# IRON AND STEEL[1]

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

**Domestic Production and Use:** The iron and steel industry and ferrous foundries produced goods in 2009 that were estimated to be valued at $110 billion. Pig iron was produced by 8 companies operating integrated steel mills in about 18 locations. About 57 companies, producing raw steel at about 116 plants, had combined production capability of about 113 million tons. Indiana accounted for 29% of total raw steel production, followed by Ohio, 10%, Pennsylvania, 10%, and Michigan, 4%. The distribution of steel shipments was estimated to be: warehouses and steel service centers, 20%; construction, 18%; transportation (predominantly automotive), 11%; cans and containers, 4%; and other, 47%.

| **Salient Statistics—United States:** | **2005** | **2006** | **2007** | **2008** | **2009[e]** |
|---|---|---|---|---|---|
| Pig iron production[2] | 37.2 | 37.9 | 36.3 | 33.7 | 18 |
| Steel production: | 94.9 | 98.2 | 98.1 | 91.9 | 56 |
| Basic oxygen furnaces, percent | 45.0 | 42.9 | 41.8 | 42.6 | 36 |
| Electric arc furnaces, percent | 55.0 | 57.1 | 58.2 | 57.4 | 64 |
| Continuously cast steel, percent | 96.8 | 96.7 | 96.7 | 96.4 | 97 |
| Shipments: | | | | | |
| Steel mill products | 95.2 | 99.3 | 96.5 | 89.3 | 52 |
| Steel castings[3] | 0.7 | [e]0.7 | [e]0.7 | [e]0.7 | 0.4 |
| Iron castings[3] | 7.4 | [e]7.4 | [e]7.4 | [e]7.4 | 4.0 |
| Imports of steel mill products | 29.1 | 41.1 | 30.2 | 29.0 | 14 |
| Exports of steel mill products | 8.5 | 8.8 | 10.1 | 12.2 | 8 |
| Apparent steel consumption[4] | 113 | 120 | 116 | 102 | 56 |
| Producer price index for steel mill products (1982=100)[5] | 159.7 | 174.1 | 182.9 | 220.6 | 180 |
| Steel mill product stocks at service centers yearend[6] | 11.7 | 15.0 | 9.3 | 7.8 | 8.0 |
| Total employment, average, number | | | | | |
| Blast furnaces and steel mills | [e]134,000 | [e]132,000 | [e]128,000 | 125,000 | 124,000 |
| Iron and steel foundries[e] | 115,000 | 115,000 | 115,000 | 115,000 | 115,000 |
| Net import reliance[7] as a percentage of apparent consumption | 15 | 17 | 16 | 13 | 7 |

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

**Import Sources (2005-08):** Canada, 18%; European Union, 15%; China, 12%; Mexico, 10%; and other, 45%.

**Tariff:**

| **Item** | **Number** | **Normal Trade Relations 12-31-09** |
|---|---|---|
| Pig iron | 7201.10.0000 | Free. |
| Carbon steel: | | |
| Semifinished | 7207.12.0050 | Free. |
| Hot-rolled, pickled | 7208.27.0060 | Free. |
| Sheets, hot-rolled | 7208.39.0030 | Free. |
| Cold-rolled | 7209.18.2550 | Free. |
| Galvanized | 7210.49.0090 | Free. |
| Bars, hot-rolled | 7213.20.0000 | Free. |
| Structural shapes | 7216.33.0090 | Free. |
| Stainless steel: | | |
| Semifinished | 7218.91.0015 | Free. |
| Do. | 7218.99.0015 | Free. |
| Cold-rolled sheets | 7219.33.0035 | Free. |
| Bars, cold-finished | 7222.20.0075 | Free. |
| Pipe and tube | 7304.41.3045 | Free. |

**Depletion Allowance:** Not applicable.

**Government Stockpile:** None.

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**Events, Trends, and Issues:** The expansion or contraction of gross domestic product (GDP) may be considered a predictor of the health of the steelmaking and steel manufacturing industries, worldwide and domestically. The World Bank's global GDP growth forecast for 2010 and 2011 was 2.0% and 3.2%, respectively, after a decline of 2.9% in 2009. The Federal Reserve Bank of Philadelphia survey of forecasters showed the economy expanding in 2010, 2011, and 2012 at rates of 2.3%, 2.9%, and 3.2%, respectively, after contracting at a rate of 2.6% in 2009.

