HDSPR

HARDY Self-Pierce Riveting System

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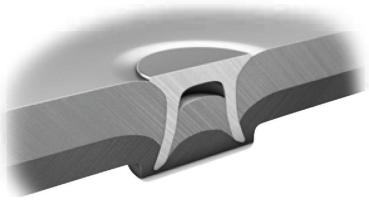
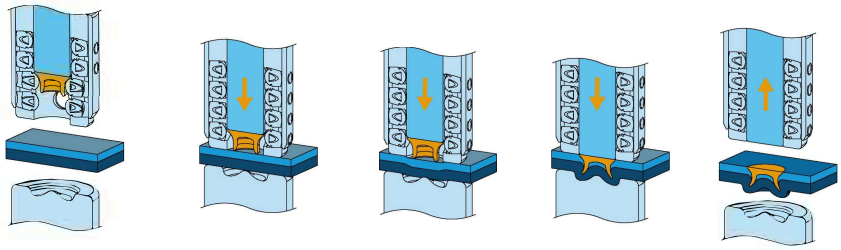
Actuating unit

Auto Fastener
Feeding system

Independent
control system

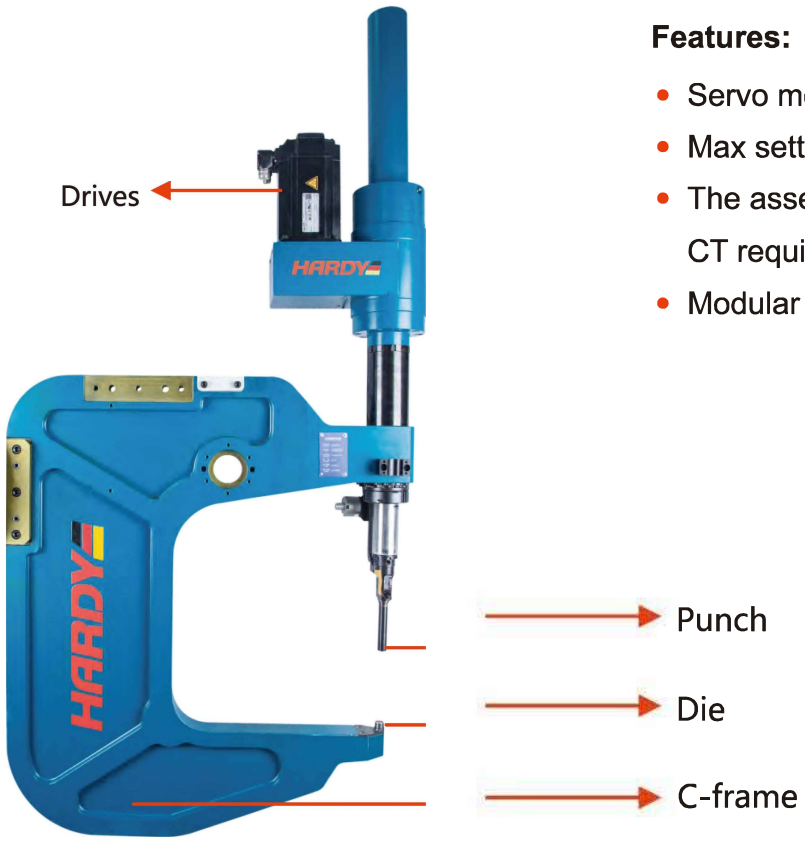
Technical parameters





Rivet specifications applicable	Ø=3.3 / 5. 5 mm Optional Ø= 4.0 / 5. 3 / 6.5 mm
Material strength	＜1600 Mpa
Sandwich of workpiece sheets	2 - 4
Setting force	up to 85kN
Riveting accuracy	1kN
Riveting speed	⩽ 250 mm/s
Speed adjustment accuracy	1mm/s
Displacement control accuracy	0.01mm
Drive system	Servo motor
Power supply	380V/50HZ
Standard lap size	Ø=3.3 / 4.0 mm 16 mm
	Ø=5.3 / 5.5 / 6.5 mm 18 mm
Depth	150mm-1200 mm
Maximum opening size	60-250 mm
Communication protocols	EtherNet/IP, ProfiNet, DeviceNet, CC-Link etc
Fastener feeding method	Manual, Vibration Bowl, Tape feeding, Magazine - feeding

Actuating unit



Features:

