



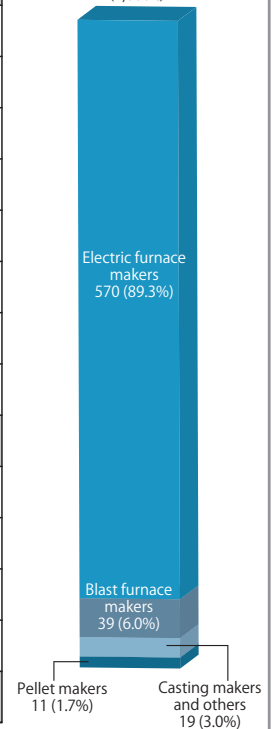
## II Present Conditions for Steel Can Scraps

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

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

	FY2012 (A)				FY2011 (B)				(A-B)
	Press	Shredder	Total	%	Press	Shredder	Total	%	
Hokkaido	25	2	27	4.2	25	6	31	4.7	-4
Tohoku	44	1	46	7.2	33	1	34	5.2	12
Kanto	164	27	192	30.0	171	32	203	31.3	-11
Hokuriku	7	11	17	2.7	8	12	20	3.1	-3
Tokai	65	24	89	13.9	65	27	92	14.2	-3
Kinki	155	19	174	27.2	127	19	146	22.6	28
Chugoku/Shikoku	38	4	42	6.6	58	7	65	10.0	-23
Kyushu/Okinawa	41	11	53	8.2	42	16	58	8.9	-5
<b>Total</b>	<b>539</b>	<b>100</b>	<b>639</b>	<b>100.0</b>	<b>529</b>	<b>120</b>	<b>649</b>	<b>100.0</b>	<b>-10</b>
Electric furnace makers	484	86	570	89.3	494	105	599	92.4	-29
Blast furnace makers	38	0	39	6.0	18	0	18	2.7	21
Casting makers and others	8	12	19	3.0	7	12	19	2.9	0
Pellet makers	8	3	11	1.7	10	3	13	2.0	-2
<b>Total</b>	<b>539</b>	<b>100</b>	<b>639</b>	<b>100.0</b>	<b>529</b>	<b>120</b>	<b>649</b>	<b>100.0</b>	<b>-10</b>

The amount of steel can scrap purchased according to the type of business (1,000 t)



#### COLUMN

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### Clarification of Current Steel Can Scrap Situation

#### –The Summary of Questionnaire to the Scrap Processors –

We carried out hearing in regards to the quality of steel can scraps to recycling companies and steel makers which are dealing with steel can scraps to review the steel can recycling data.

As a result, clarification of current steel cans scrap situation has been improved, however, it depends on the regions or municipalities. And still the recycling companies and steel makers have remained in struggle.

#### Major opinion from the related parties

- The quality of the steel can scraps has improved as the separate collection has moved ahead. However, it differs so much among the municipalities.
- In general, the steel can scraps collected from businesses are with more extraneous materials and lesser quality than those collected from household.
- When many extraneous materials are admixed, the steel can scraps cannot be recycled without shredding and magnetic separation processing.
- We refuse to purchase (pick up) when the quality is too low.

Our research shows that the quality of steel can scraps are depending on where collected from. For instance, high quality of steel cans is collected from retail store and train station; on the other hand, vending machine, convenience-store, and motorway service station are considered as a low quality. Therefore, it is very important for consumer to dispose correctly in everywhere.

## Uniform Standards of Ferrous Scraps

"Uniform Standards" are the criteria used for a distribution of iron scraps, and set up according to types and grades etc. The standard listed below is used 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	Length of one dimension ≤ 1200		≤ 1000	Machinery parts, Clean Auto Blocks etc.
	B	Length of one dimension ≤ 1200		≤ 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		



