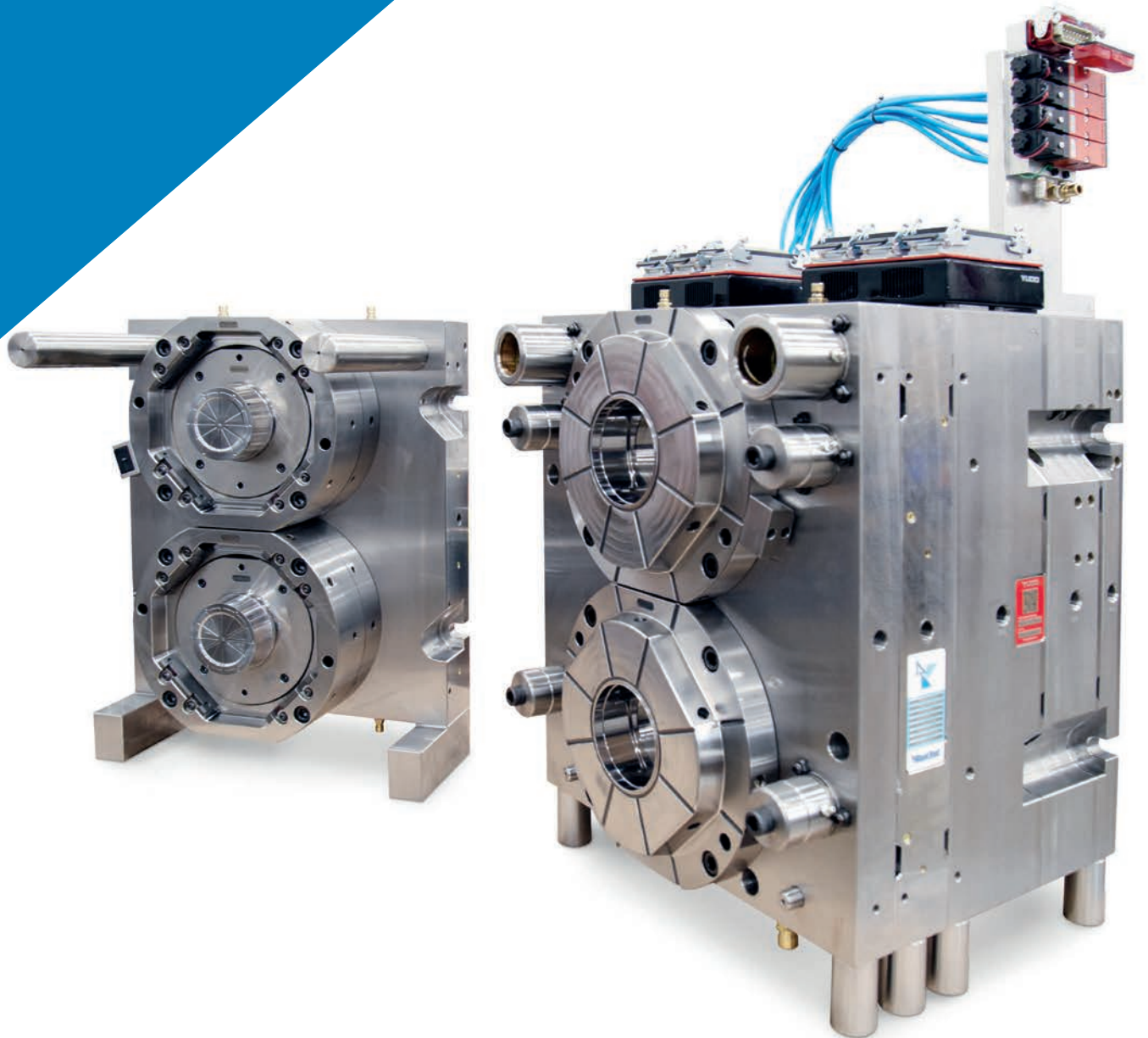


Injection Molds, Automation, and Integrated Systems.



 **StackTeck**
Going Beyond

PACKAGING

MEDICAL

PREFORMS

AUTOMATION

RESTORATION



On the cover: This 2 cavity development mold uses multi-gating and TRIM technologies to produce an ultra-thin PET food container. Seven gates per part are used to achieve this industry first, pointing the way to cost effective food tubs molded using PCR.

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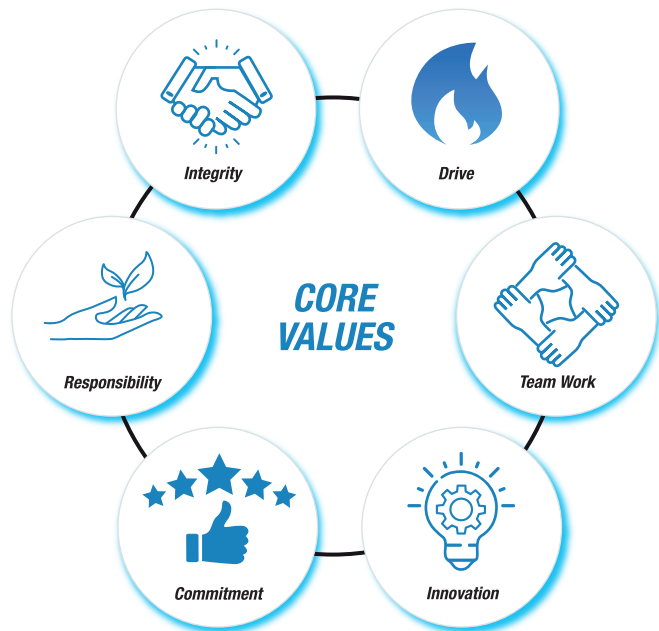
50+ Years of StackTeck Experience

- Technologies for Sustainable Development
- Innovation
- Industry Experience
- Growing Initiatives
- Services: Development to Turnkey



Welcome to StackTeck

Going Beyond



Going Beyond ...

“StackTeck has a long track record of going beyond to find ways to support customers. This includes the development of new technologies for faster cycle times, more productive stack molds, and sophisticated collapsing core solutions, while expanding our range of services and products. We continue to tailor our business to meet evolving industry demands in key areas such as automation, intralogistics, and sustainability.

“Our customers are the reason for everything we do. We are going beyond to find ways to exceed customer expectations, while building lasting relationships and working according to our core values. We take pride in earning the role of trusted advisor, taking on more than just building molds and automation systems to order. We take great care to make sure we understand our customers’ challenges and collaborate closely to provide sustainable, unique solutions. Please let us know how we can help with your next big challenge!”

Vince Travaglini,
President and CEO

History

since 1969



1991 – World’s first 4 level stack mold

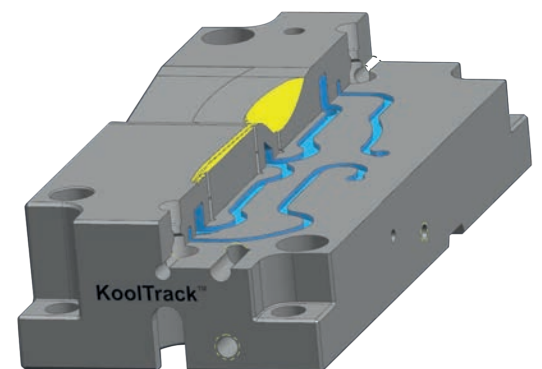
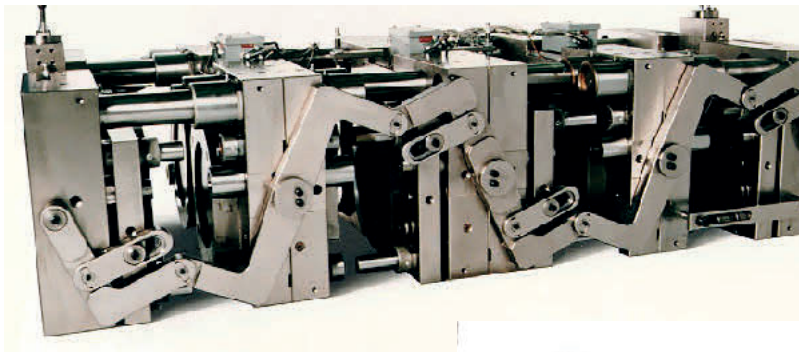
1998 – World’s first 3-level stack mold

1999 - World’s first 5 piece collapsing core mold

2002 – First turnkey IML system in North America

2012 – World’s first 2x32 co-injection stack mold

2013 – World’s first ultra-lightweight TRIM container





Automation - Canada

Manufacturing Facility - Korea

2015 – Introduction of KoolTrack™ cooling

2016 – World’s first 2x64 flip-top closure mold

2018 – World’s first TRIM™ MuCell thinwall mold

2019 – New facility and business group for Automation

2019 – New initiative for PET preforms

2022 - World’s first 5 piece collapsing core paint can mold – body with integral rim

2023 - Established the iMFLUX™ Center of Excellence (see page 10)



Plastics for Sustainable Development

Helping Customers Reach their Circular Economy Goals

Increased Recycled Content

Recycled PP and RPET
iMFLUX



Design For Reusability

QPC = Quick Product Change
FastTrack™ = Mold Standardization



RECYCLE

REUSE

Bio-Degradable Solutions

PLA Cutlery
New Hot Runner Developments

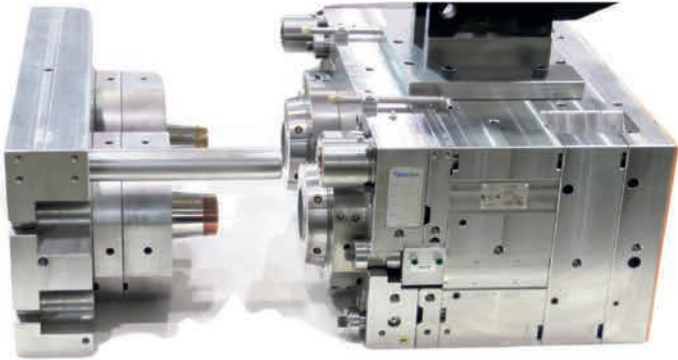


COMPOST

Technologies for Sustainable

Increased Recycled Content

Co-Injection Core of Recycled Material



DESIGN

Ultra-Light-Weighting

TRIM™ = Thin Recess Injection Molding, MuCell, Injection Compression, Multi-Gating & Others



PRODUCE

Design For Recyclability

Tethered Closures



CONSUME

Sustainable Development

Sustainable Development: Process Control

Molding Recycled Resins (PCR)

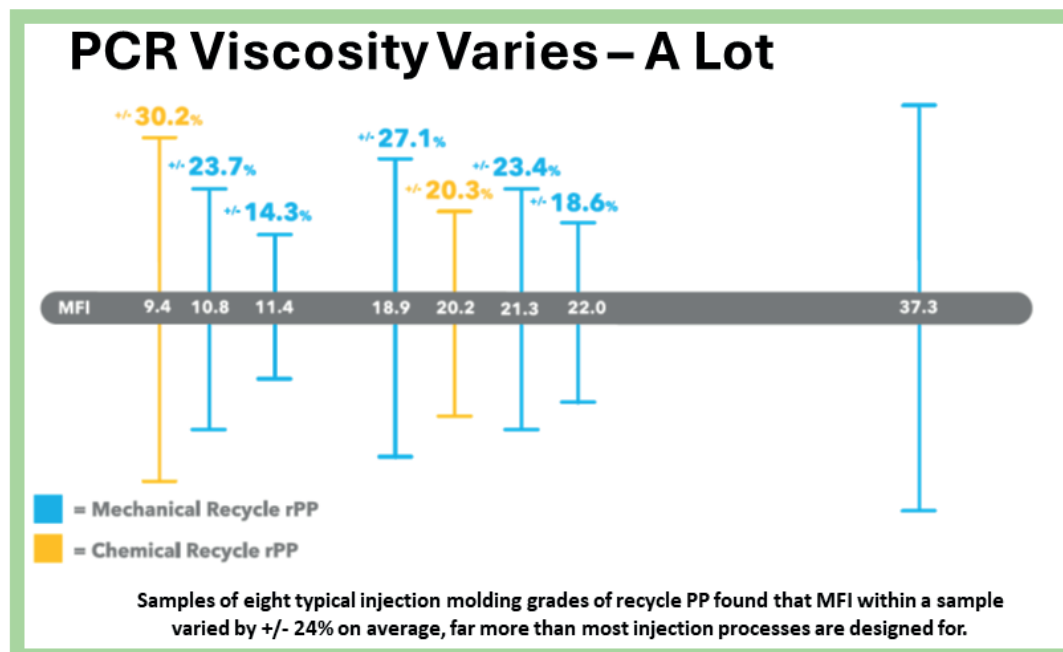
Helping customers overcome the challenges of molding recycled materials

Sustainability Benefits:

- Significant contribution to the circular economy
- PCR usage is a globally accepted sustainability solution

PCR Process Challenges (and Solutions):

- High degree of variability in Melt Flow Index (MFI) => Injection molding process control (iMFLUX*)
- Increased demands on balance and precision => Injection mold custom features
- Contaminants and impurities => Injection mold design for wear and cleaning
- Process and quality monitoring requirement => System control sensors and process control



*Note: iMFLUX and AVA are registered trademarks of Procter & Gamble. iMFLUX images above are courtesy of P&G.

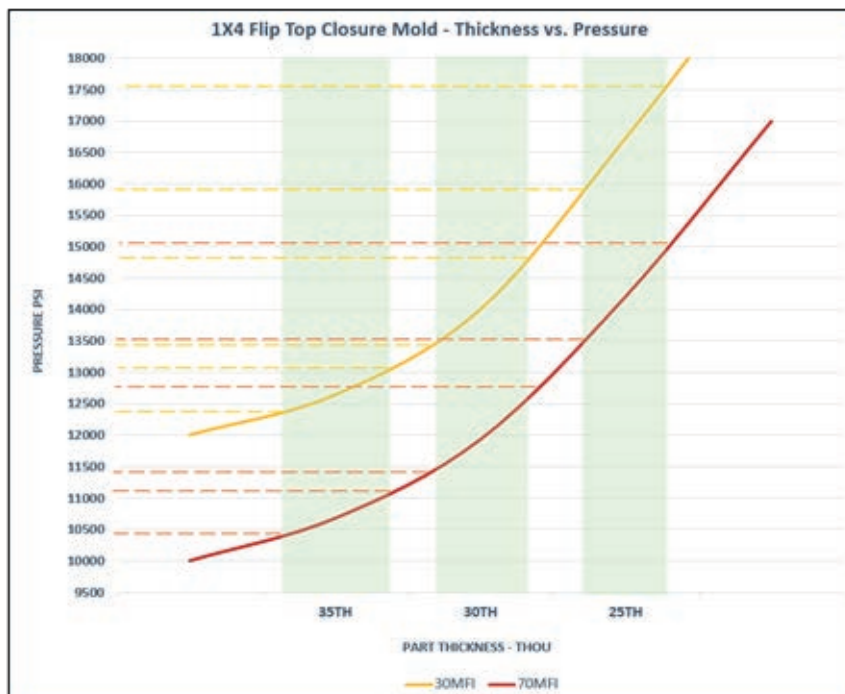
Technology Solutions for Sustainability

Process Control to Handle PCR Viscosity Variability

Material property fluctuations have big implications for the molding process, as illustrated below, changes in resin between 30 MFI and 70 MFI result in injection pressure variations that lead to significant quality and efficiency issues in conventional injection molding systems. Per the chart below, such MFI swings can result in injection pressure changes as large as 20%, which can literally stall the cycle, or create scrap. A proven solution for this challenge is iMFLUX* process control.

Using iMFLUX* low constant pressure combined with "Auto Viscosity Adjust" (AVA):

- ▀ Adapts in real time to material property variations by adjusting pressure
- ▀ Controls dramatic variations in resin viscosity
- ▀ Process changes are monitored and recorded
- ▀ Used in concert with Scientific Molding approach for consistent part quality
- ▀ Significant productivity boost for PCR applications



Flip Top Closure

Injection	0.4 sec
Cool	2.0 sec
Cycle	8.2 sec
Inj. Press.	14,000 psi
Temp.	210 C

Process Control is Key

StackTeck has adopted the iMFLUX process to control the injection molding process for PCR projects that bring associated material viscosity challenges. We also work with RJG, Trexel, and top tier machine suppliers to offer the best process control available in the industry.

Sustainable Development

StackTeck's iMFLUX Center of Excellence

StackTeck embraced the iMFLUX technology as a process control method that is uniquely capable to handle large and sudden material property variations in real time.

