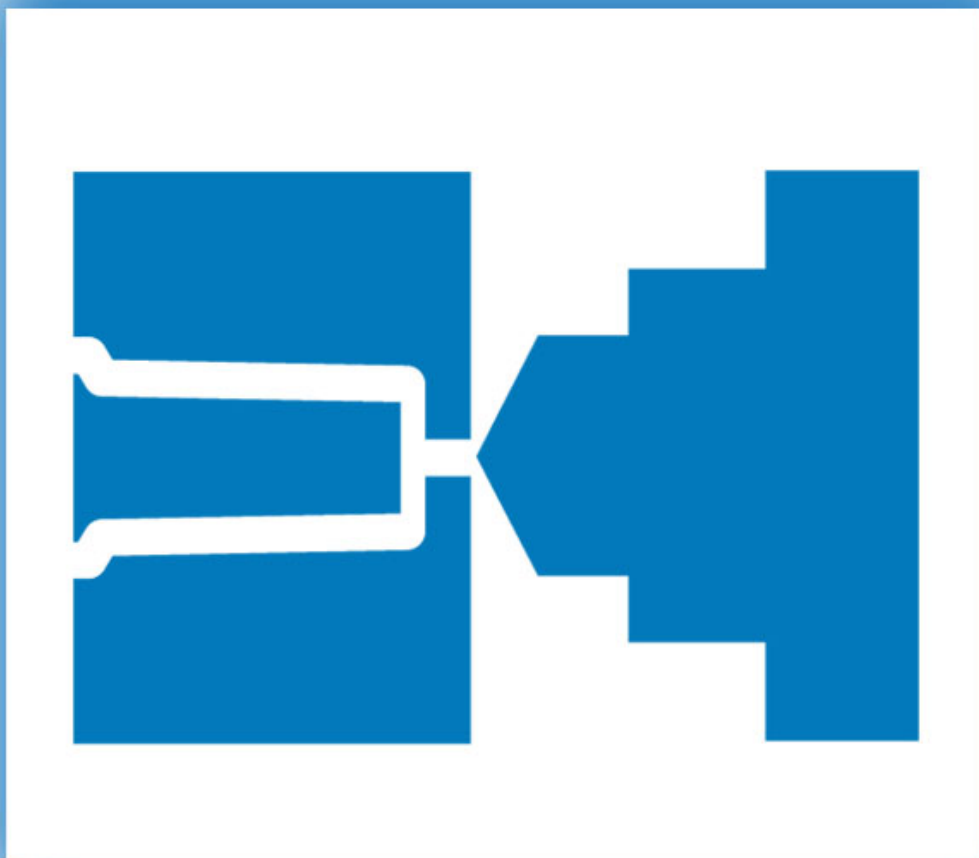
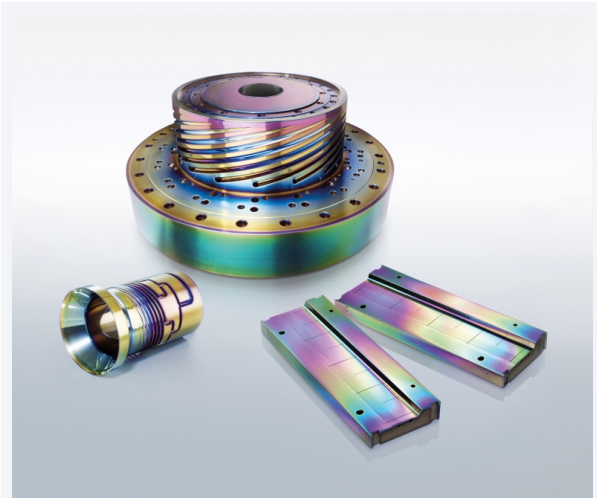


Injection Mold, Hot Runner, Quick Mold Change



Extending the life of plastic injection molds

It is well known that the molds used to create plastic parts ranging from water bottles to automobile bumpers are the most critical – and expensive – part of the injection molding process. In some cases a single mold can cost hundreds of thousands of dollars, not including the ongoing maintenance and running costs.



With Oerlikon Balzer's coatings, manufacturers can run many more shots before they have to stop the machine for cleaning or to perform repairs because the surface is so much harder.

However, despite being made of hardened steel, the very process of injecting melted resins at high temperatures and pressure into cavities over many cycles begins to wear away and erode the surface of cavities and moving components. Even the thermoplastic material itself can be abrasive or "sticky," acting like sandpaper or leaving residue that wears down the surface.

Now, with the increased utilization of even more abrasive material in the form of long glass and composite fibers, the amount of abrasion and friction within molds is increasing. Subsequently, molds are taking even more of a beating.

It is for this reason that injection molders are turning to a variety of coatings to protect their investment and reduce maintenance and running costs. These coatings, applied to mold cavities as well as moving, sliding components within the mold, come in a variety of styles from carbon-based coatings, PVD & PACVD deposition to nitriding techniques that share one overriding goal: hardening the surface of the steel to protect it against all manner of abuse.

