Electric Screw Press



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Company Profile



One of production base of Ningbo Smart Smith Engineering Technology Co., Ltd. was formerly the state-owned Ezhou Forging Equipment Factory, which has a history of more than 60 years of production experience on forging equipment. It mainly focuses on professional research and development and production of electric screw presses, providing customers with various specifications of screw presses of high quality, high performance and low energy consumption. It is the pioneer of technological innovation of domestic screw presses. Our strong technical team integrates the capabilities of other production bases of the company and can provide customers with advanced integrated hot forming intelligent die forging solutions with different characteristics.

The whole production base covers an area of 125 mu and owns more than 30000 m2 steel structure workshop. It has successfully produced over 400 sets of forging equipment. It has the ability to develop and produce a complete set of intelligent forging assembly equipment line. Regarding technology, our company has cooperated with Zhejiang University, Huazhong Science and Technology University and other universities to establish technology research and development centers, and set up academic expert workstations to provide professional support for product technology improvement and upgrading. We have 11 patents related to invention and utility model of screw press, are in the leading position on the electric screw press market and are appraised as a state-level high-tech enterprise.

The main products produced in this base include: J58S-YT series permanent magnet synchronous servo electromagnetic press; J58K-EP series electric screw press; J53, JB53 series double disc friction press. The company pays attention to scientific and technological innovation and successfully applies magnetic levitation and permanent magnet synchronous servo drive technology to electric screw press, which is the first in China and ranks first-class in the world. The company produces more

than 1000 sets of screw press products of various types, covering military industry, shipping, automobile manufacturing, hardware and other industries, and has begun to export in recent years. The products have won many awards such as the Golden Dragon Cup Award for Excellent Products of the China Economic and Trade Commission, the National New Product Award and the Outstanding Contribution Award.

Development History

In 1956, Ezhou Forging Machine Tool Factory was established.

In 1958, Ezhou Forging Machine Tool Factory and Qingdao Forging Press, Liaoning Forging Press were designated as the only three fixed-point production enterprises of friction press by the former Ministry of Machinery Industry in China.

In 1963, a complete series of J53 double disc friction press products (under 2500T) were produced.

In 1976, the first J57 series hydraulic screw press was produced in China, and it received an invention certificate in 1980. The product won the national new product award in 1997 and the scientific and technological progress award in 1999.

In 1980, the first domestic electric screw press was developed and manufactured, and won the Spring Swallow Award in 1988.

In 1983, the original double disk friction press was improved, and the first friction press driven by double disk and double motor was invented. It won the Excellent New Product Award and the National New Product Award.

In 2003, the former Ezhou Forging Machine Tool Factory was restructured and controlled by the Shareholders of Ningbo Smart Smith Engineering Technology Co. Ltd.

In 2006, the first J58K series electric screw press was developed in China, which is still the leading product in the field of screw press at home and abroad.

In 2013, the first electromagnetic screw press driven by arc linear motor, J58Z-ZH series, was developed, which broke the technical bottleneck of 4000T domestic press and won the national invention patent.

In 2015, the first permanent magnet synchronous servo linear motor driven electromagnetic screw press, J58S-YT series, was developed and patented. The product was awarded the outstanding contribution award by Forging Association.

In 2017, Ningbo Smart Smith Engineering Technology Co., Ltd. was established to integrate the resources of various shareholders in the forging industry chain, and began overseas promotion of the J58K/S series of electromagnetic screw press with initial success.

Product Introduction

1. J58S-YT Electric Direct Drive Screw Press



Equipment characteristics:

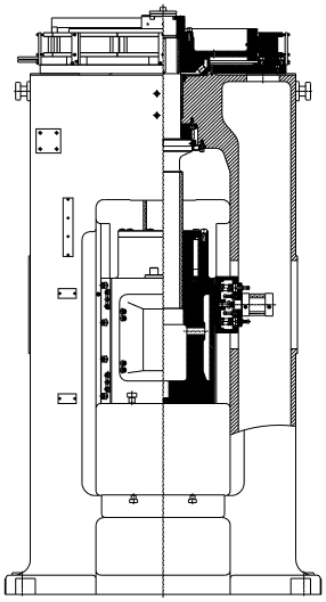
1. Using electromagnetic direct drive technology*, which adopt magnetic levitation drive instead of gear drive, energy saving is nearly 40% compared with traditional electric screw press as J58K series.

