Pattern Industry Insight

Machine Manufacturing

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MISSOURI
Department of Economic Development

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Pattern Industry Insights: Machine Manufacturing

Machinery Mfg. Concentration Regions in Gold

One of the largest and most diverse pattern industries in Missouri is machine manufacturing. Companies in this sector employ over 25,000 and are scattered throughout most of the state. Machinery manufacturers not only provide a bounty of jobs to Missourians but also pay a high industry average wage of $42,750.

But what is a pattern industry and why is it important? Furthermore, what do machine manufacturing producers really make?

Pattern Industries

A pattern industry is a regionally-concentrated industry that exports the majority of the good or services it makes. An industry's concentration is determined through location quotient analysis (see notes for additional details). Pattern industries can be clusters if a large number of companies create an employment concentration or a spot strength if only a few, very large firms dominate the pattern. All things being equal, a cluster is preferred as it naturally diversifies economic risks and rewards when many companies have a broad mix of specialized products and markets. Clusters can better weather bad times as opposed to one large company that may leave and take the industry with it.

The export-orientation of pattern industries is crucial for long-term economic prosperity as those businesses sell products to customers outside a region thereby bringing new dollars into an economy. This new income is spent and creates additional area jobs. Seldom can a region's population maintain a robust economy by only selling things to itself; it has to export to bring in new wealth.

Machine Manufacturing

Machine manufacturing represents Missouri's 3rd largest foreign export, with $1.1 billion in 2009 and already $1.2 billion through October 2010. This sector is also a major domestic exporter to other states. This map shows the value and destination of machine manufacturing goods that are produced in Missouri. Illinois, Tennessee, and Texas are the three largest recipient states of machine equipment manufactured in Missouri.

The industry is diverse with over 580 establishments developing a variety of machines such as mining equipment, tractors, lawn mowers, ATV's, chain saws, waste disposers, vending coin solutions, freezers, industrial molds, turbines, scales, and furnaces.

This pattern industry insight report provides the details to better understand the companies and markets of this vital sector in Missouri's economy.

General Purpose Machinery Manufacturing

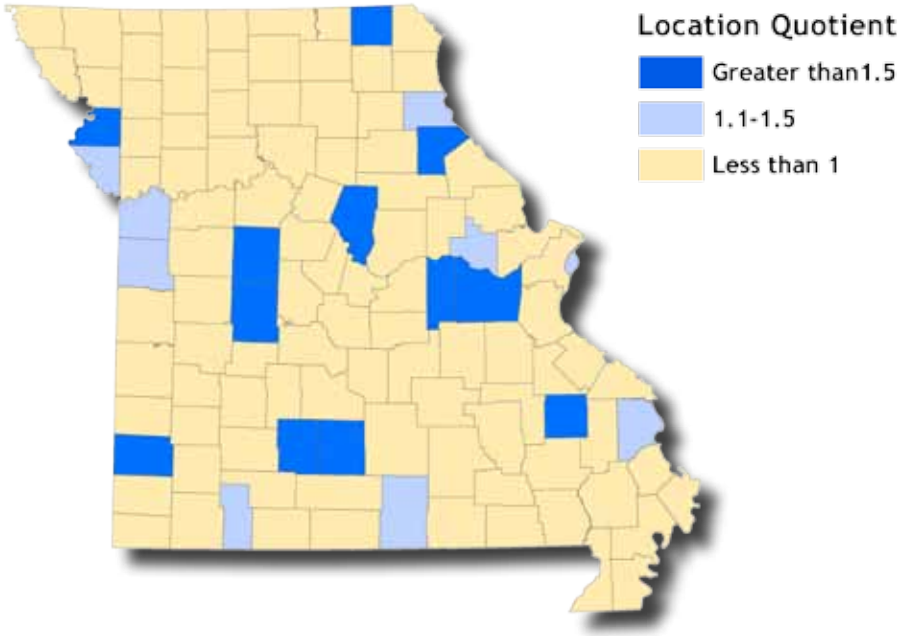
This sector covers the manufacturing of many separate machine categories. Some examples of what is manufactured in this sector include pumps, compressors, elevators, moving stairways, conveyors, cranes, industrial trucks, power hand tools, packaging machinery, furnaces, ovens, fluid power pumps, and scales.

This sector employed an average of 4,755 people in Missouri in 2009 throughout 116 locations. The average wage of these employees was $48,519.

General purpose machinery manufacturing accounted for approximately $347 million in Missouri exports in 2009. This made up 31% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

The map shows where this sector is locally concentrated in Missouri. There are 12 counties spread throughout the state that have a location quotient above 1.5: Benton, Boone, Buchanan, Franklin, Gasconade, Jasper, Madison, Pettis, Ralls, Scotland, Webster, and Wright Counties all have higher than normal concentrations of other general purpose machinery manufacturing jobs.



Top Missouri General Purpose Machinery Manufacturing Companies

Lincoln Industrial
St. Louis, MO
Lincoln builds precision lubrication equipment and components, modern electronic controls, and high performance pumping systems.

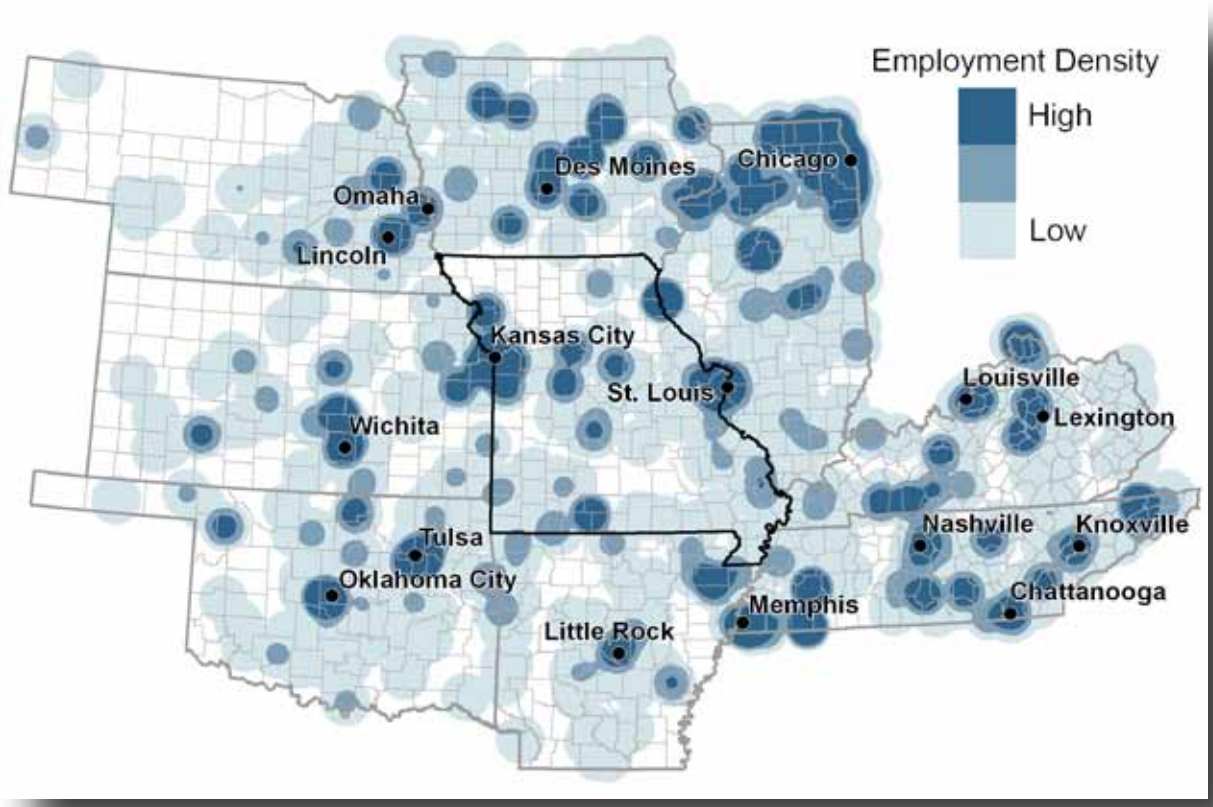
Gardner Denver
Sedalia, St. Peters, MO
Gardner Denver is a worldwide manufacturer of highly engineered compressors, blowers, pumps, and other fluid transfer equipment.