Following the success of using this patented technology to qualify a range of PCR resin grades, StackTeck has received permission from Procter & Gamble to use and share this know-how that can be used for any iMFLUX* capable injection molding machine



StackTeck Test Machine Equipped with iMFLUX Control Unit (at right)

Center of Excellence Services:

- ▶ PCR new product development (new and existing parts)
- ▶ Optimization of process for applications that benefit from low pressure molding
- ▶ PCR and virgin resin testing and qualifications
- ▶ Processing training

Sustainable Benefits:

- ▶ Broadened use of PCR across different plastic products and markets
- ▶ Reduced time to market
- ▶ Maintain productivity without compromise to part weight and cycle times

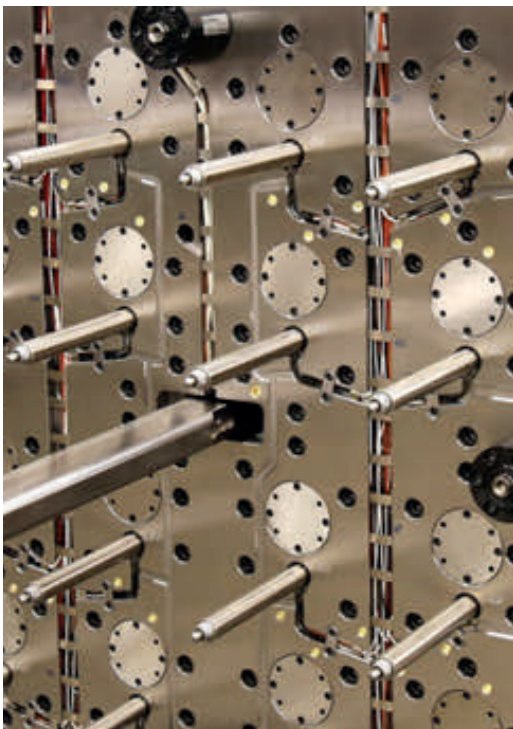
Sustainable Development: Molds for PCR

PCR Mold Challenges (and Solutions):

- ✔ Tight process window => Advanced hot runners with very tight balance
- ✔ PCR resins harder to fill => Advanced hot runners easier filling, better balance
- ✔ Foreign contaminates => Accessible tips and front mounted components
- ✔ Contaminant blockage => Diffusion bonded manifolds with tapered channels
- ✔ Gassing and buildup => Increased venting and use of coatings



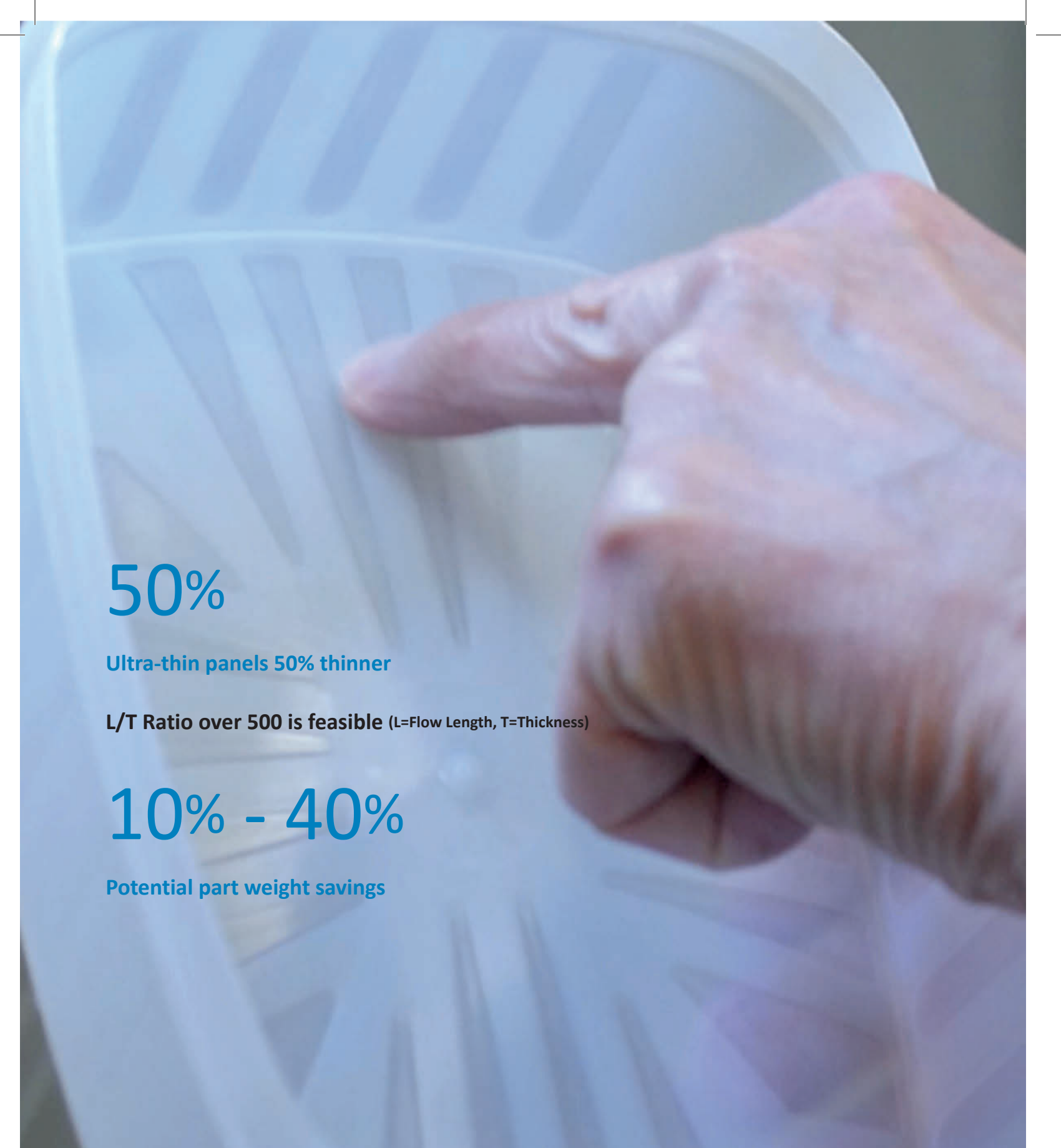
Diffusion Bonded Manifold Technology



Tips Accesible in Machine



DLC Coated Stripper Rings



50%

Ultra-thin panels 50% thinner

L/T Ratio over 500 is feasible (L=Flow Length, T=Thickness)

10% - 40%

Potential part weight savings

A Life Cycle Analysis (LCA) for a 1 Liter Ice Cream Container produced on a 2x4 mold showed:

=> lightweighting with TRIM by 21% for a carbon footprint reduction of 19%
=> equivalent savings of 922,000 pounds of coal burned per year

Sustainable Development Lightweighting:

Helping customers reach their sustainability goals (circular economy).

- DESIGN**
 - ✔ Ultra light-weighting technologies
 - ✔ TRIM: Thin Recess Injection Molding
 - ✔ Product development
- PRODUCE**
 - ✔ Process optimization; e.g.: iMFLUX
 - ✔ Reduced energy usage
 - ✔ Scrap Reduction
 - ✔ Biodegradable solutions
- REUSE**
 - ✔ Reusability of plastic parts; ex.: take out containers
 - ✔ Repurposing capital equipment; ex.: QPC
 - ✔ Restoration and refurbishment
- RECYCLE**
 - ✔ Design for recyclability; ex.: tethered closures
 - ✔ Increased use of recycled resins (PCR, rPET)
 - ✔ Plastic part identification technologies

Summary of Ultra-Light-Weight Technologies

	Alternative	Light-weight Potential
1	Multiple Gating	10-15%
2	Collapsing Cores	10-30%
3	Ultra-Fast Injection	10%
4	Ultra-Thin Panels with Flow Leaders (TRIM™)	10-40%
5	Injection Compression	20%
6	Microcellular	5-20%

In many cases, multiple technologies from this list can be used in combination to dramatically reduce part weight.



Innovation

StackTeck takes pride in understanding our customers' businesses, providing mold designs which give our customers a strategic advantage.

Stack Molds

KoolTrack™ Conformal Cooling

QPC, Quick Product Change

FastTrack™



Stack Molds

Stack Molds are a series of molding faces “stacked” together to create multiple faces or levels for molding. Each level or face is a parting line and produces molded product.

The benefit of stack molding is to increase the output of a given molding machine and operation. Special machine considerations are required to run stack molds, however StackTeck’s technical team are well versed in providing guidelines and recommendations to ensure success when adopting a stack mold strategy.

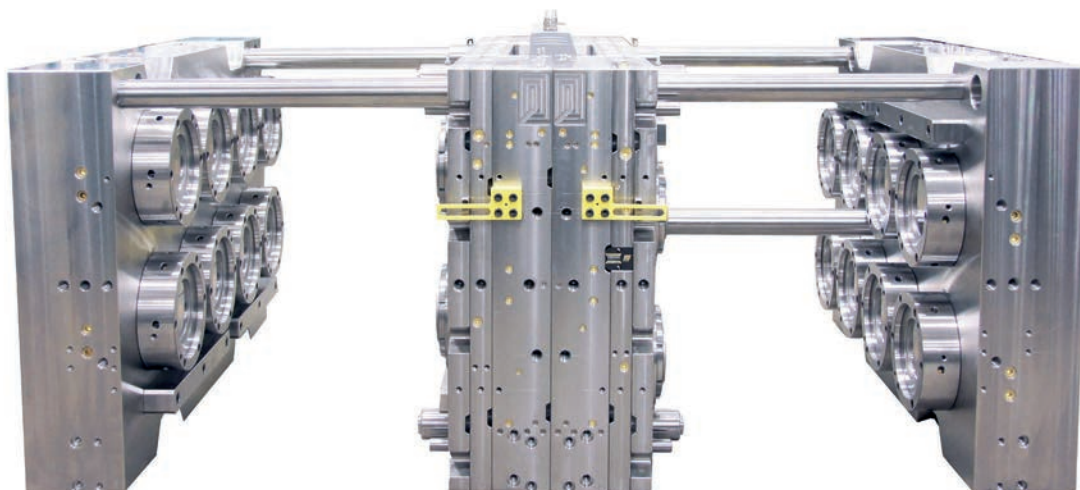
StackTeck provides stack molds in 2, 3 and 4 level configurations based on part designs and volume requirements. Molds can also be designed for future conversion to add more levels as volumes increase.

Benefits

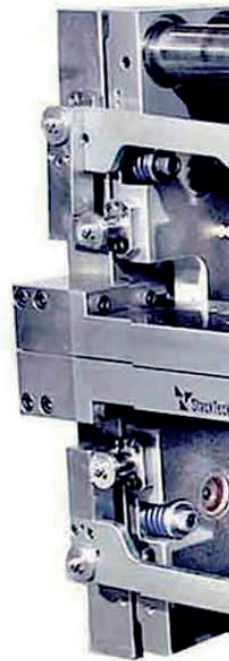
- ▣ Integrated mold ejection functions
- ▣ Double, triple or quadruple output
- ▣ Higher output/capital and output/floor space
- ▣ Modular design expandable with volume growth

Application Examples

- ▣ Dairy food containers
- ▣ Lids and over caps
- ▣ Take out food containers
- ▣ Petri dishes and medical packaging
- ▣ Cosmetic containers
- ▣ Caps and closures
- ▣ Flat panel shingles, tiles, and mats

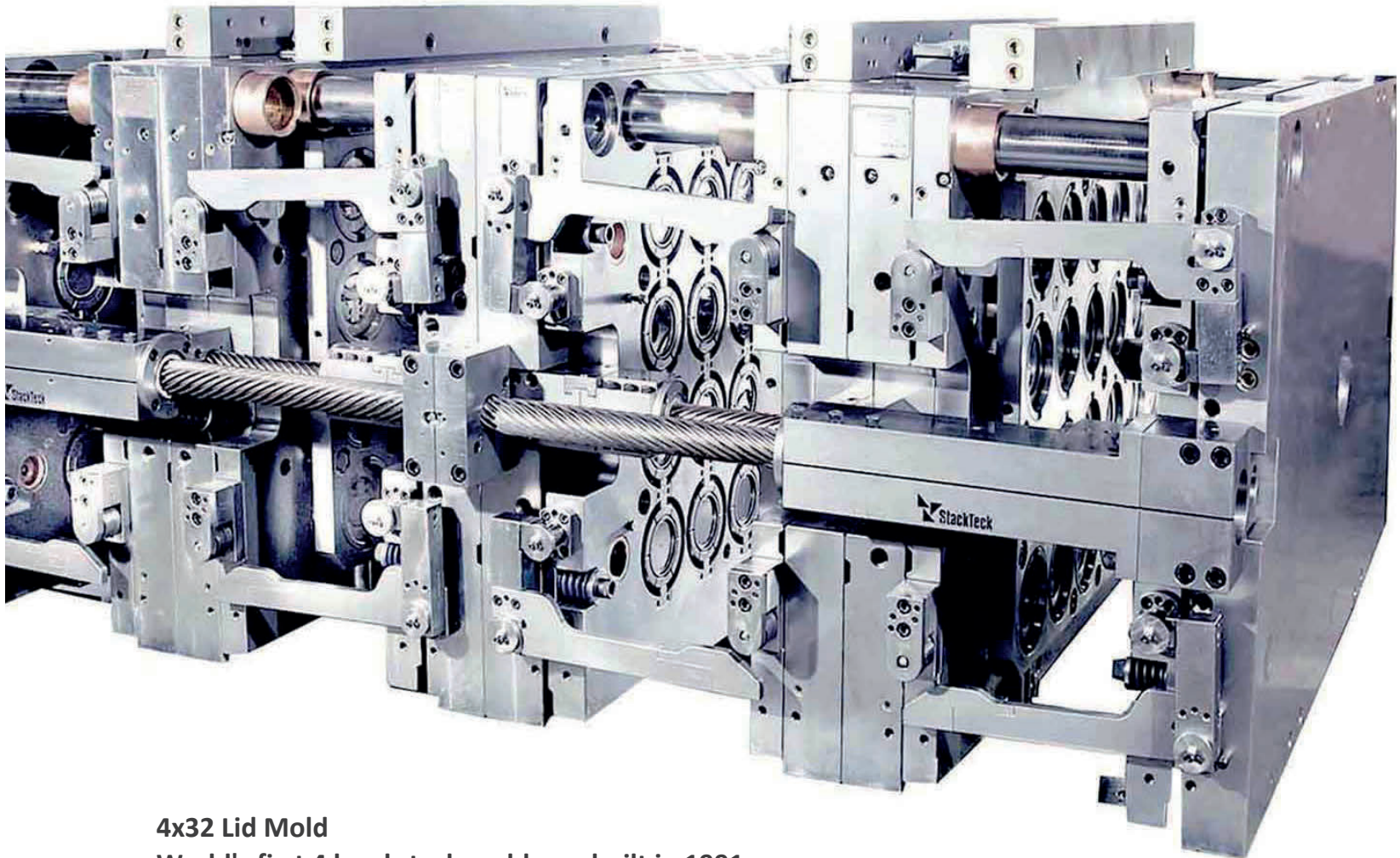


2x8 IML Lid Mold





**2x24 Handle Mold for
a PET Bottle**

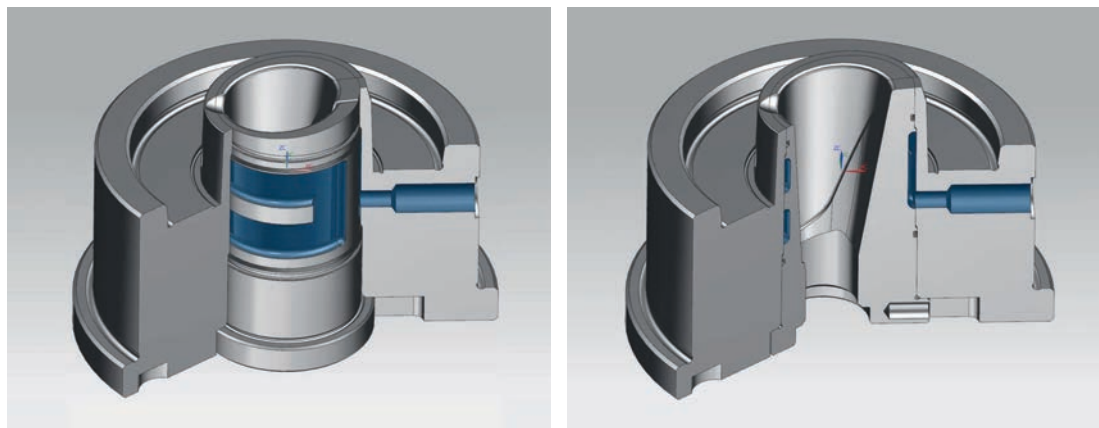
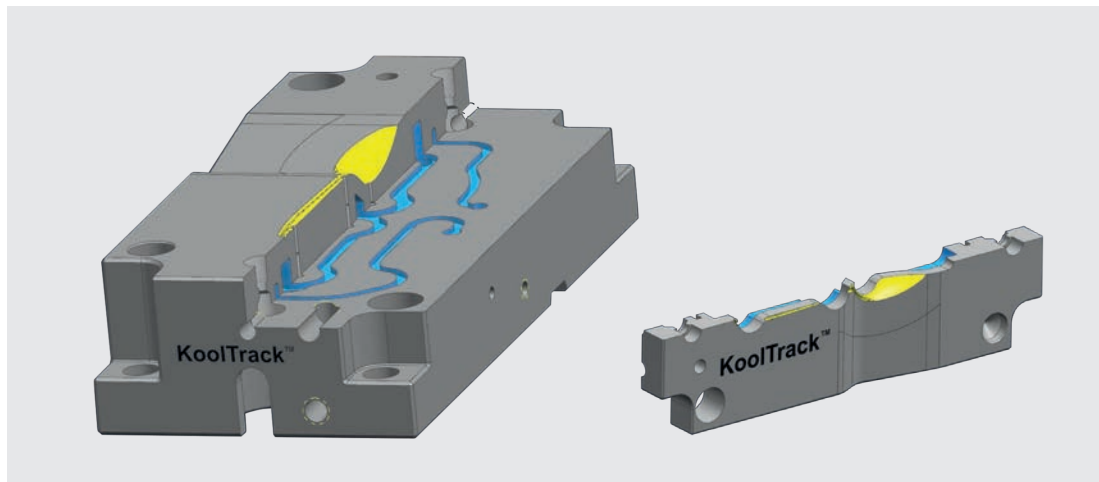


