

Leetx

Leetx_AEPS Servo Press System_202604_V1.1

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Leetx

AEPS Servo Press System

+ New Platform

+ New Architecture





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COMPANY PROFILE

A Premium Manufacturer of Intelligent Assembly Equipment

Leetx specializes in the in-house R&D, manufacturing, and sales of core equipment for intelligent assembly.

Built around four major product lines—tightening systems, automatic feeding systems, servo press-fitting systems, and dispensing systems—the company has established a high-performance product portfolio covering critical assembly processes. Supported by its self-developed intelligent analytics platform, Leetx enables full-process connectivity across assembly data acquisition, quality traceability, and process optimization. Its products are widely used in high-end manufacturing sectors, including complete vehicles and automotive components, NEV three-electric systems, embodied intelligence and AI, commercial vehicles, home appliances, photovoltaics, energy storage, aerospace, and construction machinery.

All products are developed on a unified technology platform, enabling rapid iteration and deep customization. This allows Leetx to provide customers with broader product options and more agile process support for high-end assembly applications. Headquartered in Shanghai, the company operates multiple R&D and manufacturing bases across China, with overseas subsidiaries and service centers covering major manufacturing regions such as Europe and Southeast Asia, serving customers worldwide.

35%

R&D Personnel Ratio

500+

Elite Team

10,000+

Annual Deliveries Completed (Units/Sets)



Full-Stack In-House Development · Rapid Iteration

From sensors and controllers to upper-level software, the company adopts a full-chain forward-development approach built on a unified underlying platform. Product performance remains fully controllable in-house, with iteration speed and customization depth leading the industry.



Four Product Lines in Parallel · Matrix Coverage

The four major product lines—tightening, feeding, press-fitting, and dispensing—are independently mature and well established. Together with the intelligent analytics system, they enable cross-process data integration and closed-loop quality control, offering customers a comprehensive product selection for critical assembly operations.



Rooted in China · Serving the World

With R&D and manufacturing operations across multiple locations in China, and overseas subsidiaries and service networks covering key manufacturing regions such as Europe and Southeast Asia, the company provides localized technical support and rapid response to customers worldwide.

GLOBAL SERVICE NETWORK



- R&D Center, Production & Delivery
 - Shanghai (HQ) Wuxi
- Branch Office
 - Germany Hungary Hong Kong
 - Malaysia Shenzhen Chongqing
- Overseas Service Center
 - France Italy South Korea
 - Mexico Vietnam Thailand
 - Egypt India Slovenia
 - Kazakhstan Malaysia USA

Overall Improvement of the System

A new generation of servo press control system, integrating control, acquisition and communication systems, with higher integration and stronger performance

Fast and Precise Control

Fast and Precise Control

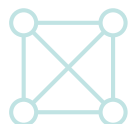
Internal EtherCAT high-speed communication protocol, with a communication speed up to **250us**, and **4000cycles** per second, achieving faster and more accurate control

Massive Storage Connectivity

Save up to **1000w**, local data, and support data export of data server platforms such as MES.QDAS

Simpler structure

Streamlined modular design



More practical functions

Self-developed control motion algorithm, inflection point grabbing algorithm, inflection point triggering algorithm, and automatic control deceleration algorithm

High Frequency Acquisition

High Frequency Acquisition

High-precision pressure and position acquisition, with an acquisition frequency of **10KHZ**, and an acquisition resolution of **24bit**

Full-Protocol Intelligent Control

Support all communication protocols on the market and I/O interface control

Easier operation

Low latency touch control, more responsive operation, stable and smooth running



Higher performance

Customized servo control system
Higher speed, lower power consumption, and stronger load capacity



New Generation of AccuMove Control Platform

The new generation of servo press system of Leetx adopts a highly integrated modular design, which is a highly integrated equipment combining press-fitting, assembly, statistics and analysis. It further optimizes the software and hardware of the product while streamlining the system structure.

Installation costs reduced by **30%**

The motor integrated in this product is designed for perfect integration. Its customized dimensions, mounting interfaces and electrical connections eliminate the need for additional adapters or structural compromises, thus simplifying the assembly process, reducing potential failure points and achieving optimal space utilization.

Number of system parts reduced by **2 times**
Faster and easier installation and integration



Operation learning costs reduced by **30%**

The newly designed user interface (UI) adopts a modern and intuitive graphical design, with clearer information layout and visual guidance. The operation process has been carefully optimized and simplified, with common functions at your fingertips, enabling complex tasks to be easily completed through wizard-like steps.

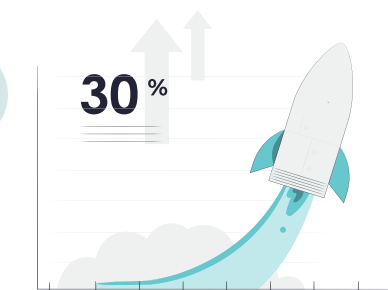
New system interface, streamlined as twice
More recognizable U icon design



Motion control performance improved by **30%**

The core drive system uses custom-developed motors and servos to provide the precise dynamic response required. This ensures smoother operation, shorter cycle times and higher precision compared to standard motors.

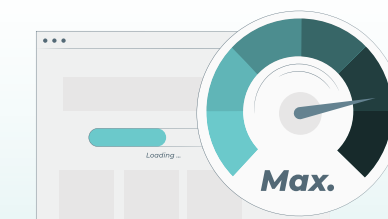
Speed of large-tonnage press increased by **0.5 times**
Control response speed better than **250us**



Operation fluency improved by **30%**

Through the underlying system optimization and powerful graphics processing capabilities, it ensures stable and smooth screen performance under high load.

