GARDNER RESEARCH

# 2016
# World Machine Tool Survey

## WHAT'S HAPPENED SINCE THE PEAK

Global machine tool consumption boomed from 2003 to 2011. Despite the drastic decline in 2009, when it was down 35 percent from the year before, consumption rocketed up the next two years and in 2011 reached the highest level ever. Since then, however, global machine tool consumption has contracted in every year except 2014, including falling 11.9 percent in 2015.

However, the story is not one of general decline in manufacturing investment around the world. In fact, machine tool consumption, when examined region by region, shows that broad and diverging influences have been at work in recent years. Hence, consumption has been up and down, here and there, over the past few years—and these trends provide the basis for forecasting machine tool consumption in 2016.

This year, we are looking at the data a little bit differently to reach an interpretation that we think offers a useful perspective. We are using 2011, the most recent peak in global machine tool consumption, as a kind of baseline. From this baseline, we are looking at how the level of investment has changed in the world's three major manufacturing regions. We can then explain a bit about what has been happening in each of these regions to account for those changes—and the differences from region to region.

The initial boom in machine tool consumption from 2003 to 2008 was driven in relatively equal proportions by Asia and Europe, but the secondary boom in 2010 and 2011 was almost exclusively driven by consumption in Asia. Perhaps it is not so surprising that the bust in global machine tool consumption, down more than 43 percent since 2011, was driven by Asia, too.

This boom and bust were largely the result of global trends in demographics, finance and manufacturing. First, the demographics: The huge population in Asia was a source of cheap labor that multinational companies used to reduce costs and maintain, if not boost, profitability (especially after the burst of the dot-com bubble, when price pressure compelled many Internet companies to move manufacturing operations off shore.) Next, the finance: Globally, financial institutions created massive amounts of debt. Consequently, this flood of money impacted the United States, China and Japan by changing their investment strategies. The effect was deepest in Asia, where it enabled countries to devalue their currencies competitively, thus making their products cheaper on the world market. The convergence of these demographic and financial trends resulted in the construction of many new factories in this part of the world.

This booming growth in manufacturing (the third of the global trends) necessitated a significant increase in spending on capital equipment. Unfortunately, some of the capital spending during this period of rapid growth proved to be either an overinvestment or a poor investment. In other words, too much equipment, or the wrong kind of equipment, was acquired. This is important because the demographic and financial trends now are leveling out, and manufacturing companies the world over are having to compete on capabilities. So, while the overall level of consumption is down, the level of machine tool technology being purchased has increased everywhere. Based on anecdotal evidence, four- and five-axis machines, as well as multitasking machines, continue to see strong demand around the world, while commodity-type machines have fallen out of favor.

## WORLD CONSUMPTION HIGHLIGHTS

Global machine tool consumption in 2015 was $79.1 billion, down $10.6 billion, or 11.8 percent, from the year before. The Asian continent accounted for more than 60 percent of the global decline, with consumption dropping $6.7 billion, or 13.0 percent, in 2015 to $45.5 billion. Europe consumed $21.1 billion of machine tools in the year, a decrease of $2.2 billion, or 9.3 percent, while North America consumed $10.8 billion, down 11.2 percent from 2014. South America also was down 24.9 percent, and Africa was up 7.8 percent in 2015, but both of these regions account for an insignificant amount of the global consumption.

Since 2011, the peak year for global machine tool consumption, there have been some interesting dynamics at play in each of these regions. Fifteen of the 19 countries in the Asian region had lower consumption in 2015 than they did in 2011. Consumption in China, which remains the world's largest consumer of machine tools, was down 33 percent in 2015 compared with 2011. Other significant-consuming countries, including Japan, South Korea, Taiwan, India, Thailand and Malaysia, all recorded drops of at least 25 percent in 2015 compared with 2011. Two of the four Asian countries that recorded increased consumption since 2011 were Vietnam and the Philippines, and both have probably benefitted from low wages attracting manufacturing that was previously done in China.

Of the 28 European countries in the survey, 15 posted increased consumption in 2015 compared with 2011, but the breadth of the machine tool market in Europe has kept total consumption in the region relatively flat since 2011. This is true despite the decline in Germany, which is the world's third largest consumer of machine tools. Of the countries that have seen increased consumption since 2011, most are either peripheral countries (such as Denmark, Portugal, Greece, Spain and Ireland) or eastern European countries (such as Bulgaria, the Czech Republic, Slovenia, Hungary and Poland).

These comparisons of 2011 consumption figures with 2015 show Asia down and Europe flat, but the third major machine-tool-consuming region, North America, on the upside. This increase occurred in spite of the fact that machine tool consumption fell nearly 5 percent in the United States and nearly 15 percent in Canada over that four-year span. The explanation for this is that Mexico more than made up for the decreased consumption in the other two countries.

Mexico's 2015 hunger for machine tools was up 50 percent compared with 2011, and has topped $2 billion in three of the last four years. It is one of only two countries in the overall survey (the other is Vietnam) that posted its highest ever level of machine tool purchases in 2015, boosting it to the position of seventh largest consumer in the world. Mexico is forecasted to spend even more in 2016.

Globally, Gardner is forecasting that machine tool consumption will decrease another 10.0 percent in 2016, primarily because of a projected further decline of 13.9 percent in Asia. North American consumption also is expected to fall 11.6 percent. Consumption in Europe, on the other hand, is expected to grow in 2016, although the projected increase is a miniscule 0.3 percent.