**4x32 Lid Mold
World's first 4 level stack mold was built in 1991**

KoolTrack

KoolTrack™ Technology provides freedom of design to create conformal cooling channels that follow the molded part shape contours

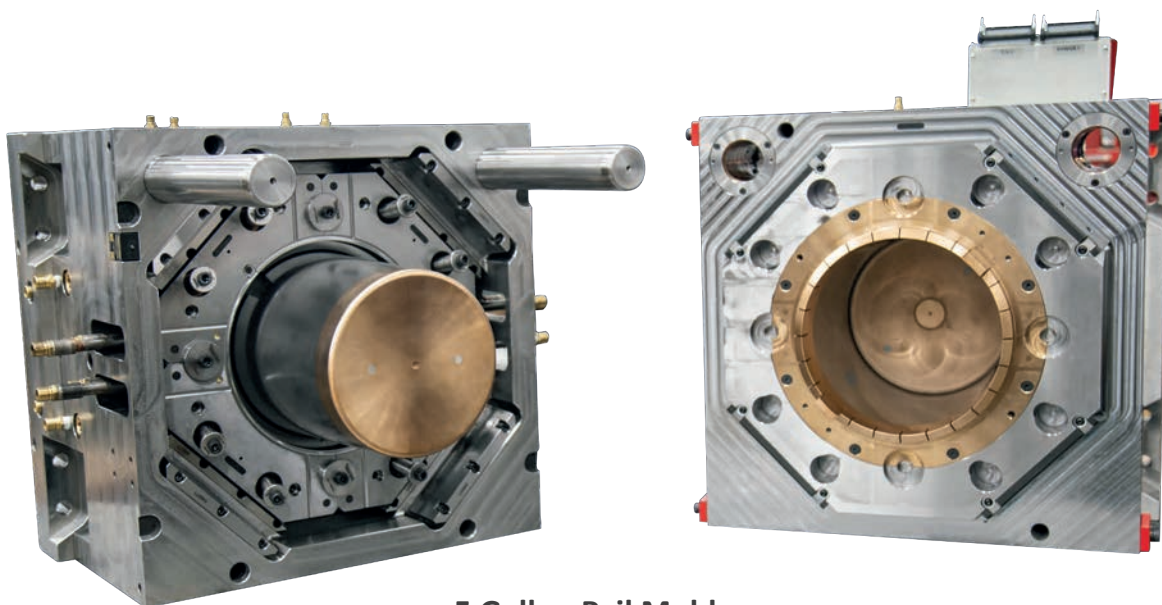
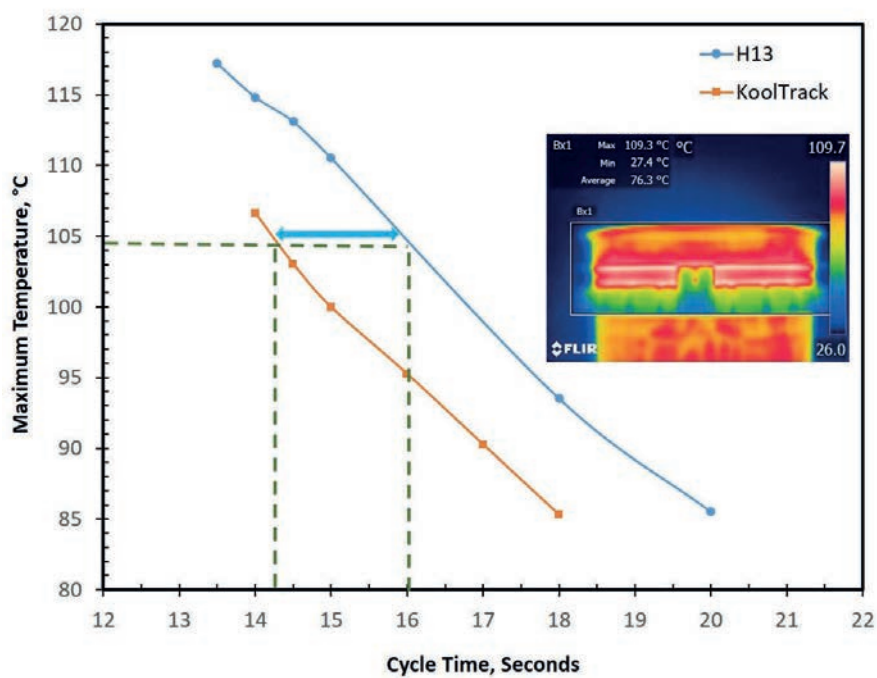
- ▶ Optimized cooling channels follow 3D part geometry
- ▶ Proprietary bonding process in stack manufacturing
- ▶ Faster cycle times based on design, bonded construction
- ▶ Materials that have high rates of thermal transfer



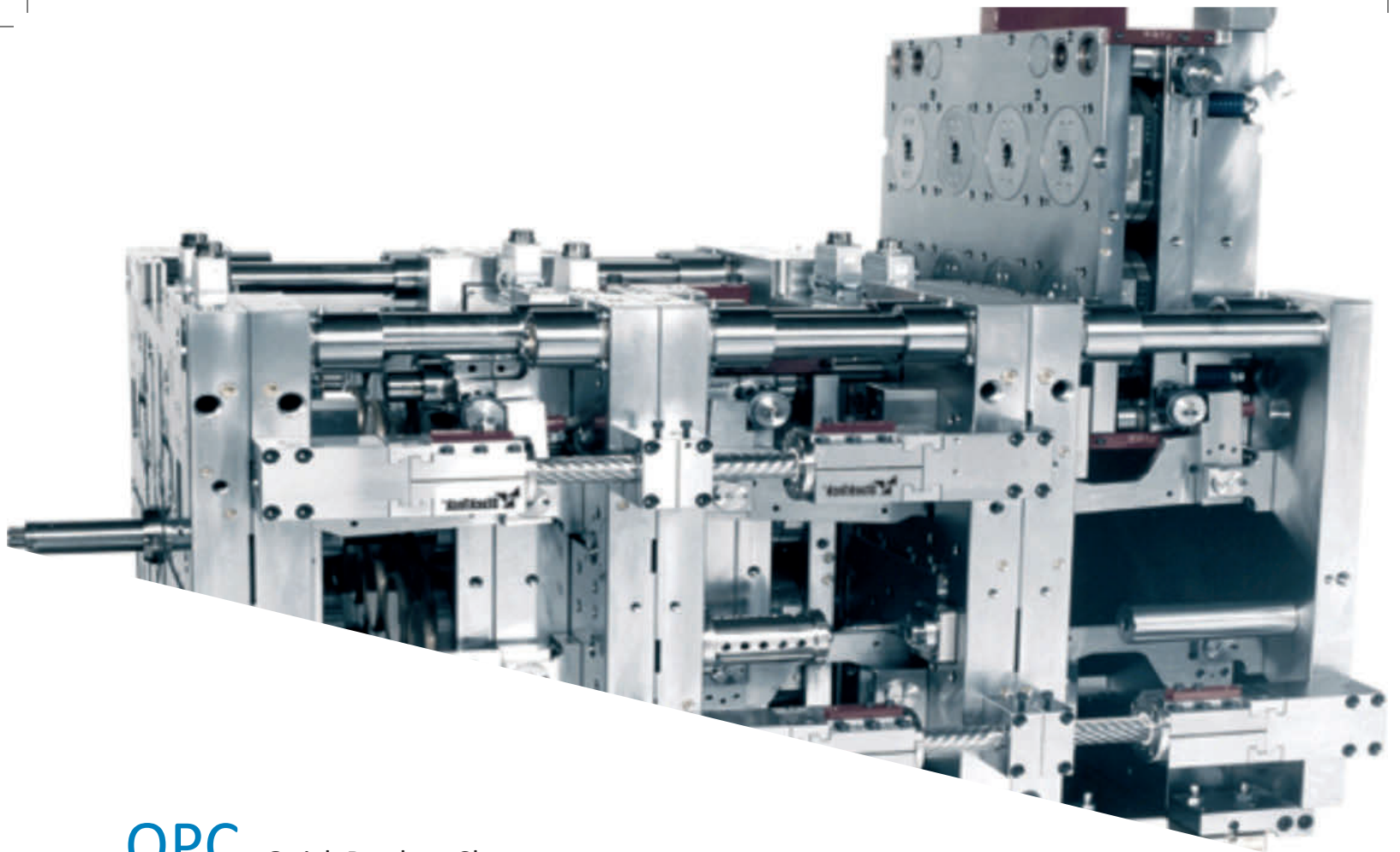
KoolTrack™ designs for a spoon and a liquid detergent spout.

KoolTrack™ Cycle Time Advantage - Pails

- With the conventional H13 collets, a cycle time of 16.0 seconds was achieved (similar to comparable references)
- Using the KoolTrack™ collets there was a 1.8 second cycle time improvement and a final cycle time of 14.2 seconds for the standard pail
- In both cases, the ejection part temperature was measured by means of a thermal camera.



5 Gallon Pail Mold



QPC Quick Product Change

Injection Molds with Quick Product Change (QPC) are based on 2 major components: QPC mold frame and QPC core and cavity module sets.

The QPC mold frame incorporates the hot runner, water and air services, part ejection actuation and mold alignment features.

The QPC core and cavity module sets are specific to a given product and are changed out in sets to enable rapid product change over.

- ▣ Increased production and flexibility
- ▣ Lower inventories
- ▣ Improved plant productivity
- ▣ Modules are changed out in sets to enable rapid product change over
- ▣ Mold services (water, air, power, etc.) do not need to be disconnected
- ▣ Reusability-as volumes grow
- ▣ Sustainability based on long term re-use of components

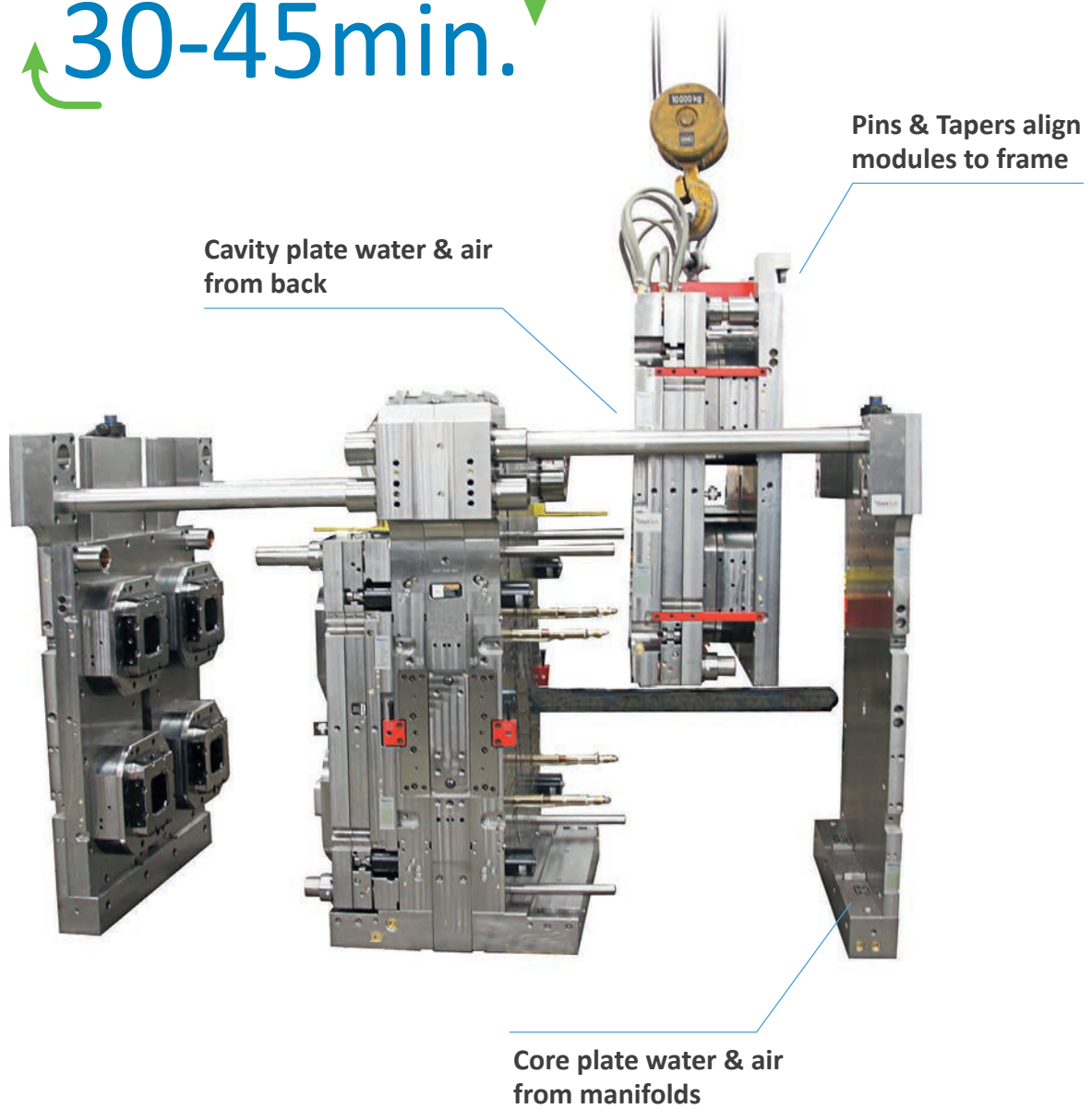
A typical QPC stack mold can be changed over in less than 45 minutes part to part.

StackTeck can also incorporate our QPC approach in our in-mold labeling systems to enable rapid product and label changes in 45 minutes.

Manufacturing environments which embrace lean manufacturing principles, benefit from StackTeck's Quick Product Change technology by leveraging standardization to reduce variability, lower capital investment and enable rapid change over.

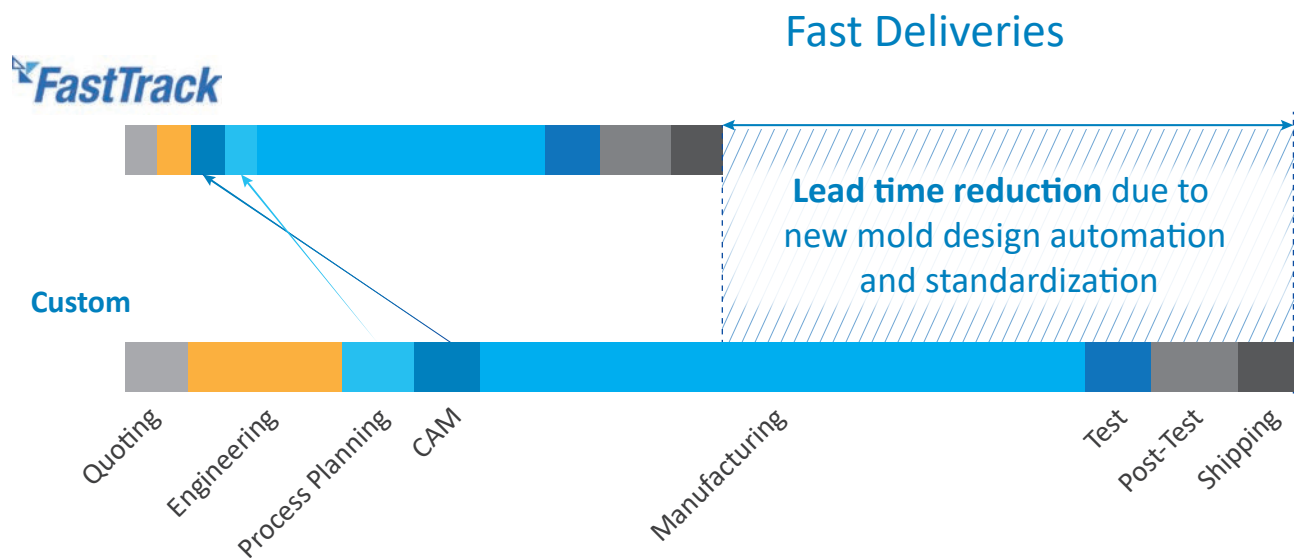


Change within
30-45min.