New hardware architecture adopted, with system response speed increased by **2 times**
Interface operation sensitivity increased by **1.5 times**



Comprehensive coverage of press-fitting applications

Covering the standard range of 2kN-500kN to meet different application scenarios of customers;

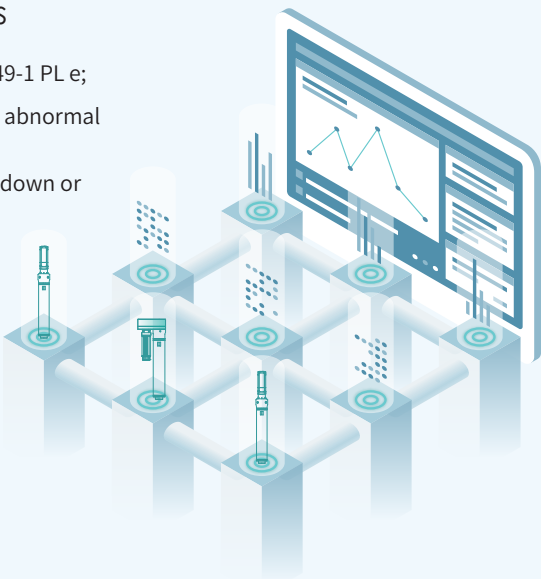
- Direct connection and bending specifications, supporting installation in compact space;
- High standard configuration, with bi-directional (pulling and pressing) forces across the entire range, and standard brake;
- Integrated absolute position encoder and built-in high-precision force sensor



Ensuring Work Safety

The servo press system has multiple types of safety software and hardware functions, which can ensure the personal safety of users in extreme cases

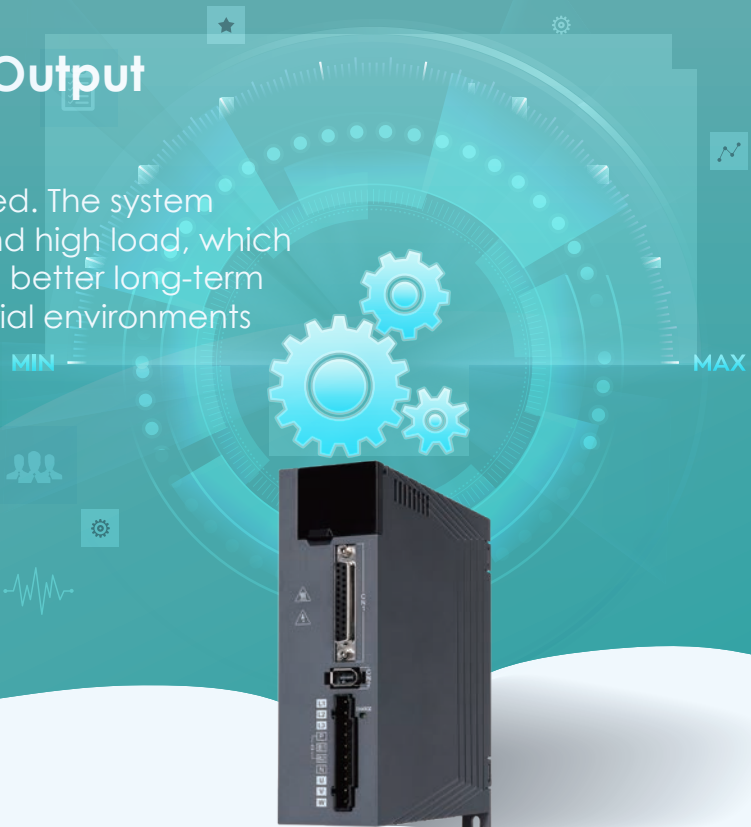
- Built-in dual STO function, with safety level up to SIL 3 / EN ISO 13849-1 PL e;
- The Stop Zone function of the press evaluation window can identify abnormal curve shapes and quickly stop the machine;
- Depending on the use environment, settings such as power-off shutdown or protective return to home position can be configured.



Maximum Performance Output

Customized service solution is adopted. The system integrates a motor with low inertia and high load, which has stronger overload resistance and better long-term stability, adapting to complex industrial environments

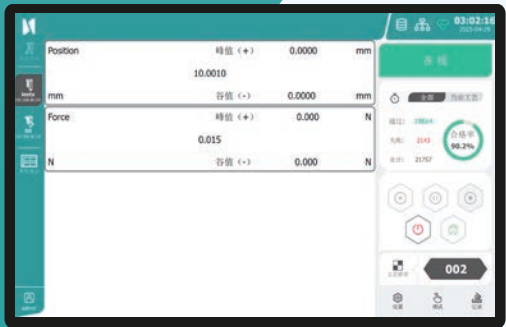
- 15 million times of full-load aging tests;
- Superior overload resistance of 1.5 times of full scale;



