# WHY MINNESOTA?

## Workforce ★ Infrastructure ★ Affordability

## Why Minnesota is Great for Manufacturing:

- Named America's Top State for Business by CNBC (2015)
- Skilled, educated workforce with technology expertise
- Reliable infrastructure and business support services
- Affordable, dependable utilities
- An advanced manufacturing ecosystem with statewide reach

EMPLOYMENT AND ECONOMIC DEVELOPMENT

# Why Minnesota?

## America's Top State for Business (2015)

Minnesota ranked highest overall – based on 60 measures of competiveness in 10 categories. We ranked among the top 10 states in:

• Education • Technology and Innovation • Quality of Life • Infrastructure • Economy

Manufacturing is at the heart of Minnesota's vital economy. This diverse, technology-driven sector contributes over $48 billion a year to the state's economy. It accounts for the 2nd largest share of the state's gross domestic product (16 percent), and employs 317,200 workers.

Minnesota has close to 8,000 manufacturers making a wide range of products. Manufacturing is growing in Minnesota – with employment in this sector rising almost 9 percent since 2010.

The state exported $20 billion in manufactured, agricultural and mining products in 2015. Companies sent 1,057 different types of products to more than 200 countries worldwide. The state's top export in 2015 was optics/medical products, with sales of $3.7 billion, up 2 percent from the previous year. Other top exports were machinery; electrical machinery; vehicles; plastics; food byproducts; aircraft and spacecraft; iron and steel products and pharmaceuticals.

Headquartered in Minnesota are 17 Fortune 500 companies as well as Cargill, the nation's largest privately held company. Fortune 500s with major manufacturing operations include CHS, 3M, General Mills, Ecolab, Land O'Lakes, Hormel Foods, Mosaic and St. Jude Medical.

Minnesota is also a great place for small manufacturers, with venture capital, incentives and other financing available. The state ranked in the top 20 nationwide with nearly $1 billion in venture capital investments from 2013–2015.

Banks in Minnesota lent nearly $594 million to 1,912 small businesses statewide through the Small Business Administration loan programs in 2015. Minnesota ranks 12th in its volume of SBA-backed loans.

## Skilled, Educated Workforce with Technology Expertise

With our labor pool of over 3 million people, Minnesota can deliver an educated, skilled workforce for any manufacturing business at a competitive cost.

One out of every eight jobs in Minnesota is tied to manufacturing. Top sectors by employment are:

- Food manufacturing (49,041 jobs; average annual wage, $46,834)
- Computers and electronics (45,773 jobs; average annual wage, $96,065)
- Fabricated metal products (42,633 jobs; average annual wage, $56,370)
- Machinery (33,208 jobs; average annual wage, $65,626)

Source: DEED and Bureau of Labor Statistics, QCEW 2015 Annual Averages

As manufacturing becomes more high-tech, education is the key to our talent pipeline. Nationally, Minnesota ranks 3rd in the percentage of the population with a high school degree or higher and 11th in the percentage with a bachelor's degree or higher. See page 8 for more.

## Reliable Infrastructure and Business Support Services

Minnesota ranks fifth nationally in infrastructure (CNBC, 2016). Supporting the state's strong manufacturing sector is a modern transportation network that includes:

- **Shipping capacity**: The Port of Duluth-Superior is the largest and busiest shipping port by tonnage on the Great Lakes. It provides access to world markets, with shipments to Europe arriving in 15-18 days.
- **Airports**: Minnesota has a network of modern, industry-friendly airports. Minneapolis-St. Paul International Airport is a large hub with non-stop links to 126 domestic markets and 29 international markets; the state has more than 140 public-use airports, including nine primary airports.
- **Roads and rails**: A central U.S. location and extensive network of highways (including Interstates 35, 94 and 90) and railways (with 4,444 route miles serviced by about 20 railroad companies – including four Class I railroads) enable manufacturers to get supplies and to move their products where they need to go quickly and efficiently.

**Digital infrastructure**: Minnesota is heavily connected to broadband networks. The state invested $30 million toward enhancing broadband infrastructure in 2014-2015 – leveraging another $41 million in private investments – and earmarked another $35 million for broadband projects in 2016-2017. The state ranks 4th in the total number of broadband providers.

**Business support services**: From supply chain and IT consulting to finance and accounting, Minnesota's business support services can handle the needs of all industries. Many firms in this sector are also experienced with exporting and global operations.

**Supply chain**: "Made in Minnesota" is a manufacturers' supply chain database that makes it easy for Minnesota companies to find – and be found by – local suppliers that are a perfect fit. It's operated by the Minnesota Department of Employment and Economic Development.

## Affordable, Dependable Utilities

Minnesota offers affordable, dependable utilities. All rates listed are non-negotiated averages; individual projects may see a lower negotiated cost.

**Electricity**: Minnesota has domestically competitive power rates. Our commercial and industrial electric rates have historically been below the national average. Minnesota's average price of electricity for commercial users (9.85¢ per kWh) was lower than the U.S. average (10.74 ¢ per kWh), as of 2014. The state's average price of electricity for industrial users (6.72 ¢ per kWh) also was lower than the national average (7.10 ¢ per kWh).

