

# Compact hot runner system permits production in the smallest space

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1/ Compact hot runner system H4070/... permits production with a narrow pitch

Even though elm-plastic's product range mainly consists of primary packaging materials for the pharmaceutical industry and dosage equipment for human and veterinary compound prepa-

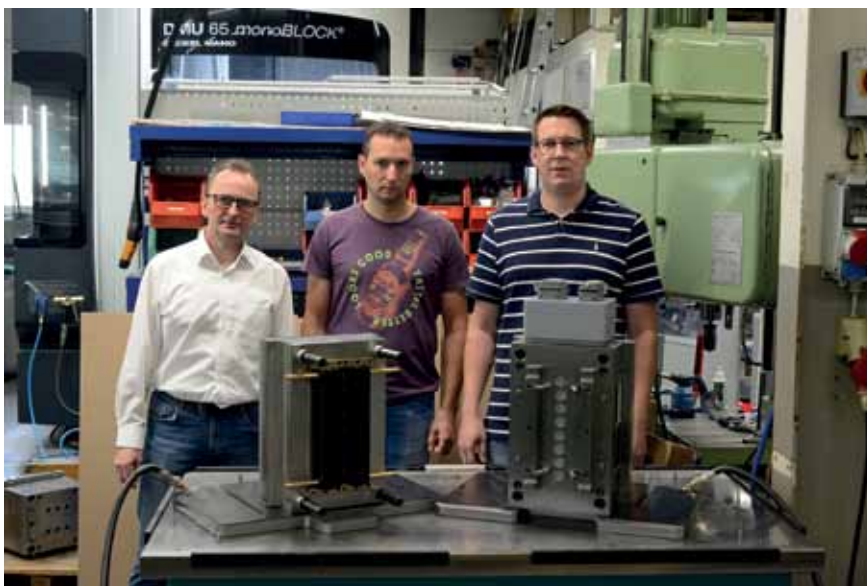
For over 50 years, elm-plastic GmbH in Dudeldorf/Germany has stood for high-quality, technically sophisticated, plastic components. With some 100 employees, this mould-making and injection moulding company in the Eifel region primarily produces injection moulded parts for the pharmaceutical industry. An existing 500 kN injection moulding machine was to be used for a small DIY-store article. The perfect solution with an optimal opening stroke was provided by the new H4070/...compact hot runner system, an additive-manufactured manifold block from HASCO, the Lüdenscheldt/Germany-based standard component and hot runner specialist.

ration, the company regularly works on projects from different areas. These currently include a product with a highly demanding geometry that is to be sold in DIY stores in the future. The HDPE injection moulding is produced on an 8-cavity mould. "The customer requests batch sizes of 400,000 articles several times a year," explains Roman Möhs, development manager at elm-plastic. The geometry of the article posed a particular challenge, however. "Our 500 kN injection moulding

machine is actually ideally suited to this article with its 8-cavity production," explains Möhs, "but the permitted installation height is somewhat tight for the application. We had to find a different solution because switching to the next largest 750 kN machine was not a real alternative.

## Compact 3D-printed HASCO hot runner system

The in-house mould-making department at elm-plastic, which produces some five to ten moulds itself each year, relies on standard components and hot runner technology from HASCO. Roman Möhs looks back to the last K-Show world fair for the plastics and rubber industry in Düsseldorf, where the specialists from HASCO presented a new innovation. "The new HASCO compact hot runner system H4070/... has indeed made it possible to save 10 mm on the mould thick-



2/ In elm-plastic's mouldmaking department: Roman Möhs, head of development, Timo Dedisch, head of production, with Stephan Hatarik/technical sales engineer HASCO hot runner (from right to left)

ness for this project, despite the complex installation situation and the demanding gating,” explains Stephan Hatarik, a technical sales engineer at HASCO hot runner. Since the manifold block, which is available on the market exclusively from HASCO, is manufactured in an additive laser sintering process, the complete “hot half” can be produced much more compactly. “This gives us the necessary space for the opening stroke to ensure reliable demoulding,” says Roman Möhs, “and we also have a certain margin when it comes to the installation height and ejector stroke, etc.” This would have been almost impossible with a conventional standard hot runner, the development manager stresses. “And 10 mm is really a lot for a cylindrical article with a length of 25 mm,” he adds.

A further key advantage of the 3D-printed manifold is that the

3/ 3D-printed manifold block for optimum flow paths

flow channels can be freely designed to suit application-specific requirements, thus ensuring an optimally balanced design with rounded corners and no sharp edges, hence no dead zones. The additive manufacturing of the hot runner employing a 3D laser sintering process enables the complete manifold block, including all the threads, to be manufactured in one piece in a single operation. “No re-directional elements have to be installed, which could then leak,” Stephan Hatarik explains. In addition, 3D printing permits very narrow pitches and highly variable nozzle configurations.

#### Small but complex DIY-store article

Already during the 3D design of



the mould it was clear that the lack of space could be solved with the aid of the 3D-printed manifold. In addition, the demanding gate for the relatively small, complex article prompted HASCO run a MoldEx filling simu-



4/ 8-cavity compact hot runner with modified, screw-in 20 mm Techni Shot nozzles



5/ Ejector half with DLC-coated slides

lation, or flow analysis – a service that HASCO generally offers its customers free of charge. This simulation resulted in the gating point being moved by a number of millimetres prior to manufacturing the mould so as to avoid air entrapment.