## WORLD PRODUCTION HIGHLIGHTS

Global production of machine tools declined 11.9 percent in 2015 from the previous year, however, Asia was the only region where the decrease was lower than the world total, having fallen 10.7 percent. With Asia also accounting for the largest share of the decline in consumption, it stands to reason that the major producing countries in Asia became more reliant on exports in 2015 than the other regions. In Europe, production decreased 13.1 percent, and in North America production was down 15.2 percent. The order of the top 11 producing countries remained unchanged in 2015 compared with 2014. The United States was a top-five producing country in 2013, and just barely missed being in the top five in 2014 and 2015.

## ABOUT THE SURVEY

This is the 51st edition of an independent annual survey that collects statistics from machine tool consuming and producing countries and compares them in real U.S. dollars. It is conducted through the research department of Gardner Business Media, Inc., Cincinnati, Ohio USA, by Steve Kline, director of market intelligence, and Nancy Eigel-Miller, research manager. Data for this report comes from research conducted by Gardner Business Media, the publisher of this magazine. For 2015, Gardner collected actual or estimated data on production, exports and imports from 26 countries, as it has in previous years. However, new to this year's survey is actual import and export data for every country that imported at least $100 million of machine tools in at least one year since 2001. This added 34 more countries to the overall survey. For these additional countries, production was estimated, although in a few instances actual production data was found on government websites. Consumption is calculated by adding imports to and subtracting exports from production figures. The data typically are reported in local currencies then converted to U.S. dollars. After this conversion, all of the data in this year's survey also were adjusted for inflation using the Bureau of Labor Statistics' Producer Price Index for capital equipment. This adjustment promotes a more accurate historical comparison.

**SOURCES OF DATA.** The revised data for 2014 and estimated data for 2015 are sourced at government agencies or trade associations. Special assistance came from the fifteen-member CECIMO consortium (Brussels, Belgium) and the Association for Manufacturing Technology (McLean, VA). Also, for countries that did not report, import and export data was gathered from the International Trade Centre (www.intracen.org).

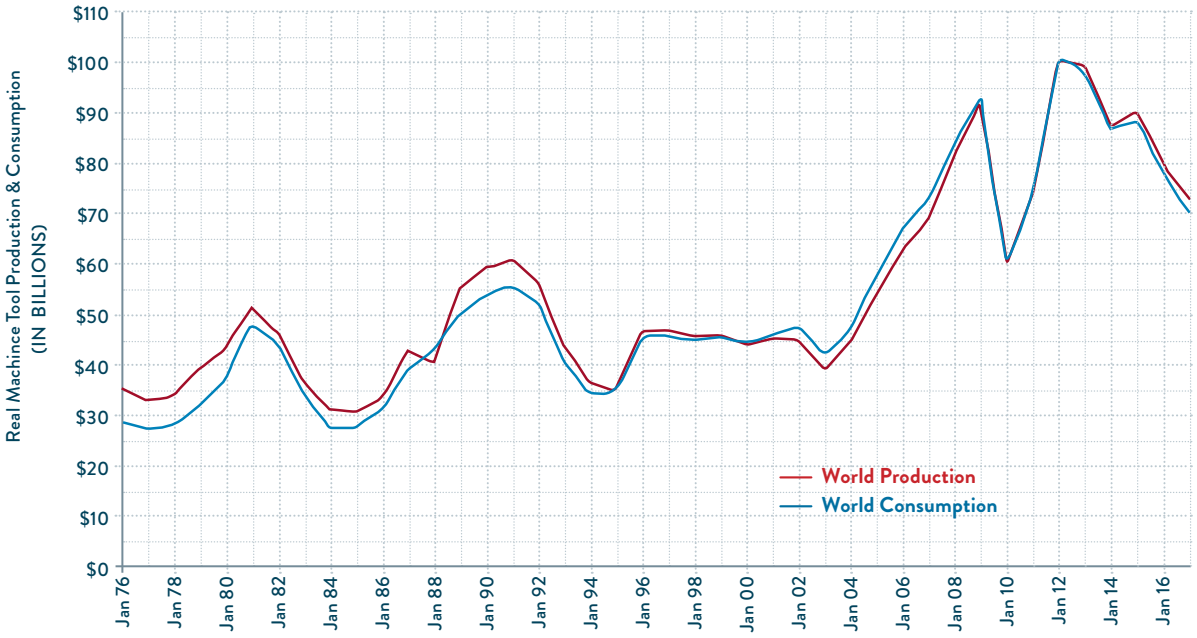
**DEFINITIONS.** A machine tool is usually defined as a power-driven machine, not portable by hand, and powered by an external source of energy. It is designed specifically for metalworking either by cutting, forming, physic-chemical processing, or a combination of these techniques. Machine tools are traditionally broken down into two categories: metalcutting and metal forming. Metalcutting machines typically cut away chips or swarf and include (but are not limited to) broaching machines, drilling machines, electrical-discharge machines, lasers, gearcutting machines, grinders, machining centers, milling machines, transfer machines, and turning machines such as lathes. Metal forming machines typically squeeze metal into shape and include (but are not limited to) bending machines, cold-heading machines, presses, shears, coil slitters, and stamping machines. Data presented in the WMTS are solicited for metalcutting machines (codes 8456-8461 under the Harmonized Tariff System) and for metal forming machines (8462-8463) and are solicited for complete machines only, not including parts or rebuilt machines.

**EXCHANGE RATES.** All data reported in domestic currencies are translated into U.S. dollars using the average daily exchange rate for the year (not the end-of-year rate) as reported at www.oanda.com in the historical section. All analysis is done in real U.S. dollars.

