

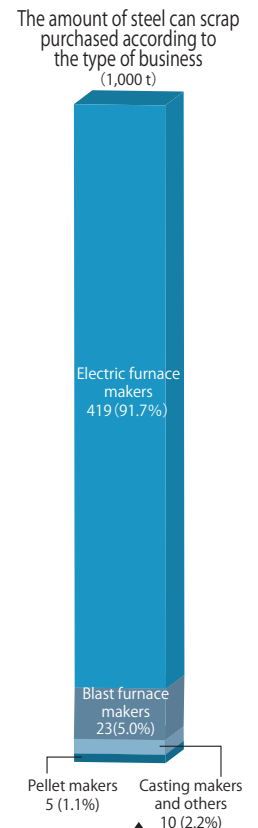


## II Present Conditions for Steel Can Scraps

### 1. Types and Amount of Steel Can Scraps

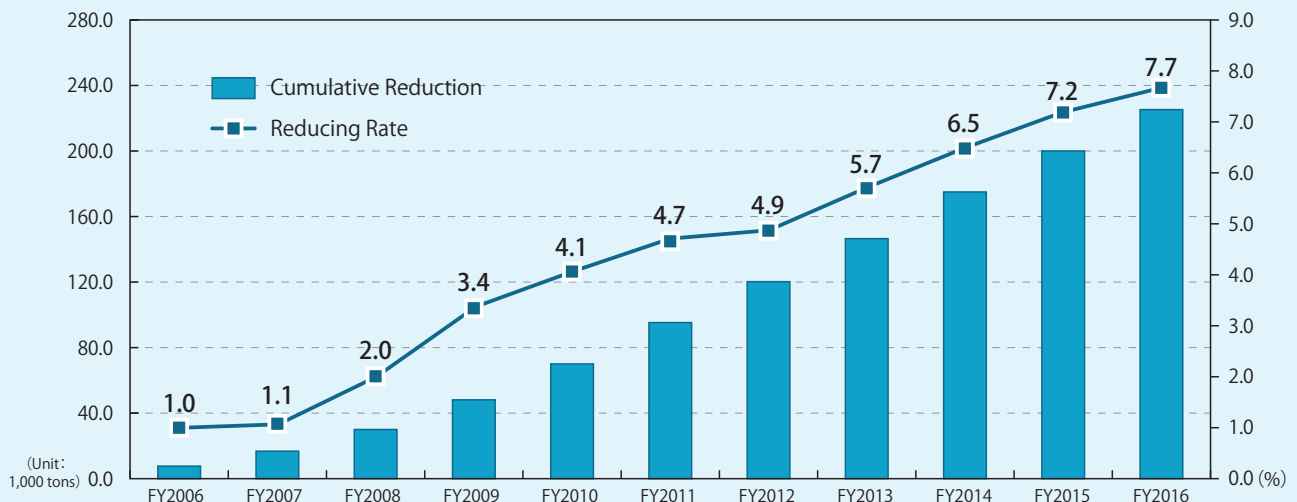
Steel Can Scrap Purchase Amount According to Area and Type of Business (Unit: 1,000 tons)

	FY2015(B)				FY2016(A)				(A-B)
	Press	Shredder	Total	%	Press	Shredder	Total	%	
Hokkaido	15	1	16	3.4	15	1	16	3.5	0
Tohoku	34	2	36	7.6	35	2	37	8.1	1
Kanto	110	36	146	30.8	114	34	148	32.4	2
Hokuriku	2	8	10	2.1	2	8	10	2.2	0
Tokai	48	16	64	13.5	40	17	57	12.5	-7
Kinki	127	11	138	29.1	110	8	118	25.9	-20
Chugoku/ Shikoku	14	5	19	4.0	22	3	25	5.5	6
Kyushu/ Okinawa	38	8	46	9.7	33	13	46	10.1	0
<b>Total</b>	<b>388</b>	<b>86</b>	<b>474</b>	<b>100.0</b>	<b>371</b>	<b>86</b>	<b>457</b>	<b>100.0</b>	<b>-17</b>
Electric furnace makers	335	76	411	86.7	341	78	419	91.7	8
Blast furnace makers	47	0	47	9.9	23	0	23	5.0	-24
Casting makers and others	3	8	11	2.3	4	6	10	2.2	-1
Pellet makers	3	2	5	1.1	3	2	5	1.1	0
<b>Total</b>	<b>388</b>	<b>86</b>	<b>474</b>	<b>100.0</b>	<b>371</b>	<b>86</b>	<b>457</b>	<b>100.0</b>	<b>-17</b>



