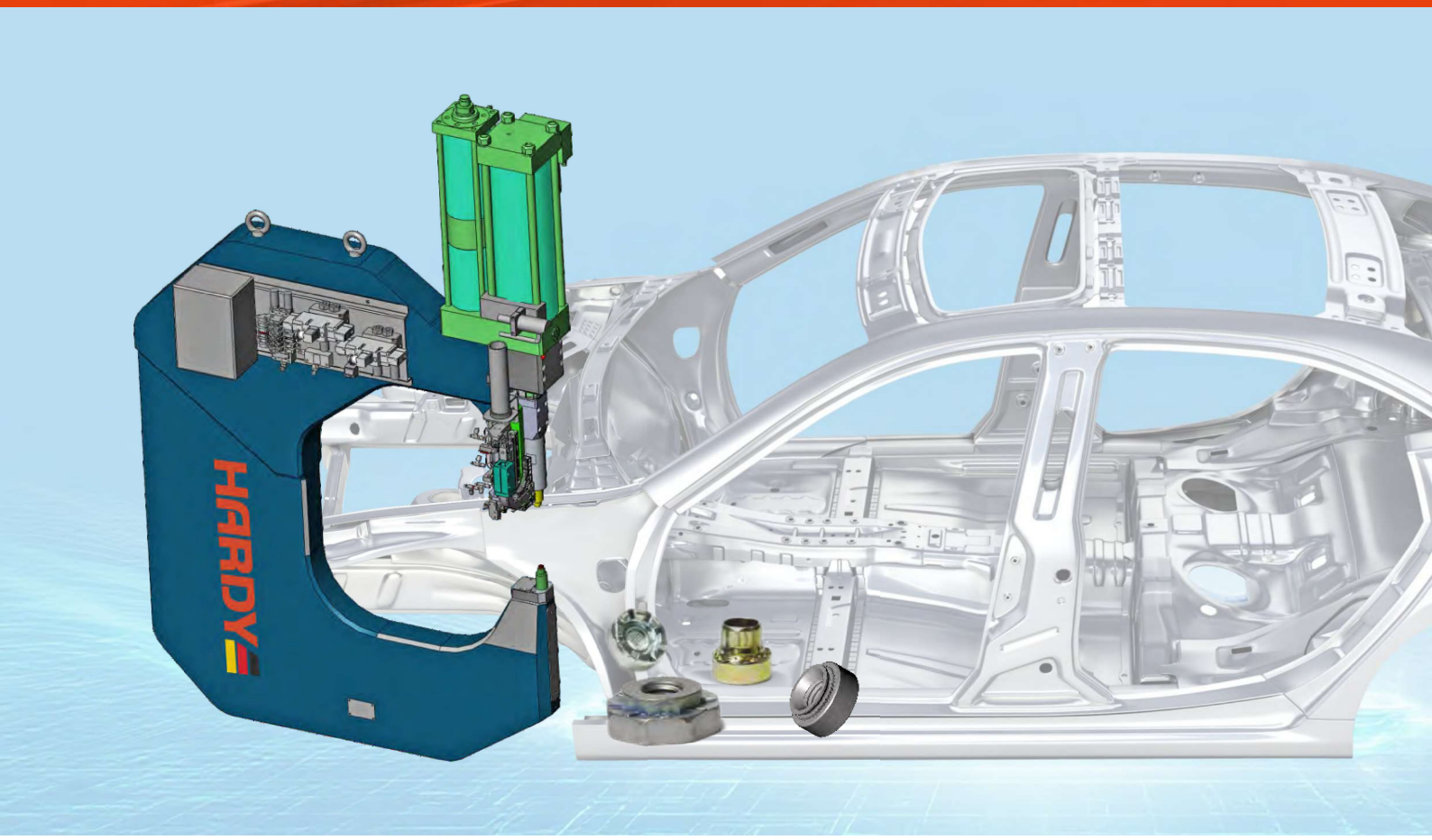
HDFRS
Press-in riveting System



HDFRS- Servo Press-in riveting equipment, High-Precision Servo-Controlled

Press-in riveting is an efficient sheet metal joining technology. Through a controlled cold forming process, it permanently installs press-in fasteners (e.g., press-in nuts, press-in studs) into metal sheets at defined positions. Key features and advantages include:

Working principle

- Press-in technology applies precise pressure through dies to induce localized plastic deformation in the fastener and/or sheet metal. This creates a mechanical interlock that rigidly secures the fastener to the substrate.

