

BUILD YOUR MEDICAL DEVICE ON A RELIABLE FOUNDATION

Reliability in Metal Technology

PRECISION ENGINEERED METALS TECHNOLOGY UNDERPINS THE DEVELOPMENT OF YOUR MEDICAL DEVICE INNOVATION

As a global leader in metal shafts & metal components and partner of choice to the world's leading medical technology brands, TE Connectivity (TE) helps companies large and small to transform patient care by offering purpose-driven innovation, propelled by engineering expertise and manufacturing excellence.



EXTENSIVE METALS CAPABILITIES

With a focus on reliability and durability, we offer more than 50 different metals processing capabilities across all stages of the medical device development from grinding, cutting and cleaning to over molding, coating and assembly. Our broad range of capabilities and commitment to delivering quality solutions at scale, can take you from designing and prototyping, to high volume commercial manufacturing.

WHEN IT COMES TO YOUR MEDICAL DEVICE SOLUTIONS, RELIABILITY IN METAL TECHNOLOGY IS THE FOUNDATION.



50+ years of metals processing expertise



50+ metals processes across our network*



15+ years offering complex speciality endoscopic and electrophysiology needles

YOUR ONE METAL PARTNER

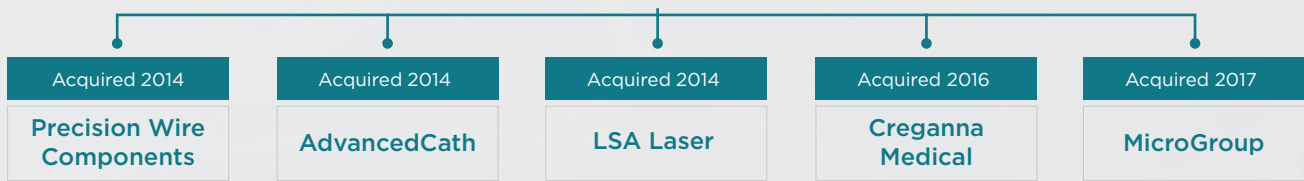
We're more than a metal components supplier. With TE, you get an integrated solutions partner who can develop your idea from prototyping to volume manufacturing and assembly. This connected value gives you a competitive advantage in today's marketplace.



We are the metal brands you depend on

TE's medical ecosystem is built upon a legacy of leading and acquired brands that have a longstanding reputation in metal innovation. Our journey in providing excellence in metals technology dates back over 50 years, and today, we are a global leader in metal shafts & metal components.

Metals at TE CONNECTIVITY



Vertical integration for flexibility and speed

We understand that managing multiple suppliers across different stages of the supply chain is fragmented, complex and not an optimal use of your time.

At TE, we have all the relevant metals technologies, processes and services you might require. Whether your needs are component focused or device focused, we can support you.



Robust quality systems

ISO compliant and integrating a lean product development approach, we know the importance of consistent quality.

We are immensely proud of our solid record of excellent results for regulatory inspections, completing over 100 customers and regulatory audits annually.



A partner as global as your ambitions

With prototyping and manufacturing sites throughout all major global medical devices hubs and lower cost regions, we offer you scale to our solutions while serving you locally at your point of need.

We are accessible and ready to scale your prototype to a high volume manufacturing solution at your pace.

METAL SOLUTIONS DELIVERED

Whether you need coronary hypotubes, endoscopic specialty needles, neurovascular guidewires or machined components for your surgical robot, TE Connectivity has the metallurgy knowledge, processing capability and fabrication experience you can rely on to support your medical device.



