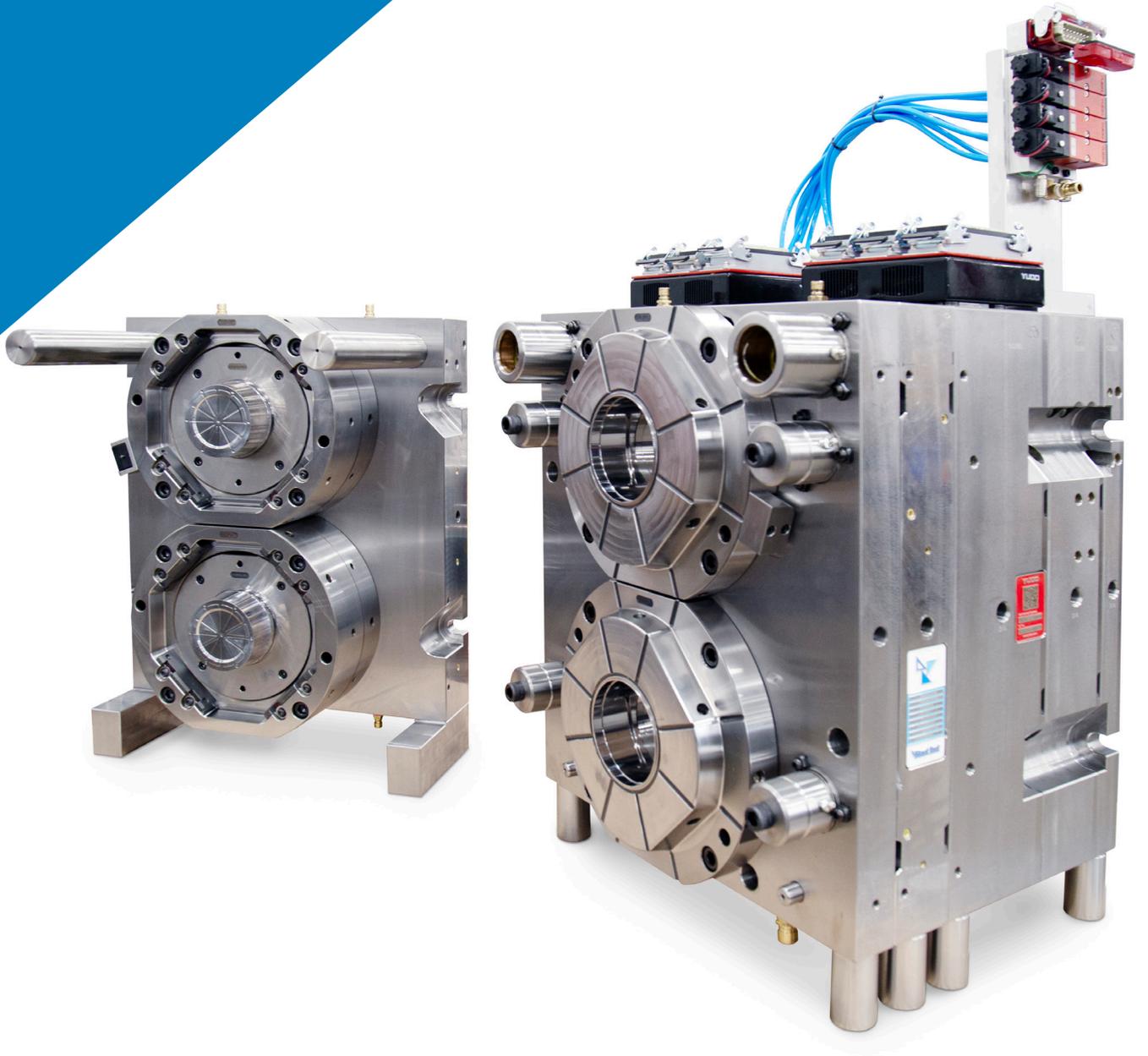


# Injection Molds, Automation, and Integrated Systems.



 **StackTeck**  
*Going Beyond*

# PACKAGING

# MEDICAL

# PREFORMS

# AUTOMATION

# RESTORATION

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## 50+ Years of StackTeck Experience

- Technologies for Sustainable Development
  - Innovation
  - StackTeck Packaging
  - StackTeck Medical
  - Growing Initiatives: PET & Automation
  - Services
- PET preform mold making, since 2009
  - IML system integrations, since 2005
  - Thinwall packaging mold making, since 1976
  - Cap and closure mold making, since 1969



On the cover: This mold has been used for both TRIM and uniform wall ultra-thin PET containers. This 2 cavity development mold uses multi-gating 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. Yudo's hot runner technology and PET experience were significant enablers in achieving sequential valve gate success.



# Welcome to **StackTeck** Going Beyond

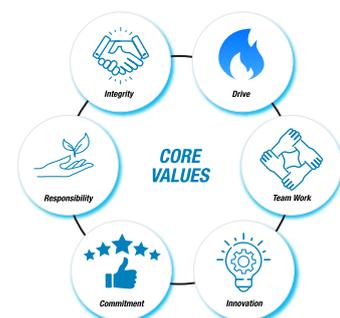


## Going Beyond ...

"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."

"I am confident that StackTeck's product development efforts are strategically aligned with our customers' and the market's future direction. Our continued investment in manufacturing readiness positions us well to support our customers in delivering multi-mold programs and meeting product launch commitments. Together, we have built a strong foundation, and together, we will continue to evolve, solve complex challenges, and create sustainable value for our customers, partners, and the industry we serve."

Michael Gould,  
President and CEO



# History

since 1969



1991 – World’s first 4 level stack mold

1998 – World’s first 3-level stack mold

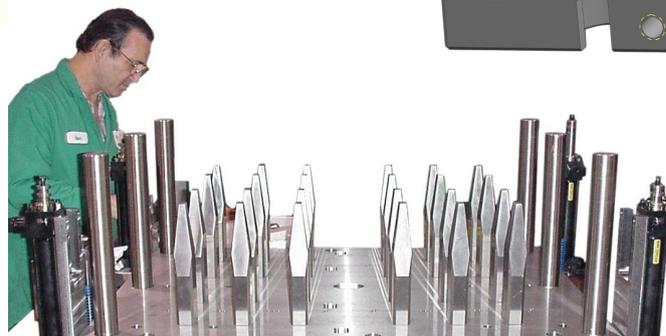
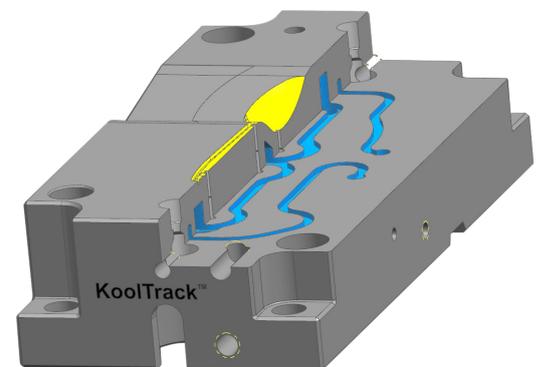
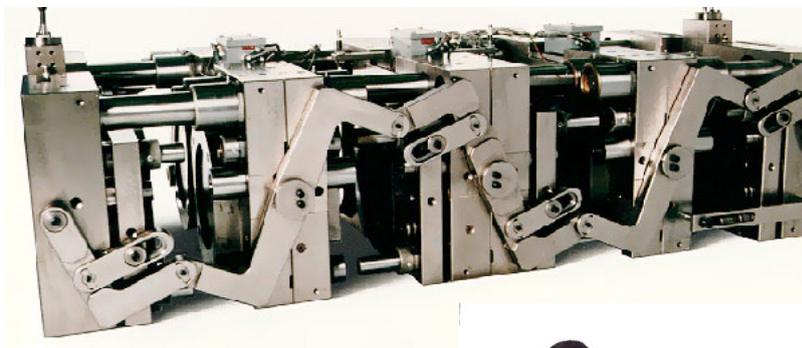
1999 - World’s first 5 piece collapsing core mold

2002 – First turnkey IML system in North America

2006 - StackTeck becomes an RJG Certified Mold Builder

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 – Globalization of PET initiative. Launched 144 cavity mold in Japan and PET mold production in Canada

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)

2024 - First ultra-thin PET container mold exhibited at NPE2024



# Plastics for Sustainable Development

Helping Customers Reach their Circular Economy Goals

## Increased Recycled Content

Recycled PP and RPET  
RJG's iMFLUX



## Design For Reusability

QPC = Quick Product Change  
FastTrack™ = Mold Standardization



RECYCLE

REUSE

CON

## Bio-Degradable Solutions

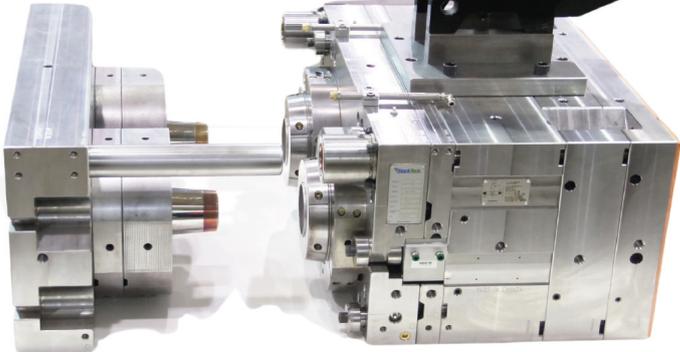
PLA Cutlery  
New Hot Runner Developments



Technologies for Susta

**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):

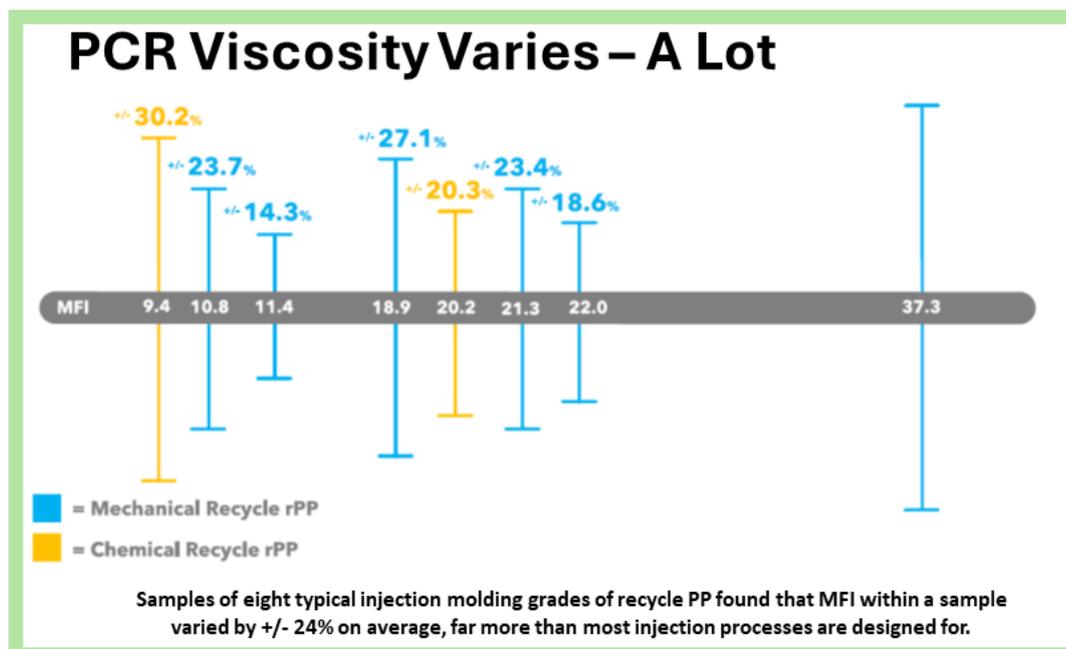
- High degree of variability in Melt Flow Index (MFI) => Injection molding process control (iMFLUX\*)
- Increased demands on balance and precision => Injection mold custom features
- Contaminants and impurities => Injection mold design for wear and cleaning
- Process and quality monitoring requirement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



Post Consumer Recycle (PCR)



Virgin Polypropylene



\*Notes:

- iMFLUX and AVA are registered trademarks of Procter & Gamble. iMFLUX images above are courtesy of P&G.
- RJG is the exclusive supplier of iMFLUX hardware and software.

