



 RAINCATCHER<sup>SM</sup>

**METALWORKING  
MACHINERY  
MANUFACTURERS**

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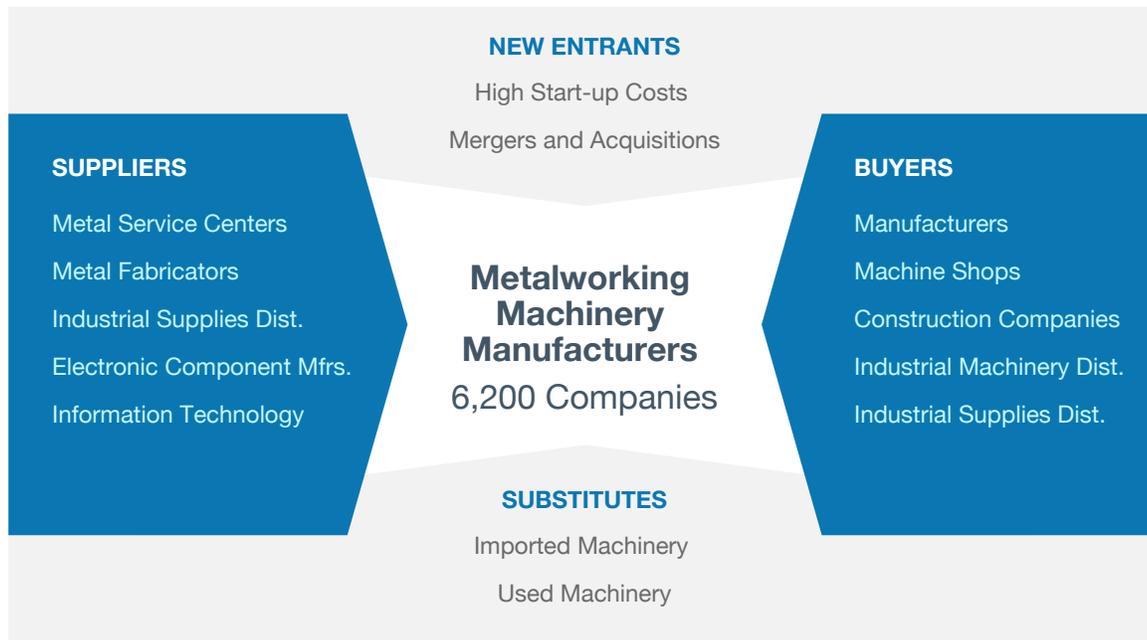
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# Coronavirus Update

## Jan 5, 2022 -- Manufacturing Output Hits Three-year High

- Production at US factories, a driver of demand for metalworking machinery, increased to its highest level in nearly three years in November 2021 as output rose across the board. Production at auto plants increased 2.2% month over month in November after increasing 10.1% in October. Motor vehicle output remains 5.4% below its year-earlier level, however, because of a global shortage of semiconductors. Excluding autos, manufacturing output increased 0.6% month over month in November.
- Manufacturing activity increased in Asia during November as crippling supply bottlenecks eased, but rising input costs and renewed weakness in China dampened the region's prospects for an early, sustained recovery from pandemic paralysis. China's factory activity fell back into contraction in November, the private Caixin/Markit Manufacturing Purchasing Managers' Index (PMI) showed, but PMIs showed expansion in countries including Japan, South Korea, Vietnam, and the Philippines. "Overall, with new export orders flooding back to countries previously hamstrung by Delta outbreaks and the disruption further down the supply chain still working through, there is plenty of scope for a continued rebound in regional industry," said Alex Holmes, emerging Asia economist at Capital Economics. Imports represent about 34% of the US market for metalworking machinery. Imports come primarily from Japan (20% of import value), Germany (15%), China (11%) and Canada (11%).
- Supply chain experts say that the coronavirus pandemic continues forcing manufacturers to rethink some of their practices, and domestic metalworking machinery manufacturers may benefit as a result. For decades, companies moved production to China to capitalize on lower labor costs. They also held down expenses by keeping inventories to a minimum. Using a "just-in-time" strategy, they bought materials only as needed to fill orders. The pandemic showed that keeping inventories threadbare carries risk. "Supply chains have changed forever," said Bindiya Vakil, CEO of the supply chain consultancy Resilinc. The old management philosophy, she said, was to "get everything to the lowest possible price point... What we are dealing with right now is a consequence of those decisions. Companies have lost hundreds of millions, in some cases billions, of dollars in (forgone) profits because of that, because their supply chains failed."
- The Gardner Business Index: Metalworking decreased two points month over month in November 2021 to end at 59.9. A reading above 50 indicates expansion while a reading below 50 indicates contraction. The modest decline in the overall reading was broad-based with all activity components other than exports reporting expanding activity. Slowing expansion was recorded for new orders, production, and backlog activity. Nearly 9 in 10 of those who responded to Gardner metalworking surveys from May through November 2021 reported rising supplier prices. The spread between the proportion of shops citing rising costs and the proportion stating that they were passing price increases onto customers widened to around 27% through the middle of 2021 and decreased only slightly from that level toward the end of the year. There is strong reason to believe, therefore, that downstream consumers will face price increases as 2022 contracts are finalized.

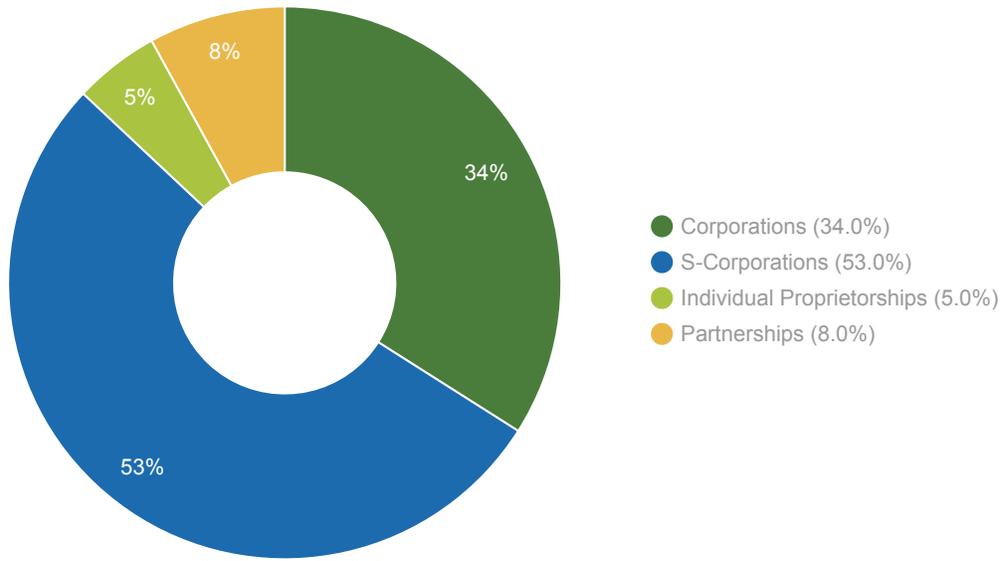
# Industry Structure



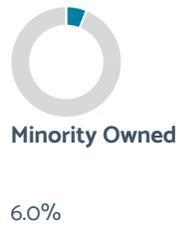
A typical metalworking machinery manufacturer operates out of a single location, employs 26-27 workers, and generates about \$4-5 million annually.

- The metalworking machinery manufacturing industry consists of about 6,200 companies which employ about 164,000 workers and generate about \$30 billion annually.
- Most companies are small, independent operators - about 72% of establishments employ less than 20 workers.
- Customer industries include machine shops, industrial machinery wholesalers, industrial supplies distributors, construction firms, and manufacturers of metal, glass, rubber, and plastic products.
- Large companies include Baileigh Industrial, Mazak, Kennametal, and Amada.

# Industry Demographics



Source: US Census Bureau



Source: Census Bureau

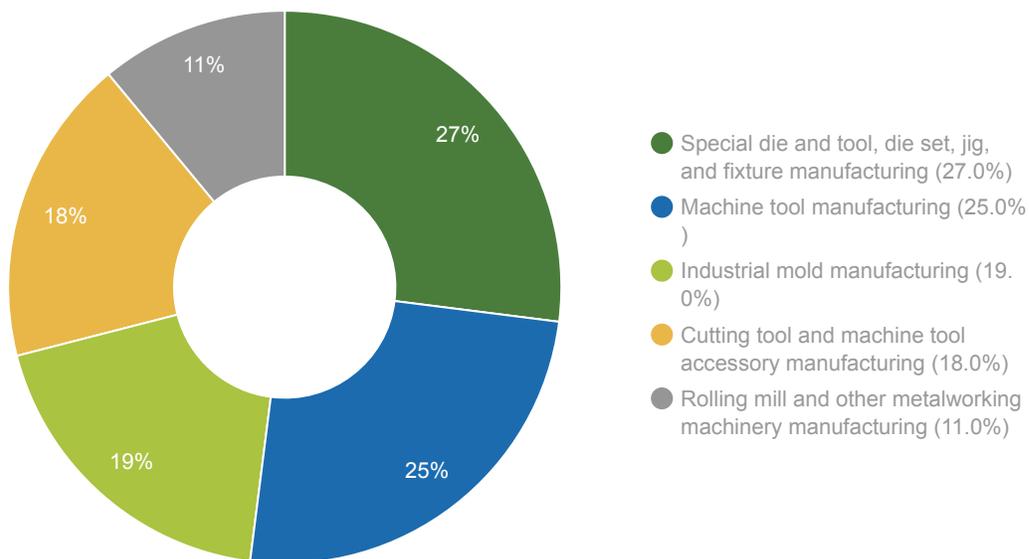
# How Firms Operate

## Products and Operations

Firms design and build standard machinery and interchangeable components for the mass market and customized machinery and components for customers' specific needs. Products include dies, tools, jigs, industrial molds, rolling mills, machine tools, and cutting and machine tool accessories.

