CNC fully-hydraulic die forging hammer is high and new technology machine, which is innovated from world advanced forging technology and completely developed by us. And it also is new type CNC forging equipment with high efficiency, energy-saving and environmental protection features. It’s a key and important project in Jiangsu and No. 1 in China at the moment.

Main Structural Characteristics:  
**A. intellectual CNC system**  
CNC fully-hydraulic die forging hammer is equipped with on-line electronic monitors for pressure, temperature and cleanness and CNC energy control unit as well as logic monitoring system. The electronic monitors are used to guarantee normal operation of the hydraulic system, while MSP processor will be responsible for comprehensive analysis technical data collected from on-line sensors, such as: tooling data, working oil pressure, blank deformation, etc and then realizing automatic control for striking energy after calculation of those data and further come to the logic monitoring for the whole working procedure. With precise striking energy control, it can not only reduce vibration and noise generated by surplus striking energy but also increase the hammer’s operational reliability and die life and further improve forging parts quality and 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 program. The date and pictures of the terminal machine in English can realize man-machine conversation and malfunction displaying.  
**B. high 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, big flow-rate, simple construction, compact design, short oil pipeline, minimum pressure loss, etc.  
**C. unique driving structure**   
CNC fully-hydraulic die forging hammer has combined cylinder construction. Because its striking frequency is basically similar to steam hammer, it needs fast speed of oil discharge when striking. By using the combined cylinder, it needs no oil pipes, no valves, less or no on-the-way resistance when charging and discharging oil; thus, it can finally realize fast striking and fast return.  
**D. safe sealing**  
CNC fully-hydraulic die forging hammer is constructed with high and low pressure anti- leakage unit, so the 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 is just for preventing outside oil leakage, but high and low pressure sealing system can guarantee absolute sealing.

Performance and Feature:  
**A. High efficiency**  
Flexibility and speed are main technological features of forging hammer being used. It is possible for the hammer tup to obtain huge energy in short stroke due to its fully hydraulic driving system, that is, high speed forging in the short stroke and high frequency continuous forging are the reality, which is precondition for fast forming of the forging parts. This is the unique advantage of CNC fully-hydraulic die forging hammer over 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 hammer with only 2% energy utilization. The result of energy saving is substantial.  
**C. Environmental protection**  
No waste discharge and automatic control striking energy can avoid noise problem caused by surplus striking, and hydraulic damping anti-vibrator can sufficiently reduce striking vibration by absorbing about 85% striking vibration, so that the working condition is much improved.  
**D. High accuracy**  
U-shape casting steel frame, easily dismounting wide guides as well as good die alignment and adjustment structure guarantee forgings forming with high accuracy. The guide clearance is 0.2mm, and working accuracy, striking rigidity, striking efficiency and accuracy hold facility are more favorable than steam hammer.  
**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 operational reliability of forging hammer. Furthermore, modern electronic technique is widely applied to improve the control performance and increase the working reliability.

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| |  |  | | --- | --- | | http://www.forginghammer.cn/images/news_d.gif | Comparison with Counterparts | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  | German CNC Fully Hydraulic Die Forging Hammer | Baixie CNC Fully Hydraulic Die Forging Hammer | Innovation Chinese old Hammer | Pneumatic Hammer | | Main date | striking energy(kj) | 80 | 80 | 75 | 75 | | dropping weight(kg) | 6000 | 5400 | 4000 | 3000 | | striking speed(m/s) | 5.0 | 5.4 | 6.1 | 7.0 | | Construction | 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 | actinoid wide | actinoid wide guide | pectination | pectination | | frame | U-shape one-unity cast steel | U-shape one-unity cast steel | combination | combination | | Performance | energy control accuracy | 5% | -- | -- |  | | return speed | fast | fast | slow | fast | | operational flexibility | good | good | normal | good | | accuracy and repeatability | good | good | bad | bad | | drive efficiency |  | 65% | lower than 48% | lower than 2% | | Automatic | yes | yes | no | no | |

Main Technical Parameter:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 规格  SPEC. | CHK | 16 | 25 | 31.5 | 50 | 63 | 80 | 100 | 125 |
| 打击能量  Striking energy | kJ | 16 | 25 | 31.5 | 50 | 63 | 80 | 100 | 125 |
| 锤头质量  Ram weight | Kg | 1100 | 1750 | 2250 | 3400 | 4200 | 5400 | 6800 | 8400 |
| 打击频率  Striking frequency | Min-1 | 100 | 90 | 90 | 90 | 80 | 80 | 75 | 70 |
| 电机功率  Motor power | kW | 30 | 55 | 55 | 2×55 | 2×55 | 2×90 | 2×90 | 2×110 |
| 机器质量  Machine weight | T | 26 | 40 | 51 | 80 | 100 | 120 | 150 | 195 |