# 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 RJG's 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 RJG's iMFLUX process to control the injection molding process for PCR projects that bring associated material viscosity challenges. We also work with 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 RJG's 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 RJG's iMFLUX Control Screen (at top 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

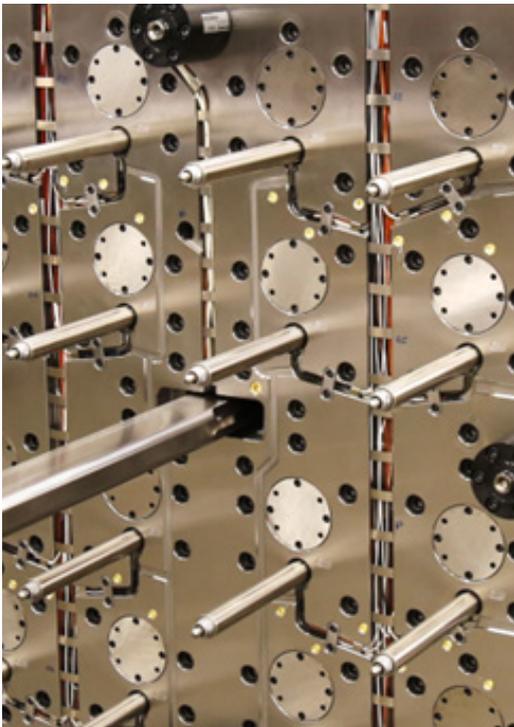
# Molds and Hot Runners for PCR

## 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.: RJG's 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**
  - ✔ Process control for PCR Resins (RGJ's iMFLUX AVA)
  - ✔ 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

## 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.

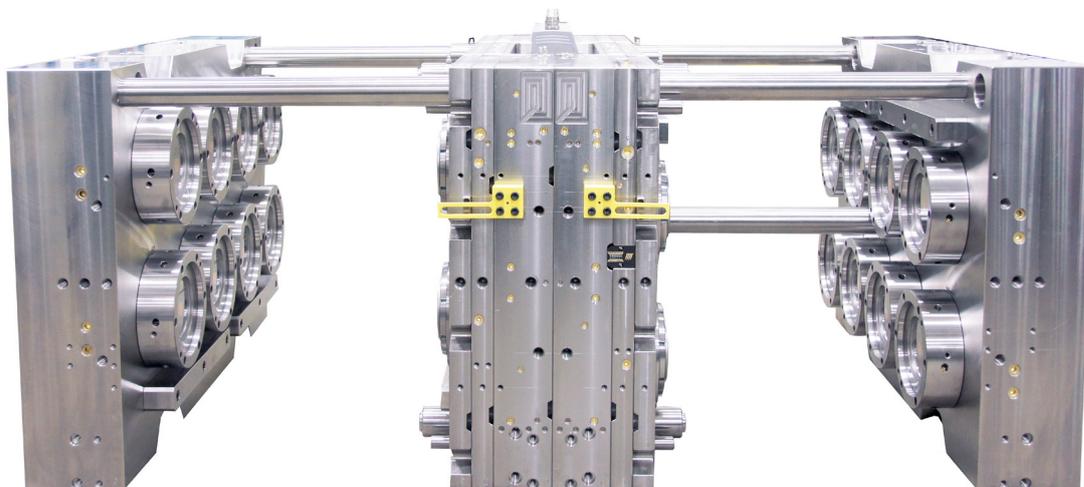
StackTeck provides stack molds in 2, 3 and 4 level configurations based on part designs and volume requirements. Molds can also be designed for future conversion to add more levels as volumes increase.

### 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

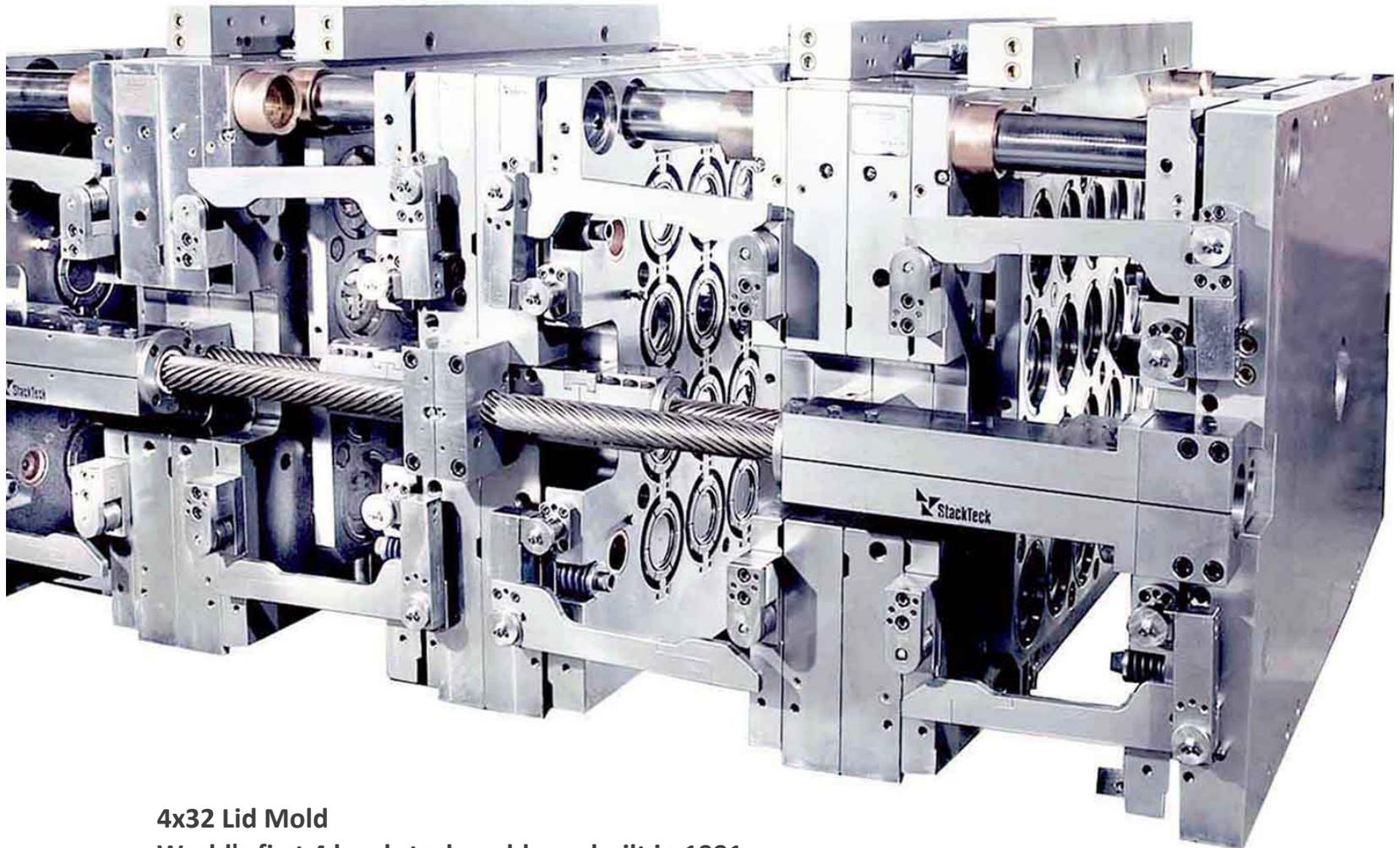


2x8 IML Lid Mold





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

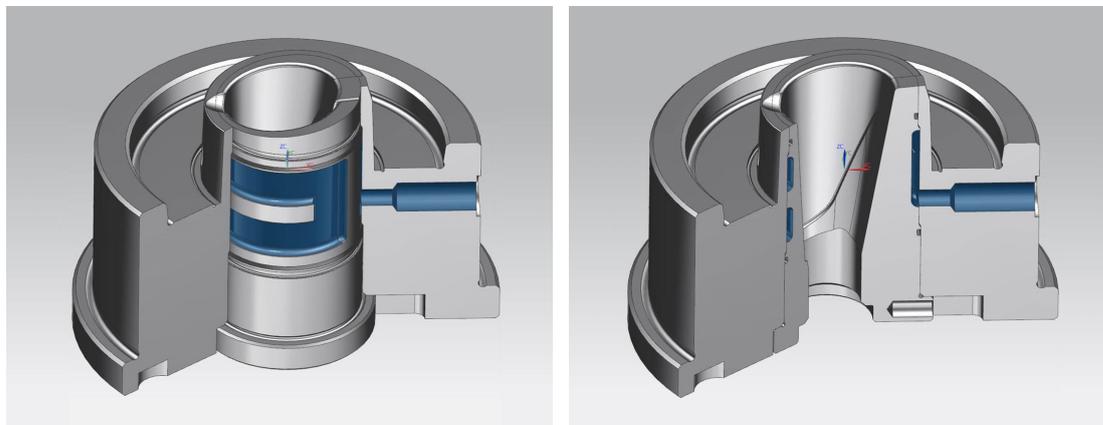
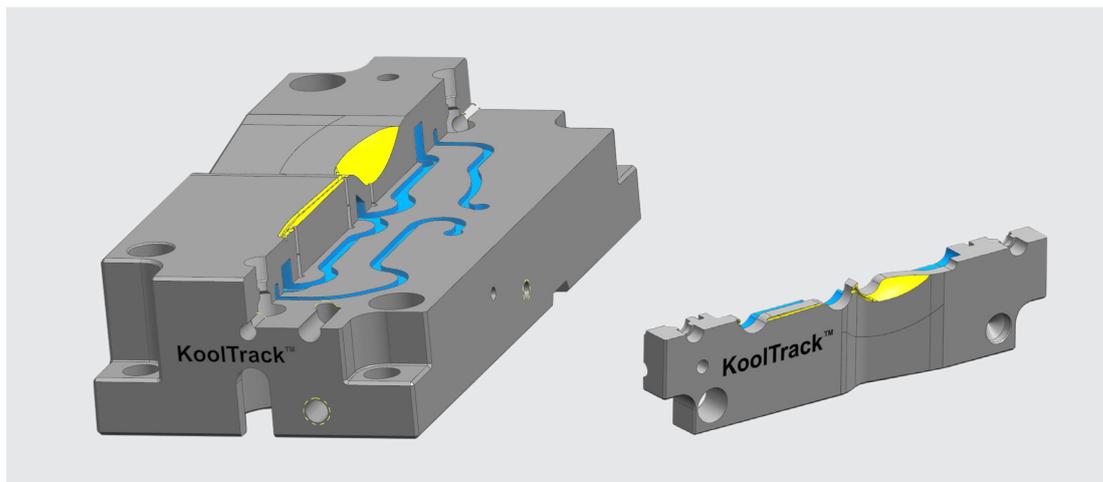