- Metalworking machinery manufacturers produce equipment for a broad array of industries including manufacturing, construction, transportation equipment, mining and natural resource development, power utilities, defense contractors and industrial distributors.
- Metalworking machinery manufacturers typically use the equipment they design to produce inventory.
- Selling is primarily through sales staff, websites, catalogs, and industrial distributors.
- Firms rely heavily on a skilled labor force of sales people, engineers, designers, computer programmers and technicians, and fabricators.

**Metalworking Machinery Manufacturers Revenue**



Source: US Census Bureau

Metalworking machines are used for turning, milling, grinding, cutting, bending, stamping, forming, coiling and punching (hole making). Machines range significantly in complexity. For example, simple mechanical hammers flatten and shape by dropping a heavy weight onto the material. Complex machines like laser cutting and CNC machines are computerized and require programming and data inputs to cut or shape metal to specification. Machines may be designed to perform a single function or multiple functions, such as bend and punch holes in a metal sheet, either simultaneously or alternately. Machines are often designed to use a range of tools or components that expand their capabilities, such as various sizes of holes drilled, shapes cut, or molds inserted. The ability to quickly switch out tools within a machine makes them more functional for customers.

Metalworking machinery manufacturers may have in-house metal forming operations in which scrap (from their own operations or purchased) is melted and molded for reuse in production. Manufacturers also issue software updates for computerized machinery and provide servicing and technical support.

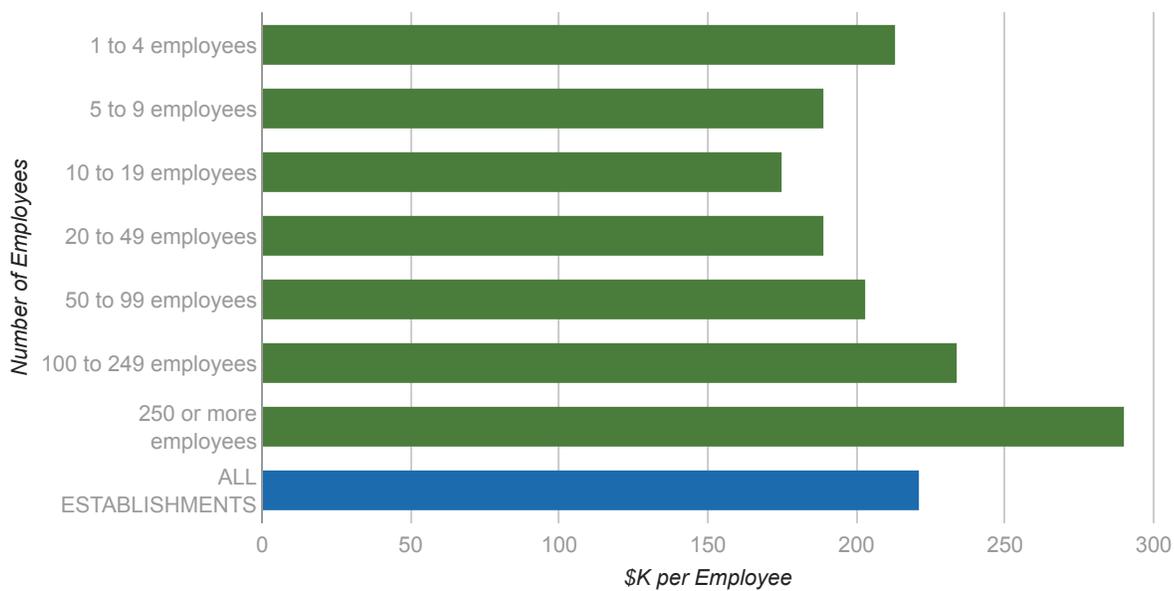
Stock machines are typically produced in batches to reduce the time required for retooling and programming production equipment. Customized machines are produced individually or modified from stock inventory. Manufacturers may have separate production lines for stock equipment and customized machines.

To develop a custom machine, salespeople, designers and engineers meet with the client to determine the primary and any secondary functions required of the machine, space limitations, timeframe for delivery, and cost. Once specifications are set and the machine is designed, a physical prototype is manufactured to test its operation.

Metalworking equipment manufacturers work with customers to arrange shipping. They ship to customers via package delivery (USPS, FedEx) for lightweight orders and by hired freight trucks for orders over 100 pounds, in general. International orders are often transported by ship. Customers typically take ownership of a stock machine once it leaves the production facility. Ownership of customized machines generally takes place once the machine is installed and operational in the customers' facility. A technician travels to the customer's site and installs the machinery, ensures it operates properly, and trains users in how to run and maintain the machinery.

The industry employs a wide range of skilled workers for production, sales, and administration. Engineering and sales staff earn about \$80,000-87,000 per year. Computer programmers earn about \$62,800 per year. Machinists, tool and die makers, and metalworkers earn \$44,000-51,600 per year. Office staff, fabricators, assemblers, and machine tool technicians earn about \$39,000-42,600 on average.

**Revenue per Employee by Establishment Size**



Source: US Census Bureau

## Profit Drivers

### Developing Innovative Products

Firms can drive profits by developing specialized or technologically superior machinery compared to competitors' offerings. Customers are looking for machines that cut quickly and more precisely, reduce material waste, are easy to operate and configure, require minimal maintenance and less frequent replacement of parts, and can perform the functions they need. Customers are willing to pay a premium for metalworking machinery that reduces their costs, improves productivity, or allows them to expand their sales.

### Providing Outstanding Customer Service

Firms can boost profits by providing design and engineering services to customize machinery, as well as technical training and repair services. Some metalworking machinery is complex and computerized, requiring training and programming skills to operate. Many tools, dies, and molds wear with use, providing manufacturers with the opportunity to replace components, refresh their relationship with clients, offer additional services, and suggest new or custom products.

## **Effectively Managing Materials and Labor**

Materials and labor are significant costs for metalworking machinery manufacturers. Working with a range of suppliers helps to reduce reliance on a few large suppliers and allows firms to negotiate prices for materials such as metals and electronic components. Optimizing the workload of higher paid employees, such as engineers and sales staff, helps to manage labor costs. Effectively hiring and training assemblers and fabricators reduces rework and servicing costs and produces higher-quality machinery.

# Global Perspective

## Global Market Size

The global metalworking machinery manufacturing industry was valued at nearly \$246 billion in 2020, according to The Business Research Company. As customer markets continue to adapt to challenges brought about by the COVID-19 pandemic, worldwide metalworking machinery demand is forecast to rise 6.8% in 2021 over 2020 levels, reaching a value of more than \$262 billion. Between 2021 and 2024, the global metalworking machinery market is expected to see average annual growth of 8% and reach \$357 billion.

## Large Companies

COMPANY	HOME COUNTRY
Amada Co., Ltd.	Japan
DMG Mori Co., LTD.	Japan
Hardinge, Inc.	US
Hurco Companies, Inc.	US
Kennametal Inc.	US
Okuma Corporation	Japan
Schuler Pressen GmbH	Germany
Shenyang Machine Tool Co., Ltd.	China
TRUMPF GmbH + Co. KG	Germany
Yamazaki Mazak Corporation	Japan

## Key Global Trends

**Global Markets Recovering** – The COVID-19 pandemic put significant downward pressure on 2020 capital investments in new equipment, including metalworking machinery. However, many metalworking machinery and machine tool firms have reported a rebound in new machinery orders. Machinery consumption in North America and Europe has shown particular improvement. However, the downturn in demand early in the pandemic led to some inventory buildup. Amid weakened demand compared to prior to the pandemic, higher inventories have led to increased global competition on price.

**Additive Manufacturing** – Also called 3D printing, additive manufacturing (AM) deposits successive layers of material, including metals, to create intricate prototypes and parts from a digital file. Because there is very little waste compared to traditional subtractive machine tools, additive manufacturing has efficiency benefits. Additive manufacturing is both a potential competitor of and a possible opportunity for metalworking machinery firms. Some machine tool companies have added 3D metal printing equipment to their offerings through organic product extensions, M&A, or licensing deals. The global 3D printing metal market was valued at \$772 million in 2019 and is expected to experience average annual growth of nearly 28% through 2027, according to Grand View Research. North America accounts for about 34% of the global 3D printing metals market, with Europe being the next-largest one. Asia Pacific is forecast to see the strongest growth through 2027. Major AM metal end-use markets include aerospace and defense, automotive, and medical devices.