"These coatings are applied for the simple fact that steel alone is not hard enough to protect these expensive molds and ensure optimal uptime and productivity," explains Thomas Vermland, Global Application Manager for Oerlikon Balzers, a company that has been producing specialized PVD coatings for components and tools for more than 30 years.

Reinforced glass fiber products

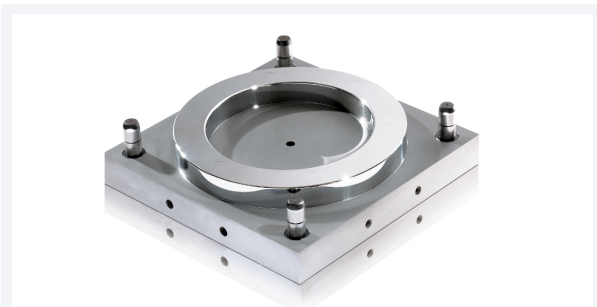
In the automotive industry, manufacturers are placing greater emphasis on design and weight reduction. Subsequently, automotive designers are increasingly using glass fibers as reinforcements in many parts, including automobile bumpers. As a result, automobile bumpers are constructed using less material than before.

"Inside the mold there is more pressure and higher temperatures being used to inject the plastic by a factor 2-4 times higher than in the past," explains Vermland.

This inevitably creates more friction (sheering effect) which can cause polymers like polyethylene or a polypropylene to become unstable during crystallization. To compensate, reinforced glass fibers are often utilized as an economical way to create a lighter, stronger part that retains some flexibility.

Initially, when short glass fibers were used this did not create much of a problem because it did not affect the crystallization significantly. The slightly abrasive nature of the glass fibers also had a positive "cleaning" effect by removing residue on internal cavities caused by outgassing.

However, the long glass fibers popular today are more abrasive, resulting in micro cutting within the mold's cavities and runners due to sharp, jagged edges and a hardness of up to 1200 HV. This can create significant issues, particularly along the parting line and any sharp contours within large molds.



Injection molders are turning to a variety of specialty coatings to protect their investment and reduce maintenance and running costs.

For large molds like those used for automobile bumpers and tailgates, a nitriding process can be used to significantly increase the surface hardness of the metal. Nitriding is a heat treating process that involves hydrogen, plasma and electricity that creates a case-hardened diffusion layer on the surface of a metal. Because it is not a coating, it does not affect the overall dimensions of the component.

Vermland says Oerlikon Balzers' BALINIT PRIMEFORM diffusion treatment increases injection mold surface hardness up to 1400 HV. This makes the molds significantly more robust (including versus long glass fibers) and reduces residue build-up, spalling and edge embrittlement.

"We can take the entire bumper mold and place it in the machine and treat it in one operation," says Vermland. "With the

diffusion treatment process we can take a base steel and harden the first hundred microns of the surface to Rockwell hardness well above 65. The rest of the steel remains unaffected.” This is the replacement for Hard Chrome in any big mold.

Vermland adds that a large steel mold of 65 HRC could not even be manufactured due to its size.

With the surface now harder than that of the glass fibers and any additives, repairs and re-polishing are reduced as much as 80%, according to some customer experiences.

“Now the OEM or Tier manufacturers can run many more shots before they have to stop the machine for cleaning or to perform repairs because the surface is much harder. It also prevents residue build-up caused by out-gassing,” adds Vermland.

The BALITHERM PRIMEFORM diffusion treatment is also ideal for automotive plastic parts with mirror-polished surfaces, such as those used to produce bumpers headlights, tail lamps, and brake lights or large interior parts with high quality demand like piano black.

The mirror-polished surfaces of plastic injection molds are very sensitive and so require more surface cleaning, and protection. Failing to do so can allow dust and other particles into the mold that influence the quality of the end product.

With its superior polishing properties, BALITHERM PRIMEFORM improves surface brilliance and eliminates the need for mirror re-polishing after cleaning. In this way, heavily stressed areas are rendered wear resistant and are protected against scratching, environmental factors and improper handling.

PVD Coatings for Cavities, Moving Parts

For injection mold cavities, fixed items such as guide pillars and sleeves or for moving and sliding components within the mold, carbon-based, physical vapor deposition (PVD) coatings can be applied to prevent galling and wear.

“When you apply carbon-based coating to these types of components, you can extend service life, enable longer runs between repairs and increase performance,” says Vermland.

Carbon-based coatings such as BALINIT C, BALINIT TRITON or BALINIT DYLYN from Oerlikon Balzers, are thin (approximately 2 – 3 microns) and provide extremely hard layers to the surface of components and cavities.

The most critical advantage of PVD coatings is its ability to increase wear resistance over uncoated steel. In fact, all PVD coatings are harder than the steel onto which they are being applied. This hardness and wear resistance is particularly effective against high-filled glass resins and corrosive gasses, emitted by polymers such as PVC.



