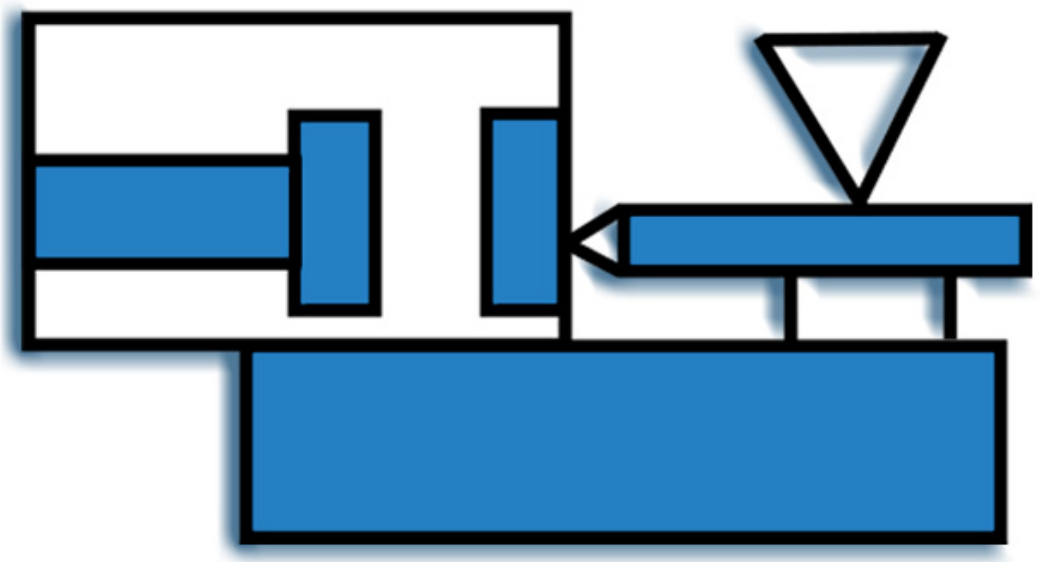
INJECTION MOLDING MACHINE



Focus on all-electric drives and toggle technology

The competitive advantages of all-electric machines, such as greater precision and dynamics with greatly reduced energy consumption, are a few reasons why this technology is increasingly driving events on the market. This development has prompted growth at Sumitomo (SHI) Demag over the last few years, leading to increased investment in the efficient, high-precision IntElect machine technology.

The price difference between hydraulic and all-electric injection moulding machines is reducing every year. This fact underlines the clear trend toward s all-electric machines, especially in the lower clamp force range. Gerd Liebig, CEO of Sumitomo (SHI) Demag, explains the reasons as follows: “All-electric machines like the IntElect have become so technically mature, that after considering all the criteria, more and more customers are finding it attractive. In addition to the technological advantages such as dynamics, precision, repeatability, process stability, and energy efficiency, the price-performance ratio and the associated quicker ROI are decisive.” The management says that the growth rate of the IntElect series is outstripping all forecasts. For example, almost half of all machines sold in the past 12 months have been from the all-electric IntElect series.

The product portfolio is therefore being changed to reflect market trends. “In Germany, we are replacing production of small fully hydraulic machines with our superior electric drive technology. From Fakuma 2018 on, our investment in the clamp force range up to 1,200kN will shift entirely to the IntElect series,” Liebig says. At the same time, the focus is shifting to hybrid drive technology for packaging machines and servo-hydraulic toggle technology for medium and large machines. For fast applications, the El-Exis SP series with its clamp force range of 1,500-7,500kN rounds off the portfolio. For universal applications, the modular Systec Servo remains available for the clamp force range of 1,600-15,000kN.

Liebig is certain of one thing: “The IntElect precision machine is our lead product of the future. In the clamp force range of 500-4,500kN, we offer an exceptionally wide range of applications. Our experience of delivering 65,000 all-electric machines, and the in-house development of electric drive components, has given us a clear head start in the technology.”

An extensive investment programme has been launched at the two German locations. At Wiehe, a global competence centre for electric injection moulding machines, cutting-edge conveyor belt production lines have raised output by 30%. Schwaig will almost double its capacity for platen processing by the end of the year thanks to its new processing centres.

Toggle technology remains the measure of all things

Sumitomo (SHI) Demag will continue its decades-long commitment to refining toggle technology in all machine series, according to the injection moulding machine experts in Schwaig, it is an important component of production efficiency. “In the areas of mould protection, reliability, precision, and energy efficiency, there is no better locking system than the toggle system – for all-electric, hydraulic, and hybrid fast cycling machine series,” says Hideki Kuroiwa, CTO of Sumitomo (SHI) Demag. “It allows us to achieve maximum productivity for our customers.”

The Wiehe plant’s focus on the all-electric IntElect series is expected to optimise the entire production flow and increase annual manufacturing capacity to 1,000 all-electric machines. At the same time, delivery times will be greatly reduced. The management says that, after the plant in Chiba (Japan) is taken into account, future annual output of all-electric injection moulding machines will increase significantly with drives developed and manufactured in-house.

“We will continue to focus our efforts on mastering machinery and producing lasting value and quality for our machines. This consolidation of our product portfolio is a reaction to market requirements and will make us an even more reliable, stable partner for our customers,” says Liebig.

Sumitomo (SHI) Demag Plastics Machinery GmbH

Sumitomo (SHI) Demag has shaped the development of the plastics industry from its very beginning. As a specialist for injection moulding machines for plastics processing, Sumitomo (SHI) Demag and its Japanese parent company are leading the industry.