Surgical & Machined Components



Metal Shafts & Hypotubes



Wire & Coil



Specialty Needles

Manufacturing Capabilities

Grinding; Centerless, Surface, Electrochemical	Machining; Swiss, CNC milling, CNC Lathe	Coating; Hydrophilic, Silicone
Laser cutting; Femto, Fibre, Excimer	Swiss laser lathe	Overjacketing; Lamination re-flow, Heat shrink
Electrical Discharge Machining; Wire, RAM	Echogenic marking	PTFE coating
Coiling, Coil Winding	Cold forming	Laser welding
Cleaning; Hypotube, wire, vapor degreasing, general	Nitinol heat setting	Bonding
Surface treatment; Passivation, Grit blast	Electropolishing	Cleaning
	Overmolding	Inspection
	Laser marking & ablation	Assembly

Rapid Prototyping

Material Selection

- Stainless steel 304, 316
- Nitinol
- Cobalt Chromium
- Javelin™
- PoleVault™
- In house material science

Device Solutions

- Stent delivery & balloon catheters
- Steerable catheters
- Pull wire assemblies
- Coil delivery systems
- Guidewires
- Process aids for catheter manufacturing
- Endoscopic biopsy needles
- Transseptal needles
- Surgical robotic components
- Electrosurgical components
- Surgical access devices

Medical Specialties

- Electrophysiology / Rhythm Management
- Structural Heart
- Neurovascular
- Coronary
- Endoscopy
- Peripheral Vascular
- Surgery
- Robotic Assisted Surgery

HELPING YOU INNOVATE FASTER

At TE, we're listening. You told us:

LENGTHY PRODUCT DEVELOPMENT CYCLES KEEP YOU UP AT NIGHT.

YOU WANT ACCESS TO MULTIPLE ITERATIONS OF YOUR PROTOTYPE PRODUCT WITH EXPEDITED LEAD TIMES.

YOU WANT TO EXPERIMENT FAST AND WIN BIG ON YOUR NEXT-GENERATION MEDICAL DEVICE.

YOU COME TO TE FOR ENGINEERING EXPERTISE AND QUALITY.

Our PROPELUS™ prototyping center puts the focus on speed, to accelerate your time to market.

Our PROPELUS prototyping principle is simple:



GETTING HIGH-QUALITY PROTOTYPES INTO YOUR HANDS AS QUICKLY AS POSSIBLE.

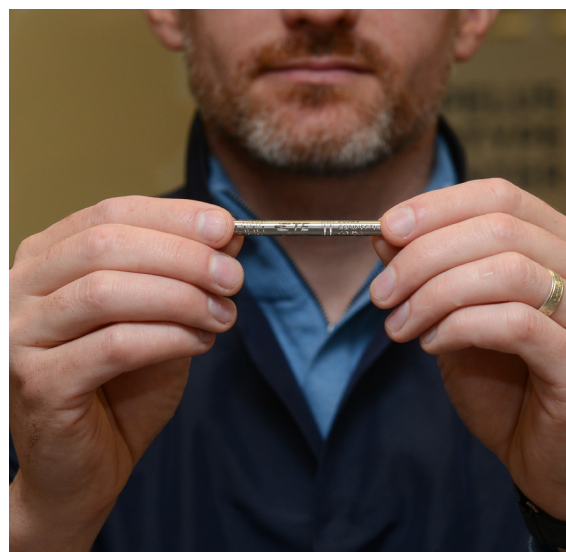
You begin by connecting directly with our engineering teams to establish needs. We ring-fence the equipment required for your project so you always have priority access for prototype runs. Extensive raw material databases are at hand, condensing overall lead times. Utilization of time zones enables the speed of delivery. We ideate solutions and quickly get to work, building and evaluating prototypes.

Together, we iterate until we perfect.

CONNECT TO PRECISION LASER PROCESSING CAPABILITIES

At TE, we always strive to be the best at what we do and are the go-to engineering partner in laser cutting, laser welding, laser ablation and laser marking.

Our extensive laser processing, micromachining and automation inspection capabilities add value to catheter and guidewire manufacturing, giving you more options for metal design.



>160
LASER
SYSTEMS

Following a multi-million dollar investment across all sites, you can access over 160 laser systems offering build-to-print services, quick turn prototypes & high volume automated production.