Cardinal Scale
Webb City, MO
Cardinal is best known for its two brands Cardinal Scale and Detecto Scale. Cardinal Scales are generally built to handle over 5000 lbs while Detecto's typically handle less than 5000 lbs.

Watlow Missouri
St. Louis, Columbia, Hannibal, Fenton, MO
For over 85 years Watlow has been involved in all aspects of industrial thermal systems including the full designing and manufacturing of industrial heaters, sensors, and controls, and systems.

Regional Employment Density

In comparison to a nine state region, Missouri has seven areas of high density employment concentration in general purpose machinery manufacturing. These areas include the Kansas City Metro expanding south to Harrisonville, the St. Louis Metro, St. Joseph, Columbia, Ava (south), Sedalia going north to Slater (central), Camdenton, and Hannibal.



Export Trends

General purpose machine manufacturing exports went from $1.3 billion in 2008 to $1.1 billion in 2009, a 17% decline. Through October 2010, however, exports were back up 20% over 2009. This sector is by far the top exporter of the seven basic categories of machine manufacturing, tripling the next highest export machine manufacturing category each of the last three years. A fast growing subsector of this category is Pumps with a Measuring Device which has grown 150% over the past year. This is a rebound from a 35% decrease in 2009. Below is a list of the top ten recipients of Missouri's general purpose machine manufacturing exports.

Countries	Exports	Countries	Exports
Canada	$82,841,408	Turkey	$9,624,255
Mexico	$32,449,528	Germany	$8,677,271
China	$28,114,515	United Kingdom	$7,924,491
Singapore	$19,949,486	Japan	$7,287,340
Australia	$12,011,529	Korea, Republic Of	$7,044,865

HVAC and Commercial Refrigeration Manufacturing

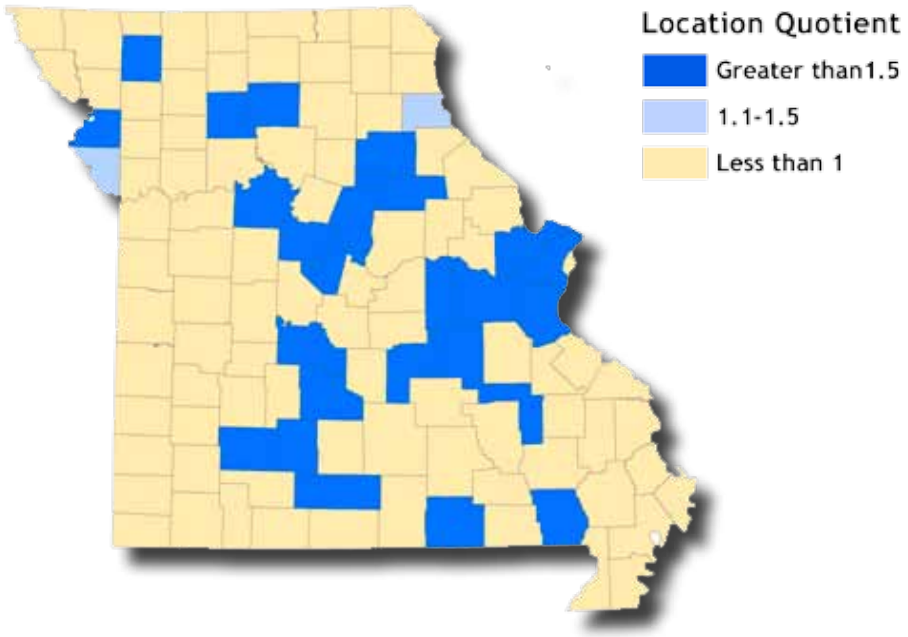
The HVAC and commercial refrigeration sector covers four separate categories of machine manufacturing. These categories include manufacturing of air purification equipment, industrial and commercial fan and blower equipment, heating equipment, air conditioning, refrigeration, and forced air heating.

This sector employed an average of 8,536 people in Missouri in 2009 throughout 64 locations. The average wage of these employees was $36,575.

HVAC and commercial refrigeration accounted for approximately $241 million in Missouri exports in 2009. This made up 21% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

This map shows where this sector is locally concentrated in Missouri. There are 25 counties in the category of LQ>1.5, scattered fairly evenly throughout the state but most highly concentrated in the central to eastern sections. There were, however, several counties with extremely high LQ's of over 25. That indicates the HVAC and commercial refrigeration sector is a major employer in the county. These counties include Audrain, Butler, Cooper, Douglas, Franklin, Gentry, Laclede, Monroe, and Saline.



Top Missouri HVAC and Commercial Refrigeration Manufacturing Companies

True Manufacturing
O'Fallon, MO
True has been in the commercial refrigeration business for over 65 years. Their products include food prep tables, chef bases, milk coolers, freezers, bar fridges, air curtains, and others.

