

## User friendly hot runner concept allows high precision production of a felt tip pen.

HEITEC Heisskanaltechnik GmbH impresses again with innovative solutions for the production of a felt tip pen with side injection.



STAEDTLER Mars GmbH & Co. KG is one of the world's leading manufacturers and suppliers of writing-, painting-, drawing- and creative products and is the largest European manufacturer of wood-cased pencils, foil markers, mechanical pencil leads, erasers and modeling materials.

As one of the oldest industrial companies in Germany, STAEDTLER Mars GmbH & Co. KG benefits from the long tradition of the Nuremberg based Staedtler family of

founders, as well as decades of experience and a special advantage in research and development for innovative products of the highest quality. As an international company with a high export quota, STAEDTLER sells its products worldwide in over 150 countries with 21 branches and 6 production facilities..

### Assignment:

A professional system for side gating was required for the modern production of a felt tip pen. The barrel made of PP needs to guarantee a long life of the pen. The writing pen is, of course, a proprietary development by STAEDTLER.

The felt tip pen as a finished product can be used in various versions for writing on white boards or flip charts.

The required product quality dictated a double-sided injection per article in order to ensure the desired precision and dimensional stability.

The computer simulation carried out at Heitec confirmed once again the planned course of action.



### Implementation

Together with the customer, HEITEC Heisskanaltechnik GmbH searched for an optimal cavity arrangement and found it with the Star Line nozzle 01.072.44.100.

Due to the compact tool construction of the two 16-cavity tools it was necessary to use as few hot runner nozzles as possible, whereby an article was filled with 2 opposing Star-Line nozzles. This was achieved by arranging the two nozzle tips partially at 90° degrees to one another. This improves the core stability, thus enabling a more uniform cavity fill and reduced wear. With this Star-Line nozzle arrangement its advantages, such as the variable tip positions, can be nicely utilized and various articles can be arranged almost "free-dimensional".

In addition to the round Star-Line-Crown radial, HEITEC also offers a flat series Star-Line-Crown linear, which is also available with 1 to 8 tips.

Furthermore, choosing the Star Line nozzle allows flexibility with applications for a wide variety of resins, since practically all engineering resins, naturally also with fillers added, can be processed reliably.

The unique selling points are comprised of the following other factors:

### Color Change:

Thanks to the naturally balanced manifold fast color changes can be achieved. The thermally excellent temperature characteristics of the hot runner nozzles also enable the processing of luminescent colors.

To achieve spontaneous color and material changes in the shortest possible time the nozzle tips are removed in the press and the corresponding plastic of the gate area is unscrewed. Then the tips are reinserted and the next cycle begins.

### Mold parting line through snorkel and adapter:

The two-part snorkel and snorkel adapter, which can be separated below the crown, enable the introduction of a second parting line on the nozzle side.

Therefore, the core pins can still be changed on the machine by opening this separation (remove 4 screws) and, if applicable, several article variations (core pin sizes) can be produced with one mold.

This possibility of nozzle separation naturally saves enormous set-up times since this advantage can also be used for tool cleaning, e.g. for vents. Here, the complete electrical installation remains untouched.

Furthermore, the Star-Line nozzles can theoretically also be used with lengths > 300 mm without the nozzle tips being subjected to a length expansion.

All in all, an effective and user-friendly mold concept was developed and implemented together with Staedtler GmbH.

All our nozzles and manifold systems are developed, designed and manufactured fully 100% by HEITEC Heisskanaltechnik GmbH in Germany.

Anniversary Year:

The HEITEC Heisskanaltechnik looks back positively on **30 years** of superior technology and will continue to excite customers with innovative solutions in 2017.



In collaboration with:

STAEDTLER Mars GmbH & Co. KG  
Moosäckerstraße 3  
90427 Nürnberg  
Fon: +49 911 9365-577  
Fax: +49 911 9365-99461

HEITEC Heisskanaltechnik GmbH  
Frankenberger Straße 25  
35099 Burgwald  
Fon: +49 (06451) 7283-0  
Fax: +49 (06451) 7283-83  
[www.heitec.com](http://www.heitec.com)