Roman Möhs was pleased that the delivery time for the custom designed and manufactured 8-cavity compact hot runner with its modified, screw-in, 20 mm Techni Shot nozzles was only slightly longer. “We can easily recover the slightly higher costs by using the smaller machine.” He was delighted about the HASCO innovations, which enabled the entire project to be carried out and executed without any problems. The fact that the nozzle tips and the heating elements can be installed from the parting plane also proved to be a great help, facilitating maintenance. The mould has moving parts on the ejector side. The DLC (Diamond-Like Carbon) coating on the slideways reduces the coefficient of friction, leading to a considerably longer mould life

without separate lubrication. Even though the current project is a component for DIY stores, the absence of lubrication is important for elm-plastic because the machines are operated primarily in a clean-room environment for the production of medical devices. All the injection moulding machines at elm-plastics have all-electric drives.

### Faring well in the crisis with medical devices

Since elm-plastic produces mainly products for eminent international drug makers and contract fillers working for the pharmaceutical industry, the Eifel-based company has not suffered any significant loss of sales during the corona crisis.

“Our product range primarily comprises pharmaceutical packaging materials and dosing aids for human and veterinary preparations. Apart from disposable syringes, this also includes products such as pipettes, applicators and injectors in a wide range of designs, dosage assistant, perfor-

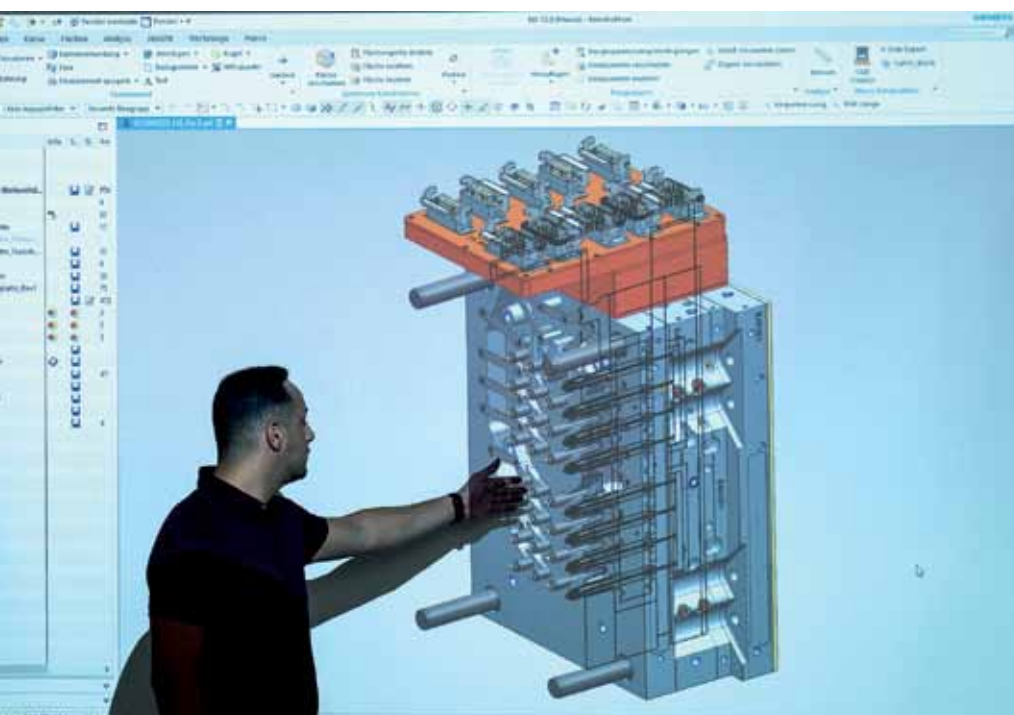
ated screw caps, pipette wipers and a great deal more,” explains Roman Möhs.

During the corona crisis, additional orders have been received, even from the USA, for items including measuring beakers and a wide variety of pipettes.

The positive experience obtained through these projects is the reason for elm-plastic “to continue working together closely with HASCO” says Roman Möhs.

For elm-plastic, it is a huge advantage that all HASCO’s standard components can be supplied from stock and that replacements are available without any problems in the event of a break down. “If we order a replacement part in the online shop, it’s there within one or two days”. We can’t even produce a replacement part ourselves that quickly,” adds Roman Möhs. And the restructured hot runner zone in the HASCO online portal has also had a large amount of information added to it. One feature is the new, intuitive enquiry form which can be used to request hot runner systems in a straightforward and time-saving manner.

With more than 100,000 products, HASCO is a full-range supplier for tooling and mould-making and supplies its customers with everything from a single source. A modular standard-component range, perfectly tailored to customer requirements, and custom hot runner solutions provide a reliable foundation for high-quality moulds and hence sustainable competitiveness.



6/ In the HASCO Portal quickly to your individual offer. Enter all data directly in the online hot runner inquiry form and upload the relevant documents  
(Picture: HASCO Hasenclever GmbH + Co KG, Lüdenscheid, Germany)