**"SHIPMENTS" VS. "ORDERS."** Many countries, in addition to contributing statistics to this Survey, also track orders for new machine tools. These are, by their nature, different sets of numbers, and they may or may not be related. This Survey is based on actual shipments of new machine tools from the factories in which they are produced. In contrast, the various order compilations in individual countries around the world are based on bookings for machines that will be shipped in the future. The time lag between these two events can vary greatly. An in-stock lathe might be shipped one day after the order is placed; whereas a complex engine-machining line might take a year to be delivered after the order has been received. On average in the U.S., orders lead shipments by four to five months. That is likely a common lead time for other countries.

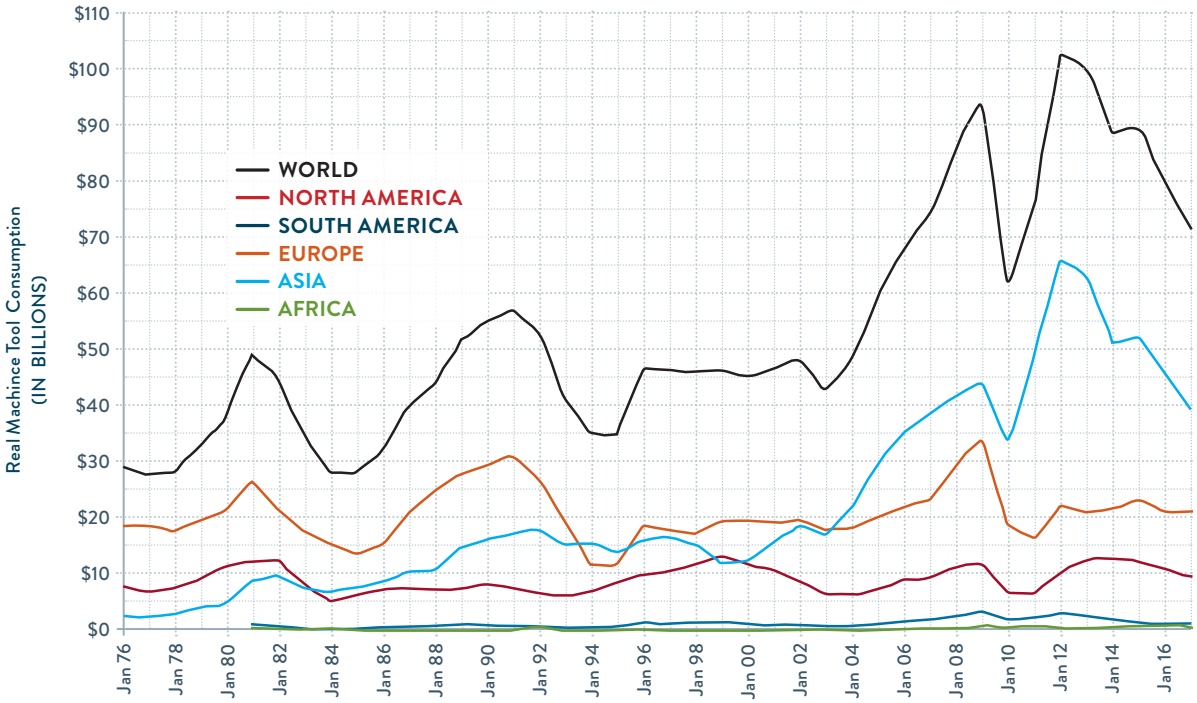
## WORLD MACHINE TOOL PRODUCTION & CONSUMPTION

*Global machine tool consumption boomed from 2003 to 2008, then collapsed 35 percent in 2009. After a second boom in 2010 and 2011, global machine tool consumption has contracted in three of the last four years.*




## WORLD MACHINE TOOL CONSUMPTION

*While both Asia and Europe contributed significantly to the global machine tool consumption boom from 2003 to 2008, Asia alone was largely responsible for the second boom in 2010 and 2011.*



## 2015 TOP 20 MACHINE TOOL CONSUMERS

*Since 2011, Mexico has made the biggest move up within the top 20 machine-tool-consuming countries. It rose from 12th to 7th in ranking. In contrast, Brazil has taken the biggest fall, moving to 19th from 8th.*