Advantages

- Adaptable to diverse sheet thicknesses
- Eliminates loose hardware (nuts/washers), improving production efficiency
- Rapid, secure installation reducing assembly time/costs
- Solves thin material (≤1mm) joining challenges
- High push-out/torque-out resistance prevents panel damage/doming. Widely adopted in: Aerospace & EVs, Electronics & medical devices

Limitation

- Cost is comparatively higher, which may limit the application of this technology.
- For materials with different hardness and ductility, as well as sheets of different thicknesses and corrosive environments, more time is needed to develop corresponding molds and test them.

Common applications

- Press-in riveting automation significantly improve production efficiency, reduce production costs, and minimize the labor cost. Therefore it is widely used in the automotive industry, household appliance industry, and other occasions that require press-in riveting assembly.

HDFRS- Servo Press-in riveting equipment, High-Precision Servo-Controlled

HARDY

Equipment Type

- Press-in riveting machine is a new type of riveting equipment, developed based on the principle of cold rolling. It mainly relies on force to complete assembly, and common drive types include pneumatic, hydraulic, and electric.

Brand and Product

- HDFRS Press-in Systems deliver comprehensive fastener solutions (press-in nuts, studs, etc.) featuring servo-intelligent control with High-precision positioning.

HDFRS equipment: Stationary and mobile Type

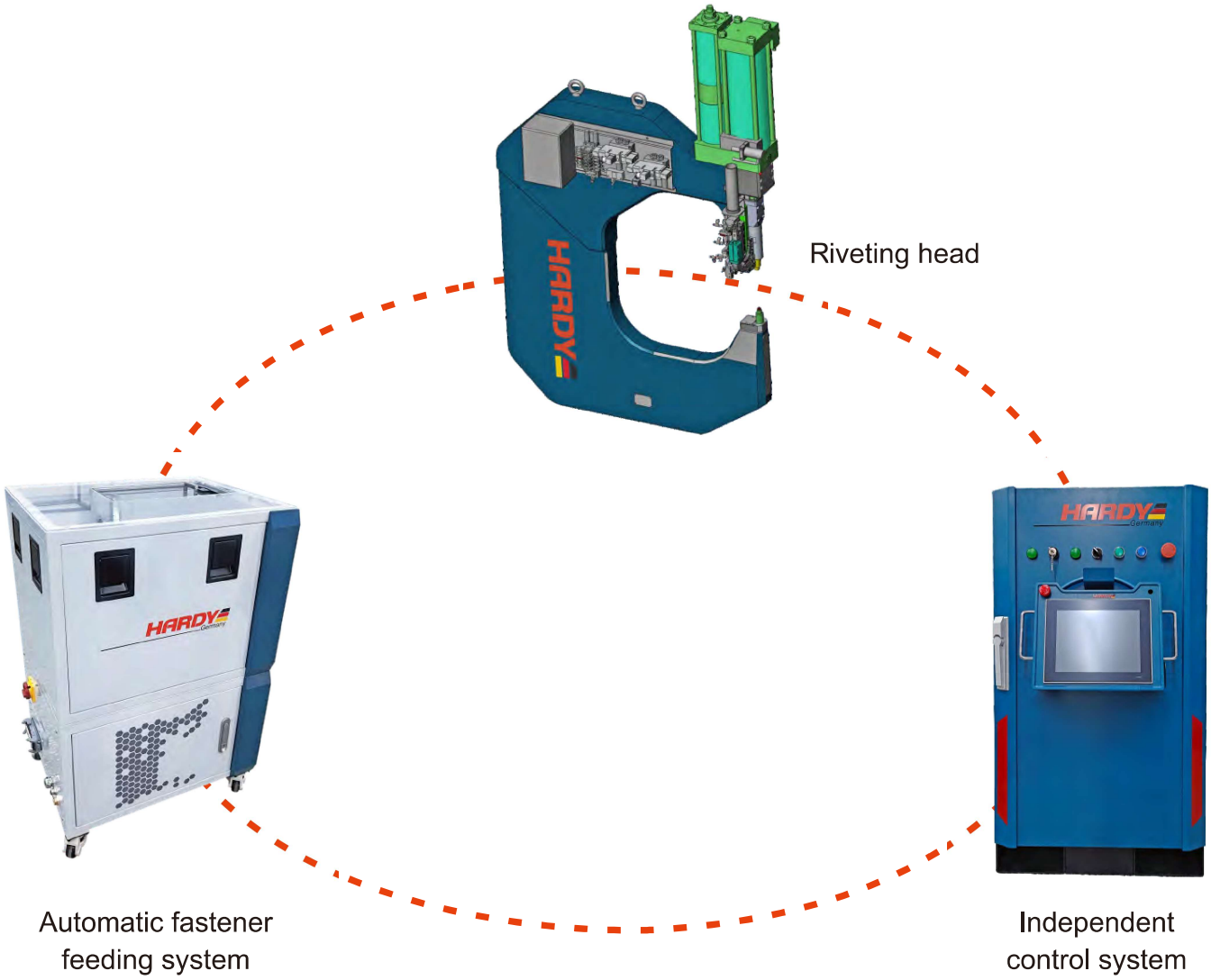
- Accommodates diverse application requirements
- Enables direct feeding of fasteners to defined installation positions