The global development and production network of Sumitomo Heavy Industries and Sumitomo (SHI) Demag is comprised of four facilities in Japan, Germany and China with more than 3,000 employees. The product portfolio includes all-electric, hydraulic and hybrid in jection moulding machines with clamping forces of between 180 and 20,000kN. With more than 115,000 installed machines, Sumitomo (SHI) Demag is present in important global markets.

Debut of Nissei IMM

NISSEI PLASTIC INDUSTRIAL, CO. LTD. refreshed their flagship all-electric injection molding machine NEX Series and is announcing the debut of NEX-IV Series. NISSEI is now taking orders for the NEX-IV Series, which consists of machines in nine different tonnages:

- NEX30IV: 294kN (30ton), NEX50IV: 490kN (50ton), NEX80IV: 784kN (80ton)
- NEX110IV: 1080kN (110ton), NEX140IV: 1374kN (140ton), NEX180IV: 1765kN (180ton)
- NEX220IV: 2160kN (220ton), NEX280IV: 2740kN (279ton), NEX360IV: 3530kN (360ton)

Since its debut in 2003, NEX Series has become one of NISSEI's flagship series, and a total of 16,000 units have been sold.

The new NEX-IV Series is the fourth generation on the NEX Series, which succeeds the highly-reputed current model NEX-III Series that was released in January of 2012.

As an industry-specific manufacturer, NISSEI builds on years of accumulated expertise to provide you the most innovative and advanced electric injection-molding machine technologies on the market; the injection unit materializes stable plasticization and high-precision metering, and the Flat Clamp type clamping unit transmits stable and uniform pressure by its linear pressure toggle mechanism. NEX-IV Series inherits these excellent features while receiving a basic performance boost. With our new series, you can expect to see:

1. Increased precision and speed
The newly-designed toggle mechanism can cut the mold open/close cycle time by 5~20%, which increases productivity. The time-tested "Flat Clamp mechanism" has been further developed to improve evenness of its contact pressure. To improve clamping precision, linear guides come standard for clamping slides, which contribute to prevent molding defects (flash, etc.), and prolong the service life of the mold and clamping unit. Combining it with the "Precision Metering" function, which maintains the consistency of metering density and injection volume, it materializes highly-stable precision molding with high repeatability. In addition, the wear-resistant toggle and linear guides reduce inconvenient greasing work, making it even cleaner. It possesses superior capability in meeting needs for clean room applications for container and medical industries.

2. Larger mold, smaller machine
NEX-IV Series offers one of the widest daylights in the industry while keeping its footprints to industry's smallest size. By adding up to 100mm to the daylights, the mold thickness ranges have been greatly increased. It flexibly accommodates hot runner molds, molds for long-length products, and modern molds which grow in size in accordance with integral molding or intricate shapes of the products. In conjunction with the low-pressure molding method, one class smaller injection molding machine can be selected and used for an existing mold.

3. Low inertia servomotor, NISSEI's original injection unit, and its control materialize higher speed/response/pressure injection and optimization of barrel temperature control. These technologies expand the moldable range and make high-precision injection and metering possible.

4. High-precision metering control "Pre-Pack II" makes metering density and injection volume consistent. It can improve yields even if regrinds or inconsistent materials, which qualities vary between lots, are used.

5. The "Linear Pressure Toggle" is materialized; with characteristics similar to the straight-hydraulic clamping system, it utilizes the advantages of toggle mechanism (e.g., high cycle properties, etc.). This mechanism offers "automatic clamping force adjustment" function and "direct clamping force setting" as standard features. "Automatic clamping force adjustment" automatically adjusts clamping force fluctuations caused by rising mold temperature during automatic run, and "direct clamping force setting" permits changing clamping force setting during automatic run.

6. New features are added to the high-end high-performance controller "TACT IV."

- It facilitates condition management by compiling important process information into one large 15-inch screen.
- Each process is displayed in a color-coded chart and a feature that assists to shorten cycle is added.
- Newly-added material change purging circuit optimizes the purging conditions, reducing purging resin amount and time.
- Improved operations of quality & production management and maintenance features.
- Newly-added mold open/close response speed selector (high-speed, normal, and low-speed) offers ideal selection according to the processes, such as high-cycle.
- Up to 100 injection molding machines can be connected to Quality & Production Control System "PQ Manager," which is offered as an option. It makes group management of injection molding machines and realtime production information monitoring from remote location via tablet possible.

NISSEI has been advocating the downsizing of molding equipments. As a pioneer, NISSEI unleashes a newly-developed NEX-IV Series, suggests optimum equipments for their clients, and reinforces their total support in injection molding processes.

Extreme Molding Increases LSR Capacities

ENGEL North America, member of the ENGEL group, a world leader in the design and manufacture of injection molding machines and parts-handling automation, supplied Extreme Molding with an 85 and a 110 ton all-electric e-mac machine, both equipped for the molding of Liquid Silicone Rubber. ENGEL was able to meet the tight delivery window thanks to their highly successful Fast Lane program.

Immediate need – Fast delivery
Extreme Molding, operating in a 21,000 square foot facility in up-state New York, delivers full-service custom plastic and silicone injection molding solutions to customers in the consumer and life science markets. When the need for additional silicone capacity became urgent, the company turned to an expert in the field of LSR molding technology – ENGEL.

