

RIVKLE® ESA 2.0

Electric and automatic setting tool

BÖLLHOFF

RIVKLE® ESA 2.0 – Electric and automatic setting tool

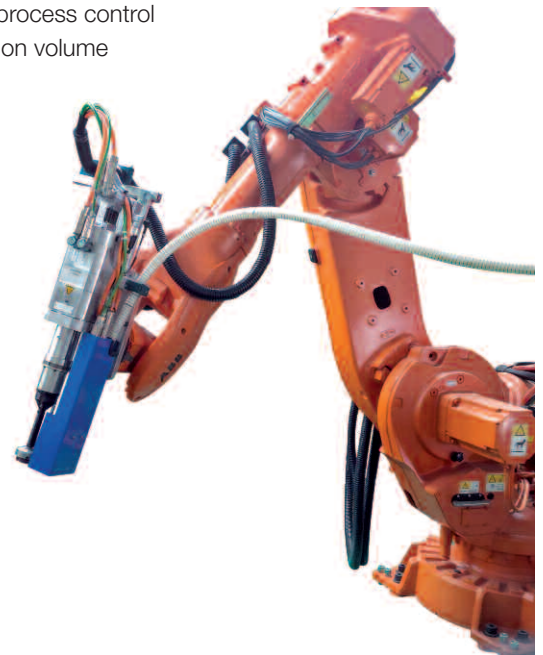
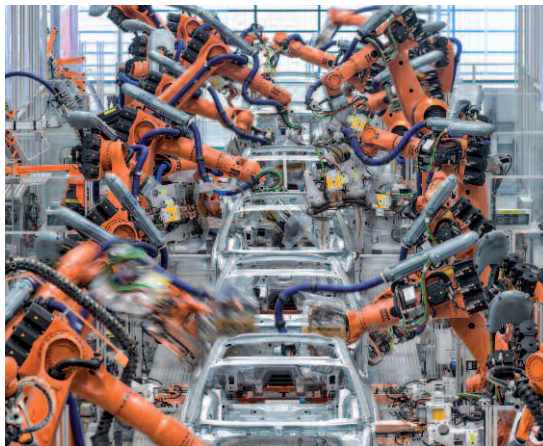
Introduction

The last few years, the number of automated industrial machines used in production has increased exponentially. Indeed, industrial automation and robotization allows us to answer to high productivity and quality requirements. Production technologies are constantly improving, making the production lines more flexible and efficient, but especially allowing us to have production rates increasingly optimized.

BÖLLHOFF is constantly expanding its product range, with the focus on its customers' requirements in order to be able to optimally answer to the issues and constraints of the automation.

BÖLLHOFF, as an historical blind rivet nut manufacturer, has constantly developed its RIVKLE® automatic setting tool range.

- EPKC: semi-automatic setting tool with 100% setting process control
 - HSA: automatic setting tool designed for high production volume
 - ESA: 100% electric and automatic setting tool
- (See Automation catalogue for more details)