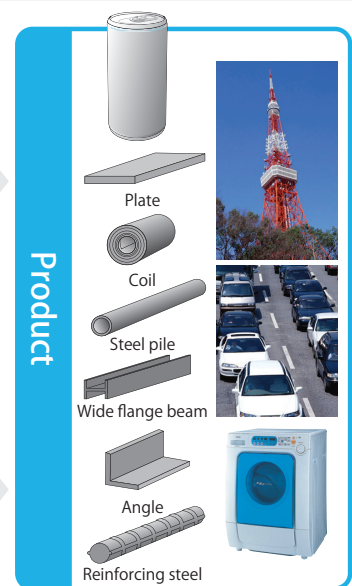
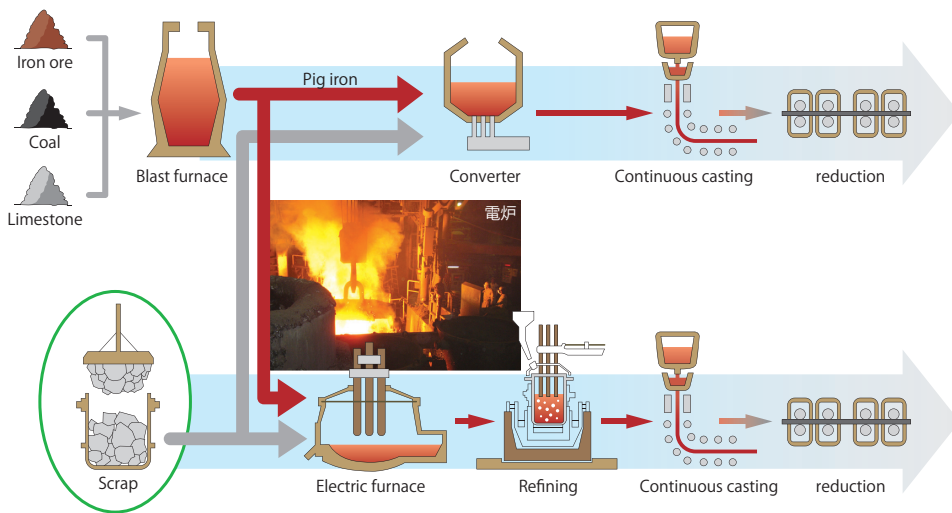
## II Present Conditions for Steel Can Scraps

### 2. How is Scrap Iron Recycled?

- The annual production of iron in Japan is approximately 107,300,000 tons in FY2012. Blast furnace and electric furnace methods are available to manufacture iron and steel. In Japan, 77.2% of Iron and steel is manufactured by blast furnaces and 22.8% 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 27,120,000 tons (decreasing 2,540,000t from the previous year). And 9,080,000 tons were exported in FY2012 (increasing 3,120,000t 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.	50makers with 71plants
<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.	4makers with 18plants

#### A Production Process of Steel and Scrap Recycle



#### Domestic Iron Scrap Supply and Demand (FY 2012)

Export 9,080,000 tons

Industrial scrap by the steel makers  
13,350,000 tons

Domestic purchased scrap  
27,120,000 tons

Factory scrap  
6,280,000 tons

End-of-life scrap  
20,840,000 tons

of which, Steel can scrap  
640,000 tons

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

(Unit: 1,000 tons/year) Source: The Japan Ferrous Raw Materials Association

#### 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.



## 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 average price difference between pressed steel from cans (C press) and H2 ranges from ¥2,000 to ¥9,000, depending on the time and 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 (2012~2013)

##### Sluggish world economy reduces crude steel production growth rate, affecting price of iron scrap

A continuous demand occurring from foreign counties, the price of iron scrap is restored to about ¥30,000/ton. The estimated growth rate of crude steel produced by total domestic electric furnace makers in 2012 was 0.3% compared to last year, which means they produced 25million tons. In accordance with crude steel production reduced by 4.9% in January-July this year, the demand of domestic scrap has tendency of decreasing. But to Korea, China and south-east Asia, Japan is still an important resource supplying country, a volume of export to these countries was 8.6million tons surging 57.9% from previous year. And the volume in January-July also grew 11.5% account for 5.4million tons above the previous year's record. Despite the drop in domestic demand for crude steel, there is still solid demand from the Asian sector upholding a price in crude steel market. A price of H2 purchased by domestic steel makers was about ¥26,900/ton this year. Average price of January-August this year marking ¥31,700, for firm demand from the Asia and a policy of "correction of yen appreciation", has recovered the ¥30,000 price range.

#### Price Trend of Pressed Steel from Cans (2012~2013)

##### Under the influence of "correction of yen appreciation", the price of steel scrap • C pressed steel was on the rise.

