



## YOUR MEDICAL MANUFACTURING PARTNER

TRUSTED LEADER IN CONTRACT MANUFACTURING & PLASTIC MOLDING

CONTRACT MANUFACTURING // CUSTOM MOLDING  
PROTECTIVE COMPONENTS // MEDICAL PACKAGING // LABWARE

Trust all your needs to a leading global contract manufacturer and custom molder.

## TAKING YOUR MEDICAL DEVICE FROM DESIGN TO COMPLETION

- Full-service contract manufacturing service capabilities and experience
- Comprehensive, in-house custom molding capabilities across a range of molding processes, materials, tolerances and complexities
- State-of-the-art tool rooms for shorter lead times and easier modifications
- Seamless tool transfer process to eliminate downtime delays
- Full, in-house assembly process development
- Team of dedicated engineers to take your project from start to finish: Plastics Engineers, Mechanical Engineers, Electrical Engineers and Biomedical Engineers
- Complemented by a standard offering of the medical industry's commonly used protective parts and packaging – all in stock and ready to ship

Medbio® is now partnered with the global manufacturing excellence of Caplugs for a combined 100+ years of experience serving the medical market. Trusted by over 1,500 medical customers and the top 30 medical device manufacturers, **we offer the most comprehensive range of medical contract manufacturing and custom molding solutions in the marketplace.**

TRUSTED LEADER

## A MANUFACTURING PARTNER LIKE NO OTHER

A full-service contract manufacturer and custom molder for the medical and biotechnology industries, we specialize in precision injection molding, assembly, packaging, project management and design support.

From concept and design to prototyping, tool build and full production, our expertise is paired with the agility and passion needed to deliver solutions to your most complex manufacturing challenges.

- Investing in the Latest Technologies
- Innovative Problem-Solving
- ISO 13485:2016 Certified
- ISO 9001:2015
- ISO 14001:2015
- FDA Registered



THE PROOF IS IN THE NUMBERS

80,000  
CLEANROOM  
SQUARE FEET

1,500+  
MEDICAL  
CUSTOMERS

400+  
MOLDING  
MACHINES

100+  
YEARS SERVICING  
THE MEDICAL  
INDUSTRY

60  
ENGINEERS

17  
GLOBAL  
MANUFACTURING  
FACILITIES

THE  
1  
PARTNER  
YOU NEED

## UNMATCHED SERVICES & SOLUTIONS



Full-Service  
Contract  
Manufacturing



Custom Molded  
Solution



Cleanroom Molding,  
Assembly &  
Packaging



Custom-Built  
Automated  
Work Cells



Medical Device  
Protection &  
Packaging



Single-Use  
Labware



Quality Control,  
Metrology &  
Validation

# SOLVING PROBLEMS

## ENGINEERED SOLUTIONS

Utilizing a collaborative approach, we evaluate to determine the best molding process in order to deliver consistent solutions, while accommodating your budget and time constraints.

To meet your exacting requirements, we employ one of the largest teams of in-house engineers, embracing scientific molding principles to ensure the highest levels of quality and repeatability.



### THE RIGHT PARTNER

Choosing the right manufacturing partner is an important first step in creating a quality molded product. Engaging the right partner from the start will minimize potential issues throughout the commercialization process.



### THE RIGHT DESIGN

Precision molding begins with good part design and a knowledgeable partner that will spend the time to review each part to ensure it is manufacturable.



### THE RIGHT MATERIAL

Selecting the right resin can be crucial to precision molding. Equally important is choosing a manufacturing partner with experience in processing all grades of thermoplastic resins.



### THE RIGHT TOOL

There are different types of tools for different stages of development. Your dedicated project engineer will assist in devising a tooling plan as well as managing the many details associated with proper tool design.

# WHY MEDBIO® IS THE SMART CHOICE

IN-HOUSE MOLDING

OTHER CUSTOM MOLDER

OTHER CONTRACT MANUFACTURER



Eight manufacturing processes to provide options for the most effective and cost-efficient solution

Full, in-house team of engineers with over 300 combined years of experience, including a comprehensive Design for Manufacturability process

Large tooling library and interchangeable mold base system that may be leveraged for a quicker, more cost-efficient solution

Manufacturing agility and assembly expertise to deliver customized solutions quickly