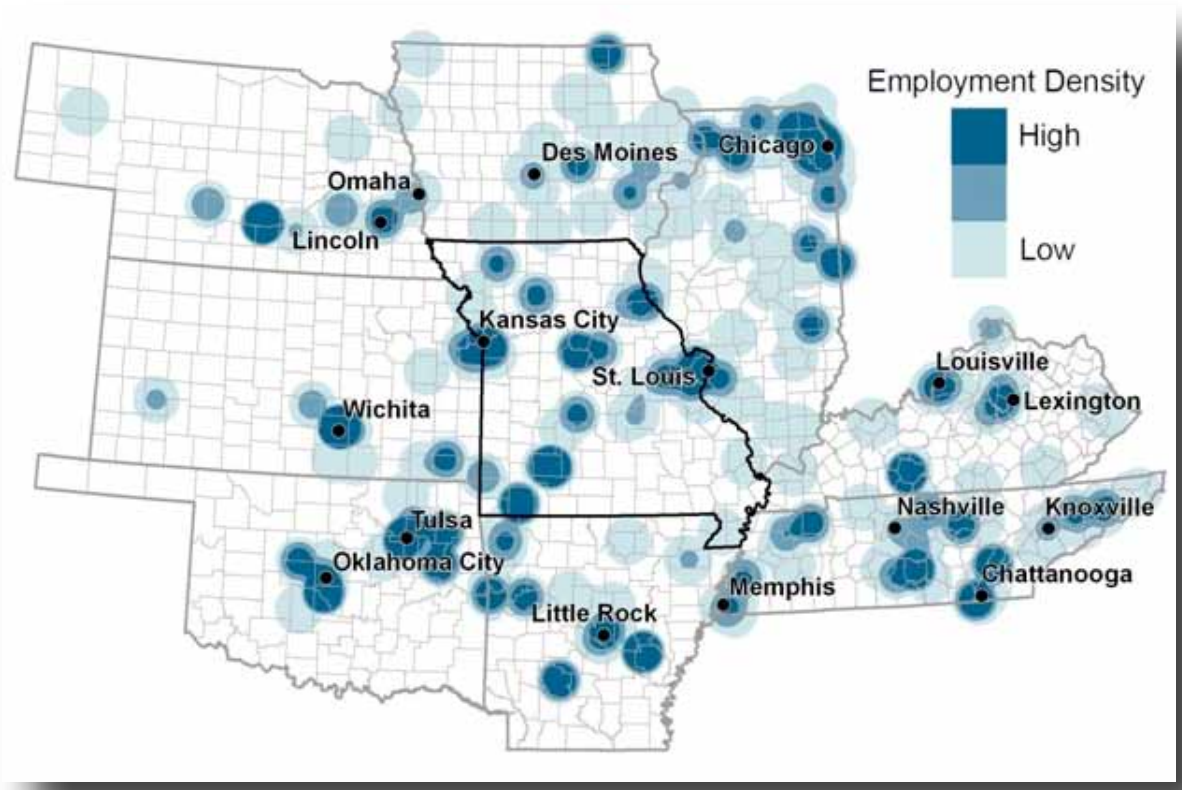
Nordyne
O'Fallon, Tipton, Poplar Bluff, Booneville, MO
Nordyne manufactures high efficiency heating and cooling systems. They sell to product reps who distribute to contractors for installation at the consumer level.

Ingersoll Rand
Bridgeton, St. Louis, MO
IR develops comprehensive solutions for the industrial refrigeration industry including energy audits, design consulting, product manufacturing, and installation.

Loren Cook Company
Springfield, MO
Loren Cook has been in business for 60 years. They are a significant manufacturer of industrial and commercial fans and blowers which are distributed worldwide.

Regional Employment Density

In comparison to a nine state region, Missouri has many pockets of high density employment in HVAC and commercial refrigeration manufacturing. Some of these areas include Hannibal, the St. Louis Metro, Kansas City, Cassville (southwest), Springfield, Camdenton, Chillicothe, and Maryville (northwest).



Export Trends

HVAC and commercial refrigeration manufacturing exports went from $282 million in 2008 to $241 million in 2009, a 14% decline. Through October 2010, however, exports were back up 25% over 2009. Air & Gas Compressors, Pumps and Fans, with 52% growth so far in 2010, is one of the fastest growing subcategories. Of the seven machinery manufacturing categories, HVAC and commercial refrigeration manufacturing is 2nd overall in total exports. Below is a list of the top ten recipients of these Missouri exports.

Countries	Exports	Countries	Exports
Canada	$105,329,287	Korea, Republic Of	$5,461,702
China	$36,717,919	Trinidad And Tobago	$3,714,562
Mexico	$21,006,707	Saudi Arabia	$3,144,713
Thailand	$19,860,935	Japan	$2,062,863
United Kingdom	$9,302,860	Australia	$1,975,514

Turbine and Power Transmission Equipment Manufacturing

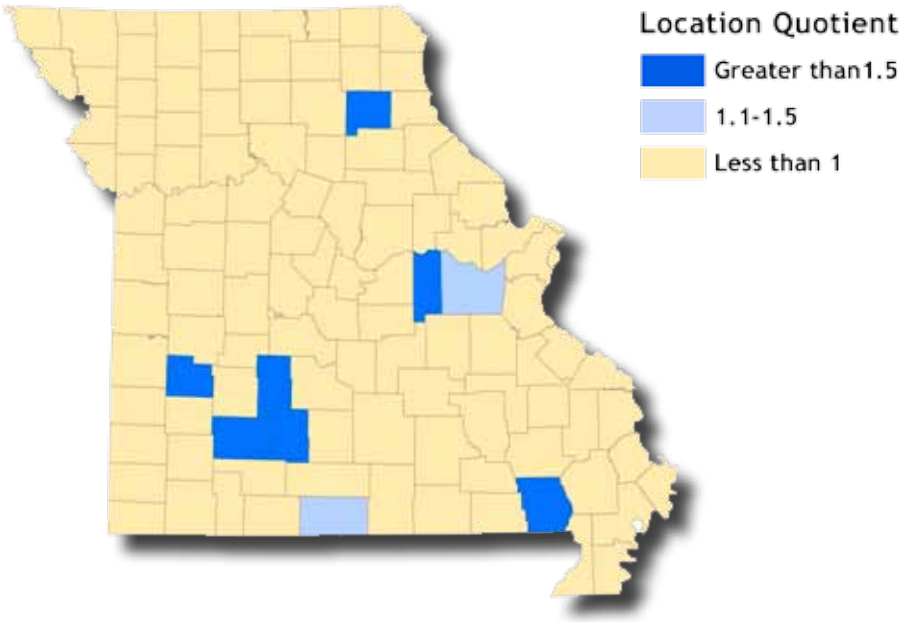
The turbine and power transmission equipment manufacturing sector covers four main categories. These include the manufacturing of turbine and turbine generator set units; speed changer, drive, and gear manufacturing; mechanical power transmission equipment manufacturing; and other engine equipment manufacturing.

This sector employed an average of 2,116 people in Missouri in 2009 throughout 28 locations. The average wage of these employees was $36,980.

Turbine and power transmission manufacturing accounted for approximately $220 million in 2009 Missouri exports. This made up 20% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

The map shows where this sector is locally concentrated in Missouri. Seven counties in the state have a location quotient above 1.5: Butler, Cedar, Dallas, Gasconade, Greene, Shelby, and Webster Counties all have higher than normal concentrations of turbine and power transmission equipment manufacturing jobs.



Top Missouri Turbine and Power Transmission Equipment Manufacturing Companies

Briggs & Stratton
Poplar, MO
Briggs is a large manufacturer of engines for lawn mowers, snow blowers, power washers, generators, and other household accessories.

