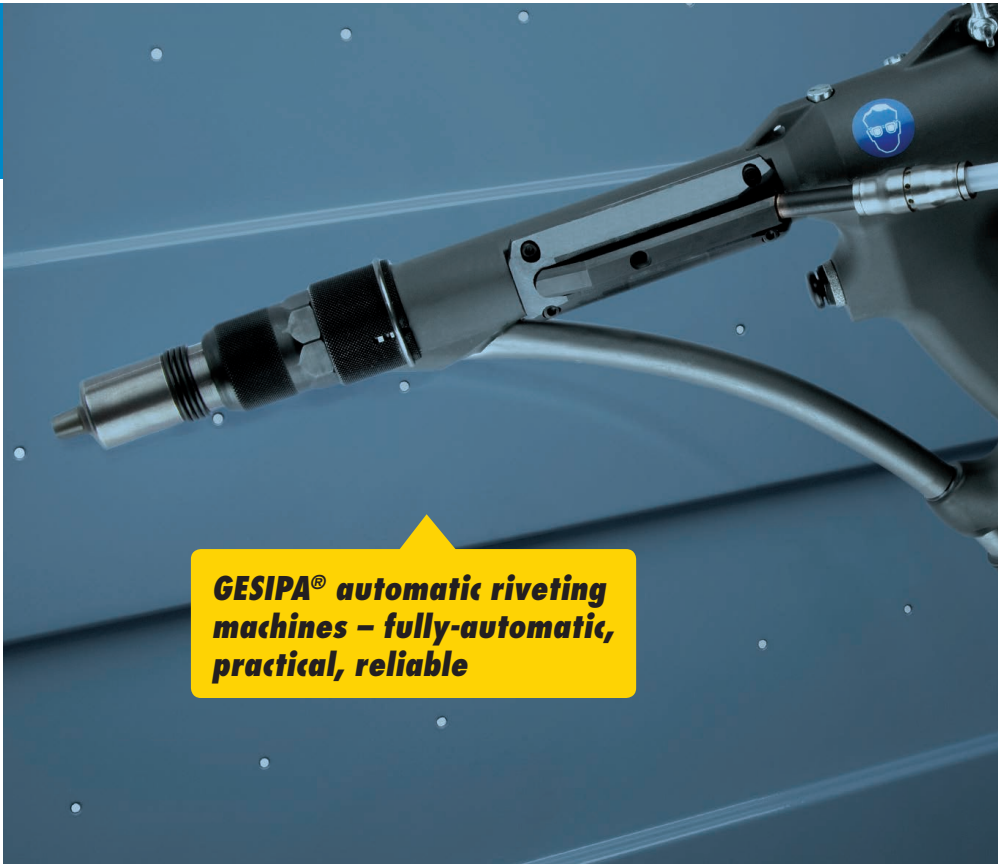


## GESIPA® automatic riveting machines



**GESIPA® automatic riveting machines – fully-automatic, practical, reliable**

### **GAV 8000 eco GAV 8000 electronic GAV HF**

- All GESIPA® blind rivet machines are perfectly suited for use in industrial large-scale production.
- GAVs can either be operated manually or used as component in a robot-controlled system; integration into a production system is also possible.
- The automatic riveting machines support the setting of a wide range of blind rivets from 2.4 – 8 mm in diameter.
- Up to 40 riveting processes per minute can be realized depending of the type of application.

## GESIPA® automatic riveting machines

### **Comparison of GAV 8000 eco, electronic and GAV HF**



	GAV 8000 eco und GAV 8000 electronic	GAV HF
<b>Supply unit</b>		
Weight	100 kg	270 kg
Spent mandrel container volume	approx. 1,800 to 5,500 pcs. (3.5 l) depending on size	approx. 1,800 to 5,500 pcs. (3.5 l) depending on size
<b>Electrics</b>		
Nominal voltage	230 Volt ~ 50 Hz	230 Volt ~ 50 Hz
Nominal current	< 2.5 A	< 8 A
Schutzart	IP 54	IP 54
<b>Pneumatics</b>		
Supply pressure	< 10 bar	< 10 bar
Operating pressure	6 - 7 bar	5.2 bar
Air consumption/riveting	15 NL	30 NL
Air consumption/spent mandrel extraction	340 NL / min.	340 NL / min.
Connection line	½" (12.5 mm) max. length 5 m	¾" (18.75 mm) max. length 5 m
Rest mandrel extraction tube	Outer Ø 8 mm/ Inner Ø 5 mm	Outer Ø 10 mm/ Inner Ø 6 mm
Pressure transducer	hydro-pneumatic	hydro-pneumatic
<b>Rivet pistol</b>		
Weight	ca. 2.5 kg	ca. 7 kg
Stroke	16 - 20 mm	20 mm
Traction power	11,770 N	25,000 N
Standard tube package length	3.75 m (max. 5,0 m)	6 m (max. 25 m)
Working cycle (theoretical)	1.25 sec.	2 sec.

