



YOUR SOURCE FOR

Catheter, Guidewire and Automation Technologies





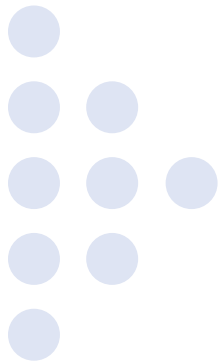
Your comprehensive resource for automated, process-driven medical manufacturing.

Medical Manufacturing Technologies (MMT) is a leading global provider of medical device manufacturing services and solutions. We serve as a comprehensive resource for automated, process-driven manufacturing, streamlining the development of complex medical devices with a strong emphasis on precision and efficiency.

MMT is dedicated to ensuring seamless production processes that lead to superior customer outcomes and enhance patient health worldwide. This dedication is reflected in our extensive support network, deep industry knowledge, and technical expertise.

With machines deployed in nearly every MedTech company around the globe, MMT offers unmatched application support and expertise. Our proven track record and extensive install base, combined with our vertically integrated approach, allows us to consistently deliver exceptional quality and reliability while increasing yield and throughput.

MMT's suite of services and solutions includes process development, applications and equipment, technical solutions, and after-market support.



Automation

Equipment

Specialty Components

TotalCare



Custom Automation Solutions

Designing Tomorrow's Production Floor Today

MMT Automation is dedicated to delivering comprehensive automation and integration solutions for the medical device manufacturing industry. Formerly known as Ward Automation-Galway, MMT Automation, in collaboration with Somex Automation, stands as a global leader in the design and development of automated manufacturing solutions. This expertise compliments the MMT portfolio of comprehensive precision manufacturing solutions.

End-to-End Automation

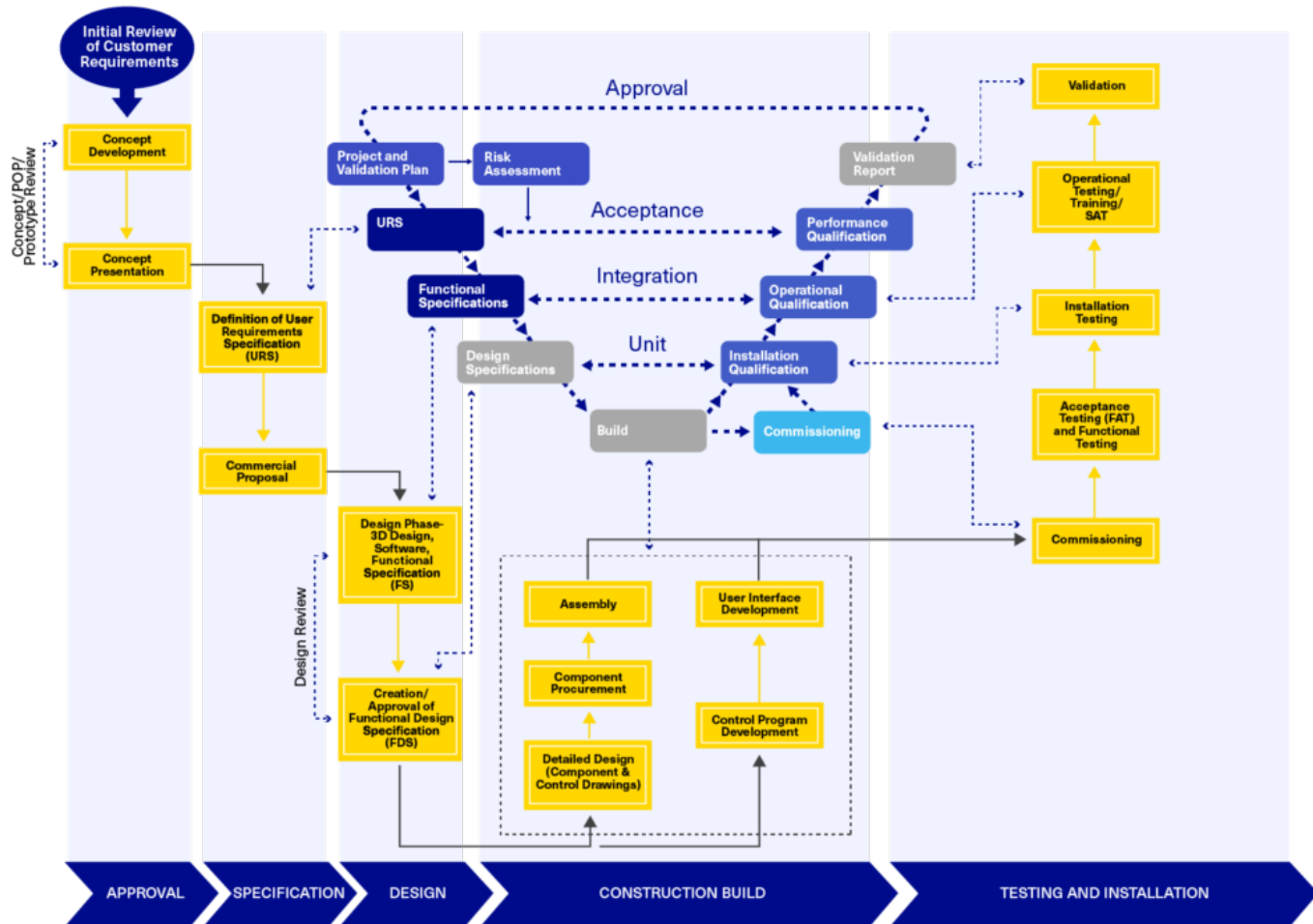
MMT Automation consists of a team of expert engineers who specialize in both new and existing production lines. Our teams adhere to a defined process flow for equipment development and design, which includes planning, specification design, construction, testing, and installation. We utilize cutting-edge automation technologies and processes that support the GAMP 5 Validation V-Model, resulting in streamlined operations, increased efficiency, and improved profitability. By developing advanced automation solutions, we help our customers optimize their operations, enhance efficiency, and boost their bottom line.



Custom Automation Solutions

Automation Solutions

Equipment development and design process that supports a typical Gamp 5 validation model.



Automation Solutions



Hydrostatic Burst Test Automation

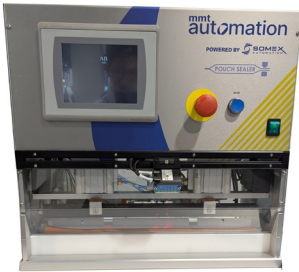
The Somex Automation High-Pressure Hydrostatic Burst Tester is a standalone unit using the hydrostatic principle, capable of generating test pressures in excess of 70 bar and burst testing a wide range of products. Versions with air or other gas pressure instead of water can be provided also.

Key Features

- Single or Multi-station configurations are available.
- Test results can be displayed on an HMI screen.
- Validation documentation can be provided or supported in collaboration with the customer.
- The unit has a PLC/HMI based control and a Recipe Parameter storage system for pressure test program operation and result storage.
- Fully CE Certified.

Bar Pouch Sealer Automation

The Somex Automation new generation Bar Pouch Sealer provides a compact tabletop solution. It is PLC controlled, interfaced with a label printer to control (poka-yoke) pouch labeling and sealing processes with a new upgraded control system.



Key Features

- Accurate digital control of temperature, pressure, and time.
- Includes a programmable Allen Bradley PLC with standard functions for barcode and printer integration functionality to poka-yoke the sequence of the sealing and printing process to mitigate against the occurrence of unlabeled and unsealed pouches leaving the sealing station.
- CE Compliant.
- Touchscreen Allen Bradley 7" HMI. Key features include:
 - Recipe-based product/parameter selection through barcode scanner or from HMI.
 - Display/monitoring of the process parameters, (temperature, pressure and time) and process alarm messages.
 - Calibration screen to simplify the calibration process.
 - 450mm sealer bar with 10mm seal width. Other widths are available upon request.
 - Sealer tooling defines the sealing position of the pouch and verifies the correct pouch size for the UPN.



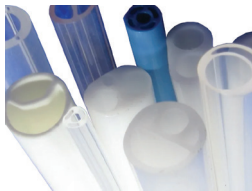
Tube Extrusion Solutions



Single Lumen Tubing

Single lumen tubing are extrusions that contain one channel, or passage, through the center of it's length. Single lumen extrusions are commonly used in medical applications where only one channel is needed for the device component.