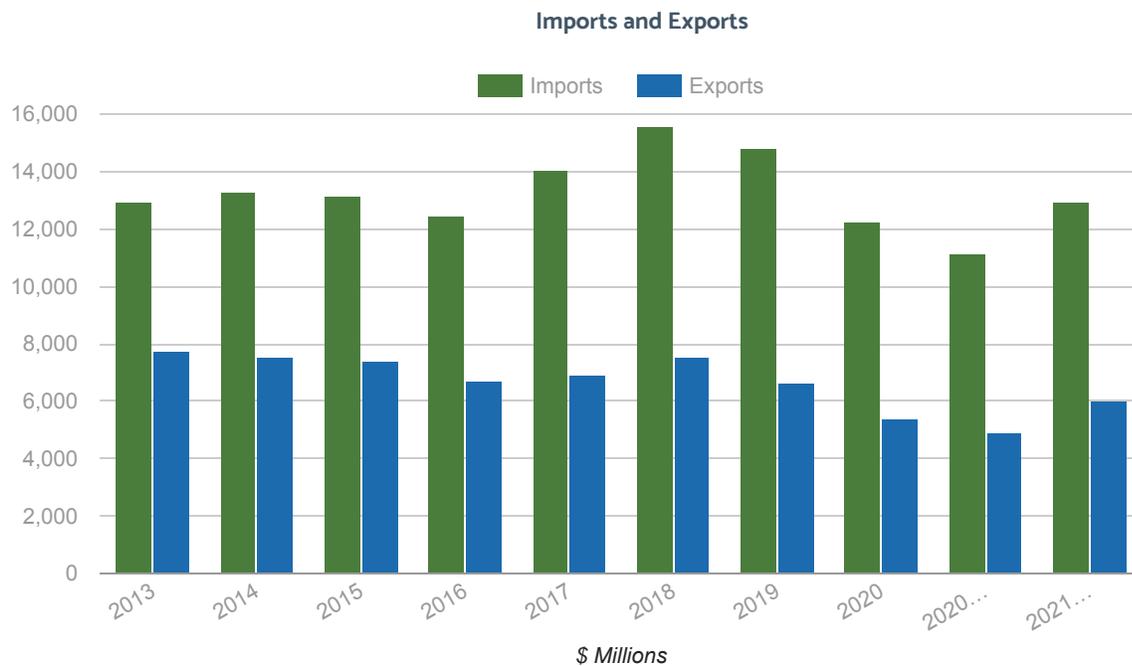
**Climate Goals May Drive Demand** – The global initiative to reduce emissions and the effects of climate change should boost demand for more efficient machinery, according to the Association for Manufacturing Technology (AMT). The shift to renewable energy and electric vehicles (EVs) will require manufacturers literally to retool. Global carmakers have announced billions of dollars' worth of EV

and battery production capacity expansions in Europe, North America, Asia, and Latin America. As the world continues to move toward renewable energy, metalworking machinery manufacturers may see a drop in demand from makers of coal mining, oil, and gas machinery but see an uptick from solar and wind equipment markets.

**Infrastructure Investments** – Global investments in infrastructure are expected to drive demand for metals, machinery, transportation equipment, and other industrial goods that drive demand for metalworking machinery. China’s appetite for construction machinery picked up significantly in early 2021, and regional railway projects are anticipated to contribute to sustained manufacturing technology demand. India has announced a five-year plan to spend \$1.4 trillion on infrastructure projects including roads, airports, bridges, rail, and public transportation. In the US, the Biden administration also has plans for sweeping spending actions for infrastructure and climate.

**Industrial IoT** – The industrial internet-of-things (IIoT) is projected to be the next industrial revolution in terms of its impact on production efficiency. IoT-enabled machinery uses sensors to gather data and leverages artificial intelligence and machine learning to perform predictive analytics to prevent unplanned downtime before it occurs. Next generation – or 5G – wireless networks are a key technology for enabling the smart factories of the future. The US, China, South Korea, and the EU are home to the major producers of 5G equipment and software. Trade tensions between the US and China – as well as cyber security concerns about China’s technology – has complicated the rollout of 5G networks.

## International Trade

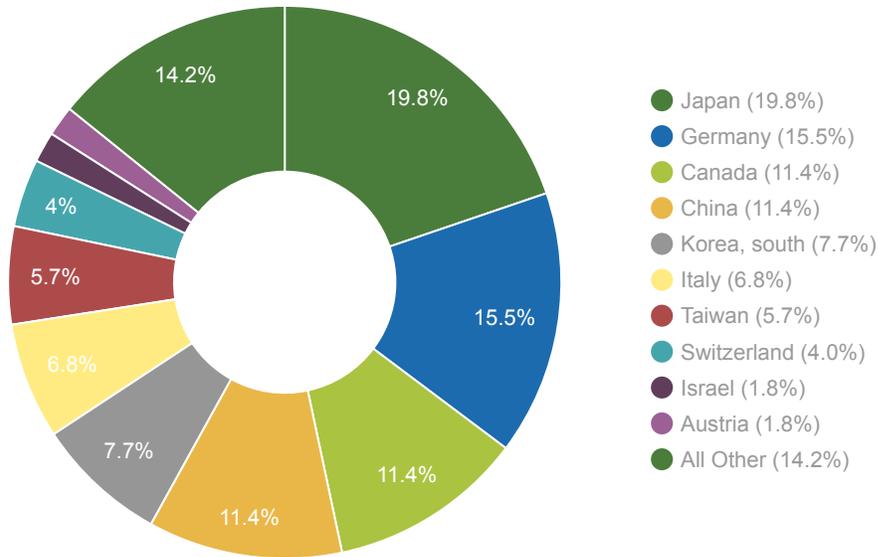


### Year-to-Date Trade Data

NOVEMBER 2021	VALUE (\$MILLIONS)	% CHANGE
<b>Imports</b>	\$12,945	14.1%
<b>Exports</b>	\$6,040	18.74%
<b>Trade Balance</b>	-\$6,905	

## Imports by Country

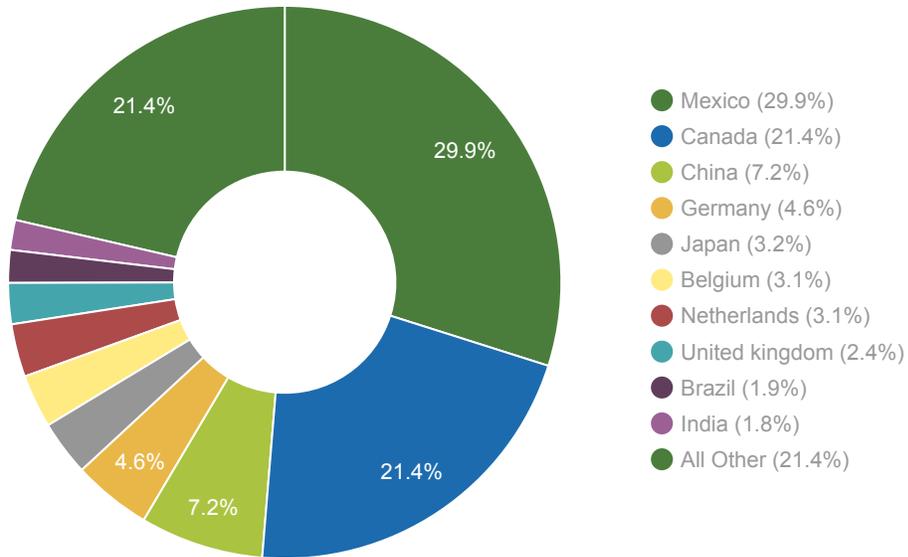
### Imports



COUNTRY	YEAR 2020	% IMPORTS
Japan	\$2,419,430,512	19.78%
Germany	\$1,892,278,317	15.47%
Canada	\$1,396,661,845	11.42%
China	\$1,389,297,284	11.36%
Korea, south	\$941,904,640	7.7%
Italy	\$832,672,748	6.81%
Taiwan	\$699,943,232	5.72%
Switzerland	\$486,441,037	3.98%
Israel	\$217,837,221	1.78%
Austria	\$216,521,386	1.77%
All Other	-	14.21%

## Exports by Country

### Exports



COUNTRY	YEAR 2020	% EXPORTS
Mexico	\$1,613,268,803	29.89%
Canada	\$1,155,645,772	21.41%
China	\$389,315,497	7.21%
Germany	\$248,359,313	4.6%
Japan	\$174,092,181	3.23%
Belgium	\$168,290,337	3.12%
Netherlands	\$167,332,036	3.1%
United kingdom	\$129,631,929	2.4%
Brazil	\$103,342,628	1.91%
India	\$94,668,502	1.75%
All Other	-	21.38%

# Industry Trends

## Trends are affected by the COVID-19 pandemic.

Changes in revenue, employment, business practices, trade and forecasts are occurring rapidly and data reporting by the government lags the changes. We are tracking changes in the “Coronavirus Update” chapter for those industries most affected and on our [Covid-19 Updates Webpage](#).

## Sales Growth Mixed

The metalworking machinery manufacturing industry has experienced fluctuations in sales in recent years. Sales fell 4.6% in 2016, then jumped 7.6% in 2017 and 2.7% in 2018 before falling 2.6% in 2019 and 7.8% in 2020. Beneficial tax regulations in conjunction with a strengthened economy and greater business spending can help to spur investment.

## Tax Advantage Spurs Sales

Buyers of metalworking machinery are benefitting from tax breaks when they purchase new equipment. Section 179 Expensing is now permanent, and allows buyers to write-off up to \$1 million of equipment expense in the first year of ownership. Machinery buyers can also take advantage of a 100% bonus depreciation deduction for qualified capital expenditures. Mazak explains these tax breaks on their website to raise awareness and drive sales.