“We received a new contract that required an increase to our LSR capacity -- and quickly. Of the suppliers contacted, ENGEL was the one that could deliver what we needed, when we needed it,” advised Lynn Momrow-Zielinski, Co-Owner of Extreme Molding. “Together with fast delivery, they offered a wide range of options that met our requirements and the flexibility needed in custom molding.”

With an ENGEL press already operating in their facility, the owners of Extreme knew they were getting a reliable product that could handle their high precision jobs with ease. When this was reinforced by the ENGEL e-mac 110 US purchased at the end of 2016, the company followed up with the purchase of another e-mac 85 US in the spring of 2017.

Additional benefits
As a company that prides itself on superior customer service, Extreme Molding was drawn to ENGEL as a like-minded supplier. From machine specification through ordering, machine installation to after-care, all processes have gone smoothly and efficiently.

“The staff at Extreme Molding is a pleasure to work with,” states Don Ivey, Director of Sales-Northeast for ENGEL North America. “They know what they need and communicate it well, which definitely helped us provide the right solution very quickly.”
As for benefits provided by the equipment itself, a favorite of the machine operators at Extreme is the touch screen control panel of the ENGEL CC300 controller. The controller design delivers a clear-cut user interface which provides all task-relevant information at a glance, while the control navigation is as easy as using a smart phone.

“The rest of us are impressed with the higher precision,” says Co-Owner Joanne Moon Duncan, “as well as the small footprint and ease of the robot interface.”

About Extreme Molding
Specializing in technically challenging high-end consumer and life science applications, Extreme Molding works closely with their customers to ensure a full understanding of both design and performance requirements before selecting the applicable plastic, silicone or over-molding solution.

An expert in high-performance materials including medical and FDA-grade plastics, fluoropolymers and fluroelastomers, thermoplastic elastomers, engineered resins, and food-grade and Class 6-compliant silicones, the team at Extreme Molding consults with customers to determine the right material to meet their product’s performance, durability, safety and regulatory requirements.

It doesn’t end there. From pre-production tasks such as sourcing molds and package design - through secondary operations including ultrasonic welding, pad printing, die-cutting and the application of medical adhesives - to packaging and global fulfillment, Extreme Molding does it all. And the entire manufacturing process, including secondary operations, is fully traceable for quality assurance.

“Our customer’s success is our success,” states Moon Duncan. “We work together to find the best materials and manufacturing processes for each project, deliver a high-quality, high-performance finished product, and deliver it to the end user. Full-service.”

About ENGEL North America
From facilities in the United States, Canada and Mexico, ENGEL North America offers its customers a single source for design and manufacture of injection molding machines for thermoplastics and elastomers, a full range of technology modules for plastics processing and a full scope of automation solutions. With nine production plants in Europe, North America and Asia (China and Korea), and subsidiaries and representatives in more than 85 countries, ENGEL with headquarters in Schwertberg, Austria, provides its customers the global support they need to compete and succeed with new technologies and leading-edge production systems.

Strong interest in the plastic Freeformer from Arburg

More than 21,000 trade visitors flocked to the formnext 2017 in Frankfurt, almost half of them from abroad. For Arburg, which has been an exhibitor from the very outset, the fair was a great success. The company, one of the world's leading manufacturers of injection moulding machines, catered perfectly to the target group for industrial additive manufacturing with the Freeformer at the formnext trade fair.

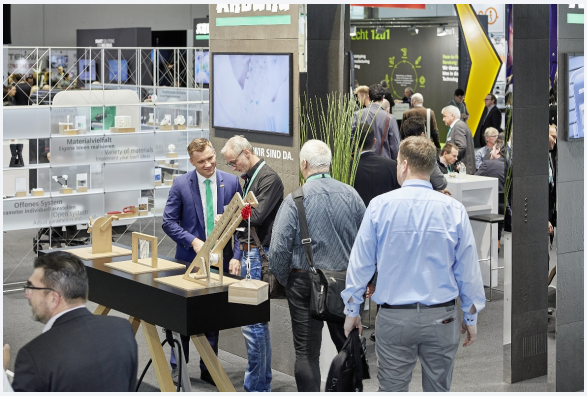
"At times, people were buzzing around our stand like bees in a hive. Our stand team, which we had significantly expanded compared to last year, was kept really busy and held a large number of very promising discussions," said Eberhard Lutz, Director Sales Freeformer at Arburg, expressing his great satisfaction with the response from trade visitors. "The formnext affords us an opportunity to meet a very different audience than at injection moulding trade fairs. Moreover, the international character of the fair has again increased significantly. Numerous visitors came from Germany's neighbouring countries, as well as from Eastern Europe and Asia. These are all important markets for Arburg."

Huge interest in Arburg at the formnext 2017

New stand concept attracts trade visitors

"In terms of additive manufacturing, it was all happening last week in Frankfurt. The formnext was a great success for us and is well on the way towards establishing itself as a world-leading trade fair," said Dr Christoph Schumacher, Head of Marketing and Corporate Communications at Arburg. In his view, the fact that the Freeformer and Arburg Plastic Freeforming appealed to so many new customers and interested parties was attributable to the new stand concept: "In addition to two Freeformer exhibits and eight monitors displaying information about the APF process, our 150-square-metre stand also included four interactive stations for the first time. Here, visitors were able to pick up a total of twelve parts, allowing them to experience their functionality and quality for themselves 'hands on'. Furthermore, around 40 more functional parts made from qualified standard granulates were displayed on two large illuminated shelving units. This encouraged many visitors to enter into more detailed conversations with our experts."