- Servo motor for power drive
- Max setting force: 85kN
- The assembly cycle time is 2~3s to meet the CT requirements of all customers
- Modular components for easy maintenance

Die

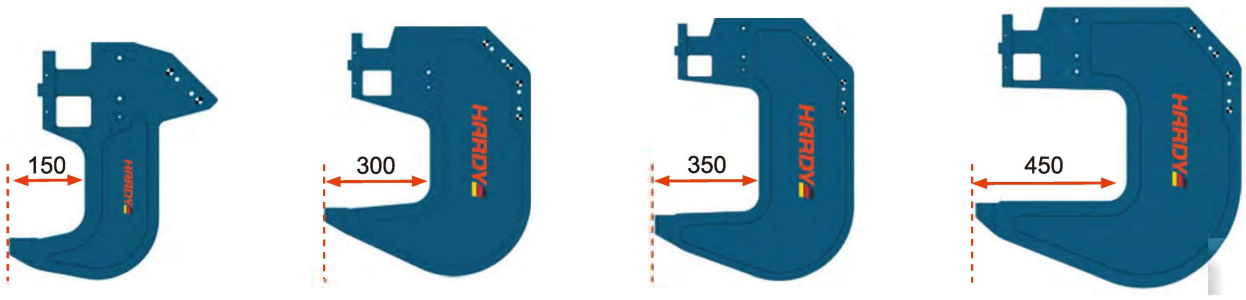
Features:

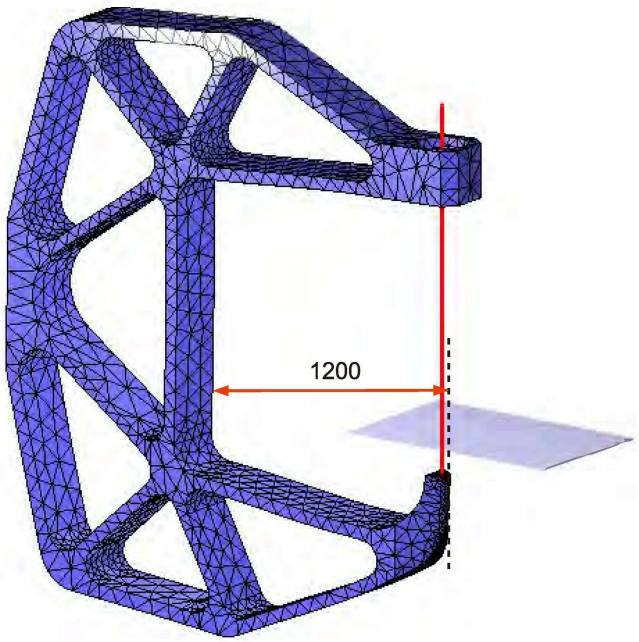
- High lifespan, durability
- High adaptability
  (matches rivet and sheet thickness.)
- High-Precision positioning

C-frame

Features:

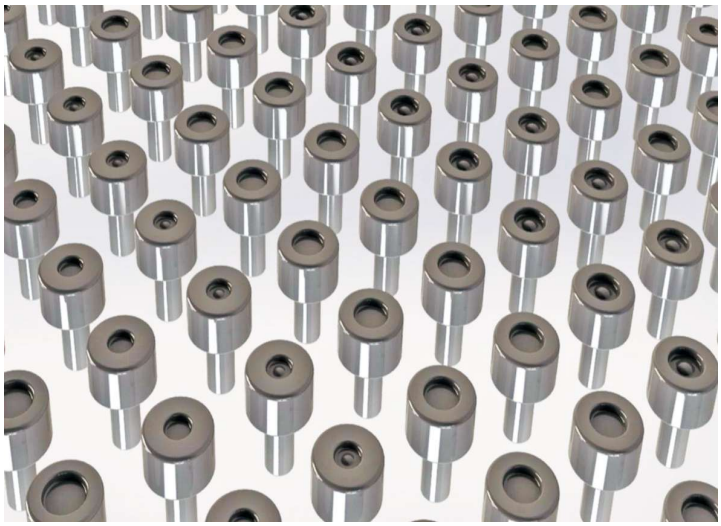
- Standardized, modular, lightweight design
- High-precision manufacturing ensures assembly quality
- The maximum depth of 1200mm is suitable for almost all applications
- Infinite-life design

