

2016 Top Markets Report **Manufacturing Technology** Country Case Study

South Korea

South Korea ranks seventh overall in this year's Manufacturing Technology Top Markets Report. South Korea has a highly developed manufacturing economy, and U.S. exporters face virtually zero market access barriers as a result of the U.S.-Korea Free Trade Agreement (KORUS) that went into effect in 2012.

Overall Rank

7

U.S. Exports:
8th

Export Growth:
5th

2012 UNIDO Industrial Competitiveness Ranking:
3rd

UNIDO Industrial Competitiveness Growth Ranking:
6th

Subsector Rankings

Machine Tools (Cutting):
9th

Machine Tools (Forming):
14th

Welding & Soldering Equipment:
6th

Plastics & Rubber Equipment:
5th

Tools, Dies, Jigs, and Fixtures:
9th

Machine Tool Parts:
14th

Industrial Molds:
19th

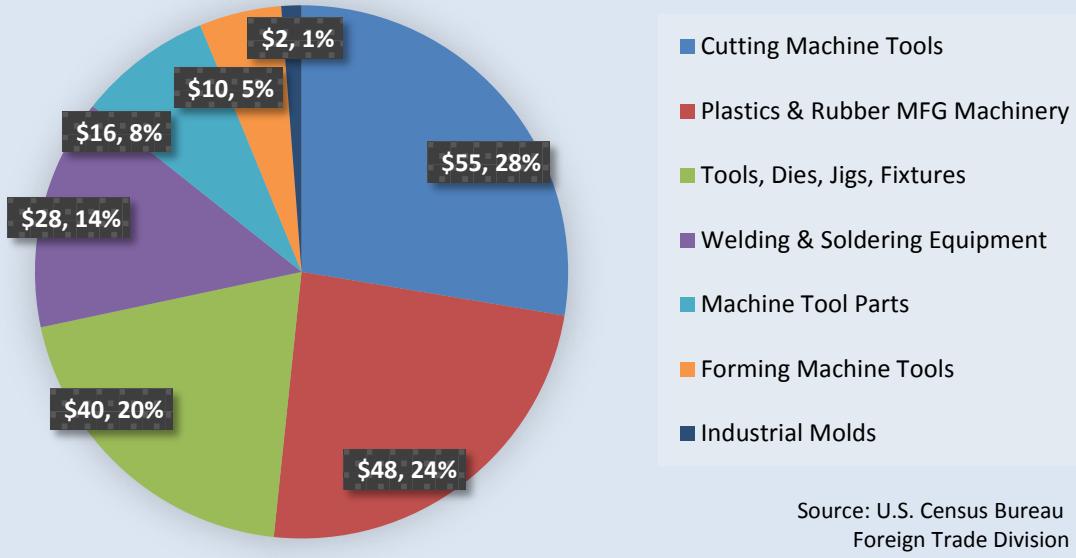
Additive Manufacturing Equipment:
9th*

ITA expects that U.S. manufacturing technology exports to South Korea will remain stable through 2017. Exports to South Korea increased by 14.6 percent between 2014 and 2015, and U.S. annual export growth to the country averaged 9.5 percent (CAGR) between 2009 and 2015. However, ITA believes that China's forecasted slowdown will have an outsized effect on the South Korean economy. China is South Korea's largest export partner, which accounts for over 25 percent of Korean exports. As a result, U.S. manufacturing technology sales to South Korea will likely face headwinds through 2017.

Country Overview

South Korea has emerged over the past decades as a globally competitive manufacturing economy with tight integration into global markets. In 2014, it was the 13th largest economy by GDP, with a population just exceeding 49 million residents. South Korea is a sophisticated manufacturing economy, particularly in semiconductors, consumer electronics, automobiles, and construction equipment. In 2011, South Korea and the United States ratified the U.S.-Korea Free Trade Agreement (KORUS), which will substantially eliminate tariffs between the two countries. By 2017, nearly 95 percent of bilateral trade in consumer and industrial products will become duty free.