FastTrack™ Lead Time Improvement

FastTrack™ projects compress engineering and manufacturing stages, using automated design and product standardization.



FastTrack

FastTrack™ program gives the customer the fastest possible delivery with automated proposals and engineering

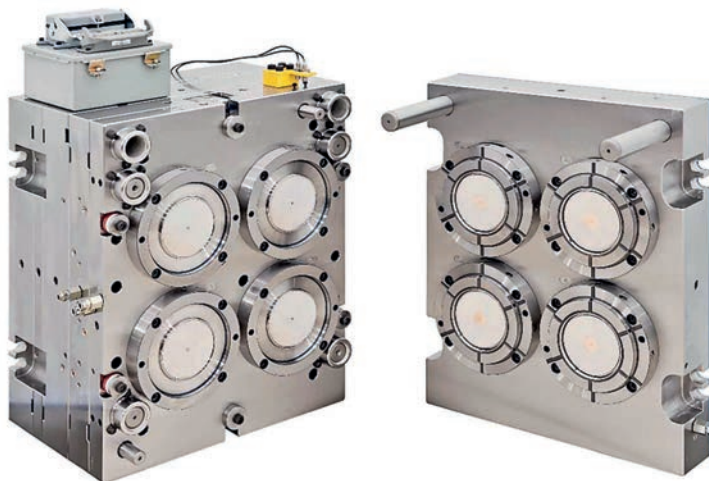
StackTeck has a new approach to fast mold deliveries, using automated design capabilities that work with a pre-set, optimized set of mold design rules.

As compared with custom designed molds, the engineering phase of every project is reduced from 3-4 weeks to just a few days.

With StackTeck's FastTrack™ approach, automated concepts can be created and priced, and mold concept diagrams can be provided to a customer in their own conference room, on the spot, with formal proposals provided within 1 business day.

Advantages of Standardized Design

- ✔ Mold design best practices
- ✔ Standardized components
- ✔ Optimized cooling and productivity
- ✔ Mold longevity
- ✔ Available for round lids and cups:
 - From 2 to 16 cavity single face
 - From 2x2 to 2x16 stack mold





Industry Expert

Application expertise makes StackTeck unique.

StackTeck
PACKAGING

Beverage Cap Molds
Custom Closure Molds
Packaging Mold Specialties
Thinwall Packaging Molds

StackTeck
MEDICAL

Medical Molds
Servo Driven Systems

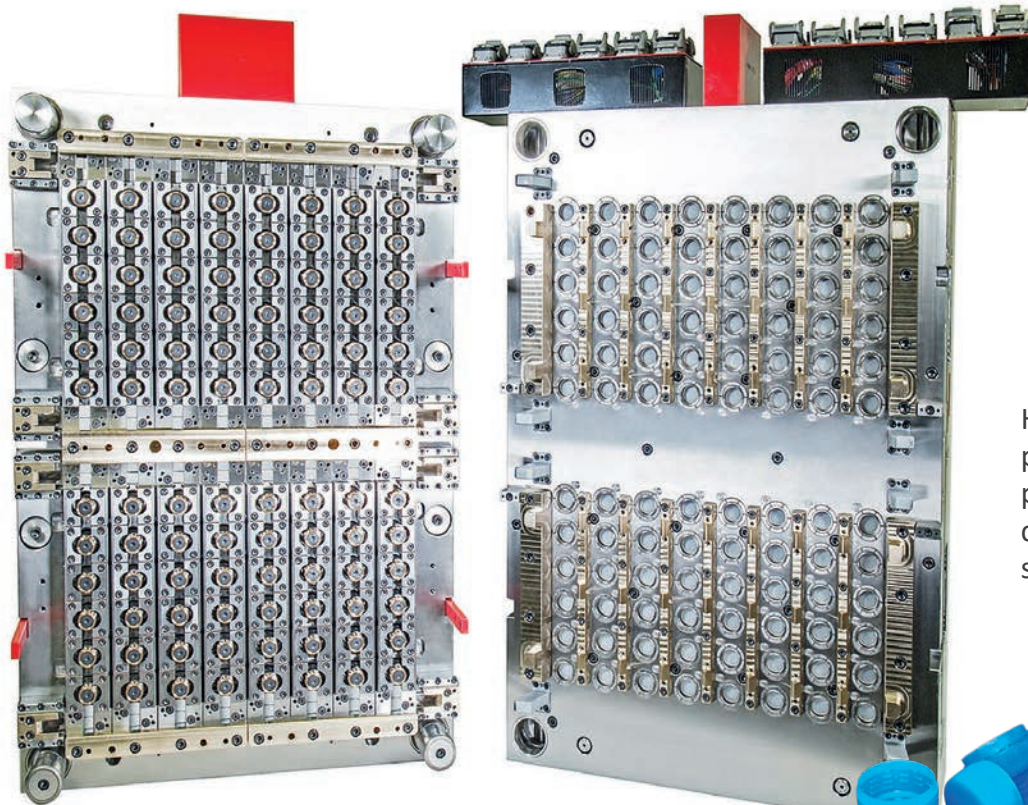


Customer Testimonials:

"In terms of quality, there are no doubts."

"After millions of cycles the injection molds are in perfect shape and continue producing CSD 1881 caps with the same quality that they had since the beginning."

Beverage Cap Molds



1x96 Tamper Evident CSD Closure Mold

Hot Fill Closures

Hot fill caps & closures molds produce thicker parts where precision of part dimensions is critical in order to maintain a seal.



Carbonated Soft Drinks Closure

Beverage cap molds that have been built by StackTeck are producing billions of caps per year in the global industry today.

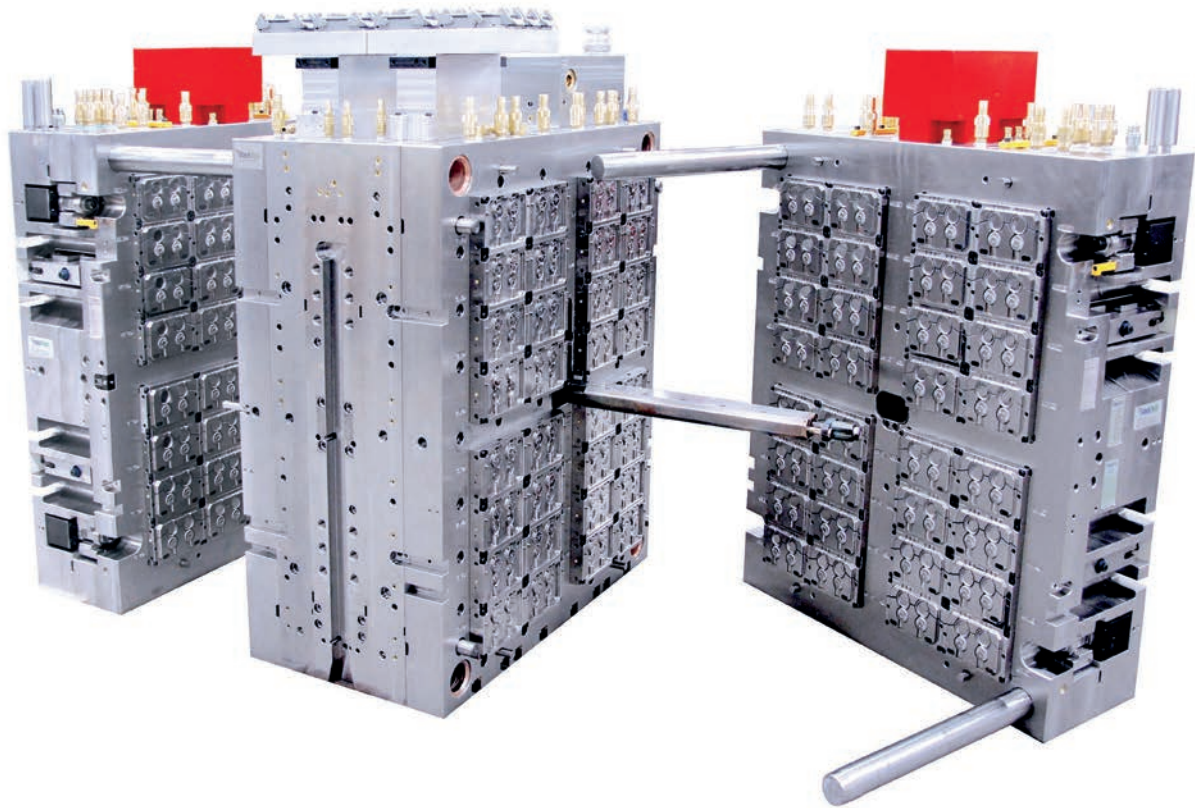
- Less complex mold (fewer parts and controls)
- More compact (better machine compatibility)
- Faster (more productive)
- More durable (less maintenance)
- Tethered options

Mineral Water Closures

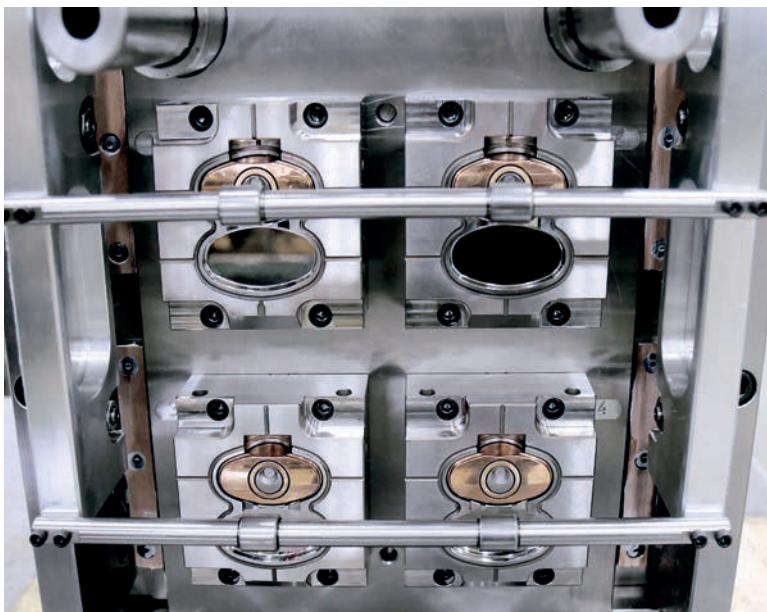
Mineral water cap molds incorporates technology to achieve industry leading cycle times, often sub 2 seconds, for best in class productivity.

- Precise and balanced mold cooling
- Smooth and even part ejection
- Industry leading productivity and uptime
- Tethered options

Custom Closure Molds



2x64 Flip-Top Closure Mold



50%



Reduction of
in-mold closing time
for flip-top molds
with servo motor

Closure Mold Specialties



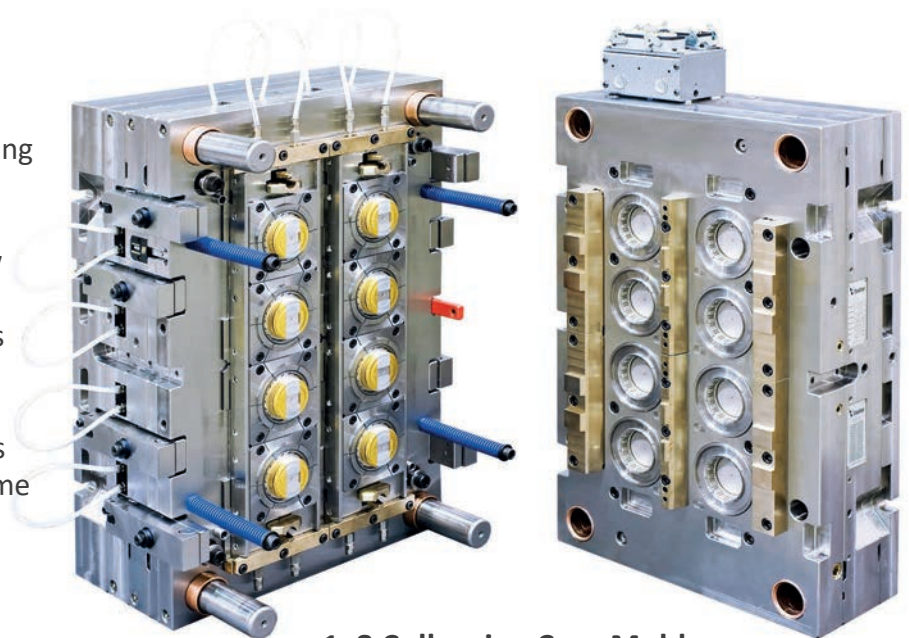
In-Mold Closing (IMC)

- Proven In-Mold Closing (IMC) designs to integrate the closing rack and maximize mold cavitation
- Separate motions of closing arms that optimize the control of closing force (especially in high cavitation molds) resulting in fast cycle times
- Smooth actuation with cam profile and closing trajectory customized for the cap



Collapsing Core Molds

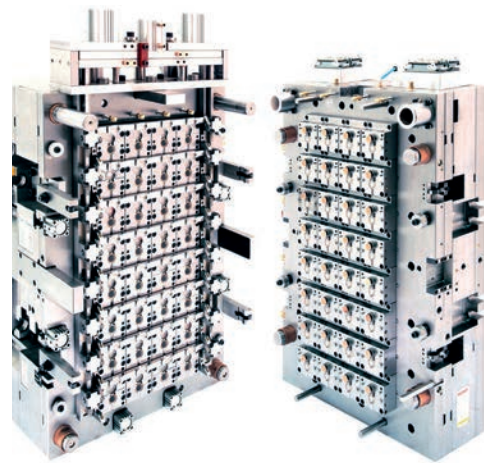
- Technology developed to eject parts having deep 360 degree internal undercuts
- Facilitates injection molding packaging solutions - replacement of injection blow and extrusion blow processes
- Opportunities for reducing wall thickness and part weight
- Applications include cosmetic jars, paint pails, straight walled threaded containers
- Decades of production proven high volume applications
- Fast cycle times with water cooling in all core components



1x8 Collapsing Core Mold

Custom Closure Molds are developed with StackTeck's 3D part design capabilities for closure product development, prototyping, and mold design. We provide customers with a knowledgeable resource in customizing high performance technologies to challenging closure applications.

With our combination of high productivity solutions, advanced mold design and manufacturing capabilities and innovative closure expertise, StackTeck is the logical choice for your next custom closure project.



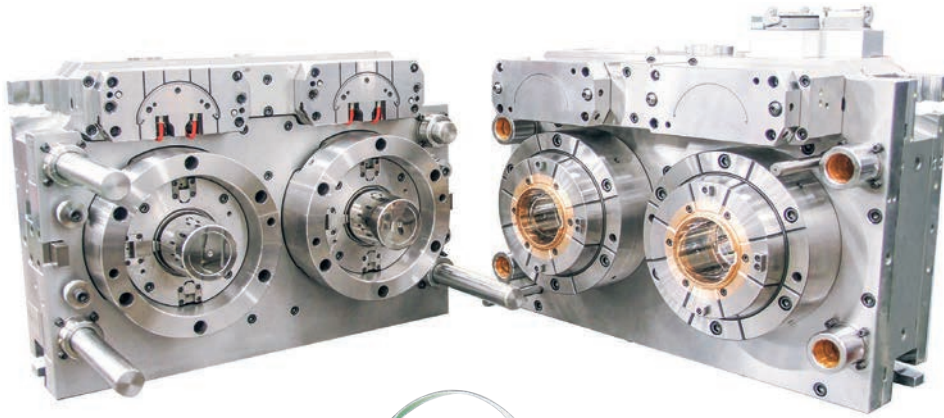
Unscrewing Molds

- ▣ Optimized cooling allowing short cycle times
- ▣ Innovative approaches to actuate core rotation or to rotate cavities instead of cores
- ▣ Well proven design that maintains a good water seal on the rotating cores

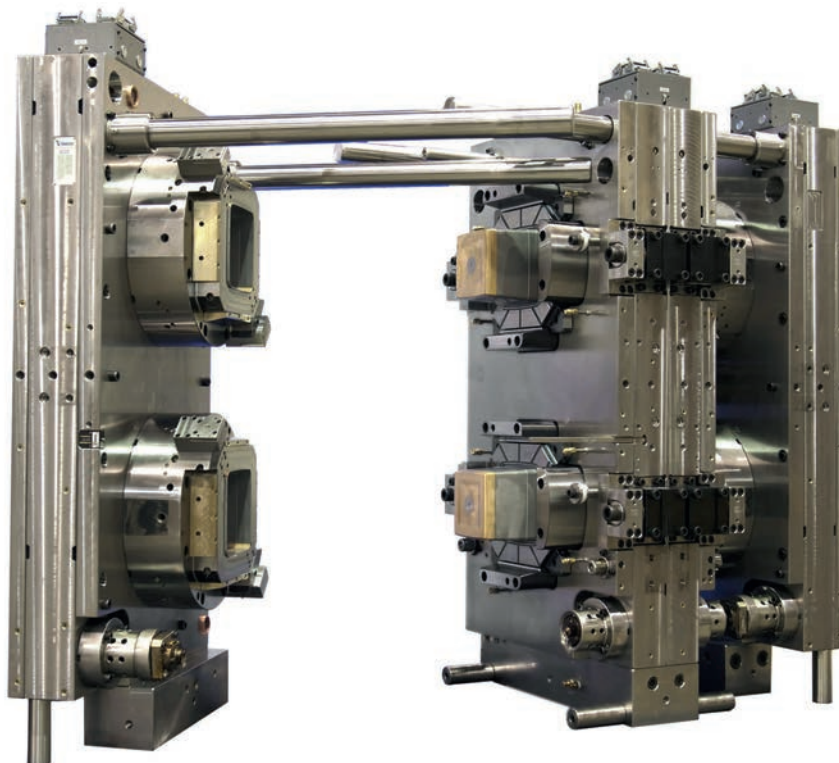
Flip-Top Molds

- ▣ Molds enable a hinge to be incorporated in the plastic part design
- ▣ Parts are typically molded in the open position and may be ejected "open" or in the "closed" position.
- ▣ Experience with a variety of flip-top closures with multi-point hinges, butterfly hinges and in-mold closing technologies

Thinwall Packaging



- ▶ Molding 2 pails and 2 handles simultaneously
- ▶ Handle injection from auxiliary injection unit
- ▶ Handle can snap easily to pail via down stream automation

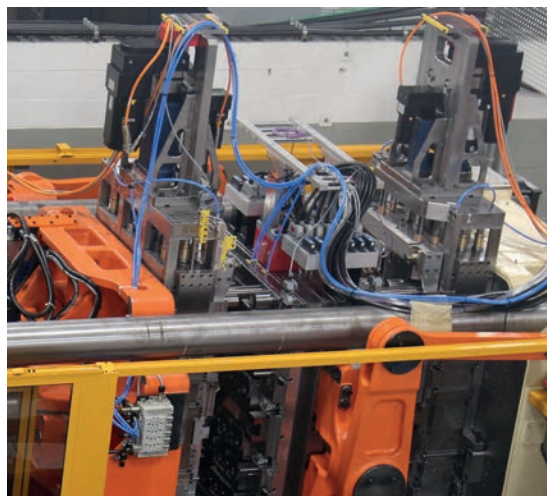


This 2x2 IML rectangular pail mold runs in a 600T injection molding machine.