## Single Versus Multifunction Machinery

Metalworking machinery can be designed for a specific task or perform several functions within one machine. Specific task machines may have a smaller footprint, but are limited to a single function that requires material to be transported to another machine for further processing. Multifunction machines may have larger footprints, but save time in handling and processing materials. Metalworking machinery manufacturers tend to design and build a wide variety of equipment to meet customers’ unique needs.

## Laser-based Equipment Development

As customers look to reduce lead times and production costs, metal machinery manufacturers are developing equipment and tools that make their customers’ more efficient. One such development is 3D laser cutting and welding equipment, which uses lasers to join metals or cut materials. Lasers allow for 5-axis cutting and greater precision. Lasers also don’t wear out and require replacement, like blades and wires.

## Internet of Things in Machinery

The Internet of Things (IoT) is impacting how advanced metalworking machinery is developed and operates. One example is the placement of sensors in machinery that relay real-time feedback, such as vibration or temperature, to the operator. The information allows an operator, repair technician or engineer to make modifications to improve function, prevent damage or a breakdown, or monitor in-process quality. Greater data collection and sharing improves production.

## Fostering Export Opportunities

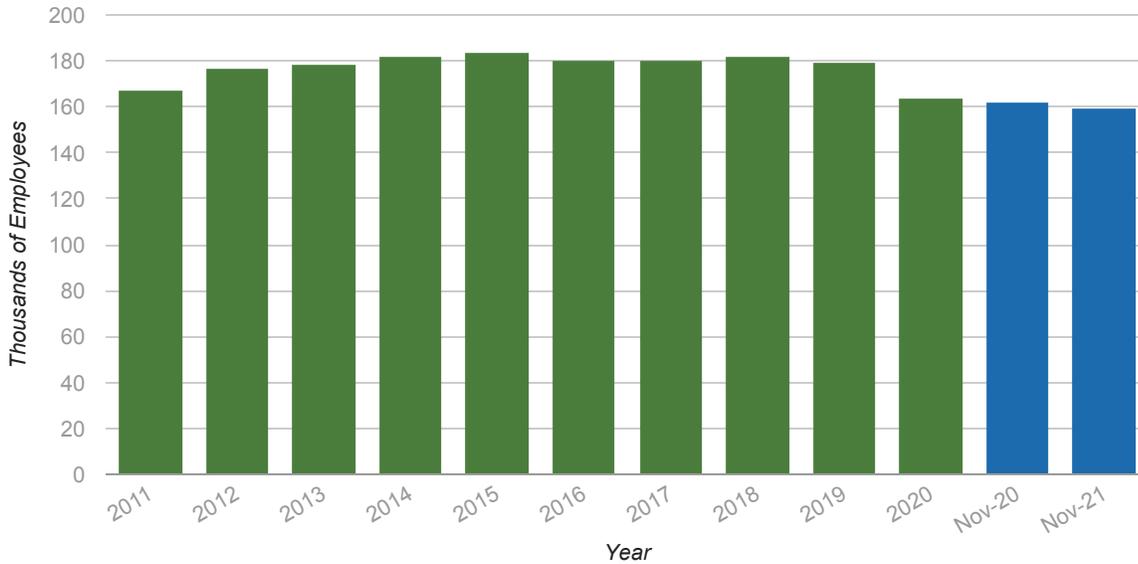
Exports can be a significant portion of sales for metalworking machinery manufacturers. For Kennametal Inc, 62% of sales in FY 2021 were to customers outside the US. Overall, exports accounted for 15% of industry sales in 2020. Metalworking machinery exports fell 9.6% in 2016, rose 3.1% in 2017 and 8.9% in 2018, then dropped 11.9% in 2019 and 18.9% in 2020.

## Employment and Wage Trends

### Employment by metalworking machinery manufacturers decreases

Overall employment by metalworking machinery manufacturers changed -1.5% in November compared to a year ago, according to the latest data from the Bureau of Labor Statistics.

## Metalworking Machinery Manufacturers Employment

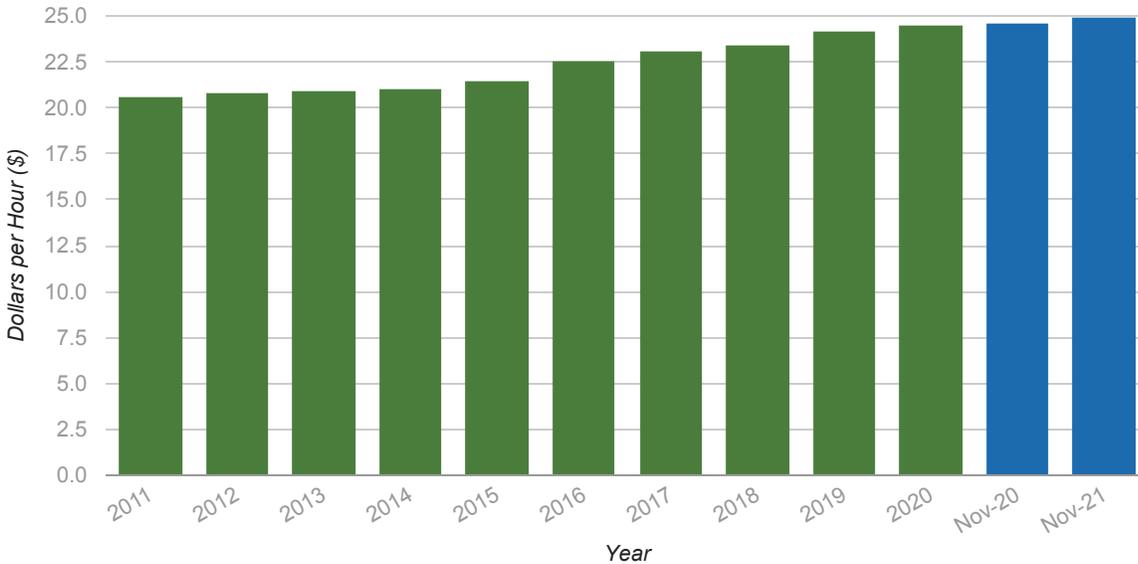


Source: Bureau of Labor Statistics

## Wages at metalworking machinery manufacturers rise

Average wages for nonsupervisory employees at metalworking machinery manufacturers were \$24.91 per hour in November, a 1.5% change compared to a year ago.

## Average Wages for Nonsupervisory Employees



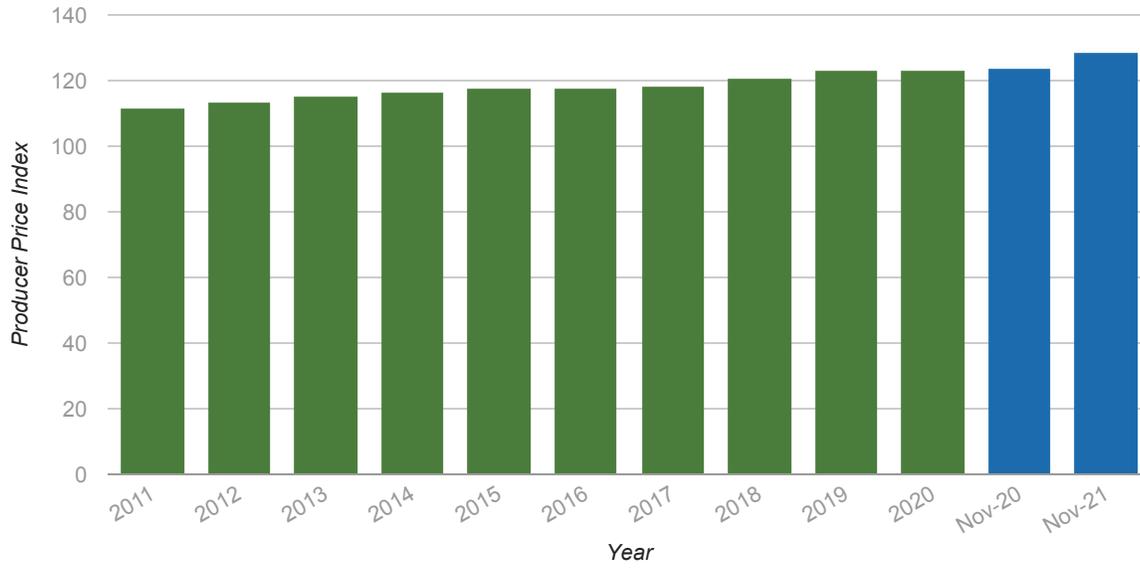
Source: Bureau of Labor Statistics

## Price Trends

### Producer Prices for metalworking machinery manufacturers rise

The Producer Price Index for metalworking machinery manufacturers changed 3.90% in November compared to a year ago, according to the latest data from the Bureau of Labor Statistics.

### Producer Price Index for metalworking machinery manufacturers



Source: Bureau of Labor Statistics

# Credit Underwriting and Risks



**Business Exit Rates:** 2.5 Much lower than US average for all businesses

**Cyclical Sensitivity:** 8.0 Very high sensitivity

**Barriers to Entry:** 3.5 High initial capital; high regulatory/technical barriers; low concentration

**External Risk:** 5.0 Moderate external risk

**Industry Outlook:** 6.5 Lower than GDP; severe cyclical risk

**Financial Summary:** 4.3 Average margins; high liquidity; low leverage

## Key Metrics

METRIC	VALUE	COMPARISON
Performance During 2007–2009 Recession	-28.9%	0.0% GDP
Business Exit Rate 2019–2020	6.31%	9.0% All Industries
Compound Annual Growth Forecast (2020–2025)	5.31%	6.1% GDP
SBA 7(a) Default Rate by Number of Loans (2010–2019)	2.48%	3.82% All Industries
SBA 7(a) Default Rate by Gross Loan Amount (2010–2019)	0.60%	1.21% All Industries

## Underwriting Considerations

- Companies within this industry are typically cyclical. As such, it is recommended that these companies have sounder balance sheets (lower leverage and higher liquidity) to better manage through economic turns.
- AR Days can be high. Review a current AR Aging looking for concentrations and over 90 days. Inventory Days can be long as well. Look for stale inventory and WIP which should be excluded from a Borrowing Base.
- Look at AR and Inventory Day trends and compare to industry average.
- Does the company expect 3D printing will negatively impact performance?

