Single-use quick-change moulds for the production of prototypes + small series

Fast, variable and clever for the small series

Mobile phone protective covers for smartphones
The project

The small series mould K 3600 / . . . enables the cost-effective production of plastic items even in small batch sizes. An optimum price/performance ratio of the mould, which is unbeatably flexible in its application, is achieved through consistent use of the tried and tested HASCO standard.

The aim was to demonstrate the flexibility and the wide range of applications of the small series mould K 3600 / . . . and the CMS system even in the case of technically demanding items, and to produce an attractive fair gift for the K 2013 at the same time.

The challenge

The HASCO small series mould K 3600 / . . . has been specially developed for the cost-effective production of practical small series.

However the mould system K 3600 / . . . can also produce thoroughly complex and demanding plastic items.

With the special design and the use of the quick clamping system CMS of the project partner B & R, a fully operational mould design without disruptive restrictions due to reduced ejectors or cavity spaces is available with the K 3600 / . . . . Offhand, it is possible to produce the time-consuming mould design with two opening movements, inclined sliding carriages and a forced ejection. Three smartphone protective covers have been selected in order to demonstrate the quick mould change and the flexibility this provides within the production process.

The project was able to be realised together with several project partners:

The design and construction of the small series moulds was carried out in the Prototyping & Service division of HASCO. The design and surface finish was realised by Werkzeugbau-Institut Südwestfalen using the Course4 technology, the quick clamping device was provided by B & R and the required injection moulding machine with the necessary equipment was provided by Wittmann Battenfeld.

Project realisation

Together with the development team of the Hot Runner and Mould Base division of HASCO, initial development approaches were discussed, constructed and manufactured in collaboration with the Prototyping & Service department.

In order for a cost-effective and quick implementation of the project to be realised, the extensive range of HASCO standards was referred to. Standardised components from the sliding carriage range were used for all lateral openings, for example.

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Hot half CMS

To avoid sprue remains, the central gating was designed for a hot runner single nozzle of the Techni Shot nozzle series Z 34201/25 x 100. Along with the material consumption, the cycle time and the pressure demand are hereby considerably reduced.

In order to ensure a quick mould change and minimal idle periods with the CMS system, an adapter plate with an integrated central nozzle with a melt chamber insert was used as a system unit which accommodates the nozzle-side CMS mould plate at the same time.

This solution permits simple maintenance of all hot runner components on the injection moulding machine and enables the material or colour to be changed easily within a very short period of time. The adapter plate with an integrated hot runner central nozzle remains on the injection moulding machine and is connected to the CMS clamping plate via a quick-release screw connection.

This unit installed as a CMS hot half was projected by the HASCO Hot Runner division, installed ready for connection and made available after being tested.

Together with the small series mould K 3600 / . . . the Clever Mould System provides optimum requirements for the profitable small series production with the help of the CMS hot half due to reduced mould costs and setup times.
The use of unique, patented Course4 surface technology provides for an exceptional surface structure of the mobile phone cases.

Compared with previous manufacturing procedures, this technology relies on the moulding of existing structures and enables extremely accurate images of natural surfaces with lotus effects or other very fine microstructures. Appropriate inserts were prepared by our project partner, Werkzeugbau-Institut Südwestfalen.
The Mould
Project partner

HASCO

Realisation
HASCO Hasenclever GmbH + Co KG
www.hasco.com

CMS

CMS Clamping device
B & R GmbH
www.clever-mold-system.de

wi-swf

Course4 surface technology
Werkzeugbau-Institut Südwestfalen GmbH
www.werkzeugbau-institut.de

Injection moulding machine
Wittmann Battenfeld GmbH & Co. KG
www.wittmann-battenfeld.com

Material
PTS Plastic Technologie Service
www.pts-marketing.de

Rapid Technologies since 1924.