

## Speed by Design

>> As the industry evolves, so too must the molding machine. – The new ENGEL SPEED line of machinery was designed with these concepts in mind. Combined with 60 years of injection molding machine building experience, Engel is confident that it has what it takes to meet the requirements of the most demanding of applications: 24/7.

Produced at Engel facilities in Austria and Canada, the ENGEL SPEED machine will be available in sizes from 200 to 550 US, in both standard and wide platen executions, by the end of 2008. Larger sizes are being planned based on industry requirements.

Due to market diversity, a North American model has been designed and produced incorporating wide platen and all-electric screw drive. This model has been created for the requirements for higher cavitation and energy-efficiency. The wide platen design will provide the most generous tie bar spacing offered, tonnage for tonnage, in the industry.

>> More importantly, the Engel SPEED machine provides the shortest dry cycle times in the industry – depending on machine size, dry cycle times are between 1.1 and 2.2 seconds.

The new five-point double toggle clamping unit, a key component of the new machine, combines highly-dynamic movement with gentle acceleration and deceleration, making it ideal for high-speed applications. Of special note is the speed of deceleration without

## Time is Money

The packaging industry remains an industry where tenths of a second can mean the difference between profit and loss. The limits of injection molding machinery are constantly pushed to their maximum operating capacities and unplanned downtime is catastrophic. No other industry “pushes the limits” of what is possible; increasing cavitation and L/T ratios while decreasing wall thickness and cycle times.

abrupt clamp movement. The toggle cross-head speed remains constant while the platen speed decelerates rapidly.

The new injection units of the ENGEL SPEED were designed and rated to match the highly-dynamic movements of the clamping unit. In order to operate at the necessary high rates of injection, the injection units are of in-line design. The new in-line injection units deliver injection speeds in excess of 1000 mm/s; speeds which reliably satisfy the relevant prerequisites for the mass production of even the thinnest-walled packaging containers with the utmost precision, reproducibility and speed.

The injection units have been specially designed to perform the short metering strokes required for packaging and thin-walled parts, and it goes without saying that the necessary injection pressure of over 2000 bar can be achieved with all screw diameters.

The new ENGEL SPEED line of machinery will be featured at the upcoming Packaging Days event being held in York, Pennsylvania on June 13<sup>th</sup> and 14<sup>th</sup>. Packaging industry personnel are invited to attend this event which will see various industry professionals presenting the latest technology. Industries represented include mold making, automation and materials.

>> We look forward to your current challenges and any new challenges you may face. Whether it be PET, crates/pallets, cups/containers, buckets, closures/triggers, Engel is now prepared to meet these challenges with you. <<



## Dear Customers,

The world economy is growing differently in specific geographical regions, based on different political and economical developments. Emerging countries and rising markets represent an additional market potential, and become more and more important for production and sales. Global customers are represented in all of these markets and expect the same strategy from their suppliers, as they become more specialized based on competitive pressures within the global environment.

It is important, like never before, to comprehend and respond to market requirements and industry challenges. Therefore, we must be closer and more understanding of our customer base.



In response, Engel is globally re-organizing its internal sales organization under the structure designated PENTA. Effective second quarter of 2007, Engel is forming five international business units which are interwoven with the existing area sales network and provide special emphasis on the following markets:

- >> Automotive
- >> Medical
- >> Packaging
- >> Teletronics
- >> Tech Molding

Customers therefore will find their local sales support unchanged but behind it extremely powerful and knowledgeable business units, thus ensuring technological advantage and highly competitive products and services for now and the future.

Engel is a world leader in injection molding machinery and automation and therefore it is a natural expansion of this position to enter the world of Packaging.

In response to the consistent growth of the packaging industry, Engel has introduced a line of high speed injection molding machines and automation. The ENGEL SPEED line of machines and the ENGEL ERS “SPEEDY” robot have been highly engineered for the demanding fast cycles of this industry.

Engel is excited to showcase these new product lines at our upcoming Packaging Days events being held in St. Valentin, Austria and York, Pennsylvania. These events will focus on the challenges and requirements of the packaging industry and the technical solutions that can be offered.

This is the beginning of the new PENTA era, as Engel focuses more closely on providing our customers with the necessary products and technical knowledge to be more competitive in their industries.

We invite you to this new world of Engel and look forward to working with you in whatever market you compete.