## Industry Risks

### Dependence on Health of Customer Industries

Changes in the economy impact the health of the manufacturing and construction sectors, which are the major buyers of metalworking machinery and accessories. During the past recession, industry sales dropped 31% in a single year as consumers and businesses slowed their spending on goods and structures (new homes, offices, commercial space). As the economy strengthens, industry sales have risen to exceed pre-recession levels.

### Competition from Imported Machinery

Domestic producers of metalworking machinery compete with imports from foreign manufacturers. Imports represent about 34% of the US market for metalworking machinery. Imports come primarily from Japan (20% of import value), Germany (15%), China (11%) and Canada (11%). Trade agreements and tariffs impact the volume and price of machinery imports into the US and are used to protect domestic manufacturers.

## **Higher Metal Costs**

Firms use a variety of primary and fabricated metal materials to produce metalworking machinery. The prices of these materials can fluctuate significantly from year to year and impact inventory costs. Primary metals are more volatile, rising by almost 11% in a single year and falling by almost 9%. The price of fabricated metals, which have undergone some processing, are less volatile – rising by 4% or falling less than 1% annually, on average.

## **Weak Pricing Growth**

Strong competition from domestic competitors and foreign imports have prevented metalworking machinery manufacturers from significantly raising their prices. Over the past decade, prices have increased an average of 1% annually. The inability to raise product prices can result in pinched profit margins, if production costs rise faster than 1% annually.

## **Competition from Used Equipment**

Metalworking machinery manufacturers not only compete with one another, but also the used equipment market. Customers may sell their used equipment at reduced costs, which cuts into manufacturers' opportunities to sell new equipment and financing. Metalworking machinery manufacturers may also sell used equipment that was returned by customers, who opted not to purchase the equipment at the end of their lease. Used equipment provides a lower-cost option for customers and defers purchases of new or custom machinery.

## **Growth in 3D Printing**

Widespread adoption of 3D printing to create metal parts could reduce demand for traditional metalworking machinery. Demand for 3D printing to create physical objects is growing as the technology advances and prices decline. 3D printing deposits layers of materials to build up physical objects using instructions from computer software. Its initial application has been in building prototypes of new products and parts to speed product development. About 26% of companies used 3D printing daily in 2020 and 19% used it weekly, according to a survey by Sculpteo. The average user had 3-9 years of experience in 3D printing, signaling greater adoption for production operations. 3D printing was primarily used for work by 52% of respondents, for personal interest by 25%, and for research or study by 20%, indicating a broad application.

## **Company Risks**

### **Equipment Obsolescence**

Advances in computerized metalworking machinery has made some traditional or mechanical pieces of equipment less desirable. Firms may see sales wane for these types of equipment and be forced to discount in order to move them from inventory. Firms that fail to develop more advanced or adaptable equipment may lose customers to competitors and suffer sales losses.

### **Minimizing Worker Injury**

Employees, particularly production workers and assemblers, use a wide variety of heavy and mechanized equipment to manufacture and test metalworking machinery. In addition, workers lift and maneuver sheets and billets of metal that can be heavy and sharp. Common injuries include strains, lacerations, and crushes.

### **Dependence on Export Markets**

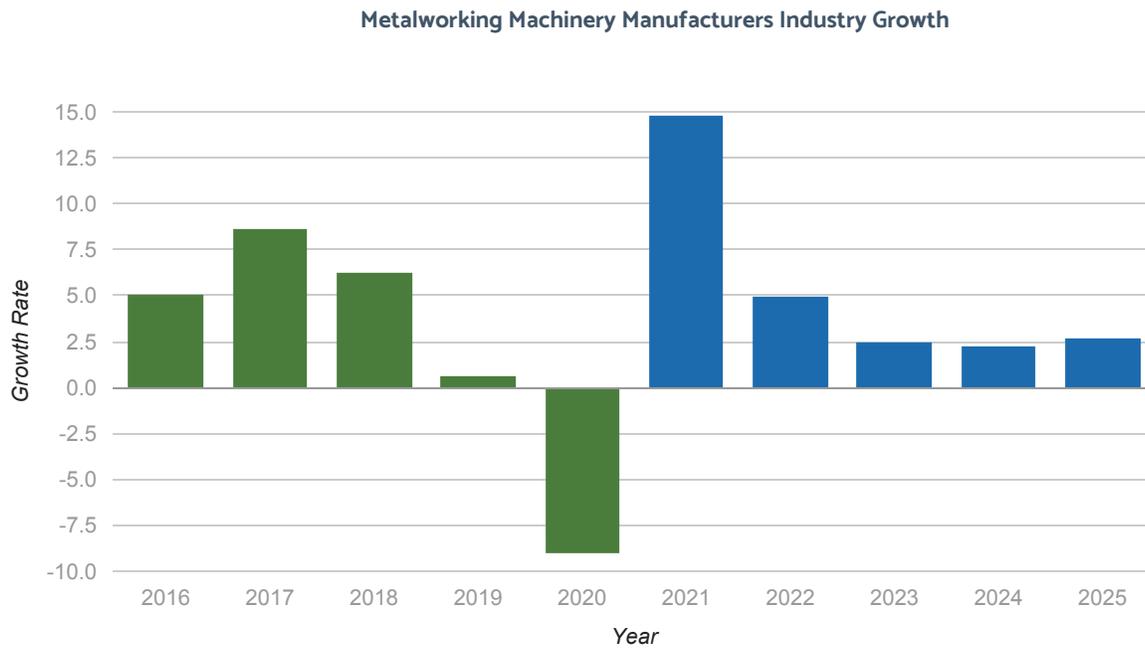
Aside from the logistics of shipping machinery outside of the US, firms that rely on exports for a portion of the sales also encounter risks of selling to foreign customers. These risks include changes in foreign exchange rates, trade regulations and tariffs, social or political stability, downturns in foreign economies, patent protections, and counterfeit risk.

# Industry Forecast

Sales for the US metalworking machinery manufacturers industry are forecast to grow at a 5.31% compounded annual rate from 2020 to 2025, slower than the growth of the overall economy.

Vertical IQ forecasts are based on the Inforum inter-industry economic model of the US economy. Inforum forecasts were prepared by the Interindustry Economic Research Fund, Inc.

Last Update: August 2021



Source: Interindustry Economic Research Fund, Inc.

# Working Capital

## Sell and invoice

Metalworking machinery manufacturers sell their products through sales staff, catalogs, websites and industrial suppliers. Firms sell standard metalworking machinery and also work with customers to meet their specific needs.

Company engineers work with clients to modify stock equipment or design custom machinery. Manufacturers often warranty their products for a limited period. Firms may require an upfront deposit for custom orders and invoice the remaining amount due after the machinery is installed and accepted by the customer.

Companies also sell replacement parts and maintenance and repair services for their metalworking machinery. Annual maintenance contracts can provide a steady revenue stream and help establish an ongoing relationship with customers that can lead to additional machinery sales.

30% of industrial machinery and equipment manufacturers said they go to their accountant or bookkeeper for cash flow advice, while 8% turn to their banker and 66% do not seek advice, according to a survey of small businesses by Barlow Research Associates.

*Source: Barlow Research Associates.*

## Collect

Collection periods average 69-71 days and receivables account for about 14-15% of total assets. Metalworking machinery manufacturers may provide financing and equipment leasing options for customers. Revenue is received at the time of purchase for stock machinery and components. Revenue from the sale of custom equipment may not be fully collected until the equipment is installed and accepted in the client's facility.

## Manage Cash

Demand for metalworking machinery is driven by the manufacturing and construction industries, which can vary with economic cycles. In some cases, such as construction activity or specific manufacturing products, demand can be seasonal. Companies that rely primarily on large custom machinery orders may also see uneven cash flow driven by the timing of sales closing.

Gross margins average 32-33% of sales. The cost of raw materials, such as steel and aluminum, can fluctuate and raise or lower production costs. Firms may use supply contracts or futures contracts to lock-in prices and manage these material costs. Inventory management is critical to maintaining healthy cash flow. Inventory accounts for about 11-12% of total assets and turns about 4 times annually.

Research and development expenditures can be significant, but are necessary to create new or advanced equipment. For example, Kennametal spends \$38-40 million per year on research and development. New product development not only expands firms' product lines, but also creates more advanced machinery for use in their own production lines.

## Pay

Payroll averages about 7% of sales and rent averages 1%. Metalworking machinery manufacturers purchase a wide variety of materials from other manufacturers and industrial supply distributors including primary metals (billets and rods), fabricated metals (sheets, bolts, springs), scrap metal, hydraulic and electrical components, circuit boards and displays, rubber gaskets and fittings, machine fluids and lubricants, product labeling and packaging, cleaning supplies, and safety gear. Payables average about 58 to 59 days.

