

Gearing up with the Heitec Flat-Line

Gearing up with the Heitec Flat-Line

Gears with high trueness in highly efficient production Manufacturing high-precision products using triple injection

The manufacturing of gears or even double gears for gearing, automated dispensers or other assemblies creates ever more demanding challenges for the trueness of the product being manufactured. POM is the material used most frequently for these applications. This application used Hostaform because of its low friction coefficient and high wear resistance in combination with good elasticity. This allows a very quiet meshing of the gears, which is required for example for the gearing of automated dispensers.

In order to enter into even more mechanically demanding applications, certain other materials such as PPA are nowadays being successfully used in the production of gearwheels

Gear sizes with a pitch diameter greater than 24 mm with about 50 teeth, smaller applications with pitch diameters of about 10 mm and 25 teeth - these sizes are most in demand.

In order to achieve excellent trueness, it is the experience of HEITEC that injection should be near the hub at several points.

Using conventional multi-tip nozzles with just one control point typically leads to uneven filling because three tips with just one heating and one sensor cannot take the temperature and rheology into account.

If a fan gate is used, reworking of the parts is inevitable.

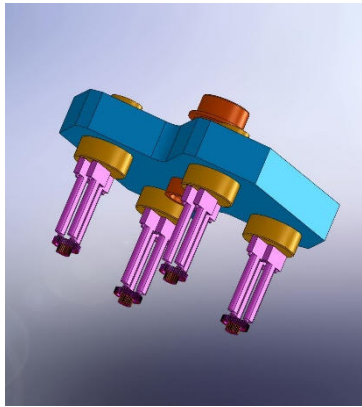
By using HEITEC Flat-Line nozzles which are arranged in such a manner that they allow injecting near the centre hole at three points, narrow tolerances can be achieved. Unlike with multi-drop nozzles, each gate is controlled individually. This allows for very even filling.

The Flat-Line nozzles are particularly suited to applications with narrow cavity spacing. The smallest Flat-Line nozzles can achieve a gate spacing of just 4.5 mm. This means that there is always still room for a temperature control hole in critical areas. This prevents hot spots from forming in the first place.

Experience with such applications has shown that in addition to the accuracy described above, quicker cycle times are also achieved.

Because of the narrower spacing and item arrangement, smaller moulds can be used and production can be implemented on smaller machines – a side effect with great cost-saving benefits.

Flat-Line – a whole series



The Flat-Line series by HEITEC Heisskanaltechnik GmbH offers options for a wide range of problem solutions. In addition to the standard nozzles, there are also twin and triple nozzles that allow reaching two or three gates in the optimal manner. (Fig. 2)

The requirement to realise off-centre injection in very small spaces has even led to the development of a flat nozzle with a deflector. Where the use of hot runners and nozzles used to be required, it is now possible to use a deflector nozzle and nozzle adapter as a cost-effective solution for achieving an off-centre position. (Fig.3)

The largest nozzles in the Flat-Line series are about 300 mm long and allow a shot weight of up to 250 g per nozzle. (Fig.4) While still supporting cavity spacings as narrow as 18 mm. With their slim design, they can reach places where conventional round nozzles cannot go. The design of this XXL Flat-Line is almost identical to that of our tried-and-tested nozzle types 01.041.08 and 01.041.10 that have been used very successfully for the last 15 years. This ensures high operation and process reliability

In all Heitec systems, the nozzles are rated for an operating voltage of 230 V. The heating and the thermocouple can be replaced by the customer, which ensures very short process downtimes. The optimal distribution of the heating power in the nozzles ensures a homogeneous temperature profile with minimal tolerances.



Fig. 2: Twin and triple nozzles



Top view of triple nozzle

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