**4x32 Lid Mold  
World's first 4 level stack mold was built in 1991**

# *KoolTrack*

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

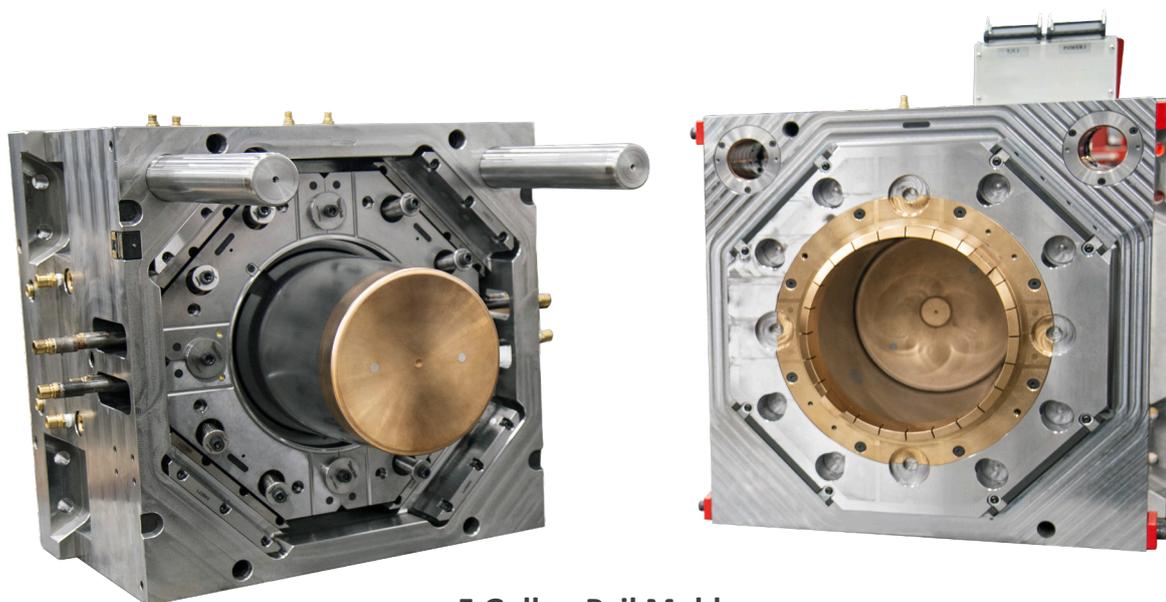
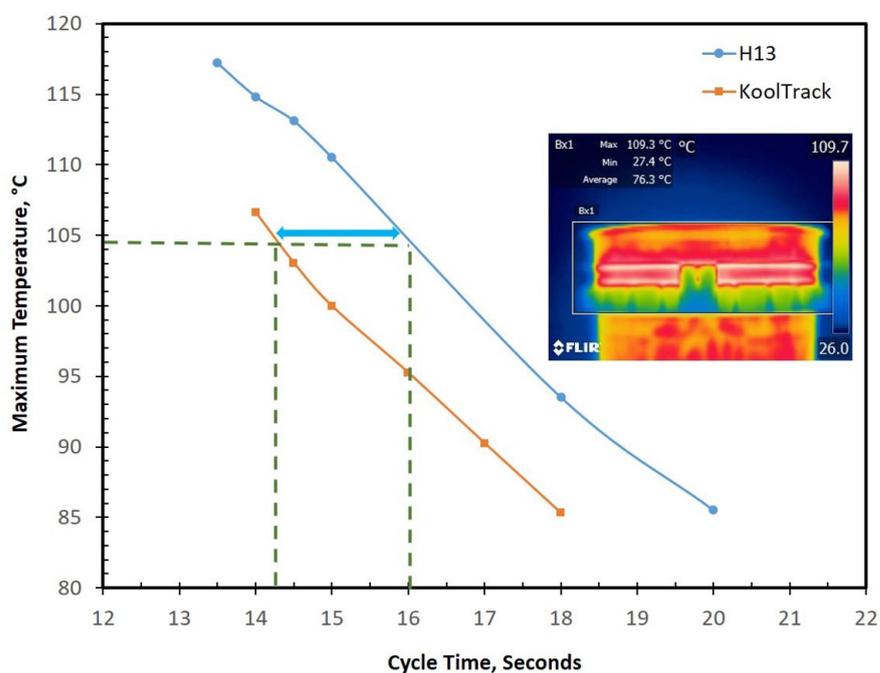
- ▶ Optimized cooling channels follow 3D part geometry
- ▶ Proprietary bonding process in stack manufacturing
- ▶ Faster cycle times based on design, bonded construction
- ▶ Materials that have high rates of thermal transfer



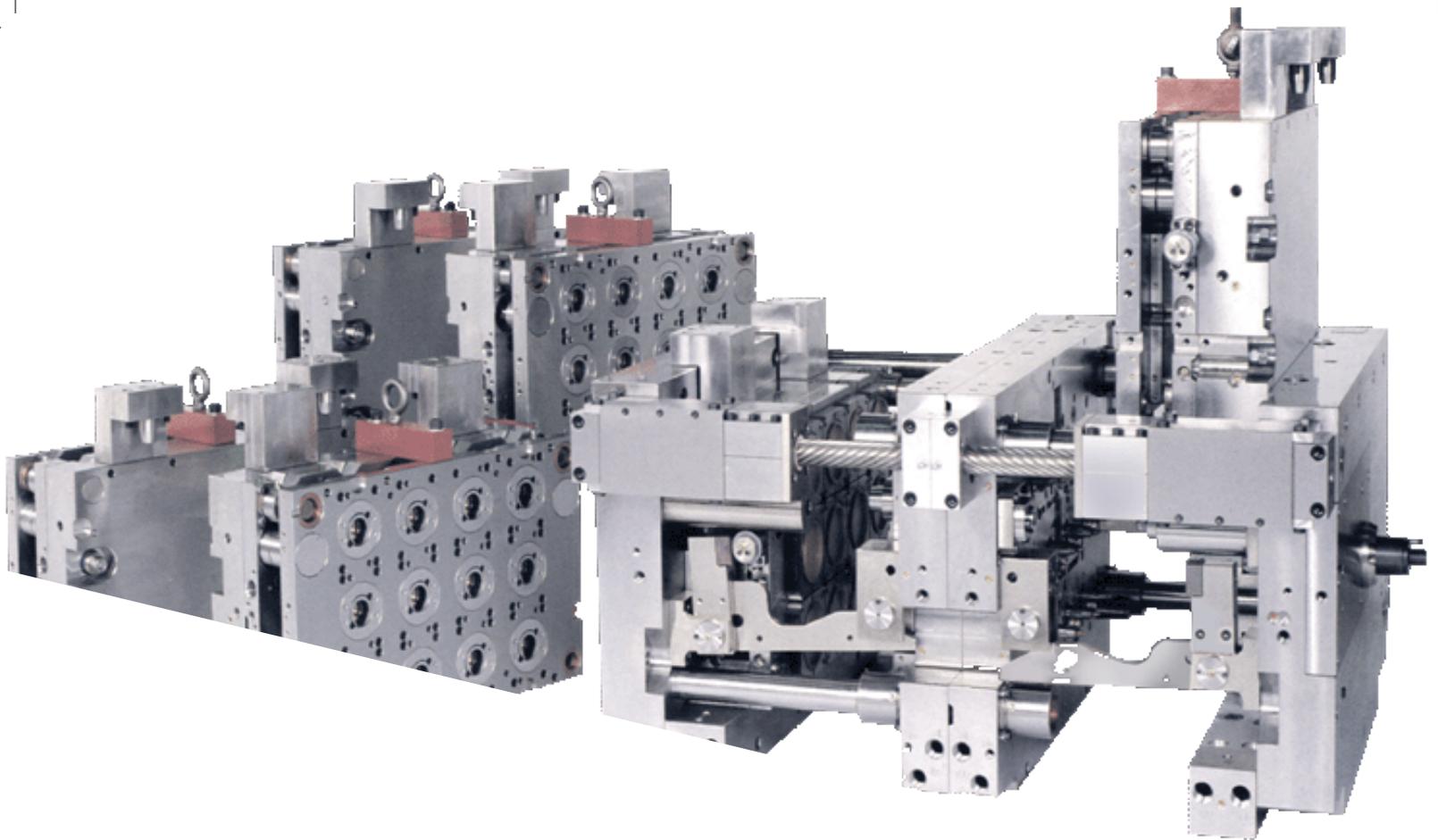
**KoolTrack™ designs for a spoon and a liquid detergent spout.**

# 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
- Thick parts like industrial pails offer high potential to take advantage of RJG / iMFLUX technology



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

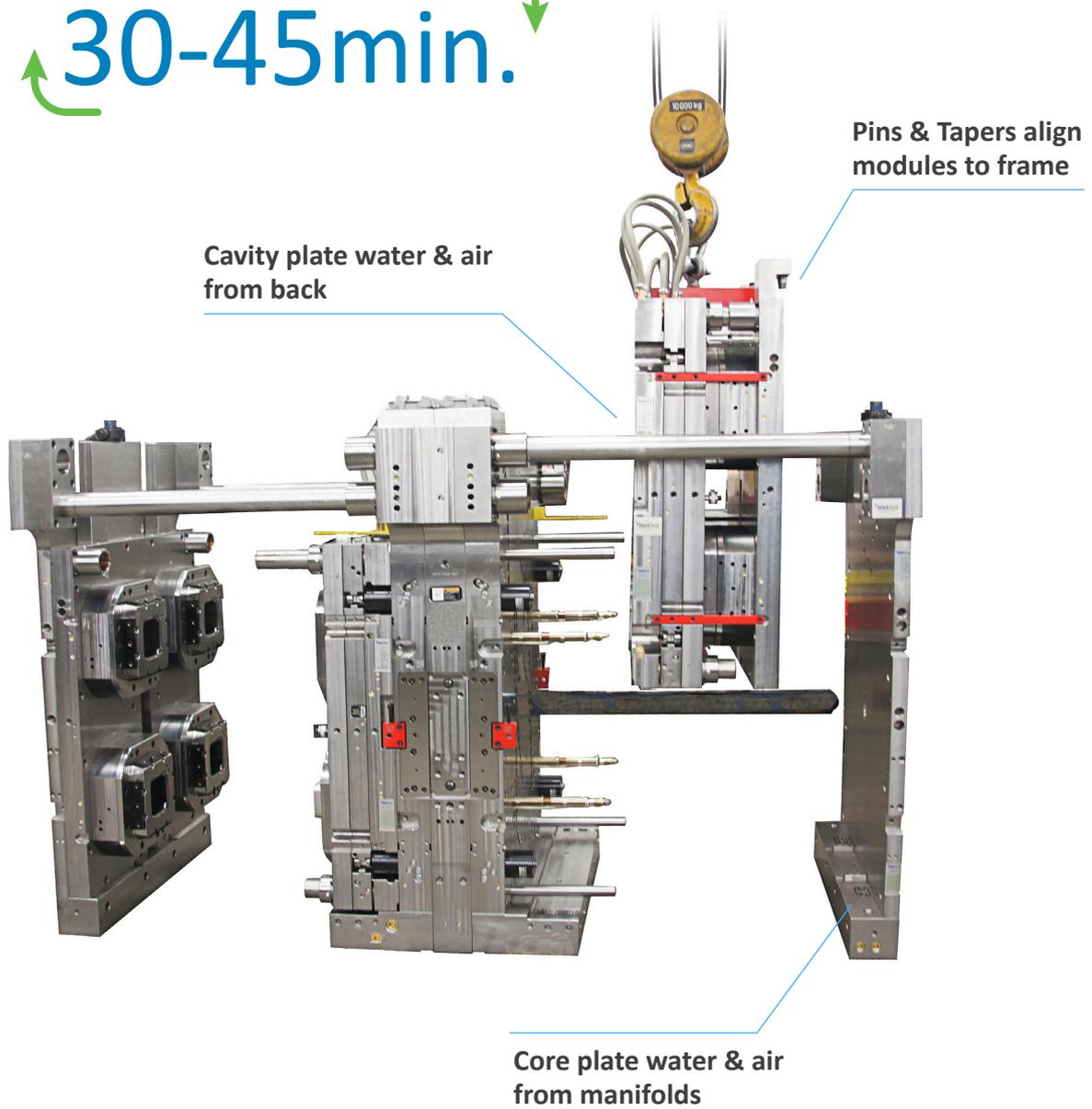
A typical QPC stack mold can be changed over in less than 45 minutes part to part.