## Report

After-tax net profit averages 5% of sales. Key metrics include sales growth, labor productivity, machinery usage, and service after the sale. Firms track the sales pipeline, particularly for custom orders, to forecast revenue and production activity. They also track work-in-

process and finished goods inventory levels.

## Cash Management Challenges

### Variable Material Costs

The prices that metalworking machinery manufacturers pay for materials can fluctuate due to changes in supply and competition for those materials. Firms can lock-in prices and supply and reduce variability by contracting with suppliers. Firms can also purchase futures contracts through commodity exchanges to lock-in the price of materials delivered at a future date. Large fluctuations in material costs can cut into manufacturers' cash reserves and may require alternative financing options.

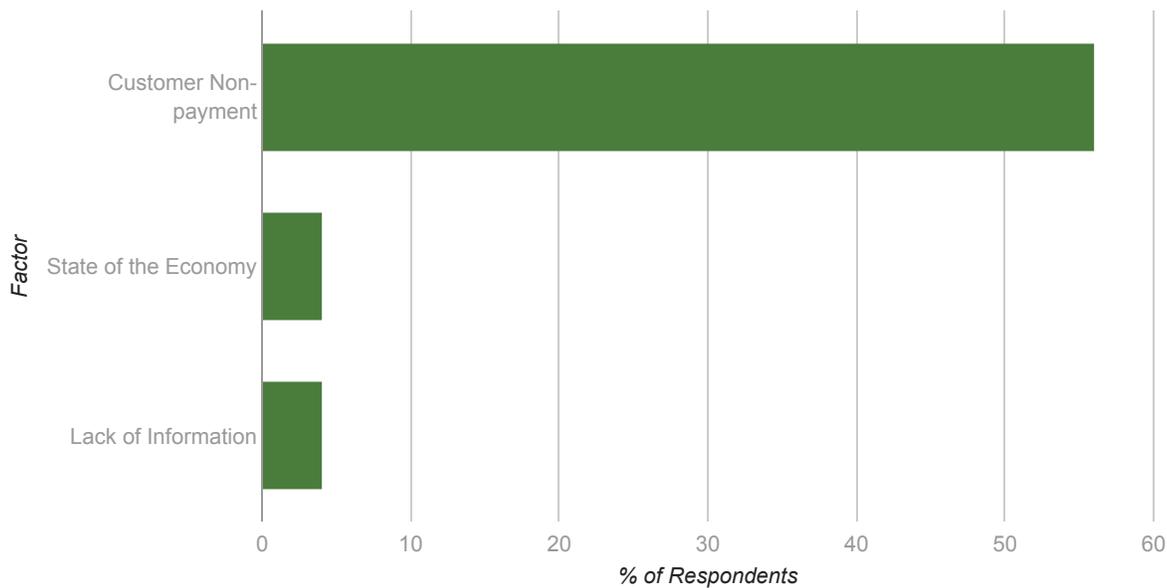
### Balancing Stock and Custom Sales

Stock inventory is easier to build due to an established production processes, but margins may be lower than on customized machinery. Customized machinery typically has higher margins, but often is more complex to produce than a similar stock model, requires more labor, and can result in rework and wasted materials. Smaller firms with limited resources may struggle with bottlenecks and backorders, when balancing stock and custom production, that hurt cash flow.

### Timely Collection for Custom Orders

The timing of collecting payments from customers affects cash flow. Payment for custom machinery typically does not occur until after it is installed and tested at the customer's site, extending the timing gap between expenses and payments. Firms may require an upfront deposit for custom orders to help cover design and production expenses.

## Factors Causing Cash Flow Stress: Industrial Machinery and Equipment Manufacturers



Source: Barlow Research Associates

# Capital Financing

The metalworking machinery manufacturing industry is capital intensive with large investments in plant and machinery required. Annual capital expenditures for metalworking machinery manufacturers average about 3-4% of revenue. The industry uses many of the machines it builds in its own production. Aside from metalworking machinery, firms invest in computer systems and software to manage customer accounts and inventory and design and test new or custom machinery. They also invest in storage and moving equipment such as forklifts and conveyors and rack systems to manage inventory. For example, Kennametal's investment in machinery and equipment totals 73% of total assets; goodwill equals 11%.

Metalworking machinery manufacturers typically own a portfolio of patents and trademarks covering products, and in some cases their manufacturing processes. Patents are usually filed in numerous countries, which is particularly important since most metalworking machinery manufacturers derive a significant part of their revenue from foreign sales.

## Examples of Equipment Purchases



### CNC Milling Machine

*\$50,000 and up*

A tool used to machine solid materials. There are two types of milling machines: horizontal or vertical, depending on the orientation of the "spindle" which rotates and holds the cutting tools. CNC milling machines (also known as machining centers) use a vertical spindle and may have multiple axis movement (up to 5 axis).



### Robotic Arms

*Varies depending on complexity of application*

Used for speed and precision in assembling, welding, painting, and testing.



### Cranes and Hoists

*\$100 - 6,000*

Used to move heavy machinery. Cranes and hoists may be portable or mounted to a structure.



### Forklift Truck

*\$10,000 - 15,000*

Truck for lifting and moving materials and inventory in warehouse.



### CAD Software

*\$2,000 - 5,000*

Computer-aided design software automates the development of technical drawings, design specs, and visualizations of machinery and parts.



### **Information Systems**

*\$20,000 - 500,000*

Enterprise resource planning (ERP) and warehouse management systems (WMS) are used to manage inventories and logistics. Electronic data interchange (EDI) is used to share inventory information with suppliers and customers. Initial costs vary depending on organization size and level of support. Inventory management systems include lot traceability.



### **RFID Equipment**

*\$200 - 4,000*

Radio Frequency Identification (RFID) systems consist of tracking tags placed on merchandise, readers to scan the tags, antennas, and mapping software.

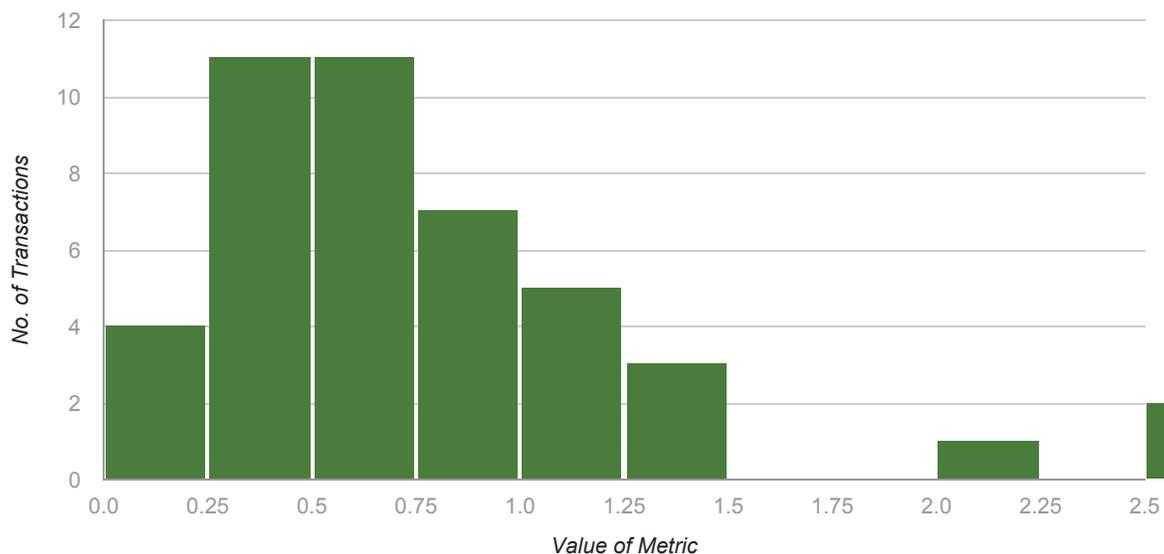
# Business Valuation

This data on business valuations is supplied by DealStats, an online database with the most complete financial details on nearly 36,000 acquired companies. These companies are mostly small and medium-sized private firms.