When coatings are applied to these types of components, you can extend service life, enable longer runs between repairs and increase performance.

Another reason injection molders employ Carbon based coatings is because of its lubricity, which provides sliding wear resistance for slide-type components like ejector pins, subsequently, protecting them against seizure and corrosion.

This lubricity also facilitates the plastic flow, allowing for faster mold filling without the use of internal lubricants and release agents. Because the plastic meets less resistance during injection, less pressure is required. The result is a higher quality end product.

Moreover, by coating sliding parts with carbon-based coatings, the need to apply grease is eliminated. Subsequently, only minimal cleaning is necessary, resulting in a significant reduction in production downtime.

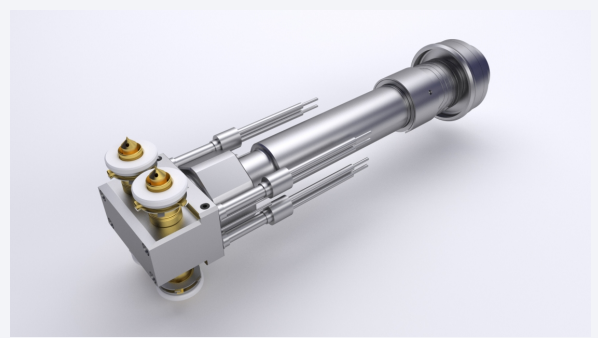
“You cannot eliminate maintenance altogether, but you can lower the frequency that you have to stop and clean,” explains Vermland. “That means you can run for a longer time and when you do have to stop, you don’t have to replace parts because they are still in good condition due to the very hard coating.”

For optimal results, Vermland suggests any customers decide on the coatings for a specific application before choosing the type of steel. Customers often base coating choices on the steel and heat treatment when it should be the other way around.

“The proper coating should be determined while designing the mold,” says Vermland. “Once this is done, the ideal coating can be applied in the suitable areas to improve the performance, extend the mold’s life and, subsequently, reduce maintenance, downtime and cost of ownership.”

Husky to present new Inline hot runner

Bolton, Canada – Husky Injection Molding Systems, a leading industrial technology provider to the plastics processing community, announced the commercial release of its Ultra SideGate™ Inline hot runner technology. The Ultra SideGate™ Inline hot runner was designed and optimized for challenging applications with high-balance requirements such as long, thin parts and is ideal for part spacing as low as 18mm. By taking advantage of the optional individual tip control technology, molders can ensure that their challenging applications have the best part quality possible.



The new Inline option provides all of the same benefits and features of Husky's standard Ultra SideGate™, which allows for high cavitation molds with a small footprint, reducing cost while providing outstanding gate quality and offering mold makers added design flexibility. "Hot runners are the most critical component in the injection molding process. This is why we are so focused on improving hot runner design and performance while also finding ways to help

customers reduce their cost. Ultra SideGate Inline is another example of an innovation that accomplishes this goal," said Stefano Mirti, Husky's President of Hot Runners and Controllers. "This new technology provides the same superior part quality, speed and efficiency that our customers have grown accustomed to with the added benefit of tighter part spacing."

By direct-gating parts with Ultra SideGate™, molders can achieve significant resin savings, faster cycle times and better performance across a wider temperature range. In addition, the technology allows direct access to the individual tips without needing to remove the mold from the injection molding machine, saving molders time on maintenance.

Superior part quality

Ultra SideGate™ Inline offers exceptional gate quality leaving virtually no vestige on finished parts (~0.05mm vestige). By allowing for the use of a single-piece cavity in the design of the mold, the quality issues that often accompany split cavity designs are avoided, such as flash on finished parts that can occur if the cavities are misaligned. This is particularly critical in the medical industry where safety is paramount and sharp edges can be detrimental. Ultra SideGate™ Inline is also ideal for complex applications that require technical resins such as automotive connectors.

Ease of Installation and Maintenance

Ultra SideGate™ Inline is simple to install and easy to maintain. Nozzle tips are mounted separately from the nozzle housing into one-piece cavity inserts before hot half assembly. This approach eliminates the impact of thermal expansion on tip position which can impact balance and gate quality.

Maximum productivity with minimum footprint

In order to minimize footprint to allow for maximum number of mold cavities in the smallest mold, Ultra SideGate™ Inline offers pitch spacing down to 18mm. Ultra SideGate™ Inline also includes our patented UltraSeal® technology with three-year leak-proof guarantee. As with all Husky hot runners it performs consistently with a wide variety of challenging resins.