# CONSUMERS OF MACHINE TOOLS

## CONSUMPTION 2014-2015

| | Country | 2014 | 2015 | % Change | FORECAST 2016* | % Change |
|---|---|---|---|---|---|---|
| 1. | China | 31,800.0 | 27,500.0 | -13.5% | 22,000.0 | -25.0% |
| 2. | United States | 8,811.1 | 7,361.0 | -16.5% | 6,256.9 | -17.6% |
| 3. | Germany | 7,347.8 | 6,360.8 | -13.4% | 6,042.8 | -5.3% |
| 4. | Japan | 5,307.1 | 5,804.5 | 9.4% | 5,224.1 | -11.1% |
| 5. | South Korea | 4,927.8 | 3,823.0 | -22.4% | 3,631.9 | -5.3% |
| 6. | Italy | 2,866.6 | 3,136.1 | 9.4% | 3,763.3 | 16.7% |
| 7. | Mexico | 2,047.3 | 2,214.1 | 8.1% | 2,324.8 | 4.8% |
| 8. | Russia | 2,304.3 | 2,177.0 | -5.5% | 1,741.6 | -25.0% |
| 9. | Taiwan | 1,815.3 | 1,564.0 | -13.8% | 1,485.8 | -5.3% |
| 10. | India | 1,514.1 | 1,541.0 | 1.8% | 1,695.1 | 9.1% |
| 11. | Turkey | 1,435.5 | 1,278.0 | -11.0% | 1,316.3 | 2.9% |
| 12. | Canada | 1,236.1 | 1,178.3 | -4.7% | 942.6 | -25.0% |
| 13. | Thailand | 1,843.6 | 1,173.8 | -36.3% | 1,115.1 | -5.3% |
| 14. | Switzerland | 1,308.5 | 1,038.0 | -20.7% | 778.5 | -33.3% |
| 15. | Vietnam | 991.1 | 969.9 | -2.1% | 1,066.9 | 9.1% |
| 16. | France | 1,062.8 | 960.3 | -9.6% | 1,104.3 | 13.0% |
| 17. | U.K. | 1,129.1 | 950.5 | -15.8% | 760.4 | -25.0% |
| 18. | Indonesia | 1,033.6 | 802.0 | -22.4% | 962.4 | 16.7% |
| 19. | Brazil | 990.1 | 672.3 | -32.1% | 369.8 | -81.8% |
| 20. | Austria | 612.0 | 637.2 | 4.1% | 605.3 | -5.3% |
| 21. | Poland | 644.7 | 599.6 | -7.0% | 689.5 | 13.0% |
| 22. | Spain | 578.5 | 595.2 | 2.9% | 654.7 | 9.1% |
| 23. | Czech Republic | 597.1 | 558.4 | -6.5% | 558.4 | 0.0% |
| 24. | Malaysia | 591.6 | 475.3 | -19.7% | 522.9 | 9.1% |
| 25. | Netherlands | 453.6 | 452.9 | -0.2% | 543.5 | 16.7% |
| 26. | Singapore | 427.0 | 388.2 | -9.1% | 310.5 | -25.0% |
| 27. | Saudi Arabia | 309.1 | 330.0 | 6.8% | 264.0 | -25.0% |
| 28. | Australia | 316.1 | 291.8 | -7.7% | 248.1 | -17.6% |
| 29. | Algeria | 215.6 | 286.5 | 32.9% | 286.5 | 0.0% |
| 30. | Slovakia | 313.5 | 277.9 | -11.3% | 361.3 | 23.1% |
| 31. | Romania | 273.8 | 272.7 | -0.4% | 354.5 | 23.1% |
| 32. | Belgium | 277.8 | 242.0 | -12.9% | 242.0 | 0.0% |
| 33. | Argentina | 244.6 | 241.8 | -1.1% | 229.7 | -5.3% |
| 34. | Hungary | 295.5 | 218.2 | -26.2% | 283.6 | 23.1% |
| 35. | UAE | 234.2 | 203.0 | -13.3% | 152.3 | -33.3% |
| 36. | Portugal | 255.0 | 195.4 | -23.4% | 185.6 | -5.3% |
| 37. | South Africa | 199.5 | 176.7 | -11.4% | 176.7 | 0.0% |
| 38. | Belarus | 243.4 | 172.3 | -29.2% | 172.3 | 0.0% |
| 39. | Sweden | 202.6 | 167.6 | -17.3% | 176.0 | 4.8% |
| 40. | Philippines | 110.0 | 166.8 | 51.6% | 158.4 | -5.3% |
| 41. | Slovenia | 159.7 | 158.1 | -1.0% | 173.9 | 9.1% |
| 42. | Israel | 180.3 | 152.8 | -15.3% | 175.7 | 13.0% |
| 43. | Hong Kong | 139.4 | 144.0 | 3.3% | 100.8 | -42.9% |
| 44. | Finland | 130.1 | 114.3 | -12.2% | 131.4 | 13.0% |
| 45. | Bulgaria | 136.4 | 102.3 | -25.0% | 112.5 | 9.1% |
| 46. | Croatia | 116.2 | 101.2 | -12.9% | 121.4 | 16.6% |
| 47. | Denmark | 111.4 | 92.1 | -17.3% | 101.3 | 9.1% |
| 48. | Norway | 153.3 | 91.8 | -40.1% | 73.4 | -25.1% |
| 49. | Colombia | 88.9 | 82.0 | -7.8% | 69.7 | -17.6% |
| 50. | Egypt | 85.0 | 82.0 | -3.5% | 65.6 | -25.0% |
| 51. | Ireland | 53.5 | 65.3 | 22.0% | 71.8 | 9.1% |
| 52. | Kazakhstan | 80.4 | 63.8 | -20.7% | 41.5 | -53.7% |
| 53. | Chile | 88.1 | 56.4 | -36.0% | 39.5 | -42.8% |
| 54. | Morocco | 47.2 | 47.6 | 0.9% | 50.0 | 4.8% |
| 55. | Greece | 56.6 | 47.3 | -16.4% | 44.9 | -5.3% |
| 56. | Ukraine | 116.6 | 41.6 | -64.3% | 31.2 | -33.3% |
| 57. | Venezuela | 35.9 | 35.5 | -1.0% | 30.2 | -17.5% |
| 58. | Azerbaijan | 22.6 | 23.0 | 1.6% | 17.2 | -33.7% |
| 59. | Ghana | 15.3 | 14.4 | -5.6% | 11.5 | -25.2% |
| 60. | Iran | 133.2 | 0.0 | -100.0% | 0.0 | |
| | **TOTAL** | 89,117.2 | 78,969.6 | -11.4% | 71,221.9 | -10.9% |

(Millions of U.S. Dollars) *2016 values are forecasted.