Freeformer processes semi-crystalline standard PP


Visitors to the Arburg stand were able to try out different functional components for themselves

The open system affords users independence: Freeformer customers can qualify their own original material and optimise the freely programmable process parameters specifically to the application at hand.

The additive processing of standard PP Braskem CP 393 and the specially developed support material Armat 12 to produce functional cable clips was a new feature. These delicate yet durable structures featured the click effect typical of injection moulded parts.

Arburg has thus expanded its material range for industrial additive manufacturing with an important semi-crystalline material. The range also includes amorphous standard granulates such as ABS, PA and PC, as well as elastic TPE, the high-temperature plastic PEI, medical grade PLA and PC approved for the aviation industry.

A German family-owned company, Arburg is one of the leading global manufacturers of plastic processing machines. The product portfolio encompasses Allrounder injection moulding machines with clamping forces of between 125 and 6,500 kN, the Freeformer for industrial additive manufacturing and robotic systems, customer and industry-specific turnkey solutions and further peripheral equipment.

The company places the topic of production efficiency at the centre of all its activities, taking into account the entire value-added chain. The objective is to enable ARBURG customers to manufacture their plastic products, whether as one-off parts or in high-volume production, with optimal quality and at minimum unit costs – e.g. for the automotive and packaging industries, communication and entertainment electronics, medical technology or the white goods sector.

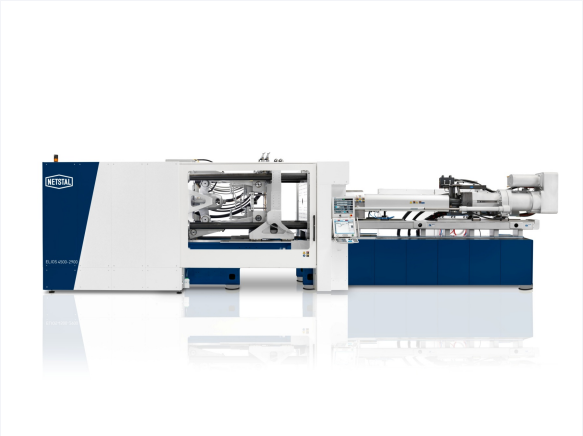
An international sales and service network ensures first-class customer support at the local level: Arburg is represented by fully owned organisations at 33 locations in 25 countries and by trading partners in more than 50 countries. The machines are produced exclusively at the parent company in Lossburg, Germany. Of a total of around 2,800 employees, about 2,300 work in Germany. About 500 further employees work in Arburg's organisations around the world. In 2012, Arburg became one of the first companies to gain triple certifications: ISO 9001 (quality), ISO 14001 (environment) and ISO 50001 (energy).

Top economic efficiency for thin-walled packaging

Powerful, fast, precise and particularly efficient. With these core values, the ELIOS series has successfully established itself in the upper range of the demanding packaging sector since its launch at K 2016. Netstal is now expanding the lower end of the series with versions featuring clamping forces of 4500 kN and 5500 kN. In addition to their modularity, the two sister models also convince with their extremely robust design, which ensures top productivity through continuous production at record speeds.

High speed with 450 and 750 tons of clamping force

A look back: At K 2016, Netstal presented the ELIOS 7500 to a global audience for the first time. "We are looking back at an extremely successful launch. Our customers from the packaging industry were extraordinarily interested in the ELIOS series. "In the first year, we were able to sell more than twice as many machines as originally projected," reports Netstal CEO Renzo Davatz. The Swiss injection molding machine manufacturer is now upping the ante by adding two smaller variants – featuring clamping forces of 4500 kN and 5500 kN – to the series. That means that within the series, customers can now choose between four main variants with clamping forces of 450, 550, 650 and 750 tons. Thanks to the innovative drive technology of the clamping unit, the smaller sister models are also the fastest machines in their respective class. For example, the ELIOS 4500 with a stroke of 574 mm achieves a dry cycle time of merely 1.5 seconds according to the Euromap norm. The ELIOS 5500 also convinces with a dynamic dry cycle of 1.7 seconds at a stroke of 644 mm.



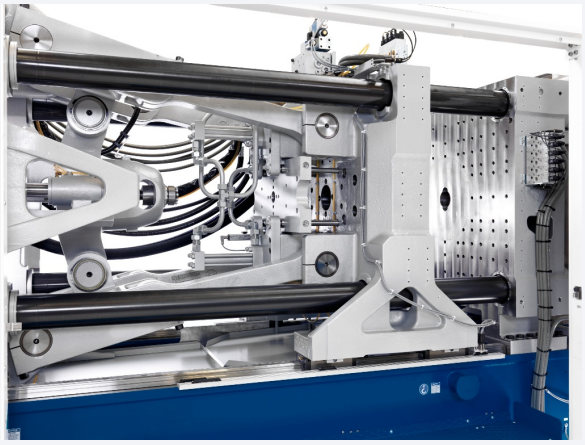
ELIOS series machines are designed for top packaging application productivity

Top productivity and economic efficiency thanks to the hybrid drive concept for the clamping unit

"Manufacturers of thin-walled packaging know that the shortest cycle times coupled with top availability and quality are the keys to an effective reduction of unit costs. That has been our guiding principle during the development of the entire series," Davatz explains. The 5-point dual toggle lever, which is moved via a central crosshead with drive elements that act simultaneously, is the heart of the machine. A dual toothed-rack drive with a highly dynamic, water-cooled servo motor is used for the purely electrical movements. Two synchronous cylinders, which feature a parallel alignment, assist with building up the full clamping force. "This concept offers many advantages, because the small mass moment of inertia of the motor allows high acceleration values and dynamic movements of the clamping plate. At the same time, the plate is moved very harmoniously while the mold position is controlled with great precision and in a way that is gentle on the mold," Davatz explains. Thanks to the optimized toggle lever geometry, the clamping unit of the ELIOS is particularly energy efficient and offers ideal conditions for the recovery of the movement energy. The kinetic energy generated during braking processes flows into the electric motor of the main drive where it is converted into hydraulic energy and stored. That is why, compared to conventional designs, an ELIOS requires approximately 50% less energy.

