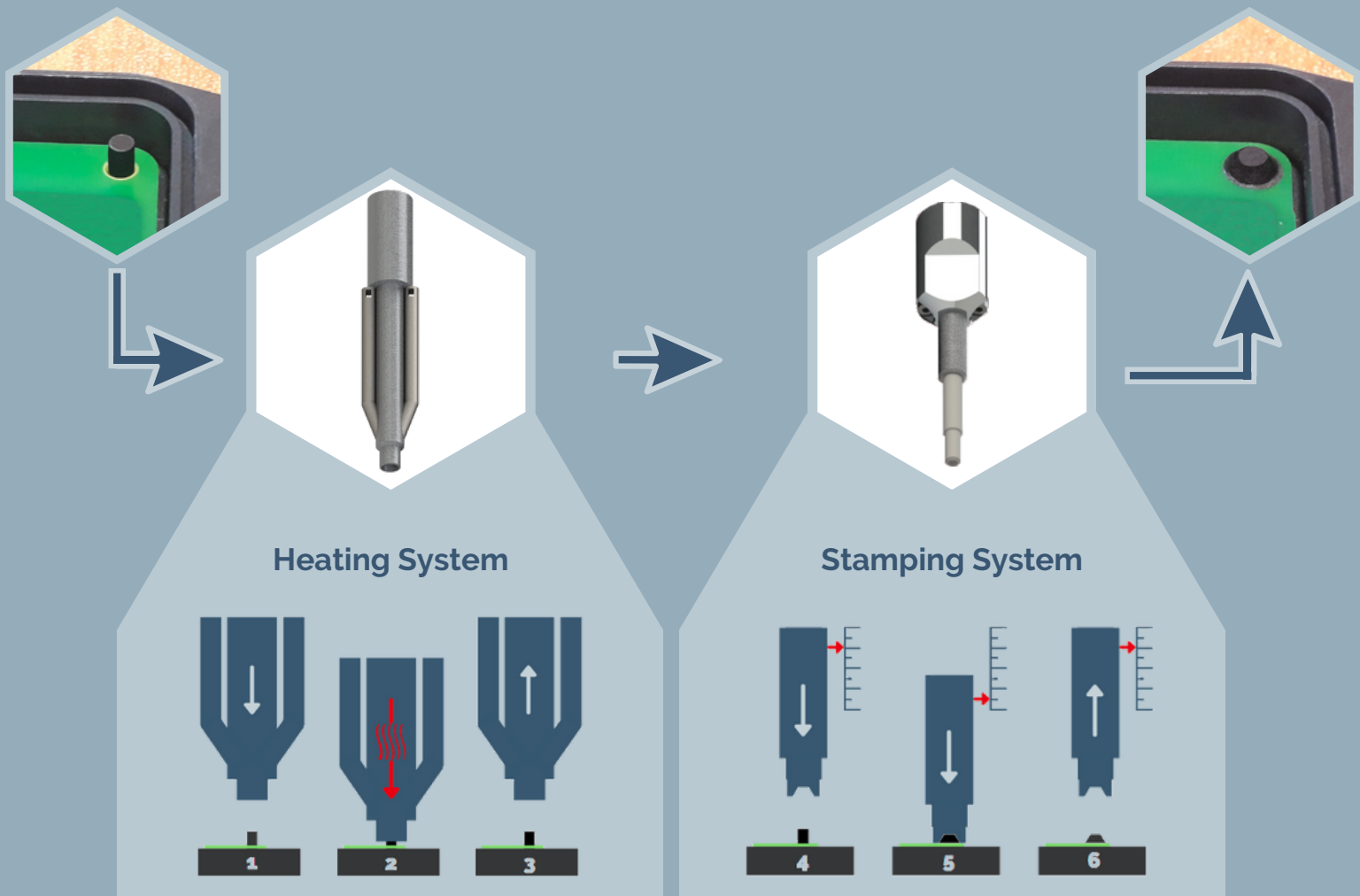




# HAR : HOT AIR RIVETING



## PROCESS DESCRIPTION

- ▶ Heating of the stake over its glass transition temperature
- ▶ Deforming this stake by pressing with the stamp
- ▶ Quality control by measurement of the stake height
- ▶ Fully automatic process