**Source:** Gardner Business Media, Inc.

# PRODUCERS OF MACHINE TOOLS

## PRODUCTION 2014-2015

| | Country | 2014 | 2015 | % Change |
|---|---|---|---|---|
| 1. | China | 24,649.1 | 22,100.0 | -10.3% |
| 2. | Japan | 14,857.2 | 13,489.5 | -9.2% |
| 3. | Germany | 14,456.7 | 12,422.0 | -14.1% |
| 4. | Italy | 5,797.7 | 5,306.3 | -8.5% |
| 5. | South Korea | 5,675.4 | 4,758.0 | -16.2% |
| 6. | United States | 5,480.4 | 4,600.0 | -16.1% |
| 7. | Taiwan | 4,864.2 | 4,030.0 | -17.1% |
| 8. | Switzerland | 3,681.3 | 3,052.8 | -17.1% |
| 9. | Spain | 1,177.9 | 1,003.3 | -14.8% |
| 10. | Austria | 1,049.5 | 938.0 | -10.6% |
| 11. | United Kingdom | 956.8 | 825.3 | -13.7% |
| 12. | Turkey | 762.7 | 706.0 | -7.4% |
| 13. | India | 683.4 | 690.8 | 1.1% |
| 14. | France | 763.6 | 645.0 | -15.5% |
| 15. | Czech Republic | 754.2 | 641.6 | -14.9% |
| 16. | Canada | 556.4 | 530.8 | -4.6% |
| 17. | Russia | 450.6 | 485.0 | 7.6% |
| 18. | Thailand | 534.7 | 476.0 | -11.0% |
| 19. | Singapore | 511.4 | 448.5 | -12.3% |
| 20. | Netherlands | 468.3 | 387.4 | -17.3% |
| 21. | Belgium | 373.1 | 293.1 | -21.4% |
| 22. | Poland | 248.5 | 235.0 | -5.4% |
| 23. | Brazil | 293.8 | 208.3 | -29.1% |
| 24. | Malaysia | 288.0 | 178.8 | -37.9% |
| 25. | Sweden | 193.3 | 159.9 | -17.3% |
| 26. | Slovakia | 189.8 | 159.2 | -16.1% |
| 27. | Finland | 183.9 | 155.4 | -15.5% |
| 28. | Hong Kong | 206.0 | 150.0 | -27.2% |
| 29. | Mexico | 145.8 | 121.9 | -16.4% |
| 30. | Australia | 125.3 | 110.0 | -12.2% |
| 31. | Portugal | 130.2 | 107.7 | -17.3% |
| 32. | Argentina | 94.3 | 96.7 | 2.6% |
| 33. | Slovenia | 79.5 | 96.1 | 20.9% |
| 34. | Denmark | 87.3 | 81.0 | -7.2% |
| 35. | Belarus | 75.6 | 65.8 | -12.9% |
| 36. | Croatia | 78.5 | 54.7 | -30.3% |
| 37. | Israel | 118.3 | 50.1 | -57.6% |
| 38. | Bulgaria | 45.7 | 42.1 | -7.8% |
| 39. | Greece | 45.9 | 36.9 | -19.5% |
| 40. | Indonesia | 46.0 | 35.6 | -22.5% |
| 41. | Vietnam | 38.9 | 34.9 | -10.3% |
| 42. | Hungary | 36.8 | 31.2 | -15.2% |
| 43. | Ukraine | 37.1 | 30.6 | -17.5% |
| 44. | Romania | 40.4 | 26.3 | -34.9% |
| 45. | Norway | 32.2 | 25.8 | -19.9% |
| 46. | Philippines | 42.7 | 21.9 | -48.8% |
| 47. | South Africa | 23.7 | 17.2 | -27.5% |
| 48. | Ireland | 19.9 | 16.7 | -16.1% |
| 49. | Chile | 9.3 | 3.5 | -62.3% |
| 50. | Colombia | 3.0 | 3.0 | -1.0% |
| 51. | Morocco | 1.4 | 1.4 | -1.0% |
| 52. | Saudi Arabia | 1.8 | 1.2 | -34.0% |
| 53. | Kazakhstan | 4.1 | 1.0 | -75.9% |
| 54. | Egypt | 0.2 | 0.2 | -1.0% |
| 55. | Venezuela | 0.1 | 0.1 | -1.0% |
| 56. | Iran | 19.9 | 0.0 | -100.0% |
| | **TOTAL** | 91,491.5 | 80,189.6 | -12.4% |

(Millions of U.S. Dollars)

**Source:** Gardner Business Media, Inc.

# IMPORTERS OF MACHINE TOOLS

## 2015

| | Country | Imports | Consumption | Imports: Consumption |
|---|---|---|---|---|
| 1. | China | 8,600.0 | 27,500.0 | 31% |
| 2. | United States | 4,506.0 | 7,361.0 | 61% |
| 3. | Germany | 2,730.8 | 6,360.8 | 43% |
| 4. | Mexico | 2,187.7 | 2,214.1 | 99% |
| 5. | Russia | 1,756.0 | 2,177.0 | 81% |
| 6. | Italy | 1,470.9 | 3,136.1 | 47% |
| 7. | South Korea | 1,407.0 | 3,823.0 | 37% |
| 8. | Thailand | 1,080.5 | 1,173.8 | 92% |
| 9. | Turkey | 1,031.0 | 1,278.0 | 81% |
| 10. | Vietnam | 960.0 | 969.9 | 99% |
| 11. | Japan | 940.5 | 5,804.5 | 16% |
| 12. | Belgium | 903.6 | 242.0 | 373% |
| 13. | Canada | 901.1 | 1,178.3 | 76% |
| 14. | India | 897.2 | 1,541.0 | 58% |
| 15. | France | 890.3 | 960.3 | 93% |
| 16. | United Kingdom | 785.7 | 950.5 | 83% |
| 17. | Indonesia | 778.6 | 802.0 | 97% |
| 18. | Hong Kong | 744.0 | 144.0 | 517% |
| 19. | Taiwan | 720.0 | 1,564.0 | 46% |
| 20. | Czech Republic | 610.6 | 558.4 | 109% |
| 21. | Poland | 608.6 | 599.6 | 102% |
| 22. | Brazil | 594.7 | 672.3 | 88% |
| 23. | Switzerland | 571.7 | 1,038.0 | 55% |
| 24. | Netherlands | 448.5 | 452.9 | 99% |
| 25. | Spain | 442.8 | 595.2 | 74% |
| 26. | Malaysia | 442.4 | 475.3 | 93% |
| 27. | Austria | 396.3 | 637.2 | 62% |
| 28. | Saudi Arabia | 330.0 | 330.0 | 100% |
| 29. | Singapore | 305.7 | 388.2 | 79% |
| 30. | Algeria | 286.5 | 286.5 | 100% |