Technology and Services

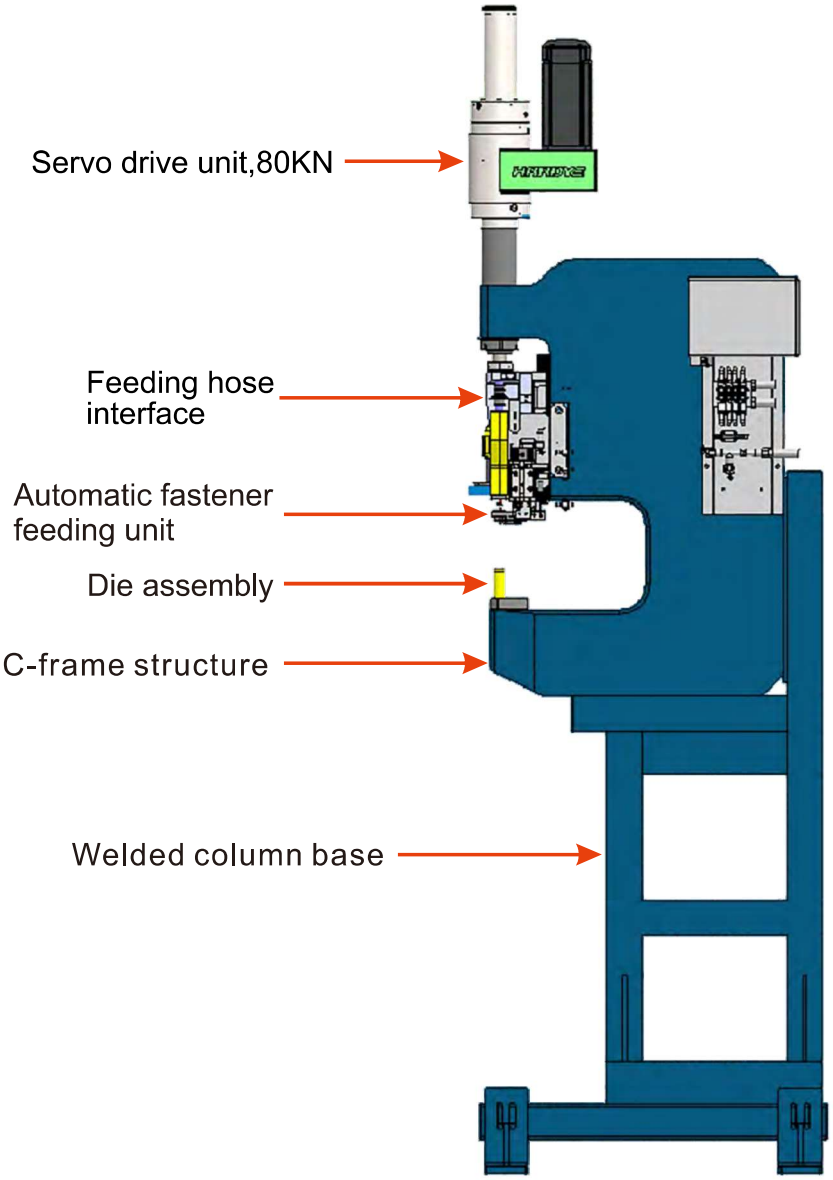
Provides full engineering support:

- Application analysis/inspection, 3D simulation, Prototype production, On-site training
- Technology Value Proposition
- Press-in fastening delivers efficient, secure, and reliable joints. Its rapid,precision-controlled automation offers superior cost-performance advantages for modern assembly processes.

Units of servo Press-in riveting equipment,automatic fastener blowing type



Detailed description of servo press–in riveting equipment, automatic fastener blowing type



Feature:

- Multiple configurations (stationary/mobile).
- High precision positioning.
- Servo drive ensures data acquisition and analysis.
- Compatible with rivet nuts/studs.

Main applications:

- Automotive body press-in fastening.
- Sheet metal component press-in assembly.

Automatic Blow-Feed Servo Press-in riveting System - Technical Specifications

Vibrating conveyor bowl

Storage magazine (5,000 rivets capacity)

Fastener feeding hose, Cable outlet

	Description	Parameter
Press force	Main power	CNC servo pressure drive
	Max. pressure	80 KN
C-frame assembly	Throat depth	Final dimensions subject to final assembly drawing.
	Opening height	
	Die height	
Cycle time	Cycle time including automatic fastender feeding	5-7 sec
Power	Total power	5.0 KW
Feed system	Vibratory bowl feeder	1 set

Independent Control System

Features:

- Standardize "embedded PC" control
- Standard HMI Features for parameter configuration, data curve display,error alarm notification
- Simple and intuitive interface,password protected access levels
- The riveting process is automatically monitored to ensure the quality of riveting
- Critical data acquisition uploads to plant MES for product quality assurance.
- Multiple communication protocols such as EtherNet/ IP, PROFINET, DeviceNet, CC-Link etc.

Automatic Fastener Feeding System

Features:

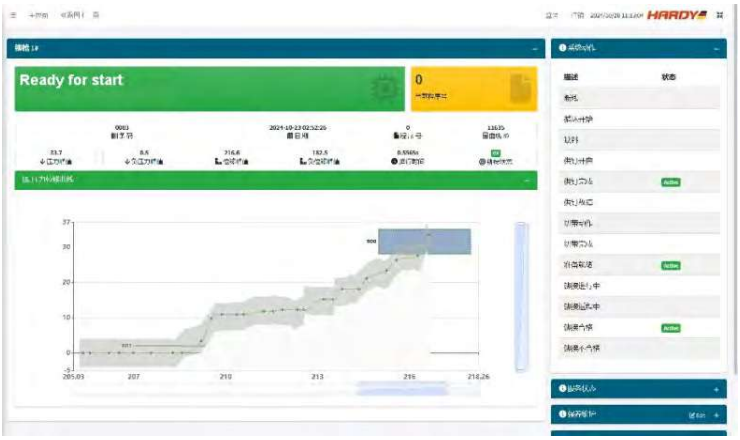
- Simplified design, significantly enhances the stability of feeding
- Feeding cycle time <1 second, meeting CT requirements of all assembly industries
- Custom-engineered feed tracks ensuring full fastener adaptability
- Modular components for easy maintenance.