In-house automation team, building end-of-arm tools to full assembly cells

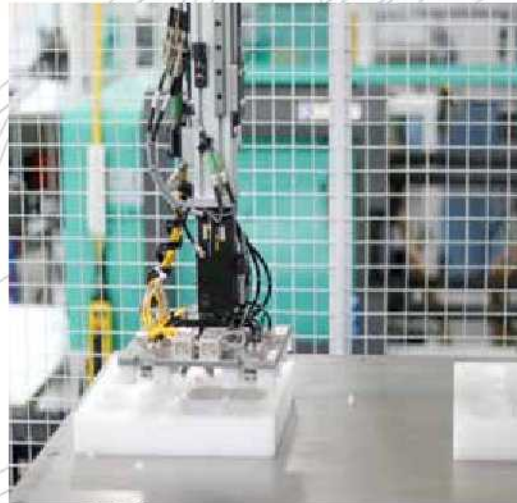
Scalability to meet your needs from runs of hundreds to millions of pieces

Large catalog of standard parts in stock and ready to ship

Backed by the manufacturing excellence and vast resources of one of the largest plastic molders in the world



# YOUR COMPLETE CUSTOM-ENGINEERED SOLUTION



We recognize that flexibility and innovation are critical to your operations. Let our experts work with you one-on-one.

## FROM MOLDED PARTS TO FINISHED DEVICES



### DESIGN & COLLABORATE

Dedicated technical sales specialists and engineers assigned to each project will design solution options with 3D modeling, compatible with all CAD platforms.



### RAPID PROTOTYPING

Prototypes built in house confirm fit requirements before production approval.



PROTOTYPE Plus™



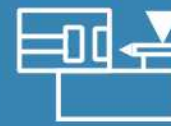
### ADVANCED, IN-HOUSE TOOL DESIGN

Molds made in house allow for greater process control, shorter lead times and easier modifications.



### MATERIAL OPTIONS

- Medical Grade Thermoplastics
- Implantable Thermoplastics
- Silicone
- Polypropylene
- Polyethylene
- PVC
- Polystyrene
- Acrylic
- PETG



### CLEANROOM MOLDING

Offering over 400 presses ranging in size from 17-ton to 440-ton, including micromolding and 2-shot machines, we utilize ISO Class 8 and Class 7 certified and portable cleanrooms.



### CLEANROOM INSPECTION & QC

- 12 vision systems
- Standalone inspection
- Two integrated inline inspection systems



### CLEANROOM ASSEMBLY

We have many automation capabilities within dedicated Class 7 cleanrooms, including welding, gluing, bonding, laser etching, decorating and high-volume custom assembly packaging.



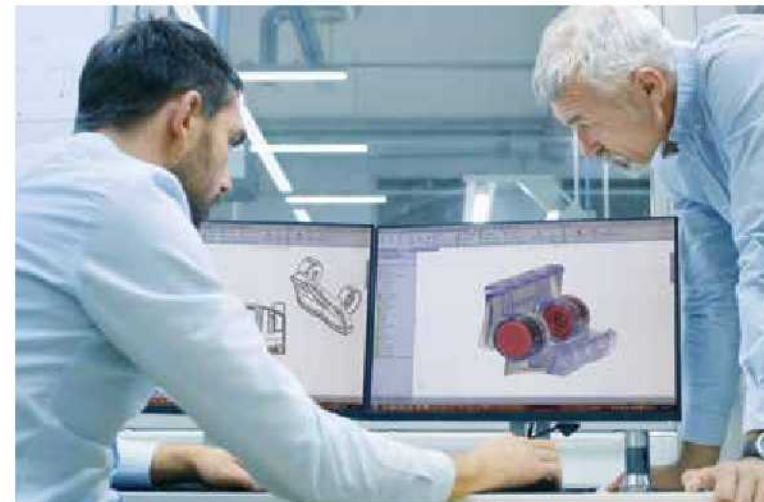
### CLEANROOM PACKAGING

We offer pouching, tray sealing, bagging, and shrink-wrapping in a packaging-dedicated Class 7 cleanroom.



### INVENTORY MANAGEMENT

We can inventory parts for JIT, Kanban and other warehousing requirements.



# MANUFACTURING CAPABILITIES AND SERVICES

Our facilities were designed and built specifically to meet the high standards of medical and biotech device manufacturing. We take pride in our best-in-class, agile manufacturing capabilities and our ability to customize process areas to meet your exact project requirements.



