

Design of stamping die for energy storage box shell

Can a software package reduce the weight of stamping dies?

This in turn calls for higher prices of dies and production energy required per part. Therefore, alternative methods to reduce the weight of these components are required. In this paper, a software package is presented which can design an improved structure of stamping dies with a substantial reduction in weight.

How do hot stamping dies work?

Currently, most of the hot stamping dies are built by drilling cooling channels to a number of die segments and assemble them together. Another method used is shell cooling, where the final part shape is machined on a shell die and cooling water is pumped between the shell and the core dies. Lastly, the die could be cast on cooling tubes.

How can CBR be used to design stamping dies for automotive panels?

Utilizing the CBR methodology to plan stamping process and design stamping dies for automotive panels reuses existing designs to develop new designs. In the proposed flexible system, process-planning and die-design functions can adapt existing designs or generate new designs based on stamping knowledge.

Can a numerical simulation predict a stamping die structural behavior?

Accurate prediction of deformation and stress distribution on stamping die components is critical to guarantee structure reliability and lightweight design. This work aims to propose a new method for predicting die structural behaviors and reducing total weight based on numerical simulation.

How is stamping process planning and press die development process automated?

Stamping process planning and press die development processes for automotive panels are automated using the novel KBE framework. The flat-bend graph is utilized in the representation module to extract topological and geometric data from the surface model for case indexing and stamping feature recognition.

Can a long beam stamping die be used for forming automobile panels?

A long beam stamping die used for forming automobile panels was selected to validate the proposed methodology, and about 18% weight reduction was achieved. Stamping dies are widely used in the mass production of sheet metal parts.

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storage and quick retrieval of any die components. Intelligent Die Model The design process with SS-Die Design is quite similar to a conventional die design process. A two-dimensional die ...

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The utility model relates to the technical field of stamping dies and discloses a new energy battery shell precise stamping die which comprises a base and a top plate, wherein ... Energy storage ...

3. Design of the progressive die structure 3.1 Layout design of stamping parts In order to ensure material utilization, a reasonable layout design method must be adopted. In order to ensure ...

The stamping and drawing die for producing the aluminum shell of the battery box according to claim 4, the lifting adjusting mechanism comprises a driving worm (24), a first transmission...

The Box-shaped Lithium Cell Outer Shell is a critical component used in the production of lithium-ion battery cells. Typically constructed from high-strength materials like aluminum or steel, these shells serve as protective enclosures ...

5. The Materials of Stamping Die 6. The Design Processes of Stamping Die 7. The Processing Methods of Stamping Die. What is the Stamping Die? Stamping die is a common type of die, in which metal or non-metal ...

In this paper, the dimensional optimization design of material change and shell thickness of a vehicle power pack structure is optimized, and the static mechanical analysis of ...

The utility model discloses a production of battery box aluminum hull is with punching press drawing die relates to condenser aluminum hull production technical field. The utility model ...

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