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:

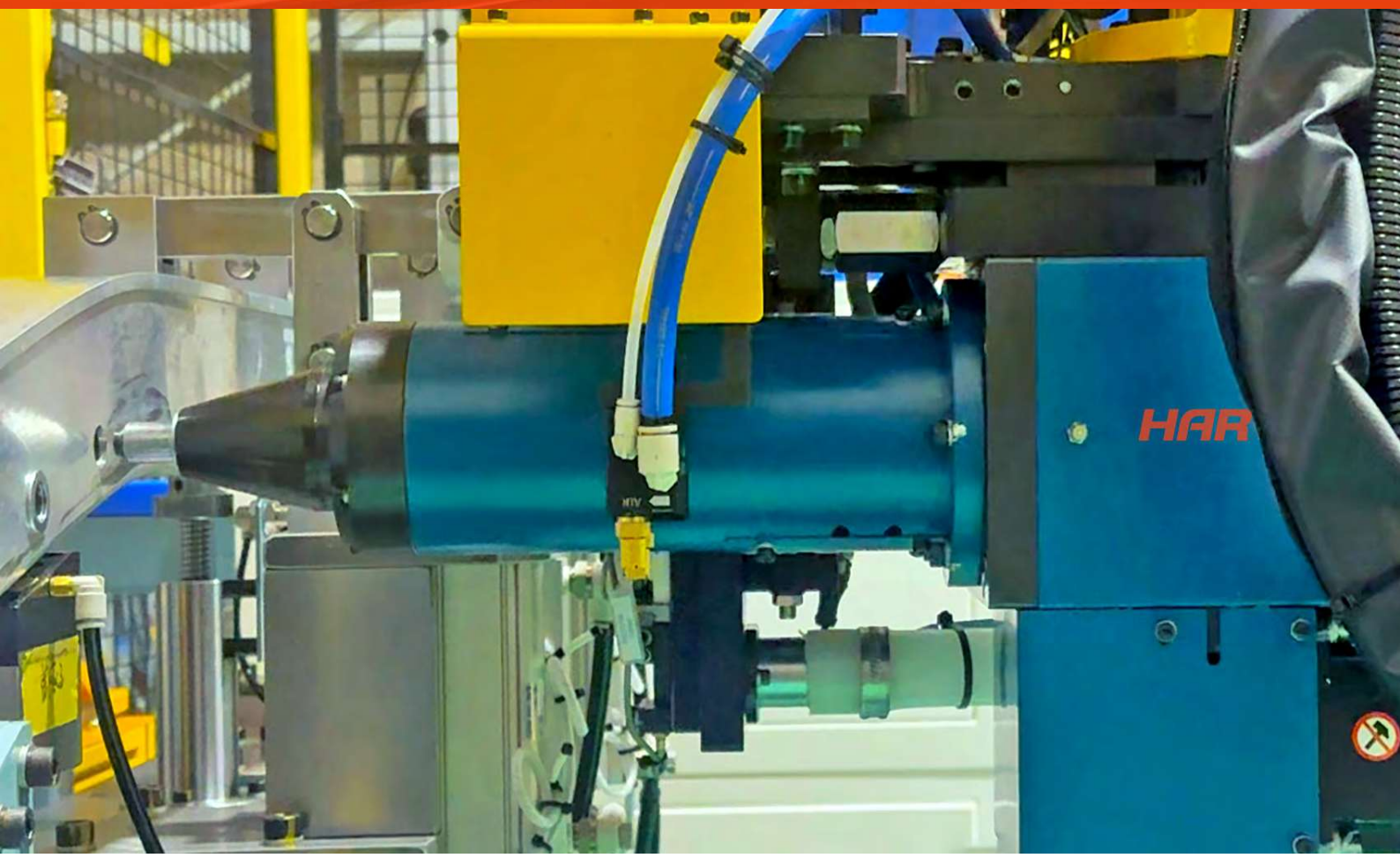
- Process data acquisition and graphical analysis