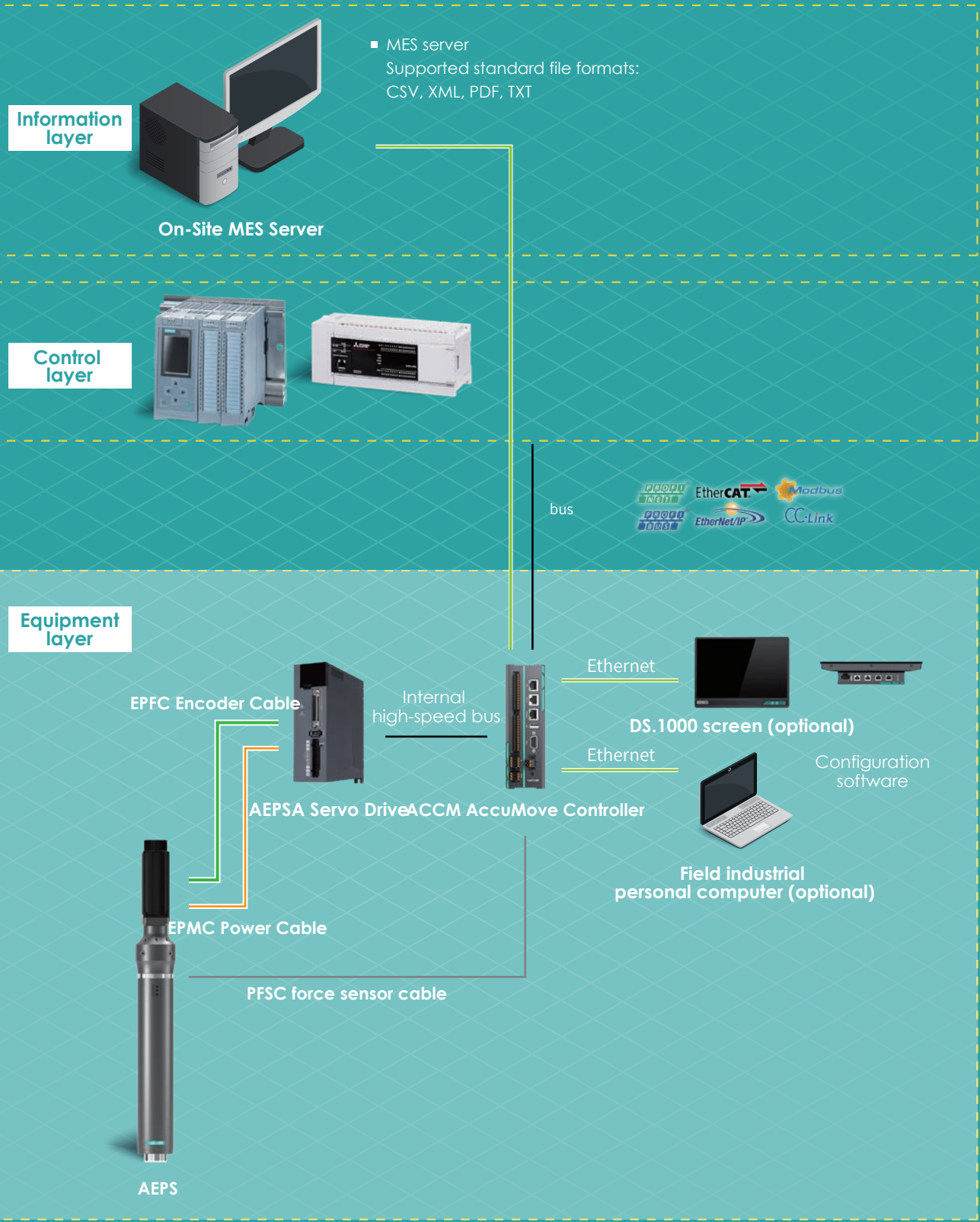
Refined Process Monitoring

The online evaluation function can help customers monitor the whole process, identify assembly abnormalities in real time and correlate curves with online actions, fundamentally avoiding product and tooling damage.

- Multiple types of Eo evaluation windows are available for real-time evaluation and monitoring;
- With 500,000 sampling points per curve, the press-fitting process can be finely monitored;
- SN barcode binding is achieved, enabling real-time feedback of process data and results.



System Framework Diagram



— Internal high-speed protocol - Ethernet — Ethernet

Advantages of the Leetx Press System

Precise control algorithm



Automatic deceleration force control algorithm adapts to product characteristics, with overshoot control maintained below 1%;

Force-Holding Stability, dynamic position adjustment and stability force algorithm ensure force fluctuation remain within 0.5%;

At the same time, inflection point trigger algorithm and slope trigger algorithm are provided;

Sensor disconnection detection can monitor and protect the press.

High precision



Repeated position accuracy of 0.01 mm;

Repetitive position accuracy of the external position sensor: 0.002mm;

Force Sensor Accuracy: 0.5%, system force accuracy: 1%;

Resolution of acquisition system: 24 bits, sampling frequency: 10kHz.

Real-time capability



Control cycle of 250 μ s, with a high response;

Real-time measurement of force and real-time evaluation of curve process;

Up to 500,000 sampling points for each curve.

Clear software system



Two-level menu, concise and clear;

Simple parameter setting, easy to learn;

The system can automatically identify the drive fault and display the fault content.

High stability



15 million service life, adaptive to high-frequency and high-intensity use environment;

Maintenance-free core parts;

Compact structure, convenient for integration.

Data traceability



With SN barcode binding, real-time feedback of process data and results;

Real-time data uploading for easy traceability management;

Offline software supports tools such as inflection point alignment, X-R charts, histograms, spec, etc., assisting in product analysis and process optimization.