### Concerning the Reducing of Steel Cans

In the "Committee to Reduce the Weight of Steel Cans" launched by the can manufacturing industry in June 2006, we formulated our voluntary action plans and worked on technology development as an industry. The target in the 2nd Voluntary Action Plan "Reduction of weight by 5% on average per can in 2015 fiscal year with the 2004 fiscal year as the base year" was achieved with a reduction of 7.2%. In the 3rd voluntary action plan, we aim to achieve "a weight saving of 8% on average weight per can in 2020 fiscal year as compared with 2004 fiscal year". In 2016 fiscal year, the weight has been reduced to 7.7%.



Written by: Japan Steel Can Recycling Association

## Uniform Standards of Ferrous Scraps

"Uniform Standards" is the criteria used for a distribution of iron scraps, and set up according to types and grades etc. The standard listed below is using as a national standard. Iron scraps which meet the requirement mean they are a product, however, some manufacturers use their own standard since a production capacity and goods vary at each work.

Classification	Category	Grade	Dimensions (mm)		Unit Weight (kg)	Remarks
			Thickness	Width or Height × Length		
Carbon Steel Scrap	Heavy	Being sized by guillotine shear, gas cutting, heavy construction machines, or others, to be divided, according to thickness, size, and unit weight, into the following:				
		H5	6 ≤	≤500 × ≤700	≤600	
		H1	6 ≤	≤500 × ≤1200	≤1000	
		H2	3 ≤ t < 6	≤500 × ≤1200	≤1000	
		H3	1 ≤ t < 3	≤500 × ≤1200	≤1000	
		H4	< 1	≤500 × ≤1200	≤1000	
	Press	The basic material being chiefly steel-sheet-fabricated products and being compression-formed and rectangular parallelepiped by a press machine, to be divided, according to basic materials, into the following:				
		A	W+H+L ≤ 1800, with the max dimension ≤ 800			Automobiles (mainly from End of Life Vehicles)
		B	W+H+L ≤ 1800, with the max dimension ≤ 800			Except for Press A and C
		C	600 ≤ W+H+L ≤ 1800			Cans for food/drink
	Shredded	The basic material being chiefly steel-sheet-fabricated products and being crushed by shredder and then sorted by magnetic classifier, to be divided, according to basic materials, into the following:				
		A				Automobiles (mainly from End of Life Vehicles)
		B				Except for Shredded A
	New Scrap (Shindachi)	Consisting of cutting and blanking chips produced during the manufacture of steel-sheet-fabricated products, to be divided, according to shape and degree of oxidation, into the following:				
		Shredded				Shredded
		Press A	W+H+L ≤ 1800, with the max dimension ≤ 800			Hot or cold Sheet with no rust excluding coated sheet
		Press B	W+H+L ≤ 1800, with the max dimension ≤ 800			Hot or cold Sheet with some rust, incl Coated sheet without harm for steel making
		Busheling A	W or H	≤ 500 × L ≤ 1200		Hot or cold Sheet with no rust excluding coated sheet
		Busheling B	W or H	≤ 500 × L ≤ 1200		Hot or cold Sheet with some rust, incl Coated sheet without harm for steel making
	Turning	Consisting of cutting chips, produced during the manufacture of screws, machine parts, and the like, to be divided, according to shape and degree of oxidation, into the following:				
		A				Turning of mild steel with no rust, in fine forms
B					Turning of mild steel with some rust, in various forms	
Press		W+H+L ≤ 1800, with the max dimension ≤ 800			Press of Turning of mild steel with no rust, in fine forms	
Pig Iron Scrap	Cast Iron	Consisting of used castings finely crushed into blocks, to be divided, according to basic materials, into the following:				
		A			≤ 1000	Machinery parts, Clean Auto Blocks etc.
		B			≤ 1000	Charging box cast, unstripped auto blocks
	Iron Boring	Consisting of cutting chips produced during the production of castings, to be divided, according to the degree of oxidation, into the following:				
		A				Iron boring of mild casting with no rust
		B				Iron boring of mild casting with some rust