The effect of Government economic policy called "Abenomics" made the yen depreciated rapidly. It not only leads export prices (denominated in yen) rise, but also bring the price of domestic steel scrap on upswing. For this reason, after having bottomed out in October, the price of C press including steel scrap continuously had climbed until March this year. Although a price of C press in Kanto area October last year was ¥14,000/ton, it was increased to ¥26,000/ton March this year. After that, as a result of the cutback in export market, the price continuously declined to ¥23,700. But when entering the summer, depending on shortages of supply worsen, the price soared to ¥25,900. And during this year, the pricing upward trend on c press was observed, recognizing improvement of quality as a reason of the inflation on the steel market, some part of major steel manufacturing companies tried to cope with this situation by narrowing the price gap between H2 and C press grade.

(Unit: 1,000tons/¥)

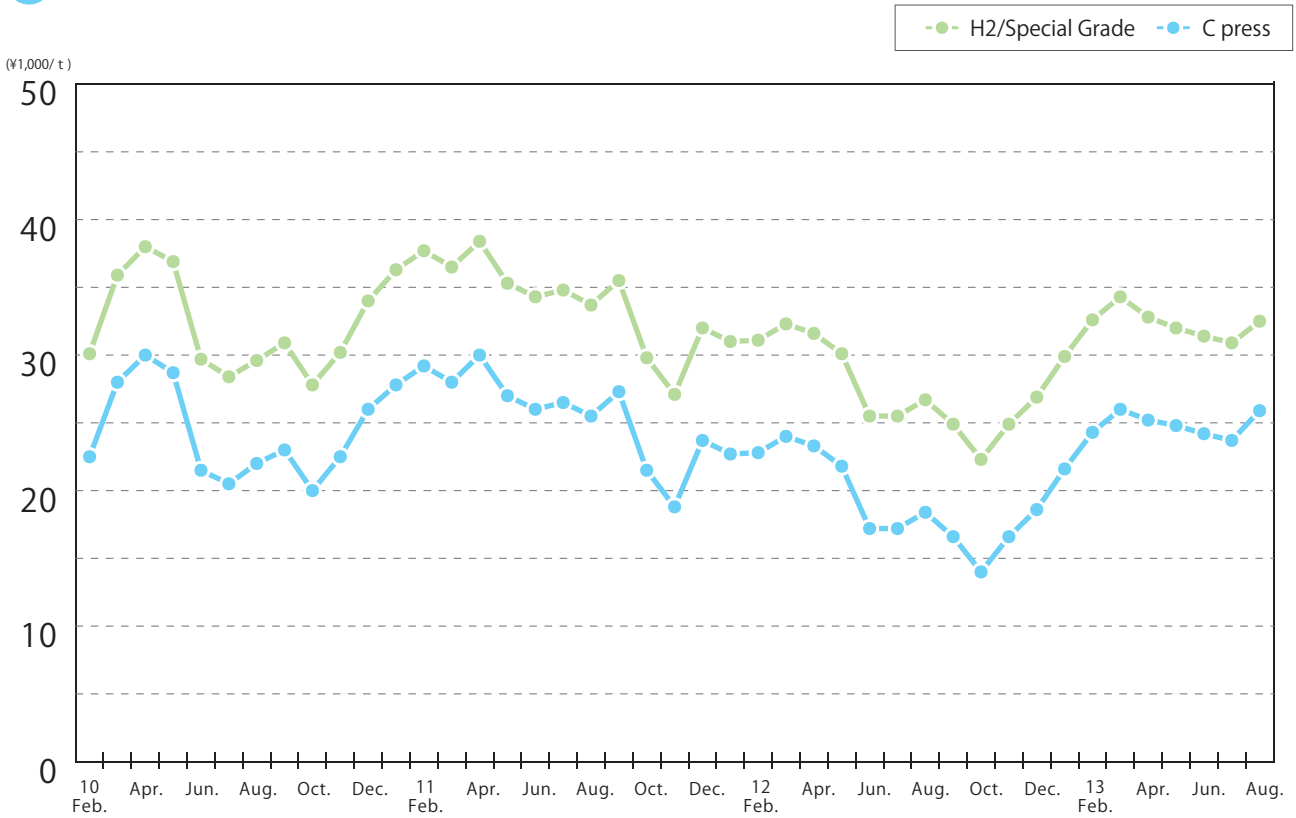
	Average in 2011	Average in 2012	Differences in price
Kanto region	¥19,400/t	¥25,900/t	¥-6,500 (-25%)
Osaka region	¥21,600/t	¥27,400/t	¥-5,800 (-21%)
Representative factory in West Japan	¥25,100/t	¥32,100/t	¥-7,000 (-22%)