Rich product matrix

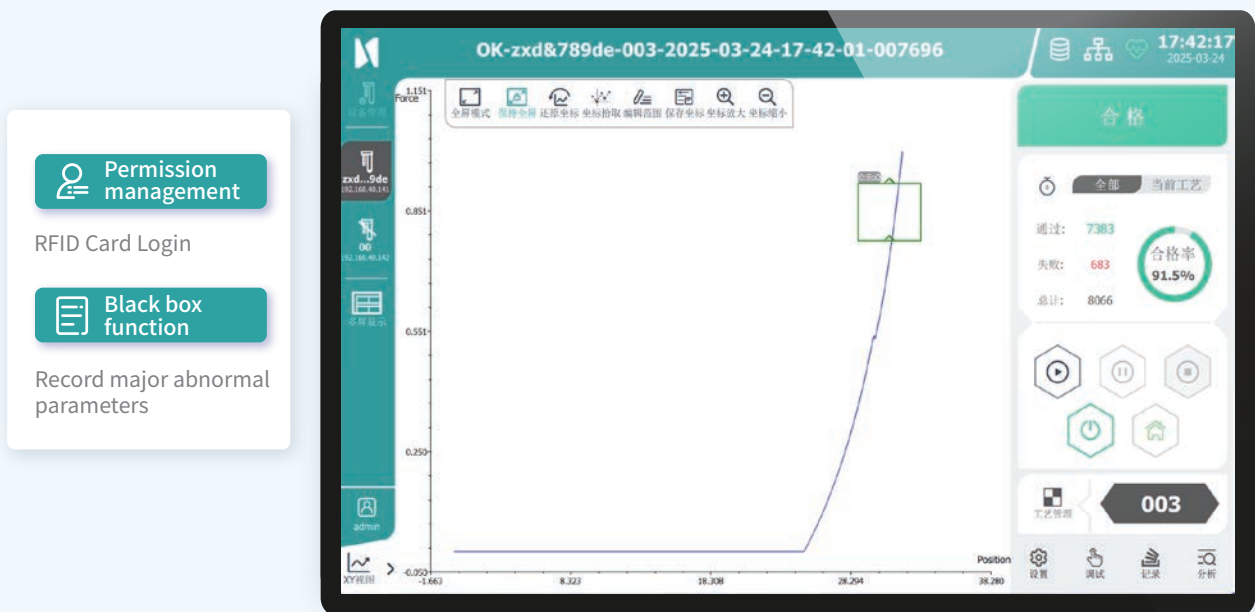


Multiple types of presses to match different application scenarios;

High standard configuration, with bi-directional (pulling and pressing) forces across the entire range, and standard brake.

Acquisition and Evaluation System

Introduction to software interface features

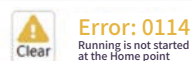


Permission management

RFID Card Login

Black box function

Record major abnormal parameters



The system automatically identifies the drive fault, and displays fault content



Process Management

- Concise process management interface, easy to learn
- Online superposition of curves, enabling screening of details
- Evaluation window/curve calibration, fast and convenient



Device Settings

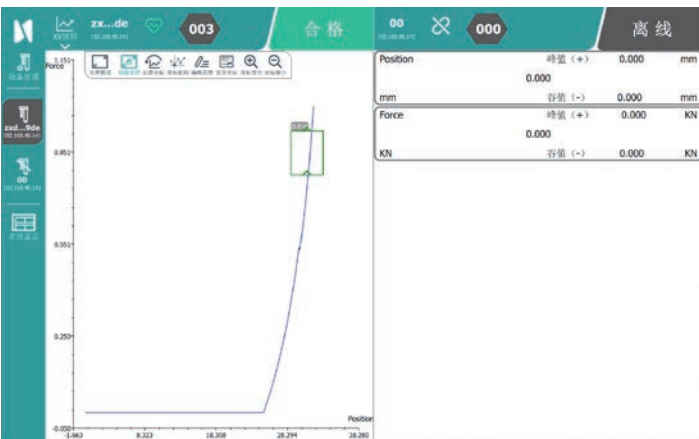
- Custom conversion of special barcodes
- Selective backup of process parameters



Bus Debugging

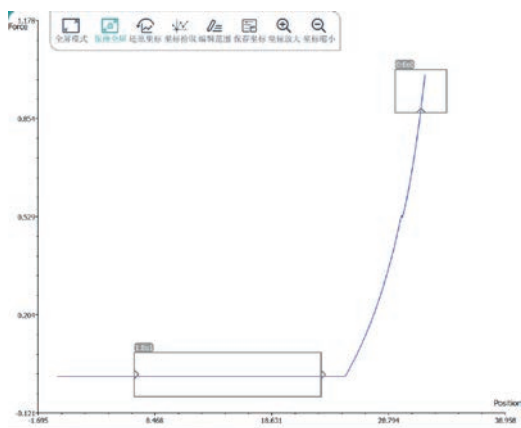
- Real-time monitoring of control word and status word
- Monitoring of process steps