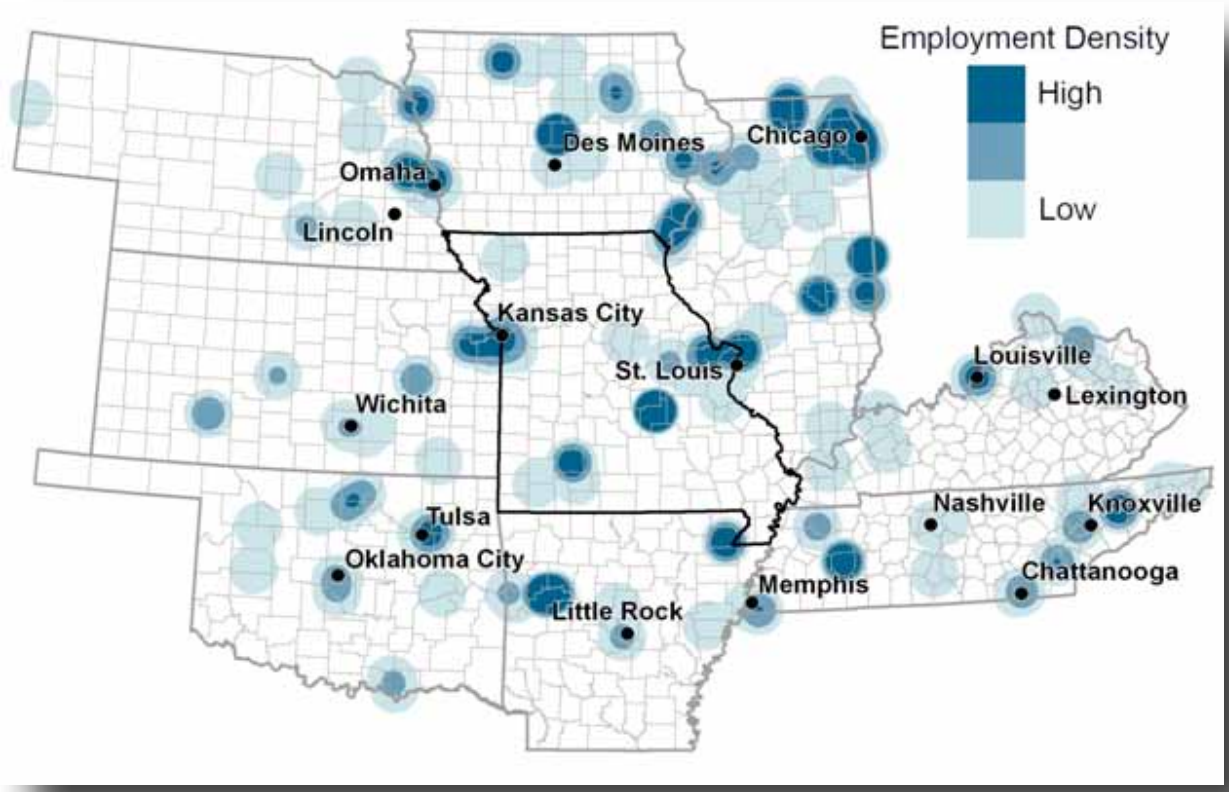
Kawasaki Motors
Maryville, MO
Kawasaki manufactures ATV's, watercraft, utility vehicles, RUV's, and motorcycles. The Maryville plant manufactures the company's general purpose engines.

John Deere
Springfield, MO
Deere is one of the world's largest manufacturers of agricultural, forestry, and construction equipment. The Springfield site is where John Deere disassembles and rebuilds failed engines.

Avmats
Chesterfield, O'Fallon, MO
Aviation Material and Technical Support is a parts and maintenance company devoted to aircraft. They carry many different engine and aircraft parts and they offer certain maintenance and repairs.

Regional Employment Density

In comparison to a nine state region, Missouri has four main areas of high density employment in turbine and power transmission equipment manufacturing. These areas include Kansas City, St. Louis, Springfield, and Rolla.



Export Trends

Turbine and power transmission equipment manufacturing exports went from $207 million in 2008 to $220 million in 2009, a 6% increase. This sector is surging through October 2010, up 89% over the prior year. This sector is 3rd in total exports out of the seven main categories of machine manufacturing and it is the only one that actually experienced growth from 2008 to 2009. A high growth subcategory thus far in 2010 with 32% growth is Single Phase AC Motors. The table below shows the destinations of Missouri's turbine and power transmission equipment manufacturing exports.

Countries	Exports	Countries	Exports
Canada	$43,256,705	Pakistan	$15,884,397
Venezuela	$42,118,612	Germany	$11,120,686
Austria	$18,190,108	Panama	$6,812,462
Italy	$17,074,370	Sweden	$6,219,614
China	$16,443,538	Hungary	$5,596,721

Agriculture, Construction, and Mining Machinery

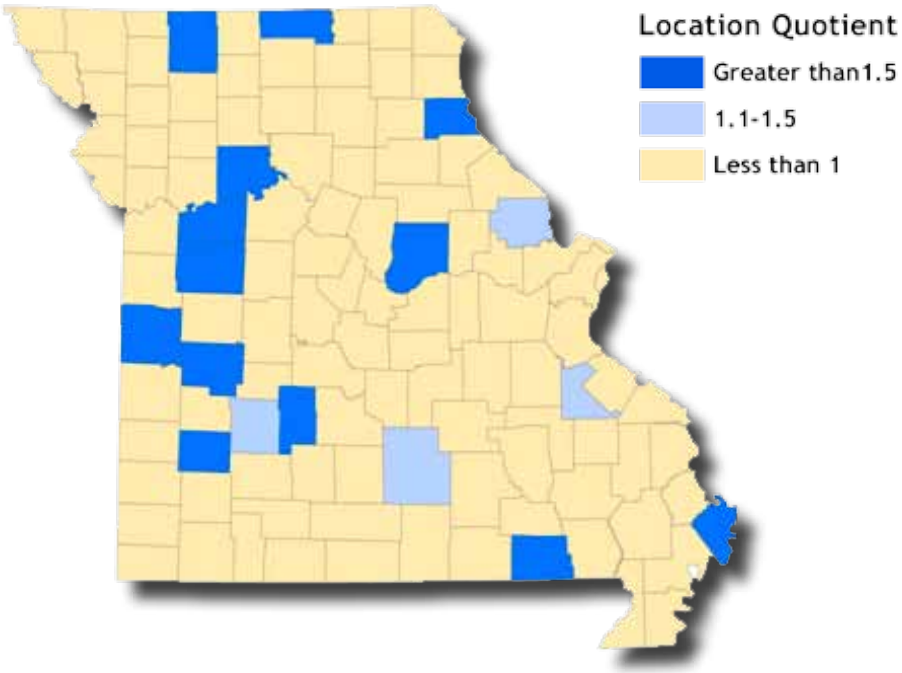
The agriculture and machinery manufacturing sector can be separated into five main categories. These include the manufacturing of farm machinery and equipment; lawn and garden equipment; construction machinery; mining machinery and equipment; and oil and gas machinery and equipment.

This sector employed an average of 1,016 people in Missouri in 2009 throughout 45 locations. The average wage of these employees was $42,899.

Agriculture and machinery manufacturing accounted for approximately $117 million in 2009 Missouri exports. This made up 10% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

The map shows where this sector is locally concentrated in Missouri. There are many counties throughout the state that carry high concentrations of these jobs (Location Quotient > 1.5). These are Bates, Callaway, Carroll, Dade, Dallas, Harrison, Johnson, Lafayette, Marion, McDonald, Mississippi, Putnam, Ripley, and St. Clair counties.



Agriculture, Construction, and Mining Machinery

Swisher Mower & Machine
Warrensburg, MO
Swisher has been in business since 1945. They manufacture a variety of specialty lawn and garden equipment including ATV accessories for home and ranch markets.