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.

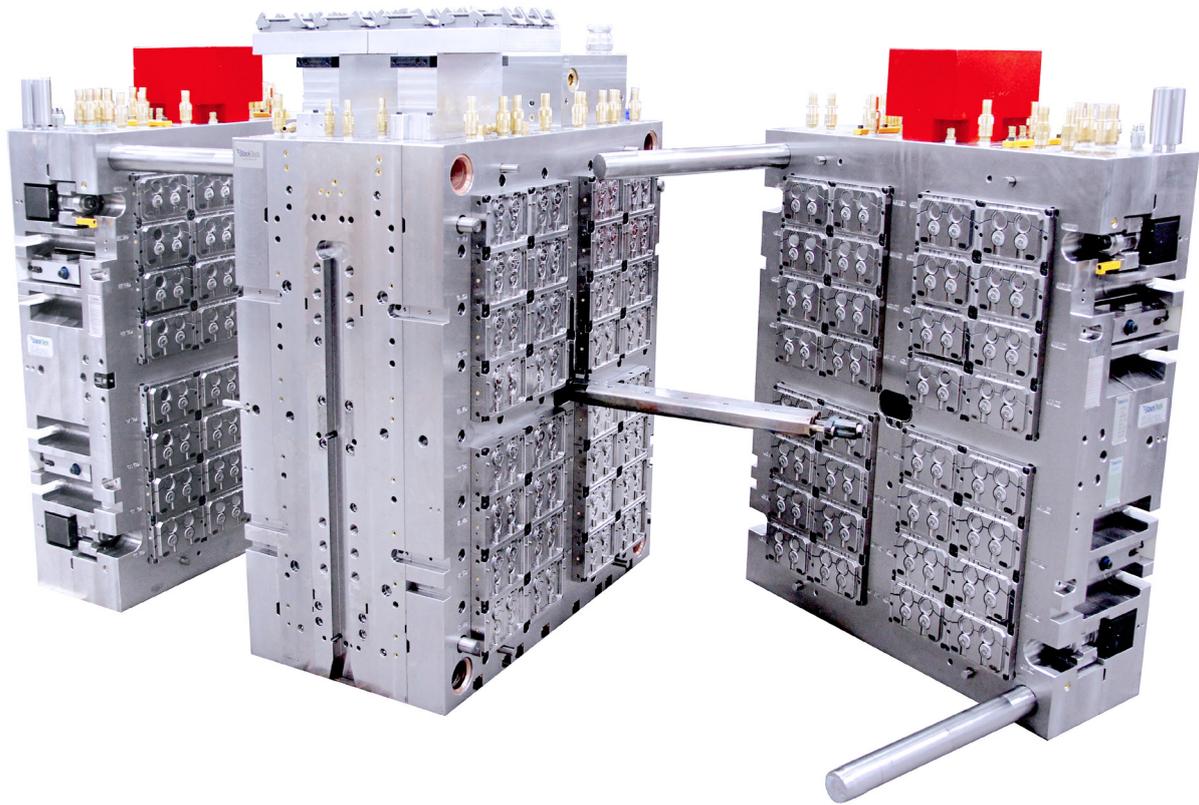


Change within  
**30-45min.**

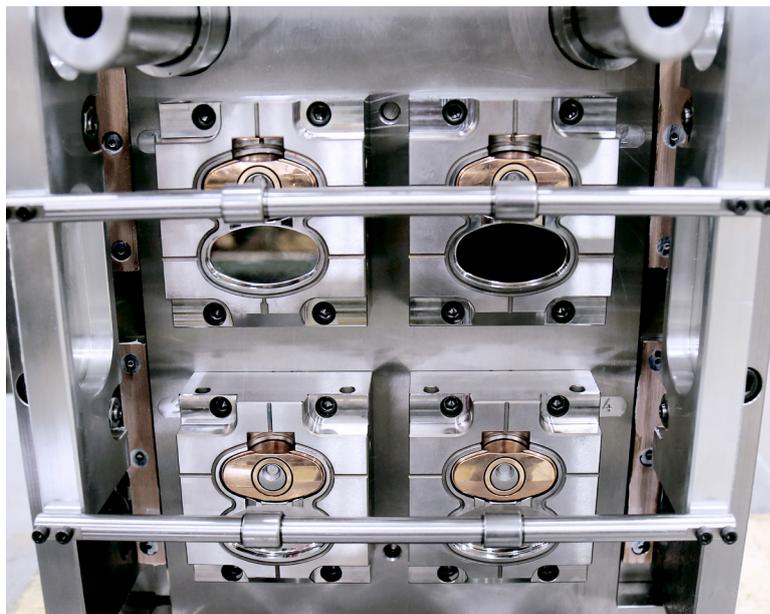


# PACKAGING

## Custom Closure Molds



2x64 Flip-Top Closure Mold



1x4 Flip-Top Closure Mold with Servo IMC Technology

50%



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

# Closure Mold Specialties



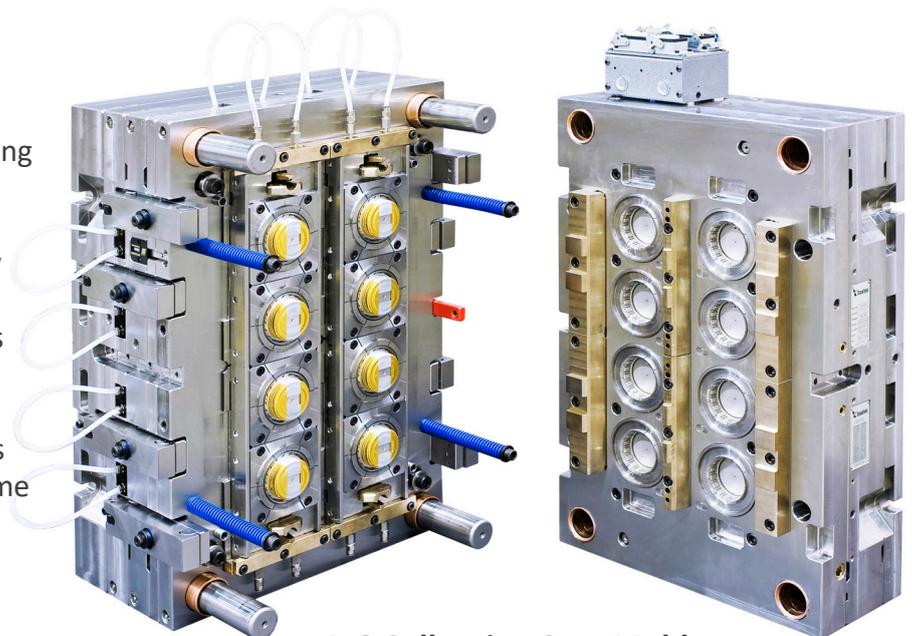
## In-Mold Closing (IMC)

- 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

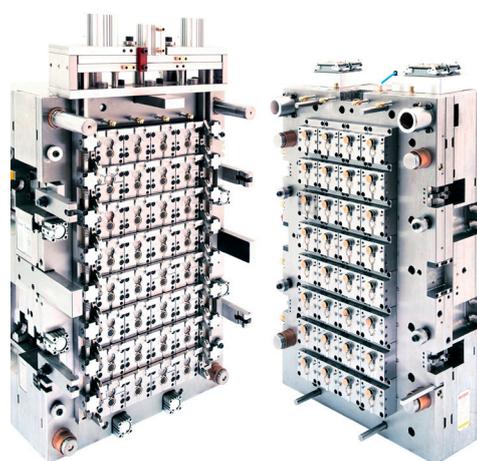
*Custom Closure Molds are developed with StackTeck's 3D part design capabilities for closure product development, prototyping, and mold design. We provide customers with a knowledgeable resource in customizing high performance technologies to challenging closure applications.*

*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

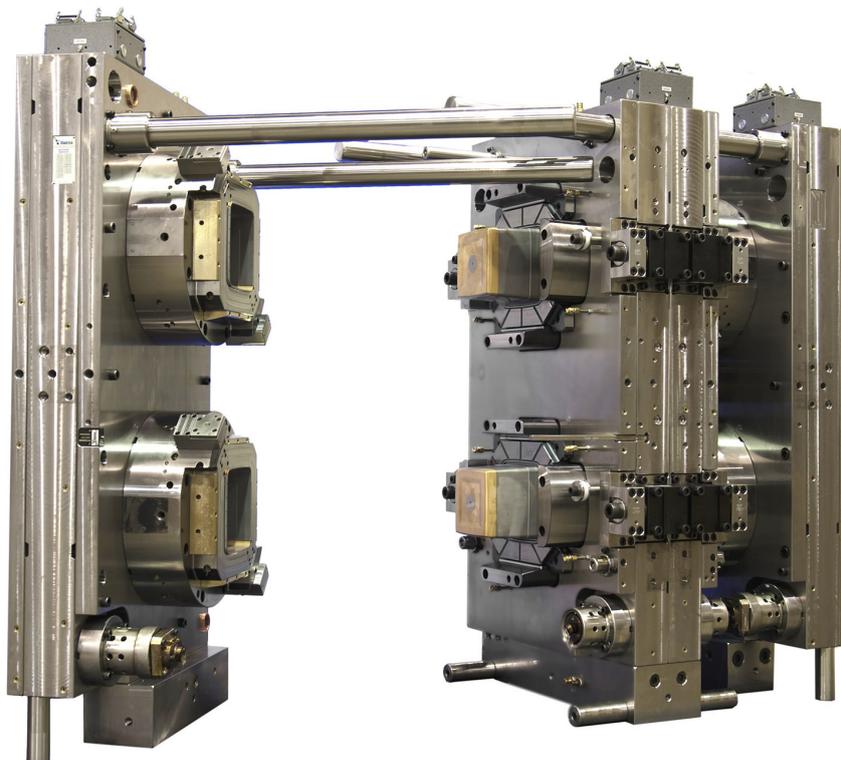
- ▣ Molds enable a hinge to be incorporated in the plastic part design
- ▣ Parts are typically molded in the open position and may be ejected "open" or in the "closed" position.
- ▣ Experience with a variety of flip-top closures with multi-point hinges, butterfly hinges and in-mold closing technologies

# PACKAGING

## 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



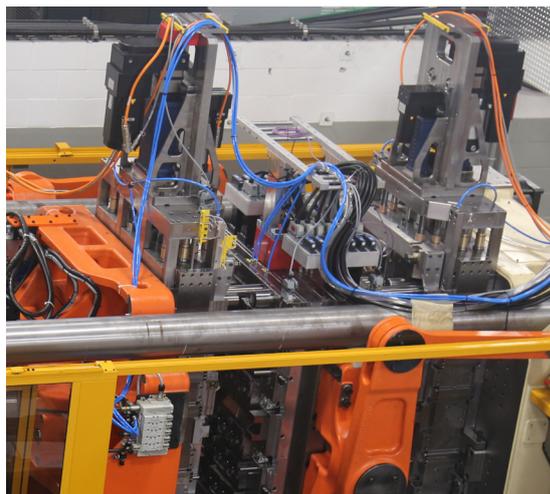
This 2x2 IML rectangular pail mold runs in a 600T injection molding machine.