LASER CUTTING

Precision cutting of metal tubing is one of our many strengths, achieving fast, repeatable processes:

- Tolerances of 0.0005" or less
- Kerf width as small as 0.0007"
- Wall thicknesses as thin as 0.002" up to 0.030"
- Diameter tubing (i.e. 0.012" x 0.009")

Materials: Stainless steel, Nickel, Cobalt chromium, MP35N, Nitinol



LASER WELDING

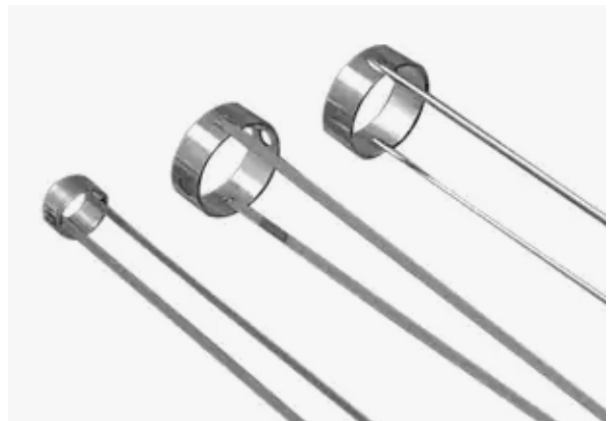
TE's lean manufacturing practices and tight process controls are applied to all of our customers' applications. No filler materials are added during laser processing, which removes biocompatibility issues for medical submissions.

- Minimal heat-affected zone around weld site
- Fast, repeatable laser processes for consistent quality
- Contact-free processing helps prevent stress on materials
- Dissimilar metals can be welded together
- Laser beam can be positioned into tight geometry

Applications:

- Guidewires
- Laser welded torque cables
- Laser wire ball forming
- Laser welded catheter tips
- Nitinol welding
- Laser welded tube assemblies
- Lap and butt welding
- Laser welded nitinol assembly
- Helically laser welded coils
- Hermetic weld joints
- Laser welded filter assemblies

Materials: Stainless steels: 304, 316, 17-4, 420, 302, 303 and others, Nitinol, platinum and platinum alloys, titanium. ELGILOY™ alloy, nichrome, INVAR™ alloy, MP35N™ and L605



MICROMACHINING

TE houses one of the industry's broadest machining capabilities, translating into production control and efficiency in producing your part. With CNC Swiss type machines, CNC Turning, CNC Electrical Discharge Machining (EDM) and CNC Laser Machining, TE is uniquely positioned to serve your specific needs.

TEs laser micromachining capability creates new opportunities for advanced micro designs, particularly for those using difficult-to-process metals.

TE's process makes it possible to do drilling and cutting high-precision holes and shapes, free from thermal damage, not feasible with conventional lasers.



SO HOW CAN WE HELP YOU?



RAW MATERIAL

Direct supply of an optimized, custom raw material hypotube via our tube mill joint venture and material partners.

Metallurgy lab.



PROTOTYPE

Accelerate your time to market.

Access fast turn prototypes through our PROPELUS prototyping center.

With **dedicated equipment** and simulation team.

Technical knowledge and support to help **speed up design** iterations.



CLEANING

State-of-the-art fully automated **cleaning and passivation** systems ensures high yield next stage assemblies.



OPERATIONS

Automated volume manufacturing solutions.

Automated Inspection.

>12m laser cut parts per annum.

>160 laser machines.

LET'S PARTNER

At TE, we don't just supply you with high-quality metal components, we provide you with the collaboration, responsive communication and engineering expertise you need to help get your device to market. Our team is ready and waiting. Contact us today.

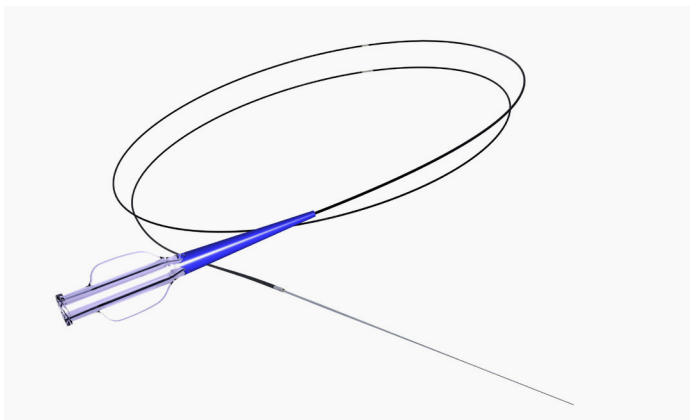
[CLICK HERE](#)



CONNECT TO OPTIMAL PRECISION IN METAL SHAFTS & HYPOTUBES

Design of the optimum hypotube shaft for your device delivery begins with an in-depth understanding of the performance requirements for your product application such as transition, trackability, push and torque, kink performance, compression resistance and flexibility.