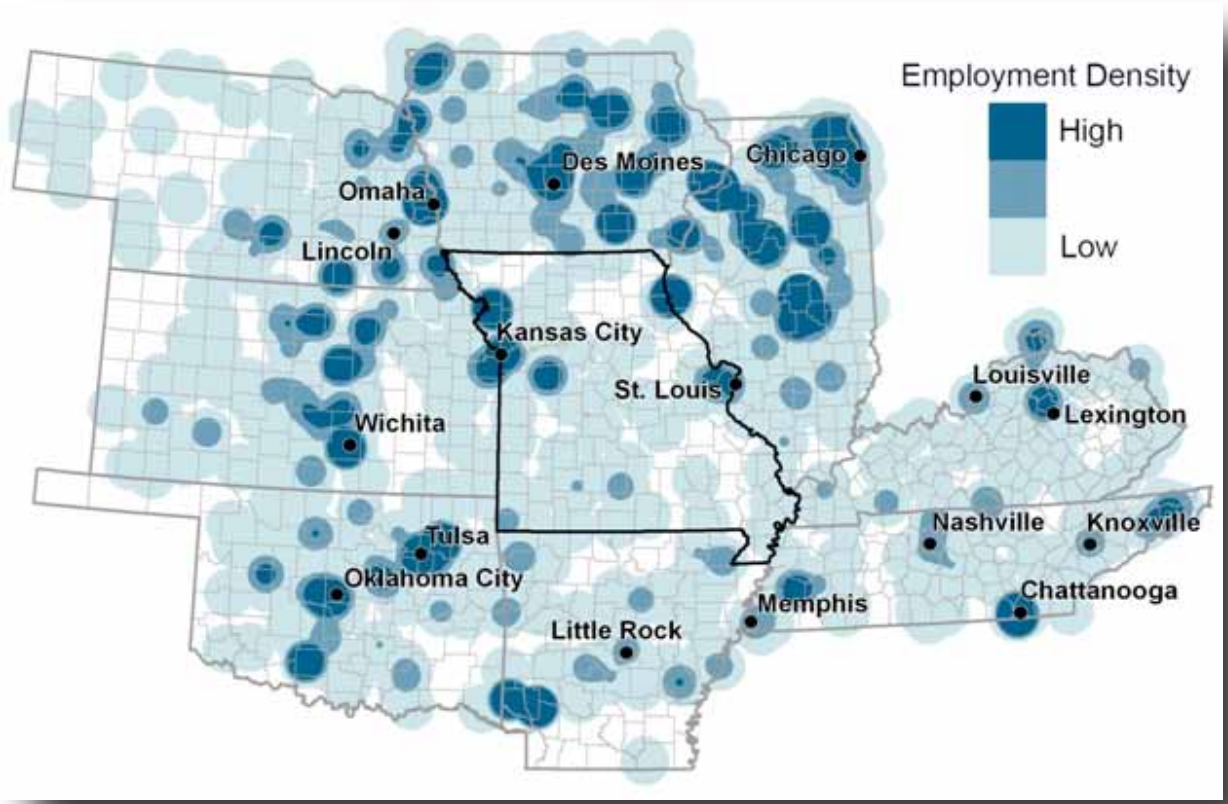
Agile Manufacturing
Anderson, MO
Agile manufactures several products tailored to the poultry industry including feed storage and drinking systems, heating and incinerator systems, ventilation equipment, and control and scale systems.

Central Mine Equipment
St. Louis, MO
Central Mine, established in 1928, designs and manufactures a complete line of drilling equipment for the geotechnical, environmental, mineral exploration, and construction industries.

Blount International
Kansas City, MO
Blount, through its four main brands, specializes in manufacturing chain saws along with specific chain saw accessories such as cutting chain, guide bars, and drive sprockets. They also make lawn mower blades and other outdoor equipment.

Regional Employment Density

In comparison to a nine state region, Missouri has five key areas of high density employment in agriculture and machinery manufacturing. These areas include the St. Louis Metro, the Kansas City Metro, St. Joseph, Warrensburg, and Hannibal.



Export Trends

Agricultural and machine manufacturing exports went from $133 million in 2008 to $116 million in 2009, a 13% decline. Through October 2010, however, exports were back up 15% over 2009. In comparison to the seven main machine manufacturing categories, agricultural and machine manufacturing is 4th in total exports. A fast growing component in this category is Derricks & Cranes, which is more than 200% ahead of 2009 levels so far in 2010. The table below illustrates the top 10 recipients of Missouri agricultural and machine manufacturing.

Countries	Exports	Countries	Exports
Canada	$52,253,161	Australia	$3,180,511
Belgium	$8,063,676	India	$3,046,935
Mexico	$7,935,199	Malaysia	$2,435,386
Brazil	$3,635,125	China	$2,370,891
Germany	$3,507,319	Congo (Kinshasa)	$2,198,179

Industrial Machinery Manufacturing

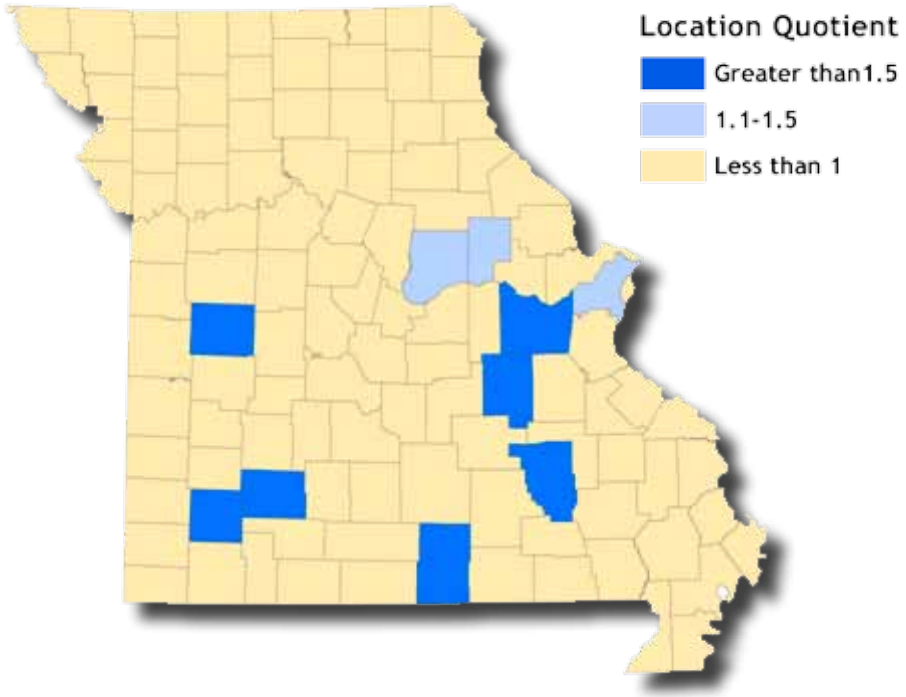
The industrial machinery manufacturing sector can be separated into three main categories. These include the manufacturing of sawmill and woodworking machinery, plastics and rubber industry machinery, and other industrial machinery. The other industrial machinery category includes machinery equipment for manufacturing of the following items: paper, textiles, printing, food products, and semiconductors.

This sector employed an average of 1,707 people in Missouri in 2009 throughout 67 locations. The average wage of these employees was $47,732.