MEPS (International) Inc. forecast total world steel production in 2009 to be down 12% from that in 2008 (MEPS, 2009). MEPS also forecast declining steel production in 2009 in the European Union, South America, the Commonwealth of Independent States (CIS), Africa, and Asia, of 26%, 24%, 18%, 9%, and 3%, respectively. World Steel Dynamics (WSD) forecast world crude steel production to decrease by 9% in 2009 and increase by 14%, 6%, and 5% in 2010, 2011, and 2012, respectively. WSD also forecast crude steel production in China to decrease by 25% in 2009 and increase by 21%, 3%, and 2% in 2010, 2011, and 2012, respectively.

According to the World Steel Association, world apparent steel consumption (ASC) was expected to increase by 9.2% in 2010, after declining by 8.6% during 2009. China's ASC was expected to increase by 5% in 2010, and was expected to account for 48% of world steel consumption. ASC in India was expected to grow by 12% in 2010. The U.S. ASC was expected to decline by 39% in 2009 and increase by 19% in 2010. In Japan and the CIS, the ASC was expected to increase by 16% and 8%, respectively, in 2010. The European Union ASC was expected to increase by almost 15% in 2010 after declining almost 33% in 2009, according to the European Confederation of Iron and Steel Industries.

Seven U.S. steel producers and the United Steelworkers Union filed an antidumping suit against China with the U.S. International Trade Commission and the U.S. Department of Commerce, covering $2.7 billion of steel imports into the United States. Steel producers contended that tariff increases were needed to help them survive the global recession. China intended to cut excess steelmaking capacity by consolidating its producers into three major steel groups. Also, China was planning to protect its steel industry by gradually raising import duties.

**World Production:**

| | Pig iron | | Raw steel | |
|---|---|---|---|---|
| | **2008** | **2009[e]** | **2008** | **2009[e]** |
| United States | 34 | 18 | 92 | 56 |
| Brazil | 35 | 22 | 34 | 24 |
| China | 471 | 540 | 500 | 550 |
| France | 12 | 7 | 18 | 12 |
| Germany | 29 | 17 | 46 | 29 |
| Italy | 11 | 5 | 30 | 18 |
| Japan | 86 | 61 | 119 | 79 |
| Korea, Republic of | 31 | 26 | 53 | 47 |
| Russia | 48 | 40 | 69 | 55 |
| Ukraine | 31 | 25 | 37 | 28 |
| United Kingdom | 11 | 7 | 14 | 9 |
| Other countries | 133 | 96 | 318 | 226 |
| World total (rounded) | 932 | 860 | 1,330 | 1,100 |

**World Resources:** Not applicable. See Iron Ore.

**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 motor vehicle industry; aluminum, concrete, and wood in construction; and aluminum, glass, paper, and plastics in containers.

[e]Estimated. Do. Ditto.
[1]Production and shipments data source is the American Iron and Steel Institute; see also Iron Ore and Iron and Steel Scrap.
[2]More than 95% of iron made is transported in molten form to steelmaking furnaces located at the same site.
[3]U.S. Census Bureau.
[4]Defined as steel shipments + imports - exports + adjustments for industry stock changes + imports, excluding semifinished steel products.
[5]U.S. Department of Labor, Bureau of Labor Statistics.
[6]Metals Service Center Institute.
[7]Defined as imports – exports + adjustments for Government and industry stock changes.