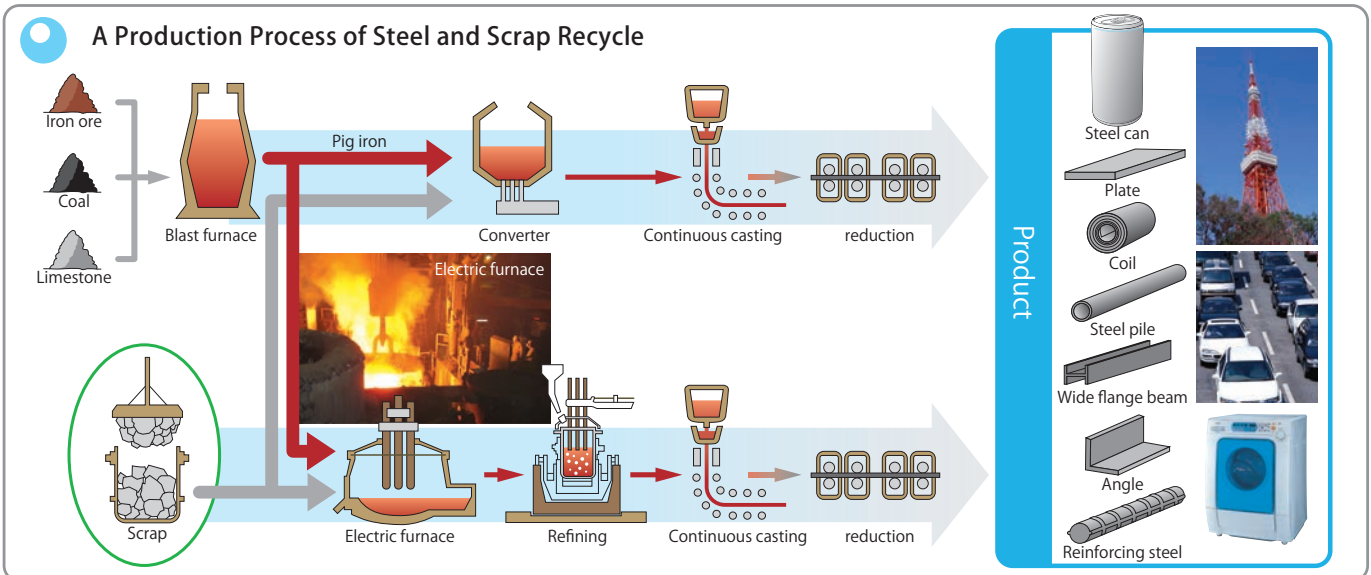


## II Present Conditions for Steel Can Scraps

### 2. How is Scrap Iron Recycled?

- The annual production of iron in Japan is approximately 105,170,000 tons in FY2016. Blast furnace and electric furnace methods are available to manufacture iron and steel. In Japan, 77.3% of iron and steel is manufactured by blast furnaces and 22.7% by electric furnaces.
- Iron that remains from use in construction, automobiles, machines, can containers, etc. are recycled at iron and steel manufacturers (blast furnaces, electric furnaces, casting makers, etc.) as iron scrap.
- Iron scrap that is traded in the Japanese market (commercial scrap) amounts to 26,920,000 tons (increasing 1,290,000 tons from the previous year). And 8,640,000 tons were exported in FY2016 (increasing 570,000 tons from the previous year).

	Production Method	Number of makers and plants
<b>Electric furnace maker</b>	Iron scrap is melted in electric furnaces (by discharge heat from electrodes) to manufacture steel.	47 makers with 64 works
<b>Blast furnace maker</b>	Iron scrap is inserted when pig iron reduced from iron ore in a blast furnace is supplied to a converter to manufacture steel.	4 makers with 19 works



**Domestic Iron Scrap Supply and Demand (FY 2016)**

<b>Export</b> 8,640,000 tons	
<b>Industrial scrap by the steel makers</b> 13,440,000 tons	
<b>Domestic purchased scrap</b> 26,630,000 tons	Factory scrap 7,860,000 tons
	End-of-life scrap 18,770,000 tons
	of which, Steel can scrap 460,000 tons

(Unit: tons/year) Source: The Japan Ferrous Raw Materials Association

Note: The amount of domestic purchased scrap (for domestic iron makers) is the value added the past correction value to the sum of the factory scrap and the end-of-life scrap

**Technical Terms**

**【Electric furnace】**  
A heating chamber with a discharge heat to melt scrap iron

**【Blast furnace】**  
A furnace used to produce pig iron from iron ore, coal and limestone

**【Converter】**  
A furnace used to produce steel from melting pig iron and blowing oxygen into it. It is able to rotate 360 degree.