Industrial machinery manufacturing accounted for approximately $75 million in 2009 Missouri exports. This made up 7% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

The map below shows where this sector is locally concentrated in Missouri. There are many counties throughout the state that carry high concentrations of these jobs (Location Quotient > 1.5). These are Crawford, Franklin, Greene, Henry, Howell, Lawrence, and Reynolds counties.



Top Missouri Industrial Machinery Manufacturing Companies

Paul Mueller Company
Springfield, MO
Mueller manufactures specialty shop and field fabricated alloy vessels, some over 2 million gallons in size. They also provide process solutions using technology and engineering services

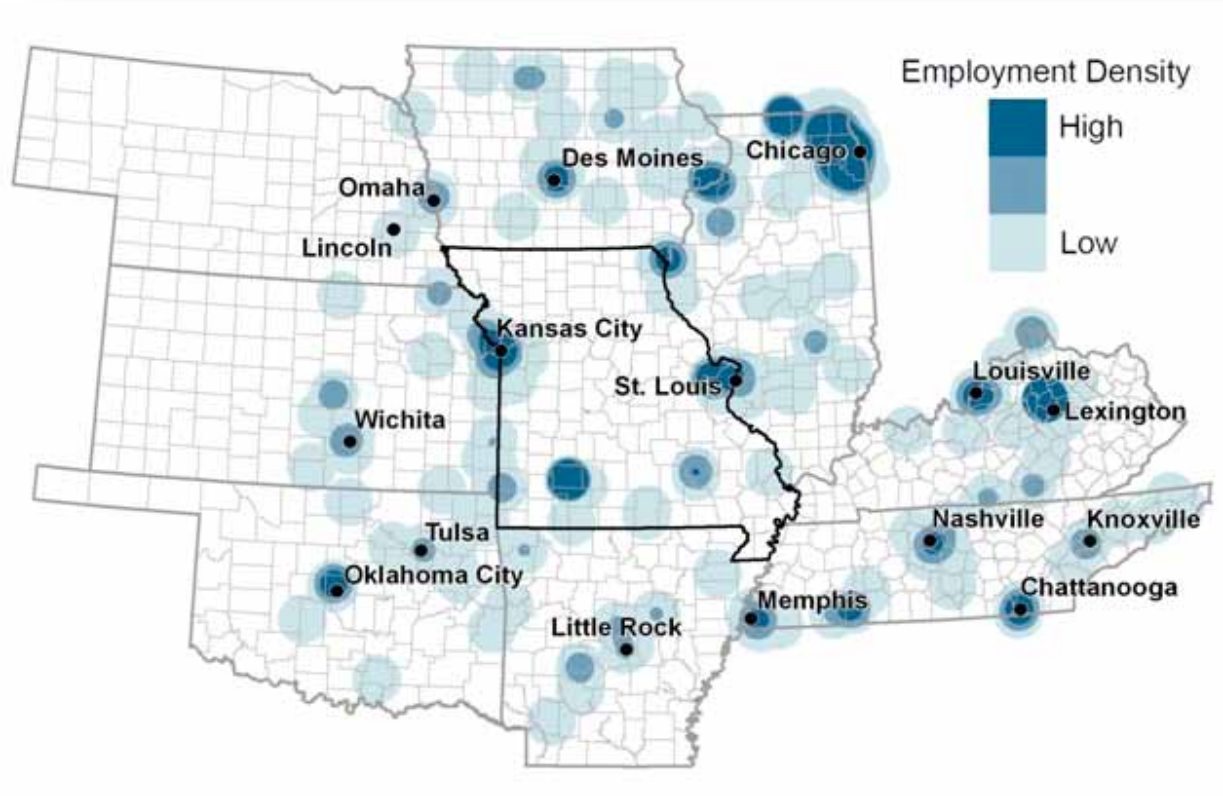
Mark Andy Inc
Chesterfield, MO
Mark Andy Inc is a major manufacturer of narrow web printing equipment using major brands Comco, Mark Andy, and Rotoflex. They back it all up with MAX, their unique customer support system.

Ellington Industrial Supply
Ellington, MO
They are a woodworking and machinery manufacturing company located in Southeast Missouri.

Salvajor Company
Kansas City, MO
Established in 1940, Salvajor manufactures commercial waste disposers and waste handling systems for the food service industry.

Regional Employment Density

In comparison to a nine state region, Missouri's high density employment areas for industrial machinery manufacturing include Kansas City, St. Louis, and Springfield, and the town of Ellington, MO in the southeast portion of the state.



Export Trends

Industrial machinery manufacturing exports went from $92 million in 2008 to $75 million in 2008, an 18% decline. Through October 2010, however, exports were back up 24%. Of the seven machinery manufacturing categories, industrial machinery was 5th overall in total 2009 exports. Within this category, Flexographic Printing Machinery is a fast growing product that has grown 165% thus far through 2010. Below is a table showing the destination of Missouri's industrial machinery manufacturing exports.

Countries	Exports	Countries	Exports
Canada	$16,755,591	Nigeria	$3,256,228
Mexico	$10,174,675	China	$2,306,660
Singapore	$5,134,019	Australia	$2,232,273
United Kingdom	$4,121,629	Malaysia	$1,725,938
Germany	$3,501,986	India	$1,529,239

Commercial and Service Industry Machinery

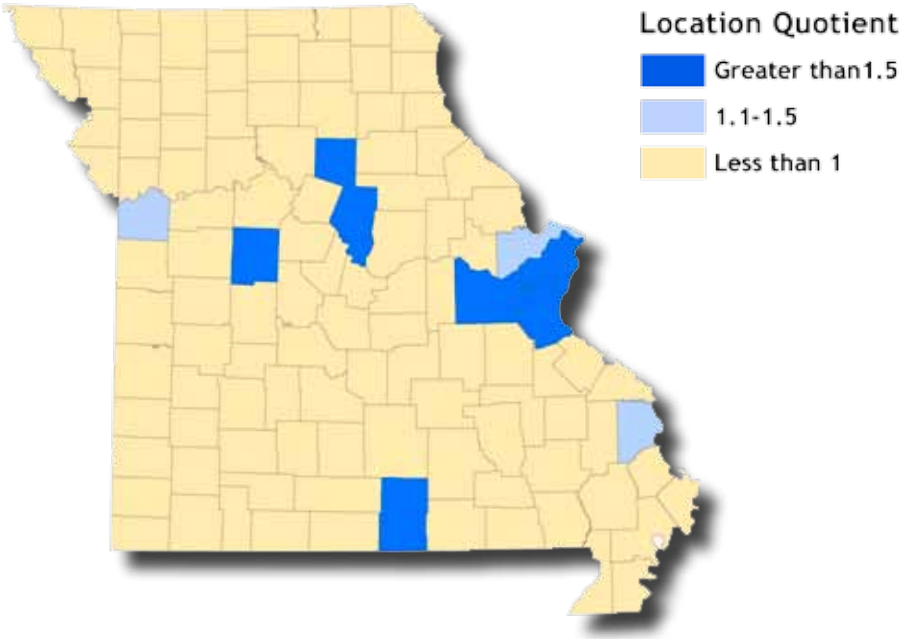
The commercial and service industry machinery sector can be separated into six subcategories. These include the manufacturing of vending machines, laundry and dry-cleaning machinery, office machinery, optical instrument and lenses, photographic and photocopying equipment, and any other commercial and service industry machinery.

