Norman Noble, Inc.
is your single-source contract manufacturer of Nitinol-based implants and devices.

Norman Noble, Inc. is the largest contract manufacturer of Nitinol-based implants and devices. Some examples of the products we manufacture for our customers include:

- Vascular Stent Implants - Cardio, AAA, Peripheral, Neuro
- Transcatheter Heart Valve Implants
- Vena Cava Filter Implants
- Atrial Appendage Closure Implants
- Vascular Closure Implants
- Atrial Fibrillation Devices
- Renal Denervation Devices
- Spinal Implants and Devices
- Extremity Screw and Plate Implants and Devices
- Ligament Repair Anchors and Devices

**PRECISION MACHINING OF NITINOL**
- Laser ablation, cutting and welding
- Swiss turning
- 5-axis micro milling
- EDM machining

**SHAPE SETTING OF NITINOL**
- Design For Manufacturing (DFM) services
- Process Development Center (PDC) for prototypes
- Engineering design of form tooling
- Validated thermal processing of superelastic and shape-memory Nitinol

**ELECTROPOLISHING OF NITINOL**
- Automated electropolishing systems
- Automated passivation systems

**TESTING SERVICES FOR NITINOL**
- Thermal testing (DSC or BFR)
- Metallurgical cross section analysis
- Force testing and analysis
- Scanning Electron Microscopy with EDX
- Partnered laboratories

**PROCESS VALIDATION FOR NITINOL**
- Quality engineering team provides strategy, testing and protocols
- IQ/OQ, PQ/PPQ, MSV, TMV, DOE, PFMEA
- Available for all processes, including machining, laser welding, surface finishing, cleaning and other special processes

**ASSEMBLY & PACKAGING**
- ISO Class 8 cleanroom
- Micro assembly and welding
- Custom packaging and labeling

PHONE: 800-474-4322 • EMAIL: SALES@NORMANNOBLE.NET • WWW.NNOBLE.COM
MICROPRECISION

CONTRACT MANUFACTURING

OF MEDICAL DEVICES AND IMPLANTS

LASER MICROMACHINING
- Laser ablation of metal alloys, Nitinol and bioabsorbable materials
- Laser cutting of tubular and flat sheet materials
- Laser welding, including process validation

SWISS MICROMACHINING
- Single operation turning and milling
- All specialty materials, including Nitinol, CoCr, platinum, titanium and implant grade PEEK
- Gun drilling to 7"

5-AXIS MILLING
- Single operation contour milling
- All specialty materials, including Nitinol, CoCr, tungsten, titanium, and implant grade PEEK
- 3D profiling capability

NITINOL SHAPE SETTING
- Design For Manufacturing (DFM) services
- Engineering design of custom form tooling
- Validated thermal processing of superelastic and shape-memory Nitinol

ELECTRICAL DISCHARGE MACHINING
- Wire and sinker EDM
- Small hole EDM
- Electrochemical grinding

PROCESS DEVELOPMENT CENTERS
- Dedicated equipment and engineering teams
- Prototype manufacturing
- Design For Manufacturing (DFM)

SURFACE FINISHING
- Automated electropolishing
- Automated passivation
- Mechanical and chemical deburring

PROCESS VALIDATION
- Custom designed / validated processes
- Quality engineering team provides strategy, protocols, testing and reports
- IQ, OQ, PQ, MSV, TMV, DOE, PFMEA
- Available for all machining, laser welding, surface finishing, cleaning and other special processes

ASSEMBLY & PACKAGING
- ISO Class 8 cleanroom
- Micro assembly including laser welding
- Custom packaging and labeling

AUTOMATED MANUFACTURING
- Vascular Stent Implants – laser machining, electropolishing and inspection systems
- Orthopedic Implants – Swiss turning, 5-axis micro milling, surface finishing and inspection systems

ISO 9001:2008 • ISO 13485:2012 • FDA REGISTRATION #1531050

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Microprecision Medtech Manufacturing

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