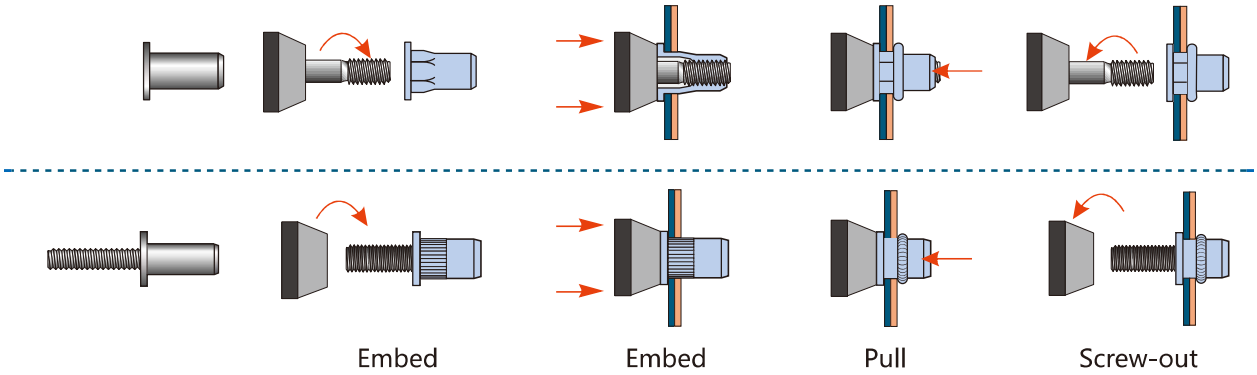
Maintenance:

- Preset maintenance prompts and record usage data

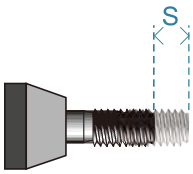
HDRNS

Automatic Rivet Nut System



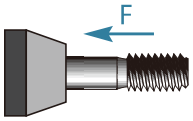


Riveting Control Solutions



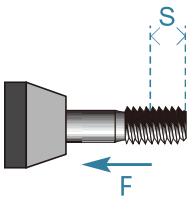
Stroke Control Mode - based on preset stroke parameters

- Ideal for materials with consistent and uniform thickness
- Fast and simple operation



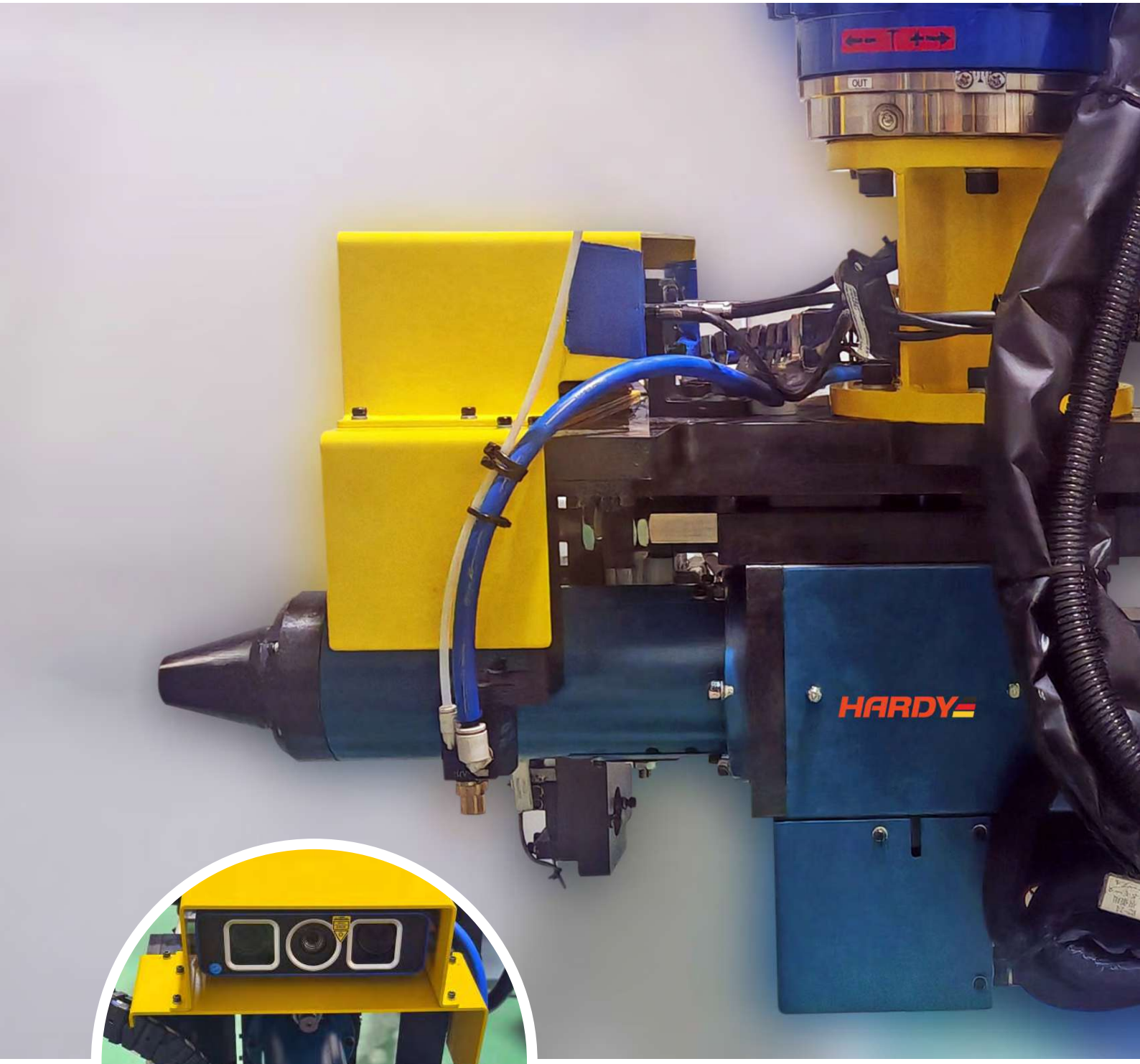
Pressure Control Mode - based on preset riveting force