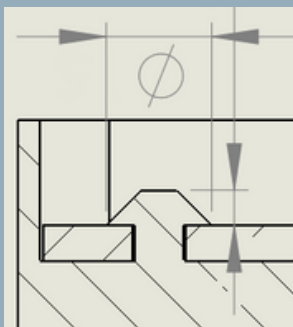
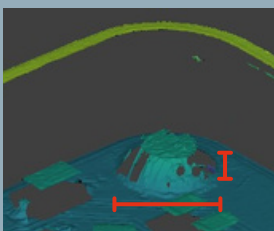
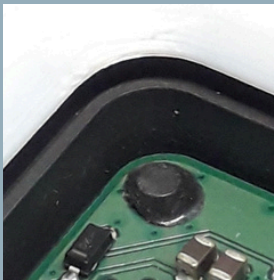
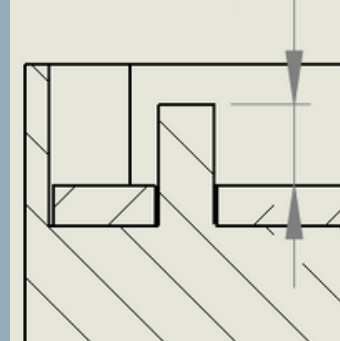
## TECHNICAL CHARACTERISTICS

- ▶ **Cycle time** : 15-20 seconds
- ▶ **Adjustable heat temperature** : up to 350 °C
- ▶ **Adjustable air flow** : 1 to 50 L/min
- ▶ Management of flow and heating system on each nozzle
- ▶ **Adjustable stamp's strenght** : up to 120 N

# VISION SOLUTION

## PRE-PROCESS CONTROL

- ▶ Presence of each component
- ▶ **Process approval :**
  - Checking for proper loading of components
  - Dimensional check of the assembly
- ▶ Reading of the product datamatrix



## POST-PROCESS CONTROL

- ▶ **Environment integrity control :**  
component damages, housing
- ▶ **Hot Air Riveting compliance :**
  - Dimensional check of each stake
  - Appearance control of each stake
- ▶ Reading of the post-process datamatrix



2D and 3D vision controls are subjected to feasibility and machine architecture tests



# HAR VERSATILE MACHINE

## BENEFITS

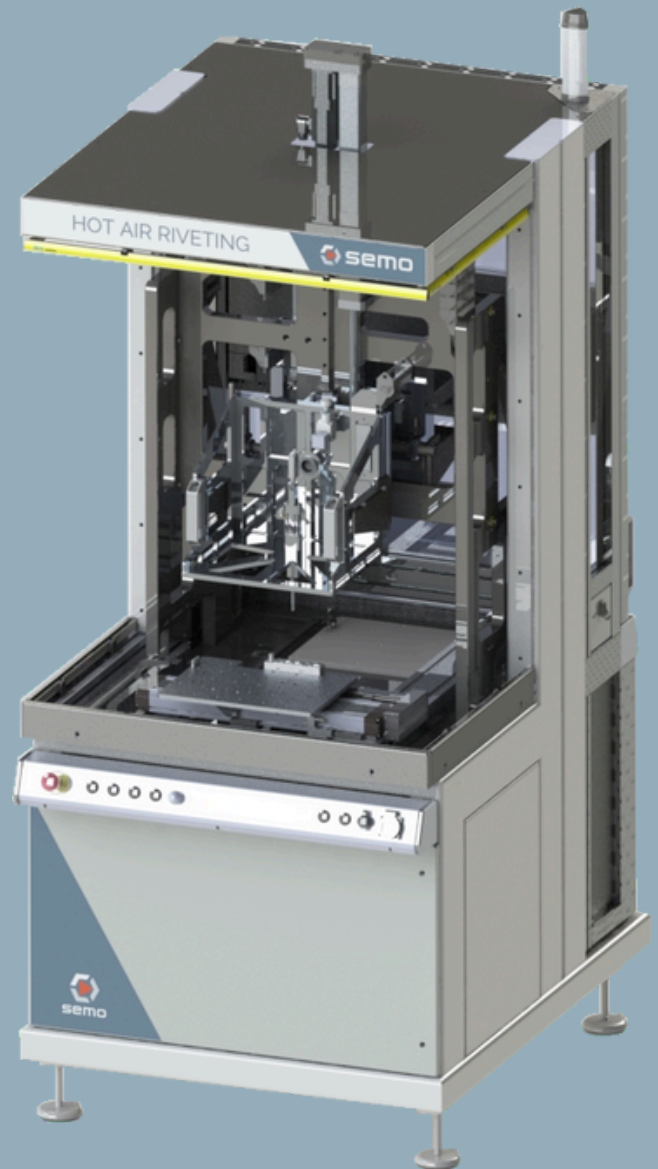
- ▶ Completely mobile station design
- ▶ Heating and stamping tools easily removables
- ▶ Safety light curtains protect the operator from the operating zone
- ▶ **Versatile machine** : Easy conversion from low to high volume production
- ▶ Perfect to realize prototypes or tests
- ▶ Process quality verification