Walter J. Jungwirth  
Business Unit Manager – Packaging

## Coming Events

- >> May 1-3, 2007:  
Plast-Ex 2007, Toronto, Ontario
- >> May 6-10, 2007:  
Plastics Encounter at ANTEC,  
Cincinnati, OH
- >> June 13-14, 2007:  
Packaging Days,  
Engel facility York, PA
- >> June 27-28, 2007:  
Medical Days,  
Engel facility Schwertberg, Austria
- >> September 25-27, 2007:  
Plastec Midwest, Chicago, IL
- >> October 16-18, 2007:  
Rubber Expo 2007, Cleveland, OH
- >> January 2008:  
Plastec West 2008, Anaheim, CA
- >> March 26-27, 2008:  
MassPlastics 2008, Fitchburg, MA

## Recent Additions to Engel North America

>> Chris Kightlinger joins Engel North America in the capacity of Technical & Regional Sales Manager for the Engel West office located in Santa Ana, California. With an ex-



Chris strengthens Engel West with his long standing machinery background.

tensive background in industrial machinery including: relocation and refurbishing of food processing plants, propulsion and power plant operation & maintenance, and the assembly of working prototype automated off shore drilling equipment for the oil industry.

Chris brings vast experience in product and application development. Of the 20+ years in the machinery development field, the last 13 have been spent in the injection molding industry. During this time he headed the design and implementation of MuCell Technology, Liquid & Gum Silicone, as well as automation of molding and secondary operations to injection molding machines, and improvement of customer facilities for more efficient layout and operations. <<



## Engel Helps Keep ITML® up to Speed

>> Few companies have seen more growth than ITML Horticultural Products Inc.® – the Ontario-based company has been making plastic flowerpots for more than 30 years.

ITML, whose initials stand for "Innovation, Technology & Market Leadership," is a leader in the design, manufacturing, and marketing of plastic containers and related products for the floriculture/horticulture grower markets across North America. In February 2007, ITML was purchased by Myers Industries, Inc. (NYSE: MYE), a diversified manufacturer of plastic and rubber products with one of its business segments devoted to horticultural containers.

ITML was started by family members Kees Hensen and John Vaandering in 1963 as a tool shop manufacturing stamping dies. They began injection molding in 1970 and made their first flower pot in 1973, a turning point in the company's history. Flower pots soon became ITML's core business. From then on, the company saw nothing but growth, acquiring along the way its major competitor, Kord Products.

Today ITML has more than 800 employees and eight facilities located across North America, utilizing injection molding, blow mold-



ing and thermoforming processes to make its more than 500 unique products. ITML is also a "green company," employing extensive technology and expertise to reprocess post-industrial and consumer materials into resins used in its products – keeping the waste out of landfills. Its extensive ITML, Kord® and TLC™ product lines are available through a network of over 125 partnering distributors throughout North America.

As part of the Myers Industries family, ITML is now in the Myers Lawn and Garden Segment, which designs, produces and markets a wide range of containers, hanging baskets, trays, nursery pots, and decorative resin planters for grower, distributor and niche retail sales channels. ITML joins three other industry-leading brands in the segment – Dillen®, Listo™, and Pro Cal® – which together provide unmatched resources for innovation, selection, service, and quality to meet the needs of customers. Myers Industries had record net sales from continuing operations of \$ 780.0 million in 2006, of which \$ 160.2 million was derived from its Lawn and Garden Segment.

### A Competitive Edge

The horticultural business, according to Ed Hensen, president of ITML, has been steadily growing over the past 30 years. When the economy is good, housing increases drive the demand for horticultural products; when the economy is poor, homeowners spend their money on making their existing homes look better.

However, it's also an extremely competitive business, with North American manufacturers experiencing pressure not only from competitors here, but also from Asian and European rivals. Ed Hensen strongly believes a North American manufacturer in this market can remain competitive against any offshore presence if they streamline labor requirements to a minimum through optimized automation and manufacturing processes. At the same time, manufacturers of horticultural products feel a constant pressure to reduce costs by making the same part with thinner wall thickness, and, as a result, demand molding machines with faster clamps and increased injection speeds and pressures.

It's for this reason ITML chose Engel. ITML has been a loyal Engel customer since 1977, purchasing almost 100 machines over the years, the majority of which being packaging-thin wall machines in the 500 to 600 ton range. ITML has enjoyed working with Engel and Engel has been receptive to engineer machines specifically designed to ITML's needs for high speed, high injection pressure and customization with the durability to run 24/7 at sub-6 second cycles with minimum downtime. ITML also chose Engel because they were a North American manufacturer who could support ITML in all areas from machines to spare

parts, service to support. As ITML grew, Engel gave ITML a strong competitive edge to reduce manufacturing costs while delivering consistent quality on time.