**On request our technical sales team will send you more information about application possibilities in your company.**

## Automatic riveting machine GAV 8000 eco

### Fully-automatic blind rivet processing system and cost-optimized variant of the GAV 8000 electronic without setting process monitoring

#### Working range

- 2.4 mm up to 6.4 mm Ø alu and copper
- Up to 6 mm Ø steel
- Up to 5 mm Ø stainless steel
- Up to flange diameter 11.4 mm
- Rivet body lengths above 30 mm
- Traction power up to 11,770 N at 6-7 bar air pressure

#### Productivity and savings potential

- Up to 40 blind rivets can be processed every minute
- No trained personnel required for operation
- Can be easily integrated into fully-automatic production systems

#### System description

- Electronic system controls
- Intuitive menu guidance via navigation and function keys
- Function display
- Maintenance display and simple fault diagnosis
- Customer-specific software modification is possible
- Ideal for applications that do not require any process monitoring
- Rivet mandrels are disposed of by vacuum system
- Spring loaded trigger system as an optional extra available
- Can be integrated into the system or operated independently
- Interface for external memory programmable control system (SPS) can be realised via the GESIPA® interface



Advice and delivery time on request

#### Subsequent upgrade to GAV 8000 electronic possible in our Walldorf factory at extra price



## Automatic riveting machine GAV 8000 eco

### Fully automatic blind rivet system for industrial production with setting process monitoring

#### Working range

- 2.4 mm up to 6.4 mm Ø alu and copper
- Up to 6 mm Ø steel
- Up to 5 mm Ø stainless steel
- Up to flange diameter 11.4 mm
- Rivet body lengths above 30 mm
- Traction power up to 11,770 N at 6-7 bar air pressure

#### Productivity and savings potential

- Cost effective from an annual quantity of around 500,000 blind rivets (in relation to the german market)
- Up to 50 % time and costs savings compared to standard blind rivet devices
- Rivet pistol has a large action radius thanks to the hose package that is up to 5,0 m in length (Standard length 3,75 m)
- No trained personnel required for operation
- Can be easily integrated into fully-automatic production systems
- Up to 40 blind rivets can be processed every minute

#### System description

- Electronic system controls
- Intuitive menu guidance via navigation and function keys
- Function display
- Maintenance display and simple fault diagnosis
- Customer-specific software modification is possible
- Rivet mandrels are disposed of by vacuum system
- Spring loaded trigger system as an optional extra available
- Can be integrated into the system or operated independently
- Interface for external memory programmable control system (SPS) can be realised via the GESIPA® interface



Advice and delivery time on request





## Accessories for GAV 8000 (both versions)

### Accessories for GAV 8000 eco and GAV 8000 electronic allow an individual system configuration for each application case

#### Interface for connection to external control

The new GESIPA® interface developed by GESIPA® is based on an embedded PC system and provides 24 digital in and out control system ports, Ethernet connection via a RJ45 connector as well as status LEDs. Connection ports for a protocol converter supporting all common bus systems and for external storage media as well as a USB port for fast data transfer complete the features of the new interface. In addition, the GESIPA® interface has a process database for storing 250,000 of the most current process data (date, time, rivet position, process curve, analysis, etc.).



Of course, the interface is backward compatible with its predecessor models.

#### Electrical foot pedal

The electrical foot pedal is a good solution wherever applications require both hands to affix the parts that need to be riveted.

Foot pedal



#### Special length tube packages

A larger working radius can be achieved, e.g. for use on fully automatic production lines, by using packages of special hose lengths. These are available in various dimensions between 3.75 m and 5.0 m to meet the requirements of the various applications.

#### GAV carriage

The trolley that has been specially designed for the GAV enables it to be mobile thereby allowing the workplace to be changed quickly and easily.

### Comparison of GAV 8000 eco and GAV 8000 electronic

Properties	GAV 8000 eco	GAV 8000 electronic
Range of possible sizes 2.4 mm - 6.4 mm (Alu)	x	x
up to 40 rivet settings per minute	x	x
Independent system operation possible	x	x
PLC control possible	x	x
Intelligent control – excellent process safety	x	x
Setting of all operating parameters via the display	x	x
Customer-specific software modification	x	x
Maintenance display	x	x
Process monitoring		x
Process parameter memory for up to 9.999 different parts		x
Online transfer of the process data		x
The last 2 million rivet processes are saved in the device		x

## The practical modular principle

### The practical modular principle guarantees efficiency and quality

#### Individual conception for efficiency and flexibility

GESIPA®'s fully-automatic blind rivet processing systems are constructed to meet the customer's special production environment. All factors, such as workplace design, production type, application, securing of flawless work processes, integration into the sequential organisation and also process documentation for safety-relevant parts, are taken into consideration.