- **Balloons**
- **Intravenous (IV) Tubing**
- **Infusion Sets and Other Pumping lines**
- **Feeding tubes**
- **Cannulas**
- **Catheters**



Multi-Lumen Tubing

Multi-lumen tubes are extrusions that contain multiple channels, or passages, through the length of the tubing. This enables a larger capacity for varying devices in a smaller diameter tubing component. Multi-lumen tubes are commonly used in medical applications where multiple, segregated paths are needed for individual devices.

Multiple cavities will allow the insertion of small devices, like cameras and wires when minimally invasive procedures are required.



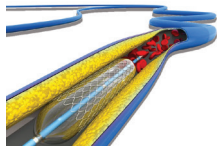
Bump/Taper Tubing

Bump tubing, or taper tubing, are extrusions that vary in diameter through the length of the tubing. Typically, the proximal end of the bump tube (the end closest to the device operator) is the larger of the two diameters, while the distal end is smaller. Bump tubes are great for combining devices where varying component diameters are necessary. Taper tubing makes connecting components simpler as they do not require additional processes or materials join devices together.



Rod-Filament Extrusion

Rods, filaments, and beading are solid extrusions that are typically round and small in diameter. Rods and filaments can also be extruded with a rectangular profile. Filaments are added to extrusions for strength reinforcement and kink resistance. Beading and rods can be used in reflow and coating applications.



Bioresorbables

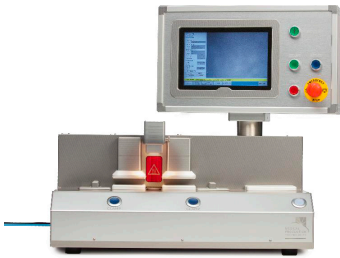
Bioresorbable tubing are extrusions that are biodegradable or naturally broken down over time. Bioresorbable devices can be implanted in the body for controlled amounts of time. They do not need to be removed manually as the material will dissolve naturally.



Catheter Bonding

BT-NG Thermal Bonder **Bonding Technologies**

The MPT BT-NG Thermal Bonder Machine is engineered to be an effective and reliable production tool for bonding various types of balloon and catheter components while minimizing ownership costs. Built to be robust and stable, the BT-NG employs the hot-jaw principle and uses small stainless steel dies to ensure precise temperature control and rapid heating.



Key Features

- Quick exchange die-unit for easy switching between various products.
- 10" color touch panel interface with parameter setting and recipe control.
- Standard color camera with recipe driven crosshair options for easy alignment of the products by the operator.
- Automatic temperature adjustment support switching die cavities for fast heating and stable stainless steel dies.
- Easy to use interface software with recipe control and barcode scanner support.
- Stepper position controlled die unit for recipe driven alignment and fast positioning setup.

TBW-500 **Tube Welding System**

The Interface Catheter Solutions TBW-500 Tubing Welding Machine is a benchtop system that welds a variety of tubing sizes and materials. It is designed to weld similar polymer components such as inner lumen to distal shaft or balloon distal and proximal necks to the catheter shaft.



Key Features

- Easy programmable touchscreen with up to 16 storable weld configurations.
- Vision system crosshairs feature delivers desired positioning for repeatable, high-quality welding results.
- Vision system tablet PC supports high-resolution settings for detailed viewing of each weld with screen capture and save.
- Automated heat shields protect surrounding catheter components, such as the balloon.
- Quick exchange welding die for simplified setup and change out of die for multiple welding operations.
- Wide range of custom dies for low-profile welds.





LBS6000 **Catheter Laser Bonder**

The Innova LBS6000 Catheter Laser Bonder provides superior ergonomics and innovative laser safety features with advanced hardware and software features ideal for process engineers. Previous LBS models are available for existing customers on special request.

Key Features

- Motorized revolving safety door.
- Enhanced air cooling.
- Ball screw actuator.
- Integrated diode pointer.
- Beam shutter.
- Multiple sample holding system configurations.



Hotbox **Bonding Technologies**

The R&D Engineering CT Hotbox configures with other CATH-TECH equipment products. The CT HOTBOX offers improved yields consistent with normal standards. It provides ideal product positioning of the thermal nozzle to give operators the capability to achieve highly precise tube and shaft bonds with increased reliability. It is useful in operating under strict process controls. The Hotbox comes with compatible guide inserts, and modifications can be made on the Y and Z axis to refine accuracy and accommodate a wide variety of product configurations.

Key Features

- Compact for worktop benches.
- Ergonomic for ease of use.
- 1000°F temperature controller.
- Cooling system can be on consistently or foot pedal controlled.



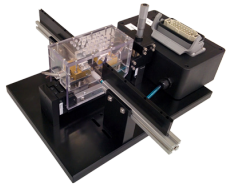
Hot-Flo Heat Box **Automation**

The Somex Automation Hot-Flo Heat Box is a benchtop Catheter Hot Air Nozzle System. The Heat Box features a digital readout of airflow, a ready lamp for temperature and airflow, and options for enhanced control and monitoring of process parameters. It is available in two configurations: compact and umbilical.

Key Features

- Precise air delivery via an accurate digital air flow controller enhances product consistency and repeatability.
- Ready lamp signals specified temperature and air flow settings.
- Enhanced control and monitoring options available for integration with external systems.
- High precision temperature control.
- CE Marked.
- Options for fixed or umbilical nozzle configurations with remote control enclosure.
- Various heater designs with adjustable V-Groove tooling for consistent product placement.
- Foot-operated cooling air blow nozzle.





Split Die Bonder **Bonding Technologies**

The R&D Engineering CT Split Die Bonder is a soft tip bonding system that butt-welds multi-segmented catheters. This system is designed to provide a reliable, fast and economical bonding solution for single use products.

Key Features

- Hot jaw heater available.
- Tool can be customized to customer sizing dimensions.
- Different die configurations.
- Compact for worktop benches.



HSO-250 Heat Set Oven **Bonding Technologies**

The ICS Heat Setting Oven provides a cost-effective approach to improve fold memory retention after balloon fluting and wrapping by using lower temperatures over an extended time.

Key Features

- Provides cost-effective heat setting for extended periods.
- Capable of housing multiple balloon catheters for increased production throughput.
- Simple setup, compact design and easy to operate.

Stent Crimping



CRF-200-PS **Stent Crimping Technologies**

The MPT CRF-200-PS is a stable stent crimping system with film protection for the processing of drug-eluting self-expandable stents. Fully enclose drug residue with our unique 4-film protection system combined with the stable MPT BV 8-blade stent crimper design.

Key Features

- Four film routing with easy feed-through and setup is the only reliable way to ensure you have no cross contamination of stents.
- Integrated safety light with intuitive user interaction.
- 10" color touch panel.
- Fast and strong full servo controlled axis for repeatable and reliable transfer of the stents into the delivery systems.
- Graphical User Interface for easy access to process cycle options.
- Online support and updates via internet.





CR-240 FSCP **Flexible Stent Crimping Platform**

The MPT CR-240-FSCP stent crimper can be easily calibrated using the one-point automatic diameter calibration function built into the system. Calibration in seconds.

Key Features

- Servo controlled stent crimping head with Zero Gap technology.
- Quick exchangeable crimping head.
- Two platforms for customized parts on holding and pushing stents and mandrels.



CR-240-SA **Stent Crimping Technologies**

The MPT CR-240-SA Stent Crimping Machine is developed for the crimping and transfer into the delivery system of self-expandable stents up to 200mm length with a maximum diameter of approximately 30mm.

Key Features

- Double camera system integrated.
- Exchangeable pusher rods and delivery system holders for various stent diameters.
- 15.5" user interface with recipe control.
- Servo controlled stent crimping head with Zero Gap technology.
- One-point automatic diameter calibration function for accurate calibration in seconds.
- Full process data logging to the internal PC system - transfer via USB.



CR-150 **Stent Crimping Technologies**

The MPT CR-150 Stent Crimping Machine is developed for the crimping and transfer into the delivery system of self-expandable stents up-to 120mm length with a maximum diameter of approximately 20mm.

Key Features

- Exchangeable pusher rods and delivery system holders for various stent diameters.
- Automatic stent loading with cradle system - no need to touch the stent.
- Easy calibration.
- Stent crimping head can deliver forces up to 1000 N radial while maintaining an even diameter over the length of the head.
- 10" full color touchscreen user interface for access to the machine parameters.
- Stable, robust design.