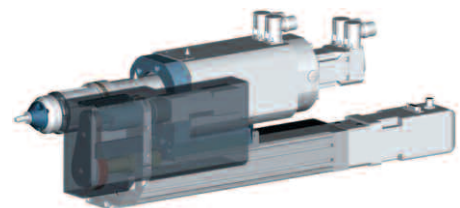


Description of the RIVKLE® ESA 2.0 setting tool

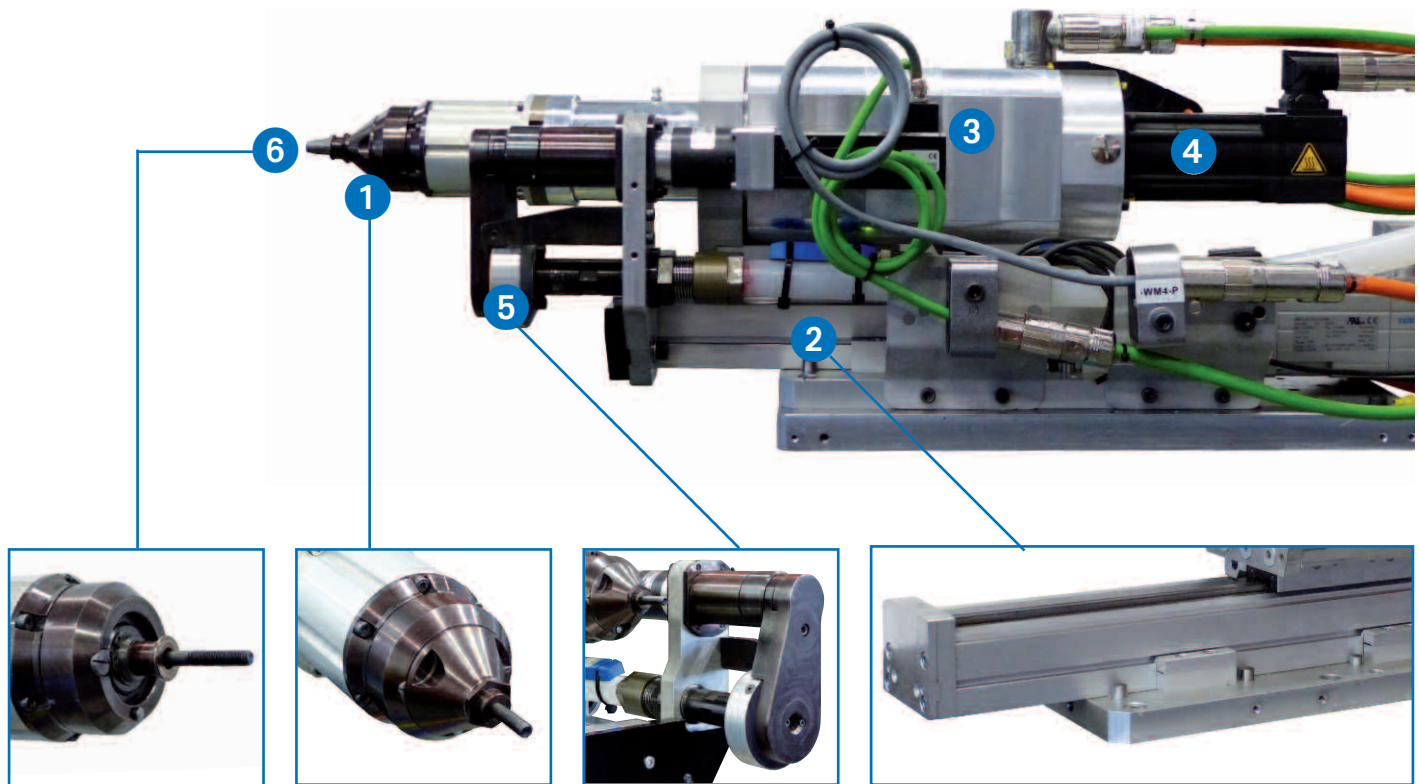
The new RIVKLE® ESA 2.0 equipment range offers a fully electric and automatic setting solution. Installed on a transfer module, the RIVKLE® ESA 2.0 integrates a linear displacement module to control the placement of the RIVKLE® into the workpiece. Servo Drive allows us to have repeatable and very low cycle times compared to an hydro-pneumatic equipment.

Advantages:

- 100% electric tool
- Lower running costs
- Short and consistent setting cycle
- Integrated transfer system
- Simple and reliable mechanical compliance system
- Complete process control
- Communication capabilities (Ethernet, Fieldbus)



Characteristics



1 Compliance system

This is a compensation system directly integrated into the nose of the tool which allows radial (± 1.5 mm) and angular ($\pm 3^\circ$) adjustments. The system is 100% mechanical and requires no programming or energy.

2 Transfer system

Self management of insertion (anti collision system and retry in case of fails).

The equipment integrates a 200 mm or 300 mm linear movement system to guarantee correct RIVKLE® placement into the workpiece. This movement is also used in the reloading process.

The transfer unit is made of a ball bearing screw (velocity: 400 mm/s) and is compatible with the system's global control process. The external dynamic capacity of this system is able to support a capacity of 30 m/s².

3 Setting system

The setting cycle is 100% guaranteed thanks to a robust cylinder bearing screw and an efficient control process (effort setting vs stroke). It offers a maximum setting stroke of 10 mm and a maximum setting load of 22 kN (for RIVKLE® M4 to M8 stainless steel).

4 Screwing/unscrewing system

The "screwing/unscrewing" steps are validated by a global process control (end of RIVKLE® screwing and end of RIVKLE® unscrewing).

5 Loading system

This reliable system (operated by a brushless motor) enables the loading of the RIVKLE® blind rivet nut on the mandrel with the right orientation for hexagonal body RIVKLE®. There is also a final process control which guarantees the right orientation and the recycling of a defective RIVKLE®.

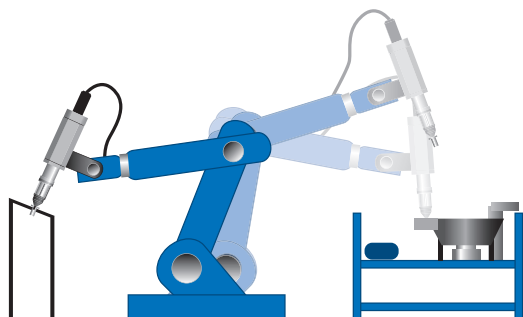
6 Tooling

This quick exchange tooling device has been designed to use a standard Din 912 CHC screw and allows for fast installation of the tooling without the use of any specific tool.



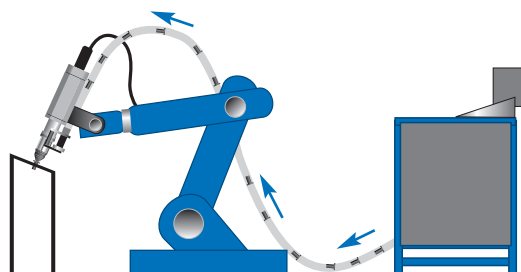
Configurations

Pick & place configuration



The setting head moves to the bowl feeder to pick up the RIVKLE® and moves to the workpiece to set the RIVKLE®.