Robust plate design for continuous and precise production with extreme loads

Thin-walled packaging applications are generally fast and operate over long periods of time. ELIOS machines are perfectly equipped for continuous runs with extreme loads. A high-quality cast iron material with a ferritic structure is used for the plates, which feature a load-optimized geometric shape. The high overall strength ensures an optimal flatness of the clamping plates. The moving plate is supported by four tolerant linear guides in a manner that is particularly solid, and it moves with minimal friction. "The user benefits from an optimal introduction of force, a lower required clamping force and a very low wear of the machine and the mold," Davatz emphasizes. "What is particularly fascinating is how harmonious and smooth the clamping unit operates. It's easy to forget that multiple tonnes of weight are being moved back and forth in short cycles," Davatz adds.



The clamping unit of the ELIOS 4500 – This technological marvel achieves a dry cycle of 1.5 seconds

Modular injection unit for dynamic injection and large flow path/wall thickness ratios

The injection side can optimally be configured to the demands of the respective application with different injection unit and plasticizing unit sizes. The injection units 1000, 2000, 2900, 4200 and 6000, each featuring two or three different screw diameters, are available for the ELIOS 4500. The user can choose among a total of 12 injection unit-screw combinations. The selection for the ELIOS 5500 starts with an injection unit size of 2000 with a total of nine combinations. Across the entire series, customers can select from a total of 33 combinations of clamping force, injection unit and screw diameter. The hydraulic injection cylinder of the hybrid injection unit in combination with the two-valve technology ensures a very high injection performance, while the servo-electric drive of the dosing axis contributes to a low electrical energy consumption. The two servo valves respond very quickly with a reaction time of no more than 11 milliseconds and permit dynamic injection with up to 2200 mm/s and an acceleration of up to 20 G. Large flow path/wall thickness ratios of up to 350:1 and over can be achieved effortlessly. The position and speed-controlled movement of the injection unit with torque-free nozzle contact pressure allows total precision and the best shot-to-shot consistency on the market.

Top media flexibility

The media equipment catalog provides customers with a wide range of options. The connections for hydraulic mold auxiliary functions can optionally be attached to the fixed (operating side) or the moving plate (operating side or non-operating side). The air valves can also be positioned with great flexibility. It doesn't matter at which plate or whether the valves are supposed to be accessed up top, on the operating side or the non-operating side. The pressure regulators can optionally be integrated in the protective cover on the operating side or the non-operating side. Depending on customer specifications, the entire cooling water installation can be done with high-quality components selected because of their longevity. For power connections, socket boxes with integrated circuit breakers can be installed in various locations.

High performance and freely programmable aXos controller

All ELIOS series machines are equipped with the high performance aXos control technology. "The aXos controller from Netstal allows customers to get the most out of their Netstal machines. Not only because it can be adapted to many applications but also because its operation is very intuitive and comfortable," explains Davatz. As opposed to a pure touchscreen controller, the aXos controller consists of two screens. The upper operating panel for the machine function is equipped with a membrane keyboard equipped with a clearly arranged keypad. The noticeable pressure point provides operators with an instant feedback, which allows for the "blind" operation while looking at the clamping unit. The lower 17" monitor is available for programming and parametrization. It is operated with a foldable keyboard with navigational buttons and a trackball. The individually configurable header, which can be expanded into a full-screen dashboard if needed, provides operators with all relevant information at a glance. The dashboard can be adapted to individual needs with various tiles and therefore provides direct access to the individual production parameters.

About Netstal

The Netstal product brand stands for first-class, high-performance, high-precision injection molding machinery and system solutions. Netstal customers set a high value on the company’s continuous drive to innovate, excellent service and efficient, high-performance engineering solutions, especially for the beverage, packaging and medical technology industries. The Netstal brand, embodied by the Netstal company with its long engineering tradition in Nafels, Switzerland, has been part of the KraussMaffei Group since 1992. For more information: www.netstal.com

About the KraussMaffei Group

The KraussMaffei Group is among the world’s leading suppliers of machinery and systems for producing and processing plastics and rubber. Its products and services cover the whole spectrum of injection and reaction molding and extrusion technology, giving the company a unique position in the industry. The KraussMaffei Group is innovation-powered, supplying its products, processes and services as standard or custom solutions which deliver sustained added value along the customer’s value-adding chain. The company markets its offering under the KraussMaffei, KraussMaffei Berstorff and Netstal brands to customers in the automotive, packaging, medical, construction, electrical, electronics and home appliance industries. Continuing a long tradition of engineering excellence, the international KraussMaffei Group currently employs around 5,000 people. With a global network of more than 30 subsidiaries and more than 10 production plants, supported by around 570 sales and service partners, the company is close to customers around the world. KraussMaffei has been headquartered in Munich since 1838.