This sector employed an average of 2,848 people in Missouri in 2009 throughout 50 locations. The average wage of these employees was $49,177.

Commercial and service industry machinery manufacturing accounted for approximately $63 million in 2009 Missouri exports. This made up 6% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

The map shows where this sector is locally concentrated in Missouri. There are many counties throughout the state that carry high concentrations of these jobs (Location Quotient > 1.5). These are Boone, Franklin, Howell, Jefferson, Pettis, Randolph, St. Louis City, and St. Louis County. Pettis and Randolph Counties, in particular, are extraordinarily heavily concentrated with location quotients of 27 and 35 respectively.



Top Missouri Commercial and Service Industry Machinery Manufacturers

Crane Merchandising Systems
Bridgeton, MO
Through its 9 brands, Crane provides a full line vending equipment and technology for vending operators and food & beverage companies. Their payment solutions technology is used by gaming, transportation, retail, and vending companies.

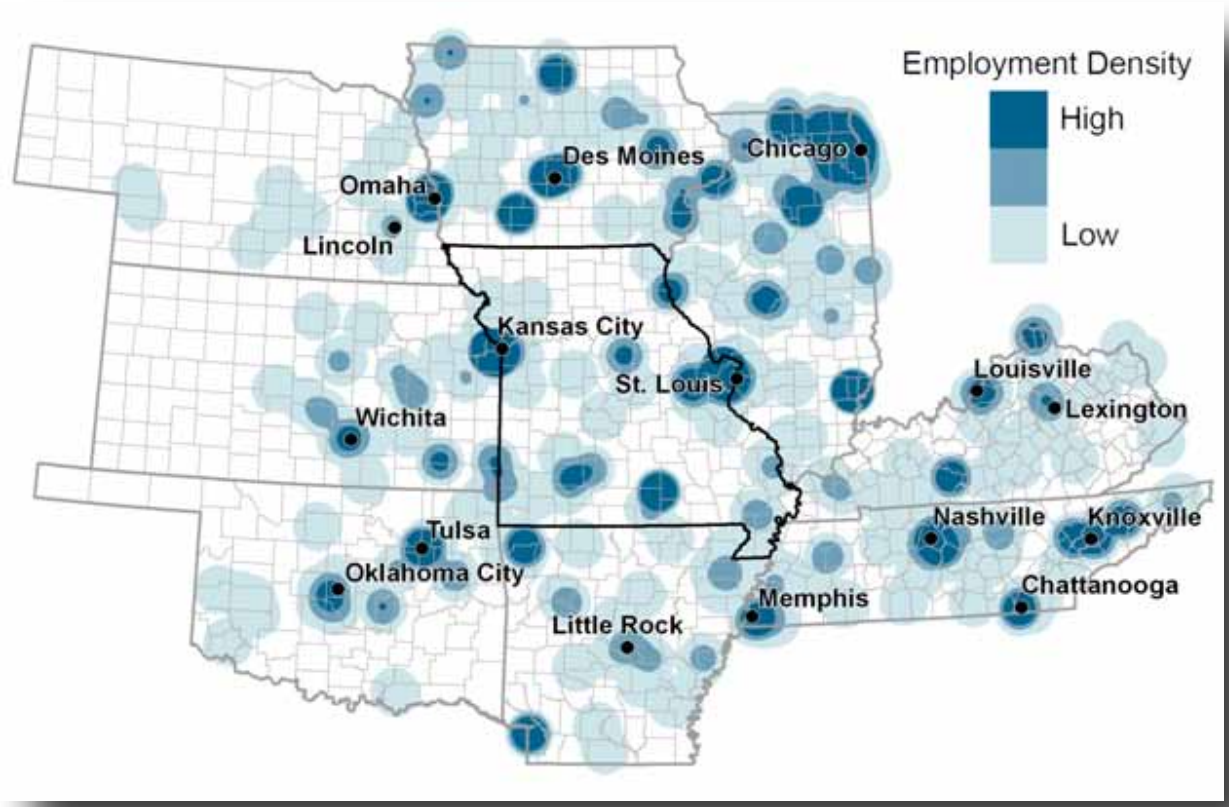
Coinco Products, Inc
Mountain View, Union, High Ridge, St. Louis, MO
Through its three subsidiaries, Coinco provides a wide variety of vending machines and related technology such as coin changers, card readers, cash changers, and many other related items.

Duke Manufacturing
St. Louis, Sedalia, MO
Duke designs and manufactures a wide array of products to the healthcare, dining, education, and lodging industries. A few products include kiosks, front desks, ovens, gas units, custom fabrication, and steam tables.

Melton Machine & Control
Washington, MO
Melton manufactures and designs a variety of products including fixtures, robotic systems, rotary welding machines, leak test systems, and many other items.

Regional Employment Density

In comparison to a nine state region, Missouri has five areas of high employment density for commercial and service industry machinery manufacturing. These areas include Kansas City, the St. Louis Metro extending west to Washington, MO, the Springfield area extending northeast towards Marshfield, Moberly, and Mountain View in the southern portion of the state.



Export Trends

Commercial and service industry machinery manufacturing exports totaled over $63 million in 2009, placing 6th overall out of the seven machinery manufacturing categories. A fast growing sub category is Machinery for Sealing, Capsuling, and Labeling Bottles and Cans, whose exports are up 195% thus far in 2010. Below is a look at which countries this category's exports were sent to and the values of the exported goods. Canada was the top recipient with $9.5 million.

Countries	Exports	Countries	Exports
Canada	$9,502,774	Germany	$3,675,142
Mexico	$8,807,882	Korea, Republic Of	$2,609,803
United Kingdom	$5,790,863	Venezuela	$2,028,376
Australia	$4,190,865	France	$1,854,006
China	$4,081,270	Singapore	$1,694,724

Metalworking Machine Manufacturing

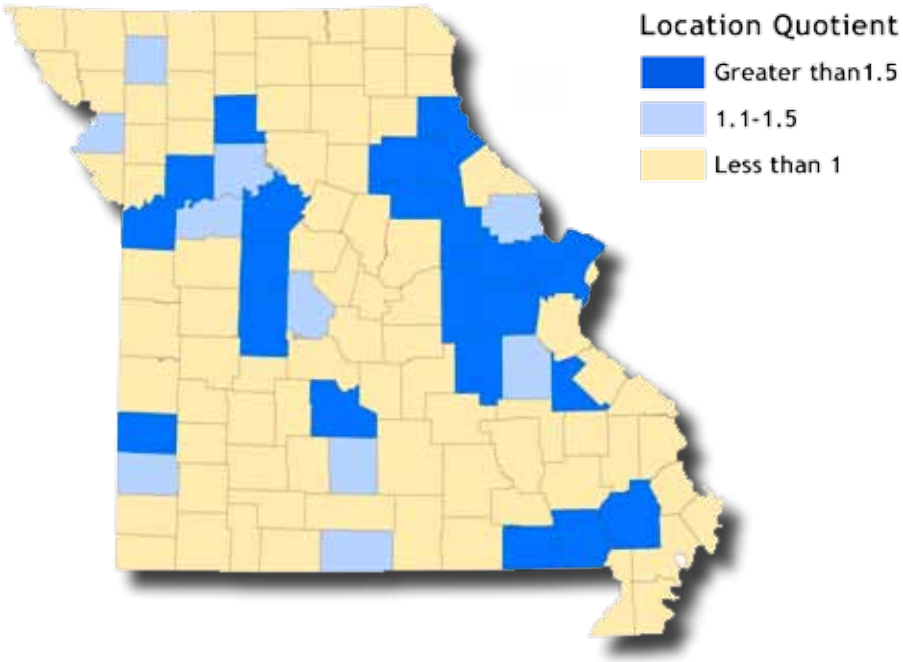
The metalworking machinery manufacturing sector includes many different subcategories. Examples of what is manufactured in these subcategories include metal cutting machine tools, metal forming machine tools, other tools, dies, fixtures, jigs, cutting tools, machine tool accessories, rolling mill machinery and equipment, and industrial molds.