Catheter Reflow & Lamination



Solid Chamber Reflow Towers

Reflow

MMT's R&D Engineering Solid Chamber Reflow (or Laminating) Towers utilize our signature radiant heating process to deliver consistent, high-quality results and improved production efficiency. These systems are designed to maintain precise control of heat and speed to reflow tubing segments—such as a PTFE-etched liner, braid, and outer jacket—into a cohesive catheter shaft. Our Reflow Towers can be fully customized to meet your specific production requirements and performance goals.

Key Features

- Multi chamber design
- Additional features include load elevators for heights over 108", custom guides and guide holders, and additional security features (light curtain).
- 5 programmable zones with 5 different speeds, distances, and dwell settings at the beginning and end of each zone.
- Program up to 20 configurations on a standard unit.



CT-Reflow Roller

Reflow

The R&D Engineering CT-Reflow Roller boasts 8 chambers that continuously feed the product, and enable a quick transition between loads by the operator. This easy to control, compact machine is not suitable for micro wall systems less than <2000 of an inch.



311 Quad Catheter Laminator

Lamination

The EBD 311 Quad Catheter Laminator shrinks catheter tubing faster than the competition. Designed for vertical operation, its patented hot air circulation process contains the heat within the system, maximizing the time at temperature for faster processing. By improving accuracy of all controlled parameters, this machine can increase productivity through reduced rejects and faster processing speeds.

Key Features

- Two vertical actuators each support a double lamination chamber assembly and move parallel to the suspended catheter.
- Multiple speeds in multiple ranges per stored recipes.
- Temperature tolerance/error/accuracy: $\pm 5^{\circ}\text{C}$.
- Lamination chamber assemblies maintain a constant temperature.



Pleating & Folding

PTF-240-A **Balloon Pleating & Folding Technologies**

The MPT PTF-240-A Catheter Pleating and Folding Machine is fully automated and can pleat and fold balloons with a length of approximately 100mm. The balloon products are clamped on a stable product table with automatic positioning using stepper motors.



Key Features

- 10" color touch panel interface with parameter setting and recipe control.
- Servo controlled zero gap fold head with stainless tool steel blades and high-wear resistant low friction coating.
- Innovative design for quickly exchanging the pleater setup from 3-, 4-, 5- or 6-pleats.
- The PTF-240-A is built with a very high-quality benchmark resulting in a stable and robust design with minimal cost of ownership.

PTF-240-M **Balloon Pleating & Folding Technologies**

The MPT PTF-240-M is a fully automated machine and can pleat and fold balloons with a length of approximately 220mm. The balloon products are clamped on a stable product table with automatic positioning using stepper motors.



Key Features

- Servo controlled zero gap fold head with stainless tool steel blades and high-wear resistant low friction coating.
- 10" color touch panel interface with parameter setting and recipe control.
- Innovative design for quickly exchanging the setup from 3-, 4-, 5- or 6-pleats.
- Maximum balloon length: approximately 220mm (depending on cone angles).

PTF-120-A **Balloon Pleating & Folding Technologies**

The MPT PTF-120-A is a fully automated machine and can pleat and fold balloons with a length of approximately 100mm. The balloon products are clamped on a stable product table with automatic positioning using stepper motors.



Key Features

- 13" color touch panel interface with parameter setting and recipe control.
- Servo controlled zero gap fold head with stainless tool steel blades and high-wear resistant low friction coating.
- Innovative design for quickly exchanging the pleater setup from 3-, 4-, 5-, or 6-pleats.
- The PTF-120-A is built with a very high-quality benchmark resulting in a stable and robust design with minimal cost of ownership.



Balloon Forming

BFMS-500-S2 **Split Mold Balloon Former**



The MPT BFMS-500-S2 Split Mold Balloon Forming Machine has full servo control on the proximal and distal axis. This allows for precise and fast stretching of the parisons during the balloon blowing process. The axis has force control and individual loadcell systems allowing forces to be monitored and used as control parameters during the process.

Key Features

- Quick exchange of molds.
- Active pressure drop control.
- Self aligning high force distal and proximal clamps.
- Internal pressure booster.
- Parison pre-heating.
- Stretch force: 500 N max.
- Full servo-controlled axis for repeatable and reliable stretching.
- Flexible process interface.

BFM-500-S2 **Balloon Former**

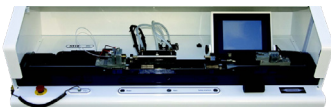


The MPT BFM-500-S2 Balloon Forming Machine has full servo control on the proximal and distal axis. This allows for precise and fast stretching of the parisons during the balloon-blowing process. The axis has force control and individual loadcell systems allowing forces to be monitored and used as control parameters during the process. The BFM allows you to quickly exchange the heat/cool block for a different size/shape balloon.

Key Features

- Flexible process interface for virtual limitless process cycle options on a large 19" full-color touch panel interface.
- Fast and strong full servo-controlled axis for repeatable and reliable stretching of the parison materials during the forming process.
- Standalone flexible process interface software package available for offline development of processes.
- Parison pre-heating system to reduce cycle times.
- Quick exchange of mold head (heat/cool block) without the need to manual connect/disconnect water hoses and connectors.
- Large 19" full-color touchscreen user interface for easy overview of the machine behavior.





BFM-3310

Balloon Forming Machine

The ICS BFM-3310 Balloon Forming Machine is a computer-controlled system that expands upon a continued standard of excellence with ever-increasing capabilities and options. The BFM-3310 is a bench-top system designed to produce a variety of high-strength polymer balloons. The balloons are formed from precision extruded balloon tubing inside a beryllium copper mold. The BFM-3310 provides accurate and repeatable control for processing high-quality balloons with tight tolerances in an extensive variety of sizes and shapes.

Key Features

- Next generation Programmable Logic Controller (PLC) expanding overall programming controls.
- Color LCD touchscreen display with tilt adjustment.
- Real-time control and centralized display for all functions and parameters.
- Top panel access to circuit breakers and service panel access to pressure controller for easier calibration.
- Heater current and water tank temperature monitors with alarms to safeguard production yields.

BFM 4410-3X

Balloon Forming Machine

The ICS Model BFM-4410-x3 Computerized Balloon Forming Machine is a bench-top system, designed to handle a wide range of tubing sizes and materials. This includes materials such as Polyethylene (PE), Polyvinyl chloride (PVC), Polyurethane (PU), PET and Polyimides, and amides (Nylons). The BFM-4410 -3x provides the capability to form up to three balloons per cycle.



Key Features

- Capable of producing the most extensive range of balloons in diameters and lengths (0.5 to 52mm x 0.5 to 360mm).
- Ability to produce many unique shapes (cylindrical, spherical, oval, conical, stepped, tapered, and more).
- Accurate and repeatable results to produce high-quality catheter balloons.
- Ability to form 1, 2, or 3 balloons in one cycle (at one time).
- If one balloon bursts the other(s) will not be affected.
- Designed to handle a wide range of tubing sizes and materials including Polyethylene (PE), Polyvinyl chloride (PVC), Polyurethane (PU), PET and Polyimides, and amides (Nylons).





BFM-5510-HF **Balloon Forming Machine**

The ICS BFM-5510-HF Balloon Forming Machine introduces advanced capabilities for manufacturing Structural Heart, Large Platform and Thick Wall High Pressure Balloons to the Interface BFM lineup. The BFM-5510 HF is a bench-top, computer-controlled system for the precise production of low and non-compliant polymer balloons used in angioplasty, stent placement, and other cardiac procedures. Built on the reliable BFM-3310 platform, the BFM-5510 HF utilizes beryllium copper molds to shape precision-extruded balloon tubing, delivering balloons with stringent quality and tight tolerances across an extensive range of sizes and shapes.

Key Features

- Capable of producing low and non-compliant balloons.
- Forms robust balloons that withstand pressure variations.
- Includes high-pressure mold close.
- Ability to produce many unique shapes (cylindrical, spherical, oval, conical, stepped, tapered, and more).
- Accurate and repeatable results to produce high-quality catheter balloons.

Parts & Tooling



Water Jacket Assemblies **Balloon Forming**

ICS offers a full line of Water Jackets to be used with our Balloon Forming Machines. Each Water Jacket accommodates a range of mold sizes.

Key Features

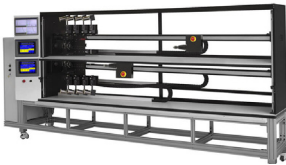
- Modular approach allows balloon forming ranging in size from 1.5mm x 10mm long to 18mm x 247mm long to 40mm x 150mm long on the same machine by simply changing the mold and water jacket.
- Water jackets are interchangeable and can be installed in minutes.