Driving consumables offerings

Milacron Holdings Corp. (NYSE: MCRN), a leading industrial technology company serving the plastics processing industry announced that it has expanded its co-injection offering. The standard Milacron Co-injection System offered today under the Kortec® Complete product name utilizes the industry's most advanced co-injection technology, and consists of a co-injection injection molding machine, a Kortec® hot runner and on-demand co-injection engineering support for advanced integration and run off services guaranteeing successful application and part design. Milacron offers turnkey systems under the Kortec® Complete product name. By working alongside our customers and internally developing a solution for customers with existing injection molding machines, Milacron is pleased to announce Kortec® Connect, the next product in our proprietary co-injection product suite. Kortec® Connect incorporates a molders existing injection molding machine using Mold-Masters innovative and proven E-Multi secondary injection unit in combination with a Kortec® co-injection hot runner. Milacron has over 30 years of co-injection experience and over 100 systems in the field, 7,000 drops across a variety of market landscapes producing 12 billion parts in 18 countries. No other co-injection technology offering has the same experience.

Steve Morris, President Milacron Systems explained, "We have perfected the plastic industry's first and only co-injection retrofit offering; the Kortec® Connect System from Milacron." Morris added, "We've combined the 30 plus years of experience from our Kortec® co-injection melt delivery technology and utilized the highly successful Mold-Masters E-Multi secondary injection unit to offer customers a cost-effective entry into the high growth co-injection molding market. Kortec® Connect can be used on any qualified brand of injection molding machine, it's totally machine agnostic, provided it has the required performance specifics to mold the parts. The Kortec® Connect offering has been used successfully in molding coffee cups, caps, closures, personal care items, thinwall and medical parts and it can also be added to a PET monolayer system introducing the ability to mold barrier performs at a fraction of the cost while avoiding an investment in a dedicated PET co-injection press."

Kortec® Connect allows customers an opportunity to invest in co-injection at a lower capital cost and provides the added flexibility to move co-injection technology throughout their facility, eliminating the need for a dedicated co-injection work cell. Kortec® Connect earns its name because it's a truly "plug and play" conversion. All of the software algorithms and setup is contained in the Kortec® Connect controller. A molder simply needs to mount the E-Multi unit in their press, add some simple communications with the machine and start molding.

Oliver Lindenberg Mold-Masters President, Americas added, "We have been connecting with numerous customers that have full fleets of standard injection molding machines, typically running monolayer applications. With market technology changes and plastic parts evolving, many of these same customers have expressed interest in entering the co-injection field and want to utilize their existing assets within their fleet. The Kortec® Connect System provides them with the exact flexibility they need at a manageable cost."

New Kortec® Connect Solution

The Kortec® Connect system offers customers the same patented, proprietary Kortec® co-injection hot runner designs and combines it with Mold-Masters proprietary E-Multi secondary injection unit, allowing molders a cost-effective entry into co-injection molding. Milacron's highly specialized co-injection engineers work hand in hand with customers to customize the Kortec® Connect solution for their specific application. Our dedicated team of engineers collaborates with customers on their existing equipment via comprehensive system audits to optimize machine functionality. Once completed, our team of engineers personally ensures that the system is up and running with their new co-injection capabilities.

Kortec® Complete Solution

Milacron will continue to offer the complete turnkey solutions under the Kortec® Complete brand for customers looking to

purchase the industry's best complete co-injection system and generate the highest possible overall performance and output. Kortec® Complete offers customers the simplicity of a complete co-injection cell with a customized premium F-Series injection molding machine with 2 shot capabilities built right into the machine and the Kortec® hot runner melt delivery technology. With more complete co-injection systems in the field than all other competitors combined, Milacron is able to provide the industries' best engineering, system and service support.

Milacron Co-injection Support and Service

As the industry leader in co-injection technology with over 30 years experience, Milacron knows what it takes to keep a co-injection system running at peak performance. Milacron offers a comprehensive service, support and dedicated spare parts program for all nozzle applications and key co-injection components ensuring prompt response and fulfillment when required. World-class post-sales service and support is a cornerstone of Milacron.

About Milacron Co-injection Technology

Milacron Co-injection Molding multi-layer technology now branded as Kortec® Connect and Kortec® Complete is designed to meet the plastic industry's need for barrier technology that can be delivered with the same high-volume production efficiency and cycle time as a monolayer part. Milacron Co-injection molding addresses key needs in the industry, including the economical use of barrier materials, customizable barrier properties, precise barrier placement and uniform distribution. Kortec® technology offers flexibility of barrier placement and distribution and the ability to mold features into a barrier part design that other processes such as thermoforming cannot.

Milacron Co-injection molding uses a proprietary, simultaneous co-injection process with every system. This process allows the cavity to be filled in exactly the same amount of time as a monolayer injection molded part. The "heart" of each system is the Co-injection melt delivery system featuring Kortec® technology. The melt delivery system has separate streams (flow channels) for skin (the inner and outer layers) and core (the middle barrier layer) materials.

Milacron Co-injection molding's patented, proprietary co-injection nozzle designs allow two different resins to be combined in a single 3-layer melt stream. Two flow streams are joined at each patented co-injection nozzle resulting in a single, combined 3-layer flow stream through each gate, into the mold cavities. The result is total control and the ability for customization of the barrier layer placement and thickness.