# MEDICAL

## Precision Injection 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.

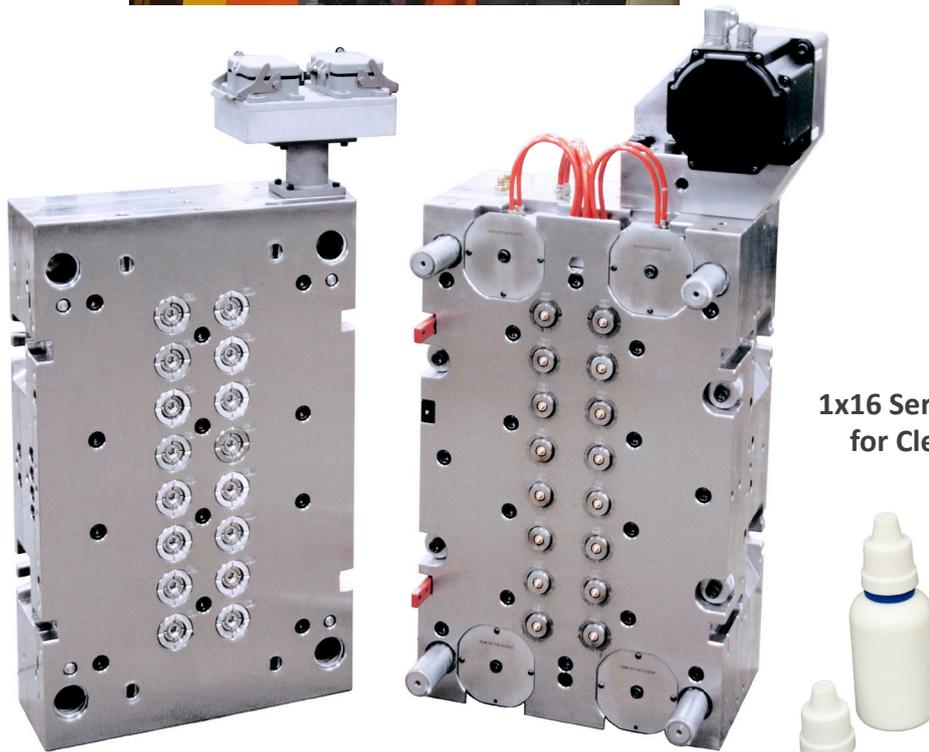
- ▣ Clean room environments – servo actuated mold actuations and greaseless mold designs
- ▣ Conformal cooling technologies for intricate part geometries
- ▣ Optical molding surface finishes
- ▣ Advanced productivity options including QPC and stack molds
- ▣ In house molding lab – mold qualification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



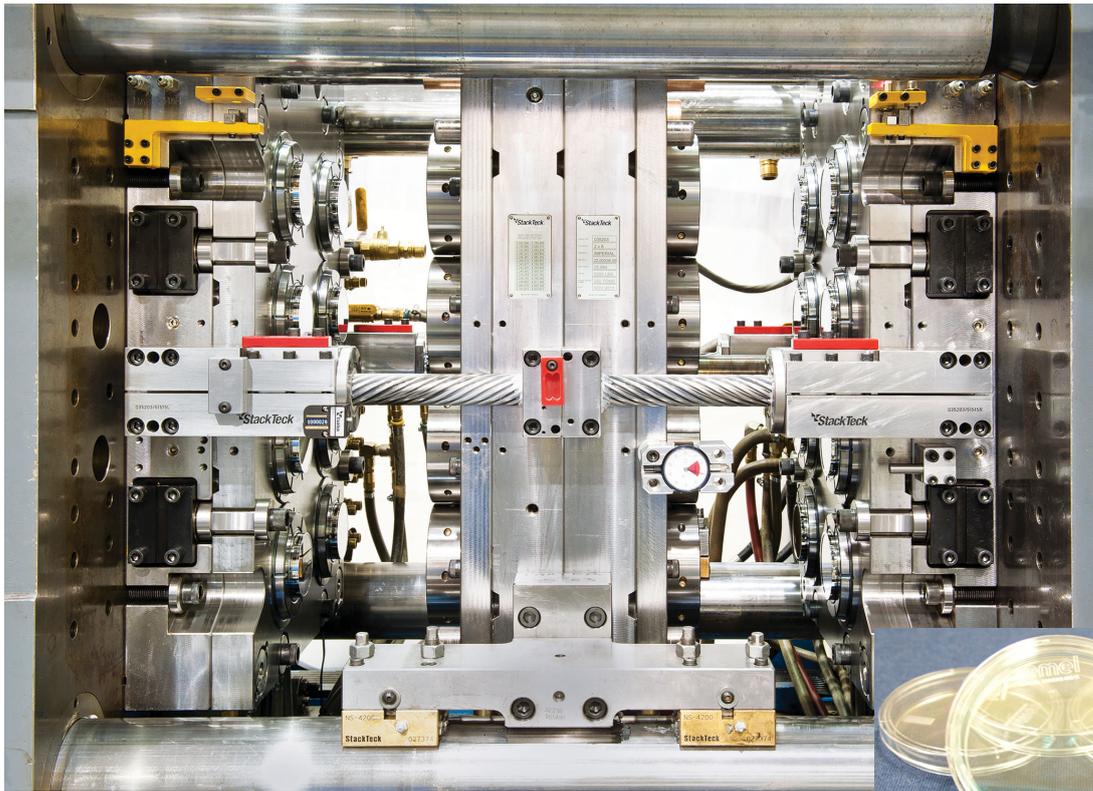
### Servo Drives

Stack mold with 4 integrated servo systems:

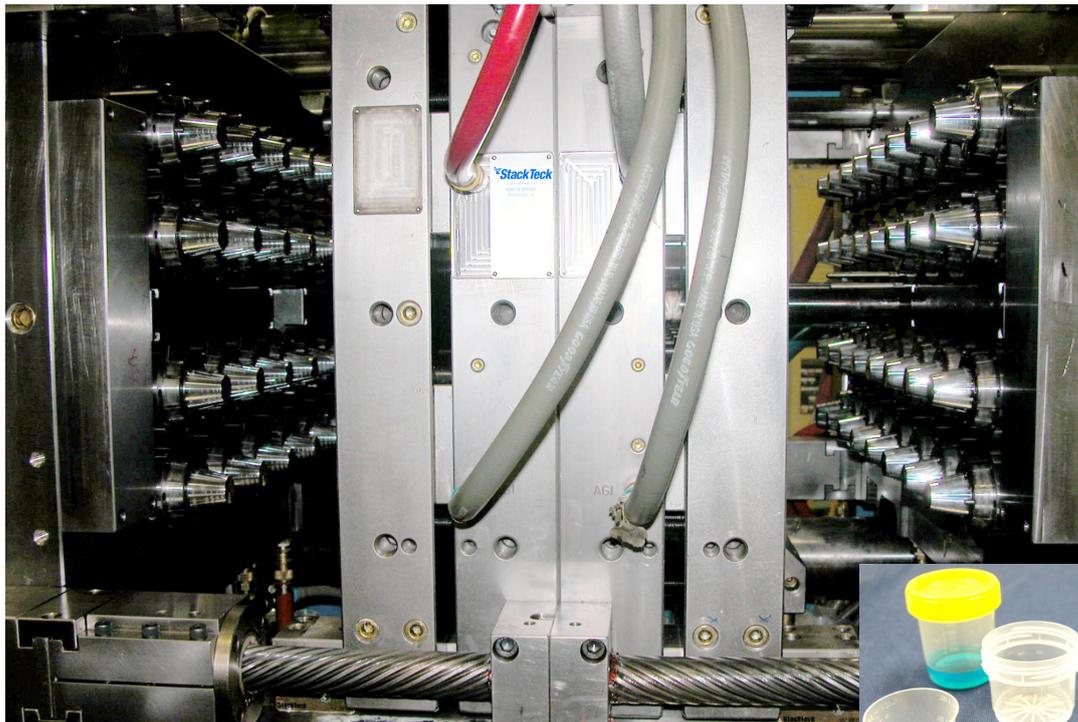
- ▣ 2 servos: In Mold Closing Actuation
- ▣ 2 servos: Ejection Actuation



**1x16 Servo Unscrewing Mold  
for Clean Room Molding**



**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%



New control system supplied by StackTeck Automation group integrated with large servo drive and transmission for an unscrewing flip-top mold