2. Using permanent magnet synchronous servo technology, the response speed is 1/8 of the induction motor, and the forging precision is higher.

3. It has the function of continuous forging and pressure-holding on die* and is suitable for flexible forging.

4. Accurate control of strike energy and return point, it can effectively solve energy spillover and reduce the damage on the die.

5. Low fault ratio of motor, easy to maintain.



Production and application fields:

Suitable for bending, cutting, punching, blanking, riveting, correction and forging of metal materials. It is also suitable for pressing and forming of powder products, abrasive products, plastic products and insulating materials.

Industry Applications:

Widely used in high-precision forging industry such as military industry, aerospace, shipbuilding, new energy vehicles, automotive parts and other manufacturing industries.

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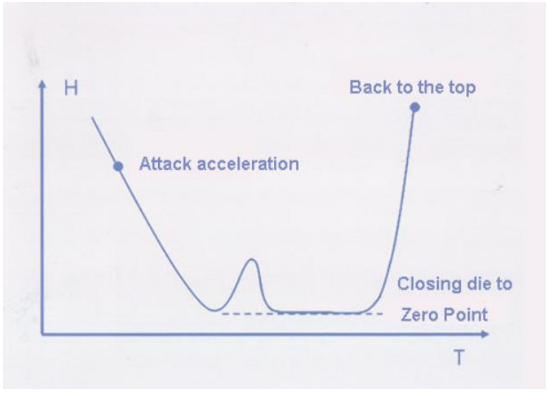
Technical parameters of J58S-YT series electric direct drive screw press:

Model	YT-250	YT-315	YT-400	YT-630	YT-1000	YT-1600	YT-2500	YT-4000
Screw diameter (mm)	200	225	240	280	360	420	520	660
Nominal pressure (KN)	2500	3150	4000	6300	10000	16000	25000	40000
Permissible maximum working force (KN)	4000	5000	6300	10000	16000	25000	40000	630000
Total energy (KJ)	15	20	40	80	160	280	500	1000
Slide stroke (mm)	320	380	400	450	500	600	650	720
Stroke frequency (/min)	26	24	22	20	18	16	14	12
Minimum Closure Height (mm)	500	550	570	750	750	900	1100	1200
Thickness of Bolster (mm)	120	120	120	160	200	220	250	300
Bolster area (long X width) (mm)	560X600	640X700	750X730	900X820	1050X920	1280X1000	1400X1200	1900X1600
Weight (T)	8	13	16	32	50	80	145	300

Note:

* Electromagnetic direct drive technology: This technology is used to replace the original mechanical transmission. It combines the motor rotor with the energy storage inertia disc of the equipment, and drives the working parts directly by the power components. That is to say, the power source drives the load directly without any transmission chain, realizes the so-called "zero drive", and achieves the real Mechatronics through the high integration of machinery and electricity. This technology guarantees the transmission accuracy and position accuracy of the system, reduces mechanical wear, improves the reliability of the system. It has the characteristics of fast response, high acceleration, short response time and high control accuracy. It provides an intellectualized, lightweight and efficient comprehensive solution for the upgrading of traditional mechanical equipment.

* Pressure-holding on die: At zero speed, permanent magnet synchronous single machine and servo control system can produce twice the rated torque, and continuously apply static pressure on forgings. Its technological advantages are that it can effectively prevent the deformation of large thin forgings after forging and reduce the follow-up shaping process. Its characteristic curve is as figure on right.