## Summary Valuation Data for Metalworking Machinery Manufacturers

	MEDIAN	MEAN	# TRANSACTIONS	DATES
Price to Net Sales	0.66	0.88	44	08/01/1995–05/31/2021
Price to Gross Profits	1.46	2.21	44	08/01/1995–05/31/2021
Price to EBITDA	4.25	6.16	32	08/01/1995–05/31/2021
Price to EBIT	5.3	8.3	37	08/01/1995–05/31/2021

Click on the metric below to see a distribution of transactions for the industry:



Source: DealStats

Count: 44

Min: 0.02

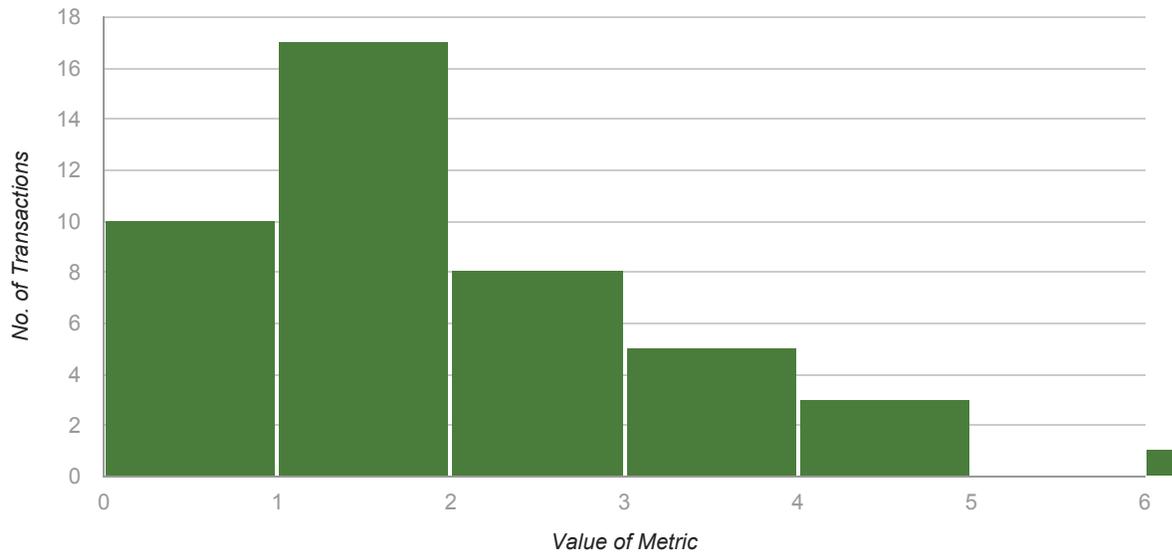
Max: 7.18

Mean: 0.88

Median: 0.66

Price to Sales = Selling Price/Net Sales

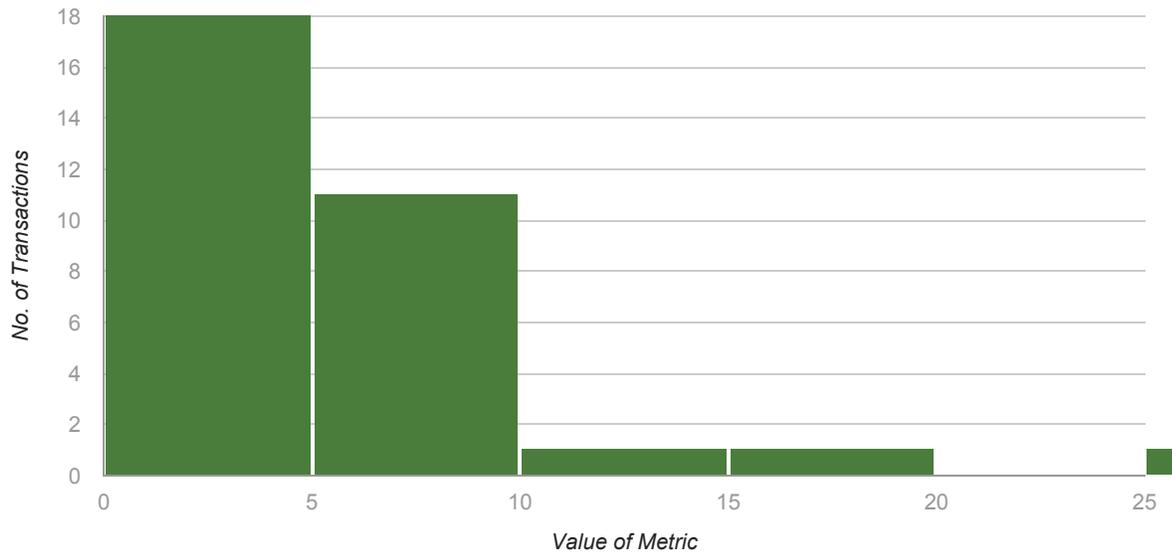
Date range: 08/01/1995 - 05/31/2021



Source: DealStats

**Count:** 44      **Min:** 0.03      **Max:** 17.22      **Mean:** 2.21      **Median:** 1.46

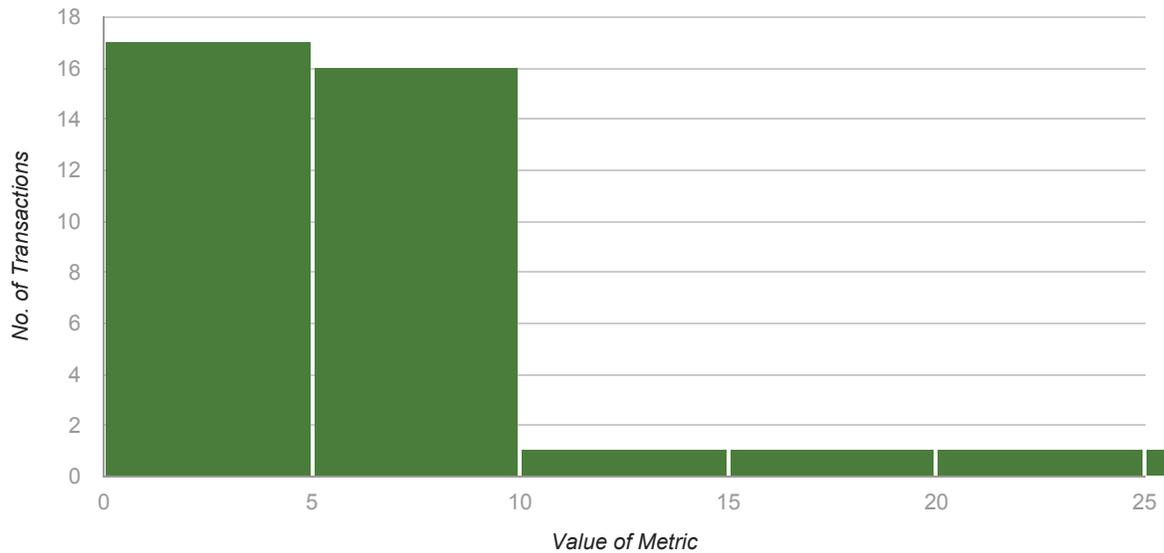
*Price to Gross Profit = Selling Price/Gross Profit*  
*Date range: 08/01/1995 - 05/31/2021*



Source: DealStats

**Count:** 32      **Min:** 0.05      **Max:** 35.4      **Mean:** 6.16      **Median:** 4.25

*Price to EBITDA = Selling Price/Operating Profit + Depreciation & Amortization*  
*Date range: 08/01/1995 - 05/31/2021*



Source: DealStats

**Count:** 37

**Min:** 0.05

**Max:** 88.24

**Mean:** 8.3

**Median:** 5.3

*Price to EBIT = Selling Price/Operating Profit*

*Date range: 08/01/1995 - 05/31/2021*

**Selling Price, also known as MVIC (Market Value of Invested Capital)** is the total consideration paid to the seller and includes any cash, notes and/or securities that were used as a form of payment plus any interest-bearing liabilities assumed by the buyer. The MVIC price includes the noncomplete value and the assumption of interest-bearing liabilities and excludes (1) the real estate value and (2) any earnouts (because they have not yet been earned, and they may not be earned) and (3) the employment/consulting agreement values. In an Asset Sale, the assumption is that all or substantially all operating assets are transferred in the sale. In an Asset Sale, the MVIC may or may not include all current assets, non-current assets and current liabilities (liabilities are typically not transferred in an asset sale).

Source: DealStats 2019 (Portland, OR; Business Valuation Resources LLC). Used with permission. DealStats is available at <https://www.bvresources.com/learn/dealstats>

# Financial Benchmarks

The following financial benchmark data is based on annual financial statements submitted by member institutions of the Risk Management Association from Q2 of the first year listed through Q1 of the following year.

## Financial Ratios (Metalworking Machinery Manufacturers, Industry-wide)

MEASURE	2018-19	2019-20	2020-21
Current Ratio <sup>?</sup>	1.75	1.91	1.91
Quick Ratio <sup>?</sup>	.92	.97	.97
Days Inventory <sup>?</sup>	80.0	79.0	95.0
Days Receivables <sup>?</sup>	63	60	59
Days Payables <sup>?</sup>	39.0	32.0	33.0
Pre-tax Return on Revenue <sup>?</sup>	4.47%	3.68%	4.47%
Pre-tax Return on Assets <sup>?</sup>	6.10%	4.88%	5.07%
Pre-tax Return on Net Worth <sup>?</sup>	14.73%	11.38%	12.73%
Interest Coverage <sup>?</sup>	6.17	5.72	5.41
Current Liabilities to Net Worth <sup>?</sup>	.82	.73	.74
Long Term Liabilities to Net Worth <sup>?</sup>	0.59	0.6	0.77
Total Liabilities to Net Worth <sup>?</sup>	1.41	1.33	1.51
<i>Number of Firms Analyzed</i>	<i>586</i>	<i>410</i>	<i>283</i>

## Income Statement (Metalworking Machinery Manufacturers, Industry-wide)

ITEM	2018-19	2019-20	2020-21
Revenue	100.0%	100.0%	100.0%
Cost of Sales	69.08%	68.54%	68.13%
Gross Margin	30.92%	31.46%	31.87%
Officers Compensation	2.26%	1.97%	1.84%
Salaries-Wages	7.24%	7.84%	8.71%
Rent	1.24%	1.34%	1.14%
Taxes Paid	1.71%	1.82%	2.05%
Advertising	0.47%	0.51%	1.6%
Benefits-Pensions	2.25%	2.33%	2.47%
<i>Number of Firms Analyzed</i>	<i>586</i>	<i>410</i>	<i>283</i>