Micro-Coil Winding

924 Multi Filar Coil Winder **Micro Coil Winder**

The EBD 924 Multi Filar Coil Winder Machine uses a vision system to wind fine filaments around a spinning mandrel and produce multi filar micro coils with up to 8 filars. EBD coil winders allow exacting control of all winding parameters, including programmable wire tension – capable of tight precision down to extremely low values.



Key Features

- Wind filament between .0001" to .015".
- Store up to 250 process recipes.
- Brushless servo drives on traverse and both mandrel ends.
- Limit travel distance and mandrel length in recipe setting.
- DIN 100 filament spool size.
- Expand to 6 filars per head and up to 200" of traverse travel.

503 Single-Filar Coil Winder **Micro Coil Winder**

The EBD 503 Single-Filar Coil Winder delivers the ability to wind coils using filament as small as .001" diameter on a .004" mandrel using innovative closed-loop filar tension control system. The machine flexibility enables the filar tension to be recipe controlled from 5 grams to 600 grams during the entire wind.

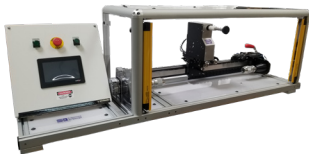


Key Features

- Winds stacked (tight pitch) or loose (variable or fixed pitch) coils on a spinning mandrel.
- Right chuck position can be adjusted to get variable mandrel lengths.
- Mandrel length is part of the recipe setting and travel is limited accordingly.
- Up to 250 process recipes can be stored and shared between the two wind heads.
- Recipe edit menu allows up to 30 repeating combinations of any pitch, angle, direction, speed, tension, and length.
- Recipe steps can ramp pitch between set points (plus angle ramp with vision option).

996 Benchtop Coil Winder **Micro Coil Winder**

The EBD 996 Benchtop Coil Winder empowers R&D engineers with exceptional control and accuracy for proof-of-concept and small-scale production. Intuitive programming streamlines testing new coil winding patterns, evaluating wind pitch tightness, or examining filament tension. From catheters and pacemakers to emerging medical devices, the EBD 996 Benchtop Coil Winder provides an economical model without sacrificing quality.



Key Features

- Winds loose (variable or fixed pitch) coils on a spinning mandrel.
- Right chuck position can be adjusted to get variable mandrel lengths.
- Mandrel length is part of the recipe setting and travel is limited accordingly.
- Up to 25 process recipes can be stored with up to 20 steps each.
- Displays of parameter set points and actual values.



Heat Shrink Removal & Skiving



CT- Skiver

The R&D Engineering CT Skiver is a customized tool that cuts between the catheter tubing and applied heat shrink layers and separates them, removing the heat shrink material. These skivers can be individually customized to your specific needs including as small as 0.017" to as large as .400".

Manual Skivers



Manual skivers are optimal for low-volume and small-scale manufacturing or prototyping where meticulous attention to detail is necessary. MMT's FEPeeler Manual Skivers offer precise control and flexibility, providing a practical and cost-effective solution. Proudly Made in the USA from 300 series stainless steel, the FEPeeler works with many heat shrink materials, including polyolefin and peelable heat shrink.

Options/Parameters:

- **FEPeeler-Macro** - Removes heat shrink from .200" to .500" OD (15.2F-38.1F).
- **FEPeeler** - Removes heat shrink from .150" to .375" OD (11.4F-28.6F).
- **FEPeeler-Mini** - Removes heat shrink from .075" to .180" OD (5.7F-13.7F)
- **FEPeeler-Micro** - Removes heat shrink from .045" to .085" OD (3.4F-6.5F).
- **FEPeeler-Pico** - Removes heat shrink from .020" to .045" OD (1.5F-3.4F).
- **FEPeeler-Custom** - Custom tool profiles are an option for any shape.

Auto-Skivers



In high-volume manufacturing operations where efficiency is key, automatic skiving tools offer a game-changing solution. Ideal for large-scale production requiring consistent and precise heat shrink removal, MMT's FePeeler Auto-Skiver tools boost productivity and reduce labor costs while ensuring high quality. With the ability to deliver speed, precision, and repeatability, automatic skiving tools are the go-to choice when efficiency and excellence are non-negotiable.

Options/Parameters:

- **Auto-Skiver** - Removes heat shrink from .150"-.375" OD.
- **Auto-Skiver Mini** - Removes heat shrink from .075"-.180" OD.
- **Auto-Skiver Micro** - Removes heat shrink from .045"-.085" OD.



Catheter Tipping, Flaring, Bonding

Quantum **RF Catheter Tipping**



The Cathtip Quantum is a tabletop RF tipping machine designed to produce superior outputs. The state-of-the-art, precision catheter forming system produce the highest quality parts with speed and consistency. Produce a wide range of applications – flares, flanges, angular welds, bonds, multi-lumen shape transitions, butt welds, balloon to catheter welds, neck downs, soft-tip fusion, metal-to-tube adhering, sheaths, dilators, radio-opaque, strain relief bonds, swaged metal needle guides, tube-in-tube bonds, etc.

Key Features

- Streamlined for production.
- Tailor-engineered.
- Extrusion sizes from 1 FR to 34+ FR.
- Proprietary, durable carbide tipping dies.
- Modular “black box” tooling design.
- Store up to 256 recipes.
- Multi-stage heating capability.

Magnum **RF Catheter Tipping**



The Cathtip Magnum provides the most flexible RF architecture on the market, capable of tip forming, flaring and bonding in production or R&D settings. Our state-of-the-art precision catheter forming systems produce the highest quality parts with speed and consistency. The Magnum can achieve flashless tips, smooth bonds, and exacting geometry with virtually all thermo-plastic materials.

Key Features

- Flexible for R&D and production environments.
- Store up-to 10,000+ recipes.
- Extrusion sizes from 1 FR to 34+ FR.
- Proprietary, durable carbide tipping dies.
- Modular “black box” tooling design.
- Generate temperatures up to 650 °F.
- Multi-stage heating capability.
- Ability for remote access and troubleshooting.

Glass Die Tipper **Catheter Tipping**



The R&D Engineering Glass Die Tipping Machine automates the process of pushing a catheter up into a glass die mold, then heated and formed to the tip of a specific mold and radial shape. The Glass Die tipper enables a chilling process to occur where the tipped catheter can separate and be removed from the glass die machine.

Options

- Die type.
- Heating Material.
- Push Assist.
- HMI/Servo Controls.



Catheter Drilling, & Hole Forming

Accu-Drill Hole Drilling



SYNEO Accu-Drill and Accu-Punch solutions are advanced, space-efficient solutions for drilling burr-free holes in a wide range of single and multi-lumen tubing materials such as Polyvinyl chloride (PVC), Low-density polyethylene (LDPE), PEEK, Polytetrafluoroethylene (PTFE) and Pebax®. The Accu-Drill and Accu-Punch machine are heavily utilized in clean room manufacturing environments where catheter punching and hole drilling applications exist.

Key Features

- Efficient control and collection of hole plugs and skive debris.
- Drill depth setting resolution: .001" (.025mm).
- Drill chuck: .125" (3.17mm) diameter.
- Spindle speed: 0 – 4,000rpm.
- Drill Chuck Run-out: .0002" (.005mm) TIR.
- Configurable for any type of catheter requirement.

Cathtip 400-Series Hole Forming



The Cathtip 400-Series is a Precision Hole Drilling Machine that delivers results to the highest industry hole quality standards and is custom built to suit your application's specifications. Hole sizes down to 0.015" multi-lumen configurations ranging from 2-8+ lumens, able to precisely locate and perforate individual lumen. Materials from soft silicones to harder polymers.

Key Features

- Flow Thru™ core evacuation.
- Razor sharp cutting edges – drill edge diameter sharpened to +/- 0.0007".
- Burr-free holes.
- Long drill life – hardened SS440C.
- Safety light curtain.
- Multi-stage heating for fully automated capability.

Flex-Drill Hole Forming



Flex-Drill by Cathtip is the most flexible, cost-effective option for hole forming in catheter prototypes and early development applications. The drill can be mounted or handheld and operated by a foot pedal making it quick and easy to try new hole diameters or patterns in a variety of different tubing materials. The Flex-Drill utilizes the superior Flow Thru™ bit technology found in Cathtip's hole forming machines allowing for easy core evacuation and a clean workstation.