| | Country | Imports | Consumption | Imports: Consumption |
|---|---|---|---|---|
| 31. | Romania | 283.9 | 272.7 | 104% |
| 32. | Slovakia | 248.6 | 277.9 | 89% |
| 33. | Sweden | 246.4 | 167.6 | 147% |
| 34. | Australia | 233.4 | 291.8 | 80% |
| 35. | UAE | 228.0 | 203.0 | 112% |
| 36. | Hungary | 207.6 | 218.2 | 95% |
| 37. | South Africa | 184.6 | 176.7 | 104% |
| 38. | Philippines | 160.6 | 166.8 | 96% |
| 39. | Argentina | 156.3 | 241.8 | 65% |
| 40. | Belarus | 154.5 | 172.3 | 90% |
| 41. | Slovenia | 140.4 | 158.1 | 89% |
| 42. | Israel | 138.6 | 152.8 | 91% |
| 43. | Portugal | 136.5 | 195.4 | 70% |
| 44. | Denmark | 111.0 | 92.1 | 121% |
| 45. | Bulgaria | 102.3 | 102.3 | 100% |
| 46. | Finland | 88.8 | 114.3 | 78% |
| 47. | Norway | 84.4 | 91.8 | 92% |
| 48. | Colombia | 82.0 | 82.0 | 100% |
| 49. | Egypt | 82.0 | 82.0 | 100% |
| 50. | Croatia | 67.8 | 101.2 | 67% |
| 51. | Kazakhstan | 63.5 | 63.8 | 100% |
| 52. | Ireland | 60.5 | 65.3 | 93% |
| 53. | Chile | 56.4 | 56.4 | 100% |
| 54. | Morocco | 47.2 | 47.6 | 99% |
| 55. | Greece | 36.8 | 47.3 | 78% |
| 56. | Ukraine | 36.0 | 41.6 | 87% |
| 57. | Venezuela | 35.5 | 35.5 | 100% |
| 58. | Azerbaijan | 23.0 | 23.0 | 100% |
| 59. | Ghana | 14.4 | 14.4 | 100% |
| 60. | Iran | 0.0 | 0.0 | |

(Millions of U.S. Dollars)

**Source:** Gardner Business Media, Inc.

# EXPORTERS OF MACHINE TOOLS

## 2015

| | Country | Exports | Consumption | Exports: Production |
|---|---|---|---|---|
| 1. | Germany | 8,792.0 | 12,422.0 | 71% |
| 2. | Japan | 8,625.5 | 13,489.5 | 64% |
| 3. | Italy | 3,641.1 | 5,306.3 | 69% |
| 4. | China | 3,200.0 | 22,100.0 | 14% |
| 5. | Taiwan | 3,186.0 | 4,030.0 | 79% |
| 6. | Switzerland | 2,586.5 | 3,052.8 | 85% |
| 7. | South Korea | 2,342.0 | 4,758.0 | 49% |
| 8. | United States | 1,745.0 | 4,600.0 | 38% |
| 9. | Belgium | 954.7 | 293.1 | 326% |
| 10. | Spain | 850.9 | 1,003.3 | 85% |
| 11. | Hong Kong | 750.0 | 150.0 | 500% |
| 12. | Austria | 697.1 | 938.0 | 74% |
| 13. | Czech Republic | 693.8 | 641.6 | 108% |
| 14. | United Kingdom | 660.5 | 825.3 | 80% |
| 15. | France | 575.0 | 645.0 | 89% |
| 16. | Turkey | 459.0 | 706.0 | 65% |
| 17. | Netherlands | 383.0 | 387.4 | 99% |
| 18. | Thailand | 382.7 | 476.0 | 80% |
| 19. | Singapore | 366.0 | 448.5 | 82% |
| 20. | Canada | 253.6 | 530.8 | 48% |
| 21. | Poland | 244.0 | 235.0 | 104% |
| 22. | Sweden | 238.7 | 159.9 | 149% |
| 23. | Malaysia | 145.9 | 178.8 | 82% |
| 24. | Brazil | 130.7 | 208.3 | 63% |
| 25. | Finland | 129.9 | 155.4 | 84% |
| 26. | Slovakia | 129.9 | 159.2 | 82% |
| 27. | Denmark | 99.9 | 81.0 | 123% |
| 28. | Mexico | 95.5 | 121.9 | 78% |
| 29. | Slovenia | 78.4 | 96.1 | 82% |
| 30. | Russia | 64.0 | 485.0 | 13% |