## PROCESS CHARACTERISTICS

- ▶ Heating regulation and flow control independent by nozzle
- ▶ Setting of the HAR pressure
- ▶ Measurement of the rivet height
- ▶ Possibility to increase the machine capacity by adding up to 12 stamps on the same system

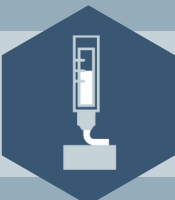
## TECHNICAL CHARACTERISTICS

- ▶ **Dimensions** : 1 x 1.4 x 2.4 m
- ▶ **Operating zone** : 320 x 240 x 150 mm
- ▶ **Weight** : 1.05 Ton
- ▶ **Power supply** : 400V, 50Hz, three phases
- ▶ **Air supply** : 6 bars

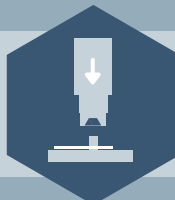


▶ Other processes available :

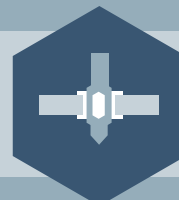
Dispensing  
& Potting



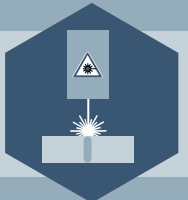
Heat  
Staking



Pressfit



Welding



## OTHER SERVICES

### ENGINEERING

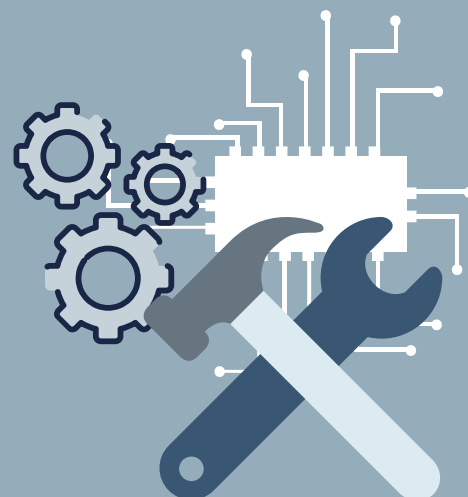
- ▶ Machine adapted to your needs
- ▶ Full process realised with some products, in presence or not of the client.
- ▶ Fine tuning with experimentations results

**Manufacturing of a pre-series :** around a thousand parts to adjust quality process



### COMMISSIONING AND TRAINING

- ▶ Commissioning on your factory
- ▶ Training (different levels)
- ▶ Starting up of the equipment



### ASSISTANCE

- ▶ Possibility to edit a maintenance contract
- ▶ Remote maintenance access
- ▶ Improvement of your equipment based on your feedback



+33 5 61 85 55 77  
[semo@semo.fr](mailto:semo@semo.fr)  
10 rue Louis Breguet,  
31700 Cornebarrieu, FRANCE

