BAIXIE 百协机床 Jiangsu Baixie Precision Forging Machinery Co., Ltd.

CHK Series CNC Fully Hydraulic Die Forging Hammer

CNC fully-hydraulic die forging hammer is a high- and new-tech machine which is innovated from world advanced forging technology and completely developed by us. This patented die forging equipment is also a new type of CNC forging equipment with high efficiency, energy-saving and environmental protection features.

Structural Characteristics

A. Intellectual CNC system

CNC fully-hydraulic die forging hammer is equipped with on-line electronic monitors for pressure, temperature and cleanness as well as CNC energy control unit and logic monitoring system. Electronic monitors are used to guarantee the normal operation of the hydraulic system, while MSP processor is responsible for comprehensive analysis of technical data collected from on-line sensors. These data include tooling data, working pressure of oil, blank deformation, etc. Then this processor will carry out automatic control of striking energy after calculation of those data and further come to the logic monitoring for the whole working procedure. With precise striking energy control, our die forging equipment can not only reduce vibration and noise generated by excess striking energy, but also increase the hammer's operation reliability, service life of dies and further improve the quality of forging parts, speed up working efficiency, etc. The logic control for the whole working procedure means monitoring working status of all devices and executing elements by certain software programs. The data and images of the terminal machine in English can realize man-machine operation and malfunction displaying.

B. Efficient tapered valve control

CNC fully-hydraulic die forging hammer is actuated by tapered valve, with advantages of high efficiency, energy-saving and fast speed due to prompt reaction, compact design, short oil pipeline, minimum pressure loss, etc.

C. Unique driving structure

As the striking frequency of die forging equipment is similar to steam hammer, it requires fast discharge speed of oil while striking. By using the combined cylinder, it needs no oil pipes, no valves, less or no on-way resistance when charging and discharging oil; thus, it can finally realize fast striking and return.

D. Safe sealing

CNC fully-hydraulic die forging hammer is equipped with high and low pressure anti- leakage unit, so little leakage due to incomplete sealing of the high pressure oil can go back to the tank through low pressure oil circuit. Low pressure sealing alone can prevent oil leakage from outside, but high and low pressure sealing system can guarantee absolute sealing.

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Performance and Features

A. High efficiency

Flexibility and speed are main technical features of forging hammer currently used. It is possible for the hammer ram to obtain huge energy in short stroke due to its fully-hydraulic driving system, this is precondition for fast forming of forging parts. This makes our CNC fully-hydraulic die forging hammer differ from any other forging equipment.

B. Energy-saving

Energy-saving is the main cause for hydraulic hammer having been developed up to now, CNC fully-hydraulic die forging hammer can reach 65% drive efficiency, over 30 times more efficient than other traditional steam hammers, which have only 2% energy utilization.

C. Environmental protection

No wasted discharge and automatic control striking energy can avoid noise caused by excess striking, and hydraulic damping anti-vibrator can significantly reduce striking vibration by absorbing about 85% of the striking vibration, so that the working condition can be greatly improved.

D. High accuracy

U-shape casting steel frame, wide guides that are easy to dismantle and excellent die alignment and adjustment structure make forgings can be forged with high accuracy. The precise control of striking energy and program can avoid inaccurate operation arising from different operators.

E. High reliability

By using advanced tapered valve hydraulic control system, the oil circuit can realize no-pipe connection to greatly simplify the structure, which is precondition for the operation reliability of forging hammers. Furthermore, modern electronic technique is widely applied to improve the control performance and increase the working reliability.

Comparison with Counterparts

		German CNC Fully Hydraulic Die Forging Hammer	Our CNC Fully Hydraulic Die Forging Hammer	Innovation of Old Hammers	Pneumatic Hammer
Main Specification	Striking Energy (kJ)	80	80	75	75
	Dropping Weight (kg)	6000	5400	4000	3000

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	Striking Speed (m/s)	5.0	5.4	6.1	7.0
Structure	Drive	Fully-hydraulic	Fully-hydraulic	Air	Steam and air
	Energy Control	CNC	CNC	Manual	Manual
	Power Arrangement	Integrated	Integrated	Independent	Boiler or air station
	Main Valve	Sliding valve	Tapered valve	Sliding valve	Sliding valve
	Guidance	Actinide wide guide	Actinide wide guide	Pectination	Pectination
	Frame	U-shape cast steel	U-shape cast steel	Combination	Combination
Performance	Energy Control Accuracy	5%	--	--	
	Return Speed	Fast	Fast	Slow	Fast
	Operation Flexibility	Excellent	Excellent	Normal	Excellent
	Accuracy	Excellent	Excellent	bad	bad
	Drive Efficiency		65%	Lower than 48%	Lower than 2%
	Automatic	Yes	Yes	No	No

Main Technical Parameter

Specification	CHK	16	25	31.5	50	63	80	100	125
Striking Energy	kJ	16	25	31.5	50	63	80	100	125
Weight of Ram	Kg	1100	1750	2250	3400	4200	5400	6800	8400
Striking Frequency	Min-1	100	90	90	90	80	80	75	70
Motor Power	kW	30	55	55	2 × 55	2 × 55	2 × 90	2 × 90	2 × 110
Weight of Machine	T	26	40	51	80	100	120	150	195

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