| | Country | Exports | Consumption | Exports: Production |
|---|---|---|---|---|
| 31. | Australia | 51.6 | 110.0 | 47% |
| 32. | Portugal | 48.8 | 107.7 | 45% |
| 33. | Belarus | 48.0 | 65.8 | 73% |
| 34. | India | 47.0 | 690.8 | 7% |
| 35. | Bulgaria | 42.1 | 42.1 | 100% |
| 36. | Romania | 37.5 | 26.3 | 143% |
| 37. | Israel | 35.8 | 50.1 | 71% |
| 38. | Greece | 26.4 | 36.9 | 72% |
| 39. | Ukraine | 25.0 | 30.6 | 82% |
| 40. | South Africa | 25.0 | 17.2 | 145% |
| 41. | UAE | 25.0 | 0.0 | |
| 42. | Vietnam | 25.0 | 34.9 | 72% |
| 43. | Croatia | 21.3 | 54.7 | 39% |
| 44. | Hungary | 20.7 | 31.2 | 66% |
| 45. | Norway | 18.4 | 25.8 | 71% |
| 46. | Philippines | 15.6 | 21.9 | 71% |
| 47. | Indonesia | 12.2 | 35.6 | 34% |
| 48. | Ireland | 11.9 | 16.7 | 71% |
| 49. | Argentina | 11.2 | 96.7 | 12% |
| 50. | Chile | 3.5 | 3.5 | 100% |
| 51. | Colombia | 3.0 | 3.0 | 100% |
| 52. | Saudi Arabia | 1.2 | 1.2 | 100% |
| 53. | Morocco | 1.0 | 1.4 | 71% |
| 54. | Kazakhstan | 0.8 | 1.0 | 80% |
| 55. | Egypt | 0.2 | 0.2 | 100% |
| 56. | Azerbaijan | 0.1 | 0.0 | |
| 57. | Venezuela | 0.1 | 0.1 | 100% |
| 58. | Iran | 0.0 | 0.0 | |
| 59. | Ghana | 0.0 | 0.0 | |
| 60. | Algeria | 0.0 | 0.0 | |

(Millions of U.S. Dollars)

**Source:** Gardner Business Media, Inc.

# TRADE BALANCE

## 2015

| | Country | Exports (USD) | Imports (USD) | Trade Balance (USD) |
|---|---|---|---|---|
| 1. | Japan | 8,625.5 | 940.5 | 7,685.0 |
| 2. | Germany | 8,792.0 | 2,730.8 | 6,061.2 |
| 3. | Taiwan | 3,186.0 | 720.0 | 2,466.0 |
| 4. | Italy | 3,641.1 | 1,470.9 | 2,170.2 |
| 5. | Switzerland | 2,586.5 | 571.7 | 2,014.8 |
| 6. | South Korea | 2,342.0 | 1,407.0 | 935.0 |
| 7. | Spain | 850.9 | 442.8 | 408.1 |
| 8. | Austria | 697.1 | 396.3 | 300.8 |
| 9. | Czech Republic | 693.8 | 610.6 | 83.2 |
| 10. | Singapore | 366.0 | 305.7 | 60.3 |
| 11. | Belgium | 954.7 | 903.6 | 51.1 |
| 12. | Finland | 129.9 | 88.8 | 41.1 |
| 13. | Hong Kong | 750.0 | 744.0 | 6.0 |
| 14. | Iran | 0.0 | 0.0 | 0.0 |
| 15. | Sweden | 238.7 | 246.4 | -7.7 |
| 16. | Greece | 26.4 | 36.8 | -10.4 |
| 17. | Ukraine | 25.0 | 36.0 | -11.0 |
| 18. | Denmark | 99.9 | 111.0 | -11.1 |
| 19. | Ghana | 0.0 | 14.4 | -14.4 |
| 20. | Azerbaijan | 0.1 | 23.0 | -22.9 |
| 21. | Venezuela | 0.1 | 35.5 | -35.4 |
| 22. | Morocco | 1.0 | 47.2 | -46.2 |
| 23. | Croatia | 21.3 | 67.8 | -46.5 |
| 24. | Ireland | 11.9 | 60.5 | -48.6 |
| 25. | Chile | 3.5 | 56.4 | -52.9 |
| 26. | Bulgaria | 42.1 | 102.3 | -60.2 |
| 27. | Slovenia | 78.4 | 140.4 | -62.0 |
| 28. | Kazakhstan | 0.8 | 63.5 | -62.7 |
| 29. | Netherlands | 383.0 | 448.5 | -65.5 |
| 30. | Norway | 18.4 | 84.4 | -66.0 |

| | Country | Exports (USD) | Imports (USD) | Trade Balance (USD) |
|---|---|---|---|---|
| 31. | Colombia | 3.0 | 82.0 | -79.0 |
| 32. | Egypt | 0.2 | 82.0 | -81.8 |
| 33. | Portugal | 48.8 | 136.5 | -87.7 |
| 34. | Israel | 35.8 | 138.6 | -102.8 |
| 35. | Belarus | 48.0 | 154.5 | -106.5 |
| 36. | Slovakia | 129.9 | 248.6 | -118.7 |
| 37. | United Kingdom | 660.5 | 785.7 | -125.2 |
| 38. | Philippines | 15.6 | 160.6 | -145.0 |
| 39. | Argentina | 11.2 | 156.3 | -145.1 |
| 40. | South Africa | 25.0 | 184.6 | -159.6 |
| 41. | Australia | 51.6 | 233.4 | -181.8 |
| 42. | Hungary | 20.7 | 207.6 | -186.9 |
| 43. | UAE | 25.0 | 228.0 | -203.0 |
| 44. | Romania | 37.5 | 283.9 | -246.4 |
| 45. | Algeria | 0.0 | 286.5 | -286.5 |
| 46. | Malaysia | 145.9 | 442.4 | -296.5 |
| 47. | France | 575.0 | 890.3 | -315.3 |
| 48. | Saudi Arabia | 1.2 | 330.0 | -328.8 |
| 49. | Poland | 244.0 | 608.6 | -364.6 |
| 50. | Brazil | 130.7 | 594.7 | -464.0 |
| 51. | Turkey | 459.0 | 1,031.0 | -572.0 |
| 52. | Canada | 253.6 | 901.1 | -647.5 |
| 53. | Thailand | 382.7 | 1,080.5 | -697.8 |
| 54. | Indonesia | 12.2 | 778.6 | -766.4 |
| 55. | India | 47.0 | 897.2 | -850.2 |
| 56. | Vietnam | 25.0 | 960.0 | -935.0 |
| 57. | Russia | 64.0 | 1,756.0 | -1,692.0 |
| 58. | Mexico | 95.5 | 2,187.7 | -2,092.2 |
| 59. | United States | 1,745.0 | 4,506.0 | -2,761.0 |
| 60. | China | 3,200.0 | 8,600.0 | -5,400.0 |