Medical Molds

With over 5 decades of experience servicing the medical plastics industry, StackTeck has developed focused technologies to meet the unique demands of the industry. Whether the application requires extremely high volumes of production, or precision engineered features, the StackTeck team is ready to bring solutions to the table.

- ▣ Clean room environments – servo actuated mold actuations and greaseless mold designs
- ▣ Conformal cooling technologies for intricate part geometries
- ▣ Optical molding surface finishes
- ▣ Advanced productivity options including QPC and stack molds
- ▣ In house molding lab – mold qualification techniques including scientific molding methods

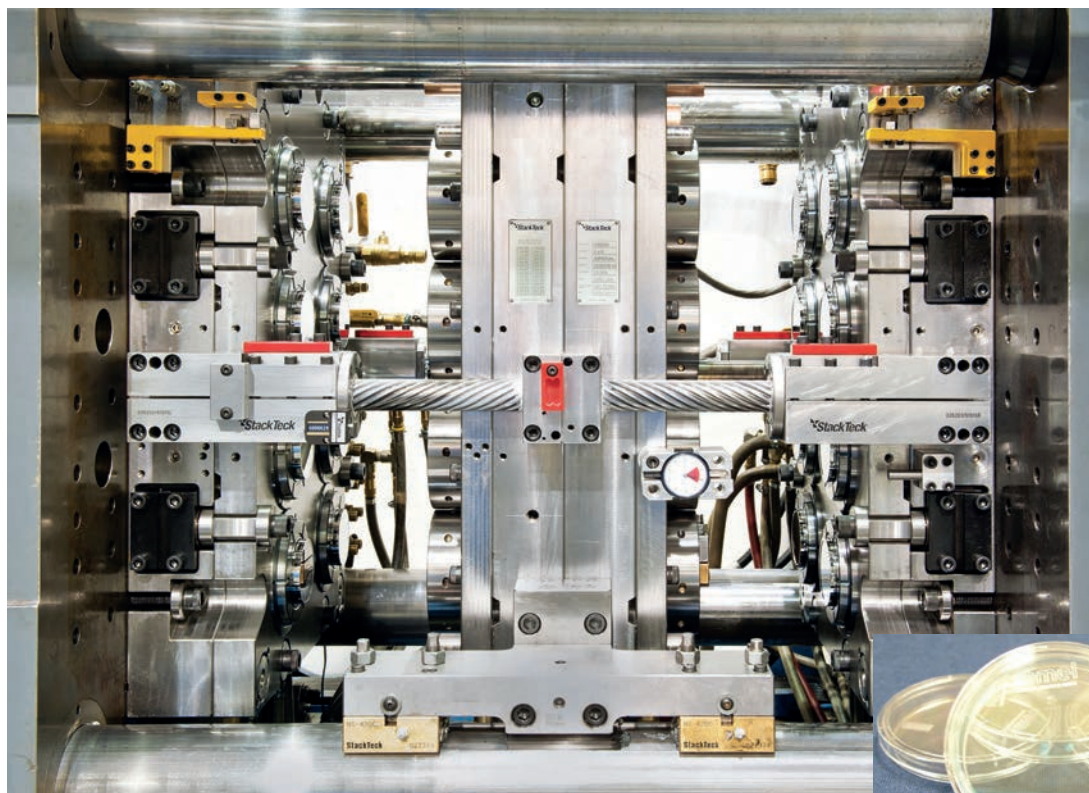


Servo Drives

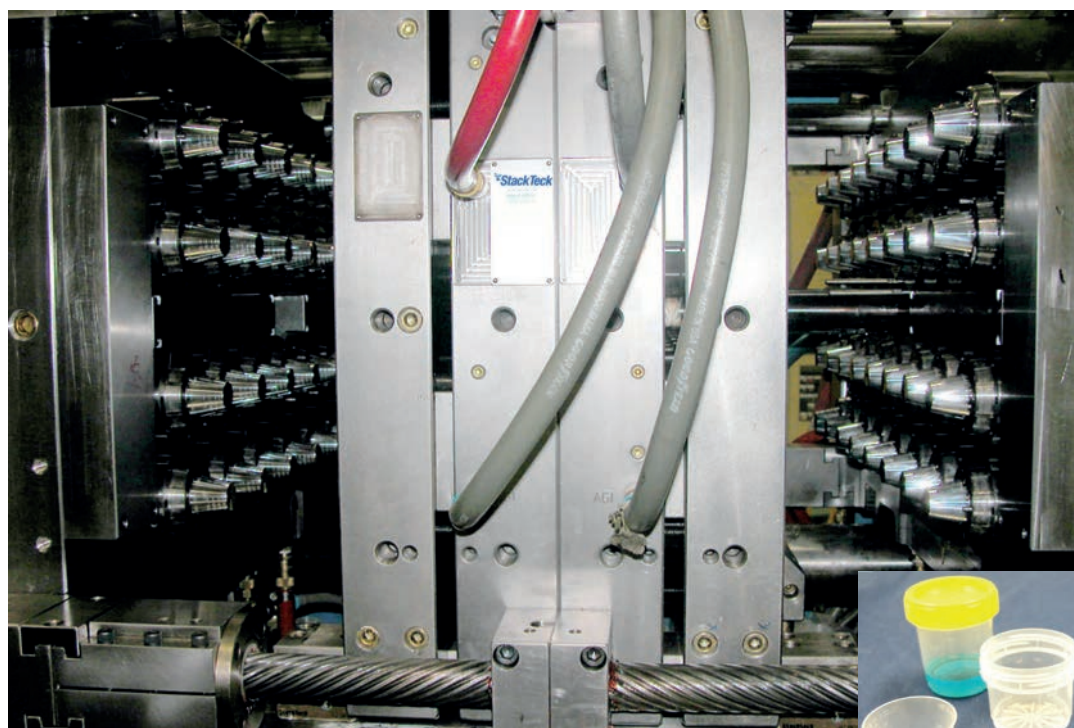
Stack mold with 4 integrated servo systems:

- ▣ 2 servos: In Mold Closing Actuation
- ▣ 2 servos: Ejection Actuation





2x8 Petri-dish Mold



2x32 Medicine Cup Mold



High Volume Medical Molds require high cavitation capability including thinwall features as well as specialty options such as optical polishing.

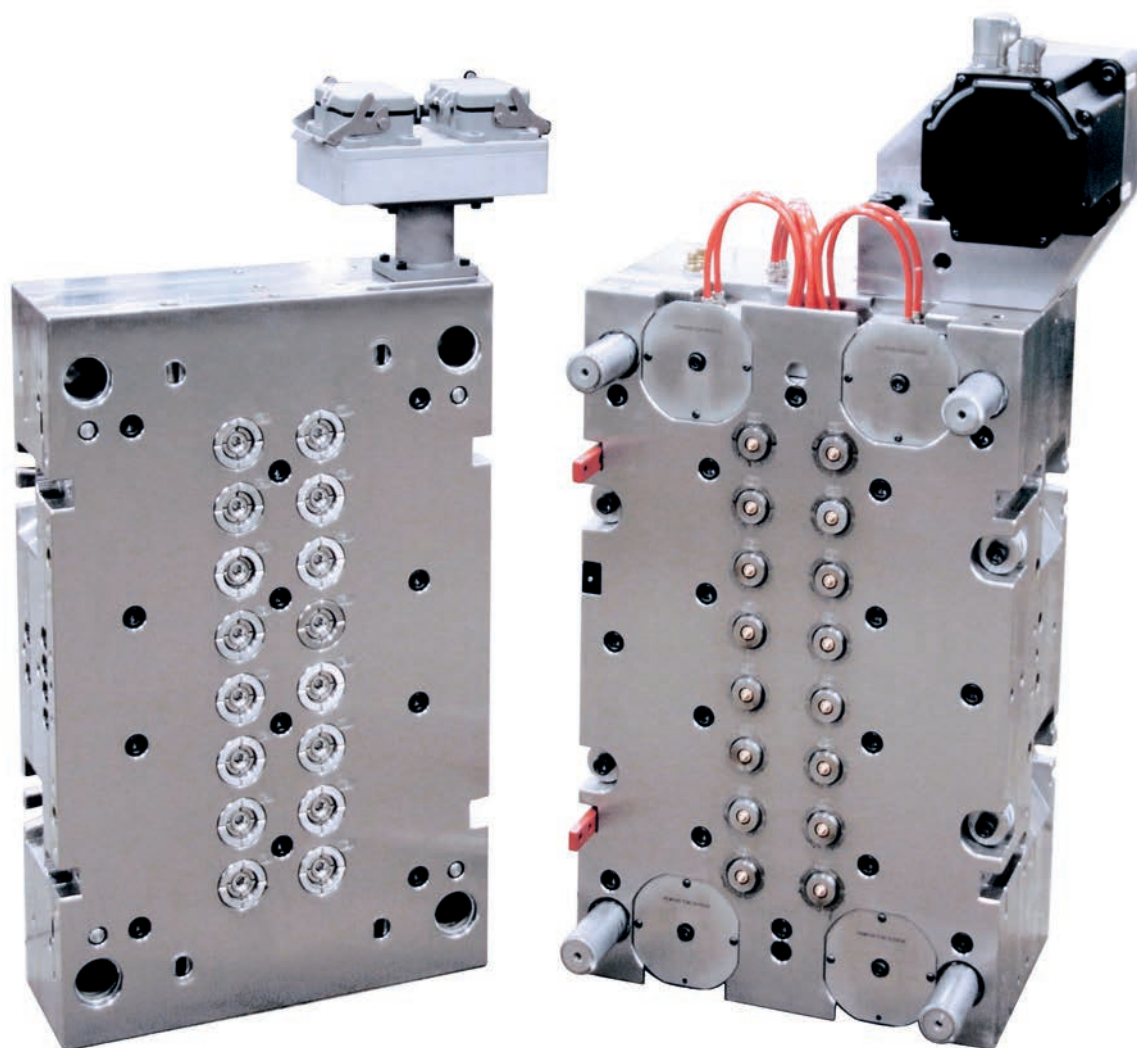
StackTeck has built a large number of medicine cup molds including a variety of cavitations which have fulfilled design features, performance and functionality requirements of the medical markets. Our specialty includes building medicine cup molds made from both polyolefins and polystyrene.

Servo Driven Systems

StackTeck has successfully developed and implemented servo drives for unscrewing and flip-top cap molds. This technology enables a more effective arrangement of mold drive shafts, belts and pulleys while incorporating a sealed drive system.

Servo Driven Technology features:

- ▣ Unscrewing drive system can be encapsulated for clean room molding
- ▣ Premium servo motor and controls componentry from a global leader
- ▣ Improved energy efficiency compared to hydraulic rack and pinion
- ▣ Mold maintenance requirements are significantly less
- ▣ Simple system with superior part ejection control and reduced cycles
- ▣ Unscrewing speed increased by 200%



1x16 Servo Unscrewing Mold for Clean Room Molding



Growing Initiatives:

StackTeck PREFORMS

PET

- ISO Hot Runner Technology
- KoolTrack™ Conformal Cooling
- PiCOOL™ Post Mold Cooling System

StackTeck AUTOMATION

StackTeck Automation

- IML Systems
- Take-out Systems
- Inspection
- Auto Box Loading



Our Beverage Packaging Origin

StackTeck and its parent company were well positioned to enter the PET industry in 2009. Utilizing unique hot runner technology for PET preform molds, StackTeck achieved rapid growth and earned the trust of their local customers. Today, StackTeck is a globally recognized company, offering complete PET preform mold packages up to 144 cavities, mold conversions and replacement components, mold repair and refurbishing services, and also integrate complete preform molding cells in cooperation with their industry partners.

StackTeck PET preform molds take advantage of innovative ISO hot runner technologies that reduce pressure drop, improve cavity to cavity balance, significantly reduce color changeover time, and generate lower AA levels than conventional designs, while virtually eliminating PET dust. The molds also utilize KoolTrack™ conformal cooling to improve productivity, and a patented post mold cooling technology called PiCOOL™ that speeds up cycle times and reduces piece part costs.

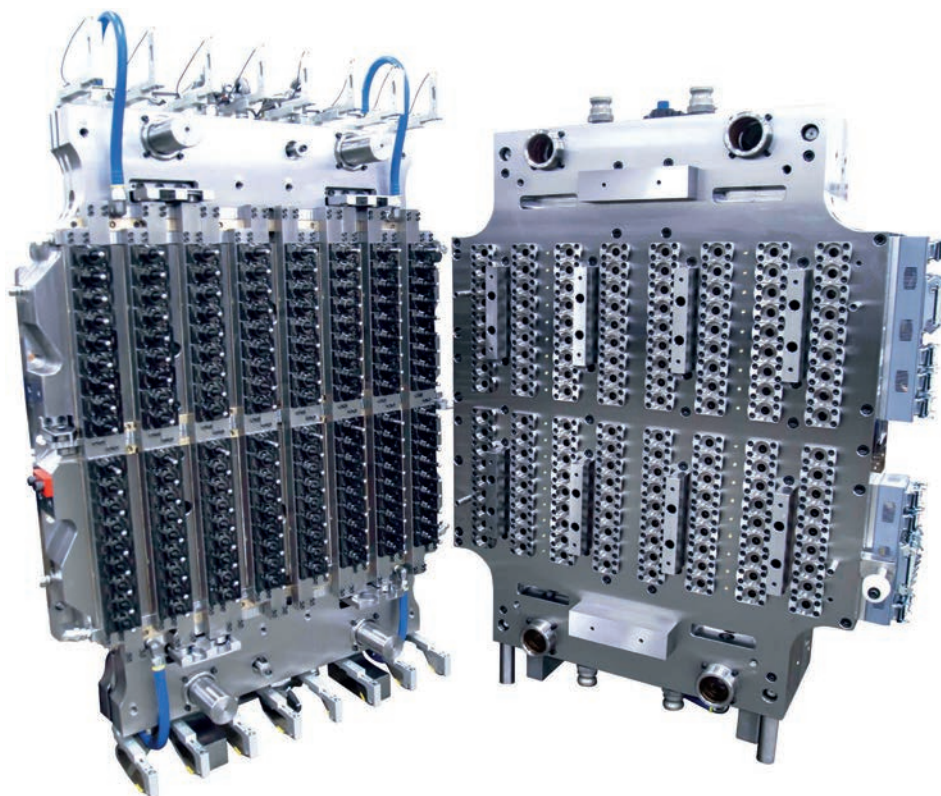
Examples of successfully delivered projects:

- ▣ High-cavitation 100% rPET preform molding system
- ▣ Family mold program for 13 preforms
- ▣ Drop-in hot runners for a wide range of cavitations
- ▣ Overmolding molds for barrier applications
- ▣ Mold conversions for multi-platform operations

PET Preform Molds

Our PET preform offerings are:

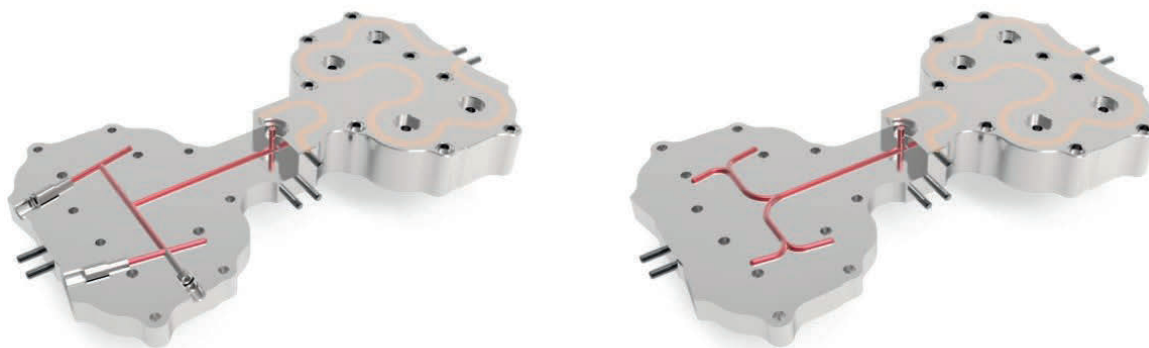
- ▣ PET preform development services
- ▣ PET molds ranging from 2 to 144 Cavities
- ▣ Standard and customized mold frames & pitch layouts available to accommodate a variety of leading platforms
- ▣ Top or side entry machine configurations and automation compatibility



PET Innovation: ISO* Technology

ISO* represents a 3-dimensional isometric projection of an object. It is an effective way to envision a network of melt channels distributed throughout a hot runner. By way of using a special diffusion bonding technology to manufacture the hot runner manifolds, it allows engineers to be creative when balancing the melt flow paths to each cavity.