# PREFORMS

## 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

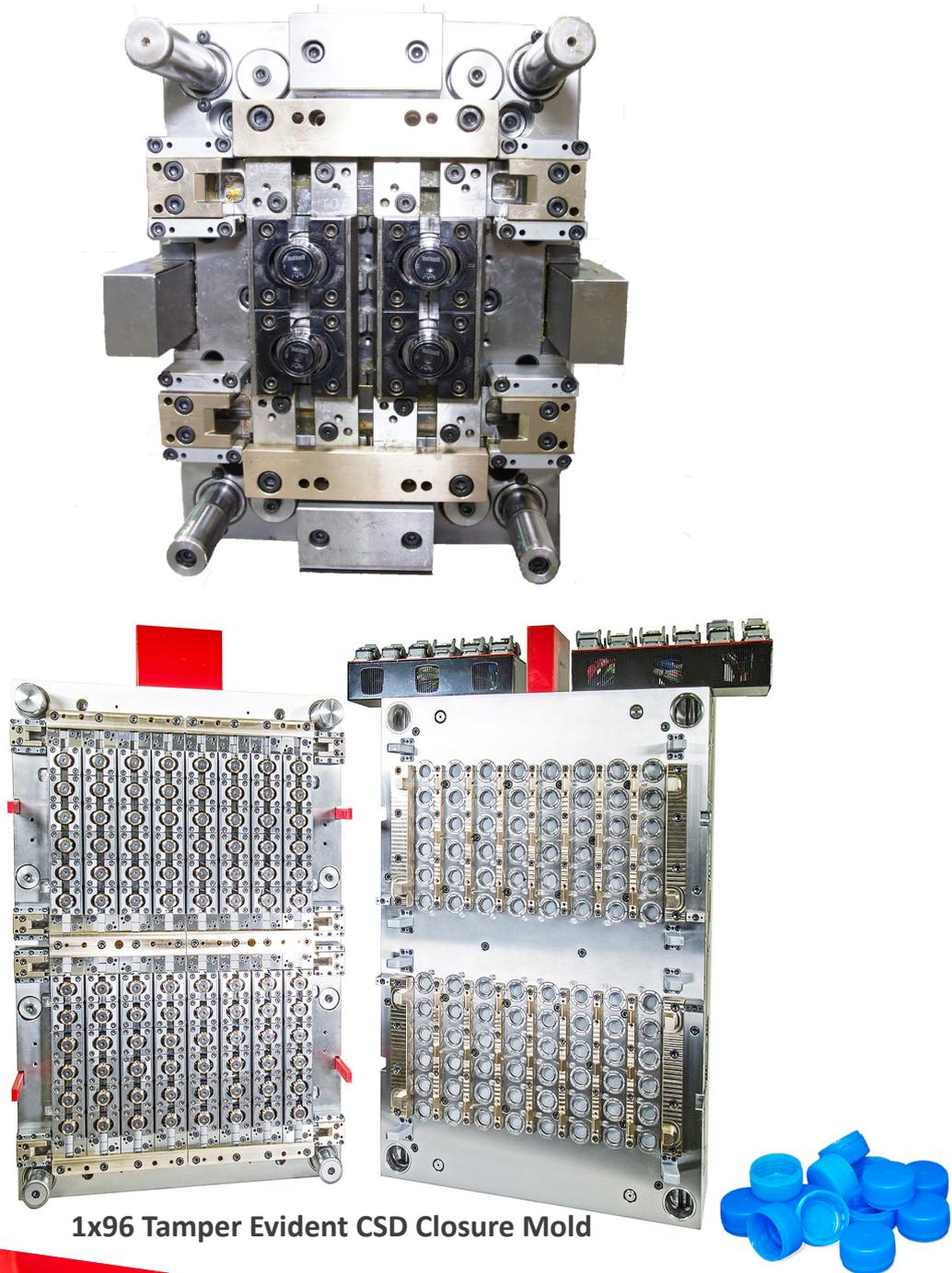
Our PET preform offerings are:

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



# Beverage Cap Molds

Pilot mold services and product development support leading to production mold projects. The 4 cavity pilot mold below is available for prototyping and sampling tamper evident beverage cap developments while limiting projects to only molding surface components. Sampling can be done in our 100 ton TeckCenter machine and complimentary vision inspection services are available for large volumes of sampling parts.



1x96 Tamper Evident CSD Closure Mold

## ***Customer Testimonials:***

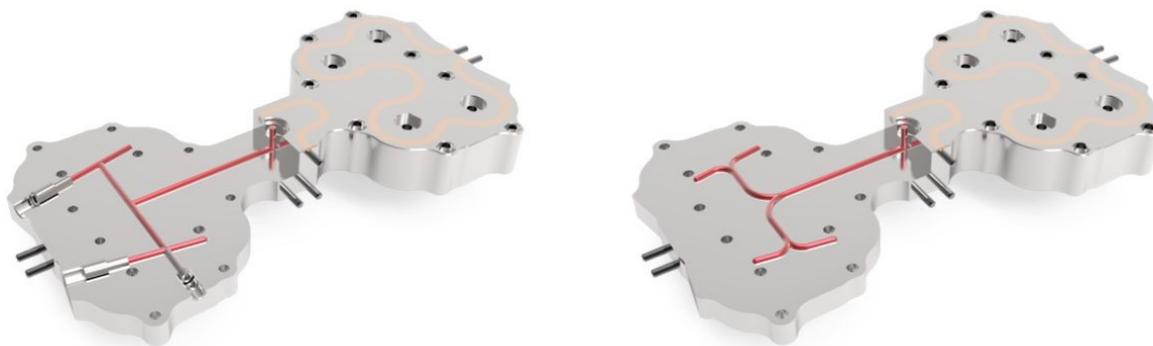
***“In terms of quality, there are no doubts.”***

***“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.”***

# PET and Beverage Cap 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.



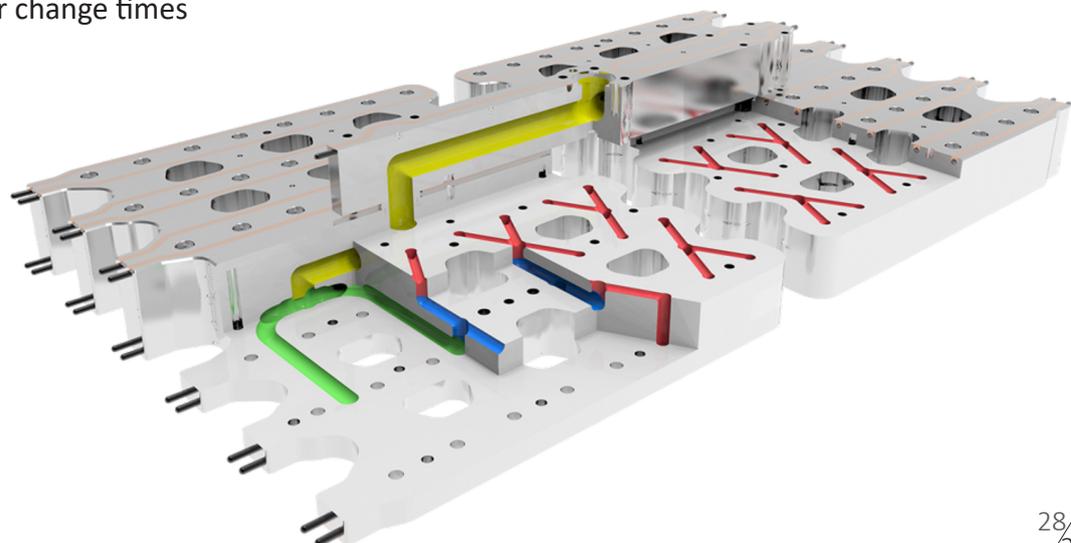
## Manifold comparison: Conventional gun-drilled (left) vs. ISO\* Diffusion bonded (right)

*\*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.

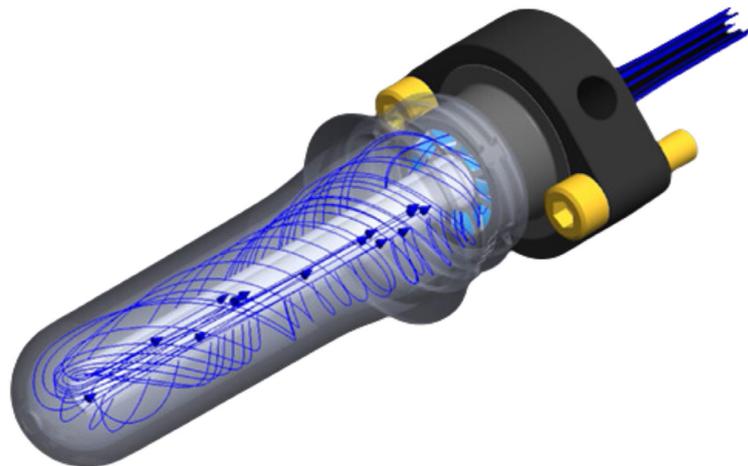


The key benefits of PiCOOL™ are:

- ▶ 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**



**NETSTAL'S PET-LINE 5000 Machine with Piovan Dryer System at StackTeck's Teck Center**

# AUTOMATION

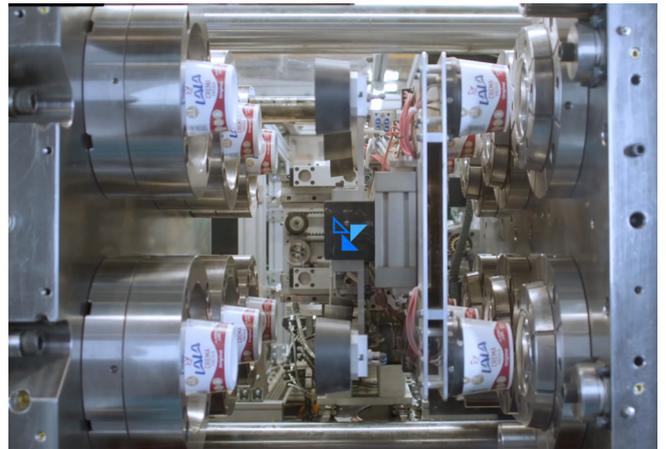
One stop shop for integrated mold and automation solutions:

- ✔ 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

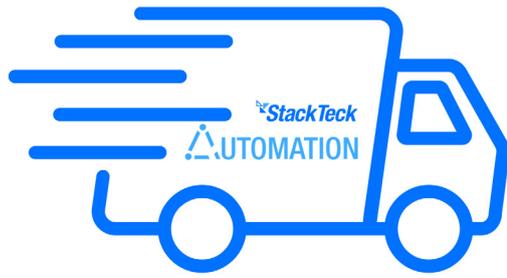
- ✔ Fully integrated to mold ejection systems
- ✔ Ultra fast cycle times
- ✔ Options for convertability to stack molds and/ or IML



### Integrated Product Handling and Inspection Systems

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





## Delivered:

- 70 robots
- 33 vision systems
- 26 box/tote packers

### Stacking

- Single or Dual Lane
- Servo Axis
- 3 second Cycle
- Variable Stack Height
- QC station



### Box Loading

- Vertical stack presented to lay down table
- Stacks presented to 6 axis robot
- Stacks transferred to registered carton
- Pre-assembled cartons transferred to the load station
- Filled cartons dispensed to accumulation conveyor



### Tray Loading and tote handling

- Empty trays placed on load station
- Inspected Parts transferred to handling tray
- Full tray transferred to empty tote
- Full tote transferred to exit conveyor
- QR code written