Achieving the best performance in one characteristic can often directly affect other characteristics. At TE, we're here to provide you with experience and expertise to assist you in making these critical design decisions.



PROx™ - The optimum shaft sub-assembly



Metal Shafts

SO HOW CAN WE HELP YOU?



IDEATION

Through our online store, get immediate access to the widest portfolio of medical-grade off-the-shelf tubing and wires, stocked and ready for next-day shipping.



PROTOTYPE

Accelerate your time to market. Access fast turn prototypes through our PROPELUS™ prototyping center. With dedicated equipment and simulation team.



PROJECT

We provide full support during the development stage of the product lifecycle through our project lifecycle management process.



OPERATIONS

We offer scale and growth through our global footprint. Site chosen based on best fit for your technologies.

Miniature Machined Components

Give your medical device the competitive advantage offered by our extensive tubing capabilities.

With a focus on quality and service, we are a leading worldwide manufacturer of small-diameter/thin-walled tubing products offering quick shipments from one of the world's largest inventories.

With a considerable range of automated production capabilities in-house, components can range from simple cut-to-length tubing with a machined orifice, to an intricate assembly of complex parts, in quantities ranging from trial volumes to large commercial runs. As your one metals partner, you also minimize potential delays and problems associated with multiple vendors.



Need Stock Now?

- Millions of feet of stock tubing (focus on stainless steel. Other alloys include copper, titanium and nickel)
- We offer an extensive range of off-the-shelf standard medical tubing that includes fractional, metric, hypodermic and custom ID/OD tubing
- Precision cutting (100% burr free available with length tolerances down to +/- .0005)
- Custom sizing of OD and ID
- Stock fittings and parts including brushes, saw and blades
- Multiple cleaning and finishing options

[GET IN TOUCH](#)

 [REQUEST A QUOTE](#)

 [ONLINE STORE](#)

 [1-800-ALL-TUBE \(255-8823\)](#)

CONNECT TO HIGH-PERFORMANCE WIRE & COIL ASSEMBLIES

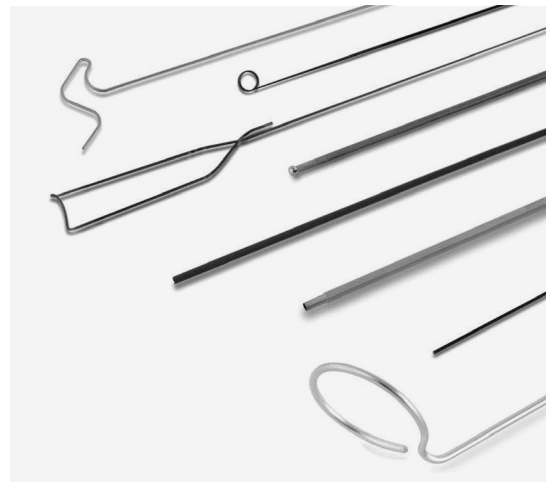
As the largest supplier of wire and coil products for cardiovascular and neurovascular device applications, we offer a number of complex and small profile solutions, allowing access to the most complex vasculatures of the body.

We specialize in delivering high-performance wires with excellent surface finishing, high tolerances and superior stress relief for greater kink resistance and exceptional torque response. We excel at delivering complex wires & coils to high precision specifications and small profile solutions to 0.001" Ø. This unique combination of performance and precision is achieved through our proprietary in-house equipment.

We understand that speed is key to you. We are dedicated to automated solutions that offer the flexibility to iterate and continually improve. This includes auto loading, auto welding and auto inspection.