Diffusion bonding offers more design freedom to geometrically balance melt flow to each cavity and minimizes pressure drop throughout the channel layout. StackTeck has used this technical capability to design higher cavitation molds up to 180 cavities and can offer other cavitations to suit project needs.



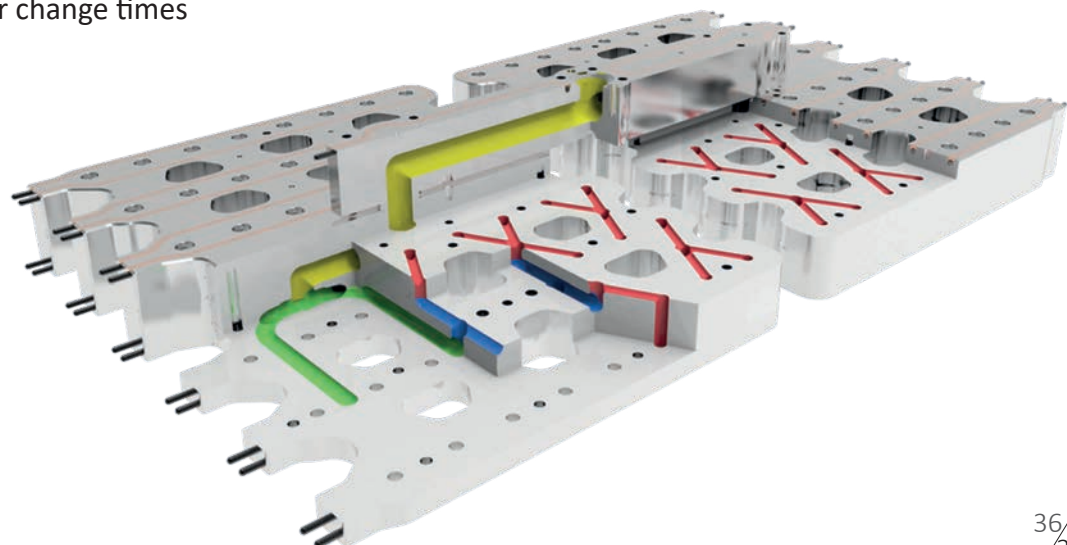
Manifold comparison: Conventional gun-drilled (left) vs. ISO* Diffusion bonded (right)

**ISO is a trademark of YUDO. StackTeck preform molds are supplied exclusively with YUDO hot runners.*

Images provided courtesy of YUDO.

Manifolds using the ISO* diffusion bonding technology result in:

- Reduced injection pressure and reduced fill time
- Reduced melt degradation (AA levels, PET)
- Reduced resin flow stress of shear sensitive materials
- Improved hot runner balance for uniform part quality
- Improved color change times



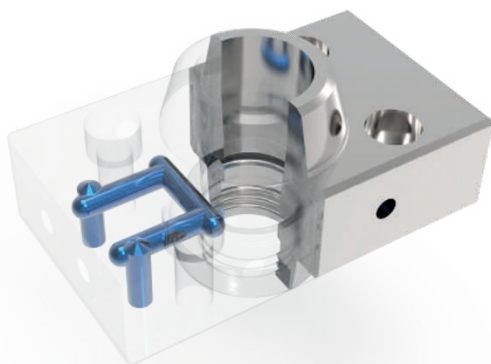


PET Innovation: KoolTrack™

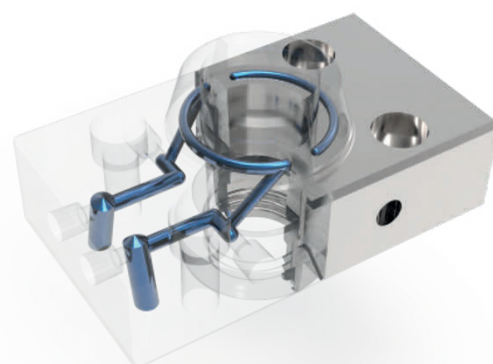
Another advanced technology that we have used in our PET preform molds is our diffusion bonded KoolTrack™ conformal water cooling circuitry.

Below is a comparison of a conventional drilled neck insert (left) and a neck insert with our KoolTrack™ technology applied (right). It illustrates how the water circuit can be designed to reach difficult areas resulting in reduced cooling / cycle times and improved molded part geometry thanks to the diffusion bonding manufacturing process. KoolTrack™ has delivered good success with custom preform shapes and preforms with thick sections.

- ▣ Faster cycle times
- ▣ Improved molded part geometry



Conventional



KoolTrack™

KoolTrack



PET Innovation: PiCOOL™

StackTeck's patented PiCOOL™ technology has been engineered to enhance the productivity of PET preform molding. To produce this effect, we developed a nozzle that would force the air in a spiral stream inside the preform, kind of like a cyclone. Unique geometries in PiCOOL™ create spiral air flow streams, resulting in turbulent and uniform cooling along the entire interior surface of the preform. Engineering design and modeling expertise have been combined with practical research and extensive production testing resulting in a new standard for post-mold cooling of preforms.

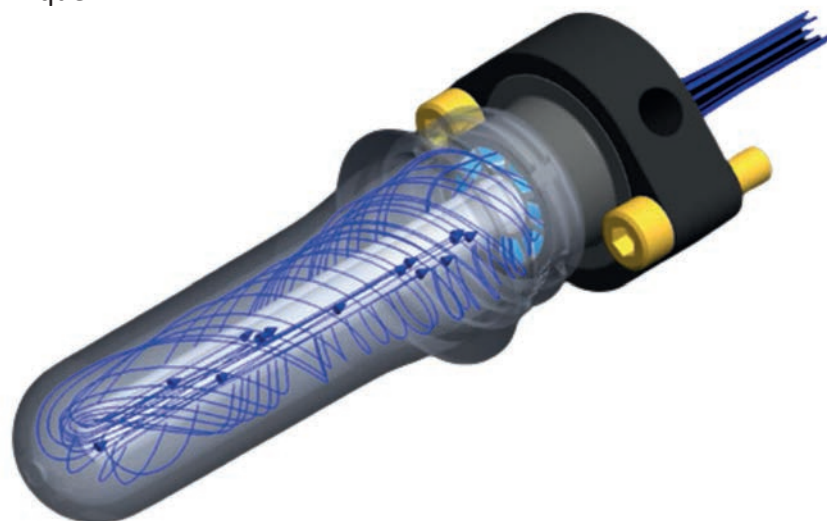
StackTeck's PiCOOL™ patent was granted in 2018.



The key benefits of PiCOOL™ are:

- ▣ Cycle time reduction of 5-15%
- ▣ Shorter cooling time and/or significantly reduced preform exit temperature
- ▣ Improved preform quality

The illustration below, shows how the air stream circulates through the nozzle, up into the preform in a spiral direction, then exits through the center tube. The cyclone characteristics of this technology better explain the cooling technique.



PiCOOL™ - Unique method to direct a spiral air stream on the interior surface of a preform

StackTeck Automation

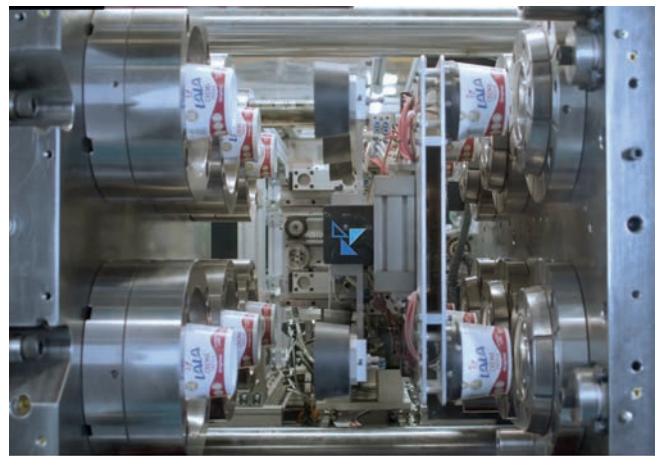
One stop shop for integrated mold and automation solutions

- ▀ Culture of collaboration
- ▀ Turnkey approach
- ▀ Industry leading knowledge of packaging and medical applications
- ▀ Designed and manufactured in North America

Product Lines - Pre Engineered Modules

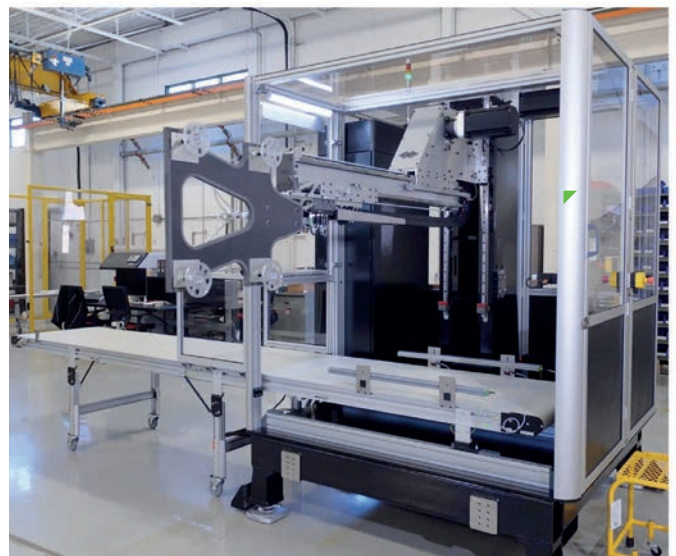
In Mold Labeling Systems

- ▀ Visually appealing, sustainable packaging
- ▀ Solution for containers and lids
- ▀ Single face and stack mold options
- ▀ Multi-label applications



High Speed Take Out Systems

- ▀ Fully integrated to mold ejection systems
- ▀ Ultra fast cycle times
- ▀ Options for convertability to stack molds and/ or IML



Integrated Product Handling and Inspection Systems

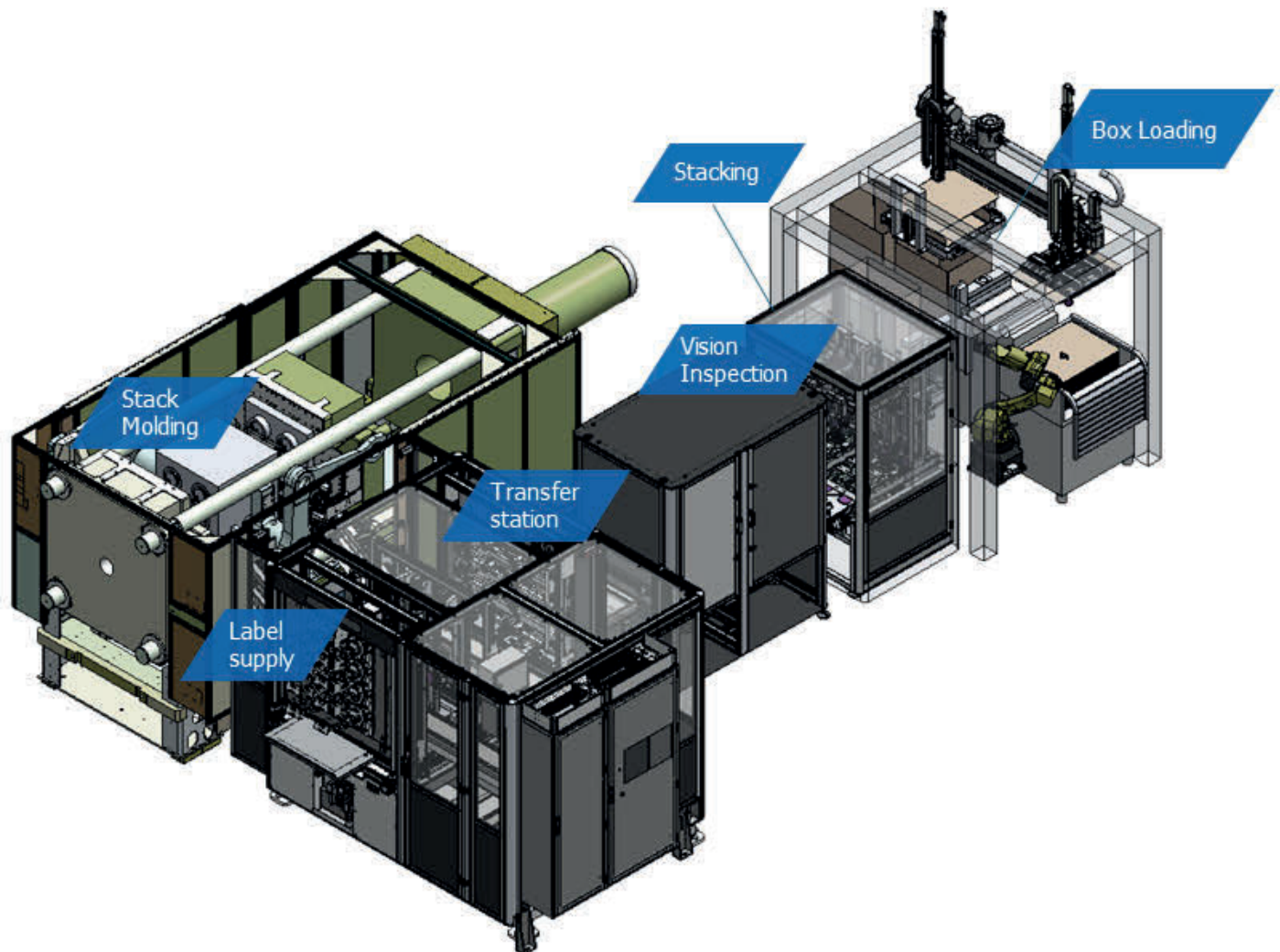
- ▀ Free standing servo stackers
- ▀ Part orientation technology
- ▀ Case packing and tray loading
- ▀ Vision inspection
- ▀ Automated box loading



Integrated Automation Solutions

Technology features

- Standardized platforms with modular components
- Optional features for Quick Product Change (QPC)
- Mold centric automation features
- Best in class industrial components
- Fully integrated turnkey approach



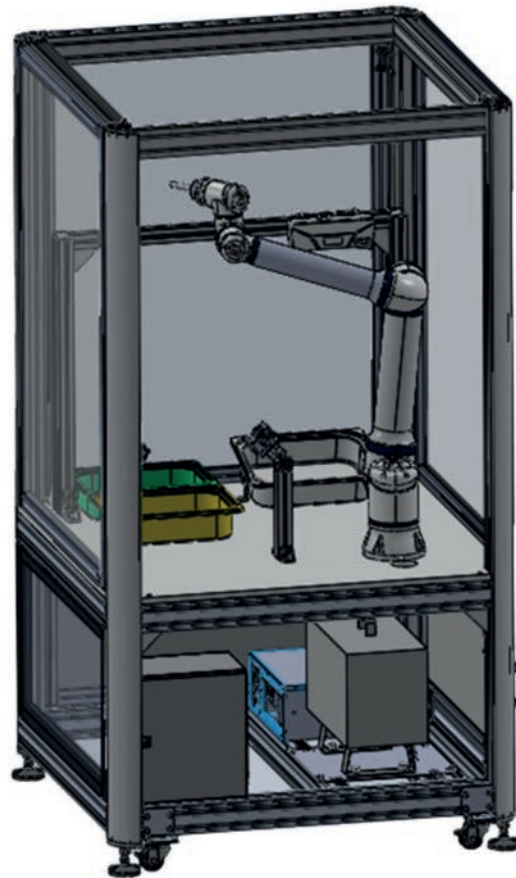
Services

- Prototype and pilot development
- Turnkey engineering
- Production cell development - proof of production
- Test market sampling runs

Advanced Automation Technologies

- ✔ Complete engineered solutions
- ✔ Integrated quality control systems
- ✔ High speed vision technology
- ✔ Automated assembly for multiple parts
- ✔ In-line or off-line from molding cell

StackTeck has accumulated experience of productivity improvement in the molding process for over 50 years developing new solutions by working and cooperating closely with our customers.