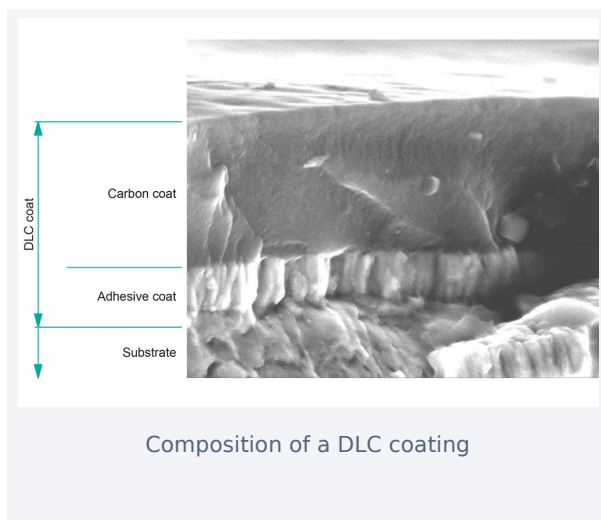
A must-have in modern die and mould making

Particularly in injection moulding, many moving components are DLC coated. Whether sliding surfaces on guide pillars, slides or ejectors - DLC coating reduces both wear and corrosion, and ensures significantly better dry-running or emergency operating properties. This means a longer service life with less maintenance, and therefore a clear opportunity for increased productivity.

Composition and characteristics of a DLC coating

The coating is largely made up of the chemical element carbon. It consists of an adhesive coat and a carbon coat.

- DLC coating thickness: $\sim 2 \mu\text{m}$
- Hardness: $\sim 3000 \text{ HV}$
- Colour: black grey
- Operating temperature: max. 350°C
- Coefficient of friction against steel: 0.1 - 0.15
- Coating temperature: $<180^\circ\text{C}$

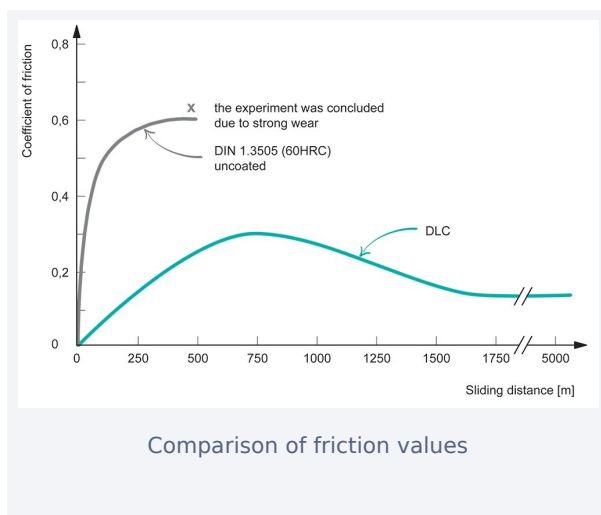


Areas of application for DLC coated Meusburger standard components

Guiding elements and particularly centring elements endure high wear through the friction from the opening and closing of the mould. The DLC coating offers the best sliding properties and minimises adhesive wear. This ultimately lengthens the intervals between lubrication and leads to a longer service life for the mould.

Lubrication close to the cavity often leads to grease residues on the plastic part. Thanks to the best dry-running properties of DLC coated sliding surfaces, lubrication in these areas can be

left out completely.



Targeted lubrication of ejectors can be quite tedious thanks to the often limited accessibility. This can lead to a lack of lubrication and ultimately to fretting of the ejectors. DLC coated ejectors are the ideal way to avoid this, thanks to their excellent dry-running properties and high corrosion resistance. These are also optimal prerequisites for use in a cleanroom.

In order to meet the high mechanical demands of the switching elements on latch locks, these are DLC coated. This enables an even longer service life.

DLC coated standard components are slightly more expensive, but the investment quickly pays off through higher productivity.

Magnetic clamping systems enable fast tool change

One examples the production equipment at the Westphalian plastics processors JD von Hagen AG in Iserlohn. There, a highly varied range of types of luggage bags and coverings for motorcycles and scooters is produced. In the injection moulding production, the help of EAS' magnetic clamping systems enables J.D. von Hagen to enjoy a fast tool change.



Chairman of the motorcycle supplier J.D. von Hagen, Martin von Hagen, gives their own figures: "Typical motorcycle production volumes per model and year are 12,000 items, with 3,000 to 5,000 annually for a model variant. Those numbers are generally divided into 12 batches, i.e. in monthly release volumes of between 250 and 1000 pieces. To get an impression of the variety with which we deal, it should be mentioned that we have 6,000 "living" products, of which we have to deliver at irregular intervals, in irregular parts or components, but always at short notice. And in quantities of 10 to several thousand items. We therefore need outstanding flexibility on a day to day basis. The consequence in the injection moulding production is, to put it bluntly, that nearly every injection moulding tool must run on each machine. Because of the large number of injection tools, we could not afford to invest in fixed

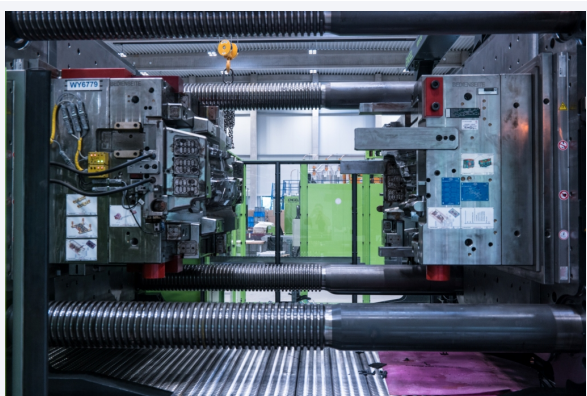
assignments and interfaces between tools and machines. To be able to still produce highly flexibly, we have opted for the combination of standard user-friendly machines and magnetic clamping systems."