### Continuing to Grow the Business

ITML may have a new owner, but they still rely on the top-quality features they've come to expect from Engel over the years including dependability, simple controls, and unparalleled safety. Their future equipment requirements from Engel include increased injection speed and pressures while at the same time reducing machine energy requirements. The company also plans to move into new territory with an increased focus on branding technologies that will provide stunning graphics and plant care information on containers, allowing their customers to create vivid "packaging" for their plants.

For more than three decades, Engel has been proud to play such an important role in ITML's evolution and growth. <<

## Mar-Lee Thinks Packaging with Engel

>> When Mar-Lee opened its doors as a small moldmaking shop in Leominster, Massachusetts, back in 1972, no one could have predicted the size and scope of the tiny local company just a few decades down the road. Today Mar-Lee Companies is a multidimensional firm, operating two state-of-the-art molding facilities – one dedicated to medical molding and the other to packaging and consumer products. The company maintains a 56,000 square foot custom injection molding facility with a total of 27 presses ranging from 22 to 750 tons, a high-precision injection mold manufacturing facility, a tech center offering turnkey molding solutions and a 10,000 square foot Class 100,000 clean room for the manufacture of medical products.



Much of the company's tremendous growth and success can be attributed to John Gravelle, Mar-Lee's second employee and today president of this \$ 18-million company which is growing at up to 25 % a year in one of its major markets. John believes that in order to continue to succeed, increase profitability and compete in today's global economy, companies like Mar-Lee must embrace new technology.

### Working together with Engel

John admits automation has significantly helped Mar-Lee become the world-class global competitor it is today. "I want to make Mar-Lee into the poster child for what it takes today to manufacture in the U.S.," John says. "And the thing that I'm most happy to report is that automation works."

Mar-Lee has been a loyal customer of Engel for more than a decade. In 1995, realizing the benefits of Engel's 750 US ton wide platen toggle machine for a large stack mold application, John and his associates were able to win a major contract against several other firms which were quoting 1000 to 1500 ton machines.

Since then, Mar-Lee has taken full advantage of Engel's application specific technology to allow them to compete successfully in North America's rapidly-changing marketplace. John values the fact that for his company Engel is more than a machine or robot supplier – it's an important resource of technical knowledge that allows Mar-Lee to compete and win business in areas where they don't necessarily have experience.

To Mar-Lee, Engel also offers a "one-stop shopping" resource for machine and automation, providing technical support, processing knowledge and a full range of products that allows them to focus on one market segment or just as easily move into another. As the plastic market has continued to shift over the years, Mar-Lee also

shifted its focus to the medical and packaging markets, segments which require more technically-advanced processes. Engel has been with Mar-Lee every step of the way. Since Mar-Lee won their first job in the packaging industry in 2003, they have focused on the value-added packaging market that requires an assembly process through complex automation. They have purposely stayed away from the more competitive commodity markets such as caps, closures and food containers.

Engel also worked with Mar-Lee for its move into in-mold labeling technology. The company now runs three high-speed molding cells, each equipped with a high-speed Engel Classic 450 toggle machine, an ERS (Speedy) robot and two ERC robots (with a fourth currently being built). These cells are used for Mar-Lee's new Solo baby wipes dispenser lid business, allowing them to provide their customer with a more colorfully-designed part at a competitive price.

### Looking to the future with a global perspective

Mar-Lee shows no signs of slowing down. They continue to grow, currently undergoing a three million dollar makeover with the single purpose of automating their equipment to better service the packaging and medical fields. So far, Mar-Lee has installed a number of automated work cells into their Leominster facility with another currently in production at Engel Canada. Automating has helped boost sales by 18 % in the past year and increased their profit margin significantly. In less than one year, the savings in labor costs from these automated cells will have paid for the equipment.

"This is Mar-Lee's vision of how you compete with China," John says. "We've committed our futures to serving specialty medical and value-added packaging markets, but we're not committed to doing it like everyone else. We're committed to going automated, rather than going offshore."