Key Features

- Mountable in drill press with motion platform.
- Over two dozen drill bit sizes from 0.015" - 0.197".
- Fine tune depth stop.
- Robot arm integration (optional).
- Panel dial set speed from 100-2000RPM.
- Interchangeable with SYNEO punch inventory.
- Collet-style drill head for punches and ejector pin (optional).



Automated Tube & Wire Cutting

Accu-Cut 202L **Tube Cut-Off**



The SYNEO Accu-Cut 202L Automated Tube Cutter is highly regarded among medical device manufacturers for its precision, speed, and adaptability. It delivers clean, square corners and precise lengths with convenient output.

Key Features

- Square cuts and precise lengths on both hard and soft materials.
- Angle cuts, dual cuts, slitting, skiving, drilling, and inspection.
- Clean air deionizer and scrap eject.
- Cut and slit length range: 0-100" (0-2540mm).
- Fast, repeatable setup.
- Automation of stick- and spool-fed materials available.
- Automatic index crush control.
- Cut length range: .020-300" (0.51-7620mm).
- Length handling range: 2-1000" (5-2540cm).

Accu-Cut 700L **Tube Cut-Off**



The SYNEO Accu-Cut 700L Automated Braided Tubing Cutter brings the engineering of the Accu-Cut 202L to difficult materials, including braid-reinforced tubing, stainless steel, polycarbonate and nylon 12. The 700L features a high precision automatic indexer, which provides repeatable lengths, and a full-color LCD touchscreen. It is programmable and has many options available to fit exact requirements.

Key Features

- Repeatability (+/-): .007" (0.18mm).
- Automatic indexer; no mandrel necessary.
- Cut length range: .050-72" (1.27-1829mm).
- Std. deviation: .0003" (short lengths) (0.08mm).
- High speed option: 45"/second (114cm/second).
- Low-cost, easy-to-change blade.
- HMI: 7" full color LCD touchscreen.
- Length handling range: 2-100" (5-254cm).

Accu-Cut 202W **Wire Cut-Off**



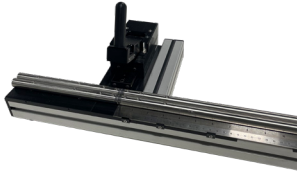
The SYNEO Accu-Cut 202W Automated Wire Cutter is a high precision automated medical wire cutter that provides the cleanest cuts for stainless steel, nitinol, and titanium wire, flat wire, and coils.

Key Features

- Repeatability (+/-): .2-.5% of total cut length in most applications.
- High speed option: 44.882"/second (114cm/second).
- Standard deviation: .0005" (short lengths) (0.013mm).
- Low-cost, easy-to-change blade.
- Maximum blade force: 20lb (9.07kg).
- Cut and slit length range: 0-100" (0-2540mm).
- Design annual usage: 10 million cycles.
- Length handling range: 2-100" (5-254cm).

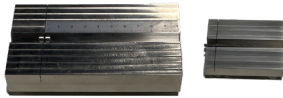


Manual Tube & Wire Cutters



Cross Roller Cutter

R&D Engineering offers manually operated cross roller cutters in two different roller sizes to accommodate various product size ranges. They are sold in 48" and 72" capacity lengths. Cutters are designed to use standard Gem blades and do not require a tool of any kind to change the blade.



V-Block Cutter

R&D Engineering offers manually operated V-Block style cutters, available in three different sizes. They are available in three different sizes. The body is made of 303 stainless steel and is designed to work with standard backed razor blades.



Guillotine Cutter

R&D Engineering offers manually operated cross roller cutters in two different roller sizes to accommodate different product size ranges. The blade drops between ball bearings to cut the smallest sizes, cutting parts from .020" up to approximately .170", and works well for braided catheters.



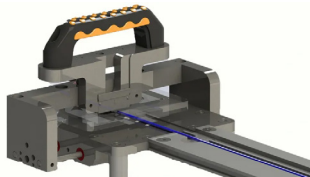
MRC-1

The FEPeeler MRC-1 uses a hand-held blade that fits into a .010" wide slot for clean, straight cuts. The blade drops between ball bearings to cut the smallest sizes. It will cut parts from .020" up to about .170". It works great for braided catheter cuts, too.



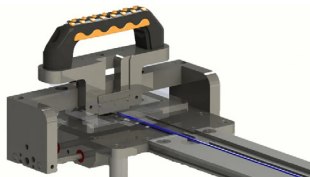
MRC-XS

The FEPeeler MRC-XS cutter uses a hand-held blade that fits into a .010" wide slot for clean, straight cuts. The blade drops between ball bearings to cut the smallest sizes, down to .010", and works well with braided catheters.



RC1

The FEPeeler RC1 roll cuts parts from .050-.375 with or without braid. This cutter was designed to provide straight cuts by extending the distance between blade supports, which minimizes blade angle movement. The cutting depth is adjustable with an ultra fine thread screw. The cutter drives the rolling of parts on the OD rather than relying on the blade to make contact with the mandrel. This presents less damage to mandrels and decreased downforce to drive the cut. When cutting unbraided parts on a stainless steel mandrel, the operator receives several cuts on a single.



RC-1XL

The FEPeeler RC1-XL is the same great cutter, but it is designed for larger OD products requiring a longer stroke. With the larger rollers and long AccuTec blade, operators can make a complete circumferential cut in one motion. It can cut up to .550" OD products.



Tube & Wire Feeding

Accu-Feed 110 Tube and Wire Feeding



The SYNEO Accu-Feed 110 Stick Tubing and Wire Feeder provides high speed, precise stick feeding of wire, metal and plastic tubing and metal rods for medical applications. This machine can feed and hold at an accurate position, or can feed until a handoff signal is received. The 110 can be paired with Syneo machines to rotate and process parts. It can communicate with and control many processes including centerless grinding, cutting and trimming, marking, tip forming, testing, measurement and inspection, insulation removal, and ablation and assembly. The 110 can also act as an interface, such as to download control programs to other equipment.

Key Features

- Fast, accurate part feeding.
- Integrates with a wide range of processes.
- Can process a range of material types, lengths, and widths.
- An operator can run more than five machines at a time.
- Maximum length: 48" standard; 96" optional (1m standard; 2m optional).

Accu-Feed HPD Tube and Wire Feeding



The SYNEO Accu-Feed HPD High Performance Dereeler is designed for large spools and heavy gauge materials. Its large dancer arm, stronger drive transmission and revised part path eliminates reverse-bending during the feed process, which is ideal for olefin, Teflon®, and heavy gauge materials.

Key Features

- Designed for high-volume, critical tolerance manufacturing.
- Precision ball-bearing construction for low dancer arm friction.
- Torque-limited for safety.
- Fine tune depth stop.
- Maximum spool diameter: 17.75" (0.45m).
- Incorporates static-reducing technology for cleanliness.
- Maximum spool width: 10" (0.25m).
- Maximum spool weight: 12 lbs. (5.4kg).





Accu-Feed LTD Tube and Wire Feeding

The SYNEO Accu-Feed LTD Low Tension Dereeler is designed to provide constant strain, low tension payout of tubing to an Accu-Cut or other machine for high volume, critical tolerance manufacturing operations. It features a low mass, non static proportional speed dancer arm. The LTD is torque-limited for safety and does not require any electrical connection to its host machine.

Key Features

- Designed for high-volume, critical tolerance manufacturing.
- Precision ball-bearing construction for low dancer arm friction.
- Incorporates static-reducing technology for cleanliness.
- Maximum spool width: 10" (0.25m).
- Maximum spool diameter: 17.75" (0.45m).
- Maximum spool weight: 12 lbs. (5.4kg).



Accu-Feed CPF Center Pick Feeder Tube and Wire Feeding

The SYNEO Center Pick Feeder targets similar applications as the SYNEO 110 feeder but with a significantly smaller floor space requirement. This compact medical stick tubing feeder can feed and position to an accurate location, or can feed until a handoff signal is received from downstream equipment. It can communicate with and control processes including centerless grinding, cutting and trimming, marking, tip forming, testing, measurement and inspection, insulation removal, and ablation and assembly. The CPF is also available on SYNEO's Dual-Feed System (DFS) for quick changeover between stick and spool feeding.

Key Features

- Full-color, touchscreen HMI.
- Recipe-driven software and quick change snap-in tooling for fast changeovers.
- Wide range of automation options including part-shuffling, feed gap control for high diameter-mix scenarios, and static reduction system.
- In-line downstream integration capability with SYNEO equipment and/or third party equipment including extrusion, cutting, grinding, drilling/punching, pad printing, media-blasting, and laser marking processes.