Figure 1: U.S. Manufacturing Technology Exports to South Korea, 2015
 (in USD Millions)



For decades, the South Korean economy has relied heavily on exports at the expense of developing domestic-oriented sectors. Exports comprise over half of the country's GDP, and forecasted sluggishness in the Asia-Pacific region will likely be a headwind to growth of U.S. sales to South Korea.

Export Overview

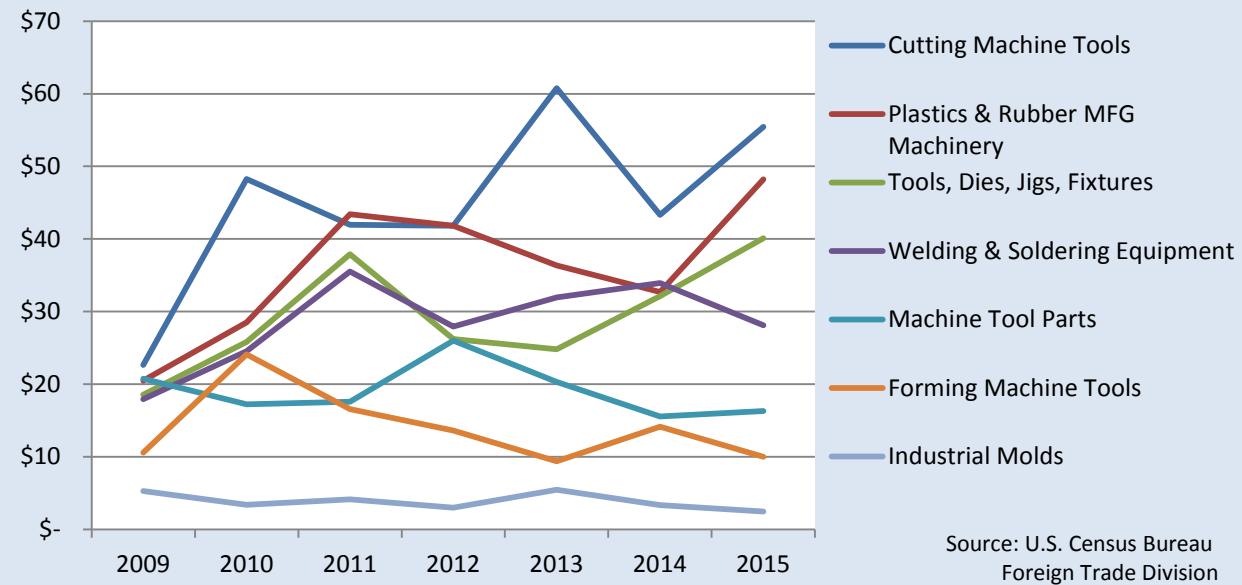
In 2015, South Korea was the fifth largest export market for U.S. plastics and rubber working equipment. Between 2014 and 2015, sales grew rapidly by 47.6 percent to account for \$48 million in volume. Between 2009 and 2015, U.S. exports of this equipment increased at an average annual rate (CAGR) of 15.3 percent. ITA expects sales opportunities in this subsector will continue to grow, but at a slower pace through 2017.

South Korea was the sixth largest export market for U.S. welding and soldering equipment in 2015, which accounted for \$28 million in exports that year. While sales of automated electric welders grew, the subsector as a whole experienced a double-digit decline between 2014 and 2015. ITA expects continued challenges in this subsector through 2017.

South Korea was the ninth largest market for U.S. cutting and forming machine tools. Cutting machine tools accounted for over one quarter of U.S. manufacturing technology exports to South Korea in 2015. However, sales of U.S. machine tools to South Korea have been volatile in recent years. Between 2009 and 2015, exports in the cutting-tool subsector experienced robust double-digit growth, peaking at \$60 million in sales in 2013. However, between 2013 and 2014, U.S. exports to South Korea in this subsector dropped precipitously by 28.7 percent to just over \$43 million. By 2015, sales had reached \$55 million, still below their peak in 2013.

Exports in forming tools fared similarly, with a wide degree of variability in sales volume between years. Despite strong growth between 2013 and 2014, exports of forming tools fell sharply in 2015. In all, sales of forming tools accounted for a small percentage of total manufacturing technology products sold to South Korea. ITA expects a continued softening in this subsector due largely to the Chinese slowdown.