**Natural gas**: Minnesota's average price of natural gas for commercial users ($7.30 per thousand cubic feet) was lower than the U.S. average ($8.66 per thousand cubic feet) in 2015. The state's average price of natural gas for industrial users ($4.95 per thousand cubic feet) also was lower than the national average ($6.57 per thousand cubic feet).

Source: U.S. Department of Energy, Energy Information Administration

# Minnesota Manufacturing

## An Advanced Manufacturing Ecosystem with Statewide Reach

Minnesota has a diverse manufacturing base across the state, spanning many industries. Companies are embracing new technologies and processes, creating an ecosystem for advanced manufacturing. Here are snapshots of several key clusters:

- Medical Devices
- Agriculture and Farm Equipment
- Aerospace and Aeronautics
- Sensors, Semiconductors and Robotics
- Glass and Window & Door Manufacturing
- HVAC Technologies and Equipment
- Packaging

## MEDICAL DEVICES

Minnesota pioneered the medical device industry in the 1940s and has been a leader in it ever since. Minnesota ranks:

- 1st in its medical device presence – with three times the concentration of medical device industry employment as the national average
- 1st in the Midwest and second nationwide in medical device manufacturing employment, with 602 establishments and 36,848 workers in 2015
- 1st in the number of medical device patents per capita granted in 2015

Among the largest medical device manufacturing firms with headquarters or major operations in Minnesota (and their locations) are:

- 3M Health Care (Maplewood)
- Boston Scientific Corp. (Arden Hills and Maple Grove)
- Cardiovascular Systems Inc. (New Brighton)
- Coloplast Corp. (Fridley)
- Ecolab Inc. (St. Paul)
- Greatbatch Medical (Twin Cities metro)
- Medtronic (Fridley)
- Nonin Medical Inc. (Plymouth)
- Olympus Surgical Technologies (Osseo)
- Smiths Medical ASD Inc. (Plymouth)
- St. Jude Medical (Little Canada)
- Starkey Hearing Technologies (Eden Prairie)
- Vascular Solutions Inc. (Minneapolis)
- Vital Images (Minnetonka)

## AGRICULTURE AND FARM EQUIPMENT

The state is a powerhouse when it comes to agriculture and food production. Minnesota is not only one of the top producers of food in the nation, it also manufactures tools, equipment and machinery used in the production and processing of agricultural products.

Quite a few of the state's largest companies are key players in agriculture- and food-related production and manufacturing. Here's a small sampling:

- 3M (Maplewood)
- AGCO (Jackson)
- Cargill (Minneapolis)
- Case IH (Benson)
- CHS (Inver Grove Heights)
- Faribault Foods (Minneapolis, Faribault, Elk River)
- General Mills (Golden Valley)
- GNP Company (St. Cloud, Cold Spring, Luverne)
- GVL Poly (Litchfield)
- Hearthside Food Solutions (Lakeville)
- Hormel Foods (Austin)
- InBev (Moorhead)
- JBS Swift (Worthington)
- Kraft Heinz (New Ulm and Albany, Minn.)
- Land O'Lakes (Arden Hills)
- Loftness (Hector)
- Rahr Malting (Shokopee)
- Schwan Food Company (Marshall)

## AEROSPACE AND AERONAUTICS

Minnesota makes some of the world's most advanced small airplanes and aerospace components. For example, Duluth-based Cirrus Aircraft Corp. manufactures various lines of personal aircraft – including its new Vision SF50 single-engine personal jet. The company employs about 675 people in Duluth and recently announced a $13 million expansion.

Some of the more than 200 firms in Minnesota serving the aerospace industry include:

- 3M (Maplewood)
- ASE Holdings (St. Paul)
- BAE Systems (Minneapolis)
- Cirrus Design Corp (Duluth)
- Cytec Aerospace Materials (Winona)
- FAST Global Solutions (Glenwood)
- General Dynamics (Bloomington)
- Honeywell (Twin Cities metro)
- MTS Systems (Eden Prairie)
- RMS Co. (Minneapolis)
- UTC Aerospace Systems (Burnsville)
- Wipaire Inc. (South St. Paul)

# Minnesota Manufacturing

## SENSORS, SEMICONDUCTORS AND ROBOTICS

Sensors, semiconductors and robotics are used in an ever-growing number of consumer, automotive, medical and industrial products, creating opportunities in this cluster. MaxBotix of Brainerd, Minn., for example, started making sensors in 2004 mostly for hobbyists competing in robotics competitions. Now the company has a whole line of industrial sensors. It grew 213 percent between 2013 and 2015, has about 30 employees, and was ranked 1,752 by Inc. 5000 in 2016.

Robotics has been a growing cluster in recent years. Some firms got their start from research at the University of Minnesota's Center for Distributed Robotics. Others have added robotics to existing areas of expertise.