ITEM	2018-19	2019-20	2020-21
Repairs	0.52%	0.54%	0.6%
Bad Debt	0.05%	0.05%	0.17%
Other SG&A Expenses	5.08%	5.56%	5.53%
EBITDA	10.1%	9.5%	7.76%
Amortization-Depreciation	3.63%	4.24%	4.55%
Operating Expenses	24.45%	26.2%	28.66%
Operating Income	6.47%	5.26%	3.21%
Interest Expense	1.27%	1.36%	1.34%
Other Income	-0.23%	-0.19%	-2.78%
Pre-tax Net Profit	5.43%	4.09%	4.66%
Income Tax	0.29%	0.35%	0.08%
After Tax Net Profit	5.14%	3.74%	4.58%
<i>Number of Firms Analyzed</i>	<i>586</i>	<i>410</i>	<i>283</i>

### Balance Sheet (Metalworking Machinery Manufacturers, Industry-wide)

ASSETS	2018-19	2019-20	2020-21
Cash	10.84%	11.51%	16.04%
Receivables	26.0%	22.1%	20.88%
Inventory	21.1%	21.5%	20.47%
Other Current Assets	3.68%	3.76%	3.81%
Total Current Assets	61.63%	58.88%	61.21%
Net Fixed Assets	28.14%	28.81%	26.2%
Net Intangible Assets	5.05%	6.1%	6.37%
Other Non-Current Assets	5.19%	6.21%	6.23%
<i>Total Assets</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>
LIABILITIES			
Accounts Payable	11.19%	9.26%	7.62%
Loans/Notes Payable	12.26%	12.12%	11.44%
Other Current Liabilities	10.99%	11.05%	11.63%
<i>Number of Firms Analyzed</i>	<i>586</i>	<i>410</i>	<i>283</i>

**LIABILITIES**

Total Current Liabilities	34.44%	32.43%	30.7%
Total Long Term Liabilities	23.8%	25.13%	25.91%
Total Liabilities	58.24%	57.55%	56.6%
Net Worth	41.76%	42.45%	43.4%
Total Liabilities & Net Worth	100.0%	100.0%	100.0%
<i>Number of Firms Analyzed</i>	586	410	283

Vertical IQ financial benchmark data is based on data provided by the Risk Management Association (RMA) and Powerlytics, Inc. RMA's Annual Statement Studies provide comparative industry financial benchmarks based on financial statements of small and medium business clients of RMA's member institutions. Additional detail on income statement line items is provided using Powerlytics financial benchmarks, which are based on reporting submitted to the IRS. Additional detail on these data sources can be found at [RMA](#) and [Powerlytics](#).

# Quarterly Insight

## 4th Quarter 2021

### Reshoring Gains Momentum

Metalworking machinery manufacturers are likely to benefit from increasing reshoring momentum. The US is on track to add 220,000 jobs from reshoring or foreign direct investment in 2021, up from a record 160,000 jobs in 2020, according to the Reshoring Initiative, which promotes reshoring and helps manufacturers set up shop in the US. Reshoring accounted for 62% of the jobs added in the first half of 2021, with foreign investment accounting for the rest, the report said. The manufacturing areas that added the most jobs include semiconductors, electric vehicle batteries, personal protective equipment, pharmaceuticals, and rare earths—industries where global supply chains have been disrupted in the past two years. The initiative expects more than 1,800 companies will announce new jobs created by reshoring or foreign direct investment by the end of the year, a record.

## 3rd Quarter 2021

### GDP Rebounds to Pre-Pandemic Level

Gross domestic product (GDP), a measure of the value of all finished goods and services produced, increased 1.6% in Q2 compared to Q1, according to the US Department of Commerce. GDP increased 1.5% in Q1 compared to Q4 2020. Second-quarter growth was 6.5% on an annualized basis, which is adjusted for inflation. The growth brought output back to its pre-pandemic level, adjusted for inflation. Analysts say that second-quarter growth might have been stronger if not for supply-chain disruptions and labor challenges.

## 2nd Quarter 2021

### US, EU Will Discuss Tariffs

The US and the European Union agreed in mid-May not to escalate their dispute over US steel and aluminum tariffs while the two sides launch formal talks on addressing excess global capacity largely centered in China. Analysts say that the agreement will prevent steeper tariffs from taking effect, and will make it easier for the US and Europe to work together to rein in China. The US will maintain its tariffs of 25% on steel and 10% on aluminum. Those duties also apply to imports from China, India, Norway, Russia, Switzerland, Turkey, Japan, and South Korea among others metals-exporting countries. The tariffs are unpopular with steel consumers like metalworking machinery manufacturers because they raise prices. In steel-making regions like Pennsylvania, however, the tariffs were seen as a justified response to unfair competition from abroad.

## 1st Quarter 2021

### Executive Order may Boost Industry

President Biden signed an executive order in January aimed at closing loopholes in existing “Buy American” provisions, which, according to Reuters news service, apply to about a third of the \$600 billion in goods and services the federal government buys each year. The order will make any waivers more transparent and create a senior White House role to oversee the process. Biden’s order also directs federal agencies to reevaluate the threshold used to determine US content, a move intended to prevent companies that sell to the government from importing largely foreign-made goods and selling them as US-made. New percentages for required U.S. content will be determined as a result of the process. Industry experts say that the order is part of Biden’s plan to revitalize the manufacturing sector, which accounts for about 12% of the economy. It is also a key part of Biden’s broader push to drive up wages, create more union jobs, support minority-owned businesses and strengthen US supply chains. A Biden administration official said that updated Buy American provisions would be fully consistent with US commitments under the World Trade Organization, and Washington would work with trade partners to modernize global rules.

## 4th Quarter 2020

### **GDP Grows, Concerns Persist**

US gross domestic product (GDP) grew 7.4% during Q3 compared to the prior quarter, according to the US Department of Commerce. Industry experts cite federal stimulus combined with loosened lockdown restrictions and general pandemic fatigue as key drivers of growth. Economic output, as measured by GDP, remains below pre-pandemic levels, however, and many experts expect a reversal of Q3 growth in Q4. Investment bank and financial services company Goldman Sachs halved its outlook for Q4 economic growth to 3% after changing its base case to include a lack of new stimulus until 2021. The lack of federal stimulus will push disposable income to pre-pandemic levels and lower consumer spending through the end of the year, Goldman said. The bank raised its GDP forecast for the second quarter of 2021 to 7% from 6% on a quarter-over-quarter basis, citing the expectation of a new stimulus being passed in the new year and the arrival of a coronavirus vaccine. Estimates for the third and fourth quarters of 2021 were lifted to 4.5% and 3.5%, respectively.

## 3rd Quarter 2020

### **Tesla Prepares Giga Press**

Automaker Tesla will soon activate a unibody casting machine that will reduce the number of parts needed to make a vehicle body. The "Giga Press" will produce a single-piece cast of the underbody portion of the Model Y vehicle. The underbody portion of the Tesla Model 3, by contrast, consists of 70 parts. Tesla CEO Elon Musk said that the production method has a number of advantages, ranging from saving resources and reducing production time to improving vehicle performance. "...the rear third of the body is cast as a single piece," Musk said during a Q1 earnings conference call. "There is no casting of the size and complexity that has ever been done before." Tesla plans eventually to use the same casting technology on its other vehicles.

## 2nd Quarter 2020

### **Impact Depends on Primary Market**

The mold-building segment of the industry has experienced varying degrees of impact during the coronavirus outbreak based on the customers they serve. Overall, about 60% of firms surveyed by the American Mold Builders Association report that they have continued at their full operate level, while 25% have cut back to 50-75% of production. Of those primarily serving the automotive market, 42% were fully operating in the third week of May. For those primarily serving the medical market, 91% were fully operating in the third week of May. Nearly 90% of surveyed firms reported minimal to no supply chain issues that impact their ability to produce. About 60% of mold builders reported receiving Payroll Protection Funds and another 9% had been approved and were awaiting funds.

## 1st Quarter 2020

### **Machinery Manufacturing Increased In 2019**

Industrial machinery manufacturing, which includes metalworking machinery manufacturing, increased 9% year over year in 2019, according to the US Census Bureau. The increase occurred despite overall manufacturer shipments growth of just 0.6% during 2019, which was much slower than 2018's growth of 7%. Durable goods shipments grew 0.9% in 2019 while nondurable goods grew just 0.3%

# Industry Terms

## **CNC Machine**

Computer numeric controlled machine requiring data input to set cutting or shaping parameters

## **Die**

Device for cutting or molding metal into a specific shape

## **Internet of Things (IoT)**

Interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data

## **Jig**

Device that holds a piece of material and guides the tool operating on it

## **Machine Tool**

A stationary machine used to cut or shape metal or other materials

## **Milling**

Cutting or shaping with a rotary tool

## **Workholding**

Device that secures materials against the force of machining, such as a clamp or fixture

# Web Links

## [American Mold Builders Association](#)

News, events, and resources

## [Association for Manufacturing Technology](#)

News, blog, and events

## [US Cutting Tool Institute](#)

News, events and resources

## [Modern Machine Shop](#)

Magazine, blog and supplier directory

# Related Profiles

## Equipment & Machinery Repair Services

NAICS: 811310 SIC: 7623, 7692, 7694, 7699

## Farm Machinery Manufacturers

NAICS: 333111 SIC: 3523

## Industrial Machinery Distributors

NAICS: 423830 SIC: 5084

## Industrial Machinery Manufacturers

NAICS: 3332 SIC: 355x

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