



RECENT DEVELOPMENT BY THERMOPLAY

INJECTION SYSTEMS TAILORED ON DEMAND FOR SPECIAL APPLICATIONS

HEADQUARTERED IN ITALY, THERMOPLAY IS A BUSINESS WITHIN BARNES MOLDING SOLUTIONS, SPECIALIZING IN MULTI-CAVITY INJECTION SYSTEMS FOR LARGE VOLUMES MANUFACTURING, THAT USUALLY APPLY TO PACKAGING, CAPS AND CLOSURES, HEALTHCARE AND TECHNICAL PARTS MARKETS. BARNES MOLDING SOLUTIONS IS A STRATEGIC BUSINESS UNIT WITHIN BARNES GROUP COVERING THE ENTIRE SPECTRUM OF MOULD MAKING AND HOT RUNNER TECHNOLOGY, INCLUDING TEMPERATURE CONTROL AND PROCESS CONTROL TECHNOLOGY

For customers focused on the quality aspects of the hot runners and of the final product, the injection systems tailored on demand for special applications are very important. The hot runner customizations come out from customers who have special process or injection requirements, often asking studies to get the project that better applies with their applications. Thermoplay supplies about of 50% customized hot runners, provided with filling analysis testing, mechanical and thermal balance. Its standard injection systems are suitable for moulding parts where

good injection point appearance is required. They are recommended for all polymers also with abrasive fillers. They can be fitted with a tip extension that can inject the part in areas with limited space: the heating area is distant from the part to limit haloing and imperfections, so they are suggested for moulding thin parts that require fast cycles.

UNIFORM MATERIAL DISTRIBUTION AND REDUCED FLOW PATHS

The particular GLT tip allows for a uniform material distribution and reducing flow paths. The

sector of application of this nozzle is specially cosmetics and packaging. Sprue gating option is used to mould on sprues or directly in cavities, leaving a small sprue on the moulded part. It is suitable for thermoplastics with abrasive fillers most used in applications such as motor engine components, components for electrical and technical devices. Direct side gating applies for tube-shaped components, syringes, medical cannulas, special shaped caps and technical parts. Special gating options can be studied and customized upon customer's request.

MANIFOLD WITH SYMMETRIC FLOW BORES LAYOUT

Colour change performances are improved by a correct study of the manifold design having a symmetric flow bores layout. The manifolds should have no stagnation areas and the channels sizes and fittings have to allow smooth transitions and short residence time of the melt flow. Flow bores diameters should be designed to have a constant shear rate value.

A special injector was developed upon a customer request to get very high quality of the gate and efficient and fast colour change in a fast cycle application for a bottle cap. The customized hot runner was designed with an extended tip with five bores designed to have smooth transitions and constant shear rate value. A polyimide insulator bushing was added around the tip to improve colour change capabilities.

Another customer wanted to replace an old injection system for moulding a cap component used for sealing alcoholic beverages. The injector studied is provided with a two gates tip to get perfect part concentricity and avoid cold flow lines. The tip has a special design to provide stable temperatures and restart even after



Special five bores customized hot runner

long stop without defects on the moulded part. Tip replacement is possible with the mould installed in the injection machine.

INJECTION OF RECYCLED MATERIAL

Thermoplay has the solution also for injection of recycled materials such as rPET and others which are sensitive to temperature variations between the mould and the melt temperature.



A special nozzle by Thermoplay

A new injector with improved thermal profile allows high homogeneity and stability of the heat distribution on the entire nozzle body. The melt flow is kept at suitable temperatures, therefore the characteristics of the material during processing unchanged. Consequently, all the aesthetic and functional characteristics required by the application are preserved. ■

www.thermoplay.com







21052 BUSTO ARSIZIO | VARESE | ITALY
Sales department: Ph. +39 0331 309.406 - info@laborplast.net

www.laborplast.net

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