

# Medical Device Manufacturing

A medical device is an instrument, apparatus, implant, in vitro reagent, or similar or related article that is used to diagnose, prevent, or treat disease or other conditions, and does not achieve its purposes through chemical action within or on the body (which would make it a drug). Whereas medicinal products (also called pharmaceuticals) achieve their principal action by pharmacological, metabolic or immunological means, medical devices act by other means like physical, mechanical, or thermal means. Medical devices vary greatly in complexity and application. Examples range from simple devices such as tongue depressors, medical thermometers, and disposable gloves to advanced devices such as computers which assist in the conduct of medical testing, implants, and prostheses. The design of medical devices constitutes a major segment of the field of biomedical engineering. — WIKIPEDIA

## Massachusetts Job Growth Forecast of Typical Jobs Found in Medical Device Manufacturing

JOB TITLE	EMPLOYMENT 2012	EMPLOYMENT 2022	AVERAGE ANNUAL JOB OPENINGS	AVERAGE ANNUAL WAGE
Engineers	48,476	51,816	1,593	\$95,363
Life, Physical, and Social Science Technicians	12,316	14,144	582	\$47,714
Life Scientists	18,085	20,642	694	\$92,280
Physical Scientists	8,941	10,061	351	\$82,208
Medical and Clinical Laboratory Technicians	5,302	6,575	266	\$42,450
Software Developers, Applications	27,353	32,937	909	\$103,250
Software Developers, Systems Software	30,032	36,293	1,011	\$113,250

Source: Massachusetts Executive Office of Labor and Workforce Development

## Necessary Skills

Workers in Medical Devices need skills such as math, science, computers, engineering, technical reading and writing, and communication along with teamwork, creative thinking, and problem solving.

## Participating North Shore Medical Device Companies

- Analogic Corporation – Peabody, MA
- Microline Surgical – Beverly, MA

## Company Profile: Analogic

Analogic creates innovative technology that improves the practice of medicine and saves lives. For over 40 years Analogic has created markets by anticipating and solving some of the world's most complex medical and engineering challenges. Today, specific areas of expertise include developing enabling technologies used in computed tomography (CT), ultrasound, digital mammography (DM), and magnetic resonance imaging (MRI). The company also develops state-of-the-art threat detection

systems for airport checked-baggage screening and checkpoint screening as well as motion controls. Analogic employs approximately 800 people in several locations, with its global headquarters in Peabody, MA. Jobs including mechanical and electromechanical engineering, physicists and other scientists, computer software experts, regulatory experts, and manufacturing technicians.

### **Company Profile: Microline Surgical**

Microline Surgical develops and manufactures high precision open and laparoscopic surgical instruments. Microline's laparoscopic reusable instruments provide a cost effective eco-friendly solution for today's operating room. The MiFusion product line offers a broad spectrum of open and laparoscopic instruments used to seal and divide tissue utilizing proprietary Thermal Fusion technology. The company strives to be innovative and customer-centric so as to develop products that provide unique value, both clinically and economically. Currently the company employs 185 people in a variety of positions including industrial and electromechanical engineers, regulatory experts, assembly, and machining.

### **Critical Technical and Core Competencies**

Medical device companies require a high level of math skills, as well as the ability to collaborate and work in teams. In addition, companies look for individuals who show initiative and have a strong ability to follow through with this initiative. Employees should have a passion for the work, be enthusiastic, reliable and focused. Engineers are highly valued, but the preferred engineer is one that can move beyond theory and into product design with a strong level of manual dexterity.

High School graduates with vocational training and the interest and capability to continue learning are also highly valued. Individuals who have work on robotics projects and have the ability to use manufacturing hardware such as screw drivers and wrenches are a plus. The ability to take a design to the manufacturing level, i.e., transfer skills from theoretical to product, is highly valued.

Employees also must be strong in communication skills, Microsoft products, and SolidWorks. Companies often provide tuition reimbursement as well as in-house training. Many companies are interested in hiring women as part of diversifying their workforce.

### **Other North Shore Medical Device Companies**

- Medtronic – Danvers, MA
- NeuroLogica Corporation – Danvers, MA
- Helix Medical – Gloucester, MA



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