## FULL-SERVICE CONTRACT MANUFACTURER

- Cleanroom Molding
- Cleanroom Assembly
- Cleanroom Packaging
- Flexible Capacity
- Rapid Turnaround
- Prototype Plus™
- Product Development
- Fully Capable Metrology Lab
- Precision Injection Molding
- Scientific Injection Molding & First Article Inspection
- Automation Cells

## INJECTION MOLDING

- Silicone Molding (LSR)
- Insert & Over Molding
- Two-shot Molding
- Micro Molding
- Thin-walled Parts/Coining
- Hand-loaded Cores to Full Automation
- Scientific Process Development (RMT)
- Kistler Cavity Pressure Sensors



## OTHER MOLDING PROCESSES



Dip Molding



Extrusion



Vinyl Coating



Rubber Molding

# QUALITY & METROLOGY



Medbio® utilizes a rigorous quality control process and scientific molding to prove the processing parameters to ensure material performance meets your requirements and specifications. These protocols ensure reduced, part-to-part variation and maximum repeatability, with documented process controls. Our three standard levels of validation allow the proper fit to your needs.

- ISO 13485:2016 Certified
- ISO 9001:2015
- FDA Registered
- Fully Capable Metrology Lab, including the OGP SmartScope
- Full Annual Internal Audit Schedule
- Tailored Quality and Validation Programs

## STANDARD VALIDATION LEVELS

- RMT – Our standard scientific injection molding workbook
- Full Layout – One piece per cavity
- Capability Study – 30 shots (nominal process)

LEVEL  
1

- RMT – Our standard scientific injection molding workbook
- Full Layout – Three pieces per cavity
- OQ Runs – One 1-hour each, at high and low process (15-shot capability study)
- PQ Run – One 1-hour run at nominal process (30-shot capability study)
- Injection Molding – Process cycle card created
- APQP document package (control plan)

LEVEL  
2

- RMT – Our standard scientific injection molding workbook
- Full Layout – Three pieces per cavity
- OQ Runs – One 1-hour each, at high and low process (15-shot capability study)
- 3-Way DOE (3-factor, 2 repeats, 5-shot subgroup, 25 runs = 125 shots)
- PQ Runs – Three 4-hour runs at nominal process (30-shot capability studies)
- Injection Molding – Process cycle card created
- APQP document package (process flow diagram, PFMEA, control plan)

LEVEL  
3

# STANDARD MEDICAL PARTS

Through our partner and sister company, Caplugs Medical, we have an array of some of the most commonly used parts and sizes in the medical industry in stock and ready to ship. From caps and plugs to netting, tubing and containers and other plastic components, these parts have been specifically designed to meet the industry's most common needs for quick, cost-efficient solutions.

View and request samples of the full line of 50,000+ parts available at [caplugs.com](http://caplugs.com).



**EVC Series** Ergonomic Vented Caps  
**MVC Series** Medical Vented Caps  
**MCC Series** Medical Vented Caps Closed Top  
**SRC-MED Series** Medical Silicone Caps  
**VVC Series** Vent-A-Cap™ Vinyl Caps  
**MC Series** Medical Caps  
**MCD Series** Dual Medical Caps  
**CSWF Series** Sleeve Web Instrument Guards for Medical Tools  
**CSWF-C Series** Sleeve Web Instrument Guards for Medical Tools



**TRC Series** Closed-End Tubing  
**TRO Series** Open-End Tubing  
**TSC Series** Square Close-End Tubing  
**TSO Series** Square Close-End Tubing  
**CSV Series** Container Square Vial  
**VSC Series** Vinyl Square Caps  
**TSE Series** Tube Square-End Plugs  
**TE Series** Tube End Plugs  
**TE-TAB Series** Tube End Plugs with Tabs  
**SW Series** Standard-Duty Sleeve-Web® Netting  
**CVC Series** Hinged Containers  
**CVV Series** Vials



**MCN-Y Series** Y Connectors  
**MCN-PC Series** Pinch Clamps  
**MCN-SC Series** Slide Clamps  
**MCN-TCS Series** Silicone Tethered Caps  
**MCN-TCV Series** Vinyl Tethered Caps  
**MCN-TCP Series** Plastic Tethered Caps



**Tubes and Vials**  
**Racks**  
**Microplates**  
**Histology Supplies**  
**Microbiology Supplies**  
**Liquid Handling**

## TIP & PORT PROTECTION

Choose from a wide range of components to protect instruments, implants and exposed ports during shipment, storage and sterilization. Choose from hundreds of tip guards, open port caps and packaging options, including tube packaging, protective netting, containers and more that are in stock and ready to ship today.