- Provides stable riveting for materials with thickness variations
- Force sensors enable quality monitoring



Pressure-Stroke Hybrid Control - Simultaneously monitors force and displacement

- Delivers optimal adaptive riveting for variable material thickness
- Enhanced quality control with graphical data visualization & dataization of all riveting anomalies
- Multiple program storage for automatic product changeover
- Maintenance logs for optimal mandrel life management
- Single tool compatibility with various rivet nut specifications



3D Vision Guidance + Fully Automatic Servo-Controlled Rivet Nut Setting System

HDRNS Automatic Rivet Nut System

Features:

- Patented Floating Rivet Head Design, enables self-adaptive alignment in X/Y axis and angular compensation
- Achieves adaptive riveting for sheet metal assemblies
- Dual Servo Drive System – Provides full-process monitoring during riveting operations.
- Max. 60kN Pull Riveting Force – Meets all pull riveting requirements for M16 and smaller specifications.
- Quick-Change Head

Technical Parameters

Applicable rivet nut/stud	≤M16 (Applicable to rivet nut materials: stainless steel,steel, aluminum)
Applicable sheet thickness	≤14mm
Setting force	≤ 60kN
Setting accuracy	1N
Displacement control accuracy	0.01mm
Driving power	Dual servo system
Power supply	380V/50Hz
Bus Communication Protocol	EtherNet/IP,ProfiNet,DeviceNet etc.

Independent Control System

- Standardize "embedded PC" control
- Standard HMI Features for parameter configuration, data curve display,error alarm notification
- Simple and intuitive interface,password protected access levels
- The riveting process is automatically monitored to ensure the quality of riveting
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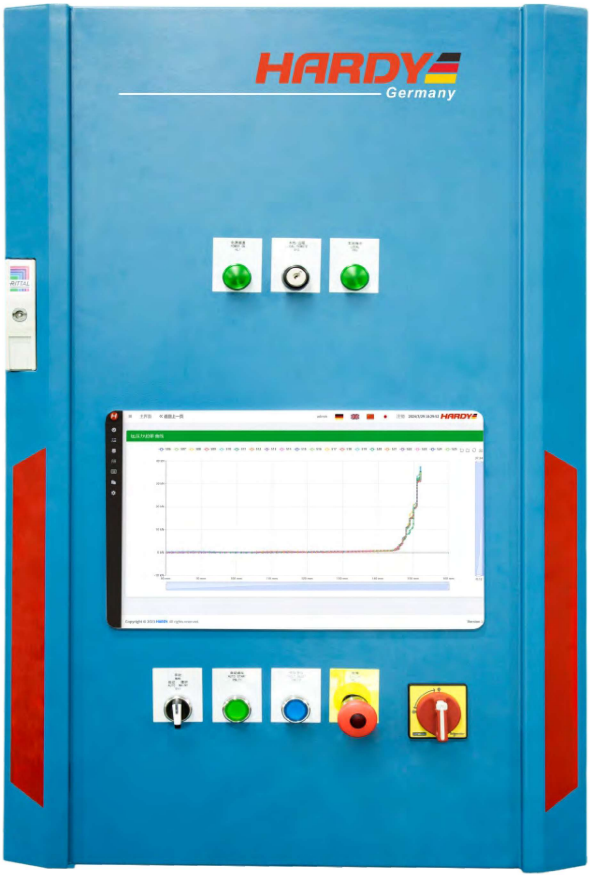