(Millions of U.S. Dollars)

**Source:** Gardner Business Media, Inc.

# PER-CAPITA CONSUMPTION

## 2015

| | Country | 2015 Consumption | Population (Millions) | Consumption (USD per Capita) |
|---|---|---|---|---|
| 1. | Switzerland | 1,038.0 | 8.2 | 126.6 |
| 2. | Germany | 6,360.8 | 80.9 | 78.6 |
| 3. | South Korea | 3,823.0 | 50.4 | 75.9 |
| 4. | Slovenia | 158.1 | 2.1 | 75.3 |
| 5. | Austria | 637.2 | 8.5 | 75.0 |
| 6. | Singapore | 388.2 | 5.5 | 70.6 |
| 7. | Taiwan | 1,564.0 | 23.4 | 66.8 |
| 8. | Czech Republic | 558.4 | 10.5 | 53.2 |
| 9. | Slovakia | 277.9 | 5.4 | 51.5 |
| 10. | Italy | 3,136.1 | 61.3 | 51.2 |
| 11. | Japan | 5,804.5 | 127.1 | 45.7 |
| 12. | Canada | 1,178.3 | 35.5 | 33.2 |
| 13. | Netherlands | 452.9 | 16.9 | 26.8 |
| 14. | Croatia | 101.2 | 4.2 | 24.1 |
| 15. | USA | 7,361.0 | 318.9 | 23.1 |
| 16. | UAE | 203.0 | 9.1 | 22.3 |
| 17. | Hungary | 218.2 | 9.9 | 22.0 |
| 18. | Belgium | 242.0 | 11.2 | 21.6 |
| 19. | Finland | 114.3 | 5.5 | 20.8 |
| 20. | China | 27,500.0 | 1,364.3 | 20.2 |
| 21. | Hong Kong | 144.0 | 7.2 | 20.0 |
| 22. | Portugal | 195.4 | 10.4 | 18.8 |
| 23. | Israel | 152.8 | 8.2 | 18.6 |
| 24. | Belarus | 172.3 | 9.5 | 18.1 |
| 25. | Norway | 91.8 | 5.1 | 18.0 |
| 26. | Mexico | 2,214.1 | 125.4 | 17.7 |
| 27. | Thailand | 1,173.8 | 67.7 | 17.3 |
| 28. | Sweden | 167.6 | 9.7 | 17.3 |
| 29. | Turkey | 1,278.0 | 75.9 | 16.8 |
| 30. | Denmark | 92.1 | 5.6 | 16.4 |

| | Country | 2015 Consumption | Population (Millions) | Consumption (USD per Capita) |
|---|---|---|---|---|
| 31. | Malaysia | 475.3 | 29.9 | 15.9 |
| 32. | Poland | 599.6 | 38.0 | 15.8 |
| 33. | Russia | 2,177.0 | 143.8 | 15.1 |
| 34. | UK | 950.5 | 64.5 | 14.7 |
| 35. | France | 960.3 | 66.2 | 14.5 |
| 36. | Bulgaria | 102.3 | 7.2 | 14.2 |
| 37. | Ireland | 65.3 | 4.6 | 14.2 |
| 38. | Romania | 272.7 | 19.9 | 13.7 |
| 39. | Spain | 595.2 | 46.4 | 12.8 |
| 40. | Australia | 291.8 | 23.5 | 12.4 |
| 41. | Vietnam | 969.9 | 90.7 | 10.7 |
| 42. | Saudi Arabia | 330.0 | 30.9 | 10.7 |
| 43. | Algeria | 286.5 | 38.9 | 7.4 |
| 44. | Argentina | 241.8 | 43.0 | 5.6 |
| 45. | Greece | 47.3 | 11.0 | 4.3 |
| 46. | Kazakhstan | 63.8 | 17.3 | 3.7 |
| 47. | South Africa | 176.7 | 54.0 | 3.3 |
| 48. | Brazil | 672.3 | 206.1 | 3.3 |
| 49. | Chile | 56.4 | 17.8 | 3.2 |
| 50. | Indonesia | 802.0 | 254.5 | 3.2 |
| 51. | Azerbaijan | 23.0 | 9.5 | 2.4 |
| 52. | Colombia | 82.0 | 47.8 | 1.7 |
| 53. | Philippines | 166.8 | 99.1 | 1.7 |
| 54. | Morocco | 47.6 | 33.9 | 1.4 |
| 55. | India | 1,541.0 | 1,295.3 | 1.2 |
| 56. | Venezuela | 35.5 | 30.7 | 1.2 |
| 57. | Ukraine | 41.6 | 45.4 | 0.9 |
| 58. | Egypt | 82.0 | 89.6 | 0.9 |
| 59. | Ghana | 14.4 | 26.8 | 0.5 |
| 60. | Iran | 0.0 | 78.1 | 0.0 |

(Millions of U.S. Dollars)

**Source:** Gardner Business Media, Inc.

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