The biggest advantage of the magnetic clamping system is that between tool and machine, nothing more is required than a smooth, clean clamping platen on the tool. The geometric design of the tool plates is secondary in the process. Tools with round plates can likewise be clamped like tools with rectangular or square plates.

Although the basic requirements – namely the clamping and holding of an injection moulding tool – are identical, two different magnetic clamping plate systems are used for technical reasons. The reason for this is the different conditions for the establishment of an effective magnetic flux in small, medium and large injection moulding tools. This is because the relatively thin sheets of small/medium-sized tools lead to

natural barriers in the establishment of an effective magnetic flux, as magnetic field lines do not, or barely, act along plate boundaries. To adapt to these circumstances, EAS has developed two different systems: The Pressmag SP System with square pole technology for injection moulding machines with small and medium clamping forces up to 4,000 kN, and the Pressmag HP System with long pole technology for large machines or Tools with larger plate thicknesses.



In addition to the generous design of the holding force, the function of the system is monitored by sensors. It monitors whether there is permanent contact between the injection moulding tool and the magnetic plates, whether the magnetic flow lies within the prescribed tolerances (to rule out the possibility that a non-magnetic material is being used for the plates), any possible change in the magnetic flux during production (in case an air gap appears), and the operating temperature. The sensors are connected to the injection moulding machines via interfaces. If any of the monitored parameters shows a malfunction, the machine cycle is stopped.

If type variety and small production batches demand maximum flexibility of production, the way to achieve efficient production is through as universal machines as possible and equipment for shortening the set-up times. More on this from CEO Martin von Hagen: "Flexible usable standard injection moulding machines are the foundation of our business. In order to increase the productivity of these machines in light of the many small production lots, we had to begin with the set-up times. Suggestions for a solution came from our long-standing machinery supplier Wittmann Battenfeld, who took the technicians from EAS Europe on board. The fact that magnet plates would bring the greatest potential for rationalisation for our particular case became clear to us after looking at their long list of references. As a result, we decided to let the majority of our machines be refitted with the EAS magnetic clamping systems. And we were not disappointed. Without having to make any significant changes to the existing injection moulding tools, we were able to reduce set-up times by an average of 30 percent thanks to the magnetic clamping solutions of EAS Change Systems."

HASCO's new attractive solution

The new, fully assembled and wired hot runner systems H4016/... supplement HASCO's extensive range of ready-to-install systems and hot halves. They constitute an attractive solution, specially tailored to the market, with all the system components screwed together already.

The robust, form-fit connection between the hot runner manifold and the screw-in nozzle guarantees leak-free operation and significantly facilitates the mounting and removal of the system as a whole in the injection mould.



Additional advantages include the expert assembly and electric wiring of the complete hot runner system. The connector cables for the individual nozzles and the hot runner pass through individually configured cable ducts to the connection box where they are wired up according to the customer's specifications. This saves the mouldmaker or injection moulder from having to connect up the system and ensures a smooth start to production. The correct allocation of the zones to the manifold heating units and nozzles is documented on a dimension sheet and in a special test report.

The electrical safety of the system is also guaranteed by HASCO.

The system layout as described above considerably facilitates its mounting and removal and prevents any damage to the hot runner system when the mould is being serviced. Attachment points on the manifold mean that it can be readily lifted out of the cavity, avoiding any distortion of the system when it is tilted during installation or removal.

The systems are designed and produced individually in close cooperation with the customer, making allowance for thermal expansion and the ratio of the hole spacing to the nozzle length. HASCO guarantees dimensional stability, correct electrical wiring and a tight seal between the nozzles and the manifold in order to prevent leakage of the melt.

In conjunction with HASCO's new Vario Shot H6500/... nozzle series, the customer receives a hot runner system that they can easily and securely mount themselves. Specially tailored screw-on melt chambers make mounting even more secure and minimise the production risk for customers. The customer is thus spared the outlay of processing the melt chamber geometry and the front nozzle seal zone in the cavity insert or cavity plate. This considerably facilitates their work with long nozzles that have small-diameters, in particular. The fitting hole diameter (H7) can be readily achieved with conventional processing methods, such as by using spindles.