This sector employed an average of 4,763 people in Missouri in 2009 throughout 215 locations. The average wage of these employees was $44,955.

Industrial machinery manufacturing accounted for approximately $60 million in 2009 Missouri exports. This made up 5% of that year's total Missouri machinery manufacturing exports.

Regional Dependence

This map shows where this sector is locally concentrated in Missouri. There are 23 counties in Missouri with higher than normal location quotients of jobs in this sector (LQ>1.5). A closer look reveals seven counties with very high LQ's of over 5: Franklin, Gasconade, Laclede, Montgomery, Ralls, Saline, and St. Francois Counties.



Top Missouri Metalworking Machine Manufacturing Companies

US Tool Grinding
Desloge, MO
US Toll Group is a multi-faceted supplier of innovative tooling solutions including: Integrated Supply Chain Management, Production Cutting Tool Reconditioning, Industrial Vending, Value Added Solutions, Information Technology and Product Engineering.

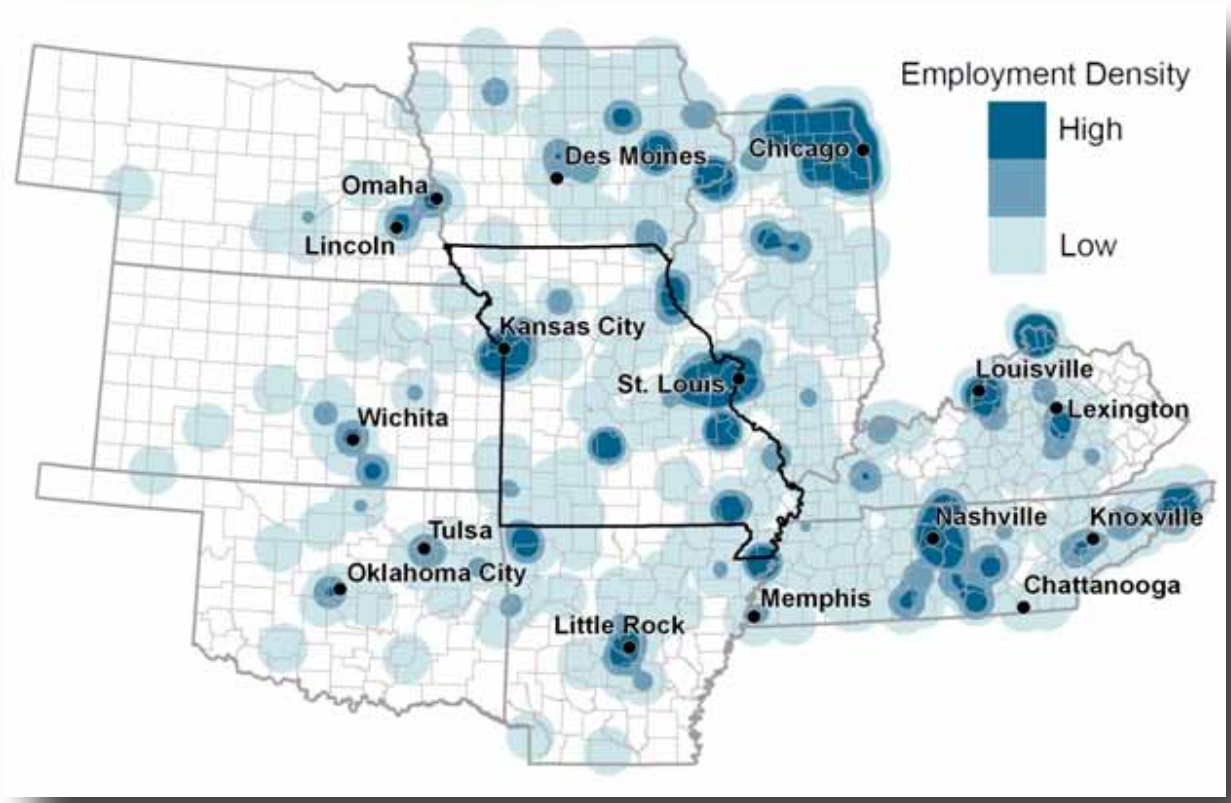
Sunnen Products Co
St. Louis, MO
Sunnen manufactures a wide range of precision bore sizing systems, honing machines, precision bore gages, tooling, abrasives, honing oils and coolants, and accessories

Roto-Die Company
Eureka, MO
Roto-Die has been around for over 50 years, offering high quality, reliable rotary tooling to the converting industry.

Wilson Manufacturing
St. Louis, MO
Wilson offers everything from high tech rotary dies to simple bearing blocks. They also hold several patents and offer the only machined sharpened die in their industry.

Regional Employment Density

In comparison to a nine state region, Missouri has six major areas of employment concentration in metalworking machine manufacturing. These areas include Kansas City, St. Louis, Hannibal, Desloge (south of St. Louis Metro), the Lebanon area, and Poplar Bluff.



Export Trends

Metalworking machine manufacturing exports went from $83 million in 2008 to $60 million in 2009, a 27% decline. Through October 2010, however, exports were up slightly over 2009. A fast growing subcategory is Machine Tools which is up over 500% into 2010 after a 67% overall decline in 2009. Metalworking machine manufacturing in Missouri accounts for the fewest exports of the seven total machine manufacturing categories. The chart below shows the top ten recipients of Missouri exports from this sector.

Countries	Exports	Countries	Exports
Canada	$15,179,221	Italy	$2,046,461
Mexico	$10,939,952	United Kingdom	$1,792,547
China	$6,651,295	Korea, Republic Of	$1,550,485
Israel	$2,890,626	Nigeria	$1,403,831
India	$2,560,038	Colombia	$1,235,722

Sources

Reference USA

US Bureau of Labor Statistics – Quarterly Census of Employment and Wages

Wisertrade

Location Quotients

Location quotient (LQ) analysis indicates how concentrated an industry's employment is in a certain area as compared to the U.S. average. If an industry has an LQ of 2.0 then it is twice as concentrated in employment as the U.S. average.

Top Machinery Manufacturing Companies

Certain machinery manufacturing companies were chosen based on their status as "top employers" in Missouri and are listed in order of approximate employment. Information on individual companies was obtained from Reference USA and individual company websites.

Export Data

Export values associated with Harmonized codes were converted to NAICS based codes using a bridge between the two coding systems. The code conversion enabled a more detailed reporting of commodities while still using the broader based four digit NAICS system.

Acknowledgements

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