Easy-to-Use Software Interface

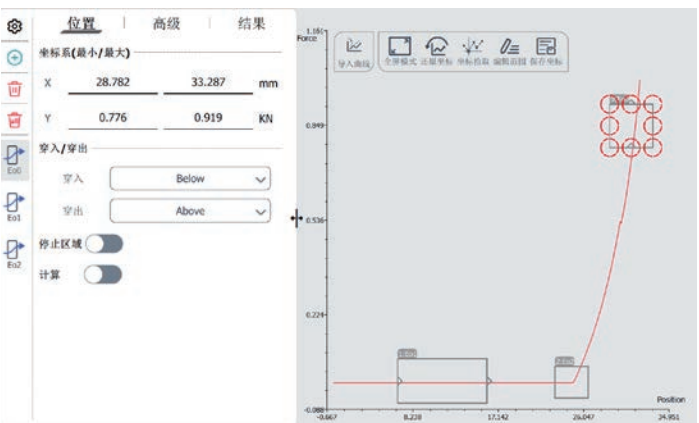


- Support multiple clients to connect to the same press
- Support split screen display
- Support display of force-position, force-time-position, EO results and measurement data
- Support press status prompt

Rich Curve Details



- Up to 500,000 data acquisition points, abandoning fitting curves and presenting press-fitting details
- 10KHZ high frequency sampling rate, 24-bit resolution
- Continuous collection of real-time data for 30 minutes under force-holding state
- Real-time generation, evaluation and feedback of press-fitting curve



- Overlay of curves online to analyze product consistency
- Inflection point trigger, inflection point monitoring
- Real-time calculation of press-fitting time, speed and average value
- 256 GB solid-state drive SSD, saving 10 million data offline

Online Evaluation Function Demonstration

During the press-fitting process, multiple abnormal conditions may occur, such as mechanical deviation, poor product consistency, wrong material picking, and operation errors. Serious abnormalities may lead to product damage, indenter deformation, and shutdown for repair.

The online evaluation function can help customers monitor the whole process, identify assembly abnormalities in real time and correlate curves with online actions, fundamentally avoiding product and tooling damage.

EO Parameter Settings

A single process can support the configuration of up to 10 EOs concurrently, offering a diverse range of EO types.

Real-Time Curve Generation

The curve is generated in real time according to the press-fitting process, and compared with the EO window parameters in real time to identify abnormalities

Full-Process Monitoring

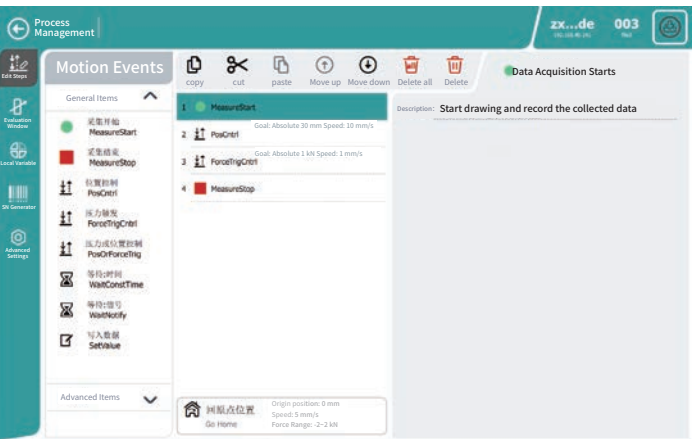
The trigger area is set in the whole process, which can realize the control of the whole movement process.



Force Closed-Loop Control Demonstration

During the production process, the actual pressure on the product is much higher than the set target value, known as "force overshoot", has a significant impact on the quality of product delivery.

Leetx servo control system can control the force overshoot within 1% of the target value, with minimal impact on the takt, truly achieving a high-quality and high-takt production environment.



- Self-developed adaptive deceleration algorithm
- 250μs high dynamic response, up to 4000 motion replanning cycles per second
- The process personnel can adjust the threshold according to the product rigidity custom setting

In actual assembly, most products are prone to force attenuation due to their low rigidity during the force-holding process, resulting in improper PRESSing.

The Leetx servo control system uses a closed-loop control algorithm to continuously output a constant press-fitting force to ensure that the customer's products are press-fitted in place.