Automatic Fastener Feeding System

Features:

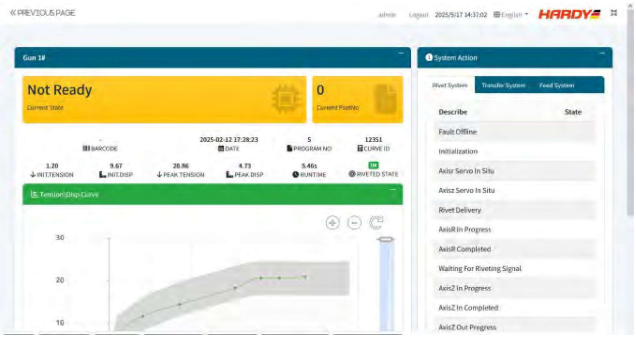
- Direct Blow fasteners to Rivet tool Nozzle
- Simplified & Stable Design
- Customizable Feed tracks to ensure full fastener adaptability
- Modular components for easy maintenance repair

Feeding hose

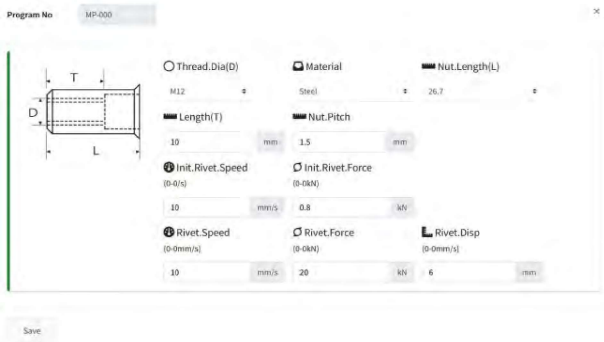
Features:

- Multiple specifications
- Remote transmission

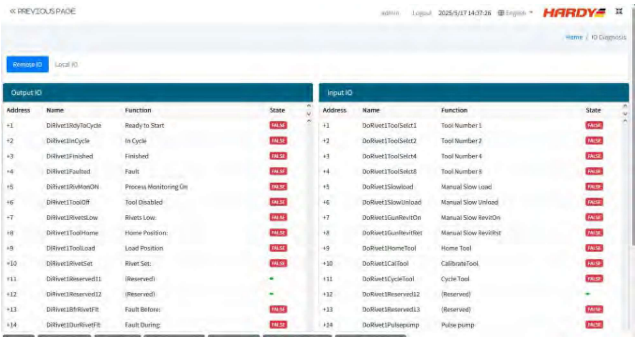
Software



Status display

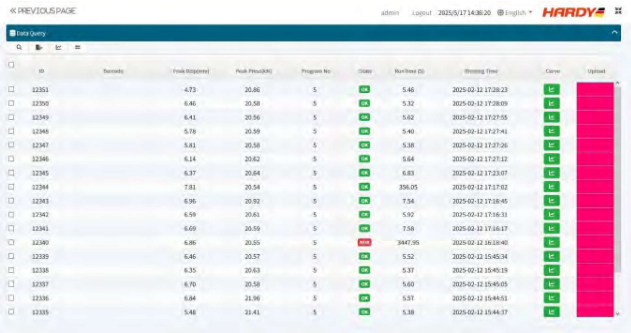


Quick program settings



IO Definition

Curve analysis



Data acquisition