GAV are therefore available with various pistol models, hose length packages, special accessories for various rivet dimensions and production requirements.

This results in a large variety of models and a high level of efficiency thanks to the solutions that are adapted to meet requirements.

The GAV can be integrated into the system or operated independently. If the application changes, the system can be quickly and easily adapted to the new environment.

### GAV 8000 – Use in robot applications

#### Use by industry in robot-controlled applications

Both versions of the GAV 8000 can be integrated into robot systems. Industrial robots are used almost everywhere in the production environment. They can be programmed to carry out various movements and can therefore be used highly efficiently in combination with the GESIPA® rivet equipment.

With the controlled, fast and secure production processes it is possible to achieve the following benefits by using a fully-automatic GAV combined with a multi-axe robot:

- First rate precision
- High efficiency
- Short cycle times
- High flexibility



## Blind rivet function documentation and setting process monitoring

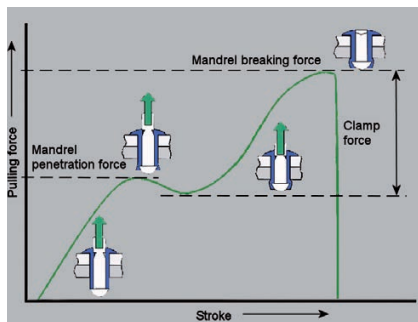
### The integrated GESIPA® quality management system guarantees precision and accuracy right from the very first production step through to the processed blind rivet.

The combination of the use of function-documented blind rivets and the use of the setting process monitoring function of the GAV 8000 electronic guarantees process-secure connections.

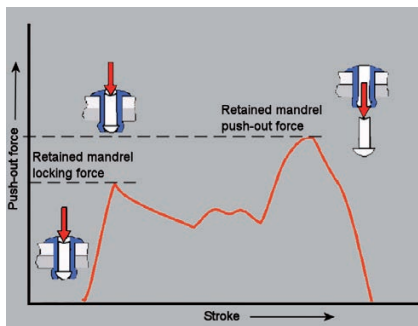
The quality management system comprises of three areas:

- Dimensional review
- Function test
- Setting process monitoring

The dimensional review and the function test are carried out at GESIPA®, whilst the setting process is monitored during the riveting process at the customer's premises.



(1)



(2)

#### Function documentation / Setting curve (1)

In addition to other parameters, the setting curve is measured using calibrated testing equipment for every batch of application-specific blind riveting. The measuring results of the shaft deformation, slip-in behaviour, mandrel break load and torque are compared to target values to ensure that the blind rivet in the application is deformed as required and creates a secure connection.

#### Function documentation / Mandrel ejection force (2)

The remaining part of the mandrel enclosed in the set rivet is pressed out with the aid of a needle. The measured force can be used to determine whether the remaining part of the pin is properly locked and will not cause any rattling noises or fall out. The batch is only released if both these values are within tolerances.

#### Monitored process – Reliable connection

100% inspections of the riveting processes are required for safety-relevant applications for industrial processing of blind rivets. In this case, the fully-automatic rivet device GAV 8000 electronic allows application-compatible efficient solutions ranging from the basic system through to a system with a barcode scanner.

## The concept to the integrated setting process monitoring



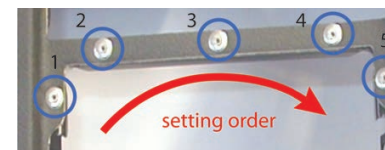
The process monitoring system is an integral part of the GAV 8000 electronic.

#### It offers the following benefits:

- Optimum process security thanks to integrated quality concept
- Blind rivet-specific process monitoring
- System can be operated independently
- No memory-programmable control system (SPS) required to operate the device
- No system calibration required when system is exchanged
- Little installation effort required
- Interfaces to the control integration

Display of a GAV 8000 electronic indicating the setting curve as part of the setting process monitoring

### Programming the setting process monitoring



The setting sequence

#### Step 1:

##### Setting up blind rivet position-specific profiles

Recording and archiving of the relevant process parameters to create a blind rivet connection with reference process curves after defining the analysis window

#### Step 2:

##### Generation of part-specific profile lists

Summary of the profile in the setting sequence as a control file for the process sequence and process assessment

#### Step 3:

##### Operating the device

Online analysis and saving of the setting process data with process interruption if deviations are detected