of your machine in a BalTec technology center
- Repair of your machine in your production facility with minimal loss of production
- After repairing a machine in a technology center, the machine undergoes the same performance test as a new delivery
- After evaluation / before executing the repair, a binding offer will be issued
- Tele-support or support via TeamViewer possible; depending on product
- Certificate of ability capability available
- BalTec develops application-specific tool geometries inclusive marking tool

Training

- Individual training at your location or with us in one of our technology centers:
  - Basic knowledge of operation, setup, programming, definition of quality parameters
  - Recessed operation; NHE, Smooth Finish, auto compensation
  - Evaluation / interpretation of process data, process optimization
  - Setting up for new applications
  - Preventive maintenance and repair techniques and measures

BalTec – because the customer satisfaction is vital importance to us and:

- The company has been proven and successful for several decades
- The individual customer solution for us stands in the center; what does not fit is made suitable by us
- The quality of our products and their longevity is unique, proven and appreciated worldwide
- The expertise, motivation and commitment of our employees is our capital, and we are aware of it
- The wide-ranging global BalTec partner network ensures that on-site support is guaranteed
- The worldwide existing technology and competence centers make it possible to test and expand knowledge
- The technological top position is forward-looking for us

Proven | Reliable | Flexible | Precise | Global

BalTec Headquarters

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Shanghai, P.R. China

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Jundiaí, Brazil

France
BalTec France
Rambouillet, France

Great Britain / Ireland
BalTec (UK) Ltd.
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BalTec