It's this philosophy – the idea of competing with a global perspective, coupled with the right resources and technology – that has been the secret to Mar-Lee's success. "You have to make your own future," John says. "You can't wait for the economy or for the politics or for anything else to turn things around. You've got to create your own opportunities." <<





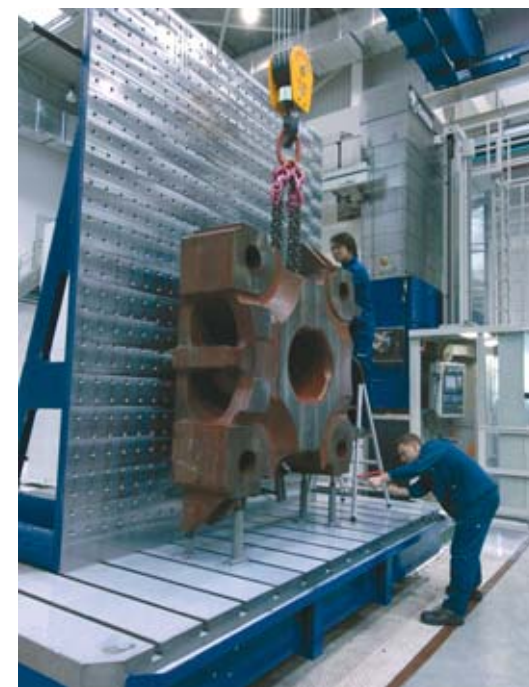
Machine component manufacturing (profile cutting, welding, base frame assembling) has been started already.



Engel Machinery (Shanghai) Co., Ltd.

## Production has started

Official opening and inauguration ceremony scheduled for May 18<sup>th</sup> 2007.



Two large CNC machining centers are in operation. Large and heavy components (e.g. machine platens or base frames) can be machined in house.



The machine assembly departments are busy already. The Engel first machines – Made in China – have been completed, tested and shipped to local customers.



Local technicians have taken over the responsibility for substantial assembly jobs from their Austrian trainers.

## CSD China Update

Engel Shanghai has re-located to our new Manufacturing facility in Zingxuang Industrial Park in Shanghai, where Engel produces large Injection Molding machines from 600 tons. With this move the final phases of setting up the Customer Service Division are well underway with Engel's new Training Center and ample space to house Spare Parts for the Chinese market.

Training courses are held at our Shanghai Training center in Chinese language. Engel Trainers in China are qualified to the same high level as throughout rest of the Engel Training world. Engel's approach to Training world wide ensures that our Customers in China are offered the same high level Training and the same Global material but tailored to our country specific language. Our Show Room houses Machines and Robots for practical hands on Operator, Controller and Maintenance Training as well as Customer Mold Tests.

Over and above the Engel Training Portfolio, Engel Shanghai also offers highly advanced methods of Training and Support using "Interwise" an online Internet Training tool, and in the near future online machine troubleshooting. Other Services offered by Engel Shanghai now include EMS (Engel Monitoring Sys-

tem) for online diagnosis of machine troubleshooting and a staffed Service Hotline. Engel will introduce these new training tools at our Grand Opening ceremony as well as at China Plast 2007 in Guangzhou China this May.

Since the opening of the Engel Machinery Shanghai Manufacturing facility, we are in the process of stocking a vast supply of Spare Parts and most commonly used parts for all makes and models of Engel Injection Molding Machines and Robots built world wide. Spare Parts orders which are in stock are sent out the same day to all parts of China, and usually arrive the Customer's plant the following day, depending on the region in China that they are shipped to. If Spare Parts need to be ordered, Engel Austria air ships parts weekly or daily to Shanghai as required. All customs clearance's and importation of Spare Parts are handled

directly by Engel Shanghai making the flow of Spare Parts to our Customers in China much quicker and easier. Spare Parts are sold in local RMB currency and a government VAT invoice (Fapiao) is issued for all Parts Sales. On time and fast delivery of Spare Parts to our Engel Customers is a critical and important aspect of our CSD business in China and we are taking every step to ensure our Customers satisfaction.

Engel China has 3 strategically located Service regions in China, North China with engineers in stationed in Beijing and Tianjin, Central China with engineers stationed in Shanghai and Suzhou, and South China with engineers stationed in Shenzhen and Hong Kong. All Service engineers are fully trained and attend regular upgrading training on all types of Injection Molding Machines and Robots manufactured by Engel World wide to ensure that our customers in China receive the same level of Service as in other parts of the world. All chargeable service is invoiced in local RMB currency and a government VAT invoice (Fapiao) is issued.

In closing, Engel is a world leader in Injection Molding Machines and Robots with a very strong Service presence in China and throughout the world. Engel China will add additional Service Engineers to their existing Team throughout China this coming year as well as Automation and Processing Engineers. <<

>> Engel Customer Service in China now offers a complete range of Service, Support and Training to meet or exceed Engel Customer's expectations. In this rapidly growing Chinese market the absolute need for faster Service response time, shorter delivery times for Spare Parts and top notch Service are a must. Customer expectations in China for Service are now at the same or higher level than in all other countries around the world.

