

INDUCTION FORGING



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Induction forging:

is a process of heating metals by means of Induction Heater. Basically metals are heated to between 1,100 °C (2,010 °F) and 1,200 °C (2,190 °F) to increase their malleability and to help flow in the forging die.

Types

Bar end heating: Bar end heating is basically used where only a portion of the bar is to be forged. Typical applications of bar end heating are

1. Hot heading of bolts
2. Anti roll bars
3. Mining tools

Billet heating: In the induction billet heating the whole of the billet is subjected to heating. The billets are passed through the water cooled coils which are made up of either ceramic or asbestos. The Billets are heated one after the other and after reaching the forging temperature, the billets are subjected to the Hydraulic or Hammer Presses for the following parts

1. Small crankshafts
2. Camshafts
3. Pneumatic and hydraulic fittings
4. Hammer heads
5. Engine valves

Single shot: For long billets, single shot heating can be used. This process utilizes similar systems to bar end heating except that the whole of the billet is driven into individual coils. As with bar end heating the number of coils is governed by ΔT required and the thermal properties of the material being heated.

Typical parts processed by single shot billet heating

1. Lorry axles
2. Marine camshafts

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Advantages of Induction Forging:

- Process controllability - Unlike a traditional gas furnace the induction system requires no pre-heat cycle or controlled shutdown. The heat is available on demand. In addition to the benefits of rapid availability in the event of a downstream interruption to production the power can be switched off thus saving energy and reducing scaling on the components.
- Energy efficiency - Due to the heat being generated within the component energy transfer is extremely efficient. The induction heater heats only the part not the atmosphere around it.
- Rapid temperature rise - High power densities ensure that the component reaches temperature extremely rapidly. Scale is reduced as are surface defects and undesirable effects on the surface metallurgy.
- Process consistency - The induction heating process produces extremely uniform consistent heat this improves accuracy of the forging and can in extreme cases reduce post forging machining allowances and have a positive effect on die life.
- Scaling in case of Induction is very less as compared to the conventional Methods.
- Uniform Heating and Consistent Quality.
- It is an Environmentally Sound process which is clean, non polluting process, produces no smoke, waste heat, noxious emission.

Edvantage:

- Quick and Total Solution of Coil design & fixture based on years of experience.
- Manual, Semi-Automatic, Automatic & CNC Controlled fixtures available depending on the requirement of sophistication in Production Line.
- Rugged and Reliable Equipment
- Excellent after sales service.
- Inbuilt safety circuits for machine & operator.
- ED Equipments are designed for continuous operation of 24 hours a day and 365 days a year. Hence it is more suitable for continuous operation.
- Due to its ruggedness trouble free operation. It can run continuously

Equipments Supplied For Forging

Model No.	Power	Frequency	Job Example
EIFG-25	25KW	10KHz	Fasteners Manufacturers
EIFG-100	100KW	10KHz	Fasteners Manufacturers
EIFG-500	500KW	2.5KHz	Automobile Components
EIFG-1000	1000KW	1.5KHz	Automobile Components
EIFG-2000	2000KW	500Hz	Forging Industry

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