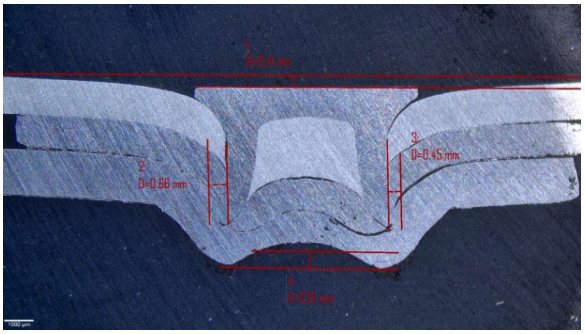


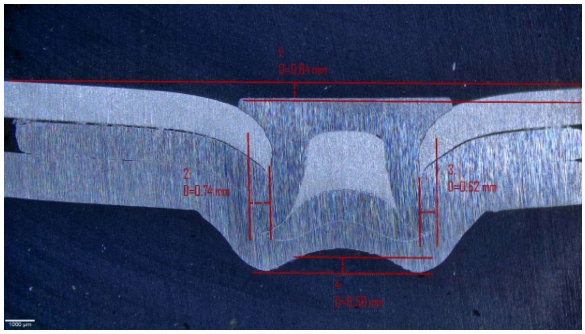


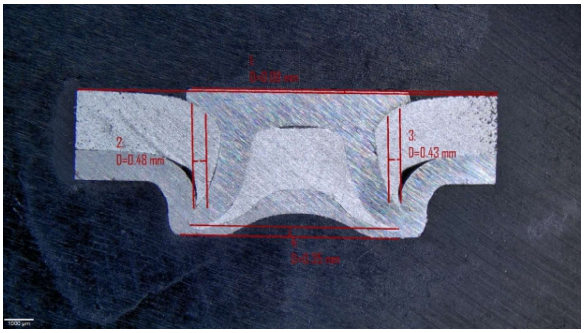
Coaxial deviation	<0.1 mm
Angular deviation	<0.3°
Weight	< 50 Kg
Stress	< 300 mpa

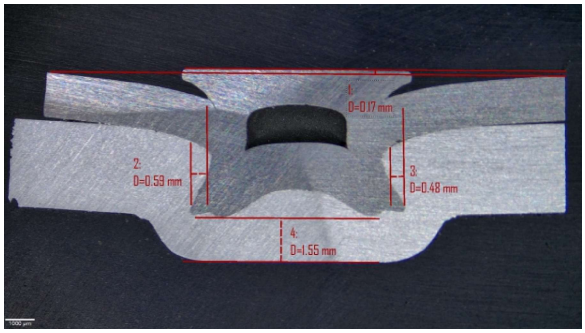
Process Introduction



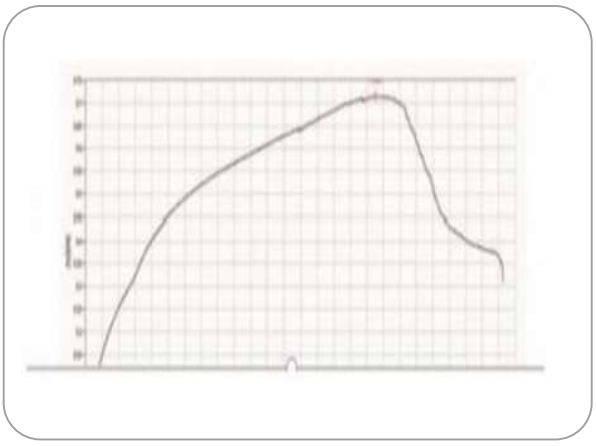




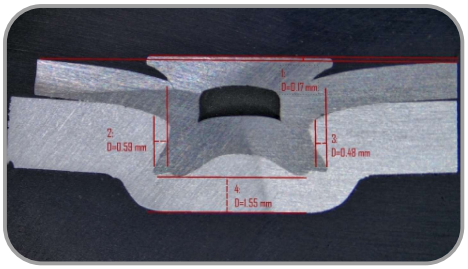




Process report



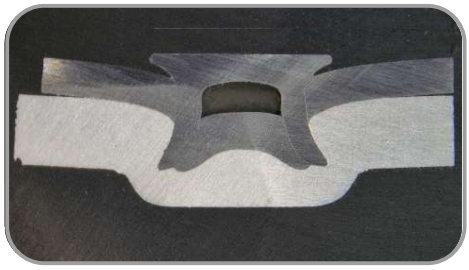
Mechanical Analysis Report



Parameters	Standard	Value	Result
Left interlock	≥0.4mm	0.59	Pass
Right interlock	≥0.15mm	0.48	Pass
Head height	-0.5mm+0.3mm	0.17	Pass
Outer diameter	≥0.2mm	1.55	Pass