Milacron is the world's largest supplier of co-injection systems to the plastics and packaging industries. Milacron's multi-layer packaging technology is backed by over 30 years of experience and has dedicated engineering, service and project management teams to deliver and continually advance the technology. Existing Milacron Kortec® Co-injection systems have been successfully used on a number of products such as single-serve coffee pods/capsules, thinwall packaging, PET performs, medical vials and bottles and of course our very own Milacron Klear Can.

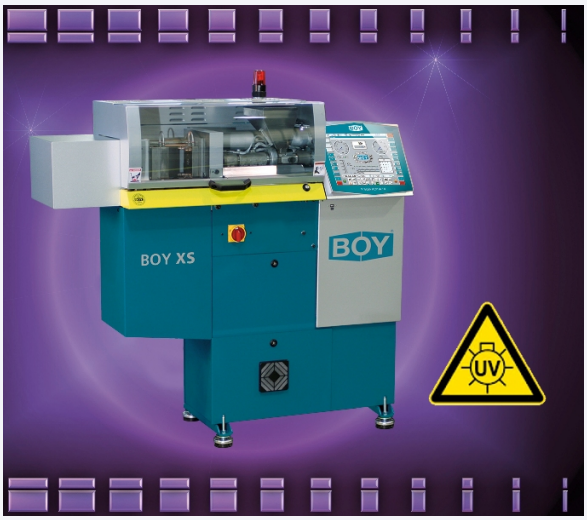
Milacron continues to push the boundaries of possibilities in plastics with breakthrough products from leading brands including Milacron®, Mold-Masters®, DME®, Ferromatik®, Uniloy®, and CIMCOOL®. All Milacron product brands offer industry-leading service, support, and spare parts inventory – trust only Milacron trained experts to ensure your assets run at peak performance.

About Milacron

Milacron is a global leader in the manufacture, distribution, and service of highly engineered and customized systems within the plastic technology and processing industry. Milacron is the only global company with a full-line product portfolio that includes hot runner systems, injection molding, blow molding and extrusion equipment, mold components, industrial supplies plus a wide market range of advanced fluid technologies.

Injected parts showed reproducible weight constancy

At the German Rubber Conference (DKT) in Nuremberg, BOY presented the processing of Elastomers and Silicones on two BOY Injection Moulding Machines. In particular, the application on the BOY XS with UV-cross-linked two-component-liquid Silicone was well received by trade visitors.



BOY-booth at the German Rubber Conference (DKT) 2018 in Nuremberg

The small 8 mm screw-piston-plasticizing-unit of the BOY XS allows a high dosing accuracy for smallest shot volumes for the micro injection moulding of Silicone. At the German Rubber Conference (DKT) the injected parts with 0.06 cm^3 shot volume showed precise and reproducible-accurate weight constancy. The small-size LSR-sealing rings cross-linked only in the transparent mould cavities under UV- light. At this lower temperature level, even thin-walled components or long flow- paths do not pose any problems when processing the two-component Silicone. In cooperation with the University of Kassel, the company EMT Dosiertechnik, the EMDE Industrietechnik and BOY, this processing method has

BOY's presence at the German Rubber Conference 2018 was complemented by an Elastomer application on a BOY 35 E. The compact, four-tie-bar Injection Moulding Machine produced o-rings which were removed from the mould after each shot by an integrated brushing device.

Andreas Scheideler, BOY Sales Manager Germany, was highly satisfied with the presence of BOY at this trade fair: "The presence at this internationally important Elastomer-event was absolutely justified. The high level of interest in the applications presented and the many expert discussions confirmed that we are also well positioned in this segment. We could convey this clearly in Nuremberg." According to the machine manufacturer, located in Neustadt-Fernthal, the processing of Silicone has been one of its “specialties” for many years. With long-term partner-companies BOY has gained a very good reputation in this sector worldwide.

About Dr. Boy

Dr. Boy GmbH & Co. KG is one of the leading worldwide manufacturers of injection moulding machines with clamping forces up to 1,000 kN. The very compact, durable machines work precise, energy-saving and therefore highly economical. BOY continually sets new standards in our industry with innovative concepts and solutions. Since the company was founded in 1968 nearly 50,000 Injection Moulding Machines have been delivered worldwide. The privately owned company continues to put special emphasis on engineered performance and high-class "made in Germany" workmanship.

New large model sizes for Zeres

Absolute Haitian has four new larger models of its all-electric Zeres Series injection molding machines with integrated hydraulic system. The new models range from 899 to 1,551 U.S. tons. Previously, the largest model available for the Zeres product line was 730 U.S. tons. The larger sizes are available to quote immediately.

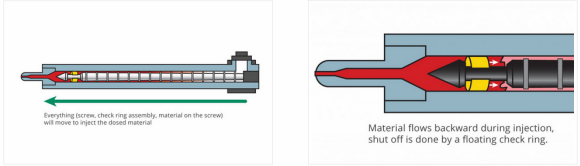
The new models include:
- ZE 8000 (899 U.S. tons clamp force)
- ZE 9000 (1,014 U.S. tons clamp force)
- ZE 10800 (1,216 U.S. tons clamp force)
- ZE 13800 (1,551 U.S. tons clamp force)
- Five different injection drives to choose from – 2250, 3350, 5200, 7000, 9200
- Injection capacities from 34.29 ounces to 187 ounces
- Highly competitive tie bar spacing that is more generous than competitors
- Latest control technology including a 15-inch color touch screen monitor

All-electric Zeres offers flexibility of hydraulic circuit
The Zeres is based on the Venus II platform but includes an integrated hydraulic circuit to facilitate molding applications which require core pull or sophisticated ejector functions. The hydraulics open new possibilities for molders who prefer electric machines but need hydraulics to operate core pull. Integrated hydraulic core pull interface (circuit) is installed on the moving platen and provides more flow and increased pressure compared to external power pack solutions. Pressure and flow rates are adjustable via the machine's controller. Software is included to control up to three hydraulic circuits.