**Figure 2: Annual U.S. Manufacturing Technology Exports to South Korea, by Subsector
(in USD Millions)**



South Korea was the ninth largest export destination for U.S. makers of special tools, dies, jigs and fixtures, which accounted for \$40.1 million in 2015. Similarly with other subsectors like machine tools, annual growth in this subsector has been volatile and prone to leaps and backslides. Between 2009 and 2015, average annual growth (CAGR) was 13.7 percent, and though ITA expects continued growth through the medium-term, the short-term outlook remains unclear.

Despite growth in 2015, sales of parts for machine tools have declined by roughly a quarter between 2009 and 2015, and ITA expects this trend to continue as demand for machinery declines. In 2015, sales of machine tool parts accounted for \$16.3 million, making South Korea the 14th largest export destination for U.S. manufacturers in this subsector.

U.S industrial mold exports to South Korea accounted for \$2.4 million in sales in 2015, and were the smallest subsector by volume to that market. South Korea was the 19th largest export destination for U.S. mold makers, though accounting for less than 0.4 percent of global U.S. exports in the subsector.

According to estimates made by Wohlers Associates, in 2014, South Korea accounted for roughly 2.7 percent of all installed additive manufacturing systems in the world, and had the third largest number of machines in the Asia-Pacific region.ⁱ South Korea is home to several established additive

manufacturing companies such as Carima and InssTek, and in 2015 the country's technology giant Samsung announced it had filed a patent on a new multicolor 3D printer.ⁱⁱ Despite South Korean companies' relatively late adoption of the subsector, ITA expects that South Korea will be a growth market for additive manufacturing technologies through 2017 and beyond.

Challenges and Barriers

The South Korean market is generally quite open and transparent, and in 2015 it was ranked fourth out of 189 in the World Bank Ease of Doing Business economic rankings.

In South Korea, domestic industry is largely dominated by conglomerates known as "Chaebols." These very large conglomerates were historically family-controlled entities that were highly-diversified internationally and across sectors. While efforts have been made to regulate them and limit their influence in the Korean economy and governing class, chaebols continue to be major players in the Korean market. For example, two of the largest historic chaebols, the electronics giant Samsung Group and the Hyundai Motor Group, are also leading manufacturers of machine tools through strategic acquisitions. Given the highly diversified nature of their parent companies, these subsidiaries are virtually guaranteed a robust stream of revenue through internal sales to parent and other subsidiary

companies. As a result, U.S. exporters may face challenging market-entry conditions.

Know Your Buyer

Establishing local representation is often the key to success in entering the Korean market. Distributors and offer agents who import in their own name must register with the Korea International Trading Association (KITA).ⁱⁱⁱ Korea is home to a number of trading firms that essentially act as distributors diversified over several sectors, and many provide representation for U.S. suppliers.

Personal relationships are highly valued, and sellers of capital equipment are often most successful after conducting site visits to build rapport with plant engineers and foremen. For OEMs, retaining localized maintenance personnel for after-market services can be an important determinant in competitiveness.

Another important determinant is pricing. U.S. firms primarily compete with low-cost domestic or Chinese companies in South Korea. As a result, many manufacturers are highly price-conscious and more likely to select products based on cost constraints rather than additional features.

National and Regional Trade Shows

SIMTOS

April 13-17, 2016 – Go-yang, South Korea

<http://www.simtos.org/eng/Index.do>

MTA — Manufacturing Technology Asia

April 4 - 7, 2017 — Singapore Expo, Singapore

<http://mta-asia.com>

ⁱ Tim Caffrey, Terry Wohlers “Wohlers Report 2015: 3D Printing and Additive Manufacturing State of the Industry” *Wohlers Associates, Inc.*, 2015. p. 30.

ⁱⁱ Joe Eckelman “Samsung’s Patent for Multicolor 3D Printer and Process May Signal Larger Entry into Market” *3DPrint.com*, 9 June, 2015.

<http://3dprint.com/57742/samsung-patent-multicolor-3dp/>

ⁱⁱⁱ <http://www.kita.org/>