Parison Stretching

PSM-400 SD **Parison Stretching Machine**



The MPT PSM-400-SD Parison Stretcher is meticulously engineered to stretch parisons with unparalleled precision, ensuring uniformity and strength in every catheter produced.

Key Features

- 10" color touch panel interface with parameter setting and recipe control.
- Fast and powerful servo-controlled axis for repeatable and reliable stretching of the parison materials during the forming process.
- Innovative pre-heating system for better parison stretching results.
- Easy to change split die with stable and robust design for reliable production.

PSM-500 SD **Parison Stretching Machine**

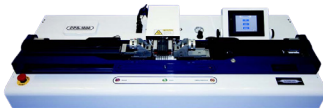


The MPT PSM-500-SD Parison Stretcher is meticulously engineered to stretch parisons with unparalleled precision, ensuring uniformity and strength in every catheter produced. Maximum stretch force of 500 N.

Key Features

- Easy to change split die with stable and robust design for reliable production.
- 10" color touch panel interface with parameter setting and recipe control.
- Maximum stretch force of 500 N
- Fast, powerful servo-controlled axis for repeatable and reliable stretching of the parison materials during the forming process.
- Easy-to-use interfacing software with recipe control.

CPS-1000 **Computerized Parison Stretcher**

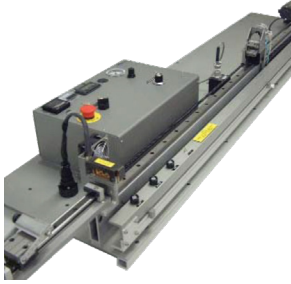


The ICS CPS-1000 is a system designed to stretch or neck-down tubing parisons in preparation for the balloon-forming process. It is easily programmable through the tilt touchscreen and capable of storing multiple program parameters with an operator lock-out option.

Key Features

- High throughput with up to 3 tubes per cycle.
- Easily programmable using the tilt touchscreen.
- PLC-controlled with program storage.
- Password lockout.
- Uniform stretched tubing with repeatable results.
- Three heater jaws available for a wide range of balloon tubing materials and sizes.





EDS: Extrusion Die Stretcher

Parison Stretching Machine

The ICS Extrusion Die Stretching Machine performs hot die draw-down of plastic tubing used in catheter production. Three different models are available, 3x26, 3x68, and 3x80, allowing operators to maximize workspace based on the tube extrusion requirements.

Key Features

- 26", 68", or 80" maximum draw down length.
- 6-digit LCD display for draw speed and draw distance readout.
- Chain drive with air activated engage/disengage clutch.
- Quick release mechanism for fast exchange of the extrusion dies.



Mandrel Pulling



Mandrel Puller

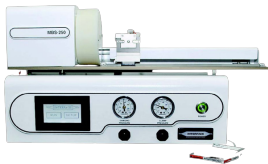
Automated Mandrel Remover

The R&D Engineering CT Mandrel Puller is a simple machine designed to pull out mandrels from any type of catheter tubing. This machine can be equipped with either servo or pneumatic controls depending on operational needs. This machine provides several different ways to grip the mandrels and offer mandrel handling after the unit is completed.

Key Features

- Pulls solid or stretch materials out of finished units.
- Equipment can be fabricated to meet length and diameter requirements.
- Standard machines pull 44" and 53" lengths.
- Pull speeds and other items can be programmed or set to a specific speed.

Marker Band Swaging



MBS-250

Marker Band Swager

The ICS MBS-250 Marker Band Swager is compact and clean-room ready with 360° swaging performance for gradual and smooth diameter reduction of marker bands for catheter production. The swaging equipment offers superior performance and no striations or deformations to the swaged parts.

Key Features

- Improve setup, wear and maintenance with one-piece die design.
- Increase capabilities for distance between marker bands.
- Smallest footprint available on the market, clean-room ready and easy-to-use.



Catheter Liner Stretching



Catheter Liner Stretcher

The R&D Engineering Liner Stretcher uses a combination of heat and tension to process a liner to a fixed mandrel. This automated process eliminates the need for the operator to hand stretch a liner. This Liner Stretcher and its process allow the liner to sit tight against the mandrel with minimal relaxation. Because of the fine machine control combined with the process, throughput is increased, scrapped units are decreased, and etching issues ("white liner") are diminished. This process also eliminates operator safety and health issues related to Carpal Tunnel Syndrome.

Key Features

- Available in either servo stretcher or dead weight configurations.
- Program up to 20 configurations on a standard unit.
- Easy-to-use HMI operator interface.
- Integrated temperature controllers.
- Deadweight system implementation.



Marking, Printing, & Ablation

Accu-Lase V200 **Laser Marking Technologies**



The SYNEO Accu-Lase V200 Automated UV Laser Processing System allows for greater process capability in precision tube cutting of polyimide tubing and complex hole making, as well as polymer marking. The V200 is a fully-automated laser micromachining system, allowing the operator to batch load parts, which are singularly picked up and fed by a vacuum pick head.

Key Features

- UV laser – optimal for laser micromachining and laser cutting of polyimide parts.
- Vision system allows for easy viewing of the process.
- Automatic mandrel insertion for tubing provides quality and helps protect opposite wall.
- Capable of complex shapes, with marking and cutoff of polymers and metals.

Accu-Lase System **Accu-Lase Automation Technologies**



SYNEO's Accu-Lase UV Laser products target a wide range of materials, including polyimide and Pebax tubing, as well as nitinol and stainless wire. The automated laser processing systems are available in integrated pick-feed-lase-inspect-bin configurations (V200X) within a stand-alone workstation (V200).

Key Features

- Integrated galvo scanner for near infinite pattern/ablation creation.
- Flexible solution for laser processing of hypotube, NiTi, SS wire, and polymer tube, and injection molded components.
- Integrated X and R axes allowing automatic positioning of part to lase position.
- PC or PLC Interface controls.

Accu-Blast **Fully Automated Sandblasting Technologies**



The SYNEO Automated Microblasting System provides precise, fully automated media ablation of coated wires and tubes. Targeted applications include oxide layer removal, coated medical wire ablation, coating removal, surface roughening for adhesion. Stripe making for visual identification (marker bands).

Key Features

- Recipe-driven, programmable positioning for OD abrasion of a wide range of polymer or metallic tubes/wires with barcode reading capability.
- Full-color, touchscreen HMI.
- Ideal configuration for ablating coated wires and surface roughening of hypotubes and other off-form components.
- Closed loop motion allows for accurate positioning of blasted zones.



Catheter Testing



PT-3070 Hydraulic Pressure Tester

The ICS PT-3070 is ideally suited for testing small plastic pressure retaining components such as welded or bonded plastic components and tubing assemblies that are typically encountered in many disposable medical devices, such as balloon catheters.

Key Features

- Simple test setup and operation.
- Small footprint.
- Tilting color touchscreen for data input.
- Up to 100 programmable test sequences.
- 0-1000 psi pressure range.
- Precise control of pressure, volume, and flow rate.



GPL-501B Gas Pressure Leak Tester

The ICS GPL-501B Gas Pressure Leak Tester, Model GPL-501, is a tabletop machine used for non-destructive leak testing of catheter components using dry nitrogen gas. Nitrogen gas is inert so there is no residue, water spots, or water droplets on catheter components, making it ideal for testing of finished devices.



GPL-5020 Gas Pressure Leak Tester

The ICS Gas Pressure Leak Tester, Model GPL-5020, is designed for rapid, non-destructive testing of catheters. The system can also perform vacuum leak testing of catheter/stent assemblies to verify the integrity of a balloon after stent crimping.



DFW-1000 Hydraulic Pressure Tester

The ICS Hydraulic Pressure Testers provide critical hydraulic test functions for balloon catheters and components, including tubing and balloons. The HPT-1000 is easily programmable with a high visibility vacuum florescent display and four navigation keys.



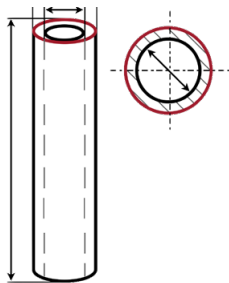
Specialized Punching Solutions

Specialized punching tools are required to make polymorphic geometries ranging from triangles, rectangles, diamonds, ovals, and others. With over 20 years of punch design and manufacturing experience combined with robust internal machining capabilities that address the most challenging hole making applications. Regardless of punch geometry, our punches feature cutting edges sharpened with SYNEO's Hollow Core Sharpening Technology.