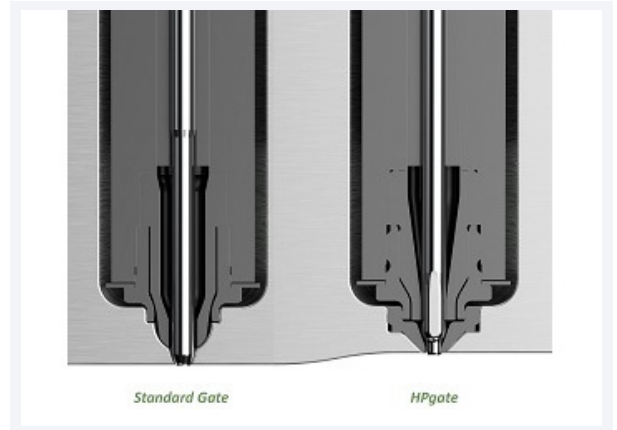
The wired hot runner systems H4016/... constitute an optimum compromise between mounted systems and hot halves. They offer an attractive price to performance ratio and ensure agility through their very short delivery times.

High-quality parts with optimum gate aesthetics

HPgate, developed by the Italian hot runner specialist HRSflow, is a new, quality-enhancing, cost-saving valve gate solution for manufacture of high-quality parts without flash.

Compared to the conventional versions, the gate is machined on an hardened metal insert produced by HRSflow itself. This insert is simply screwed into the mold, so it's very easy to replace it in the event of wear.

This innovative solution saves the moldmaker the time-consuming and complex machining of the standard cylindrical gate. In fact with the gate geometry already being machined on the insert, the HPgate from HRSflow eliminates the difficulties connected with the cylindrical configuration including narrow tolerances, large and variable depths and providing coaxiality between needle and gate. Equally beneficial for the moldmaker is the outstanding hardness of the insert, because of which a less hard steel could also be chosen for the mold plates.



Another advantage comes from the special needle geometry in which the conical contact surface allows a better thermal control of the needle temperature, whilst the precisely aligned cylindrical needle closure assumes the task of sealing. With the conventional conical configuration, when the valve closes there is always the formation of the typical plastic layer at the gating point. When the mold opens this layer is torn off from the part and it could lead to flash formation. In order to get a good detachment, so avoiding flash, frequently a very fine adjustment of the process conditions is required. Through the elimination of the layer due to the cylindrical needle closure, the HPgate solution reduces the time required to optimize the respective process parameters. Excellent molding quality is attained much faster, which is basically equivalent to enlarging the process window.

An even higher gate quality can be obtained by combining the HPgate technology with HRSflow's FLEXflow technology. Here, the needle position can be precisely controlled, thereby reducing even further the influence of the process conditions. The result is high-quality reproducible parts with optimum gate aesthetics.

Synventive expands production capacity in China

Synventive, a business of Barnes Molding Solutions, has completed an expansion project of its facility in Suzhou, Jiangsu Province, China, enhancing its production capacity for advanced hot runner systems. Synventive is a global leader in manufacturing of hot runner systems, components, and valve gate control technologies. The upgraded and expanded facilities enable Synventive to meet growing demand for molding solutions in the Asia Pacific market and support the development of Barnes Molding Solutions.



Synventive's plant expansion is part of Barnes Group's efforts to accelerate development of its molding business in the Asian market.

In 2015, Barnes Group established the new Barnes Molding Solutions strategic business unit, which presently consists of subsidiary companies Synventive, Männer, FOBOHA, Thermoplay, Priamus, and Gammaflux.

The new facility is adjacent to Synventive's Suzhou plant, established in 2005 and located in Suzhou Industrial Park. Synventive's capacity at its Suzhou site will increase significantly to meet the rapid growth in demand.

Synventive has reorganized the production and equipment layout of its two existing plants in Suzhou as well as optimized the material, information, and walk flow at the site, resulting in reduced production cycles and faster product delivery.



Through increased space and additional injection molding machines and testing equipment, Synventive has also significantly enhanced its R&D capability in China as a part of the project.

The new facility also enables localized manufacturing of products under Barnes Molding Solutions' brands, Thermoplay and Gammaflux, helping the company provide comprehensive solutions and services for its

Asia Pacific customers.

In support of the global trend of energy efficiency and savings, the new plant incorporated green materials into the expansion of its office and production space. Support facilities and features such as the cafeteria, locker room, elevators, and lighting fixtures were also renovated, significantly improving employee satisfaction. "Our new facilities and equipment will undoubtedly sharpen our competitiveness," said John Jofre, President of Synventive Asia.

New hot runner technologies for thinwall applications

Milacron Holdings Corp. (NYSE: MCRN), a leading industrial technology company serving the plastics processing industry, showcased its industry-leading technologies including Mold-Masters hot runners and control systems, Milacron injection molding machines, DME mold technology solutions, and industrial supplies as well as TIRAD high precision mold bases. This year's Fakuma saw the launch of the Mold-Masters ThinPAK-Series hot runner for thinwall applications and a Mold-Masters hot runner running on the Milacron iMFLUX machine cell, a first for Mold-Masters.