2. J58K-EP Electric Screw Press



Equipment characteristics:

EP series CNC electric screw press adopts advanced switched reluctance speed regulating motor. The utility model has the advantages of simple structure, compact structure, short transmission chain, fast striking speed, high efficiency, convenient operation and maintenance, etc. According to the forging forming process, the impact force and energy can be adjusted at any time. The forging has high forming accuracy, low die stress and long service life.

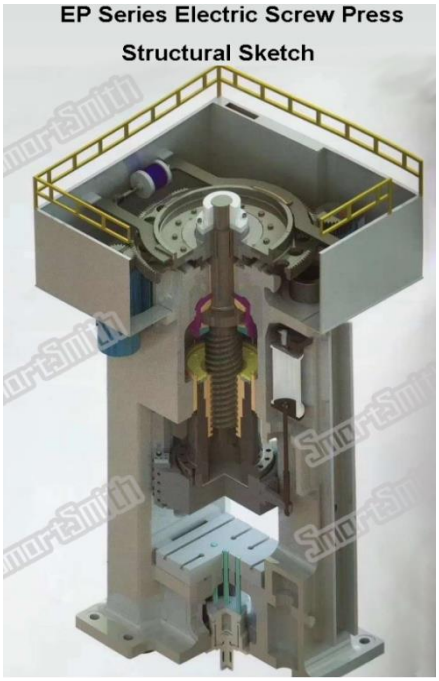
Production and application fields:

Suitable for metal precision forging, die forging, upsetting, extrusion, finishing and other forging processes, but also suitable for powder products, refractory products, such as compaction forming process.

Industry applications:

Widely used in machinery manufacturing, automotive, tractor, aerospace industry and refractory industries.





Technical parameters of J58K-EP series electric crew press:

Main parameter		Unit	EP-400	EP-630	EP-1000	EP-1600	EP-2500
Nominal force		KN	4000	6300	10000	16000	25000
Constantly hitting force		KN	6300	10000	16000	25000	40000
Cold strike force		KN	8000	12500	20000	32000	50000
Motion part energy		KJ	40	60	120	240	500
Ram stroke		mm	420	500	550	650	700
Max blowing speed		m/s	0.7	0.7	0.65	0.65	0.65
Time of ram stroke		min-1	25	20	16	12	11
Height of die		mm	480	600	700	800	920
Size of ram bottom	Front/Back	mm	760	920	1000	1250	1250
	Left/Right	mm	600	690	800	930	930
Size of table bolster	Front/Back	mm	820	920	1000	1250	1400
	Left/Right	mm	730	800	900	1000	1400
	Hight	mm	120	180	180	200	180 up
							240 down
Distance between guide		mm	640	707	810	940	1250
Ejection force		KN	50	100	100	600	600
Ejection stroke		mm	100	100	100	150	150
Overall size	Front/Back	mm	2785	2200	2300	3240	4800
	Left/Right	mm	1760	2400	2500	3695	4800
	Hight	mm	4547	6000	6600	7055	8350
Main motor power		KW	55	75	110	2x110	2x160
Weight		Kg	24000	45000	75000	120000	260000
Height (about)		mm	4327	5780	6200	6080	7200

Performance Comparison

Characteristic	J58S-YT series	J58K-EP series
Whether the existing technology can produce ten thousand tons of press?	√	X
Drive mode	Direct drive by electromagnetic force	Gear drive
Adopted motor	Permanent magnet synchronous servo linear motor	The Switched Reluctance Drive
Response speed	‹ 5ms	› 40ms
Forging accuracy	99%	90%
Energy saving compared with J58K series	40%	1
Noise decibel	Below 30 decibel	About 85 decibel
Energy replenishment function	√	√
Continuous forging function	√	X
Pressure-holding on die function	√	X
Automatic alarm function	√	√
Environmental requirements for use	High requirement for waterproof and dust-proof coefficient of workshop	High requirement for waterproof and moisture-proof coefficient of workshop



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