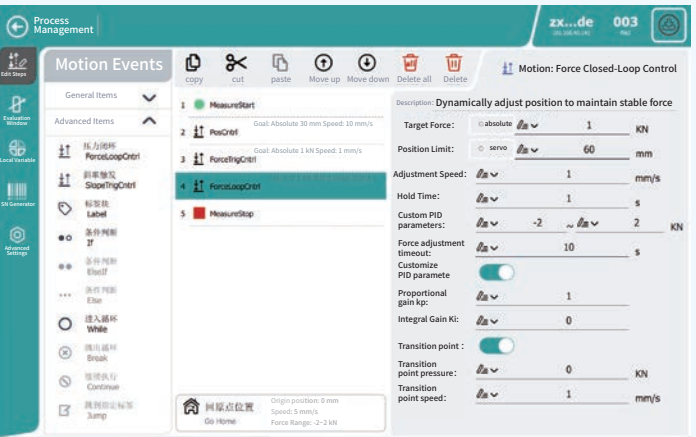
Stop Zone

Customizable activation of EO Stop Zone and range is supported

Action Interlock

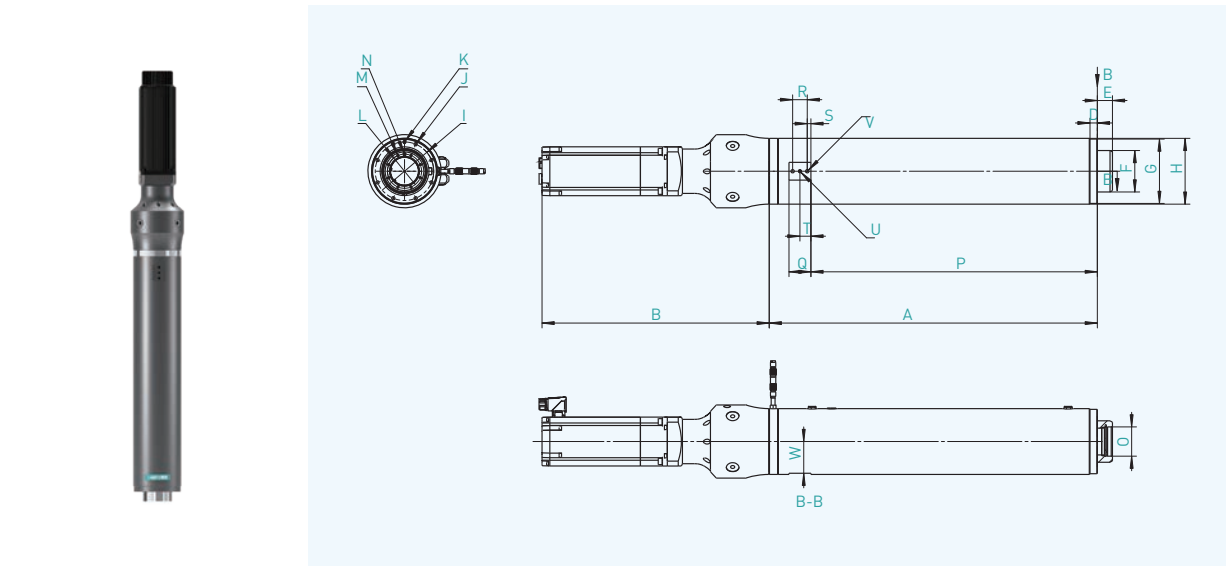
All windows support online evaluation and can be linked to alarms, braking, returning to home position and other interlocking actions..

Fault handling		Motion Performance	other
Step force out of limit	Error message and pause		
Step position out of limit	Error message and pause		
Step timeout handling	Error message and pause		
Evaluation table triggering	No error reported when returning to home		
	Error message and pause		
	Error message and return to home		
	Error message and return to home then Power off		
	Error and end		



- Auto-configuration of parameters to quickly complete force closed-loop control setting
- Setting of self-adjusting parameters to achieve user-defined adjustment of closed-loop effect
- Adaptive adjustment of servo μ-level position to maintain constant pressure output

AEPS Servo Press System



* Leetx reserves the right to modify technical parameters and retains the final right of interpretation for dimensions of specific models. For customized model dimensions, please consult in advance.

* For non-standard models and long-time force-holding versions, please contact Leetx sales team

Model	Stroke	A	B	C	D	E	F	G	H	I	J
AEPSS.002.100.250	100	270	174	75	14	18	45	68	70	61	8*M4-8
AEPSS.002.200.250	200	370	174	75	14	18	45	68	70	61	8*M4-8
AEPSS.005.200.250	200	391	195.1	90	14.5	18	55	84	85	75	8*M5-10
AEPSS.005.400.250	400	591	195.1	90	14.5	18	55	84	85	75	8*M5-10
AEPSS.010.200.250	200	421	316	120	14.5	20	75	112	113	100	8*M6-23
AEPSS.010.400.250	400	621	316	120	14.5	20	75	112	113	100	8*M6-23
AEPSS.015.200.250	200	421	316	120	14.5	20	75	112	113	100	8*M6-23
AEPSS.015.400.250	400	621	316	120	14.5	20	75	112	113	100	8*M6-23
AEPSS.030.200.250	200	473	448	150	15	31	85	132	135	120	8*M8-23
AEPSS.030.400.250	400	673	448	150	15	31	85	132	135	120	8*M8-23
AEPSS.060.200.250	200	537	526	170	15	50	110	156	157	141	12*M10-23
AEPSS.060.400.250	400	737	526	170	15	50	110	156	157	141	12*M10-23
AEPSS.100.200.150	200	657	526.5	210	14	50	145	196	200	176	8*M12-30
AEPSS.100.400.150	400	857	526.5	210	14	50	145	196	200	176	8*M12-30
AEPSS.150.200.100	200	723	492	220	14	50	145	216	220	188	8*M14-28
AEPSS.200.200.100	200	723	492	220	14	50	145	216	220	188	8*M14-28
AEPSS.150.400.100	400	923	492	220	14	50	145	216	220	188	8*M14-28
AEPSS.200.400.100	400	923	492	220	14	50	145	216	220	188	8*M14-28
AEPSS.300.200.080	200	715	669	265	22.5	110	180	260	265	235	12*M16-32
AEPSS.300.400.080	400	915	669	265	22.5	110	180	260	265	235	12*M16-32