Hole Making Solutions

Polymer Tubing and Catheter Manufacturing Applications

We work closely with customers to evaluate hole making and skiving applications to determine the best cutting tool to achieve device specifications. Teams will analyze the optimum blade raw material, tip style, dimensions and coating, and recommend punches or coring blades to achieve optimal hole quality, eliminate risk of burr formation, and maximize tool durability for each hole application.



1 Shape Choice

Optimized Hole Making Solutions

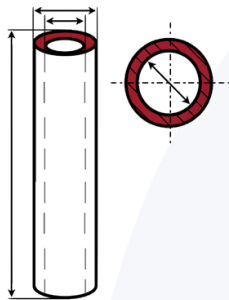
- Round
- Oval
- Formed
- Custom

Specialized punching tools are required to make polymorphic geometries ranging from triangles, rectangles, diamonds, ovals, and others. MMT's punch design and manufacturing experience combined with robust internal machining capabilities can address the most challenging hole making applications. Regardless of punch geometry, MMT's punches feature cutting edges sharpened with the SYNEO Hollow Core Sharpening Technology.



Tissue Cutting & Surgical Device Applications

Coring blades minimize undercut tissue distortion, create a superior wound architecture for quicker healing, minimize downward pressure needed for the incision, maximize tissue separation, and increase the probability of complete plug extraction.



2 Tip Profile

Inside Cutting Edge:

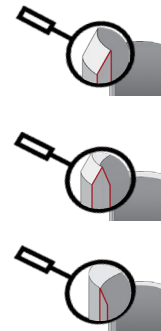
- Smallest hole per inside diameter
- Ideal plug removal tip profile

Middle Cutting Edge:

- Longest blade life
- Most durable cutting edge

Outside Cutting Edge:

- Largest hole per outside diameter
- Deal plug capture tip profile
- Ideal plug removal tip profile



SYNEO HOLLOW CORE SHARPENING TECHNOLOGY was developed in response to customer demands for sharp edges on tubular products with enhanced durability to weather rigorous use. Through 20+ years of research and experimentation, SYNEO's cutting edges are the sharpest, most-durable edge on any hollow core product in the world.



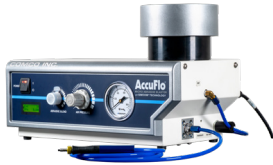


MicroBlasting Machines

Comco's systems are used in a variety of industries to texture, deburr, clean, etch and cut a wide range of materials. Comco's customized solutions help businesses large and small meet today's design, engineering, and manufacturing challenges.

AccuFlo **Micro-Precision Sandblasting Equipment**

AccuFlo is Comco's first micro-abrasive blaster equipped with patented Simoom Technology featuring a redesigned modulator, aerodynamic tank and PowderGate® valve. The added flexibility and enhanced powder flow control allow for a wider range of applications. Building on over 60 years of MicroBlasting experience, AccuFlo represents the best of what is possible. It incorporates advancements in abrasive mixing, durability, and operator experience.



Key Features

- AccuFlo was designed to consistently deliver a uniform abrasive stream in the harsh environment of abrasive media.
- Simoom® Technology is Comco's patented method of consistently and efficiently mixing air and abrasive. This breakthrough technology creates a more streamlined flow path, reducing turbulence, to provide better control over the abrasive stream—and allows the AccuFlo to work with a wider range of abrasive.
- PowderGate® is rated to last 250,000 blast cycles in a production environment without maintenance. A traditional pinch valve lasts about 10,000 blast cycles.
- The ComfortGrip® Handpiece provides the ultimate combination of comfort and performance. ComfortGrip® has a cushioned, natural feel and is less resistant to motion than standard handpieces so operators can blast without getting tired.

ProCenter Plus **All-In-One MicroBlasting Work Station**

Comco's ProCenter Plus is designed specifically for MicroBlasting, combining a compact dust collector and chair-height work chamber in one freestanding unit, creating a clean, comfortable work environment with great visibility.



Key Features

- The perfect companion to AccuFlo, ProCenter Plus combines all necessary accessories into one self-contained system on wheels and has a footprint of only 30" x 34".
- Reduce noise without sacrificing efficiency, operating at a sound level of just 68 dBA.
- Equipped with an easy-to-replace HEPA filter. HEPA air filtration means 99.97% of all particles greater than 0.3 micron in size are removed.
- Spent abrasive is quickly evacuated from the blast chamber and captured in the media hopper. Disposal is simplified with 2 large butterfly valves.



Advanced Lathe **Automated MicroBlasting Platform**



Comco's Advanced Lathe integrates micro-abrasive blasting technology with an advanced machining platform. This automated system delivers the accuracy, reliability, and throughput to meet the challenges of today's manufacturing environment.

Key Features

- Built for abrasive environments, Comco's media is almost as hard as diamond and as fine as moon dust. Through Comco's engineering expertise, systems are designed and manufactured tough enough to withstand these harsh environments in a production environment.
- Quickly change between different types of parts. The refined user interface includes a bright, easy-to-read touchscreen display.
- With up to four axes of motion, Advanced Lathe is capable of handling complex part geometries and performing multiple operations during the same blast routine.
- Advanced Lathe has been engineered to operate with either the AccuFlo or PowerFlo families of Comco blasters.

JetCenter **Automated MicroBlasting Platform**



In an evolution of Comco's automated MicroBlasting platform, the JetCenter has created new options. In addition to having greater travel, this system is designed specifically to integrate additional types of motion and automation within the blast chamber. JetCenter is the go-to choice for large flat parts or trays of smaller parts that need to be blasted individually.

Key Features

- Built for abrasive environments, Comco's media is almost as hard as diamond and as fine as moon dust. Through our engineering expertise we are able to design and manufacture a system tough enough to withstand these harsh environments in a production environment.
- JetCenter protects against accidental improper loading of parts or mismatch of programs. Simply select a preset program, load the parts, and blasting can begin at the press of a button.
- JetCenter configurations can be developed for a wide range of processes to meet exacting standards in the medical, aerospace, electronics, automotive, semiconductor industries, and more.
- JetCenter has been engineered to operate with either the AccuFlo or PowerFlo families of Comco blasters.

Guidewire Grinding Solutions

Guiding catheters and other medical devices during Cardiovascular and Neurovascular procedures, guidewires require precision equipment. Glebar offers best-in-class guidewire grinding technology.



CAM.2 Micro Grinder **Micro Grinder**

The Glebar CAM.2 Micro Grinder is the perfect machine for grinding complex medical and small precision parts such as medical guidewires, radiuses, needle points, and non-linear shapes. Previously unproduceable parts can be made easily with minimal setup time and with limited operator training. Glebar's patented dual-carriage linear motor part feed system ensures that the position, speed, and rotation are under absolute control at all times, controlling the grind with a high degree of diameter and length accuracy.

Key Features

- Software interface allows an unskilled operator to run multiple high-precision machines simultaneously.
- Secondary spindle assembly can be used as a cutoff wheel to grind slots, angular slots, or to generate sharp internal corners.
- Absolute control over the lengths and diameters.
- Available Spool Feeder System feeds Nitinol and SLT wire from a spool and cuts the wire to length.

GT-9AC Guidewire Grinder **Automated Guidewire Grinder**

The Glebar GT-9AC Automated Guidewire Grinder excels at precision grinding of medical guidewires with multiple tapers, paddles, and parabolic shapes with speeds as fast as a centerless grinder. Instead of using sensors to detect the wire position and trigger diameter changes, high-speed imaging and a 1-micron encoder run the length of the feeder. This allows for constant updates displayed on the touchscreen HMI and allows for quick, simple adjustments. The result is crisp, clear tapers and virtually no limit to the number of tapers, paddles, and parabolic shapes which can be ground.



Key Features

- Software interface allows an unskilled operator to run multiple high-precision machines simultaneously.
- High-speed imaging technology and a 1-micron encoder run the length of the feeder.
- Wire position is updated every 0.00025" (0.006mm) at typical grinding speeds.
- Available Extractor allows for double-ended grinds or grinding multiple parts in the same cycle.



Gauging Systems

Glebar's Profile Gauging Systems represent the culmination of years of experience in understanding the unique challenges and requirements of measuring long cylindrical shapes in a manufacturing environment. They also happen to be the fastest and most accurate on the market.



