

# Fast energy storage on die casting machine

Why is energy consumption prediction important for die casting machines?

The energy consumption prediction of die casting machines can support energy consumption quota, process parameter energy-saving optimization, energy-saving design, and energy efficiency evaluation; thus, it is of great significance for Industry 4.0 and green manufacturing.

Is die casting energy efficient?

Discussions Die casting is an energy-intensive process that has prompted energy efficiency evaluation toward achieving greener, more sustainable manufacturing processes. However, the complex production conditions require even higher real-time and dynamic performance of energy efficiency evaluation.

Do die casting machines consume a lot of energy?

Die casting machines, which are the core equipment of the machinery manufacturing industry, consume great amounts of energy.

How effective is a die casting workshop?

To verify the effectiveness of the proposed approach, a case study of a die casting workshop was performed. The main results are as follows: 1) The OEE and energy utilization ratio of die casting units were increased by 3% and 7%, respectively; 2) Energy consumption per kilogram of die casting workshop was reduced by 7.9%.

What is Overall Equipment Effectiveness (OEE) of die casting unit?

Overall equipment effectiveness (OEE) of die casting unit is the main indicator used in equipment management and energy efficiency evaluation and reflects the overall efficiency of equipment as well as the proportion of time or energy available to create value.

How to reduce energy consumption in a die casting workshop?

Two approaches to minimize energy consumption in the die casting workshop were considered: 1) Management methods, such as production scheduling optimization, and logistics management, can be applied in die casting workshops; 2) Selecting more energy-efficient equipment or eliminating/improving the energy-intensive equipment. 6.4. Discussions

This research collected energy consumption data for die-casting processes at a typical die-casting workshop with two casting machines. Each machine was designed to produce two product ...

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Low pressure and high pressure die casting are applicable in different scenarios depending on the component complexity, the number of parts, and the manufacturing budget. Below is a clarification on the differences between the ...

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The fluid technology components are not only used in die-casting machines but also in energy and power plant technology, mobile hydraulics, and oil and gas technology. ...

The die-casting process is divided into six stages: energy storage, slow, fast, boosting, tracking, and back-whacking. Since the performance of the slow, fast, and pressurized phases of the pressure injection mechanism ...

An example showed that more than 50% of energy can be saved in aluminum casting if the temperature is lowered by only 40°C. Even more energy can be saved if a crucible is covered during times when no metal is ...

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The die-casting process uses a permanent metal mold, or die. Molten metal is forced into the die cavity at a pressure of between 0.7 MPa and 700 MPa. Die casting is essentially the same process as injection molding. ...

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