## MEDICAL PACKAGING

A range of packaging solutions that are designed to secure medical instruments and protect end users from harm. Made from medical-grade materials, this product line is designed to secure your delicate components through handling, shipping and storage.

## FLUID MANAGEMENT

The connector line features a variety of clamps and Y-connectors designed for a range of applications, including wound drainage and perfusion. All the connectors are available in popular sizes and materials, from flexible PVC to more rigid polycarbonate.

## SINGLE-USE LABWARE

High-quality, single-use lab products designed for general lab use, cytology/histopathology, clinical chemistry and microbiology.

# PROTECTIVE CAPS & PLUGS

Our partner, Caplugs, also offers a wide range of catalog parts suitable for a variety of applications, including product protection, finishing, masking and more. Below are the most popular products utilized by the medical industry, but a vast array of options are in stock and ready to ship.

View and request samples of the full line of 50,000+ parts available at [caplugs.com](http://caplugs.com).

## PRODUCT PROTECTION



**T Series** Tapered Body Gives Snug Fit as Cap/Plug  
**TV Series** Flexible Injection-Molded Vinyl Cap/Plug  
**W Series** Wide-Flange Cap/Plug  
**WW Series** Wide, Thick-Flange Cap/Plug  
**WWX Series** Extra-Wide, Thick-Flange Cap/Plug  
**OE Series** Open-End Thread Protectors  
**PKGC Series** Packaging Caps  
**PO Series** Push-On Caps For Straight Threads  
**SC Series** Straight-Sided Sleeve Caps  
**EZ Series** Flexible Vinyl, Ez-Pull Caps  
**HFC Series** Flex500® Flexible Caps with Flat Pull-Tab  
**VC Series** Flexible Vinyl Caps

## COMPRESSED GAS



**MOC Series** Mobile Oxygen Caps  
**PCAP Series** Oxygen Valve Protection Caps Used During Transit and Storage  
**BC Series** Cylinder Valve Threaded Caps  
**SVS Series** Oxygen Cylinder Post-Valve Sleeves  
**SWI Series** Sleeve-Web® with Rust Inhibitor  
**UES Series** Universal Use-Evident Cap/Plug Straps

## FINISHING



**HEX Series** Hexagonal Caps  
**VHR Series** Vinyl Hanger Tips (round)  
**VSC Series** Vinyl Square Caps  
**BP Series** Button Plugs With Recessed-Type Heads  
**K Series** Plugs for Round Tubing  
**RER Series** Plugs for Rectangular Tubing

## MASKING



**UW-SH Series** Silicone Washer Plugs  
**UWPPLS-SH Series** Silicone Washer Pull Plugs-Long Series  
**MPP-SH Series** Multi-Purpose Plugs  
**PB-SH Series** Blue Polyester Masking Discs  
**PC21-SH Series** Green Polyester Masking Tape  
**SC-SH Series** Silicone Caps

Full customization of all catalog parts available including hole punching, pad printing and additional material and color options



# GLOBAL LEADER IN PLASTIC MOLDING

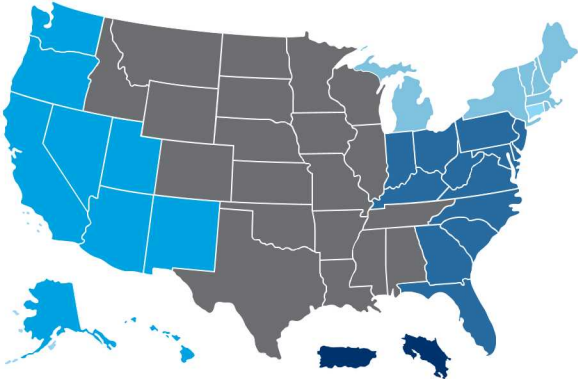


- **Headquarters**  
 Grand Rapids // Michigan  
 Clinton Township // Michigan  
 Schoolcraft // Michigan  
 Orchard Park // New York



- **Headquarters**  
 Buffalo // New York  
 Erie // Pennsylvania  
 Houston // Texas  
 Rancho Dominguez // California  
 Toronto // Canada  
 Oss // Netherlands  
 Meslin l'Eveque // Belgium  
 Lüdenscheid // Germany  
 Falciano // San Marino  
 Tampere // Finland  
 Jintan // China  
 Brisbane // Australia

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