Mold-Masters President An Heid stated, "The Research and Development team at Mold-Masters in cooperation with our field sales teams, engineers and customer care representatives are always working to address our customers' needs and challenges. As a result of Mold-Masters tireless R&D efforts, I'm pleased to announce the new Mold-Masters ThinPAK-Series thinwall hot runner. The ThinPAK hot runner is specifically engineered for high-pressure applications like thinwall packaging." Heid added, "We're also excited to introduce the new Fusion Series G2 F3000 and F8000 nozzles for automotive small and large part molding, the enhanced Dura+ automotive lens system as well as the new Melt-CUBE EVO side gating hot runner. These new technologies are all making their European debut at Fakuma alongside our stable of other industry-leading hot runner and control solutions."

Mold-Masters ThinPAK-Series Hot Runner – A Must for

Introducing the Mold-Masters ThinPAK-Series hot runner, the most advanced hot runner system specifically engineered for producing exceptionally high-quality thin wall packaging

products. ThinPAK-Series has the strength and durability to mold with complete reliability even in high pressure applications up to 2,800 bar.

ThinPAK stands apart from other Mold-Masters hot runners by incorporating features unique to this demanding application which include new hot runner nozzles, gate seals and manifold designs. New ThinPAK-Series nozzles feature a robust gate seal and cutout to withstand the high pressures required for thinwall packaging molding operations. The ThinPAK-Series nozzles also feature precisely balanced thermal profiles for excellent process control and the gate seals are serviceable from the parting line.

The enhanced gate features a more robust design that incorporates high-strength material and a larger contact area. Utilizing an enhanced valve disk bushing design any weepage is controlled and directed to easy to clean areas. This design extends service intervals by up to 3 times, minimizing interruptions to operations. The new innovative nozzle and manifold seal provides greater reliability even on cold start-up, providing a wider processing window.

The new ThinPAK-Series manifolds have also been engineered for exceptional strength, certified for withstanding injection pressures of up to 2,800 bar (40% higher than Mold-Masters standard manifold designs). Mold-Masters ThinPAK-Series hot runner systems are destined to become the new industry standard for thinwall molding applications.

Mold-Masters SeVG+ (Sequential Electric Valve Gate) Control – Featured in the iMFLUX Machine Cell – Absolute Control and Precision

Mold-Masters most advanced and powerful actuation control system to date offers users absolute control and precision over the valve gate flow sequence. What better application to showcase the SeVG+ than the debut of iMFLUX technology on a Milacron injection molding machine at Fakuma. The Milacron Elektron EVO and iMFLUX work cell has a Mold-Masters Master-Series hot-runner system with servo-electric valve actuators and a

TempMaster SeVG + controller with integrated temperature and valve actuator controls. Each valve pin is connected to an individual servo motor which allows for full, on-the-fly adjustment of pin position, stroke, speed, protrusion, timing and sequence. Using these variables you can create ten multi-step opening and closing profiles for each valve pin which gives users the flexibility necessary to enhance molded part quality and balance. SeVG+ is ideal for a wide range of applications including large part production and family molds including Automotive applications. Molding large parts with traditional sequential injection methods can lead to several visual surface defects including pressure lines, hesitation marks, and sink marks. These surface defects are caused by uncontrolled resin flow which results in an abrupt spike in cavity pressure during the filling stage. SeVG+ helps prevent these defects by regulating the release of melt pressure into the cavity. The precision and repeatability of the SeVG+ servos helps stabilize molding processes.

Mold-Masters Master-Series Hot Runners – The Industry Benchmark in Hot Runner Performance and Reliability



Master-Series hot runners represent the benchmark in hot runner performance and reliability in the industry. It's proven to deliver consistently high-performance processing capabilities for exceptional part quality even with highly technical applications. Featuring the industry's broadest nozzle range, Master-Series leverages many of Mold-Masters core technologies to deliver successful solutions where others fail.

Brazed Heater Technology provides exceptional thermal precision and balance which enhances mold performance and is so reliable it's backed by an available 10 year warranty that is up to 5 times longer than any other supplier. Mold-Masters iFLOW 2-piece Manifold Technology eliminates sharp corners and dead spots providing industry leading fill balance and rapid color change performance. Master-Series is also up to 27% more energy efficient than competitive systems. Compatible with a wide range of resins, Master-Series is suitable for almost any application.