**In-Mold Decorating Association (IMDA) awards received five times.
StackTeck is a charter member of the IMDA.**

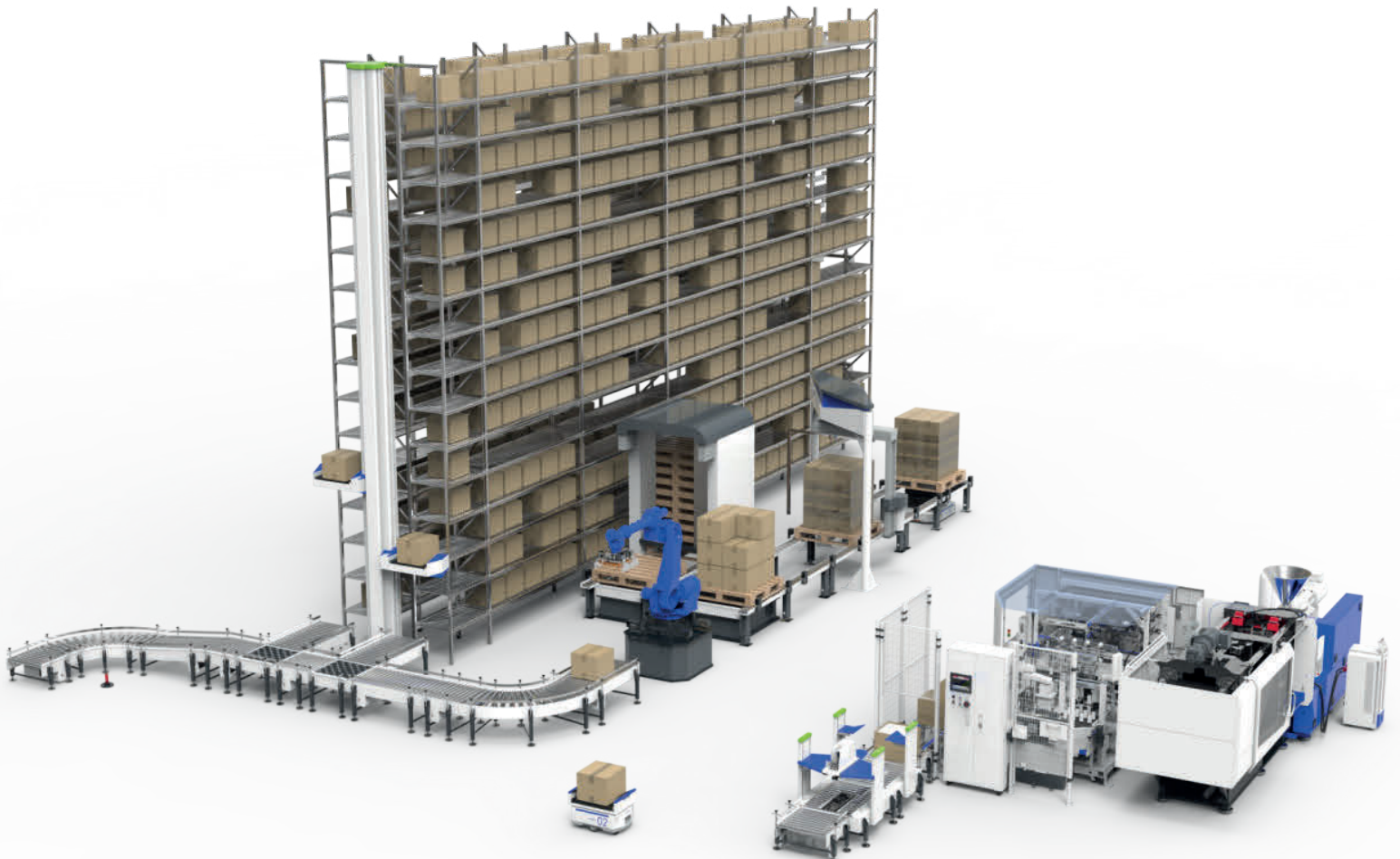




Smart Factory Solutions

Automating beyond standard modules including work cell automation all the way through the factory. StackTeck works with industry leaders in logistics and handling solutions.

- ▶ Injection molding automation - optimized production systems
- ▶ Inspection automation - stable continuous production
- ▶ Integrated logistics process - reliable quality control



A person wearing a plaid shirt and safety glasses is shown in profile, looking towards a complex industrial machine in a factory or laboratory setting. The scene is dimly lit with a blue tint. The text "Services: Development to Turnkey" is overlaid in white on the lower half of the image.

Services: Development to Turnkey

A man with a beard and safety glasses, wearing a dark shirt, is seen from the side, looking at a control panel. The panel features several monitors displaying data and graphs. The background shows a complex industrial or laboratory environment with various pipes, cables, and equipment. The overall lighting is dim, with some bright spots from the monitors and overhead lights.

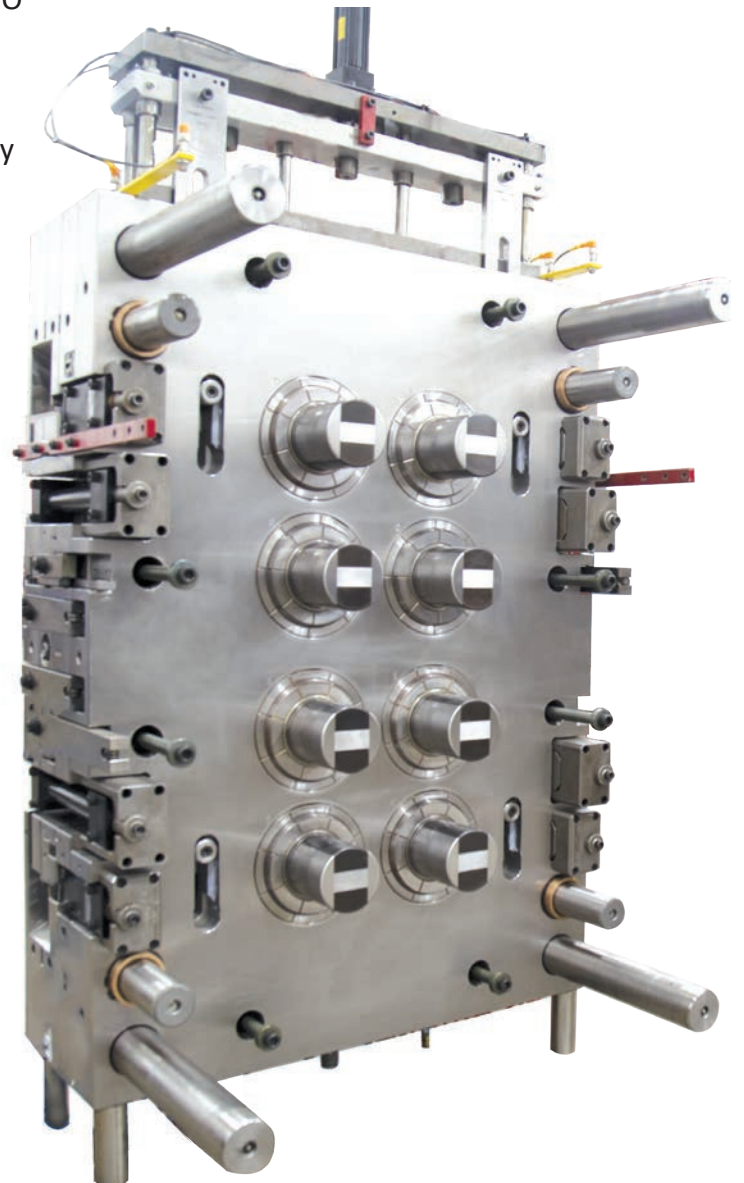
Global Partner in Product Development
TeckCenter, Technical Services Facility
Service & Solutions

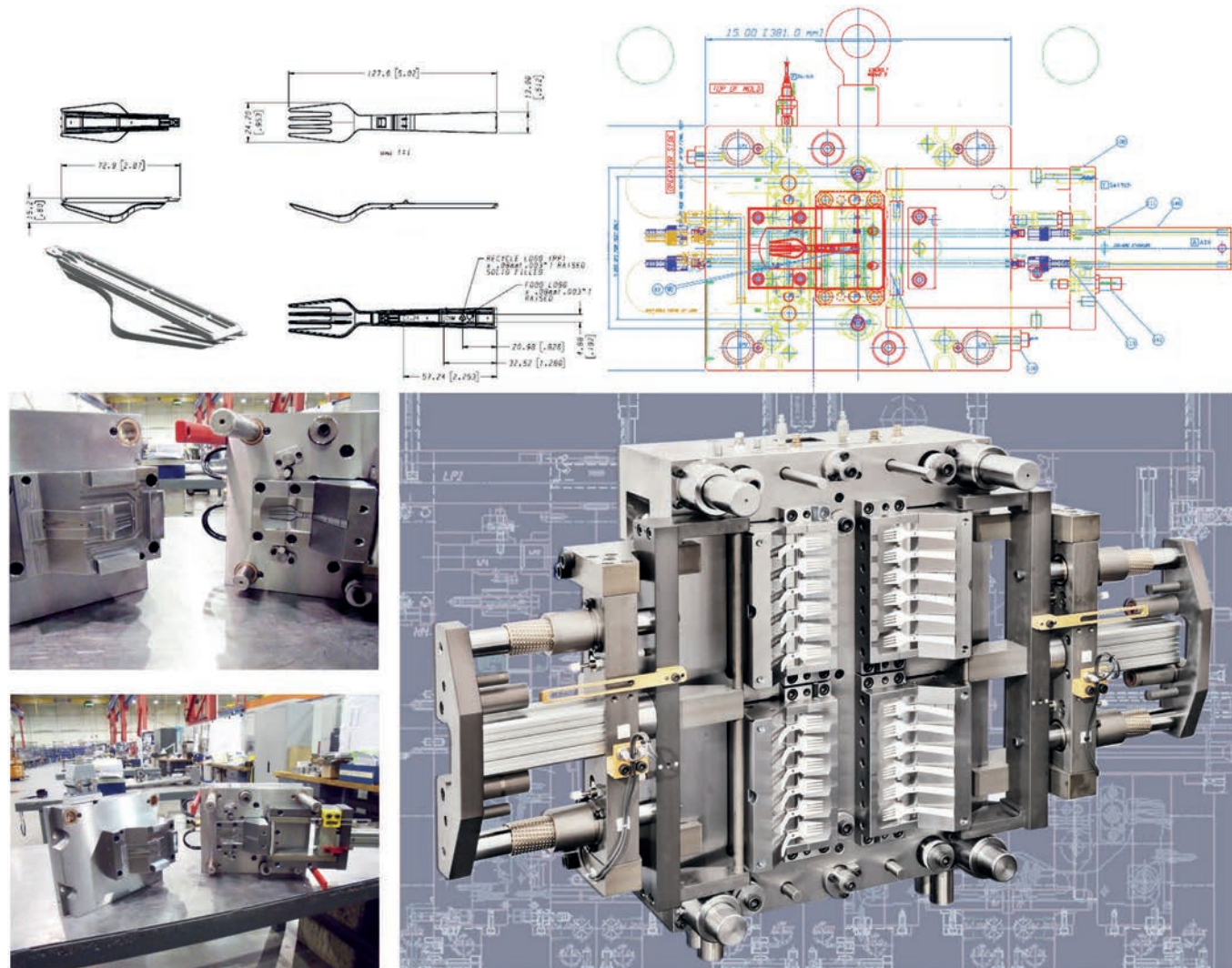
Global Partner in Product Development

StackTeck partners with our customers to bring new and innovative approaches to product designs and molding processes. With a culture of collaboration, StackTeck integrates advanced tooling and automation solutions with customer part needs to not only improve functionality of parts but also optimize productivity. In many cases, StackTeck technology facilitates the development of new and advanced production systems that are disruptive to existing methodologies, resulting in high productivity, part performance, and quality. For over five decades, bringing innovation to market has been the hallmark of StackTeck engineering.

Regarding the innovative approach of using 5 piece collapsing core technology to spearhead the redesign a 2-piece paint pail to a 1-piece design, Darren Scholl, COO of KW Container commented:

“By molding the can in one piece, we are producing a better part with reduced costs in floor space and energy and there is a carbon footprint reduction. Because the process of bonding two parts has been eliminated, the overall production yield has improved as well.”





StackTeck has built a reputation for managing large global OEM mold programs for caps and closures, food and dairy, medical, housewares, personal care and cosmetics.

Our experience in advanced part design and high performance molding brings considerable advantages to large OEM programs from early concept development to multiple system start-up. StackTeck's capacity can handle large global programs that include 10+ high cavitation production molds.

As a single source product development partner, we provide early guidance to select the most productive molding technologies for the application, and work with your team to achieve the lightest, strongest part design with the lowest cost and the fastest cycle.

- ▀ Complete Design Services
- ▀ Engineering Services
- ▀ Prototype and Pilot Molds
- ▀ Capacity Testing and Installation
- ▀ Pre-Launch Sampling Runs

Services: Development to Turnkey

TeckCenter

With over 3000 sq meters of dedicated floor space, including 12 integration bays and 9 injection molding machines ranging from 100 to 750 tons, StackTeck provides focused resources and expertise in both product / process development and mold qualifications.

TeckCenter Services:

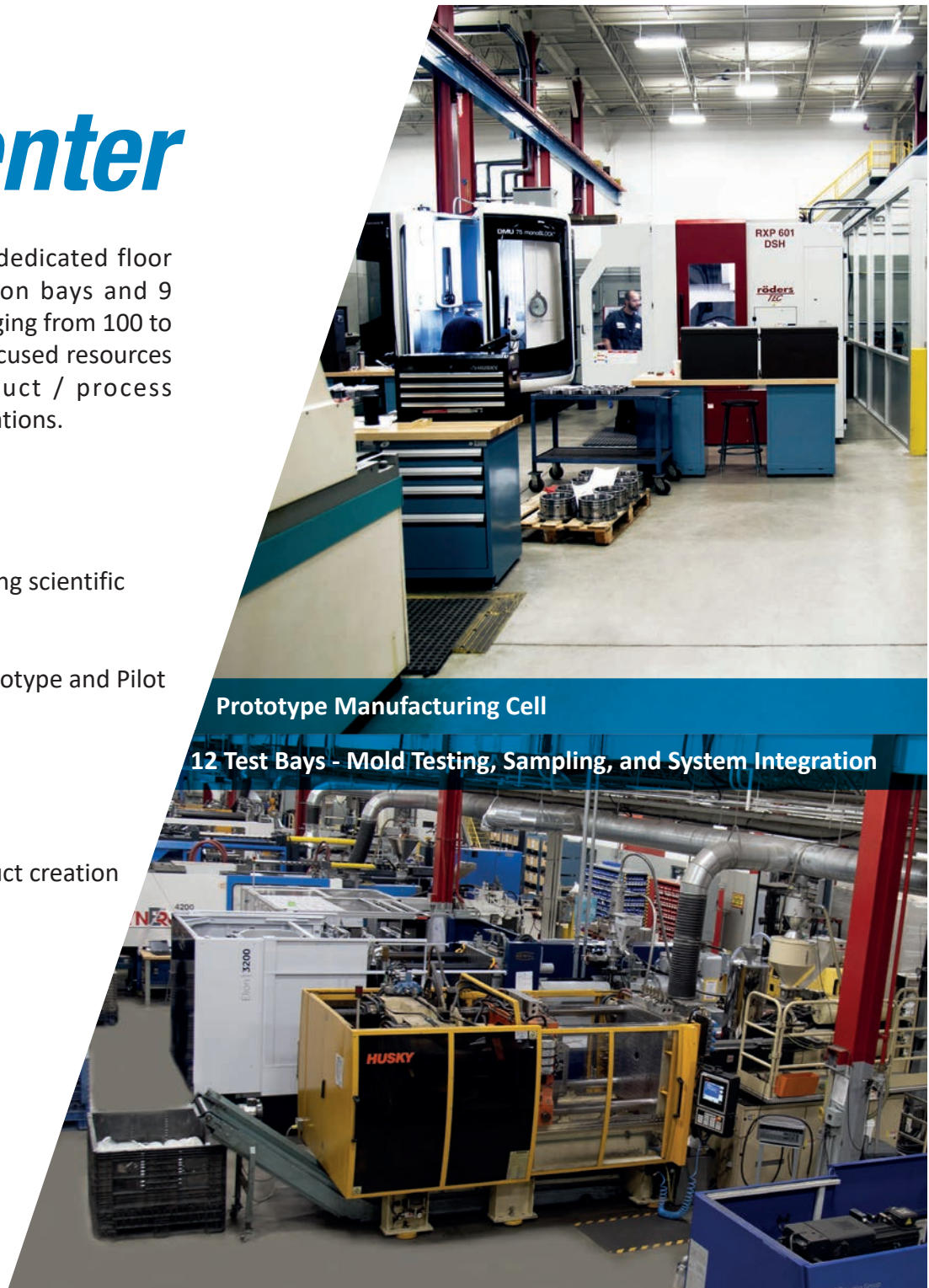
- ▣ Mold qualification
- ▣ Process development - including scientific molding techniques
- ▣ Turnkey systems integration
- ▣ Premarket development - Prototype and Pilot
- ▣ Training programs