P5K Gauging System

Gauging System

The Glebar P5K Gauging System offers unparalleled scanning precision and speed for guidewire measurement in medical and industrial applications. This patented, fully automated system excels in objectivity, accurately gauging components up to 78" long and 0.250" in diameter. Delivering 16,000 diameter readings per second—12x more data than other available systems—the P5K also uniquely addresses operator comfort with its versatile sit, stand, or sit/stand configurations, enhancing both flexibility and productivity.

Key Features

- Results are presented to operators as a clear "Go" or "No Go".
- Fast scanning provides 16,000 readings per second.
- 4x the data output while operating at 4x speed of the P4K, enhancing part quality and significantly improving manufacturing efficiencies.
- Provides a diameter and length reading every 30 millionths of an inch.
- Ability to set warning tolerances to alert the operator before a part goes out of tolerance.
- More immediate insights into size compensation, providing feedback to Glebar Grinding Systems: CAM.2, GT-9AC, and GT-610 CNC.



P4K Gauging System

Gauging System

The Glebar P4K Gauging System precisely scans multiple single parts or one long part in a single operation, providing fast and accurate profile metrology for guidewires, arthroscopic shavers, fasteners, and more.

Key Features

- Simple, easy-to-use software and user interface.
- Results are presented to operators as a clear "Go" or "No Go".
- Measurement is automatic, free of any operator influence.
- Parts are pulled through an optical micrometer.
- Fast scanning provides 10,000 readings per second.
- Provides a diameter and length reading every 30 millionths of an inch.



Burr-Free Electrochemical Grinding (ECG) Solutions

Providing burr-free and low force grinding and leaving no recast or heat-affected zone, the Tridex Technology line of Electrochemical Surface Grinders is a faster alternative to traditional surface grinding. They have numerous applications across many materials and industries including medical device, aerospace, and automotive.



CS1-E Burr-Free Electrochemical Cutoff Machine

The Tridex CS1-E Burr Free ECG Cutoff Machine features completely burr-free cutting, virtually eliminating the need for deburring or other corrective secondary operations and reducing scrap.

Key Features

- Completely burr-free cuts virtually eliminate the need for deburring and other secondary operations.
- Fast, precise cuts.
- Cuts multiple tubes or bars per cycle.
- All stainless construction, including full access stainless splash guard and electrolyte tank.
- Fixtures and jobs can be changed in one minute.
- All feed components are protected from electrolyte and grit.



SG-1645 Electrochemical Burr-Free Surface Grinder

The Tridex SG-1645 Burr-Free Electrochemical NC/CNC Surface Grinder is a faster alternative to traditional surface grinding.

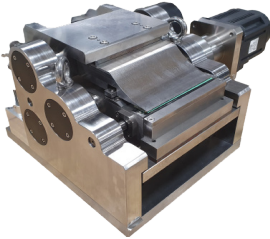
Key Features

- Robust stationary table design makes the machine easier to automate and provides more robust machine guarding.
- Wheel moves in X, Y, and Z axes. 6" (160mm) x 18" (450mm) travel.
- Available Index Table Pallet Changer allows the operator to load the next part while grinding is in operation.
- Easily integrates with automation to increase process efficiency.
- Integration of the Tridex PGS-100 Point Grinding System is simple for grinding points on wire and medical needles.
- Standard, simple conversational control with color HMI touchscreen. Full CNC is optional.



PGS-100 **Electrochemical Burr-Free Needle Point Grinder**

The Tridex PGS-100 Burr-Free ECG Point Grinding Machine is a fully programmable pointing and material handling system designed to integrate with the Tridex SG-1645 or SG-2060 ECG Grinders.



Key Features

- Capable of producing menghini, tri-bevel, back-bevel, trocar, diamond, stylet, franseen, chiba, pencil point, and other custom points burr-free.
- Ability to grind cannula and other parts with hubs.
- Setup and changeovers take minutes to complete.
- Loading fixtures can facilitate secondary operations such as electropolishing, bead blasting, slotting—and more—without losing point orientation.
- No taping required for loading.
- Optional on the Tridex SG-1645 and SG-2060 ECG Surface Grinders.

Coming Soon - APM-SG with two PGS-100 fixtures on a Pallet Shuttle grinder for higher productivity.





Medical Device

Specialty Components

MMT provides quick-turn secondary components processing and assembly services for catheter, guidewire, and needle pointing applications, preserving customer's internal resources for the most value-add activities. This delivers efficiencies throughout the manufacturing processes, anytime throughout the product lifecycle.

We utilize in-house production equipment and tooling to perform manufacturing functions on a contract basis. Drawing on designs from our standard automation solution platform, we can process a wide range of medical-grade materials including single-lumen or multi-lumen tubing, wire reinforced tubing, and nitinol wire. SYNEO offers custom short- and long-run catheter manufacturing services and medical tubing assembly services.

For medical needle pointing, we provide unparalleled expertise using our PGS-100 Point Grinding System that integrates with the Tridex SG-1645 and SG-2060 ECG Surface Grinders. This specialized fixture allows creation of a wide range of precision needle points, including menghini, tri-bevel, back-bevel, trocar, diamond, stylet, franseen, chiba, pencil point, and fully customized designs—with burr-free accuracy. In addition, MMT supports grinding cannula and parts with hubs, ensuring the highest quality outcomes for any medical manufacturing needs.

From prototyping to full-scale production, the MMT Team is equipped to bring specialty unique components to life with precision and reliability.



Services

Cut-to-Length

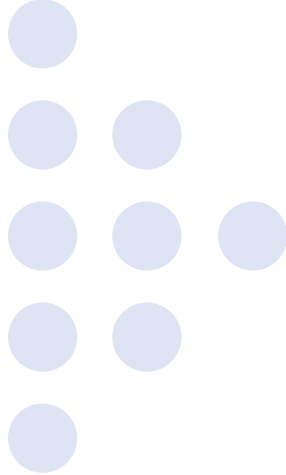
Hole Forming/Skiving

Tube Slitting

Tip Forming & Flaring

Printing & Laser Marking

Assembly





totalcare

SUPPORT + SERVICE BY MMT

Comprehensive Support Options

At Medical Manufacturing Technologies (MMT), we are passionate about delivering exceptional customer service and technical expertise that truly makes a difference. Our TotalCare Program is specifically designed to empower you to achieve production goals across the entire manufacturing continuum. By choosing MMT, you're not just selecting a service, you're partnering with a team that is committed to your success.

Proudly Offering Customer Service and Technical Support in **Major Global Markets**

As a global leader in catheter, wire, and abrasive technology solutions, MMT offers an integrated partnership approach to customers. TotalCare by MMT combines application expertise and technical solutions with extensive service and support to ensure you receive reliable and dynamic solutions to optimize your manufacturing processes.

End-to-End Service & Support

Designed to lower the total cost of ownership and reduce downtime, we provide the following options to support uninterrupted operations.

24/7 Support

MMT's dedicated technical staff is on standby 24/7, ready to jump into action should your equipment encounter issues. You can rest assured that expert assistance is always just a call away to minimize downtime and keep your operations running smoothly.

Customer Portal Access

Easily open cases, request service, and effortlessly track your case history all in one convenient place. Accessing our portal ensures a seamless, efficient customer experience.

Annual / Bi-Annual System Evaluation Health Check

Our teams perform a thorough preventative health check on each piece of equipment, customized to its specific requirements. As we carefully inspect every machine, our aim is to ensure they operate at peak efficiency. This helps maintain smooth operations and reduces the risk of unexpected downtime.

On-Site Field Service Labor

Maintain peak performance and reliability for your equipment. MMT's dedicated on-site field service support assures timely repairs, precise calibrations, and a full range of essential services.

On-Site Training

MMT's on-site training is tailored to meet your specific staff needs. Training programs are customized based on your unique requirements and are typically conducted during the annual or bi-annual health check.

FAT / SAT

Factory Acceptance Tests (FAT) and Site Acceptance Tests (SAT) are offered at discounted rates for new machine acceptance testing. The testing can be conducted at either the customer's site or MMT's site, based on customer preference.

System Commissioning

System commissioning is provided at no extra cost when you purchase a service contract with your new machine.

Process & Application Development

Process and application development support is included in customer contracts for a specified duration each year. This ensures you receive the assistance you need as your project requirements evolve.

Inventory Management

Service contract coverage includes replacement parts and essential spares at no extra cost. Discounts are also available on consumables.

Flexible Billing Plans

Billing for service contracts occurs at a frequency convenient to you—monthly, quarterly, annually, or all at once.



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