# 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

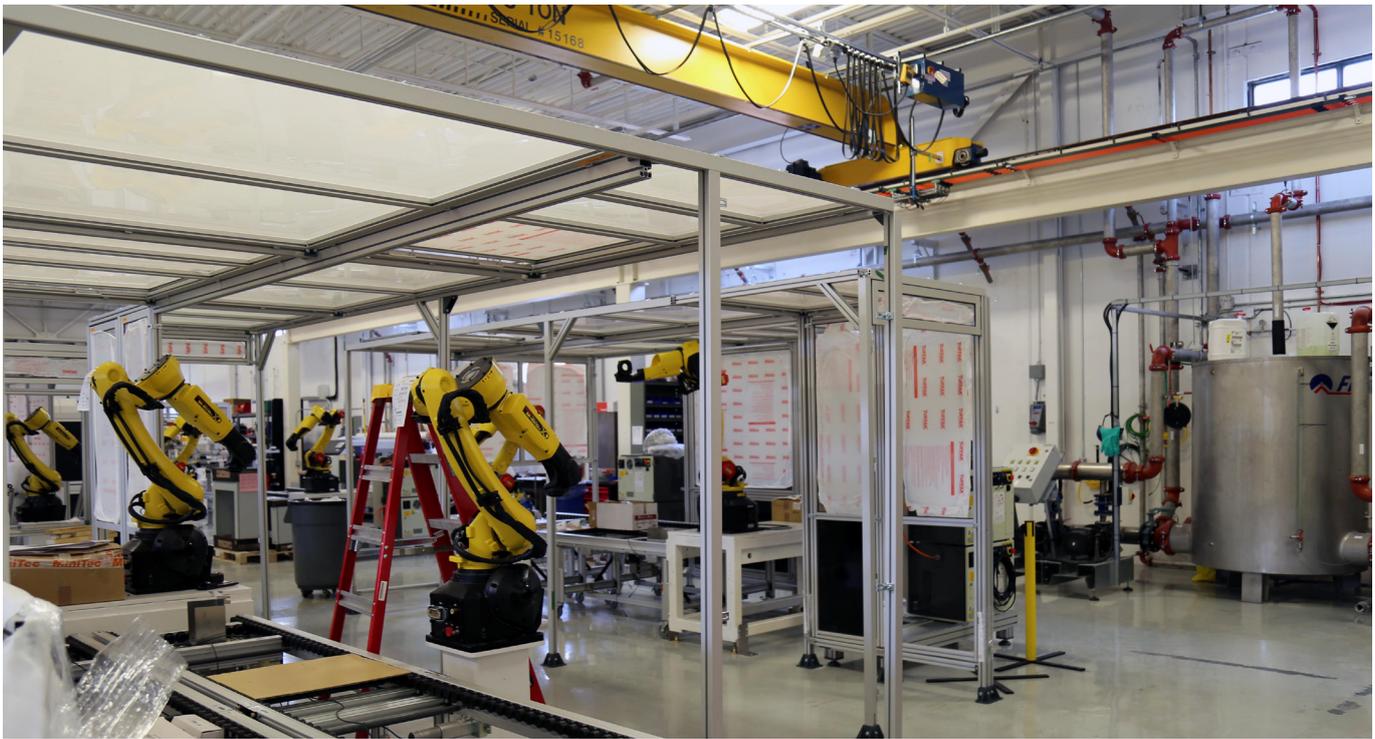
# Advanced Automation Technologies

- 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.

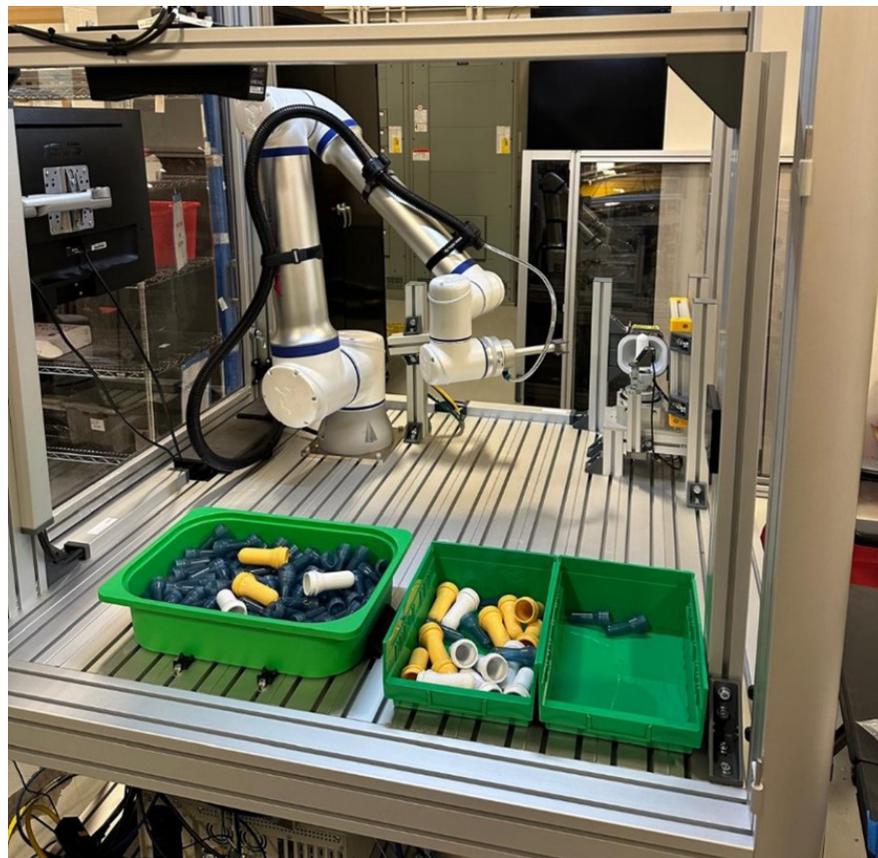


In-Mold Decorating Association (IMDA) awards received six times.  
StackTeck is a charter member of the IMDA.



Automating beyond standard modules including work cell automation all the way through the factory. StackTeck works with industry leaders in logistics and handling solutions like Studio 3S offering solutions like AGV's and other intralogistic systems.

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



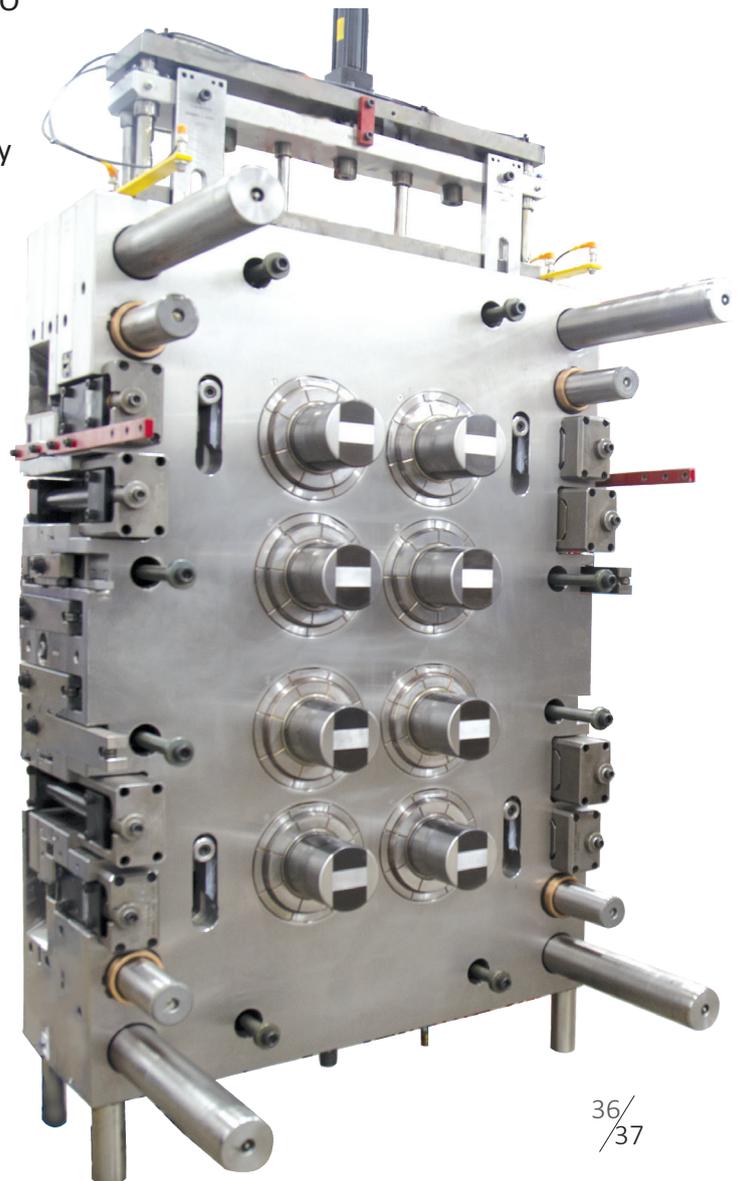
**Cobot System Includes Intelligent Vision for Part Selection**

# Global Partner in Product and Process 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.”



# RESTORATION

## 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



- ▣ 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



# 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:

- ▶ Data driven mold qualification processes
- ▶ Mold qualification to precise Cpk standards
- ▶ Process development - including scientific molding techniques
- ▶ Turnkey systems integration
- ▶ Premarket development - Prototype and Pilot
- ▶ RJG trained technicians
- ▶ Plastic part inspection with automated vision systems and dedicated CMM resources

## TeckCenter R&D Services:

- ▶ IML Pilot Cell – new IML products
- ▶ PET Development Cell
- ▶ RJG / iMFLUX development services
- ▶ Resin testing – including PCR
- ▶ Training programs

