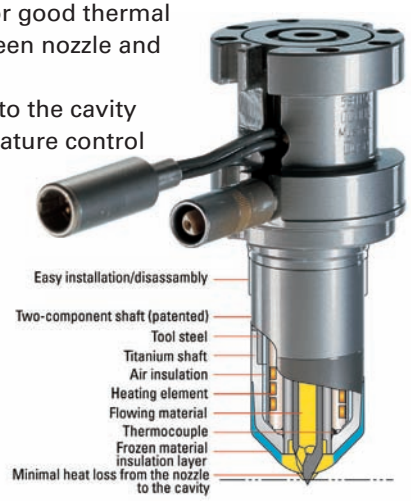
Principle of Thermal Separation

- Two-part shaft for good thermal separation between nozzle and mold insert
- Low heat flow into the cavity
- Constant temperature control in the nozzle
- High leak tightness between nozzle and mold insert



Valve Gate Technology

Valve gate technology offers clear benefits including:

- superior surface finish in the gate area
- high process reliability
- low shear rate of the melt to reduce orientation and residual stress of the part

Valve gate technology takes advantage of a modular nozzle design. Narrow pitches are possible. One can choose between different types of needle actuation: single valve gate nozzle or, in multiple systems, single needle valve, lifting plate or sliding plate mechanism. The needle can be adjusted from the outside without mold disassembly. A wear-resistant needle guide made of PM steel guarantees long service life. Various gate diameters are possible without refinishing the inserts.

GÜNTHER Hot Runner Technology for Medical Engineering Applications

- Development of custom tailored solutions in close cooperation with our customers
- On-line system configuration with the CADHOC system designer
- Externally heated systems guarantee optimal melt flow with low pressure drop
- Hot runner systems for the most varied demands
- Two-part shaft for optimal thermal separation (patented)
- Modular nozzle design
- “Hot half” as a ready-to-install mold half

For more information on our services and products, please check out our website at www.guenther-hotrunner.com

Cover: Production line for producing and bottling infusion solutions. A special closure is placed on the filled bottle and subsequently overmolded with PE. This application uses a modular valve gate hot runner system from GÜNTHER.
Photo: B. Braun, GÜNTHER

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Hot Runner Systems for Medical Engineering

Hot Runner Technology

Innovative

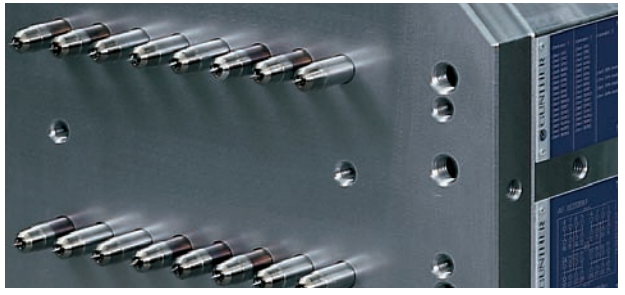
Pace setting developments in medical engineering are closely connected with plastic materials. Products with the most varied properties meet extremely high requirements of precision and functionality. Hot runner technology plays a key role in the process of cost effective production.

Cost effective

Advantages of hot runner technology:
- efficient use of material and energy
- no waste
- cycle time reduction
- reliable injection process
- improved product quality
- highest production reliability
- integration into clean room production

Patented

As a specialist for technically demanding resins with narrow processing windows, GÜNTHER stands for customized solutions. Numerous patents emphasize its role as a technological leader in processing plastic materials, ranging from standard polymers to innovative high temperature resistant thermoplastics.



Application

Benefits of GÜNTHER hot runner technology

- Optimal temperature control
- Uniform pressure distribution
- Good gate quality
- Side gating without “cold slug”
- Cost effective manufacturing
- High production reliability

Infusion pump – Metal-Injection-Molding

The process of metal injection molding (MIM) allows a precise and low cost manufacturing of complex metal components by injection molding. For example, the ground plate of an implantable infusion pump is metal injection molded in combination with a GÜNTHER hot runner. The feedstock contains polyethylen as a basis polymer and a special titanium base alloy.

The feedstock processing requires a constant temperature control in the hot runner. The two-part shaft of the SHT nozzle provides good thermal separation between hot runner nozzle and cavity and hence a constant temperature control in the hot runner nozzle. The ground plate is injection molded with three SHT nozzles to obtain a nearly warpage free result, in spite of a significant difference in wall thickness.

Application

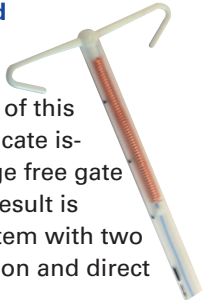
Inhaler for asthmatics with functional parts made of POM

The POM functional parts contained in the inhaler have to meet high requirements in terms of dimensional accuracy and burr elimination. The spray nozzle made of POM has a nozzle bore measuring 0.3 mm with a tolerance of 0.02 mm. Moreover, the nozzle bore has to be absolutely burr free. This spray nozzle is manufactured by direct side gating with a hot runner nozzle. Nozzles of the LHT type allow gating without “cold slug”. Besides, the LHT nozzle is characterized by high thermal insulation from the mold insert.

Middle section for insulin pen (ABS)

With a part weight of 2 g, the utmost dimensional accuracy and surface precision are required. The material tends to string and hence requires an optimal temperature control. Thermal separation is ensured by nozzles with an insulated shaft. A hot runner system with four 5SHT60 nozzles for direct gating provides optimal results, with residual sprue reduced to a minimum.

Intrauterine device with overmolded thread (EVA/PP)



Overmolding the withdrawal thread of this EVA/PP part weighting 0.8 g is a delicate issue. Furthermore, obtaining a vestige free gate mark is of importance. The desired result is achieved by use of a hot runner system with two 5SHT80 nozzles for thermal separation and direct gating.