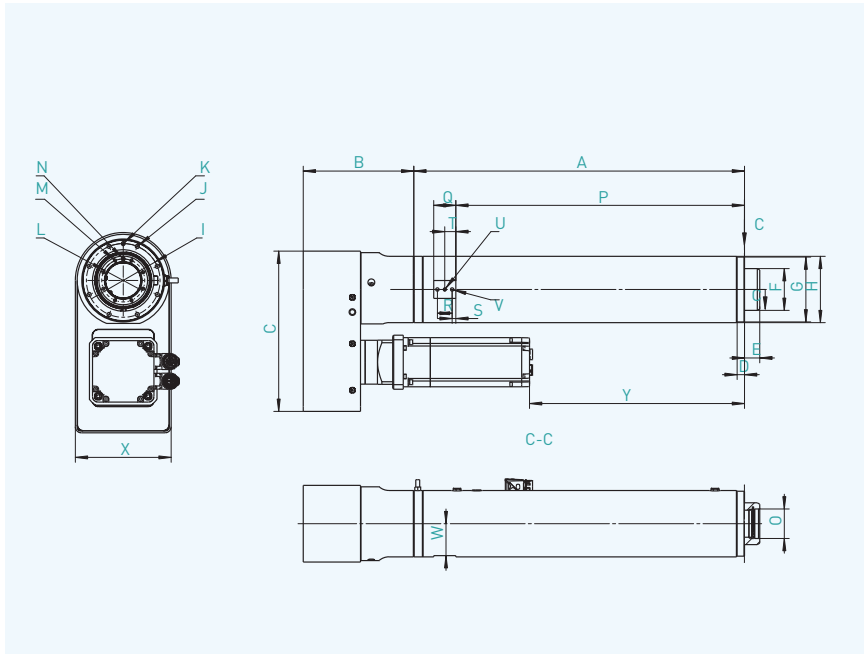
Selection Criteria

AEPS	S	002	200	250
Product Series	Press Type / Connection Method	Force Range	Operating Stroke	Maximum Speed
APES series	S - Straight Type	002-2kN	200-200mm	250-250mm/s (2kN-60kN)
	L - Compact Type	005-5kN	400-400mm	150-150mm/s (100kN)
		015-15kN	600-600mm	100-100mm/s (150kN)
		030-30kN		100-100mm/s (200kN)
		060-60kN		80-80mm/s (300kN)
		100-100kN		
		150-150kN		
		200-200kN		
		300-300kN		

K	L	M	N	O	P	Q	R	S	T	U	V	W
φ3	37	8*M4-8	φ3	30	N/A							
φ3	37	8*M4-8	φ3	30	N/A							
φ4	44	6*M6-12	φ4	35	324	40	25	7.5	20	φ4	2*M6-12	39.5
φ4	44	6*M6-12	φ4	35	524	40	25	7.5	20	φ4	2*M6-12	39.5
φ5	60	8*M6-12	φ5	48	335	45	30	7.5	22.5	φ6	2*M6-12	53.5
φ5	60	8*M6-12	φ5	48	535	45	30	7.5	22.5	φ6	2*M6-12	53.5
φ5	60	8*M6-12	φ5	48	335	45	30	7.5	22.5	φ6	2*M6-12	53.5
φ5	60	8*M6-12	φ5	48	535	45	30	7.5	22.5	φ6	2*M6-12	53.5
φ6	70	8*M6-12	φ6	60	387.5	45	30	7.5	22.5	φ6	2*M8-16	65
φ6	70	8*M6-12	φ6	60	587.5	45	30	7.5	22.5	φ6	2*M8-16	65
φ8	95	8*M8-16	φ6	76	395	70	40	15	35	φ8	2*M10-13	75.5
φ8	95	8*M8-16	φ6	76	595	70	40	15	35	φ8	2*M10-13	75.5
φ10	125	8*M12-24	φ10	110	515	70	40	15	35	φ8	2*M12-24	95
φ10	125	8*M12-24	φ10	110	715	70	40	15	35	φ8	2*M12-24	95
φ12	125	10*M12-24	φ10	110	555	70	40	15	35	φ8	2*M12-24	105
φ12	125	10*M12-24	φ10	110	555	70	40	15	35	φ8	2*M12-24	105
φ12	125	10*M12-24	φ10	110	755	70	40	15	35	φ8	2*M12-24	105
φ12	125	10*M12-24	φ10	110	755	70	40	15	35	φ8	2*M12-24	105
N/A	150	8*M16-32	φ12	126	N/A							
N/A	150	8*M16-32	φ12	126	N/A							

AEPS Servo Press System

Selection Criteria



AEPS	L	005	100	250
Product Series	Press Type / Connection Method	Force Range	Operating Stroke	Maximum Speed
APES series	S - Straight Type	005-5kN	200-200mm	250-250mm/s (2kN-60kN)
	L - Compact Type	015-15kN	400-400mm	150-150mm/s (100kN)
		030-30kN	600-600mm	100-100mm/s (150kN)
		060-60kN		100-100mm/s (200kN)
		100-100kN		80-80mm/s (300kN)
		150-150kN		
		200-200kN		
		300-300kN		

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* For non-standard models and long-time force-holding versions, please contact Leetx sales team

Model	Stroke	A	B	c	D	E	F	G	H	I	J	K	L
AEPSL.010.200.250	200	421	173.5	294	14.5	20	75	112	113	100	8*M6-23	φ5	60
AEPSL.010.400.250	400	621	173.5	294	14.5	20	75	112	113	100	8*M6-23	φ5	60
AEPSL.015.200.250	200	421	173.5	294	14.5	20	75	112	113	100	8*M6-23	φ5	60
AEPSL.015.400.250	400	621	173.5	294	14.5	20	75	112	113	100	8*M6-23	φ5	60
AEPSL.030.200.250	200	473	225	326	15	31	85	132	135	120	8*M8-23	φ6	70
AEPSL.030.400.250	400	673	225	326	15	31	85	132	135	120	8*M8-23	φ6	70
AEPSL.060.200.250	200	537	226.5	390	15	50	110	156	157	141	12*M10-23	φ8	95
AEPSL.060.400.250	400	737	226.5	390	15	50	110	156	157	141	12*M10-23	φ8	95
AEPSL.100.200.150	200	657	250	446	14	50	145	196	200	176	8*M12-30	φ10	125
AEPSL.100.400.150	400	857	250	446	14	50	145	196	200	176	8*M12-30	φ10	125
AEPSL.100.600.150	600	1057	250	446	14	50	145	196	200	176	8*M12-30	φ10	125
AEPSL.150.200.100	200	723	163	565	14	50	145	216	220	188	8*M14-28	φ12	125
AEPSL.150.400.100	400	923	163	565	14	50	145	216	220	188	8*M14-28	φ12	125
AEPSL.200.200.100	200	723	163	565	14	50	145	216	220	188	8*M14-28	φ12	125
AEPSL.200.400.100	400	923	163	565	14	50	145	216	220	188	8*M14-28	φ12	125