Capabilities

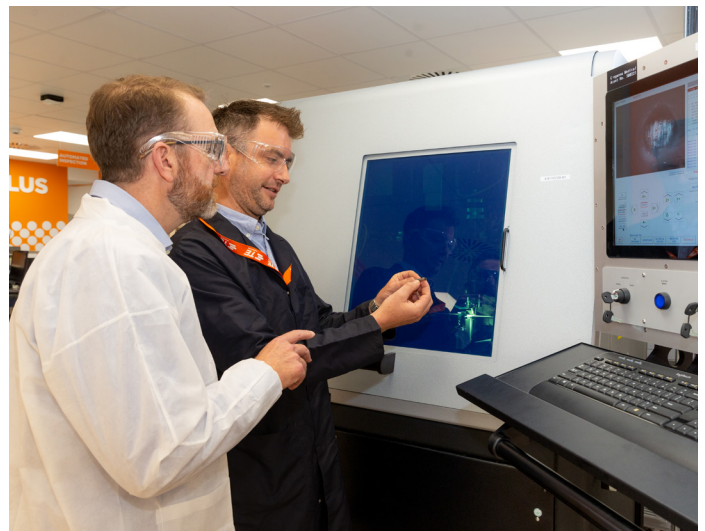
- Guidewire components & assemblies for Cardiovascular, Neurovascular & Peripheral Vascular applications
- Wire & coil based delivery systems for Neurovascular coil delivery
- Pull wire assemblies
- Process aids for catheter manufacturing
- Distal core wire transitions for PTCA and PTA catheters including hypotube sub-assemblies
- Atherectomy devices
- FFR & OCT wires
- Vascular access sheath coiling
- Occlusive coils



LET'S PARTNER

At TE, we don't just supply you with high-quality metal components, we provide you with the collaboration, responsive communication and engineering expertise you need to help get your device to market. Our team is ready and waiting. Contact us today.

[CLICK HERE](#)



CONNECT TO COMPLEX SPECIALITY NEEDLES SOLUTIONS

Our products and process capabilities for metal, polymer and composite tubing, coupled with our innovative technologies and unparalleled expertise in metallurgy and polymer science, makes TE a single source supplier for complex speciality needles. From handle to tip, we specialize in sophisticated needle designs for biopsies, implantation and transeptal crossing.



Capabilities

Custom lengths, sizes & wall thicknesses available

- Size range: 7 - 26 Gauge
- Wall thickness: RW, TW, XTW
- Lengths: up to 2250mm

Processes

- Grinding
- Laser processing - cutting, welding, marking
- Burr free cutting
- Laser welding & micro welding
- Micromachining
- Injection & insert molding
- Coating

Materials

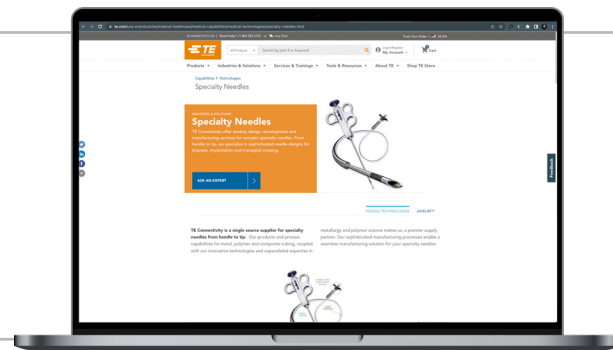
Medical grade stainless steel, advanced alloys & exotic metals, MRI compatible materials, polymers, braid reinforced, composites, needle tubing & wire.

- Swaging
- Brazing
- Forming/bending
- Electropolishing
- Electro chemical marking
- Bead/sand blasting
- Cleaning
- Testing
- 3-D rapid prototyping & SLA
- Laser marking - metals & polymers
- Polymer overjackets
- Internal lumen liner

Design a Needle Online

Need help? Let our engineers guide you on designing your speciality needle.

[CLICK HERE](#)



CONNECT WITH US



At TE, we engage with you at the ideation stage to guide you to the right metal component, whether standard or custom designed. We collaborate on technical and design engineering decisions, resulting in the best device outcome for you. We're responsive and communicate clearly so that you're always informed - from sample delivery through build phases. We make it easy to connect with our metal engineering experts and are ready to provide all the support you need.

Explore our extensive range of medical solutions at [TE.com/medical](https://te.com/medical).

te.com/medical

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med-metals-overview-br-en 03/24