

# IRON AND STEEL<sup>1</sup>

(Data in million metric tons of metal unless otherwise noted)

**Domestic Production and Use:** The U.S. iron and steel industry produced raw steel in 2022 with an estimated value of about \$132 billion, a 13% increase from \$118 billion in 2021. Pig iron and raw steel were produced by three companies operating integrated steel mills in 11 locations. Raw steel was produced by 50 companies at 101 minimills. Combined production capacity was about 106 million tons per year. Indiana accounted for an estimated 26% of total raw steel production, followed by Ohio, 12%; Pennsylvania and Illinois, 5% each; Texas, 4%; and Michigan, 3%; with no other State having more than 3% of total domestic raw steel production. Construction accounted for an estimated 46% of total domestic shipments by market classification, followed by transportation (predominantly automotive), 26%; machinery and equipment, 8%; energy, 6%; appliances, 5%; and other applications, 9%.

## **Salient Statistics—United States:**

	<b><u>2018</u></b>	<b><u>2019</u></b>	<b><u>2020</u></b>	<b><u>2021</u></b>	<b><u>2022<sup>e</sup></u></b>
Pig iron production <sup>2</sup>	24.1	22.3	18.3	22.2	21
Raw steel production	86.6	87.8	72.7	85.8	82
Distribution of raw steel production, percent:					
Basic oxygen furnaces	32	30	29	29	29
Electric arc furnaces	68	70	71	71	72
Continuously cast steel, percent	98.2	99.8	99.8	99.8	99.8
Shipments, steel mill products	86.4	87.3	73.5	85.9	82
Imports, steel mill products:					
Finished	23.3	19.1	14.6	20.6	22
Semifinished	<u>7.3</u>	<u>6.2</u>	<u>5.3</u>	<u>7.9</u>	<u>8</u>
Total	30.6	25.3	20.0	28.5	30
Exports, steel mill products:					
Finished	7.9	6.6	6.7	7.4	8
Semifinished	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>
Total	8.0	6.7	6.8	7.5	8
Stocks, service centers, yearend <sup>3</sup>	7.3	7.4	5.8	5.8	5.8
Consumption, apparent (steel mill products) <sup>4</sup>	102	100	82.1	98.9	96
Producer price index for steel mill products (1982=100) <sup>5</sup>	211	204	184	351	400
Employment, average, number:					
Iron and steel mills <sup>5</sup>	82,100	85,700	83,200	78,300	75,000
Steel product manufacturing <sup>6</sup>	56,700	57,800	54,900	52,700	50,000
Net import reliance <sup>7</sup> as a percentage of apparent consumption	15	12	12	13	14

**Recycling:** See the Iron and Steel Scrap and Iron and Steel Slag chapters.

**Import Sources (2018–21):** Canada, 21%; Brazil, 15%; Mexico, 14%; Republic of Korea, 9%; and other, 41%.

<b><u>Tariff:</u></b>	<b><u>Item</u></b>	<b><u>Number</u></b>	<b><u>Normal Trade Relations</u></b> <b><u>12–31–22</u></b>
	Carbon steel:		
	Semifinished	7207.00.0000	Free.
	Flat, hot-rolled	7208.00.0000	Free.
	Flat, cold-rolled	7209.00.0000	Free.
	Galvanized	7210.00.0000	Free.
	Bars and rods, hot-rolled	7213.00.0000	Free.
	Structural shapes	7216.00.0000	Free.
	Stainless steel:		
	Semifinished	7218.00.0000	Free.
	Flat-rolled sheets	7219.00.0000	Free.
	Bars and rods	7222.00.0000	Free.

**Depletion Allowance:** Not applicable.

**Government Stockpile:** None.

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**Events, Trends, and Issues:** The World Steel Association<sup>8</sup> forecast global finished steel consumption to decrease by 2.3% in 2022 and increase by 1.0% in 2023. End-use consumption of steel products was expected to decline in 2022 following concurrent events affecting consumer demand, including the conflict in Ukraine, continuing coronavirus disease 2019 (COVID-19) mitigation measures in China, rising energy costs and interest rates, and global inflation. In the United States, the apparent consumption of finished steel products was estimated to have increased by 2% in 2022 owing to strong economic recovery from COVID-19 supply disruptions. The Infrastructure Investment and Jobs Act was expected to spur growth in the energy and construction sectors.

The economic conditions in China significantly affected steel production, with finished steel production decreasing by 4% in 2022 and expected to remain unchanged in 2023 owing to extended COVID-19 mitigation strategies that led to decreased demand for real estate and construction investments. In Japan and the Republic of Korea, steel demand was estimated to be lower in 2022 owing to decreases in the construction sector. Production of finished steel products in India was expected to increase by 6% in 2022 owing to infrastructure spending, strong demand for consumer goods, and increased demand in the automotive sector.

### **World Production:**

	Pig iron		Raw steel	
	<u>2021</u>	<u>2022<sup>e</sup></u>	<u>2021</u>	<u>2022<sup>e</sup></u>
United States	22	21	86	82
Brazil	28	26	36	33
China	869	830	1,030	990
Germany	26	24	40	38
India	78	83	118	130
Iran	3	3	28	29
Italy	4	4	24	24
Japan	70	71	96	97
Korea, Republic of	46	45	71	69
Mexico	3	3	18	17
Russia	54	50	76	71
Taiwan	15	15	23	23
Turkey	10	10	40	39
Ukraine	21	19	21	19
Vietnam	15	15	23	23
Other countries	<u>81</u>	<u>88</u>	<u>216</u>	<u>230</u>
World total (rounded)	1,350	1,300	1,950	1,900

**World Resources:** Not applicable. See the Iron Ore chapter for steelmaking raw-material resources.

**Substitutes:** Iron is the least expensive and most widely used metal. In most applications, iron and steel compete either with less expensive nonmetallic materials or with more expensive materials that have a performance advantage. Iron and steel compete with lighter materials, such as aluminum and plastics in the automotive industry; aluminum, concrete, and wood in construction; and aluminum, glass, paper, and plastics in containers.

<sup>e</sup>Estimated.

<sup>1</sup>U.S. production and shipments data source is the American Iron and Steel Institute; see also the Iron and Steel Scrap and Iron Ore chapters.

<sup>2</sup>More than 95% of pig iron production is transported in molten form to steelmaking furnaces at the same site.

<sup>3</sup>Steel mill products. Source: Metals Service Center Institute, September 2021.

<sup>4</sup>Defined as steel mill product shipments + imports of finished steel mill products – exports of steel mill products ± adjustments for industry stock changes.

<sup>5</sup>Source: U.S. Department of Labor, Bureau of Labor Statistics, North American Industry Classification System Code 331100.

<sup>6</sup>Source: U.S. Department of Labor, Bureau of Labor Statistics, North American Industry Classification System Code 332100.

<sup>7</sup>Defined as imports of finished steel mill products – total exports ± adjustments for industry stock changes.

<sup>8</sup>Source: World Steel Association, 2022, Short range outlook October 2022: Brussels, Belgium, World Steel Association press release, October 19, 6 p.