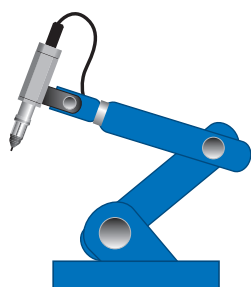
Blow-feed configuration



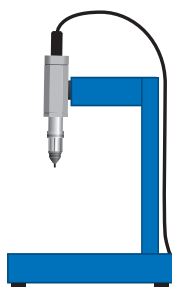
The RIVKLE® are automatically blow-fed from the bowl feeder to the setting head.

Integration

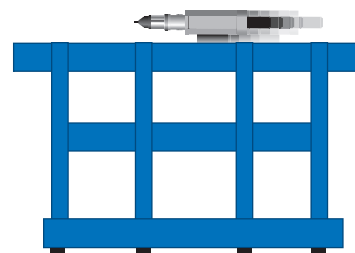
The automatic setting heads can be installed in several configurations:



On a robot



Stationary



On a transfer system

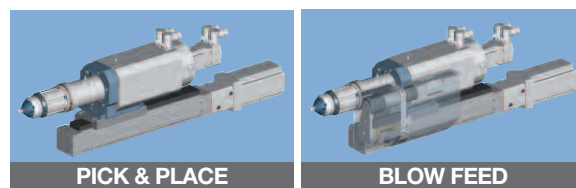
Control unit

The control unit includes 4 servo-regulators to control and measure all the RIVKLE® ESA 2.0 setting unit movements. A touchscreen permits adjustment of various parameters. To assist in complete integration the length of the electric cables between the control unit and the head is unlimited.



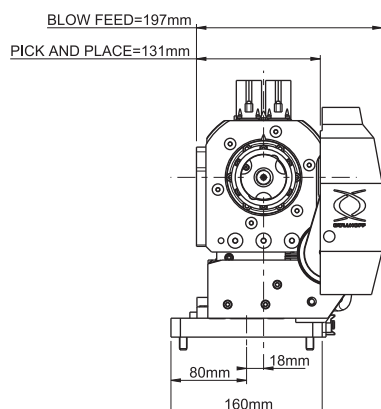
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2 versions available

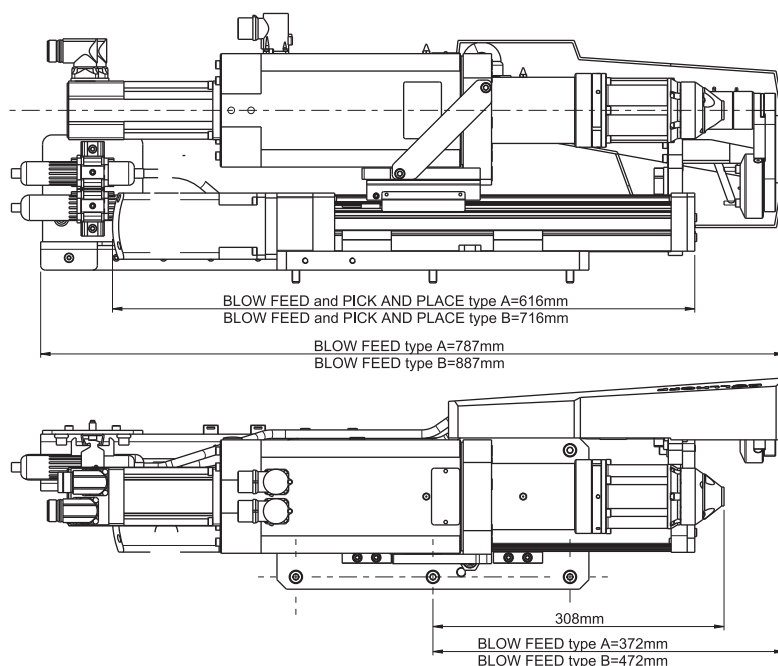


Setting force (kN)	min.	5	
	max.	22	
Setting stroke (mm)		10	
Ø RIVKLE® (min - max)	Steel	M4 - M8	
	Stainless steel	M4 - M8	
	Aluminium	M6 - M8	
Weight (Kg)			
Setting unit		14,0	
Compliance + tooling		2,0	
Loading unit		none	2,5
Transfer unit		10,0	
Total		26,0	28,5
Dimensions L x H x l (mm)		623 x 120 x 162	753 x 167 x 274
Cycle time (s)			
Loading / Screwing		Robot transfer + 0,8	1,7
Setting and unscrewing		1,7	
Specifications			
Stationary use		–	✓
Integration with robot		✓	✓
Blow feed distribution system		–	✓
Automatic loading unit		–	✓
Use the transfer		✓	✓
Electrical supply		400 Vca + N	

Dimensions



Type A = transfer 200mm
Type B = transfer 300mm



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Germany
Hungary
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Italy
Japan
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Poland
Romania
Russia
Slovakia
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Spain
Switzerland
Thailand
Turkey
United Kingdom
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Apart from these 24 countries, Böllhoff supports its international customers in other important industrial markets in close partnership with agents and dealers.

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