Standard production tool with the smallest injection point

The Plastechnik AG, which is based in 3178 Bösingen, Switzerland, is specialized in the production of technically sophisticated plastic parts and the design and manufacturing of injection moulds. Heitec Heisskanal-technik GmbH in 35099 Burgwald, Germany, is known for providing special solutions in the area of hot runner technology, particularly in lateral injection and the production of highly specialized small nozzles.

Plastechnik AG approached Heitec with an inquiry regarding the application of an extremely small shot weight, via Heitec´s Swiss representative Mr. Daniel Jenny of the company E. Ramseier Werkzeugnormalien AG in 8602 Wangen, Switzerland. The plasticarticle, which is the focal point in the project, is a very small bearing cage, which consists of Polypropylene. It is a component unit of a flow meter and boasts an approximate weight of 0.007 grams. Plastechnik AG and Heitec worked collaboratively together to develop a 4-fold series-production tool, which aimed to achieve the demanding application with a hot runner. Despite the low material throughput of only 0.028 grams per shot, the hot runner system enables a reliable, precise and material-friendly processing. Hot runner manufacturer Heitec emphasizes in this context, that it is the core task of hot runner technology to ensure that the molten plastic flows unscathed and with low-shear into the cavity of the tool. For this reason, Heitec dedicates itself to continually refining existing products, in order to offer customers an advantage in regards to quality and efficiency. As a result of this optimization, Heitec was able to massively reduce the energy requirements of hot runner nozzle rows of various construction styles. The energy savings were dependent on the design of the nozzle, with the amount of energy saved ranging between 25 % and 60 %.

In the case of the Hot Half, which was produced at Heitec, hot runner nozzles of the HEITEC-FIRST Series Type 01.010.13.60 with a shaft diameter of 13 mm and melt diameter of 3 mm were used.

Thanks to the highly precise, thermal profile of the nozzle, it was possible to obtain a very small injection point diameter of 0.32 mm. The injection point received a very high rating and the outlines were optimal. As manifold of the 4-fold application, the distributor nozzle also known as a rotary distributor, was utilized.

During the sampling of the application, which was carried out on the grounds of injection moulding maschine manufacturer, ARBURG GmbH + Co KG in 72290 Loßburg, very good results were immediately obtained. The chambers were already evenly filled after the first shot. In the course of the application, a spray pressure of 600 barwas mastered.

Although it would be expected with this type of material, there appeared to be no stringing, thanks to the excellent thermal profile of the nozzle.

Plastechnik AG is very satisfied with the direct injection via the hot runner. If the quantity development increases according to plan, the idea is to create a 16-fold series-production tool with identical hot runner components..

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