Among the hundreds of innovative companies in this cluster in the state are:

- BAE Systems (Minneapolis)
- Beckman Coulter Inc. (Chaska)
- Benchmark Electronics (Rochester)
- Cypress Semiconductor (Bloomington)
- Emerson Process Management (Bloomington)
- Entegris Inc. (Chaska)
- General Dynamics (Bloomington)
- Honeywell (Twin Cities metro)
- Hutchinson Technology (Hutchinson)
- NPC Robotics (Mound)
- PaR Systems Inc. (Shoreview and Oakdale)
- Polar Semiconductors (Bloomington)
- PRI Robotics (Plymouth)
- SICK, Inc. (Bloomington)
- Stratasys (Eden Prairie)
- TE Connectivity (Andover)
- UTC Aerospace Systems (Burnsville)
- Wunderlich-Malec Engineering (Minnetonka)

## GLASS AND WINDOW & DOOR MANUFACTURING

Glass has countless applications – in architecture, laboratories, medical diagnostic equipment, consumer products, electronic technology and industrial equipment, to name a few. Minnesota manufacturers make a huge variety of glass products as well as windows and doors for domestic and international markets.

Among the Minnesota manufacturers in this cluster are:

- Amesbury Truth (Owatonna)
- Andersen Corp. (Bayport)
- Anchor Glass Container Corp. (Shakopee)
- Cardinal Glass Industries (Eden Prairie and Northfield)
- Custom Precision Tech Inc. (Dassel)
- The Marvin Family of Brands (Warroad)
- Oldcastle Building Envelope (Albertville)
- SageGlass (Faribault)
- Viracon (Owatonna)

## HVAC TECHNOLOGY AND EQUIPMENT

As customers demand better performance, reliability and energy efficiency, HVAC technology continues to advance – and Minnesota manufacturers are leaders in developing innovations in this area. Some manufacturers specialize in HVAC while others have it as part of a larger lineup of heating and cooling products and parts.

Companies in this cluster include:

- Control Products (Chanhassen)
- Cornelius Inc. (Osseo)
- Daikin and Daikin Applied (Minneapolis, Owatonna, Faribault)
- Despatch Industries (Lakeville)
- Fastenal (Winona)
- Home and Hearth Technologies (Lake City)
- L & M Radiator Inc. (Hibbing)
- Mammoth Inc. (Eden Prairie)
- Minco (Minneapolis)
- St. Cloud Refrigeration (St. Cloud)
- Thermo King Corp (Bloomington)
- Trane (St. Paul)
- Watlow Electric (Winona)
- Weather-Rite (Minneapolis)
- XeteX (Coon Rapids)

## PACKAGING

With Minnesota's large food and agriculture production and processing capacity, it's no surprise that the state also has a robust packaging industry as well. Companies manufacture a broad range of packaging materials and containers as well as machinery that packages products.

Among the many companies in this cluster in the state are:

- 3M
- Ball Corp. (St. Paul)
- Bedford Industries (Worthington)
- Brenton Engineering Co. (Alexandria)
- Bosch Packaging Technology (Minneapolis)
- Douglas Machine Inc. (Alexandria)
- Graphic Packaging International (Hamel)
- Hearthside Food Solutions (Lakeville)
- Thiele Technologies Inc. (Minneapolis)
- West Rock (St. Paul, St. Cloud, Rochester)

# Minnesota's Highly Regarded Workforce

Minnesota is a leader in helping individuals and businesses get the training they need to meet the challenges of advanced manufacturing. How? Through innovative educational centers of excellence, highly regarded engineering programs and state-sponsored job skills training programs tailored to industry. A few examples:

- **The University of Minnesota** is ranked second nationally for its graduate chemical engineering program *(U.S. News and World Report,* 2016*)*. Its other highly regarded engineering programs include aerospace, biomedical, civil, computer, electrical, environmental, industrial, materials and mechanical engineering.
- **360 Manufacturing and Applied Engineering Center of Excellence** is a collaborative effort between education and industry to recruit, educate and train workers for careers in advanced manufacturing. It uses curriculum that's relevant to current and future industry needs. Led by Bemidji State University, it includes 14 technical and community colleges around the state. 360 also leads Dream It. Do It. Minnesota, a collaboration with industry to promote careers in manufacturing.
- **Minnesota Center for Engineering and Manufacturing Excellence** is a consortium of two-year colleges throughout the state, led by Minnesota State University, Mankato. It's focused on nurturing talent in engineering and advanced manufacturing through STEM-based outreach, innovative degree programs and professional development in robotics and related fields.
- **Minnesota Job Skills Partnership** is a state program that helps train or retain workers to meet specific business needs by providing educational institutions with grants of up to $400,000 to develop customized training in partnership with businesses. This program has awarded more than $41 million in grants since 2011 to train more than 48,000 workers.

## STATEWIDE BUSINESS EXPERTISE.

The Minnesota Department of Employment and Economic Development (DEED) is the principal economic development agency in the state. Our Business Development staff stand ready to assist with any manufacturing plans you might have.

Minnesota not only has valuable incentive and tax credit programs, we also offer a Business First Stop program which streamlines the development process for complex business projects. Around the state, there are more than 30 communities with shovel-ready, certified development sites.

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MINNESOTA DEPARTMENT OF EMPLOYMENT AND ECONOMIC DEVELOPMENT
Office of Business Development
651-259-7432
Economic.Development@state.mn.us • CompareMN.com

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