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

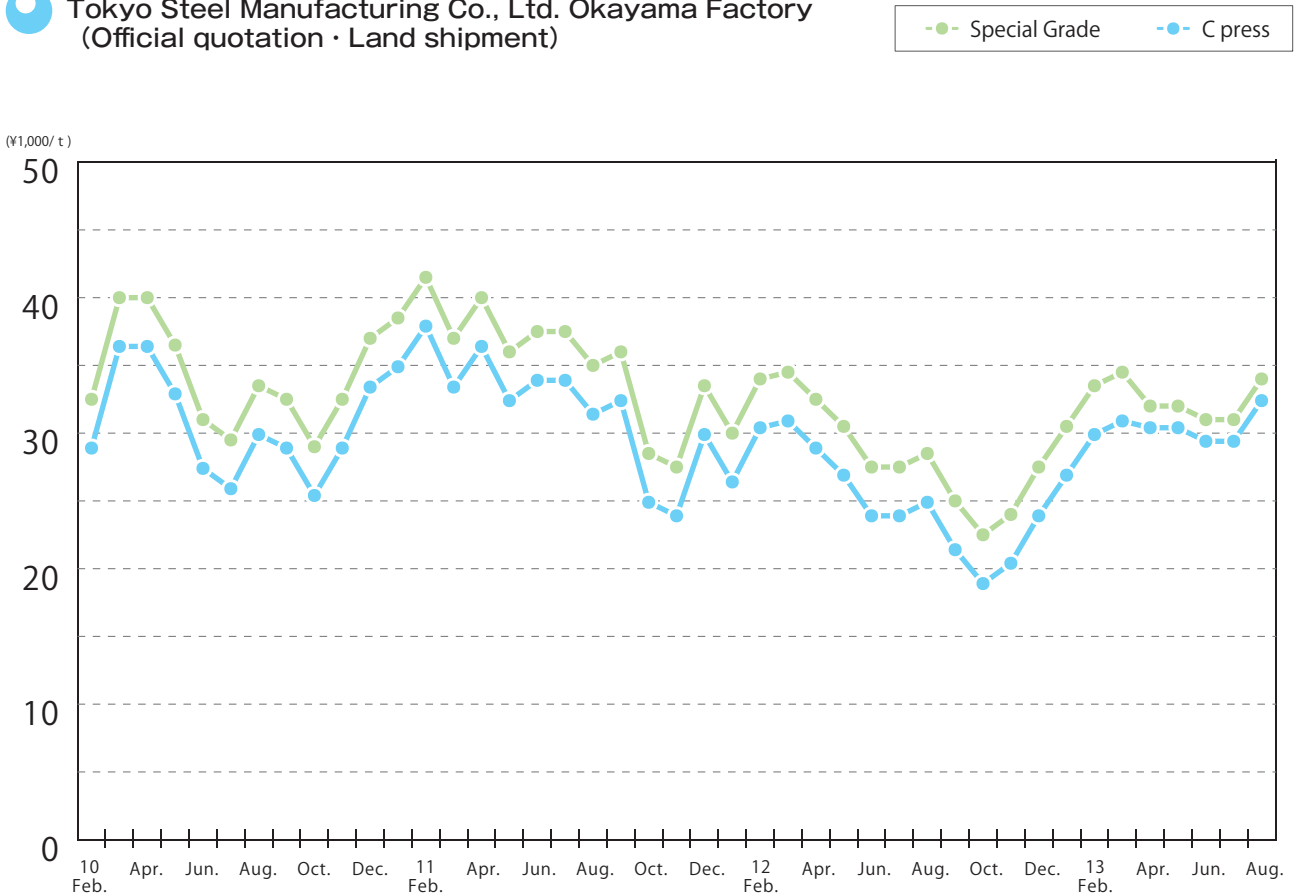
Nikkan Shikyo Tsushinsha Co., Ltd publishes "MRM (Metal Recycle Monthly)" that carries international and domestic scrap market trends, topics, hot issues, and explanation of recycling laws. TEL: +81-3-3864-6021

# Trend in Price of H2/Special Grade and C Press (February 2010~August 2013)

## The Average Price in the Kanto Region (Market price)



## Tokyo Steel Manufacturing Co., Ltd. Okayama Factory (Official quotation · Land shipment)



Note. The data can be viewed on the web page of Tokyo Steel Manufacturing Co., Ltd. (<http://www.tokyosteel.co.jp/>)