Mitsubishi Heavy Industries, Ltd. recently delivered its newest forging cranes with full inverter control to the two largest forging companies in the world: The Japan Steel Works Ltd. and Japan Casting and Forging Corporation. The cranes are equipped with a special technical feature for forging operations, to be used with forging press machines. The new full inverter control significantly increases the energy savings and operational capability of our customers.

| 1. Forging crane |

Forging cranes, which are used with forging press machines to produce hot forged parts such as turbine rotors and crankshafts, are exposed to severe working conditions.

The Japan Steel Works Ltd. and Japan Casting and Forging Corporation are expanding their large-scale facilities to forging press machines with capacities of greater than 10,000 tons in response to orders resulting from nuclear power plant construction. The forging cranes are for use with these new large-scale forging press machines.

Our new forging crane provides a state-of-art combination of safety and efficiency, with the introduction of the most up-to-date technology.

| 2. Main characteristics of the Mitsubishi forging crane |

(1) Full Inverter Control
- The application of inverter control to all drive units results in reductions in weight, energy consumption, and maintenance cost.

(2) Safe Forging Operation (Figure 1)
- Dual safety measures are used.
  - Mechanical spring buffer device
  - Emergency lowering system called the forging mode sequence to avoid abnormal loads to the crane body during press operation

![Figure 1 Safe Forging Operation](Image)
(3) Flexible operation in case of single-motor failure
   - Using motor field control (Figure 2), emergency hoisting operation is possible in case one hoisting motor fails. This motor field control system allows hoisting of the rated load at half speed. (Option)

![Figure 2](image)

**Figure 2  Field control**
Emergency hoisting operation using field control system is introduced.

(4) Decrease in operator strain and increase in safety
   - Synchronization of the crane and the forging press machine reduces operator strain requirements. (Option)
   - Dual system allows one person to operate two cranes. The motions of both cranes are synchronized and operational safety is improved. (Option)