**【Steel】**  
An iron contains less than 2% of carbon

**【Pig iron】**  
An iron contains more than 2% of carbon

**【Industrial scrap】**  
Scrap generated in rolling process, and consumed inside of factories

**【Purchased scrap】**  
Scrap transacted in the scrap market

**【Factory scrap】**  
Scrap generated in processes using steel as a material (e.g. cars, machines and shipbuilding)

**【End-of-life scrap】**  
Scrap from dismantled buildings, disused cars, disused domestic electric equipments, and steel can scrap.

### Information on Steel Works in Japan

The questionnaire results for annual report on steel can recycling 2016 show many of municipalities made a request about for information on recycling facilities that have tour inside.

The Japan Iron and Steel Federation provides excursion across the country. If you want to access, detail is given below.

#### Information on Steel Works in Japan

Web Site Information <http://www.jisf.or.jp/kids/iku/map.html>



## II Present Conditions for Steel Can Scraps

### 3. Trends in Price of Domestic Steel Can Scraps

#### Factors Determining the Price of Iron Scrap

- ① The quality of scraps
- ② Changes in the supply-demand balance in each region
- ③ Comparative values internationally (e.g., overseas market conditions resulting from the international availability of commodities, etc.)
- ④ Costs of scrap collection from the market, scrap collection by scrap processors, and scrap-processing.
- ⑤ Costs of material price variance (iron ore and others), and an iron dissolution by blast furnace makers.

#### Relation between the Price of Steel Scrap and the Price of H2 (Heavy and Other General Scrap)

The price of steel can scrap moves almost in parallel with that of H2 (see the next page). The difference in price between the scrap steel cans (C press) and H2 is anywhere from 2,000 yen to 9,000 yen depending on supply and demand, overseas market trends, and its region. C press with good quality could sell at higher price than H2.

#### The Sale Price of Pressed Steel from Cans vs. the Base Price of Steel Can Scrap in Municipalities

The pressed steel from cans separated and processed in municipalities is delivered to steel makers via scrap processors, hauling/storage companies, and others. Thus, the sale price for the steel press in the municipalities is equivalent to the scrap purchase price by the steel manufacturers minus the amount spent on delivery via the intermediate routes.

#### Trend in Price of Iron Scrap (2016~2017)

##### Demand for iron scrap is strong due to worldwide increase in crude steel production and the market is also on the rise (2016~2017)

World crude steel production continues to expand. According to the World Steel Association survey, the crude steel production in 67 countries in the first cumulative period of this year was 4.6% higher than the same period of the previous year, which was about 980 million tons. The annualized conversion is about 1.68 billion tons, which is forecast to be the highest crude steel output ever. As the world economy shows a moderate recovery trend, demand for steel is also growing, and developed and emerging countries are in the process of increasing steel production. As a result, demand for iron scrap was solid, and the market has been on the rise. In August, the purchase price of H2 (special grade) steelmakers in Japan has recovered to 30,000 yen per ton for the first time since October 2014. Iron ore and coking coal, which are the same raw materials for steel, are also on the rise. Particularly in Asia, in addition to China, the world's largest producer, Southeast Asia and South Asian countries are continuing to build new steel production facilities in anticipation of future economic growth and increasing demand for iron and steel, including iron scrap demand for raw materials, is expected to show a steady trend.

#### Price Trend of Pressed Steel from Cans (2016~2017)

##### Steel can press price is also on the rise, hitting a 3-year high (2016~2017)

As the iron scrap price continues to increase, the steel can scrap price has also risen sharply. The average price of the steel can press in the Kanto area (purchase price of the electric furnace maker) in August is expected to exceed 25,000 yen per ton. Like H2 (special grade), this is a 3-year high. It has increased about 80% from August last year and 20% from January this year. In addition, the electric furnace makers that use steel can scraps as a raw material see steel can scraps as high in quality with stable quality and clear ingredients. It is increasing its presence as a stable source of raw material. Among the domestic electric furnace makers, some are setting a price that exceeds the H2 (special grade), the representative product of iron scrap. For this reason, high-quality steel can press continues to trade at high prices.