Mold-Masters Fusion Series G2 Hot Runner Solutions – Reviving Up Automotive and Large Part Molding

Mold-Masters has rolled out a number of additions and enhancements to Fusion Series G2, the drop-in system favored by the automotive industry for high-quality large part production, which include an expanded nozzle range and waterless actuator technology. New for the Fusion-Series G2 are the F3000 and F8000 nozzles which expand the capabilities and applications of this system to include shot sizes from <15g to over 5,000g. The F3000 has a shot capacity of <15g which is ideal for smaller underhood components, technical automotive components and price sensitive packaging and consumer good applications. The F8000 increases shot capacity of the system further than ever before to 5,000g by utilizing runner diameters up to 28mm. Nozzle lengths are also available that exceed 1m. F8000 has been developed to meet the processing requirements of common large automotive components like Fascias, Instrument Panels, Door Panels and large white goods. Additionally, Fusion-Series G2 systems will also be available with the new Waterless Actuator which incorporates new Passive Actuator Cooling Technology (PACT); eliminating hose-plumbed cooling circuits to actuators facilitates faster mold changes and provides long-term performance reliability.

Maximized for uptime, the Fusion Series G2 hot runner system is delivered completely pre-assembled and pre-plumbed, saving significant set-up time to get you back into production right away. Incorporating popular features like field replaceable heater bands ensures that any maintenance is quick and easy.

Mold-Masters Dura Plus Automotive Lens Molding Hot Runner Solution – Shining a Light on Automotive Lens Molding

The Dura Plus hot runner system has been specially engineered to produce consistent high-quality parts with exceptional clarity. Engineered to perform with today's challenging resins it is compatible with abrasive and corrosive resins such as PC, PC-ABS & PMMA.

With its introduction, enhancements over the previous Dura system include new Dura Plus nozzles with enhanced thermal profile, full stainless steel construction and a highly polished runner finish which work together to improve processability, provide greater system durability and prevent contamination defects of molded parts. In the field, cycle time improvements of 22% and an extremely low scrap rate of 0.8% have been observed. Dura Plus remains the clearest choice for automotive lens molding applications.

Mold-Masters New Melt-CUBE EVO – The Next Evolution in Advanced Inline Side Gating Technology

Mold-Masters newly evolved Melt-Cube EVO is the ideal hot runner for high cavitation molds producing deep draw Medical parts such as pipette tips, syringe barrels, needle shields and more requiring horizontal tips. The new Melt-CUBE EVO is designed to significantly minimize maintenance turnaround by up to 85% (e.g. a savings of up to 5 hours on a 64 cavity system) and improved handling safety with the ability to be serviced at cold temperatures and using only one torque value.

The new Mold-Masters Melt-CUBE EVO design has retained all the strengths from the previous Melt-CUBE design such as gate located tips that maintain critical tolerance resulting in superior gate quality; however with the simplified design there has been a reduction in the number of bolts securing each pair of tips from 7 to 1 drastically reducing assembly and disassembly times for service and setup.



Melt-CUBE EVO also offers simultaneous direct horizontal side gating of up to 8 cavities per Cube eliminating scrap from sub-runners and enhances part quality and with Mold-Masters Brazed Heater Technology also delivers exceptional processing capabilities through hotter processing temperatures for wider processing window and exceptional thermal balance both throughout the manifold and tip to tip.

For applications that require angled tips or specialized dual side gating capabilities, Melt-CUBE (previous version) is still available.

Mold-Masters TempMaster Series Hot Runner Controllers – Optimizing Performance of any Hot Runner System

At the core of each TempMaster temperature controller is our advanced APS control technology. APS is an industry leading auto-tuning control algorithm delivering unmatched control precision and reliability varying only the slightest amount from set point. The result is enhanced molded part quality, consistency and minimized scrap.

Our flagship controller has just gone through a recent upgrade. The enhanced TempMaster M2+ controller which is our most advanced, fully featured controller capable of controlling up to 500 zones is now available with larger and more powerful cutting-edge touchscreen controls with a new modernized interface. Navigating the screens is now more intuitive than ever before and even incorporates familiar gestures like pinch-to-zoom. Instantaneous response to touch inputs eliminates waiting times and data can be displayed in real time (no averaging). TempMaster M2+ controllers also feature the widest selection of modular control cards and have the most compact cabinet dimensions in their respective classes by up to 53%. No other controller can seamlessly integrate with the range of advanced capabilities that the TempMaster M2+ can. Functionality like SVG, E-Drive Synchro Plate, M-Ax Auxiliary Servos and Water Flow Temperature can be easily integrated, monitored and controlled from a centralized location. TempMaster M2+ also introduces more advanced features to its capabilities.

Large edge gate in-mould cutting components

Moulds incorporating plastic parts that are fed with an edge gate tend to be separated from the moulding after the moulding is ejected as a secondary operation.



The new components from Almo are designed to be fixed in the mould between the part cavity and the runner and will cut the gate during the mould opening sequence.

The components are designed to provide a large edge gate entry. They are supplied in 2 formats – a range of pins with a cutting edge and a range of sprue bushes with a cutting edge.

The components are made from M2 HSS 62 HRC. Almo provides metric and inch sizes as well as downloads of the 3D model files.

About Almo

Almo is a UK manufacturer of mould components.

ALMO designs and manufactures new and innovative mould components suited for steel mould making. ALMO is known in the mould making industry for supplying quality, precision machined aluminium mould bases for the past 30 years.