Along with many new Machines and Robots sold yearly into China we see an increasingly large amount of transferred Machines and Robots entering this market from around the globe. From Standard Engel Machines to Complete Complex Systems are transferred to China yearly at an alarming rate. Many Engel Customers are opening business and shifting operations to this thriving Chinese market.

Training is just one of the key-focus of the Customer Service Division in China. There is a very high demand for Training in China for our Local and our Foreign Customers who realize the importance of qualified Operator, Set Up and Maintenance Technicians. Incorporated into our new Shanghai Manufacturing facility is a state of the art Training Center, and Showroom. The Training room is modeled after our Austrian headquarters and is equipped with individual PC's for Trainer/participant interaction of Engel's newest CC200/EC200 controllers. The entire portfolio of Standard Engel



## South Korea: Nammi Electric

### A step ahead with ENGEL VICTORY

>> Nammi Electric is located in city of Gwang Joo, South Korea. The name literally means beauty in the South. However, Nammi has other meaning and that is horizon in utopianism, just like dream of Columbus sailing to find a new continent. – Nammi has taken on challenge to find horizon in injection molding industry. No one knew the horizon would be in color of Engel green.

Nammi has been respected as top ranked supplier to Sam Sung Electronics. Key to such success can be found as result of leadership of Nammi's president, Mr. Kim, Ki Hwan and his dedicated staff. Mr. Kim is a strong believer

of "Jung Do Gyoung Young", or business leadership of moderation. Always striving for essence of goal and the most efficient ways to achieve it, he is single minded with his eyes set on goal as much as sophisticated when it come down to striving for ways to pursue excellence.

Mr. Kim has been looking for most efficient way of production involving injection molding and assemble molded parts. On the quest, he has found Engel as solution to apply in injection shop. According to Mr. Jung, Ki Hwan, Manager of Injection shop, existing automation could not keep up with Engel machine

when it first put into production in early 2000. It was pleasant surprise to experience remarkably faster cycle time of Engel machine. One Engel machine proved to pay for bill.

Since focus was quickly set on Engel machine as center of injection shop, Mr. Kim quickly made decision to apply advanced automation to harmonize with Engel machine. Once solution is found, it is put into action without any hesitation.

Similar approach was done in assembly shop regarding all equipment. It has been clear enough for anyone to conclude a principle underlies, "if you want the best result, invest in the best capital."

Not to mention about his investment into human capital. Most of his staffs have been in his winning team for several years or more and they are very skillful with their tasks. It all owe to aggressive human resource management policy and also supportive system and atmosphere

in which his staff are encouraged to take courses to fulfill self-development.

It is not so hard to hear, from some people in this industry, that Nammi has been acknowledged as advanced as Sam Sung for its production equipment. And, consultants do not hesitate to point out Mr. Kim's firm leadership and his dedicated staffs as keys to success.

The quest still continues so that Mr. Kim and his staff are still searching for ways to maximized production efficiency. The motive to find Engel as solution still lives and Nammi knows where to find solution regarding injection molding. <<

## South Korea: Bang Joo Optical Lenses with focus on Engel machines



>> Bang Joo optical was established in 1989 and started light business in 1996 by investing on Lens dedicated Injection Molding Machine and measurement equipment.

After constant investment on lenses, Bang Joo became the largest lens injection molding factory in Korea and produces CCD/CMOS/Digital camera lens, aspheric lens. They have a pride in quality as they acquired Single PPM quality certificate in light pick-up lens for the first time in Korea. They expanded their area to China with Bang jin Electronics in Tianjin and also expanded to Slovakia with Bang Joo Electronics in Surany. Now their turn-over reached around 450 million EURO in 2006 with 1,130 employees in total.

They have more than 160 sets of IMM including around 50 sets of Engel IMM. Head Office in Korea produces Auto mobile camera lens assemblies, Mobile camera lens assemblies, Pick-up lenses, DVD panel assemblies, Digital camera sub assemblies, Inner pack cases, and Dome covers with 82 sets of IMM. And its turn-over reached 280 million EURO with 140 employees in 2006. In china, they produce digital camera lens assemblies and its glass lenses. And they produce DVD player assemblies and LCD TV assemblies.

And now they are expanding their area to digital biz by establishing their own mold factory. Around 20 researchers take in charge of all the process from design to mass production. They do the business with SAM-SUNG, LG, HYUNDAI with the world best quality and experience in lens area and to meet customer's request and get rid of losses, all of their factory are equipped with ERP system.

They've always concentrated on research, production and sales for the vision of being the leading global company in lens in 21st century. <<



Bang Joo Optical, Headquarters



Bang Jin Electronics, China