(¥/t)

	Average in 2007	Average in 2008	Average in 2009	Average in 2010	Average in 2011	Average in 2012	Average in 2013	Average in 2014	Average in 2015	Average in 2016	Average in 2017 (Jan-Aug)
Kanto region	27,800	36,000	15,100	23,700	25,900	19,400	26,200	25,600	16,200	14,500	21,500
Osaka region	32,700	41,100	18,600	27,700	31,100	23,400	29,000	27,300	16,700	15,100	21,300
Representative factory in West Japan	35,400	42,900	20,400	29,900	32,100	25,100	31,600	30,200	19,100	18,100	24,600

#### For more information about the price trend of pressed steel from cans

Nikkan Shikyo Tsushinsha Co., Ltd. publishes "MRM (Metal Recycle Monthly)" that carries international and domestic scrap market trends, topics, hot issues, and explanation of recycling laws. TEL: +81-3-3864-6021

# Trend of Iron Scrap Price ~Iron scrap price at 3-year high, what is the cause? ~

Prices of iron scrap continued to rise, and the prices are at a 3-year high as of late August. H2, the representative variety, is around 30,000 yen per ton (Kanto district), and steel can press is around 25,000 yen per ton (Kanto district). The trends are not isolated to Japan. The biggest factor is the increase in demands for raw materials due to the increase in crude steel production worldwide. Production is growing not only in emerging countries importing iron scrap as a raw material but also in developed countries that supply iron scrap. Crude steel is being produced at the highest pace ever worldwide this year. This has led to a rise in prices of raw materials for steel including iron scrap.

## ■ Increased iron and steel production in both developed and developing countries, increase demand for iron scrap

- ① Increase in steel demand due to economic recovery in Europe, the US and Japan.
- ② Anticipation for China's economic stimulus, production increase due to elimination of low quality steel materials.
- ③ Expansion of steel manufacturing facilities in South East and South Asia.
- ④ Problems of "over production" of steel, and "protectionism"

## 1 Recovery of Crude Steel Production in Developed Countries

In developed countries, such as Europe, the US and Japan, the economy is gradually recovering, and both the demand and production of steel are growing. Crude steel production in the EU from January to July this year increased by 3.9% from the same period of the previous year, and a 2.1% increase in the US. Japan fell by 0.2% due to problems with blast furnace makers, but electric furnace steel production, which mainly uses iron scrap, showed a high growth rate of 8.7%. This increase in demand became a factor in the rise of the iron scrap price. Furthermore, these developed countries are a source of iron scrap to the world. If exports decline as a result of recovery in domestic demand, it will tighten global supply and demand, which will further raise prices.

## 2 China, Highest Production Level Ever

China, the world's largest steel producing country, has continued to produce at an all-time high level. Monthly production of crude steel surpassed the all-time high mark in March, April, June, and July this year. Strong expectations for domestic demand increased due to the economic measures of the government, and the prices of steel and iron scrap has been rising. Demand for iron scrap decreased due to the elimination of steel equipment that produces low-quality steel products outside the standard called "ditaioang" this year, and the market worldwide plummeted temporarily in the April - May period. However, demand of standard steel product grew, and other steel manufacturers increased production, resulting in the recovery of the iron scrap demand and price.

## 3 New Expansion of Steel Production Facilities in Emerging Countries, Indian Production Set to Outpace that of Japan

Construction of iron and steel production facilities in the emerging countries is pushing up the demand for raw materials such as iron scrap. For example, in Asia, crude steel production in India is growing, and it has grown to the third largest in the world after China and Japan at the present time. Pakistan, Bangladesh, Vietnam, and others are also proceeding with the expansion of new production facilities, which has resulted in increased production. Also, Turkey, the world's largest iron scrap importer, is increasing production by double-digit compared to the previous year. These countries have little accumulation of iron, and they are running short of steel scrap. For this reason, import of iron scrap is a necessity, and they are strongly inquiring exporters. These factors also contributed to the increase in iron scrap price. Also, the price of steel ore, coking coal, auxiliary materials and other raw materials for steel are rising. After the sharp fall due to the turmoil caused by the abolition of "ditaioang" in China, iron scrap prices recovered 30 to 40 percent by end of August, reaching a 3-year high. Iron ore and coking coal also recovered 50 to 60% from the lows in mid-June.

## 4 Problems Such as "Excessive Production" and "Protectionism" Remain, Sense of Caution in the Overheating Market

However, the worlds' steel industry still has problems of "excessive production equipment" and "excessive production". Surplus of steel materials lead to an increase in exports, and is causing "trade friction" in various parts of the world. Movements such as anti-dumping complaints and issuance of safeguards are taking place to protect the domestic steel industry. On the other hand, emerging and developing countries are trying to grow the domestic steel industry and are proceeding with new expansion of production facilities. The speculations of each country are intertwined. In the multilateral framework "Global Forum" to discuss such issues, concrete measures are being considered and the results are expected. In China where increased production continues, it is said that steel markets and raw material markets are "overheating" and measures to curb overheating of steel and coking coal futures markets are being taken. Both strong and weak factors including the issues discussed above are progressing concurrently, thus iron scrap prices may swing wildly.