TeckCenter R&D Services:

- ▣ IML Pilot Cell – new IML product creation
- ▣ PET Development Cell
- ▣ iMFLUX Center of Excellence
- ▣ Resin testing – including PCR

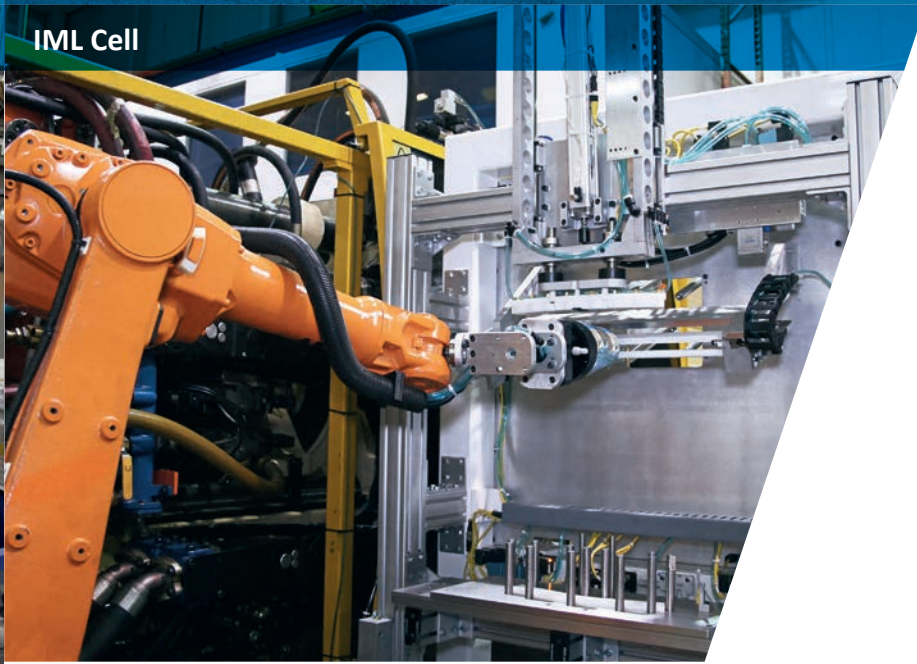
Prototype Manufacturing Cell

12 Test Bays - Mold Testing, Sampling, and System Integration





TeckCenter



IML Cell

IML Pilot Cell

- ▶ Permanent installation for customers on an ongoing basis
- ▶ Minimizes the cost of prototyping IML parts
- ▶ Only requires molding surface components & end of arm tooling

StackTeck Services

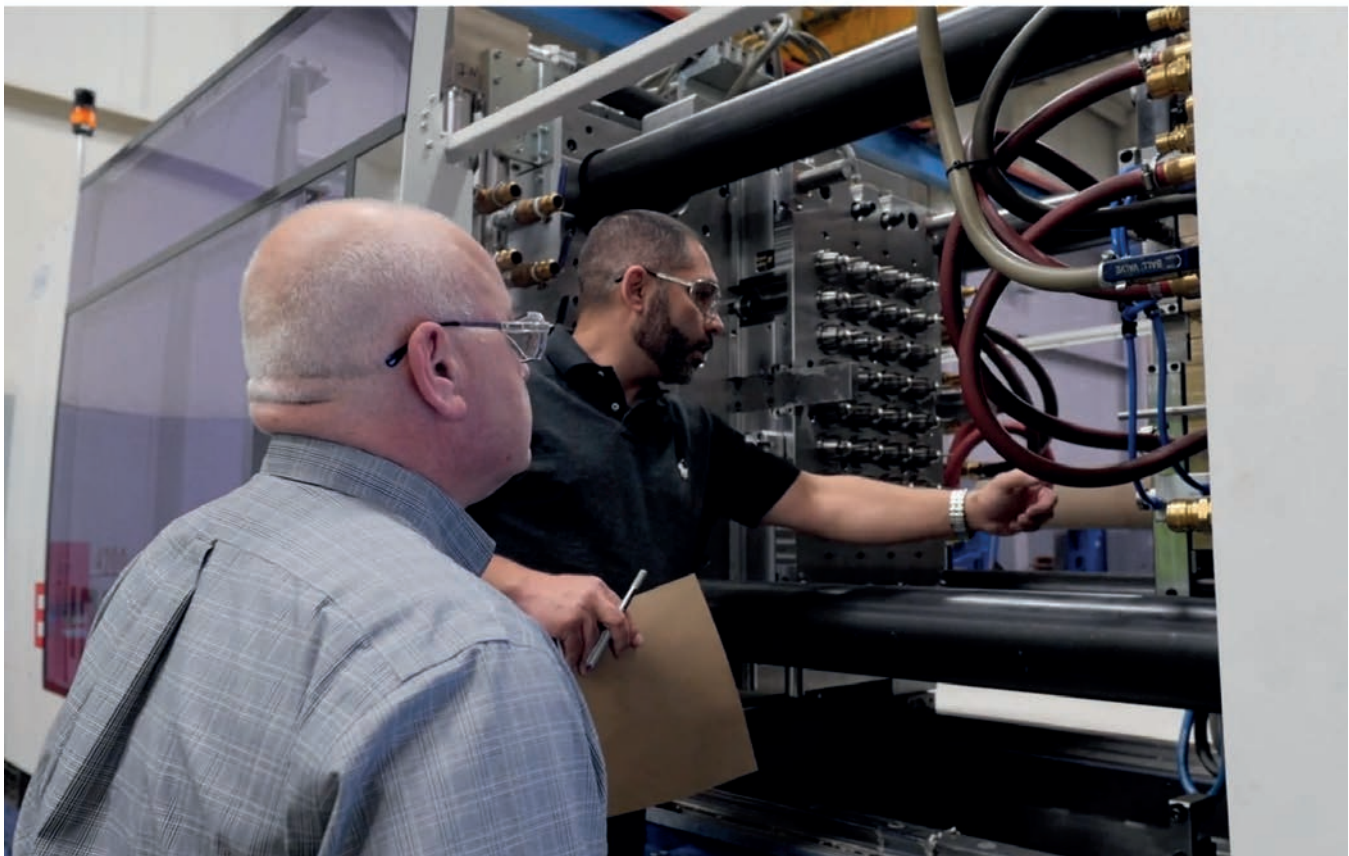
Mold Care and Restoration

A very important aspect in maintaining high levels of productivity is through the care and maintenance of the high technology, high value asset used in the molding process: the Injection Mold. StackTeck's dedicated team of Mold Care Experts partner with our customers to provide a wide range of services to optimize production and extend the useful life of their injection molds.

- ▣ Dedicated team of restoration specialists
- ▣ Purpose built facility to facilitate mold care and restoration services
- ▣ Minor repairs to full mold restoration
- ▣ Over 50 years of focused experience: molds designed for longevity and ease of maintenance

Mold Maintenance:

- ▣ Consultation: Preventative maintenance programs
- ▣ Establish Daily, weekly, monthly, maintenance activities
- ▣ Dedicated repair team and machinery to support incoming repairs
- ▣ Personalized attention to detail



Restoration Services:

- ▣ Collaborative planning – proactive support for full mold restorations
- ▣ Full audit capabilities on customer site – scope out restoration requirements, timelines, and new parts needs
- ▣ Full restoration of molds to original engineering specifications
- ▣ Incorporate new and advanced technologies where applicable
- ▣ Mold testing and requalification at StackTeck



Training:

- ▣ Formal training services for customers - maintenance and processing technicians
- ▣ Training facilitated at customer site and / or StackTeck Teck Center

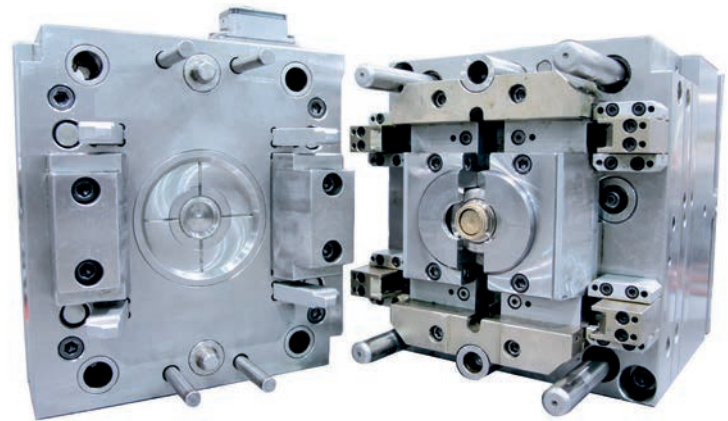
Spare Parts:

- ▣ Dedicated sales support for service parts
- ▣ Wide range of off-the-shelf standard parts for immediate delivery
- ▣ Custom made-to-order replacement parts



Services & Solutions

With industry leading capacity and innovation, StackTeck offers significant industry experience as a product development partner as well as a key support for new product launches.

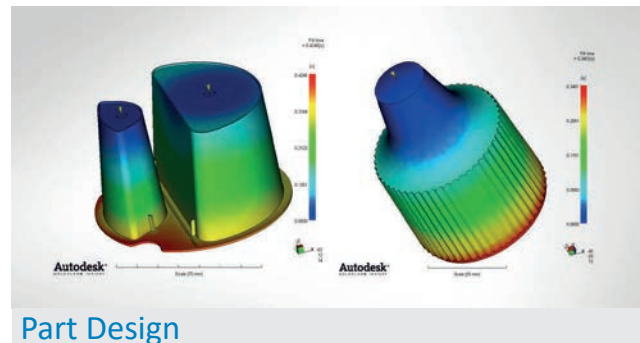


Part Design and Prototyping



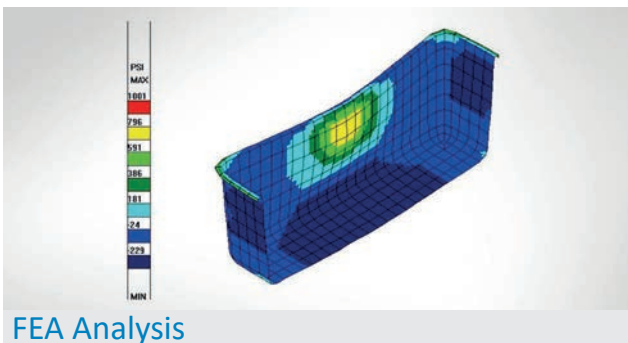
Part Design

For moldability, functionality and package performance



Part Design

Optimal CAE analysis



FEA Analysis

Measures part deflection, stiffness, lateral loading, and compressive strength

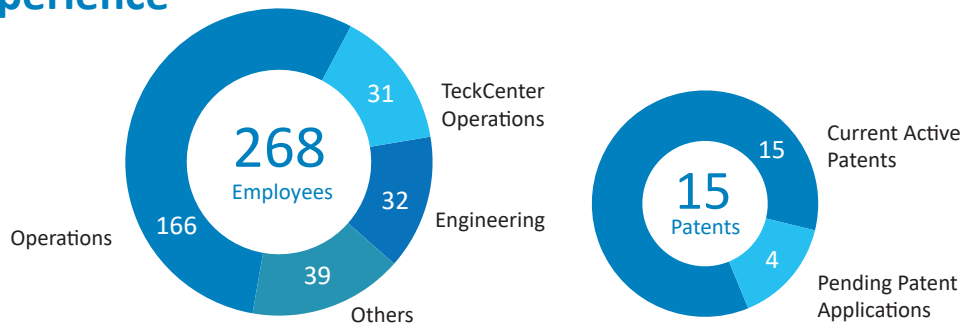


Prototyping

Achieve high quality and well-defined part samples



A high proportion of our engineering team members have **20+ years experience**



System Integration

Implemented through partnerships with industry leaders and best in class equipment suppliers.



Service and Training

Field service and technical training.

Global Network



-  Engineering & Manufacturing
-  Service & Sales
-  Customer
-  Service Partner

StackTeck Systems, HQ

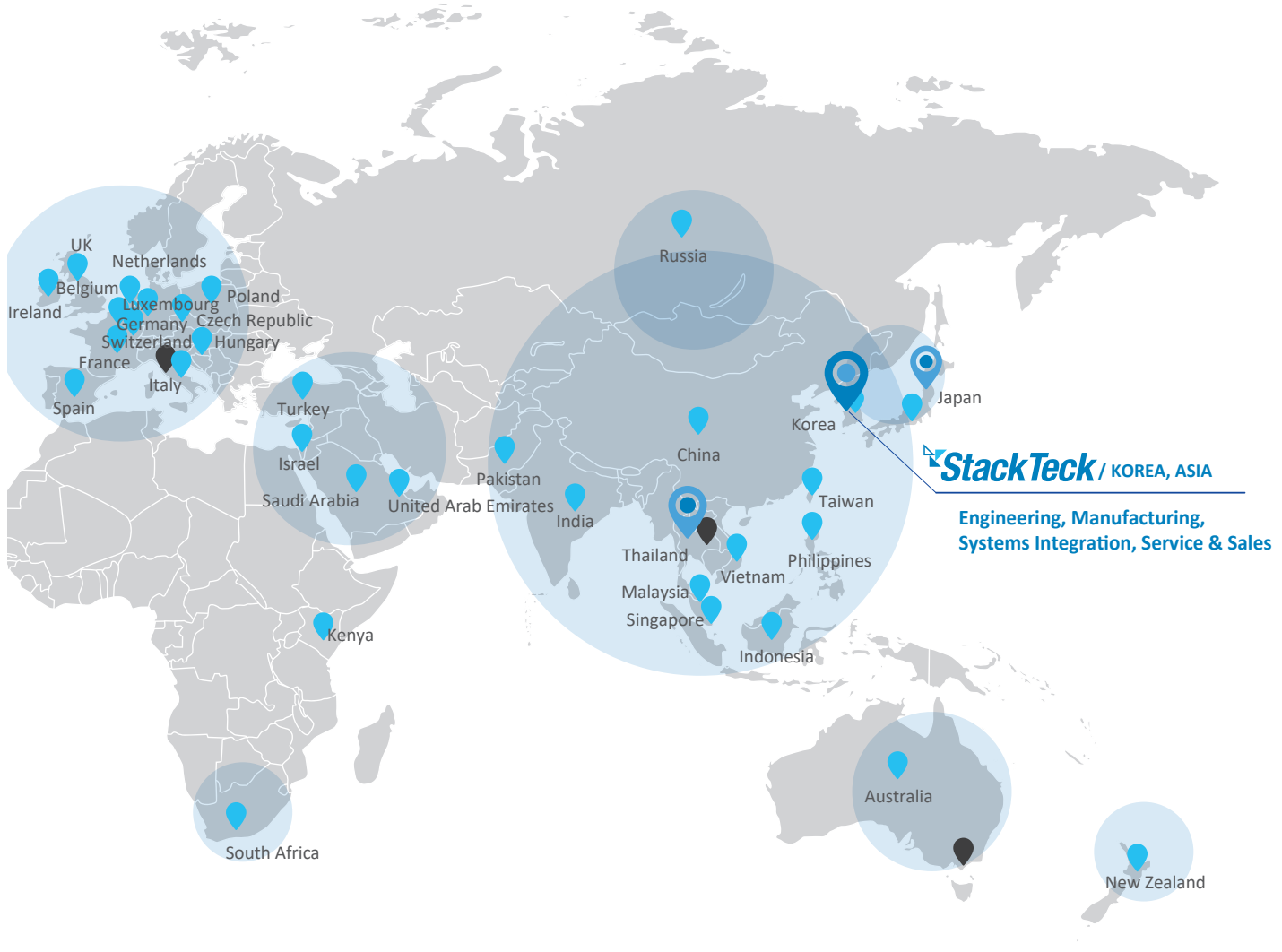
Brampton, Ontario, Canada

Site area
Mold Making, Engineering, Training
10,000m²

Technical Services Center
Systems Integration & Training
3,000m²

StackTeck Automation facility is located in
Concord, Ontario, Canada.





StackTeck Asia

Hwaseong-si, Gyeonggi-do, Republic of Korea

Site area

Mold Making, Engineering, Service
5,062m²

Technical Services Center

Mold Testing & Sampling
2,666m²





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