## Prototype Manufacturing Cell

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





TeckCenter



IML Cell

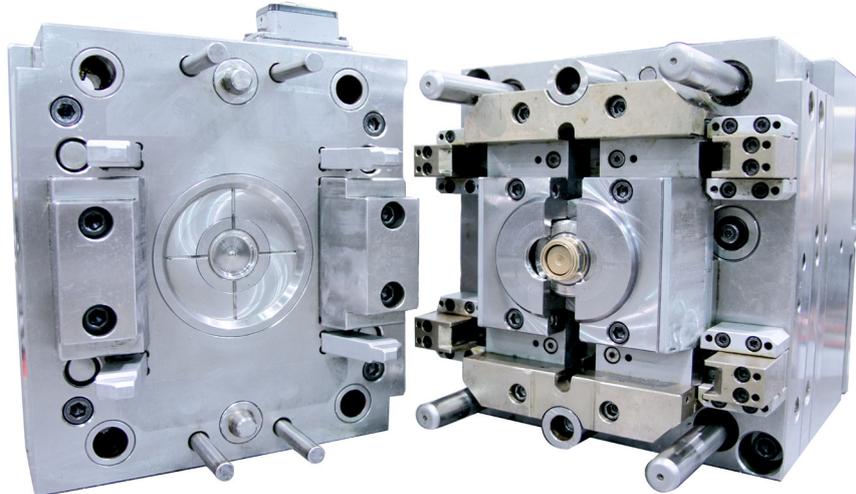


## IML Pilot Cell

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

# 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.

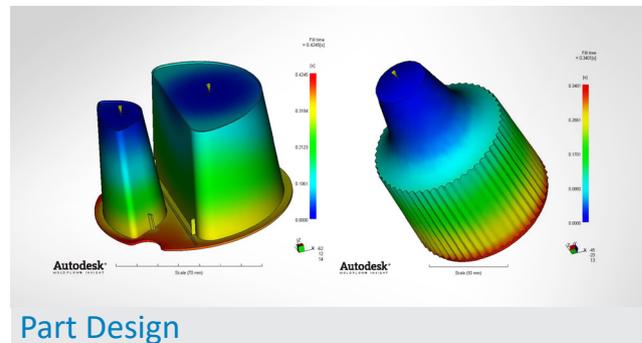


**Part Design and Prototyping**



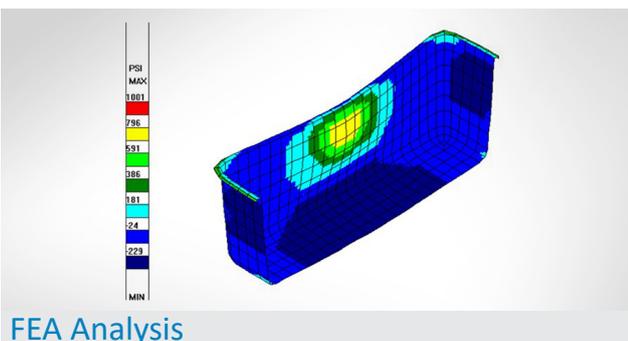
**Part Design**

For moldability, functionality and package performance



**Part Design**

Optimal CAE analysis



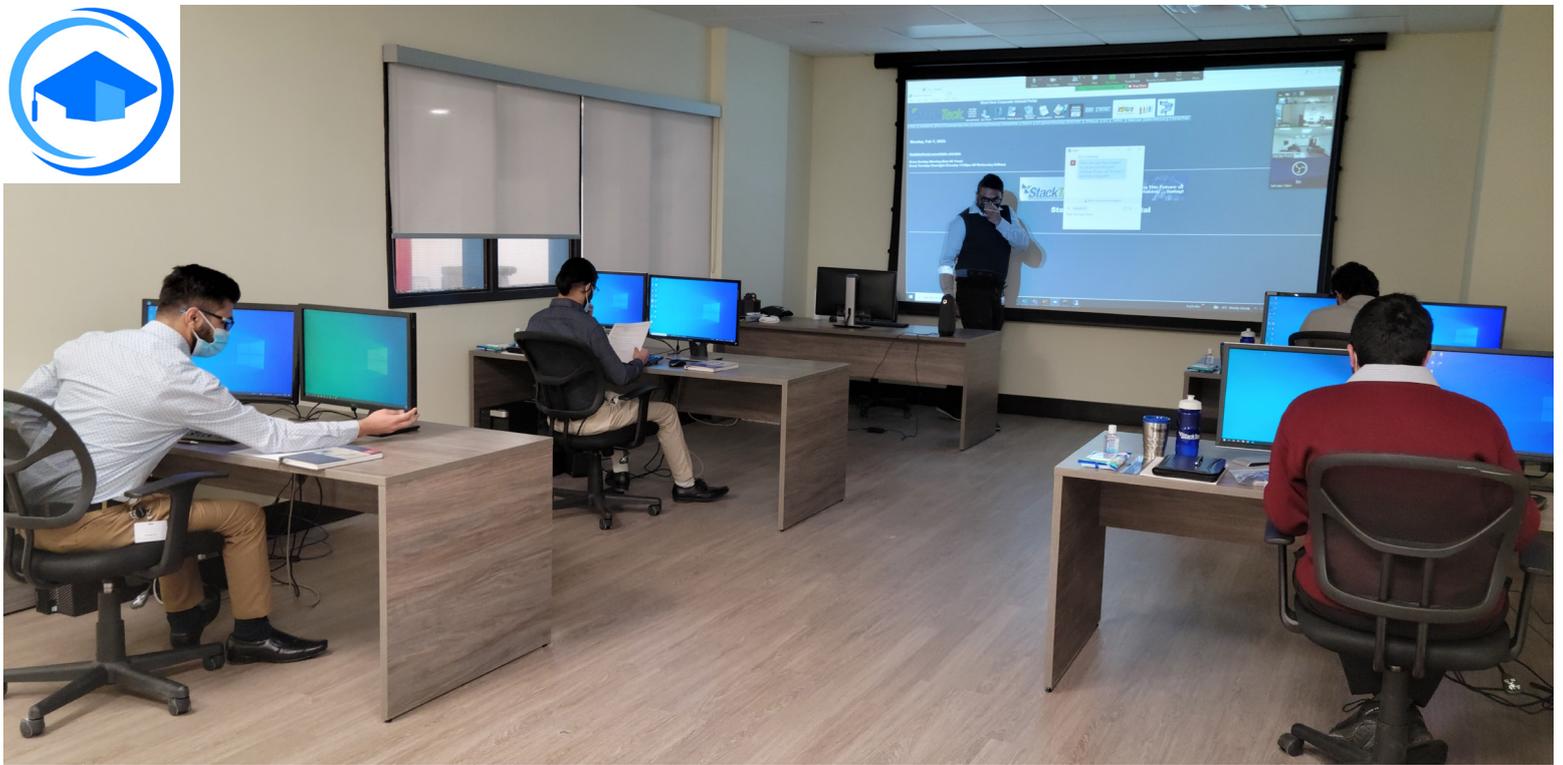
**FEA Analysis**

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

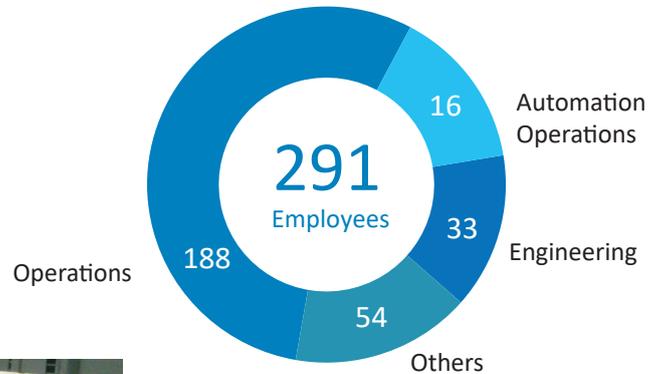


**Prototyping**

Achieve high quality and well-defined part samples



Instructors of the Mold Design Academy have an average of more than 25 years of experience each being passed on to new generations (photo from class of 2022).



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

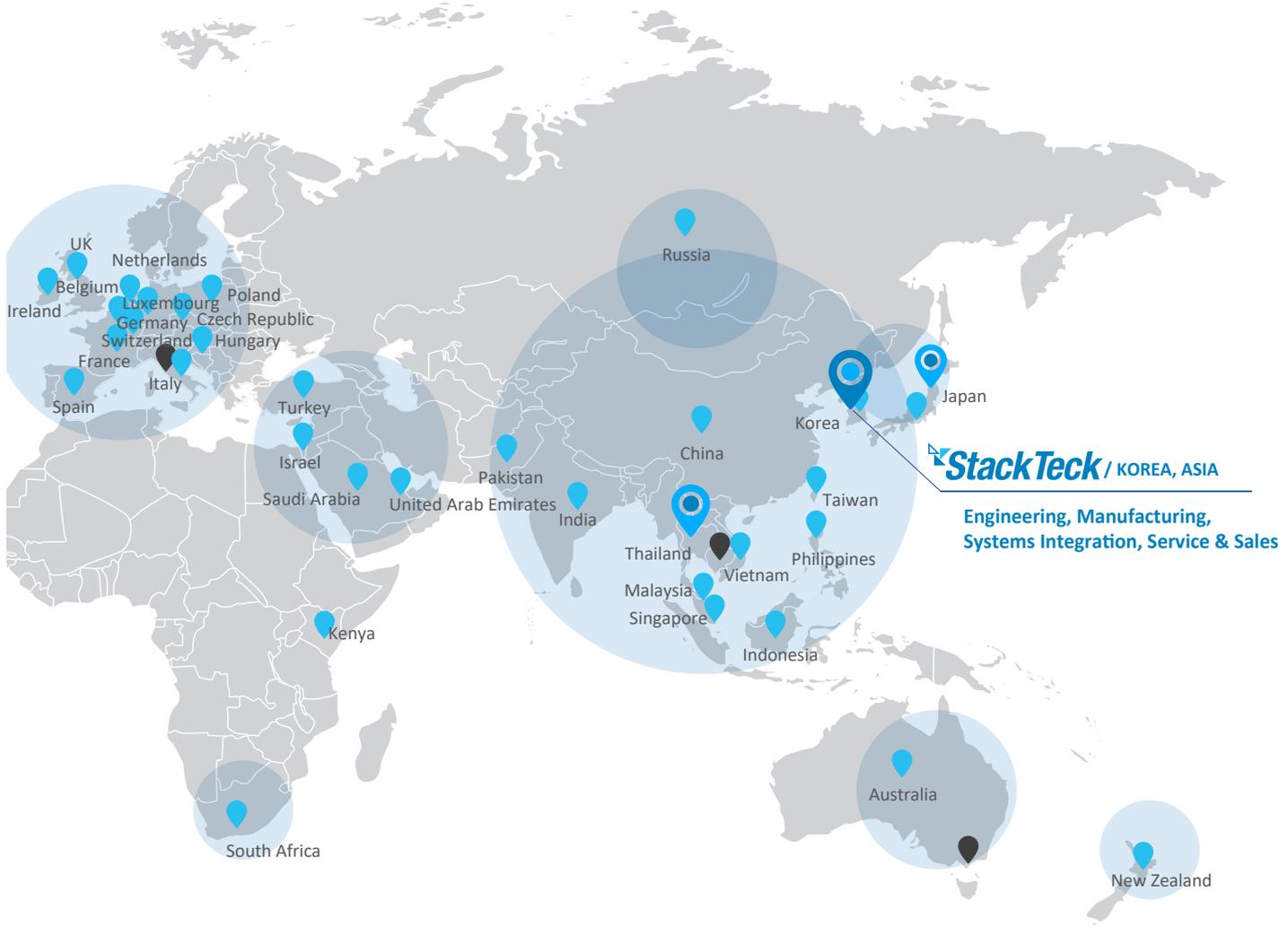
Brampton, Ontario, Canada

Site area  
Mold Making, Engineering, Training  
10,000m<sup>2</sup>

Technical Services Center  
Systems Integration & Training  
3,000m<sup>2</sup>

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





**StackTeck Asia**

Hwaseong-si, Gyeonggi-do, Republic of Korea

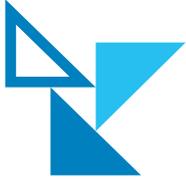
Site area

Mold Making, Engineering, Service  
5,062m<sup>2</sup>

Technical Services Center

Mold Testing & Sampling  
2,666m<sup>2</sup>





### StackTeck Systems

1 Paget Road, Brampton, Ontario, Canada L6T 5S2  
T: +1 416 749 1698 F: +1 416 749 2795  
stackteck@stackteck.com  
Contract Service Partner in USA

### StackTeck Automation

116 Buttermill Avenue, Ontario, Canada L4K 3X7  
T: +1 416 749 0880  
stackteck@stackteck.com

### StackTeck, Asia

200-8, Namyang-ro, Namyang-eup, Hwaseong-si,  
Gyeonggi-do, 18281, South Korea  
T: +82 31 8059 7000 F: +82 31 8059 7007  
stackteck@stackteckasia.com

### Regional Sales Representatives

#### Mexico

T: +52 (33) 3678 9216  
stackteckmexico@stackteck.com  
Contract Service Partners in Mexico

#### South America - Colombia

T: +57 321 373 0662  
stacktecksa@stackteck.com

#### South East Asia - Thailand

T: +66 98 495 4245 and +66 96 926 6953  
stacktecksea@stackteck.com  
Contract Service Partners in Thailand and Australia

#### EMEA (Europe, Middle East, Africa)

T: +1- 416-518-1733  
stackteckemea@stackteck.com  
Contract Service Partners in Italy

#### Japan

T: +81-3-5713-0090  
stackteckjapan@stackteck.com

Canada | Colombia | Japan | South Korea | Mexico | Thailand

[www.stackteck.com](http://www.stackteck.com)