

Can dynamic mold temperature control improve dimensional stability of thin-walled bipolar plates?

Therefore, the aim of this study is the development of an injection compression molding process with dynamic mold temperature control (ICM-DT) for the realization of thin-walled and highly filled bipolar plates with the highest possible thickness dimensional stability.

How does injection molding work?

Scanning electron microscope images of the untreated (a) and the plasma-treated (b) sample surface. The fountain flow within the injection molding cavity initially leads to an alignment of the fillers perpendicular to the flow direction at the flow front and in the boundary layer to the mold wall.

What solutions do you offer for fuel cell & energy storage applications?

We offer the following solutions for your fuel cell and energy storage applications: Graphite bipolar plates (compression molded with integrated flow field, milled, bonded, surface optimized). Specific products for flow-through and flow-by redox flow cell designs.

Why is the filler content of bipolar plates a problem in injection molding?

The high filler content of the modified compounds, required for sufficient electrical conductivity of the bipolar plates, results in limitations in the possible thickness dimensions of current plate geometries in the injection molding process.

Why should you choose molded graphite bipolar plates?

Production in a continuous extrusion process enables cost advantages while maintaining tight thickness tolerances. Molded graphite bipolar plates. Wherever extreme durability, reliability and power density are required, our compression molded bipolar plates with integrated flow field are the first choice for mobile and stationary applications.

What are graphite bipolar plates for fuel cells?

Our graphite bipolar plates for fuel cells are manufactured specifically for the PEMFC and DMFC types. Through many years of research and development work, we have succeeded in optimizing the outstanding material properties of our high-performance materials and enabling the production of high volumes.

The invention discloses an energy-saving and efficient injection molding machine which comprises a rack, wherein an injection device is arranged on one side of the rack, the injection device comprises a hopper, a driving motor, a melting chamber and an injection head, a rotating shaft of the driving motor is connected with a spiral conveying rod, the injection head is ...

The utility model discloses an energy-saving injection molding machine, comprises an installation table, the

Energy storage injection molding end plate

top fixed mounting of mount table has the hydraulic press, and the welding has the stripper bar on the output shaft of hydraulic press, and the welding has the rack on the stripper bar, the one end fixed mounting of stripper bar has annular stopper, the top fixed mounting of ...

In this work, a new plastic-intensive medium-pressure plate (MPP), which is part of a fuel-cell system, has been developed together with a steel plate meeting all mechanical and chemical requirements. This newly developed MPP had to achieve the objective of saving weight and package space. The use of compression molding as a manufacturing technique facilitated ...

scrap) is fed to the injection molding machine, where it is melted and the actual injection molding process is carried out. The injection molding process cycle consists of mold closing, injecting, cooling, mold opening, and ejecting. Other operations of feeding and melting, which take place within the injection

When the size of a liquid crystal display (LCD) increases, the light guiding plate (LGP) as the main part of the LCD must adopt a wedge-shaped plate to reduce its weight (the thickness of the LGP decreases because of this) and guide the light to the LCD screen. Micro-injection molding (MIM) is commonly used to manufacture LGPs. During the filling phase of ...

Schematic of thermoplastic Injection molding machine 7. Process Operation Temperature: barrel zones, tool, die zone ... radial flow -twisting End gates: linear flow -minimum warping Gate Air entrapment Edge gate: warp free, air entrapment ... Cavity Plate Cavity Moulding Core Core Plate Basic mould consisting of cavity and core plate Runner ...

The work is outlined as follows. Section 1 provides a general background for sensing technologies in injection molding. Then, Section 2 gives an explanation why the existing complexity in injection molding, highlighting the need for real-time measurement. We synthesize the state-of-the-art research about the detection approaches of machine status, melt flow ...

Stryten Energy uses a proven plastic injection molding methodology to produce critical automotive, motive and essential power battery components. Proven resources and technology are used to provide durable, cost-effective ...

Injection molding technology forming the shape of a complex and precise size of products, suitable for high efficiency, high-volume production methods, has become part of thermoplastic and thermoset plastic molding process the most important. Moldflow software is based on the theory of injection molding technology finite element software.

1. Introduction. The growing awareness of environmental challenges and the search for sustainable solutions have led to a critical evaluation of the way natural resources and waste are managed [1,2]. The continuous growth of the global population and the increasing demand for food and energy have made the effective

management of agricultural and food ...

Methods, systems, and apparatus, including computer program products, for determining energy indicator values for a plurality of thermoplastic materials. An energy indicator value represents expected energy requirements for performing an injection of the material in a mold cavity. An injection of each of a plurality of thermoplastic materials in a first modeled mold cavity is ...

An injection molding machine includes an actuating drive in form of an electromotive spindle drive and an energy storage device associated with the spindle drive. The energy storage device stores kinetic energy and can include two counteracting compression spring assemblies. The energy storage device is hereby loaded, as the spindle drive moves to a first end position, and ...

Texturing is an engineering technology that can be used to enable surface functionalization in the plastics injection molding industry. A texture is defined as the geometrical modification of the topography by addition of surface features that are characterized by a smaller scale than the overall surface dimensions. Texturing is added to products to create novel ...

Our products for fuel cells and energy storage systems Molded graphite bipolar plates. Wherever extreme durability, reliability and power density are required, our compression molded bipolar plates with integrated flow field are the first ...

Keywords: injection compression molding; bipolar plate; fuel cell; thin-wall injection molding; dynamic mold temperature control 1. Introduction In the course of the energy system transformation and the electrification of the trans-port sector, emission-free drive and storage concepts are becoming increasingly important.

2. Technical requirements of bipolar plates and gaskets. Based on the technical functions described above, a comparison to other technologies is necessary: The Fuel Cells: The US department of energy (DoE) suggested development targets for fuel cell components as shown in the Table 1 for bipolar plates [].Although these data are based on communication ...

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