IRON AND STEEL[1]

(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 2021 with an estimated value of about $110 billion, a 21% increase from $91 billion in 2020. Pig iron and raw steel was 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. Indiana accounted for an estimated 27% of total raw steel production, followed by Ohio, 11%; Pennsylvania, 5%; Illinois and Texas, 4% each; and Michigan, 3%; with no other State having more than 3% of total domestic raw steel production. Construction accounted for an estimated 47% of total domestic shipments by market classification, followed by transportation (predominantly automotive), 25%; machinery and equipment, 9%; appliances and energy, 5% each; and other applications, 9%.

Salient Statistics—United States:	**2017**	**2018**	**2019**	**2020**	**2021[e]**
Pig iron production[2]	22.4	24.1	22.3	18.3	22
Raw steel production	81.6	86.6	87.8	72.7	87
Distribution of raw steel production, percent:					
Basic oxygen furnaces	32	32	30	29	29
Electric arc furnaces	68	68	70	71	71
Continuously cast steel, percent	99.6	98.2	99.8	99.8	99.8
Shipments, steel mill products	82.5	86.4	87.3	73.5	88
Imports, steel mill products:					
Finished	26.8	23.3	19.1	14.6	18
Semifinished	7.8	7.3	6.2	5.3	6.7
Total	34.6	30.6	25.3	20.0	25
Exports, steel mill products:					
Finished	9.4	7.9	6.6	6.7	8.1
Semifinished	0.1	0.1	0.1	0.1	0.1
Total	9.5	8.0	6.7	6.8	8.3
Stocks, service centers, yearend[3]	7.0	7.3	7.4	5.8	5.8
Consumption, apparent (steel)[4]	99.4	101	99.6	82.9	98
Producer price index for steel mill products (1982=100)[5]	187.4	211.1	204.0	184.4	348.5
Employment, average, number:					
Iron and steel mills[5]	80,600	82,100	85,700	83,200	86,000
Steel product manufacturing[6]	54,300	56,700	57,800	54,900	57,000
Net import reliance[7] as a percentage of apparent consumption	18	15	12	8	10

Recycling: See Iron and Steel Scrap and Iron and Steel Slag.

Import Sources (2017–20): Canada, 19%; Brazil, 15%; Mexico, 12%; the Republic of Korea, 9%; and other, 45%.

Tariff: Item	Number	Normal Trade Relations 12–31–21
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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IRON AND STEEL

Events, Trends, and Issues: The World Steel Association[8] forecast global finished steel consumption to increase by 4.5% in 2021 and by 2.2% in 2022 owing to rebounding demand from the effects of the global COVID-19 pandemic. Global recovery started in late 2020, as manufacturing ramped up in developed countries, through the second half of 2021, when supply chain disruptions affected delivery and demand. In 2021, U.S. apparent consumption of iron and steel increased by 22% from that in 2020. The automotive sector drove domestic increases in steel consumption and there were increases in demand in the construction sector. The potential for infrastructure stimulus programs could speed economic recovery and increase steel demand; however, the effects would take months to years before they become fully realized.

China's steel demand decreased in June 2021 owing to a variety of factors including pandemic closures and other effects, weak real estate activity, poor weather conditions, reduced investment infrastructure, and reduced exports. Steel consumption in the European Union continued to increase throughout the year owing to increased exports from Germany and increasing construction activity in Italy. Despite worsening pandemic conditions in Asia, steel demand remained unchanged owing to increases in Japan's automotive and machinery sectors and an increase in construction activity in the Republic of Korea. Generally, South America experienced a significant decrease in steel demand owing to pandemic conditions in 2020; however, the increased activity in the construction and automotive sectors led to a recovery in steel consumption to pre-pandemic levels.

World Production:

	Pig iron		Raw steel	
	2020	2021[e]	2020	2021[e]
United States[1]	18	22	73	87
Brazil	25	30	31	39
China	888	880	1,060	1,100
Germany	22	25	40	44
India	68	79	100	120
Iran	3	3	29	30
Italy	3	4	20	23
Japan	62	68	83	92
Korea, Republic of	45	50	67	73
Mexico	2	3	17	19
Russia	52	53	72	73
Taiwan	13	14	21	21
Turkey	10	12	36	42
Ukraine	20	21	21	21
Vietnam	10	10	17	17
Other countries	71	99	108	120
World total (rounded)	1,310	1,400	1,790	1,900

World Resources: Not applicable. See Iron Ore and Iron and Steel Scrap 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.

[e]Estimated.

[1]Production and shipments data source is the American Iron and Steel Institute; see also Iron and Steel Scrap and Iron Ore.

[2]More than 95% of pig iron production is transported in molten form to steelmaking furnaces at the same site.

[3]Steel mill products. Source: Metals Service Center Institute.

[4]Defined as steel shipments + imports of finished steel mill products – exports of steel mill products + adjustments for industry stock changes.

[5]Source: U.S. Department of Labor, Bureau of Labor Statistics, North American Industry Classification System Code 331200.

[6]Source: U.S. Department of Labor, Bureau of Labor Statistics, North American Industry Classification System Code 331100.

[7]Defined as imports of finished steel mill products – total exports + adjustments for industry stock changes.

[8]World Steel Association, 2021, Short range outlook October 2021: Brussels, Belgium, World Steel Association press release, October 14, 8 p.