M	N	O	P	Q	R	S	T	U	V	W	X	Y
8*M6-12	φ5	48	335	45	30	7.5	22.5	φ6	2*M6-12	53.5	132	294.5
8*M6-12	φ5	48	535	45	30	7.5	22.5	φ6	2*M6-12	53.5	132	494.5
8*M6-12	φ5	48	335	45	30	7.5	22.5	φ6	2*M6-12	53.5	132	294.5
8*M6-12	φ5	48	535	45	30	7.5	22.5	φ6	2*M6-12	53.5	132	494.5
8*M6-12	φ6	60	387.5	45	30	7.5	22.5	φ6	2*M8-16	65	156	261.5
8*M6-12	φ6	60	587.5	45	30	7.5	22.5	φ6	2*M8-16	65	156	461.5
8*M8-16	φ6	76	395	70	40	15	35	φ8	2*M10-13	75.5	184	264.5
8*M8-16	φ6	76	595	70	40	15	35	φ8	2*M10-13	75.5	184	464.5
8*M12-24	φ10	110	515	70	40	15	35	φ8	2*M12-24	95	206	386
8*M12-24	φ10	110	715	70	40	15	35	φ8	2*M12-24	95	206	586
8*M12-24	φ10	110	915	70	40	15	35	φ8	2*M12-24	95	206	786
10*M12-24	φ10	110	555	70	40	15	35	φ8	2*M12-24	105	230	324
10*M12-24	φ10	110	755	70	40	15	35	φ8	2*M12-24	105	230	524
10*M12-24	φ10	110	555	70	40	15	35	φ8	2*M12-24	105	230	324
10*M12-24	φ10	110	755	70	40	15	35	φ8	2*M12-24	105	230	524

AEPS SERVO PRESS SYSTEM

Model	AEPS x002	AEPS x005	AEPS x010	AEPS x015	AEPS x030	AEPS x060	AEPS x100	AEPS x150	AEPS x200	AEPS x300	AEPS x500
Rated Force (kN)	2	5	10	15	30	60	100	150	200	300	500
Stroke (mm)	100 /200	200 /400	200 /400 /600	200 /400 /600	200 /400 /600	200 /400 /600	200 /400 /600	200 /400 /600	200 /400 /600	200 /400 /600	200 /400 /600
Maximum Operating Speed (mm/s)	250	250	250	250	250	250	150	100	100	80	
Maximum Allowable Tooling (kg)	10	30	60	60	80	100	100	200	200	300	
Service life under standard working conditions	15 million cycles										
Overload Capacity	10% rated force (10% FS)										
Force Sensor Type	Strain-gauge type										
Force sensor measuring range (kN)	-2 -2	-5 -5	-10 -10	-15 -15	-30 -30	-60 -60	-100 -100	-150 -150	-200 -200	-300 -300	-500 -500
Position repeatability accuracy (mm)	0.01										
Force Sensor Accuracy	0.5% rated force (≤0.5% FS)										
Force Linearity Error	1% rated force (≤1% FS)										
Minimum displacement resolution (mm)	0.001										
Main power supply range	Single-phase AC200V~240V, +10 ~ -15%, 50/60Hz		Three-phase AC380V — 440V, +10 ~ -15%, 50/60Hz								
Power (kW)	0.4	0.75	2.5	2.5	2.5	5	5	5/7.5	5/7.5	5/7.5	5/7.5
Software System Technical Parameters											
Channels	1 channel displacement, 1 channel force										
External displacement sensor	Supported										
Sampling Frequency	10KHZ										
Channel Sampling Resolution	24bit										
Evaluation control system accuracy	0.003										
Low-Pass Filter	0.1~2000 Hz										
Measurement curve plotting	Y=f(X), Y=f(t), Y=f(x,t), X=f(t)										
Curve Acquisition Points	500,000 points										
Offline Data Recording	100,000 records										
Installation of industrial PC software	Supported										
Split-screen display	Multiple windows information can be monitored										
I/O channels	116 inputs / 16 outputs										
Fieldbus type	"Profinet / Ethernet IP / EtherCAT / CC-link / Modbus TCP / DeviceNet /CC-link IE / Profibus / CANopen / BACnet / Common EtherCAT/UDP"										
Evaluation window functions	" Vertical line、Horizontal line、Rectangle、Horizontal trapezoid、Vertical trapezoid、Real-time stop、Force average、Time calculation、Speed calculation、Inflection-point calculation、X limit-line judgment、Y limit-line judgmen、Envelope calculation、 Digital signal input judgment、Differential force judgment、Gradient X calculation、Gradient Y calculation"										