Cross-Section analysis report

Introduction and Testing Standards for Metallographic Testing

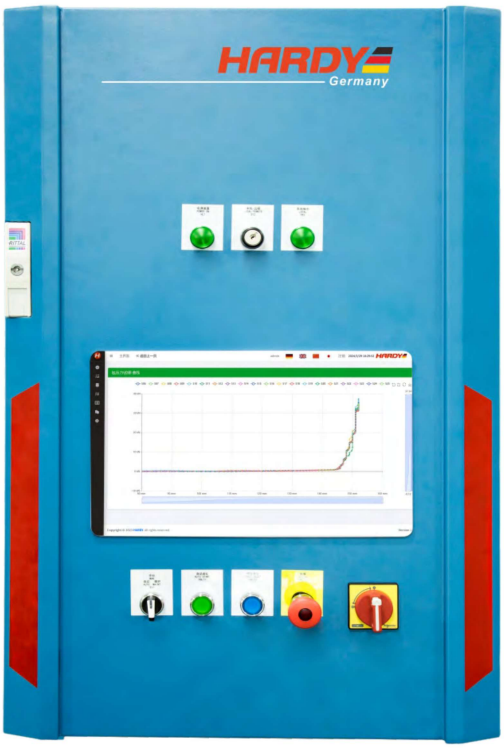


Parameter	Category	Request	Remark
Elongation requirements	Stamped aluminum	Elongation requirement: ≥12%.	
	Extruded aluminum	Elongation requirement: ≥9%.	
	Cast aluminum	Elongation requirement: >5%.	
Thickness requirements	φ3 rivets	1.5mm≤Total thickness <5mm	Generally, it is only used for two layers' sheets or non-structural parts
	φ5 rivets	2.0mm≤Total thickness≤9mm	2~4 floors
Upper layer requirements	strength	Limit specification of high-strength steel: 1000MPa, max.thickness:2.0mm; 1500MPa, max.thickness:1.5mm; 2000MPa, max.thickness:1.0mm	Combined with the results of the experiment
Lower layer requirements	thickness	Riveting of two-layer sheets, the thickness of bottom sheet should be greater than 40% of the total thickness	
		Riveting of three-layer sheets, the thickness of bottom sheet should be not less than 30% of total thickness	
		The thickness of bottom sheet is not less than 0.8mm (3mm rivets) and not less than 1mm (5mm rivets)	
	strength	The strength of the bottom sheet ≤ 600Mpa	
Note: 1. The allowable thickness of aluminum alloy stamping sheets, steel sheets, and extruded aluminum is 0.1mm 2. When cast aluminum is used as the upper sheet, the thickness can change by 0.1mm; And is allowed to change by 0.3mm When cast aluminum is used as the bottom sheet.			

Independent control system

Features:

- Standardize "embedded PC" control
- The standard HMI for parameter setting,data curve viewing,and Error alarm reminde
- Simple and intuitive interface,password protected access levels
- The riveting process is automatically monitored to ensure the quality of riveting
- Data acquisition allows important data to be uploaded to the factory MES to ensure product quality
- Multiple communication protocols such as EtherNet/ IP, ProfiNet, equipmentNet,CC-Link etc.



HARDY Auto Fastener Feeding System

Features:

- A variety of feeding methods are available: vibrating plate blowing, belt conveying
- Simplified design, greatly improve the stability of feeding
- Fastener feeding time <1S, to meet the CT requirements of all assembly industries
- The channel is independently customized to fully meet the adaptability of the fasteners
- Modular components for easy maintenance.

HARDY Self-Pierce Riveting System, Optional types for fastener feeding mechanism system:

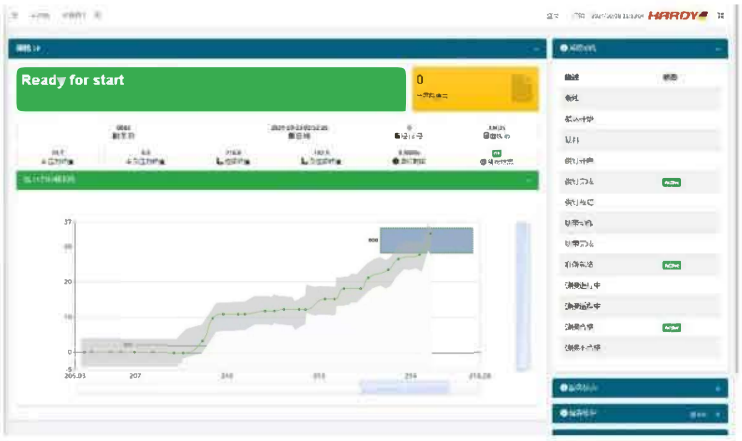
1. Automatic feeding
2. Magazine feeding
3. Tape feeding
4. Manual feeding
5. Handheld portable rivet setting tool HTF

Feed hose

Features:

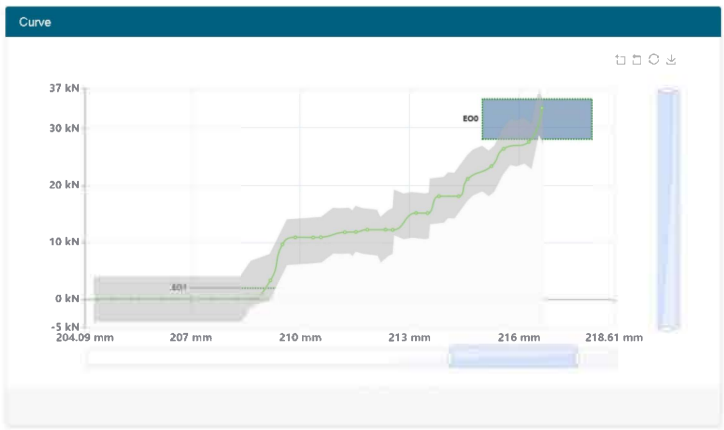
- Multiple specifications
- Remote Transmission

Software



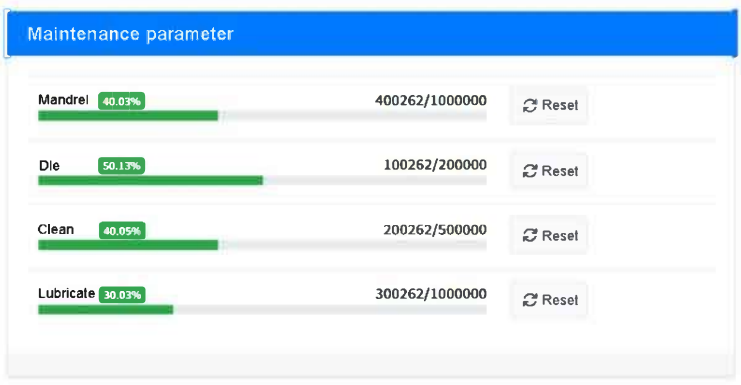
Main interface:

- Functional, concise and straightforward
- Alert of the status of each posture during device operation
- Real-time feedback on the operation of the device
- It can be operated by touch or keyboard and mouse



Data Acquisition and Analysis:

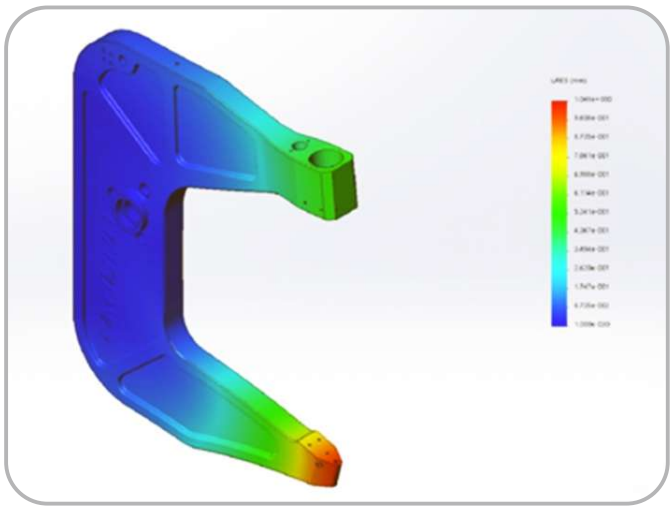
- Process data acquisition and graphical analysis



Maintenance:

- Preset maintenance prompts and record usage data

C- Frame



C- Frame

- Each C-Frame undergoes CAE simulation to ensure uniform force distribution
- The lifespan of the C-frame can reach at
- least 10 million cycles, and the shape can be customized according to the customer's product shape and fixture