"These larger sizes of all-electric molding machines will be attractive for customers who need precision and speed for large parts such as automotive interiors and underhood applications, home appliances, aerospace and industrial applications. Previously, all-electric machines at these tonnages have come with a high price tag. Now we're able to provide the all-electric option but at a more affordable price," said Nate Smith, one of the owners of Absolute Haitian.

Sodick's flagship machine helps Omega Plastics

Omega Plastics was recently challenged with a project that required high precision/very tight tolerances, a very expensive resin, along with requiring a very small shot size. Their existing, traditional, molding equipment presented a serious concern, especially regarding the issue of material residence time.

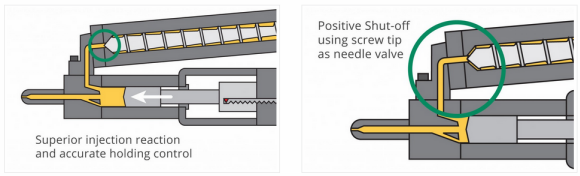


Traditional Injection Molding mechanical process Issue

Through diligent research, Omega's Molding Specialists' discovered a piece of equipment that, on paper, seemed to deliver a process that resolved the project concerns.

Sodick offers a unique approach to injection molding by separating the plasticizing of resin from the actual injection process using what they call their 2-Stage Plunger Injection System or "V-LINE®" Injection.

After a visit to Sodick's manufacturing facility, Omega's Molding Specialists were sold on the GL30A and the press was added to Omega's 'Cleanroom' inventory.



Sodick's "V-LINE®" injection approach uses the screw tip for the positive shut-off of resin instead of a traditional floating check ring, thereby prohibiting any backflow of material which results in loss of injection pressure as well as a source of material contamination and high maintenance.

The GL30A is Sodick's flagship machine for critical tolerance parts that require extreme precision with both material preparation and injection dosing accuracy. Using the two-stage plunger injection molding system, molders are provided with an 'Exact Dosing' capability.

The following are several key advantages Omega has gained since adding the GL30A:

- The extreme acceleration of the plunger enables "downsizing"
- Accuracy / repeatability and "stable molding" when using the GL30A. Small process "strike zones" are target applications for this machine.
  - Push the Limit with Thin Wall Applications
    - Up to 1,500 mm/sec (59"/sec) speed
    - Up to 343 MPa (49,750 psi) pressure
  - Small Shot Size from 2.0cc (0.07oz)
    - High dosing accuracy combined with an ultra-repeatable process
    - Quick response in injection acceleration & deceleration
    - Accepts standard size pellets
  - Optimum Injection Unit Size
    - High temperature heaters – standard
    - Wear resistant screw and barrel – standard
    - Optional large clamp with small injection
    - Optional bigger screw with smaller plunger
    - Shot usage from 10% of total shot or less

The GL30A is also equipped with 788 F high temperature heater bands, standard, because it is common to run many engineering grade materials like PEEK, PEI, PPS, LCP, etc.

About Sodick Co. Ltd.
As a leading precision injection mold machine manufacturer, Sodick continues to pave the way in providing premier injection quality and repeatability. Our proprietary technology relies on a continuous plasticizing heat profile, constant material viscosity, as well as steady filling volume and holding pressure.

Through the development of our V-LINE Two-Stage Plunger design and our wealth of experience as a leading EDM manufacturer, this exclusive technology is THE solution for precision molding requirements.

Based out of Kaga, Japan, Sodick Co. Ltd began the design and development of the V-LINE Plunger Injection Molding Machines in 1988 and continues to this day. Sodick continues to push the limits of molding applications as the only manufacturer with the exclusive V-LINE Two-Stage Plunger technology.

Offering both Horizontal Injection Molding Machines from 10 to 650 tons and Vertical Injection Molding Machines from 3 to 150 tons, Sodick offers solutions for thermoplastic, micro molding, insert molding and LSR-Silicone applications for a wide range of industries.

Thin-walled in mold labeling applications

With improved quality of life, thin-wall injection molded products such as fast food containers, milk-tea cups and aviation cups have been widely used in different sectors. With the improvement of processing technology, the demand of molds precision is increasing as well. Thus injection molding machines should have higher pressure and speed. Accuracy is the guarantee, and high efficiency and stability are the key points for injection molding machines. Yizumi PAC series of thin-wall high-speed injection molding machine has fast injection speed and high stability. It can be equipped with controllers from GEFRAN, Mirle, Keba and other manufacturers. PAC series machine has such advantages as synchronous plasticizing, closed-loop control of high-pressure injection, and robot forward motion parallel to mold opening.

Yizumi PAC200 high-speed injection molding machine which is equipped with the independently developed four-cavity mold is capable of producing 180ML in-mold labeled cups in a 3 second cycle with high stability. The product has a wall thickness of 0.36mm and weighs 6.5g. The mold adopts air ejection and needle-valve type hot runner, which is electrically controlled and has high accuracy. The whole thin-wall injection molding system has been showcased in the exhibitions in Shanghai, Thailand, Malaysia, etc. and recognized by a large number of customers home and abroad.